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PHASE II REMEDIAL INVESTIGATION REPORT SITE 12 SOUTH LANDFILL VOLUMES I AND II NASJRB WILLOW GROVE PA

2/1/2014

TETRA TECH

Phase II
Remedial Investigation Report
for
Site 12 - South Landfill

Naval Air Station
Joint Reserve Base (NAS JRB)
Willow Grove, Pennsylvania

Naval Facilities Engineering Command
Mid-Atlantic

Contract Number N62470-08-D-1001
Contract Task Order WE05

February 2014

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PHASE II
REMEDIAL INVESTIGATION REPORT
for
SITE 12 - SOUTH LANDFILL

NAVAL AIR STATION JOINT RESERVE BASE (NAS JRB)
WILLOW GROVE, PENNSYLVANIA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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ACRONYMS

µg	Micrograms
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
%R	Percent recovery
ADAF	Age dependent adjustment factor
AL	Action Level
ARS	Air Reserve Station
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
AUF	area use fac tor (portion of food intake from Site 12)
BAF	Biota accumulation factor
BCA	Bias-corrected accelerated
BSAF	Biota sediment accumulation factor
BCF	bioconcentration factor
BEHP	Bis(2-ethylhexyl)phthalate
BHC	Benzenehexachloride
bgs	Below ground surface
BHC	Benzenehexachloride
BRAC	Base Realignment and Closure
BTAG	Biological Technical Assistance Group
BTVs	background threshold values
BW	body weight of receptors kilogram
CCME	Canadian Council of Ministers of the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CLP	Contract laboratory program
CLM	central limit theorem
cm^2	Centimeters squared
CNS	Central nervous system
COCs	Contaminants of concern
COPC	Chemical of potential concern
CRDL	Contract required detection limit
CRQL	Contract-required quantitation limit
CSM	Conceptual Site Model
CTE	Central tendency exposure

ACRONYMS (Continued)

DAF	Dilution attenuation factor
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DNAPL	dense, non-aqueous phase liquids
DoD	Department of Defense
DQOs	Data quality objectives
Eco-SSL	Ecological soil screening level
EFANE	Engineering Field Activity Northeast
EM	Electromagnetic
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
EPIC	Environmental Photographic Interpretation Center
ERA	Ecological Risk Assessment
ESV	Ecological screening value
FFA	Federal Facilities Agreement
FOL	Field operations leader
FS	Feasibility Study
g/m^2	Gram per meter squared
gpm	Gallons per minute
GI	Gastrointestinal
HEAST	Health Effects Summary Tables
HHRA	Human health risk assessment
HI	Hazard Index
HQ	Hazard quotient
ICR	Incremental cancer risk
IEUBK	Integrated Exposure and Uptake Biokinetic
IRIS	Integrated Risk Information System
IRP	Installation Restoration Program
IURs	Inhalation unit risks
J	estimated
JII	Joint Interagency Installation
K	biased high
Kd	distribution coefficient
Kg	Kilogram

ACRONYMS (Continued)

Koc	Organic carbon partition coefficient
Kow	octanol/water partition coefficient
L	Liter
L/day	Liters per day
L/min	Liters per minute
LOAEL	Lowest-observed-adverse-effect-level
m	Meter
m^2	Meter squared
m^3	Meter cubed
MATC	maximum acceptable toxicant concentration
MCL	Maximum contaminant level
mg	Milligrams
mg/kg	Milligram per kilogram
mm	Millimeter
MSL	mean sea level
m/sec	Meter per second
MS/MSD	matrix spike duplicate
MVUE	Minimum variance unbiased estimators
NAS JRB	Naval Air Station Joint Reserve Base
NAVD	North American Vertical Datum
NCEA	National Center for Environmental Assessment
NFEC	Naval Facilities Engineering Command
NFESC	Naval Facilities Engineering Service Center
ng/kg	Nanogram per kilogram
NOAA	National Oceanic and Atmospheric Administration
NOEL	No-Observed-Effect-Level
NOAEL	No-Observed-Adverse-Effect-Level
NOM	naturally occurring organic matter
NTU	nephelometric turbity
ORNL	Oak Ridge National Laboratory
ORP	oxidation reduction potential
OSWER	Office of Solid Waste and Emergency Response
PA	Preliminary assessment
PADEP	Pennsylvania Department of Environmental Protection
PAH	Polycyclic aromatic hydrocarbon

ACRONYMS (Continued)

PARCC	Precision, accuracy, representatives, comparability, and completeness
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzo-p-dioxin
PCDF	Polychlorinated dibenzofuran
PCB	polychlorinated biphenyls
PEC	Probable effects concentration
PEF	Particulate emission factor
Pg/L	Picogram per liter
PID	Photoionization detector
PPE	Personal protective equipment
PPRTVs	Provisional Peer Reviewed Toxicity Values
PSL	Project Screening Level
PVC	Polyvinyl chloride
QA	Quality assurance
QC	Quality control
RAGS	Risk Assessment Guidance for Superfund
RBC	Risk-Based Concentrations
RCRA	Resource Conservation and Recovery Act
RfCs	Reference concentrations
RfDs	Reference doses
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RMC	Resource Management Concepts, Incorporated
RME	Reasonable maximum exposure
ROS	Regression on Order Statistics
RPDs	Relative percent differences
RPF	Relative potency factor
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SFs	Slope factors
SI	Site inspection
SIM	Selective Ion Monitoring
SMCLs	Secondary Maximum Contaminant Levels
SMDPs	Specific/Management Decision Points

ACRONYMS (Continued)

SOP	Standard operating procedure
SQG	Soil Quality Guideline
SSA	Site Screening Area
SSL	Soil screening level
SVOC	Semivolatile organic compound
TAL	Target Analyte List
TCDD	Tetrachlorodibenzo-p-dioxin
TCE	Trichloroethene
TCL	Target Compound List
TE	Toxicity equivalent
TEC	Threshold effects concentration
TEF	Toxicity equivalent factor
TEQ	Toxicity equivalents
TOC	Total organic carbon
TRV	Toxicity reference value
TRW	Technical Review Workgroup
UCL	upper confidence limit
UPL	upper prediction limit
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UTL	Upper tolerance limit
VF	Volatilization factor
VOC	Volatile organic compound

EXECUTIVE SUMMARY

Tetra Tech, Inc. (Tetra Tech) has prepared this Remedial Investigation (RI) Summary Report for the Naval Air Station Joint Reserve Base (NAS JRB) Willow Grove in response to Contract Task Order No. WE05 under Contract N62470-08-D-1001, Comprehensive Long-Term Environmental Action Navy (CLEAN). This work is part of the Navy's Installation Restoration Program (IRP), which is designed to identify and characterize contamination of Navy and Marine Corps facilities resulting from past operations and to institute corrective measures as appropriate.

The following summary provides conclusions and recommendations resulting from the Navy's investigation of conditions at the NAS JRB Willow Grove Site 12 (South Landfill) environmental study site.

SITE LOCATION AND DESCRIPTION

The former NAS JRB Willow Grove, Pennsylvania, hereafter referred to as NAS JRB Willow Grove, is located in Horsham Township, Montgomery County in southeastern Pennsylvania, approximately 20 miles north of Philadelphia. NAS JRB Willow Grove occupied approximately 900 acres of the 1,100 acres that the Department of Defense (DoD) maintained at the Air Station, hereafter referred to as the Base. The Willow Grove Air Reserve Station (ARS) occupies approximately 200 acres of land in the northeastern section of the Base.

The primary mission of NAS JRB Willow Grove was to provide support for operations involving aviation training activities and to train Navy reservists. NAS JRB Willow Grove supported DoD tenants such as the Marine Reserve, Pennsylvania National Guard and the Army Reserve and shared facilities/services with the Air Force Reserve. NAS JRB Willow Grove provided facilities, services, materials, and training in direct support of all assigned units.

In 2005, NAS JRB Willow Grove, Pennsylvania was designated for closure under the authority of the Department of Defense Base Realignment and Closure Act (BRAC) of 1990, Public Law 101-510 as amended.

SITE 12 - SOUTH LANDFILL

Site 12 occupies approximately 11 acres of an undeveloped area southwest of Runway 10/28 in the southern portion of the Base, immediately northeast of Site 2 – Antenna Field Landfill. Investigations completed at the site have identified approximately nine distinct waste/debris burial trenches comprising a 1.5 acre subset of the total area. A drainage ditch separates Site 12 from Site 2. Site 12 consists of what is

believed to be the historical landfill that was previously investigated as Site 2, since the Site 2 investigations failed to find significant buried waste.

Between 1948 and 1960, the landfill was the principal disposal area for the solid waste generated by the facility. Landfill activities consisted of trench excavation with subsequent burning and burial of waste material disposed within the trenches. Wastes reportedly disposed in the landfill included general refuse, paint wastes, sewage and industrial pretreatment plant sludges, trichloroethene (TCE), and carbon tetrachloride.

The ground surface at Site 12 generally slopes southward. The entire site is covered by vegetation, including grass, brush, and trees. The drainage ditch that forms the southwestern border of the site empties into an unnamed creek that flows through the southeastern portion of the site. A storm sewer outfall empties into the unnamed creek approximately 100 feet upstream of the confluence with the drainage ditch. The unnamed creek flows off-Base and enters Pennypack Creek approximately 3,000 feet from the Base boundary. A gravel road runs through the northeastern part of the site. This road provides access to a fenced former magazine area in the eastern part of the site and to the former Marine Compound, located immediately west of the site.

SITE INVESTIGATION HISTORY

Sampling investigations conducted prior to the RI showed volatile organic compounds (VOCs), pesticides, and metals at concentrations above EPA Region 3 Risk Based Concentrations (RBCs) for residential soil. During the investigations, construction debris, bottles, china, and aircraft parts were observed in the study area. Hummocky, uneven ground was also observed, which was potentially indicative of buried waste materials. Based on the observations made during these investigations, the Navy directed Tetra Tech to perform an electromagnetic (EM) geophysical survey of Site 12 to locate potential buried waste materials and to delineate the lateral extent of these materials. The EM survey was conducted in April 2008. Various anomalies were detected and mapped during the survey, which confirmed the presence of buried waste at the site.

The Site 12 Phase I RI field work was completed in January 2010 and included test pit excavations and the collection of surface and subsurface soil samples, surface water samples, and sediment samples. The surface and subsurface soil samples were biased towards areas that contained buried waste, based on the results of the EM survey. Tetra Tech submitted the Draft Phase I Remedial Investigation Data Report to the Project Team members in June 2010. Contaminants exceeding Project Screening Levels (PSLs) consisted of SVOCs, pesticides, and metals in surface soil; SVOCs, pesticides, dioxins, and metals in subsurface soil; SVOCs, pesticides, and metals in surface water; and VOCs, SVOCs, pesticides, and metals in sediment. Test pit sample analyses and visual observations confirmed the presence of buried waste and associated

soil contamination at the locations of EM anomalies. The test pit excavations confirmed that the suspected disposal areas identified by EM survey were in fact well-defined pits containing waste and debris.

Based on the investigations completed and the Conceptual Site Model (CSM) presented in the Phase I RI Sampling and Analysis Plan (SAP), the Navy, in conjunction with EPA, decided that additional surface and subsurface soil samples and monitoring well groundwater samples were needed to further delineate the nature and extent of target analytes that exceeded risk-based benchmarks in the Phase I investigation and to conduct a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA). Subsequent planning discussions for additional work led to the Phase II RI activities that are the subject of this report. The Phase II activities, described in detail in Section 2.0 of this RI, included surface and subsurface soil sampling, test pit excavations, and installation and sampling of monitoring wells within Site 12.

DISCUSSION OF RESULTS AT SITE 12 - SOUTH LANDFILL

Test pit excavations revealed that buried waste at the site was confined to discrete pits and trenches, as indicated by the results of the EM survey. The test pits encountered various types of waste, including scrap metal (metal pipe, wire cable, crushed empty drums), military waste (perforated steel planking, an aluminum airplane fuselage), household trash (cans, bottles, china), construction debris (wood, brick, pieces of asphalt pavement, reinforced concrete, concrete pipe, electrical conduit), and shop waste (mechanics dolly, engine parts). The debris in most of the excavations showed evidence of having been burned, such as charring or partial melting.

Sample results indicate that the principal classes of contaminants in surface soils are PAHs and metals, and in subsurface soils, PAHs, dioxins, and metals. PAHs were detected above screening levels in the majority of the surface and subsurface soil samples collected. In general, the highest concentrations were detected in samples collected within areas of buried waste. Site-related metals contamination consists mainly of lead and thallium; although as discussed in Sections 4.0 and 6.0, the attribution of thallium to the site is questionable. Dioxins/furans were detected above screening levels in all five of the subsurface soil samples analyzed for these compounds. These samples were collected from charred waste encountered in test pits 12TP02, 12TP03, 12TP06, 12TP08, and 12TP09. There were no VOCs detected above screening levels in site soils.

Surface water and sediment show PAH, pesticide, and metals contamination. PAHs exceeded screening levels in three surface water samples and all but two of the sediment samples. The highest surface water PAH concentrations were detected in the drainage ditch that forms the southern boundary of the site. The highest PAH concentrations in sediment were detected at the storm water outfall and in the

intermittent stream downstream from the storm water outfall. It is unclear whether these elevated PAH sediment concentrations are the result of the landfill wastes or migration from a source upstream from the landfill via the storm water outfall. There was no pattern to the distribution of metals or pesticide exceedances in surface water or sediment.

Two monitoring wells contain the VOCs TCE, carbon tetrachloride, and chloroform at concentrations exceeding screening levels. The locations of these wells indicate that the landfill is the likely source of the contamination, although soil sample results do not show the precise location of the source within the landfill. Most of the monitoring wells contained metals at concentrations exceeding screening levels. The groundwater metals contamination consisted mainly of arsenic, manganese, and chromium.

HUMAN HEALTH RISK ASSESSMENT (HHRA)

The HHRA for Site 12 was performed to evaluate risks posed to current or future human receptors from exposure to groundwater, surface soil, total (surface and subsurface) soil, surface water, and sediment. The following receptors were evaluated: current/future child recreational person, current/future adult recreational person, current/future lifetime recreational person, future residential child, future residential adult, future lifetime resident, future construction worker, and current/future industrial worker. Potential exposure routes include ingestion, dermal contact, and inhalation.

The estimated RME cancer risk for the most restrictive land use scenario, future lifetime resident, exceeded the upper limit of EPA's target risk range of 10^{-4} to 10^{-6} for surface soil (2.5×10^{-4}), total soil (4.0×10^{-4}), and groundwater (7.13×10^{-4}). For the lifetime recreational scenario, the estimated cancer risk was within the acceptable risk range for surface soil (7.5×10^{-5}), slightly exceeded the upper limit of the target risk range for total soil (1.2×10^{-4}), exceeded the upper limit of the acceptable risk range for surface water (6.0×10^{-3}), and was within the acceptable risk range for sediment (4.8×10^{-5}). The primary contributors to cancer risk for surface soil were arsenic, chromium, and PAHs; for total soil were arsenic, chromium, PAHs, PCBs, and dioxin; and for surface water were chromium, dieldrin, and PAHs. The primary contributors to cancer risk for groundwater were dioxin, arsenic, and chromium.

Target-organ specific non-cancer HIs developed for the most restrictive future land use scenario (future child resident) exceeded 1 for groundwater, surface soil, and total soil. The maximum target organ HI for groundwater was 7.4, with dioxin, manganese, and aluminum as the primary risk drivers. The maximum target organ HI for the child resident surface soil and total soil exposure pathways were 2.7 (primary risk driver thallium) and 16 (primary risk driver dioxin), respectively.

Spatial distribution of COCs was also evaluated in the HHRA. Results indicated significantly higher levels of contamination in buried waste areas than in soils located outside the identified disposal areas. Background test outcomes for carcinogenic polyaromatic hydrocarbon compounds indicated that waste area concentrations exceeded background by more than two standard deviations, whereas non-waste area concentrations did not exceed background by two standard deviations. However, this finding is reflective of a comparison of median concentrations across the site, and does not preclude the existence of potential hot spots observed in a few locations outside the waste burial areas.

Conclusion

Based on the human health risk assessment performed for Site 12, action appears warranted to protect potential future human receptors. A Feasibility Study (FS) would identify the actions appropriate to achieve protection of human health.

ECOLOGICAL RISK ASSESSMENT

The ecological endpoints evaluated in the ERA were terrestrial invertebrates, terrestrial plants, aquatic and benthic organisms, birds and mammals that consume terrestrial invertebrates/plants, and birds and mammals that consume aquatic/benthic organisms. Several chemicals that were detected in surface soil, surface water, and sediment at Site 12 were retained as COPCs because their chemical concentrations exceeded screening values, screening values were not available, or the chemicals were bioaccumulative. These chemicals were then evaluated in Step 3A of the ERA (Refinement of Preliminary COPCs) to determine which chemicals have the greatest potential for causing risks to ecological receptors.

The surface soil data indicate that COPCs posing the greatest potential risks to invertebrates and/or plants consist of copper, lead, and PAHs. PAH compounds pose the greatest potential risks to soil invertebrates and plants in Areas A, B, and E, and in the central area of the site. PAHs in soil might pose risks to herbivorous mammals with small home ranges (such as voles) and to insectivorous mammals with small home ranges (such as shrews) in a few localized areas of the site. Copper-related risks to soil invertebrates and plants are limited to the vicinities of six samples in Areas B, C, and E. Potential risks to plants from lead may occur in the southeast and northeast portion of the site along with Area E. Soil concentrations of other metals and SVOCs, and soil concentrations of pesticides and VOCs, tended to be low and pose negligible or minor potential risks to soil invertebrates and plants, or pose risks that are similar to risks posed by background conditions. Food chain modeling indicates that mercury poses potential risk to herbivorous mammals with small home ranges (such as voles) in a few localized areas of the site. Bioaccumulative COPCs in sediment and surface water pose minor risks via the food chain.

Sediment concentrations of metals tended to be low and pose negligible potential risks to benthic organisms, or do not appear to be related to former activities at the landfill. However, cumulative toxicity to benthic receptors from multiple metals is possible in the vicinity of sediment sample 12SD02, where concentrations of several metals were greatest. The sediment data indicate that COPCs posing the greatest potential risks to benthic receptors are PAHs. It is unclear whether the elevated sediment PAH concentrations in these three samples are due to landfill wastes or to migration from an upstream source via the storm water outfall.

Conclusion

Based on the ecological risk assessment performed for Site 12, action appears warranted to protect potential future ecological receptors. A Feasibility Study (FS) would identify the actions appropriate to achieve protection of ecological receptors.

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) submits this remedial investigation (RI) report for Site 12 - South Landfill at the Naval Air Station Joint Reserve Base (NAS JRB) Willow Grove in response to Contract Task Order No. WE05 under Contract N62470-08-D-1001, Comprehensive Long-Term Environmental Action Navy (CLEAN). This work is part of the Navy's Installation Restoration Program (IRP), which is designed to identify and characterize contamination of Navy and Marine Corps facilities resulting from past operations and to institute corrective measures as appropriate.

IRP activities are typically performed in four distinct steps. The first step consists of a preliminary assessment (PA), and the second step consists of a site inspection (SI). The third step is a remedial investigation/feasibility study (RI/FS) to characterize the physical and chemical parameters and risks associated with the facility and to evaluate remedial approaches. The fourth step consists of remedial action to control and mitigate contamination. This report was prepared under Step 3 IRP activities RI/FS.

Site 12 was first recognized as a separate site in 2008. Portions of Site 12 were investigated in 1997 as part of the RI for Site 2 – Antenna Field Landfill, which is adjacent to Site 12 to the southwest. The first phase of Step 3 RI field investigation activities at Site 12 was performed in 2010, and the Phase I RI Data Report was issued in June 2010. The Phase II RI field activities were conducted from December 2011 to March 2012.

In addition to meeting the objectives of the Navy's IRP, the purpose of the RI is to meet the requirements of Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) of 1980), as amended by Superfund Amendments and Reauthorization Act (SARA)of 1986. The RI probes the nature and extent of contamination associated with all hazardous substance releases at the facility that are not regulated and are not being investigated under the authority of the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act (RCRA), or other federal statutes. A Federal Facilities Agreement (FFA) for NAS JRB Willow Grove was finalized June 27, 2005, between the Navy, the United States Environmental Protection Agency (EPA), and the Pennsylvania Department of Environmental Protection (PADEP). The FFA ensures that environmental impacts associated with the site are fully investigated and proper response actions are taken.

In 2005, NAS JRB Willow Grove, Pennsylvania was designated for closure under the authority of the Department of Defense Base Realignment and Closure Act (BRAC) of 1990, Public Law 101-510 as amended. BRAC legislation requires that the base closure be in full compliance with CERCLA. Section 2 (Definitions) of the FFA identifies Navy Engineering Field Activity Northeast (EFANE) as the primary Navy local contact entity. Since the EFANE office was designated for closure under the 2005 round of BRAC,

EFANE has been replaced by the BRAC Program Management Office Northeast, located at the former Philadelphia Navy Shipyard, as the primary local Navy contact office.

In May 2007, Special Legislation was enacted that stated, "The Secretary of the Navy shall, notwithstanding any other provision of law, transfer to the Secretary of the Air Force, at no cost, all lands, easements, Air Installation Compatible Use Zones, and facilities at NAS JRB Willow Grove designated for operation as a Joint Interagency Installation (JII) for use by the Pennsylvania National Guard and other Department of Defense components, government agencies, and associated users to perform national defense, homeland security, and emergency preparedness missions."

In September 2009, the Navy transferred 18.25 acres to the Air Force as part of the BRAC 2005 requirement to construct a consolidated Armed Forces Reserve Center. The transfer obligates the Air Force to comply with all provisions of the three party FFA between the Navy, EPA, and PADEP dated June 27, 2005 and all associated CERCLA actions and requirements related to the FFA for this property.

In November 2009, the governor of Pennsylvania announced that the Commonwealth of Pennsylvania had withdrawn its plan to own, operate, and maintain the Horsham JII proposed for NAS JRB Willow Grove. As a result, the Under Secretary of Defense advised all parties that the Navy would then dispose of NAS JRB Willow Grove in accordance with the laws and regulations governing the disposal of property made available as a result of the closure or realignment of a military installation under BRAC, as amended.

NAS JRB Willow Grove was officially disestablished on March 30, 2011. The base continued to provide services and facilities, on a limited basis, until September 2011, at which time it was transferred to BRAC PMO and entered caretaker status. The NAS JRB is an inactive facility and environmental investigations and remediation at the base are funded under the BRAC program.

1.1 PURPOSE AND OBJECTIVES

The purpose of this report is to present the methods and results of the Phase II RI conducted at former NAS JRB Willow Grove Site 12. The results of previous investigations are also discussed as appropriate.

The RI objective was to characterize the nature and extent of contaminants at Site 12 and gain additional understanding of the physical parameters affecting contaminant fate and transport. The results presented in this RI report summarize RI activities and provide the necessary data to evaluate human health risk and ecological risk, and move into the feasibility study (FS) and/or remedial action steps of the IRP.

1.2 SITE LOCATION AND DESCRIPTION

The former NAS JRB Willow Grove is located in Horsham Township, Montgomery County in southeastern Pennsylvania, approximately 20 miles north of Philadelphia. The former NAS JRB Willow Grove occupies approximately 900 acres of 1,100 acres the Department of Defense (DoD) maintains at the Air Station, hereafter referred to as the Base. The Willow Grove Air Reserve Station (ARS) occupies approximately 200 acres of land in the northeastern section of the Base and shared common facilities with the NAS JRB. Figure 1-1 shows the location of former NAS JRB Willow Grove and ARS. The Air Station is comprised of flat to slightly rolling terrain and is generally bounded by State Route 611 to the east, State Route 463 to the southwest, and Keith Valley Road to the north.

The primary mission of NAS JRB Willow Grove was to provide support for operations involving aviation training activities and to train Navy reservists. NAS JRB Willow Grove supported DoD tenants such as the Marine Reserve, Pennsylvania National Guard and the Army Reserve and shared facilities/services with the Air Force Reserve. The Base provided facilities, services, materials, and training in direct support of all assigned units.

Sites included within the scope of the IRP include three landfill areas [Antenna Field Landfill (Site 2), Ninth Street Landfill (Site 3), and South Landfill (Site 12)], a waste transfer station [Privet Road Compound Site (Site 1)], and a former fire fighter training area [Fire Training Area (Site 5)]. The relative locations of the sites are shown on Figure 1-2.

Site 12 occupies approximately 11 acres of an undeveloped area southwest of Runway 10/28 in the southern portion of the Base, immediately northeast of Site 2 – Antenna Field Landfill. Investigations completed at the site have identified approximately nine distinct waste/debris burial trenches comprising a 1.5 acre subset of the total area. A drainage ditch separates Site 12 from Site 2. Site 12 consists of what is believed to be the historical landfill that was previously investigated as Site 2, since the Site 2 investigations failed to find significant buried waste.

Between 1948 and 1960, the landfill was the principal disposal area for the solid waste generated by the facility. Landfill activities consisted of trench excavation with subsequent burning and burial of waste material disposed within the trenches. Wastes reportedly disposed in the landfill include general refuse, paint wastes, sewage and industrial pretreatment plant sludges, trichloroethene (TCE), and carbon tetrachloride.

The ground surface at Site 12 generally slopes southward. The entire site is covered by vegetation, including grass, brush, and trees. The drainage ditch that forms the southwestern border of the site empties

into an unnamed creek that flows through the southeastern portion of the site. A storm sewer outfall empties into the unnamed creek approximately 100 feet upstream of the confluence with the drainage ditch. The unnamed creek flows off-Base and enters Pennypack Creek approximately 3,000 feet from the Base boundary. A gravel road runs through the northeastern part of the site. This road provides access to a fenced former magazine area in the eastern part of the site and to the former Marine Compound, located immediately west of the site.

1.3 PREVIOUS INVESTIGATIONS

From March through July 1997, Phase II RI field activities were conducted at four NAS JRB Willow Grove IR sites (Site 1 - Privet Road Compound, Site 2 - Antenna Field Landfill, Site 3 - Ninth Street Landfill and Site 5 - Fire Training Area), in accordance with the Phase II RI Work Plan for those four sites submitted by Tetra Tech in May 1997. The draft Phase II RI Report, discussing results and analysis for all four IR sites, was submitted for review in April 1998, but the report was never finalized (Tetra Tech, 1997). Informal comments from EPA were addressed through a series of investigations or studies conducted from 1998 through 2006.

Subsequent to the completion of the fieldwork for the Phase II RI, EPA requested that the Navy investigate various features that had been identified adjacent to Site 2 by the Environmental and Photographic Interpretation Center (EPIC). The area containing these features was designated Site Screening Area (SSA) 12. During field reconnaissance in this area, the Navy discovered several drums and debris abandoned on the ground surface. The Navy tasked Resources Management Concepts, Inc. (RMC) to remove the debris, obtain surface and shallow subsurface soil samples at the EPIC features and the drum locations, and to analyze the samples for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and metals. A total of twenty-nine locations were sampled.

The results of the RMC investigation indicated that SVOCs, pesticides, and metals were present at some locations (RMC, 2003). Subsequent review of the data, however, indicated that data quality issues (high detection limits) compromised the usability of the data, resulting in inconclusive results, precluding decision-making relative to the regulatory disposition of the site. As a result, the Navy directed Tetra Tech to resample the soils at each location for VOCs, SVOCs, pesticides, PCBs, and metals.

In December 2007, Tetra Tech collected confirmation samples at the locations previously sampled during the RMC Investigation. SVOCs, pesticides, and metals were detected at concentrations above the EPA Region 3 Risk Based Concentrations (RBCs) for residential soil. During the investigation, construction

debris, bottles, china, and aircraft parts were observed in the study area. Hummocky, uneven ground was also observed, which was potentially indicative of buried waste materials.

Based on the observations made during the confirmation sampling investigation, the Navy directed Tetra Tech to perform an electromagnetic (EM) geophysical survey of SSA 12 to locate potential buried waste materials and to delineate the lateral extent of these materials. The EM survey was conducted in April 2008. Various anomalies were detected and mapped during the survey, which confirmed the presence of buried waste at the site. SSA 12 was renamed Site 12 – South Landfill.

The Site 12 Phase I RI field work was completed in January 2010. The work consisted of the excavation of 15 test pits and the collection of 40 surface soil samples, 31 subsurface soil samples, 7 surface water samples, and 8 sediment samples. The surface and subsurface soil samples were biased towards areas that contained buried waste, based on the results of the EM survey. In June 2010, Tetra Tech submitted the Draft Phase I Remedial Investigation Data Report to the Project Team members. Contaminants exceeding Project Screening Levels (PSLs) consisted of SVOCs, pesticides, and metals in surface soil; SVOCs, pesticides, dioxins, and metals in subsurface soil; SVOCs, pesticides, and metals in surface water; and VOCs, SVOCs, pesticides, and metals in sediment. Test pit sample analyses and visual observations confirmed the presence of buried waste and associated soil contamination at the locations of EM anomalies. The test pit excavations confirmed that the suspected disposal areas identified by EM survey were in fact well-defined pits containing waste and debris.

Based on the investigations completed and the Conceptual Site Model (CSM) presented in the Phase I RI Sampling and Analysis Plan (SAP), the Navy, in conjunction with EPA, decided that additional surface and subsurface soil samples and monitoring well groundwater samples were needed to further delineate the nature and extent of target analytes that exceeded risk-based benchmarks in the Phase I investigation and to conduct a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA). Subsequent planning discussions for additional work led to the Phase II RI activities that are the subject of this report. These activities are described in detail in Section 2.

1.4 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

A description of the regional or general physical characteristics of former NAS JRB Willow Grove has been prepared on the basis of published information, reports of previous site studies, and information obtained and interpreted during the course of the Phase II RI. Site-specific physical characteristics for Site 12 are discussed in Section 3.

1.4.1 Meteorology

Former NAS JRB Willow Grove is located about 70 miles west of the Atlantic Ocean, which tends to have a moderating effect on temperatures. Normal minimum and maximum daily temperatures range from 24 degrees Fahrenheit in February to 86 degrees in July.

The average annual rainfall is 44.5 inches. The average annual snowfall is 21.5 inches. Precipitation is evenly distributed throughout the year, with an increase in rainfall during the summer months. Average annual and extreme frost penetrations are 20 inches and 30 inches, respectively.

Mean annual relative humidity ranges from 54 percent in the early afternoon to 78 percent before dawn. The mean annual Class A Pan Evaporation is about 42 inches per year.

The prevailing wind direction at the Air Station is southwesterly during the summer and northwesterly during the winter. The mean annual wind speed and direction are approximately 9 miles per hour from the west-northwest.

1.4.2 Topography and Surface Water Hydrology

Former NAS JRB Willow Grove lies within the Triassic Lowlands Section of the Piedmont Physiographic Province. This section is characterized by rolling topography. Broad northeast-southwest-trending ridges in the area reflect resistant conglomeratic sandstone beds or diabase dikes. The Base occupies a relative topographic high, which for the most part precludes surface water flow onto the facility from surrounding areas. Surface elevations range from a high of approximately 370 feet above mean sea level (MSL) in the vicinity of Taxiway Juliet to a low of approximately 240 feet above MSL in the northern portion of the Base. Slopes are generally less than three percent. In areas where the land has been regraded, however, some slopes are steeper.

Former NAS JRB Willow Grove is situated within an upland area that forms a local drainage divide between the Little Neshaminy Creek drainage basin to the north and the Pennypack Creek drainage basin to the south. Both of these local drainage basins lie within the regional drainage basin of the Delaware River. Most of the Base property drains toward the north through several unnamed ephemeral, intermittent, and perennial drainage ways into Park Creek, which is a tributary of Little Neshaminy Creek. The extreme southern portion of the Base, including the Antenna Field Landfill, South Landfill, and a portion of the Fire Training Area, lies within the Pennypack Creek drainage basin.

Runoff from surface areas is primarily channeled through open drainage swales and enclosed storm sewers to one of five primary outfall areas. Three of these outfalls drain to Park Creek. The fourth outfall is an intermittent stream that flows into Pennypack Creek. The fifth outfall receives runoff from the airfield and the northern portion of the Base's storm sewer system.

The receiving waters for storm water runoff derived from the Base are fished. PADEP designates Pennypack Creek as a warm-water fishery. Little Neshaminy Creek is stocked with trout.

1.4.3 Soils

Soils observed at former NAS JRB Willow Grove during current and previous RI fieldwork ranged from four feet to about twenty feet in thickness. Generally, the soils included brown, yellowish-brown, reddish-brown, and orange mixtures of silt, clay, and sand with finer-grained materials dominant.

The Soil Survey of Montgomery County (United States Department of Agriculture, 1967) indicates that five major soil series are encountered within the boundaries of the four IR sites. The soil series include the Lansdale, Lawrenceville, Chalfont, and Readington silt loams and the Lansdale loam. Minor areas of other soil series, composed chiefly of silt loam materials, are developed in small, low-lying areas. In general, these soils have a moderate to slow permeability that encourages rapid runoff during normal precipitation events.

Most of the soil within the boundaries of the Air Station has been disturbed. In addition, large areas have been filled with shale and sandstone mixed earth materials. These soils, known as made land, vary widely in depth and drainage potential.

1.4.4 Regional Geology

Former NAS JRB Willow Grove is located within the Triassic Basin of southeastern Pennsylvania. The bedrock underlying the former Air Station consists of the middle arkose member of the Late Triassic age Stockton Formation. The Stockton Formation locally is about 5,000 feet thick and is unconformably underlain by Ordovician to PreCambrian age basement rocks. Current and previous environmental investigations indicate that the top of bedrock at the former Air Station is generally found in the range of four feet to 25 feet below ground surface (bgs).

The Stockton Formation is composed of fine- to coarse-grained arkosic sandstones and conglomerates that are interbedded with finer grained shales and siltstones. These sediments were deposited by a series of coalescing alluvial fans that deposited materials eroded from highlands to the south (Sloto and Davis, 1983).

Bedding is very irregular throughout the Stockton Formation, although coarse-grained units commonly overlie fine-grained units. Beds commonly pinch out or form gradational contacts with overlying or underlying beds over lateral distances greater than several hundred feet (Rima et al., 1962). Based principally on dominant grain size and lithology, the Stockton Formation is divided into lower, middle, and upper members.

The middle member of the Stockton Formation is approximately 4,200 feet thick and consists of fine- to medium-grained arkosic sandstone interbedded with shale. Beds of shale and siltstone are common in the upper portion of the member, and coarser-grained units are more common in the lower portion of the member. The rocks of the middle member are well sorted and weakly cemented, which creates a relatively high porosity compared to the lower and upper members of the formation (Rima et al., 1962). The middle member of the Stockton Formation typically weathers to a depth of 15 to 35 feet.

The lower member of the Stockton Formation is composed primarily of coarse-grained arkosic sandstone and conglomerate and, to a lesser extent, medium-grained arkosic sandstone. Locally, the lower member is less than 1,500 feet thick.

The upper member of the Stockton Formation is not present in the vicinity of NAS JRB Willow Grove. The upper member is composed primarily of shale, siltstone, and fine-grained arkosic sandstone. In general, the grain size within this unit decreases in a stratigraphically upward direction, with the fine-grained sandstone occurring most commonly in the lower portion of the unit.

Regionally, the sedimentary beds of the Stockton Formation strike to the northeast and dip at an average rate of 12 degrees to the northwest. Based on subsurface correlations made during the Site 2 RI, the bedrock strike was calculated to be north 76 degrees east and the dip was calculated to be 7 degrees to the northwest. At another former government installation located approximately 3 miles northeast of the site, strikes ranging from north 64 degrees east to north 71 degrees east and dips ranging from 5 degrees to 9 degrees to the northwest were calculated from subsurface correlations of geophysical borehole logs for the middle member of the Stockton Formation (Halliburton NUS, 1995).

A northeast-southwest-trending, nearly vertical igneous diabase dike bisects the Stockton Formation and passes just south and east of the former NAS JRB Willow Grove boundary. The thickness of this dike is approximately 90 feet (Rima et al., 1962). Figure 1-3 is a general geological map of the former NAS JRB Willow Grove vicinity.

1.4.5 Regional Hydrogeology

The sandstones, shales, and conglomerates of the Triassic Basin are relatively good water-bearing formations. They generally yield abundant supplies to wells (Hall, 1933). The groundwater ranges from soft to hard, with the average hardness being greater than that of most other formations in southeastern Pennsylvania.

The major source of groundwater in the vicinity of former NAS JRB Willow Grove is the fractured bedrock of the Stockton Formation (Earth Data, Incorporated, 1985). These rocks form a multi-aquifer system of relatively discrete water-bearing zones separated by less permeable zones. Transmissivity and groundwater movement within water-bearing zones are greater parallel to bedding than across bedding. Groundwater can generally be found between 5 and 25 feet bgs.

Groundwater within the Stockton Formation occurs locally under both unconfined and confined conditions. The unconfined conditions generally extend to a subsurface depth of about 75 to 100 feet, depending on the local lithologies. Confined conditions are generally encountered below a depth of about 150 feet. A semi-confined or transitional aquifer lies between the unconfined and confined aquifers. Vertical or nearly vertical fractures that cut across bedding and the weathering of various beds permit varying degrees of leakage between individual water-bearing zones, particularly at shallower depths.

Although significant amounts of groundwater may be held in storage within the primary porosity of the fine- to medium-grained sandstones, groundwater migration is chiefly through the secondary porosity created by fractures and joints and along bedding-plane partings. The finer grained shale and siltstone beds typically have very low permeabilities. In addition, fractures and joints are typically not as well developed in these finer grained beds. Consequently, the shale and siltstone units often act as confining layers to groundwater flow.

There are numerous private (residential) and municipal-type production wells that supply water for domestic and commercial uses in the vicinity of former NAS JRB Willow Grove. Figure 1-4 shows the approximate locations of public and private wells in the vicinity of the southern end of former NAS JRB Willow Grove.

1.4.6 Ecology

A detailed evaluation of former NAS JRB Willow Grove biological features was conducted during the SI phase of the environmental activities for the Base (EA, May 1990). Most of the following discussion is excerpted from that report.

The South Landfill (Site 12) is an area of approximately 11 acres located in the southern portion of NAS JRB Willow Grove (Figure 3-1). A gravel road runs through the northeastern part of Site 12 and provided access to a fenced magazine area in the eastern part of the site. The southwest boundary of Site 12 is a drainage ditch, which separates Site 12 from Site 2. The drainage ditch empties into an unnamed intermittent stream that flows southward through the southeastern portion of the site. A storm sewer outfall empties into the stream approximately 100 feet north (upstream) of the confluence of the drainage ditch and stream. The storm sewer receives runoff from the taxiway immediately north of Site 12 (Taxiway Juliet), from the southeastern end of the Base runway, and from the vicinity of Buildings 29 and 22 in the southeastern part of the Base. The drainage ditch is typically dry or non-flowing. The stream upgradient of the storm water outfall becomes dry during periods of little rainfall. The stream downgradient of the storm water outfall is typically wetter and tends to contain water for most of the year. The lower portion of the stream at Site 12 was 5 to 10 feet wide and 6 to 12 inches deep when surface water samples were collected there in January 2010. The stream exits the Base as it passes underneath State Road 463 (Horsham Road) and enters Pennypack Creek approximately 3000 feet south of the Base boundary. Because of the intermittent nature of the stream (especially upstream of the storm water outfall), there is no permanent aquatic habitat in the upper portion of the stream, and no fish have been noted there during sampling activities. The National Wetlands Inventory map indicates no wetlands on the site. The ground surface at Site 12 generally slopes slightly southwestward, except near the stream, where it slopes southeastward toward the stream.

Most of Site 12 is a mixture of shrub thickets and wooded areas dominated by deciduous trees. The shrub thickets consist largely of common species such as multiflora rose (*Rosa multiflora*), chokecherry (*Prunus virginiana*), pine (*Pinus* spp.) saplings, viburnums (*Viburnum* spp.), and blackberry (*Rubus* spp.). The wooded areas are dominated by maple (*Acer* spp.), ash (*Fraxinus* spp.), tuliptree (*Liriodendron tulipifera*), oaks (*Quercus spp*.), and black cherry (*Prunus serotina*). Much of the area north of the gravel road is old field vegetation that is dominated by broomsedge (*Andropogon glomeratus*) and other grasses, goldenrod (*Soildago* sp.), and blackberry.

Terrestrial receptors at the site consist of various mammals such as rabbits, raccoons, deer, shrews, and rodents such as squirrels and woodchucks. Reptiles and amphibians inhabit the site, particularly the drainage ditch and stream. The more open grassy areas provide food sources (seeds, insects, worms, etc.) for a variety of birds and small mammals. Arboreal birds use the wooded and shrubby areas. Avian raptors undoubtedly forage in all habitats at the site.

1.4.6.1 Ecosystems

The natural environment at NAS JRB Willow Grove has been altered by development ever since an airport was established there in 1919. Buildings and paved roadways are concentrated mainly in the eastern

portion of the facility. Due to the development on the Base, the land has not retained a natural vegetation cover. The vegetative communities that remain are limited and generally include former lawn areas, old field, immature forest, and wetland.

Except for old field scrub/shrub, maintained grassy field is probably the most common vegetative cover at the former Base. Most of this habitat is located west of the runways. The herbaceous species and woody shrubs there provide habitat for many wildlife species. Typical herbaceous plants include cinquefoils (*Potentilla spp*.), ragweed (*Ambrosia artemisiifolia*), field daisy (*Chrysanthemum leucanthemum*), wild strawberry (*Fragaria vesca*), and numerous grasses. Shrubs observed include multiflora rose (*Rosa multiflora*), poison ivy (*Rhus radicans*), chokecherry (*Prunus virginiana*), and blackberry (*Rubus spp*.).

Wooded areas occur mainly along the western boundary of the former Base and serve as a buffer between it and residences along Route 463 and the neighboring golf course/commercial complex. Common forest species observed include red maple (*Acer rubrum*), sassafras (*Sassafras albidum*), sycamore (*Platanus occidentalis*), and oak (*Quercus spp*.). The mixed hardwoods provide nesting, protective, and feeding habitat for many wildlife species.

Wetland habitat is rare within the former Base area, although the National Wetlands Inventory map of this area (United States Department of Interior, undated) indicates some wetland areas. An excavated pond, classified as a palustrine, open water, intermittently exposed wetland formerly located near the property boundary in the extreme northern portion of the former Base has been converted to a grassy surface, below-ground, dry, storm-water retention basin. There is a storm water retention basin near the picnic area adjacent to Site 3. A small palustrine, scrub/shrub emergent wetland is located downstream of the storm water retention basin. Two small ponds near the southeastern corner of the former Base are classified as palustrine, open water, intermittently exposed, excavated wetlands.

A larger (several acres) area of marsh habitat consisting mainly of sedges and bulrush occupies topographically low areas just north of the runway end zone. Many of these wetland grasses were planted by Air Station tenant personnel and have not been formally mapped as wetlands.

Wildlife species occurring at former NAS JRB Willow Grove are those that commonly occur near urbanized areas. Species observed, or reported to occur, include eastern cottontail (*Sylvilagus floridanus*), muskrat (*Ondatra zibethica*), raccoon (*Procyon lotor*), woodchuck (*Marmota monax*), eastern gray squirrel (*Sciurus carolinensis*), beaver (Castor canadensis), and white-tailed deer (Odocoileus virginianus). Pheasants (*Phasianus colchicum*) have been observed in the old field habitat. Canada geese (*Branta canadensis*) apparently nest within the Base boundaries. Mallards (*Anas platyrhynchos*) have been observed in the wetlands area downstream from the pond at the picnic area. Other observed bird species include robin

(*Turdus migratorius*), starling (*Sturnus vulgaris*), mourning dove (*Zenaidura macroura*), wood thrush (*Hylocichla mustelina*), cardinal (*Cardinalis cardinalis*), mockingbird (*Mimus polyglottos*), sparrows, and numerous others.

Aquatic communities on the former Base occupy a man-made impoundment at the storm water retention basin (near the Ninth Street Landfill). The aquatic community includes catfish, largemouth bass (*Micropterus salmoides*), and sunfish. This basin was available to Base personnel for recreational fishing under a strict catch and release policy. The storm water retention basin receives runoff from the runway and taxiways. Fish kills have been reported in this retention basin. There are also two small wet areas at Site 5 that are inhabited by frogs and insects if the weather is rainy.

1.4.6.2 Endangered and Threatened Species

The Endangered Species Act of 1973, as amended, provides for the protection of endangered and threatened species. Government agencies are required to submit to the United States Fish and Wildlife Service any proposed actions that may jeopardize the continued existence of any species listed under the act as threatened or endangered. No federally listed plants or animals are known to occur on the former Base. There are no known threatened or endangered plants or animals, as recognized by the Commonwealth of Pennsylvania under Chapter 147, Title 58, within the boundaries of the former Base.

2.0 FIELD INVESTIGATION

The Phase II field investigation was performed from December 2011 to March 2012 in accordance with the final and approved Sampling and Analysis Plan submitted by Tetra Tech in October 2011.

Previous activities at the site have included the Confirmation Soil Investigation in 2007, a geophysical survey in 2008, the Site 2 Groundwater Confirmation Investigation in 2009, and the Phase I Remedial Investigation (RI) in January 2010. In addition, a portion of Site 12 was investigated during the RI activities for Site 2, which was part of a Base-wide investigation performed between March 3 and July 15, 1997. The Confirmation Soil Investigation was conducted in accordance with the Work Plan for Soil Investigation at Site Screening Area 12 Between Site 2 and Site 5 (November 2007). The Groundwater Confirmation Sampling was conducted in accordance with Sampling and Analysis Plan for Site 2 Groundwater Confirmation Sampling (Tetra Tech, May 2009). The Phase I RI was conducted in accordance with the Sampling and Analysis Plan (SAP) for Phase I Remedial Investigation, Site 12 - South Landfill (Tetra Tech, 2009).

Subcontractors provided several site investigation services, including drilling and monitoring well installation, test pit excavation, site surveying activities, and laboratory analysis. The United States Geological Survey (USGS) provided borehole geophysical logging services through its Interagency Agreement with the Navy.

2.1 SUMMARY OF ACTIVITIES

The field activities performed at Site 12 to support the Phase II investigation included the following:

- Drilling and installation of eight monitoring wells (Section 2.1.6.1).
- Geophysical logging of all newly drilled bedrock boreholes.
- Measurement of static water levels in the new wells and existing Site 2 wells.
- Collection of groundwater samples for laboratory analysis (Section 2.1.6.3). Samples from the seven existing Site 2 wells were analyzed for target Compound List (TCL) VOCs. Samples from the eight new Site 12 wells were analyzed for TCL VOCs, TCL SVOCs) [including low level Polycyclic aromatic hydrocarbon (PAHs)], PCB/pesticides, Target Analyte List (TAL) inorganics, and cyanide. Two wells were also sampled for dioxins/furans. Samples were submitted to Chemtech in Mountainside, New Jersey.
- Excavation of three test pits and the collection of four surface and four subsurface soil samples (Section 2.1.3.3). Samples were analyzed for full TCL/TAL parameters, cyanide, hexavalent chromium,

oxidation reduction potential (ORP), and pH by Chemtech. One sample was submitted to Test America, Incorporated, of King of Prussia, Pennsylvania, for dioxin analysis.

- Sampling of surface soil and shallow subsurface soil at 25 locations (Section 2.1.2). Samples were submitted to Chemtech for full TCL/TAL analyses, cyanide, ORP, and pH. Nine samples were submitted to Test America, Incorporated, of King of Prussia, Pennsylvania, for hexavalent chromium analysis.
- Sampling of subsurface soils at eight locations for hexavalent chromium analysis.
- Sampling of surface soil at 29 step-out locations chosen to delineate contamination identified in the Phase I investigation (Section 2.1.2). Samples were submitted to Chemtech for various TCL and TAL analyses depending on site data requirements and specific locations.
- Surveying of the horizontal locations and the vertical elevations of newly installed monitoring wells and horizontal locations of surface soil, subsurface soil, and sediment samples (Section 2.1.7).

The SSA 12 Confirmation Soil Investigation, performed in December 2007, included the following:

- Collection of surface and shallow subsurface soil samples from 26 locations using a hand auger (Sections 2.1.2 and 2.1.3). Samples were analyzed for full TCL/TAL parameters.

The Site 2 Groundwater Confirmation Investigation included the following:

- Collection of groundwater samples from the seven Site 2 wells in May 2009 (Section 2.1.6.2). The samples were analyzed for TCL VOCs, SVOCs (including low level PAHs by SIM), and total TAL metals.

The Phase I Investigation, performed from April 2008 to January 2010, included the following:

- Completion of a geophysical survey of the site to identify areas of buried waste (Section 2.1.1).
- Excavation of 15 test pits and the collection of 61 subsurface soil samples (Section 2.1.3.2). Samples were analyzed for full TCL/TAL parameters plus cyanide. Five samples were analyzed for dioxin.
- Collection of seven surface water and eight sediment samples (Section 2.1.4 and 2.1.5). The samples were analyzed for full TCL/TAL parameters plus cyanide.
- Collection of 10 surface soil samples from five locations using a hand auger (Sections 2.1.2.2). Samples were analyzed for full TCL/TAL parameters plus cyanide.

2.1.1 Geophysical Survey

A geophysical survey of Site 12 was performed by Advanced Geological Services, a subcontractor to Tetra Tech, in April 2008. A Geonics EM-31 ground conductivity meter was used to measure the variability of electrical conductivity of subsurface materials. A Trimble PRO/XRS Global Positioning System was used concurrently with the EM-31 to provide a GPS coordinate for each EM data point. The EM data were collected approximately every 2.5 feet along traverses spaced 5 to 10 feet apart. Appendix A contains the geophysical survey report.

The geophysical survey results indicated five large areas of possible buried waste (Figure 2-1):

1) Area A is an 80 ft. x 60 ft. irregular area in the northwestern part of the site. This feature had very strong EM responses, indicating the presence of buried metal.
2) Area B is a 250 ft. x 80 ft. irregular area near the center of the site. This feature had moderately strong, discontinuous EM responses, which suggests the presence of miscellaneous debris both metallic and non-metallic in nature.
3) Area C is an 85 ft. x 50 ft. area near the center of the site. This feature had a very strong EM response, indicating the presence of buried metal. There is some surface debris at this location.
4) Area D is a 40 ft. by 20 ft. area in the northern part of the site. This feature had a strong EM response, indicating the presence of buried metal.
5) Area E is a 140 ft. by 75 ft. area in the extreme eastern part of the site, across the gravel access road from the main part of the site. A strong EM response indicates the presence of buried metal in this area.

In addition, six strong linear anomalies were discovered in the southern part of the Site 12 survey area.

- Linear EM anomalies numbers 1 through 4, in the southeastern part of the site, are oriented northwest-to-southeast and are roughly parallel to one another. The EM response suggested that these are buried trenches with possible piping.
- Linear EM anomalies numbers 5 and 6 are oriented roughly perpendicular to anomalies numbers 1 through 4, and the EM response also suggested that these are buried trenches.

2.1.2 Surface Soil Investigation

Surface soil samples were collected during the Confirmation Soil Investigation in 2007, the Phase I RI in 2010, and the Phase II RI. The following sections describe the samples collected during each investigation.

A summary of the surface soil samples collected is presented in Table 2-1. Figures 2-2, 2-3, and 2-4 show the surface soil sample locations for the Confirmation Soil Investigation, the Phase I RI, and the Phase II RI, respectively. Surface soil sample log sheets are included in Appendix B.

2.1.2.1 Confirmation Soil Investigation

During the Confirmation Soil Investigation, 28 surface soil samples were obtained from 26 locations. Each location was sampled at a depth of 0 to 6 inches. In addition, one location was sampled from a depth of 0.5 to 1 foot and one location was sampled from a depth of 1.5 to 2 feet bgs. The samples were analyzed for full TCL/TAL parameters. The samples were collected by a Tetra Tech geologist using a stainless steel hand auger and disposable trowels. The soil was homogenized in a stainless steel bowl before being placed into the sample jars. The portion of the sample for VOC analysis was collected from the midpoint of the sample interval directly from the hand auger prior to sample homogenization using an Encore sampling device.

2.1.2.2 Phase I Investigation

During the Phase I RI in January 2010, ten surface soils samples were obtained from five soil borings, 12SB01 through 12SB05, and 30 surface soil samples were collected from 15 test pits, 12TP01 through 12TP15. The soil boring and test pit locations were chosen based on the results of the EM survey of Site 12 that was completed in April 2008. The test pit locations were chosen to coincide with areas of EM anomalies; the soil borings were placed in areas absent of EM anomalies to ensure representative coverage of the site. Berner Construction, Incorporated, of Gap, Pennsylvania, performed as a subcontractor to Tetra Tech providing the test pit excavating equipment and the equipment operation. Tetra Tech personnel performed all sample collection, sample handling, and sample management.

Two surface soil samples were collected from each boring and each test pit: one from a depth of 0 to 6 inches bgs and one from 6 inches to 24 inches bgs. The soil boring samples were collected using a hand auger and dedicated disposable trowels. The test pit samples were collected directly from the excavation using disposable trowels. The soil was homogenized in a stainless steel bowl before being placed into the sample jars. The portion of the sample that was to be analyzed for volatile organic compounds (VOCs) was collected using a disposable plastic syringe prior to sample homogenization and preserved in the field. The samples were submitted to CompuChem for full TCL/TAL analyses plus cyanide and low level PAHs.

2.1.2.3 Phase II Investigation

Three types of surface soil sample were collected during the Phase II investigation: soil boring samples for risk assessment support, "step out" samples collected to define the boundaries of PSL exceedances observed in Phase I samples, and samples from test pits in areas not investigated during Phase I. Figure 2-4 shows the Phase II surface soil sample locations. Each type of sample is described below.

Soil Boring Samples for Risk Assessment Support

To provide representative sample coverage of Site 12 in areas that were not expected to contain buried waste, surface soil samples were collected from 25 locations (12SB06 to 12SB30) at two depths per location: 0 to 6 inches and 6 inches to 24 inches bgs. The 0-to-6-inch samples were obtained by a Tetra Tech geologist by digging 0 to 6 inches bgs with a stainless-steel trowel and placing the soil directly into a laboratory-provided sample jar; the 6-to 24-inch samples were obtained either by DPT or hand auger, depending on location accessibility. The soil was homogenized in a stainless steel bowl before being placed into the sample jars. The portion of the sample for VOC analysis was collected from the midpoint of the sample interval directly from the hand auger prior to sample homogenization using an Encore sampling device. The borings were located in areas absent of EM anomalies, based on the results of the EM survey of Site 12 completed in April 2008. The intent was to obtain representative coverage of the site that included areas with and without suspected buried waste. The samples were analyzed for full TCL/TAL parameters, cyanide, and low level PAHs. The samples from nine locations (18 samples) were also analyzed for hexavalent chromium and ORP.

"Step-Out" Soil Samples

Surface soil samples were collected from 29 "step-out" sample locations, 12SB31 to 12SB59, to delineate ten areas of PSL exceedances that were identified during Phase I. The samples were collected from depths of 0 to 6 inches bgs and 6 inches to 24 inches bgs, approximately 25 feet away from the Phase I sample location. The analyses and step out directions varied depending on the requirements of each sample location, as detailed in Table 2-2.

Test Pit Soil Samples

Four surface soil samples were collected from two test pits (12TP16 and 12TP17). The samples were analyzed for full TCL/TAL parameters, cyanide, and low level PAHs. Two samples were also analyzed for hexavalent chromium and ORP. The test pit locations were chosen to investigate the southeastern extent

of linear anomalies Nos. 2 and 3 in the southeastern part of the site (see Section 2.1.1). These anomalies were not completely delineated by the 2008 EM survey due to the presence of vegetation.

2.1.3 Subsurface Soil Investigation

Subsurface soil samples were collected during the Confirmation Soil Investigation in 2007, the Phase I RI in 2010, and the Phase II RI. The following sections describe the samples collected for each investigation. A summary of the subsurface soil samples collected is presented in Table 2-3. Figures 2-5, 2-6, and 2-7 show the subsurface soil sample locations for the Confirmation Soil Investigation, the Phase I RI, and the Phase II RI, respectively. Boring logs and subsurface soil sample log sheets are included in Appendices B and C, respectively.

2.1.3.1 SSA 12 Confirmation Soil Investigation

During the SSA 12 Confirmation Soil Investigation, subsurface soil samples were obtained from seven locations (SSA12-SB02D, SSA12-SB04D through SSA12-SB08D, and SSA12-SB10D) from a depth of 2 to 2.5 feet bgs and analyzed for full TCL/TAL parameters. The samples were collected by a Tetra Tech geologist using a stainless steel hand auger and disposable trowels. The soil was homogenized in a stainless steel bowl before being placed into the sample jars. The portion of the sample for VOC analysis was collected from the midpoint of the sample interval directly from the hand auger prior to sample homogenization using an Encore sampling device.

2.1.3.2 Phase I Investigation

Thirty-one subsurface soil samples were collected from fifteen test pits (12TP01 through 12TP15). The samples were analyzed for full TCL/TAL parameters plus cyanide. Five of the samples were also analyzed for dioxin. The test pit locations were chosen to coincide with areas of EM anomalies based upon the results of the April 2008 EM survey of Site 12 (see Section 2.1.1). Tetra Tech personnel performed all sample collection, sample handling, and sample management throughout the investigation. Berner Construction performed as a subcontractor to Tetra Tech providing the excavating equipment and the equipment operation. All sampling data were recorded on sample log sheets and in the site logbook by the Tetra Tech geologist. Test pit log sheets are included in Appendix C.

The test pits were between 40 feet and 70 feet long, approximately four feet wide, and between six to ten feet deep (the depth to bedrock). Sixty-one soil samples (30 surface soil and 31 subsurface soil) were collected from test pits and submitted to CompuChem for full TCL/TAL analyses plus cyanide. Five of the soil samples collected from test pits were submitted to Columbia Analytical Services for dioxin analysis.

The dioxin samples were collected from test pits 12TP02, 12TP03, 12TP06, 12TP08, and 12TP09 from areas that showed evidence of charred (burned) waste.

At least two subsurface soil samples were collected from each test pit. The intent of sample collection was to bias the sample towards the most highly contaminated areas. One sample was chosen based on direct (visual or olfactory) evidence of contamination, or on the highest photoionization detector (PID) screening responses. The second sample was collected from the bottom of the test pit. Five of the test pit samples were collected from a depth between 2 and 4 feet to support the ecological risk assessment.

The soil samples were collected from excavated material using a disposable trowel either directly from the excavator bucket or from the excavated material deposited on the ground. The soil was homogenized in a stainless steel bowl before being placed into the sample jars. The portion of the sample that was to be analyzed for volatile organic compounds was collected prior to homogenization using sampling equipment supplied by the laboratory and preserved in the field in accordance with SW-846 Method 5035. The soil was described by the site geologist and was screened for evidence of contamination with a PID. Qualitative visual signs of potential contamination (such as soil staining) were noted on the test pit log. Photographs were taken of each test pit, and are included in Appendix D.

All excavated materials were used as backfill at the conclusion of the excavation activities at each location. Each test pit was backfilled at the end of the day on which it was excavated, in order to prevent leaving an excavation open overnight. If a test pit could not be completed by the end of the day, it was backfilled and then completed the following day.

2.1.3.3 Phase II

Three types of subsurface soil sample were collected during Phase II: samples from test pits in areas not investigated during Phase I, samples for risk assessment support, and samples for chromium speciation. Each type of sample is described below.

Test Pit Soil Samples

Four subsurface soil samples were collected from two test pits (12TP16 and 12TP18). The samples were analyzed for full TCL/TAL parameters, cyanide, low level PAHs, and pH. Two samples were also analyzed for hexavalent chromium and ORP, and one sample (collected from charred waste) was analyzed for dioxins/furans. In each test pit, one sample was collected from greater than 2 feet bgs from an area of suspected contamination based on visual observations and elevated PID readings, and one sample was collected from below any waste encountered. In addition, one subsurface soil sample was

collected from an area of charred waste and analyzed for dioxins/furans, to evaluate the potential impact from historical burning activities. The test pit locations were chosen to investigate the southeastern extent of linear anomalies Nos. 2 and 3 in the southeastern part of the site (see Section 2.1.1). These anomalies were not completely delineated by the 2008 EM survey due to the presence of vegetation.

Tetra Tech personnel performed all sample collection, sample handling, and sample management throughout the investigation. The samples were collected using the procedures described above for the Phase I investigation. Berner Construction performed as a subcontractor to Tetra Tech providing the excavating equipment and the equipment operation. All sampling data were recorded on sample log sheets and in the site logbook by the Tetra Tech geologist. Subsurface soil sample log sheets are included in Appendix B. Test pit log sheets are included in Appendix C. Photographs of each test pit are included in Appendix D.

Soil Samples for Risk Assessment Support

To provide representative sample coverage of Site 12 in areas that were not expected to contain buried waste, subsurface soil samples were collected from 25 locations at a depth of 3 to 4 feet bgs. The samples were obtained either by DPT or hand auger, depending on location accessibility. EFS, Inc. performed as a subcontractor to Tetra Tech, providing the DPT equipment and the equipment operation. The soil was homogenized in a stainless steel bowl before being placed into the sample jars. The portion of the sample for VOC analysis was collected from the midpoint of the sample interval directly from the hand auger or acetate sleeve prior to sample homogenization using an Encore sampling device. The borings were located in areas absent of EM anomalies, based on the results of the EM survey of Site 12 completed in April 2008. The intent was to obtain representative coverage of the site that included areas with and without suspected buried waste. The samples were analyzed for full TCL/TAL parameters, cyanide, low level PAHs, and pH. Nine of the samples were also analyzed for hexavalent chromium and ORP.

Borings were backfilled with the soils generated during sampling. If additional soils were needed, coarse bentonite chips were used to a subsurface depth of six inches and native soils or store-bought topsoil were used to grade.

Chromium Speciation Soil Samples

Subsurface soil samples were collected for total and hexavalent chromium, ORP, and pH analyses from eight locations that were identified in Phase I as containing the highest levels of total chromium. The samples were collected to determine the ratio of hexavalent chromium to trivalent chromium in areas expected to have high chromium concentrations. The samples were collected by test pit excavation immediately adjacent to the Phase I test pit location to access undisturbed soil.

2.1.4 Surface Water Investigation

During Phase I activities in January 2010, seven surface water samples were collected at the locations shown on Figure 2-8. Samples 12SW07 and 12SW08 were collected from the drainage ditch that borders the site to the southwest. Sample 12SW03 was collected from the storm water outfall to the intermittent stream that runs through the southeastern part of the site. The remaining samples, 12SW01, 12SW02, 12SW04, and 12SW05, were collected from the intermittent stream.

The surface water samples were collected by directly filling the sample bottles. Water quality field parameters (pH, specific conductance, temperature, turbidity, dissolved oxygen, and oxidation/reduction potential) were recorded for each sample. Filtered samples were collected from locations 12SW07 and 12SW08 for dissolved metals analysis since the turbidity of the water was greater than 10 nephelometric turbidity units (NTU). The sediment samples were collected using a disposable trowel from a depth of approximately 0 to 6 inches bgs. The portion of the sediment sample that was to be analyzed for volatile organic compounds was collected using a dedicated syringe and preserved in the field. The samples were submitted to CompuChem for full TCL/TAL analyses plus cyanide. The sediment samples were also analyzed for total organic carbon (TOC). Table 2-4 summarizes the surface water samples collected. Surface water sample log sheets are included in Appendix B.

2.1.5 Sediment Investigation

During Phase I, eight sediment samples were obtained (03SD01 through 03SD08) at the locations shown on Figure 2-8. The sediments were collected from the corresponding surface water locations, with the exception of 03SD06, for which there is no corresponding surface water sample since the location was dry. This sample was collected at the head of the intermittent stream that runs through the southeastern part of the site. The sediment samples were collected using a disposable trowel from a depth of approximately 0 to 6 inches bgs. The portion of the sediment sample that was to be analyzed for volatile organic compounds was collected using a dedicated syringe and preserved in the field. The samples were submitted to CompuChem for full TCL/TAL analyses, cyanide, and TOC. Table 2-5 summarizes the sediment samples collected. Sample log sheets for the sediment samples are included in Appendix B.

2.1.6 Groundwater Investigation

During the Phase II RI field activities, eight monitoring wells (12MW01O, 12MW01S, 12MW02O, 12MW02S, 12MW03O, 12MW03S, 12MW04O, and 12MW04S) were installed. These eight new wells and the seven existing Site 2 monitoring wells (02MW01S, 02MW01I, 02MW02S, 02MW03SI, 02MW03I, 02MW04S, and 02MW04I) were sampled. The Site 2 monitoring wells were previously sampled in May 2009 during the

Groundwater Confirmation Sampling. The following sections describe the monitoring well installation and the groundwater samples collected for each investigation. Table 2-6 summarizes monitoring well construction details and Table 2-7 summarizes the groundwater sampling program. Figure 2-9 shows the monitoring well locations. Boring logs are included in Appendix E, groundwater sample log sheets are included in Appendix B, and monitoring well construction logs and development logs are included in Appendix F.

2.1.6.1 Monitoring Well Installation

Four monitoring well clusters, 12MW01 through 12MW04, each consisting of an overburden well and a shallow bedrock well, were installed in January and February 2012. The wells were installed in accordance with the procedures specified in the SAP for the Site 12 Phase II RI (Tetra Tech, 2011).

Monitoring well cluster 12MW01 was installed down gradient from the buried waste area in the northeastern portion of the site near the former magazine. Monitoring well clusters 12MW02 through 12MW04 were placed along the drainage ditch that forms the southwestern boundary of the site, immediately down gradient from the main area of buried waste. The overburden monitoring wells were screened such that the bottom of the well screen rested on the top of the bedrock, as determined by auger refusal. The target depth for the shallow bedrock monitoring wells was 50 feet. The actual depths of the bedrock boreholes varied and were determined by the field geologist based on the subsurface conditions encountered during drilling.

The proposed drilling locations were cleared for potential underground obstructions by the Navy and local utilities before beginning the borings. The boreholes were drilled with an Acker Soil Max All-Terrain Vehicle (ATV) drilling rig operated by Talon Drilling, Incorporated. The overburden boreholes were drilled using 4-1/4-inch I.D. hollow stem augers. Continuous soil samples were acquired from the ground surface to the total depth of each boring (approximately 15 feet) using standard split spoon samplers. For each bedrock borehole, a 10-inch-diameter borehole was drilled by air percussion from the ground surface to a depth of at least 5 feet into competent bedrock. Six-inch-diameter steel surface casing was installed and grouted into the bedrock with cement/bentonite grout to hydrogeologically isolate the overburden from the bedrock. This casing also serves as the outer protective casing for the completed well. The grout was allowed to set undisturbed for a minimum of 24 hours. Subsequently, a nominal 6-inch-diameter borehole was drilled in the bedrock until significant water-bearing zones were encountered within the target interval for the respective borehole. A Tetra Tech field geologist logged subsurface lithology as determined by the drill cuttings and recorded pertinent drilling information, such as water entry zones, on the boring logs. The borehole and the cuttings were screened with a PID, and readings were recorded in the site logbook and documented in the boring logs.

The new bedrock boreholes were geophysically logged by the USGS to identify subsurface lithology, fractured intervals, and water entry or exit zones. Caliper, gamma ray, electric resistivity, self-potential, fluid temperature, fluid resistivity, and acoustic borehole imaging logs were run in each borehole. Copies of the geophysical log results are contained in Appendix G.

The vertical interval to be screened in each bedrock borehole was determined by evaluating the geophysical logs and the well boring logs. In general, the wells were constructed to monitor the most significant (highest yielding) water-bearing zone within the target interval. The actual screen elevations were selected through discussions with the Navy, EPA, PADEP, USGS, and Tetra Tech.

Monitoring Well Construction

The monitoring wells were constructed with 2-inch-diameter, Schedule 40 flush-joint and threaded polyvinyl chloride (PVC) well casing and well screen fitted with a bottom cap. The slot size was 0.010-inch for the overburden wells and 0.020-inch for the bedrock wells. The space between the bottom of the borehole and the bottom of the screen (if any) was backfilled with bentonite and/or cement-bentonite grout to the bottom of the desired monitoring interval and with quartz sand from that depth to the bottom of the screen. The annular space between the well screen and the borehole was packed with quartz sand (No. 1 for overburden wells and No. 2 for the bedrock wells) to at least 1 foot above the top of the desired monitoring interval. A minimum 2-foot-thick bentonite pellet seal was installed above the sand pack and allowed to hydrate prior to grout emplacement. For the bedrock wells, the remaining annulus was then backfilled with a cement-bentonite grout mixture to within 1 foot of the ground surface. The depths of all backfill materials were constantly monitored by a Tetra Tech geologist during the well installation process to ensure that bridging did not occur and that the correct construction depths were achieved. Monitoring wells were completed with a 2-foot-square concrete pad at ground level around the stickup pipe, keyed 1 foot into the annular space. A monitoring well construction log was completed for each well.

Well Development

The monitoring wells were developed with a submersible pump. The wells were developed until the discharge water was clear and free of sediment to the satisfaction of the Tetra Tech Geologist or for a maximum of 4 hours per well. The amount of water removed during well development and the field parameters for each well were recorded in the project field notebooks.

2.1.6.2 Groundwater Sampling – Site 2 Groundwater Confirmation Sampling

In April 2009, the seven Site 2 monitoring wells were sampled for TCL VOCs, SVOCs (including low level PAHs by SIM), and total TAL metals. The samples were sent to GPL Laboratories for analysis. The sampling was conducted in response to EPA's concerns regarding the age of the groundwater sample data presented in the Site 2 RI (Tetra Tech, 1997) and the preference to obtain current groundwater quality information.

Each of the monitoring wells was purged prior to sampling. Monitoring wells with a screen length of 10 feet or less were purged and sampled following the low-flow sampling technique prescribed by the EPA Region 3 Recommended Procedure (QAD023 - June 16, 1999). The monitoring wells were purged and sampled using a submersible pump with an adjustable flow rate. In each well, the pump was positioned within the well screen interval at the depth of the water-producing fracture, which was identified using the boring logs and geophysical logs. Sample pumping rate was set at between 0.1 to 0.4 L/min, and water levels were monitored to assure that the static water level was not drawn down into the well screen. Purged water was monitored every five minutes for pH, specific conductivity, temperature, turbidity, reduction potential, and dissolved oxygen. When the levels of these parameters stabilized, and a minimum of two saturated screen volumes had been removed from the well, the purging was considered complete and the groundwater samples were collected. Parameter stabilization was defined as three successive readings (taken at least 5 minutes apart) within 0.1 unit for pH, 3 percent for conductivity, 10 percent for turbidity and dissolved oxygen, and 10 mV for redox potential. The vertical location of the pump, the required minimum purge volume, and the calculations for parameter stabilization were recorded on the groundwater sample log sheet.

In accordance with discussions with the EPA hydrogeologist, monitoring wells having a screen length greater than 10 feet (02MW01S, 02MW02S, and 02MW03SI) were sampled by purging three to five well volumes with a submersible pump prior to sample collection. Water quality indicator parameters such as pH, specific conductivity, temperature, turbidity, redox potential, and dissolved oxygen were recorded for every half well volume. When three consecutive readings had reached stabilization, and at least three well volumes had been purged, the samples were collected.

All pertinent field data were recorded in the field logbook and on the appropriate sample log sheet. Groundwater sample log sheets are included in Appendix B.

2.1.6.3 Groundwater Sampling – Site 12 Phase II Field Activities

In March 2012, all of the Site 2 and Site 12 wells were sampled. The Site 2 wells were sampled for TCL VOCs and the Site 12 wells were sampled for full TCL/TAL parameters (including low level PAHs) and cyanide. Four wells (12MW01O, 12MW01S, 12MW02O, and 12MW02S) were also sampled for dioxins/furans, and three wells (12MW01S, 12MW03O, and 12MW04O) were also sampled for dissolved metals due to elevated turbidities. The sampling was conducted in accordance with the procedures described in the SAP (Tetra Tech, 2011), which are identical to those described above for the Site 2 Groundwater Confirmation Sampling.

2.1.6.4 Static Water Level Measurements - Phase II RI Field Activities

One round of groundwater-level measurements was collected on March 8, 2012 to provide hydraulic head data for piezometric elevations and groundwater contour maps. Static water levels were measured in all Site 2 and Site 12 wells using an electronic water-level indicator and were recorded to the nearest 0.01 foot.

2.1.7 Site Survey

The monitoring wells were surveyed for horizontal location and elevation by Pennsylvania-licensed surveyors. Soil borings, surface soil sampling locations, test pit locations, surface water, and sediment sampling locations were surveyed for horizontal location. Class B surveying was performed, allowing for a horizontal closure of 1:10,000 and a high vertical accuracy (at least 0.01 foot). Elevations measured for each well included the ground surface at the well and a designated reference point on the top of the inner well casing. Horizontal coordinates are reported to Pennsylvania South Zone-NAD 83 and elevations are reported with respect to North American Vertical Datum (NAVD) 88. Select existing wells were surveyed to tie in previous survey data and as a check on the new survey data. The Phase I soil borings, test pits, and sample locations were surveyed by the Pennsylvania-licensed surveyors Dennis W. Sklar, Inc. Licensed surveyors from Tetra Tech performed the Phase II survey. Survey data are included in Appendix H.

2.1.8 Handling of Investigation-Derived Waste

2.1.8.1 Drill Cuttings

All drill cuttings generated during the soil boring and well installation program were field screened with a PID. Since none of the drill cuttings exhibited elevated PID readings, the cuttings were spread on the ground near the borehole where they were generated.

2.1.8.2 Development Water

Development water from the installed monitoring wells was directed away from the wellhead and discharged to the ground surface and allowed to infiltrate the soil since no elevated (above background) PID readings were noted during the drilling.

2.1.8.3 Purge Water

Purge water was directed away from the wellhead and discharged to the ground surface and allowed to infiltrate the soil. Very small quantities of purge water were generated during groundwater sampling due to the low-flow sampling procedure. The quantities of purge water removed from each well are listed on the groundwater sample log sheets which are located in Appendix B.

2.1.8.4 Decontamination Fluids and Drilling Fluids

Steam wash and rinse liquids from the drill rig, tools, and the backhoe bucket were collected at site-specific collection pads. In most cases, the water in the decontamination pads evaporated or was discharged in a manner consistent with the handling of the solids produced during that activity (e.g., drilling auger rinses were allowed to infiltrate the site soil where the corresponding cuttings had been returned to the hole or were spread on the site surface).

Water produced during the air-rotary drilling was discharged away from the wellhead and to the local ground surface and allowed to reinfiltrate, since PID readings from the boreholes were not elevated.

2.1.8.5 Personal Protective Equipment

Personal protective equipment (PPE) was double bagged and disposed off-site.

2.1.9 General Sampling Operations

2.1.9.1 Sample Designation

Each sample collected was assigned a unique sample tracking number. The sample tracking number consisted of a three-segment or four-segment alpha (A)-numeric (N) code that identifies the site designation, sample medium and location, sample depth (for subsurface soils), and QA designation if required. Any other pertinent information regarding sample identification was recorded in the field logbooks. Monitoring well designations consisted of a code that expresses the site number, monitoring well (initials),

location number, and assigned depth designation; for example, 12MW03S represents Site 12, monitoring well location 3, shallow bedrock depth.

The alpha-numeric coding used in the sample system is explained in the diagram and the subsequent definitions:

NN	AA	NN	NNNN	NNNNNNNN
Site Designation	Sample Medium	Sample Location	Sample Depth	Sample Date

Character Type:

A = Alphabetical
N = Numerical

Site Designation:

12 = Site 12 - South Landfill
BG = background Sampling Location

Sample Medium:

MW = Groundwater sample from a monitoring well
SB = Soil boring sample
TP = Test pit sample
SS = Surface soil sample
SW = Surface water sample
SD = Sediment sample

Sample Location:

Subsurface soil	=	soil boring or test pit number
Surface soil	=	sample location number from map
Groundwater sample	=	well number
Surface water/sediment	=	sample location number from map
Background Sample	=	background sample location number

Sample Depth:

For soil samples, the two-digit start depth followed by the two-digit final depth (i.e., 0204 denotes beginning at 2 feet and ending at 4 feet).

Not used for groundwater, surface water, or sediment samples.

Sample Date:

For groundwater samples, the eight-digit date starting with the year followed by the month and the day (i.e., 20120312 denotes March 12, 2012).

Not used for soil, surface water, or sediment samples.

Field Duplicate Labels

Field duplicates were designated as DUP-01, DUP-02, etc. so they were submitted to the laboratory "blind." The chain-of-custody form and other documentation submitted to the laboratory were filled out in such a way that the laboratory could not match the duplicates to the original sample. The time on the duplicate samples was noted as 00:00. The correct sample location, time, etc. were documented in the field logbook. Alternatively, duplicate samples were assigned a fictitious sample location, depth, and time to appear as another environmental sample. The correct sample association for the duplicate was documented in the field notebook.

Quality Control Samples

Quality control samples were taken periodically. These samples were used to document the effectiveness of decontamination, to determine the quality of water used for decontamination, and to identify possible cross-contamination occurring during transit. These blank samples, including trip blanks, field blanks, and equipment rinsate blanks, used the QC sample identification scheme, listed below. Results of the QC process are presented in Section 2.3.

Sample Number

A sequential numeric designation was assigned to each type of blank on a daily basis.

Sample Date

The format MMDDYY (M=Month, D=Day, Y=Year) was used to indicate the day the sample was collected.

Example of the Quality Control Labels

The first rinsate blank sample collected on December 4, 2011 would have had the sample identification label RB-01-120411.

Matrix spike and matrix spike duplicate (MS/MSD) samples were designated on the field documentation forms and sample labels.

2.1.10 Sample Handling

Sample Packaging and Shipping

Samples were packaged and shipped in accordance with Tetra Tech Standard operating procedure (SOP) SA-6.1. The field operations leader (FOL), or designate, was responsible for completing the following forms:

- Sample labels
- Chain-of-custody forms
- Appropriate labels applied to shipping coolers
- Chain-of-custody seals
- Federal Express air bills

Sample Custody

Custody of the samples was maintained and documented in accordance with procedures described in Tetra Tech SOP SA-6.3. Chain-of-custody began with the collection of the samples in the field.

Equipment Decontamination

Equipment involved in field sampling operations, including drilling rigs, backhoe, down-hole tools, augers, and all sampling equipment, was decontaminated before sampling, between individual samples, and after drilling or sampling activities.

The down-hole drilling equipment and sampling tools were cleaned using a high-pressure steam generator (steam jenny) before beginning work, between sample locations (such as test pits, soil borings, soil gas points, etc.), at the completion of the drilling program, and any time the drilling rig left a site before completing a boring. NAS JRB Willow Grove provided potable water directly from fire hydrants. Additional operations followed during drilling equipment decontamination are found in Tetra Tech SOP GH-1.6.

The sampling equipment used for collecting samples was decontaminated before the beginning of field sampling and between samples. The following decontamination steps were followed:

- Potable water rinse
- Alconox or liquinox detergent wash
- Potable water rinse
- Deionized water rinse
- Air dry

Field analytical equipment such as pH, conductivity, and temperature instrument probes were rinsed first with deionized water, then with the sample liquid.

2.2 COLLECTION OF BACKGROUND SAMPLES

Background samples were collected in and around NAS JRB Willow Grove from media similar in characteristics to on-site samples but from areas outside the known or suspected areas of influence of the sites. Site sampling data are compared to background to determine if contaminants are elevated at a site.

During the 1997 Phase II RI sampling, background samples were obtained from surface soils (BGSS01 through BGSS12) and surface water and associated sediments (BGSW01/BGSD01 through BGSW08/BGSD08). Background sample locations are indicated in Figure 2-10. Background surface soil samples were also used for comparison to subsurface soil samples. The significance, occurrence, and distribution of background results are discussed in Section 4. Results of background sample analysis for surface soils, surface water, and sediment may be found in Tables 2-8, 2-9, and 2-10, respectively. Tables 2-11 through 2-13 present summaries of background sample analytical statistics for each media sampled (groundwater background sampling was not attempted).

2.3 QUALITY ASSURANCE/QUALITY CONTROL RESULTS

The objective of this process is to evaluate data quality of field quality control blanks, field duplicate precision, laboratory quality control analyses and precision, accuracy, representatives, comparability, and completeness (PARCC). The usability of field sample results was determined by the process described below. As a result of this process, all field sample results have been rated as to data quality. The data usability qualifier (e.g., R - rejected or J - estimated) is included as a suffix to the numerical laboratory result in data summary tables and the qualifier is explained in a footnote on the tables.

2.3.1 Field Quality Control Blanks

Field quality control blanks are generally used to measure success of the program to avoid extraneous contamination during sample collection, storage, and transport. Field quality control blanks served to trace possible routes of contamination, including bottleware, sampling equipment, rinsate water, solvent vapors, and items (e.g., gloves) that may contact samples or sample containers. Field quality control blanks were collected at the frequencies specified in the work plan, following EPA Region III guidance.

Field Blanks

Field blanks were obtained to estimate incidental or accidental contamination from field sampling techniques and to determine if cross-contamination of samples had occurred. Field blanks were taken separately from each source of equipment decontamination water (potable water and bottled deionized water) and analyzed for the same suite of parameters as the environmental samples, in accordance with Navy Facilities Engineering Service Center (NFESC) guidelines at the frequencies specified in the work plan, following EPA Region III guidance.

Trip Blanks

Trip blanks were used to determine if contamination was introduced during sample storage and transport. Trip blanks remained with the sample containers in the field at all times, were returned unopened at the conclusion of each day's field activities, and were included in each cooler shipment of volatile organic compound (VOC) samples sent to the laboratory. Trip blanks were analyzed for TCL VOCs only.

Rinsate Blanks

Equipment rinsate blanks were utilized to determine if contamination had been introduced through contact with the sampling equipment. Equipment rinsate blanks were prepared by running analyte-free water

through sample collection equipment (bailer, split-spoon, hand auger bucket, etc.) after decontamination. Rinsate blanks were generated for each type of non-dedicated sampling equipment at the frequencies specified in the work plan. Equipment rinsate blanks were analyzed for the same suite of parameters as the associated environmental samples.

2.3.2 Field Duplicate Precision

Field duplicate pairs were analyzed to assess the overall precision of the sampling and analysis process. Field duplicate pairs consisted of two field samples of identical media sampled at the same field location using the same sampling process. Duplicate pairs were stored and transported together to the laboratory for analyses. The relative percent differences (RPDs) for the duplicate pairs were calculated and reported by the laboratory and evaluated by the data validator in order to quantitate any imprecision. In general, the majority of the field duplicate results exhibited acceptable precision and there were no consistent trends to indicate improper sampling technique.

2.3.3 Parameters

The quality of the data set is measured by certain characteristics of the data, namely the PARCC parameters. Precision and accuracy are expressed quantitatively, and the others are expressed qualitatively.

Precision

Precision characterizes the amount of variability and bias inherent in a data set. Precision describes the reproducibility of measurements of the same parameter for a sample under the same or similar conditions. Precision is expressed as a range (the difference between two measurements of the same parameter) or as an RPD (the range relative to the mean, expressed as a percent). Precision is measured quantitatively. Range and RPD values are calculated as follows:

Range = OR - DR

RPD = (OR - DR) / [(OR + DR) / 2] x 100%

where: OR = original sample result
DR = duplicate sample result

RPD values are calculated for matrix spike duplicates, laboratory duplicates, and field duplicates and are compared to the control limits as a quality assurance (QA) check.

Accuracy

Accuracy is the comparison between experimental and known or calculated values expressed as a percent recovery (%R). Percent recoveries are derived from analysis of standards spiked into deionized water (standard recovery) or into actual samples (matrix spike or surrogate spike. recovery). Recovery is calculated as follows:

For a surrogate spike or laboratory control spike or standard

$$\%R = E / T \times 100\%$$

where: E = experimental result
T = true value (theoretical result)

For a sample matrix spike

$$\%R = (SSR - SR) / SA \times 100\%$$

where: SSR = sample spike result
SR = sample result (unspiked)
SA = spike concentration added

and

SA = (spike aliquot) (spike concentration)/ (sample aliquot + spike aliquot)

Accuracy for aqueous and solid samples was evaluated by use of surrogate and matrix spikes at the CLP-required frequencies. CLP acceptance criteria and corrective actions were applied. Out-of-criteria results were reviewed during EPA data validation to determine the need for qualification or rejection.

Representativeness

All data obtained should be representative of actual conditions at the sampling location. The work plan was designed so that the samples taken present an accurate representation of actual site conditions. The rationale discussed in the work plan was designed to ensure this. All sampling activities conformed to the protocols specified in the work plan. The use of CLP analytical protocols and data deliverables ensured that analytical procedures were consistently performed to generate results that are considered representative.

The use of low-flow sampling pumps in conjunction with monitoring of turbidity and other parameters ensured that monitoring well data were as representative of the formation as possible. Despite adherence to the low-flow sampling procedure, in a few instances, low turbidity samples could not be

collected. Where use of the low-flow purge method did not result in stabilized turbidity readings, filtered samples were also obtained from the same location. Filtered and unfiltered metals results were then compared to achieve a more accurate perspective of contaminant fate and transport.

Comparability

Comparability is achieved by using standardized sampling and analysis methods and data reporting procedures. The use of standard analytical procedures and sample collection techniques throughout all sampling rounds maximized the comparability of all Willow Grove data. Additionally, consideration was given to field environmental conditions that could influence analytical results.

Completeness

Completeness is a measure of the amount of valid data obtained from the measurement program, compared to the total amount collected. For relatively clean, homogeneous matrices, 100 percent completeness is expected. However, as matrix complexity and heterogeneity increase, completeness may decrease. Where analysis is precluded or where data quality objectives (DQOs) are compromised, effects on the overall investigation must be considered. Whether any particular sample is critical to the investigation is evaluated in terms of the sample location, the parameter in question, the intended data use, and the risk associated with the error.

Critical data points were not evaluated until all the analytical results were evaluated. If in the evaluation of results it becomes apparent that the data for a specific medium are of insufficient quality (for example, completeness less than 95 percent), either with respect to the number of samples or an individual analysis, resampling of the deficient data point(s) may be necessary.

2.3.4 Laboratory Quality Control Analyses

Laboratory quality control samples were analyzed as required by each specific analytical protocol and NFESC requirements. Quality control data from organic analyses included laboratory blank results, surrogate, matrix spike, and matrix spike duplicate recoveries, internal standard recoveries, initial calibration relative standard deviations and minimum response factors, continuing calibration percent differences and response factors, laboratory control spikes, mass spectral tuning ratios, clean-up column recoveries, pesticide performance evaluation recoveries, pesticide analyte degradation percentages, and compound identification criteria (mass ratios, retention time windows, and two-column percent differences). In general, the frequency of analytical problems in each of these areas was very low and indicated overall acceptable method performance for each type of analysis.

Organic analysis of laboratory blanks revealed limited contamination, with low concentrations [near or below the Contract Required Quantitation Limit (CRQL)] of common laboratory contaminants such as acetone and 2-butanone, and selected phthalate esters. Sample-matrix-related interferences caused high percent differences for a few pesticide results, resulting in data qualified as estimated based upon validation protocols. A limited number of volatile and semivolatile results were qualified as estimated based upon calibration relative standard deviations or percent differences. In a few cases, sample matrix effects may have caused low or high internal standard, matrix spike, or surrogate recoveries, which lead to the qualification of results as estimated or biased low. Where required, such samples were reanalyzed according the analytical protocol.

Quality control data from inorganic analyses included laboratory blank results, matrix spike recoveries, laboratory duplicate RPDs, serial dilution percent differences, initial calibration, continuing calibration, and contract required detection limit (CRDL) standard percent accuracies, laboratory control sample recoveries, and interference check standard accuracies.

The frequency of analytical problems in each of these areas was low and indicated overall acceptable method performance for each type of analysis. Inorganic analysis laboratory blanks revealed low frequencies of contamination generally restricted to concentrations below the CRDL, which affect data qualification but do not require sample reanalysis based on EPA protocols. Several matrix spike or post-digestion spike recoveries were below or above quality control (QC) limits and resulted in the qualification of data as biased low or biased high, respectively. These problems are typically attributed to sample matrix interference effects caused by other substances in the sample. A few results were qualified as estimated or biased because of laboratory duplicate imprecision or CRDL standard recoveries above or below control limits. Very few problems occurred in other areas.

3.0 PHYSICAL CHARACTERISTICS OF THE SITE

3.1 HYDROLOGY

The surface topography varies across the site. The central part of the site is relatively flat, the northern part slopes gently to the south at a grade of approximately 2 percent, and the western part is hummocky and uneven. In the extreme southeastern corner of the site, the ground slopes steeply to the southeast towards an unnamed creek that flows through the southeastern portion of the site. A drainage ditch borders the site to the southwest and empties into the unnamed creek (Figure 3-1). A storm sewer outfall empties into the unnamed creek approximately 100 feet upstream of the confluence with the drainage ditch. The unnamed creek flows off-base and enters Pennypack Creek approximately 3,000 feet from the Base boundary.

The site is covered by a mixture of weeds and woody vegetation, which serves to impede surface runoff and increase the infiltration of precipitation. In many areas of the site, the ground becomes saturated and pools of standing water form during periods of above normal precipitation.

3.2 REGIONAL GROUNDWATER FLOW PATTERNS

Within the Triassic Basin, surface water and groundwater flow patterns are generally similar, and regional groundwater divides coincide with regional surface water divides. To determine the regional groundwater flow patterns on and near the Base, the USGS performed a regional groundwater study for the Navy (with the assistance of Tetra Tech) and constructed a regional potentiometric surface map (USGS, 2001). The results of the USGS investigation confirm that a topographic ridge trends from southeast toward northwest through the former Base forming both a surface water divide and a groundwater divide. Groundwater north of the divide flows regionally in a northwest direction toward the Neshaminy Creek watershed, and groundwater south of the divide, including Site 12, flows regionally in a southeast direction toward the Pennypack Creek watershed.

3.3 BURIED WASTE

The following sections describe the results of the investigations performed to characterize and identify the extent of the buried waste at the site.

3.3.1 Phase I Test Pit Investigation

The test pit investigation for the Phase I RI was performed from January 4 to 12, 2010 and consisted of the excavation of fifteen test pits, 12TP01 through 12TP15. The test pit locations were chosen to coincide with

areas of EM anomalies based upon the results of the April 2008 EM survey of Site 12. Figure 3-2 shows the test pit locations superimposed on the results of the 2008 EM survey, described in Section 2.1. Table 3-1 summarizes the test pit details. Test pit logs are included in Appendix D. Photographs of the test pits are included in Appendix F.

All of the test pits except 12TP04 encountered buried waste. In each test pit, the limits of the buried waste coincided well with the limits of the corresponding mapped EM anomaly. All test pits encountered bedrock, which ranged in depth from 6 feet to 10 feet bgs. Perched groundwater was typically found within areas of buried debris.

Test pit 12TP01 was excavated transverse to linear EM anomaly number 2 in the southeastern portion of the site. The excavation encountered approximately 20 linear feet of buried waste consisting of scrap metal, bottles, wood, china, wires, and perforated steel planking from a depth of 2 feet to 7 feet bgs. Some of the waste was charred. The excavation also encountered what appeared to be an aluminum airplane fuselage and an empty rubber fuel tank. An elevated PID reading of 6.2 ppm was recorded within the waste material. Bedrock was encountered at a depth of 8 feet bgs. Perched groundwater was present within the buried debris at approximately 5 feet bgs and outside the debris immediately above bedrock.

Test pit 12TP02 was excavated transverse to linear EM anomaly number 3 in the southeastern portion of the site. The excavation encountered approximately 15 linear feet of charred waste consisting of glass fragments, nails, screws, wire, and various scrap metal from a depth of approximately 4 feet to 8 feet bgs. Bedrock was encountered at a depth of 8 feet. Perched groundwater was present within the buried debris at a depth of approximately 5 feet bgs and outside the debris immediately above bedrock. No PID readings greater than background were recorded.

Test pit 12TP03 was excavated transverse to linear EM anomaly number 4 in the southeastern portion of the site. The test pit encountered approximately 20 linear feet of buried waste consisting of yellow firebrick, crushed metal cans, bottles, and black ash from a depth of approximately 4 feet to 9 feet bgs. Bedrock was encountered at a depth of 9 feet. Perched groundwater was present within the buried debris at a depth of approximately 5 feet bgs and outside the debris immediately above bedrock. No PID readings greater than background were recorded.

Test pit 12TP04N (north) and 12TP04S (south) was excavated transverse to linear EM anomaly number 6 in the southeastern portion of the site. The test pit did not encounter buried debris, however, PID readings above background (up to 86 ppm) and a fuel odor were observed in the northwestern end of the excavation at a depth of approximately 4 feet bgs. Excavation activities were halted when the elevated

PID reading was encountered. Soil sample 12TP04-0405-03 was collected from the soil exhibiting a petroleum odor. The excavation was then backfilled and resumed approximately fifteen feet southeast from the location of the petroleum odor. There were no further odors or elevated PID readings encountered. Bedrock was encountered at a depth of 7 feet bgs and perched groundwater was encountered immediately above bedrock.

Test pit 12TP05 was excavated in EM anomaly area "C", in the central portion of the site. The test pit encountered construction debris on the ground surface and in the shallow subsurface. The debris consisted of bricks, concrete blocks, fence posts, and a section of 3-foot- diameter reinforced concrete pipe. The pipe, which was exposed in the excavation sidewall, leaked a large volume of perched groundwater into the excavation. Bedrock was encountered at 10 feet bgs. No PID readings greater than background were recorded.

Test pit 12TP06 was excavated transverse to linear EM anomaly number 1 in the central portion of the site. The excavation encountered approximately 30 linear feet of charred waste consisting of bottles, cans, china, wood, and scrap metal from a depth of approximately 4.5 feet to 10 feet bgs. Bedrock was encountered at 10 feet bgs. Perched groundwater was present within the buried debris at a depth of approximately 6 feet bgs. No PID readings greater than background were recorded.

Test pits 12TP07, 12TP08, and 12TP10 were excavated in EM anomaly area "B" in the central portion of the site. Test pit 12TP07 was excavated across the southern end of area "B", TP08 was excavated near the northern end, and 12TP10 was excavated near the middle. Test pit 12TP07 encountered approximately 15 linear feet of debris consisting mainly of scrap metal. The presence of a large volume of perched groundwater prevented the complete excavation and characterization of the debris. Test pit 12TP08 encountered approximately 20 linear feet of debris consisting of bricks, cans, wire, partially melted bottles, wire cable, and electrical conduit. Perched groundwater within the debris prevented the excavating deeper than approximately 5.5 feet. A second, smaller area of similar debris was encountered approximately 5 feet south of the first area. Test pit 12TP10 encountered two pockets of debris about 15 feet apart from a depth of approximately 3 feet to 8 feet bgs. The debris consisted of miscellaneous scrap metal (including a metal pipe, a crushed empty drum, and wire cable), a mechanic's dolly, china, and bottles. Bedrock was encountered at 9 feet bgs. Perched groundwater was present within the buried debris at a depth of approximately 5 feet bgs and elsewhere in the test pit immediately above bedrock. No PID readings greater than background were recorded.

Test pit 12TP09 was excavated across EM anomaly area "D". The test pit encountered approximately 25 linear feet of charred debris, consisting of bottles, china, wire, a bedspring, and chunks of asphalt pavement from a depth of approximately 1 foot to 7 feet bgs. The depth to bedrock ranged from 6 feet to

8.5 feet bgs. Perched groundwater was present within the buried debris at a depth of approximately 6 feet bgs and elsewhere in the test pit immediately above bedrock. No PID readings greater than background were recorded.

Test pits 12TP11, 12TP12, and 12TP13 were excavated in EM anomaly area "E". Test pits 12TP11 and 12TP12 encountered a layer of scattered debris consisting mainly of scrap metal from a depth of approximately 1 foot to 4 feet bgs. In both test pits the eastern boundary of the debris coincided well with the boundary of the EM anomaly. In test pit 12TP12, the edge of the debris was 8 feet from the eastern end of the test pit, and in 12TP11, it was 17 feet from the southeastern end of the test pit. Bedrock and perched groundwater were encountered at 6 feet bgs in both test pits. Test pit 12TP13 encountered a layer of very compacted clayey silt from 1.5 feet to 5.5 feet bgs and a layer of gray silty clay from 5.5 feet to 8 feet bgs. The silty clay had a stale organic odor. Bedrock was encountered at 9 feet bgs. Groundwater was encountered immediately above bedrock. No PID readings greater than background were recorded.

Test pit 12TP14 was excavated transverse to linear EM anomaly no. 5. The excavation encountered an area of construction debris approximately 25 feet long in its southeastern half, which coincided with the location of a strong EM anomaly. The debris included reinforced concrete, wire fence, charred wood, and pieces of asphalt pavement. The debris extended to a depth of approximately 7.5 feet bgs. Bedrock was encountered at 9 feet bgs. Perched groundwater was encountered within the buried debris at approximately 5 feet bgs. No PID readings greater than background were recorded.

Test pit 12TP15 was excavated across EM anomaly area "A". The test pit encountered 46 linear feet of charred debris at a depth of approximately 3 feet to 4 feet bgs. The debris included burnt asphalt pieces, roofing paper, bottles, china, and a crushed empty drum. Bedrock was 5.5 feet to 7 feet bgs. Perched groundwater was encountered immediately above bedrock. No PID readings greater than background were recorded.

3.3.2 Phase II Test Pit Investigation

The test pit investigation for the Phase II RI was performed from December 18 to 20, 2011 and consisted of the excavation of three test pits, 12TP16, 12TP17, and 12TP18. The test pit locations were chosen to investigate the nature and extent of buried waste and soil contamination southeast of linear EM anomalies nos. 2 and 3 (see Figure 3-2) in the southeastern part of the site. These anomalies were not fully delineated by the EM survey due to the presence of heavy vegetation.

Test pit 12TP16 was excavated approximately 25 feet southeast of the mapped southeastern terminus of linear anomaly no. 3. The test pit, which was 40 feet long and 10 feet deep, encountered waste consisting of black ash with charred debris (glass and ceramic fragments) at a depth of 6 to 8 feet bgs. A slight fuel odor was observed and a PID reading of 2.1 was recorded within the waste. Bedrock was not encountered. Test pit 12TP17 was excavated approximately 25 feet southeast of the mapped southeastern terminus of linear anomaly no. 2. There was no significant waste material encountered in this test pit, which measured 50 feet long and 10 feet deep. Weathered bedrock was encountered at a depth of 10 feet bgs. Test pit 12TP18 was excavated between test pits 12TP16 and 12TP17. Charred debris consisting of cans, wire, and ceramic fragments was encountered at a depth of 4 to 7 feet bgs. No PID readings greater than background were recorded. Bedrock was not encountered.

3.4 GEOLOGY AND HYDROGEOLOGY OF SITE 12

The following subsections describe the geologic and hydrogeologic findings of the investigation.

3.4.1 Geology

The geologic interpretation of the South Landfill is based on the subsurface data (boring logs, geophysical logs, and test pits) obtained during this current and previous site investigations. These data indicate that the local geology beneath this site is generally consistent with the regional geology (see Section 1.4).

Soil borings and test pits completed at the site encountered the top of bedrock at a depth of 6 to 10 feet bgs; monitoring well boreholes encountered the top of bedrock at a depth of 10 feet to 15 feet bgs. The overburden was generally characterized as clayey to sandy silt.

The maximum depth of the monitoring well boreholes at Sites 2 and 12 is 150 feet. The bedrock to this depth typically consisted of relatively thick sections of sandstone separated by thinner, alternating sequences of claystone and siltstone. The structural geology beneath the site is illustrated by a pair of geologic cross sections (Figures 3-3 and 3-4). The cross sections indicate that the structure (dip) of the bedrock is similar to that predicted by the regional geology (about 9 degrees northwest). A three-point correlation of geophysical logs of boreholes from the nearby Site 5 produced a bedrock strike of north 75 degrees east and a bedrock dip of 7 degrees northwest.

3.4.2 Hydrogeology

3.4.2.1 Monitoring Well Installation and Rationale

The Site 12 and Site 2 monitoring well locations are illustrated in Figure 3-1. Construction details for all existing and newly installed monitoring wells are listed in Table 3-2. The results of the Site 2 Phase II RI indicated that the groundwater flow beneath Sites 2 and 12 was towards the southwest. Since none of the existing Site 2 wells were positioned directly hydraulically down gradient from Site 12, four monitoring well clusters (12MW01 through 12MW04) were installed to address this data gap. Each well cluster consisted of an overburden monitoring well and shallow bedrock monitoring well. Monitoring well clusters 12MW02, 12MW03, and 12MW04 were installed immediately down gradient of the main area of the landfill, along the drainage ditch that forms the southwestern boundary of Site 12. Monitoring well cluster 12MW01 was installed down gradient from the landfill area in the northwestern part of the site, near the former magazine.

3.4.2.2 Groundwater Occurrence and Flow Characteristics

The occurrence and distribution of groundwater within the bedrock is similar to that typically reported for aquifers within the Triassic Basin. During drilling, the bulk of the groundwater entered the boreholes through discrete water-entry zones. Subsequent analyses of the drilling logs and borehole geophysical logs revealed that the discrete water-entry zones were either bedding-plane partings at lithologic contacts or fractures within a relatively homogeneous lithologic unit. Typically, both types of water-entry zones were present within any particular borehole. The primary porosity of the various lithologic units (particularly the sandstones) most likely contributed groundwater to each borehole, but the volume or yield could not be quantified due to the low volume of groundwater entering the borehole through the primary pore spaces relative to the volume of groundwater entering through the secondary openings.

During the Site 2 Phase II RI, flow meter logs run in the open boreholes revealed that relatively complicated vertical flow patterns exist beneath Site 2. At location 02MW04I, groundwater flow is downward throughout the entire borehole interval (total depth of 148 feet). At location 02MW03I, the bulk of the groundwater enters the borehole within the subsurface depth interval of 40 to 50 feet and from there travels both upward and downward within the borehole to eventually exit via shallower and deeper fractures that are under lower hydraulic head. At location 02MW01I, all groundwater within the borehole (from both above and below) exits via a major fracture located at a subsurface depth of 74 to 78 feet. The borehole video revealed that groundwater [about 5 gallons per minute (gpm)] entered the borehole via a fracture at a depth of about 25 feet and cascaded downward to the static water level at a depth of about 40 feet.

Groundwater flow directions

Groundwater flow directions beneath and in the vicinity of the South Landfill were determined from the contouring of the static water level elevations measured in the newly installed wells and the existing Site 2 monitoring wells. One round of static water level measurements was conducted for this investigation. These data are included in Table 3-3.

The groundwater elevation contour maps for the overburden, shallow, and intermediate bedrock zones (Figures 3-5, 3-6, and 3-7) show that groundwater in each zone flows generally to the south-southwest. The configuration of the water table appears to be a subdued reflection of the surface topography, as is typical for this area.

Hydraulic gradients

The vertical hydraulic gradients between the overburden and shallow bedrock wells ranged from fairly flat in the 12MW02 and 12MW03 clusters to slightly downward in the 12MW01 cluster (0.07 foot of head difference per foot of vertical elevation) to strongly downward in the 12MW04 well cluster (0.49 foot of head difference per foot of vertical elevation). The data suggest that communication between the overburden and shallow bedrock groundwater at the site ranges from good at the 12MW02 and 12MW03 well clusters to poor at the 12MW01 and 12MW04 well clusters.

Within the bedrock, the vertical gradients were uniformly downward, ranging from low (approximately 0.07 foot of head difference per foot of vertical elevation) in the 02MW03 and 03MW04 well clusters to moderately strong (0.15 foot of head difference per foot of vertical elevation) in the 12MW01 well cluster.

Horizontal hydraulic gradients vary across the site, but are generally fairly low. At the water table, the horizontal hydraulic gradients range from 0.004 foot of head difference per foot of horizontal distance between 12MW01O and 12MW02O to 0.05 foot of head difference per foot of horizontal distance between 12MW04O and 12MW03O. Within the shallow groundwater zone, the horizontal hydraulic gradients range from 0.009 foot of head difference per foot of horizontal distance between 02MW02S and 12MW01S to 0.002 foot of head difference per foot of horizontal distance between 12MW01S and 12MW02S.

The hydrogeologic cross-sections (Figures 3-8 and 3-9) illustrate the horizontal and vertical distribution of hydraulic head. Cross section A-A' (Figure 3-8) is oriented in the general direction of the topographic gradient, and cross section B-B' (Figure 3-9) is oriented roughly perpendicular to it. Both cross sections show groundwater flowing downward at all depths. Cross section A-A' shows groundwater flowing slightly

downward beneath Site 12 and more strongly downward down gradient from Site 12, at well cluster 12MW01.

The pumping of nearby off-Base municipal supply wells (see Figure 1-4) influences the local groundwater flow patterns. Horsham Township public supply well number 26 (which is approximately 400 feet deep) is located about 1,500 feet southwest of the site. During the drilling of borehole 02MW01I in the spring of 1997, a fracture located at a depth of about 74 to 78 feet yielded approximately 18 gpm of groundwater. As discussed, the subsequent flowmeter analysis indicated that groundwater was exiting the borehole via this large fracture, resulting in a depressed static water level and significant volumes of cascading water from shallower depths. The intermediate monitoring well was constructed to monitor this fracture. During the summer of 1997 (a particularly dry summer), this well was consistently dry to nearly dry, revealing a dewatered fracture and apparently indicating that the very low hydraulic head measured through this interval is indicative of heavy nearby well pumpage. This conclusion was later confirmed by the USGS water level study, that found a direct relationship between the pumping of HSW 26 and the substantial fluctuations in hydraulic head recorded in 02MW01I. This indicates that the migration of groundwater beneath Site 2, south of Site 12, is strongly influenced by the pumping of the off-Base Horsham municipal supply well.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 INTRODUCTION

This section evaluates sampling data from the 2007 Confirmation Soil Investigation of SSA 12, the 2010 Phase I RI, and the Phase II investigations completed for the current report. Details of the samples collected (number of samples, location, sample identifier) during each investigation are presented. Data were compared to federal and state human health-related benchmarks and Willow Grove background values, as detailed in Sections 6.1.3 and 6.1.5. The complete analytical data are included in Appendix I Part 1. Results and a sample location map from the background investigation, conducted during the Base-Wide Phase II RI, are included in Appendix I Part 2. A summary of background results and statistics are presented in Tables 2-8 through 2-13. Data validation reports may be found in Appendix I Part 3.

4.2 SURFACE SOIL

During the SSA 12 Confirmation Soil Investigation, 28 surface soil samples were collected. The samples were analyzed for full TCL/TAL analyses.

During the Phase I RI (2010), 40 surface soil samples were collected. Surface soil samples were obtained from two depths at five soil boring locations (12SB01 through 12SB05) and 15 test pit locations (12TP01 through 12TP15) and analyzed for full TCL/TAL parameters plus cyanide.

During the Phase II Investigation, 83 surface soil samples were collected. Four surface soil samples were collected from two test pits (02TP16 and 02TP17) and analyzed for full TCL/TAL parameters, including low level PAHs, plus cyanide. Two samples were also analyzed for hexavalent chromium and ORP. Twenty-nine “step-out” surface soil samples were collected for various analyses. Fifty surface soil samples were collected from two depths at 25 locations for risk assessment support and analyzed for full TCL/TAL parameters, cyanide, and low level PAHs. The samples from nine locations (18 samples) were also analyzed for hexavalent chromium and ORP.

Table 4-1 presents the occurrence and distribution of inorganic and organic chemicals detected and compares them to background. Table 4-2 presents the background comparison test results for metals in surface soil. Tables 4-3 and 4-4 present comparisons of detected compounds to federal and state screening levels for the SSA 12 Confirmation Soil Investigation and the RI, respectively. Figures 4-1A through 4-1E show sample locations and concentrations of compounds that exceed screening levels for

the SSA 12 Confirmation Soil Investigation, the Phase I investigation, the Phase II soil borings, the Phase II test pits, and the Phase II step-out samples, respectively.

4.2.1 Inorganics

The following sections describe the inorganic surface soil results for the SSA 12 Confirmation Soil Investigation, the Phase I investigation, and the Phase II investigation.

4.2.1.1 SSA 12 Confirmation Soil Investigation

Arsenic exceeded screening levels in all of the surface soil samples at concentrations ranging from 2.2 Milligram per kilogram (mg/kg) to 12.8 mg/kg; however, these concentrations were not statistically above background. Thallium exceeded screening levels and background concentrations in all but one of the samples at concentrations ranging from 1.3J (J = estimated) milligrams per kilogram (mg/kg) to 4.2J mg/kg. Figure 4-1A shows sample locations and contaminant concentrations that exceed screening levels.

4.2.1.2 Phase I Investigation

Arsenic exceeded screening levels in all of the surface soil samples at concentrations ranging from 1.6 mg/kg to 29.8 mg/kg; however, these concentrations were not statistically above background. Thallium exceeded screening levels and background concentrations in eight samples at concentrations ranging from 0.81 mg/kg to 1.2K (K = biased high) mg/kg. Figure 4-1B shows sample locations and contaminant concentrations that exceed screening levels.

Metals found at concentrations below screening concentrations but statistically greater than background include aluminum, chromium, copper, iron, lead, nickel, and vanadium.

4.2.1.3 Phase II Investigation

The surface soil sample results for the soil borings for risk assessment support, test pits, and step-out samples are discussed separately below.

Borings for Risk Assessment Support

Arsenic exceeded its screening levels in all of the surface soil samples at concentrations ranging from 1.1J mg/kg to 14.4J mg/kg; however, these concentrations were not statistically above background. Lead exceeded screening levels and background concentrations in two samples, 12SB06-000.5-01 and

12SB07-000.5-01, at concentrations of 401 mg/kg (average of duplicate samples) and 883 mg/kg, respectively. Figure 4-1C shows sample locations and contaminant concentrations that exceed screening levels.

Test Pits

Arsenic exceeded its screening levels in all of the surface soil samples, at concentrations ranging from 2.3L mg/kg to 5.2L mg/kg; however, these concentrations were not statistically above background. Thallium exceeded screening levels and background concentrations in one sample, 12TP16-0.502-02, at a concentration of 0.81 mg/kg. Figure 4-1D shows sample locations and concentrations of compounds that exceed screening levels.

Step-Out Samples

Step-out samples 12SB35-01 through 12SB38-01 were analyzed for lead. The lead concentrations ranged from 51.5 mg/kg to 295 mg/kg, none of which exceeded the human health screening levels for lead.

Samples 12SB45-02 through 12SB47-02 were analyzed for cadmium and copper. None of the results exceeded human health screening levels. The copper concentrations were statistically greater than background concentrations, but not the cadmium concentrations.

Samples 12SB49-02 and 12SB50-02 were analyzed for lead. None of the results exceeded human health screening levels.

Samples 12SB51-02 through 12SB53-02 were analyzed for lead. Lead exceeded human health screening levels and background concentrations in samples 12SB52-0.502-02 (1,410 mg/kg) and 12SB53-0.502-02 (470 mg/kg).

Figure 4-1E shows sample locations and concentrations of compounds that exceed screening levels.

4.2.2 Organics

The following sections describe the organic surface soil results for the SSA 12 Confirmation Soil Investigation, the Phase I investigation, and the Phase II investigation.

4.2.2.1 SSA 12 Confirmation Soil Investigation

There were no VOCs detected at concentrations exceeding screening levels. Several VOCs were detected at concentrations less than screening levels, including acetone, carbon disulfide, trichlorofluoromethane, and benzene.

SVOCs, consisting of PAHs, were detected at concentrations above screening levels in 17 surface soil samples. The highest concentrations of SVOCs were detected in sample SSA12-SS17E-000.5, which contained the following compounds at concentrations exceeding screening levels: benzo(a)anthracene [3700J micrograms per kilogram (µg/kg)], benzo(a)pyrene (2,600 µg/kg), benzo(b)fluoranthene (2,800 µg/kg), benzo(k)fluoranthene (2,700J µg/kg), dibenz(a,h)anthracene (610J µg/kg), and indeno(1,2,3-cd)pyrene (2,400J µg/kg).

The pesticide dieldrin was detected at concentrations above screening levels in the surface soil at five locations. The highest concentration, 500J ug/kg was detected in sample SSA12-SS07E-000.5. There were no other pesticides detected above screening levels. There were no PCBs detected.

Figure 4-1A shows sample locations and concentrations of compounds that exceed screening levels.

4.2.2.2 Phase I Investigation

There were no VOCs or PCBs detected at concentrations exceeding screening levels. SVOCs and pesticides were detected at concentrations above screening concentrations. Figure 4-1B shows sample locations and concentrations of compounds that exceed screening levels.

SVOCs, consisting of PAHs, exceeded screening levels in all but five surface soil samples. The following compounds (and their highest concentrations) exceeded screening levels: benzo(a)anthracene (21,000J µg/kg), benzo(a)pyrene (21,000J µg/kg), benzo(b)fluoranthene (19,000J ug/kg), benzo(k)fluoranthene (30,000 µg/kg), chrysene (22,000 µg/kg), and dibenz(a,h)anthracene (12,000 µg/kg) and indeno(1,2,3-cd)pyrene (30,000 µg/kg). The highest concentrations were detected in the surface soil samples from test pit 12TP11.

The pesticide dieldrin exceeded screening levels in two samples: 12TP11-000.5-01 (480 µg/kg) and 12TP11-0.502-02 (84 µg/kg). There were no PCBs detected.

4.2.2.3 Phase II Investigation

The surface soil sample results for the soil borings for risk assessment support, test pits, and step-out samples are discussed separately below.

Soil Borings for Risk Assessment Support

There were no VOCs, pesticides, or PCBs detected at concentrations exceeding screening levels.

SVOCs, consisting of PAHs, exceeded screening levels in 27 of the 50 samples collected. In 12 samples benzo(a)pyrene was the sole PAH exceeding screening levels. The benzo(a)pyrene exceedances ranged from 18 µg/kg to 4,600K µg/kg. Other PAHs exceeding screening levels include benz(a)anthracene (up to 6,000K [biased high] µg/kg), benzo(b)fluoranthene (up to 6,000K µg/kg), benzo(k)fluoranthene (up to 2,200K µg/kg), dibenz(a,h)anthracene (up to 220K µg/kg), and indeno(1,2,3-cd)pyrene (up to 2,000 µg/kg). The highest concentrations were found in sample 12SB10-0.502-02. Figure 4-1C shows sample locations and concentrations of compounds that exceed screening levels.

Test Pits

There were no VOCs, pesticides, or PCBs detected at concentrations exceeding screening levels. Benzo(a)pyrene exceeded screening levels in the two surface soil samples from test pit 12TP16, at concentrations of 22 µg/kg and 62 µg/kg. Figure 4-1D shows sample locations and concentrations of compounds that exceed screening levels.

Step Out Samples

Samples 12SB31-0.502-02 through 12SB34-0.502-02 were analyzed for PAHs. All four samples contained PAHs at concentrations exceeding screening levels. The highest concentrations were in sample 12SB31, which contained benz(a)anthracene at 1,210 µg/kg, benzo(a)pyrene at 1,550 µg/kg, benzo(b)fluoranthene at 2,450 µg/kg, dibenz(a,h)anthracene at 310 µg/kg, and indeno(1,2,3-cd)pyrene at 1,050 µg/kg (concentrations are averages of duplicate pairs).

Samples 12SB39-000.5-01 through 12SB41-000.5-01 were analyzed for PAHs. All three samples contained PAHs at concentrations exceeding screening levels. The highest concentrations were in sample 12SB39, which contained benz(a)anthracene at 840 µg/kg, benzo(a)pyrene at 800 µg/kg, benzo(b)fluoranthene at 1,100 µg/kg, dibenz(a,h)anthracene at 140 µg/kg, and indeno(1,2,3-cd)pyrene at 410J µg/kg.

Samples 12SB42-0.502-02 through 12SB44-0.502-02 were analyzed for PAHs. All three samples contained PAHs at concentrations exceeding screening levels. In 12SB42, benzo(a)pyrene (39 µg/kg) was the only compound that exceeded screening levels. The highest concentrations were in sample 12SB43, which contained benz(a)anthracene at 910 µg/kg, benzo(a)pyrene at 840 µg/kg, benzo(b)fluoranthene at 1,100 µg/kg, dibenz(a,h)anthracene at 170 µg/kg, and indeno(1,2,3-cd)pyrene at 450 µg/kg.

Sample 12SB48-0.502-02 was analyzed for PAHs. There were no compounds detected at concentrations exceeding screening levels.

Samples 12SB49-0.502-02 and 12SB50-0.502-02 were analyzed for PAHs. None of the results exceeded human health screening levels.

Samples 12SB51-0.502-02 through 12SB53-0.502-02 were analyzed for PAHs. All three samples contained PAHs at concentrations exceeding screening levels. The highest concentrations were in sample 12SB52, which contained benz(a)anthracene at 290 µg/kg, benzo(a)pyrene at 290 µg/kg, benzo(b)fluoranthene at 370 µg/kg, dibenz(a,h)anthracene at 47 µg/kg, and indeno(1,2,3-cd)pyrene at 170 µg/kg.

Samples 12SB54-0.502-02 through 12SB56-0.502-02 were analyzed for PAHs. Sample 12SB55-0.502-02 contained one compound, benzo(a)pyrene, at a concentration (29 µg/kg) above screening levels. Sample 12SB54-0.502-02 contained the following screening level exceedances: benz(a)anthracene at 6,300 µg/kg, benzo(a)pyrene at 4,900 µg/kg, benzo(b)fluoranthene at 6,400 µg/kg, benzo(k)fluoranthene at 2,800 µg/kg, dibenz(a,h)anthracene at 1,000 µg/kg, and indeno(1,2,3-cd)pyrene at 2,700 µg/kg.

Samples 12SB57-000.5-01 through 12SB59-000.5-01 were analyzed for PAHs and pesticides. Sample 12SB58-000.5-01 contained one compound, benzo(a)pyrene, at a concentration (33 µg/kg) above screening levels. Sample 12SB59-000.5-01 contained benz(a)anthracene at 7,600 µg/kg, benzo(a)pyrene at 6,400 µg/kg, benzo(b)fluoranthene at 8,800 µg/kg, benzo(k)fluoranthene at 3,100J µg/kg, dibenz(a,h)anthracene at 1,400 µg/kg, and indeno(1,2,3-cd)pyrene at 3,500 µg/kg.

Figure 4-1E shows sample locations and concentrations of compounds that exceed screening levels.

4.3 SUBSURFACE SOIL RESULTS

During the SSA 12 Confirmation Soil Investigation, seven subsurface soil samples were collected. The samples were analyzed for full TCL/TAL analyses.

During the Phase I Investigation, 30 subsurface soil samples were obtained from fifteen test pits (12TP01 through 12TP15) and analyzed for full TCL/TAL parameters plus cyanide. Five of the soil samples were also analyzed for dioxin.

During the Phase II Investigation, a total of 37 subsurface soil samples were collected. Four subsurface soil samples were collected from two test pits (02TP16 and 02TP18) and analyzed for full TCL/TAL parameters (including low level PAHs), cyanide, hexavalent chromium, ORP, and pH. One test pit sample was also analyzed for dioxin. Eight subsurface soil samples were collected from the Phase I sample locations showing the highest chromium concentrations and analyzed for total and hexavalent chromium, ORP, and pH analysis. Twenty-five subsurface soil samples were collected from 25 soil boring locations for risk assessment support and analyzed for full TCL/TAL parameters, cyanide, and low level PAHs. Nine samples were also analyzed for hexavalent chromium and ORP.

Table 4-5 presents the occurrence and distribution of inorganic and organic chemicals detected in site-related subsurface soil samples and compares them to background. Sections 6.1.3 and 6.1.5 provide details on the use of background in data evaluation. Table 4-6 presents the statistical background comparison test results for metals. Tables 4-7 and 4-8 present comparisons of detected compounds to federal and state screening levels for the SSA 12 Confirmation Soil Investigation and the RI, respectively. Figures 4-2A, 4-2B, 4-2C, and 4-2D show sample locations and concentrations of compounds that exceed screening levels for the SSA 12 Confirmation Soil Investigation, the Phase I investigation, the Phase II soil borings, and the Phase II test pits, respectively.

4.3.1 Inorganics

4.3.1.1 SSA 12 Confirmation Soil Investigation

Arsenic and thallium exceeded screening levels in all of the subsurface soil samples collected; however, only thallium was site-related based on the background comparison tests. The arsenic concentrations ranged from 4.7 mg/kg to 13.3 mg/kg and the thallium concentrations ranged from 3.2K mg/kg to 41.1K mg/kg. Iron and lead exceeded screening levels and background concentrations in sample SSA12-SB08D-2.02.5 at concentrations of 166,000 mg/kg and 1,250 mg/kg, respectively.

4.3.1.2 Phase I RI Investigation

Arsenic exceeded screening levels in all of the test pit subsurface soil samples at concentrations ranging from 0.77J mg/kg to 108L (L = biased low) mg/kg. Arsenic exceeded background in test pits 12TP02 (4 to 5 feet), 12TP03 (5 to 6 feet), 12TP09 (3 to 4 feet), 12TP08 (3 to 4 feet), 12TP15 (3-4 feet), and

12TP12 (2 to 3 feet). Metals other than arsenic were detected at concentrations exceeding screening levels in ten of the fifteen test pits. These metals (and their highest concentrations) include cadmium (105 mg/kg) in one sample, cobalt (23.1 mg/kg) in one sample, iron (93,000 mg/kg) in four samples, lead (7,900J mg/kg) in six samples, manganese (3,740 mg/kg) in three samples above background, and thallium (4.2 mg/kg) in 11 samples.

Metals found at concentrations below screening concentrations but statistically greater than background include aluminum, barium, chromium, copper, nickel, and vanadium.

4.3.1.3 Phase II Investigation

The subsurface soil sample results for the soil borings for risk assessment support, test pits, and chromium speciation sampling are discussed separately below.

Soil Borings for Risk Assessment Support

Arsenic was the only metal that exceeded screening levels. Arsenic exceeded screening levels in all of the subsurface soil samples at concentrations ranging from 1.1L mg/kg to 10.7J mg/kg. As detailed in Sections 6.1.3 and 6.1.5, these concentrations were not greater than background.

Test Pits

Arsenic exceeded screening levels in all of the subsurface soil samples at concentrations ranging from 2.5 mg/kg to 16.8J mg/kg. Arsenic exceeded background at test pit 12TP18 at a depth of 5 to 6 feet. Lead exceeded screening levels and background concentrations in one sample, 12TP16-0608-03, at a concentration of 1,715 mg/kg (average of duplicate sample results). Manganese was also detected at levels above background in one test pit (12TP16) at a depth of 8 to 9 feet.

Chromium Speciation

Hexavalent chromium was detected in all but one of the 20 subsurface soil samples analyzed for this parameter. The detected concentrations ranged from 0.4 mg/kg to 4.7 mg/kg. None of the concentrations exceeded screening levels.

4.3.2 Organics

4.3.2.1 SSA 12 Confirmation Soil Investigation

Benzo(a)pyrene was detected above screening levels in one shallow subsurface soil sample (SSA12-SB08D-2.02.5) at a concentration of 100 µg/kg.

There were no VOCs, pesticides, or PCBs detected above screening levels.

4.3.2.2 Phase I RI Investigation

There were no VOCs detected in subsurface soils at concentrations exceeding screening levels. Sample 12TP04-0405-03, collected from soil exhibiting a petroleum odor, contained several VOCs at concentrations less than screening levels, including ethylbenzene (280 µg/kg), isopropylbenzene (540 µg/kg), methyl cyclohexane (880 µg/kg), and total xylenes (970 µg/kg). Low levels of VOCs were also detected in samples from test pits 12TP01, 12TP02, 12TP09, 12TP10, 12TP13, 12TP14, and 12TP15. The compounds detected included acetone, benzene, chloromethane, cis-1,2-DCE, trans-1,2-DCE, toluene, and vinyl chloride. TCE was detected in one sample, 12TP14-0404-03, at a concentration of 3.2J µg/kg.

SVOCs, consisting of PAHs, were detected at concentrations exceeding screening levels in ten test pits: 12TP02, 12TP03, 12TP06, 12TP08, 12TP09, 12TP10, 12TP11, 12TP12, 12TP14, and 12TP15. The highest concentrations were detected in duplicate sample pair 12TP09-0304-03/03D, which contained the following compounds at concentrations (averages of the duplicate samples) exceeding screening levels: benzo(a)anthracene (14,950J ug/kg), benzo(a)pyrene (11,400J µg/kg), benzo(b)fluoranthene (11,050 µg/kg), benzo(k)fluoranthene (13,050J µg/kg), chrysene (16,350 µg/kg), and dibenz(a,h)anthracene (3,000 µg/kg), and indeno(1,2,3-cd)pyrene (7,500 µg/kg).

The pesticide dieldrin exceeded screening levels in sample 12TP11-0304-03 at a concentration of 44 µg/kg. There were no PCBs detected.

Dibenzodioxin and dibenzofuran compounds were detected in all five of the subsurface soil samples (12TP02-03, 12TP03-04, 12TP06-03, 12TP08-03, and 12TP09-05) that were analyzed for these compounds. The concentrations in all five samples exceeded the screening concentrations for total 2,3,7,8-TCDD toxicity equivalents (TEQ). The highest TEQ [603 nanograms per kilogram (ng/kg)] was detected in sample 12TP02-0405-03. No background samples were analyzed for these compounds.

4.3.2.3 Phase II Investigation

The subsurface soil sample results for the soil borings for risk assessment support and test pits are discussed separately below.

Soil Borings

There were no VOCs detected at concentrations exceeding screening levels. Acetone, 2-butanone, and methylene chloride were detected at concentrations less than screening levels. Acetone was detected in seven samples at concentrations ranging from 11J µg/kg to 110 µg/kg, 2-butanone was detected in one sample at 5.1J µg/kg, and methylene chloride was detected in one sample at 2.4J µg/kg. None of these compounds were detected in background samples.

PAHs were detected above screening levels in five samples: 12SB09-0304-03, 12SB10-0304-0312SB11-0304-03, 12SB12-0304-03, and 12SB19-0304-03. The highest concentrations were found in sample 12SB10-0304-03, which contained benz(a)anthracene at 1,800K µg/kg, benzo(a)pyrene at 1,400K µg/kg, benzo(b)fluoranthene at 1,900K µg/kg, dibenz(a,h)anthracene at 71K µg/kg, and indeno(1,2,3-cd)pyrene at 640K µg/kg. Benzo(a)pyrene was the only compound that exceeded screening levels in samples 12SB09-0304-03 (36 µg/kg), 12SB11-0304-03 (34 µg/kg), and 12SB12-0304-03 (23 µg/kg).

Aroclor-1260 was detected in one sample of the duplicate sample pair 12SB20-0304-03/-D at 360J µg/kg, which is below screening concentrations. This compound was not detected in background.

There were no pesticides detected.

Test Pits

There were no VOCs detected at concentrations exceeding screening levels. Detected compounds and their highest concentrations include 2-butanone (33J µg/kg), acetone (135J µg/kg), benzene (3.7J µg/kg), and isopropylbenzene (10.1J µg/kg).

PAHs were detected at concentrations exceeding screening levels in two samples, 12TP16-0608-03 and 12TP18-0506-01. Sample 12TP16-0608-03 contained benz(a)anthracene at 500 µg/kg, benzo(a)pyrene at 465 µg/kg, benzo(b)fluoranthene at 1,200 µg/kg, and indeno(1,2,3-cd)pyrene at 330 µg/kg. Sample 12TP18-0506-01 contained benzo(a)pyrene at 120 µg/kg.

The pesticides 4,4-Dichlorodiphenyldichloroethane (DDD) and 4,4-DDT were detected in sample 12TP18-0506-01 at concentrations of 1.1J µg/kg and 2.2 µg/kg, respectively, well below screening levels. There were no PCBs detected.

4.4 SURFACE WATER RESULTS

During the Phase I investigation, seven surface water samples were collected. Four samples (12SW01, 12SW02, 12SW04, and 12SW05) were collected from the intermittent stream that runs through the southeastern part of the site, one sample (12SW03) was collected from the storm water outfall to the intermittent stream, and two samples (12SW07 and 12SW08) were collected from the drainage ditch that borders the site to the southwest. The samples were analyzed for full TCL/TAL analyses plus cyanide.

Table 4-9 presents the occurrence and distribution of inorganic and organic chemicals detected in site-related surface water samples and compares them to background. Table 4-10 presents the background comparison test results. Table 4-11 presents a comparison of detected compounds to federal and state screening levels. Figure 4-3 shows sample locations and concentrations of compounds that exceed human health risk screening levels.

4.4.1 Inorganics

The highest metals concentrations and the greatest number of screening level exceedances were detected in the unfiltered sample from location 12SW07, which was the sample with the highest turbidity greater than 2,000 NTU. This sample contained 10 metals at concentrations greater than screening levels, including aluminum (31,800 µg/Micrograms per liter (L), arsenic (10.6 µg/L), cadmium (1.1 µg/L), chromium (37.8 µg/L), cobalt (32.6 µg/L), iron (44,700 µg/L), lead (88 µg/L), manganese (1,990J µg/L), mercury (0.2 µg/L), and zinc (253L µg/L). The filtered sample from this location contained two exceedances: aluminum (270 µg/L) and manganese (845 µg/L). The unfiltered sample from location 12SW08, which had a turbidity of 27 NTU, contained four screening level exceedances: aluminum (2,700 µg/L), iron (2,760 µg/L), lead (10.6 µg/L), and manganese (114J µg/L). The filtered sample contained no exceedances.

In the remaining five surface water samples, which had turbidities less than 10 NTU and did not require filtering, there were two metals, lead and manganese, that exceeded screening levels. Lead exceeded its screening levels in one sample, 12SW05, at a concentration of 3.6 µg/L. Manganese exceeded screening levels in three samples at concentrations ranging from 1,000J µg/L (average of duplicate samples) to 2,100J µg/L.

Cyanide exceeded screening levels in three samples: 12SW02/02D (25.5J µg/L [average of duplicate sample concentrations]), 12SW03 (6.8L µg/L), and 12SW05 (6L µg/L).

4.4.2 Organics

There were no VOCs detected at concentrations exceeding screening levels. PAHs exceeded screening levels in surface water samples 12SW02, 12SW07, and 12SW08. The highest concentrations were detected in sample 12SW07, which contained benz(a)anthracene (6.3 µg/L), benzo(a)pyrene (7.1 µg/L), benzo(b)fluoranthene (6.5 µg/L), benzo(k)fluoranthene (4.8J µg/L), chrysene (7.6 µg/L), dibenz(a,h)anthracene (0.21J µg/L), indeno(1,2,3-cd)pyrene (5J µg/L), and phenanthrene (4.8J µg/L).

Pesticides exceeded screening levels in all of the samples except 12SW04 and 12SW05. The highest concentrations and the greatest number of screening level exceedances were detected in sample 12SW07. The compounds exceeding screening levels in this sample include 4,4'- DDT (0.019 µg/L), aldrin (0.015J µg/L), alpha chlordane (0.058 µg/L), and dieldrin (1.6 µg/L). There were no PCBs detected.

4.5 SEDIMENT RESULTS

During the Phase I RI, eight sediment samples were collected. The samples were collected from the same locations as the corresponding surface water samples. Sample 12SD06, which does not have a corresponding surface water sample location because the location was dry, was collected at the upstream end of the intermittent stream. The samples were analyzed for full TCL/TAL analyses plus cyanide.

Table 4-12 presents the occurrence and distribution of inorganic and organic chemicals detected in site-related sediment samples and compares them to background. Table 4-13 presents the background comparison test results. Table 4-14 presents a comparison of detected compounds to federal and state screening levels. Figure 4-3 shows sample locations and concentrations of compounds that exceed screening levels. The analytical results for sediment were compared to EPA Region 3 Freshwater Sediment Screening Benchmarks. VOCs, SVOCs, pesticides, and metals were identified at concentrations above these screening concentrations.

4.5.1 Inorganics

Metals exceeded screening criteria in all the sediment samples except 12SD07. The following metals exceeded screening levels: antimony, in one sample (2.2J mg/kg); cadmium, in one sample (2.1 mg/kg);

copper, in one sample (44.7 Milligrams (mg)/kg), iron, in one sample (up to 24,000L mg/kg), lead, in five samples (up to 90 mg/kg), manganese, in three samples (up to 17,400L mg/kg), and nickel, in one sample (28.4 mg/kg). Of these metals, only iron and lead are considered site-related based on background comparison tests.

4.5.2 Organics

One VOC, carbon disulfide, exceeded its freshwater sediment screening level (0.851 µg/kg) in two samples: 12SD01 (5.4J µg/kg) and 12SD03/03D (15J µg/kg [average of duplicate sample concentrations]).

PAHs exceeded screening levels in all the sediment samples except 12SD04 and 12SD05. The highest concentrations of PAHs were detected in samples 12SD03, the sample at the storm water outfall, and the two samples downstream from the outfall, 12SD01 and 12SD02. The PAHs in these samples may be the result of migration from an upstream source via the storm water outfall. Among the PAHs detected in these samples and their highest concentrations were benz(a)anthracene (2,500 µg/kg), benzo(k)fluoranthene (3,500J µg/kg), benzo(a)pyrene (3,000 µg/kg), chrysene (3,600 µg/kg), fluoranthene (8,100 µg/kg), indeno(1,2,3-cd)pyrene (1,700 µg/kg), phenanthrene (4,300 µg/kg [average of duplicate sample concentrations]), and pyrene (6,300 µg/kg). All of these compounds were determined to be site-related based on background comparison tests.

Pesticides exceeded screening levels in all the sediment samples except 12SD04 and 12SD05. Pesticides that exceeded screening levels include 4,4-Dichlorodiphenyltrichloroethane (DDT) (up to 5.2J µg/kg), alpha chlordane (up to 12J µg/kg), and dieldrin (up to 55 µg/kg). 4-4'-DDT and dieldrin were determined to be site-related based on background comparison tests.

4.6 GROUNDWATER RESULTS

During the Site 2 Groundwater Confirmation Sampling, groundwater samples were collected from the seven Site 2 monitoring wells: 02MW01S, 02MW01I, 02MW02S, 02MW03SI, 02MW03I, 02MW04S, and 02MW04I. The samples were sent to GPL Laboratories and analyzed for TCL VOCs, SVOCs (including low level PAHs by Selective Ion Monitoring [SIM]), and total TAL metals. Since the sample turbidity of all of the samples was less than 10 NTUs, no filtered samples were collected for dissolved metals analysis, in accordance with the SAP.

During the Site 12 Phase II RI field activities, samples were collected from the seven Site 2 monitoring wells and the eight new Site 12 monitoring wells. The samples from the Site 2 monitoring wells were

analyzed for VOCs only. The samples from the Site 12 monitoring wells were analyzed for TCL VOCs, SVOCs (including low level PAHs), pesticides/PCBs, TAL metals, and cyanide. Samples from four wells (12MW01O, 12MW01S, 12MW02O, and 12MW02S) were also analyzed for dioxins/furans. Filtered metals samples were collected from monitoring wells 12MW01S, 12MW03O, and 12MW04O since the sample turbidities for these wells were greater than 10 NTU.

Table 4-15 presents the occurrence and distribution of inorganic and organic chemicals detected in site-related groundwater samples. Table 4-16 presents a comparison of detected compounds to screening levels. Figures 4-4 and 4-5 show sample locations and concentrations of compounds that exceed screening levels from the Site 2 Groundwater Confirmation Sampling and the Phase II field activities, respectively.

4.6.1 Inorganics

During the Site 2 Groundwater Confirmation Sampling, total chromium exceeded screening levels in four wells: 02MW01I [1.4J µg/L (average of duplicate samples)], 02MW02S (1.8J µg/L), 02MW03SI (4.1J µg/L), and 02MW03I (2.8J µg/L). Total aluminum and total arsenic exceeded screening levels in 02MW01I at concentrations of 210 µg/L and 1.2J µg/L, respectively (both averages of duplicate samples). There were no filtered samples collected since all sample turbidities were less than 10 NTU.

During the Phase II RI, metals exceeded screening levels in the unfiltered samples from all eight Site 12 wells (Figure 4-5). Total chromium concentrations exceeded screening levels in all eight wells at concentrations ranging from 2.6J µg/L in 12MW03S to 24.6J µg/L in 12MW03O. Total manganese exceeded screening levels in seven wells at concentrations ranging from 86.5 µg/L in 12MW02O to 1,655 µg/L in 12MW03S. Total arsenic exceeded screening levels in three wells at concentrations up to 2.7 µg/L. Total lead exceeded screening levels in one well, 12MW02O, at 5.1 µg/L. Other total metals that exceeded screening levels included aluminum (up to 8,570 µg/L), iron (up to 12,200 µg/L), and manganese (up to 1,655 µg/L).

Filtered samples were collected from three wells, 12MW01S, 12MW03O, and 12MW04O, since the sample turbidities were greater than 10 NTU. Dissolved chromium and manganese exceeded screening levels in all three samples, dissolved arsenic in two samples, and dissolved aluminum and iron in one sample.

4.6.2 Organics

During the Site 2 Groundwater Confirmation Sampling, VOCs exceeded screening levels in four wells, 02MW01S, 02MW03SI, 02MW03I, and 02MW04S. Methylene chloride was detected in all of the wells and exceeded screening levels in 02MW01S (9.2 µg/L), 02MW03I (6.4 µg/L), and 02MW04S (94 µg/L). Carbon tetrachloride (0.77J µg/L) and chloroform (0.74 µg/L) exceeded screening levels in 02MW03I, and TCE exceeded screening levels in 02MW03SI (3.9 µg/L) and 02MW03I (1.6 µg/L). One SVOC, BEHP, was detected above screening levels in all seven wells sampled at concentrations ranging from 0.35 µg/L to 1.2 µg/L.

During the Phase II RI, VOCs exceeded screening levels in two wells, 02MW03SI and 02MW03I. TCE exceeded screening levels in 02MW03SI (4.1 µg/L) and 02MW03I (2 µg/L). Carbon tetrachloride (0.61J µg/L) and chloroform (0.77J µg/L) exceeded screening levels in 02MW03I. Cis-1,2-dichloroethene was detected below screening levels in 02MW03I. There were no VOCs detected in the Site 12 monitoring wells.

Dioxins were detected in all four of the wells sampled for these compounds. 2,3,7,8-TCDD TEQ exceeded screening levels in 12MW01O [0.616 picograms per liter (pg/L)] and 12MW01S (1.47 pg/L).

There were no SVOCs detected above screening levels. Trace levels of PAHs were detected in monitoring wells 12MW02S and 12MW03S. There were no pesticides or PCBs detected.

Discussion

The methylene chloride detected in three Site 2 monitoring wells above screening levels in 2009 was not detected in 2012, indicating that it was likely the result of laboratory contamination. A formal data validation was not performed for the 2009 data. An environmental chemist reviewed the data and the laboratory report to ensure Navy and EPA analytical guidelines were followed, concluding that the data collected during the groundwater investigation were generally of sufficient quality to be used to evaluate current site conditions. The rinsate blank contained 6.8 µg/l methylene chloride, which is a commonly reported laboratory contaminant. If validation were performed, concentrations of methylene chloride below 68 µg/l (10 times the concentration found in the rinsate blank) would be qualified “B” for blank contamination and would be considered unusable. Thus, all of the methylene chloride detections except that for sample 02MW04S (94 µg/L) would have been qualified “B” had the data been validated. Likewise, the low detections of bis(2-ethylhexyl)phthalate (BEHP) detected in 2009 but not in 2011 are likely due to laboratory contamination.

The concentrations of TCE detected in monitoring wells 02MW03SI and 02MW03I and of carbon tetrachloride and chloroform in 02MW03I were consistent between 2009 and 2012. In 02MW03SI, the concentrations of TCE in 2009 and 2011 were 3.9 µg/L and 4.1 µg/L, respectively, and in 02MW03I, they were 1.6 µg/L and 2 µg/L, respectively. In 02MW03I, the concentrations of carbon tetrachloride in 2009 and 2011 were 0.77J µg/L and 0.61J µg/L, respectively, and the concentrations of chloroform were 0.74 µg/L and 0.77J µg/L, respectively. The locations of these wells, directly down gradient from Site 12, suggest that the site is the likely source of the contamination; however, the soil sample results do not provide evidence for the exact location of the source. TCE was detected in only one soil sample, 12TP14-0405-03, at a trace level (3.2J µg/kg), and neither carbon tetrachloride nor chloroform was detected in any soil sample. Furthermore, these compounds were not detected in any other site monitoring well. These observations suggest that the groundwater contamination is the result of a minor, extremely localized source within the landfill.

4.7 CONCLUSIONS

Sample results indicate that the principal classes of contaminants in surface soils are PAHs and metals, and in subsurface soils, PAHs, dioxins, and metals. PAHs were detected above screening levels in the majority of the surface and subsurface soil samples collected. In general, the highest concentrations were detected in samples collected within areas of buried waste. Site-related metals contamination consists mainly of lead. Dioxins/furans were detected above screening levels in all five of the subsurface soil samples analyzed for these compounds. These samples were collected from charred waste encountered in test pits 12TP02, 12TP03, 12TP06, 12TP08, and 12TP09. There were no VOCs detected above screening levels in site soils. Additional evaluation of the spatial distribution of contaminants and associated risk is presented in Appendix K, Parts 6 through 9.

Surface water and sediment show PAH, pesticide, and metals contamination. PAHs exceeded screening levels in three surface water samples and all but two of the sediment samples. The highest surface water PAH concentrations were detected in the drainage ditch that forms the southern boundary of the site. The highest PAH concentrations in sediment were detected at the storm water outfall and in the intermittent stream downstream from the storm water outfall. It is unclear whether these elevated PAH sediment concentrations are the result of the landfill wastes or migration from a source upstream from the landfill via the storm water outfall. There was no pattern to the distribution of metals or pesticide exceedances in surface water or sediment.

Two monitoring wells, 02MW03SI and 02MW03I, contain the VOCs TCE, carbon tetrachloride, and chloroform at concentrations exceeding screening levels. The locations of these wells indicate that the landfill is the likely source of the contamination, although soil sample results do not show the precise

location of the source within the landfill. Most of the monitoring wells contained metals at concentrations exceeding screening levels. The groundwater metals contamination consisted mainly of arsenic, manganese and chromium.

5.0 CONTAMINANT FATE AND TRANSPORT

5.1 CHEMICALS AND MEDIA OF INTEREST FOR FATE AND TRANSPORT ASSESSMENT

The fate and transport of chemicals found at Site 12 is assessed based on an evaluation of analytical data collected for soil, groundwater, surface water, and sediment. Substances detected in each environmental medium that exceeded risk-based screening concentrations were carried through a quantitative human health risk assessment as detailed in Section 6. Therefore, it is relevant to focus the fate and transport evaluation on chemicals considered to be major risk drivers; i.e., those which were found to contribute significantly to potentially unacceptable levels of human health risks, based on an evaluation of hypothetical exposures to the concentration levels found at the site.

The principal classes of contaminants detected in surface soils were PAHs, pesticides, metals, and trace level VOCs. Subsurface soils also displayed similar chemical classes, with the addition of chlorinated dioxins/furans. PAHs were detected above screening levels in the majority of the surface and subsurface soil samples collected. In general, the highest concentrations were detected in samples collected within areas of buried waste. The occurrence and distribution data presented in Table 4-1 revealed that the maximum detected concentrations of carcinogenic risk driver PAHs in surface soil were generally about 20 times greater than maximum background levels with the highest concentrations detected in waste burial areas., Similarly, Table 4-5 shows that the maximum detected concentrations of individual PAHs in subsurface soil were generally around 10 times greater than maximum background levels, again with mean PAH concentrations either similar to or within a factor of two of mean background levels. Almost all of the detected pesticides and VOCs were found at concentrations below screening levels in surface and subsurface soil. As described in Section 6, the human health risk drivers associated with exposure to surface soil consisted of 6 PAHs, chromium, thallium, and arsenic (the latter of which was detected at levels statistically similar to background). For the assessment of exposure to total soil (representing a combination of surface soil and subsurface soil), human health risk drivers comprised 6 PAHs, Aroclor-1260, chromium, thallium, arsenic (which was similar to background), and manganese (also similar to background). Note that Aroclor-1260 was detected in only one out of 186 soil samples. All of the aforementioned substances, except for the two metals related to background conditions, were included in the fate and transport evaluation.

The human health risk drivers associated with exposure to groundwater were chlorinated dioxins/furans, trichloroethene, arsenic, chromium, aluminum, and manganese. Statistical background tests were not conducted for groundwater because too few data points were obtained from the one upgradient monitoring well to draw a confident conclusion.

Groundwater data for arsenic revealed detections in 3 out of 8 samples at a range from 0.23 ug/l to 2.7 ug/L. In the one NAS JRB upgradient well 02MW02S, arsenic was detected at 1.3 ug/L in one out of two samples, which is approximately one-half the maximum concentration found at Site 12. Therefore, detection of low levels of arsenic, which is a naturally occurring substance, in Site 12 groundwater appears consistent with local upgradient conditions. The mean Site 12 aluminum groundwater concentration was 1530 ug/L, which is approximately a factor of 30 times the mean upgradient concentration of 49.1 ug/L. The mean Site 12 manganese groundwater concentration was 530 ug/L, which is approximately a factor of 16 times the mean upgradient concentration of 34.2 ug/L. Considering the aforementioned lines of evidence, chlorinated dioxins/furans, trichloroethene, aluminum, and manganese were retained for the evaluation of fate and transport of chemicals found in groundwater, while arsenic was considered to be associated with background conditions.

The human health risk drivers associated with exposure to surface water were chromium, dieldrin, and 6 PAHs. Chromium was not detected in any of 8 background surface water samples, with detection limits of approximately 1 ug/l. Dieldrin was detected in 5 out of 7 Site 12 surface water samples, while most of the PAHs were detected in 3 out of 7 Site 12 surface water samples. PAHs exceeded screening levels in three surface water samples. The highest surface water PAH concentrations were detected in the drainage ditch that forms the southern boundary of the site. The aforementioned substances were included in the evaluation of fate and transport of substances found in surface water.

The only human health risk-drivers associated with sediment exposure were manganese and thallium. The background comparison tests in Table 4-13 determined that manganese concentrations were not statistically greater than background. Therefore, only thallium was considered in evaluating the fate and transport of substances found in sediment. Because PAHs were also detected as risk drivers in surface water, it should be noted that the highest PAH concentrations in sediment were detected at the storm water outfall and in the intermittent stream downstream from the storm water outfall. It is unclear whether these elevated PAH sediment concentrations are the result of the landfill wastes or migration from a source upstream from the landfill via the storm water outfall. There was no pattern to the distribution of metals or pesticides found in surface water or sediment.

5.2 CHEMICAL AND PHYSICAL PROPERTIES IMPACTING FATE AND TRANSPORT

Table 5-1 presents the physical and chemical properties of the organic compounds that were identified as human health risk drivers in various media at Site 12. The properties of interest include the following:

- Specific gravity
- Vapor pressure

- Water solubility
- Octanol/water partition coefficient
- Organic carbon partition coefficient
- Henry's Law constant
- Bioconcentration factor
- Distribution coefficient

Empirically determined literature values of the water solubility, octanol/water partition coefficient, organic carbon partition coefficient, vapor pressure, Henry's Law constant, bioconcentration factor, and specific gravity are presented, when available. Calculated values, which were obtained using approximation methods, are presented when literature values are not available. A discussion of the environmental significance of each of these parameters follows.

5.2.1 Specific Gravity

Specific gravity is the ratio of the weight of a given volume of pure chemical at a specified temperature to the weight of the same volume of water at a given temperature. Its primary use is to determine whether a chemical will have a tendency to float or sink in water if it is present as a pure chemical or at very high concentrations. Chemicals with a specific gravity greater than 1 will tend to sink, and chemicals with a specific gravity less than 1 will tend to float. This parameter becomes important in discussions regarding the potential presence of free product in non-aqueous-phase liquids.

Of the risk driver chemicals identified at Site 12, trichloroethene, PAHs, dieldrin, and dioxins all have a specific gravity greater than 1. However, contamination consisting of dense, non-aqueous phase liquids (DNAPL) has not been encountered at Site 12 over the course of several investigations.

5.2.2 Vapor Pressure

Vapor pressure provides an indication of the rate at which a chemical volatilizes from both soil and water. It is of primary importance at environmental interfaces such as surface soil/air and surface water/air. Volatilization is not as important when evaluating contaminated groundwater and subsurface soils that are not exposed to the atmosphere. However, tap water used for showering presents a direct route for volatilization of organic chemicals such as trichloroethene, especially given the increase in volatilization rates with elevated temperatures. Chemicals with higher vapor pressures are expected to enter the atmosphere much more readily than those with low vapor pressures. Surface soils at Site 12 do not contain high levels of VOCs, so, volatilization from soil is not likely to be an important release mechanism.

5.2.3 Water Solubility

The rate at which a chemical is leached from a waste deposit by infiltrating precipitation is proportional to its water solubility. More soluble chemicals are more readily leached than less soluble chemicals. The water solubilities presented in Table 5-1 indicate that the VOC trichloroethene is several orders of magnitude more water soluble than the PAHs, PCBs, pesticides, and dioxins.

The solubility of inorganics is strongly influenced by their valence state(s) and forms (hydroxides, oxides, carbonates, etc.). The solubility is also dependent on pH, Eh (redox potential), temperature, and other ionic species in solution (the Debye Huckel theory). The solubility products reported in the literature vary with the type of complex formed, but generally it can be noted that, for example, cadmium and copper complexes are more soluble than lead and nickel complexes.

5.2.4 Octanol/Water Partition Coefficient

The octanol/water partition coefficient (Kow) is a measure of the equilibrium partitioning of chemicals between octanol and water. A linear relationship between the Kow and the uptake of chemicals by fatty tissues of animal and human receptors (the bioconcentration factor) has been established (Lyman et al., 1990). It is also useful in characterizing the sorption of compounds by organic soils where experimental values are not available. Pesticides, chlorinated dioxins/furans, and aromatic or polyaromatic compounds lacking functional groups that enhance water solubility are several orders of magnitude more likely to partition to fatty tissues than the more soluble VOCs. The Kow is also used to estimate bioconcentration factors in aquatic organisms.

5.2.5 Organic Carbon Partition Coefficient

The organic carbon partition coefficient (Koc) indicates the tendency of a chemical to adhere to soil particles containing organic carbon. Chemicals with high Kocs generally have low water solubilities and vice versa. This parameter may be used to infer the relative rates at which the more mobile chemicals (ketones, monocyclic aromatics, and halogenated aliphatics) are transported in the groundwater. Chemicals such as most pesticides, PAHs, and chlorinated dioxins/furans are relatively immobile in the soil and are preferentially bound to the soil. These compounds are not subject to groundwater transport to the extent that compounds with higher water solubilities are. However, these immobile chemicals are easily transported by erosional processes when they are present in surface soils. Several factors affect the measured value of Koc. Values of Koc usually decrease with increasing temperature. The fine silt and clay fraction of soil and sediments may have a great tendency to absorb chemicals. The different clay fractions have different adsorptive capacities. Chemicals that tend to ionize have soil sorption

properties that are strongly affected by the pH. Changes in the water content of soil or sediment will change the fraction of the chemical that is adsorbed. As the water content is lowered, the fraction that is adsorbed will increase as the concentration in solution does.

5.2.6 Henry's Law Constant

Both the vapor pressure and the water solubility are of use in determining volatilization rates from surface water bodies and from groundwater. The ratio of these two parameters (the Henry's Law constant) is used to calculate the equilibrium chemical concentrations in the vapor (air) phase versus the liquid (water) phase for the dilute solutions commonly encountered in environmental settings. In general, chemicals having a Henry's Law constant of less than 1×10^{-5} atm m^3/mole, such as pesticides, PAHs, and dioxins, should volatilize very little and be present only in minute amounts in the atmosphere or soil gas. For chemicals with a Henry's Law constant greater than 5×10^{-3} atm m^3/mole, such as many of the halogenated aliphatics, volatilization and diffusion in soil gas could be significant.

5.2.7 Bioconcentration Factor

The bioconcentration factor (BCF) represents the ratio of aquatic-animal-tissue concentration to water concentration. The ratio is both contaminant and species specific. When site-specific values are not measured, literature values are used or the BCF is derived from the octanol/water coefficient. Many of the pesticides, dioxins, and PAHs will bioconcentrate at levels three to five orders of magnitude greater than those concentrations found in the water, but VOCs and nitrogen-containing compounds are not as readily bioconcentrated.

5.2.8 Distribution Coefficient

The distribution coefficient (Kd) is a measure of the equilibrium distribution of a chemical or ion in soil/water systems. The distribution of organic chemicals is a function of both the Koc and the amount of organic carbon in the soil. For ions (e.g., metals), Kd is the ratio of the concentration adsorbed on soil surfaces to the concentration in water. Distribution coefficients for metals vary over several orders of magnitude because the Kd is dependent on the size and charge of the ion and the soil properties governing exchange sites on soil surfaces. Coulomb's Law predicts that the ion with the smallest hydrated radius and the largest charge will be preferentially accumulated over ions with larger radii and smaller charges.

5.3 CONTAMINANT TRANSPORT PATHWAYS

This section presents a brief overview of contaminant fate and transport issues at Site 12. Based on the evaluation of existing conditions at Site 12, the following potential contaminant transport pathways may exist at the site:

- Leaching of soil contaminants to groundwater
- Migration of groundwater contaminants
- Leaching of sediment contaminants to surface water
- Migration of contaminants in surface water
- Volatilization from soil or groundwater
- Erosion and runoff of contaminated particles from soil and deposition in surface water bodies

5.3.1 Leaching of Soil Contaminants to Groundwater

Contaminants that adhere to soil particles or have accumulated in soil pore spaces can leach and migrate vertically to the groundwater as a result of infiltration or precipitation. The rate and extent of this leaching is influenced by the depth of the water table, amount of precipitation, rate of infiltration, the physical and chemical properties of the soil, and the physical and chemical properties of the contaminant.

In order to evaluate whether detected soil concentrations could partition into groundwater and yield concentrations exceeding risk-based criteria, Section 6.1.7 presents a comparison of maximum detected soil concentrations to soil screening levels (SSLs), derived from assumptions regarding aquifer hydraulic conductivity, hydraulic gradient, infiltration rate, mixing zone height, aquifer thickness, source length, and chemical-specific soil-water Kd's. This comparison resulted in a list of metals, pesticides, PAHs, and VOCs of theoretical concern for the soil-to-groundwater pathway. However, historical records for Site 12 indicate that disposal activities ceased around 1960, over 50 years ago. Current groundwater concentrations should therefore reflect any potential long-term impacts of leaching from soil to shallow groundwater. Considering the lengthy list of Site 12 soil-to-groundwater exceedances identified by SSL screening, it is notable that only a small subset of these substances were detected above RSLs in groundwater: chlorinated dioxins/furans, aluminum, arsenic, barium, chromium, cobalt, iron, and manganese. However, arsenic and manganese levels in both surface and subsurface soil were within the statistical range of background and the cobalt surface soil data were also similar to background. Due to the half-century of time that has elapsed since disposal operations ended, it is likely that the readily leachable fraction of chemicals absorbed onto soils has been largely depleted.

5.3.2 Migration of Groundwater Contaminants

Contaminants can migrate in either a dissolved phase or as an immiscible liquid. A contaminant that is present in water above its solubility concentration will form an immiscible liquid. At Site 12, the detected groundwater concentrations of solvents were several orders of magnitude below aqueous solubility limits, which suggests that non-aqueous liquid phases, such as LNAPL or DNAPL, are not present at the site.

Contaminant concentrations may be affected by one or more mechanisms during transport. Volatilization or precipitation may physically transform contaminants. Contaminants may be chemically transformed through photolysis, hydrolysis, or oxidation/reduction. Contaminants may also be biologically transformed by biodegradation. Additionally, contaminants may accumulate in one or more media.

Organics leaching from the soil into the groundwater can migrate as dissolved constituents in groundwater. Three general processes govern the migration of dissolved constituents in groundwater: advection, dispersion, and retardation. Advection is a process by which solutes are carried by groundwater movement. Dispersion is a mixing of contaminated and uncontaminated water during advection. Retardation is a slowing of contaminant migration caused by the reaction of solute with the aquifer soil.

5.3.3 Leaching of Sediment Contaminants to Surface Water

Contaminants that adhere to sediment particles or have accumulated in sediment pore spaces can leach and migrate to the surface water. The rate and extent of this migration are influenced by the physical and chemical properties of the soil and the physical and chemical properties of the contaminant. The distribution of contaminants found in Site 12 sediments included only low concentrations of organics and metals that were generally at too low concentrations to be considered risk drivers. Some of the metals were detected above background levels, but levels are generally consistent with what might be expected from typical runoff from nearby soils.

5.3.4 Migration of Contaminants in the Surface Soil

Contaminants leaching from soils to surface water can migrate as dissolved constituents in surface water in the direction of surface water flow. Three general processes govern the migration of dissolved contaminants caused by the flow of water: movement caused by the flow of surface water, movement caused by the irregular mixing of water, and chemical mechanisms occurring during the movement of surface water. Sediment particles can disassociate from the sediment into surface water and migrate by

one of the aforementioned methods. Surface soils at Site 12 are transported by runoff, but to a mild or limited extent based on site topography, since the topographic gradient is very gradual.

5.4 CHEMICAL PERSISTENCE

The persistence of various classes of chemicals is discussed in this section. Several transformation mechanisms affect chemical persistence, such as hydrolysis, biodegradation, photolysis, and oxidation/reduction reactions. The following general classes of risk driver compounds are discussed:

- Halogenated aliphatics
- PAHs
- Metals
- Dioxins/furans

5.4.1 Halogenated Aliphatics

In general, halogenated aliphatic hydrocarbons are subject to abiotic dehydrohalogenation. This process is an elimination reaction that results in the formation of an ethene from a saturated halogenated compound. Research indicates that microbial degradation of highly chlorinated ethanes is a relatively slow process. Hydrolysis, photolysis, and oxidation are generally not considered to be significant fate processes for the chlorinated ethanes. Dichloroethenes and vinyl chloride are degradation products of trichloroethene.

Under certain conditions, volatilization is a significant fate process for these compounds. Volatilization is only significant at the air-soil or air-water interface. Adsorption should not be considered as an important fate for these types of compounds when compared to more hydrophobic compounds. BCF factors indicate that these compounds should not bioaccumulate.

Photolysis is not considered to be a relevant degradation mechanism for this class of compounds (EPA, 1982). Limited hydrolysis of saturated aliphatics (i.e., alkanes) may occur, but it does not appear to be a significant degradation mechanism for unsaturated species (i.e., alkenes) (EPA, 1982).

5.4.2 PAHs

PAHs have very low solubilities, vapor pressures, and Henry's Law constants and high Kocs and Kows. The low molecular-weight PAHs (e.g., acenaphthene, anthracene, fluorene, phenanthrene) may volatilize from surface waters, and the high-molecular-weight PAHs [e.g., benzo(a)pyrene, benz(a)anthracene,

chrysene, etc.] are less likely to volatilize. PAHs in soil are much more likely to bind to soil and be transported via mass transport mechanisms than to go into solution. PAHs are subject to degradation via aerobic bacteria but may be relatively persistent in the absence of microbial population or macronutrients such as phosphorus and nitrogen.

Bioconcentration of PAHs in aquatic organisms is greater for the higher-molecular-weight compounds than the lower-molecular-weight compounds. PAHs can be bioaccumulated from water, sediments, or lower organisms in the food chain.

Landspreading applications have indicated that PAHs are highly amenable to microbial degradation in soil. The rate of degradation is influenced by temperature, pH, oxygen concentrations, initial chemical concentrations, and moisture. Photolysis, hydrolysis, and oxidation are not important fate processes for the degradation of PAHs in soil (ATSDR, 1997).

The most important fates of PAHs in water are photo oxidation, chemical oxidation, and biodegradation. PAHs do not contain functional groups that are susceptible to hydrolytic action, and hydrolysis is considered to be an insignificant degradation mechanism. The rate of photodegradation is influenced by water depth, turbidity, and temperature. Benzo(a)pyrene and chrysene are reported to be resistant to photodegradation. PAHs may also be oxidized by chlorination and ozonation and may be metabolized by microbes under oxygenated conditions (ATSDR, 1997).

5.4.3 Dioxins as 2,3,7,8-TCDD

2,3,7,8-Tetrachlorodibenzodioxin (TCDD) and related congeners are usually released to the environment primarily through emissions from the incineration of municipal and chemical wastes, in exhaust from automobiles using leaded gasoline, and from the improper disposal of certain chlorinated chemical wastes. If released to the atmosphere, vapor-phase TCDD may be degraded by reaction with hydroxyl radicals and direct photolysis. Particulate-phase TCDD may be physically removed from air by wet and dry deposition. If released to water, TCDD will predominantly be associated with sediments and suspended material. TCDD near the water's surface may experience some photodegradation. Partitioning from the water column to sediment and suspended material will occur. Volatilization from the water column may be important, but adsorption to sediment will limit the overall rate by which TCDD is removed from water. The persistence half-life of TCDD in lakes has been estimated to be in excess of 1.5 years. Bioconcentration in aquatic organisms has been demonstrated. If released to soil, TCDD is not expected to leach. Photodegradation on terrestrial surfaces may be an important transformation process. Volatilization from soil surfaces during warm conditions may be a major removal mechanism. The persistence half-life of TCDD on soil surfaces may vary from less than 1 year to 3 years, but half-lives

in soil interiors may be as long as 12 years. Screening studies have shown that TCDD is generally resistant to biodegradation. The major route of exposure to the general population results from incineration processes and exhausts from leaded gasoline engines (TOXNET, online, November 2001).

5.4.4 Metals

Metals are highly persistent environmental contaminants. They do not biodegrade, photolyze, hydrolyze, etc. The major fate mechanisms for metals are adsorption to the soil matrix (as compared to being part of the soil structure) and bioaccumulation.

The mobility of metals is influenced primarily by their physical and chemical properties, in combination with the physical and chemical characteristics of the soil matrix. Factors that assist in predicting the mobility of inorganic species are the soil/pore water pH, soil/pore water Eh, and cation exchange capacity. The mobility of metals generally increases with decreasing soil pH and cation exchange capacity.

5.4.4.1 Chromium and Hexavalent Chromium

Because hexavalent chromium is of greater concern with respect to toxicity, chromium speciation analysis of soil samples was performed at Site 12. Chromium (Cr) can exist in soil in three forms: the trivalent Cr(III) form, Cr+3, and the hexavalent Cr(VI) forms, $(Cr2O7)^{-2}$ and $(CrO4)^{-2}$. Hexavalent chromium is the major chromium species used in industry; wood preservatives commonly contain chromic acid, a Cr(VI) oxide. The two forms of hexavalent chromium are pH dependent; hexavalent chromium as a chromate ion $(CrO4)^{-2}$ predominates above a pH of 6; dichromate ion $(Cr2O7)^{-2}$ predominates below a pH of 6. The dichromate ions present a greater health hazard than chromate ions, and both Cr(VI) ions are more toxic than Cr(III) ions.

Because of its anionic nature, Cr(VI) associates only with soil surfaces at positively charged exchange sites. This association decreases with increasing soil pH. Iron and aluminum oxide surfaces adsorb the chromate ion at an acidic or neutral pH. Industrial applications, except leather tanning, use Cr(VI) but the reaction rate limits the conversion from Cr(VI) to Cr(III) under typical environmental conditions.

Chromium (III) is the stable form of chromium in soil. Cr(III) hydroxy compounds precipitate at pH 4.5 and complete precipitation of the hydroxy species occurs at pH 5.5. In contrast to Cr(VI), Cr(III) is relatively immobile in soil. Chromium (III) does, however, form complexes with soluble organic ligands, which may increase its mobility.

Regardless of pH and redox potential, most Cr(VI) in soil is reduced to Cr(III). Soil organic matter and Fe(II) minerals donate the electrons in this reaction. The reduction reaction in the presence of organic matter proceeds at a slow rate under normal environmental pH and temperatures, but the rate of reaction increases with decreasing soil pH.

5.5 TRANSPORT AND TRANSFORMATION OF DETECTED CONTAMINANTS

Due to their partition coefficients, PAHs, pesticides, PCBs, and chlorinated dibenzodioxins/furans in the environment will partition primarily to soils and sediments. Leaching to groundwater is not a dominant transport pathway for these large organic molecules. The principal mode of transport of PAHs and other organics-contaminated soils is via overland transport of eroded soil particles during runoff. Microbial degradation is the primary degradation mechanism affecting organic compounds in soils.

Dieldrin released to the soil will persist for a long time. It will not leach to groundwater, biodegrade, or undergo hydrolysis. In surface waters, dieldrin will adsorb strongly to sediments and degrade slowly through photolytic processes. As with PCBs, the principal transport mechanism for dieldrin is erosion of contaminated soil particles and migration to surface water, which does not appear to be a significant process at the site. Dieldrin concentrations in soil are expected to remain for an extended time.

Dibenzodioxins and dibenzofurans were detected in test pit subsurface soils at low levels. Chlorinated dioxins/furans exhibit similar fate and transport properties to PCBs. Their low water solubilities, high adsorption coefficients, and resistance to chemical and biological degradation result in their retention on soils. Leaching to groundwater is unlikely and, as indicated by the low levels of these compounds in downstream sediments, erosion of contaminated soils does not occur to a significant extent. These contaminants are expected to persist in the soils at their present concentrations.

Metals in soils are typically tightly adsorbed to the soil organic matter or mineral fractions but may be converted into soluble forms, which are susceptible to leaching and transport to groundwater. Adsorbed metals may migrate from a contaminated source via erosion of surface soils. Soluble forms of metals may dissolve in infiltrating precipitation and eventually impact groundwater. Metals do not tend to be degraded by microbial action but can change oxidation state (and toxicity) depending on conditions in their environment.

Studies of hexavalent chromium attenuation in soils have been performed (Hellerich, L., and Nikolaidis, N., 2005). Laboratory equilibrium and kinetics experiments examined the effects of variable soil organic carbon content (Foc) and soil pH. At lower pHs, the disappearance of aqueous phase Cr(VI) from

aqueous-soil slurries was achieved rapidly. At more normal soil pH ranges, loss of aqueous phase Cr(VI) occurred in soils with higher Foc. From this it was concluded that a combination of reduction of Cr(VI) and sorption (adsorption and/or precipitation) was occurring to attenuate the Cr(VI) concentration in the aqueous phase. Studies of the fate and transport of hexavalent chromium in undisturbed soil cores were performed to investigate the impact of hydrologic and chemical process (Jardine, P., Fender, S. et. al, 1999). The mobility of Cr(VI) was significantly retarded by the presence of even low levels of naturally occurring organic matter (NOM) in soil. The reduction of Cr(VI) to Cr(III) was also enhanced in soils containing higher levels of NOM. With respect to the fate of hexavalent chromium found in Site 12 soil, given that disposal operations at Site 12 ceased around 1960, the detected low levels of hexavalent chromium in soil are likely to represent tightly sorbed, low solubility residual compounds of chromium as opposed to representing more leachable forms. It should be noted that, at Site 12, the hexavalent species was detected at levels representing only around 6 percent of total chromium concentrations.

Several PAHs were detected in surface soils and subsurface soil at Site 12 at concentrations sufficient to be considered carcinogenic risk drivers at certain waste disposal locations. PAHs are widespread contaminants in soils since they are released primarily during the combustion of fossil fuels. PAHs released to the atmosphere may enter soils and surface water through wet and dry deposition. Microbial metabolism is the major process responsible for degradation of PAHs in soils. Photolysis, hydrolysis, and chemical oxidation are not considered to be significant mechanisms for the degradation of PAHs in soils. PAHs in surface water/sediments can volatilize, photodegrade, oxidize, biodegrade, bind to particulates, or accumulate in aquatic organisms.

Due to their large octanol-water partition coefficients, PAHs in the environment will partition primarily to soils and sediments. Leaching to groundwater is not an important transport pathway for PAHs. Therefore, the only significant potential for transport of PAH-contaminated soils is via overland transport of eroded soil particle during runoff. The absence of significant contamination in sediments downstream indicates that this pathway is not important at Site 12. Microbial degradation is expected to provide the primary transformation process for soil PAH contamination at the site.

TCE and other VOCs are relatively soluble in water and exhibit little tendency to adsorb to soils. TCE and other VOCs in soils would be expected to be easily volatilized from surface soils or be transported to groundwater via rainwater infiltration. Given that disposal operations at Site 12 ceased around 1960, it is not surprising that VOCs were not identified as risk drivers in surface soil.

5.6 CONCLUSIONS

In summary, the distribution of PAHs, pesticides, PCBs, chlorinated dibenzodioxins/furans, and metals detected in soils and sediment at Site 12 at concentrations above regulatory screening values is sporadic, indicating localized disposal practices over time. These contaminants do not appear to be migrating off-site. Intrusive activities below the current landfill surface could result in impacts to future human receptors and are evaluated in the human health risk assessment (Section 6). Some of these same compounds have been detected at low concentrations in sediments, potentially at levels of impact to ecological receptors, and are discussed in the ecological risk assessment (Section 7).

Groundwater in the vicinity of Site 12 has not been impacted by the major soil contaminant classes, PAHs, pesticides (dieldrin), or PCBs (Aroclor-1260). Trichlorethene was identified as a groundwater risk driver, but was found in only 2 out of 14 samples at a maximum concentration of 4.1 ug/L. The soil analytical data indicated that trichloroethene was only rarely detected in 2 out of 186 soil samples at a trace maximum concentration of 3.9 ug/kg, which suggests that trichlorethene in soil is not currently a significant contributor to active processes of leaching to groundwater.

Metals found in groundwater include some of those found in Site 12 soils. Groundwater data for chromium revealed detections in 8 out of 8 samples at a range from 2.6 ug/l to 24.6 ug/L. The mean Site 12 chromium groundwater concentration was 8.1 ug/L, which is approximately a factor of four times the mean upgradient concentration of 2.2 ug/L. Groundwater data for aluminum revealed detections in 7 out of 7 samples at a range from 38.1 ug/l to 8570 ug/L. The mean Site 12 aluminum groundwater concentration was 1530 ug/L, which is approximately a factor of 30 times the mean upgradient concentration of 49.1 ug/L. Groundwater data for manganese revealed detections in 8 out of 8 samples at a range from 21.2 ug/l to 1,680 ug/L. The mean Site 12 manganese groundwater concentration was 530 ug/L, which is approximately a factor of 16 times the mean upgradient concentration of 34.2 ug/L.

Despite the fact that aluminum, manganese, and chromium were considered as groundwater risk drivers, site-related metal contaminants in soil may not be the source of the observed groundwater concentrations of these metals. Background comparison tests of Site 12 surface soil (Table 4-2) and subsurface soil (Table 4-6) showed that these three metals were not above background when compared to overall Site 12 median soil concentrations, based on the Wilcoxon rank-sum test. However, it was noted that chromium and aluminum soil concentrations were elevated as potential hot spots at some locations, based on the quantile test which involves comparing to site versus background using only the higher-ranked concentration subsets of the data. Potential impacts to human health from all risk driver contaminants are discussed in the human health risk assessment (Section 6).

6.0 HUMAN HEALTH RISK ASSESSMENT

This section presents the results of the HHRA for NAS JRB Willow Grove, which evaluates current groundwater conditions, investigates the possibility of soil contamination in the former Site 12 area, and applies current toxicity factors and risk assessment calculation methods to sample analytical data for all media in accordance with current EPA and Navy guidance.

The results of the HHRA are presented in eight sections, including

- Data Evaluation
- Estimation of Exposure Point Concentrations (EPCs)
- Exposure Assessment
- Toxicity Assessment
- Risk Characterization
- Uncertainty Analysis
- Risk Assessment Summary
- Selection of Candidate Chemicals of Concern

The tables associated with the HHRA are presented in Appendix J and follow the format adopted by EPA Risk Assessment Guidance for Superfund (RAGS), Volume I, Part D. Appendix J, Table 1.01 presents the candidate receptor exposure pathways associated with groundwater. Table 1.02 presents the candidate receptors and exposure pathways considered for surface and subsurface soil in the vicinity of Site 12. Table 1.03 presents the candidate receptor exposure pathways considered for surface water and sediment from creeks.

6.1 DATA EVALUATION

6.1.1 Summary of Sample Analytical Data Collected for Each Exposure Medium

For the HHRA, the media of concern that were sampled include surface and subsurface soil, groundwater, surface water, and sediment. A brief discussion of the types of analytical data collected for each medium is presented as follows.

All monitoring well samples were collected using low-flow rate well sampling methods used for both organic and inorganic analyses. Not all samples were analyzed for the full list of TCL/TAL compounds because the historical pattern of contamination from over a decade of previous sampling of monitoring wells demonstrated that some wells did not contain pesticides/PCBs or metals. For three wells,

12MW01S, 12MW03O, and 12MW04O, both dissolved and total metals sampling data were collected, which enabled an evaluation of the ranges of dissolved metals versus total metals. Results were examined for minerals that can be typical indicators of suspended solids (e.g., aluminum, barium, and manganese). Total metals analysis results revealed aluminum, barium, and manganese concentrations in a range that, in some cases, was similar or only slightly elevated relative to dissolved metals concentrations. Therefore, concentrations of other metals in the total metals fraction were not implausible for groundwater. As a conservative approach, total metals concentrations were considered representative of potential future tap water exposures and were used in the risk assessment.

For two surface water locations, 12SW07 and 12SW08, both dissolved metals and total metals analyses were conducted, whereas only total metals analysis was performed at other locations. However, exposures to surface water would be incidental to outdoor activities and potable use of creeks is not plausible. Therefore, total metals data as opposed to dissolved metals data were used in the HHRA.

Two laboratory methods were used to analyze for VOCs, which resulted in two sets of analytical results for certain target compounds in every sample. Full scan GC/MS was used to analyze for all volatile target compounds, and yielded routine detection limits sufficient for many substances in the risk assessment. In addition, SIM GC/MS analysis was required for those VOCs associated very low RSLs and which have greater human toxicity. Analytical results for the compounds that were analyzed by both methods were evaluated to select the most sensitive and accurate data on a sample-by-sample basis:

- When both methods yielded nondetected results for a compound, the analysis with the lower detection limit (SIM) was selected for the risk assessment.
- When one type of analysis yielded a positive result but the other method of analysis was not detected for a given compound, the positive result (normally the SIM analysis) was retained for use in the risk assessment.
- When both SIM and full scan results were positive for a given compound, the data were examined to see whether one or both values fell within the calibrated range (above the lowest standard and less than the highest standard). The most accurate result was chosen, taking into account calibration range and whether either result was qualified due to blank contamination or rejected due to other QC problems. In the event both SIM and full scan results were within the calibrated range and considered usable, the higher of two positive concentrations was used.

Carcinogenic PAH target compounds were also analyzed using both full scan GC/MS and SIM GC/MS methods for soil, sediment, and water media. PAH sample results that were reported both from full scan and SIM analyses were compared to select the most accurate of each pair of positive results, or else the lowest of the two methods' sample detection limits, similar to the approach described above for VOCs.

Hexavalent chromium analysis was performed for a subset of 43 soil samples. Data were plotted to assess the relationship of total chromium to hexavalent chromium and are presented in Appendix K, Part 5. Based on graphical and statistical analysis, the correlation between hexavalent chromium and total chromium soil concentrations was too weak to make accurate predictions on a sample-by-sample basis of the expected hexavalent chromium levels in samples where only total chromium data were available. Instead, soil concentrations for chromium exposure assessment were calculated by taking the total chromium data site-wide 95 percent upper confidence limit, and adjusting for the ratio of upper confidence limits between hexavalent and total chromium, as outlined in the Site 12 work plan (see Appendix K for details).

Selected soil and groundwater samples were analyzed for chlorinated dibenzo-p-dioxins and dibenzo-p-furans. The analytical results for 2,3,7,8-substituted dioxin/furan congeners were multiplied by a congener-specific toxicity equivalent factor (TEF) and summed to yield the total 2,3,7,8-TCDD toxicity equivalent (TE) concentration within each sample. The TE represents the concentration of 2,3,7,8-TCDD that would generate a cancer risk equivalent to the risk from cumulative exposure to the individual dioxin/furan congeners present in that sample. The TE calculation used for estimating risks included only terms representing positive congener results within each sample.

An analogous method was used to calculate the benzo(a)pyrene toxicity equivalent concentration (BAP TE) for individual soil samples based on summing the concentrations of individual carcinogenic polyaromatic hydrocarbons multiplied by their respective compound-specific relative cancer potency factors. The BAP TE sample results were used during the spatial data evaluation to assess the total levels of carcinogenic polyaromatic hydrocarbons present at individual soil locations and enable a graphical comparison of hot spots of interest across different waste burial areas at the site (see Appendix K, Part 6).

Background samples were collected during the earlier Phase II RI sampling and included 12 soil samples, 8 surface water samples, and 8 sediment samples. As shown in Figure 2-10, background samples were collected in and around NAS JRB Willow Grove from locations outside known or suspected areas of influence of the sites. A quantitative comparison of site data to background was conducted based on current guidance (EPA, 2002a, and Navy, 2004, 2003, and 2002) and is discussed in Section 6.1.5. For groundwater, one monitoring well, 02MW02S, was determined to be upgradient of Site 12 and was compared to Site 12 monitoring wells.

6.1.2 Analytical Data Quality Evaluation

Prior to use of the data in risk assessment, a data quality evaluation was performed by reviewing validated data for any problems with detection limit adequacy, rejected data, blank qualified data, and bias or imprecision. Rejected or blank qualified data was eliminated from consideration, while estimated values were accepted for the risk assessment, but discussed with caveats in the HHRA uncertainty analysis. Note that there was one sample delivery group associated with thallium analysis of soil samples collected in 2007 that revealed suspiciously high concentrations, which was evidenced from a comparison of different laboratory sample delivery group results across different sampling events. QA/QC results were examined during data validation and used to attach qualifiers to the data. However, the observed QA/QC exceedances were not considered grounds for rejection of the thallium data set. Therefore, thallium results from all sample delivery groups were included in the risk assessment. Appendix K, Part 6 discusses the spatial evaluation of thallium data that was done, and implications for the risk assessment.

6.1.3 Background Comparison Tests

A statistical comparison of Site 12 soil concentrations to background soil concentrations was applied to soil, surface water, and sediment. Statistical methods for background comparison adhered to published guidance (EPA, 2009d, 2002a, 1996a, 1992a, and 1992b; Naval Facilities Engineering Command (Navy), 2004, 2003, 2002) and other literature references (Brownlee, 1965; Gilbert, 1993 and 1987; Gehan, 1965; and Millard and Deverel, 1988). For this project, the following categories of statistical tests were applied to compare site and background sample concentrations as follows:

- **Background Comparisons for Metals Using Test Form I:** The pooled sample results from each medium of interest were compared to background data given an initial assumption or null hypothesis that site concentrations are not greater than background. Test results are presented in Section 4. Several tests were utilized to attempt to refute this hypothesis and show that metals concentrations exceed background. With each test, the chance of making an incorrect decision that site exceeds background (i.e., false positive result) was set equal to a probability level (alpha) of 0.05. This is interpreted as a 5 percent chance of a test outcome wrongly concluding that site exceeds background when in fact the site and background sample data belong to a common underlying population.

  The Test Form I statistical comparisons included the student's t-test or Satterthwaite's t-test, which evaluate differences in the means of site and background data; the Mann Whitney test or Gehan test, which compares site and background rank sums; and the quantile test, which focuses only on the upper ranked sample concentrations found in site and background data sets. If the prerequisite

assumptions were not met to allow use of any of the aforementioned tests, then the test of proportions or Fisher's exact test was applied.

Test Form I was performed on the aggregate surface soil data set and aggregate subsurface soil data set for metals only. Site 12 surface soil results were successfully compared to background surface soil. However, subsurface soil evaluation was problematic because the background data set did not include any soil samples collected from subsurface depths. Therefore, additional lines of evidence were evaluated to determine which substances are site-related and above background in subsurface soil, including probability plots and box plots (see Appendix K, Part 6 for discussion).

- **Background Comparisons Using Test Form II:** For the risk drivers that were prevalent in soil (carcinogenic polyaromatic hydrocarbons, chromium, and thallium), further statistical tests were performed using Test Form II. Test Form II reverses the null hypothesis and assumes that site concentrations exceed background by more than two standard deviations, and then attempts to refute this hypothesis by demonstrating that site concentrations are less than or equal to two standard deviations above background. Appendix K, Part 6, Tables K-23 and K-24 present test results.

- **Individual Comparison Tests:** The 95 percent upper tolerance limit (UTL) or upper prediction limit (UPL) on background soil was calculated for the risk drivers chromium, thallium, and individual PAH compounds in Appendix K, Part 6, Table K-25. Background Threshold Values (BTVs) were not applied as a stand-alone evaluation tool, but are intended to be used in follow-up work, such as in the Feasibility Study, once it has been decided which substances are above background across the site. The supporting calculations for BTVs are presented in Table K-26, which consists of ProUCL software output. ProUCL computed BTVs using an algorithm that imputes proxy concentrations to substitute for non-detected values (EPA, 2010a, 2010b). For normally distributed data sets with all positive detections, the 95 percent UTL was computed using parametric statistics (based on the t-distribution) as the mean plus a multiple of the standard deviation. If the data were not normally distributed, other methods of estimating BTVs were based on the gamma distribution or distribution-free assumptions such as the 95th quantile.

- **Background Comparison Conclusions:** For site-wide statistical comparisons using Test Form I, a conservative approach was taken to declare a substance above background if any of the valid quantitative tests (t-test, Mann Whitney/Gehan test, or quantile test) found concentrations were elevated above background. The opposite conclusion (that site-wide concentrations do not exceed background) was reached if all of the Test Form I statistical comparisons were negative.

- **Graphical analysis of distributional shape to establish elevated soil concentrations:** The soil data set was further evaluated using quantile-quantile probability plots and box plots to judge the

similarity and differences in the distributional shape of surface soil and subsurface soil data sets among Site 12 waste disposal areas and non-waste areas. The analysis is described in detail in Appendix K, Part 6.

- **Data Pretreatment:** Before conducting any statistical tests, rejected and blank-qualified values were removed from the data sets and field duplicate pairs were averaged and considered as one result. For duplicates, if one result was positive and the other value nondetected, half the detection limit was averaged with the positive result. However, if the half-detection limit value exceeded the positive result, then the positive result was adopted as a representative value for the duplicate pair.

- **Handling of Nondetects:** Only nonparametric site-wide background tests were employed if there were nondetects present among either the site data or the background data. Gehan's test can account for nondetected data in a valid fashion. In addition, the quantile test can be applied in a limited manner when there are nondetects, with data points ranked below the largest detection limit not applied.

- **Details and Assumptions of Statistical Tests:** The t-test was only applied if the site and background data matched the shape of a normal distribution, with the distributional shape evaluated using the Shapiro-Wilk W test at a significance level of 0.05 (EPA, 1992a). For the t-test, if site and background data sets exhibited equal standard deviations based upon Bartlett's test for equal variances, then the student's t-test was applied; otherwise, Satterthwaite's t-test was performed.

The Wilcoxon rank-sum test and Gehan's test were used to determine whether site and background data belong to populations with identical medians and rank distributions. These test procedures combine the two data sets, rank results from smallest to largest, and evaluate if the data sets exhibit a similar rank-sum distribution. Test statistics were computed using appropriate score adjustments for tied values and a normal approximation to the critical value when sufficient data points were available; whereas, an exact computation of probabilities was used in situations where there were very few data points.

The quantile test consolidates the site and background data into one data set, and then estimates whether an upper ranks subset displays an improbably large proportion of data points belonging to the site data group rather than an expected proportion of site and background samples. The probability is calculated that there could exist at least the observed number (k) or more samples belonging to the site data set found within a subgroup of the largest (r) data points in the combined data set, with the null hypothesis being that that the site and background subgroups came from the same population. If there is less than a 0.05 probability that k or more site samples could be observed among a subset of the r largest

upper ranks of the combined data, then the quantile test concludes that the k samples from the site data group do not belong to the same population as background, and might indicate one or more hot spots.

The quantile test was computed multiple times, starting with the highest concentration (rank) data points, and then repeating the test after including the next lower concentration sample results from the combined subgroups of site and background data. The sequence of tests was terminated when the highest nondetected result was encountered or when the maximum size subgroup of data was found that has at less than a probability of 0.05 that this subset of data contains significantly more site samples than expected.

If the prerequisite assumptions were not met to use any of the Test Form I statistical methods listed above, then the test of proportions was considered a line of evidence to help judge whether the percentage of detected results was statistically greater in site versus background. If there were 5 or more detects and 5 or more nondetects for each data set, then this test was performed using a normal approximation (the z-test approximation). If there were fewer than 5 detects or nondetects, the test of proportions was evaluated by calculating combinatorial probabilities using Fisher's exact test.

6.1.4 Approach for Selection of Chemicals of Potential Concern (COPCs)

The selection of COPCs for each medium was based on a screening step to compare maximum detected concentrations to toxicity-based benchmark concentrations. A substance was considered a candidate COPC for an exposure medium and a particular route of exposure if the maximum detected concentration was greater than the associated Regional Screening Level (RSL) based on a target cancer risk of 1×10^{-6} or a non-cancer hazard quotient (HQ) of 0.1. COPCs for soil, sediment, and groundwater exposure to all receptors (residents, industrial workers, recreational persons, and construction workers) were selected in a conservative manner, in most cases by comparing data to RSLs based on residential exposure assumptions. RSLs based on non-cancer effects were adjusted from a HQ of 1.0 to a HQ of 0.1 to protect against the possibility of additive toxic effects from multiple chemicals.

COPC selection for direct contact with groundwater via tap water ingestion or dermal absorption, or for construction worker dermal contact with groundwater was based on comparing groundwater concentrations to RSLs for residential tap water (EPA, 2012a). COPCs for the inhalation exposure pathway for groundwater (i.e., outdoor ambient air or indoor showering exposures) were based on selecting a subset of COPCs that exceeded the tap water RSLs and that have Henry's law constants greater than 1×10^{-5} liter-atm./mole^{o}K and molecular weights less than 205.

RSLs for residential exposure to soil (EPA, 2012a) were used to select COPCs for the ingestion and dermal routes of soil exposure. COPC selection for the soil-to-air pathway was based on soil-to-air pathway RSLs that are listed as supporting data within the RSL table (EPA, 2012a). Soil-to-air RSLs are based on default parameters taking into account a fugitive dust particulate emission factor (PEF) and chemical-specific volatilization factors (VFs).

Selection of COPCs for exposure to surface water was based on a 10-fold multiple of the RSLs for residential tap water exposure because the average daily ingestion of water occurring during wading in a creek would be expected to be much less than one-tenth of the normal daily tap water intake rate. Screening criteria for contact with sediment were based on a 10-fold multiple of the RSLs for residential soil contact because the number of days per year of recreational exposure to sediment can be assumed to be much less than the frequency of soil contact in a residential setting.

The screening approach for soil-to-groundwater migration was based upon comparing the maximum detected soil concentrations to EPA soil-to-groundwater screening levels (SSLs) (EPA, 2012a). The RSLs for soil-to-groundwater exposure represent a risk level corresponding to an HQ of 1 or a cancer risk of 1×10^{-6} and were adjusted to account for a site-specific dilution attenuation factor (DAF) of 1.03 (see Section 6.3.2.5 for details of the DAF factor derivation). COPCs that exceeded the soil-to-groundwater screening criteria were addressed via a qualitative evaluation of potential risks.

Chemical-specific considerations were applied to evaluate whether chemicals that do not have published RSL criteria should be selected as COPCs. Essential nutrients were not considered as COPCs; specifically, calcium, chloride, magnesium, potassium, and sodium. Where possible, detected chemicals that do not have published toxicity criteria were compared to surrogate RSL criteria adopted from available RSLs for substances having similar chemical structure. For example, the RSL for fluorene was used as a surrogate for evaluating acenaphthylene and the RSL for pyrene was used as a surrogate for evaluating phenanthrene and benzo(g,h,i)perylene since these three substances do not have published RSLs. Lead was evaluated as a potential COPC in groundwater and surface water based upon comparison to its EPA Action Level (AL) of 15 ug/l (EPA, 2009c) and in soil and sediment and soil by comparison to the established EPA reference value of 400 mg/kg (EPA, 1994).

The residential soil RSL for hexavalent chromium was used for COPC selection for soil and was compared separately to hexavalent chromium and total chromium maximum site concentrations. The tap water RSL for hexavalent chromium was used for COPC selection for groundwater, given that speciation data (i.e., total chromium versus hexavalent chromium analysis) were not available for groundwater. Similarly, due to lack of speciation data, sediment and surface water data were screened, respectively, using the soil and groundwater adjusted RSLs for hexavalent chromium. The RSL for methyl mercury

was used for COPC selection because the form of mercury at the site is unknown and methyl mercury is considered the most toxic form of mercury. The RSL screening for dioxin congeners was based on comparing the maximum calculated 2,3,7,8-TCDD TE among all samples to the RSL for 2,3,7,8-TCDD.

6.1.5 Applying the Results of Background Comparisons

The findings of Test Form I background comparisons were applied to the quantitative risk assessment results for surface soil. The initial risk estimates for surface soil were prepared to include all substances exceeding risk-based screening levels, regardless of background tests. Thereafter, a second set of risk tables for surface soil was prepared that excluded naturally-occurring metals demonstrated to be similar to background.

As previously noted, statistical tests were not considered sufficiently representative to make a stand-alone decision regarding which metals in total soil are considered site-related. Therefore, soil risk tables retained all metals above screening levels. For subsurface soil, additional lines of evidence were examined for metals. Appendix K, Part 6 contains an analysis of quantile-quantile probability plots and box plots, which compares the spatial distribution of Site 12 surface soil and subsurface soil for arsenic and manganese. The analysis demonstrated that these metals were elevated above background only in the waste disposal area and not the non-waste areas.

For groundwater, a statistical treatment of background data was not performed because there were too few data points, with only one upgradient well and a total of three upgradient samples. Therefore, a qualitative comparison of Site 12 monitoring well results to upgradient concentrations was performed and included a side-by-side evaluation of frequencies of detection, mean, minimum, and maximum concentrations of each detected substance, and these findings were considered as lines of evidence within the risk characterization section.

NAS JRB base-wide background surface water/sediment data were associated with an older sampling event several years before the recent Site 12 surface water/sediment sample collection event. Background surface water/sediment locations included several offsite creeks. Sampling was not limited to the same creeks sampled at Site 12, since the background data collection effort was part of a larger scope base-wide background study. Although statistical background tests were performed on Site 12 surface water and sediment media, the test results were not considered representative enough to confidently eliminate COPCs that were selected to carry through the quantitative risk assessment. Instead, surface water and sediment background tests were considered more as lines of evidence in the overall risk characterization process.

6.1.6 Groundwater COPCs

Groundwater COPCs were selected in Appendix J on Table 2.01 and are described below.

- 2,3,7,8-TCDD Equivalents
- Aluminum
- Arsenic
- Barium
- Chromium
- Cobalt
- Iron
- Manganese
- Vanadium
- Carbon Tetrachloride**
- Chloroform**
- Trichloroethene**

All of the above groundwater COPCs are applicable to direct contact residential tap water exposure or excavation worker outdoor exposure. The VOCs noted with the symbol (**) exceeded RSLs and met the Henry's Law and molecular weight criteria discussed earlier. Therefore, three groundwater COPCs were selected for the groundwater volatilization pathway.

6.1.7 Soil-to-Groundwater COPC Selection

The maximum concentrations of substances in total soil (combination of surface and subsurface soil) were compared to their respective soil-to-groundwater screening levels (SSLs). SSLs were obtained from the latest EPA Region 3 RSL Table (EPA, 2012a) and are based upon simplified modeling equations documented in the SSL guidance (EPA, 1996a). SSLs were adjusted using a site-specific dilution attenuation factor (DAF) of 1.03. Uncertainties associated with this analysis are discussed in Section 6.6.

Soil COPCs for the soil-to-groundwater exposure pathway are shown in Appendix J on Table 2.02.

- Total 2,3,7,8-TCDD toxicity equivalents
- Aluminum
- Antimony
- Arsenic
- Barium
- Cadmium
- Chromium/Hexavalent Chromium
- Cobalt
- Copper
- Cyanide
- Iron
- 1,4-Dichlorobenzene
- 2-Methylnaphthalene
- Acenaphthene
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Bis(2-ethylhexyl)phthalate
- Chrysene
- Dibenz(a,h)anthracene

- Manganese
- Mercury
- Nickel
- Selenium
- Silver
- Thallium
- Zinc
- 4,4'-DDE
- 4,4'-DDT
- 4,4'-DDD
- Aldrin
- Alpha-BHC
- Aroclor-1260
- Beta-BHC
- Dieldrin
- Gamma-BHC (Lindane)
- Gamma-Chlordane
- Heptachlor
- Heptachlor epoxide
- Dibenzofuran
- Fluorene
- Indeno(1,2,3-cd)pyrene
- Naphthalene
- Phenanthrene
- Pyrene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 1,2-Dichloroethene (cis)
- 2-Hexanone
- Acetone
- Benzene
- Bromomethane
- Chloromethane
- Ethylbenzene
- M,p-xylene
- Trichloroethene
- Vinyl Chloride
- Xylenes (Total)

Historical records for Site 12 indicate that disposal activities ceased around 1960, over 50 years ago. Current groundwater concentrations should therefore reflect any potential long-term impacts of leaching from soil to shallow groundwater. Considering the lengthy list of Site 12 soil-to-groundwater COPCs shown above, it is notable that only a small subset of these substances were detected above RSLs in groundwater: 2,3,7,8-TCDD TE, aluminum, arsenic, barium, chromium, cobalt, iron, and manganese. However, arsenic and manganese levels in both surface and subsurface soil were within the statistical range of background and the cobalt surface soil data were also similar to background. Due to the half-century of time that has elapsed since disposal operations ended, it is likely that the readily leachable fraction of COPCs absorbed onto soils has been largely depleted.

6.1.8 Surface Soil COPCs

Surface soil COPCs are selected in Appendix J on Tables 2.03 (all COPCs) and 2.03a (COPCs after background elimination) and are listed below.

- Aluminum
- Antimony
- Arsenic*
- Cadmium
- Chromium/Hexavalent Chromium
- Cobalt*
- Copper
- Iron
- Lead
- Manganese*
- Thallium
- Vanadium
- Dieldrin
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Chrysene
- Dibenz(a,h)anthracene
- Indeno(1,2,3-cd)pyrene

Arsenic, cobalt, and manganese, denoted with an asterisk (*) in the above table, were eliminated as COPCs based on background concentrations. Table 4-2 contains the results of Test Form I site-wide statistical background comparison tests for surface soil.

6.1.9 Total Soil COPCs

Total soil COPCs are shown in Appendix J on Table 2.04 and are listed below.

- 2,3,7,8-TCDD Toxicity Equivalents
- Aluminum
- Antimony
- Arsenic*
- Cadmium
- Chromium/Hexavalent Chromium
- Cobalt
- Copper
- Iron
- Lead
- Manganese*
- Thallium
- Vanadium
- Zinc
- Aroclor-1260
- Dieldrin
- 2-Methylnaphthalene
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Chrysene
- Dibenz(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Naphthalene

Arsenic and manganese, denoted with an asterisk (*) above, could not be eliminated as COPCs based on background statistical tests, but these substances were found to be elevated only in the waste burial area and not the non-waste area. Appendix K, Part 6, evaluates the distribution of arsenic and manganese in

the waste burial area and non-waste areas. Tables 4-2 and 4-6 contain the results of Test Form I site-wide statistical background comparison tests for surface soil and subsurface soil, respectively.

6.1.10 Soil-to-Air COPC Selection

Surface soil and total soil COPCs for soil-to-air exposure pathways for all potential receptors are shown in Appendix J on Tables 2.05 and 2.06, respectively. For total soil, naphthalene was selected as a volatilization pathway COPC, and chromium, hexavalent chromium, and 2,3,7,8-TCCD TE were selected as particulate emission pathway COPCs. For surface soil, chromium and hexavalent chromium were selected as particulate emission pathway COPCs.

6.1.11 Surface Water COPCs

Surface water COPCs for potential receptors are selected in Appendix J on Table 2.07 and are listed below.

- Aluminum
- Arsenic
- Chromium
- Cobalt
- Cyanide
- Iron
- Lead
- Manganese
- Vanadium
- Dieldrin
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Dibenz(a,h)anthracene
- Indeno(1,2,3-cd)pyrene

6.1.12 Sediment COPCs

Sediment COPCs for all potential receptors are selected in Appendix J on Table 2.08 and are listed below.

- Arsenic
- Chromium
- Cobalt
- Manganese
- Thallium
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Dibenz(a,h)anthracene
- Indeno(1,2,3-cd)pyrene

6.2 EXPOSURE POINT CONCENTRATIONS

The EPC represents an estimated chemical concentration to which a receptor is assumed to be exposed while in contact with an environmental medium. The 95 percent upper confidence limit (UCL) on the mean of the chemical concentrations detected in an exposure medium was considered the input value to estimate exposure intakes for each receptor, unless there were too few sample results to calculate an accurate UCL. In particular, if there were less than 5 samples or if there were too few detected samples to estimate proxy concentrations for nondetected results, then the maximum detected concentration was selected as the EPC instead of using a statistical UCL.

A different method of calculating EPCs was applied for lead because the exposure model for lead is designed to accept the mean lead value and estimate the upper percentile of blood-lead concentrations from this quantity. Therefore, the EPC was selected as the arithmetic mean of the lead concentration in every case.

The 95 percent UCL was calculated using the latest risk assessment guidance (EPA 2006, 2002c). A decision scheme was followed to select the optimal type of 95 percent UCL for each data set, based on four primary considerations: (1) the number of detected and nondetected data points; (2) the estimated shape of the probability distribution of chemical concentration data (normal, lognormal, gamma, or nonparametric) as determined by distributional fit tests; (3) the estimated standard deviation of the log-transformed data; and (4) the estimated gamma distribution shape parameter (k), which is related to skewness.

The software program, ProUCL version 4.1.00, was used to perform associated UCL calculations and distributional tests (EPA, 2010a, 2010b, 2006, 2002c). Numerical methods were applied to estimate proxy values to substitute for nondetected results in each data set using either the Kaplan-Meier method or Regression on Order Statistics (ROS). The Kaplan-Meier method generates a nonparametric approximation to the mean and standard deviation, and yields an estimate of the sample distribution functions adjusting for censored data. Kaplan-Meier parameter estimates were employed to estimate the UCL parametrically or else the mean estimator was used in a bootstrap re-sampling algorithm. Alternatively, the ROS method generates a linear model of the detected sample values versus the quantiles from a probability distribution, and then uses the linear model to assign values for nondetects. The quantiles may be based on normal, lognormal, or gamma distributions. The reliability of the assignment is dependent on having a sufficient number of detected values. ProUCL recommends at least 8 to 10 detected values for a reliable ROS model. Both Kaplan-Meier and ROS can handle multiple detection limits. If there are multiple detection limits, ROS can assign values for nondetects that are higher than some detected values, which is not the case with Kaplan-Meier.

ProUCL provides 5 nonparametric UCL computation methods, which do not depend upon any assumptions about the data distributions. The methods are student's t-UCL, approximate gamma UCL using chi-square approximation, adjusted gamma UCL (adjusted for level significance), Land's H-UCL, and Chebyshev inequality-based UCL [using minimum variance unbiased estimators (MVUEs) of parameters of a lognormal distribution]. In addition, there are 10 nonparametric UCL computation methods, which include the central limit theorem (CLT)-based UCL, modified-t statistic (adjusted for skewness)-based UCL, adjusted-CLT (adjusted for skewness)-based UCL, Chebyshev inequality-based UCL (using sample mean and sample standard deviation), jackknife method-based UCL, UCL based upon standard bootstrap, UCL based upon percentile bootstrap, UCL based upon bias-corrected accelerated (BCA) bootstrap, UCL based upon bootstrap t, and UCL based upon Hall's bootstrap.

Before any EPCs were calculated, the analytical database was manipulated to remove unusable data points qualified "R" or false positives attributable to blank contamination and qualified "B", and substitute the maximum values in place of field duplicate pairs.

EPCs for each selected COPC are presented in Appendix J on Tables 3.01 through 3.08. Supporting documentation associated with each EPC calculation is provided in Appendix K and includes distributional fit scores, standard deviation, log standard deviation, and gamma shape parameter. In Tables 3.03 and 3.04, the EPC calculation for hexavalent chromium was derived starting with the total chromium site-wide 95 percent UCL, and then multiplied by the ratio of 95 percent UCLs for hexavalent chromium versus total chromium, with the latter UCLs calculated from the subset of paired hex./total data. This established UCLs for hexavalent chromium which assume that 14.4% of total chromium in surface soil and 12.2% of total chromium in total soil is present as the hexavalent species.

6.3 EXPOSURE ASSESSMENT

The exposure assessment identifies categories of potential human health exposure based upon a characterization of the site setting, delineates potential receptors consistent with current and possible future land use patterns, outlines possible exposure routes by medium, documents the parameters and equations used in exposure estimates for each pathway, and explains the exposure evaluation used in blood-lead modeling. To determine whether there is an actual or potential exposure, the most likely pathways of contaminant release and transport, as well as the human and environmental activity patterns, are considered. A complete exposure pathway has three components: a source, a route of transport, and an exposure point for receptors.

The possible pathways for contaminant migration and exposure media which provide a potential route of contact with human receptors are shown in Figure 6-1. The potential human exposure risks that were

assessed based on these pathways are shown in Figure 6-2 and include potable tap water usage, construction worker exposure to groundwater, direct contact with soils, inhalation of particulate emissions or airborne volatile emissions from soils, and direct contact with surface water and sediment. Appendix J, Tables 1.01 through 1.03 delineate the details of the receptor exposure scenarios considered in this risk assessment and the rationale for including or excluding applicable exposure locations or routes of exposure for the receptors and receptor activities considered.

6.3.1 Potential Receptors

The potential receptors chosen for the HHRA are presented in this section. These receptors are not applicable to every area or medium of concern. The receptors were selected based on several criteria (current and anticipated future land use, accessibility of areas for potential recreation or residential development, and media of concern sampled).

- Current/Future Child Recreational Person - This receptor is a child (ages 0 to 6) who visits an applicable area or medium of concern at the site. This receptor is potentially exposed to several types of media: ingestion and dermal absorption of COPCs in surface water and sediment during wading or other recreational activities; and contact with soil via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil during recreational activities. Note that for assessing exposure to mutagens, this receptor includes two separate age bin categories, ages 0 to 2 and ages 4 to 6.

- Current/Future Adult Recreational Person - This receptor is an adult who visits an applicable area or medium of concern at the site. This receptor is potentially exposed to several types of media: ingestion and dermal absorption of COPCs in surface water and sediment during wading or other recreational activities; and contact with soil via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil during recreational activities. Note that for assessing exposure to mutagens, this receptor includes two separate age bin categories, ages 6 to 16 and ages 16 to 30.

- Current/Future Lifetime Recreational Person - Lifetime exposure is a combination of the exposure scenarios for an adult and a child. This additive recreational exposure scenario is included to estimate the lifetime cancer risk under recreational land use scenarios. The lifetime cancer risk was estimated by adding the cancer risk for two receptor categories: ages 0 to 6 (referred to as "child" exposure) plus ages 6 to 30 (referred to as "adult" exposure). A 30-year cumulative exposure duration is based on the upper range (95th percentile) of time spent living at one residence from population mobility studies, and this approach accounts for both childhood and adult contributions to

lifetime risk (EPA, 1997b). The lifetime receptor is potentially exposed to ingestion and dermal absorption of COPCs in surface water and sediment during wading or other recreational activities; and contact with soil via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil during recreational activities.

- Future Residential Child - This receptor is a child (ages 0 to 6) who resides within the area of influence of groundwater or at a hypothetical future residence at the site. This receptor is potentially exposed to two types of media: ingestion and dermal absorption of COPCs in groundwater; and contact with soil via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil. Note that for assessing exposure to mutagens, this receptor includes two separate age bin categories, ages 0 to 2 and ages 4 to 6.

- Future Residential Adult - This receptor is an adult (24-year exposure duration) who resides within the area of influence of groundwater or at a hypothetical future residence at the site. This receptor is potentially exposed to two types of media: ingestion and dermal absorption of COPCs in groundwater; inhalation of VOC vapors generated during showering with groundwater; and contact with soil via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil. Note that for assessing exposure to mutagens, this receptor includes two separate age bin categories, ages 6 to 16 and ages 16 to 30.

- Future Lifetime Resident - Lifetime exposure is a combination of the exposure scenarios for an adult and a child. This additive recreational exposure scenario is included to estimate the lifetime cancer risk under residential land use scenarios. The lifetime cancer risk was estimated by adding the cancer risk for two receptor categories: ages 0 to 6 (referred to as "child" exposure) plus ages 6 to 30 (referred to as "adult" exposure). The lifetime receptor is potentially exposed to several types of media: ingestion and dermal absorption of COPCs in groundwater; inhalation of VOC vapors generated during showering with groundwater; and contact with soil via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil.

- Future Construction Worker - This receptor is an adult who uses an applicable area or medium of concern at the site for excavation-related construction purposes. This receptor is potentially exposed to COPCs via dermal contact with contaminants in groundwater and inhalation of VOCs in shallow groundwater during excavation activities. This receptor is also potentially exposed to COPCs in total soil (comprised of a combination of surface soil and subsurface soil) via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil.

- Current/Future Industrial Worker - This receptor is an occupational worker or maintenance worker who has contact with soil while engaged in grounds keeping or other forms of outdoor work at Site 12. This receptor is potentially exposed to COPCs in surface soil or total soil (comprised of a combination of surface soil and subsurface soil) via ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil.

6.3.2 Exposure Estimates

The exposure estimation routes, methods, and models presented in this section are consistent with EPA guidance (EPA, 1989a, 1991, 1992c, 1993a, 1994c, 1996b, 1996c, 1997b, 2001b, 2002b, 2002d, 2003a, 2003b, 2004, 2009a, and 2009b). Two types of exposure estimates are possible for use in the HHRA: reasonable maximum exposure (RME) and central tendency exposure (CTE). RME is the exposure that is expected to represent a high end, but not usually worst-case, exposure in a given medium of concern. CTE is the exposure that is expected to represent an average exposure to receptors in a given medium of concern. For RME and CTE risk estimates, the same EPC value was used usually based upon the 95 percent UCL. Therefore, in this risk assessment, CTE analysis involved changes to the input parameters for each exposure pathway but not to the EPC itself. CTE analysis was performed only for those exposure pathways where the estimated cancer risks were above 1×10^{-4} or the noncancer HIs based on the same target organ were above 1.0.

Noncarcinogenic risks were assessed by estimating a total annual exposure, then converting the dose to an average daily intake. When compared to toxicity benchmarks, daily intake represents the rate of exposure and does not suggest an increasing degree of cumulative toxicity according to years of exposure duration. The intake incorporates terms describing the exposure time and frequency that specifies the number of hours per day and the number of days per year that exposure occurs. The sum of exposures over one year was divided by 365 days of "averaging time" in order to convert the annual exposure to an average daily intake. Noncarcinogenic risks for some exposure routes (e.g., soil) were generally greater for children than for adults because of differences in body weight and intake.

Carcinogenic risk was estimated as a cumulative lifetime risk and, therefore, incorporated terms to sum the exposures over an expected exposure duration (years of exposure), and then divided by the total days in a typical lifetime (70 years). The carcinogenic exposure model accounts for the probability of developing cancer increasing with every additional year of cumulative exposure.

The denominator of the intake equations for inhalation exposures was reported in units of hours, which differs from the units, expressed in days, that were applied to direct contact (ingestion and dermal)

exposure equations. This is consistent with the approach specified in RAGS Part F inhalation guidance (EPA, 2009a).

Appendix J, Tables 4.01 through 4.15 present the equations used to estimate chemical intake for both RME (high end exposure) and CTE (average exposure) scenarios.

6.3.2.1 Surface Soil and Total Soil Exposure Estimates

Three potential exposure routes are associated with direct exposure to surface soil and total soil, including:

- Ingestion
- Dermal absorption
- Inhalation of fugitive dust or ambient air VOCs emitted from soil

For surface and subsurface soils, ingestion, dermal absorption, and inhalation of fugitive dust or ambient air VOCs emitted from soil were evaluated for a future residential child, future residential adult, future lifetime resident (cancer risk only), current/future child recreational person, current/future adult recreational person, current/future lifetime recreational person (cancer risk only), current/future industrial worker, and future construction worker. For these receptors, RME parameters and equations used to calculate intake are shown in Appendix J on Tables 4.04.RME through 4.09.RME. CTE parameters and equations are shown in Tables 4.04.CTE through 4.09.CTE.

For surface soil and total soil exposure estimates, chemical-specific absorption factors associated with dermal absorption are not shown on the exposure input tables. These values were obtained from dermal guidance (EPA, 2004) and are presented in Appendix J on RAGS D Table 5.1.

Derivations of the surface areas used in all dermal exposure equations for each potential receptor were based on surface areas for available body parts. These values were compiled from recent guidance (EPA, 2004).

The site-specific PEF associated with modeling inhalation of fugitive dust was derived based on information presented in EPA's Soil Screening Guidance (EPA, 2002b, 1996b, and 1996c), Cowherd, 1984, and site-specific information. The PEF was calculated as follows:

$$PEF(m^3/kg) = \frac{Q/C \times 3600 s/h}{E_{10}}$$

where:

PEF	=	3.371 x 10^9 m^3/kg	= Particulate emission factor for Site 12
Q/C	=	56.00 (g/m^2-s)/(kg/m^3)	= Inverse of the ratio of the geometric mean air conc. to the emission flux at the center of Site 12, source size 7 acres (Q/C climate zones table in EPA, 2002b)
E_{10}	=	0.036 x (1-V) x $(U_m/Ut)^3$ x F(x)	= Particulates less than 10 microns (PM_{10}) average annual emission flux (g/m^2-hr)
V	=	0.7	= Fraction of vegetative cover
U_m	=	4.3 m/sec	= Mean Annual Windspeed at 7 m (Philadelphia) (Table 4-1, Cowherd)
U_t	=	11.319 m/s	= Threshold value of windspeed at 7 m (equation, below)
F(x)	=	0.101	= Function where x = 0.886 x Ut/U_m; Since X > 2, use $F(x)=0.18*(8x^3+12x)*\exp(-x^2)$ (Appendix B, Cowherd)
Ut	=	U* x (1/0.4) x ln (z/z_0)	

where:

$$Q/C = A \times \exp\left[\frac{(\ln A_{site} - B)^2}{C}\right]$$

A	=	14.0111	= Air dispersion constant in climate zone model (EPA, 2002b)
B	=	19.6154	= Air dispersion constant in climate zone model (EPA, 2002b)
C	=	225.3397	= Air dispersion constant in climate zone model (EPA, 2002b)
A_{site}	=	7 acres	= Approx. area of Site 12 disposal area
Ut	=	11.319 m/s	= Wind speed at height z for Site 12
z	=	700 cm	= Height above surface (Cowherd)
z_0	=	0.5 cm	= Roughness height where annual windspeed was measured: assume unobstructed terrain for weather station (Figure 3-6, Cowherd)
U*	=	0.625 m/s	= Threshold friction velocity for assumed particle size 0.5 mm (Figure 3-4, Cowherd), corrected x 1.25 (EPA, 1996b)

The general input parameters and equations used to calculate site-specific and chemical-specific VFs associated with modeling volatiles released from soil were obtained from EPA soil screening guidance (EPA, 2002b, 1996b). Chemical-specific input parameters for the VF were obtained from tables presented in EPA's Soil Screening Guidance (EPA, 2002b, 1996b). An outdoor (ambient air) exposure model was applied to all receptors. Current soil and groundwater data do not suggest that indoor air

vapor intrusion exposure would be likely to contribute to significant future risk, given that VOC detections are limited to a trace level range which rarely exceeded 1 to 20 ppb. The VF was calculated as follows:

$$VF(m^3/kg) = \frac{Q/C \times (3.14 \times D_A \times T)^{0.5} \times 10^{-4} (m^2/cm^2)}{(2 \times \rho_b \times D_A)}$$

where:

VF	=	m^3/kg	= Site- and chemical-specific volatilization factor
Q/C	=	56.00 (g/m^2-s)/(kg/m^3)	= Inverse of the ratio of the geometric mean air conc. to the emission flux at the center of Site 12, source size 7 acres (See preceding page equation for derivation)
D_A	=	chemical specific	= Apparent diffusivity (cm^2/sec) (equation, below)
T	=	9.5 x 10^8 sec	= Exposure interval
ρ_b	=	1.5 g/cm^3	= Dry soil bulk density

where:

$$D_A = \frac{\left[\left(\theta_a^{10/3} D_i H' + \theta_w^{10/3} D_w\right)/n^2\right]}{\left(\rho_b K_d + \theta_w + \theta_a H'\right)}$$

ρ_s	=	2.65 g/cm^3	= Soil particle density
n	=	$1 - (\rho_b / \rho_s)$	= Total soil porosity (L_{pore} / L_{soil})
θ_w	=	0.15	= Water-filled soil porosity (L_{water} / L_{soil})
θ_a	=	$n - \theta_w$	= Air-filled soil porosity (L_{air} / L_{soil})
f_{oc}	=	0.006	= Fractional organic carbon in soil (g/g)
K_{oc}	=	chemical specific	= Soil organic carbon partition coefficient (cm^3/g)
K_d	=	K_{oc} x f_{oc}	= Soil-water partition coefficient (cm^3/g)
D_i	=	chemical specific	= Diffusivity in air (cm^2/sec)
D_w	=	chemical specific	= Diffusivity in water (cm^2/sec)
H'	=	chemical specific	= Dimensionless Henry's law constant

6.3.2.2 Sediment Exposure Estimates

Two potential exposure routes are associated with direct exposure to sediment:

- Ingestion
- Dermal absorption

For exposures to sediment, ingestion and dermal absorption were evaluated for a current/future child recreational person, current/future adult recreational person, current/future lifetime recreational person (cancer risk only), and future adult construction worker. For these receptors, RME parameters and equations used to calculate intake are shown in Appendix J on Tables 4.13.RME through 4.15.RME. CTE parameters and equations are shown in Tables 4.13.CTE through 4.15.CTE.

For sediment exposure estimates, chemical-specific absorption factors associated with dermal absorption are not shown on the exposure input tables. These values were obtained from dermal guidance (EPA, 2004) and presented in Appendix J on RAGS D Table 5.1.

The skin areas available for contact, sediment adherence factors, receptor body weights, and exposure durations used to evaluate exposure to soil were used to evaluate exposure to sediment.

6.3.2.3 Surface Water Exposure Estimates

Two potential exposure routes are associated with direct exposure to surface water:

- Ingestion
- Dermal absorption

For exposures to surface water during wading activities, ingestion and dermal absorption were evaluated for a current/future child recreational person, current/future adult recreational person, current/future lifetime recreational person (cancer risk only), and future adult construction worker. For these receptors, RME parameters and equations used to calculate intake are shown in Appendix J on Tables 4.10.RME through 4.12.RME. CTE parameters and equations are shown in Tables 4.10.CTE through 4.12.CTE.

For surface water exposure estimates, chemical-specific permeability constants associated with modeling of dermal absorption are not shown on the exposure input tables. These values were obtained from dermal guidance (EPA, 2004) and are presented in Appendix K.

Derivations of the surface areas used in all dermal exposure equations for each potential receptor were based on surface areas for available body parts. Surface areas were compiled from recent guidance (EPA, 1997b and EPA, 2004).

6.3.2.4 Groundwater Exposure Estimates

Three potential exposure routes are associated with groundwater:

- Ingestion
- Dermal absorption
- Inhalation of volatiles (during showering or construction activities)

Ingestion and dermal absorption were evaluated for a future residential child, future residential adult, future lifetime resident (cancer risk only), and a future adult construction worker (dermal absorption only). Additionally, for groundwater, inhalation of airborne vapors during showering was evaluated for a future residential adult, and inhalation of organic vapors volatilizing from groundwater in an open excavation area was evaluated for a future construction worker. For these receptors, RME parameters and equations used to calculate intake are shown in Appendix J on Tables 4.01.RME through 4.03.RME. CTE parameters and equations are shown in Tables 4.01.CTE through 4.03.CTE.

For groundwater exposure estimates, chemical-specific permeability constants associated with modeling of dermal absorption are not shown on the exposure input tables. These values were obtained from dermal guidance (EPA, 2004) and are presented in Appendix K.

Derivations of the surface areas used in all dermal exposure equations for each potential receptor were based on surface areas for available body parts. Surface areas were compiled from recent guidance (EPA, 1997c and EPA, 2004).

Showering exposure was considered for the residential adult only. The residential child was assumed to bathe, not shower. Chemical-specific parameters associated with modeling of inhalation of airborne vapors during showering are not shown on the exposure input tables. Henry's Law constants and other parameters used in this model were obtained from several sources, including EPA (1996b, 2002b) and Foster and Chrostowski (1987) and are presented in Appendix K for each COPC. Henry's Law constants published for 25 degrees C were corrected to account for an elevated showering temperature of 45 degrees C (EPA, 2001b).

For evaluating inhalation exposure to VOCs in groundwater during construction work, the American Society for Testing and Materials (ASTM) Guidance (Designation E 1739 – 95) presents a volatilization model for determination of a volatilization rate of VOCs from groundwater into air (ASTM, 1995). The following equations were utilized:

$$VF = \frac{H'}{1+\left[\frac{U_{air} * S_{air} * L_{GW}}{W * D_{EFF-WS}}\right]} * 10^3 \, L/m^3$$

Where:

VF = Volatilization Factor for VOC in groundwater

H' = dimensionless Henry's Law constant for VOC at 25 degrees C

U_{air} = 430 cm/sec = annual wind speed above ground surface in the mixing zone

S_{air} = 200 cm = ambient mixing zone

L_{GW} = 0.1 cm = depth to groundwater, h_v+h_{cap}

h_v = 0 cm = thickness of the vadose zone

h_{cap} = 0.1 cm = thickness of the capillary fringe

D_{EFF-WS} = effective diffusion between GW and Soil for VOC

W = 4900 cm = width of the landfill area parallel to groundwater flow direction

$$D_{EFF-WS} = \left(h_{cap} + h_v\right) * \left[\frac{h_{cap}}{D_{EFF-cap}} + \frac{h_v}{D_{EFF-s}}\right]^{-1}$$

Where:

D_{EFF-WS} = effective diffusion between GW and Soil for VOC

h_v = 0 cm = thickness of the vadose zone

h_{cap} = 0.1 cm = thickness of the capillary fringe

$D_{EFF-cap}$ = effective diffusion through capillary fringe for VOC

D_{EFF-s} = cm2/sec = effective diffusion in soil based on vapor-phase concentration, chemical specific

Because h_v is equal to zero, this equation reduces to show that the effective diffusion between groundwater and surface soil (D_{EFF-WS}) is equal to the effective diffusion through the capillary fringe ($D_{EFF-cap}$).

$$D_{EFF-ws} = \left[D^{air} * \frac{Oa_{cap}^{3.33}}{Ot^2}\right] + \left[D^{wat} * \frac{1}{H'} * \left(\frac{Ow_{cap}^{3.33}}{Ot^2}\right)\right]$$

Where:

$D_{EFF-cap}$ = effective diffusion through capillary fringe for VOC

D^{air} = cm^2/sec = diffusion coefficient in air for VOC

D^{wat} = cm^2/sec = diffusion coefficient in water for VOC

H' = dimensionless Henry's Law constant for VOC

Oa_{cap} = 0.038 cm^3-air/cm^3-soil = volumetric air content in capillary fringe soils (equals Ot minus Oa_{cap})

Ow_{cap} = 0.342 cm^3-H2O/cm^3-soil = volumetric water content in capillary fringe soils

Ot = 0.38 cm^3/cm^3-soil = total soil porosity

6.3.2.5 Soil-to-Groundwater Exposure Estimates

Soil-to-groundwater exposure was evaluated qualitatively based on comparing maximum soil concentrations against a site-specific dilution attenuation factor (DAF) multiplied by the Region 3 soil-to-groundwater screening level. The DAF equations were obtained from EPA guidance (EPA, 2002b):

DAF = 1.033 = 1 + ((11.1m/yr*0.006*{minimum of (9.1m,21.8m)}) / (0.15 m/yr*120m))

Where:

hydraulic conductivity = 11.1 m/yr

Note that site-specific data were not available for hydraulic conductivity. This value is derived from a pumping test performed at Site 5, which is approximately 600 feet northwest of Site 12.

gradient = 0.006 ft/ft = site-specific calculation derived using groundwater contour maps from April 2012.

source length parallel to groundwater flow = measured from site figures = 120 meters for landfill.

infiltration rate = 0.15 m/yr = default average value for Piedmont Province (EPA, 1996b, Table 6).

mixing zone value =

$21.8m = ((0.0112*(120m)^{2})^{0.5})+(9.1m)*(1-\exp\{(-120m)*(0.15m/yr)/[(11m/yr)*0.006*(9.1m)]\})$.

where:

aquifer thickness = 9.1 meters. Per EPA Region 3 guidance for areas with unsaturated overburden, this was assumed to equal the vertical distance between the top of rock (or the water table within the rock) and the shallowest nearby receptor depth. Based on RI data, the depth to the water table is approximately 10 feet. The nearest receptor is the Horsham Township Municipal Well No. 26, which is cased to a depth of 40 feet, which yields a vertical separation of 30 feet.

Note that mixing zone depth in the DAF equation should be the lesser of the aquifer thickness (9.1 m) or the mixing zone value (21.8 m).

6.3.3 Blood-Lead Modeling

As outlined in Office of Solid Waste and Emergency Response (OSWER) Directive 9355.4-12, EPA (1994, 2002d) has developed an approach to evaluating lead risks that recognizes the multimedia nature of lead exposures, incorporating absorption and pharmacokinetic information. Research has been conducted concerning lead intake and resultant blood-lead levels. Determinations of lead uptake from soil, sediment, drinking water, and surface water were evaluated. Potential blood-lead level increases were estimated and discussed, along with the potential implications of blood-lead results for residential children, recreational children, and industrial adults.

Blood-lead levels in residential children (age 0 to 6) were estimated using the Integrated Exposure and Uptake Biokinetic (IEUBK) Model (version 1.0) developed by EPA (EPA, 2002d). The model was applied using the average groundwater and soil concentrations in each applicable medium of concern where lead was selected as a COPC. For the assessment of ingestion of lead in groundwater and soil by residential children, default values in the model were used to represent respiratory rate, soil and water ingestion rates, the level of maternal contribution, and the percent of lead absorption by the various exposure routes. The output of the IEUBK Model is a histogram that presents the estimated percentage of children (age 0 through 6 years) with a blood-lead level above 10 ug/dL (considered to be the threshold significance level above which adverse effects cannot be ruled out). When the percentage of the population estimated to have blood-levels above 10 ug/dL is greater than 5 percent, then EPA considers the potential for adverse effects to be significant (EPA, 1994c).

For the evaluation of residential soil exposure, the site-specific average soil lead concentration was used together with the IEUBK model default value for groundwater lead concentration. For evaluation of groundwater exposure, the average lead groundwater concentration would be appropriate to combine with the model default soil lead concentration; however, the lead model was not required for groundwater as lead was not selected as a groundwater COPC. For the evaluation of soil exposures by potential recreational receptors, a weighted lead concentration was considered that includes site-specific soil and background (non-site related) soil contact, following the methodology presented in EPA's Assessing Intermittent or Variable Exposures at Lead Sites (EPA, 2003a). A weighted lead concentration for soil was anticipated for a scenario involving recreational soil contact under RME conditions, based on the following equation:

$$PbSw = (EFsoil \times PbSsoil) + (EFbkg \times PbSbkg)$$

Where:

PbSw	=	weighted lead surface soil concentration (mg/kg)
EFsoil	=	exposure frequency or fraction of the days/week a receptor is exposed to surface soil at the site

	=	3/7 (assumed for May to October)
PbSsoil	=	average lead concentration in surface soil (mg/kg)
EFbkg	=	exposure frequency or fraction of the days/week a receptor is exposed to background surface soil on days when they are not also exposed to soil from the site = 1 – (EFsoil) = 4/7
Pbbkg	=	average lead concentration in background soil (mg/kg) (default value)

The recreational exposure scenario applied in the above equation yields a weighted lead soil concentration of 3/7 x Site 12 mean lead soil concentration plus 4/7 x mean lead background concentration. The RSL screening process did not select lead as a COPC for sediment; therefore, sediment lead exposures were not applicable to recreational receptor. Lead was selected as a COPC for surface water; however, the IEUBK model is not designed to estimate lead exposures from non-potable water intake so the impact from surface water contact was addressed qualitatively.

Noncarcinogenic risks for industrial workers and construction workers from exposures to lead in soil were estimated using the Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil (EPA, 2003b, 2009b). The model is based on a biokinetic slope factor that estimates fetal blood lead concentration in women exposed to lead in contaminated media. A simplified (linear) representation of lead biokinetics is used to predict quasi-steady state blood lead concentrations among adults who have relatively steady patterns of lead exposure. The intake assumptions used in the model were the average lead concentrations in solid media as described above, an ingestion rate, and an exposure frequency. Modeling of exposure to lead in aqueous media (surface water or groundwater) was not applicable for adults because the adult lead model does not currently handle this pathway (in addition, lead was not selected as a COPC for groundwater).

6.4 TOXICITY ASSESSMENT

The toxicity assessment identifies the potential health hazards associated with exposure to each COPC. Literature references establish that the selected COPCs have the potential to cause carcinogenic and/or noncarcinogenic health effects in humans. Dose-response relationships and the potential for exposure must be evaluated before the risks to receptors can be determined. Dose-response relationships correlate the magnitude of the intake with the probability of toxic effects. As discussed below, dose-response values [reference doses (RfDs) and slope factors (SFs) for ingestion and reference concentrations (RfCs) and inhalation unit risks (IURs) for inhalation exposures] have been developed by EPA and other sources for many organics and inorganics. Oral RfDs and SFs and inhalation RfCs and IURs were obtained from the following primary recommended sources (EPA, 1997a, 2012a, 2012b, and 2012c):

- Integrated Risk Information System (IRIS) (Online Database) (EPA, 2012b).
- EPA Provisional Peer Reviewed Toxicity Values (PPRTVs) (EPA, 2012c) - The Office of Research and Development/National Center for Environmental Assessment (NCEA) Superfund Health Risk Technical Support Center develops PPRTVs on a chemical specific basis when requested by EPA's Superfund program.
- Other Toxicity Values - These sources may include but are not limited to the Annual Health Effects Assessment Summary Tables (HEAST) (EPA, 1997a).

Although RfDs and SFs can be found in several toxicological sources, EPA's IRIS online database is the preferred source of toxicity values. This database is continuously updated and values presented have been verified by the agency's consensus peer review process. The EPA RSL Table (EPA, 2012a) was also used as a source of toxicity criteria not available from the above-referenced primary sources.

6.4.1 Reference Doses

The RfD is developed by EPA for chronic and/or subchronic human exposure to hazardous chemicals and is based solely on the noncarcinogenic effects of chemical substances. Subchronic RfDs are specifically developed to be protective for a portion of a lifetime exposure to a compound (as a Superfund program guideline, short term). Chronic RfDs are specifically developed to be protective for long-term exposure to a compound (as a Superfund program guideline, long term). The RfD is usually expressed as a dose (mg) per unit body weight (kg) per unit time (day). It is generally derived by dividing a No-Observed-(Adverse)-Effect-Level (NOAEL or NOEL) or a Lowest-Observed-Adverse-Effect-Level (LOAEL) by an appropriate uncertainty factor. NOAELs, etc. are determined from laboratory or epidemiological toxicity studies. The uncertainty factor is based on the availability of toxicity data.

Uncertainty factors are generally applied as multiples of 10 to represent specific areas of uncertainty in the available data. A factor of 10 is used to account for variations in the general population (to protect sensitive subpopulations), when test results from animals are extrapolated to humans (to account for interspecies variability), when a NOAEL derived from a subchronic study (instead of a chronic study) is used to develop the RfD, and when a LOAEL is used instead of a NOAEL. In addition, EPA reserves the use of a modifying factor of up to 10 for professional judgment of uncertainties in the database not already accounted for. The default value of the modifying factor is 1.

The RfD incorporates the surety of the evidence for chronic human health effects. Even if applicable human data exist, the RfD (as diminished by the uncertainty factor) still maintains a margin of safety so that chronic human health effects are not underestimated. Thus, the RfD is an acceptable guideline for evaluation of noncarcinogenic risk, although the associated uncertainties preclude its use for precise risk

quantitation. Oral and dermal RfDs, primary target organs, uncertainty/modifying factors and sources for selected COPCs in groundwater, surface soil, total soil, sediment, and surface water were provided in Appendix J on RAGS D Table 5.1. Inhalation RfCs, primary target organs, uncertainty/modifying factors, and sources for selected COPCs were provided on RAGS D Table 5.02.

Target organ data was extracted from the Integrated Risk Information System (IRIS; EPA, 2012b), Health Effect Assessment Summary Tables (HEAST; EPA, 1997a), or other applicable sources. Only the target organs that were affected in the applicable study in which the RfDs were derived were utilized on RAGS D tables.

Noncarcinogenic risks for lead were not quantified and compared to RfDs because EPA has implemented an approach to evaluating lead risks that does not provide a single-point estimate output. Potential lead exposures were evaluated using a biokinetic model.

6.4.2 Cancer Slope Factors (SFs)

SFs are applicable for estimating the lifetime probability (assumed 70-year lifespan) of human receptors developing cancer as a result of exposure to known or potential carcinogens. The slope factor is generally reported in units of 1/(mg/kg/day), and for most substances is derived through an assumed low-dosage linear relationship extrapolated from high to low dose responses, typically based on animal studies. The value used in reporting the slope factor is the upper 95 percent confidence limit. Oral and dermal SFs, weight of evidence, and sources for selected COPCs were provided in Appendix J on RAGS D Table 6.1. IURs, weight of evidence, and toxicity data sources for selected COPCs were provided in Appendix J on RAGS D Table 6.2.

6.4.3 Inhalation Toxicity

EPA recommends that the intake equation presented in RAGS, Part A (EPA, 1989a, Exhibit 6-16) should no longer be used when evaluating risk from the inhalation pathway. Instead, the equations from RAGS, Part F (EPA, 2009a) were applied. The net impact of this change was to use IURs instead of inhalation slope factors for cancer risk, and RfCs instead of inhalation RfDs for non-cancer hazards. In Appendix J on RAGS D Table 7s, chemical intakes were expressed as a time-averaged concentration, so body weights and inhalation rates were not directly input into risk calculations. If the exposure scenario of interest is less than 24 hours per day, the scenario-specific exposure time (ET) in hours per day should be used in the equations and the averaging time should be in units of hours.

6.4.4 EPA Weight of Evidence

A weight-of-evidence approach is used to classify the likelihood that a substance is a carcinogen. This qualitative information is important to consider when using SFs to estimate potential risk. Each substance is assigned a weight-of-evidence for carcinogenicity. EPA has recently revised their weight-of-evidence classifications. The updated categories are listed as follows (EPA, 2005a):

WEIGHT OF EVIDENCE CATEGORY	DEFINITION
Carcinogenic to Humans	There is strong evidence of human carcinogenicity
Likely to be Carcinogenic to Humans	The weight-of-evidence is adequate to demonstrate carcinogenic potential to humans, but does not reach the weight of evidence for the classification of "Carcinogenic to Humans"
Suggestive Evidence of Carcinogenic Potential	The weight of evidence is suggestive of carcinogenicity; a concern for potential carcinogenic effects in humans is raised, but the data are judged not sufficient for a stronger conclusion
Inadequate Information to Assess Carcinogenic Potential	Available data are judged inadequate for applying one of the other classifications
Not Likely to be Carcinogenic to Humans	The available data are considered robust enough for deciding that there is no basis for human health hazard

Weight-of-evidence classifications have not yet been updated for many substances. In these instances, it is appropriate to list the old weight-of-evidence classifications (EPA, 1986). The older weight-of-evidence categories were used in Appendix J on RAGS D Table 6.1 and 6.2, and are listed as follows:

- Group A - Human Carcinogen (Sufficient evidence from epidemiological studies to support a causal association between exposure and cancer).
- Group B1 - Probable Human Carcinogen (Limited evidence of carcinogenicity in humans from epidemiological studies; sufficient evidence in animals).
- Group B2 - Probable Human Carcinogen (Sufficient evidence of carcinogenicity in animals and no or inadequate evidence in humans).
- Group C - Possible Human Carcinogen (Limited evidence of carcinogenicity in animals).
- Group D - Not Classified (Inadequate evidence of carcinogenicity in animals).
- Group E - No Evidence of Carcinogenicity (No evidence of carcinogenicity in at least two adequate animal tests or in both epidemiological and animal studies).

6.4.5 Adjustment of Dose-Response Parameters for Dermal Exposure

Risks associated with dermal exposures were evaluated using toxicity values that are specific to absorbed dermal doses. Most oral toxicity values are based on administered doses rather than absorbed doses. Therefore, in accordance with EPA guidance (EPA, 2004), the toxicity values based on administered doses were adjusted before they are used for evaluating absorbed doses.

Dermal RfDs and SFs were obtained from oral RfDs and SFs via the following relationships:

$$RfD_{Adjusted} = RfD_{Oral} \times GI_{Oral}$$

$$SF_{Adjusted} = SF_{Oral} / GI_{Oral}$$

where:

GI_{Oral}	=	Gastrointestinal (GI) Absorption Efficiency (EPA, 2004)
RfD_{Oral}	=	Oral Reference Dose (EPA, 2012b, 2012c, 1997a)
SF_{Oral}	=	Oral Slope Factor (EPA, 2012b, 2012c, 1997a)

Dermally adjusted RfDs and SFs for COPCs were presented In Appendix J on RAGS D Table 5s and 6s, respectively.

6.4.6 Toxicity Criteria for Chromium

For the Site 12 RI, hexavalent chromium analysis was performed on 43 soil samples, which is a subset of the 194 soil sampling locations where total chromium analysis was performed. The analytical results for the hexavalent/total chromium paired data were plotted in Appendix K to evaluate the strength of the relationship between total chromium soil concentrations and hexavalent chromium concentrations. Toxicity factors for hexavalent chromium were intended to be applied to a prediction of the 95% UCL for hexavalent chromium. As specified in the work plan (Tetra Tech, 2011), the purpose of this assessment was to estimate a site-wide 95% UCL for hexavalent chromium based on an initial calculation of the total chromium UCL which was comprised all 194 soil locations, and then applying an adjustment with the ratio of the hexavalent chromium UCL to the total chromium UCL for paired data points. The derived UCL was treated as the assumed soil concentration of hexavalent chromium in the HHRA and was multiplied by the toxicity factors specific to hexavalent chromium.

Because chromium speciation data was not available for groundwater, surface water, or sediment, the toxicity criteria for hexavalent chromium were also applied to these media in the risk assessment. Hexavalent chromium is considered to be more toxic than trivalent chromium; therefore, this assumption is conservative in nature and may represent an overestimate of true hexavalent chromium risks posed by these media.

6.4.7 Toxicity Criteria for Mercury

The toxicity criteria for methyl mercury were used in this risk assessment because data indicating the form of mercury in environmental media are not available. Methyl mercury is considered to be more toxic than inorganic mercury; therefore, this assumption is conservative in nature.

6.4.8 Carcinogenicity of PAHs

Carcinogenic PAHs are related by chemical structure. Only benzo(a)pyrene has an EPA-published SF (EPA, 2012b). Other carcinogenic PAHs, except carbazole, have SFs based on their potency relative to benzo(a)pyrene. EPA is in the process of revising their relative potency approach for PAHs, so that revised chemical-specific potencies may be adopted when the new approach is finalized. As of the date of this report, the relative potency factors (RPF) for carcinogenic PAHs are as follows (EPA, 2012b, 1993b):

- Benzo(a)pyrene (RPF = 1.0)
- Benz(a)anthracene (RPF = 0.1)
- Benzo(b)fluoranthene (RPF = 0.1)
- Benzo(k)fluoranthene (RPF = 0.01)
- Chrysene (RPF = 0.001)
- Dibenz(a,h)anthracene (RPF = 1.0)
- Indeno(1,2,3-cd)pyrene (RPF = 0.1)

6.4.9 Carcinogenicity of Mutagens

EPA has categorized PAHs, hexavalent chromium, and TCE as mutagens having enhanced carcinogenic potency during early life periods of exposure. Based upon EPA guidance (EPA, 2005b, 2010c), cancer slope factors for PAHs, hexavalent chromium, and TCE should be multiplied by a factor of 10 for those periods of exposure occurring between 0 and 2 years of age, and by a factor of 3 for periods of exposure occurring between 2 and 16 years of age. A multiplier of 1 (no correction) applies to cancer slope factors that are outside of these critical age ranges. A receptor-specific age dependent adjustment factor (ADAF) is calculated and multiplied by the daily intake and the slope factor for mutagens as shown below:

Receptor	Medium	RME/CTE	ADAF for PAHs, Chromium, and TCE
Recreational Child	Surface water, sediment, soil	RME	5.33 = [(10 x 2 yrs) + (3 x 4 yrs)] / (2 + 4 yrs)
Recreational Child	Surface water, sediment, soil	CTE	3.0 = [(10 x 0 yr) + (3 x 2 yr)] / (0 + 2 yrs)
Recreational Adult	Surface water, sediment, soil	RME	1.83 = [(3 x 10 yrs) + (1 x 14 yrs)] / (10+14 yrs)
Recreational Adult	Surface water, sediment, soil	CTE	1.0 = [(3 x 0 yrs) + (1 x 7 yrs)] / (0 + 7 yrs)
Residential Child	Soil, groundwater	RME	5.33 = [(10 x 2 yrs) + (3 x 4 yrs)] / (2 + 4 yrs)
Residential Child	Soil, groundwater	CTE	3.0 = [(10 x 0 yr) + (3 x 2 yr)] / (0 + 2 yrs)
Residential Adult	Soil, groundwater	RME	1.83 = [(3 x 10 yrs) + (1 x 14 yrs)] / (10+14 yrs)
Residential Adult	Soil, groundwater	CTE	1.0 = [(3 x 0 yrs) + (1 x 7 yrs)] / (0 + 7 yrs)
Construction worker	All	RME	1.0 (adult age 18 years or older)
Construction worker	All	CTE	1.0 (adult age 18 years or older)
Industrial worker	Soil	RME	1.0 (adult age 18 years or older)
Industrial worker	Soil	CTE	1.0 (adult age 18 years or older)

The adjustments were applied using the same method as that used by EPA in the development of RSLs. Children were evaluated as two age groups, ages 0 to 2 years and ages 2 to 6 years, and adults were evaluated as two age groups, ages 6 to 16, and ages greater than 16 years old. Using this approach, the intakes for child and adult recreational users and hypothetical residents were multiplied by these adjustments as follows:

Child cancer risk = slope factor x {Intake(ages 0 – 2 years) x 10 + Intake(ages 2 – 6 years) x 3}
Adult cancer risk = slope factor x {Intake(ages 6 – 16 years) x 3 + Intake(ages > 16 years)}

As referenced on EPA's IRIS toxicity website (EPA, 2012), a special situation exists with the mutagenic substance TCE. For TCE, the intake is calculated twice, with the first calculation involving the mutagenic component that includes the ADAF multipliers shown above, which is then multiplied by a mutagenic-specific slope factor to yield an estimate of TCE cancers associated with the kidney. Next, the non-mutagenic intake (no ADAFs involved) is calculated, which is then multiplied by a different, non-mutagenic TCE slope factor to yield an estimate of non-mutagenic types of TCE-induced cancers (liver and non-Hodgkin lymphoma). The total TCE cancer risk is then estimated by adding the nonmutagenic risk to the mutagenic component of cancer risk.

6.4.10 Carcinogenicity of Dioxins/Furans

The cancer risk characterization for polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) congeners was performed using TEFs that relate the toxicity of various congeners to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) (EPA, 1989b). The TEF for an individual PCDD/PCDF congener is defined as the ratio of the oral carcinogenic slope factor for that congener relative to the slope factor for 2,3,7,8-TCDD. The TEFs for 2,3,7,8-substituted PCDDs/PCDFs have been published by the World Health Organization (van den Berg, et al., 2006).

For each soil sample, the sum of congener concentrations after each congener was multiplied by its respective TEF was calculated and referred to as the 2,3,7,8-TCDD TE concentration. Only detected congeners were summed within each sample to yield a total 2,3,7,8-TCDD TE concentration for that sample. The maximum TE of all samples was screened against the RSL criterion for 2,3,7,8-TCDD to determine if dioxin was to be selected as a COPC. After dioxin was selected as a surface soil and total soil COPC, the total TE from individual samples was used to estimate the 95 percent UCL for each data set. The UCL was then multiplied by the 2,3,7,8-TCDD cancer slope factor to yield an estimated cancer risk from exposures to all chlorinated dioxin and furan congeners present.

6.4.11 Chemicals without Toxicity Criteria

EPA has not developed toxicity values for all chemicals for use in quantitative risk characterization. These COPCs include acenaphthylene, benzo(g,h,i)perylene, and phenanthrene. Therefore, risks for these chemicals were evaluated using surrogates (similar PAHs). The RSL and RfD for fluorene were used as surrogates for evaluating acenaphthylene, and the RSL and RfD for pyrene were used as surrogates for evaluating phenanthrene and benzo(g,h,i)perylene.

6.4.12 Adjustment for Relative Bioavailability of Arsenic in Soil

EPA has recently published an evaluation of the relative bioavailability of arsenic in soil (EPA, 2012e). EPA recommends a default relative bioavailability factor (RBA) of 0.6 for evaluating exposures to arsenic in soil and soil-like media (such as sediments). Risk estimates were adjusted using the RBA for arsenic in surface soil, total soil, and sediment.

6.5 RISK CHARACTERIZATION

This section presents estimates of carcinogenic risks, noncarcinogenic risks, and lead risks for all applicable human receptors that may be exposed to COPCs present in various environmental media and

at each site-related area of interest. The risk characterization quantitatively evaluates the potential for adverse health effects from exposure to COPC concentrations in environmental media by integrating information developed during the toxicity and exposure assessments.

Appendix J includes Table 7's for each receptor and route of exposure which list the chemical-specific intakes, non-cancer toxicity factors, and the calculated non-cancer hazard index (HI). Table 7's also list the cancer slope factors, the chemical-specific cancer risks, and the cumulative cancer risk from exposure to carcinogens. Appendix J, Table 9's subdivide non-cancer risks listed according to target organ and total the cancer and non-cancer risks across all COPCs for each receptor.

6.5.1 Noncarcinogenic Risks

Noncarcinogenic risk was assessed using the concept of HQs and HIs. The HQ is defined as the ratio of the estimated intake and the RfD for a selected chemical of concern, as follows:

$$HQ = \frac{Intake}{RfD}$$

HIs were generated by summing individual HQs for COPCs. If the value of the HI exceeded unity (1.0), the potential for noncarcinogenic health risks associated with exposure to that particular chemical mixture could not be ruled out (EPA, 1986). In that case, the target organ(s) affected by each chemical, which represent the most sensitive toxic endpoints, would be considered to develop the associated RfDs for each substance. A target organ-specific HI was calculated for the receptor by summing the HQs for all COPCs affecting the same target organ. If each target organ-specific HI is less than 1, then adverse effects are not anticipated. The HI is not defined as a mathematical prediction of the severity of toxic effects; it is simply a numerical indicator of exceedance of the acceptable threshold for noncarcinogenic effects. Above an HI of 1, toxic effects would not necessarily occur but can no longer be ruled out.

6.5.2 Carcinogenic Risks

Incremental cancer risk (ICR) estimates were generated for each exposure pathway using the estimated intakes and published SFs, as follows:

$$Risk = Intake \times SF$$

If the above equation results in a risk greater than 0.01, the following equation should be used:

$$Risk = 1 - e^{-(Intake \times SF)}$$

The risk determined using these equations is defined as a unitless expression of an individual's increased likelihood of developing cancer as a result of exposure to carcinogenic chemicals. An ICR of 1 x 10^{-6} indicates that the exposed receptor has a one in one million chance of developing cancer under the defined exposure scenario. Alternatively, such a risk may be interpreted as representing one additional case of cancer in an exposed population of 1,000,000 persons. The calculated cancer risks should be recognized as upper-limit estimates. SFs are defined as the upper 95 percent confidence limit of a dose-response curve generally derived from animal studies. Actual human risk, while not identifiable, is not expected to exceed the upper limit based on the SFs and may, in fact, be lower. Note that the exponential correction factor for risks greater than 0.01 was not applied because adjusted risks do not scale proportionally with the EPC when used to calculate risk-based remediation goals that are several orders of magnitude lower.

6.5.3 Groundwater Risks

Appendix J, Tables 9.01.RME through 9.04.RME summarize the non-cancer and cancer RME risks for receptors exposed to groundwater at Site 12. The estimated exposures to groundwater were potentially applicable to future residents and construction workers. Groundwater concentrations of inorganics were compared to background qualitatively rather than statistically because too few data points were obtained from the one upgradient monitoring well to enable a confident statistical comparison.

The estimated RME ICR for the future lifetime resident exposed to groundwater was 7.13 x 10^{-4}, which exceeds EPA's 1 x 10^{-4} to 1 x 10^{-6} acceptable risk range The primary contributor to cancer risk for groundwater was chromium (ICR of 5.8 x 10^{-4}), from ingestion and dermal absorption exposures. Other contributors to estimated cancer risk included trichloroethene (ICR of 5.7 x 10^{-6}), arsenic (ICR of 6.7 x 10^{-5}), and 2,3,7,8-TCDD TE (ICR of 5.7 x 10^{-5}). The RME ICR for the child resident was 4.6 x 10^{-4} and for the adult resident, the RME ICR was 2.6 x 10^{-4}. The RME ICR for the construction worker was less than 1.0 x 10^{-6}, which is below the lower end of the acceptable risk range.

Groundwater data for arsenic revealed detections in 3 out of 8 samples at a range from 0.23 ug/l to 2.7 ug/L. In the one NAS JRB upgradient well 02MW02S, arsenic was detected at 1.3 ug/L in one out of two samples, which is approximately one-half the maximum concentration found at Site 12. Therefore, detection of low levels of arsenic, which is a naturally occurring substance, in Site 12 groundwater appears consistent with local upgradient conditions.

Groundwater data for chromium revealed detections in 8 out of 8 samples at a range from 2.6 ug/l to 24.6 ug/L. In the upgradient well 02MW02S, chromium was detected at 1.8 ug/L in one out of two

samples. The mean Site 12 chromium groundwater concentration was 8.1 ug/L, which is approximately a factor of four times the mean upgradient concentration of 2.2 ug/L.

Analytical results were not available for 2,3,7,8-TCDD congeners for upgradient well 02MW02S, so no conclusions can be drawn regarding comparison of the concentrations of 2,3,7,8-TCDD TE in Site 12 groundwater relative to background levels.

CTE ICRs for groundwater were within the acceptable risk range for the lifetime resident (8.0×10^{-5}), child resident (4.8×10^{-5}), and adult resident (3.1×10^{-5}). CTE risks are summarized in Appendix J on Tables 9.01.CTE through 9.03.CTE.

RME non-cancer hazards for groundwater yielded a total HI of 11 for the child resident, 4.1 for the adult resident, and less than 1.0 for the construction worker. When grouped according to target organ, the target organ-specific central nervous system (CNS) exhibited a HI greater than 1.0. The primary contributor to the CNS HI was 2,3,7,8-TCDD TE. Additional minor contributions to the CNS HI were associated with aluminum (child HQ of 1.1 and adult HQ of 0.4) and manganese (child HQ of 3.5 and adult HQ of 1.2). Arsenic and manganese contributed to the vascular system HI of 1.5.

CTE non-cancer hazards for groundwater yielded a total HI of 6.3 for the child resident and 2.6 for the adult resident. When grouped according to target organ, the target organ-specific CNS exhibited a HI greater than 1.0. For both receptors, the primary contributors to the HI were 2,3,7,8-TCDD TE, aluminum, and manganese.

6.5.4 Surface Soil Risks – All COPCs

Appendix J, Tables 9.05.RME through 9.11.RME summarize the non-cancer and cancer RME risks for receptors exposed to surface soil at Site 12. The estimated exposures to surface soil were potentially applicable to future residents, industrial workers, and recreational receptors.

The estimated RME ICR for the future lifetime resident exposed to surface soil was 2.5×10^{-4}, which exceeds the upper end of EPA's 1×10^{-4} to 1×10^{-6} acceptable risk range. The primary contributors to cancer risk were arsenic (ICR of 9.1×10^{-6}), chromium (ICR of 1.9×10^{-5}), benzo(a)pyrene (ICR of 1.3×10^{-4}), benz(a)anthracene (ICR of 1.4×10^{-5}), benzo(b)fluoranthene (ICR of 1.4×10^{-5}), benzo(k)fluoranthene (ICR of 1.5×10^{-6}), dibenz(a,h)anthracene (ICR of 5.1×10^{-5}), and indeno(1,2,3-cd)pyrene (1.3×10^{-5}).

RME ICRs also exceeded the acceptable risk range for the child resident (ICR of 2.2×10^{-4}), but were within the acceptable risk range for the adult resident (ICR of 3.8×10^{-5}), industrial worker (ICR of 2.0×10^{-5}), lifetime recreational receptor (ICR of 7.5×10^{-5}), child recreational receptor (ICR of 6.4×10^{-5}), and adult recreational receptor (ICR of 1.1×10^{-5}).

CTE ICRs were within the acceptable risk range for the lifetime resident (ICR of 1.3×10^{-5}), the child resident (ICR of 1.2×10^{-5}), and the adult resident (ICR of 1.6×10^{-6}).

For exposure to surface soil, the estimated RME non-cancer HI for the future child resident was 4.2. When the contributors to this non-cancer HI were grouped according to target organ, the HI for the skin was 2.7, which exceeds the benchmark of 1, a level above which adverse non-cancer effects cannot be ruled out. For the residential child, the primary contributor to the skin HI was thallium (HQ of 2.5), with a minor contribution from arsenic (HQ of 0.2). When grouped according to target organ, the RME HIs were less than 1 for all other receptors, including the residential adult, industrial worker, recreational child, and recreational adult.

The CTE total HI was 1.3 for the residential child. When grouped according to target organ, the CTE HIs were less than 1.

6.5.5 Surface Soil Risks – Site-related COPCs

Of the COPCs contributing to cancer or non-cancer risk, elimination of metals within the range of background resulted in exclusion of arsenic and manganese from consideration. Appendix J, Tables 9.05a.RME through 9.11a.RME display the non-cancer and cancer RME risks after background elimination of metals for receptors exposed to surface soil. After background elimination, the lifetime residential RME cancer risk was reduced to 2.5×10^{-4} (compared to 2.6×10^{-4} before elimination). After background elimination, the target organ HI for the skin was reduced to 2.5 for the residential child (compared to 2.7 before elimination). Note that thallium was determined not to be a site-related risk-driver in most areas based on a line-of-evidence approach, which is evaluated in detail in Appendix K, part 6.

6.5.6 Total Soil Risks – All COPCs

Appendix J, Tables 9.12.RME through 9.19.RME summarize the non-cancer and cancer RME risks for receptors exposed to total soil at Site 12. The estimated exposures to total soil were potentially applicable to future residents, industrial workers, construction workers, and recreational receptors.

The estimated RME ICR for the future lifetime resident exposed to total soil was 4.0×10^{-4}, which exceeds EPA's 1×10^{-4} to 1×10^{-6} acceptable risk range. The primary contributors to cancer risk were benzo(a)pyrene (ICR of 1.1×10^{-4}), 2,3,7,8-TCDD TE (ICR of 1.7×10^{-4}), arsenic (ICR of 1.6×10^{-5}), chromium (2.5×10^{-5}), benzo(a)anthracene (ICR of 1.3×10^{-5}), benzo(b)fluoranthene (ICR of 1.1×10^{-5}), dibenz(a,h)anthracene (ICR of 3.9×10^{-5}), indeno(1,2,3-cd)pyrene (ICR of 1.0×10^{-5}), Aroclor-1260 (ICR of 1.6×10^{-6}), and benzo(k)fluoranthene (ICR of 1.3×10^{-6}). The RME ICRs for the future residential child and future residential adult were 3.1×10^{-4} and 8.9×10^{-5}, respectively, which contributed to the lifetime residential risk.

The RME ICR for the lifetime recreational receptor (1.2×10^{-4}) also exceeded the upper end of the acceptable risk range. The RME ICRs for other receptors were within the acceptable risk range - industrial worker (6.2×10^{-5}), construction worker (3.5×10^{-6}), child recreational receptor (9.3×10^{-5}), and adult recreational receptor (2.6×10^{-5}).

The CTE ICRs for total soil were within the acceptable risk range for the lifetime resident (ICR of 3.0×10^{-5}) and for the lifetime recreational receptor (ICR of 6.6×10^{-6}). Appendix J, Tables 9.15.CTE and 9.19.CTE display the total soil CTE risks for these receptors.

For exposure to total soil, the estimated RME non-cancer HI for the future child resident was 22. When the contributors to the HI were grouped according to target organ, target organ exceedances occurred for the CNS - primary contributors 2,3,7,8-TCDD TE (HQ of 15.4) and manganese (HQ of 0.5), and for the skin – primary contributors thallium (HQ of 4.2) and arsenic (HQ of 0.3) When grouped according to target organ, the RME HI also exceeded 1 for the recreational child (HIs of 4.8 for the CNS and 1.3 for the skin), the residential adult (HI of 1.8 for the CNS), the construction worker (HI of 2.1 for the CNS), and the industrial worker (HI of 1.4 for the CNS). Target organ-specific HIs did not exceed 1 for the residential adult or the recreational adult.

When grouped according to target organ, the CTE HI for the CNS exceeded 1 for the residential child (HI of 5.1 for the CNS) and the recreational child (HI of 1.1 for the CNS). Target organ-specific CTE HIs did not exceed 1 for the residential adult, the industrial worker, or the construction worker.

6.5.7 Total Soil Risks – Site-related COPCs

In the evaluation of Site 12 total soil risks, elimination of metals within the range of background was not appropriate due to the lack of subsurface soil background data. The metal risk drivers for total soil were arsenic, chromium, manganese, and thallium. Thallium results were biased from laboratory-specific instrumental spectral interferences, as discussed in Appendix K, Part 6. Site 12 total soil chromium

results were compared to background using a lines-of-evidence approach (see Appendix K, Part 6). Probability plots and box plots were examined. This evaluation concluded that arsenic and manganese concentrations were elevated in soil samples collected from within the waste disposal area, but were not above background in the non-waste area.

6.5.8 Surface Water Risks

Appendix J, Tables 9.20.RME through 9.23.RME summarize the non-cancer and cancer RME risks for receptors exposed to surface water at Site 12. The RME ICRs exceeded the upper end of the acceptable risk range for the lifetime, child, and adult recreational receptors (ICRs of 6.0×10^{-3}, 4.7×10^{-3}, and 1.3×10^{-3}, respectively). The RME ICR was within the acceptable risk range for a future construction worker (ICR of 7.5×10^{-5}). For the lifetime recreational receptor, the primary contributors to cancer risk were chromium (ICR of 3.8×10^{-5}), dieldrin (ICR of 2.0×10^{-5}), benzo(a)pyrene (ICR of 5.0×10^{-3}), benz(a)anthracene (ICR of 2.6×10^{-4}), benzo(b)fluoranthene (ICR of 4.6×10^{-4}), benzo(k)fluoranthene (ICR of 3.4×10^{-5}), dibenz(a,h)anthracene (ICR of 1.3×10^{-4}), and indeno(1,2,3-cd)pyrene (9.6×10^{-5}). RME HIs did not exceed 1 for any receptor exposed to surface water.

The CTE ICRs for surface water exceeded the acceptable risk range for the lifetime recreational receptor (ICR of 3.0×10^{-4}), the child recreational receptor (ICR of 1.9×10^{-4}), and the adult recreational receptor (ICR of 1.1×10^{-4}). Appendix J, Tables 9.22.CTE, 9.23.CTE, and 9.24.CTE display the total soil CTE risks for these receptors.

Statistical background comparison tests were performed for surface water. However, too few detections were noted for the risk driver COPCs to judge whether site concentrations were similar to background.

6.5.9 Sediment Risks

Appendix J, Tables 9.24.RME through 9.27.RME summarize the non-cancer and cancer RME risks for receptors exposed to sediment at Site 12. The estimated exposures to sediment were potentially applicable to future construction workers and recreational receptors.

The RME ICR was within the acceptable risk range for the future construction worker (ICR of 1.4×10^{-6}) and for the lifetime, child, and adult recreational receptors (ICRs of 4.8×10^{-5}, 3.5×10^{-5}, and 1.3×10^{-5}, respectively).

For exposure to sediment, the estimated RME non-cancer HI for the recreational child was 2.9. When the contributors to the HI were grouped according to target organ, target organ exceedances occurred for the

CNS (associated with manganese HQ of 1.5) and skin (associated with thallium HQ of 1.3). The RME HI also exceeded 1 for the construction worker (manganese HQ of 1.6 for the CNS and thallium HQ of 2.3 for the skin). Target organ-specific HIs did not exceed 1 for the recreational adult.

The CTE HI was less than 1 for the construction worker and for recreational receptors exposed to sediment.

Statistical background comparison tests were performed for sediment. The background comparison tests in Table 4-13 determined that one of the risk drivers for sediment, manganese, exhibited concentrations that were not statistically greater than background.

6.5.10 Lead Risks

Of the various media and areas of interest sampled at Site 12, lead was selected as a COPC only in surface soil, total soil, and surface water. Blood lead concentrations associated with soil exposure were predicted using the IEUBK model applied to residential and recreational children and the adult lead model applied to construction and industrial workers. The mean soil concentration was used as the EPC in the lead models, which predicted the upper 95 percent of blood lead concentrations of an exposed population as presented in Appendix K.

The assumptions for the IEUBK model were exposure to soil on a daily basis throughout the year for residential children, and a lower frequency of exposure to soil by recreational children. Child recreational soil lead exposure was assumed to involve contact with Site 12 soil for 3 days out of each week, with the remaining 4 days per week associated with offsite exposures to background soil lead concentrations equal to the IEUBK model default value.

For residential children and recreational children exposed to surface soil, the predicted percentages of an exposed population exhibiting a blood lead level above 10 ug/dl were 0.003% and 0.069%, respectively. For residential children and recreational children exposed to total soil, the predicted percentages of an exposed population exhibiting a blood lead level above 10 ug/dl were 0.20% and 0.25%, respectively. These values are less than the protective level cutoff set at 5 percent of an exposed population and indicate that soil lead exposures to residential and recreational children under these conditions would not be expected to result in adverse effects.

The adult lead model was applied to predict blood lead levels in the fetus of a pregnant construction worker and a pregnant industrial worker. The mean soil concentration of lead was utilized for both scenarios. For pregnant industrial workers exposed to surface soil, the predicted percentage of an

exposed population exhibiting fetal blood lead levels above 10 ug/dl was 0.009%. For pregnant industrial workers exposed to total soil, the predicted percentage of an exposed population exhibiting fetal blood lead levels above 10 ug/dl was 0.1%. For pregnant construction workers exposed to total soil, the predicted percentage of an exposed population exhibiting fetal blood lead levels above 10 ug/dl was 1.3%. For all of these receptor exposure scenarios, blood lead predictions were less than the protective cutoff level of 5% of an exposed population and indicate that adverse effects from lead exposures to a pregnant industrial worker or construction worker would not be anticipated.

Note that the adult lead model is not designed to model water ingestion, so that potential lead risks for an adult exposed to surface water via incidental ingestion could not be modeled quantitatively. In addition, the IEUBK child lead model is not designed to model the ingestion of surface water on an intermittent basis. These uncertainties are addressed in more detail in Section 6.6, Uncertainty Analysis.

6.6 UNCERTAINTY ANALYSIS

As discussed in EPA (1989a), the risk measures used in Superfund site risk assessments are not fully probabilistic estimates of risk but rather are conditional estimates based on a considerable number of assumptions about exposure and toxicity. There are uncertainties associated with each aspect of risk assessment, from environmental data collection through risk characterization. To support decision-making processes, significant uncertainties in the risk assessment are noted in the following categories:

6.6.1 Uncertainties Associated with Data Collection and Evaluation

Major uncertainties associated with data collection and evaluation are highlighted as follows:

6.6.1.1 Selection of Locations and Numbers of Samples

The areal extent of the samples (including the number collected and location of the sampling points) in a particular medium can impact the representativeness of data collection. Sampling at Site 12 has been comprehensive, based on several previous sampling investigations that have been performed at the site, including a Site Investigation, a Site 2 Remedial Investigation (RI), a Soil Characterization and Drum Removal Investigation, a Confirmation Soil Investigation, a Site 2 Groundwater Investigation, and a 2010 Phase I RI. The 2010 RI field work involved excavation of 15 test pits and the collection of 40 surface soil samples, 31 subsurface samples, 7 surface water samples, and 8 sediment samples. The surface and subsurface soil samples were biased towards areas that contained buried waste, based on the results of an EM geophysical survey done in 2008.

Data obtained during the Phase I investigation were evaluated to determine where additional soil samples were needed to fill data gaps, as discussed on pages 29 and 30 of Section 10.4.2 of the Site 12 Sampling and Analysis Plan (Tetra Tech, 2011). The Phase II RI included monitoring well installation and sampling in areas downgradient from the Site 12 soil investigation along the southwestern boundary of the site. In addition, the Navy requested additional sampling in new test pit locations to complete the investigation of EM anomalies, in step-out locations near certain soil hot spots, in the southeastern area of the site, in the southwest corner of the site boundary where dense vegetation was encountered, and in the area south of test pit TP07. A representative portion of the Phase I RI sampling locations associated with the highest soil concentrations of chromium were resampled for hexavalent chromium, total chromium, and the indicator parameters pH and ORP, which characterized the relative oxidative/reductive properties of each soil matrix and delineate the presence or absence of factors that can affect chromium speciation trends.

A total of five subsurface soil samples and four groundwater samples were analyzed for chlorinated dibenzodioxins and dibenzofurans. The five subsurface samples were collected from test pit excavations 12TP02, 12TP03, 12TP06, 12TP08, and 12TP09. The soil samples were collected from areas containing charred debris. The groundwater dioxin samples were collected from site-related monitoring wells 12MW01S, 12MW01O, 12MW02S, and 12MW02O. Based on this rationale, the number of samples was adequate for a focused characterization of specific potential sources of dioxin.

6.6.1.2 Background Data Collection Impacts on Selection of COPCs and Risks

Background samples of surface soil, surface water, and sediment were collected in adequate quantity to be considered usable for statistical comparisons in the risk assessment analysis. Site 12 surface soil results were successfully compared to background surface soil. However, subsurface soil data evaluation was problematic because the background data set did not include any soil samples collected from subsurface depths. In lieu of having background subsurface soil data, the background surface soil results were compared to Site 12 subsurface soil data. Results of these tests are considered tentative, since the background data may not be representative of all soil depths. Therefore, additional lines of evidence were evaluated to determine which substances are site-related and above background in subsurface soil, including probability plots and box plots (see Appendix K, Part 6 for discussion).

Background statistical tests for metals in soil involved site-wide comparison tests using hypothesis Test Form I. Test Form I assumes that site concentrations are less than or equal to background and then attempts to determine if this hypothesis is likely to be false, with an estimated probability level of less than or equal to 0.05. The results of statistical tests were able to distinguish whether concentrations of most metals were greater than or similar to background. For a few metals that were annotated with a flag of

"NA", the number of detects in background data sets was too small to render a confident decision from the comparison tests.

After completion of the risk assessment, a second series of soil background tests was conducted on the identified risk driver compounds using Test Form II. Test Form II assumes that site concentrations exceed background by more than two standard deviations and then attempts to determine if this hypothesis is false, with an estimated probability level of less than or equal to 0.05. Test Form II results are discussed in Appendix K, Part 6.

Groundwater concentrations of inorganics were evaluated qualitatively rather than statistically because too few data points were obtained from the one upgradient monitoring well to enable a confident statistical comparison. In addition, some of the groundwater parameters were nondetected, which creates difficulties in making statistical inferences when comparing downgradient to upgradient wells. For the risk drivers identified in Site 12 groundwater, regional background groundwater data were evaluated using monitoring well 02MW02S, which is located upgradient of Site 12.

Site 12 surface water and sediment data were compared to background data using hypothesis Test Form I. The results of statistical tests for metals were generally usable for the comparison of Site 12 sediment media to background. However, in the case of surface water, the results for statistical tests were not able to confidently distinguish whether concentrations of certain metals were greater than or similar to background levels due to their infrequency of detection in either background or site data sets.

6.6.1.3 Analytical Data Usability

Only validated data were used in the quantitative risk assessment for all media. Navy and EPA data validation procedures have been applied to all new and historical data associated with the HHRA, to fully define uncertainties in terms of qualifying data as inaccurate or imprecise and eliminate data points that are unusable for risk assessment. This treatment does not eliminate all uncertainty but focuses attention on potential areas of concern regarding accuracy, precision, and data gaps. A concern was noted for soil thallium results, which were examined in detail using statistical methods in Appendix K, Part 6.

6.6.1.4 Uncertainties in Risk-Based Screening Levels

Published RfDs and RSLs are not available for all substances, so surrogate screening RSLs were employed using similar compounds associated with published RfD and RSL values. Accounting for potential non-cancer risks in this manner reduces the chance of underestimating risks from compounds without published toxicity factors.

6.6.2 Uncertainties in the Selection of the EPC

The use of the EPC to estimate risk is generally regarded as a conservative procedure since it entails using the 95 percent UCL on the arithmetic mean (based on best fit to a normal, log-transformed, or gamma data distribution, or else assuming an unknown nonparametric distribution). In some cases, the maximum concentration was employed if this managed to yield a lower value for the EPC. The choice of the EPC as the value for input into the risk assessment generally lowers the chances of underestimation of the actual risk present in a pathway at a particular area of interest to a potential receptor.

While the use of the 95 percent UCL on the mean may overestimate the average EPC, a decision scheme recommended in recent guidance (EPA, 2002c, and Singh, 2007a) was followed that reduces the degree of overestimation. Up to 15 UCL estimation methods were generated as appropriate to each situation based on the number of samples, the log-standard deviation, the skewness coefficient, the number of non-detects, and distribution fit tests. This approach has been tested by simulation studies and has been shown to successfully produce realistic UCL estimates that achieve 95 percent coverage of the population mean with a high degree of confidence.

The ability (power) of distributional fit tests to be able to correctly identify genuine differences between the shape of a sample population versus a reference normal, lognormal, or gamma probability distribution is reduced when too few samples are collected. If an incorrect distributional assumption is made based on these tests, this could lead to an over- or underestimate of the 95 percent UCL, which in turn would create some additional uncertainty as to whether the calculated risk is a reasonable approximation of high end exposure. If fewer than five samples or five detections in a data set were available, the distributional tests were not considered significant and the EPC was selected as the maximum value.

6.6.3 Uncertainties Associated with Exposure Assessment

6.6.3.1 Exposure Scenarios

The likelihood of the occurrence of the defined exposure scenarios is a source of uncertainty. The future anticipated land use near the site is expected to remain as industrial and recreational. However, other types of receptors, including hypothetical future residents, were evaluated to provide a comprehensive assessment of potential current and future risks from exposure.

6.6.3.2 Exposure Equations

There are limitations to using various models and equations to estimate exposure doses or contaminant concentrations. For example, the use of modeled concentrations (i.e., generated fugitive dust concentrations and generated volatile emissions) in place of monitored values may not be indicative of actual site conditions during exposure. Exposure to fugitive dust conservatively assumes that potential receptors will be exposed to the same concentration indoors as outdoors (a very conservative assumption), that soils within an area have unlimited erosion potential, that emissions can be estimated from mean annual wind speed and vegetative cover, and that dispersion concentrations can be estimated from source area and region-wide meteorological factors. For receptors exposed to fugitive dust emissions, it was assumed that future conditions would approximate current conditions in terms of a high relative fraction of vegetative cover. If future vegetative cover is different in a residential area, then dust exposures could be lower or higher than estimated by the model. However, the impact of this error would not be significant because a worst-case (no vegetative cover) scenario would only increase exposures calculated by the model by a factor of 5, while inhalation exposures at typical sites fall in a range several orders of magnitude below levels of concern.

The model for dermal exposure to soil and sediment assumes that only a very thin, constant thickness layer of soil is available for contaminant transfer to the stratum corneum and that a constant amount of contaminant, proportional to the soil concentration, will be absorbed per unit area of skin and per exposure event. However, adherence to skin varies with such factors as particle size, soil type, and organic carbon content. As estimated by EPA (2004), the absorbed dermal dose could vary substantially from the model estimates, even assuming that activity patterns lead to the exposure duration applied in the experimental trials used to develop absorption factors. Because of the lack of reliable data regarding dermal absorption factors, the risk assessment provided default soil absorption factors for most substances, except a select few for which well-documented absorption factors are available.

Prediction of absorption rates for lipophilic compounds is difficult due to, among other reasons, the possibility of a second absorption pathway that depends on the lipid content of the stratum corneum at the application site. Experimental determination of absorption rates indicates that interspecies differences are considerable, which, along with other variability's related to condition and age of skin, differences in lag time, and site of application effects, yields appreciable uncertainty in estimated dermal exposures by using published chemical-specific permeation functions. In addition, literature data indicate a variation by as much as a factor of 300 in chemical absorption rates for skin in different anatomical areas of the body. It should also be noted that children generally have greater absorption rates than adults and their activity patterns often result in greater soil-to-skin adherence factors.

Exposure assumptions can add uncertainty into the risk assessment process based on input values selected for each exposure route. For example, not all people weigh 70 kilograms, drink 2 liters of water per day, and live at the same residence for 30 years. The rationale for each assumption was provided in each table of input parameters. Receptor characteristics, such as age and body weight, were based on published values. Conservative values (based on reasonable maximum exposure data or professional judgment) were used in combination with average values.

Uncertainties exist in the exposure model for the inhalation of volatiles during showering such as chemical-specific rates of volatilization, droplet size, and droplet residence time in the shower. Most of the inputs into the models are considered conservative; therefore, the output may overestimate the exposure for this route.

6.6.4 Uncertainties Associated with Toxicity Assessment

There is uncertainty associated with the RfDs and SFs. The uncertainty results from the extrapolation of animal data to humans, the extrapolation of carcinogenic effects from the laboratory high-dose to the environmental low-dose scenarios, and interspecies and intraspecies variations in toxicological sensitivity to chemical exposure. The use of EPA RfD values is generally considered to be conservative because the doses are based on no-effect or lowest-observed-effect levels and then further reduced with uncertainty factors to increase the margin of safety by a factor in the neighborhood of 10 to 1,000 fold.

There are uncertainties regarding non-threshold (carcinogenic) effects extrapolation, from the high doses administered to laboratory animals to the low doses received under more common human exposure scenarios. Uncertainties due to short-time toxicological study predictions of long-term effects are also present. Additionally, there is considerable interspecies variation in toxicological endpoints used in characterizing potential health effects resulting from exposure to a chemical, and there is considerable variability in sensitivity among individuals of any particular species.

The RfDs and SFs of some chemicals have not been established, and therefore toxicity cannot always be quantitatively assessed. In most cases, if RfDs are unavailable for carcinogens, the carcinogenic risk is considered to be much more significant since carcinogenic effects usually occur at much lower doses.

The uncertainty associated with the assessment of dermal exposure is high because of the derivation of the dermal slope factor and reference dose. The dermal toxicity factors are based on default oral absorption factors. This could result in an overestimation of the toxicity factors, depending upon the exact mechanism of action.

For groundwater, surface water, and sediment at Site 12, chromium speciation analysis was not performed. Therefore, it was conservatively assumed that hexavalent chromium could be present, so that the hexavalent chromium RSLs, SFs, and RfDs were used for groundwater, surface water, and sediment. For these media, this approach is likely to overestimate chromium risks to an extent. For soil media, speciation analysis was performed. Total chromium and hexavalent chromium data were used in conjunction to derive a site-wide 95 percent UCL suitable for identifying the approximate hexavalent chromium RME intake from site-wide soil exposure. However, the accuracy of the hexavalent chromium/ total chromium relationship was not sufficient to allow point-by-point prediction of hexavalent chromium concentrations.

Inhalation risks are uncertain for several reasons. Inhalation risks are subject to modeling uncertainty with regards to accuracy of predictions for inter-media transfer. In addition, recent guidance was applied to estimate the IUR for carcinogenic risk and RfC for non-cancer hazards, which does not directly adjust for the effect of breathing rate and body weight on the calculated risk. This approach is recommended in EPA RAGS Part F guidance because evidence suggests that this yields a more accurate estimate of risk.

6.6.5 Uncertainties Associated with Risk Characterization

ICRs and HIs were summed for all potential COPCs and for all applicable routes of exposure. Non-cancer risks were grouped and summed together for only those chemicals affecting the same target organ/organ system. However, summing these risks implies that no antagonistic or synergistic effects exist between chemicals. It also assumes that similar mechanisms of action and metabolism are prevalent. Therefore, the use of this approach may either underestimate or overestimate the risks, depending on the chemical-specific interactions, which cannot be predicted. The direction of the uncertainty cannot be defined, but the methodology used is based on current EPA guidance.

Risks to any individual may also be overestimated by summing multiple assumed exposure pathway risks for any single receptor. Although every effort was made to develop reasonable scenarios, not all individual receptors may be exposed via all pathways considered.

The IEUBK model accounts for the multimedia nature of lead exposure, incorporates absorption and pharmacokinetic information, and allows the risk manager to consider the potential distributions of exposure and risk likely to occur at a site (the model goes beyond providing a single point estimate output). Although uncertainties are associated with using this blood-lead model, the uncertainties are considered lower than those that conceivably would result from similar lead evaluations performed using a traditional toxicity slope-based approach. Important uncertainties and limitations in the use of the IEUBK model are listed below.

The IEUBK model was developed to model steady state blood-lead concentrations resulting from exposure occurring on a frequent or nearly continuous basis. For recreational exposure scenarios, this assumption is not adequately met because of exposure occurring only during warmer months and only for occasional days each week rather than daily. The output of the IEUBK model is considered at best only a rough approximation under these assumptions.

The IEUBK model is predictive of blood lead for residential children in the range of 6 months to 7 years of age, which typically is considered to be a more sensitive subpopulation than adults. The IUEBK model does not apply to adults in residential settings, who would be expected to have less chance of experiencing adverse effects. The adult lead model applies only to pregnant workers in order to assess potential effects only for the most sensitive subpopulation of workers, and is based on effects to the developing fetus. Other categories of adult workers would be expected to be somewhat less prone to experiencing potential adverse effects from lead exposures occurring in the same industrial setting.

The IEUBK model uses a default of 30 percent lead absorption from soil. However, the bioavailability of lead from different sources may be variable due to differences in lead speciation, particle size, and mineral matrix and may also vary as a function of physiological parameters such as age, nutritional status, gastric pH, and transit time. For example, lead absorption from paint chips in soil may be different than lead absorption from other chemical forms.

Blood-lead variability is characterized by a single number, the geometric standard deviation, which is set to a default value of 1.6 in the IEUBK model. This value represents the aggregate uncertainty in all sources of population variability, including biological, uptake, exposure, sampling, and analytical components.

Child blood-lead level predictions obtained using the IEUBK model reflect only the contributions of sources entered into the model and do not take into account any existing body burden that may be the result of prior exposures or any exposures that may have taken place at alternate locations away from the household or neighborhood level, such as parks or daycare centers.

The EPA Technical Review Workgroup (TRW) adult lead model was not designed to predict fetal blood lead concentrations from water ingestion by pregnant adults. However, considering a qualitative approach, the volume of surface water ingested by a construction worker would be 0.0036 liters per day (based on surface water ingestion of 0.005 L for 5 days of each week over 6 months exposure duration, which may be sufficient to attain a quasi-steady state blood lead). This estimated daily intake volume is only 0.17 percent of the default daily intake of tap water for a typical adult resident (2 liters per day). As a rough estimate, if the lead mean concentration in surface water (15 ug/L) is multiplied by 0.0017, this would yield an equivalent total daily intake of lead as with consumption of a lead concentration of 0.026

ug/L in residential tap water. A 0.026 ug/L equivalent tap water concentration would not be construed as likely to result in unacceptable blood lead concentrations for a residential child.

6.7 RISK ASSESSMENT SUMMARY

The HHRA for Site 12 was performed to evaluate risks to current or future human receptors potentially exposed to groundwater, surface soil, total soil, surface water, and sediment. In Appendix J, RAGS D Tables 1 through 9 present the exposure scenarios, COPCs, EPCs, input parameters, cancer and noncancer toxicity factors, and associated risks to potentially exposed receptors. Table 9's list the cancer risks and non-cancer hazards estimated for each receptor. For the surface soil risk assessment, two sets of Table 9's (e.g., 9.01 and 9.01a) were included to differentiate estimated risks from exposure to all COPCs versus estimated risks after elimination of substances that did not exceed background levels based on statistical tests. For the total soil risk assessment, risk tables were footnoted to indicate metals that are associated with elevated concentrations in the waste disposal area but which are not elevated in the non-waste areas.

6.8 SELECTION OF CHEMICALS OF CONCERN (COCS)

In the last step of the risk assessment, a short list of chemicals, called chemicals of concern (COCs), was developed for each area of interest, consisting of those substances that contribute to potentially unacceptable human health risks (above the target acceptable risk range) and which do not appear to be attributable to background environmental conditions (outside of the realm of influence of the site). The following subsections evaluate risk drivers for each area of interest and medium and discuss the lines of evidence regarding selection of site-related COCs. Evidence used to select COC's included quantitative statistical background tests, qualitative assessment of contaminant patterns, concentration ranges, frequencies of detection, and other causative influences such as likely mineralogic or anthropogenic sources.

6.8.1 Risk Level Benchmarks to Define COCs with Unacceptable Risk

Estimated risks for an exposure medium were considered unacceptable if the total cancer risk from all COPCs exceeded 1×10^{-4}, if the total HI from combining the HQs for COPCs affecting the same target organ exceeded 1.0, or if exposures to lead yielded a predicted blood lead concentration above 10 ug/dL in greater than 5% of an exposed population. If total risks exceeded these benchmarks, then individual substances contributing to unacceptable risk were highlighted in bold in Appendix J on RAGS D Table 9's. These candidate COCs are listed in Table 6-1 for each medium, receptor, and area of interest. The threshold risk for including a substance as a significant contributor was based on an individual cancer risk exceeding 1.0×10^{-6}, a non-cancer HQ exceeding 0.20, or a predicted blood lead concentration

exceeding 10 ug/dl in greater than 5% of an exposed population. Table 6-1 includes candidate COCs associated with non-carcinogenic hazards or unacceptable blood lead levels, listed separately for child and adult residents and child and adult recreational receptors. Candidate COCs contributing to residential or recreational cancer risks are listed only for lifetime receptors, which represent a combination of child plus adult exposures.

6.8.2 COC Selection for Comparison to Background Concentration

In Table 6-1, candidate COCs that were judged to be associated with background conditions were annotated (BG). For surface soil samples, concentrations of arsenic and manganese did not exceed background based on quantitative statistical tests presented in Section 4. For other media of interest, qualitative lines of evidence were considered to narrow down the list of site-related COCs. Sections 6.8.3 through 6.8.7 present the COCs for Site 12 by defined area and medium after elimination of non-site-related substances. The COCs for each medium will be used to develop chemical-specific remediation goals (RGs) in the FS report.

6.8.3 Surface Soil COCs

The candidate COCs for surface soil selected based on cancer risk to a lifetime resident were chromium, benzo(a)pyrene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. No unacceptable non-cancer hazards for a residential child were identified for site-related chemicals. Thallium was eliminated based on the lines of evidence discussed in Appendix K, Part 6. Lead was not selected as a COC.

6.8.4 Total Soil COCs

The candidate COCs for total soil selected based on cancer risk to a lifetime resident were 2,3,7,8-TCDD toxicity equivalents, arsenic, chromium, Aroclor-1260, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The candidate COCs for total soil associated with an unacceptable target organ HI for a child resident were 2,3,7,8-TCDD equivalents, arsenic, and manganese. Note that arsenic and manganese were found at elevated soil concentrations in the waste burial area but not in the non-waste areas. Thallium was eliminated based on the lines of evidence discussed in Appendix K, Part 6. Lead was not selected as a COC.

6.8.5 Groundwater COCs

The candidate COCs for groundwater selected based on cancer risk to a lifetime resident were 2,3,7,8-TCDD toxicity equivalents, trichloroethene, and chromium. The estimated exposures to groundwater were potentially applicable to future residents and construction workers. Monitoring well data were used to calculate risks associated with hypothetical groundwater plume exposure. Unacceptable non-cancer hazards for a residential child were identified for 2,3,7,8-TCDD toxicity equivalents, aluminum, and manganese. Lead was not selected as a COC.

A qualitative rationale for excluding non-site-related substances as groundwater COCs is provided because there were insufficient data points to perform a confident statistical comparison. In addition, some of groundwater parameters were nondetected, which creates difficulties in making statistical inferences when comparing downgradient to upgradient wells. Therefore, qualitative lines of evidence and comparisons to upgradient and side-gradient wells that are unaffected by the site were used to establish a list of potentially site-related COCs.

Groundwater data for arsenic revealed detections in 3 out of 8 samples at a range from 0.23 ug/l to 2.7 ug/L. In the one NAS JRB upgradient well 02MW02S, arsenic was detected at 1.3 ug/L in one out of two samples, which is approximately one-half the maximum concentration found at Site 12. Therefore, detection of low levels of arsenic, which is a naturally occurring substance, in Site 12 groundwater appears consistent with local upgradient conditions. In addition, arsenic is a well-documented, naturally-occurring component of groundwater within the Newark Basin. Many public supply wells located within the Newark Basin of New Jersey and Pennsylvania exhibit the presence of arsenic. The USGS (2006) evaluated the arsenic groundwater distribution in the Newark Basin of Southeastern Pennsylvania and concluded that about 10 percent of all wells in the basin contain arsenic at concentrations above 10 ug/L, and in some areas the percentage was even greater than 10 percent.

Groundwater data for chromium revealed detections in 8 out of 8 samples at a range from 2.6 ug/l to 24.6 ug/L. In the upgradient well 02MW02S, chromium was detected at 1.8 ug/L in one out of two samples. The mean Site 12 chromium groundwater concentration was 8.1 ug/L, which is approximately a factor of four times the mean upgradient concentration of 2.2 ug/L.

Groundwater data for aluminum revealed detections in 7 out of 7 samples at a range from 38.1 ug/l to 8570 ug/L. In the upgradient well 02MW02S, aluminum was detected at 86.5 ug/L in one out of two samples. The mean Site 12 aluminum groundwater concentration was 1530 ug/L, which is approximately a factor of 30 times the mean upgradient concentration of 49.1 ug/L.

Groundwater data for manganese revealed detections in 8 out of 8 samples at a range from 21.2 ug/l to 1680 ug/L. In the upgradient well 02MW02S, manganese was detected in two out of two samples at a range from 2.1 ug/l to 66.2 ug/l. The mean Site 12 manganese groundwater concentration was 530 ug/L, which is approximately a factor of 16 times the mean upgradient concentration of 34.2 ug/L.

In evaluating the groundwater risk drivers, it should be noted that the EPCs for several substances were less or approximately equal to their respective maximum contaminant levels (MCLs), including trichloroethene (EPC of 4.1 ug/L versus MCL of 5 ug/L), arsenic (EPC of 2.7 ug/L versus MCL of 10 ug/L) and chromium (EPC of 15.2 ug/L versus MCL of 100 ug/L). The 2,3,7,8-TCDD TE EPC was 0.00147 ug/L versus an MCL for 2,3,7,8-TCDD of 0.00003 ug/L. No promulgated MCLs currently exist for aluminum or manganese, although Secondary Maximum Contaminant Levels (SMCLs) are available for both metals. SMCLs are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. Aluminum, chromium, and manganese were retained as COCs because of published toxicity factors that allow estimation of noncancer hazards for these substances.

Considering each of the lines of evidence discussed above, only 2,3,7,8-TCDD toxicity equivalents, trichloroethene, chromium, aluminum, and manganese were retained as groundwater COCs for consideration in the FS.

6.8.6 Surface Water COCs

The candidate COCs for surface water selected based on cancer risk to a lifetime resident were chromium, dieldrin, benzo(a)pyrene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Unacceptable non-cancer hazards were not identified for any substances. Lead was not selected as a COC. The estimated exposures to surface water were potentially applicable to construction workers and recreational children and adults.

Chromium was detected in 2 out of 7 Site 12 surface water samples at concentrations ranging from 1.9 ug/l to 37.8 ug/l. Chromium was not detected in any of 8 background surface water samples, with detection limits of approximately 1 ug/l. Dieldrin was detected in 5 out of 7 Site 12 surface water samples, while most of the PAHs were detected in 3 out of 7 Site 12 surface water samples.

6.8.7 Sediment COCs

No candidate COCs for sediment were selected based on cancer risk. Unacceptable non-cancer hazards were identified for manganese and thallium. Lead was not selected as a COC. The estimated exposures

to sediment were potentially applicable to construction workers and recreational children and adults. The background comparison tests in Table 4-13 determined that one of the risk drivers for sediment, manganese, exhibited concentrations that were not statistically greater than background. Therefore, manganese was not retained as a COC.

7.0 ECOLOGICAL RISK ASSESSMENT

ERA was conducted to evaluate the potential for adverse ecological impacts of site-related contamination at Site 12 and to determine the need for further investigation and/or remedial action. The ERA was conducted following EPA and Navy guidance (EPA, 1997a; 1998; Navy, 1999; 2004).

This ERA consists of Steps 1 and 2 and the initial portion of Step 3 of the eight-step ERA process described by EPA (1997a). These three steps consist of the following:

Step 1 Screening-Level Problem Formulation and Ecological Effects Evaluation
Step 2 Screening-Level Exposure Estimate and Risk Calculation
Step 3A Refinement of Preliminary Chemicals of Potential Concern

The first phase in the ERA process is the screening level ERA (Steps 1 and 2). In this phase, conservative exposure estimates are made for general or specific groups of ecological receptors, and these exposure estimates are compared to screening-levels and toxicity threshold values. This ERA also contains the initial portion of Step 3 of a baseline ERA, which further refines the list of ecological chemicals of potential concern (COPCs). The initial portion of Step 3 will be referred to as Step 3A in this document.

Section 7.1 describes the screening level problem formulation, and Sections 7.2, 7.3, and 7.4 describe the ecological effects evaluation, exposure estimates, and risk characterization, respectively. Section 7.5 describes the refinement of preliminary COPCs. Inherent uncertainties are discussed in Section 7.6. The summary and conclusions are provided in Section 7.7.

7.1 SCREENING LEVEL PROBLEM FORMULATION

The problem formulation phase addresses the environmental setting, ecological receptors, contaminant fate and transport, mechanisms of ecotoxicity, complete exposure pathways, and selection of endpoints.

7.1.1 Environmental Setting

The South Landfill (Site 12) is an area of approximately 11 acres located in the southern portion of NAS JRB Willow Grove (Figure 3-1). A gravel road runs through the northeastern part of Site 12 and provides access to a fenced magazine area in the eastern part of the site. The southwest boundary of Site 12 is a drainage ditch, which separates Site 12 from Site 2. The drainage ditch empties into an unnamed intermittent stream that flows southward through the southeastern portion of the site. A storm sewer outfall empties into the

stream approximately 100 feet north (upstream) of the confluence of the drainage ditch and stream. The storm sewer receives runoff from the taxiway immediately north of Site 12 (Taxiway Juliet), from the southeastern end of the Base runway, and from the vicinity of Buildings 29 and 22 in the southeastern part of the Base. The drainage ditch is typically dry or non-flowing. The stream upgradient of the storm water outfall becomes dry during periods of little rainfall. The stream downgradient of the storm water outfall is typically wetter and tends to contain water for most of the year. The lower portion of the stream at Site 12 was 5 to 10 feet wide and 6 to 12 inches deep when surface water samples were collected there in January 2010. The stream exits the Base as it passes underneath State Road 463 (Horsham Road) and enters Pennypack Creek approximately 3000 feet south of the Base boundary. Because of the intermittent nature of the stream (especially upstream of the storm water outfall), there is no permanent aquatic habitat in the upper portion of the stream, and no fish have been noted there during sampling activities. The National Wetlands Inventory map indicates no wetlands on the site. The ground surface at Site 12 generally slopes slightly southwestward, except near the stream, where it slopes southeastward toward the stream.

Most of Site 12 is a mixture of shrub thickets and wooded areas dominated by deciduous trees. The shrub thickets consist largely of common species such as multiflora rose (*Rosa multiflora*), chokecherry (*Prunus virginiana*), pine (*Pinus* spp.) saplings, viburnums (*Viburnum* spp.), and blackberry (*Rubus* spp.). The wooded areas are dominated by maple (*Acer* spp.), ash (*Fraxinus* spp.), tuliptree (*Liriodendron tulipifera*), oaks (*Quercus spp*.), and black cherry (*Prunus serotina*). Much of the area north of the gravel road is old field vegetation that is dominated by broomsedge (*Andropogon glomeratus*) and other grasses, goldenrod (*Soildago* sp.), and blackberry.

Terrestrial receptors at the site consist of various mammals such as rabbits, raccoons, deer, shrews, and rodents such as squirrels and woodchucks. Reptiles and amphibians inhabit the site, particularly the drainage ditch and stream. The more open grassy areas provide food sources (seeds, insects, worms, etc.) for a variety of birds and small mammals. Arboreal birds use the wooded and shrubby areas. Avian raptors undoubtedly forage in all habitats at the site.

7.1.2 Contaminant Fate and Transport

The contaminant source at Site 12 is buried waste associated with historical landfill operations. The site is believed to have been used from 1948 to 1960 as a disposal area for general refuse, paint waste, sewage sludge, and solvents. Landfill activities reportedly consisted of trench excavation with subsequent burning and burial of waste material within the trenches.

Potential contaminant release pathways at the site include erosion, overland runoff, and infiltration of contaminants. These are discussed in Section 7.1.4.

VOCs, SVOCs, pesticides, and metals were detected in surface soil, sediment, and surface water samples collected at Site 12. The discussion below is limited to a brief review of the fate and transport of these contaminant types at Site 12 as related to migration pathways and ecological exposure.

7.1.2.1 Volatile Organic Compounds (VOCs)

VOCs are poorly adsorbed to soil and sediment particles. VOCs are not typically detected at high concentrations in surface water, surface soil, and sediment because of their high volatility. VOCs in soil will dissolve in rain water to varying degrees and can be transported overland with runoff or into groundwater. Photolysis and hydrolysis are not significant mechanisms of VOC degradation. Aerobic biodegradation in soil and groundwater is significant, however, and anaerobic degradation can also occur in these media.

7.1.2.2 Semivolatile Organic Compounds (SVOCs)

Most of the SVOCs detected at Site 12 were PAH compounds or phthalates. These are discussed below.

PAH Compounds

PAHs are ubiquitous in the modern environment and are common constituents of coal tar, soot, vehicle exhaust, cigarette smoke, petroleum products, road tar, mineral oils, and creosote. PAHs are transferred from surface water by volatilization and sorption to settling particles. The compounds are transformed in surface water by photooxidation, chemical oxidation, and microbial metabolism. In soil and sediments, microbial metabolism is the major process for degradation of PAHs (ATSDR, 1996). High molecular weight PAHs tend to be immobile and insoluble, binding strongly to organic matter (reducing the potential for leaching to groundwater), and they are resistant to volatilization, photolysis, and biodegradation (Eisler, 2000). Upper tropic level wildlife are exposed to PAHs primarily through the diet, but most wildlife can metabolize and excrete PAHs. Vertebrates can readily metabolize PAHs, but invertebrates such as insects and worms cannot metabolize PAHs as quickly. PAHs may be absorbed by plants but are expected to be translocated, metabolized, and potentially photodegraded. Accumulation within plants is likely to occur only in heavily polluted locations where uptake exceeds metabolism and degradation (Edwards, 1983).

Phthalates

Phthalates are used in the production of plastics and are relatively persistent in the environment. Although numerous studies have demonstrated that phthalates undergo biodegradation, it is a slow process. Some microorganisms have been shown to excrete products that increase the solubility of phthalates and enhance their biodegradation (Gibbons and Alexander, 1989). Most phthalates are expected to sorb to soil or sediment particles after their release because of their high organic carbon absorption coefficient Organic carbon partition coefficient (K_{oc}) values.

7.1.2.3 Pesticides

Chlorinated pesticides are highly persistent in the environment, and tend to tightly sorb to organic matter. Degradation of chlorinated pesticides in sediment eventually occurs through volatilization, photolysis, and aerobic and anaerobic degradation. Due to the lipophilicity of organochlorine pesticides, they can bioaccumulate in animals. These compounds generally bioconcentrate in lower trophic level organisms and can be transferred and magnified in higher trophic level organisms.

7.1.2.4 Inorganics

Many metals occur naturally in soil, surface water, and sediment due primarily to chemical weathering of rocks. Most metals are toxic to biota above certain concentrations, with some metals being more toxic at lower concentrations than others. In addition, different chemical forms of metals are more toxic than others. For example, hexavalent chromium is typically more toxic than trivalent chromium. Factors such as pH, clay content, and organic matter content influence the bioavailability of metals to invertebrates in sediment. In water, most metals tend to adsorb to sediment or to suspended particles in the water column. However, because of dissolution, complexation, and sediment resuspension, metals are often detected in surface water. Some metals have the potential to accumulate in biota (EPA, 2000b).

7.1.3 Ecotoxicity

VOCs readily volatilize, are poorly adsorbed to soil and sediment particles, and are typically detected in surface water, surface soil, and sediment only at low concentrations. VOCs do not bioaccumulate in ecological receptors, and their toxicity to most ecological receptors is relatively low.

PAHs in most animal species are metabolized by a mixed-function oxidase enzyme system into intermediates that may be toxic, mutagenic, or carcinogenic to the host. Some invertebrate species cannot efficiently metabolize PAHs (Eisler, 2000), and PAHs can be chronically toxic to invertebrates,

but overall, very little is known about the toxicological mechanisms of PAHs in invertebrates (Erstfield and Snow-Ashbrook, 1999). PAHs can bind to cellular macromolecules and thereby disrupt their function in higher level organisms such as mammals and birds. Biological macromolecules include polymers of carbohydrates (e.g., starch), amino acids (proteins), and nucleotides (e.g., DNA). The cellular functions of these polymers include structure, energy storage, energy transfer, material transport, and the storage and transmittal of genetic information. Adverse impacts to plants from PAHs are rare. Food chain uptake does not appear to be a major exposure source to PAHs for aquatic animals, and food chain biomagnification of PAHs is typically minimal (ATSDR, 1996). Microbial metabolism is the major process for degradation of PAHs in soil (ATSDR, 1996).

In general, phthalates have a low acute toxicity to animals (Amdur et al., 1991). Chronic oral exposures, however, have been shown to result in liver toxicity in mammals. Ingested phthalates metabolize to monoesters in the gut and are subsequently absorbed. Following absorption, phthalates distribute primarily to the liver and kidneys and in some species, concentrate in the testes (Rhodes et al., 1986). Liver carcinogenesis has been observed. Many receptors are able to metabolize and excrete phthalate esters, so their ability to bioaccumulate varies among species.

Organochlorine pesticides are reproductive and nervous system toxins. The target organ for acute exposures is the nervous system, while chronic exposures can affect the liver and endocrine systems of higher animals. Organochlorine pesticides are lipophilic and can be stored in the fat tissue of organisms such as birds and mammals. In birds of prey they can cause reproductive failure through eggshell thinning and disruption of egg-laying and nesting cycles (Amdur et al., 1991). Organochlorine pesticides were developed to control insects on crops, and as a result, they are not highly toxic to plants.

It is difficult to make generalizations about the toxic actions of metals because of diverse affinities for organic molecules in biologic structures, a wide array of biological effects, and a multiplicity of target organs and systems (Amdur et al., 1991). At the molecular level, metals can manifest toxicity in many ways, including selectively accumulating in target organs (such as the kidneys), substituting for “essential” metals, and mimicking essential substrates (Clarkson, 1983). The reactions of metals at the molecular level typically affect enzyme systems, leading to disruption of cellular transport, cellular respiration, cell division, and other physiological processes. Metal toxicity to aquatic organisms is manifested through a broad spectrum of effects that range from a reduction in growth rate to death. Aquatic organisms are most sensitive to metal toxicity in the embryonic and larval stages of the life cycle.

7.1.4 Complete Exposure Pathways

Soil invertebrates are exposed to soil contaminants at Site 12 through ingestion and dermal contact.

Higher trophic level animals such as birds and mammals can be exposed to contaminants through three pathways: oral, dermal, and inhalation. The dermal pathway is generally assumed to be minor because fur and feathers minimize transfer across dermal tissue, and the oral exposure pathway is the primary pathway of intake of most contaminants for terrestrial wildlife (Sample et al., 1997). The inhalation pathway at Site 12 is probably insignificant for at least two reasons. First, since most of the site is covered with vegetation, aerial suspension of contaminated dust particles is minimized. Second, VOCs and SVOCs, which are the compounds most likely to present a risk through inhalation, are rapidly diluted and dispersed when exposed to air. Because of this, and since inhalation ecotoxicity data for chronic exposure are lacking, the air pathway was not evaluated for ecological receptors. The oral exposure pathway is the primary pathway of intake for terrestrial wildlife at Site 12. Animals such as birds and mammals are exposed to site-related contamination through ingestion of contaminated food items and incidental ingestion of contaminants in soil while grooming fur, preening feathers, digging, grazing close to the soil, or feeding on items to which soil has adhered. Terrestrial animals can also ingest contaminants in surface water through drinking.

Terrestrial vegetation could be exposed to contaminants via contact with soil and subsequent root translocation. Aerial deposition is currently a negligible pathway for plants and animals at Site 12 because the site is largely covered by vegetation, reducing the amount of bare soil and fugitive dust.

Aquatic and semi-aquatic organisms in the drainage ditch and stream at Site 12 can be exposed to contaminants through direct contact with surface water and sediments, incidental ingestion of surface water and sediments, and consumption of contaminated food items.

The site conceptual exposure model is designed to diagram the potentially exposed receptor populations and applicable exposure pathways, based on the physical nature of the site and the potential contaminant source areas. The contaminant transport pathways for Site 12 are shown schematically in Figure 7-1 and pictorially in Figure 7-2. These pathways describe the movement from the source of contamination to potential ecological receptors; the linkage of these items is the conceptual site model.

Since the former landfill site is vegetated, wind erosion is not a significant migration pathway. Soil erosion due to storm water runoff is also minimal at most of the site due to the vegetation cover. However, if surface soil is disturbed through activities such as excavation, soils could serve as a source for transport of contaminants to downgradient locations. In addition, soil erosion into the ditch and stream could have been significant when the landfill was in operation. Furthermore, the water erosion pathway is applicable in the drainage ditch and intermittent stream, as well as along the shallow slope near the stream. Therefore, Figures 7-1 and 7-2 show a complete exposure route for overland runoff and erosion.

Precipitation runoff could carry contaminants to Pennypack Creek approximately 3000 feet downstream (south) of the site. Combustion was undoubtedly a major contaminant release mechanism during the period of active landfill operations, since waste material was burned in trenches. However, combustion is not a current contaminant release mechanism at Site 12 since burning activities have ceased. Infiltrating precipitation could cause contamination of subsurface soil and groundwater at the site. Groundwater beneath Site 12 flows southwest. The nearest surface water in this direction is the upper reach of Pennypack Creek, approximately 3,500 feet southwest of Site 12. The dermal contact exposure route is included in the conceptual model since it is occurs to some extent, but as mentioned earlier, it represents a minor exposure route.

7.1.5 Assessment Endpoints

For the screening level ERA, assessment endpoints are any adverse effects on ecological receptors (EPA, 1997a). Based on the habitats present and on the migration pathways and routes of exposure of chemicals at Site 12, the assessment endpoints for this ERA are the protection of the following groups of receptors from adverse effects of site-related contaminants on growth, survival, and reproduction:

- Soil invertebrates
- Terrestrial vegetation
- Insectivorous birds and mammals
- Herbivorous birds and mammals
- Benthic invertebrates
- Aquatic organisms
- Piscivorous birds and mammals

The assessment endpoints are discussed below.

7.1.5.1 Soil invertebrates

Earthworms, insect larvae, and other soil invertebrates at Site 12 aid in the formation of soil and the redistribution and decomposition of organic matter in soil. They can also accumulate bioaccumulative contaminants that can be transferred to higher trophic-level organisms that consume soil invertebrates.

7.1.5.2 Terrestrial Vegetation

Terrestrial vegetation at Site 12 consists of numerous species of trees, shrubs, vines, and herbaceous plants. These plants serve as a food source and provide cover for many organisms, and they help to

prevent soil erosion, among other important functions. They can also accumulate certain contaminants that can be transferred to the higher trophic-level organisms that consume plants.

7.1.5.3 Insectivorous Birds and Mammals

Strictly speaking, the term “insectivorous” refers to insect-eating organisms, while “vermivorous” refers to worm-eating organisms. However, most animals that consume worms also consume adult and larval insects and other soil invertebrates, and no animals at Site 12 are strictly insectivorous or strictly vermivorous. The term “insectivorous” is used in this ERA in a broad sense and for brevity to describe birds and mammals that prey on a variety of soil invertebrates, such as adult and larval insects, centipedes, millipedes, other arthropods, and worms.

Insectivorous birds and mammals can be exposed to and accumulate contaminants present in the food items they consume. Numerous birds forage on soil invertebrates at Site 12. Most birds considered to be insectivorous also eat plant material such as berries and seeds. Several mammal species known or expected to occur at the site consume worms and other soil invertebrates. Shrews and moles forage only on soil invertebrates. Rodents at the site forage at least to some extent on soil invertebrates.

7.1.5.4 Herbivorous Birds and Mammals

Herbivores animals consume only plant tissue. Herbivorous birds and mammals can be exposed to and accumulate contaminants present in the food items (i.e., leaves, seeds, fruit) they consume. Most bird species forage on a combination of plant material and soil invertebrates, but species such as the Northern bobwhite quail forage primarily or almost exclusively on vegetation. Mammals such as deer, rabbits, woodchucks, and voles are herbivorous.

7.1.5.5 Benthic Invertebrates

Benthic invertebrates in the drainage ditch and stream could be directly exposed to contaminants in surface water and sediment. Many benthic invertebrates serve as a food source for higher trophic level organisms such as fish, birds, and mammals. Benthic invertebrates can accumulate contaminants that can be transferred to higher trophic level organisms when consumed.

7.1.5.6 Aquatic Organisms

Aquatic organisms in the drainage ditch and stream could be directly exposed to contaminants in surface water, and less so to the sediment. Many aquatic organisms serve as a food source for higher trophic

level organisms such as fish, birds, and mammals. Aquatic organisms can accumulate contaminants that can be transferred to higher trophic level organisms when consumed.

7.1.5.7 Piscivorous Birds and Mammals

The term “piscivorous” is used here in a broad sense to describe birds and mammals that prey upon not only fish, but on a variety of aquatic organisms. Piscivorous birds and mammals can be exposed to and accumulate site-related contaminants that have accumulated in prey items obtained from surface water. Piscivorous birds include belted kingfishers, and various wading birds such as herons and egrets. Piscivorous mammals include the river otter and mink. The raccoon is often thought of as piscivorous, and it does consume aquatic organisms, but the majority of its diet typically consists of non-aquatic animal and plant tissues (EPA, 1993).

7.1.5.8 Other Potential Endpoints

As indicated in EPA (1997a) guidance, it is not practical to directly evaluate risks to all of the individual components of the ecosystem. Instead, assessment endpoints focus the ERA on particular components of the ecosystem that will tend to yield the highest risks; this should provide protection for endpoints that have lower risks. For example, omnivores were not selected as assessment endpoints because omnivores will be protected by protecting insectivores and herbivores. Large carnivorous birds (e.g. hawks and owls) and large carnivorous mammals (e.g. fox, bobcat) were not selected as assessment endpoints because their home range is much larger than the site and most of their food would come from other locations. Therefore, risks would be greater to small mammals and birds that obtain all of their food from the site. Threshold oral toxicity values for reptiles and amphibians are not available for most chemicals, so risks to reptiles and amphibians were not quantitatively evaluated.

7.1.6 Measurement Endpoints

Measurement endpoints are estimates of biological impacts (e.g., mortality, growth, reproduction) that are used to evaluate the assessment endpoints.

Adverse impacts on survival, growth, and reproduction of soil invertebrates and terrestrial vegetation were evaluated by comparing chemical concentrations in surface soil to soil ecological screening values (ESVs). Adverse impacts on survival, growth, and reproduction of benthic invertebrates were evaluated by comparing chemical concentrations in sediment to sediment ESVs. Adverse impacts on survival, growth, and reproduction of aquatic organisms were evaluated by comparing chemical concentrations in surface water to surface water ESVs.

Adverse impacts on survival, growth, and reproduction of piscivorous birds and mammals, insectivorous birds and mammals, and herbivorous birds and mammals were evaluated by comparing estimated ingested doses of contaminants in surface water, soil/sediment, and food items to NOAELs for representative wildlife species. LOAELs were not used to evaluate adverse impacts until Step 3A of this ERA (Section 7.5.3).

The assessment and measurement endpoints can be summarized as follows:

Assessment Endpoint	Measurement Endpoint	Representative Receptor
Soil invertebrates	Soil ESVs	Not applicable
Terrestrial vegetation	Soil ESVs	Not applicable
Benthic invertebrates	Sediment ESVs	Not applicable
Aquatic organisms	Surface Water ESVs	Not applicable
Insectivorous birds	Avian NOAELs	American robin (*Turdus migratorius*)
Insectivorous mammals	Mammalian NOAELs	Short-tailed shrew (*Blarina brevicauda*)
Herbivorous birds	Avian NOAELs	Northern bobwhite quail (*Colinus virginianus*)
Herbivorous mammals	Mammalian NOAELs	Meadow vole (*Microtus pennsylvanicus*) and Woodchuck (*Marmota monax*)
Piscivorous birds	Avian NOAELs	Green heron (*Butorides striatus)*
Piscivorous mammals	Mammalian NOAELs	Mink (*Mustela vison*)

Justification for using the seven representative receptors is provided below.

7.1.7 Selection of Representative Receptors

Potential risk can be evaluated for general or specific receptor groups. In many cases, receptors are adequately described by general categories such as sediment-dwelling biota. When ingestion is a major exposure route, selection of specific receptor groups is required so that intake through eating and drinking can be evaluated, and species are selected to represent the receptor group that is to be evaluated. Contaminant exposure through ingestion was evaluated through food chain modeling, which is described in Section 7.3.3. The seven species identified above (Section 7.1.6) were used to represent wildlife-related assessment endpoints in the food chain model. Exposure parameters (e.g., diet, body weight, food and water ingestion rates) for the representative species are discussed in Section 7.3.3.3. Life history information for the representative species is provided below.

7.1.7.1 American Robin

The American robin is common in Pennsylvania and the entire eastern United States in a variety of habitats such as parks, lawns, moist forests, swamps, open woodlands, and orchards. Major food items in spring and summer include insects and invertebrates, especially earthworms. Seeds and fruit are eaten more frequently in winter. During the non-breeding seasons, robins in Pennsylvania are joined by migratory individuals from more northern areas, roaming over large areas and usually forming communal roosts within 1 to 2 miles of foraging areas. All portions of Site 12 provide foraging habitat for robins. The home range during breeding season is approximately 0.5 to 2.0 acres (EPA, 1993). Therefore, a robin might forage exclusively at Site 12 during nesting.

7.1.7.2 Short-Tailed Shrew

Short-tailed shrews are found in forested areas, brushy areas, and near marshes. They feed primarily on insects but will prey on earthworms, snails, centipedes, slugs, and even small vertebrates (Burt and Grossenheider, 1980). Short-tailed shrews have voracious appetites for their body size, and as a result, may receive high doses of contaminants relative to other small mammals. Their home range is approximately 0.5 to 2.4 acres (Cothran et al., 1991; EPA, 1993). The short-tailed shrew is found throughout Pennsylvania. Short-tailed shrews probably occur at Site 12 in all terrestrial habitats.

7.1.7.3 Northern Bobwhite Quail

The Northern bobwhite quail, often known as the Northern bobwhite or bobwhite quail, is a ground-dwelling bird that inhabits brush, grasslands, idle fields, pastures, and open woodlands. Seeds comprise the majority of the adult diet. Average home range sizes in several studies reviewed by EPA (1993) varied from 8.9 to 41.3 acres. The Northern bobwhite probably forages in much of Site 12.

7.1.7.4 Meadow Vole

The meadow vole is the most widely distributed small herbivore in North America, and is found throughout Pennsylvania. Meadow voles inhabit grassy fields, marshes, bogs, and sometimes grassy openings in forests (EPA, 1993; Brown, 1997). Primary food items consist of green succulent vegetation, sedges, seeds, roots, bark, and fungi. Average home range sizes in several studies reviewed by EPA (1993) varied from 0.0005 to 0.2 acres. Meadow voles would be found in much of Site 12.

7.1.7.5 Woodchuck

The woodchuck, also known as groundhog, is a large rodent of field borders, fencerows, forest edges, and brushy hillsides. Its geographical range includes most of eastern Canada and much of the eastern United States. Woodchucks dig burrows which often have two or more openings. The burrows often provide refuge for smaller mammal species, and for a variety of reptiles, amphibians, and arthropods. Woodchucks tend to be most active in the early morning and late afternoon and typically remain in the burrow during the middle of the day. They feed almost exclusively on herbaceous plants (Brown; 1997). Woodchucks typically hibernate from October or November to February or March. They can do considerable damage to crops (Brown; 1997; Burt and Grossenheider, 1980). Woodchucks become sexually mature at one year of age, but most are nearly two years old before becoming reproductively active (Brown; 1997). Their home range is often about 40 to 60 acres (Burt and Grossenheider, 1980), but woodchucks in areas of plentiful succulent vegetation (such as alfalfa and clover) often stay within 20 yards of their burrow (DeGraaf and Rudis, 1986). A few woodchuck burrows are located at Site 12. As noted in Section 7.1.6, risks to herbivorous mammals were evaluated using two representative receptors, the vole and the woodchuck. The woodchuck was used so that risks to burrowing mammals from exposure to subsurface soil could be evaluated.

7.1.7.6 Green Heron

The green heron is a common bird in wetland thickets throughout the eastern United States. It forages especially along forested margins of ponds, lakes, rivers, streams, marshes, and swamps, and probably forages along the stream at Site 12. It prefers thick vegetation, but will feed in the open when food is available. Small fish are the primary prey, but green herons also consume insects, and a variety of aquatic invertebrates. The green heron is typically a solitary bird, but it nests in colonies with other green herons or with other species (Davis and Kushlan, 1994). Home range data for the green heron were not located.

7.1.7.7 Mink

The mink is the most abundant and widespread carnivorous mammal in North America. Mink are found in freshwater and brackish coastal marshes, wetlands, swamps, and along the edges of rivers, streams, lakes, and ditches (EPA, 1993). They are never found far from water (Lowery, 1974). Mink prefer irregular shorelines and tend to use brushy or wooded cover adjacent to the water, where prey is abundant and downfall and debris provide den sites. They are carnivorous opportunistic predators, taking whatever prey is abundant. They feed on fish, crustaceans, and amphibians in aquatic habitats. In nearby terrestrial habitats, mink prey on mice, rats, rabbits, birds, reptiles, and insects (Lowery, 1974;

EPA, 1993). Mink would be expected along the stream in the southeastern portion of Site 12, and possibly in other areas. Home range sizes are highly variable, although values of 640 to 940 acres were the most common in a literature review of several studies, and home ranges measured in terms of distances along stream or river shoreline habitats were usually in the range of 0.6 to 1.8 miles of shoreline (EPA, 1993).

7.2 SCREENING LEVEL ECOLOGICAL EFFECTS EVALUATION

The screening level ecological effects evaluation is an investigation of the relationship between the magnitude of exposure to a chemical and the nature and magnitude of adverse effects resulting from exposure. In this step, exposure levels that represent conservative thresholds for adverse ecological effects are established.

7.2.1 Screening Benchmarks

Soil ESVs were preferentially Ecological Soil Screening Levels (Eco-SSLs) established by EPA in 19 separate documents. The National Oceanic and Atmospheric Administration's (NOAA's) Screening Quick Reference Tables (Buchman 2008) were used for soil analytes that do not have Eco-SSLs. The NOAA values were compiled from numerous federal, state, and international regulatory agencies, and were derived for use as preliminary screening values for environmental concentrations of contaminants in various media (Buchman, 2008).

Sediment ESVs used to evaluate potential risk to benthic organisms were preferentially EPA Region 3 Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmarks (EPA, 2006a). Freshwater sediment screening values from Buchman (2008) were used for sediment analytes without ESVs established by EPA Region 3.

Surface water ESVs used to evaluate potential risk to aquatic organisms were preferentially EPA Region 3 BTAG Freshwater Screening Benchmarks (EPA, 2006b). Chronic freshwater screening values from Buchman (2008) were used for surface water analytes without EPA Region 3 ESVs. Freshwater ESVs for some inorganics are hardness-dependent. The average hardness of surface water samples collected at Site 12 was 111 mg/L; this value was used to derive surface water ESVs for cadmium, total chromium, copper, lead, nickel, and zinc.

If an ESV was not available for a particular chemical, that chemical was carried through the screening level assessment into Step 3A of the baseline risk assessment.

7.2.2 Wildlife Evaluation

Potential risks to piscivorous birds and mammals, insectivorous birds and mammals, and herbivorous birds and mammals from bioaccumulative compounds via the food chain were evaluated by estimating the chronic daily intake and comparing this to toxicity reference values (TRVs) representing acceptable daily doses in mg/kg/day. NOAEL-based values obtained from the literature for wildlife species or surrogates were selected for use as TRVs in the screening level assessment. The TRVs were preferentially obtained from wildlife studies presented in the Eco-SSL documents (EPA, 2005a). The Oak Ridge National Laboratory (ORNL) publication *Toxicological Benchmarks for Wildlife: 1996 Revision* (Sample et al., 1996) was the second choice of TRVs.

Table 7-1 presents the TRVs that were used in the ERA. The values in Table 7-1 were derived from Table L-1 of Appendix L, which presents the toxicological basis for each TRV, such as species tested and endpoints (e.g., growth, reproduction). The NOAELs and LOAELs in Table L-1 of Appendix L were divided by 10 if the values were derived from a subchronic study, to account for uncertainty between subchronic and chronic effects. If only a NOAEL was available, the value was multiplied by 10 to estimate the LOAEL. If only a LOAEL was available, the value was divided by 10 to estimate the NOAEL.

All bioaccumulative chemicals detected in surface soil, sediment, or surface water were assessed in the food chain exposure model. Table 4-2 in *Bioaccumulative Testing and Interpretation for the Purpose of Sediment Quality Assessment, Status and Needs* (EPA, 2000b) was the primary source used to identify bioaccumulative chemicals.

7.3 SCREENING LEVEL EXPOSURE ESTIMATE

Exposure concentrations must be established so that a chemical concentration or chemical dose can be determined for comparison to screening values or TRVs. Exposure concentrations that were used in the ERA are described below.

7.3.1 Soil Invertebrates and Vegetation

For the screening step, exposure concentrations for soil invertebrates and terrestrial vegetation were maximum chemical concentrations in surface soil (i.e., samples collected between 0 and 2 feet). The surface soil data set for Site 12 consists of samples collected from depth intervals of 0 to 6 inches bgs, six inches to 1 foot bgs, six inches to 2 feet bgs, and 1.5 to 2 feet bgs. Samples from all these depths were combined into one data set. The surface soil samples were collected in 2007, 2010, 2011, and 2012. Figures 7-3 through 7-6 provide sample collection dates and depths, and summarize the analytical data

for these samples. Four figures are presented because of the large number of surface soil samples to summarize.

Subsurface soil data were used to evaluate potential risks to burrowing mammals, such as the woodchuck. For the screening step, exposure concentrations for burrowing mammals were maximum chemical concentrations in the subsurface soil dataset. The *subsurface* soil dataset at Site 12 consists of samples collected from 2 to 2.5 feet bgs, 2 to 3 feet bgs, 2 to 4 feet bgs, and 3 to 4 feet bgs, as well as samples collected from deeper than 4 feet. Figures 7-7 and 7-8 provide sample collection dates and depths, and summarize the analytical data for these samples. Two figures are presented because of the large number of subsurface soil samples to summarize. Subsurface soil samples collected deeper than 4 feet bgs were not evaluated in the ERA. With this in mind, the term "subsurface soil" as used in the ERA refers to samples collected from 2 to 4 feet bgs (at the four depth intervals described above) and excludes deeper samples.

7.3.2 Benthic Receptors

Even though benthic receptors can be exposed to contaminants in surface water, their greater exposure will be to contaminant in sediment. Therefore, exposure concentrations for the general receptor group of benthic organisms were maximum chemical concentrations in sediment. Eight sediment samples were collected at Site 12 in January 2010 (Figure 7-9). Sediment samples were collected from a depth of 0 to 6 inches bgs.

7.3.3 Aquatic Receptors

Even though aquatic receptors can be exposed to contaminants in sediment, their greater exposure will be to contaminant in surface water. Therefore, exposure concentrations for the general receptor groups of aquatic organisms were maximum chemical concentrations in surface water. Seven surface water sediment samples were collected at Site 12 in January 2010 (Figure 7-9). The surface water samples were collocated with the sediment samples, except at one location (12SD06) where too little surface water was present for sample collection.

7.3.4 Wildlife Receptors

The exposure of birds and mammals to bioaccumulative chemicals in surface soil, surface water, sediment, and food items was estimated using a food chain model. Risk via the food chain was evaluated using two scenarios. The initial "conservative" scenario used maximum detected chemical concentrations in surface soil, sediment, and surface water, and conservative assumptions for body

weight, food consumption, and soil or sediment ingestion. In Step 3A, the food chain model is revised using average chemical concentrations, and less conservative values for body weight, food consumption, and soil ingestion. If a chemical's average concentration was greater than its maximum detected concentration, the maximum detected concentration was used as the exposure concentration. This situation can occur when an analyte is infrequently detected and detection limits in some "non-detected" samples exceed the maximum detected concentrations; in such cases, the average value calculated using one-half the detection limit to represent non-detected samples can result in an average concentration that is greater than the maximum detected concentration. For brevity, the conservative food chain model scenario is referred to as the screening level ERA scenario (or screening level scenario), and the less conservative food chain model scenario is referred to as the Step 3A refinement scenario (or Step 3A scenario). For each scenario, ingested doses for birds and mammals were calculated using the following equation:

$$PD = [[(C_{food} \times I_f) + (C_s \times I_s) + (C_w \times I_w)] \times AUF]/BW \qquad \text{(Equation 1)}$$

where:

PD	=	predicted dose from the ingestion of food and water and the incidental ingestion of soil or sediment (mg/kg/day)
C_{food}	=	chemical concentration in food items (mg/kg)
I_f	=	food ingestion rate (kg/day)
C_s	=	chemical concentration in soil or sediment (mg/kg)
I_s	=	soil ingestion rate or sediment ingestion rate (kg/day)
C_w	=	chemical concentration in surface water (mg/L)
I_w	=	water ingestion rate (L/day)
AUF	=	area use factor (portion of food intake from Site 12)
BW	=	body weight of receptor kilogram(kg)

For the screening level ERA, all food and water were conservatively assumed to be obtained from the site. Thus, the area use factor (AUF) was assigned a value of 1.0 in Equation 1.

7.3.4.1 Chemical Concentrations in Food Items of Insectivorous and Herbivorous Wildlife

Chemical concentrations in food items (the "C_{food}" term in Equation 1) of insectivorous receptors represented by the shrew and robin were calculated using surface soil data and soil-to-earthworm biota accumulation factors (BAFs) shown in Table 7-2. A default BAF value of 1.0 was used if a chemical-specific soil-to-earthworm BAF was not available. Chemical concentrations in food items of herbivorous receptors represented by the quail, vole, and woodchuck were calculated using surface soil data and soil-to-plant BAFs (Table 7-2).

7.3.4.2 Chemical Concentrations in Food Items of Piscivorous Wildlife

The diet of piscivorous receptors represented by the mink and green heron was assumed to consist of fish and aquatic/sediment invertebrates. Chemical concentrations in food items (the "C_{food}" term in Equation 1) were estimated using biota sediment accumulation factors (BSAFs). The BSAFs are shown in Table 7-2 and were obtained from the following sources:

- Inorganic chemicals: *Biota Sediment Accumulation Factors for Invertebrates: Review and Recommendations for the Oak Ridge Reservation* (ORNL, 1998).

- Organics compounds: *The Incidence and Severity of Sediment Contamination in Surface Waters of the United States, National Sediment Quality Survey* (EPA, 2004).

A default BSAF value of 1.0 was used if a chemical-specific BSAF was not available from either of the two above sources.

Concentrations of organic compounds in food items of the mink and green heron were estimated using the following equation EPA, 2004):

$$C_f = BSAF(C_s/f_{oc})f_l \qquad \text{(Equation 2)}$$

where:

C_f	=	chemical concentration in food (mg/kg)
C_s	=	chemical concentration in sediment (mg/kg)
BSAF	=	biota-sediment accumulation factor
f_{oc}	=	TOC content of sediment expressed as a decimal fraction
f_l	=	organism lipid content expressed as a decimal fraction

TOC value in Site 12 sediment samples was used to calculate chemical concentrations in food items for piscivorous birds and mammals because these receptors obtain their food over a large area. The average TOC in the eight sediment samples collected from Site 12 was 29,216 mg/kg, which equates to 2.92 percent, so 0.0292 was used to represent f_{oc} in Equation 2 for organic compounds.

The average whole body lipid contents presented in Table C-3b of EPA (1997b) for redbreast sunfish (*Lepomis auritis*), green sunfish (*L. cyanellus*), pumpkinseed (*L. gibbosus*), longear sunfish (*L. megalotis*), and bluegill sunfish (*L. macrochirus*) was 3.6 percent fresh weight. This value was divided by 0.25 to

convert the average lipid content from a wet-weight value to a dry-weight value (14.4 percent), based on a 75 percent moisture content in fish (Sample et al., 1997). Thus, 0.144 was used to represent f_l in Equation 2 for organic compounds.

Because sediment-to-fish BSAFs are not available for metals, sediment-to-aquatic invertebrate BSAFs from ORNL (1998) were used to estimate tissue concentrations of metals in food items of the mink and green heron. The BSAFs for metals are not normalized to lipids or TOC, so concentrations of metals in food items were estimated by multiplying each chemical's sediment concentration by its associated BSAF.

7.3.4.3 Exposure Parameters

Exposure parameters in Equation 1 (e.g., body weight, food and water ingestion rates, incidental soil or sediment ingestion rates) for the representative wildlife receptors are summarized in Table 7-3 and were obtained preferentially from the *Wildlife Exposure Factors Handbook* (EPA, 1993). The derivation of the exposure parameters is presented below and summarized in Table 7-4.

American Robin

Adult body weights for the American robin ranged from 0.0773 to 0.0862 kg in studies summarized by EPA (1993). The average of these values is 0.0804 kg. A single water ingestion rate was available for the robin; 0.14 g/g/day (EPA, 1993).

Food ingestion rates for the robin in the *Wildlife Exposure Factors Handbook* (EPA, 1993) were 1.52 g/g body weight/day and 0.89 g/g body weight/day. However, these rates are based on diets comprised of berries (EPA, 1993). Since the robin was used in the Site 12 ERA to represent birds that eat soil invertebrates, food ingestion rates for the robin at Site 12 were calculated using metabolic scaling for insectivorous birds from Nagy et al. (1999), resulting in a food ingestion rate of 0.01247 kg/day in the screening level scenario and 0.01188 kg/day in the Step 3A scenario (Tables 7-3 and 7-4).

Incidental soil ingestion rates shown in Table 7-3 and used in Equation 1 for the robin were derived by multiplying the screening level scenario food ingestion rate by 16.4 percent and multiplying the Step 3A scenario food ingestion rate by 6.4 percent. The 16.4 percent and 6.4 percent values are the 90th percentile and 50th percentile soil intake values, respectively, for the woodcock in Table 3 of Attachment 4-1 (*Exposure Factors and Bioaccumulation Models for Derivation of Wildlife Eco-SSLs*) of EPA's (2005a) *Guidance for Developing Ecological Soil Screening Levels*. Incidental soil ingestion rates were not available for the robin, so the woodcock values were used as a surrogate. Woodcock food items are

primarily earthworms and other soil invertebrates, so it was assumed that soil intake values would be similar between these two species.

Short-tailed Shrew

The adult body weight for the short-tailed shrew in various habitats ranged from 0.015 to 0.01921 kg (EPA, 1993); the average of these values is 0.0161 kg. Two food ingestion rates for short-tailed shrews were available: 0.49 and 0.62 g/g body weight/day (wet-weight) (EPA, 1993); the average of these values is 0.555 g/g body weight/day. The water ingestion rate is 0.223 g/g/day. The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in Table 7-4. The food ingestion rates were multiplied by 0.16 to convert the ingestion rate from a wet-weight value to a dry-weight value, based on an 84 percent moisture content in earthworms (EPA, 1993).

Incidental soil ingestion rates shown in Table 7-3 and used in Equation 1 were derived by multiplying the screening level scenario food ingestion rate by 3.0 percent and multiplying the Step 3A scenario food ingestion rate by 0.9 percent. The 3.0 percent and 0.9 percent values are the 90th percentile and 50th percentile values for the shrew, respectively, from Table 3 of Attachment 4-1 of EPA (2005a).

Bobwhite Quail

The adult body weight for the bobwhite quail ranged from 0.154 to 0.1939 kg with an average of 0.1751 kg in studies summarized by EPA (1993). Food ingestion rates ranged from 0.067 to 0.093 g/g body weight/day (dry-weight), with an average of 0.078 g/g/day. Water ingestion rates ranged from 0.10 to 0.13 g/g/day, for an average water ingestion rate of 0.11 g/g/day (EPA, 1993). The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in Table 7-4.

The incidental soil ingestion rates in Table 7-3 were calculated by multiplying the food ingestion rates by estimated incidental soil ingestion rates, which is 13.9 percent of the diet in the screening level scenario, and 6.1 percent in Step 3A scenario. Incidental soil ingestion rates were not available for the quail, so these estimated soil ingestion rates are based on the mourning dove (Table 3 of Attachment 4-1; EPA, 2005a), which like the bobwhite quail, consumes a diet primarily of seeds.

Meadow Vole

The adult body weight for the vole ranged from 0.017 to 0.0524 kg with an average of 0.0358 kg (EPA, 1993). Two food ingestion rates were available; 0.30 and 0.35 g/g/day (wet-weight), with an average of

0.325 g/g/day. Water ingestion rates were 0.14 and 0.21 g/g/day, with an average of 0.175 g/g/day. The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in Table 7-4.

The moisture content in food items of the meadow vole is quite variable, since food items consist of green succulent vegetation, sedges, seeds, roots, bark, and fungi. The moisture content in food items of the vole was conservatively assumed to be 70 percent, so food ingestion rates were multiplied by 0.30 to convert the ingestion rate from a wet-weight value to a dry-weight value.

Incidental soil ingestion rates shown in Table 7-3 and used in Equation 1 were derived by multiplying the screening level scenario food ingestion rate by 3.2 percent and multiplying the Step 3A scenario food ingestion rate by 1.2 percent. The 3.2 percent and 1.2 percent values are the 90th percentile and 50th percentile values for the vole, respectively, from Table 3 of Attachment 4-1 of EPA (2005a).

Woodchuck

Data for the woodchuck are not included in EPA's (1993) *Wildlife Exposure Factors Handbook*. The exposure parameters described below were developed in cooperation with EPA Region 3 BTAG during the ERA for Site 3 (Ninth Street Landfill) at NAS JRB Willow Grove.

The mean body weight of woodchucks fed a "control" diet was 4.6 kg after 12 weeks of captivity in a feeding study of male woodchucks trapped in south central New York (Boyd et al., 1985). The average body weight of adult male woodchucks trapped or shot at Aberdeen Proving Ground, Maryland, was 4.63 kg (Johnson et al., 2004), so it is reasonable to assume that the woodchucks in the Boyd et al. (1985) study had reached adult size. Therefore, a value of 4.6 kg was used as the BW term in Equation 1 for the screening level scenario and the Step 3A scenario (Table 7-3). The maximum dry weight food ingestion rate for woodchucks on the control diet was 1050 g/week (Boyd et al., 1985). This equates to 0.15 kg/day, which was used as food ingestion in the screening level scenario (Table 7-3). Food ingestion declined to 900 g/week during the last three weeks of the Boyd et al. (1985) study; the authors pointed out that the decline corresponded to the time (late September) when woodchucks spontaneously reduce food intake prior to hibernation. The 900 g/week value was converted to 0.129 kg/day and used as the dry weight food ingestion value in the Step 3A scenario.

Beyer et al. (1994) estimated that the woodchuck incidental soil ingestion rate is less than 2 percent. Based on this, the incidental soil ingestion values in Table 7-3 were derived by multiplying the screening level and Step 3A food ingestion rates by 2 percent. Because woodchucks dig and inhabit burrows, incidental soil ingestion from digging and grooming is probably related more to subsurface soil than to surface soil. Therefore, the incidental soil ingestion component of the woodchuck food chain model used

the subsurface soil dataset described in Section 7.3.1. Food ingestion for the woodchuck, on the other hand, was modeled using surface soil data, since the woodchuck's diet is primarily herbaceous plants, and these plants are rooted mostly in shallow soil instead of subsurface soil.

Water ingestion data for the woodchuck was not located. Burrowing mammals such as woodchucks occupy microenvironments generally characterized by high humidity. Under such conditions, water loss from breathing and through the skin is minimal, and burrowing mammals that eat moist food can maintain water balance without drinking water (Vaughan, 1986). Because woodchucks typically emerge from their burrows in the early morning and late afternoon to eat and usually remain in the burrow during the middle of the day, and because they feed almost exclusively on succulent plants, they presumably get adequate water intake from dew and plant moisture. With these factors in mind, water ingestion was not included in the food chain model for the woodchuck.

Green Heron

Data for the green heron were not included in EPA's *Wildlife Exposure Factors Handbook* (EPA, 1993). The mean adult body weight of 34 green herons in Florida was 212 g (Dunning, 1993). Minimum and maximum body weights were not provided, but the standard deviation was 5.92 g (Dunning, 1993). A value of 0.200 kg was used as the BW term in Equation 1 for the screening level scenario (Table 7-3). This value is the mean minus two standard deviations from Dunning's data. The BW term in Equation 1 for the Step 3A scenario was the mean (0.212 kg) from Dunning's data.

Food ingestion rates for the green heron were not available. Nagy (2001) provided allometric equations for several orders of birds but not for Ciconiiformes (herons). Dry weight food ingestion in the screening level scenario (0.031 kg/day) was derived using the Nagy (2001) equation for "marine birds" based on a 0.224 kg bird. The 0.224 kg body weight value is the mean plus 2 standard deviations from Dunning's (1993) green heron data (see paragraph immediately above); this value would approximate the 98th percentile, and thus, represents a conservative approach. Dry weight food ingestion in the Step 3A scenario (0.030 kg/day) was derived using the Nagy (2001) equation for marine birds based on a 0.212 kg bird, which is the mean body weight value from Dunning's (1993) green heron data.

Water ingestion rates for the green heron were not available. Water ingestion in the screening level scenario (0.022 L/day was derived using equation 3-15 from the *Wildlife Exposure Factors Handbook* (EPA, 1993) for a 0.224 kg bird. Water ingestion in the Step 3A scenario (0.021 L/day) was derived using equation 3-15 from EPA (1993) for a 0.212 kg bird.

Sediment ingestion data for piscivorous birds were not available. A sediment ingestion rate of 5 percent for piscivorous birds was used in Equation 1. Unlike shorebirds, herons do not probe the sediment. Green herons and other wading birds typically capture prey with a darting stroke, grasping or spearing with the bill (Davis and Kushlan, 1994). Therefore, an assumed value of 5 percent for incidental sediment ingestion is probably a very conservative estimate for the green heron as well as for other piscivorous wading birds. The two sediment ingestion rates in Table 7-3 (0.0016 kg/day and 0.0015 kg/day) were calculated by multiplying the two food ingestion rates (0.031 kg/day and 0.030 kg/day) by 0.05, assuming that incidentally ingested sediment is 5 percent of the diet.

Mink

Adult mink body weights ranged from 0.55 to 1.734 kg with an average of 1.103 kg (EPA, 1993). Food ingestion rates ranged from 0.12 to 0.22 g/g/day (wet-weight), and water ingestion rates ranged from 0.028 to 0.11 g/g/day (EPA, 1993). The food and water ingestion rates in kg/day and L/day, respectively, were calculated as shown in Table 7-4. The food ingestion rates were multiplied by 0.25 to convert the ingestion rate from a wet-weight value to a dry-weight value, based on a 75 percent moisture content in fish (EPA, 1993). The two incidental sediment ingestion rates in Table 7-3 (0.0057 kg/day and 0.0042 kg/day) were calculated by multiplying the two food ingestion rates by incidentally ingested sediment (9.4 percent of diet). The 9.4 percent value is based on the incidental soil/sediment ingestion rate of the raccoon (Beyer, et al., 1994), because sediment ingestion data were not available for mink.

7.4 SCREENING LEVEL RISK CALCULATION

The screening level risk calculation compares exposure concentrations to ecological screening values and estimated doses to TRVs. The result is an HQ, which is derived by dividing the exposure concentration by the ecological screening value or dividing the dose by the TRV. An HQ value greater than 1.0 indicates that ecological receptors are potentially at risk, and further evaluation or additional data may be necessary to determine with greater certainty whether ecological receptors are actually at risk, since most toxicity benchmarks are developed using conservative exposure assumptions and studies.

Chemicals in surface soil, sediment, or surface water were retained as ecological COPCs if they met any of the following criteria:

- Maximum detected concentrations exceeded screening values (i.e., HQ greater than 1.0).
- Ecological screening values were not available.
- The chemical was known to be bioaccumulative. These chemicals were retained as COPCs and included in the food chain model even if their screening HQ values were less than 1.0.

Chemicals that were retained as COPCs were further evaluated in Step 3A (see Section 7.5) to help risk managers determine if further investigation was warranted. Non-bioaccumulative chemicals with screening HQs less than 1.0 were not retained as COPCs; such chemicals are unlikely to cause adverse effects to ecological receptors and were not evaluated further in the ERA.

7.4.1 Soil, Sediment, and Surface Water Screening

Eighteen inorganics, 21 pesticides, 25 SVOCs, and 13 VOCs were retained as COPCs in surface soil (Table 7-5). Note in Table 7-5 that separate ESVs were obtained for soil invertebrates, terrestrial plants, and wildlife (birds and mammals). Table 7-6 summarizes the surface soil COPCs for each of these three assessment endpoints. The subsurface soil data are summarized in Table 7-7.

COPCs in sediment consisted of 16 inorganics, 17 pesticides, 18 SVOCs, and 5 VOCs (Table 7-8).

Surface water COPCs consisted of 16 inorganics, 12 pesticides, 15 SVOCs, and 1 VOC (Table 7-9).

7.4.2 Wildlife Screening

Chemicals in surface soil were included in the wildlife food chain model for herbivorous and insectivorous receptors if the chemical was identified by EPA (2000b) as bioaccumulative, or if the maximum detected concentration exceeded the "wildlife" ecological screening value in Table 7-5. Chemicals in sediment and surface water were included in the wildlife food chain model for piscivorous receptors if the chemical was identified by EPA (2000b) as bioaccumulative.

Bioaccumulative chemicals detected in surface soil, sediment, and/or surface water consisted of one VOC, one phthalate, 16 PAH compounds, 21 pesticides, and 14 inorganics (Tables 7-6, 7-8, and 7-9).

Table 7-10 summarizes the results of the screening level food chain modeling scenario for herbivorous birds and mammals represented by the bobwhite quail, meadow vole, and woodchuck, and insectivorous birds and mammals represented by the robin and short-tailed shrew. Appendix L contains the calculation worksheets. Based on maximum detected concentrations, conservative body weights, and conservative ingestion rates, food chain NOAEL HQs exceeded 1.0 for 14 PAH compounds, six pesticides, and 12 inorganics (Table 7-10).

Note in Table 7-10 that Aroclor-1260 and Tetrachlorodibenzo-p-dioxin (TCDD) TEQ were included in the food chain model for the woodchuck but not for the quail, vole, robin, or shrew. Aroclor-1260 was detected in subsurface soil but not in surface soil. Dioxins/furans were analyzed (and detected) in one

subsurface soil sample from the 2 to 4 feet bgs interval but no surface soil samples were analyzed for dioxins/furans. Because incidental soil ingestion for the woodchuck was based on subsurface soil data (see Section 7.3.3.3), Aroclor-1260 and dioxin/furan data in subsurface soil were incorporated in the woodchuck food chain model but not in the food chain model for the other representative terrestrial receptors.

Table 7-11 summarizes the results of the screening level food chain modeling scenario for piscivorous birds and mammals represented by the green heron and mink. Appendix L contains the calculation worksheets. Based on maximum detected concentrations, conservative body weights, and conservative ingestion rates, food chain NOAEL HQs exceeded 1.0 for four PAH compounds, three pesticides, and six inorganics (Table 7-11).

7.5 STEP 3A REFINEMENT OF PRELIMINARY CHEMICALS OF POTENTIAL CONCERN

The ERA process includes a series of scientific/management decision points (SMDPs) (Navy, 1999; EPA, 1997a). The first SMDP occurs at the end of Step 2 (Screening-Level Exposure Estimate and Risk Calculation), and requires the risk managers to evaluate and approve or redirect the work up to that point and determine whether the risk assessment will continue into Step 3 (Baseline Risk Assessment Problem Formulation). However, EPA recognizes that most ERAs will proceed into Step 3, so the risk assessment process for Site 12 will continue through the initial portion of Step 3. Chemicals that were identified as COPCs are further evaluated to narrow the list of COPCs to those most likely to contribute to ecological risk. This approach is intended to allow risk managers to make informed decisions regarding the need for more sampling. Step 3 begins with a more balanced evaluation of the conservativeness inherent in the first two steps of the risk assessment process (EPA, 1997a). The initial phase of Step 3 is known as Step 3A in Navy ecological risk assessments (Navy, 1999), and consists of a refinement of the conservative exposure assumptions in order to more realistically estimate potential risks to ecological receptors.

The remainder of this section discusses soil COPCs as related to terrestrial invertebrates (Section 7.5.1), terrestrial plants (Section 7.5.2), benthic invertebrates (7.5.3), aquatic organisms (7.5.4), and wildlife (Section 7.5.5).

Section 2.2 discusses the analyses of background samples collected from on-Base and off-Base locations. Background data were used as one line of evidence in the Step 3A refinement to determine whether a chemical should be eliminated as an ecological COPC.

Canadian Soil Quality Guidelines (SQGs) from the Canadian Council of Ministers of the Environment (CCME), 2007 and supporting documents) were used to evaluate some soil COPCs in Sections 7.5.1 and

7.5.2. The CCME documents typically provide SQGs based on risks to plants and/or invertebrates, soil microorganisms, and wildlife. The Canadian SQGs were developed using a similar, although not identical, approach that was used to develop the USEPA Eco SSLs. The approach was relatively rigorous and data intensive so the values are expected to be better than screening levels that may be based on single studies. When the SQG was specific to a soil type (fine or coarse), the lowest value is presented in Sections 7.5.1 and 7.5.2.

7.5.1 Potential Risk to Terrestrial Invertebrates

7.5.1.1 Inorganics

Eleven inorganics were COPCs in surface soil and pose potential risks to invertebrates (Table 7-5). Maximum concentrations of aluminum, chromium, hexavalent chromium, copper, iron, manganese, mercury, vanadium, and zinc exceeded their respective invertebrate ESVs, while invertebrate ESVs were not available for cyanide and thallium (Tables 7-5 and 7-6).

An aluminum toxicity threshold for earthworms or soil invertebrates was not located; the 600 mg/kg ESV is an ORNL soil micro-organism threshold value (Efroymson et al., 1997a). Aluminum concentrations in all surface soil samples exceeded 600 mg/kg, but aluminum is considered to be a COPC in soil only when the soil pH is less than 5.5 (EPA, 2003a). Soil pH was measured in 54 surface soil samples at Site 12; pH in these samples ranged from 4.41 to 7.52, with an average pH of 5.74. Therefore, potential aluminum-related risks are limited to the vicinity of samples where the pH is less than 5.5 but at nearly all locations where soil pH was less than 5.5 in the surface soil, the aluminum concentration was less than the maximum background concentration. Also, the mean aluminum concentration in Site 12 surface soil (11,600 mg/kg) was similar to the mean background concentration (11,300 mg/kg). Although concentrations in several Site 12 samples exceeded the mean and maximum background values (Table 7-12), the maximum detected aluminum concentration of 21,000 mg/kg was not much greater than the maximum background concentration of 15,000 mg/kg. In addition, aluminum concentrations in Site 12 soil were within the range of typical aluminum concentrations in the Eastern U.S. (50% percentile is approximately 40,000 mg/kg) (Figure 2-2 of Attachment 1-4 of EPA, 2005a). For these reasons, potential site-related risk to soil invertebrates from aluminum in the soil is expected to be minor so aluminum is not retained as a COPC for soil invertebrates.

Total chromium concentrations in surface soil ranged from 4.7 to 38.5 mg/kg. The 0.4 mg/kg invertebrate ESV for total chromium in Table 7-5 is an ORNL earthworm toxicity value (Efroymson et al., 1997a) for hexavalent chromium. The Canadian Soil Quality Guideline (SQG) for total chromium based on risks to plants and soil invertebrates is 78 mg/kg (EC, 1999a). A chromium Eco-SSL has not been derived for

invertebrates, but the chromium Eco-SSL document (EPA, 2005b) included data from two earthworm studies in which the maximum acceptable toxicant concentration (MATC), defined as the geometric mean of NOAEL and LOAEL values, was 57 mg/kg (EPA, 2005b). At least three studies are required to derive an Eco-SSL, but only two studies were available, so an Eco-SSL was not calculated (EPA, 2005b). The maximum total chromium concentration in 122 surface soil samples from Site 12 (38.5 mg/kg) was well below the Canadian SQG and was less than the 57 mg/kg MATC. Also, although the maximum detected chromium concentration in the site sample exceeded the maximum concentration in the background samples (20.8 mg/kg), and the site data set was statistically determined to be greater than the background data set, the average chromium concentration in the site samples (17.1 mg/kg) was similar to the average concentration in the background samples (15.3 mg/kg). Therefore, because potential risks from chromium are unlikely, and because chromium concentrations in the site samples are only slightly greater than background concentrations, chromium is not retained as a COPC for soil invertebrates.

Hexavalent chromium concentrations in 22 surface soil samples from Site 12 ranged from 0.26 to 7.4 mg/kg and averaged 1.79 mg/kg (Table 7-12). The invertebrate ESV for hexavalent chromium (0.4 mg/kg) was derived by Efroymson et al. (1997a) from a study in which the survival of earthworms (*Octochaetus pattoni*) was reduced when the earthworms were exposed to 2 mg/kg hexavalent chromium, the lowest concentration tested. Efroymson et al. (1997a) applied a safety factor of 5 to the 2 mg/kg LOAEL to derive the 0.4 mg/kg ESV. Efroymson et al. (1997a) stated that the confidence in this ESV is low because of the limited amount of data. Hexavalent chromium concentrations exceeded the 0.4 mg/kg ESV in 20 of 22 surface soil samples, and exceeded the 2 mg/kg LOAEL in 7 of 22 samples. In summary, there is uncertainty regarding the potential toxicity of chromium to soil invertebrates at Site 12; the total chromium data suggest negligible risk, while the hexavalent chromium data suggest potential risk in some samples. There does not appear to be any pattern to the hexavalent concentrations across the site because the samples with the greater hexavalent concentrations do not appear to have greater concentrations of other contaminants. Also, based on the relatively low total chromium concentrations, it is likely that hexavalent chromium concentrations may only be slightly greater than background concentrations and is therefore not a significant risk driver for the site. For these reasons, hexavalent chromium is not retained as a COPC for soil invertebrates.

Copper concentrations exceeded the 80 mg/kg invertebrate screening value in only six of 125 surface soil samples, with a maximum concentration of 458 mg/kg in test pit 12 (in Area E). The other five copper concentrations that exceeded the invertebrate screening value were 227 mg/kg in SSA12-SS18 (Area B), 180 mg/kg in SSA12-SS09 (Area E), 107 mg/kg in test pit 05 (Area C), 98.8 mg/kg in test pit 08 (Area B), and 94.6 mg/kg in test pit 11 (Area E). Copper concentrations in these six samples were much greater than the maximum detected copper concentration in the background samples (13.4 mg/kg). In fact, the copper concentrations in several site samples exceeded the maximum background concentration, and

the site data set was statistically determined to be greater than the background data set. The average copper concentration in the site samples (25.1 mg/kg) was also greater than the average concentration in the background samples (10.7 mg/kg). Therefore, potential site-related impacts to soil invertebrates exist in the area of these six samples.

Cyanide was detected in 43 of 85 surface soil samples and concentrations ranged from 0.043 to 0.426 mg/kg (Table 7-5). Soil toxicity data are sparse for cyanide, but all surface soil concentrations were less than the Dutch target value of 5 mg/kg for total complex cyanide (Buchman, 2008), and all surface soil concentrations were less than the 0.9 mg/kg Canadian SQG for free cyanide (EC, 1999b). The mean (0.096 mg/kg) and maximum cyanide concentrations in Site 12 surface soil samples were less than the mean (0.65 mg/kg) and maximum background concentrations (3.8 mg/kg) (Table 7-12) and the site data set was statistically determined to not be greater than the background data set (Table 4-2), indicating that potential risk posed by cyanide to invertebrates at Site 12 is similar to risk posed by background conditions. For these reasons, cyanide is not retained as a COPC for soil invertebrates.

Iron concentrations exceeded the 200 mg/kg ESV in all surface soil samples. A toxicity threshold for earthworms or soil invertebrates was not located, and the ESV is an ORNL soil micro-organism threshold value (Efroymson et al., 1997a). Iron is an essential element that is required by all forms of life, and EPA (2003b) concludes that identifying a specific benchmark for iron in soil is difficult because iron toxicity depends on site-specific soil conditions such as pH, redox potential, and soil-water conditions. Thus, the degree of potential risk posed by iron is uncertain. The maximum detected iron concentration in the site samples (37,100 mg/kg) exceeded the maximum concentration in the background samples (17,600 mg/kg), and the site data set was statistically determined to be greater than the background data set. However, the average iron concentration in the site samples (16,800 mg/kg) was just slightly greater than the average concentration in the background samples (14,800 mg/kg). In addition, most of the iron concentrations in Site 12 soil were within the range of typical iron concentrations in the Eastern U.S. (50% percentile is approximately 25,000 mg/kg) (Figure 2-2 of Attachment 1-4 of EPA, 2005a). Some of the locations with low pH (<5.0) did have iron concentrations greater than the maximum background concentration. In particular, this occurred at SB06, SB-08, SB-20, and TP16, TP-23. Therefore, potential impacts to invertebrates from iron would likely be greater at these locations.

Manganese was detected in all surface soil samples; concentrations ranged from 106 to 1020 mg/kg and averaged 402 mg/kg, compared to an invertebrate ESV of 450 mg/kg. The manganese concentrations in all but one of the background samples was greater than the screening level (see Table 2-8 for background results) and the site data set was statistically determined to not be greater than the background data set (Table 4-2). The widespread occurrence of manganese throughout the site at concentrations comparable to background values indicates that potential risk posed by manganese to

invertebrates at Site 12 is similar to risk posed by background conditions. Therefore, manganese is not retained as a COPC for soil invertebrates.

Mercury was detected in 116 of 122 surface soil samples and concentrations ranged from 0.007 to 0.47 mg/kg, compared to an invertebrate ESV of 0.1 mg/kg. Mercury was not detected in the background samples. Mercury concentrations in 25 surface soil samples exceeded the invertebrate ESV, with a maximum screening HQ of 4.7 (Table 7-12). The 0.1 mg/kg invertebrate ESV is an ORNL value that was derived by Efroymson et al. (1997a) from a study in which survival and reproduction of earthworms (*Octochaetus pattoni*) was reduced when the earthworms were exposed to $HgCl_2$ at 0.5 mg/kg, the lowest concentration tested. Efroymson et al. (1997a) applied a safety factor of 5 to the 0.5 mg/kg LOAEL to derive the 0.1 mg/kg ESV. Efroymson et al. (1997a) stated that the confidence in this ESV is low because of the limited amount of data. All surface soil concentrations were less than the 12 mg/kg Canadian SQG (EC, 1999c). The Canadian SQG is based on a larger dataset than the ORNL value. Based on the Canadian value, mercury poses no potential risks and it is not retained as a COPC for soil invertebrates.

An ESV for invertebrates was not available for thallium, but the Canadian SQG for thallium is 1.4 mg/kg (EC, 1999d). Thallium was detected in 49 of 77 surface soil samples, with a maximum concentration of 4.2 mg/kg. Surface soil concentrations exceeded the Canadian SQG in 10 samples, five of which were "K qualified", indicating that the "positive result is considered biased high due to exceedance of technical quality control criteria". The K-qualified data results in some uncertainty in the data (see Section 4.7 of this report for a further discussion of this issue). The Canadian SQG is based primarily on plant toxicity data. Appendix III of the Canadian SQG document (EC, 1999d) presents 7-day and 14-day No Observed Effects Concentrations (NOECs) for mortality of 27 mg/kg and 12 mg/kg, respectively, for earthworms. Therefore, based on the maximum detection of 4.2 mg/kg, thallium concentrations suggest minimal risks to invertebrates so it is not retained as a COPC for soil invertebrates.

A vanadium toxicity threshold for earthworms or soil invertebrates was not located; the 20 mg/kg ESV is an ORNL soil micro-organism threshold value (Efroymson et al., 1997a). The Canadian SQG is 130 mg/kg (EC, 1999e). Vanadium concentrations in surface soil ranged from 5.7 to 44.9 mg/kg, with an average of 24.2 mg/kg. Although the site data set was statistically determined to be greater than the background data set, the average background concentration of 24.9 mg/kg is greater than the site background concentration (Table 7-12). Also, the 44.9 mg/kg maximum surface soil concentration of vanadium was well below the Canadian SQG. For these reasons, vanadium mercury poses no potential risks and it is not retained as a COPC for soil invertebrates.

Zinc concentrations exceeded the 120 mg/kg invertebrate ESV in 15 of 122 surface soil samples; these 15 samples represent 11 locations (as mentioned in Section 7.3.1, the surface soil data set consists of samples collected from four different depth intervals down to 2 feet bgs). Zinc concentrations in most surface soil samples at Site 12 were similar to background concentrations, with an average Site 12 concentration of 80 mg/kg, compared to an average background value of 90.5 mg/kg (Table 7-12). However, the zinc concentrations in one sample (731 mg/kg at SS04D) did exceed the maximum background concentration of 597 mg/kg). Therefore, it is possible that invertebrates are impacted at this location above background impacts.

7.5.1.2 Pesticides

Invertebrate ESVs were not available for the organochlorine pesticides in Site 12 soil, precluding a complete evaluation of their potential toxicity to soil invertebrates. Organochlorine pesticides are no longer used in the United States, but are extremely persistent in soil. Some pesticides were infrequently detected in surface soil. Gamma-BHC (lindane), for example, was detected in only one of 125 surface soil samples at Site 12 (Table 7-12). Similarly, aldrin, beta-BHC, endrin, endosulfan II, and methoxychlor were detected infrequently in surface soil (Table 7-12). Surface soil concentrations of dieldrin, gamma-chlordane, and heptachlor epoxide at Site 12 were similar to background values (Table 7-12). Surface soil concentrations of pesticides tended to be highest in test pits 11 and 15. In summary, pesticide concentrations in most samples tended to be low, or concentrations were similar to background concentrations at most locations, or were infrequently detected. Therefore, pesticides are not retained as COPCs for soil invertebrates.

7.5.1.3 SVOCs

Phthalates

Bis(2-ethylhexyl)phthalate, di-n-butyl phthalate, and di-n-octyl phthalate were invertebrate COPCs because invertebrate ESVs were not available (Table 7-5). Di-n-octyl phthalate was detected in only two of 122 surface soil samples, and di-n-butyl phthalate was detected in only five of 122 surface soil samples (Table 7-5). Bis(2-ethylhexyl)phthalate was detected in 12 of 116 surface soil samples. Phthalates are common environmental contaminants due to their use in plastics. Phthalates can also be an artifact of the sampling and/or analytical methods. Although invertebrate ESVs for these three phthalates were not available, the ORNL earthworm toxicity benchmark for dimethyl phthalate is 200,000 µg/kg (Efroymson et al., 1997a). The toxicity of phthalates is generally similar in magnitude, so this value provides a rough guide for evaluating the toxicity to invertebrates of the other phthalates detected at Site 12. With this in

mind, the detected phthalate concentrations at Site 12 indicate that potential risk to earthworms and other soil invertebrates is not likely at the site.

PAHs

EPA has established invertebrate Eco-SSLs of 29,000 µg/kg for low molecular weight PAHs and 1100 µg/kg for high molecular weight PAHs. Some soil concentrations exceeded these values, and PAH concentrations were especially elevated at several sample locations. Sample 12TP11-0.502-02 in test pit 11 was responsible for the maximum concentrations of most PAHs in surface soil (Table 7-12). Although PAH concentrations in approximately 80 percent of the Site 12 samples were similar to background values, concentrations in about 20 percent of the site samples were greater than the maximum background concentrations and the screening levels. Therefore, there are potential site-related impacts to soil invertebrates at those locations. These potential impacts from PAHs are greatest by Areas A (TP15 and SS08D, and SB59), B (SS17E and TP08), and E (SS09E, SB54, TP11, TP12, and TP13), and at several areas in the central area (SB01, SB10, SB14, SS14E, and SS15E). Appendix K, Parts 6 and 7, presents a more detailed discussion regarding the spatial distribution of PAHs in soil, but the discussion focuses on the BAP TE concentrations, not total PAHs.

Other SVOCs

Benzaldehyde, carbazole, and dibenzofuran were invertebrate COPCs because no ESVs were available (Table 7-5). Benzaldehyde was infrequently detected (3 of 68 samples). Potential impacts to invertebrates from benzaldehyde, carbazole and dibenzofuran cannot be evaluated.

7.5.1.4 VOCs

Thirteen VOCs were detected in surface soil (Table 7-5). Ten of the 13 VOCs were infrequently detected, being detected in only 1 to 8 of 122 samples. The lack of invertebrate ESVs for all 13 compounds detected in surface soil precludes an evaluation of their impacts to soil invertebrates. Of the other VOCs that were detected more frequently (2-butanone, acetone, and methyl acetate), 2-butanone, acetone are common laboratory contaminants. Although screening values were not available for the detected VOCs, VOCs are typically not very toxic to invertebrates at low concentrations as indicated by the relatively high screening levels for other VOCs such as benzene (31,000 µg/kg; CCME, 2004), ethylbenzene (55,000 µg/kg; CCME, 2004), tetrachloroethene (3,800 µg/kg; CCME, 1999d), toluene (75,000 µg/kg; CCME, 2004), and xylenes (65,000 µg/kg; CCME, 2004). These screening values are protective of plants and invertebrates. The maximum detected concentration of any of the VOCs in the site sample was 4,600 µg/kg for acetone, with the next highest concentrations being 440 µg/kg for methyl acetate. Therefore,

the site concentrations were much lower than the screening levels available for these other VOCs (except tetrachloroethene), so it does not appear that the VOC concentrations in soil are likely to impact soil invertebrates. Therefore, although there is some uncertainty in whether the VOCs without screening levels are impacting invertebrates, based on their low detection frequency and low concentrations relative to screening levels for other VOCs used as surrogates, it is not likely that invertebrates are being significantly impacted by VOCs in the soil. For that reason, VOCs were eliminated as COPCs.

7.5.1.5 Summary and Conclusions: Terrestrial Invertebrates

Several inorganics and PAH compounds were detected in soil at concentrations that exceed their invertebrate ESVs, while invertebrate ESVs were not available for pesticides and VOCs, and some inorganics and SVOCs.

The surface soil data indicate that COPCs that pose the greatest potential risks to soil invertebrates at Site 12 are PAHs, copper, and zinc. PAH compounds were elevated in some samples and pose potential risks to soil invertebrates, especially in Areas A, B, and E, and in the central area of the site. Copper-related risks to soil invertebrates are limited to the vicinities of six samples in Areas B, C, and E. Zinc concentrations in surface soil exceeded the invertebrate ESV at 11 locations, but the concentration at only one location (SS04D) was greater than background.

Soil concentrations of other metals and SVOCs tended to be low and pose negligible potential risks to invertebrates, or do not appear to be related to former activities at the landfill, or could not be evaluated due to the absence or paucity of invertebrate ESVs.

Potential risks from VOCs are uncertain, but are probably minor.

Invertebrate ESVs were not available for pesticides in soil. Several pesticides were infrequently detected and/or were detected at concentrations similar to background values or exceeded ESVs in only a few samples. Overall potential risks from pesticides appear to be minor throughout most of the site.

7.5.2 Potential Risk to Terrestrial Plants

7.5.2.1 Inorganics

Sixteen inorganics were COPCs in surface soil and pose potential risks to terrestrial plants (Table 7-6). Maximum concentrations of aluminum, antimony, arsenic, chromium, hexavalent chromium, copper, lead, manganese, mercury, nickel, selenium, thallium, vanadium, and zinc exceeded their respective plant ESVs, while plant ESVs were not available for cyanide and iron (Table 7-5).

Aluminum concentrations in surface soil ranged from 2280 to 21000 mg/kg, which greatly exceeded the plant ESV of 50 mg/kg. The 50 mg/kg plant ESV is an ORNL value that was derived by Efroymson et al. (1997b) from a single study in which clover establishment was reduced by the addition of 50 mg/kg aluminum. Efroymson et al. (1997b) stated, however, that the confidence in this ESV is low because of the limited amount of data. Aluminum is considered to be a COPC in soil only when the soil pH is less than 5.5 (EPA, 2003a). As mentioned in Section 7.5.1.1, the average soil pH in 54 surface soil samples at Site 12 was 5.74 and at nearly all locations where soil pH was less than 5.5 in the surface soil, the aluminum concentration was less than the maximum background concentration. Therefore, aluminum in Site 12 soil poses negligible risks to plants in most portions of the site. Also, of the 122 surface soil samples, the maximum detected aluminum concentration was not much greater than the maximum background concentration and the mean aluminum concentration in Site 12 surface soil was similar to the mean background concentration. In addition, aluminum concentrations in Site 12 soil were within the range of typical aluminum concentrations in the Eastern U.S. For these reasons, potential site-related risk to plants from aluminum in the soil is expected to be minor so aluminum is not retained as a COPC for the site for plants.

Concentrations of antimony exceeded the 5 mg/kg plant ESV in only one surface soil sample (12SB07), at 10.1 mg/kg, suggesting minimal potential risk to plants. Therefore, antimony is not retained as a COPC for plants.

Arsenic concentrations exceeded the 18 mg/kg plant ESV in only one of 122 samples (12TP08, at 29.8 mg/kg), with a maximum HQ of 1.7 (Table 7-12) indicating minimal potential risk to plants. Also, the site data set was statistically determined to not be greater than the background data set (Table 4-2). For these reasons, arsenic is not retained as a COPC for plants.

The maximum total chromium concentration in Site 12 surface soil (38 mg/kg) was well below the 78 mg/kg Canadian SQG for plants and soil invertebrates (EC, 1999a). A chromium Eco-SSL has not been derived for plants. The 1.0 mg/kg plant ESV for chromium in Table 7-5 is an ORNL value (Efroymson et al., 1997b) for hexavalent chromium. Efroymson et al. (1997b) stated that the confidence in this ESV is low because of the limited amount of data. Hexavalent chromium concentrations in 14 of 22 surface soil samples from Site 12 exceeded the 1 mg/kg plant ESV, with an average concentration of 1.79 mg/kg. There is uncertainty regarding the potential toxicity of chromium to plants at Site 12; the total chromium data suggest negligible risk, while the hexavalent chromium data suggest potential risk in 14 samples, but there is low confidence in the plant ESV. The background soil samples were not analyzed for hexavalent chromium. However, although the maximum detected total chromium concentration in the site sample exceeded the maximum concentration in the background samples, and

the site data set was statistically determined to be greater than the background data set, the average chromium concentration in the site samples was similar to the average concentration in the background samples. For these reasons, chromium is not retained as a COPC for soil plants. Also, for reasons discussed above and in the soil invertebrate section, hexavalent chromium is not retained as a COPC for plants.

Copper concentrations exceeded the 70 mg/kg plant screening value in six of 125 surface soil samples (the same six samples in which the soil invertebrate ESV was exceeded), with a maximum concentration of 458 mg/kg in a sample from test pit 12. These are the sample locations in Areas B, C, and E which had concentrations that exceeded the invertebrate screening level so potential risks to plants may also occur at these locations.

Cyanide was detected in 43 of 85 surface soil samples and concentrations ranged from 0.043 to 0.426 mg/kg (Table 7-5). A plant ESV was not available for cyanide, but all concentrations were less than the Dutch target value of 5 mg/kg for total complex cyanide (Buchman, 2008), and all surface soil concentrations were less than the 0.9 mg/kg Canadian SQG for free cyanide (EC, 1999b). Cyanide concentrations in Site 12 surface soil were less than background concentrations (Table 7-12) and the site data set was statistically determined to not be greater than the background data set (Table 4-2), For these reasons, cyanide is not retained as a COPC for plants.

An iron toxicity threshold for plants was not available. Iron is an essential element that is required by all forms of life, and EPA (2003b) concludes that identifying a specific benchmark for iron in soil is difficult because iron toxicity depends on site-specific soil conditions such as pH, redox potential, and soil-water conditions. Iron is not expected to be toxic to plants when the soil pH is between 5 and 8 (EPA, 2003b). The pH in 54 surface soil samples at Site 12 ranged from 4.41 to 7.52, with an average pH of 5.74. Thus, iron poses negligible risks to plants in most portions of Site 12. The maximum detected iron concentration in the site samples exceeded the maximum concentration in the background samples and the site data set was statistically determined to be greater than the background data set. However, the average iron concentration in the site samples was just slightly greater that the average concentration in the background samples. In addition, most of the iron concentrations in Site 12 soil were within the range of typical iron concentrations in the Eastern U.S. Some of the locations with low pH (<5.0) did have iron concentrations greater than the maximum background concentration. In particular, this occurred at SB06, SB-08, SB-20, and TP16, TP-23. Therefore, potential impacts to plants from iron would likely be greater at these locations.

Lead concentrations exceeded the 120 mg/kg plant ESV, which is an Eco-SSL value, in 14 samples. The maximum concentration (1410 mg/kg) was in sample 12SB52, collected at a depth of six inches to

2 feet bgs. The next highest surface soil concentration was 883 mg/kg in sample 12SB07, collected from the 0 to 6 inch bgs interval. Lead concentrations in the remaining samples that exceeded 120 mg/kg ranged from 138 to 470 mg/kg. The greatest lead concentrations were found in the southeast portion of the site [SB07 (883 mg/kg), SB06 (445 mg/kg), SB02 (301 mg/kg), SB35 (138 mg/kg) and SB36 (295 mg/kg)], in the northeast portion at the site [SS05E (179 mg/kg), SS03E (172 mg/kg), SS07E (289 mg/kg)], Area E [TP12 (154 mg/kg), TP11 (157 mg/kg), SS09E (336 mg/kg) SB52 (1410 mg/kg) SB53 (470 mg/kg)]. The maximum detected lead concentration in the site samples was much greater than the maximum concentration in the background samples (64.7 mg/kg) and the site data set was statistically determined to be greater than the background data set. Also, the average lead concentration in the site samples (71.3 mg/kg) was more than twice the average concentration in the background samples (30.6 mg/kg). Therefore, there are potential site-related impacts to plants in the areas discussed above.

Manganese concentrations in surface soil ranged from 106 to 1020 mg/kg and averaged 402 mg/kg. Concentrations in most samples exceeded the plant ESV of 220 mg/kg, indicating potential manganese-related risk to plants throughout the site. The manganese concentrations in all of the background samples was greater than the screening level (see Table 2-8 for background results) and the site data set was statistically determined to not be greater than the background data set (Table 4-2). The widespread occurrence of manganese throughout the site at concentrations comparable to background values indicates that potential risk posed by manganese to plants at Site 12 is similar to risk posed by background conditions. Therefore, manganese is not retained as a COPC for plants.

Mercury concentrations in surface soil exceeded the 0.3 mg/kg plant ESV in two of 122 samples, at 0.47 and 0.38 mg/kg. Mercury was not detected in the background samples. The 0.3 mg/kg plant ESV is an ORNL value that was derived by Efroymson et al. (1997b) but the authors stated, however, that the confidence in this ESV is low because it is based on a secondary reference of unspecified toxic effects. Although there is uncertainty regarding the validity of the plant ESV, the low mercury concentrations at Site 12 suggest minor or negligible risks to plants at the site. In addition, all surface soil concentrations were less than the 12 mg/kg Canadian SQG (EC, 1999c) so mercury is not retained as a COPC for plants.

Nickel concentrations in surface soil exceeded the 38 mg/kg plant ESV in only one of 122 samples, where its concentration was 63.5 mg/kg, and its maximum HQ was 1.7. The maximum detected nickel concentration in the site samples exceeded the maximum concentration in the background samples (11.2 mg/kg), and the site data set was statistically determined to be greater than the background data set. However, the average nickel concentration in the site samples (10.9 mg/kg) was similar to the average concentration in the background samples (9.79 mg/kg). Because nickel-related risks to plants are limited

to the vicinity of a single sample (SSA12-SS04D), overall risks to plants from nickel are negligible and nickel is not retained as a COPC for plants.

Selenium surface soil concentrations exceeded the 0.52 mg/kg plant ESV, which is an Eco-SSL value, in six of 122 samples. Selenium was not detected in the background samples. Selenium concentrations in two of these six samples only slightly exceeded the plant ESV, at 0.54 mg/kg and 0.62 mg/kg. The four highest selenium concentrations were 2 mg/kg and 2.3 mg/kg in test pit 2, along with 2.2 mg/kg and 2.6 mg/kg in test pit 3. Both test pits were located near each other in the central area of the site. However, no other metals appeared elevated in the test pit samples, although PAHs were a little elevated. The analytical results for each of these four samples were "L qualified", indicating that the "positive result is considered biased low due to exceedance of technical quality control criteria". Thus, the few exceedances of the plant ESV at Site 12 indicate that potential selenium-related risks to plants are limited to a few locations, but there is some uncertainty regarding the analytical data for selenium in samples with the four highest concentrations.

Thallium surface soil concentrations ranged from 0.11 to 4.2 mg/kg, compared to a plant ESV of 1 mg/kg. Concentrations in 28 samples exceeded the plant ESV, with a maximum HQ of 4.2; the thallium analytical results for 13 of these 28 samples were K qualified, indicating that the positive result is biased high (see Section 4.7 of this report for a further discussion of this issue). Thallium concentrations in those samples were greater than the maximum detected thallium concentration in the background samples (0.34 mg/kg), and the site data set was statistically determined to be greater than the background data set (see Tables 4-1 and 4-2). The 1 mg/kg ESV is an ORNL value derived by Efroymson et al. (1997b) but the authors stated that the confidence in the 1 mg/kg ESV is low because it was based on a report in which the effects were not specified. The Canadian SQG for thallium is 1.4 mg/kg (EC, 1999d) and many of the detections that exceeded the ESV also exceeded the Canadian SQG. In summary, thallium concentrations in several samples exceeded the plant ESV, and concentrations tended to be higher than in background samples, but HQs were not particularly high. There is also uncertainty in many of the highest thallium data points, which the data validation process identified as being biased high. For these reasons, risks to plants from thallium are not likely to be significant, so it is not retained as a COPC for plants.

Vanadium concentrations in all surface soil samples exceeded the 2 mg/kg plant ESV, with a maximum HQ of 22.5 (Table 7-5). The ESV is an ORNL value derived by Efroymson et al. (1997b) but the authors stated that the confidence in the 2 mg/kg ESV is low because no primary reference data were located. Surface soil concentrations (24.2 mg/kg average, Table 7-12) were high relative to the 2 mg/kg ESV, suggesting potential impacts to plants. Because confidence in the ESV is low, however, the degree of potential risk to plants posed by vanadium in soil is uncertain. Vanadium concentrations in surface soil

ranged from 5.7 to 44.9 mg/kg, with an average of 24.2 mg/kg. Although the site data set was statistically determined to be greater than the background data set, the average background concentration of 24.9 mg/kg is greater than the site background concentration (Table 7-12). The maximum surface soil vanadium concentration (44.9 mg/kg) was less than the Canadian SQG of 130 mg/kg (EC, 1999e), so risks are negligible based on the SQG. For these reasons, vanadium poses no potential risks and it is not retained as a COPC for plants.

Zinc concentrations exceeded the 160 mg/kg plant ESV in 11 of 122 surface soil samples. Based on the 160 mg/kg ESV, the maximum surface soil concentration (731 mg/kg) would result in an HQ of 4.6. Zinc surface soil concentrations at Site 12 tended to be similar to background values, with an average Site 12 concentration of 80 mg/kg, compared to an average background value of 90.5 mg/kg (Table 7-12). Thus, zinc-related risks to plants are generally similar to those posed by background conditions. However, the zinc concentrations in one sample (731 mg/kg at SS04D) did exceed the maximum background concentration of 597 mg/kg). Therefore, it is possible that plants are impacted at this location above background impacts.

7.5.2.2 Pesticides

Maximum surface soil concentrations of aldrin, alpha- and gamma-chlordane, and gamma-Benzenehexachloride (BHC) (lindane) were less than their respective plant ESVs, so these pesticides pose no risks to plants at Site 12 (Table 7-5).

Beta-BHC was detected in 2 of 100 surface soil samples, and its concentration on one sample (13 µg/kg) exceeded the 3.98 µg/kg plant ESV, which is a value derived by EPA Region 5 (Buchman, 2008). Plant-related ESVs were not available for alpha- and delta-BHC, dieldrin, endolsulfan compounds, endrin compounds, heptachlor compounds, methoxychlor, and DDT compounds. These organochlorine pesticides were manufactured largely for the control of insects on vegetable crops, so they are not typically toxic to plants. Also, pesticide concentrations in most samples tended to be low, concentrations were similar to background concentrations at most locations, or the pesticides were infrequently detected. Therefore, pesticides are not retained as COPCs for plants.

7.5.2.3 SVOCs

<u>Phthalates</u>

Bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, and dimethyl phthalate were plant COPCs because plant ESVs were not available (Table 7-5). Di-n-octyl phthalate was detected in only two of 122 surface soil samples, while the other two phthalates were detected more frequently, in 5 and 28 of 122 samples

(Table 7-5). Although plant ESVs for these three phthalates were not available, the ORNL plant toxicity benchmark for di-n-butyl phthalate is 200,000 µg/kg and the ORNL plant toxicity benchmark for diethyl phthalate is 100,000 µg/kg (Efroymson et al., 1997b). The toxicity of phthalates is generally similar in magnitude, so these values provide a rough guide for evaluating the toxicity to plants of the phthalates detected at Site 12. With this in mind, the detected phthalate concentrations (maximum detection of 1,500 µg/kg) at Site 12 indicate that potential risk to plants is not likely at the site so phthalates are not retained as COPCs for plants.

PAHs

All acenaphthene concentrations in surface soil were well below the plant ESV (Table 7-5). Plant-related ESVs were not available for the other PAHs detected in soils at Site 12, precluding a complete evaluation of PAH-related phytotoxicity. Eisler (2000) reviewed available literature on PAHs and concluded that PAH-induced phytotoxic effects are rare.

An Eco SSL is not available for plants for PAHs, but data presented on Table 3.1 in the Eco SSL document for PAHs shows that PAHs are typically not toxic to plants except at high soil concentrations, with the lowest listed EC_{50} of 30,000 µg/kg for anthracene. All anthracene concentrations at Site 12 were less than this value, but the 30,000 µg/kg is an EC_{50} value rather than a NOAEL or LOAEL. In summary, PAH concentrations were elevated in some samples, but the absence of plant-related ESVs results in uncertainty regarding PAH-related potential to plants.

The Eco SSLs are not available for plants for several PAHs; however, data presented on Table 3.1 in the Eco SSL reference document for PAHs shows that PAHs are typically not toxic to plants except at high soil concentrations with the lowest listed EC_{50} of 30,000 µg/kg from Mitchell et al. (1988). Canadian SQGs were developed for the protection of both plants and invertebrates for anthracene (2,500 µg/kg), benzo(a)pyrene (20,000 µg/kg), and fluoranthene (50,000 µg/kg) (CCME, 2010). The Canadian SQG document for PAHs notes that soil invertebrates are more likely to be sensitive to PAHs than plants. Concentrations of several PAHs exceeded these values. As discussed above for soil invertebrates, the potential impacts from PAHs are greatest by Areas A (TP15 and SS08D, and SB59), B (SS17E and TP08), and E (SS09E, SB54, TP11, TP12, and TP13), and at several areas in the central area (SB01, SB10, SB14, SS14E, and SS15E), where PAH concentrations were the greatest. Appendix K, Parts 6 and 7, presents a more detailed discussion regarding the spatial distribution of PAHs in soil, but the discussion focuses on the BAP TE concentrations, not total PAHs.

Other SVOCs

Benzaldehyde, carbazole, and dibenzofuran were COPCs for plants because plant ESVs were not available (Table 7-5). Potential impacts to plants from these compounds cannot be evaluated. Toxicity data was not identified for benzaldehyde so this chemical cannot be further evaluated but it was infrequently detected in 3 of 68 samples and was detected at a low concentration relative to PAHs (maximum detected concentration was 40 µg/kg). Although risks to benzaldehyde cannot be determined, based on the low frequency of detection and relatively low concentration, benzaldehyde is eliminated from further risk evaluation. Carbazole is structurally similar to PAHs such as fluorene. Because the maximum carbazole concentration (8,200 µg/kg) is lower than the concentrations for most of the other PAHs, it is unlikely that carbazole would significantly add to the overall risk to plants. Therefore, risks from to plants from carbazole are not expected and carbazole is eliminated as a COPC. Dibenzofuran is structurally similar to PAHs. Because the maximum dibenzofuran concentration (3,700 µg/kg) is lower than the concentrations for most of the other PAHs, and because it was only detected in 12 of 122 samples, it is unlikely that dibenzofuran would significantly add to the overall risk to plants. Therefore, risks from to plants from dibenzofuran are not expected and it is eliminated as a COPC.

7.5.2.4 VOCs

Thirteen VOCs were detected in surface soil (Table 7-5). Ten of the 13 VOCs were infrequently detected, being detected in only 1 to 8 of 122 samples. The highest toluene concentration was 2 µg/kg, compared to a plant ESV of 200,000 µg/kg. The absence of plants ESVs for the other 12 compounds detected in surface soil precludes an evaluation of their potential phytotoxicity. However, for reasons discussed above for soil invertebrates, based on their low detection frequency and low concentrations relative to screening levels for other VOCs used as surrogates, it is not likely that plants are being significantly impacted by VOCs in the soil. For that reason, VOCs were eliminated as COPCs.

7.5.2.5 Summary and Conclusions: Terrestrial Plants

The surface soil data indicate that COPCs that pose the greatest potential risks to plants at Site 12 are PAHs, copper, lead, selenium, and zinc. PAH compounds were elevated in some samples and pose potential risks to plants, especially in Areas A, B, and E, and in the central area of the site where PAH concentrations are the greatest. Potential risks to plants from copper may occur in Areas B, C, and E, while potential risks from lead may occur in the southeast and northeast portion of the site along with Area E. Potential risks from selenium are more uncertain. The concentrations of selenium are just a few mg/kg greater than its screening level and there is uncertainty in the results. Therefore, although risks to plants cannot be ruled out from selenium, potential risks probably should not drive any remediation.

Finally, there was only one location (SS04D) where a concentration of zinc) exceed the maximum background concentration of 597 mg/kg and the plant screening level. Therefore, it is possible that plants are impacted at this location.

Surface soil concentrations of other metals pose negligible or minor potential risks to plants, or do not appear to be related to former activities at the landfill, or could not be completely evaluated due to the absence or uncertainty associated with their plant ESVs.

Surface soil concentrations of VOCs, SVOCs (other than PAHs), and pesticides for which plant ESVs are available were below their ESVs. The potential phytotoxicity at Site 12 from VOCs, SVOCs, and pesticides without plant ESVs is uncertain, but based on considerations discussed above, risks are probably minor.

7.5.3 Potential Risk to Benthic Organisms

The discussion of potential risks to benthic invertebrates is separate from the discussion of potential risks to aquatic organisms in this ERA because benthic invertebrates and aquatic organisms represent different assessment endpoints, and the measurement endpoints used to evaluate risks to these assessment endpoints are different. Specifically, chemical concentrations in sediment are used to evaluate potential risks to benthic invertebrates, while chemical concentrations in surface water are used to evaluate potential risks to aquatic organisms. Nevertheless, benthic organisms are exposed to both surface water and sediment, as are many aquatic organisms, so risk managers typically consider both the surface water and sediment data when determining the need for further evaluation. Chemicals that were COPCs in sediment and pose potential risks to benthic organisms are discussed in this section, and chemicals that were COPCs in surface water are discussed in Section 7.5.4.

Maximum sediment concentrations of antimony, cadmium, copper, iron, lead, manganese, nickel, zinc, carbon disulfide, several pesticides, and several SVOCs exceeded their respective screening values (Table 7-8). ESVs were not available for four inorganics, two SVOCs, and four VOCs that were detected in sediment (Table 7-8). Bioaccumulative chemicals in Table 7-8 with screening HQs less than 1.0 (arsenic, chromium, mercury, silver) pose negligible risks to benthic organisms.

7.5.3.1 Inorganics

Antimony was detected in all sediment samples but concentrations exceeded the 2 mg/kg ESV only in sample 02SD08 (2.2 mg/kg), with a maximum HQ of 1.1. Sample 02SD08 is the farthest upstream of two samples collected in the drainage ditch (Figure 7-9). The very slight ESV exceedance in a single sample

suggests that antimony poses minor risk (at worst) to benthic receptors in the ditch. Also, the ESV is based on the Effects Range-Low (ER-L) from Long and Morgan (1991). The ER-L represents the concentration below which, adverse effects would be rarely observed. The Effects Range-Median (ER-M) from that same study is 25 mg/kg. The ER-M represents a concentration, above which, adverse effects would probably occur. The maximum detected concentration is much lower than the ER-M.

Barium and beryllium were detected in all sediment samples. Barium and beryllium have not been evaluated for ecological toxicity in sediments to the extent that other metals have, and freshwater sediment ESVs or other freshwater sediment toxicity data were not available. Beryllium, however, has limited solubility and mobility in sediment. Sediment beryllium concentrations were similar to background concentrations (Table 7-13), and barium sediment concentrations were similar to background concentrations except at two locations: 12SD01 (186 mg/kg) and 12SD02 (838 mg/kg).

Cadmium concentrations in sediment exceeded the 0.99 mg/kg ESV in one sample (02SD02 at 2.1 mg/kg), with a maximum HQ of 2.1 (Table 7-13). Cadmium was not detected in the background samples. The sediment ESV for cadmium (0.99 mg/kg) is a consensus-based threshold effect concentration (TEC) from MacDonald et al. (2000). The TEC represents the geometric mean of toxicity thresholds in freshwater sediments from six published sources (MacDonald et al., 2000). The MacDonald study also developed consensus-based probable effect concentrations (PECs); the PECs represent the geometric means of five published sources that derived analogous thresholds for freshwater sediments (MacDonald et al., 2000). The TEC is a concentration below which toxic effects to sediment biota are not expected to occur, while the PEC is a concentration above which toxic effects are expected to frequently occur. The PEC for cadmium is 4.98 mg/kg; all sediment concentrations were less than this value. As mentioned above, sediment cadmium concentrations exceeded the 0.99 mg/kg ESV in only one sample (02SD02 at 2.1 mg/kg). The cadmium concentration in 12SD01, downstream of 12SD02, was less than the ESV. Thus, potential risk to benthic receptors from cadmium appears to be limited to a small area and does not extend downstream to 12SD01.

Like cadmium, copper concentrations in sediment exceeded the ESV only in sample 12SD02, at 44.7 mg/kg. The maximum HQ was 1.4 (Table 7-13). The maximum copper detection was slightly greater than the maximum detected background concentration (27.8 mg/kg). Copper concentrations in other sediment samples were well below the 31.6 mg/kg ESV and the maximum background concentration, ranging from 7.2 to 19 mg/kg. Thus, potential risk to benthic receptors from copper appears to be limited to a small area and does not extend downstream from 12SD02. The relatively low maximum HQ of 1.4 does not suggest serious impacts to benthic receptors. The sediment ESV for copper is the consensus-based TEC from MacDonald et al. (2000). The maximum concentration of copper (44.7 mg/kg) was less than the 149 mg/kg PEC for copper (MacDonald et al., 2000).

Sediment concentrations of iron exceeded the 20,000 mg/kg ESV in two samples, 12SD02 at 24,000 mg/kg, and the duplicate of 12SD03 at 20,200 mg/kg (the concentration in the original 12SD03 sample was 18,000 mg/kg. All iron concentrations in Site 12 sediment were similar to background sediment concentrations (Table 7-13), indicating that iron-related risks to benthic receptors are similar to risks throughout the region. However, the analytical results for each of the eight sediment samples were "L qualified", indicating that the "positive result is considered biased low due to exceedance of technical quality control criteria". Thus, there is some uncertainty associated with the iron data. The ESV for iron is the Lowest Effect Level (LEL) from the Ontario Sediment Quality Guidelines (OMOE, 1993). Concentrations below the LEL are considered marginally polluted but will not affect the majority of sediment-dwelling organisms. The Severe Effect Level (SEL) for iron is 40,000 mg/kg. Concentrations greater than the LEL are considered highly polluted and likely to affect the health of sediment-dwelling organisms. The maximum detected iron concentration is much lower than the SEL.

Lead concentrations in six sediment samples exceeded the 35.8 mg/kg ESV, with a maximum HQ of 2.5 in sample 12SD04 (Table 7-13). Sediment lead concentrations exceeded the maximum background value in the same six samples. The sediment ESV for lead is the consensus-based TEC from MacDonald et al. (2000). The maximum concentration of lead (90 mg/kg) was less than the 128 mg/kg PEC for copper (MacDonald et al., 2000). There was no noticeable pattern in the distribution of sediment lead concentrations (Figure 7-9). Although the maximum HQ is not especially high, the sediment data indicate potential risk to benthic receptors from lead.

Sediment concentrations of manganese exceeded the 460 mg/kg ESV in four samples, with a maximum HQ of 37.8 (Table 7-13). Manganese concentrations exceeded the maximum background sediment concentration of 759 mg/kg in samples 12SD01 (2690 mg/kg), 12SD02 (17,400 mg/kg) and 12SD03 (945 mg/kg average of sample and its duplicate). The analytical results for each of the eight sediment samples were "L qualified", indicating that the "positive result is considered biased low due to exceedance of technical quality control criteria".

Like cadmium and copper, nickel concentrations in sediment exceeded the ESV only in sample 12SD02. The maximum HQ was 1.3 (Table 7-13). Nickel concentrations in the other sediment samples were well below the 22.7 mg/kg ESV, ranging from 5.5 to 13.4 mg/kg. Thus, potential risk to benthic receptors from nickel appears to be limited to a small area and does not extend downstream from 12SD02. The relatively low maximum HQ of 1.3 does not suggest serious impacts to benthic receptors. In addition, the maximum concentration of nickel (28.4 mg/kg) was less than the 48.6 mg/kg PEC for nickel (MacDonald et al., 2000).

Zinc concentrations in sediment exceeded the 121 mg/kg ESV only in sample 12SD02, with a maximum HQ of 2.2. Zinc concentrations in other sediment samples ranged from 25 to 108 mg/kg. Thus, potential risk to benthic receptors from zinc appears to be limited to a small area and does not extend downstream from 12SD02. In addition, the maximum concentration of zinc (269 mg/kg) was less than the 459 mg/kg PEC for zinc (MacDonald et al., 2000).

7.5.3.2 Pesticides

Pesticides detected in sediment at concentrations greater than ESVs consisted of 4,4'-DDE, 4,4'-DDT, total DDT, alpha-chlordane, gamma-chlordane, beta-BHC, dieldrin, endrin aldehyde, endrin ketone, and heptachlor epoxide (Table 7-8). These compounds are organochlorine pesticides or pesticide breakdown products and are no longer used in the United States, but are extremely persistent in soil and sediment. It is difficult to determine whether the presence of these pesticides at concentrations measured in the stream and drainage ditch at Site 12 are due to wastes from the former landfill, to upstream sources, to historical use at the Base following label instructions for pest control, or to a combination of these or other sources. The distribution of pesticides shows no clear trends among the eight sample locations, except that concentrations tended to be lowest in samples 12SD04 and 12SD05 (Figure 7-9 and Appendix A). Sediment concentrations of pesticides at Site 12 are discussed below.

Dieldrin was detected in 45 of 115 (39 percent) surface soil samples, so its detection in most Site 12 sediment samples could be due to migration from landfill soils. The maximum HQ for dieldrin was 28.9. Sediment dieldrin concentrations were highest in the two drainage ditch samples (12SD07 at 55 µg/kg and 12SD08 at 39 µg/kg). Concentrations in five sediment samples exceeded the ESV and the maximum background concentration (Table 7-13). The sediment ESV for dieldrin (1.9 µg/kg) is the consensus-based TEC from MacDonald et al. (2000). The PEC for dieldrin is 61.8 µg/kg; all sediment concentrations were less than this value.

Sediment concentrations of 4,4'-DDT and 4,4'-Dichlorodiphenyldrichloroethylene (DDE) exceeded their ESVs in one and three samples, respectively, and total DDT (defined as the sum of detected 4,4'-DDT, 4,4'-DDE, and 4,4'-DDD) exceeded its ESV in four sediment samples (Table 7-13). Maximum screening HQs were 1.3 for 4,4'-DDT, 2.1 for 4,4'-DDE, and 2.0 for total DDT (Table 7-13). The sediment ESVs for 4,4'-DDT, 4,4'-DDE, and total DDT are consensus-based TECs from MacDonald et al. (2000). The PECs for these compounds are 62.9 µg/kg (4,4'-DDT), 31.3 µg/kg (4,4'-DDE), and 572 µg/kg (total DDT) (MacDonald et al., 2000). All sediment concentrations of these compounds were well below their respective PECs.

Sediment concentrations of alpha-chlordane exceeded the ESV (3.24 µg/kg) in three samples, and sediment concentrations of gamma-chlordane exceeded the ESV in the same three samples (12SD01, 12SD02, and 12SD03). Maximum screening HQs were 3.7 for alpha-chlordane and 4.9 for gamma-chlordane (Table 7-13). The sediment ESV for the two chlordane isomers detected at Site 12 is the consensus-based TEC for chlordane from MacDonald et al. (2000). The PEC for chlordane is 17.6 µg/kg (MacDonald et al., 2000). Sediment concentrations of both chlordane isomers were less than the PEC, but the gamma-chlordane concentration in 12SD02 (16 µg/kg) was near the PEC value.

Sediment concentrations of endrin aldehyde exceeded the 2.22 µg/kg ESV in two samples. Sediment concentrations of endrin ketone exceeded the ESV in three samples. Maximum screening HQs were 3.4 for endrin aldehyde and 7.7 for endrin ketone (Table 7-13). Endrin ketone is a breakdown product of the insecticide endrin. Endrin aldehyde is a minor impurity and a breakdown product of endrin. The sediment ESV for the two compounds is the consensus-based TEC for endrin from MacDonald et al. (2000). The PEC for endrin is 207 µg/kg (MacDonald et al., 2000). All sediment concentrations of endrin aldehyde and endrin ketone were well below the PEC.

Sediment concentrations of heptachlor epoxide exceeded the 2.47 µg/kg ESV in one sample, with a maximum HQ of 1.8 (Table 7-13). The sediment ESV for heptachlor epoxide is the consensus-based TEC from MacDonald et al. (2000). The maximum concentration of heptachlor epoxide (4.5 µg/kg) was less than the 16.0 µg/kg PEC for this compound (MacDonald et al., 2000).

Beta-BHC was detected in only one sediment sample, 12SD03-dup at 16 µg/kg, compared to an ESV of 5 µg/kg (Table 7-13). Beta-BHC was detected in only two of 100 surface soil samples at the site (Table 7-5), and was not detected in any subsurface soil samples (Table 7-7). The compound was not detected in soil samples near the stream, so it seems unlikely that the detection of beta-BHC in one stream sediment sample is due to migration of soil from Site 12 into the stream. Unlike the pesticides discussed above, MacDonald et al. (2000) did not establish a TEC or PEC for beta-BHC.

7.5.3.3 SVOCs

Bis(2-ethylhexyl)phthalate sediment concentrations exceeded its ESV in two samples, with a maximum HQ of 2.6 (Table 7-13). The sediment ESV is a TEC from MacDonald et al. (2003). The maximum concentration of bis(2-ethylhexyl)phthalate (460 µg/kg) was less than the 2,600 µg/kg PEC for this compound (MacDonald et al., 2003). Bis(2-ethylhexyl)phthalate was not detected in background sediment samples, but the detection limits in background samples ranged from 380 to 645 µg/kg (Table 2-10), which encompassed the detected values at Site 12. Thus, a meaningful comparison of

concentrations at Site 12 to background values is impeded by the detection limits in the background dataset.

Carbazole was detected in four of eight sediment samples, at concentrations of 120 to 440 µg/kg. No screening values were available, so its potential toxicity cannot be evaluated. Carbazole was not detected in background sediment samples, but the detection limits in background samples ranged (like bis[2-ethylhexyl]phthalate) from 380 to 645 µg/kg. As discussed above for plants, carbazole is structurally similar to PAHs such as fluorine. The maximum detected concentration of carbazole as just slightly greater than the maximum concentration of fluorene, but was much lower than the concentrations for most of the other PAHs. Therefore, risks from carbazole should be accounted for hen evaluating the risks for the PAHs.

Fourteen PAH compounds plus total PAHs were detected in sediment at concentrations greater than their ESVs, and ESVs were not available for one detected PAH (Table 7-8). The highest concentrations of PAHs were in sample 12SD03 (the sample from the storm water outfall), and the two samples downstream from the outfall (12SD01 and 12SD02). PAHs almost always occur in field-collected sediments as a mixture of compounds, and the toxicity of PAHs is typically assumed to be additive, so evaluating PAH toxicity in sediment by examining total PAH concentrations is especially useful when, as at Site 12, several PAHs were detected at concentrations exceeding their respective screening values. The ESV for total PAHs (1610 µg/kg) is the consensus-based TEC from MacDonald et al. (2000). The PEC for total PAHs (22,800 µg/kg) was exceeded in samples 12SD03 (37,299 µg/kg; average of sample and duplicate), 12SD02 (37,860 µg/kg), and 12SD01 (30,870 µg/kg). Thus, PAH concentrations in these three samples indicate potential toxic effects to benthic organisms. Total PAH concentrations in sediment samples 12SD04, 12SD05, 12SD06, and 12SD07 ranged from 360 to 2751 µg/kg, so toxic effects are not likely in these samples. The total PAH concentrations in sediment sample 12SD08 (the upstream ditch sample) was higher, at 11,628 µg/kg. Surface soil concentrations of PAHs in some in soil samples at Site 12 were elevated, so the elevated PAH concentrations in some sediment samples could be the result of migration from the landfill through erosion. However, the highest concentrations of PAHs were in sample 12SD03, which is the sample from the storm water outfall. The storm sewer that discharges via this outfall receives runoff from the taxiway immediately north of Site 12, from the southeastern end of the Base runway, and from other areas in the southeastern part of the Base. Thus, the source of PAHs in sediment in sample 12SD03 as well as samples 12SD01 and 12SD02 is unclear.

7.5.3.4 VOCs

Sediment toxicity screening values were not available for acetone, 2-butanone, chloromethane, or methyl acetate, so their potential toxicity in sediment cannot be evaluated.

Carbon disulfide was detected in two of eight sediment samples, with a maximum concentration of 28 µg/kg in 12SD03; its detected concentration in the duplicate of the same sample was 1.9 µg/kg. It was not detected in surface water, and was detected in eight of 122 surface soil samples. Carbon disulfide occurs naturally in sediments since it is a natural product of anaerobic biodegradation. Worldwide, at least 40 percent and possibly as much as 80 percent of releases are a result of natural or biogenic activity (IPCS, 2002). Carbon disulfide was not detected in background sediments, but detection limits in background sediments ranged from 12 to 19.5 µg/kg.

7.5.3.5 Summary and Conclusions: Sediment

Several metals and organic compounds were detected in sediment at concentrations that exceed their ESVs.

Sediment concentrations of most metals tended to be low and pose negligible potential risks to benthic organisms, or do not appear to be related to former activities at the landfill. However, sediment concentrations of several metals (especially cadmium, copper, manganese, nickel, and zinc) were greatest in sample 12SD02, so cumulative toxicity from multiple metals in the vicinity of this sample is possible. Lead concentrations in six sediment samples exceeded the 35.8 mg/kg ESV, with a maximum HQ of 2.5 in sample 12SD04 (Table 7-13). There was no noticeable pattern in the distribution of sediment lead concentrations. The maximum lead HQ is not especially high, and sediment concentrations in all samples were less than the consensus-based PEC of 128 mg/kg (MacDonald et al., 2000).

Potential risk from VOCs are uncertain, but are probably minor.

Potential risks to benthic invertebrates from most pesticides are minor or uncertain due to detected concentrations that are between the TEC and the PEC. The maximum concentrations of dieldrin and gamma-chlordane, however, approached their PEC values.

Potential risk from most SVOCs appear to be minor. However, sediment concentrations of total PAHs exceeded the MacDonald et al. (2000) consensus-based PEC of 22800 µg/kg in samples 12SD01, 12SD02, and 12SD03, and were highest in the duplicate of 12SD03 (49,240 µg/kg). It is unclear whether the elevated sediment PAH concentrations in these three samples are due to landfill wastes or to migration from an upstream source via the storm water outfall.

7.5.4 Potential Risk to Aquatic Organisms

Maximum surface water concentrations of 14 inorganics, nine pesticides, and seven PAHs exceeded their surface water screening values (Table 7-9). ESVs were not available for five SVOCs and one VOC that were detected in surface water (Table 7-9). Bioaccumulative chemicals in Table 7-9 with screening HQs less than 1.0 (e.g., chromium, nickel, aldrin, beta-BHC) pose negligible risks to benthic organisms.

7.5.4.1 Inorganics

Maximum concentrations of most detected inorganics were in unfiltered sample 12SW07 (Table 7-9); this sample, as well as sample 12SW08, were collected from the drainage ditch that empties into the stream in which the other five surface water samples were collected. The drainage ditch is often dry or non-flowing, and when the surface water samples were collected, water in the ditch was stagnant and brown-colored. The turbidity in sample 12SW08 was 27 NTU and was greater than 2000 NTU in 12SW07 (Appendix A). The water color in the five stream samples was clear, and the turbidity in these five samples ranged from 0.52 to 3.39 NTU (Appendix A). Due to the high turbidity in samples 12SW07 and 12SW08, filtered samples were also collected for dissolved metals analysis from the same two locations. The metals concentrations shown in Table 7-9 reflect the total (unfiltered sample) data. Concentrations of dissolved metals in the two filtered samples (plus one duplicate) are included in Appendix A.

Concentrations of aluminum, barium, iron, manganese, and selenium exceeded their surface water ESVs in filtered sample 12SW07, and only barium exceeded the ESV in filtered sample 12SW08. At the five stream sample locations (where filtered samples were not collected), concentrations of barium, iron, lead, manganese, and cyanide exceeded their ESVs in one or more samples (Appendix A).

Freshwater organisms usually are not adversely affected by aluminum when pH is between 6.5 and 9.0 (EPA, 1988). The pH in surface water samples 12SW07 and 12SW08 (the only samples in which aluminum concentrations exceeded its ESV) was 6.59 and 6.75, respectively. Thus, aluminum concentrations in Site 12 surface water probably do not pose significant potential risks to aquatic organisms. There is some uncertainty associated with aluminum in Site 12 surface water, however, since useable aluminum data were available from only three sample locations. As shown in Appendix A, aluminum data in most surface water samples were ”B qualified”, signifying that the “positive result is considered to be an artifact of blank contamination, and should not be considered present.”

Barium concentrations exceeded the 4 µg/L ESV in all filtered and unfiltered surface water samples. Barium concentrations in the five unfiltered stream samples ranged from 68 to 193 µg/L, and were 20.5 and 51.2 µg/L in the two filtered ditch samples (Figure 7-9). The 4 µg/L ESV is a Tier II secondary

chronic value from Suter and Tsao (1996). Barium concentrations in background (unfiltered) surface water averaged 101 µg/L with a maximum concentration of 112 µg/L (Table 7-14), so any potential risk from barium is similar to risk posed by background conditions.

Surface water iron concentrations exceeded the 300 µg/L ESV in three unfiltered stream samples (565 to 889 µg/L), two unfiltered ditch samples (2760 and 44,700 µg/L), and in one filtered ditch sample (370 µg/L). Iron concentrations in background (unfiltered) surface water averaged 321 µg/L with a maximum concentration of 721 µg/L (Table 7-14). Iron concentrations in the three filtered samples were less than 1000 µg/L, which is the national recommended water quality criterion for iron in freshwater (EPA, 2009).

Lead concentrations in the five unfiltered stream samples exceeded the hardness-specific ESV (2.8 µg/L) only in sample 12SW05 (3.6 µg/L), with an HQ of 1.3 in this sample. Lead was not detected in filtered samples.

Manganese concentrations in surface water exceeded the 120 µg/L ESV in four unfiltered samples, at concentrations ranging from 990 to 2100 µg/L, with a maximum HQ of 17.5 (Table 7-14). Manganese concentrations in one filtered sample (845 µg/L) exceeded the ESV. Manganese concentrations that exceeded the ESV also exceeded the maximum background concentration of 122 µg/L. The 120 µg/L ESV is a Tier II secondary chronic value from Suter and Tsao (1996).

Selenium was not detected in unfiltered surface water samples, but was detected in the filtered 12SW07 sample, at 4.5 µg/L, compared to an ESV of 1 µg/L. The presence of measurable selenium in the filtered sample but not in the unfiltered sample is uncommon, and creates some uncertainty regarding the evaluation.

Cyanide was detected in five of seven unfiltered surface water samples, and concentrations exceeded the 5 µg/L in three samples, at 6 µg/L (12SW05), 6.8 µg/L (12SW03), and 48.8 µg/L (12SW02), with a maximum HQ of 9.8. The elevated concentration in 12SW02 is puzzling, considering that cyanide was not detected in the duplicate of that sample. The detection limit in the duplicate of 12SW02, as well as in the other two non-detect samples, was 3 µg/L (Appendix A). Cyanide was not analyzed in filtered surface water samples, and was not detected in sediment at Site 12. As discussed in Section 7.5.1, cyanide was detected in 43 of 85 surface soil samples, at concentrations ranging from 0.043 to 0.426 mg/kg, which were similar to background soil concentrations. Cyanide was not detected background surface water samples, at a detection limit of 5 µg/L. Sources of cyanide in the environment include laboratories, fumigation operations, fires, and industrial processes such as electroplating and the manufacture of paint, aluminum, and plastics. Cyanide can also originate from natural process such as production by bacteria,

algae, and fungi (Eisler, 2000). In summary, cyanide concentrations in two surface water samples slightly exceeded the 5 µg/L ESV, while the concentration in one sample (12SW02) was quite higher (48.8 µg/L), but cyanide was not detected in the duplicate of 12SW027. The probability that cyanide at Site 12 would be related to landfill activities is unclear, since there are so many sources of cyanide.

7.5.4.2 Pesticides

Unfiltered surface water samples 12SW07 and 12SW08 were the only samples in which pesticide concentrations exceeded ESVs (Table 7-14). As discussed in Section 7.5.4.1, the turbidity in these two samples was high. The organochlorine pesticides that were detected in surface water tend to adsorb strongly to sediments, so the surface water pesticide data were probably impacted by the turbidity. This does not decrease the significance of elevated pesticides in surface water. In this case, however, potential ecological risk is better evaluated by focusing on sediment data (see Section 7.5.3.2) rather than surface water data.

7.5.4.3 SVOCs

Fourteen PAH compounds were COPCs in surface water. PAH concentrations exceeded ESVs in surface water samples 12SW02, 12SW07, and 12SW08 (Figure 7-9). Samples 12SW07 and 12SW08 were collected from the drainage ditch that forms the southwest boundary of Site 12, while 12SW02 was a stream sample collected upstream of the confluence of the ditch with the stream. The highest concentrations of all SVOCs were in sample 12SW07. As mentioned in Section 7.5.4.1, samples 12SW07, and 12SW08 were collected in stagnant water with high turbidity. Thus, the surface water PAH data might be due to suspended particulate matter rather than to dissolved PAHs. PAH compounds are typically adsorbed very strongly to sediments and particulate matter. PAHs were elevated in several soil samples, so migration from soil into the stream is certainly possible. The highest sediment PAH concentrations were in sediment samples 12SD01, 12SD02, and 12SD03, so the elevated surface water concentrations in 12SW02 (co-located with 12SD02) might be related to sediment. PAHs were not detected in 12SW01, which is the most downstream surface water sample, suggesting that PAHs in surface water are not significantly migrating off-site to downstream locations.

Benzaldehyde was detected in one surface water sample (12SW02). An ESV was not available for this compound, so potential impacts to aquatic biota cannot be evaluated. The single detected value was fairly low (1.5 µg/L).

7.5.4.4 VOCs

Chlorodibromomethane was the only VOC that was a surface water COPC. It was detected in two samples, at 0.14 µg/L and 0.24 µg/L. An ESV was not available for this compound, so its potential impacts to aquatic biota cannot be evaluated. Although chlorodibromomethane is used as a chemical intermediate in the manufacture of various products, the predominant anthropogenic source of chlorodibromomethane release to the environment is its inadvertent formation during chlorination treatment processes of water (Spectrum Laboratories, 2003). Chlorodibromomethane was not detected in soil or sediment, so its presence in one surface water sample might not be related to landfill activities.

7.5.4.5 Summary and Conclusions: Surface Water

Several inorganics and organic compounds were detected in surface water at concentrations that exceeded their ESVs, while ESVs were not available for a few organic compounds detected in surface water. Concentrations of most surface water COPCs were highest in samples 12SW07 and 12SW08, which were collected in stagnant water with high turbidity.

The surface water data indicate that manganese poses potential risks to aquatic receptors in the three most downstream samples (12SW01, 12SW02, and 12SW03) and in one of the ditch samples (12SWW07). There is uncertainty associated with some aspects of the surface water data for inorganics, such as filtered versus unfiltered concentrations, blank contamination (aluminum), the detection of selenium in filtered but not in unfiltered samples, and whether concentrations of some COPCs are related to the former landfill (e.g., cyanide). There is also uncertainty regarding the degree of potential risk for metals with concentrations that exceeded ESVs in a few samples, but with relatively low HQs, such as for barium and iron in stream samples.

The highest concentrations of PAHs were in sample 12SW07, collected from the drainage ditch that forms the southwest boundary of Site 12. Concentrations of five PAHs exceeded their ESVs in sample 12SW02, collected in the stream upgradient of the confluence of the ditch with the stream. The surface water PAH data might be due to suspended particulate matter rather than to dissolved PAHs. PAHs were not detected in 12SW01, which is the most downstream surface water sample, suggesting that PAHs in surface water are not significantly migrating off-site to downstream locations.

Potential risk from pesticides and VOCs are uncertain, but are probably minor.

7.5.5 Potential Risk to Wildlife Receptors

Bioaccumulative chemicals were included in food chain models to evaluate potential risks to herbivorous birds and mammals, insectivorous birds and mammals, and piscivorous birds and mammals.

7.5.5.1 Risks to Herbivorous Receptors

Based on maximum detected concentrations, conservative body weights, and conservative ingestion rates, bobwhite quail food chain NOAEL-HQs exceeded 1.0 for copper, lead, mercury, vanadium, and three PAHs (Table 7-10). Meadow vole NOAEL-HQs in the screening level scenario exceeded 1.0 for dieldrin, antimony, copper, lead, mercury, selenium, thallium, and six PAHs (Table 7-10). Woodchuck NOAEL-HQs in the screening level scenario exceeded 1.0 for lead, mercury, thallium, and two PAHs (Table 7-10). Based on the Step 3A scenario, all food chain NOAEL-HQs were less than 1.0 for the bobwhite quail, meadow vole, and woodchuck (Table 7-15).

The Step 3A food chain scenario provides a less conservative evaluation of risk than the maximum food chain scenario, but it is still conservative. The food chain HQs assume an AUF of 1.0, meaning the representative receptors are assumed to forage exclusively in the area where samples were collected. Herbivorous birds forage over large areas and would obtain only a fraction of their food from the areas where elevated concentrations were measured. Thus, the bobwhite quail food chain HQs in Table 7-15 are based on reasonable estimates of exposure, and risks to herbivorous birds represented by the quail are negligible.

Herbivorous mammals such as meadow voles forage within much smaller areas than birds, so voles could be exposed to “hot spots” of contamination for a significant portion of their lives. In the screening level scenario, the meadow vole food chain NOAEL HQ was 16.3 for mercury, and the mercury LOAEL HQ was 3.3 (Table 7-10). Meadow vole NOAEL-HQs for six PAHs exceeded 1.0 in the screening level scenario, and were highest for pyrene, with an HQ of 9.5 (Table 7-10). However, meadow vole HQs based on LOAELs were less than 1.0 for all PAHs (Table 7-10). Mammal LOAELs for high molecular weight PAHs were about 62 times greater than NOAEL values (38.4 mg/kg/day versus 0.615 mg/kg/day; Table 7-1). Thus, NOAEL HQs for the vole are about 62 times greater than LOAEL HQs for these PAHs. The rather large difference between NOAEL and LOAEL values results in uncertainty regarding potential risks posed by these compounds. However, as discussed above, all of the HQs in the Step 3A scenario were less than 1.0 (see Table 7-15). Therefore, although it is possible that some contaminants may cause potential risks to small mammals that reside and feed at the hot spots, risks would be isolated and limited to a few individuals. Therefore, no chemicals are retained as COPCs for risks to herbivorous mammals.

The woodchuck often forages within areas of 40 to 60 acres, but woodchucks in areas of plentiful succulent vegetation forage within much smaller areas. Based on habitat conditions at Site 12 (where abundant succulent vegetation does not exist near existing woodchuck burrows), the woodchuck HQs in Table 7-10 are not particularly high in view of conservative assumptions in the food chain model. Furthermore, all woodchuck food chain HQs in the Step 3A scenario were less than 1.0 (Table 7-15). Thus, soil COPCs pose minor potential risk to burrowing mammals represented by the woodchuck.

7.5.5.2 Risks to Insectivorous Receptors

Several bioaccumulative COPCs had food chain HQs greater than 1.0 for insectivorous receptors represented by the robin and short-tailed shrew in the screening level scenario (Table 7-10). In the Step 3A scenario, food chain HQs exceeded 1.0 only for dieldrin, antimony, lead, mercury, thallium, and vanadium (Table 7-15).

Based on the Step 3A scenario, the greatest potential risk to insectivorous birds represented by the robin is from mercury, with a NOAEL HQ of 10.6 and a LOAEL HQ of 1.1 (Table 7-15). There is uncertainty associated with the mercury NOAEL HQ, however. Specifically, an avian NOAEL was not available for mercury, so the estimated avian mercury NOAEL (0.0064 mg/kg/day; Table 7-1) used in the food chain model was derived by dividing the avian LOAEL by 10. The robin (or any bird) would not forage exclusively in a small area, so the robin food chain HQs are probably not indicative of significant risk. Overall, the food chain modeling summarized in Tables 7-10 and 7-15 indicates that bioaccumulative COPCs pose minor potential risks to insectivorous birds, with the greatest potential risk being from mercury. Robin food chain HQs for other bioaccumulative COPCs are not particularly high in view of conservative assumptions in the food chain model.

The short-tailed shrew has a relatively small home range (about 0.5 to 2.4 acres; Cothran et al. 1991; EPA, 1993), and thus, could forage exclusively in small hot spots of contamination. The NOAEL HQ for dieldrin was 38 for the shrew in the screening level scenario (Table 7-10) and 1.4 in the Step 3A scenario (Table 7-15). Dieldrin concentrations in surface soil at Site 12 were similar to background concentrations (Table 7-12), so potential dieldrin-related risk to insectivorous receptors at Site 12 is similar to risk posed by background conditions. Most shrew HQs are not particularly high in view of conservative assumptions in the food chain model. For example, the thallium NOAEL HQ for the shrew was 16 (Table 7-15). The only available TRV for thallium, however, was a subchronic LOAEL of 0.74 mg/kg/day in a rat study (Appendix L, Table L-1). The 0.74 mg/kg/day LOAEL was divided by 10 because it was derived from a subchronic study, and was divided again by 10 to estimate the NOAEL, because a NOAEL was not available. Thus, the estimated NOAEL of 0.0074 mg/kg/day in Table 7-1 (and upon which the NOAEL-

HQ is based) is actually an estimated value using a safety factor of 100. Furthermore, soil-to-earthworm BAFs were not available for thallium or antimony, so a default BAF of 1.0 was used as a BAF for these two COPCs. The use of these surrogate BAFs assumes that concentrations of thallium and antimony in earthworms are equal to concentrations in soil; the actual BAFs are probably much less for these two metals. If a BAF of 0.1 were used in the Step 3A scenario, a value that is still probably conservative, the LOAEL HQ would be less than 1.0 and the NOAEL HQ would be slightly greater than 1.0. Several PAHs had NOAEL HQs indicative of potential risk for the shrew, with indeno(1,2,3-cd)pyrene having the highest NOAEL HQ value (HQ = 15; Table 7-10). However, all shrew LOAEL HQs for PAHs were less than 1.0 (Table 7-10). Also, all HQs were less than 1.0 in the Step 3A food chain models. As discussed above (Section 7.5.5.1), the rather large difference between available NOAEL and LOAEL values for some PAHs results in uncertainty regarding potential risks posed by these compounds. Overall, the food chain modeling indicates that most shrew HQs are not particularly high in view of conservative assumptions in the food chain model. Potential risks from PAHs based on NOAEL HQs exist in the areas of highest PAH concentrations. There is uncertainty regarding potential risks posed by PAHs, antimony, and thallium. Therefore, although it is possible that some contaminants may cause potential risks to small mammals that reside and feed at the hot spots, risks would be isolated and limited to a few individuals. Therefore, no chemicals are retained as COPCs for risks to insectivorous mammals.

7.5.5.3 Risks to Piscivorous Receptors

NOAEL-based HQs exceeded 1.0 for four PAHs, three pesticides, and six inorganics in the screening level food chain model scenario (Table 7-11). Piscivorous birds and mammals, however, would not forage exclusively in small areas represented by maximum concentrations, and thus, average concentrations are appropriate to use in evaluating risk to these receptors. In the Step 3A scenario, all NOAEL-based HQs were less than 1.0 for the mink (Table 7-16). For the green heron in the Step 3A scenario, mercury was the only COPC with a NOAEL-based HQ greater than 1.0, with a NOAEL HQ of 1.2 (Table 7-16).

The HQs in Table 7-16 assume that piscivorous birds and mammals represented by the green heron and mink derive 100 percent of their diet from Site 12. Piscivorous species are wide-ranging, so the HQs in Table 7-16 are very conservative.

Home range data for the green heron was not located. Peters (1983) used data from several studies to develop the following formula for the relationship of body size to home range for predatory birds:

$$\text{home range } (km^2) = 8.3\ W^{1.37} \qquad \text{where } W = \text{body mass (kg)}$$

Using the above formula and a body weight of 212 g (0.212 kg), the estimated home range for a green heron would be 0.99 km^2 (245 acres). The acreage of potential foraging habitat represented by the stream and ditch at Site 12 are probably only a few acres at most.

The AUF for piscivorous birds foraging at Site 12 cannot be determined with available data, and any assigned AUF would be speculative, but based on the above information, the green heron HQs in Table 7-16 do not appear to be particularly high. In other words, a green heron would have to derive about 84 percent of its diet (AUF = 0.84) from Site 12 for the highest HQ (1.2 for mercury) to be greater than 1.0. Based on habitat conditions at the site, this is unlikely.

With the above factors in mind, potential risks via the food chain appear to be minor for piscivorous receptors.

7.6 UNCERTAINTY

Uncertainty is associated with all aspects of the ecological assessment methodology. Some uncertainties were discussed in Section 7.5. This section provides a summary of the uncertainties, and focuses on those that have not been previously discussed.

The drainage ditch along the southwest boundary of Site 12 is typically dry or non-flowing. The stream upgradient of the storm water outfall becomes dry during periods of little rainfall. Thus, the ditch and upper portion of the stream provide no permanent habitat for aquatic and benthic receptors, and the extent to which such receptors are present is uncertain. Similarly, the ditch and stream provide marginal opportunity for foraging piscivorous receptors, and thus, the extent to which piscivorous birds and mammals utilize the area is uncertain.

The extent to which terrestrial animals such as birds and mammals forage at Site 12 is uncertain. For example, average home range sizes for bobwhite quail varied from 8.9 to 41.3 acres in a literature review of several studies (EPA, 1993). Depending on the habitat quality, this species (as well as other insectivorous and herbivorous bird and mammal species) might forage totally within the site (with a resulting high likelihood of exposure to site contaminants), or such animals might obtain only a small portion of their diet from the site; the latter situation would result in a small or negligible exposure to site contaminants. To be conservative, the ecological risk assessment attempted to err on the side of caution.

The extent to which soil invertebrates and burrowing animals are exposed to contaminated *subsurface* soil is uncertain. Tree roots can also extend several feet deep, introducing the possibility of phytotoxicity through root uptake. Most soil invertebrates inhabit shallow soil only, but there is great variation in the

depths to which earthworms will burrow, depending on soil type, moisture, etc. Some earthworm species never go much deeper than the topsoil, but some burrow a few feet below ground surface. Birds would be exposed only to surface soil, but some burrowing mammals such as woodchucks can dig burrows several feet deep, thus being exposed to subsurface concentrations of contaminants. Risks to burrowing herbivorous mammals represented by the woodchuck were evaluated in the ERA, and the woodchuck food chain model incorporated incidental soil ingestion using subsurface soil collected from 2 to 4 feet below the ground surface. Incidental soil ingestion of soil deeper than four feet below the ground surface was not evaluated in the food chain model, resulting in some uncertainty. Overall, however, elevated subsurface concentrations of COPCs are probably limited to the areas where former burning trenches are located, so the extent of potential risks to plants and animals is largely limited to these areas.

Exposure factors have not been established for most reptile and amphibian species, and toxicity data are very limited for reptiles and amphibians. This adds some uncertainty to the evaluation of risk at Site 12.

Laboratory-derived NOAELs and LOAELs might not adequately represent toxicity thresholds for wildlife receptors under field conditions. In addition, NOAELs and LOAELs for species used in toxicity tests and reported in the literature might not adequately represent toxicity thresholds for other species. These uncertainties may overestimate or underestimate potential risks.

The chemical doses for wildlife receptors were calculated using an equation that incorporated ingestion rates, body weights, bioaccumulation factors, and other factors. These factors were obtained from literature studies or predicted using various equations. Ingestion rates and body weights vary between species, especially between species inhabiting different areas.

Ecological screening values and toxicity thresholds were not available for some detected chemicals, and thus, potential toxicity could not be evaluated.

Site-specific tissue samples (i.e., earthworms, plants, and fish) were not collected as part of this investigation. Therefore, tissue concentrations were estimated using BAFs and BSAFs in order to estimate concentrations in food items of wildlife receptors. These bioaccumulation factors were derived from the literature, and do not take into account site-specific factors such as pH that can affect bioaccumulation.

Incidental soil ingestion rates for birds represented by the robin and bobwhite quail could not be located, introducing uncertainty in the food chain modeling. Instead, soil ingestion by the robin was based on woodcock data, and soil ingestion by the quail was based on mourning dove data. Similarly, incidental sediment ingestion for birds represented by the green heron and mammals represented by the mink could

not be located. Sediment ingestion by the mink was based on the raccoon. Sediment ingestion by the green heron was estimated to be 5 percent; this value is believed to be a conservative estimate, because green herons and most other wading birds capture prey with a darting stroke rather than probing sediment.

The assessment of risks to upper-level receptors via the food chain is hindered by uncertainties such as the derivation of the toxicity reference values, the process used to derive bioaccumulation factors, and the choice of the best species to represent mammal and bird receptors. A weight-of-evidence approach to assess risks was used to reduce the overall uncertainty in these situations.

Maximum detected chemical concentrations were initially used to represent the chemical concentrations to which ecological receptors would be exposed. If the maximum concentration of a chemical in a given medium was collected in a "hot spot" of contamination and was much higher than the remaining values in the data set, potential risks may be over-estimated. Conversely, if samples were not collected from hot spots of contamination, then potential risks could be under-estimated. Undiscovered hot spots could result if not enough samples were collected or if portions of the site are not represented by the available data set. However, uncertainties related to the location of samples were reduced in this risk assessment (especially for soil) by the rather large number of surface soil samples collected relative to the size of the former landfill. The Site 12 soil investigation was largely focused on discovering and determining the extent of contamination in the former burn trenches, so as a whole, the soil dataset is probably biased high.

The surface soil data evaluated in the ERA were obtained from samples collected in 2007, 2010, 2011, and 2012. The extent to which the 2007 soil data represent current conditions is uncertain. The surface soil dataset, however, probably does adequately represent current conditions at Site 12. Most of the site is covered by grass and other vegetation, and has been since the initial samples were collected in 2007. Thus, the uncertainty regarding the older data is probably not significant.

Dioxins/furans were not analyzed in surface soil, and were analyzed in only one subsurface soil sample in the 2 to 4 ft bgs interval. There is uncertainty regarding the degree to which dioxin/furan data from one sample adequately represents the site as a whole.

Many years of anthropogenic activities in the vicinity of NAS JRB Willow Grove have contributed metals, pesticides, PAHs, and other chemical compounds to the area, and Site 12 has probably received contaminant inputs from sources other than the former landfill. For example, a storm water outfall that discharges into the stream along the eastern edge of Site 12 receives runoff from the southeastern portion of the Base, including the taxiway immediately north of Site 12. PAH compounds in sediment were highest in the sample collected at the outfall. The extent to which upgradient (non-landfill) sources

are responsible for the presence of PAHs and other COPCs in sediment and surface water downstream of the outfall is uncertain. Similarly, the source of elevated concentrations of dieldrin in surface soil and sediment is uncertain. Dieldrin is an organochlorine insecticide that is no longer used but is extremely persistent in soil and sediment.

As a result of anthropogenic contamination and natural conditions, and especially since metals occur naturally to varying degrees in soil, surface water, and sediment, concentrations of several COPCs at Site 12 were similar to background concentrations. Comparing background data to Site 12 data is useful in determining attribution, but the ERA did not use background comparisons to eliminate chemicals as COPCs. Instead, background data were mentioned in Section 7.5 only as a tool for stakeholders to use in the risk management process, which is beyond the scope of this ERA. Risk management suggestions are not included in the ERA.

Uncertainty in risk characterization results from the lack of data regarding the toxicity of multiple chemicals. For example, sediment concentrations of several metals and PAHs exceeded their respective ESVs in sample 12SD02. The extent to which elevated concentrations of multiple chemicals might contribute to cumulative toxicity is uncertain.

7.7 SUMMARY AND CONCLUSIONS

Several chemicals that were detected in surface soil, surface water, and sediment at Site 12 were retained as COPCs because their chemical concentrations exceeded screening values, screening values were not available, or the chemicals were bioaccumulative. These chemicals were then evaluated in Step 3A of this ERA (Refinement of Preliminary COPCs) to determine which chemicals have the greatest potential for causing risks to ecological receptors. The ecological endpoints evaluated in the ERA were terrestrial invertebrates, terrestrial plants, aquatic and benthic organisms, birds and mammals that consume terrestrial invertebrates/plants, and birds and mammals that consume aquatic/benthic organisms.

The surface soil data indicate that COPCs posing the greatest potential risks to invertebrates and/or plants consist of PAHs, copper, lead, selenium, and zinc. PAH compounds pose the greatest potential risks to soil invertebrates and plants in Areas A, B, and E, and in the central area of the site. Copper-related risks to soil invertebrates and plants are limited to the vicinities of six samples in Areas B, C, and E. Potential risks to plants from lead may occur in the southeast and northeast portion of the site along with Area E. Potential risks from selenium are more uncertain. The concentrations of selenium are just a few mg/kg greater than its screening level, and there is uncertainty in the results. Therefore, although risks to plants cannot be ruled out from selenium, potential risks probably should not drive any

remediation. Finally, there was only one location (SS04D) where a site-related concentration of zinc may impact soil invertebrates and plants. Soil concentrations of other metals and SVOCs, and soil concentrations of pesticides and VOCs, tended to be low and pose negligible or minor potential risks to soil invertebrates and plants, or pose risks that are similar to risks posed by background conditions, or could not be evaluated due to the absence or uncertainty of ESVs.

The sediment data indicate that COPCs posing the greatest potential risks to benthic receptors are PAHs. Sediment concentrations of total PAHs exceeded the PEC of 22800 µg/kg in samples 12SD01, 12SD02, and 12SD03, and were highest in the duplicate of 12SD03 (49,240 µg/kg). It is unclear whether the elevated sediment PAH concentrations in these three samples are due to landfill wastes or to migration from an upstream source via the storm water outfall. Sediment concentrations of most metals tended to be low and pose negligible potential risks to benthic organisms, or do not appear to be related to former activities at the landfill. However, cumulative toxicity to benthic receptors from multiple metals is possible in the vicinity of sediment sample 12SD02, where concentrations of several metals were greatest. Potential risks to benthic invertebrates from other COPCs are minor or uncertain due to sediment concentrations that are between the TEC and the PEC.

Conclusions regarding the surface water data are unclear due to confounding factors such as filtered versus unfiltered concentrations for organics, blank contamination (aluminum), and uncertainty regarding whether concentrations of some COPCs are related to the former landfill. Concentrations of most surface water COPCs were highest in samples 12SW07 and 12SW08, which were collected in stagnant water with high turbidity. Concentrations of five PAHs exceeded their ESVs in sample 12SW02. PAHs were not detected in 12SW01 (downstream from 12SW02), suggesting that PAHs in surface water are not significantly migrating off-site to downstream locations.

The food chain modeling indicates that mercury in soil poses potential risk to herbivorous mammals with small home ranges (such as voles) in a few areas. PAHs in soil pose potential risks to herbivorous mammals with small home ranges (such as voles) and to insectivorous mammals with small home ranges (such as shrews) in a few areas. The COPC posing the greatest risk to insectivorous birds represented by the robin is mercury, but the degree of potential risk from mercury is uncertain, and might be minor. Therefore, although it is possible that some contaminants may cause potential risks to small mammals and birds that reside and feed at the hot spots, risks would be isolated and limited to a few individuals. Therefore, no chemicals are retained as COPCs for risks to mammals or birds. Bioaccumulative COPCs in sediment and surface water pose minor risks via the food chain.

8.0 SUMMARY, CONCLUSIONS, AND RISK MANAGEMENT

8.1 SUMMARY OF NATURE AND EXTENT OF CONTAMINATION

Analytical results indicate that the principal classes of contaminants in Site 12 soils are PAHs, dioxins, and metals. PAHs were detected above screening levels in the majority of the surface and subsurface soil samples collected. In general, the highest concentrations were detected in samples collected within areas of buried waste which may be related to the disposal of oily waste or burned waste which was disposed in the landfill areas identified in the geophysical investigation. Soil samples outside the disposal areas show lower levels of PAHs which may be related to runoff from asphalt near the site. Site-related metals contamination consists mainly of lead and thallium; although the attribution of thallium to the site is questionable. Dioxins/furans were detected above screening levels in all five of the subsurface soil samples analyzed for these compounds. These samples were collected from charred waste encountered in test pits 12TP02, 12TP03, 12TP06, 12TP08, and 12TP09. There were no VOCs detected above screening levels in site soils.

Surface water and sediment show PAH, pesticide, and metals contamination. PAHs exceeded screening levels in three surface water samples and all but two of the sediment samples. The highest surface water PAH concentrations were detected in the drainage ditch that forms the southern boundary of the site. The highest PAH concentrations in sediment were detected at the storm water outfall and in the intermittent stream downstream from the storm water outfall. It is unclear whether these elevated PAH sediment concentrations are the result of the landfill wastes or migration from a source upstream from the landfill via the storm water outfall. There was no pattern to the distribution of metals or pesticide exceedances in surface water or sediment.

Two monitoring wells, 02MW03SI and 02MW03I, contain the VOCs TCE, carbon tetrachloride, and chloroform at concentrations exceeding screening levels. The locations of these wells indicate that the landfill is the likely source of the contamination, although soil sample results did not identify the precise location of the source within the landfill. Most of the monitoring wells contained metals at concentrations exceeding screening levels. The groundwater metals contamination consisted mainly of arsenic, manganese, and chromium, although dioxins were detected in one monitoring well cluster.

8.2 HUMAN HEALTH RISK EVALUATION

The HHRA for Site 12 was performed to evaluate risks posed to current or future human receptors from exposure to groundwater, surface soil, total (surface and subsurface) soil, surface water, and sediment. The following receptors were evaluated: current/future child recreational person, current/future adult

recreational person, current/future lifetime recreational person, future residential child, future residential adult, future lifetime resident, future construction worker, and current/future industrial worker. Potential exposure routes include ingestion, dermal contact, and inhalation.

The estimated RME cancer risk for the most restrictive land use scenario, future lifetime resident, exceeded the upper limit of EPA's target risk range of 10^{-4} to 10^{-6} for surface soil (2.5×10^{-4}), total soil (4.0×10^{-4}), and groundwater (7.1×10^{-4}). For the lifetime recreational scenario, the estimated cancer risk was within the acceptable risk range for surface soil (7.5×10^{-5}), exceeded the upper limit of the target risk range for total soil (1.2×10^{-4}), exceeded the upper limit of the acceptable risk range for surface water (6.0×10^{-3}), and was within the acceptable risk range for sediment (4.8×10^{-5}). The primary contributors to cancer risk for surface soil were arsenic, chromium, and PAHs; for total soil were arsenic, chromium, PAHs, PCBs, and dioxin; and for surface water were chromium, dieldrin, and PAHs. The primary contributor to cancer risk for groundwater was dioxin.

Target-organ specific non-cancer HIs developed for the most restrictive future land use scenario (future lifetime child resident) exceeded 1 for groundwater, surface soil, and total soil. The maximum target organ HI for groundwater was 2.77 E+03 with dioxin as the primary risk driver. The HI for the lifetime child resident surface soil and total soil exposure pathways were 2.78 and 4.7, respectively.

8.3 ECOLOGICAL RISK ASSESSMENT

The ecological endpoints evaluated in the ERA were terrestrial invertebrates, terrestrial plants, aquatic and benthic organisms, birds and mammals that consume terrestrial invertebrates/plants, and birds and mammals that consume aquatic/benthic organisms. Several chemicals that were detected in surface soil, surface water, and sediment at Site 12 were retained as COPCs because their chemical concentrations exceeded screening values, screening values were not available, or the chemicals were bioaccumulative. These chemicals were then evaluated in Step 3A of the ERA (Refinement of Preliminary COPCs) to determine which chemicals have the greatest potential for causing risks to ecological receptors.

Background concentrations were discussed in Step 3A of the ERA, but background concentrations were not used to screen out COPCs. Other factors for risk managers to consider include the spatial extent of potential risk, comparisons of surface water and sediment concentrations to alternate toxicity guidelines, and the current and future expected use of the site.

The surface soil data indicate that COPCs posing the greatest potential risks to invertebrates and/or plants consist of copper, zinc, selenium, lead, and PAHs. Copper-related potential risks to soil invertebrates and plants are limited to the vicinities of six samples where concentrations exceeded the

invertebrate and plant ESVs. Zinc concentrations in surface soil exceeded the invertebrate ESV at 11 locations and exceeded the plant ESV at 10 locations. Selenium concentrations in surface soil exceeded the plant ESV in six samples. Lead concentrations in surface soil exceeded the plant ESV in 14 samples.

PAH compounds were elevated in some surface soil samples and pose risks to soil invertebrates, especially at sample locations 12SB01, 12SB10, 12SB54, 12SB59, and in test pits 08, 11, 13, and 15. Soil concentrations of other metals and SVOCs, and soil concentrations of pesticides and VOCs, tended to be low and pose negligible or minor potential risks to soil invertebrates and plants, or pose risks that are similar to risks posed by background conditions, or could not be evaluated due to the absence or uncertainty of ESVs.

Food chain modeling indicates that mercury poses potential risk to herbivorous mammals with small home ranges (such as voles) in a few localized areas of the site. PAHs in soil might pose risks to herbivorous mammals with small home ranges (such as voles) and to insectivorous mammals with small home ranges (such as shrews) in a few localized areas of the site. Bioaccumulative COPCs in sediment and surface water pose minor risks via the food chain.

Sediment concentrations of metals tended to be low and pose negligible potential risks to benthic organisms, or do not appear to be related to former activities at the landfill. However, cumulative toxicity to benthic receptors from multiple metals is possible in the vicinity of sediment sample 12SD02, where concentrations of several metals were greatest. The sediment data indicate that COPCs posing the greatest potential risks to benthic receptors are PAHs. Sediment concentrations of total PAHs exceeded the PEC of 22800 µg/kg in samples 12SD01, 12SD02, and 12SD03, and were highest in the duplicate of 12SD03 (49,240 µg/kg). It is unclear whether the elevated sediment PAH concentrations in these three samples are due to landfill wastes or to migration from an upstream source via the storm water outfall. Potential risks to benthic invertebrates from other COPCs are minor or uncertain due to sediment concentrations that are between the TEC and the PEC.

Conclusions regarding the surface water data are unclear due to confounding factors such as filtered versus unfiltered concentrations for organics, blank contamination (aluminum), and uncertainty regarding whether concentrations of some COPCs are related to the former landfill. Concentrations of most surface water COPCs were highest in samples 12SW07 and 12SW08, which were collected in stagnant water with high turbidity. Concentrations of five PAHs exceeded their ESVs in sample 12SW02. PAHs were not detected in 12SW01 (downstream from 12SW02), suggesting that PAHs in surface water are not significantly migrating off-site to downstream locations.

8.4 CONCLUSIONS

Protection of Human Health

Contaminants in Site 12 media include VOCs, PAHs, pesticides, PCBs, dioxins/furans, and metals. Distribution of the contaminants in site soils at concentrations above regulatory screening values was sporadic, indicating localized disposal practices over time. In groundwater, metals exceeded screening criteria were detected in most of the Site 12 monitoring wells. In addition, dioxins/furans exceeded screening criteria in one monitoring well cluster, and VOCs in two monitoring wells. The soil sample results did not identify the source of the VOC groundwater contamination. Estimated risks to future human receptors exceed EPA acceptable maximum ranges for various future scenarios.

The wide ranging investigation performed in multiple stages over many years has provided sufficient data to ensure that the nature and extent of contamination has been adequately characterized to proceed with an FS for Site 12. A Feasibility Study (FS) would identify the actions appropriate to achieve protection of human health.

Protection of the Environment

Contaminants posing the greatest potential risks to invertebrates and/or plants consist of PAHs, copper, lead, selenium, and zinc. PAHs also potentially present risk to small mammals with limited range. These contaminants are generally found in isolated areas of the site, primarily related to disposal areas.

The wide ranging investigation performed in multiple stages over many years has provided sufficient data to ensure that the nature and extent of contamination has been adequately characterized to proceed with an FS for Site 12. A Feasibility Study (FS) would identify the actions appropriate to achieve protection of ecological receptors.

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TABLES

TABLE 2-1

SURFACE SOIL SAMPLING SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sampling Event		Number of Surface Soil Sample Locations	Number of Surface Soil Samples[(1)]	Analytical Parameters
SSA 12 Confirmation Soil Investigation		26	28	Full TCL/TAL parameters
Phase I RI		20	40	Full TCL/TAL parameters, Cyanide, low level PAHs
Phase II RI	Soil Borings for Risk Assessment Support	16	32	Full TCL/TAL parameters, Cyanide, low level PAHs, pH
		9	18	Full TCL/TAL parameters, Cyanide, low level PAHs, pH, Cr(VI), ORP
	Test Pits	2	4	Full TCL/TAL parameters, Cyanide, low level PAHs, pH
		1	2	Cr(VI), ORP
		1	1	Dioxin
	Step Out Soil Samples	14	14	PAHs
		4	4	Lead
		3	3	Cadmium, copper
		5	5	PAHs, lead
		3	3	PAHs, pesticides

(1) Includes field duplicates

TABLE 2-2

STEP-OUT SOIL SAMPLE SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample[(1)]	Phase I Original Sample Location (and Depth, in feet bgs)	Phase II Step-Out Direction(s)	Sample Depth (feet bgs)	Analyses
12SB31-0.502-02	12SB01 (0.5-2.0)	Northwest	0.5-2.0	PAHs
12SB32-0.502-02		West		
12SB33-0.502-02		South		
12SB34-0.502-02		Southeast		
12SB35-000.5-01	12SB02 (0.0-0.5)	East	0.0-0.5	Lead
12SB36-000.5-01		South		
12SB37-000.5-01		West		
12SB38-000.5-01		North		
12SB39-000.5-01	12TP02 (0.0-0.5)	North	0.0-0.5	PAHs
12SB40-000.5-01		East		
12SB41-000.5-01		South		
12SB42-0.502-02	12TP03 (0.5-2.0)	North	0.5-2.0	PAHs
12SB43-0.502-02		East		
12SB44-0.502-02		South		
12SB45-0.502-02	12TP05 (0.5-2.0)	East	0.5-2.0	Cadmium and Copper
12SB48-0.502-02		West		
12SB47-0.502-02		North		
12SB48-0.502-02	12TP08 (0.5-2.0)	Northeast	0.5-2.0	PAHs
12SB49-0.502-02	12TP11 (0.5-2.0)	South	0.5-2.0	PAHs and Lead
12SB50-0.502-02		Southwest		
12SB51-0.502-02	12TP12 (0.5-2.0)	South	0.5-2.0	PAHs and Lead
12SB52-0.502-02		Southwest		
12SB53-0.502-02		Northeast		
12SB54-0.502-02	12TP13 (0.5-2.0)	East	0.5-2.0	PAHs
12SB55-0.502-02		West		
12SB56-0.502-02		North		
12SB57-000.5-01	12TP15 (0.0-0.5)	Southwest	0.0-0.5	PAHs, Pesticides
12SB58-000.5-01		West		
12SB59-000.5-01		North		

(1) The sample locations are centered on the Phase I original soil boring sample location, stepped out in the general direction(s) identified in the following column.

ft bgs – feet below ground surface

TABLE 2-3

SUBSURFACE SOIL SAMPLING SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sampling Event		Number of Subsurface Soil Sample Locations	Number of Subsurface Soil Samples[(1)]	Analytical Parameters
SSA 12 Confirmation Soil Investigation		7	7	Full TCL/TAL parameters
Phase I RI		25	26	Full TCL/TAL parameters, low level PAHs
		4	6	Full TCL/TAL parameters, low level PAHs, dioxins/furans
		1	1	Dioxins/furans
Phase II RI	Soil Borings for Risk Assessment Support	16	16	Full TCL/TAL parameters, Cyanide, low level PAHs, pH
		9	9	Full TCL/TAL parameters, Cyanide, low level PAHs, pH, Cr(VI), ORP
	Test Pits	2	2	Full TCL/TAL parameters, Cyanide, low level PAHs, pH
		1	1	Full TCL/TAL parameters, Cyanide, low level PAHs, pH, Cr(VI), ORP
		1	1	Full TCL/TAL parameters, Cyanide, low level PAHs, pH, Cr(VI), ORP, dioxins/furans
	Chromium Speciation Soil Samples	8	8	Total Cr, Cr(VI), ORP, pH

(1) Includes field duplicates

TABLE 2-4

SURFACE WATER SAMPLING SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sampling Event	Number of Surface Water Sample Locations	Number of Surface Water Samples[(1)]	Analytical Parameters
Phase I RI	7	8	Full TCL/TAL parameters and cyanide
Phase II RI	0	0	NA

(1) Includes field duplicates

TABLE 2-5

SEDIMENT SAMPLING SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sampling Event	Number of Sediment Sample Locations	Number of Sediment Samples[(1)]	Analytical Parameters
Phase I RI	8	9	Full TCL/TAL parameters and cyanide
Phase II RI	0	0	NA

(1) Includes field duplicates

TABLE 2-6

MONITORING WELL CONSTRUCTION SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Monitoring Well	Well Diameter (inches)	Screen Interval (ft bgs)	Sand-Pack Interval (ft bgs)	Elevation (ft amsl)	
				Ground	PVC Casing
Site 2 SI (May 1989)					
02MW01S	4	5 - 20	4 – 20.5		325.65
02MW02S	4	5 - 25	4 – 25.5		349.37
02MW03S	4	5 - 20	4 – 20.5		332.98
Site 2 Phase II RI (May 1997)					
02MW01I	2	70 - 80	66 - 84		325.28
02MW03SI	2	40 - 55	38 - 60		333.66
02MW03I	2	140 - 150	136 - 150		333.55
02MW04S	2	34 - 44	31 - 46		349.96
02MW04I	2	105 - 115	100 - 118		349.54
Phase II RI (2012)					
12MW01O	2	4.5 – 14.5	2.5 – 14.5	343.18	345.65
12MW01S	2	25 - 35		346.25	349.29
12MW02O	2	4 - 14	3 - 14	343.92	346.17
12MW02S	2	22 - 35		343.91	346.26
12MW03O	2	5 - 15	3.5 - 15	345.39	348.26
12MW03S	2	22 - 32		345.58	348.40
12MW04O	2	5 - 15	3 - 15	346.09	348.74
12MW04S	2	20 - 35		347.43	349.33

ft bgs – feet below ground surface

TABLE 2-7

GROUNDWATER SAMPLING SUMMARY
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sampling Event	Number of Groundwater Sample Locations (Wells)	Number of Environmental Groundwater Samples[(1)]	Analytical Parameters
Site 2 Groundwater Confirmation	7	8	TCL VOC, TCL SVOC (PAH-SIM), TAL Metals
Phase II RI	7	8	TCL VOC
	6	6	TCL VOC, TCL SVOC (PAH-SIM), Pesticides/PCBs, TAL Metals, and cyanide
	2	3	TCL VOC, TCL SVOC (PAH-SIM), Pesticides/PCBs, TAL Metals, cyanide, and dioxins/furans

(1) Includes field duplicates

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS01**		**BGSS01-DUP**		**BGSS02**		**BGSS03**		**BGSS04**		**BGSS05**		**BGSS06**		**BGSS07**		**BGSS08**	
Sample Date:	**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**	
Duplicate:	**BGSS01-DUP**		**BGSS01**															
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	10500		8570		9090		12300		12800		9240		15000		11900		10500	
Antimony	5.6	UJ	5.2	UJ	8.4	R	5.8	UJ	7.5	R	7.6	R	9.6	R	8.2	R	5.6	R
Arsenic	6.1	J	7		3.7	K	10.6		4.4	K	5.6		5.6	J	7.5		8	
Barium	95.7		89.9		77.8		108		111		79.5		111		97.9		96.4	
Beryllium	0.89		0.86		0.75		1.2		1.2		0.79		1.2		0.84		0.98	
Cadmium	1.4	U	1.3	U	1.3	U	1.4	U	1.3	U	1.4	U	1.3	U	1.3	U	1.3	U
Calcium	766		690		1530		914		685		939		1500		763		1010	
Chromium	16.3		14		20.8		15.7		15.9		13.2		17.9		14.5		13.5	
Cobalt	8.1		8.2		9.3		6.8		7.8		8.3		8.3		8.5		7.1	
Copper	11.3		10.2		11.9		11.7		8		9.8		10.7		10.7		10.1	
Cyanide	0.69	U	0.65	U	0.64	U	0.7	U	0.66	U	0.67	U	0.64	U	0.66	U	0.64	U
Iron	13200		11500		15700		13200		14100		13900		17600		16900		12800	
Lead	37.2		29.8		22.9		29.9		64.7		25.2		19.5		18.1		56.7	
Magnesium	1430		1210		1670		1450		1370		1480		1940		1500		1410	
Manganese	621		644		514		527		1190		538		684		538		667	
Mercury	0.14	U	0.13	U	0.13	U	0.14	U	0.13	U	0.14	U	0.13	U	0.13	U	0.13	U
Nickel	9		9.2		9.8		10.3		11.2		9.3		10.4		10.4		9.5	
Potassium	418	U	392	U	627		433	U	402	U	771		750		436		618	
Selenium	0.28	UL	1.3	UL	1.3	UL	1.4	UL	0.27	UL	1.4	UL	1.3	UL	1.3	UL	1.3	UL
Silver	1.4	U	1.3	U	1.3	U	1.4	U	1.3	U	1.4	U	1.3	U	1.3	U	1.3	U
Sodium	112	U	104	U	103	U	115	U	107	U	109	U	103	U	105	U	106	U
Thallium	0.28	U	0.26	U	0.26	U	0.3		0.27	U	0.27	U	0.28		0.34		0.27	U
Vanadium	25.4		22.1		28.2		24.4		24.9		23.8		28.2		25.3		23	
Zinc	53.1		42.9		49.4		54.2		597		38.7		47.2		31.7		53	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,2,4-Trichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
1,2-Dichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
1,3-Dichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
1,4-Dichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2,2'-Oxybis(1-chloropropane)	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2,4,5-Trichlorophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
2,4,6-Trichlorophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2,4-Dichlorophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2,4-Dimethylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2,4-Dinitrophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
2,4-Dinitrotoluene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2,6-Dinitrotoluene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2-Chloronaphthalene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2-Chlorophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2-Methylnaphthalene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
2-Methylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS01**		**BGSS01-DUP**		**BGSS02**		**BGSS03**		**BGSS04**		**BGSS05**		**BGSS06**		**BGSS07**		**BGSS08**	
Sample Date:	**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**	
Duplicate:	**BGSS01-DUP**		**BGSS01**															
2-Nitroaniline	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
2-Nitrophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
3,3'-Dichlorobenzidine	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
3-Nitroaniline	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
4,6-Dinitro-2-methylphenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
4-Bromophenyl Phenyl Ether	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
4-Chloro-3-methylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
4-Chloroaniline	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
4-Chlorophenyl Phenyl Ether	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
4-Methylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
4-Nitroaniline	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
4-Nitrophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
Acenaphthene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	61	J
Acenaphthylene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	57	J
Anthracene	460	U	430	U	420	U	46	J	440	U	68	J	420	UJ	65	J	110	J
Benz(a)anthracene	460	U	430	U	96	J	220	J	100	J	310	J	33	J	270	J	480	
Benzo(a)pyrene	460	U	430	U	110	J	350	J	110	J	400	J	420	UJ	270	J	720	
Benzo(b)fluoranthene	460	U	430	U	160	J	540		160	J	550		420	UJ	340	J	990	
Benzo(g,h,i)perylene	460	U	430	U	52	J	180	J	440	U	180	J	420	UJ	110	J	300	J
Benzo(k)fluoranthene	460	U	430	U	420	U	310	J	98	J	310	J	420	UJ	270	J	660	
Bis(2-chloroethoxy)methane	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Bis(2-chloroethyl)ether	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Bis(2-ethylhexyl)phthalate	67	B	130	B	100	B	480	B	60	B	130	B	160	B	150	B	240	B
Butylbenzylphthalate	460	U	430	U	280	J	480	U	180	J	83	J	420	UJ	430	UJ	440	U
Carbazole	460	U	430	U	420	U	140	J	440	U	80	J	420	UJ	430	UJ	270	J
Chrysene	460	U	430	U	130	J	470	J	130	J	460		43	J	320	J	790	
Di-n-butylphthalate	820	B	790	B	400	B	840	B	1100	B	1100	B	420	UJ	430	UJ	81	B
Di-n-octylphthalate	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Dibenz(a,h)anthracene	460	U	430	U	420	U	52	J	440	U	52	J	420	UJ	430	UJ	83	J
Dibenzofuran	460	U	430	U	420	U	51	J	440	U	450	U	420	UJ	430	UJ	120	J
Diethylphthalate	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Dimethylphthalate	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Fluoranthene	62	J	51	J	270	J	1200		270	J	1000		49	J	670	J	2000	
Fluorene	460	U	430	U	420	U	59	J	440	U	450	U	420	UJ	430	UJ	160	J
Hexachlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Hexachlorobutadiene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Hexachlorocyclopentadiene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Hexachloroethane	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Indeno(1,2,3-cd)pyrene	460	U	430	U	62	J	240	J	49	J	220	J	420	UJ	140	J	400	J
Isophorone	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
N-Nitroso-di-n-propylamine	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS01**		**BGSS01-DUP**		**BGSS02**		**BGSS03**		**BGSS04**		**BGSS05**		**BGSS06**		**BGSS07**		**BGSS08**	
Sample Date:	**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**	
Duplicate:	**BGSS01-DUP**		**BGSS01**															
N-Nitrosodiphenylamine (1)	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Naphthalene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Nitrobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Pentachlorophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ	1100	UJ	1100	U
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Phenanthrene	460	U	430	U	120	J	990		110	J	650		420	UJ	490	J	1500	
Phenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ	430	UJ	440	U
Pyrene	51	J	46	J	220	J	870		250	J	810		56	J	610	J	1600	
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
4,4'-DDE	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
4,4'-DDT	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	6.2	J
Aldrin	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Alpha-BHC	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Alpha-Chlordane	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Aroclor-1016	46	U	43	U	42	U	48	U	44	U	45	U	42	U	43	U	44	U
Aroclor-1221	93	U	88	U	86	U	97	U	89	U	91	U	86	U	88	U	89	U
Aroclor-1232	46	U	43	U	42	U	48	U	44	U	45	U	42	U	43	U	44	U
Aroclor-1242	46	U	43	U	42	U	48	U	44	U	45	U	42	U	43	U	44	U
Aroclor-1248	46	U	43	U	42	U	48	U	44	U	45	U	42	U	43	U	44	U
Aroclor-1254	46	U	43	U	42	U	48	U	44	U	45	U	42	U	43	U	44	U
Aroclor-1260	46	U	43	U	42	U	48	U	44	U	45	U	42	U	43	U	44	U
Beta-BHC	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Delta-BHC	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Dieldrin	13		14		4.2	U	760		13	J	220		14		86		420	
Endosulfan I	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Endosulfan II	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
Endosulfan Sulfate	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
Endrin	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
Endrin Aldehyde	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
Endrin Ketone	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U	4.3	U	4.4	U
Gamma-BHC (Lindane)	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Gamma-Chlordane	2.4	U	2.2	U	2.2	U	10	J	2.3	U	2.3	U	2.2	U	2.2	U	34	
Heptachlor	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	2.3	U
Heptachlor Epoxide	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U	2.2	U	33	
Methoxychlor	24	U	22	U	22	U	25	U	23	U	23	U	22	U	22	U	23	U
Toxaphene	240	U	220	U	220	U	250	U	230	U	230	U	220	U	220	U	230	U

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS09**		**BGSS10**		**BGSS11**		**BGSS12**		---	---	---	---
Sample Date:	**04/07/97**		**04/07/97**		**04/07/97**		**04/07/97**		---	---	---	---
Duplicate:												
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**					
Aluminum	12000		10700		11900		10300					
Antimony	8.7	R	6.4	R	8.1	R	8.8	R				
Arsenic	6.1	J	7.4		8		6.3					
Barium	89.7		90		111		83.7					
Beryllium	0.79		1		1.3		0.92					
Cadmium	1.2	U	1.3	U	1.3	U	1.3	U				
Calcium	614		762		1160		1600					
Chromium	12.4		13.8		15.3		16					
Cobalt	8.2		6.9		8.5		7					
Copper	13.4		9.3		9.3		12.7					
Cyanide	3.8		0.7		0.64	U	0.66	U				
Iron	15700		13300		16700		15500					
Lead	16.3		29	K	20.5		31.4					
Magnesium	1530		1300		1480		1550					
Manganese	429		667		844		477					
Mercury	0.12	U	0.13	U	0.13	U	0.13	U				
Nickel	10.4		7.4		9.6		10.1					
Potassium	460		531		388	U	396	U				
Selenium	1.2	UL	1.3	UL	1.3	UL	1.3	UL				
Silver	1.2	U	1.3	U	1.3	U	1.3	U				
Sodium	120		106	U	103	U	112					
Thallium	0.25		0.3		0.29		0.28					
Vanadium	20.9		23.7		26.2		26.5					
Zinc	21.7		44.6		49.4		45.8					
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**					
1,2,4-Trichlorobenzene	390	U	440	U	430	U	440	U				
1,2-Dichlorobenzene	390	U	440	U	430	U	440	U				
1,3-Dichlorobenzene	390	U	440	U	430	U	440	U				
1,4-Dichlorobenzene	390	U	440	U	430	U	440	U				
2,2'-Oxybis(1-chloropropane)	390	U	440	U	430	U	440	U				
2,4,5-Trichlorophenol	990	U	1100	U	1100	U	1100	U				
2,4,6-Trichlorophenol	390	U	440	U	430	U	440	U				
2,4-Dichlorophenol	390	U	440	U	430	U	440	U				
2,4-Dimethylphenol	390	U	440	U	430	U	440	U				
2,4-Dinitrophenol	990	U	1100	U	1100	U	1100	U				
2,4-Dinitrotoluene	390	U	440	U	430	U	440	U				
2,6-Dinitrotoluene	390	U	440	U	430	U	440	U				
2-Chloronaphthalene	390	U	440	U	430	U	440	U				
2-Chlorophenol	390	U	440	U	430	U	440	U				
2-Methylnaphthalene	390	U	440	U	430	U	440	U				
2-Methylphenol	390	U	440	U	430	U	440	U				

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID: **Sample Date:** **Duplicate:**	**BGSS09** **04/07/97**		**BGSS10** **04/07/97**		**BGSS11** **04/07/97**		**BGSS12** **04/07/97**		**---** **---**	**---** **---**	**---** **---**	**---** **---**
2-Nitroaniline	990	U	1100	U	1100	U	1100	U				
2-Nitrophenol	390	U	440	U	430	U	440	U				
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**					
3,3'-Dichlorobenzidine	390	U	440	U	430	U	440	U				
3-Nitroaniline	990	U	1100	U	1100	U	1100	U				
4,6-Dinitro-2-methylphenol	990	U	1100	U	1100	U	1100	U				
4-Bromophenyl Phenyl Ether	390	U	440	U	430	U	440	U				
4-Chloro-3-methylphenol	390	U	440	U	430	U	440	U				
4-Chloroaniline	390	U	440	U	430	U	440	U				
4-Chlorophenyl Phenyl Ether	390	U	440	U	430	U	440	U				
4-Methylphenol	390	U	440	U	430	U	440	U				
4-Nitroaniline	990	U	1100	U	1100	U	1100	U				
4-Nitrophenol	990	U	1100	U	1100	U	1100	U				
Acenaphthene	390	U	64	J	430	U	55	J				
Acenaphthylene	390	U	54	J	430	U	62	J				
Anthracene	390	U	130	J	430	U	160	J				
Benz(a)anthracene	390	U	590		430	U	940					
Benzo(a)pyrene	390	U	830		430	U	1100					
Benzo(b)fluoranthene	390	U	1000		430	U	1500					
Benzo(g,h,i)perylene	390	U	320	J	430	U	490					
Benzo(k)fluoranthene	390	U	820		430	U	920					
Bis(2-chloroethoxy)methane	390	U	440	U	430	U	440	U				
Bis(2-chloroethyl)ether	390	U	440	U	430	U	440	U				
Bis(2-ethylhexyl)phthalate	92	B	110	B	110	B	130	B				
Butylbenzylphthalate	390	U	440	U	430	U	440	U				
Carbazole	390	U	310	J	430	U	260	J				
Chrysene	390	U	860		430	U	1200					
Di-n-butylphthalate	460	B	1000	B	740	B	660	B				
Di-n-octylphthalate	390	U	440	U	430	U	440	U				
Dibenz(a,h)anthracene	390	U	96	J	430	U	160	J				
Dibenzofuran	390	U	120	J	430	U	61	J				
Diethylphthalate	390	U	440	U	430	U	440	U				
Dimethylphthalate	390	U	440	U	430	U	440	U				
Fluoranthene	390	U	2300		430	U	2600					
Fluorene	390	U	160	J	430	U	120	J				
Hexachlorobenzene	390	U	440	U	430	U	440	U				
Hexachlorobutadiene	390	U	440	U	430	U	440	U				
Hexachlorocyclopentadiene	390	U	440	U	430	U	440	U				
Hexachloroethane	390	U	440	U	430	U	440	U				
Indeno(1,2,3-cd)pyrene	390	U	420	J	430	U	640					
Isophorone	390	U	440	U	430	U	440	U				
N-Nitroso-di-n-propylamine	390	U	440	U	430	U	440	U				

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID: / **Sample Date:** / **Duplicate:**	**BGSS09** **04/07/97**		**BGSS10** **04/07/97**		**BGSS11** **04/07/97**		**BGSS12** **04/07/97**		**---** **---**	**---** **---**	**---** **---**	**---** **---**
N-Nitrosodiphenylamine (1)	390	U	440	U	430	U	440	U				
Naphthalene	390	U	440	U	430	U	440	U				
Nitrobenzene	390	U	440	U	430	U	440	U				
Pentachlorophenol	990	U	1100	U	1100	U	1100	U				
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**					
Phenanthrene	390	U	1600		430	U	1700					
Phenol	390	U	440	U	430	U	440	U				
Pyrene	390	U	1700		430	U	2100					
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**					
4,4'-DDD	3.9	U	4.3	U	4.3	U	4.3	U				
4,4'-DDE	3.9	U	4.3	U	4.3	U	4.3	U				
4,4'-DDT	3.9	U	8.3	J	4.3	U	4.3	U				
Aldrin	2	U	2.2	U	2.2	U	2.2	U				
Alpha-BHC	2	U	2.2	U	2.2	U	2.2	U				
Alpha-Chlordane	2	U	2.2	U	2.2	U	2.2	U				
Aroclor-1016	39	U	43	U	43	U	43	U				
Aroclor-1221	80	U	88	U	87	U	88	U				
Aroclor-1232	39	U	43	U	43	U	43	U				
Aroclor-1242	39	U	43	U	43	U	43	U				
Aroclor-1248	39	U	43	U	43	U	43	U				
Aroclor-1254	39	U	43	U	43	U	43	U				
Aroclor-1260	39	U	43	U	43	U	43	U				
Beta-BHC	2	U	2.2	U	2.2	U	2.2	U				
Delta-BHC	2	U	2.2	U	2.2	U	2.2	U				
Dieldrin	3.9	U	550		4.3	U	63	J				
Endosulfan I	2	U	2.2	U	2.2	U	2.2	U				
Endosulfan II	3.9	U	4.3	U	4.3	U	4.3	U				
Endosulfan Sulfate	3.9	U	4.3	U	4.3	U	4.3	U				
Endrin	3.9	U	4.3	U	4.3	U	4.3	U				
Endrin Aldehyde	3.9	U	4.3	U	4.3	U	4.3	U				
Endrin Ketone	3.9	U	4.3	U	4.3	U	4.3	U				
Gamma-BHC (Lindane)	2	U	2.2	U	2.2	U	2.2	U				
Gamma-Chlordane	2	U	48	J	2.2	U	3.2					
Heptachlor	2	U	2.2	U	2.2	U	2.2	U				
Heptachlor Epoxide	2	U	47		2.2	U	3.4	J				
Methoxychlor	20	U	22	U	22	U	22	U				
Toxaphene	200	U	220	U	220	U	220	U				

TABLE 2-8

ANALYTICAL RESULTS FOR SURFACE SOIL - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSS09	BGSS10	BGSS11	BGSS12	---	---	---	---
Sample Date:	04/07/97	04/07/97	04/07/97	04/07/97	---	---	---	---
Duplicate:								

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contaminatior
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detecte
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

TABLE 2-9
ANALYTICAL RESULTS FOR SURFACE WATER - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSW01		BGSW02		BGSW03		BGSW03-DUP		BGSW04		BGSW05		BGSW06		BGSW07		BGSW08	
Sample Date:	03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97	
Duplicate:					BGSW03-DUP		BGSW03											
INORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	226	U	247	U	284	U	561		267	U	236	U	163	U	177	U	301	U
Antimony	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Arsenic	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Barium	93		95.9		93.6		97.2		105		112		87.3		110		109	
Beryllium	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	5	UL	5	UL	5	UL	5	UL	5	UL	5	UL	5	UL	5	UL	5	UL
Calcium	34900		34400		26800		27700		28000		15800		22400		18500		15800	
Chromium	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Cobalt	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Copper	10	U	10	U	10	U	16.6		10	U	10	U	10	U	10	U	10	U
Cyanide	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Iron	222		351		519		751		366		273		85.3		311		326	
Lead	1	U	1	U	1	U	1.1		1	U	1	U	1	U	1	U	1	U
Magnesium	12100		11800		9740		10100		9750		6290		8260		6940		6250	
Manganese	75.7		92		98.5		122		65.8		56.7		26.7		45.1		64.2	
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Nickel	20	U	20	U	20	U	31.4		20	U	20	U	20	U	20	U	20	U
Potassium	2860		2570		1930		1950		2110		1870		1750		1500	U	1500	U
Selenium	1	UL	1	UL	5	U	1	U	1	UL	5	U	5	U	5	U	5	U
Silver	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Sodium	34000		36200		22500		17400		23300		10700		13200		12700		10800	
Thallium	1	UL	1	UL	1	UL	1	UL	1	UL	1	UL	1	UL	1	UL	1	UL
Vanadium	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Zinc	5	U	7.8		6.8		18.9		9.1		5	U	5	U	5	U	5	U
SEMIVOLATILES	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2,4-Trichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2,2'-Oxybis(1-chloropropane)	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2,4,5-Trichlorophenol	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2,4-Dichlorophenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2,4-Dinitrophenol	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
2,4-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2-Chloronaphthalene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2-Methylnaphthalene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U

TABLE 2-9
ANALYTICAL RESULTS FOR SURFACE WATER - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSW01		BGSW02		BGSW03		BGSW03-DUP		BGSW04		BGSW05		BGSW06		BGSW07		BGSW08	
Sample Date:	03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97	
Duplicate:					BGSW03-DUP		BGSW03											
ORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
2-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
2-Nitroaniline	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
3,3'-Dichlorobenzidine	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
3-Nitroaniline	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
4-Bromophenyl Phenyl Ether	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
4-Chloroaniline	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
4-Chlorophenyl Phenyl Ether	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
4-Nitroaniline	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
4-Nitrophenol	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Benz(a)anthracene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Bis(2-chloroethoxy)methane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Bis(2-chloroethyl)ether	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Bis(2-ethylhexyl)phthalate	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Butylbenzylphthalate	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Chrysene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Di-n-butylphthalate	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Di-n-octylphthalate	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Dibenz(a,h)anthracene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Dimethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Hexachlorobutadiene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Hexachlorocyclopentadiene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U

TABLE 2-9
ANALYTICAL RESULTS FOR SURFACE WATER - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSW01		BGSW02		BGSW03		BGSW03-DUP		BGSW04		BGSW05		BGSW06		BGSW07		BGSW08	
Sample Date:	03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97	
Duplicate:					BGSW03-DUP		BGSW03											
ORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Isophorone	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
N-Nitroso-di-n-propylamine	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Naphthalene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Pentachlorophenol	25	U	25	U	25	U	25	U	25	U	25	U	25	U	250	U	25	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Phenol	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	100	U	10	U
VOLATILES	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene (Total)	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Ethylbenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	10	U	10	U	20	U	13	U	16	U	11	U	23	U	7	U	15	U
Styrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Toluene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

TABLE 2-9
ANALYTICAL RESULTS FOR SURFACE WATER - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSW01		BGSW02		BGSW03		BGSW03-DUP		BGSW04		BGSW05		BGSW06		BGSW07		BGSW08	
Sample Date:	03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97	
Duplicate:					BGSW03-DUP		BGSW03											
ORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Trichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Xylene (Total)	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
PESTICIDES/PCBS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
4,4'-DDD	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
4,4'-DDE	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
4,4'-DDT	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aldrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Alpha-BHC	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Alpha-Chlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Aroclor-1016	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Aroclor-1221	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Aroclor-1232	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Aroclor-1242	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Aroclor-1248	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Aroclor-1254	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Aroclor-1260	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Beta-BHC	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Delta-BHC	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Dieldrin	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan I	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan II	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endosulfan Sulfate	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin Aldehyde	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Endrin Ketone	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Gamma-BHC (Lindane)	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Gamma-Chlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor Epoxide	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toxaphene	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Data Qualifiers:
U -- Value is a non-detected result as reported by the laboratory.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

TABLE 2-10
ANALYTICAL RESULTS FOR SEDIMENT - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSD01**		**BGSD02**		**BGSD03**		**BGSD03-DUP**		**BGSD04**		**BGSD05**		**BGSD06**		**BGSD07**		**BGSD08**	
Sample Date:	**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**	
Duplicate:					**BGSD03-DUP**		**BGSD03**											
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	8950		7330		5750		10900		6000		3610		8510		4690		5580	
Antimony	12.6	R	5.5	UJ	7.8	UJ	7.8	UJ	6.2	UJ	4.6	UJ	11.1	R	5.1	UJ	5.5	R
Arsenic	7.2		3.7		5		5.6		4.1		3.2		4		4.9		4	
Barium	105		54.6		142		179		106		76.2		81.2		82.4		120	
Beryllium	1.2		0.52		1.1		1.3		0.81		0.6		1.1		0.61		0.98	
Cadmium	1.2	UL	1.4	UL	2	UL	1.9	UL	1.6	UL	1.1	UL	1.2	UL	1.3	UL	1.4	UL
Calcium	14800		744		1850		2070		1060		878		18200		1080		1130	
Chromium	34.5		9.7		10.9		16.5		13.5		6.8		29.3		8.7		9.2	
Cobalt	12.4		5.8		5.5		7.7		6.8		4.5		9.8		4.9		6.9	
Copper	27.8		11.3		11.9		13.7		10.9		5.8		22.1		7.4		8.8	
Cyanide	0.61	U	0.68	U	0.97	U	0.96	U	0.77	U	0.56	U	0.58	U	0.62	U	0.67	U
Iron	35400		10500		11400		15000		13700		9540		25400		9660		14300	
Lead	18.7		20.4		26.8		28.4		19.6		6.4		8.6		10.6		10.4	
Magnesium	9100		1000		1130		1670		999		1350		10600		1450		1600	
Manganese	759		384		416		551		573		376		529		388		618	
Mercury	0.12	U	0.14	U	0.2	U	0.19	U	0.16	U	0.11	U	0.12	U	0.13	U	0.14	U
Nickel	22.7		6.8	K	12.5		16.1		9.1		7.8	K	19.1		10.1		9.7	
Potassium	2330		514		586	U	825		467	U	775		2330		721		921	
Selenium	0.24	UJ	0.27	UJ	0.44	J	0.51	J	0.36	J	0.23	UJ	0.23	UJ	0.25	UJ	0.27	UJ
Silver	1.2	U	1.4	U	2	U	1.9	U	1.6	U	1.1	U	1.2	U	1.3	U	1.4	U
Sodium	560		109	U	156	U	155	U	125	U	91.7	U	240		101	U	109	U
Thallium	0.24	U	0.27	U	0.39	U	0.39	U	0.31	U	0.23	U	0.23	U	0.25	U	0.27	U
Vanadium	52.6		12.2		20.3		25.8		18.8		7.9		42.8		11.9		11.9	
Zinc	97.6		39.5		43.9		60		51.3		25.4		80.4		28.2		35	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,2,4-Trichlorobenzene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
1,2-Dichlorobenzene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
1,3-Dichlorobenzene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
1,4-Dichlorobenzene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2,2'-Oxybis(1-chloropropane)	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2,4,5-Trichlorophenol	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
2,4,6-Trichlorophenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2,4-Dichlorophenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2,4-Dimethylphenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2,4-Dinitrophenol	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
2,4-Dinitrotoluene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2,6-Dinitrotoluene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2-Chloronaphthalene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2-Chlorophenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
2-Methylnaphthalene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U

TABLE 2-10
ANALYTICAL RESULTS FOR SEDIMENT - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID: **Sample Date:** **Duplicate:**	**BGSD01** **03/13/97**		**BGSD02** **03/13/97**		**BGSD03** **03/13/97** **BGSD03-DUP**		**BGSD03-DUP** **03/13/97** **BGSD03**		**BGSD04** **03/13/97**		**BGSD05** **03/13/97**		**BGSD06** **03/13/97**		**BGSD07** **03/13/97**		**BGSD08** **03/13/97**	
2-Methylphenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
2-Nitroaniline	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
2-Nitrophenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
3,3'-Dichlorobenzidine	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
3-Nitroaniline	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
4,6-Dinitro-2-methylphenol	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
4-Bromophenyl Phenyl Ether	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
4-Chloro-3-methylphenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
4-Chloroaniline	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
4-Chlorophenyl Phenyl Ether	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
4-Methylphenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
4-Nitroaniline	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
4-Nitrophenol	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
Acenaphthene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Acenaphthylene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Anthracene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Benz(a)anthracene	580		450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Benzo(a)pyrene	530	J	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Benzo(b)fluoranthene	670	J	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Benzo(g,h,i)perylene	400	UJ	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Benzo(k)fluoranthene	300	J	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Bis(2-chloroethoxy)methane	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Bis(2-chloroethyl)ether	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Bis(2-ethylhexyl)phthalate	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Butylbenzylphthalate	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Carbazole	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Chrysene	640		450	U	130	J	90	J	110	J	380	U	380	U	420	U	450	U
Di-n-butylphthalate	400	UJ	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Di-n-octylphthalate	400	UJ	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Dibenz(a,h)anthracene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Dibenzofuran	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Diethylphthalate	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Dimethylphthalate	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Fluoranthene	510		100	J	210	J	140	J	170	J	380	U	380	U	420	U	450	U
Fluorene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Hexachlorobenzene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Hexachlorobutadiene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Hexachlorocyclopentadiene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Hexachloroethane	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Indeno(1,2,3-cd)pyrene	400	UJ	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U

TABLE 2-10
ANALYTICAL RESULTS FOR SEDIMENT - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSD01		BGSD02		BGSD03		BGSD03-DUP		BGSD04		BGSD05		BGSD06		BGSD07		BGSD08	
Sample Date:	03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97		03/13/97	
Duplicate:					BGSD03-DUP		BGSD03											
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Isophorone	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
N-Nitroso-di-n-propylamine	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
N-Nitrosodiphenylamine (1)	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Naphthalene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Nitrobenzene	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Pentachlorophenol	1000	U	1100	U	1600	U	1600	U	1300	U	950	U	960	U	1100	U	1100	U
Phenanthrene	260	J	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Phenol	400	U	450	U	650	U	640	U	510	U	380	U	380	U	420	U	450	U
Pyrene	1300		100	J	190	J	120	J	150	J	380	U	380	U	420	U	450	U
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,1,2,2-Tetrachloroethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,1,2-Trichloroethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,1-Dichloroethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,1-Dichloroethene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,2-Dichloroethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,2-Dichloroethene (Total)	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
1,2-Dichloropropane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
2-Butanone	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
2-Hexanone	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
4-Methyl-2-pentanone	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Acetone	38	U	51	U	20	U	19	U	91	U	12	U	12	U	13	U	14	U
Benzene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Bromodichloromethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Bromoform	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Bromomethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Carbon Disulfide	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Carbon Tetrachloride	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Chlorobenzene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Chloroethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Chloroform	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Chloromethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
cis-1,3-Dichloropropene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Dibromochloromethane	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Ethylbenzene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Methylene Chloride	8	U	9	U	20	U	19	U	11	U	12	U	12	U	13	U	14	U
Styrene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Tetrachloroethene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Toluene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
trans-1,3-Dichloropropene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U

TABLE 2-10
ANALYTICAL RESULTS FOR SEDIMENT - SITE BACKGROUND
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSD01**		**BGSD02**		**BGSD03**		**BGSD03-DUP**		**BGSD04**		**BGSD05**		**BGSD06**		**BGSD07**		**BGSD08**	
Sample Date:	**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**		**03/13/97**	
Duplicate:					**BGSD03-DUP**		**BGSD03**											
ORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Trichloroethene	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Vinyl Chloride	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
Xylene (Total)	12	U	14	U	20	U	19	U	16	U	12	U	12	U	13	U	14	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
4,4'-DDE	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
4,4'-DDT	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Aldrin	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Alpha-BHC	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Alpha-Chlordane	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Aroclor-1016	40	U	45	U	65	U	64	U	51	U	38	U	38	U	42	U	45	U
Aroclor-1221	82	U	91	U	130	U	130	U	100	U	77	U	78	U	85	U	91	U
Aroclor-1232	40	U	45	U	65	U	64	U	51	U	38	U	38	U	42	U	45	U
Aroclor-1242	40	U	45	U	65	U	64	U	51	U	38	U	38	U	42	U	45	U
Aroclor-1248	40	U	45	U	65	U	64	U	51	U	38	U	38	U	42	U	45	U
Aroclor-1254	40	U	45	U	65	U	64	U	51	U	38	U	38	U	42	U	45	U
Aroclor-1260	40	U	45	U	65	U	64	U	51	U	38	U	38	U	42	U	45	U
Beta-BHC	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Delta-BHC	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Dieldrin	4	U	4.5	U	3.1	J	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Endosulfan I	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Endosulfan II	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Endosulfan Sulfate	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Endrin	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Endrin Aldehyde	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Endrin Ketone	4	U	4.5	U	6.4	U	6.4	U	5.1	U	3.8	U	3.8	U	4.2	U	4.5	U
Gamma-BHC (Lindane)	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Gamma-Chlordane	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Heptachlor	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Heptachlor Epoxide	2.1	U	2.3	U	3.3	U	3.3	U	2.6	U	1.9	U	2	U	2.1	U	2.3	U
Methoxychlor	21	U	23	U	33	U	33	U	27	U	20	U	20	U	22	U	23	U
Toxaphene	210	U	230	U	330	U	330	U	270	U	200	U	200	U	220	U	230	U

Data Qualifiers:
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

TABLE 2-11

BACKGROUND STATISTICS - SOIL DATA
SITE 12 -SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean	Std.Dev. Back.	t Value	N, Q, or Other***	Back. UTL
aluminum	12/12	9090	15000	11300	BGSS06 04/07/97	11300	1720	2.7360	N*	16000
antimony	0/2	-			NA					
arsenic	12/12	3.7	10.6	6.65	BGSS03 04/07/97	6.65	1.83	2.7360	N*	11.7
barium	12/12	77.8	111	95.7	BGSS04 04/07/97	95.7	12.3	2.7360	N*	129
beryllium	12/12	0.75	1.3	0.987	BGSS11 04/07/97	0.987	0.192	2.7360	N*	1.51
cadmium	0/12	-			NA					
calcium	12/12	614	1600	1020	BGSS12 04/07/97	1020	352	2.7360	N*	1980
chromium	12/12	12.4	20.8	15.3	BGSS02 04/07/97	15.3	2.28	2.7360	N*	21.6
cobalt	12/12	6.8	9.3	7.9	BGSS02 04/07/97	7.9	0.788	2.7360	N*	10.1
copper	12/12	8	13.4	10.7	BGSS09 04/07/97	10.7	1.54	2.7360	N*	14.9
cyanide	2/12	0.7	3.8	0.649	BGSS09 04/07/97	0.649				
iron	12/12	12350	17600	14800	BGSS06 04/07/97	14800	1760	2.7360	N*	19600
lead	12/12	16.3	64.7	30.6	BGSS04 04/07/97	30.6	15.2		gamma***	60.8
magnesium	12/12	1300	1940	1500	BGSS06 04/07/97	1500	172	2.7360	N*	1970
manganese	12/12	429	1190	642	BGSS04 04/07/97	642	206		gamma***	1030
mercury	0/12	-			NA					
nickel	12/12	7.4	11.2	9.79	BGSS04 04/07/97	9.79	0.954	2.7360	N*	12.4
potassium	7/12	436	771	434	BGSS05 04/07/97	599	132		KM UPL***	1090
selenium	0/12	-			NA					
silver	0/12	-			NA					
sodium	2/12	112	120	63.7	BGSS09 04/07/97	116				
thallium	7/12	0.25	0.34	0.226	BGSS07 04/07/97	0.291	0.027		KM UPL***	0.4
vanadium	12/12	20.9	28.2	24.9	BGSS02 04/07/97	24.9	2.13	2.7360	N*	30.7
zinc	12/12	21.7	597	90.1	BGSS04 04/07/97	90.1	160		Q***	597
4,4'-DDD	0/12	-			NA					
4,4'-DDE	0/12	-			NA					
4,4'-DDT	2/12	6.2	8.3	3.01	BGSS10 04/07/97	3.01				
Aroclor-1254	0/12	-			NA					
Aroclor-1260	0/12	-			NA					

TABLE 2-11

BACKGROUND STATISTICS - SOIL DATA
SITE 12 -SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean	Std.Dev. Back.	t Value	N, Q, or Other***	Back. UTL
beta-BHC	0/12	-			NA					
dieldrin	9/12	13	760	179	BGSS03 04/07/97	179				
endosulfan I	0/12	-			NA					
endrin	0/12	-			NA					
heptachlor	0/12	-			NA					
heptachlor epoxide	3/12	3.4	47	7.79	BGSS10 04/07/97	7.79				
1,2,4-trichlorobenzene	0/12	-			NA					
1,2-dichlorobenzene	0/12	-			NA					
1,4-dichlorobenzene	0/12	-			NA					
2-methylnaphthalene	0/12	-			NA					
2-methylphenol	0/12	-			NA					
acenaphthene	3/12	55	64	178	BGSS10 04/07/97	178				
acenaphthylene	3/12	54	62	177	BGSS12 04/07/97	177				
anthracene	6/12	46	160	154	BGSS12 04/07/97	154				
benz(a)anthracene	9/12	33	940	306	BGSS12 04/07/97	306				
benzo(a)pyrene	8/12	110	1100	394	BGSS12 04/07/97	394				
benzo(b)fluoranthene	8/12	160	1500	507	BGSS12 04/07/97	507				
benzo(g,h,i)perylene	7/12	52	490	225	BGSS12 04/07/97	225				
benzo(k)fluoranthene	7/12	98	920	370	BGSS12 04/07/97	370				
butylbenzylphthalate	3/12	83	280	208	BGSS02 04/07/97	208				
carbazole	5/12	80	310	212	BGSS10 04/07/97	212				
chrysene	9/12	43	1200	420	BGSS12 04/07/97	420				
di-n-butylphthalate	0/2	-			NA					
dibenz(a,h)anthracene	5/12	52	160	161	BGSS12 04/07/97	161				
dibenzofuran	4/12	51	120	172	BGSS08 04/07/97	172				
fluoranthene	10/12	49	2600	902	BGSS12 04/07/97	902				
fluorene	4/12	59	160	184	BGSS08 04/07/97	184				
indeno(1,2,3-cd)pyrene	8/12	49	640	251	BGSS12 04/07/97	251				
N-nitrosodiphenylamine (1)	0/12	-			NA					

TABLE 2-11

BACKGROUND STATISTICS - SOIL DATA
SITE 12 -SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean	Std.Dev. Back.	t Value	N, Q, or Other***	Back. UTL
naphthalene	0/12	-			NA					
phenanthrene	8/12	110	1700	667	BGSS12 04/07/97	667				
pyrene	10/12	48.5	2100	723	BGSS12 04/07/97	723				

Notes:
Units are mg/kg for inorganics, ug/kg for organics.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean includes positive detections and non-detected results for organics, with detection limits divided by two. Mean for metals data represents detected substances.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.
The Upper Tolerance Limit (UTL) or the Upper Prediction Limit (UPL) is an estimate of the concentration limit that includes 95 % of the background population.

Abbreviations:

N, Q, or other UTL*** — UTL is based on a 95 % upper limit (using t-value) when data are normal (N). Otherwise, a gamma distribution 95% UPL or a nonparametric 95 % quantile (Q) is used if there are sufficient data points. UTL documentation is provided in the ProUCL statistical results in Appendix K.

KM — Kaplan-Meier UPL is estimated for cases involving a percentage of nondetected results.

TABLE 2-12

BACKGROUND STATISTICS - SURFACE WATER DATA
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 2

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean	Std.Dev. Back.	t Value	N, Q, or Other***	Back. UTL
aluminum	1/1	561	561	561	BGSW03 03/13/97	145				
antimony	0/8	-			NA					
arsenic	0/8	-			NA					
barium	8/8	87.3	112	101	BGSW05 03/13/97	101	9.19	3.1880	N	130
beryllium	0/8	-			NA					
calcium	8/8	15800	34900	24600	BGSW01 03/13/97	24600	7720	3.1880	N	49300
chromium	0/8	-			NA					
cobalt	0/8	-			NA					
copper	1/8	10.8	10.8	5.73	BGSW03 03/13/97	5.73				
cyanide	0/8	-			NA					
iron	8/8	85.3	635	321	BGSW03 03/13/97	321	156	3.1880	N	817
lead	1/8	0.8	0.8	0.538	BGSW03 03/13/97	0.538				
magnesium	8/8	6250	12100	8910	BGSW01 03/13/97	8910	2350	3.1880	N	16400
manganese	8/8	26.7	110.25	67.1	BGSW03 03/13/97	67.1	26.2	3.1880	N	150
nickel	1/8	20.7	20.7	11.3	BGSW03 03/13/97	11.3				
potassium	6/8	1750	2860	1830	BGSW01 03/13/97	1830				
sodium	8/8	10700	36200	20100	BGSW02 03/13/97	20100	10300	3.1880	N	52900
vanadium	0/8	-			NA					
zinc	3/8	7.8	12.85	5.28	BGSW03 03/13/97	5.28				
dieldrin	0/8	-			NA					
bis(2-ethylhexyl)phthalate	0/8	-			NA					
di-n-butylphthalate	0/8	-			NA					
4-methyl-2-pentanone	0/8	-			NA					
acetone	0/8	-			NA					

TABLE 2-12

BACKGROUND STATISTICS - SURFACE WATER DATA
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Notes: Units are ug/L.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean includes positive detections and non-detected results for organics, with detection limits divided by two. Mean for metals data represents detected substances.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.
The Upper Tolerance Limit (UTL) or the Upper Prediction Limit (UPL) is an estimate of the concentration limit that includes 95 % of the background population.

Abbreviations:

N, Q, or other UTL***	UTL is based on a 95 % upper limit (using t-value) when data are normal (N). Otherwise, a gamma distribution 95% UPL or a nonparametric 95 % quantile (Q) is used if there are sufficient data points. UTL documentation is provided in the ProUCL statistical results in Appendix K.
KM	Kaplan-Meier UPL is estimated for cases involving a percentage of nondetected results.

TABLE 2-13

BACKGROUND STATISTICS - SEDIMENT DATA
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 3

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean@	Std.Dev. Back.@	t Value	N, L, Q, or Other***	Back. UTL
aluminum	8/8	3610	8950	6620	BGSD01 03/13/97	6620	1950	3.1880	N	12800
antimony	0/5	-			NA					
arsenic	8/8	3.2	7.2	4.55	BGSD01 03/13/97	4.55	1.26	3.1880	N	8.56
barium	8/8	54.6	160.5	98.2	BGSD03 03/13/97	98.2	32.5	3.1880	N	202
beryllium	8/8	0.52	1.2	0.878	BGSD01 03/13/97	0.878	0.28	3.1880	N	1.77
cadmium	0/8	-			NA					
calcium	8/8	744	18200	4980	BGSD06 03/13/97	4980				
chromium	8/8	6.8	34.5	15.7	BGSD01 03/13/97	2.59	0.585	3.1880	L	86.1
cobalt	8/8	4.5	12.4	7.21	BGSD01 03/13/97	7.21	2.64	3.1880	N	15.6
copper	8/8	5.8	27.8	13.4	BGSD01 03/13/97	13.4	7.64	3.1880	N	37.7
cyanide	0/8	-			NA					
iron	8/8	9540	35400	16500	BGSD01 03/13/97	9.6	0.473	3.1880	L	66600
lead	8/8	6.4	27.6	15.3	BGSD03 03/13/97	15.3	7.34	3.1880	N	38.7
magnesium	8/8	999	10600	3440	BGSD06 03/13/97	3440				
manganese	8/8	376	759	514	BGSD01 03/13/97	514	135	3.1880	N	944
mercury	0/8	-			NA					
nickel	8/8	6.8	22.7	12.5	BGSD01 03/13/97	12.5	5.74	3.1880	N	30.7
potassium	7/8	514	2330	1050	BGSD01 03/13/97	6.7	0.771	3.1880	L	9460
selenium	2/8	0.36	0.475	0.198	BGSD03 03/13/97	0.198				
sodium	2/8	240	560	143	BGSD01 03/13/97	143				
thallium	0/8	-			NA					
vanadium	8/8	7.9	52.6	22.6	BGSD01 03/13/97	2.91	0.669	3.1880	L	155
zinc	8/8	25.4	97.6	51.2	BGSD01 03/13/97	51.2	25.6	3.1880	N	133
aldrin	0/8	-			NA					
alpha-chlordane	0/8	-			NA					
Aroclor-1260	0/8	-			NA					
dieldrin	1/8	3.1	3.1	2.26	BGSD03 03/13/97	2.26				
endosulfan I	0/8	-			NA					
gamma-chlordane	0/8	-			NA					
2,4-dinitrotoluene	0/8	-			NA					

TABLE 2-13

BACKGROUND STATISTICS - SEDIMENT DATA
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 3

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean@	Std.Dev. Back.@	t Value	N, L, Q, or Other***	Back. UTL
2,6-dinitrotoluene	0/8	-			NA					
2-methylnaphthalene	0/8	-			NA					
acenaphthene	0/8	-			NA					
acenaphthylene	0/8	-			NA					
anthracene	0/8	-			NA					
benz(a)anthracene	1/8	580	580	275	BGSD01 03/13/97	275				
benzo(a)pyrene	1/8	530	530	268	BGSD01 03/13/97	268				
benzo(b)fluoranthene	1/8	670	670	286	BGSD01 03/13/97	286				
benzo(g,h,i)perylene	0/8	-			NA					
benzo(k)fluoranthene	1/8	300	300	240	BGSD01 03/13/97	240				
bis(2-ethylhexyl)phthalate	0/8	-			NA					
butylbenzylphthalate	0/8	-			NA					
carbazole	0/8	-			NA					
chrysene	3/8	110	640	238	BGSD01 03/13/97	238				
dibenz(a,h)anthracene	0/8	-			NA					
dibenzofuran	0/8	-			NA					
fluoranthene	4/8	100	510	221	BGSD01 03/13/97	221				
fluorene	0/8	-			NA					
indeno(1,2,3-cd)pyrene	0/8	-			NA					
N-nitrosodiphenylamine (1)	0/8	-			NA					
naphthalene	0/8	-			NA					
phenanthrene	1/8	260	260	235	BGSD01 03/13/97	235				
pyrene	4/8	100	1300	315	BGSD01 03/13/97	315				
2-butanone	0/8	-			NA					
acetone	0/5	-			NA					
ethylbenzene	0/8	-			NA					
toluene	0/8	-			NA					

TABLE 2-13

BACKGROUND STATISTICS - SEDIMENT DATA
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA
PAGE 3 OF 3

Substance	Freq. of Detection	Range of Positive Detection Min.	Range of Positive Detection Max.	Mean of All Data	Sampling Round and Location of Maximum	95 % Upper Tolerance Limit (UTL) Back. Mean@	Std.Dev. Back.@	t Value	N, L, Q, or Other***	Back. UTL

Notes: Units are mg/kg for inorganics, ug/kg for organics.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean includes positive detections and non-detected results for organics, with detection limits divided by two. Mean for metals data represents detected substances.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.
The Upper Tolerance Limit (UTL) or the Upper Prediction Limit (UPL) is an estimate of the concentration limit that includes 95 % of the background population.

Abbreviations:

N, L, Q, or other UTL*** UTL is based on a 95 % upper limit (using t-value) when data are normal (N) or lognormal (L). Otherwise, a gamma distribution 95% UPL or a nonparametric 95 % quantile (Q) is used if there are sufficient data points. UTL documentation is provided in the ProUCL statistical results in Appendix K.

KM Kaplan-Meier UPL is estimated for cases involving a percentage of nondetected results.

@ Mean of log-data is listed when the data are fit to a lognormal distribution.

TABLE 3-1

TEST PIT DETAILS
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Test Pit	Total Length (ft)	Total Depth (ft bgs)	Waste or Debris Encountered? (Yes/No)	Number of Samples Collected[(1)]
12TP01	43	8	YES	4
12TP02	55	8	YES	4
12TP03	64	9	YES	4
12TP04	48	7	NO	4
12TP05	72	10	YES	4
12TP06	46	10	YES	4
12TP07	68	7	YES	4
12TP08	49	8	YES	3
12TP09	55	8.5	YES	5
12TP10	72	9	YES	4
12TP11	43	6	YES	4
12TP12	41	6	YES	4
12TP13	43	9	YES	4
12TP14	64	9	YES	4
12TP15	66	6	YES	4
12TP16	40	10	YES	4
12TP17	50	10	NO	2
12TP18	60	10	YES	2

ft bgs – feet below ground surface
(1) Does not include duplicate samples.

TABLE 3-2

WELL CONSTRUCTION DETAILS
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Well Designation	Well Diameter (inches)	Screen Interval (feet bgs)	Elevation TOC[1] (feet AMSL)	Monitored Depth Zone
02MW01S	4	5 - 20	325.65	Shallow
02MW01I	2	70 - 80	325.28	Intermediate
02MW02S	4	5 - 25	349.37	Shallow
02MW03SI	2	40 - 55	333.66	Shallow-Intermediate
02MW03I	2	140 - 150	333.55	Intermediate
02MW04S	2	34 - 44	349.96	Shallow
02MW04I	2	105 - 115	349.54	Intermediate
12MW01O	2	4.5 – 14.5	345.65	Overburden
12MW01S	2	25 - 35	346.25	Shallow
12MW02O	2	4 - 14	346.17	Overburden
12MW02S	2	22 - 35	346.26	Shallow
12MW03O	2	5 - 15	348.26	Overburden
12MW03S	2	22 - 32	348.40	Shallow
12MW04O	2	5 - 15	348.74	Overburden
12MW04S	2	25 - 35	349.33	Shallow

[1] TOC – Top of Casing
ft bgs – feet below ground surface
amsl – above mean sea level

TABLE 3-3

STATIC-WATER-LEVEL MEASUREMENTS
SITE 12 – SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Well Number	TOC Elevation (feet amsl)	Date	Depth to Water (feet below TOC[(1)]	Groundwater Elevation (feet amsl)
02MW01S	325.65	03/08/12	12.03	313.62
02MW01I	325.28	03/08/12	20.60	304.68
02MW02S	349.37	03/08/12	12.10	337.27
02MW03SI	333.66	03/08/12	10.53	323.13
02MW03I	333.55	03/08/12	17.52	316.03
02MW04S	349.96	03/08/12	28.65	321.31
02MW04I	349.54	03/08/12	33.66	315.88
12MW01O	345.65	03/08/12	9.45	336.2
12MW01S	346.25	03/08/12	11.54	334.71
12MW02O	346.17	03/08/12	12.11	334.06
12MW02S	346.26	03/08/12	12.31	333.95
12MW03O	348.26	03/08/12	15.77	332.49
12MW03S	348.4	03/08/12	15.70	332.7
12MW04O	348.74	03/08/12	8.15	340.59
12MW04S	349.33	03/08/12	17.50	331.83

[(1)]TOC = Top of Casing
amsl = above mean sea level.

TABLE 4-1

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 SURFACE SOIL VERSUS BACKGROUND
SITE 12 RI REPORT
NAS JRB WILLOW GROVE, PENNSYLVANIA
Page 1 of 2

	Background Soil Samples					Site 12 Surface Soil Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
Aluminum	12/12	8570 -	15000	11300	BGSS06	122/122	2280 -	21000	11600	SSA12-SS02D-000.5-20071207
Antimony	0/2	-				31/32	0.41 L -	10.1 L	1.5	12SB07-000.5-01
Arsenic	12/12	3.7 K -	10.6	6.65	BGSS03	122/122	0.96 J -	29.8	5.12	12TP08-000.5-01
Barium	12/12	77.8 -	111	95.7	BGSS04	122/122	28.7 J -	242	87.3	12TP08-0.502-02
Beryllium	12/12	0.75 -	1.3	0.987	BGSS11	122/122	0.23 L -	1.3 L	0.711	12TP11-0.502-02
Cadmium	0/12	-				76/86	0.04 J -	9.4	0.862	SSA12-SS04D-000.5-20071205
Calcium	12/12	614 -	1600	1020	BGSS12	122/122	314 J -	55800 J	3090	12TP09-0.502-02
Chromium	12/12	12.4 -	20.8	15.3	BGSS02	122/122	4.7 J -	38.5	17.1	SSA12-SS03E-000.5-20071206
Cobalt	12/12	6.8 -	9.3	7.9	BGSS02	122/122	2.1 J -	12	6.07	12TP02-0.502-02
Copper	12/12	8 -	13.4	10.7	BGSS09	125/125	4.2 J -	458	25.1	12TP12-000.5-01
Cyanide	2/12	0.7 -	3.8	0.649	BGSS09	43/85	0.043 J -	0.426	0.0955	12SB10-0.502-02
Hexavalent Chromium	0/0	-				22/22	0.26 J -	7.4	1.75	12SB21-000.5-01
Iron	12/12	11500 -	17600	14800	BGSS06	122/122	5810 -	37100	16800	12TP08-000.5-01
Lead	12/12	16.3 -	64.7	30.6	BGSS04	131/131	5.4 L -	1410	71.3	12SB52-0.502-02
Magnesium	12/12	1210 -	1940	1500	BGSS06	122/122	478 -	20600 J	2120	12TP15-000.5-01
Manganese	12/12	429 -	1190	642	BGSS04	122/122	106 J -	1020 J	401	12TP11-0.502-02
Mercury	0/12	-				116/122	0.007 J -	0.47 K	0.0763	SSA12-SS07D-000.5-20071205
Nickel	12/12	7.4 -	11.2	9.79	BGSS04	122/122	3.5 J -	63.5	10.9	SSA12-SS04D-000.5-20071205
Potassium	7/12	436 -	771	434	BGSS05	122/122	163 L -	2480	721	12TP09-0.502-02
Selenium	0/12	-				47/84	0.063 J -	2.6 L	0.309	12TP03-0.502-02
Silver	0/12	-				43/69	0.05 J -	7.7	0.598	12TP08-0.502-02
Sodium	2/12	112 -	120	63.7	BGSS09	39/39	33.1 J -	549 K	83.9	SSA12-SB01D-0001-20071207
Thallium	7/12	0.25 -	0.34	0.226	BGSS07	49/77	0.11 J -	4.2 J	1.3	SSA12-SS02D-000.5-20071207
Vanadium	12/12	20.9 -	28.2	24.9	BGSS02	122/122	5.7 L -	44.9	24.1	12TP10-0.502-02
Zinc	12/12	21.7 -	597	90.1	BGSS04	122/122	16.9 J -	731	80	SSA12-SS04D-000.5-20071205
4,4'-DDD	0/12	-				17/110	0.94 J -	19 J	2.74	SSA12-SS03E-000.5-20071206
4,4'-DDE	0/12	-				34/116	0.82 J -	82	3.82	12TP15-000.5-01
4,4'-DDT	2/12	6.2 J -	8.3 J	3.01	BGSS10	43/119	1.2 J -	170	5.03	12TP15-000.5-01
Aldrin	0/12	-				5/125	0.61 J -	2.4	1.18	12TP11-000.5-01
Alpha-BHC	0/12	-				9/124	0.43 J -	3.2	1.02	12TP11-000.5-01
Alpha-Chlordane	0/12	-				20/117	0.33 J -	13 J	1.31	12TP05-0.502-02
Beta-BHC	0/12	-				2/100	1.9 J -	13 J	1.14	SSA12-SS10E-000.5-20071207
Delta-BHC	0/12	-				20/118	0.39 J -	2.8 J	1.03	12TP08-000.5-01
Dieldrin	9/12	13 -	760	179	BGSS03	45/115	1 J -	500 J	16.1	SSA12-SS07E-000.5-20071206
Endosulfan I	0/12	-				21/117	0.34 J -	3.9 J	1.03	12SB01-0.502-02
Endosulfan II	0/12	-				2/112	1.7 J -	2.1 J	1.65	12TP01-000.5-01
Endosulfan Sulfate	0/12	-				10/120	1.5 J -	54 J	2.48	SSA12-SS15E-000.5-20071206
Endrin	0/12	-				6/122	0.9 J -	19 J	1.97	12TP11-0.502-02
Endrin Aldehyde	0/12	-				34/120	0.58 J -	27 J	2.89	SSA12-SS15E-000.5-20071206
Endrin Ketone	0/12	-				18/116	0.74 J -	34 J	2.87	12TP11-0.502-02
Gamma-BHC (Lindane)	0/12	-				1/125	2.3 J -	2.3 J	1.01	SSA12-SB01D-0001-20071207
Gamma-Chlordane	4/12	3.2 -	48 J	8.67	BGSS10	12/100	0.46 J -	28 J	1.82	12TP11-0.502-02
Heptachlor	0/12	-				24/119	0.31 J -	2.1 J	0.962	12TP15-000.5-01
Heptachlor Epoxide	3/12	3.4 J -	47	7.79	BGSS10	23/115	0.37 J -	12 J	1.37	12TP11-0.502-02
Methoxychlor	0/12	-				3/118	13 J -	41 J	12.3	SSA12-SS15E-000.5-20071206
2-Methylnaphthalene	0/12	-				58/144	1.2 J -	990 K	78.2	12SB10-0.502-02
Acenaphthene	3/12	55 J -	64 J	178	BGSS10	69/144	1.6 J -	3200	104	12TP11-0.502-02
Acenaphthylene	3/12	54 J -	62 J	177	BGSS12	76/144	0.86 J -	670 J	81.3	12TP08-0.502-02
Anthracene	6/12	46 J -	160 J	154	BGSS12	100/144	0.72 J -	16000	364	12TP11-0.502-02
Benz(a)anthracene	9/12	33 J -	940	306	BGSS12	112/144	1.3 J -	21000 J	860	12TP11-0.502-02
Benzaldehyde	0/0	-				3/68	26 J -	40 J	178	12TP14-0.502-02
Benzo(a)pyrene	8/12	110 J -	1100	394	BGSS12	116/144	2.3 J -	21000 J	811	12TP11-0.502-02
Benzo(b)fluoranthene	8/12	160 J -	1500	507	BGSS12	116/144	1.3 J -	19000 J	884	12TP11-0.502-02
Benzo(g,h,i)perylene	7/12	52 J -	490	225	BGSS12	109/144	0.74 J -	25000	516	12TP11-0.502-02
Benzo(k)fluoranthene	7/12	98 J -	920	370	BGSS12	118/144	1.1 J -	30000	806	12TP11-0.502-02
Bis(2-ethylhexyl) Phthalate	0/0	-				12/116	46 J -	1500	175	SSA12-SS13E-000.5-20071206
Carbazole	5/12	80 J -	310 J	212	BGSS10	22/122	44 J -	8200	273	12TP11-0.502-02
Chrysene	9/12	43 J -	1200	420	BGSS12	124/144	1.4 J -	22000 J	944	12TP11-0.502-02
Di-n-butyl Phthalate	0/2	-				5/122	28 J -	97 J	153	12TP12-000.5-01
Di-n-octyl Phthalate	0/12	-				2/122	48 J -	150 J	155	12TP14-0.502-02
Dibenz(a,h)anthracene	5/12	52 J -	160 J	161	BGSS12	91/144	0.77 J -	12000	226	12TP11-0.502-02
Dibenzofuran	4/12	51 J -	120 J	172	BGSS08	12/122	29 J -	3700	198	12TP11-0.502-02
Dimethyl Phthalate	0/12	-				28/122	170 J -	540	200	12SB15-0.502-02
Fluoranthene	10/12	49 J -	2600	902	BGSS12	132/144	2.4 J -	44000 J	2080	12TP11-0.502-02
Fluorene	4/12	59 J -	160 J	184	BGSS08	80/144	0.59 J -	6900	156	12TP11-0.502-02
Indeno(1,2,3-cd)pyrene	8/12	49 J -	640	251	BGSS12	105/144	2.9 J -	30000	597	12TP11-0.502-02
Naphthalene	0/12	-				45/144	2.5 J -	660 J	82.8	12TP11-0.502-02
Phenanthrene	8/12	110 J -	1700	667	BGSS12	127/144	1.6 J -	39000 K	1240	12SB10-0.502-02
Pyrene	10/12	46 J -	2100	723	BGSS12	129/144	2.1 J -	35000 J	1740	12TP11-0.502-02

TABLE 4-1

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 SURFACE SOIL VERSUS BACKGROUND
SITE 12 RI REPORT
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Background Soil Samples					Site 12 Surface Soil Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
2-Butanone	0/0	-				40/94	5.5 J -	200 J	16.7	12SB15-000.5-01
2-Hexanone	0/0	-				1/122	14 J -	14 J	10.5	12SB15-000.5-01
Acetone	0/0	-				89/120	5.6 J -	4600 J	180	SSA12-SB03D-1.502-20071205
Benzene	0/0	-				1/122	2.2 J -	2.2 J	3.54	SSA12-SS09E-000.5-20071206
Carbon Disulfide	0/0	-				8/122	1.4 J -	10	3.58	12TP03-000.5-01
Chloromethane	0/0	-				5/122	1.2 J -	2.3 J	3.51	12TP05-0.502-02
Dichlorodifluoromethane	0/0	-				2/122	1.8 J -	12	3.6	SSA12-SS15E-000.5-20071206
Isopropylbenzene	0/0	-				1/122	2.9 J -	2.9 J	3.56	12SB18-000.5-01
Methyl Acetate	0/0	-				20/68	3 J -	440 J	23.7	12SB02-000.5-01
Tetrachloroethene	0/0	-				1/122	3.6 J -	3.6 J	3.55	12TP14-0.502-02
Toluene	0/0	-				2/122	1.6 J -	2 J	3.53	12SB01-0.502-02
Trichloroethene	0/0	-				1/122	3.9 J -	3.9 J	3.55	12TP14-0.502-02
Trichlorofluoromethane	0/0	-				1/122	3.8 J -	3.8 J	3.55	SSA12-SS15E-000.5-20071206

Notes:

Units are mg/kg for inorganics, ug/kg for organics.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE 4-2

STATISTICAL COMPARISON OF METALS CONCENTRATIONS IN SITE 12 SURFACE SOIL TO BACKGROUND
SITE 12 RI REPORT
NAS JRB WILLOW GROVE, PENNSYLVANIA

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 12 ss Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 12 ss? # Site 12 ss (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 12 ss > bkg.? P value <=0.05 ?				Student's or Satterthwaite T-test Site 12 ss Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both normal t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 12 ss Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 12 ss & bkg. both normally distributed F-Value<=F-Table (Students T). If not, Satterthwaite					
Concentration > background? Y/N		bkg. Freq.	Site 12 ss Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean	Site 12 ss Mean	t Value	t Table	YN	bkg. Distrib.	Site 12 ss Distrib.	Std.Dev. bkg.	Std.Dev. Site 12 ss	F Value	F Table	YN
Aluminum	**Y**	12/12	122/122		NA	51	50	0.0218	**Y**	0.2331			N	11300	11600	0.4774	1.7011	N	normal	normal	1720	4360	10.5662	3.8430	N
Antimony	NA	0/2	31/32		NA	1	1	0.9412	NA				NA		1.5			NA							NA
Arsenic	N	12/12	122/122		NA	3	3	0.7530	N	0.9983			N	6.65	5.12			NA	normal	nonpar.					NA
Barium	N	12/12	122/122		NA	20	20	0.1311	N	0.9690			N	95.7	87.3			NA	normal	gamma					NA
Beryllium	N	12/12	122/122		NA	3	2	0.9789	N	0.9999			N	0.987	0.711	-4.5132	1.6565	N	normal	normal	0.192	0.203	0.0534	3.8430	**Y**
Cadmium	N	0/12	76/86		NA	12	12	0.1882	N				NA		0.862			NA							NA
Calcium	**Y**	12/12	122/122		NA	48	48	0.0036	**Y**	0.0993			N	1020	3090			NA	normal	nonpar.					NA
Chromium	**Y**	12/12	122/122		NA	71	69	0.0086	**Y**	0.1143			N	15.3	17.1	2.0619	1.7011	**Y**	normal	normal	2.28	5.82	10.6941	3.8430	N
Cobalt	N	12/12	122/122		NA	5	5	0.6209	N	0.9999			N	7.9	6.07	-6.5936	1.7109	N	normal	normal	0.788	1.77	8.4397	3.8430	N
Copper	**Y**	12/12	125/125		NA	69	69	0.0001	**Y**	0.0214			**Y**	10.7	25.1			NA	normal	nonpar.					NA
Cyanide	N	2/12	43/85		NA				NA	0.9855	Gehan	Test	N	0.649	0.0955			NA							NA
Hexavalent Chromium	NA	0/0	22/22		NA				NA				NA		1.75			NA							NA
Iron	**Y**	12/12	122/122		NA	46	46	0.0049	**Y**	0.1318			N	14800	16800			NA	normal	gamma					NA
Lead	**Y**	12/12	131/131		NA	66	64	0.0298	**Y**	0.2355			N	30.6	71.3			NA	gamma	lognor.					NA
Magnesium	**Y**	12/12	122/122		NA	63	62	0.0041	**Y**	0.1403			N	1500	2120			NA	gamma	nonpar.					NA
Manganese	N	12/12	122/122		NA	12	10	0.9236	N	1.0000			N	642	401			NA	gamma	gamma					NA
Mercury	N	0/12	116/122		NA	16	16	0.2025	N				NA		0.0763			NA							NA
Nickel	**Y**	12/12	122/122		NA	48	48	0.0036	**Y**	0.2179			N	9.79	10.9			NA	normal	nonpar.					NA
Potassium	**Y**	7/12	122/122	<.0001	**Y**	53	53	0.0017	**Y**	0.0062	Gehan	Test	**Y**	434	721			NA							NA
Selenium	NA	0/12	47/84		NA	4	4	0.5808	NA				NA		0.309			NA							NA
Silver	N	0/12	43/69		NA	7	7	0.3103	N				NA		0.598			NA							NA
Sodium	N	2/12	39/39	<.0001	**Y**	5	5	0.2451	N	0.4308	Gehan	Test	N	63.7	83.9			NA							NA
Thallium	**Y**	7/12	49/77	0.4870	N	37	37	0.0009	**Y**	0.0021	Gehan	Test	**Y**	0.226	1.3			NA							NA
Vanadium	**Y**	12/12	122/122		NA	32	32	0.0321	**Y**	0.6238			N	24.9	24.1	-0.8715	1.6766	N	normal	normal	2.13	7.64	17.0885	3.8430	N
Zinc	**Y**	12/12	122/122		NA	52	51	0.0192	**Y**	0.4046			N	90.1	80			NA	nonpar.	nonpar.					NA

**** Site 12 concentrations in soil are compared to background soil (ss).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 12 ss to bkg. soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 12 ss > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 12 ss (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 12 ss results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 12 ss > bkg. with 95 % confidence.
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 12 ss and bkg. data set are comprised of Site 12 ss data if both populations are in fact equal.

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	Region 3	Region 3	PADEP	PADEP	SSA12-SS01D-000.5		SSA12-SB01D-0.5-1.0		SSA12-SS02D-000.5		SSA12-SS03D-000.5		SSA12-SB03D-1.5-2.0
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/07/07**		**12/07/07**		**12/05/07**		**12/05/07**
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0.5**		**0**		**0**		**1.5**
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**1**		**0.5**		**0.5**		**2**
Duplicate of:													
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	12500		12800		21000		13400		15100
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	1.4	B	1.3	B	1.7	B	1.1	B	0.71
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	4.2		4		5.2		6.3		5.2
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	107		98.3		139		142		84.1
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.84	K	0.85	K	1.3	K	0.81	K	0.81
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.07	U	0.06	U	0.08	U	5.2	L	0.68
Calcium	NA	NA	NA	NA	4080		3300		2760		1970		1090
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	20.6	J	19	J	30.3	J	21.1		18.6
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	6.7	J	6.8	J	6.7	J	7.7	K	8.6
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	19.6	J	16.7	J	30.8	J	39.9	J	16.4
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	17200	J	17200	J	21300	J	21200		19600
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	55.6		43.3		84.7		66		23.3
Magnesium	NA	NA	NA	NA	2290		2100		3070		1750		1460
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	518	J	484	J	164	J	647	K	502
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.099		0.098		0.16		0.13	K	0.072
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	15.1	J	13.7	J	20.1	J	37.4		17.5
Potassium	NA	NA	NA	NA	1590		1330		1440		917	L	699
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.07	UR	0.06	UR	0.08	UR	0.12	L	0.06
Sodium	NA	NA	NA	NA	131	B	549	K	170	B	96.5	B	119
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	3	J	2.9	J	4.2	J	3.1	K	3.3
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	26.4		27.5		42.8		31.8		27.4
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	111		77.2		104		466		139
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	470	U	430	U	270	U	240	U	210
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	160	J	140	J	270	U	240	U	210
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	170	J	130	J	270	U	240	U	210
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	630	J	600	J	270	U	240	U	210
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2000	J	1800	J	430	J	240	U	210
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	1900	J	1600	J	580	J	240	U	210
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	1800	J	1500	J	630	J	240	U	210
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	1100	J	870	J	430	J	240	U	210
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	1900	J	1500	J	620	J	240	U	210
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	470	U	430	U	340		240	U	210
Carbazole	NA	NA	**9.00E+05**	4.00E+06	290	J	220	J	270	U	240	U	210
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2000	J	1800	J	640	J	240	U	210
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	570	J	450	J	270	U	240	U	210
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	4700	J	4800	J	930	J	120	J	210
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	160	J	150	J	270	U	240	U	210
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	1400	J	1100	J	470	J	240	U	210
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	1900	J	1800	J	360	J	240	U	210
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	4700	J	4200	J	1100		240	U	210
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	15	B	12	B	29	B	26	B	660
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	200		140		470		310		4600

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS01D-000.5**		**SSA12-SB01D-0.5-1.0**		**SSA12-SS02D-000.5**		**SSA12-SS03D-000.5**		**SSA12-SB03D-1.5-2.0**
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/07/07**		**12/07/07**		**12/05/07**		**12/05/07**
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0.5**		**0**		**0**		**1.5**
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**1**		**0.5**		**0.5**		**2**
Duplicate of:													
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	6.8	U	5.7	U	8.7	U	6.8	U	260
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	6.8	U	5.7	U	8.7	U	6.8	U	260
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	6.8	U	5.7	U	8.7	U	6.8	U	260
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	6.8	U	5.7	U	8.7	U	6.8	U	260
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	6.8	U	5.7	U	8.7	U	6.8	U	260
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	6.8	U	5.7	U	8.7	U	6.8	U	260
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4.5	UJ	8.4	UJ	5.2	UJ	4.6	UJ	4.1
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	8.2	J	27	J	7.6	R	4.6	UJ	4.1
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	6.8	J	12	J	7.9	J	4.6	UJ	4.1
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.3	UJ	4.3	UJ	2.7	UJ	2.4	UJ	2.1
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.3	UJ	4.3	UJ	2.7	UJ	2.4	UJ	2.1
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.7	J	6	R	2.7	UJ	2.4	UJ	2.1
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	29	R	2.2	UJ	16	R	1.2	UJ	1.1
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.4	J	4.3	UJ	1.9	J	0.57	J	2.1
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	5.9	J	8.7	J	20	J	1.2	J	4.1
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.6	J	4.3	UJ	0.67	J	2.4	UJ	2.1
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.5	UJ	8.4	UJ	5.2	UJ	4.6	UJ	4.1
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.5	UJ	82	R	16	J	4.6	UJ	4.1
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.5	UJ	10	R	5.2	UJ	4.6	UJ	4.1
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.5	UJ	10	J	11	R	4.6	UJ	4.1
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.5	UJ	15	J	5.2	UJ	4.6	UJ	4.1
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	2.3	UJ	2.3	J	2.7	UJ	2.4	UJ	2.1
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	8.5	J	4.3	UJ	2.7	UJ	2.4	UJ	2.1
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.1	J	4.3	UJ	2.7	UJ	2.4	UJ	2.1
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.3	UJ	4.3	UJ	2.7	UJ	2.4	UJ	2.1
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	23	UJ	43	UJ	27	UJ	24	UJ	21

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**		**SSA12-SS04D-000.5**		**SSA12-SS05D-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**		**12/05/07**		**12/07/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**		**0.5**		**0.5**	
Duplicate of:									
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05		13700		13400	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	B	1.4	B	0.77	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01		6.3		6.8	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05		130		88.5	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	K	0.86	K	0.95	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	J	9.4		0.07	U
Calcium	NA	NA	NA	NA		1960		1900	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05		27.1		17	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	K	8.9	K	6.1	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	J	51.9	J	15.1	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05		22100		16600	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03		102		35.5	
Magnesium	NA	NA	NA	NA		1840		1540	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	K	753	K	605	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	K	0.18	K	0.13	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04		63.5		11.1	J
Potassium	NA	NA	NA	NA	L	925	L	659	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	UR	0.44	L	0.07	UR
Sodium	NA	NA	NA	NA	B	119	B	95.5	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	K	3.8	K	3.6	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04		32.7		29.6	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05		731		54.5	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	U	240	U	230	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	U	240	U	230	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	U	240	U	230	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	U	240	U	230	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	U	240	U	230	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	U	240	U	230	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	U	240	U	230	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	U	240	U	230	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	U	240	U	230	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	U	240	U	230	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	U	240	U	230	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	U	240	U	230	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	U	240	U	230	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	U	130	J	230	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	U	240	U	230	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	U	240	U	230	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	U	240	U	230	U
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	U	240	U	230	U
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	U	35	B	25	B
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	J	380		510	

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**		**SSA12-SS04D-000.5**		**SSA12-SS05D-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**		**12/05/07**		**12/07/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**		**0.5**		**0.5**	
Duplicate of:									
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	U	6.8	U	7	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	U	6.8	U	7	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	U	1.8	J	7	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	J	6.8	U	7	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	U	6.8	U	7	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	U	6.8	U	7	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	UJ	8.3	R	4.5	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	UJ	4.6	UJ	4.5	UJ
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	UJ	4.6	UJ	4.5	UJ
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	UJ	2.4	UJ	2.3	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	UJ	2.4	UJ	2.3	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	UJ	2.4	UJ	2.3	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	UJ	6.6	R	1.2	UJ
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	UJ	0.88	J	2.3	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	UJ	4.6	UJ	1.4	J
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	UJ	2.4	UJ	2.3	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	UJ	4.6	UJ	4.5	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	UJ	4.6	UJ	4.5	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	UJ	4.6	UJ	4.5	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	UJ	4.6	UJ	4.5	UJ
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	UJ	4.6	UJ	4.5	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	UJ	2.4	UJ	2.3	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	UJ	2.4	UJ	2.3	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	UJ	0.8	J	2.3	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	UJ	2.4	UJ	2.3	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	UJ	24	UJ	23	UJ

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS06D-000.5**		**SSA12-SS07D-000.5**		**SSA12-SS08D-000.5**		**SSA12-SS10D-000.5**		**SSA12-SS01E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/05/07**		**12/05/07**		**12/05/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:														
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	14800		7260		14400		13400		9330	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.7	B	0.8	B	0.93	B	1.1	B	0.69	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	6.3		12.8		6		5.8		2.2	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	84.6		59.7		103		97		38.9	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	1	K	0.65	K	0.9	K	0.91	K	0.38	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.07	U	0.07	UR	0.09	B	0.07	UR	0.06	UR
Calcium	NA	NA	NA	NA	742		1360		4520		1440		587	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	16.8	J	11.7		18.9		15.8		8.8	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.8	J	3.9	K	5.4	K	5	K	4	K
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	16.7	J	16.1	J	24.8	J	21.5	J	6.8	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	15800	J	11900		19100		14300		9480	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	32.5		40.5		66.7		37.6		12.9	
Magnesium	NA	NA	NA	NA	1430		998		2740		1500		925	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	685	J	271	K	488	K	632	K	204	K
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.17		0.47	K	0.24	K	0.17	K	0.026	K
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	11.2	J	8.1		12.7		10.9		6.2	
Potassium	NA	NA	NA	NA	528	L	537	L	886	L	584	L	474	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.07	UR	0.09	L	3.5		0.07	UR	0.06	UR
Sodium	NA	NA	NA	NA	88.2	B	108	B	125	B	90.1	B	81.2	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	2.7	J	1.5	R	3.6	K	2.1	K	1.3	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	27.4		19.5		29.7		24.8		14.5	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	88.2		48.9		133		241		21.6	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	240	U	160	J	480	U	230	U	200	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	240	U	250	U	220	J	230	U	200	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	240	U	250	U	480	U	230	U	170	J
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	240	U	250	U	720	J	230	U	130	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	240	U	120	J	2600	J	230	U	520	J
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	240	U	140	J	2500	J	230	U	480	J
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	240	U	250	U	2900	J	230	U	500	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	240	U	250	U	1500	J	230	U	290	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	240	U	150	J	2200	J	230	U	500	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	240	U	250	U	480	UJ	230	U	200	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	240	U	250	U	480	U	230	U	200	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	240	U	280	J	2900	J	110	J	620	J
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	240	U	250	U	560	J	230	U	200	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	140	J	340	J	4900	J	240	J	1200	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	240	U	250	U	160	J	230	U	200	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	240	U	250	U	1700	J	230	U	330	J
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	240	U	300	J	2800	J	160	J	560	J
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	140	J	320	J	5300	J	200	J	1100	J
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	32	B	11	B	16	B	11	B	10	B
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	450		210		360		170		170	

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS06D-000.5**		**SSA12-SS07D-000.5**		**SSA12-SS08D-000.5**		**SSA12-SS10D-000.5**		**SSA12-SS01E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/05/07**		**12/05/07**		**12/05/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:														
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	6.9	U	8.3	U	7.4	U	6.5	U	5.3	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	6.9	U	8.3	U	7.4	U	6.5	U	5.3	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	6.9	U	8.3	U	7.4	U	6.5	U	5.3	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	6.9	U	8.3	U	7.4	U	6.5	U	5.3	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	6.9	U	8.3	U	7.4	U	6.5	U	5.3	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	6.9	U	8.3	U	7.4	U	6.5	U	5.3	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	9.1	R	2.5	J	4.6	UJ	16	R	4	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4.6	UJ	7.1	J	6.2	J	4.5	UJ	4	UJ
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	3.4	J	13	J	13	J	4.9	R	4	UJ
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.4	UJ	2.5	UJ	0.76	J	2.3	UJ	2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.4	UJ	2.5	UJ	2.4	UJ	2.3	UJ	2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.4	UJ	2.5	UJ	2.4	UJ	1.9	J	2	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.2	UJ	1.3	UJ	1.2	UJ	1.2	UJ	1	UJ
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1	J	1.1	J	1.4	J	2.3	UJ	2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	4.1	J	20	J	71	J	5.9	J	2.8	J
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.4	UJ	2.5	UJ	1	J	2.3	UJ	2	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.6	UJ	4.9	UJ	4.6	UJ	4.5	UJ	4	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.6	UJ	4.9	UJ	15	R	4.5	UJ	1.5	J
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.6	UJ	4.9	UJ	4.6	UJ	4.5	UJ	4	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.6	UJ	3.4	J	5.1	J	4.5	UJ	1.8	J
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.6	UJ	5.7	J	4.6	UJ	4.5	UJ	4	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	2.4	UJ	2.5	UJ	2.4	UJ	2.3	UJ	2	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	13	R	2.5	UJ	2.4	UJ	3.6	R	2	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	0.83	J	0.85	J	2.4	UJ	2.3	UJ	0.87	J
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	0.99	J	1.8	J	2.4	UJ	2.3	UJ	2	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	24	UJ	25	UJ	24	UJ	23	UJ	20	UJ

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS02E-000.5**		**SSA12-SS03E-000.5**		**SSA12-SS04E-000.5**		**SSA12-SS05E-000.5**		**SSA12-SS06E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/06/07**		**12/06/07**		**12/06/07**		**12/06/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:														
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	12700		12900		13700		11200		16700	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.57	B	1.2	B	0.51	B	0.83	B	0.91	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	5		2.8		3.3		6.7		5.8	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	70		57.6		78.3		79.6		67	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.77		0.44	K	0.84	K	0.71	K	0.74	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.07	UR	0.06	UR	0.06	U	0.18	B	0.06	UR
Calcium	NA	NA	NA	NA	626		850		980		2050		780	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	13.2		38.5		12.3	J	17.5		23.1	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	4.3	K	4.7	K	5.7	J	5.2	K	5.5	K
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	12.6	J	15	J	10.9	J	24.6	J	14.4	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	11300		14700		14900	J	16400		21700	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	29.9		172		14.4		179		27.4	
Magnesium	NA	NA	NA	NA	1190		1070		1440		1830		2050	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	419	K	329	K	462	J	306	K	224	K
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.11	K	0.043	K	0.028		0.069	K	0.043	K
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	9.3		8.1		9.9	J	11.4		11.7	
Potassium	NA	NA	NA	NA	464	L	526	L	481	L	728	L	667	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.07	UR	0.06	UR	0.06	UR	0.07	UR	0.06	UR
Sodium	NA	NA	NA	NA	104	B	98.3	B	102	B	143	B	226	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	1.8	J	2.5	K	2.4	J	3	K	3.6	K
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	22		17.5		20.7		25.9		36.6	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	40.2		61.6		27.6		74.8		51.4	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	240	U	220	U	210	U	230	U	220	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	240	U	220	U	210	U	230	U	220	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	240	U	220	U	210	U	230	U	220	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	240	U	220	U	210	U	230	U	220	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	240	U	220	U	200	J	230	U	220	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	240	U	220	U	220	J	130	J	220	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	240	U	220	U	240	J	230	U	220	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	240	U	220	U	150	J	230	U	220	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	130	J	99	J	250		130	J	220	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	240	U	440		210	U	230	U	220	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	240	U	220	U	210	U	230	U	220	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	160	J	110	J	280	J	160	J	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	240	U	220	U	210	U	230	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	360	J	220		590	J	310		220	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	240	U	220	U	210	U	230	U	220	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	240	U	220	U	170	J	230	U	220	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	270	J	130	J	300	J	160	J	220	U
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	330	J	180	J	500	J	240		220	U
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	19	B	24	B	19	B	26	B	9.3	B
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	270		300		230		300		140	

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS02E-000.5**		**SSA12-SS03E-000.5**		**SSA12-SS04E-000.5**		**SSA12-SS05E-000.5**		**SSA12-SS06E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/06/07**		**12/06/07**		**12/06/07**		**12/06/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:														
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	7.2	U	6.1	U	5.6	U	7	U	5.6	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	7.2	U	6.1	U	5.6	U	7	U	5.6	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	7.2	U	6.1	U	5.6	U	7	U	5.6	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	7.2	U	6.1	U	5.6	U	7	U	5.6	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	7.2	U	6.1	U	5.6	U	7	U	5.6	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	7.2	U	6.1	U	5.6	U	7	U	5.6	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	37	R	19	J	4	UJ	12	J	4.2	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4.6	UJ	4.2	UJ	4	UJ	2.5	J	2.1	J
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	5	J	3.2	J	4	UJ	4.6	J	3.5	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.4	UJ	0.83	J	2.1	UJ	0.91	J	2.2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.4	UJ	2.2	UJ	2.1	UJ	0.71	J	2.2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	3.7	J	4.6	J	2.1	UJ	4.5	R	2.2	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.2	UJ	1.1	UJ	1	UJ	9	R	1.1	UJ
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.4	UJ	2.2	UJ	2.1	UJ	2.3	UJ	2.2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	22	J	38	J	8.5	J	37	J	6.5	J
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.4	UJ	2.2	UJ	2.1	UJ	1.4	J	2.2	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.6	UJ	4.2	UJ	4	UJ	4.5	UJ	4.2	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	5.4	J	4.2	UJ	4	UJ	2.5	J	4.2	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.6	UJ	4.2	UJ	4	UJ	4.5	UJ	4.2	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4	R	4.2	UJ	4	UJ	4.5	UJ	4.2	UJ
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.6	UJ	4.2	UJ	4	UJ	4.5	UJ	4.2	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	2.4	UJ	2.2	UJ	2.1	UJ	2.3	UJ	2.2	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	3.3	R	6.5	R	2.1	UJ	7.5	R	2.2	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.4	UJ	2.2	UJ	2.1	UJ	2.3	UJ	2.2	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.4	UJ	2.3	J	2.1	UJ	2.4	J	2.2	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	24	UJ	22	UJ	21	UJ	23	UJ	22	UJ

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS07E-000.5**		**SSA12-SS08E-000.5**		**SSA12-SS09E-000.5**		**SSA12-SS10E-000.5**		**SSA12-SS13E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/06/07**		**12/06/07**		**12/06/07**		**12/07/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:														
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	16600		11500		12300		12900		11900	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	1.4	B	0.71	B	3.1	B	0.68	B	0.79	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	6.2		2.8		6.2		6.2		6.9	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	130		100		171		82.9		69.7	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.94	K	0.97	K	0.75	K	0.85		0.71	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.42	B	0.07	U	2	K	0.07	U	0.07	U
Calcium	NA	NA	NA	NA	3720		1580		6650		1360		2770	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	25.9	J	19	J	18.3	J	14.1	J	15.8	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.7	J	7.3	J	5.4	J	4.9	J	5.9	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	49	J	18	J	180	J	16.9	J	17.3	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	20500	J	16100	J	14000	J	12500	J	14500	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	289		25.7		336		35.6		46.3	
Magnesium	NA	NA	NA	NA	2180		1840		2260		1300		1560	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	276	J	381	J	468	J	465	J	475	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.1		0.042		0.059		0.16		0.12	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	15.4	J	13.9	J	13.4	J	9.2	J	11.1	J
Potassium	NA	NA	NA	NA	831	L	1290		1150		552	L	942	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.08	UR	0.07	UR	0.87	L	0.07	UR	0.26	L
Sodium	NA	NA	NA	NA	187	B	135	B	168	B	87.1	B	111	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	3.8	J	2.6	J	2.8	J	1.9	J	2.4	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	37.3		25.7		21.1		22.9		25.2	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	214		43		313		48		67.9	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	270	U	260	U	230	U	240	U	240	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	270	U	260	U	170	J	240	U	240	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	270	U	260	U	230	U	240	U	240	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	270	U	110	J	710	J	240	U	240	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	270	U	660		1800	J	240	U	520	J
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	140	J	650		1600	J	240	U	630	J
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	270	U	710		1800	J	240	U	610	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	270	U	350		970	J	240	U	460	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	170	J	650		1500	J	240	U	630	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	270	U	260	U	230	U	360		1500	
Carbazole	NA	NA	**9.00E+05**	4.00E+06	270	U	260	U	230	U	240	U	240	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	190	J	710		2000	J	110	J	680	J
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	270	U	160	J	490	J	240	U	140	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	410	J	1300		5100	J	220	J	1100	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	270	U	260	U	280	J	240	U	240	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	270	U	400		1200	J	240	U	490	J
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	280	J	510		2800	J	140	J	460	J
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	360	J	1300		4800	J	210	J	1200	J
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	25	B	11	B	13	B	20	B	24	B
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	340		160		140		230		280	

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS07E-000.5**		**SSA12-SS08E-000.5**		**SSA12-SS09E-000.5**		**SSA12-SS10E-000.5**		**SSA12-SS13E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/06/07**		**12/06/07**		**12/06/07**		**12/07/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:														
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	8.6	U	7.6	U	2.2	J	7.9	U	7.4	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	8.6	U	7.6	U	6.4	U	1.9	J	7.4	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	8.6	U	7.6	U	6.4	U	7.9	U	7.4	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	8.6	U	7.6	U	6.4	U	7.9	U	7.4	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	8.6	U	7.6	U	6.4	U	7.9	U	7.4	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	8.6	U	7.6	U	6.4	U	7.9	U	7.4	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	52	UJ	2.4	J	4.5	UJ	23	UJ	4.6	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	52	UJ	5.1	UJ	5	R	23	UJ	3.4	R
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	52	UJ	5.1	UJ	7.4	R	23	UJ	11	R
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	27	UJ	2.6	UJ	2.3	UJ	12	UJ	2.4	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	27	UJ	2.6	UJ	2.3	UJ	12	UJ	2.4	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	27	UJ	2.6	UJ	2.2	R	12	UJ	1.1	J
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	14	UJ	18	R	16	R	13	J	14	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	27	UJ	0.87	J	2.3	UJ	12	UJ	1.6	J
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	500	J	20	J	12	J	140	J	4.6	UJ
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	27	UJ	1.2	J	0.91	J	12	UJ	1.3	J
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	52	UJ	5.1	UJ	4.5	UJ	23	UJ	4.6	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	52	UJ	5.1	UJ	8.8	J	23	UJ	23	R
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	52	UJ	5.1	UJ	4.5	UJ	23	UJ	4.6	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	52	UJ	2.8	J	4.7	J	23	UJ	5.6	R
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	52	UJ	6.7	R	4.5	UJ	23	UJ	14	J
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	27	UJ	2.6	UJ	2.3	UJ	12	UJ	2.4	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	27	UJ	2.6	UJ	13	R	12	UJ	2.4	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	27	UJ	2.6	UJ	2.3	UJ	12	UJ	2.4	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	27	UJ	2.6	UJ	1.6	J	12	UJ	1.3	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	270	UJ	26	UJ	23	UJ	120	UJ	24	UJ

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS14E-000.5**		**SSA12-SS15E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/06/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**	
Duplicate of:								
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	13400		11000	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.71	B	0.77	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	5.5		9	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	95.1		102	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.91	K	0.88	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.07	U	0.08	B
Calcium	NA	NA	NA	NA	2990		6040	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	16.3	J	17	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.6	J	5.3	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	23.5	J	25.1	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	14300	J	15600	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	36		92.8	
Magnesium	NA	NA	NA	NA	1660		2910	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	494	J	483	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.15		0.14	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	10.8	J	13	J
Potassium	NA	NA	NA	NA	774	L	1050	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.07	UR	0.17	L
Sodium	NA	NA	NA	NA	114	B	134	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	2.7	J	3.3	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	24.8		23.8	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	62.4		92.2	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	490	U	250	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	130	J	250	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	390	J	180	J
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	650	J	480	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2000	J	1900	J
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2200	J	2100	J
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	2700	J	2500	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	1500	J	1500	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	1600		1800	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	490	U	250	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	490	U	250	J
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2400	J	2300	J
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	670	J	690	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	5300	J	4900	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	200	J	250	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	1800	J	1700	J
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	2500	J	2100	J
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	5900	J	5000	J
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	30	B	25	B
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	310		290	

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS14E-000.5**		**SSA12-SS15E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/06/07**		**12/06/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**	
Duplicate of:								
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	7.9	U	8.3	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	7.9	U	8.3	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	7.9	U	12	
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	7.9	U	8.3	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	7.9	U	8.3	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	7.9	U	3.8	J
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4.7	UJ	9.7	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	15	J	25	J
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	14	J	30	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	0.61	J	5	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.4	UJ	5	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.8	J	5	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.2	UJ	67	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.2	J	5	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	8.3	R	25	J
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	3.9	R	5	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.7	UJ	150	R
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	16	R	54	J
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.7	UJ	6.9	J
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	11	J	27	J
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	12	J	9.7	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	2.4	UJ	5	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	15	R	7.6	R
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.9	J	5	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.4	UJ	5	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	24	UJ	41	J

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3	Region 3	PADEP	PADEP	SSA12-SS16E-000.5		SSA12-SS16E-000.5-D		SSA12-SS17E-000.5		SSA12-SS18E-000.5		SSA12-SS19E-000.5	
Sample Date:	Residential	Non-	Residential	Non-	12/05/07		12/05/07		12/05/07		12/05/07		12/05/07	
Top Depth (feet):	SL	Residential	MSC	Residential	0		0		0		0		0	
Bottom Depth (feet):		SL		MSC	0.5		0.5		0.5		0.5		0.5	
Duplicate of:							SSA12-SS16E-000.5							
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	7630		7840		12000		12400		9890	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.97	B	0.57	B	1.1	B	0.62	B	0.77	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	8.4		6.5		4.7		4.1		3	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	104		100		98.6		66.4		77.9	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.69	K	0.66	K	0.79	K	0.7	K	0.77	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.59	J	0.61	J	0.07	UR	0.07	UR	0.06	UR
Calcium	NA	NA	NA	NA	1640		1830		4560		1710		1850	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	12.1		11.2		16.6		18.9		13.3	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.3	K	5	K	6.1	K	7.8	K	6.2	K
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	29.6	J	28.6	J	23.1	J	227	J	12.5	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	16000		13500		26600		20600		13800	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	74.4		71.6		43.6		29.1		27.5	
Magnesium	NA	NA	NA	NA	1170		1270		2180		1920		1510	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	324	K	317	K	405	K	320	K	430	K
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.14	K	0.11	K	0.38	K	0.056	K	0.054	K
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	9.2		8.9		13		11.6		10	
Potassium	NA	NA	NA	NA	1220		1340		1400		1130		1230	
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	5.2		4.5		0.68	L	0.07	UR	0.06	UR
Sodium	NA	NA	NA	NA	126	B	112	B	184	B	122	B	99.6	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	3	K	2.2	K	3.8	K	3.3	K	1.8	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	18.2		16.6		25.1		30.6		21	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	109		106		72.7		45.3		43.1	
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	220	U	210	U	250	U	230	U	200	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	220	U	210	U	250	J	230	U	200	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	220	U	210	U	420	J	230	U	200	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	220	U	210	U	1200	J	170	J	91	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	220	U	210	U	3700	J	660	J	500	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	220	U	210	U	2600		630	J	500	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	220	U	210	U	2800		670		480	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	220	U	210	U	2000	J	390	J	250	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	94	J	91	J	2700	J	630	J	590	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	220	U	210	U	250	U	230	U	200	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	220	U	210	U	340	J	230	U	200	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	140	J	130	J	4000	J	740	J	520	
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	220	U	210	U	610	J	230	U	100	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	190	J	200	J	8500	J	1500	J	930	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	220	U	210	U	220	J	230	U	200	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	220	U	210	U	2400	J	420	J	280	
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	140	J	130	J	4500	J	660		410	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	190	J	190	J	8100	J	1400	J	1000	
VOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	7.9	B	31	B	15	B	16	U	19	B
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	130	J	390	J	130		36	B	200	

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SS16E-000.5**		**SSA12-SS16E-000.5-D**		**SSA12-SS17E-000.5**		**SSA12-SS18E-000.5**		**SSA12-SS19E-000.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/05/07**		**12/05/07**		**12/05/07**		**12/05/07**		**12/05/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**0**		**0**		**0**		**0**		**0**	
Bottom Depth (feet):		**SL**		**MSC**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**	
Duplicate of:							**SSA12-SS16E-000.5**							
Benzene	**1.10E+03**	5.40E+03	5.70E+04	2.90E+05	6.8	U	6.9	U	6.9	U	6.3	U	5.2	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	3.2	J	6.9	U	6.9	U	6.3	U	5.2	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	6.8	U	6.9	U	6.9	U	6.3	U	5.2	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	6.8	U	6.9	U	6.9	U	6.3	U	5.2	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	6.8	U	6.9	U	6.9	U	6.3	U	5.2	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	6.8	U	6.9	U	6.9	U	6.3	U	5.2	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	11	R	2.5	J	4.9	UJ	1.8	J	4	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4.3	UJ	1.7	J	9.9	R	4.5	UJ	4	UJ
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	7.8	R	6	J	8.8	J	4.7	J	1.5	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.2	UJ	2.1	UJ	2.5	UJ	2.3	UJ	2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.2	UJ	2.1	UJ	2.5	UJ	2.3	UJ	2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.3	J	2	J	2.5	UJ	2.3	UJ	2	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	7.8	R	8.9	R	1.3	UJ	13	R	12	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.2	UJ	2.1	UJ	1.5	J	1.7	J	2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	5	J	5.7	J	4.9	UJ	4.5	UJ	4	UJ
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	0.91	J	1	J	1.6	J	0.6	J	0.68	J
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.3	UJ	4.1	UJ	4.9	UJ	4.5	UJ	4	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	3.5	J	2.4	J	4.9	UJ	22	J	4	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.3	UJ	4.1	UJ	4.9	UJ	4.5	UJ	4	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.7	J	4.1	UJ	6.7	J	3.6	J	4	UJ
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.3	UJ	1.8	J	11	J	8.8	J	4	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	7.20E+04	2.2	UJ	2.1	UJ	2.5	UJ	2.3	UJ	2	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.2	UJ	3.2	R	2.5	UJ	2.3	UJ	2	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.2	UJ	2.1	UJ	0.68	J	2.3	UJ	2	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	0.94	J	0.92	J	2.5	UJ	0.9	J	2	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	22	UJ	21	UJ	25	UJ	13	J	20	UJ

TABLE 4-3

COMPARISON OF SURFACE SOIL ANALYTICAL DATA TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.
-- Shading indicates values that exceeded the screening criteria

Database source file: H:\WILLOWGROVE\SITE SSA 12\MAR1808N003.DBF data retrieved on: 03/18/08

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 37

Sample ID:		Region 3			12SB01-0.502-02		12SB01-000.5-01		12SB02-0.502-02		12SB02-0.502-02-D		12SB02-000.5-01		12SB03-0.502-02		12SB03-000.5-01		12SB04-0.502-02	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Top Depth (feet):					**0.5**		**0**		**0.5**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):					**2**		**0.5**		**2**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:											**12SB02-0.502-02**									
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	16400		15800		12300		12900		12100		18200		16400		17300	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.49	B	0.71	B	0.52	B	0.57	B	1.4	B	0.48	R	0.71	R	0.66	R
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	6.1		5.4		4.7		4.1		6.8		5.2	J	4.6	J	5	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	127		120		164		112		95.4		91.8	L	94.8	L	70	L
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.98	K	0.93	K	1	K	0.78	K	0.68	K	0.66	J	0.74	J	0.47	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.37	B	0.39	B	0.28	B	0.26	B	0.71	K	0.56	J	0.59	J	0.38	R
Calcium	NA	NA	NA	NA	9120		2320		876		862		1620		837	J	1040	J	765	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	18.4		21.6		16.9		16.9		16		21.1		22.3		24.1	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	7		7.8		7.8		6.5		6.5		6.9	J	7.3	J	6.9	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	15		14.8		9.4		9.7		14		62.9		23.2		10.5	
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.18	U	0.21	U	0.19	U	0.18	U	0.19	U	0.17	U	0.21	U	0.17	U
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	14500	L	15400	L	14800	L	14200	L	13700	L	19400	J	20600	J	24200	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	63.6	J	60	J	32.1	J	64.7	J	301	J	19.6	J	37.4	J	10.9	J
Magnesium	NA	NA	NA	NA	5140	J	2060	J	1310	J	1420	J	1490	J	1820	J	2010	J	2250	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	693		659		799		677		452		336	J	303	J	375	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.064		0.071		0.069		0.042		0.097		0.033	K	0.021	U	0.03	K
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	11.5		12.7		9.4		10.2		10.8		11.6	J	13.2	J	11.9	J
Potassium	NA	NA	NA	NA	922	J	1290	J	480	J	557	J	746	J	677	L	937	L	808	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.43	UR	0.53	UR	0.43	UR	0.46	UR	0.45	UR	0.41	UR	0.49	UR	0.41	UR
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.12	U	0.14	U	0.12	U	0.12	U	0.12	U	0.11	U	0.13	U	0.11	U
Sodium	NA	NA	NA	NA	150	B	148	B	137	B	144	B	146	B	143	B	157	B	149	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.64	U	1.2	K	0.83	K	0.96	K	0.66	U	0.6	U	0.72	U	0.81	K
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	27.4		29.2		25.4		24.7		25.5		32		34.8		41.5	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	52.9		63.7		34.1		33.8		59.3		56.6		65.6		30.7	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	44	J	250	U	1.4	J	1.7	J	25		2	J	3.7	J	10	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	360		120	J	11	U	11	U	5.6	J	2.1	J	3.8	J	10	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	530		250	J	2.4	J	1.9	J	27		1.1	B	12		10	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	210	U	250	U	420	U	420	U	430	U	380	U	470	U	400	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	1100		510		1.7	J	1.4	J	34		1.6	J	23		10	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	4100		1800		8.3	J	7	J	210		6.2	J	160		1.3	J
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	4700		2100		10	J	8.9	J	190		7	J	120		1	B
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	5200		3100		15		10	J	230		8.6	J	160		1.3	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	1500		820		8.5	J	7.2	J	98		5.5	J	53		0.74	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	2400		2100		9.2	J	10	J	150		7.8	J	110		1.1	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	210	U	140	J	55	J	220	U	220	U	63	J	240	U	210	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	530		500		420	U	420	U	430	U	380	U	470	U	400	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	6200		3000		12		10	J	190		8.6	J	120		1.4	J
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	210	U	250	U	220	U	220	U	220	U	200	U	42	J	210	U
Di-n-octylphthalate	NA	NA	NA	NA	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	820		410		2.1	J	1.8	J	29		1.1	J	18		10	U
Dibenzofuran	NA	NA	NA	NA	410		160	J	220	U	220	U	220	U	200	U	240	U	210	U
Dimethylphthalate	NA	NA	NA	NA	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	18000		6100		17		16		370		17		290	J	2.4	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	800		280		0.68	J	0.59	J	11		1.6	J	6.1	J	10	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2300		1200		9.2	J	7.7	J	160		6.2	B	89		0.87	B
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	41	J	250	U	1.3	B	1.5	B	13		1.4	B	2.4	B	10	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	12000		4200		8.9	J	8.1	J	190		10		110		1.6	J

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB01-0.502-02		12SB01-000.5-01		12SB02-0.502-02		12SB02-0.502-02-D		12SB02-000.5-01		12SB03-0.502-02		12SB03-000.5-01		12SB04-0.502-02	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0**		**0.5**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**0.5**		**2**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:											**12SB02-0.502-02**									
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	12000		4200		14		13		290		13		220		1.9	B
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	20		34		14	J	17		20		12	U	4.9	B	13	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	14	U	24	U	15	U	16	U	16	U	12	U	11	U	13	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	180		350		130		170		260		83	J	130	J	120	J
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	1.4	J	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	1.2	J	4.4	U	5.4	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	5.7	U	15		17		5.7	J	440	J	5	UJ	14	J	18	J
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2	J	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	83	U	3.9	J	4.2	U	4.2	U	19	R	3.8	U	6.1	R	4	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	79	R	22	R	4.2	U	4.2	U	2.3	J	1.2	J	2.6	J	4	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	14	R	4.9	U	4.2	U	4.2	U	3	J	1.3	J	2.3	J	4	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.1	U	2.5	U	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.1	U	2.5	U	2.2	U	2.2	U	0.87	J	2	U	0.48	J	2.1	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.1	U	2.5	U	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	21	U	13	U	1.1	U	1.1	U	1.1	U	0.98	U	1.2	U	1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.3	J	1.9	R	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	83	U	49	U	4.2	U	4.2	U	15	R	1	J	6.4		4	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	3.9	J	3.7	R	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	16	R	9.1	R	4.2	U	4.2	U	1.8	R	3.8	U	4.7	U	4	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.1	U	4.9	U	4.2	U	4.2	U	4.3	U	3.8	U	4.7	U	4	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	U	4.9	U	4.2	U	4.2	U	4.3	U	3.8	U	4.7	U	4	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	23	J	21	R	4.2	U	4.2	U	1.5	J	3.8	U	1.5	J	4	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	27	J	9.9	J	4.2	U	4.2	U	4.3	U	3.8	U	1.9	J	4	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	16	J	5.7	R	2.2	U	2.2	U	1.2	B	2	U	1.2	J	2.1	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.4	R	3.3	R	2.2	U	2.2	U	1.1	R	2	U	0.55	J	2.1	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	43	U	9.7	R	2.2	U	2.2	U	1.7	J	2	U	2.4	U	2.1	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	430	U	99	R	22	U	22	U	22	U	20	U	24	U	21	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB04-000.5-01		12SB05-0.502-02		12SB05-000.5-01		12SB06-0.502-02		12SB06-000.5-01		12SB06-000.5-01-D		12SB07-0.502-02		12SB07-000.5-01	
Sample Date:	Region 3	Non-	PADEP	PADEP Non-	1/11/2010		1/14/2010		1/14/2010		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011	
Top Depth (feet):	Residential	Residential	Residential	Residential	0		0.5		0		0.5		0		0		0.5		0	
Bottom Depth (feet):	SL	SL	MSC	MSC	0.5		2		0.5		2		0.5		0.5		2		0.5	
Duplicate of:															12SB06-000.5-01					
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	12300		19100		13300		15300	J	8420	J	8680	J	9870	J	7420	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.48	R	0.74	B	0.54	B	0.23	B	1.8	L	1.4	L	0.6	L	10.1	L
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	4.6	J	6.8		9.1		8.6	J	5.3	J	5.6	J	3.2	J	7.1	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	84.8	L	88.1		93.1		69.7	K	58.3	K	53.8	K	77.3	K	44.1	K
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.63	J	0.57	K	0.75	K	0.57	J	0.55	J	0.54	J	0.63	J	0.54	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.37	J	0.28	B	0.71	K	0.11	K	0.11	K	0.086	J	0.14	K	0.19	K
Calcium	NA	NA	NA	NA	863	J	950		1360		639	J	609	J	454	J	547	J	863	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	15.9		24.5		17.3		19.7	J	13.6	J	14.2	J	11.7	J	12.9	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	7.3	J	8.3		7.7		6.7	J	4	J	4	J	5	J	6	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	9.6		10.5		24.4		11	J	7.9	J	7.9	J	8.6	J	12.6	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.2	U	0.18	U	0.21	U	0.05	J	0.119	J	0.114	J	0.1565	U	0.101	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		2		3		2		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	14100	J	25500	L	17000	L	32300	J	14000	J	14000	J	15200	J	15400	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	19.9	J	11	J	47.2	J	13.6		445		356		56.6		883	
Magnesium	NA	NA	NA	NA	1390	J	2100	J	1680	J	2270	J	1270	J	1120	J	1210	J	1020	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	598	J	312		475		183	J	148	J	138	J	375	J	411	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.088	K	0.03		0.078		0.026		0.071		0.074		0.024		0.041	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	9.3	J	11.3		11.9		9.4	J	6.9	J	6.9	J	6.8	J	6.8	J
Potassium	NA	NA	NA	NA	507	L	840	J	938	J	419	J	283	J	240	J	309	J	345	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.37	UR	0.44	UR	0.48	UR	0.07	J	0.25	J	0.35	B	0.17	J	0.26	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.1	U	0.12	U	0.13	U	0.029	B	0.069	B	0.066	J	0.032	B	0.1	B
Sodium	NA	NA	NA	NA	122	B	147	B	140	B	35.2	J	34.2	J	33.1	J	40.8	J	39.9	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.54	U	0.94	K	0.7	U	0.18	B	0.15	B	0.11	J	0.12	B	0.14	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	24.8		39.1		28.9		30.3	J	20.1	J	20.6	J	17.5	J	19	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	33.1		33		66		33.1	J	36.3	J	32.9	J	21.1	J	30.5	J
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.4	J	3.4	J	63		6.4		7.5		2.3	U	2.05	U	2.2	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.5	J	11	U	4.8	J	3	J	6.1		2.3	U	2.05	U	2.2	J
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	7.9	J	0.88	J	12		3	J	5.6		2.3	U	2.05	U	2.2	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	470	U	420	U	460	U	NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	12		0.72	J	18		2.1	U	2.3	U	2.3	U	3.3	J	18	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	46		2.7	J	73		2.1	U	2.3	U	2.3	U	2.05	U	50	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	240	U	220	U	240	U	NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	55		3.2	J	88		2.1	U	2.3	U	2.8	J	7.1		36	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	57		6.4	J	140		2.1	U	2.8	J	4.6		8.3		49	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	41		2.9	J	66		2.1	U	2.3	U	2.3	U	3.7	J	16	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	71		3.3	J	100		2.1	U	2.3	U	2.3	U	2.9	J	19	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	240	U	220	U	66	J	210	U	230	U	230	U	205	U	220	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	470	U	420	U	460	U	210	U	230	U	230	U	205	U	220	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	62		7	J	150		2.1	U	2.3	J	3.7	J	10		51	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	240	U	220	U	240	U	210	U	230	U	230	U	205	U	220	U
Di-n-octylphthalate	NA	NA	NA	NA	240	U	220	U	240	U	210	U	230	U	230	U	205	U	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	9	J	0.77	J	16		2.1	U	2.3	U	2.3	U	2.05	U	4.9	
Dibenzofuran	NA	NA	NA	NA	240	U	220	U	240	U	210	U	230	U	230	U	205	U	220	U
Dimethylphthalate	NA	NA	NA	NA	240	U	220	U	240	U	210	U	230	U	230	U	205	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	120		7.9	J	200		2.1	U	6.1		8.8		19		120	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2.9	J	11	U	6.2	J	2.1	U	4.2	J	2.3	U	2.05	U	4.9	
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	47		2.9	J	71		2.1	U	2.3	U	2.3	U	3.3	J	19	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	1.9	B	1.7	B	20		9		8.9		2.3	U	2.05	U	2.2	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	55		7.1	J	150		2.1	U	5.2		6.5		11		73	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB04-000.5-01		12SB05-0.502-02		12SB05-000.5-01		12SB06-0.502-02		12SB06-000.5-01		12SB06-000.5-01-D		12SB07-0.502-02		12SB07-000.5-01	
Sample Date:	Region 3	Non-	PADEP	PADEP Non-	1/11/2010		1/14/2010		1/14/2010		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011	
Top Depth (feet):	Residential	Residential	Residential	Residential	0		0.5		0		0.5		0		0		0.5		0	
Bottom Depth (feet):	SL	SL	MSC	MSC	0.5		2		0.5		2		0.5		0.5		2		0.5	
Duplicate of:															12SB06-000.5-01					
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	94		6.1	J	150		2.1	U	5.2		6.9		18		91	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	13	J	21		12	J	14	U	16	U	16.5	U	15	U	14.5	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	16	U	15	U	19	U	14	U	16	U	16.5	U	15	U	14.5	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	270	J	180		220		51		50		52		180		36	
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	3	U	2.95	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	3	U	2.95	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	3	U	2.95	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	11	J	41		13		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	3	U	2.95	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	3	U	2.95	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	3	U	2.95	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4.7	U	4.2	U	1.9	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4.7	U	0.82	J	5.4		1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	4.7	U	4.2	U	6	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.4	U	2.2	U	1.7	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.4	U	2.2	U	1.7	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.4	U	3.1	R	4	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.2	U	1.1	U	5.9	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.4	U	2.2	U	0.42	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.7	J	1.3	J	8.5		1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.4	U	2.2	U	0.55	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.7	U	4.2	U	3.3	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.7	U	4.2	U	1.5	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.7	U	4.2	U	3.3	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.7	U	4.2	U	2.1	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.7	U	4.2	U	2.1	J	1.1	UJ	1.2	UJ	1.15	UJ	1.05	U	1.15	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.4	U	4.6	R	1.7	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.4	U	0.93	J	0.49	J	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.4	U	2.2	U	2.3	R	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	24	U	22	U	17	U	1.1	U	1.2	U	1.15	U	1.05	U	1.15	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12SB08-0.502-02		12SB08-000.5-01		12SB09-0.502-02		12SB09-0.502-02-D		12SB09-000.5-01		12SB10-0.502-02		12SB10-000.5-01		12SB11-0.501-02	
Sample Date:	Region 3	Non-	PADEP	PADEP Non-	12/28/2011		12/28/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011	
Top Depth (feet):	Residential	Residential	Residential	Residential	0.5		0		0.5		0.5		0		0.5		0		0.5	
Bottom Depth (feet):	SL	SL	MSC	MSC	2		0.5		2		2		0.5		2		0.5		1	
Duplicate of:											12SB09-0.502-02									
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg				mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	11000	J	9470	J	5280	J	NA		3970	J	4060	J	2770	J	5310	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.22	B	0.35	B	0.13	B	NA		0.17	B	0.17	B	0.25	B	0.14	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	2.8	J	2.8	J	3	J	NA		2.1	J	0.96	J	1.1	J	1.8	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	47.7	K	54.2	K	44.2	J	NA		32.5	J	67.2	J	53.1	J	62.2	J
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.71	J	0.68	J	0.47	J	NA		0.31	J	0.56	J	0.4	J	0.53	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.12	K	0.16	K	0.33		NA		0.14	B	0.084	B	0.12	B	0.071	B
Calcium	NA	NA	NA	NA	362	J	1000	J	627	J	NA		592	J	3080	J	2000	J	381	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	19.1	J	17	J	8.7		NA		7.7		8.5		8.1		10.5	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	6.5	J	8.6	J	3	J	NA		2.1	J	4.5	J	3.5	J	5.2	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	6.6	J	6.8	J	5.3	J	NA		4.8	J	5.7	J	6.2	J	6.8	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.055	J	0.081	J	0.077	J	NA		0.059	J	0.426		0.111	J	0.085	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		2		1		3		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	24300	J	23800	J	7790	J	NA		7180	J	9670	J	7460	J	11300	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	10.3		17.5		10.6	J	NA		11	J	7.2	J	11.1	J	7	J
Magnesium	NA	NA	NA	NA	1540	J	1520	J	851	J	NA		618	J	2120	J	1290	J	923	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	252	J	430	J	227	J	NA		127	J	312	J	213	J	323	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.017		0.039		0.028		NA		0.042		0.007	J	0.022		0.018	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	9.9	J	9.3	J	4.3	J	NA		3.5	J	5.3	J	4.4	J	5.6	J
Potassium	NA	NA	NA	NA	556	J	719	J	163	L	NA		191	L	440	L	354	L	362	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.21	U	0.3	U	0.19	J	NA		0.12	J	0.076	J	0.081	J	0.07	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.023	B	0.026	B	0.028	B	NA		0.024	B	0.013	B	0.022	B	0.014	B
Sodium	NA	NA	NA	NA	51.3	J	48.2	J	45	J	NA		28.5	B	67.6	J	41.6	B	42.5	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.12	B	0.12	B	0.14	B	NA		0.17	B	0.15	B	0.28	B	0.08	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	21.5	J	23.4	J	11.6	J	NA		10.4	J	10.5	J	9.7	J	14.7	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	20	J	29.2	J	23	J	NA		28	J	16.9	J	27.9	J	18.3	J
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg				ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.05	U	2.3	U	2.05	U	NA		2.45	U	990	K	2.35	U	1.95	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.05	U	2.3	U	9		NA		2.45	U	1900		40		1.95	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.05	U	2.3	U	9		NA		2.45	U	260		9.5		1.95	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	2.05	U	2.3	U	31		NA		3	J	5500	K	220		1.95	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2.05	U	2.3	U	110		NA		16		6000	K	530		4.8	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2.05	U	2.3	J	120		NA		14		4600	K	440		5.9	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	2.05	U	4.2	J	170		NA		19		6000	K	570		7.9	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	2.05	U	2.3	U	79		NA		8.5		1900	K	200		3.6	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	2.05	U	2.3	U	63		NA		8		2200	K	230		4	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	205	U	230	U	205	U	NA		245	U	950	U	235	U	195	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	205	U	230	U	205	U	NA		245	U	2200	K	235	U	195	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2.05	U	3.2	J	150		NA		16		5900	K	470		7.1	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	205	U	230	U	205	U	NA		245	U	950	U	235	U	195	U
Di-n-octylphthalate	NA	NA	NA	NA	205	U	230	U	205	U	NA		245	U	950	U	235	U	195	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	2.05	U	2.3	U	6.6		NA		2.45	U	220	K	25		1.95	U
Dibenzofuran	NA	NA	NA	NA	205	U	230	U	205	U	NA		245	U	3300	K	235	U	195	U
Dimethylphthalate	NA	NA	NA	NA	205	U	230	U	420		NA		460	J	950	U	310	J	300	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	3.3	J	6.5		440		NA		42		18000	K	1500		19	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2.05	U	2.3	U	23		NA		2.45	U	3300	K	52		1.95	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2.05	U	2.3	U	95		NA		9.4		2000	K	220		3.6	J
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.05	U	2.3	U	2.5	J	NA		2.45	U	620	K	2.35	U	1.95	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	2.5	J	3.7	J	290		NA		19		39000	K	700		14	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB08-0.502-02		12SB08-000.5-01		12SB09-0.502-02		12SB09-0.502-02-D		12SB09-000.5-01		12SB10-0.502-02		12SB10-000.5-01		12SB11-0.501-02	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/28/2011**		**12/28/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Top Depth (feet):					**0.5**		**0**		**0.5**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):					**2**		**0.5**		**2**		**2**		**0.5**		**2**		**0.5**		**1**	
Duplicate of:											**12SB09-0.502-02**									
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	2.5	J	5.1		300		NA		32		13000	K	960		13	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	13	U	13	J	13	U	NA		16.5	U	11.5	U	14.5	U	12	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	13	U	16	U	13	U	NA		16.5	U	11.5	U	14.5	U	12	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	13	U	210		13	U	NA		14	J	11.5	U	14.5	U	12	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.6	U	3.25	U	2.55	U	NA		3.3	U	2.35	U	2.9	U	2.45	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	2.6	U	3.25	U	2.55	U	NA		3.3	U	2.35	U	2.9	U	2.45	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.6	U	3.25	U	2.55	U	NA		3.3	U	2.35	U	2.9	U	2.45	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	2.6	U	3.25	U	2.55	U	NA		3.3	U	2.35	U	2.9	U	2.45	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.6	U	3.25	U	2.55	U	NA		3.3	U	2.35	U	2.9	U	2.45	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	2.6	U	3.25	U	2.55	U	NA		3.3	U	2.35	U	2.9	U	2.45	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.05	U	1.2	U	1.05	U	NA		1.25	U	0.95	UJ	1.2	U	1	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12SB11-000.5-01		12SB12-0.502-02		12SB12-000.5-01		12SB13-0.502-02		12SB13-000.5-01		12SB14-0.502-02		12SB14-000.5-01		12SB15-0.502-02	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**		**12/15/2011**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:																				
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	6090	J	11400	J	10900	J	2280		4360		4240	J	4160		4190	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.32	B	0.27	B	0.51	L	1.8	J	0.25	B	0.25	B	0.34	B	0.24	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	3.3	J	5.6	J	4.8	J	5.1	L	3.1	L	3.3	J	3.1	L	1.1	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	62.9	J	84.4	K	90.9	K	40.8		64		66.5	J	49.8		51.5	J
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.65	J	0.9	J	0.82	J	0.23	L	0.49	L	0.54	J	0.49	L	0.42	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.18		0.23		0.56		0.67		0.61		0.13	B	0.47		0.064	B
Calcium	NA	NA	NA	NA	698	J	910	J	1860	J	800		2360		1330	J	1600		393	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	11.5		16.4	J	20.9	J	4.7	J	8.3	J	7.9		13.7	J	9.6	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	3.2	J	5.6	J	8.6	J	2.6	L	4.9	L	4.7	J	5.3	L	3.8	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	8.2	J	10.5	J	15.2	J	9.8	L	7.4	L	19.4	J	10.4	L	4.2	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.073	J	0.097	J	0.166	J	0.058	J	0.076	J	0.1455	U	0.101	J	0.077	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		2		3	J	0.44	J	0.45	J	NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	11500	J	17900	J	20200	J	5810		8190		10300	J	9790		10600	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	17	J	20.1		40		71.3	L	29.9	L	9.2	J	49.1	L	8.1	J
Magnesium	NA	NA	NA	NA	940	J	1440	J	2050	J	478		1790		1190	J	1290		732	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	177	J	526	J	555	J	205		331		259	J	197		158	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.034		0.03		0.065		0.056		0.049		0.018		0.04		0.008	J
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	5.5	J	8.3	J	10.4	J	3.5	L	5.8	L	8.3	J	6.8	L	4.4	J
Potassium	NA	NA	NA	NA	304	L	276	J	605	J	175	L	331	L	314	L	569	L	482	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.23	J	0.21	J	0.42	J	0.1	J	0.18	J	0.11	J	0.11	J	0.285	U
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.042	B	0.049	B	0.15		0.27		0.06	B	0.039	B	0.13		0.025	B
Sodium	NA	NA	NA	NA	42.1	B	48.9	J	48.4	J	52.4	J	44.8	B	59.3	J	80.4	J	46.5	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.13	B	0.16	B	0.17	B	0.13	B	0.096	B	0.1	B	0.13	B	0.11	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	16.3	J	22.3	J	26.9	J	5.7	L	11.8	L	10.6	J	17.1	L	9.7	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	29	J	34.7	J	447	J	65		46.5		20.9	J	49.6		17	J
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.35	U	2.9	J	2.3	U	26		3.7	J	48		2.55	U	2	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	3.8	J	2.05	U	2.3	U	3.7	J	14		260		2.55	U	2	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	3.3	J	2.05	U	2.3	U	4.1		12		41		2.55	U	2	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	13	K	2.05	U	2.3	J	14		49		1800	K	2.55	U	4.9	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	77	K	2.05	U	14		60		270		3100	K	19		26	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	76	K	2.05	U	14		70		320		2600	K	20		30	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	110	K	3.3	J	20		99		510		3600	K	27		46	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	35	K	2.05	U	7.9		35		160		1400	K	11		22	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	44		2.05	U	7.9		34		160		1100	K	10		17	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	235	U	205	U	230	U	200	U	205	U	190	U	255	U	200	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	235	U	205	U	230	U	200	U	205	U	430		255	U	200	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	91	K	2.9	J	17		78		340		2900	K	22		37	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	235	U	205	U	230	U	200	U	205	U	190	U	255	U	200	U
Di-n-octylphthalate	NA	NA	NA	NA	235	U	205	U	230	U	200	U	205	U	190	U	255	U	200	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	3.3	J	2.05	U	2.3	U	4.1		17		140		2.55	U	2	U
Dibenzofuran	NA	NA	NA	NA	235	U	205	U	230	U	200	U	205	U	310	J	255	U	200	U
Dimethylphthalate	NA	NA	NA	NA	400	J	205	U	230	U	270	J	220	J	390		280	J	540	
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	220	K	5.8		38		170		780		8500	K	45		91	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	5.7		2.05	U	2.3	U	6.9		19		520		2.55	U	3.3	J
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	37		2.05	U	8.3		37		140		1700	K	12		21	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.35	U	3.7	J	2.3	U	24		5		38		2.55	U	2	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	93	K	3.7	J	23		99		340		7100	K	21		46	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB11-000.5-01		12SB12-0.502-02		12SB12-000.5-01		12SB13-0.502-02		12SB13-000.5-01		12SB14-0.502-02		12SB14-000.5-01		12SB15-0.502-02	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**		**12/15/2011**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:																				
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	160	K	5		30		130		550		5900	K	36		62	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	17	UJ	13.5	U	18	U	15.5	UJ	13.5	U	12.5	U	20.5	U	12	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	17	UJ	13.5	U	18	U	15.5	UJ	13.5	U	12.5	U	20.5	U	12	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	17	UJ	13.5	U	18	U	15.5	UJ	13.5	U	12.5	U	20.5	U	12	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	3.4	UJ	2.75	U	3.6	U	3.1	UJ	2.7	U	2.55	U	4.1	U	2.45	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	3.4	UJ	2.75	U	3.6	U	3.1	UJ	2.7	U	2.55	U	4.1	U	2.45	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	3.4	UJ	2.75	U	3.6	U	3.1	UJ	2.7	U	2.55	U	4.1	UJ	2.45	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	3.4	UJ	2.75	U	3.6	U	3.1	UJ	2.7	U	2.55	U	4.1	U	2.45	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	3.4	UJ	2.75	U	3.6	U	3.1	UJ	2.7	U	2.55	U	4.1	U	2.45	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	3.4	UJ	2.75	U	3.6	U	3.1	UJ	2.7	U	2.55	U	4.1	U	2.45	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.2	U	1.05	U	1.2	U	1.05	U	1.05	UL	1	U	1.35	U	1.05	U

Sample ID:		Region 3			12SB15-000.5-01		12SB15-000.5-01-D		12SB16-0.502-02		12SB16-000.5-01		12SB17-0.502-02		12SB17-000.5-01		12SB18-0.502-02		12SB18-000.5-01	
Sample Date:	Region 3	Non-	PADEP	PADEP Non-	12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011		12/28/2011		12/14/2011		12/14/2011	
Top Depth (feet):	Residential	Residential	Residential	Residential	0		0		0.5		0		0.5		0		0.5		0	
Bottom Depth (feet):	SL	SL	MSC	MSC	0.5		0.5		2		0.5		2		0.5		2		0.5	
Duplicate of:							12SB15-000.5-01													
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	3930	J	4010	J	7440	J	8380	J	16400	J	13500	J	7040	J	9000	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.39	B	0.29	B	0.21	B	0.53	B	0.21	B	0.41	L	0.32	B	0.64	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	1.5	J	1.4	J	4.6	J	5	J	5.8	J	5.8	J	3.5	J	5.4	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	55.3	J	52.7	J	60.3	J	93.2	J	85.2	K	64	K	59.7	J	76	J
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.52	J	0.45	J	0.72	J	0.79	J	0.76	J	0.75	J	0.56	J	0.77	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.17		0.14	B	0.1	B	0.4		0.37		1.6		0.24		0.67	
Calcium	NA	NA	NA	NA	787	J	645	J	410	J	1770	J	751	J	771	J	588	J	1150	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	11		10.5		12.6		15.2		19.8	J	18.1	J	10.8	J	15.1	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	4.4	J	3.7	J	4.6	J	5.8	J	4.9	J	4.8	J	4.2	J	5.5	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	6.1	J	5.8	J	4.9	J	9.3	J	8.5	J	9.3	J	7.4	J	11	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.093	J	0.1855	U	0.079	J	0.209	J	0.064	J	0.076	J	0.097	J	0.164	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		NA		1		2	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	9450	J	9650	J	12600	J	14300	J	24500	J	21300	J	10100	J	12800	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	24	J	21.2	J	12.7	J	31.2	J	13.4		24.7		19.1	J	36.1	J
Magnesium	NA	NA	NA	NA	813	J	789	J	945	J	1360	J	2060	J	1680	J	1070	J	1340	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	274	J	192	J	308	J	414	J	208	J	274	J	330	J	490	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.037		0.03		0.046		0.075		0.02		0.039		0.062		0.097	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	5.6	J	5.2	J	5.8	J	7.9	J	9.3	J	8.6	J	6.6	J	8.7	J
Potassium	NA	NA	NA	NA	487	L	467	L	200	L	528	L	436	J	424	J	334	J	549	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.375	U	0.096	J	0.3	J	0.54	J	0.27	UL	0.21	B	0.2	J	0.38	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.036	B	0.032	B	0.032	B	0.079	B	0.05	J	0.063	J	0.055	B	0.12	J
Sodium	NA	NA	NA	NA	45.4	B	34.9	B	35.2	B	47.8	J	39.9	J	49.4	J	58.9	J	145	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.15	B	0.095	B	0.12	B	0.28	B	0.18		0.15		0.11	B	0.15	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	12	J	11.8	J	18.5	J	21.5	J	28.8	J	26.5	J	15.8	J	21.4	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	30.8	J	26.8	J	22.7	J	46.6	J	33.7	J	38.6	J	31.1	J	48	J
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.45	U	2.45	U	1.95	U	2.55	U	2.1	U	2.2	U	2.05	U	2.55	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	5		5.5		1.95	U	4.1	J	2.1	U	2.2	U	3.7	J	5.6	
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.5	J	3.5	J	1.95	U	6.1		2.1	U	2.2	U	4.5		5.6	
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	22		18		1.95	U	9.7		2.1	U	2.2	U	19		9.7	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	97		72		3.2	J	51		2.1	U	4	J	84		46	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	81		59		3.2	J	62		2.1	U	4.9		77		56	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	110		83		4.7		94		2.1	U	8		110		90	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	50		26	J	1.95	U	34		2.1	U	5.8		48		35	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	44		31		2.4	J	37		2.1	U	3.1	J	37		33	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	245	U	245	U	195	U	255	U	210	U	220	U	205	U	255	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	245	U	245	U	195	U	255	U	210	U	220	U	205	U	255	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	99		79		4		76		2.1	U	6.7		93		76	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	245	U	245	U	195	U	255	U	210	U	220	U	205	U	255	U
Di-n-octylphthalate	NA	NA	NA	NA	245	U	245	U	195	U	255	U	210	U	220	U	205	U	255	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	5		3	J	1.95	U	2.6	J	2.1	U	2.2	U	4.1		2.55	U
Dibenzofuran	NA	NA	NA	NA	245	U	245	U	195	U	255	U	210	U	220	U	205	U	255	U
Dimethylphthalate	NA	NA	NA	NA	270	J	480	J	390		450	J	210	U	220	U	280	J	255	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	270		200		9.5		200		2.1	U	14		230		220	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	6		7.5		1.95	U	7.2		2.1	U	2.2	U	6.2		11	
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	49		29		1.95	U	31		2.1	U	4.9		49		37	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.45	U	2.45	U	1.95	U	3.1	J	2.1	U	2.2	U	2.05	U	3.6	J
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	120		100		6.7		110		2.1	U	10		96		150	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12SB15-000.5-01		12SB15-000.5-01-D		12SB16-0.502-02		12SB16-000.5-01		12SB17-0.502-02		12SB17-000.5-01		12SB18-0.502-02		12SB18-000.5-01	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**	
Top Depth (feet):					**0**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):					**0.5**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:							**12SB15-000.5-01**													
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	190		140		6.7		130		2.1	U	11		170		150	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	200	J	15	UJ	12	U	15	J	14	U	15	U	12	U	18	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	14	J	15	U	12	U	17	U	14	U	15	U	12	U	18	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	340	J	14	J	12	U	120		14	U	73		38		18	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	3.2	U	3	U	2.45	U	3.35	U	2.85	U	3	U	2.45	U	3.65	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	3.2	U	3	U	2.45	U	3.35	U	2.85	U	3	U	2.45	U	3.65	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	3.2	U	3	U	2.45	U	3.35	U	2.85	U	3	U	2.45	U	2.9	J
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	3.2	U	3	U	2.45	U	3.35	U	2.85	U	3	U	2.45	U	3.65	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	3.2	U	3	U	2.45	U	3.35	U	2.85	U	3	U	2.45	U	3.65	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	3.2	U	3	U	2.45	U	3.35	U	2.85	U	3	U	2.45	U	3.65	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	3.4		1.05	U	1.3	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	UJ	1.15	UJ	1.05	UJ	1.3	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.25	U	1.25	U	1	UJ	1.3	U	1.05	U	1.15	U	1.05	U	1.3	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB19-0.502-02		12SB19-000.5-01		12SB20-0.502-02		12SB20-000.5-01		12SB20-000.5-01-D		12SB21-0.502-02		12SB21-000.5-01		12SB22-0.502-02	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/14/2011**	
Top Depth (feet):					**0.5**		**0**		**0.5**		**0**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):					**2**		**0.5**		**2**		**0.5**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:													**12SB20-000.5-01**							
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	7270	J	5850	J	10700	J	5830	J	6630	J	13600		11500		7740	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	2	B	0.45	B	0.49	J	0.91	J	0.65	J	0.23	B	0.76	B	0.3	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	4.2	J	2.7	J	4	J	2.5	J	2.7	J	5.1	J	7.5	J	4.3	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	135	J	76.5	J	68.2	J	66.2	J	70	J	83.5	J	91.8	J	74.2	J
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.85	J	0.58	J	0.64	J	0.45	J	0.52	J	0.75	J	0.9	J	0.71	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.33		0.31		0.26		0.73		0.86		0.08	B	0.57	J	0.14	
Calcium	NA	NA	NA	NA	2080	J	1180	J	447	J	1180	J	1190	J	478	J	1000	J	314	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	15.9	J	11.5	J	17	J	13.7	J	13.8	J	19.7	J	18.3	J	11.2	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.8	J	5	J	5.4	J	4.3	J	4.8	J	5.9	J	7.6	J	3.6	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	11.1	J	8.6	J	10.8	J	10.2	J	11.9	J	7.9	J	18.1	J	5	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.067	J	0.124	J	0.1495	U	0.12	J	0.124	J	0.1575	U	0.113	J	0.068	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		3		7		1	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	13200	J	11900	J	21300	J	12200	J	13600	J	20700	J	18400	J	10300	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	20.1	J	27.3	J	15.6	J	36.8	J	39.8	J	10.6	J	47.2	J	12.1	J
Magnesium	NA	NA	NA	NA	2060	J	1130	J	1790	J	1270	J	1410	J	1640	J	1600	J	1090	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	544	J	390	J	238	J	256	J	282	J	201	J	803	J	299	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.043		0.043		0.04		0.057		0.05		0.017		0.082		0.089	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	8.1	J	7.5	J	9.3	J	8.8	J	10.5	J	9.9	J	10.7	J	6.1	J
Potassium	NA	NA	NA	NA	499	J	812	J	568	J	708	J	766	J	507	J	637	J	319	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.19	J	0.2	J	0.22	U	0.12	J	0.086	J	0.16	J	0.36	J	0.31	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.041	B	0.07	B	0.078	J	0.13		0.13		0.055	B	0.22	J	0.049	B
Sodium	NA	NA	NA	NA	96.8	J	62.9	J	59	J	54.9	J	116	J	40.2	B	41.7	B	112	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.1	B	0.15	B	0.14	B	0.11	B	0.12	B	0.17	B	0.21	B	0.18	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	18.4	J	17.1	J	26.4	J	20.1	J	22.8	J	29	J	28.7	J	15.5	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	93.9	J	39.7	J	34.3	J	61.6	J	65.5	J	32.5	J	61.1	J	26.9	J
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	33		5.6		1.95	U	2.3	U	2.3	U	2.1	U	34		2.1	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	120		10		1.95	U	2.3	U	2.3	U	2.1	U	2.35	U	2.1	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	110		14		1.95	U	2.3	U	2.3	U	2.1	U	2.35	U	2.1	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	1000		47		1.95	U	2.3	U	2.3	U	2.1	U	4.3	J	2.1	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2600		250		1.95	U	8.3		5.6		2.1	U	7.1	J	2.1	U
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2400		250		1.95	U	11		7		2.1	U	23		2.1	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	3200		350		1.95	U	19		12		2.1	U	35		2.1	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	1300		130		1.95	U	8.3		5.6		2.1	U	2.35	U	2.1	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	1100		120		1.95	U	6.9		4.7		2.1	U	12		2.1	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	200	U	230	U	195	U	230	U	230	U	210	U	235	U	210	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	190	J	230	U	195	U	230	U	230	U	210	U	235	U	210	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2600		280		1.95	U	16		9.8		2.1	U	35		2.1	U
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	200	U	230	U	195	U	230	U	230	U	210	U	235	U	210	U
Di-n-octylphthalate	NA	NA	NA	NA	200	U	230	U	195	U	230	U	230	U	210	U	235	U	210	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	140		14		1.95	U	2.3	U	2.3	U	2.1	U	5.7		2.1	U
Dibenzofuran	NA	NA	NA	NA	200	U	230	U	195	U	230	U	230	U	210	U	235	U	210	U
Dimethylphthalate	NA	NA	NA	NA	200	U	230	J	200	J	420	J	230	U	210	U	235	U	250	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	6800		700		1.95	U	38	J	22	J	2.1	U	52	J	2.1	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	220		20		1.95	U	2.3	U	2.3	U	2.1	U	4.3	J	2.1	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	1000		130		1.95	U	7.4		5.6		2.1	U	2.35	U	2.1	U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	39		6.6		1.95	U	2.3	U	2.3	U	2.1	U	2.35	U	2.1	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	3400		290		1.95	U	23		17		2.1	U	57	J	2.1	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB19-0.502-02		12SB19-000.5-01		12SB20-0.502-02		12SB20-000.5-01		12SB20-000.5-01-D		12SB21-0.502-02		12SB21-000.5-01		12SB22-0.502-02	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/14/2011**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0**		**0.5**		**0**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**0.5**		**2**		**0.5**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:													**12SB20-000.5-01**							
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	4900		520		1.95	U	26		18		2.1	U	49		2.1	U
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	12.5	U	15	U	5.5	J	17	U	17.5	U	14.5	U	17	U	14	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	12.5	U	15	U	13	U	17	U	17.5	U	14.5	U	17	U	14	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	20	J	15	U	75		17	U	17.5	U	49	J	17	U	14	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.45	U	3.05	U	2.55	U	3.4	U	3.45	U	2.85	U	3.45	U	2.8	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	2.45	U	3.05	U	2.55	U	3.4	U	3.45	U	2.85	U	3.45	U	2.8	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.45	U	3.05	U	2.55	U	3.4	U	3.45	U	2.85	U	3.45	U	2.8	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	2.45	U	3.05	U	2.55	U	3.4	U	3.45	U	2.85	U	3.45	U	2.8	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.45	U	3.05	U	2.55	U	3.4	U	3.45	U	2.85	U	3.45	U	2.8	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	2.45	U	3.05	U	2.55	U	3.4	U	3.45	U	2.85	U	3.45	U	2.8	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	2.7	J	1.05	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	UJ	1.2	UJ	1	UJ	1.2	UJ	1.2	UJ	1.05	U	1.2	U	1.05	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.05	U	1.2	U	1	U	1.2	U	1.2	U	1.05	U	1.2	U	1.05	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB22-000.5-01		12SB23-0.502-02		12SB23-000.5-01		12SB24-0.502-02		12SB24-000.5-01		12SB25-0.502-02		12SB25-000.5-01		12SB26-0.502-02	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Top Depth (feet):					**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):					**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:																				
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	8680	J	16700		11000		10700	J	9050	J	5420		5000		4620	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.64	J	0.33	B	0.82	B	0.34	B	1.5	J	1.7	J	0.7	J	0.14	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	5.7	J	5.2	J	4.8	J	3.3	J	4.8	J	3	L	4.7	L	1.8	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	75	J	61.7	J	78.3	J	62.9	J	84.8	J	68	L	64.9	L	32.3	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.75	J	0.7	J	0.92	J	0.56	J	0.75	J	0.53	L	0.66	L	0.36	L
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.29		0.14	J	0.45	J	0.12	K	0.51		0.68	L	1.2	L	0.066	J
Calcium	NA	NA	NA	NA	762	J	607	J	3120	J	429	J	1160	J	735		1030		396	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	12.9	J	23.7	J	18.4	J	14.7	J	12.6	J	9.2	J	10.1	J	6.8	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	4.1	J	5.7	J	6.4	J	4.2	J	4.7	J	4.3	L	4.6	L	3.2	L
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	7.3	J	9.6	J	14.5	J	5.4	J	11.3	J	9.9	L	11.8	L	7	L
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.127	J	0.159	U	0.166	U	0.152	U	0.185	J	0.043	J	0.141	J	0.054	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	2		NA		NA		NA		NA		NA		NA		0.26	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	11800	J	37000	J	16200	J	13800	J	10900	J	10500	L	9310	L	7980	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	37.9	J	12	J	37.2	J	9.9	J	44.6	J	32.9	L	74.4	L	5.4	L
Magnesium	NA	NA	NA	NA	1270	J	1840	J	2820	J	1190	J	1150	J	1050		948		758	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	368	J	106	J	397	J	251	J	412	J	212	L	372	L	205	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.214		0.02		0.111		0.017	L	0.115		0.023		0.059		0.035	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	7.4	J	10.8	J	11	J	6.7	J	7.3	J	5.9	L	6.5	L	4.2	L
Potassium	NA	NA	NA	NA	422	J	766	J	1020	J	345	J	439	J	298	L	426	L	247	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.47	J	0.17	J	0.27	J	0.26	J	0.37	J	0.063	J	0.21	J	0.091	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.12	J	0.065	B	0.44	J	0.033	B	0.31		0.14	L	0.14	L	0.028	B
Sodium	NA	NA	NA	NA	100	J	40.3	B	65.9	B	117	J	152	J	43.8	J	41.3	B	30	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.2	B	0.22	B	0.23	B	0.23	J	0.17	B	0.095	B	0.16	B	0.059	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	19.4	J	34.4	J	27.3	J	20.3	J	17.9	J	13.2	L	13.1	L	10.4	L
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	46.4	J	31.8	J	66.6	J	26.2	J	54.2	J	65.5	L	81.7	L	45.7	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.4	J	2.1	U	18	J	2	U	2.35	U	33		15		1.9	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.35	U	2.1	U	11	U	2	U	2.35	U	3.4	J	22		1.9	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.35	U	2.1	U	11	U	2	U	2.35	U	6.9		21		1.9	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	3.3	J	2.1	U	13	J	2	U	2.9	J	23		67		1.9	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	20		2.1	U	11	U	2	U	15		110		260		4.6	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	31		2.1	U	64		2	U	18		100		280		6.2	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	58		2.1	U	91		2	U	29		140		450		10	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	24		2.1	U	11	U	2	U	14		52		130		4.3	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	20		2.1	U	33		2	U	10		57		140		3.9	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	235	U	210	U	1100	U	200	U	235	U	190	U	230	U	190	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	235	U	210	U	1100	U	200	U	235	U	190	U	230	U	190	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	47		2.1	U	82		2	U	24		110		330		8.5	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	235	U	210	U	1100	U	200	U	235	U	190	U	230	U	190	U
Di-n-octylphthalate	NA	NA	NA	NA	235	U	210	U	1100	U	200	U	235	U	190	U	230	U	190	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	2.35	U	2.1	U	18	J	2	U	3.8	J	14		13		1.9	U
Dibenzofuran	NA	NA	NA	NA	235	U	210	U	1100	U	200	U	235	U	190	U	230	U	190	U
Dimethylphthalate	NA	NA	NA	NA	330	J	210	U	1100	U	270	J	330	J	250	J	240	J	220	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	130		2.5	J	53	J	2.8	J	51		260		970		20	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	3.8	J	2.1	U	11	U	2	U	2.35	U	5.7		50		1.9	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	23		2.1	U	11	U	2	U	16	K	51		140		4.3	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.9	J	2.1	U	11	U	2	U	2.35	U	29		17		1.9	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	90		2.5	J	11	U	2	U	37		110		580		11	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB22-000.5-01		12SB23-0.502-02		12SB23-000.5-01		12SB24-0.502-02		12SB24-000.5-01		12SB25-0.502-02		12SB25-000.5-01		12SB26-0.502-02	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:																				
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	87		2.1	J	120		2.4	J	44		180		630		15	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	20	J	14.5	U	15.5	U	13	U	18	U	12.5	U	48	J	19	J
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	17	U	14.5	U	15.5	U	13	U	18	U	12.5	U	17	U	13	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	450		150	J	15.5	U	150		18	U	12.5	U	5.6	J	100	J
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	3.45	U	2.95	U	3.1	U	2.55	U	3.65	U	2.5	U	3.4	U	2.55	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	3.45	U	2.95	U	3.1	U	2.55	U	3.65	U	2.5	U	3.4	U	2.55	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	3.45	U	2.95	U	3.1	U	2.55	U	3.65	UJ	2.5	U	3.4	U	2.55	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	3.45	U	2.95	U	3.1	U	2.55	U	3.65	U	2.5	U	3.4	U	2.55	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	3.45	U	2.95	U	3.1	U	2.55	U	3.65	U	2.5	U	3.4	U	2.55	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	3.45	U	2.95	U	3.1	U	2.55	U	3.65	U	2.5	U	3.4	U	2.55	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.2	UJ	1.1	U	1.1	U	1.05	UJ	1.2	UJ	1	U	1.2	UJ	1	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.2	U	1.1	U	1.1	U	1.05	U	1.2	U	1	U	1.2	UJ	1	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12SB26-000.5-01		12SB26-000.5-01-D		12SB27-0.502-02		12SB27-000.5-01		12SB28-0.502-02		12SB28-000.5-01		12SB29-0.502-02		12SB29-000.5-01	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Top Depth (feet):					**0**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):					**0.5**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:							**12SB26-000.5-01**													
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	3770		5400		10100	J	11000	J	5730		10800		5390		5810	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.34	B	0.45	B	1.3	L	1.5	L	0.11	B	0.7	L	0.11	B	0.28	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	2.5	L	3.6	L	7.2	J	14.4	J	3.6	L	5	J	2.8	L	3.2	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	54.6		71.6		83.8	K	80.1	K	33.1	L	84.5		28.7	J	55.1	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.52	L	0.62	L	0.7	J	0.79	J	0.27	J	0.8	L	0.29	J	0.5	L
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.64		0.58		0.51		0.43		0.05	J	0.29	J	0.04	J	0.21	
Calcium	NA	NA	NA	NA	870		1290		2720	J	687	J	410		1390	J	376		792	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	8.3	J	14.7	J	13.8	J	16.7	J	10.4	J	15.6	J	10.1	J	9.9	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	4.3	L	5.4	L	5.1	J	6.4	J	3.2	L	6.3	J	3.5	L	4.2	L
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	9.8	L	12	L	31.2	J	15.1	J	5.1	J	12.2	J	5.7	J	8	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.138	J	0.105	J	0.087	J	0.127	J	0.08	J	0.182	J	0.156	U	0.089	J
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	0.73	J	0.15	UJ	NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	8850		11800		15100	J	26300	J	11500	L	17100	J	11100		10200	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	30.8	L	37.7	L	73.7		39.2		8.7	L	33.5		8.3	L	27	L
Magnesium	NA	NA	NA	NA	914		1330		1830	J	1220	J	977		1450	J	1290		1010	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	321		353		446	J	465	J	130	L	499	J	113		232	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.039		0.039		0.056		0.052		0.069		0.093		0.019		0.05	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	5.6	L	6.6	J	7.8	J	9.4	J	4.7	J	8.9	J	5.5	J	5.5	J
Potassium	NA	NA	NA	NA	451	L	486	L	368	J	433	J	231	L	449	J	341	L	435	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.1	J	0.25	J	0.35	B	0.62	L	0.084	J	0.39	J	0.24	U	0.3	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.079	B	0.096		0.15		0.09	J	0.022	B	0.084	J	0.015	B	0.059	B
Sodium	NA	NA	NA	NA	36.4	B	39.7	B	48.8	J	38.8	J	31.4	B	34.5	J	34	B	29.5	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.091	B	0.11	B	0.14		0.23		0.093	B	0.14		0.091	B	0.13	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	11.9	L	17.2	L	17.4	J	23.5	J	16.6	L	22.5	J	16.7	L	14.9	L
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	39.4		46.8		119	J	56.2	J	23.6	L	44	J	22.7		63.5	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	5.3		5		9.7		18		2.05	U	3.1	J	2.05	U	2.3	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	31	J	16	J	11		5.8		2.05	U	16		2.05	U	2.3	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	23		24		12		7.2		2.05	U	52		2.05	U	2.3	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	260	J	120	J	35		16		2.05	U	160		2.05	U	2.3	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	770		490		200		88		2.05	U	670		2.05	U	12	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	710		490		230		98		2.05	U	580		2.05	U	12	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	1100		750		340		150		2.05	U	820		2.05	U	17	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	350		230		140		58		2.05	U	340		2.05	U	7	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	390		250		120		52		2.05	U	260		2.05	U	7	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	220	U	225	U	200	U	220	U	205	U	215	U	205	U	230	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	220	U	225	U	200	U	220	U	205	U	215	U	205	U	230	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	750		500		260		120		2.05	U	660		2.05	U	14	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	220	U	225	U	200	U	220	U	205	U	215	U	205	U	230	U
Di-n-octylphthalate	NA	NA	NA	NA	220	U	225	U	200	U	220	U	205	U	215	U	205	U	230	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	39		26		41		16		2.05	U	110		2.05	U	2.3	U
Dibenzofuran	NA	NA	NA	NA	220	U	225	U	200	U	220	U	205	U	215	U	205	U	230	U
Dimethylphthalate	NA	NA	NA	NA	220	J	330	J	200	U	220	U	170	J	215	U	210	J	230	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2100		1500		540		280		3.3	J	1500		2.05	U	30	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	59	J	32	J	24		12		2.05	U	31		2.05	U	2.3	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	290		200		140		64		2.05	U	310		2.05	U	8.4	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	9.3		6.3		8.5		13		2.05	U	4.4		2.05	U	2.3	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	850	J	490	J	340		180		2.1	J	600		2.05	U	13	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12SB26-000.5-01		12SB26-000.5-01-D		12SB27-0.502-02		12SB27-000.5-01		12SB28-0.502-02		12SB28-000.5-01		12SB29-0.502-02		12SB29-000.5-01	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Top Depth (feet):					**0**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):					**0.5**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:							**12SB26-000.5-01**													
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	1500		860		430		210		2.5	J	1300		2.05	U	23	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	31	J	14	UJ	13.5	U	17.5	U	13	U	15	U	13	U	16.5	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	14	U	14	U	13.5	U	17.5	U	13	U	15	U	13	U	16.5	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	350	J	14	UJ	36		17.5	U	13	U	15	U	22	J	16.5	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.8	U	2.8	U	2.65	U	3.55	U	2.65	U	3	U	2.65	U	3.3	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	2.8	U	2.8	U	2.65	U	3.55	U	2.65	U	3	U	2.65	U	3.3	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.8	U	2.8	U	2.65	U	3.55	U	2.65	U	3	U	2.65	U	3.3	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	2.8	U	2.8	U	2.65	U	3.55	U	2.65	U	3	U	2.65	U	3.3	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.8	U	2.8	U	2.65	U	3.55	U	2.65	U	3	U	2.65	U	3.3	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	2.8	U	2.8	U	2.65	U	3.55	U	2.65	U	3	U	2.65	U	3.3	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	28	L	28	J	8.6		25		1.05	U	1.1	U	1.05	U	1.2	UJ
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.15	UL	1.15	UJ	1.05	UJ	1.15	UJ	1.05	U	1.1	U	1.05	U	1.2	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.15	UL	1.15	UJ	1.05	U	1.15	U	1.05	U	1.1	U	1.05	U	1.2	UJ

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB30-0.502-02		12SB30-000.5-01		12SB31-0.502-02		12SB31-0.502-02-D		12SB32-0.502-02		12SB33-0.502-02		12SB34-0.502-02		12SB35-000.5-01	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**12/22/2011**		**12/22/2011**		**1/4/2012**		**1/4/2012**		**1/4/2012**		**1/4/2012**		**1/4/2012**		**1/4/2012**	
Top Depth (feet):					**0.5**		**0**		**0.5**		**0.5**		**0.5**		**0.5**		**0.5**		**0**	
Bottom Depth (feet):					**2**		**0.5**		**2**		**2**		**2**		**2**		**2**		**0.5**	
Duplicate of:											**12SB31-0.502-02**									
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**												**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	11700		10800		NA		NA		NA		NA		NA		NA	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.17	B	0.35	B	NA		NA		NA		NA		NA		NA	
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	3.5	J	4.9	J	NA		NA		NA		NA		NA		NA	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	45.3	J	74.5	J	NA		NA		NA		NA		NA		NA	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.47	J	0.76	J	NA		NA		NA		NA		NA		NA	
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.082	B	0.21	J	NA		NA		NA		NA		NA		NA	
Calcium	NA	NA	NA	NA	668	J	5570	J	NA		NA		NA		NA		NA		NA	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	19.4	J	17.4	J	NA		NA		NA		NA		NA		NA	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	3.5	J	6	J	NA		NA		NA		NA		NA		NA	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	6.9	J	13.6	J	NA		NA		NA		NA		NA		NA	
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.153	U	0.157	U	NA		NA		NA		NA		NA		NA	
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	3		0.76		NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	17100	J	16400	J	NA		NA		NA		NA		NA		NA	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	8.5	J	35.3	J	NA		NA		NA		NA		NA		138	
Magnesium	NA	NA	NA	NA	1730	J	4490	J	NA		NA		NA		NA		NA		NA	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	106	J	360	J	NA		NA		NA		NA		NA		NA	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.013		0.044		NA		NA		NA		NA		NA		NA	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	8	J	10.7	J	NA		NA		NA		NA		NA		NA	
Potassium	NA	NA	NA	NA	549	J	816	J	NA		NA		NA		NA		NA		NA	
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.24	UJ	0.21	J	NA		NA		NA		NA		NA		NA	
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.048	B	0.093	J	NA		NA		NA		NA		NA		NA	
Sodium	NA	NA	NA	NA	50.4	B	57.6	B	NA		NA		NA		NA		NA		NA	
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.16	B	0.24	B	NA		NA		NA		NA		NA		NA	
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	28.2	J	25.6	J	NA		NA		NA		NA		NA		NA	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	22	J	47.9	J	NA		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**			
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2	U	4.6		34		23		2.05	U	3.2	J	2	U	NA	
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2	U	2.05	U	190		120		5		13		3.2	J	NA	
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2	U	22	J	83		67		8.7		9.3		2.8	J	NA	
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	2	U	30		270		200		13		28		4.4		NA	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2	U	250	J	1500		920		55		140		22		NA	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2	U	220		1800		1300		61		160		22		NA	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	2	U	290		2800		2100		91		260		47		NA	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	2	U	150	J	1100		870		41		100		19		NA	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	2	U	110		990	J	830		30		82		15		NA	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	200	U	205	U	NA		NA		NA		NA		NA		NA	
Carbazole	NA	NA	**9.00E+05**	4.00E+06	200	U	205	U	NA		NA		NA		NA		NA		NA	
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2	U	250		2400		1800		75		220		40		NA	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	200	U	205	U	NA		NA		NA		NA		NA		NA	
Di-n-octylphthalate	NA	NA	NA	NA	200	U	205	U	NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	2	U	40		350	J	270		11		27		5.2		NA	
Dibenzofuran	NA	NA	NA	NA	200	U	205	U	NA		NA		NA		NA		NA		NA	
Dimethylphthalate	NA	NA	NA	NA	200	U	205	U	NA		NA		NA		NA		NA		NA	
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2	U	530	J	6500		4900		180		550		100		NA	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2	U	7.9		400		260		11		27		6		NA	
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2	U	130	J	1300		800		44	J	120	J	24	J	NA	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2	U	2.05	U	40		28		2.9	J	4.9		2	U	NA	
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	2	U	190	J	5600		4100		130		400		82		NA	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB30-0.502-02		12SB30-000.5-01		12SB31-0.502-02	12SB31-0.502-02-D		12SB32-0.502-02	12SB33-0.502-02	12SB34-0.502-02	12SB35-000.5-01
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**12/22/2011**		**12/22/2011**		**1/4/2012**	**1/4/2012**		**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0**		**0.5**	**0.5**		**0.5**	**0.5**	**0.5**	**0**
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**0.5**		**2**	**2**		**2**	**2**	**2**	**0.5**
Duplicate of:										**12SB31-0.502-02**					
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	2	U	390		4600	3400		140	400	74	NA
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**								
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	13	U	14.5	U	NA	NA		NA	NA	NA	NA
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	13	U	14.5	U	NA	NA		NA	NA	NA	NA
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	13	U	55	J	NA	NA		NA	NA	NA	NA
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.55	U	2.85	U	NA	NA		NA	NA	NA	NA
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	2.55	U	2.85	U	NA	NA		NA	NA	NA	NA
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.55	U	2.85	U	NA	NA		NA	NA	NA	NA
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA	NA		NA	NA	NA	NA
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	2.55	U	2.85	U	NA	NA		NA	NA	NA	NA
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.55	U	2.85	U	NA	NA		NA	NA	NA	NA
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	2.55	U	2.85	U	NA	NA		NA	NA	NA	NA
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**								
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.05	U	11		NA	NA		NA	NA	NA	NA
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.05	U	1.05	U	NA	NA		NA	NA	NA	NA

Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12SB35-000.5-01-D	12SB36-000.5-01	12SB37-000.5-01	12SB38-000.5-01	12SB39-000.5-01	12SB40-000.5-01	12SB41-000.5-01	12SB42-0.502-02	12SB43-0.502-02
Sample Date:					1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012
Top Depth (feet):					0	0	0	0	0	0	0	0.5	0.5
Bottom Depth (feet):					0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2
Duplicate of:					12SB35-000.5-01								
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	107	295	51.5	67.9	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg					ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	NA	NA	NA	NA	4.1 J	3.6 J	2.7 J	2.1 J	68
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	NA	NA	NA	NA	24	35	12	2.05 U	120
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	NA	NA	NA	NA	32	20	16	2.05 U	55
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	NA	NA	NA	NA	150	160	66	5.3	400
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	NA	NA	NA	NA	840	510	350	42	910
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	NA	NA	NA	NA	800	470	330	39	840
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	NA	NA	NA	NA	1100	670	460	57	1100
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	NA	NA	NA	NA	490	260	190	26	590
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	NA	NA	NA	NA	370	250	170	19	400
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	**9.00E+05**	4.00E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	NA	NA	NA	NA	830	550	350	44	930
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	NA	NA	NA	NA	140	79	54	7	170
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	NA	NA	NA	NA	1800	1300	700	86	2100
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	NA	NA	NA	NA	28	52	16	2.05 U	210
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	NA	NA	NA	NA	410 J	250 J	180 J	29	450
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	NA	NA	NA	NA	7.3	4.6	4.1 J	2.05 U	70
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	NA	NA	NA	NA	570	710	270	27	1600

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12SB35-000.5-01-D	12SB36-000.5-01	12SB37-000.5-01	12SB38-000.5-01	12SB39-000.5-01	12SB40-000.5-01	12SB41-000.5-01	12SB42-0.502-02	12SB43-0.502-02
Sample Date:					1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012
Top Depth (feet):					0	0	0	0	0	0	0	0.5	0.5
Bottom Depth (feet):					0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2
Duplicate of:					12SB35-000.5-01								
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	NA	NA	NA	NA	1500	990	570	71	1800
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**									
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**									
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12SB44-0.502-02	12SB45-0.502-02	12SB45-0.502-02-D	12SB46-0.502-02	12SB47-0.502-02	12SB48-0.502-02	12SB48-0.502-02-D	12SB49-0.502-02
Sample Date:					1/4/2012	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011
Top Depth (feet):					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Bottom Depth (feet):					2	2	2	2	2	2	2	2
Duplicate of:							12SB45-0.502-02				12SB48-0.502-02	
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg			mg/kg
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA	NA	NA	NA	NA	NA	NA	NA
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA	0.17 J	1.1 J	0.8 J	0.31 J	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA	NA	NA	NA	NA	NA	NA	NA
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA	4.9 J	13.2 J	18.9 J	12.7 J	NA	NA	NA
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA	NA	NA	NA	NA	NA	NA	NA
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	NA	NA	NA	NA	NA	NA	NA	9.7
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA	NA	NA	NA	NA	NA	NA	NA
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					ug/kg	ug/kg	ug/kg
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	7.9	NA	NA	NA	NA	2.05 UJ	35 J	2.05 U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	20	NA	NA	NA	NA	2.05 U	2.3 U	2.05 U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	24	NA	NA	NA	NA	2.05 U	2.8 J	2.05 U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	130	NA	NA	NA	NA	2.05 U	3.3 J	2.05 U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	410	NA	NA	NA	NA	2.5 J	13 J	2.05 U
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	380	NA	NA	NA	NA	2.05 UJ	15 J	2.05 U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	500	NA	NA	NA	NA	2.9 J	27 J	2.05 U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	230	NA	NA	NA	NA	2.05 UJ	12 J	2.05 U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	190	NA	NA	NA	NA	2.05 U	7.5	2.05 U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	**9.00E+05**	4.00E+06	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	390	NA	NA	NA	NA	2.5 J	25 J	2.05 U
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	62	NA	NA	NA	NA	2.05 U	3.3 J	2.05 U
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	820	NA	NA	NA	NA	5.3 J	40 J	2.05 U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	35	NA	NA	NA	NA	2.05 U	2.3 U	2.05 U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	210	NA	NA	NA	NA	2.05 UJ	13 J	2.05 U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	9.1	NA	NA	NA	NA	2.05 UJ	22 J	2.05 U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	420	NA	NA	NA	NA	3.3 J	36 J	2.05 U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB44-0.502-02	12SB45-0.502-02	12SB45-0.502-02-D	12SB46-0.502-02	12SB47-0.502-02	12SB48-0.502-02	12SB48-0.502-02-D	12SB49-0.502-02
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**1/4/2012**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Duplicate of:							**12SB45-0.502-02**				**12SB48-0.502-02**	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	670	NA	NA	NA	NA	4.1 J	33 J	2.05 U
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**								
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**								
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB50-0.502-02		12SB51-0.502-02		12SB52-0.502-02	12SB53-0.502-02	12SB54-0.502-02		12SB55-0.502-02		12SB56-0.502-02		12SB57-000.5-01	
Sample Date:	Region 3	Non-	PADEP	PADEP Non-	12/29/2011		12/29/2011		12/29/2011	12/29/2011	12/29/2011		12/29/2011		12/29/2011		12/29/2011	
Top Depth (feet):	Residential	Residential	Residential	Residential	0.5		0.5		0.5	0.5	0.5		0.5		0.5		0	
Bottom Depth (feet):	SL	SL	MSC	MSC	2		2		2	2	2		2		2		0.5	
Duplicate of:																		
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg	mg/kg								
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA		NA		NA	NA	NA		NA		NA		NA	
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA		NA		NA	NA	NA		NA		NA		NA	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA		NA		NA	NA	NA		NA		NA		NA	
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA		NA		NA	NA	NA		NA		NA		NA	
Calcium	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA		NA		NA	NA	NA		NA		NA		NA	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA	NA	NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	9.5		31.8		1410	470	NA		NA		NA		NA	
Magnesium	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA		NA		NA	NA	NA		NA		NA		NA	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA		NA		NA	NA	NA		NA		NA		NA	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA		NA		NA	NA	NA		NA		NA		NA	
Potassium	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		NA		NA	NA	NA		NA		NA		NA	
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		NA		NA	NA	NA		NA		NA		NA	
Sodium	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA		NA		NA	NA	NA		NA		NA		NA	
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA		NA		NA	NA	NA		NA		NA		NA	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA		NA		NA	NA	NA		NA		NA		NA	
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.1	U	2	J	5.7	4.2	46		1.95	U	2.05	U	37	J
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.1	U	1.95	U	15	11	440		1.95	U	2.05	U	2.3	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.1	U	4.7		9.3	8.7	160		3.5	J	2.05	U	2.8	J
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA	NA	NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	2.1	U	15		82	39	2200		6.3		2.05	U	3.7	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2.1	U	42		290	120	6300		31		2.5	J	16	J
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2.1	U	47		290	110	4900		29		2.05	U	18	J
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	2.1	U	68		370	150	6400		41		2.5	J	29	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	2.1	U	31		160	63	3300		18		2.05	U	13	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	2.1	U	24		140	56	2800		14		2.05	U	11	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	NA		NA		NA	NA	NA		NA		NA		NA	
Carbazole	NA	NA	**9.00E+05**	4.00E+06	NA		NA		NA	NA	NA		NA		NA		NA	
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2.1	U	53		300	130	6200		34		2.5	J	29	J
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA		NA		NA	NA	NA		NA		NA		NA	
Di-n-octylphthalate	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	2.1	U	8.6		47	18	1000		5.5		2.05	U	5.1	
Dibenzofuran	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Dimethylphthalate	NA	NA	NA	NA	NA		NA		NA	NA	NA		NA		NA		NA	
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2.1	U	120		660	300	15000		63		4.6		48	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2.1	U	3.9		21	13	680		2.3	J	2.05	U	3.2	J
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2.1	U	36		170	67	2700		20		2.05	U	14	J
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.1	U	1.95	U	6.9	3.7	J	48		1.95	U	2.05	U	23	J
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	2.1	U	54		320	180	8500		27		2.5	J	42	J

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12SB50-0.502-02		12SB51-0.502-02		12SB52-0.502-02		12SB53-0.502-02		12SB54-0.502-02		12SB55-0.502-02		12SB56-0.502-02		12SB57-000.5-01	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0.5**		**0.5**		**0.5**		**0.5**		**0.5**		**0.5**		**0**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**2**		**2**		**2**		**2**		**2**		**2**		**0.5**	
Duplicate of:																				
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	2.1	U	90		530		240		12000		56		3.7	J	38	J
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**																
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	NA		NA		NA		NA		NA		NA		NA		NA	
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	NA		NA		NA		NA		NA		NA		NA		NA	
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	NA		NA		NA		NA		NA		NA		NA		NA	
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA		NA	
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	NA		NA		NA		NA		NA		NA		NA		NA	
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**															**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	NA		NA		NA		NA		NA		NA		NA		1.2	UR
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	NA		NA		NA		NA		NA		NA		NA		7.8	J
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	NA		NA		NA		NA		NA		NA		NA		7.2	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	NA		NA		NA		NA		NA		NA		NA		8	J
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	NA		NA		NA		NA		NA		NA		NA		1.2	UR
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	NA		NA		NA		NA		NA		NA		NA		1.2	UR

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12SB57-000.5-01-D		12SB58-000.5-01		12SB59-000.5-01		12TP01-0.502-02		12TP01-000.5-01		12TP02-0.502-02		12TP02-000.5-01		12TP03-0.502-02	
Sample Date:	Region 3	Non-	PADEP	PADEP Non-	12/29/2011		12/29/2011		12/29/2011		1/13/2010		1/13/2010		1/4/2010		1/4/2010		1/5/2010	
Top Depth (feet):	Residential	Residential	Residential	Residential	0		0		0		0.5		0		0.5		0		0.5	
Bottom Depth (feet):	SL	SL	MSC	MSC	0.5		0.5		0.5		2		0.5		2		0.5		2	
Duplicate of:					12SB57-000.5-01															
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg							mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA		NA		NA		12800		13600		14700		17800		14700	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA		NA		NA		0.5	B	0.47	B	0.32	UL	0.57	R	0.51	R
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA		NA		NA		3.9		4.6		2.2	L	3.3	L	1.6	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA		NA		NA		71.6		97.1		149		136		120	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA		NA		NA		0.72	K	0.81	K	1	K	0.91	K	0.97	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA		NA		NA		0.35	B	0.38	B	0.44	R	0.5	R	0.4	R
Calcium	NA	NA	NA	NA	NA		NA		NA		6840		1750		1160		6020		4260	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	NA		NA		NA		14.5		15.8		18.6	L	30	L	18.4	L
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA		NA		NA		8.4		7		12		9.2		10.1	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA		NA		NA		18.4		13.6		25.1		19.9		36.8	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	NA		NA		NA		0.18	U	0.21	U	0.13	U	0.15	U	0.13	U
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA		NA		NA		16600	L	13800	L	20200		20300		21300	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	NA		NA		NA		12.4	J	28.7	J	10.6	J	28.6	J	9.7	J
Magnesium	NA	NA	NA	NA	NA		NA		NA		5240	J	1820	J	2000	J	3600	J	3740	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA		NA		NA		615		575		876		420		604	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA		NA		NA		0.02	U	0.059		0.021	U	0.038		0.021	U
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA		NA		NA		10.9		11.3		13.6		15.5		13.1	
Potassium	NA	NA	NA	NA	NA		NA		NA		804	J	870	J	1460		1130	L	1490	
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		NA		NA		0.42	UR	0.52	UR	2	L	2.3	L	2.6	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		NA		NA		0.11	U	0.17		0.11	UJ	0.12	UJ	0.11	UJ
Sodium	NA	NA	NA	NA	NA		NA		NA		170	B	159	B	188	R	239	K	183	R
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA		NA		NA		0.62	U	0.77	U	0.59	J	0.85	J	0.6	UJ
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA		NA		NA		25.2		25.3		26.3		37.4		26.7	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA		NA		NA		30.9		50.3		23.3	J	39.6	J	20.3	J
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	2.1	UJ	2.4	U	130		4.9	J	3.6	J	200	U	230	U	400	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.1	U	2.4	U	660		17		7.5	J	200	U	42	J	130	J
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	2.1	U	2.9	J	90		53		30		200	U	120	J	130	J
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		28	B	480	U	140	B	440	U	300	B
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	2.1	U	3.4	J	2200		110		42		55	J	250		740	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2.9	J	28		7600		890	J	210		270		1200		2000	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		200	U	37	J	200	U	230	U	400	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2.5	J	33		6400		590	J	200		230		1200		1700	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	4.2	J	47		8800		750	J	280	J	250		1200		1700	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	2.1	UJ	21		4600	J	240	J	91		140	J	550		620	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	2.1	UJ	18		3100	J	410	J	160		220		1300		1900	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	NA		NA		NA		200	U	250	U	200	U	230	U	400	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	NA		NA		NA		100	J	54	J	390	U	440	U	780	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	3.8	J	39		7800		550	J	190		270		1300		1900	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA		NA		NA		200	U	250	U	200	U	230	U	400	U
Di-n-octylphthalate	NA	NA	NA	NA	NA		NA		NA		200	U	250	U	200	U	230	U	400	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	2.1	U	5.3		1400	J	98	J	27		31	J	200	J	250	J
Dibenzofuran	NA	NA	NA	NA	NA		NA		NA		40	J	250	U	200	U	230	U	96	J
Dimethylphthalate	NA	NA	NA	NA	NA		NA		NA		200	U	250	U	200	U	230	U	400	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	8.4	J	61		17000		1300	J	490	J	610		2400		4100	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	2.1	U	2.4	U	620		26		14		12	J	230	U	210	J
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2.1	UJ	23		3500		390	J	150		160	J	700		830	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.1	UJ	2.4	U	74		3.5	B	3.4	B	200	U	230	U	400	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	6.3	J	37		8200		430	J	240		220		930		2200	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12SB57-000.5-01-D		12SB58-000.5-01		12SB59-000.5-01		12TP01-0.502-02		12TP01-000.5-01		12TP02-0.502-02		12TP02-000.5-01		12TP03-0.502-02	
Sample Date:					12/29/2011		12/29/2011		12/29/2011		1/13/2010		1/13/2010		1/4/2010		1/4/2010		1/5/2010	
Top Depth (feet):					0		0		0		0.5		0		0.5		0		0.5	
Bottom Depth (feet):					0.5		0.5		0.5		2		0.5		2		0.5		2	
Duplicate of:					12SB57-000.5-01															
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	6.3	J	53		15000		1100	J	360	J	470		2000		3900	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**							**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA		NA		NA		17		27		8.2	J	14	J	14	J
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	NA		NA		NA		15	U	19	U	12	U	15	U	16	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA		NA		NA		140		290		80		120		100	
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA		NA		NA		6	U	7.7	U	4.6	U	6	U	6.6	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	NA		NA		NA		6	U	7.7	U	4.6	U	6	U	6.6	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA		NA		NA		6	U	7.7	U	4.6	U	6	U	6.6	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		6	U	230		4.6	U	3	J	6.6	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	NA		NA		NA		6	U	7.7	U	4.6	U	6	U	6.6	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA		NA		NA		6	U	7.7	U	4.6	U	6	U	6.6	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	NA		NA		NA		6	U	7.7	U	4.6	U	6	U	6.6	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	1.05	U	1.25	U	1.15	U	1.9	J	4.9	U	3.9	UL	4.5	U	1.8	R
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	1.05	UJ	2.1	J	1.15	U	8.5	J	1.1	J	3.9	UL	4.8	R	9.8	J
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	1.05	UJ	1.6	J	2.1	J	2.8	R	4.9	U	3.9	UL	3	J	4.8	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	1.05	U	1.25	U	1.15	U	2	U	2.5	U	2	UL	2.3	U	2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	1.05	U	1.25	U	1.15	U	2	U	2.5	U	2	UL	2.3	U	2	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.25	U	1.15	U	1.4	J	1.7	J	0.77	R	2.3	U	7.1	R
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.05	U	1.25	U	1.15	U	5	U	1.3	U	2.8	B	15	R	32	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.05	U	1.25	U	1.15	U	2	U	2.5	U	2	UL	0.66	J	1.9	R
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	1.05	UJ	1.25	U	33		26	R	9.6	R	3.9	UL	4.5	U	20	R
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.25	U	1.15	U	1.1	J	0.53	J	2	UL	2.3	U	2.6	R
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.25	U	1.15	U	3.9	U	2.1	J	3.9	UL	4.5	U	3.9	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	1.05	U	1.25	U	1.15	U	3.9	U	4.9	U	3.9	UL	4.5	U	3.9	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.25	U	1.15	U	3.9	U	4.9	U	3.9	UL	4.5	U	8.4	R
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	U	1.25	U	1.15	U	5.7	J	0.58	J	3.9	UL	2.6	J	3.9	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	1.05	UJ	1.25	UJ	1.15	UJ	5.1	J	4.9	U	3.9	UL	4.5	U	8.8	B
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	1.05	U	1.25	U	1.15	U	0.68	B	2.5	U	0.64	B	2.3	U	15	R
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	1.05	U	1.25	U	1.15	U	2	U	0.42	J	2	UL	2.3	U	1.1	J
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	1.05	U	1.25	U	1.15	U	2.8	J	1.3	J	0.37	J	0.95	R	3.9	R
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	1.05	UJ	1.25	UJ	1.15	UJ	20	U	25	U	20	UL	23	U	110	R

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12TP03-0.502-02-D		12TP03-000.5-01		12TP04-0.502-02		12TP04-000.5-01		12TP05-0.502-02		12TP05-000.5-01		12TP06-0.502-02		12TP06-000.5-01	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:					**12TP03-0.502-02**															
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	14800		12600		17800		17700		16500		14000		17200		17300	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.4	R	0.46	R	0.53	R	0.49	R	1	J	0.92	J	0.62	R	0.55	R
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	1.9	L	2.6	L	5.1	L	8.1	L	5.1	K	6.5	K	3.5	L	7.2	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	121		104		82.4		99.5		89.9		87.4		95.1		101	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.89	K	0.85	K	0.82	K	1	K	0.61	J	0.65	K	0.77	K	1	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.42	R	0.39	R	0.48	R	0.43	K	8.7	K	2.6	K	0.35	R	0.76	K
Calcium	NA	NA	NA	NA	2090	J	1660		612		493		1450	J	2820	J	2060		1020	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	16.3	L	19.3	L	22.2	L	20.2	L	27.5		20.7		18.3	L	20.1	L
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	10.4		9.2		8		7.3		6.4	J	7.3	J	7.1		7.4	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	21.1	J	18.6		11.5		14.7		107	J	28.7	K	23.5		33.2	
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.26	B	0.14	U	0.27	B	0.17	B	0.17	U	0.2	U	0.13	U	0.21	B
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	17700		18700		20300		15600		18800		18400		18100		16800	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	8.2	J	20.7	J	14.9	J	28.9	J	81.6	J	99.7	J	9.1	J	34.1	J
Magnesium	NA	NA	NA	NA	2340	J	2010	J	1990	J	1730	J	1710	J	1750	J	2500	J	1790	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	655		442		445		679		357		469		428		764	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.02	U	0.035		0.055		0.12		0.12		0.16		0.02	U	0.097	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	12.8		13.3		12		12.7		13	J	13.1	J	11.5		12.4	
Potassium	NA	NA	NA	NA	1060	L	1310		1110	L	742	L	639		873		873	L	876	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.42	UR	2.2	L	0.4	UR	0.48	UR	0.43	UR	0.46	UR	0.39	UR	0.43	UR
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.11	UJ	0.12	UJ	0.11	UJ	0.13	UJ	0.13		0.32		0.11	UJ	0.11	UJ
Sodium	NA	NA	NA	NA	200	K	173	R	139	R	147	R	151	B	146	B	171	R	148	R
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.62	UJ	0.64	UJ	0.6	UJ	0.71	J	0.63	U	0.67	U	0.58	UJ	0.93	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	24.2		27.4		33.3		30.5		30.3		29.7		27.5		32.2	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	20.2	J	35.4	J	31.9	J	47.6	J	195		114		24.5	J	49.6	J
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	200	U	220	U	10	U	110	U	8.2	J	12		1.7	J	7.1	J
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	95	J	49	J	10	U	25	J	18		26		1.8	J	14	
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	240		97	J	0.86	J	15	J	24		160		17		47	
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	390	U	420	U	400	U	430	U	160	B	120	B	390	U	420	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	890		300		2	J	120		45		210		13		60	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	2400		1600		8.2	J	210		210	J	1200	J	68		190	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	200	U	220	U	210	U	220	U	210	U	220	U	200	U	220	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	2100		1400		13		270		260	J	1300	J	68		250	J
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	2200		1700		18		360		330	J	1700	J	73		360	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	530		540		7.7	J	110	J	180		770	J	47		180	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	2700		1400		13		240		280	J	1100	J	59		250	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	46	B	74	B	210	U	60	B	530	B	230	B	55	B	59	B
Carbazole	NA	NA	**9.00E+05**	4.00E+06	110	J	420	U	400	U	430	U	110	J	95	J	390	U	420	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	2300		1600		14		280		300	J	1200	J	79		320	J
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	200	U	220	U	210	U	220	U	29	J	35	J	200	U	220	U
Di-n-octylphthalate	NA	NA	NA	NA	200	U	220	U	210	U	220	U	210	U	220	U	200	U	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	240		260		1.5	J	110	U	47		210		10		42	
Dibenzofuran	NA	NA	NA	NA	71	J	220	U	210	U	220	U	32	J	220	U	200	U	220	U
Dimethylphthalate	NA	NA	NA	NA	200	U	220	U	210	U	220	U	210	U	220	U	200	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	4800		2800		43		810		760	J	2600	J	140		870	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	160	J	61	J	2	J	34	J	32		38		3.3	J	32	
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	740		700		10	J	160		210	J	930	J	51		210	J
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	200	U	220	U	1.3	B	110	U	8.2	J	11		1.9	B	8.6	J
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	2000		920		27		530		450	J	610	J	61		590	J

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12TP03-0.502-02-D		12TP03-000.5-01		12TP04-0.502-02		12TP04-000.5-01		12TP05-0.502-02		12TP05-000.5-01		12TP06-0.502-02		12TP06-000.5-01	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:					**12TP03-0.502-02**															
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	5200		2700		29		590		540	J	2000	J	130		610	J
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	16		15	J	18		33		31		28		20		17	
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	14	U	16	U	15	U	17	U	14	U	17	U	13	U	16	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	120		180		190		370		240		330		140		250	
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	5.8	U	10		5.9	U	7	U	5.5	U	6.8	U	5.1	U	6.6	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	5.8	U	6.5	U	5.9	U	7	U	2.3	J	2.1	J	5.1	U	6.6	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	5.8	U	6.5	U	5.9	U	7	U	5.5	U	6.8	U	5.1	U	6.6	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	21		35		5.9	U	5.9	J	5.5	U	140		4	J	29	J
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	5.8	U	6.5	U	5.9	U	7	U	5.5	U	6.8	U	5.1	U	6.6	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	5.8	U	6.5	U	5.9	U	7	U	5.5	U	6.8	U	5.1	U	6.6	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	5.8	U	6.5	U	5.9	U	7	U	5.5	U	6.8	U	5.1	U	6.6	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4.7	R	3.6	R	4	U	4.3	U	2.6	R	2.5	J	3.9	U	4.2	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	21	R	4.2	U	4	U	4.3	U	15	J	3.1	J	3.9	U	4.6	R
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	3.2	J	3.1	J	4	U	4.3	U	41	J	8	J	3.9	U	1.7	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2	U	2.2	U	2.1	U	2.2	U	2.1	U	2.2	U	2	U	2.2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2	U	2.2	U	2.1	U	2.2	U	2.1	U	2.2	U	2	U	2.2	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2	U	2.4		2.1	U	2.2	U	13	J	2.7	J	0.33	J	2.9	J
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	120	R	1.1	U	1	U	14	R	5.5	U	1.1	U	4	B	1.1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.1	R	2.2	U	2.1	U	2.2	U	0.39	J	2.2	U	2	U	2.2	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	24	R	4.2	U	4.3	R	4.3	U	20	J	2.9	J	3.9	U	4.2	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.6	R	2.2	U	2.1	U	2.2	U	0.54	J	0.99	R	2	U	1.2	R
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	8.9	R	4.2	U	4	U	5	R	1.8	B	4.3	U	3.9	U	4.2	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	3.9	U	4.2	U	4	U	4.3	U	4.1	U	4.3	U	3.9	U	4.2	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	12	J	4.2	U	4	U	4.3	U	2.5	J	4.3	U	3.9	U	4.2	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	11	J	4.2	U	4	U	2.9	J	6.9	J	5	J	3.9	U	4.2	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	20	B	9.1	B	9.7	B	4.3	U	4.1	U	9.1	R	3.9	U	4.2	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	11	J	0.65	B	3.8	R	2.2	U	4.7	J	5	R	0.68	B	3	B
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.3	R	2.2	U	0.49	J	2.2	U	0.66	J	2.2	U	2	U	1.2	J
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	6	R	0.84	J	2.1	U	4.7	R	2.4	R	2	J	2	U	1.8	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	250	B	22	U	21	U	22	U	21	U	12	R	20	U	22	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12TP07-0.502-02		12TP07-000.5-01		12TP08-0.502-02		12TP08-000.5-01		12TP09-0.502-02		12TP09-000.5-01		12TP10-0.502-02		12TP10-000.5-01	
Sample Date:	**Region 3 Residential**	**Non-Residential**	**PADEP Residential**	**PADEP Non-Residential**	**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**	
Top Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):					**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:																				
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	15000		18500		13900		8960		20700		13000		20300		15800	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.73	K	1.1	J	0.92	J	2	K	2.1	J	0.88	J	0.62	R	0.66	R
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	5.8	K	6.4	K	9.6		29.8		3.8	K	3.7	K	8.1	K	5.2	K
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	111		78.1		242		140		153		81.9		83.7		59.2	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.79	K	0.54	K	0.51	K	0.46	K	0.44	K	0.49	K	0.55	K	0.43	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.42	R	0.78	K	4.2	K	2.3	K	1.4	K	0.69	K	0.7	R	0.41	R
Calcium	NA	NA	NA	NA	905	J	1250	J	11300	J	3000	J	55800	J	2220	J	749	J	656	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	22.5		26.3		18.6		12		35.6		16.1		27.7		21.2	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	7.1	J	7.8	J	5.6	J	4.3	J	7.8	J	7.2	J	9.7	J	7	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	32.9	K	22.5	K	98.8	K	31	K	30.5	K	16.6	K	17.7	K	14.4	K
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.17	U	0.19	U	0.18	U	0.19	U	0.18	U	0.17	U	0.18	U	0.19	U
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	18100		26500		19200		37100		18400		14200		28100		20900	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	53	J	52.6	J	88.6	J	88.3	J	33.4	J	57.1	J	44.7	J	17.1	J
Magnesium	NA	NA	NA	NA	1580	J	2060	J	3660	J	1250	J	5140	J	1490	J	2330	J	1970	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	455		326		399		237		401		401		283		293	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.066		0.077		0.079		0.26		0.096		0.099		0.043		0.053	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	10.9	J	13.5	J	14.4	J	8.8	J	27.4	J	10.5	J	13.3	J	11.3	J
Potassium	NA	NA	NA	NA	535		998		845		914		2480		879		948		1020	
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.41	UR	0.43	UR	0.43	UR	0.46	UR	0.45	UR	0.42	UR	0.43	UR	0.43	UR
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.11	U	0.12	U	7.7		3		0.24		0.78		0.12	U	0.11	U
Sodium	NA	NA	NA	NA	122	B	127	B	248	B	187	B	241	B	195	B	151	B	129	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.69		0.64	U	0.63	U	0.68	U	0.66	U	0.62	U	0.78		0.63	U
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	26.4		41.3		19.5		26.3		31.7		23.6		44.9		35.1	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	77.2		73.4		213		172		144		77.4		46.2		35.7	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	1.9	J	2.1	J	2000	U	1400	U	220	U	210	U	1.4	J	1.2	J
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	1.7	J	1.6	J	330	J	510	J	79	J	210	U	10	U	11	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	4.2	B	3.3	B	670	J	520	J	220	U	33	J	1.1	B	1.5	B
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	86	B	140	B	700	B	730	B	36	B	52	B	410	U	430	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	5.6	J	6.9	J	2700		2200		340		67	J	3.4	J	2.4	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	39		32		7600		5800		1000		310		16		13	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	210	U	220	U	2000	U	1400	U	220	U	210	U	210	U	220	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	53		37		6800		5200		900		340		18		17	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	53		40		5600		4900		740		300		23		22	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	39		27		1800	J	1400		420		220		12		12	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	68		52		8600	J	6000	J	1000	J	330	J	21		18	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	210	U	220	U	2000	U	1400	U	220	U	210	U	210	U	220	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	410	U	420	U	3900	U	660	J	160	J	44	J	410	U	430	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	55		46		8000		6100		1000		380		22		21	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	210	U	220	U	2000	U	1400	U	220	U	210	U	210	U	220	U
Di-n-octylphthalate	NA	NA	NA	NA	210	U	220	U	2000	U	1400	U	220	U	210	U	210	U	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	9.6	J	5.4	J	1300	J	950	J	180	J	66	J	2.7	J	2.5	J
Dibenzofuran	NA	NA	NA	NA	210	U	220	U	2000	U	340	J	41	J	210	U	210	U	220	U
Dimethylphthalate	NA	NA	NA	NA	210	U	220	U	2000	U	1400	U	220	U	210	U	210	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	85		100		17000		13000		2000		650		45		45	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	3	J	2.1	J	520	J	630	J	88	J	210	U	1.2	J	0.91	J
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	45		31		2700		2000		510		250		14	B	14	B
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	2.1	B	2	B	2000	U	1400	U	220	U	27	J	0.94	B	11	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	44		58		8100		7900		1100		290		23		20	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:		Region 3			12TP07-0.502-02		12TP07-000.5-01		12TP08-0.502-02		12TP08-000.5-01		12TP09-0.502-02		12TP09-000.5-01		12TP10-0.502-02		12TP10-000.5-01	
Sample Date:	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**	
Top Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**	
Bottom Depth (feet):	**SL**	**SL**	**MSC**	**MSC**	**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**	
Duplicate of:																				
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	66		77		14000		10000		1600		510		34		36	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	19		10	J	13	U	12	J	21	U	35		14	U	16	
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	14	U	14	U	13	U	16	U	21	U	17	U	14	U	15	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	220		140		48	B	140		70		310		100		250	
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	5.8	U	5.6	U	5.7		3.2	J	8.3	U	6.7	U	5.5	U	6.1	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	5.8	U	5.6	U	5.2	U	6.5	U	8.3	U	6.7	U	5.5	U	6.1	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	5.8	U	5.6	U	5.2	U	6.5	U	8.3	U	6.7	U	5.5	U	6.1	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	5.8	U	5.6	U	5.2	U	12		8.3	U	150		5.5	U	6.1	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	5.8	U	5.6	U	5.2	U	6.5	U	8.3	U	6.7	U	5.5	U	6.1	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	5.8	U	5.6	U	5.2	U	6.5	U	8.3	U	1.6	J	5.5	U	6.1	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	5.8	U	5.6	U	5.2	U	6.5	U	8.3	U	6.7	U	5.5	U	6.1	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4.1	U	4.2	U	8.8	R	6.2	J	4.2	UJ	4.1	U	4.1	U	4.3	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4.1	U	4.2	U	3.9	U	18	J	1.7	J	0.86	J	0.96	J	4.3	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	4.1	U	1.8	J	18	J	18	J	5.7	J	3.1	J	4.1	U	4.3	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.1	U	2.2	U	2	U	2.3	U	2.2	UJ	2.1	U	2.1	U	2.2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.1	U	2.2	U	2	U	1.9	J	2.2	UJ	2.1	U	2.1	U	2.2	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.1	U	2.2	U	2	U	2.3	U	3.1	R	2.1	U	2.1	U	3	
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.9	J	3.9	R	160	R	5.8	U	6.8	R	11	R	1.1	U	8	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.1	U	2.2	U	2.6	R	2.8	J	2.2	UJ	0.83	J	2.1	U	2.2	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	4.1	U	4.2	U	37	R	31	R	4	J	11		5.1	J	4.3	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.1	U	2.2	U	2.2	J	4.4	R	2.2	UJ	2.1	U	2.1	U	0.34	J
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.1	U	4.2	U	17	R	11	R	4.2	UJ	0.58	B	4.1	U	4.3	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.1	U	4.2	U	3.9	U	4.5	U	4.2	UJ	4.1	U	4.1	U	4.3	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	U	4.2	U	22	R	14	R	4.2	UJ	4.1	U	4.1	U	4.3	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	U	4.2	U	20	J	12	J	4.7	J	2	J	4.1	U	4.3	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	U	4.2	U	240	R	93	R	18	R	4.1	U	4.1	U	4.3	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	0.87	J	2.2	U	20	U	12	U	8.3	R	1.1	J	1	J	0.74	R
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	0.31	J	0.39	J	1.8	R	1.2	J	0.57	J	2.1	U	2.1	U	0.52	J
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.1	U	2.2	U	4.1	J	5.4	R	2.2	UJ	1.1	J	2.1	U	2.2	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	21	U	22	U	200	U	33	J	22	UJ	21	U	21	U	22	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12TP11-0.502-02		12TP11-000.5-01		12TP12-0.502-02		12TP12-000.5-01		12TP13-0.502-02	
Sample Date:					1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/11/2010	
Top Depth (feet):					0.5		0		0.5		0		0.5	
Bottom Depth (feet):					2		0.5		2		0.5		2	
Duplicate of:														
INORGANICS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	17800		12900		15800		16400		8780	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	2.3	J	1.1	J	3.9	J	3.2	J	1.4	J
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	5.8	J	5.5	J	6.6	J	6.6	J	3.7	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	225	L	109	L	164	L	119	L	109	L
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	1.3	L	0.83	J	0.52	J	0.69	J	0.81	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	2.8	J	1.2	J	2.7	J	2.7	J	0.66	J
Calcium	NA	NA	NA	NA	28100	J	2020	J	1630	J	1160	J	2000	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	25.5		18.5		27		23.5		13.2	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	6.9	J	9.9	J	9.9	J	8.3	J	6.9	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	94.6		35.5		69.2		458		22	
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.28	B	0.41	B	0.17	U	0.17	U	0.17	U
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	15500	J	17100	J	32400	J	29700	J	17400	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	157	J	96.1	J	154	J	139	J	21.1	J
Magnesium	NA	NA	NA	NA	11000	J	1690	J	1810	J	1480	J	1370	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	1020	J	746	J	412	J	491	J	276	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.07	K	0.1	K	0.069	K	0.047	K	0.02	U
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	13.5	J	12.9	J	18.1	J	21.1	J	12.4	J
Potassium	NA	NA	NA	NA	1100	L	846	L	874	L	1040	L	892	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.44	UR	0.43	UR	0.41	UR	0.41	UR	0.43	UR
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.85	K	0.11	U	0.5	K	0.6	K	0.11	U
Sodium	NA	NA	NA	NA	370	B	142	B	192	B	146	B	172	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	1.1	K	0.63	U	0.6	U	0.9	K	0.63	U
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	25.1		26.7		32.9		23		18.9	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	448		132		483		156		32.5	
SEMIVOLATILES	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	570	J	2200	U	200	U	200	U	1000	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	3200		2200	U	200	U	200	U	210	J
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	660	J	2200	U	77	J	40	J	1000	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	4200	U	4200	U	400	U	390	U	2000	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	16000		1600	J	110	J	150	J	1500	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	21000	J	7300		660		490		3400	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	2200	U	2200	U	200	U	200	U	1000	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	21000	J	7000		640		500		2600	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	19000	J	6300		650		510		2100	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	25000		4300		220	J	130	J	1200	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	30000		10000		700	J	590	J	2900	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	2200	U	2200	U	46	J	200	U	1000	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	8200		4200	U	400	U	50	J	240	J
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	22000	J	8400		670		560		3400	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	2200	U	2200	U	28	J	97	J	1000	U
Di-n-octylphthalate	NA	NA	NA	NA	2200	U	2200	U	48	J	200	U	1000	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	12000		2200		130	J	87	J	730	J
Dibenzofuran	NA	NA	NA	NA	3700		2200	U	200	U	200	U	1000	U
Dimethylphthalate	NA	NA	NA	NA	2200	U	2200	U	200	U	200	U	1000	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	44000	J	16000		1400		1100		8300	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	6900		2200	U	200	U	200	U	270	J
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	30000		5100		310		190	J	1600	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	660	J	2200	U	200	U	200	U	1000	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	14000	J	6200		270		460		4800	

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12TP11-0.502-02		12TP11-000.5-01		12TP12-0.502-02		12TP12-000.5-01		12TP13-0.502-02	
Sample Date:					1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/11/2010	
Top Depth (feet):					0.5		0		0.5		0		0.5	
Bottom Depth (feet):					2		0.5		2		0.5		2	
Duplicate of:														
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	35000	J	16000		1100		910		8000	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	15	J	18	J	9	J	13	J	5	B
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	21	U	20	U	16	U	17	U	15	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	180	J	230		160	J	180	J	69	J
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.9	J	8.2	U	6.5	U	6.9	U	5.8	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	8.2	U	8.2	U	2.1	J	2.3	J	5.8	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	8.2	U	8.2	U	6.5	U	6.9	U	5.8	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	8.2	UJ	8.2	U	6.5	UJ	6.9	UJ	5.8	UJ
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	8.2	U	8.2	U	6.5	U	6.9	U	5.8	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	8.2	U	8.2	U	6.5	U	6.9	U	5.8	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	8.2	U	8.2	U	6.5	U	6.9	U	5.8	U
PESTICIDES/PCBS	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	13	J	66	U	2.2	R	0.94	J	2.1	R
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	7.4	J	16	J	3	J	3.2	J	2.2	R
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	18	R	7.5		5.7	J	1.2	J	2.2	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	44	U	2.4		2	U	2	U	2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.2	U	3.2		1.6	J	0.43	J	0.7	J
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.2	U	4.3	J	1.1	R	0.91	J	1.9	J
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	270	R	17	U	5.7	R	1	U	16	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.9	J	1.8	R	2	U	2	U	0.91	J
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	84	J	480		13	R	5.5	J	18	R
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.8	J	1.3	R	2	U	2	U	1.1	R
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	5.4	R	2.2	R	1.7	J	6.1	R	4	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	19	R	4.2	U	4	U	3.9	U	4	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	19	J	7.5		4	U	3.9	U	4	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	25	J	5.8	J	1	J	3.9	U	4.4	
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	34	J	6.7		4	U	0.74	J	6.9	J
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	28	J	7.3		1.6	R	2	R	3.5	
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.8	R	2.2	U	0.82	J	2	U	1.4	R
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	12	J	4.5	R	0.78	J	2.1	J	1.4	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	440	U	150	R	35	R	20	U	20	U

TABLE 4-4

COMPARISON OF TEST PIT SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12TP13-000.5-01		12TP14-0.502-02		12TP14-000.5-01		12TP15-0.502-02		12TP15-000.5-01		12TP16-0.502-02		12TP16-000.5-01		12TP17-0.5-02-02	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**12/19/2011**		**12/20/2011**	
Top Depth (feet):					**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):					**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:																				
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	12700		6870		9670		12700		14000		10900	J	13400	J	12200	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.59	J	0.66	B	0.62	B	0.76	J	0.72	J	0.29	B	0.33	B	0.26	B
Arsenic	3.90E-01	**1.60E+00**	1.20E+01	5.30E+01	4.4	J	7.4		5.2		5.4	J	5.6	J	3.6		4.9		2.3	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	100	L	53.7		69.3		121	L	138	L	104		72		106	L
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.83	J	0.56	K	0.47	K	1	J	1.1	J	0.95	J	0.89	J	1.1	
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.55	J	0.81	K	0.42	B	0.67	J	0.76	J	0.13	J	0.27	J	0.16	J
Calcium	NA	NA	NA	NA	1590	J	18600		4970		30200	J	38100	J	657	J	764	J	618	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	18.2		17.8		14.9		13.4		15.2		18.5	J	21.8	J	22.2	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	6.7	J	4.9		5.7		6	J	7.3	J	7.7	J	6.1	J	7.7	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	16.8		21		15.8		20.8		22.8		6.9	J	13.2	J	19.9	J
Cyanide	4.70E+04	6.10E+05	**4.40E+03**	1.90E+05	0.3	B	0.47	B	0.19	B	0.34	B	0.19	U	0.055	J	0.1	J	0.1465	U
Hexavalent Chromium	**2.90E+02**	5.60E+03	6.60E+02	8.40E+03	NA		NA		NA		NA		NA		0.71		1.2		0.3	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	15500	J	15200	L	12100	L	15500	J	17100	J	17900	J	22400	J	29600	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	30.9	J	55.2	J	31.5	J	52.6	J	56.6	J	15.8		17.3		9.9	L
Magnesium	NA	NA	NA	NA	1710	J	2520	J	2060	J	17300	J	20600	J	1430	J	1850	J	1860	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	431	J	180		316		663	J	774	J	681	J	254	J	377	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.072	K	0.2		0.1		0.24	K	0.2	K	0.031		0.032		0.007	J
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	11.7	J	11.6		11.3		10.7	J	12.3	J	10.4	J	10.3	J	12.3	J
Potassium	NA	NA	NA	NA	896	L	775	J	910	J	863	L	929	L	565	J	706	J	900	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.46	UR	0.38	UR	0.44	UR	0.42	UR	0.46	UR	0.23	UL	0.11	J	0.26	UL
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.12	U	2.5		0.31		4.2	K	4.5	K	0.032	B	0.047	B	0.028	B
Sodium	NA	NA	NA	NA	143	B	167	B	162	B	153	B	231	B	54.5	J	79.7	J	69.7	
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.68	U	0.56	U	0.65	U	0.61	U	0.68	U	0.81		0.16	B	0.67	L
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	27.1		19.8		21.1		22.3		23.6		24.7	J	31.4	J	27.9	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	51.7		79.1		58.4		74.9		77.8		29.9	J	36.3	J	24.9	J
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	220	U	51		19		72	J	870	U	2.4	J	2.05	U	1.95	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	220	U	3.2	J	13		84	J	870	U	6.5		2.05	U	1.95	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	220	U	15		35		34	J	210	J	6.1		2.05	U	1.95	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	430	U	46	B	210	U	390	U	1700	U	NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	97	J	23		76		330		580	J	11		2.5	J	1.95	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	580		86		530	J	1200		3400		49		20		1.95	U
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	220	U	40	J	26	J	200	U	870	U	NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	620		65		450	J	1100		3800		62		22		1.95	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	640		140		650	J	1500		3700		94		35		1.95	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	300		35	J	150	J	390	J	1500	J	33	J	12		1.95	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	820		61		400	J	1100	J	5400	J	37		10		1.95	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	50	J	140	J	75	J	200	U	870	U	200	U	205	U	195	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	54	J	190	U	210	U	82	J	1700	U	200	U	205	U	195	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	710		89		400	J	1300		3900		82		29		1.95	U
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	220	U	190	U	210	U	200	U	870	U	200	U	205	U	195	U
Di-n-octylphthalate	NA	NA	NA	NA	220	U	150	J	210	U	200	U	870	U	200	U	205	U	195	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	160	J	16	J	82	J	230		950		2.4	J	2.05	U	1.95	U
Dibenzofuran	NA	NA	NA	NA	220	U	29	J	210	U	55	J	870	U	200	U	205	U	195	U
Dimethylphthalate	NA	NA	NA	NA	220	U	190	U	210	U	200	U	870	U	200	U	205	U	195	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	1400		180		980	J	2400		6300		250		69	K	3.9	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	220	U	4.8	J	17		88	J	870	U	15		2.5	J	1.95	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	370		56		260	J	540		2000		36		12		1.95	U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	5.60E+07	220	U	21		10	J	39	J	870	U	4.9		2.05	U	1.95	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	570		120		360	J	1200		1800		190		36		2.3	J

TABLE 4-4

COMPARISON OF TEST PIT SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:		Region 3			12TP13-000.5-01		12TP14-0.502-02		12TP14-000.5-01		12TP15-0.502-02		12TP15-000.5-01		12TP16-0.502-02		12TP16-000.5-01		12TP17-0.5-02-02	
Sample Date:	**Region 3 Residential SL**	**Non-Residential SL**	**PADEP Residential MSC**	**PADEP Non-Residential MSC**	**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**12/19/2011**		**12/20/2011**	
Top Depth (feet):					**0**		**0.5**		**0**		**0.5**		**0**		**0.5**		**0**		**0.5**	
Bottom Depth (feet):					**0.5**		**2**		**0.5**		**2**		**0.5**		**2**		**0.5**		**2**	
Duplicate of:																				
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	1400		130		800	J	2200		5600		160		49		2.7	J
VOLATILES					**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	13	J	16	J	26		16	U	23	J	13.5	U	17	U	12.5	U
2-Hexanone	2.10E+05	1.40E+06	**9.60E+04**	4.00E+05	16	U	17	U	22	U	16	U	25	U	13.5	U	17	U	12.5	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	210	J	92		270		73		440	J	13.5	U	17	U	12.5	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	6.4	U	6.9	U	8.8	U	6.6	U	3.7	J	2.7	U	3.45	U	2.5	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.20E+06	6.4	U	6.9	U	8.8	U	6.6	U	9.8	U	2.7	U	3.45	U	2.5	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	6.4	U	6.9	U	8.8	U	6.6	U	9.8	U	2.7	U	3.45	U	2.5	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	6.4	UJ	6.9	U	4.1	J	6.6	U	9.8	UJ	NA		NA		NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	1.50E+06	6.4	U	3.6	J	8.8	U	6.6	U	9.8	U	2.7	U	3.45	U	2.5	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	6.4	U	6.9	U	8.8	U	6.6	U	9.8	U	2.7	U	3.45	U	2.5	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.30E+06	6.4	U	3.9	J	8.8	U	6.6	U	9.8	U	2.7	U	3.45	U	2.5	U
PESTICIDES/PCBS					**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	26	R	1.3	J	9.5	R	28	R	5.2	J	1.05	U	1.05	U	1.9	J
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	5	J	1.6	J	4.1	U	26	J	82		1.05	U	1.05	U	1	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	3.1	J	3.7	J	2.5	J	27	J	170		1.05	U	1.05	U	1	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.2	U	1.9	U	2.1	U	2	UJ	2.2	U	1.05	U	1.05	U	1	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.2	U	1.9	U	2.1	U	0.77	J	2.7	R	1.05	U	1.05	U	1	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.2	U	1.7	J	2.1	U	2	UJ	2.4	R	1.05	U	1.05	U	1	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	5.6	U	0.96	U	1.1	U	14	R	5.5	U	1.05	U	1.05	U	1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.1	R	1.9	U	2.1	U	1.7	R	5.2	R	1.05	U	1.05	U	1	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	7.2		5.1	J	2.1	J	3.9	UJ	11		1.05	U	1.05	U	1	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.2	U	1.9	U	2.1	U	0.85	J	2.1	J	1.05	U	1.05	U	1	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.4	R	3.7	U	4.1	U	3.9	UJ	4.2	U	1.05	U	1.05	U	1	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.3	U	3.7	U	4.1	U	3.9	UJ	5.5	J	1.05	U	1.05	U	1	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.3	U	0.9	J	4.1	U	3.9	UJ	4.2	U	1.05	U	1.05	U	1	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	2.3	J	3.4	J	0.88	J	3.1	J	9.9	R	1.05	U	1.05	U	1	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	3.8	R	3.7	U	4.1	U	3.2	J	11		1.05	U	1.05	U	1	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	0.46	J	1.4	B	1.1	B	2	UJ	5	R	1.05	U	1.05	U	1	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	0.66	J	1.9	U	1.7	J	2	UJ	2.1	J	1.05	U	1.05	U	1	U
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.3	R	1	J	1.1	J	2	UJ	3	R	1.05	U	1.05	U	1	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	22	U	19	U	21	U	35	R	120	R	1.05	U	1.05	U	1	U

TABLE 4-4

COMPARISON OF TEST PIT SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP17-000.5-01**	
Sample Date:	**12/20/2011**	
Top Depth (feet):	**0**	
Bottom Depth (feet):	**0.5**	
Duplicate of:		
INORGANICS	**mg/kg**	
Aluminum	15300	J
Antimony	0.44	B
Arsenic	5.2	L
Barium	67.7	L
Beryllium	0.84	
Cadmium	0.44	L
Calcium	761	J
Chromium	20.8	J
Cobalt	5.6	J
Copper	15.1	J
Cyanide	0.046	J
Hexavalent Chromium	1.8	
Iron	18900	J
Lead	21.8	
Magnesium	1710	
Manganese	219	J
Mercury	0.049	
Nickel	10	J
Potassium	638	J
Selenium	0.13	J
Silver	0.043	B
Sodium	48.6	J
Thallium	0.19	K
Vanadium	29.8	J
Zinc	40.4	J
SEMIVOLATILES	**ug/kg**	
2-Methylnaphthalene	2.25	U
Acenaphthene	2.25	U
Acenaphthylene	2.25	U
Acetophenone	NA	
Anthracene	2.25	U
Benz(a)anthracene	11	
Benzaldehyde	NA	
Benzo(a)pyrene	12	
Benzo(b)fluoranthene	18	
Benzo(g,h,i)perylene	6.3	J
Benzo(k)fluoranthene	6.3	
Bis(2-ethylhexyl)phthalate	225	U
Carbazole	225	U
Chrysene	15	
Di-n-butylphthalate	225	U
Di-n-octylphthalate	225	U
Dibenz(a,h)anthracene	2.25	U
Dibenzofuran	225	U
Dimethylphthalate	225	U
Fluoranthene	37	
Fluorene	2.25	U
Indeno(1,2,3-cd)pyrene	6.8	
Naphthalene	2.25	U
Phenanthrene	23	

TABLE 4-4

COMPARISON OF TEST PIT SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP17-000.5-01**	
Sample Date:	**12/20/2011**	
Top Depth (feet):	**0**	
Bottom Depth (feet):	**0.5**	
Duplicate of:		
Pyrene	27	
VOLATILES	**ug/kg**	
2-Butanone	15	U
2-Hexanone	15	U
Acetone	28	J
Carbon Disulfide	2.95	U
Chloromethane	2.95	U
Isopropylbenzene	2.95	U
Methyl Acetate	NA	
Tetrachloroethene	2.95	U
Toluene	2.95	U
Trichloroethene	2.95	U
PESTICIDES/PCBS	**ug/kg**	
4,4'-DDD	1.4	J
4,4'-DDE	1.15	U
4,4'-DDT	1.15	U
Aldrin	1.15	U
Alpha-BHC	1.15	U
Alpha-Chlordane	1.15	U
Beta-BHC	1.15	U
Delta-BHC	1.15	U
Dieldrin	1.15	U
Endosulfan I	1.15	U
Endosulfan II	1.15	U
Endosulfan Sulfate	1.15	U
Endrin	1.15	U
Endrin Aldehyde	1.15	U
Endrin Ketone	1.15	U
Gamma-Chlordane	1.15	U
Heptachlor	1.15	U
Heptachlor Epoxide	1.15	U
Methoxychlor	1.15	U

TABLE 4-4

COMPARISON OF SURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.
NA -- No result is available/applicable for this parameter in this sample.
-- Shading indicates values that exceeded the screening criteria

Database source file: H:\WILLOWGROVE\SITE 12\DATA\WG12SS.DBF data retrieved on: 05/01/1

TABLE 4-5

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 SUBSURFACE SOIL VERSUS BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 2

	Background Soil Samples					Site 12 Subsurface Soil Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
Total 2,3,7,8-TCDD Equiv.	0/0	-				6/6	5.07813 -	603.051	155	12TP02-0405-03
Aluminum	12/12	8570 -	15000	11300	BGSS06	64/64	3470 -	29400	13300	12TP15-0304-03
Antimony	0/2	-				13/18	0.87 J -	35.4 J	7.69	12TP16-0608-03
Arsenic	12/12	3.7 K -	10.6	6.65	BGSS03	63/63	0.76 J -	108 L	8.31	12TP03-0506-04
Barium	12/12	77.8 -	111	95.7	BGSS04	64/64	15 L -	1110	140	12TP03-0506-04
Beryllium	12/12	0.75 -	1.3	0.987	BGSS11	61/61	0.2 L -	3.1 L	0.715	12TP15-0304-03
Cadmium	0/12	-				31/34	0.025 J -	105	9.92	12TP08-0304-03
Calcium	12/12	614 -	1600	1020	BGSS12	64/64	166 J -	67600 J	5190	12TP08-0304-03
Chromium	12/12	12.4 -	20.8	15.3	BGSS02	72/72	4 -	192 L	27.5	12TP03-0506-04
Cobalt	12/12	6.8 -	9.3	7.9	BGSS02	64/64	1.9 J -	23.1	8.11	12TP02-0405-03
Copper	12/12	8 -	13.4	10.7	BGSS09	64/64	2.6 J -	1980	120	12TP02-0405-03
Cyanide	2/12	0.7 -	3.8	0.649	BGSS09	13/50	0.044 J -	0.096 J	0.0743	12SB09-0304-03
Hexavalent Chromium	0/0	-				20/21	0.38 -	5.9 J	1.34	12TP16-0608-03
Iron	12/12	11500 -	17600	14800	BGSS06	64/64	4610 J -	166000	26100	SSA12-SB08D-0202.5-20071205
Lead	12/12	16.3 -	64.7	30.6	BGSS04	64/64	1.6 J -	7900 J	407	12TP15-0304-03
Magnesium	12/12	1210 -	1940	1500	BGSS06	64/64	357 J -	18200 J	2300	12TP02-0405-03
Manganese	12/12	429 -	1190	642	BGSS04	64/64	29.4 J -	3740	553	12TP01-0708-04
Mercury	0/12	-				50/64	0.002 J -	0.3	0.0449	12TP09-0304-03-D
Nickel	12/12	7.4 -	11.2	9.79	BGSS04	64/64	2.4 L -	117 J	16.8	12TP09-0304-03-D
Potassium	7/12	436 -	771	434	BGSS05	64/64	103 L -	3500	786	12TP05-0910-04
Selenium	0/12	-				19/44	0.057 J -	16.4 L	1.11	12TP12-0203-03
Silver	0/12	-				15/35	0.2 -	19.5 K	1.87	12TP12-0203-03
Sodium	2/12	112 -	120	63.7	BGSS09	29/29	41.6 J -	1300 K	220	12TP15-0304-03
Thallium	7/12	0.25 -	0.34	0.226	BGSS07	28/44	0.08 J -	41.1 K	2.33	SSA12-SB08D-0202.5-20071205
Vanadium	12/12	20.9 -	28.2	24.9	BGSS02	64/64	5.2 J -	58.8	25.7	12TP03-0607-03
Zinc	12/12	21.7 -	597	90.1	BGSS04	64/64	8.6 J -	5400	407	12TP15-0304-03
4,4'-DDD	0/12	-				4/59	0.59 J -	5.5	1.38	12TP06-0506-03
4,4'-DDE	0/12	-				5/58	1.6 J -	22 J	1.75	12TP03-0607-03
4,4'-DDT	2/12	6.2 J -	8.3 J	3.01	BGSS10	10/64	0.97 J -	15 J	2.08	12TP03-0607-03
Alpha-BHC	0/12	-				3/62	0.83 J -	3 J	0.853	12TP08-0304-03
Alpha-Chlordane	0/12	-				5/64	0.6 J -	7.1 J	1.14	12TP09-0304-03
Aroclor-1260	0/12	-				1/64	350 J -	350 J	11.1	12SB20-0304-03-D
Beta-BHC	0/12	-				1/59	1.5 J -	1.5 J	0.679	12TP10-0809-04
Delta-BHC	0/12	-				4/62	0.38 J -	1.6 J	0.826	12TP11-0304-03
Dieldrin	9/12	13 -	760	179	BGSS03	5/58	2.5 J -	44	2.78	12TP11-0304-03
Endosulfan I	0/12	-				6/63	0.46 J -	11 J	1	12TP03-0607-03
Endosulfan II	0/12	-				4/61	1.2 J -	14 J	1.52	12TP03-0607-03
Endosulfan Sulfate	0/12	-				3/62	1.1 J -	9.7 J	1.46	12TP11-0506-04
Endrin	0/12	-				2/64	6.8 J -	13 J	1.64	12TP08-0304-03
Endrin Aldehyde	0/12	-				8/61	1.2 J -	17 J	1.76	12TP03-0607-03
Endrin Ketone	0/12	-				5/55	0.94 J -	15	1.71	12TP09-0304-03
Gamma-Chlordane	4/12	3.2 -	48 J	8.67	BGSS10	8/56	0.49 J -	8.9 J	1.16	12TP09-0304-03
Heptachlor	0/12	-				7/58	0.43 J -	1.3 J	0.795	12TP03-0506-04
Heptachlor Epoxide	3/12	3.4 J -	47	7.79	BGSS10	10/62	0.36 J -	7.8 J	1.05	12TP03-0607-03
Methoxychlor	0/12	-				3/60	11 J -	120 J	10.4	12TP03-0607-03
1,2-Dichlorobenzene	0/12	-				1/64	190 -	190	9.25	12TP01-0506-03
1,4-Dichlorobenzene	0/12	-				2/64	2.8 J -	21	6.61	12TP01-0506-03
2-Methylnaphthalene	0/12	-				19/64	0.94 J -	35000 J	628	12TP01-0506-03
Acenaphthene	3/12	55 J -	64 J	178	BGSS10	17/64	3.1 J -	5100	136	12TP09-0304-03
Acenaphthylene	3/12	54 J -	62 J	177	BGSS12	11/64	1.3 J -	220 J	79	12TP03-0607-03
Anthracene	6/12	46 J -	160 J	154	BGSS12	25/64	0.74 J -	13000 J	282	12TP09-0304-03
Benz(a)anthracene	9/12	33 J -	940	306	BGSS12	33/64	0.77 J -	22000 J	551	12TP09-0304-03
Benzaldehyde	0/0	-				2/36	41 J -	68 J	242	12TP02-0405-03
Benzo(a)pyrene	8/12	110 J -	1100	394	BGSS12	28/64	1.6 J -	16000 J	481	12TP09-0304-03
Benzo(b)fluoranthene	8/12	160 J -	1500	507	BGSS12	33/64	0.75 J -	15000	530	12TP09-0304-03
Benzo(g,h,i)perylene	7/12	52 J -	490	225	BGSS12	28/64	0.63 J -	8800	261	12TP09-0304-03
Benzo(k)fluoranthene	7/12	98 J -	920	370	BGSS12	29/64	0.8 J -	18000 J	506	12TP09-0304-03
Bis(2-ethylhexyl) Phthalate	0/0	-				5/57	70 J -	23000 J	623	SSA12-SB08D-0202.5-20071205
Carbazole	5/12	80 J -	310 J	212	BGSS10	8/64	62 J -	8400 J	309	12TP09-0304-03
Chrysene	9/12	43 J -	1200	420	BGSS12	34/64	0.89 J -	24000 J	606	12TP09-0304-03
Di-n-butyl Phthalate	0/2	-				1/64	23 J -	23 J	183	12TP12-0203-03
Dibenz(a,h)anthracene	5/12	52 J -	160 J	161	BGSS12	19/64	1.1 J -	4100 J	123	12TP09-0304-03
Dibenzofuran	4/12	51 J -	120 J	172	BGSS08	7/64	49 J -	4600	212	12TP09-0304-03
Dimethyl Phthalate	0/12	-				12/64	170 J -	350 J	208	12SB09-0304-03
Fluoranthene	10/12	49 J -	2600	902	BGSS12	36/64	2.3 J -	48000 J	1230	12TP09-0304-03
Fluorene	4/12	59 J -	160 J	184	BGSS08	21/64	0.66 J -	6900	145	12TP09-0304-03
Indeno(1,2,3-cd)pyrene	8/12	49 J -	640	251	BGSS12	24/64	1.2 J -	10000	312	12TP09-0304-03
Naphthalene	0/12	-				15/64	4.4 -	13000 J	297	12TP01-0506-03
Phenanthrene	8/12	110 J -	1700	667	BGSS12	36/64	2.1 J -	48000 J	1060	12TP09-0304-03

TABLE 4-5

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 SUBSURFACE SOIL VERSUS BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 2

	Background Soil Samples					Site 12 Subsurface Soil Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
Pyrene	10/12	46 J	2100	723	BGSS12	33/64	2 J	36000 J	980	12TP09-0304-03
1,2,3-Trichlorobenzene	0/0	-				2/57	3.8 J	82 J	3.65	12TP04-0405-03
1,2,4-Trichlorobenzene	0/12	-				2/64	2.7 J	48 J	5	12TP04-0405-03
1,2-Dichloroethene (cis)	0/0	-				2/64	7.6 J	14	6.49	12TP02-0405-03
1,2-Dichloroethene (trans)	0/0	-				2/64	6.6 J	7.3 J	6.37	12TP03-0506-04
2-Butanone	0/0	-				13/58	5.1 J	38 J	19.7	12TP16-0608-03
Acetone	0/0	-				27/51	11 J	2200 J	121	SSA12-SB04D-0202.5-20071205
Benzene	0/0	-				10/64	1.3 J	44	7.18	12TP09-0304-03-D
Bromomethane	0/0	-				2/64	6.3 J	78 J	7.58	12TP09-0304-03-D
Carbon Disulfide	0/0	-				10/64	1.1 J	8.1 J	6.33	12TP16-0608-03
Chlorobenzene	0/0	-				1/64	4 J	4 J	6.34	12TP06-0506-03
Chloromethane	0/0	-				4/64	2.6 J	130	7.8	12TP09-0304-03-D
Cyclohexane	0/0	-				1/36	36	36	11.2	12TP13-0506-03
Ethylbenzene	0/0	-				4/64	1.3 J	280	8.98	12TP04-0405-03
Isopropylbenzene	0/0	-				3/64	9.2 J	540	13.3	12TP04-0405-03
M,p-xylene	0/0	-				3/64	2.5 J	970	26.4	12TP04-0405-03
Methyl Acetate	0/0	-				3/36	1.8 J	20	10.7	12TP01-0708-04
Methylcyclohexane	0/0	-				5/36	2.8 J	880	31.5	12TP04-0405-03
Methylene Chloride	0/0	-				1/64	2.4 J	2.4 J	6.34	12SB19-0304-03
O-xylene	0/0	-				1/64	110	110	8	12TP01-0506-03
Tetrachloroethene	0/0	-				1/64	3.7 J	3.7 J	6.34	12TP14-0405-03
Toluene	0/0	-				6/63	1.8 J	13	6.61	12TP09-0304-03-D
Trichloroethene	0/0	-				1/64	3.2 J	3.2 J	6.33	12TP14-0405-03
Vinyl Chloride	0/0	-				2/64	19	19	6.74	12TP02-0405-03
Xylenes (Total)	0/0	-				3/64	2.5 J	970	25.2	12TP04-0405-03

Notes:

Units are mg/kg for inorganics, ug/kg for organics.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE 4-6
STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SUBSURFACE SOIL TO BACKGROUND
SITE 12 RI REPORT
NAS JRB WILLOW GROVE, PENNSYLVANIA

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 12 sb Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 12 sb? # Site 12 sb (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 12 sb > bkg.? P value <=0.05 ?				Student's or Satterthwaite T-test Site 12 sb Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both normal t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 12 sb Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 12 sb & bkg. both normally distributed F-Value<=F-Table (Students T). If not, Satterthwaite					
Concentration > background?	Y/N	bkg. Freq.	Site 12 sb Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean	Site 12 sb Mean	t Value	t Table	YN	bkg. Distrib.	Site 12 sb Distrib.	Std.Dev. bkg.	Std.Dev. Site 12 sb	F Value	F Table	YN
Total 2,3,7,8-TCDD Equiv.	NA	0/0	6/6		NA				NA				NA		155			NA							NA
Aluminum	**Y**	12/12	64/64		NA	34	33	0.0050	**Y**	0.1199			N	11300	13300	2.2244	1.6698	**Y**	normal	normal	1720	6050	16.4054	3.8431	N
Antimony	NA	0/2	13/18		NA	8	8	0.3474	NA				NA		7.69			NA							NA
Arsenic*	N	12/12	63/63		NA	11	11	0.1257	N	0.9937			N	6.65	8.31			NA	normal	lognor.					NA
Barium	**Y**	12/12	64/64		NA	18	18	0.0287	**Y**	0.9120			N	95.7	140			NA	normal	nonpar.					NA
Beryllium	N	12/12	61/61		NA	5	5	0.3961	N	1.0000			N	0.987	0.715			NA	normal	nonpar.					NA
Cadmium	**Y**	0/12	31/34		NA	14	14	0.0058	**Y**				NA		9.92			NA							NA
Calcium	**Y**	12/12	64/64		NA	17	17	0.0361	**Y**	0.8264			N	1020	5190			NA	normal	nonpar.					NA
Chromium	**Y**	12/12	72/72		NA	48	46	0.0028	**Y**	0.0536			N	15.3	27.5			NA	normal	nonpar.					NA
Cobalt	**Y**	12/12	64/64		NA	28	27	0.0226	**Y**	0.6576			N	7.9	8.11	0.3663	1.6660	N	normal	normal	0.788	4.13	24.4663	3.8431	N
Copper	**Y**	12/12	64/64		NA	24	24	0.0067	**Y**	0.6680			N	10.7	120			NA	normal	nonpar.					NA
Cyanide	N	2/12	13/50		NA				NA	0.9993	Gehan	Test	N	0.649	0.0743			NA							NA
Hexavalent Chromium	NA	0/0	20/21		NA				NA				NA		1.34			NA							NA
Iron	**Y**	12/12	64/64		NA	39	39	0.0001	**Y**	0.0101			**Y**	14800	26100			NA	normal	lognor.					NA
Lead	**Y**	12/12	64/64		NA	15	15	0.0562	N	0.9962			N	30.6	407			NA	gamma	nonpar.					NA
Magnesium	**Y**	12/12	64/64		NA	28	28	0.0022	**Y**	0.1718			N	1500	2300			NA	lognor.	lognor.					NA
Manganese*	N	12/12	64/64		NA	16	15	0.2219	N	0.9704			N	642	553			NA	lognor.	lognor.					NA
Mercury	N	0/12	50/64		NA	4	4	0.4952	N				NA		0.0449			NA							NA
Nickel	**Y**	12/12	64/64		NA	28	28	0.0022	**Y**	0.2426			N	9.79	16.8			NA	normal	nonpar.					NA
Potassium	**Y**	7/12	64/64	<.0001	**Y**	24	24	0.0067	**Y**	0.0185	Gehan	Test	**Y**	434	786			NA	gamma	gamma					NA
Selenium	NA	0/12	19/44		NA	8	8	0.1248	NA				NA		1.11			NA							NA
Silver	N	0/12	15/35		NA	8	8	0.0748	N				NA		1.87			NA							NA
Sodium	**Y**	2/12	29/29	<.0001	**Y**	13	13	0.0039	**Y**	0.0245	Gehan	Test	**Y**	63.7	220			NA							NA
Thallium	**Y**	7/12	28/44	0.5000	N	19	19	0.0033	**Y**	0.0007	Gehan	Test	**Y**	0.226	2.33			NA	normal	nonpar.					NA
Vanadium	**Y**	12/12	64/64		NA	24	24	0.0067	**Y**	0.5791			N	24.9	25.7	0.5755	1.6660	N	normal	normal	2.13	10.5	23.0655	3.8431	N
Zinc	**Y**	12/12	64/64		NA	16	15	0.2219	N	0.9937			N	90.1	407			NA	nonpar.	nonpar.					NA
4,4'-DDD	N	0/12	4/59		NA	2	2	0.6885	N				NA		1.38			NA							NA
4,4'-DDE	N	0/12	5/58		NA	5	5	0.3786	N				NA		1.75			NA							NA
4,4'-DDT	N	2/12	10/64		NA	3	3	0.5927	N	0.6576	Gehan	Test	N	3.01	2.08			NA							NA
Alpha-BHC	N	0/12	3/62	0.5834	N	2	2	0.7001	N				NA		0.853			NA							NA
Alpha-Chlordane	NA	0/12	5/64		NA				NA				NA		1.14			NA							NA
Aroclor-1260	N	0/12	1/64		NA	1	1	0.8421	N				NA		11.1			NA							NA
Beta-BHC	NA	0/12	1/59		NA				NA				NA		0.679			NA							NA
Delta-BHC	N	0/12	4/62	0.4848	N	3	3	0.5834	N				NA		0.826			NA							NA
Dieldrin	N	9/12	5/58		NA	8	2	1.0000	N	1.0000	Gehan	Test	N	179	2.78			NA							NA
Endosulfan I	N	0/12	6/63	0.3374	N	5	5	0.4072	N				NA		1			NA							NA
Endosulfan II	N	0/12	4/61		NA	2	2	0.6963	N				NA		1.52			NA							NA
Endosulfan Sulfate	N	0/12	3/62		NA	1	1	0.8378	N				NA		1.46			NA							NA
Endrin	N	0/12	2/64		NA	2	2	0.7074	N				NA		1.64			NA							NA
Endrin Aldehyde	N	0/12	8/61		NA	7	7	0.2678	N				NA		1.76			NA							NA
Endrin Ketone	N	0/12	5/55		NA	4	4	0.4450	N				NA		1.71			NA							NA
Gamma-Chlordane	N	4/12	8/56		NA				NA	0.9808	Gehan	Test	N	8.67	1.16			NA							NA
Heptachlor	N	0/12	7/58	0.2508	N	4	4	0.4627	N				NA		0.795			NA							NA
Heptachlor Epoxide	N	3/12	10/62	0.8736	N	12	9	0.9031	N	0.8768	Gehan	Test	N	7.79	1.05			NA							NA
Methoxychlor	N	0/12	3/60		NA	1	1	0.8333	N				NA		10.4			NA							NA
1,2,4-Trichlorobenzene	NA	0/12	2/64		NA				NA				NA		5			NA							NA
1,2-Dichlorobenzene	N	0/12	1/64		NA	1	1	0.8421	N				NA		9.25			NA							NA
1,4-Dichlorobenzene	NA	0/12	2/64		NA				NA				NA		6.61			NA							NA
2-Methylnaphthalene	N	0/12	19/64		NA	4	4	0.4952	N				NA		628			NA							NA
Acenaphthene	N	3/12	17/64		NA	1	1	0.8421	N	0.8316	Gehan	Test	N	178	136			NA							NA
Acenaphthylene	N	3/12	11/64		NA				NA	0.9721	Gehan	Test	N	177	79			NA							NA
Anthracene	N	6/12	25/64		NA	6	6	0.3429	N	0.9347	Gehan	Test	N	154	282			NA							NA
Benz(a)anthracene	N	9/12	33/64		NA	8	8	0.2347	N	0.9899	Gehan	Test	N	306	551			NA							NA
Benzaldehyde	NA	0/0	2/36		NA				NA				NA		242			NA							NA
Benzo(a)pyrene	N	8/12	28/64		NA	7	7	0.2842	N	0.9845	Gehan	Test	N	394	481			NA							NA
Benzo(b)fluoranthene	N	8/12	33/64		NA	6	6	0.3429	N	0.9818	Gehan	Test	N	507	530			NA							NA
Benzo(g,h,i)perylene	N	7/12	28/64		NA	7	7	0.2842	N	0.9486	Gehan	Test	N	225	261			NA							NA
Benzo(k)fluoranthene	N	7/12	29/64		NA	7	7	0.2842	N	0.9702	Gehan	Test	N	370	506			NA							NA
Bis(2-ethylhexyl) Phthalate	NA	0/0	5/57		NA				NA				NA		623			NA							NA
Carbazole	N	5/12	8/64		NA	1	1	0.8421	N	0.9974	Gehan	Test	N	212	309			NA							NA
Chrysene	N	9/12	34/64		NA	7	7	0.2842	N	0.9919	Gehan	Test	N	420	606			NA							NA

TABLE 4-6
STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SUBSURFACE SOIL TO BACKGROUND
SITE 12 RI REPORT
NAS JRB WILLOW GROVE, PENNSYLVANIA

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 12 sb Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 12 sb? # Site 12 sb (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 12 sb > bkg.? P value <=0.05 ?				Student's or Satterthwaite T-test Site 12 sb Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both normal t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 12 sb Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 12 sb & bkg. both normally distributed F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 12 sb Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean	Site 12 sb Mean	t Value	t Table	YN	bkg. Distrib.	Site 12 sb Distrib.	Std.Dev. bkg.	Std.Dev. Site 12 sb	F Value	F Table	YN
Di-n-butyl Phthalate	NA	0/2	1/64		NA				NA				NA		183			NA								NA
Dibenz(a,h)anthracene	N	5/12	19/64		NA	2	2	0.7074	N	0.9748	Gehan	Test	N	161	123			NA								NA
Dibenzofuran	N	4/12	7/64		NA	2	2	0.7074	N	0.8100	Gehan	Test	N	172	212			NA								NA
Dimethyl Phthalate	NA	0/12	12/64		NA				NA				NA		208			NA								NA
Fluoranthene	N	10/12	36/64		NA	7	7	0.2842	N	0.9952	Gehan	Test	N	902	1230			NA								NA
Fluorene	N	4/12	21/64		NA	3	3	0.5927	N	0.9457	Gehan	Test	N	184	145			NA								NA
Indeno(1,2,3-cd)pyrene	N	8/12	24/64		NA	5	5	0.4127	N	0.9876	Gehan	Test	N	251	312			NA								NA
Naphthalene	N	0/12	15/64		NA	6	6	0.3429	N				NA		297			NA								NA
Phenanthrene	N	8/12	36/64		NA	5	5	0.4127	N	0.9957	Gehan	Test	N	667	1060			NA								NA
Pyrene	N	10/12	33/64		NA	6	6	0.3429	N	0.9952	Gehan	Test	N	723	980			NA								NA
1,2,3-Trichlorobenzene	NA	0/0	2/57		NA				NA				NA		3.65			NA								NA
1,2-Dichloroethene (cis)	NA	0/0	2/64		NA				NA				NA		6.49			NA								NA
1,2-Dichloroethene (trans)	NA	0/0	2/64		NA				NA				NA		6.37			NA								NA
2-Butanone	NA	0/0	13/58		NA				NA				NA		19.7			NA								NA
Acetone	NA	0/0	27/51		NA				NA				NA		121			NA								NA
Benzene	NA	0/0	10/64		NA				NA				NA		7.18			NA								NA
Bromomethane	NA	0/0	2/64		NA				NA				NA		7.58			NA								NA
Carbon Disulfide	NA	0/0	10/64		NA				NA				NA		6.33			NA								NA
Chlorobenzene	NA	0/0	1/64		NA				NA				NA		6.34			NA								NA
Chloromethane	NA	0/0	4/64		NA				NA				NA		7.8			NA								NA
Cyclohexane	NA	0/0	1/36		NA				NA				NA		11.2			NA								NA
Ethylbenzene	NA	0/0	4/64		NA				NA				NA		8.98			NA								NA
Isopropylbenzene	NA	0/0	3/64		NA				NA				NA		13.3			NA								NA
M,p-xylene	NA	0/0	3/64		NA				NA				NA		26.4			NA								NA
Methyl Acetate	NA	0/0	3/36		NA				NA				NA		10.7			NA								NA
Methylcyclohexane	NA	0/0	5/36		NA				NA				NA		31.5			NA								NA
Methylene Chloride	NA	0/0	1/64		NA				NA				NA		6.34			NA								NA
O-xylene	NA	0/0	1/64		NA				NA				NA		8			NA								NA
Tetrachloroethene	NA	0/0	1/64		NA				NA				NA		6.34			NA								NA
Toluene	NA	0/0	6/63		NA				NA				NA		6.61			NA								NA
Trichloroethene	NA	0/0	1/64		NA				NA				NA		6.33			NA								NA
Vinyl Chloride	NA	0/0	2/64		NA				NA				NA		6.74			NA								NA
Xylenes (Total)	NA	0/0	3/64		NA				NA				NA		25.2			NA								NA

*** Background soil consists of only surface soil and may not be representative of subsurface background conditions. Background test results are considered tentative. Metals that appear to be greater than background are presumed to be elevated in Site 12 subsurface soil samples as a conservative approach. Metals suggested to be similar to background (e.g., arsenic and manganese) are evaluated in more detail in Appendix K, Part 6.**

**** Site 12 concentrations in soil are compared to background soil (sb).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency

Interpretation of Quantile Test: If the "P-Value" is lesb than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site soil subgroup, this would be unlikely if the site and background data sets came from the same population.

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site data set belongs to a population having a greater mean relative to the mean of the background population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 12 sb to bkg. soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 12 sb > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)

NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 12 sb (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 12 sb results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 12 sb > bkg. with 95 % confidence.
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 12 sb and bkg. data set are comprised of Site 12 sb data if both populations are in fact equal.

TABLE 4-7

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	Region 3	Region 3	PADEP	PADEP	SSA12-SB02D-2.0-2.5		SSA12-SB02D-2.02.5-D		SSA12-SB04D-2.0-2.5		SSA12-SB05D-2.0-2.5	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/07/07**		**12/05/07**		**12/07/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**2**		**2**		**2**		**2**	
Bottom Depth (feet):		**SL**		**MSC**	**2.5**		**2.5**		**2.5**		**2.5**	
Duplicate of:							**SSA12-SB02D-2.0-2.5**					
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	12100		12400		13900		19700	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.33	UR	0.33	UR	0.48	B	0.35	UR
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	4.7		4.7		6.2		6.9	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	50		51.5		49.1		56.6	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.66	K	0.62	K	0.71	K	0.7	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.06	U	0.06	U	0.06	UR	0.06	U
Calcium	NA	NA	NA	NA	692		761		673		750	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	21.4	J	20.4	J	19.9		27.7	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.6	J	11.9	J	11	K	6.1	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	11.2	J	11.3	J	12.5	J	16.9	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	21900	J	21200	J	24300		31800	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	7.5		8.1		10.3		10.7	
Magnesium	NA	NA	NA	NA	1820		1860		1650		2230	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	240	J	392	J	437	K	206	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.019	U	0.02	U	0.037	K	0.037	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	8.4	J	9.9	J	11.2		12.1	J
Potassium	NA	NA	NA	NA	664	L	694	L	661	L	814	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.06	UR	0.06	UR	0.06	UR	0.06	UR
Sodium	NA	NA	NA	NA	133	B	141	B	126	B	144	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	3.7	J	4	J	3.8	K	7	J
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	36.6		35.1		34.5		45.4	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	19.3		22.4		35.7		30	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	200	U	210	U	200	U	220	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	200	U	210	U	200	U	220	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	200	U	210	U	200	U	220	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	200	U	210	U	200	U	220	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	200	U	210	U	200	U	220	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	200	U	210	U	200	U	220	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	200	U	210	U	200	U	220	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	200	U	210	U	200	U	220	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	200	U	210	U	200	U	220	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	200	U	210	U	200	U	220	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	200	U	210	U	200	U	220	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	200	U	210	U	200	U	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	200	U	210	U	200	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	200	U	210	U	200	U	220	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	200	U	210	U	200	U	220	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	200	U	210	U	200	U	220	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	200	U	210	U	200	U	220	U
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	200	U	210	U	200	U	220	U
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	4	B	3.7	B	640	U	7.5	B

TABLE 4-7

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SB02D-2.0-2.5**		**SSA12-SB02D-2.02.5-D**		**SSA12-SB04D-2.0-2.5**		**SSA12-SB05D-2.0-2.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/07/07**		**12/05/07**		**12/07/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**2**		**2**		**2**		**2**	
Bottom Depth (feet):		**SL**		**MSC**	**2.5**		**2.5**		**2.5**		**2.5**	
Duplicate of:							**SSA12-SB02D-2.0-2.5**					
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	31	B	27	B	2200	J	83	B
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	5.6	U	5.4	U	260	U	5.9	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	1.1	J	5.4	U	260	U	5.9	U
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	5.6	U	5.4	U	260	U	5.9	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	5.6	U	5.4	U	260	U	5.9	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	5.6	U	5.4	U	260	U	5.9	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	5.6	U	5.4	U	260	U	5.9	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4	UJ	4	UJ	4	UJ	4.2	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4	UJ	4	UJ	4	UJ	4.2	UJ
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	4	UJ	4	UJ	4	UJ	4.2	UJ
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1	UJ	1	UJ	1	UJ	1.1	UJ
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	4	UJ	4	UJ	4	UJ	4.2	UJ
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4	UJ	4	UJ	4	UJ	4.2	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4	UJ	4	UJ	4	UJ	4.2	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4	UJ	4	UJ	4	UJ	4.2	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4	UJ	4	UJ	4	UJ	4.2	UJ
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	9.4	R	4	UJ	4	UJ	4.2	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	1.90E+08	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2	UJ	2.1	UJ	2	UJ	2.2	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	20	UJ	21	UJ	20	UJ	22	UJ

TABLE 4-7

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	Region 3	Region 3	PADEP	PADEP	SSA12-SB06D-2.0-2.5		SSA12-SB07D-2.0-2.5		SSA12-SB08D-2.0-2.5		SSA12-SB10D-2.0-2.5	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/05/07**		**12/05/07**		**12/05/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**2**		**2**		**2**		**2**	
Bottom Depth (feet):		**SL**		**MSC**	**2.5**		**2.5**		**2.5**		**2.5**	
Duplicate of:												
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	18700		17900		20100		18700	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.61	B	0.52	B	10.4	J	0.34	UL
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	7.4		11.8		13.3		5.4	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	46.3		51		233		53.6	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.61	K	0.7	K	0.49	K	0.62	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.06	U	0.06	UR	15.7		0.06	UR
Calcium	NA	NA	NA	NA	589		868		4750		765	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	23.1	J	26.8		58.8		28.6	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	10.6	J	5.1	K	11	K	4.5	K
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	19.5	J	16.1	J	654	J	15.1	J
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	31600	J	36900		166000		21600	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	9.3		11.2		1250		10.9	
Magnesium	NA	NA	NA	NA	2010		2190		2300		2680	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	263	J	185	K	1020	K	111	K
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.034		0.072	K	0.12	K	0.044	K
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	12.3	J	10.7		115		13	
Potassium	NA	NA	NA	NA	710	L	814	L	600	L	846	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.06	UR	0.06	UR	7		0.06	UR
Sodium	NA	NA	NA	NA	136	B	101	B	195	B	127	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	5.8	J	6.1	K	41.1	K	3.2	K
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	41.6		42		29.4		43	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	28.1		39.8		2100		35.5	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.10E+07	210	U	210	U	220	U	200	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	210	U	210	U	220	U	200	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.70E+08	210	U	210	U	220	U	200	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	210	U	210	U	220	U	200	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	210	U	210	U	220	U	200	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.10E+04	210	U	210	U	100	J	200	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.10E+05	210	U	210	U	220	U	200	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.70E+08	210	U	210	U	220	U	200	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.10E+06	210	U	210	U	120	J	200	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	5.70E+06	360	J	210	U	23000	J	200	U
Carbazole	NA	NA	**9.00E+05**	4.00E+06	210	U	210	U	220	U	200	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.10E+07	210	U	210	U	130	J	200	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.10E+04	210	U	210	U	220	U	200	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	210	U	210	U	200	J	200	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.10E+08	210	U	210	U	220	U	200	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.10E+05	210	U	210	U	220	U	200	U
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	210	U	210	U	100	J	200	U
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	8.40E+07	210	U	210	U	190	J	200	U
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	7.1	B	6.2	B	10	B	14	U

TABLE 4-7

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	**Region 3**	**Region 3**	**PADEP**	**PADEP**	**SSA12-SB06D-2.0-2.5**		**SSA12-SB07D-2.0-2.5**		**SSA12-SB08D-2.0-2.5**		**SSA12-SB10D-2.0-2.5**	
Sample Date:	**Residential**	**Non-**	**Residential**	**Non-**	**12/07/07**		**12/05/07**		**12/05/07**		**12/05/07**	
Top Depth (feet):	**SL**	**Residential**	**MSC**	**Residential**	**2**		**2**		**2**		**2**	
Bottom Depth (feet):		**SL**		**MSC**	**2.5**		**2.5**		**2.5**		**2.5**	
Duplicate of:												
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	110		380		940	J	32	B
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	5.8	U	5.3	U	4.4	J	5.5	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.1	J	5.3	U	5.5	U	1.3	J
Dichlorodifluoromethane	**9.40E+04**	4.00E+05	3.90E+06	1.00E+07	5.8	U	5.3	U	5.5	U	5.5	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	5.8	U	5.3	U	5.5	U	5.5	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	5.8	U	5.3	U	16	B	5.5	U
Trichlorofluoromethane	**7.90E+05**	3.40E+06	1.00E+07	1.00E+07	5.8	U	5.3	U	5.5	U	5.5	U
PESTICIDES	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	3.30E+05	4.1	UJ	4.1	UJ	4.2	UJ	3.8	UJ
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	2.30E+05	4.1	UJ	4.1	UJ	1.6	J	3.8	UJ
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	2.30E+05	4.1	UJ	4.1	UJ	4.2	UJ	3.8	UJ
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	4.70E+03	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.30E+04	2.1	UJ	2.1	UJ	0.83	J	2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	4.40E+04	1.1	UJ	1.1	UJ	1.1	UJ	0.99	UJ
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	5.00E+03	4.1	UJ	4.1	UJ	23	J	3.8	UJ
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.1	UJ	4.1	UJ	4.2	UJ	3.8	UJ
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.70E+07	4.1	UJ	4.1	UJ	9.6	R	3.8	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	UJ	4.1	UJ	4.2	UJ	3.8	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	UJ	4.1	UJ	4.2	UJ	3.8	UJ
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	8.40E+05	4.1	UJ	4.1	UJ	4.2	UJ	3.8	UJ
Gamma-BHC (Lindane)	**5.20E+02**	2.10E+03	1.60E+04	1.90E+08	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	2.30E+05	2.1	UJ	2.1	UJ	2.2	UJ	0.95	J
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.80E+04	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	8.70E+03	2.1	UJ	2.1	UJ	2.2	UJ	2	UJ
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.40E+07	21	UJ	21	UJ	22	UJ	20	UJ

TABLE 4-7

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE SCREENING AREA 12 CONFIRMATION SOIL INVESTIGATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.
-- Shading indicates values that exceeded the screening criteria

Database source file: H:\WILLOWGROVE\SITE SSA 12\MAR1808N003.DBF data retrieved on: 03/18/08

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB06-0304-03		12SB07-0304-03		12SB08-0304-03		12SB09-0304-03		12SB10-0304-03		12SB11-0304-03		12SB12-0304-03	
Sample Date:		Region 3			12/28/2011		12/28/2011		12/28/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC														
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	8600	J	9950	J	12500	J	5990	J	3910	J	5920	J	8090	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.12	B	0.12	B	0.23	B	0.33	B	0.23	B	0.28	B	0.92	L
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	3.3	J	2.5	J	4	J	2.4	J	1.1	J	3.7	J	10.7	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	38.9	K	202	K	63.7	K	111	J	70	J	114	J	97.2	K
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.46	J	1.4	J	0.78	J	0.68	J	0.52	J	0.68	J	0.79	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.079	J	0.13	K	0.13	K	0.11	B	0.12	B	0.12	B	0.86	
Calcium	NA	NA	NA	NA	305	J	988	J	436	J	504	J	5700	J	599	J	1140	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	15.3	J	14.1	J	19	J	11.8		9.5		13.6		12.8	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.9	J	5.9	J	5.9	J	5.3	J	5.4	J	5.2	J	5.8	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	8.4	J	4.6	J	11	J	5.4	J	7.1	J	3.9	J	17.4	J
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.1475	U	0.091	J	0.07	J	0.096	J	0.144	U	0.053	J	0.079	J
Hexavalent Chromium	**290**	5600	660	8400	0.4		NA		NA		0.62		NA		NA		0.58	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	15800	J	15700	J	25200	J	13200	J	11800	J	14300	J	18200	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	7.7		12.5		11.6		16.8	J	10.9	J	10.2	J	74.2	
Magnesium	NA	NA	NA	NA	1290	J	1160	J	2180	J	1120	J	4370	J	1010	J	1140	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	337	J	798	J	212	J	419	J	386	J	406	J	535	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.007	J	0.023		0.021		0.035		0.009	J	0.012		0.068	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	6.7	J	9	J	9.5	J	6.6	J	6.4	J	6.2	J	12.4	J
Potassium	NA	NA	NA	NA	273	J	251	J	577	J	635	L	439	L	623	L	313	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.22	UL	0.33	J	0.27	U	0.17	J	0.22	U	0.19	J	0.29	J
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.015	B	0.056	B	0.034	B	0.024	B	0.012	B	0.05	B	0.79	
Sodium	NA	NA	NA	NA	58.3	J	63.7	J	49.2	J	56.6	J	66.4	J	57.5	J	64.7	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.08	J	0.14	B	0.26	B	0.63		0.12	B	0.43		0.22	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	20.4	J	18	J	25.6	J	13.6	J	12.5	J	15.4	J	16.2	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	18.6	J	25.1	J	29.8	J	27.6	J	20.1	J	21.1	J	56.7	J
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	1.95	U	2.2	U	2.05	U	1.95	U	290	K	7.9		3.1	J
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	1.95	U	2.2	U	2.05	U	3.6	J	870		1.95	U	3.1	J
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	1.95	U	2.2	U	2.05	U	1.95	U	63		2.4	J	3.5	J
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	1.95	U	2.2	U	2.05	U	6.7		1600		5.6		6.1	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	1.95	U	2.2	U	2.05	U	33		1800	K	35		24	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	1.95	U	2.2	U	2.05	U	36		1400	K	34		23	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	1.95	U	2.2	U	2.05	U	54		1900	K	49		30	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	1.95	U	2.2	U	2.05	U	24		610	K	19	J	14	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	1.95	U	2.2	U	2.05	U	21		600	K	16		12	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	195	U	220	U	205	U	195	U	1900	U	195	U	215	U
Carbazole	NA	NA	**9.00E+05**	1.90E+08	195	U	220	U	205	U	195	U	1900	U	195	U	215	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	1.95	U	2.2	U	2.05	U	48		1600	K	43		25	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	195	U	220	U	205	U	195	U	1900	U	195	U	215	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	1.95	U	2.2	U	2.05	U	1.95	U	71	K	1.95	U	3.9	J
Dibenzofuran	NA	NA	NA	NA	195	U	220	U	205	U	195	U	1600	J	195	U	215	U
Dimethylphthalate	NA	NA	NA	NA	195	U	220	U	205	U	350	J	1900	U	270	J	215	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	1.95	U	2.2	U	3.3	J	140		6600		88		59	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	1.95	U	2.2	U	2.05	U	7.9		1200	K	2.8	J	3.5	J
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	1.95	U	2.2	U	2.05	U	24		640	K	18		16	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	1.95	U	2.2	U	2.05	U	1.95	U	450	K	6.7		4.4	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB06-0304-03		12SB07-0304-03		12SB08-0304-03		12SB09-0304-03		12SB10-0304-03		12SB11-0304-03		12SB12-0304-03	
Sample Date:		Region 3			12/28/2011		12/28/2011		12/28/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC														
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	1.95	U	2.2	U	2.9	J	95		12000	K	36		35	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	1.95	U	2.2	U	2.5	J	95		4100	K	67		45	
VOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	12	U	14.5	U	13	U	5.1	J	12	U	12.5	U	14.5	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	12	U	14.5	U	13	U	12	J	12	U	12.5	U	14.5	U
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	4.75	U	6	U	5.5	U	5	U	4.8	U	4.95	U	6	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	2.35	U	2.95	U	2.65	U	2.55	U	2.4	U	2.5	U	2.9	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	7	U	9	U	8	U	7.5	U	7	U	7.5	U	8.5	U
PESTICIDES/PCBS					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	10	U	11.5	U	10.5	U	10	U	10	U	10	U	11	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	UJ	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB06-0304-03		12SB07-0304-03		12SB08-0304-03		12SB09-0304-03		12SB10-0304-03		12SB11-0304-03		12SB12-0304-03	
Sample Date:		Region 3			12/28/2011		12/28/2011		12/28/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC														
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	1	U	1.15	U	1.05	U	1	UJ	1	U	1	U	1.1	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12SB06-0304-03	12SB07-0304-03	12SB08-0304-03	12SB09-0304-03	12SB10-0304-03	12SB11-0304-03	12SB12-0304-03
Sample Date:					**12/28/2011**	**12/28/2011**	**12/28/2011**	**12/15/2011**	**12/15/2011**	**12/15/2011**	**12/28/2011**
Top Depth (feet):					**3**	**3**	**3**	**3**	**3**	**3**	**3**
Bottom Depth (feet):					**4**	**4**	**4**	**4**	**4**	**4**	**4**
Duplicate:											
DIOXIN/FURAN											
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB13-0304-03		12SB14-0304-03		12SB15-0304-03		12SB16-0304-03		12SB16-0304-03-D		12SB17-0304-03		12SB18-0304-03	
Sample Date:		Region 3			12/16/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011		12/14/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC							12SB16-0304-03-D		12SB16-0304-03					
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	5040		4940	J	6020	J	11400	J	7070	J	14400	J	7390	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.1	B	0.039	B	0.13	B	0.22	B	0.14	B	0.13	B	0.18	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	1.7	L	0.76	J	3.3	J	5.2	J	3.3	J	3.6	J	2.7	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	49.7		25.8	J	23.2	J	60.2	J	37	J	72.7	K	36.1	J
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.43	L	0.22	B	0.23	B	0.44	J	0.33	J	0.82	J	0.45	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.06	J	0.018	B	0.035	B	0.1	B	0.14	B	0.085	J	0.062	J
Calcium	NA	NA	NA	NA	184		166	J	283	J	630	J	356	J	466	J	436	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	6.2	J	4		10.6		18.2	J	11.4		17.8	J	12.1	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	3.7	L	2.6	J	1.9	J	5.4	J	4.8	J	7.4	J	7.5	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	3.2	L	3.2	J	4.4	J	8.8	J	6.2	J	6.1	J	6.8	J
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.151	U	0.066	J	0.1525	U	0.045	J	0.055	J	0.057	J	0.044	J
Hexavalent Chromium	**290**	5600	660	8400	0.54	J	NA		NA		NA		NA		NA		0.54	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	6730		4610	J	9990	J	20300	J	12800	J	20800	J	15000	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	6.7	L	1.6	J	5.5	J	12	J	7.5	J	9.5		9.4	J
Magnesium	NA	NA	NA	NA	531		357	J	849	J	1370	J	949	J	1750	J	1450	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	881		90.3	J	87.2	J	229	J	174	J	394	J	226	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.021		0.013		0.018		0.037		0.047		0.023		0.033	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	4.6	L	2.8	J	3.9	J	7.6	J	5.4	J	9.3	J	7	J
Potassium	NA	NA	NA	NA	146	L	103	L	149	L	313	L	194	L	365	J	622	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.15	J	0.225	U	0.12	J	0.1	J	0.057	J	0.245	UL	0.26	U
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.026	B	0.0455	U	0.013	B	0.029	B	0.018	B	0.033	B	0.016	B
Sodium	NA	NA	NA	NA	188	J	223	J	26.9	B	47.2	J	22.7	B	55.4	J	101	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.078	B	0.041	B	0.09	B	0.13	B	0.19	B	0.14		0.11	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	9.2	L	5.2	J	14.8	J	28.3	J	18.2	J	26.2	J	20.3	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	22.2		8.6	J	19.8	J	26.3	J	22.7	J	24.9	J	23.6	J
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	2.4	J	2.3	J	2	U	4.5		2.4	J	2.05	U	2.5	J
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	2	U	1.9	U	2	U	3.7	J	2	J	2.05	U	2.05	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	2.4	J	1.9	J	2	U	4.9		3.2	J	2.05	U	2.05	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	2	U	1.9	U	2	U	2.1	J	2	U	2.05	U	2.05	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	200	U	190	U	200	U	205	U	200	U	205	U	205	U
Carbazole	NA	NA	**9.00E+05**	1.90E+08	200	U	190	U	200	U	205	U	200	U	205	U	205	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	2.8	J	1.9	J	2	U	4.9		2	J	2.05	U	2.1	J
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	200	U	190	U	200	U	205	U	200	U	205	U	205	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Dibenzofuran	NA	NA	NA	NA	200	U	190	U	200	U	205	U	200	U	205	U	205	U
Dimethylphthalate	NA	NA	NA	NA	180	J	190	U	280	J	340	J	260	J	205	U	205	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	4.8		3.9		2	U	12		5.7		2.05	U	5.8	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	2	U	1.9	U	2	U	2.5	J	2	U	2.05	U	2.05	U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	2	U	1.9	U	2	U	2.05	U	2	U	2.05	U	2.05	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB13-0304-03		12SB14-0304-03		12SB15-0304-03		12SB16-0304-03		12SB16-0304-03-D		12SB17-0304-03		12SB18-0304-03	
Sample Date:		Region 3			12/16/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011		12/14/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC							12SB16-0304-03-D		12SB16-0304-03					
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	4		3.1	J	2	U	8.6		4.1		2.05	U	4.1	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	4		3.1	J	2	U	8.6		4.1		2.05	U	4.1	
VOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	12.5	U	12.5	U	12.5	U	13	U	12.5	U	13.5	U	14	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	12.5	U	12.5	U	12.5	U	13	U	15	J	13.5	U	81	
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	5	U	4.95	U	5	U	5	U	5	U	5.5	U	5.5	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	2.55	U	2.5	U	2.5	U	2.6	U	2.5	U	2.65	U	2.85	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	7.5	U	7.5	U	7.5	U	8	U	7.5	U	8	U	8.5	U
PESTICIDES/PCBS					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	10	U	10	U	10.5	U	10.5	U	10.5	U	10.5	U	10.5	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	UJ	1.05	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB13-0304-03		12SB14-0304-03		12SB15-0304-03		12SB16-0304-03		12SB16-0304-03-D		12SB17-0304-03		12SB18-0304-03	
Sample Date:					12/16/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/28/2011		12/14/2011	
Top Depth (feet):	Region 3	Region 3 Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC							12SB16-0304-03-D		12SB16-0304-03					
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	1	U	1	U	1.05	U	1.05	UJ	1.05	U	1.05	U	1.05	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12SB13-0304-03	12SB14-0304-03	12SB15-0304-03	12SB16-0304-03	12SB16-0304-03-D	12SB17-0304-03	12SB18-0304-03
Sample Date:					12/16/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/28/2011	12/14/2011
Top Depth (feet):					3	3	3	3	3	3	3
Bottom Depth (feet):					4	4	4	4	4	4	4
Duplicate:								12SB16-0304-03-D	12SB16-0304-03		
DIOXIN/FURAN											
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB19-0304-03		12SB20-0304-03		12SB20-0304-03-D		12SB21-0304-03		12SB22-0304-03		12SB23-0304-03		12SB24-0304-03	
Sample Date:		Region 3			12/14/2011		12/22/2011		12/22/2011		12/22/2011		12/14/2011		12/22/2011		12/14/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC			12SB20-0304-03-D		12SB20-0304-03									
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	7260	J	9080		9720		11900		7950	J	14000		4930	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.35	B	2	J	5.9	J	0.23	B	0.16	B	0.33	B	0.1	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	3.9	J	3.1	J	3.9	J	7.1	J	3	J	3.4	J	1.2	J
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	73.4	J	123	J	804	J	44.9	J	36.5	J	50.5	J	19.5	J
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.67	J	0.75	J	0.75	J	0.58	J	0.41	J	0.85	J	0.26	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.11	K	1.9	J	4	J	0.09	B	0.073	J	0.12	J	0.025	J
Calcium	NA	NA	NA	NA	10500	J	404	J	464	J	474	J	414	J	591	J	267	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	12.7	J	22.8	J	22.6	J	17.1	J	12	J	20.4	J	9.7	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	5.2	J	5.5	J	7.9	J	7.4	J	9.3	J	6.5	J	2.6	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	7.5	J	22.9	J	99.2	J	9.7	J	5.9	J	8.4	J	2.6	J
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.1565	U	0.1525	U	0.1515	U	0.1585	U	0.15	U	0.156	U	0.1385	U
Hexavalent Chromium	**290**	5600	660	8400	NA		NA		NA		4.7		0.63		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	13000	J	23800	J	29300	J	37500	J	14000	J	33200	J	9270	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	17.4	J	64.1	J	261	J	12	J	8.1	J	13.5	J	3.7	J
Magnesium	NA	NA	NA	NA	1960	J	1240	J	1380	J	1650	J	1410	J	2590	J	580	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	770	J	384	J	783	J	191	J	204	J	146	J	85.3	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.011	J	0.046		0.055		0.03		0.017	L	0.018		0.002	J
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	6.6	J	13.1	J	14.6	J	8.4	J	6.4	J	10.5	J	3.4	J
Potassium	NA	NA	NA	NA	389	J	461	J	526	J	674	J	562	J	1180	J	217	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.19	J	0.2	UJ	0.215	UJ	0.057	J	0.22	U	0.255	UJ	0.255	U
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.049	B	0.25	J	1.4	J	0.047	B	0.019	B	0.05	B	0.0094	B
Sodium	NA	NA	NA	NA	62.5	J	45.5	B	49.3	B	36.5	B	88	J	52.2	B	126	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.11	B	0.51	B	0.27	B	0.18	B	0.13	B	0.2	B	0.11	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	18.7	J	23.8	J	24.8	J	27.5	J	18.6	J	30.2	J	12.9	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	26.3	J	139	J	292	J	33	J	20.3	J	29.5	J	12.1	J
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	20		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	57		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	42		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	250		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	360		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	330		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	440		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	160		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	160		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	205	U	200	U	200	U	210	U	200	U	205	U	185	U
Carbazole	NA	NA	**9.00E+05**	1.90E+08	205	U	200	U	200	U	210	U	200	U	205	U	185	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	370		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	205	U	200	U	200	U	210	U	200	U	205	U	185	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	15		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Dibenzofuran	NA	NA	NA	NA	205	U	200	U	200	U	210	U	200	U	205	U	185	U
Dimethylphthalate	NA	NA	NA	NA	190	J	200	U	200	U	210	U	200	J	205	U	250	J
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	1100		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	130		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	150		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	25		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB19-0304-03		12SB20-0304-03		12SB20-0304-03-D		12SB21-0304-03		12SB22-0304-03		12SB23-0304-03		12SB24-0304-03	
Sample Date:		Region 3			12/14/2011		12/22/2011		12/22/2011		12/22/2011		12/14/2011		12/22/2011		12/14/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC			12SB20-0304-03-D		12SB20-0304-03									
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	860		2	U	2	U	2.1	U	2	U	2.05	U	1.85	U
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	750		2	U	2	J	2.1	U	2	U	2.05	U	1.85	U
VOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	14	U	13	U	13	U	14	U	12.5	U	13	U	11	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	110		54	J	22	J	14	U	12.5	U	13	U	11	U
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	5.5	U	5	U	5.5	U	5.5	U	4.95	U	5.5	U	4.4	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	2.4	J	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	2.85	U	2.55	U	2.65	U	2.75	U	2.45	U	2.65	U	2.2	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	8.5	U	7.5	U	8	U	8.5	U	7.5	U	8	U	6.5	U
PESTICIDES/PCBS					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	10.5	U	10.5	UJ	350	J	10.5	U	10	U	10.5	U	9.5	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1.05	UJ	1.05	U	1.05	U	1.1	U	1	UJ	1.05	U	0.95	UJ
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB19-0304-03		12SB20-0304-03		12SB20-0304-03-D		12SB21-0304-03		12SB22-0304-03		12SB23-0304-03		12SB24-0304-03	
Sample Date:		Region 3			12/14/2011		12/22/2011		12/22/2011		12/22/2011		12/14/2011		12/22/2011		12/14/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC			12SB20-0304-03-D		12SB20-0304-03									
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	1.05	U	1.05	U	1.05	U	1.1	U	1	U	1.05	U	0.95	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB19-0304-03		12SB20-0304-03		12SB20-0304-03-D		12SB21-0304-03		12SB22-0304-03		12SB23-0304-03		12SB24-0304-03
Sample Date:		Region 3			12/14/2011		12/22/2011		12/22/2011		12/22/2011		12/14/2011		12/22/2011		12/14/2011
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		3		3
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		4		4
Duplicate:	SL	SL	MSC	MSC			12SB20-0304-03-D		12SB20-0304-03								
DIOXIN/FURAN																	
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA
Total HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Total HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Total HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Total HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Total PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Total PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA
Total TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB25-0304-03		12SB26-0304-03		12SB28-0304-03		12SB29-0304-03		12SB30-0304-03		12TP01-0506-03		12TP01-0708-04	
Sample Date:		Region 3			12/16/2011		12/16/2011		12/16/2011		12/16/2011		12/22/2011		1/4/2010		1/4/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		5		7	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		6		8	
Duplicate:	SL	SL	MSC	MSC														
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	3470		5730		4050		5300		8770		18500		26000	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.065	B	0.17	B	0.073	B	0.094	B	0.14	B	1.1	R	0.38	R
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	1.6	L	3.5	L	1.1	L	2.4	L	2.6	J	5.3	L	2.5	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	30.3		33		15	L	37.1		57.9	J	85.1		147	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.35	L	0.32	J	0.2	L	0.44	L	0.76	J	0.63	K	0.77	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.042	J	0.048	J	0.027	J	0.045	J	0.097	B	1.4	K	0.29	R
Calcium	NA	NA	NA	NA	391		379		473		376		479	J	964		801	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	5.8	J	11.1	J	7	J	11.4	J	17.5	J	22.8	L	16.5	L
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	2.7	L	3.2	L	2	L	5.7	L	5.7	J	10		16.9	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	4.4	L	6.2	J	2.8	L	6.3	L	7.2	J	39.1		6.2	
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.1455	U	0.149	U	0.046	J	0.049	J	0.148	U	0.52	B	0.13	U
Hexavalent Chromium	**290**	5600	660	8400	NA		1.1	J	NA		NA		1.1		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	7250		13200		6230	L	11400		14800	J	33800		17100	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	5.5	L	7.3	L	4.5	L	8	L	7.7	J	38.2	J	5.8	J
Magnesium	NA	NA	NA	NA	632		970		540		1280		1630	J	1910	J	1200	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	131		94.2		43.7	L	182		165	J	959		3740	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.016		0.033		0.009	J	0.012		0.004	J	0.11		0.021	U
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	3.4	L	4.9	J	2.4	L	5.4	L	8.1	J	16.8		14.1	
Potassium	NA	NA	NA	NA	130	L	249	L	169	L	340	L	573	J	873	L	552	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.2	U	0.23	U	0.22	U	0.295	U	0.24	UJ	4.6	L	1.6	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.015	B	0.026	B	0.009	B	0.015	B	0.0475	B	0.24	J	0.12	UJ
Sodium	NA	NA	NA	NA	41.6	J	17.4	B	46	J	37.7	B	53.8	B	190	R	167	R
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.052	B	0.13	B	0.34		0.084	B	0.13	B	0.66	UJ	3.2	
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	9.7	L	18.2	L	11.7	L	19.1	L	24.6	J	32.5		23.4	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	16.4		41.1		10	L	21.7		20.9	J	84.3	J	15.6	J
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	35000	J	10	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	3800	UJ	10	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1400	UJ	10	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		13000	UJ	400	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1900	UJ	0.82	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1900	UJ	1.8	J
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA		NA		NA		6300	UJ	210	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	5.1		1900	UJ	1.7	J
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	4.3		1900	UJ	1.8	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1400	UJ	0.87	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	3.5	J	1900	UJ	1.5	B
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	190	U	195	U	190	U	195	U	195	U	2400	UJ	110	B
Carbazole	NA	NA	**9.00E+05**	1.90E+08	190	U	195	U	190	U	195	U	195	U	6300	UJ	400	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1900	UJ	2.1	J
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	190	U	195	U	190	U	195	U	195	U	2400	UJ	210	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	7.4		1900	UJ	10	U
Dibenzofuran	NA	NA	NA	NA	190	U	195	U	190	U	195	U	195	U	1900	UJ	210	U
Dimethylphthalate	NA	NA	NA	NA	230	J	260	J	260	J	170	J	195	U	1900	UJ	210	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1900	UJ	3.9	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1900	UJ	10	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	2400	UJ	1.2	J
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	13000	J	0.89	B

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB25-0304-03		12SB26-0304-03		12SB28-0304-03		12SB29-0304-03		12SB30-0304-03		12TP01-0506-03		12TP01-0708-04	
Sample Date:		Region 3			12/16/2011		12/16/2011		12/16/2011		12/16/2011		12/22/2011		1/4/2010		1/4/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		5		7	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		6		8	
Duplicate:	SL	SL	MSC	MSC														
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1400	UJ	2.7	J
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	1.9	U	1.95	U	1.9	U	1.95	U	1.95	U	1900	UJ	3.3	B
VOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	190		5.8	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	21		5.8	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	12.5	U	12.5	U	12	U	12	U	12.5	U	16		9.8	J
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	11	J	12.5	U	12	U	12	U	12.5	U	160		69	
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	7.5	U	8.4	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		NA		NA		NA		NA		5	U	6	U
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	26		5.8	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	33		5.8	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	4.95	U	5	U	4.8	U	4.85	U	5	U	180		12	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA		NA		NA		5	U	20	
Methyl Cyclohexane	NA	NA	NA	NA	NA		NA		NA		NA		NA		3	J	6	U
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	110		5.8	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	2.5	U	2.5	U	2.4	U	2.4	U	2.5	U	5.1	U	5.8	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	7.5	U	7.5	U	7	U	7.5	U	7.5	U	300		5.8	U
PESTICIDES/PCBS					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	1	U	1	U	1	U	1	U	1	U	2.2	U	2.1	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	1	U	1	U	1	U	1	U	1	U	1.7	R	2.1	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	2.2	U	2.1	U
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	10	UJ	10	U	10	U	10	U	10	U	22	U	21	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1	U	1	U	1	U	1	U	1	U	1.1	U	1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	1	U	1	U	1	U	1	U	1	U	0.38	J	2.1	U
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1	U	1	U	1	U	1	U	2.2	U	2.1	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	4.2	U	4	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	1.4	B	4	U
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	2.7	B	4.7	B
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	1	U	1	U	1	U	1	U	1	U	1.6	R	2.1	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	1	U	1	U	1	U	1	U	1	U	2.2	U	2.1	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12SB25-0304-03		12SB26-0304-03		12SB28-0304-03		12SB29-0304-03		12SB30-0304-03		12TP01-0506-03		12TP01-0708-04	
Sample Date:		Region 3			12/16/2011		12/16/2011		12/16/2011		12/16/2011		12/22/2011		1/4/2010		1/4/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		5		7	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		6		8	
Duplicate:	SL	SL	MSC	MSC														
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	1	U	1	U	1	U	1	U	1	U	0.36	J	2.1	U
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	1	U	1	U	1	U	1	U	1	U	22	U	21	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
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Sample ID:					12SB25-0304-03		12SB26-0304-03		12SB28-0304-03		12SB29-0304-03		12SB30-0304-03		12TP01-0506-03		12TP01-0708-04	
Sample Date:		Region 3			12/16/2011		12/16/2011		12/16/2011		12/16/2011		12/22/2011		1/4/2010		1/4/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		3		3		3		3		5		7	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		4		4		4		4		6		8	
Duplicate:	SL	SL	MSC	MSC														
DIOXIN/FURAN																		
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
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Sample ID:					12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0506-04		12TP03-0506-CS		12TP03-0607-03	
Sample Date:		Region 3			1/4/2010		12/19/2011		12/19/2011		1/4/2010		1/5/2010		12/19/2011		1/5/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	4		4		4		9		5		5		6	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	5		5		5		10		6		6		7	
Duplicate:	SL	SL	MSC	MSC			12TP02-0405-CS-D		12TP02-0405-CS									
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	22600		NA		NA		14600		12500		NA		13500	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	13.1	J	NA		NA		0.34	UL	3.4	J	NA		0.52	R
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	13.1	L	NA		NA		1.8	L	108	L	NA		5.1	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	1030		NA		NA		118		1110		NA		92.6	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	1.7	K	NA		NA		0.59	K	0.95	K	NA		0.55	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	41.8		NA		NA		0.3	R	7.8	K	NA		1.4	K
Calcium	NA	NA	NA	NA	49800		NA		NA		13300		15100		NA		3260	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	182	L	13		12		11.2	L	192	L	19		17.4	L
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	23.1		NA		NA		8.8		8.4		NA		8.7	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	1980		NA		NA		18.7		639		NA		50.6	
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.32	B	NA		NA		0.13	U	0.13	U	NA		0.12	U
Hexavalent Chromium	**290**	5600	660	8400	NA		0.38		0.5		NA		NA		0.12	UJ	NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	59300		NA		NA		13100		33800		NA		18000	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	3500	J	NA		NA		18.4	J	5540	J	NA		79.4	J
Magnesium	NA	NA	NA	NA	18200	J	NA		NA		8310	J	2630	J	NA		2390	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	1370		NA		NA		1130		411		NA		426	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.24		NA		NA		0.032		0.28		NA		0.074	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	66.1		NA		NA		10.4		27.1		NA		12.1	
Potassium	NA	NA	NA	NA	2290		NA		NA		440	J	1220	L	NA		757	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	7.7	L	NA		NA		1.5	L	5.5	L	NA		2.4	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	4	J	NA		NA		0.11	UJ	2.1	J	NA		0.1	UJ
Sodium	NA	NA	NA	NA	1050	K	NA		NA		180	K	603	K	NA		274	K
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	3		NA		NA		0.62	UJ	2.7		NA		0.58	UJ
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	28.5		NA		NA		16.4		34.8		NA		58.8	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	4240	J	NA		NA		21.3	J	938	J	NA		42.1	J
SEMIVOLATILES					ug/kg						ug/kg		ug/kg				ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	40	J	NA		NA		2.4	J	29	J	NA		480	J
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	57	J	NA		NA		8.9	J	32	J	NA		460	J
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	240	U	NA		NA		1.3	J	220	U	NA		220	J
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	470	U	NA		NA		190	B	160	B	NA		1200	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	56	J	NA		NA		50		39	J	NA		890	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	260		NA		NA		59		1300		NA		1900	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	68	J	NA		NA		210	U	220	U	NA		590	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	230	J	NA		NA		33		2200		NA		2200	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	370		NA		NA		34		2800		NA		2800	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	110	J	NA		NA		15		670		NA		1000	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	84	J	NA		NA		37		1800		NA		3000	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	490	B	NA		NA		210	U	160	B	NA		550	B
Carbazole	NA	NA	**9.00E+05**	1.90E+08	470	U	NA		NA		410	U	420	U	NA		500	J
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	260		NA		NA		59		1600		NA		2600	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	240	U	NA		NA		210	U	220	U	NA		590	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	240	U	NA		NA		3.1	J	330		NA		530	J
Dibenzofuran	NA	NA	NA	NA	49	J	NA		NA		210	U	220	U	NA		290	J
Dimethylphthalate	NA	NA	NA	NA	240	U	NA		NA		210	U	220	U	NA		590	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	480		NA		NA		430		750		NA		4900	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	44	J	NA		NA		19		33	J	NA		620	
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	130	J	NA		NA		19		900		NA		1200	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	68	J	NA		NA		3.4	B	52	J	NA		280	J

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0506-04		12TP03-0506-CS		12TP03-0607-03	
Sample Date:					1/4/2010		12/19/2011		12/19/2011		1/4/2010		1/5/2010		12/19/2011		1/5/2010	
Top Depth (feet):					4		4		4		9		5		5		6	
Bottom Depth (feet):					5		5		5		10		6		6		7	
Duplicate:							12TP02-0405-CS-D		12TP02-0405-CS									
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	240	J	NA		NA		320		140	J	NA		3900	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	510		NA		NA		300		1100		NA		5400	
VOLATILES					ug/kg						ug/kg		ug/kg				ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	3.8	J	NA		NA		5.4	U	11	U	NA		6.2	UJ
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	2.7	J	NA		NA		5.4	U	11	U	NA		6.2	UJ
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	11	UJ	NA		NA		5.4	U	11	U	NA		6.2	UJ
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	14		NA		NA		5.4	U	7.6	J	NA		6.2	UJ
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	6.6	J	NA		NA		5.4	U	7.3	J	NA		6.2	UJ
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	11	UJ	NA		NA		5.4	U	11	U	NA		6.2	UJ
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	27	U	NA		NA		14	U	27	U	NA		14	J
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	27	B	NA		NA		19	B	41	B	NA		64	J
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	11		NA		NA		1.3	J	3.1	J	NA		6.2	UJ
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	16	U	NA		NA		7.9	U	16	U	NA		9	UJ
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	11	U	NA		NA		5.4	U	4.8	J	NA		6.2	UJ
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	11	U	NA		NA		5	U	11	U	NA		6	UJ
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	22	U	NA		NA		11	U	22	U	NA		12	UJ
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	11	U	NA		NA		5	U	11	U	NA		6	UJ
Methyl Cyclohexane	NA	NA	NA	NA	11	U	NA		NA		5	U	11	U	NA		3	J
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	11	U	NA		NA		1.8	J	11	U	NA		6.2	UJ
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	19		NA		NA		5.4	U	19		NA		6.2	UJ
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	11	U	NA		NA		5.4	U	11	U	NA		6.2	UJ
PESTICIDES/PCBS					ug/kg						ug/kg		ug/kg				ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	4.4	R	NA		NA		4.1	U	5.8	R	NA		19	R
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	3.8	R	NA		NA		4.1	U	5.1	R	NA		22	J
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	2.9	J	NA		NA		4.1	U	4.2	U	NA		15	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	2.4	UL	NA		NA		2.1	U	2.2	U	NA		2	UJ
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	1.2	R	NA		NA		2.1	U	1.1	J	NA		2	UJ
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	0.6	J	NA		NA		2.1	U	2.2	U	NA		2	UJ
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	24	UL	NA		NA		21	U	22	U	NA		20	UJ
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1.2	UL	NA		NA		1.1	U	1.1	U	NA		73	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.4	UL	NA		NA		2.1	U	2.2	U	NA		2	UJ
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	4.7	UL	NA		NA		4.1	U	2.5	J	NA		38	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1.7	J	NA		NA		2.1	U	0.99	J	NA		11	J
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	4.7	UL	NA		NA		4.1	U	1.2	J	NA		14	J
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	1.1	J	NA		NA		4.1	U	4.2	U	NA		3.8	UJ
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	4.7	UL	NA		NA		4.1	U	6.8	J	NA		3.8	UJ
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	1.3	B	NA		NA		4.1	U	6.2	J	NA		17	J
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	4.7	UL	NA		NA		4.1	U	11	B	NA		290	B
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	6.9	R	NA		NA		4.7	R	5.5	J	NA		100	R
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	1.1	J	NA		NA		2.1	U	1.3	J	NA		3	R

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0506-04		12TP03-0506-CS		12TP03-0607-03	
Sample Date:					**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**	
Top Depth (feet):					**4**		**4**		**4**		**9**		**5**		**5**		**6**	
Bottom Depth (feet):					**5**		**5**		**5**		**10**		**6**		**6**		**7**	
Duplicate:							**12TP02-0405-CS-D**		**12TP02-0405-CS**									
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	1.4	R	NA		NA		2.1	U	1.7	J	NA		7.8	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	24	UL	NA		NA		21	U	61		NA		120	J

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0506-04		12TP03-0506-CS		12TP03-0607-03	
Sample Date:					**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**	
Top Depth (feet):					**4**		**4**		**4**		**9**		**5**		**5**		**6**	
Bottom Depth (feet):					**5**		**5**		**5**		**10**		**6**		**6**		**7**	
Duplicate:							**12TP02-0405-CS-D**		**12TP02-0405-CS**									
DIOXIN/FURAN					**ng/kg**								**ng/kg**					
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	15900	J	NA		NA		NA		757	J	NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	1090	J	NA		NA		NA		64	J	NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	5640	J	NA		NA		NA		178		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	818	J	NA		NA		NA		102		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	48	J	NA		NA		NA		13.9		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	277	J	NA		NA		NA		8.07		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	442	J	NA		NA		NA		61		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	293	J	NA		NA		NA		21.7		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	172	J	NA		NA		NA		23.8		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	964	J	NA		NA		NA		28.7		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	5.04	J	NA		NA		NA		1.29	J	NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	147	J	NA		NA		NA		7.78		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	143	J	NA		NA		NA		12.4	J	NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	267	J	NA		NA		NA		36.3	J	NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	304	J	NA		NA		NA		24.8	J	NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	34.4	J	NA		NA		NA		2.83		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	140	J	NA		NA		NA		7		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	603		NA		NA		NA		40.4		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	19700		NA		NA		NA		364		NA		NA	
Total HpCDF	NA	NA	NA	NA	1960		NA		NA		NA		116		NA		NA	
Total HxCDD	NA	NA	NA	NA	8520		NA		NA		NA		268		NA		NA	
Total HxCDF	NA	NA	NA	NA	2240		NA		NA		NA		228		NA		NA	
Total PeCDD	NA	NA	NA	NA	3410		NA		NA		NA		151		NA		NA	
Total PeCDF	NA	NA	NA	NA	3890		NA		NA		NA		164		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	1650		NA		NA		NA		73.2		NA		NA	
Total TCDF	NA	NA	NA	NA	7130		NA		NA		NA		235		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP03-0809-05		12TP04-0405-03		12TP04-0607-04		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0506-03	
Sample Date:		Region 3			1/5/2010		1/5/2010		1/5/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	8		4		6		2		2		9		5	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	9		5		7		4		4		10		6	
Duplicate:	SL	SL	MSC	MSC							12TP05-0204-03-D		12TP05-0204-03				12TP06-0506-03-D	
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	11900		23800		14400		17800		16200		17200		20200	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.33	UL	0.61	R	0.46	R	0.62	R	0.58	R	0.59	R	0.87	J
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	2.2	L	3.5	L	2.1	L	4.4	K	3.5	K	0.58	R	6.5	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	151		62.8		90.3		56.4		51.8		116		99.6	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.78	K	0.68	K	0.95	K	0.41	K	0.32	J	1.4		0.65	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.28	R	0.65	R	0.31	R	0.38	R	0.28	R	0.3	R	0.6	R
Calcium	NA	NA	NA	NA	350		677		685		806	J	766	J	1480	J	1570	
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	13.4	L	25.7	L	16.2	L	21.2		20.2		18		26.7	L
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	12.6		16.3		14.2		13.8	J	6.4	J	10.3	J	9.2	
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	9		8.5		4.3		12.8	K	11.8	J	5.7	K	15.3	
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.14	U	0.13	U	0.26	B	0.18	U	0.18	U	0.17	U	0.14	U
Hexavalent Chromium	**290**	5600	660	8400	NA		NA		NA		NA		NA		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	15700		28700		18200		22500		19300		18200		23900	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	5.9	J	10.9	J	4.9	J	9.6	J	8.6	J	14.2	J	20.1	J
Magnesium	NA	NA	NA	NA	1300	J	2000	J	838	J	2710	J	2750	J	3460	J	2420	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	1690		320		958		390		236		40.9		605	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.02	U	0.037		0.021	U	0.02	U	0.13		0.02	U	0.079	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	13.3		14.2		11.7		12.7	J	12.4	J	21.7	J	14	
Potassium	NA	NA	NA	NA	618	L	1320		413	J	1110		1070		3500		1230	L
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	1	L	0.43	UR	0.44	UR	0.43	UR	0.41	UR	0.44	UR	2.9	L
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.11	UJ	0.11	UJ	0.12	UJ	0.11	U	0.11	U	0.12	U	0.61	J
Sodium	NA	NA	NA	NA	172	K	181	R	188	K	152	B	140	B	185	B	202	R
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	1.2	J	0.63	UJ	0.65	UJ	0.89		1		0.65	U	0.68	UJ
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	22.4		39.4		23.2		39.4		35.4		18.4		40.6	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	20.7	J	21.1	J	16.8	J	28.9		27.8		37.1		40.5	J
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	200	U	200		11	U	10	U	210	U	10	U	130	J
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	53	J	9	J	11	U	10	U	210	U	10	U	410	
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	200	U	79	U	11	U	10	U	210	U	10	U	160	J
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	410	U	390	U	420	U	53	B	410	U	410	U	52	B
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	670		79	U	0.74	J	10	U	210	U	10	U	1100	
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	1100		79	U	1.3	J	1.3	J	210	U	10	U	2500	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	210	U	200	U	220	U	210	U	210	U	210	U	41	J
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	850		79	U	1.6	J	0.79	B	210	U	10	U	2100	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	870		79	U	2	J	1.4	J	210	U	10	U	2800	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	450		79	U	0.94	J	0.66	J	210	U	10	U	700	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	800		79	U	1.9	B	1.2	J	210	U	10	U	2200	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	210	U	200	U	220	U	210	U	210	U	210	U	52	B
Carbazole	NA	NA	**9.00E+05**	1.90E+08	410	U	390	U	420	U	400	U	410	U	410	U	390	J
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	1000		79	U	2	J	1.5	J	210	U	10	U	2400	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	210	U	200	U	220	U	210	U	210	U	210	U	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	110	J	79	U	11	U	10	U	210	U	10	U	340	
Dibenzofuran	NA	NA	NA	NA	210	U	200	U	220	U	210	U	210	U	210	U	220	
Dimethylphthalate	NA	NA	NA	NA	210	U	200	U	220	U	210	U	210	U	210	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	2700		79	U	6.9	J	3.6	J	210	U	10	U	6300	J
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	93	J	6.3	J	0.9	J	10	U	210	U	10	U	560	
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	560		79	U	1.2	J	0.69	B	210	U	10	U	880	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	200	U	95		11	U	10	U	210	U	10	U	190	J

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP03-0809-05		12TP04-0405-03		12TP04-0607-04		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0506-03	
Sample Date:		Region 3			1/5/2010		1/5/2010		1/5/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	8		4		6		2		2		9		5	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	9		5		7		4		4		10		6	
Duplicate:	SL	SL	MSC	MSC							12TP05-0204-03-D		12TP05-0204-03				12TP06-0506-03-D	
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	1600		79	U	6.1	J	2.9	J	210	U	10	U	4700	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	1900		79	U	4.6	B	2.8	J	210	U	10	U	5200	
VOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	5.4	U	82	J	5.4	U	5.1	U	5.8	U	5	U	5.3	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	5.4	U	48	J	5.4	U	5.1	U	5.8	U	5	U	5.3	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	2.8	J
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	12	J	650	U	22		13	U	14	U	13	U	13	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	95		650	U	150		36	B	35	B	21	U	21	B
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	7.9	U	260	U	7.8	U	7.5	U	8.5	U	7.4	U	7.7	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	2.4	J
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	4	J
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	5	U	260	U	5	U	5	U	6	U	5	U	5	U
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	5.4	U	280		5.4	U	5.1	U	5.8	U	5	U	5.3	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	5.4	U	540		5.4	U	5.1	U	5.8	U	5	U	5.3	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	11	U	970		11	U	10	U	12	U	10	U	11	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	5	U	260	U	5	U	5	U	6	U	5	U	5	U
Methyl Cyclohexane	NA	NA	NA	NA	5	U	880		5	U	NA		NA		5	U	5	U
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	5.4	U	260	U	5.4	U	5.1	U	5.8	U	5	U	5.3	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	5.4	U	970		5.4	U	5.1	U	5.8	U	5	U	5.3	U
PESTICIDES/PCBS					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	4.1	U	5.5	
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	4.1	U	4.2	U
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	0.97	J	2.7	J
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	2.1	UJ	2	U	2.2	U	2.1	U	2.1	U	2.1	U	2.2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	2.1	UJ	2	U	2.2	U	2.1	U	2.1	U	2.1	U	2.2	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	2.1	UJ	2	U	2.2	U	2.1	U	2.1	U	2.1	U	2.2	U
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	21	UJ	20	U	22	U	21	U	21	U	21	U	22	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1.1	UJ	0.56	B	1.1	U	1	U	1.1	U	1.1	U	5.5	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2.1	UJ	2	U	2.2	U	2.1	U	2.1	U	2.1	U	1.3	J
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	4.1	U	4.2	U
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	2.1	UJ	2	U	2.2	U	2.1	U	2.1	U	2.1	U	2.2	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	4.1	UJ	3.9	U	5.5	R	4	U	4.1	U	4.1	U	4.2	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	4.1	U	4.2	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	4.1	U	4.2	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	4.1	UJ	3.9	U	4.2	U	4	U	4.1	U	4.1	U	1.8	J
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	110	B	3.9	U	4.2	U	4	U	4.1	U	4.1	U	4.2	U
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	2.1	UJ	0.59	B	2.2	U	0.73	J	2.1	U	0.49	J	4.1	R
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	2.1	UJ	0.72	J	2.2	U	2.1	U	2.1	U	0.43	J	2.7	R

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP03-0809-05		12TP04-0405-03		12TP04-0607-04		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0506-03	
Sample Date:					1/5/2010		1/5/2010		1/5/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010	
Top Depth (feet):	Region 3	Region 3 Non-	PADEP	PADEP Non-	8		4		6		2		2		9		5	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	9		5		7		4		4		10		6	
Duplicate:	SL	SL	MSC	MSC							12TP05-0204-03-D		12TP05-0204-03				12TP06-0506-03-D	
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	2.1	UJ	2	U	2.2	U	2.1	U	2.1	U	2.1	U	2.1	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	84	R	20	U	22	U	21	U	21	U	21	U	9.3	B

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP03-0809-05		12TP04-0405-03		12TP04-0607-04		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0506-03	
Sample Date:		**Region 3**			**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Top Depth (feet):	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**8**		**4**		**6**		**2**		**2**		**9**		**5**	
Bottom Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**9**		**5**		**7**		**4**		**4**		**10**		**6**	
Duplicate:	**SL**	**SL**	**MSC**	**MSC**							**12TP05-0204-03-D**		**12TP05-0204-03**				**12TP06-0506-03-D**	
DIOXIN/FURAN																	**ng/kg**	
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		1260	J
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		8.28	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		50.2	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		7.26	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		0.401	J
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		2.24	J
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		4.46	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		3.1	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		1.71	J
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		6.46	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		0.161	U
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		2.12	J
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		1.94	J
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		2.39	J
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		3.46	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		0.768	J
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		2.76	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		7.26	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		152	J
Total HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		17.8	
Total HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		81.7	J
Total HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		26.2	
Total PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		46.1	
Total PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		57.2	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		33.8	
Total TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		138	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP06-0506-03-D		12TP06-0910-04		12TP07-0607-03		12TP08-0304-03		12TP08-0304-CS		12TP09-0304-03		12TP09-0304-03-D	
Sample Date:		Region 3			1/6/2010		1/6/2010		1/7/2010		1/7/2010		12/19/2011		1/8/2010		1/8/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	5		9		6		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	6		10		7		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC	12TP06-0506-03										12TP09-0304-03-D		12TP09-0304-03	
INORGANICS							mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA		16100		13400		21100		NA		28300		23700	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA		0.67	R	0.45	R	5.2	R	NA		12.8	J	12.1	J
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA		1.4	L	1.7	K	24	K	NA		16.6	K	12.9	K
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA		98.2		68		305		NA		335		333	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA		0.76	K	0.43	K	0.72	K	NA		0.64	K	1	
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA		0.56	R	0.18	R	105		NA		40.2		46.8	K
Calcium	NA	NA	NA	NA	NA		908		712	J	67600	J	NA		19200	J	33100	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	NA		23.1	L	17.2		55		25		58.1		75.5	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA		9.1		5.2	J	13.9	J	NA		10.6	J	9.1	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA		4.5		8.2	K	412	K	NA		1110	K	1170	K
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	NA		0.13	U	0.17	U	0.41	B	NA		0.51	B	0.4	B
Hexavalent Chromium	**290**	5600	660	8400	NA		NA		NA		NA		1.5		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA		26900		12900		81600		NA		55600		50900	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	NA		10.8	J	5.7	J	435	J	NA		872	J	378	J
Magnesium	NA	NA	NA	NA	NA		1640	J	1540	J	4350	J	NA		3050	J	5310	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA		168		275		946		NA		795		910	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA		0.023		0.019	U	0.25		NA		0.22		0.3	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA		10.9		9.1	J	54.4	J	NA		98.1	J	117	J
Potassium	NA	NA	NA	NA	NA		1380		792		1670		NA		1210		1330	
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		0.42	UR	0.4	UR	0.48	UR	NA		0.43	UR	0.45	UR
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		0.11	UJ	0.11	U	10.5		NA		3.2		4.3	
Sodium	NA	NA	NA	NA	NA		168	R	139	B	791	R	NA		785	K	540	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA		0.62	UJ	0.59	U	0.71	U	NA		1.9		1.3	
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA		28		20.1		30.1		NA		32.1		34	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA		13.2	J	18.3		2680		NA		4560	J	1200	J
SEMIVOLATILES							ug/kg		ug/kg		ug/kg				ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	NA		10	U	0.95	J	240	U	NA		2200	J	10	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	NA		10	U	9.9	U	62	J	NA		5100		10	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	NA		10	U	9.9	U	170	J	NA		4400	U	10	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		410	U	76	B	460	U	NA		660	B	1700	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	NA		10	U	9.9	U	550		NA		13000	J	10	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	NA		0.77	J	9.9	U	1700		NA		22000	J	10	U
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		210	U	200	U	240	U	NA		4400	U	890	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	NA		10	U	9.9	U	1400		NA		16000	J	10	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	NA		10	U	9.9	U	1400		NA		15000		10	U
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	NA		10	U	9.9	U	390		NA		8800		10	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	NA		10	U	9.9	U	1800	J	NA		18000	J	10	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	NA		60	B	200	U	66	B	NA		4400	U	890	U
Carbazole	NA	NA	**9.00E+05**	1.90E+08	NA		410	U	390	U	62	J	NA		8400	J	770	J
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	NA		0.91	J	9.9	U	1900		NA		24000	J	10	U
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA		210	U	200	U	240	U	NA		4400	U	890	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	NA		10	U	9.9	U	250		NA		4100	J	10	U
Dibenzofuran	NA	NA	NA	NA	NA		210	U	200	U	49	J	NA		4600		160	J
Dimethylphthalate	NA	NA	NA	NA	NA		210	U	200	U	240	U	NA		4400	U	890	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	NA		2.3	J	9.9	U	3600		NA		48000	J	10	U
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	NA		10	U	9.9	U	120	J	NA		6900		10	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	NA		10	U	9.9	U	540		NA		10000		10	U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	NA		10	U	9.9	U	240	U	NA		5800		10	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP06-0506-03-D		12TP06-0910-04		12TP07-0607-03		12TP08-0304-03		12TP08-0304-CS		12TP09-0304-03		12TP09-0304-03-D	
Sample Date:		**Region 3**			**1/6/2010**		**1/6/2010**		**1/7/2010**		**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**	
Top Depth (feet):	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**5**		**9**		**6**		**3**		**3**		**3**		**3**	
Bottom Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**6**		**10**		**7**		**4**		**4**		**4**		**4**	
Duplicate:	**SL**	**SL**	**MSC**	**MSC**	**12TP06-0506-03**										**12TP09-0304-03-D**		**12TP09-0304-03**	
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	NA		2.1	J	9.9	U	1700		NA		48000	J	10	U
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	NA		2.1	B	9.9	U	3200		NA		36000	J	10	U
VOLATILES							**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA		15	U	14	U	15	J	NA		7	B	26	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA		57		40	B	180	J	NA		25	B	190	
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	NA		5.9	U	5.4	U	17	J	NA		11		44	
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	NA		8.6	U	7.9	U	16	UJ	NA		7.9	J	78	J
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA		5.9	U	5.4	U	11	UJ	NA		1.1	J	5.3	J
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	NA		5.9	U	5.4	U	24	J	NA		16		130	
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		6	U	5	U	11	UJ	NA		5	U	10	U
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	NA		5.9	U	5.4	U	11	UJ	NA		1.3	J	10	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	NA		12	U	11	U	21	UJ	NA		11	U	21	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		6	U	5	U	11	UJ	NA		5	U	10	U
Methyl Cyclohexane	NA	NA	NA	NA	NA		6	U	5	U	11	UJ	NA		5	U	4	J
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA		5.9	U	5.4	U	6.6	J	NA		8.6		13	
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	NA		5.9	U	5.4	U	11	UJ	NA		5.3	U	10	U
PESTICIDES/PCBS							**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	NA		4.1	U	3.9	U	6.4	R	NA		4.6	R	4.3	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	NA		4.1	U	3.9	U	22	R	NA		5.6	R	6.1	J
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	NA		4.1	U	3.9	U	13	J	NA		11		14	
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	NA		2.1	U	2	U	2.4	U	NA		2.2	U	2.2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	NA		2.1	U	2	U	3	J	NA		2.2	U	2.2	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	NA		2.1	U	2	U	24	U	NA		7.1	J	6.6	J
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	NA		21	U	20	U	24	U	NA		22	U	22	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	NA		1.1	U	1	U	120	R	NA		11	U	74	R
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	NA		2.1	U	2	U	4.1	R	NA		0.75	R	0.99	J
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	NA		4.1	U	3.9	U	20	R	NA		32	R	6	J
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		2.1	U	2	U	2	J	NA		2.2	U	3.3	R
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		4.1	U	3.9	U	9.8	R	NA		5	R	3.7	R
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		4.1	U	3.9	U	4.6	U	NA		4.3	U	4.3	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		4.1	U	3.9	U	13	J	NA		4.3	U	4.3	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		4.1	U	3.9	U	4.6	U	NA		8.5	R	6.2	R
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		4.1	U	3.9	U	180	R	NA		15		12	J
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	NA		2.1	U	2	U	24	U	NA		8.9	J	3.6	J
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	NA		2.1	U	2	U	1.3	J	NA		3	R	3.6	R

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP06-0506-03-D		12TP06-0910-04		12TP07-0607-03		12TP08-0304-03		12TP08-0304-CS		12TP09-0304-03		12TP09-0304-03-D	
Sample Date:		Region 3			1/6/2010		1/6/2010		1/7/2010		1/7/2010		12/19/2011		1/8/2010		1/8/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	5		9		6		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	6		10		7		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC	12TP06-0506-03										12TP09-0304-03-D		12TP09-0304-03	
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	NA		2.1	U	2	U	3.6	J	NA		4.1	R	3	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	NA		21	U	20	U	240	U	NA		22	U	22	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP06-0506-03-D		12TP06-0910-04		12TP07-0607-03		12TP08-0304-03		12TP08-0304-CS		12TP09-0304-03		12TP09-0304-03-D	
Sample Date:		Region 3			1/6/2010		1/6/2010		1/7/2010		1/7/2010		12/19/2011		1/8/2010		1/8/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	5		9		6		3		3		3		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	6		10		7		4		4		4		4	
Duplicate:	SL	SL	MSC	MSC	12TP06-0506-03										12TP09-0304-03-D		12TP09-0304-03	
DIOXIN/FURAN					ng/kg						ng/kg							
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	1580	J	NA		NA		2080	J	NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	5.88	B	NA		NA		34.6	J	NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	35.7		NA		NA		298	J	NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	4.41		NA		NA		50.5	J	NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	0.303	J	NA		NA		4.58	J	NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	0.758	J	NA		NA		5.06	J	NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	3.35		NA		NA		36.3	J	NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	1.58	J	NA		NA		12.2	J	NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	1.52	J	NA		NA		13.1	J	NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	2.01	J	NA		NA		17.5	J	NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	0.108	U	NA		NA		0.633	J	NA		NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	0.991	J	NA		NA		4.66	J	NA		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	2.34	J	NA		NA		10.1		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	2	J	NA		NA		17.2	J	NA		NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	4.37		NA		NA		17.6		NA		NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	0.389	J	NA		NA		1.53		NA		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	3.17		NA		NA		8.92	J	NA		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	4.61		NA		NA		27		NA		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		27		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	90.5	J	NA		NA		552		NA		NA		NA	
Total HpCDF	NA	NA	NA	NA	11.4		NA		NA		83.7		NA		NA		NA	
Total HxCDD	NA	NA	NA	NA	34.2	J	NA		NA		184		NA		NA		NA	
Total HxCDF	NA	NA	NA	NA	20.8		NA		NA		144		NA		NA		NA	
Total PeCDD	NA	NA	NA	NA	29.2		NA		NA		109		NA		NA		NA	
Total PeCDF	NA	NA	NA	NA	69.7		NA		NA		227		NA		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	44.7		NA		NA		92		NA		NA		NA	
Total TCDF	NA	NA	NA	NA	190		NA		NA		368		NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP09-0304-CS		12TP09-0506-04		12TP09-0506-05		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0304-03	
Sample Date:		Region 3			12/19/2011		1/8/2010		1/8/2010		12/19/2011		12/19/2011		1/8/2010		1/11/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		5		5		4		4		8		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		6		6		5		5		9		4	
Duplicate:	SL	SL	MSC	MSC														
INORGANICS					mg/kg		mg/kg				mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA		16700		NA		17400		NA		11100		16600	
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA		0.52	R	NA		24.4	J	NA		0.35	UL	2.1	J
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA		1.7	K	NA		12.6	K	NA		0.77	J	8.9	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA		44.4		NA		300		NA		121	J	134	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA		0.49	K	NA		0.44	R	NA		0.71	J	0.69	K
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA		0.24	R	NA		18.4	K	NA		0.09	R	3.1	K
Calcium	NA	NA	NA	NA	NA		1190	J	NA		6240	J	NA		1040	J	4780	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	65		17.3		NA		46.6		54		7.1		23.6	
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA		5.3	J	NA		17.7	J	NA		8.9	J	8.1	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA		5	K	NA		561	K	NA		8.2		125	K
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	NA		0.17	U	NA		0.18	U	NA		0.18	U	0.22	B
Hexavalent Chromium	**290**	5600	660	8400	2.2		NA		NA		NA		2.2		NA		NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA		18000		NA		93000		NA		9870	J	20900	
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	NA		6.9	J	NA		2180	J	NA		3.2	J	195	J
Magnesium	NA	NA	NA	NA	NA		1330	J	NA		2500	J	NA		464	J	2520	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA		107		NA		1050		NA		1030	J	499	
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA		0.018	U	NA		0.068		NA		0.018	U	0.029	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA		7.1	J	NA		60.8	J	NA		8.5	J	15	J
Potassium	NA	NA	NA	NA	NA		798		NA		948		NA		238	L	1010	
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		0.4	UR	NA		0.45	UR	NA		0.44	UR	0.47	UR
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		0.11	U	NA		8.6		NA		0.12	U	0.2	
Sodium	NA	NA	NA	NA	NA		142	B	NA		416	B	NA		152	B	176	B
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA		0.58	U	NA		1.7		NA		0.65	U	0.8	
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA		25.6		NA		26		NA		13.1		30.6	
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA		14		NA		2330		NA		16.5		317	
SEMIVOLATILES							ug/kg				ug/kg				ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	NA		0.94	J	NA		1300	U	NA		10	U	220	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	NA		10	U	NA		1100	J	NA		10	U	220	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	NA		10	U	NA		1300	U	NA		10	U	110	J
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		400	U	NA		160	B	NA		400	U	430	U
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	NA		10	U	NA		3300		NA		2.6	J	170	J
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	NA		10	U	NA		5100		NA		14		520	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		200	U	NA		1300	U	NA		210	U	220	U
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	NA		10	U	NA		3600		NA		14		820	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	NA		10	U	NA		3000		NA		17		1200	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	NA		10	U	NA		2200		NA		9.1	J	290	
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	NA		10	U	NA		3900	J	NA		16		840	
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	NA		200	U	NA		1300	U	NA		210	U	1500	
Carbazole	NA	NA	**9.00E+05**	1.90E+08	NA		400	U	NA		1100	J	NA		400	U	76	J
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	NA		10	U	NA		5000		NA		18		810	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA		200	U	NA		1300	U	NA		210	U	220	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	NA		10	U	NA		700	J	NA		2.2	J	140	J
Dibenzofuran	NA	NA	NA	NA	NA		200	U	NA		940	J	NA		210	U	220	U
Dimethylphthalate	NA	NA	NA	NA	NA		200	U	NA		1300	U	NA		210	U	220	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	NA		10	U	NA		14000		NA		34		1000	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	NA		10	U	NA		880	J	NA		0.66	J	220	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	NA		10	U	NA		2700		NA		10	B	430	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	NA		10	U	NA		170	J	NA		10	U	220	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP09-0304-CS		12TP09-0506-04		12TP09-0506-05		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0304-03	
Sample Date:		Region 3			12/19/2011		1/8/2010		1/8/2010		12/19/2011		12/19/2011		1/8/2010		1/11/2010	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	3		5		5		4		4		8		3	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	4		6		6		5		5		9		4	
Duplicate:	SL	SL	MSC	MSC														
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	NA		10	U	NA		12000		NA		12		350	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	NA		10	U	NA		9800		NA		29		760	
VOLATILES							ug/kg				ug/kg				ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA		24	U	NA		8.1	B	NA		14	U	10	J
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA		37	B	NA		100	J	NA		74		110	
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	NA		9.6	U	NA		14	J	NA		5.5	U	6.3	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	NA		14	U	NA		6.3	J	NA		8	U	9.2	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA		9.6	U	NA		6.1	J	NA		5.5	U	3.4	J
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	NA		9.6	U	NA		11	J	NA		5.5	U	6.3	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		10	U	NA		7	UJ	NA		6	U	6	U
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	NA		19	U	NA		14	UJ	NA		11	U	13	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		10	U	NA		7	UJ	NA		6	U	6	U
Methyl Cyclohexane	NA	NA	NA	NA	NA		10	U	NA		7	UJ	NA		6	U	6	U
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA		9.6	U	NA		3.4	J	NA		5.5	U	6.3	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	NA		9.6	U	NA		6.8	UJ	NA		5.5	U	6.3	U
PESTICIDES/PCBS							ug/kg				ug/kg				ug/kg		ug/kg	
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	NA		4	U	NA		2.5	J	NA		4	U	26	R
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	NA		4	U	NA		3.3	R	NA		4	U	4	R
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	NA		4	U	NA		8.3	J	NA		4	U	4.3	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	NA		2	U	NA		2.2	U	NA		2.1	U	2.2	U
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	NA		2	U	NA		2.2	U	NA		2.1	U	2.2	U
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	NA		2	U	NA		2.1	J	NA		2.8	J	2.2	U
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	NA		20	U	NA		22	U	NA		21	U	22	U
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	NA		1	U	NA		36	R	NA		1.5	J	1.1	U
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	NA		2	U	NA		1.1	R	NA		2.1	U	1.6	J
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	NA		4	U	NA		2.4	R	NA		4	U	44	
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		2	U	NA		1.1	R	NA		2.1	U	2.2	U
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		4	U	NA		4.2	U	NA		4	U	4.3	U
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		4	U	NA		4.2	U	NA		4	U	4.3	U
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		4	U	NA		4.2	U	NA		4	U	4.3	U
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		4	U	NA		4.8	J	NA		4	U	2.7	J
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		4	U	NA		8.8	J	NA		4	U	5.8	
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	NA		2	U	NA		1.5	J	NA		8.8	R	2.2	U
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	NA		2	U	NA		1.4	R	NA		2.1	U	2	R

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP09-0304-CS		12TP09-0506-04		12TP09-0506-05		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0304-03	
Sample Date:					12/19/2011		1/8/2010		1/8/2010		12/19/2011		12/19/2011		1/8/2010		1/11/2010	
Top Depth (feet):	Region 3	Region 3	PADEP	PADEP Non-	3		5		5		4		4		8		3	
Bottom Depth (feet):	Residential	Non-Residential	Residential	Residential	4		6		6		5		5		9		4	
Duplicate:	SL	SL	MSC	MSC														
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	NA		3.6	R	NA		1.5	J	NA		2	J	1.1	J
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	NA		20	U	NA		64	R	NA		21	U	22	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	Region 3 Residential SL	Region 3 Non-Residential SL	PADEP Residential MSC	PADEP Non-Residential MSC	12TP09-0304-CS		12TP09-0506-04		12TP09-0506-05		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0304-03	
Sample Date:					12/19/2011		1/8/2010		1/8/2010		12/19/2011		12/19/2011		1/8/2010		1/11/2010	
Top Depth (feet):					3		5		5		4		4		8		3	
Bottom Depth (feet):					4		6		6		5		5		9		4	
Duplicate:																		
DIOXIN/FURAN									ng/kg									
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		1080		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		111		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		540		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		652		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		44.9		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		35.5		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		451	J	NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		72.5		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		214		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		52.8		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		8.89		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		28.4		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		108	J	NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		320	J	NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		243		NA		NA		NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		5.69	J	NA		NA		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		86.4		NA		NA		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		247		NA		NA		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	NA		NA		1370		NA		NA		NA		NA	
Total HpCDF	NA	NA	NA	NA	NA		NA		771		NA		NA		NA		NA	
Total HxCDD	NA	NA	NA	NA	NA		NA		2800		NA		NA		NA		NA	
Total HxCDF	NA	NA	NA	NA	NA		NA		2010		NA		NA		NA		NA	
Total PeCDD	NA	NA	NA	NA	NA		NA		1470		NA		NA		NA		NA	
Total PeCDF	NA	NA	NA	NA	NA		NA		2720		NA		NA		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		928		NA		NA		NA		NA	
Total TCDF	NA	NA	NA	NA	NA		NA		4270		NA		NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP11-0506-04		12TP12-0203-03		12TP12-0506-04		12TP13-0506-03		12TP13-0809-04		12TP14-0405-03		12TP14-0405-CS
Sample Date:		Region 3			1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/12/2010		12/19/2011
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	5		2		5		5		8		4		4
Bottom Depth (feet):	Residential	Residential	Residential	Residential	6		3		6		6		9		5		5
Duplicate:	SL	SL	MSC	MSC													
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	11900		12100		15600		16400		11000		18400		NA
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.33	UL	15.4	J	0.64	R	0.56	R	0.56	R	0.7	B	NA
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	1	J	92.2	J	3.2	J	4.2	J	1.6	J	6.2		NA
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	30.7	L	729	L	41.5	L	85.8	L	66.2	L	101		NA
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.41	J	0.74	J	2.2	J	0.45	J	0.78	J	0.68	K	NA
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.13	R	28.7	J	0.49	R	0.31	R	0.32	R	0.39	B	NA
Calcium	NA	NA	NA	NA	960	J	6610	J	1760	J	958	J	560	J	3420		NA
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	14.3		65.4		14.8		23		17.3		70.1		39
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	2.5	J	9.7	J	11.3	J	6.2	J	6	J	7.4		NA
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	6.1		661		12.4		8.5		5.7		258		NA
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.18	U	0.19	U	0.17	U	0.21	B	0.17	U	0.18	U	NA
Hexavalent Chromium	**290**	5600	660	8400	NA		NA		NA		NA		NA		NA		1.1
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	10700	J	57600	J	33600	J	18700	J	20600	J	18400	L	NA
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	7.9	J	1400	J	8.5	J	10	J	11.8	J	131	J	NA
Magnesium	NA	NA	NA	NA	665	J	2960	J	1020	J	1920	J	1670	J	2140	J	NA
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	29.4	J	727	J	491	J	590	J	152	J	466		NA
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.018	U	0.054	K	0.019	U	0.029	K	0.019	U	0.088		NA
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	4.9	J	64.3	J	7.4	J	10.5	J	9.5	J	13.2		NA
Potassium	NA	NA	NA	NA	498	L	1500		698	L	579	L	1900		935	J	NA
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.41	UR	16.4	L	0.41	UR	0.43	UR	0.42	UR	0.42	UR	NA
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.11	U	19.5	K	0.11	U	0.11	U	0.11	U	0.11	U	NA
Sodium	NA	NA	NA	NA	129	B	571	R	148	B	153	B	176	B	154	B	NA
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.6	U	2.2	K	0.61	U	0.72	K	0.62	U	0.64	K	NA
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	26.1		23.2		28.6		35.3		22.4		33.2		NA
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	11.5		2950		16.3		27.8		16.6		117		NA
SEMIVOLATILES					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	9.9	U	220	U	9.8	U	1.1	J	9.8	U	10	J	NA
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	9.9	U	30	J	9.8	U	10	U	9.8	U	15		NA
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	0.66	B	220	U	9.8	U	10	U	9.8	U	30		NA
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	390	U	420	U	390	U	410	U	390	U	420	U	NA
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	0.93	J	120	J	0.86	J	10	U	9.8	U	85		NA
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	5.3	J	700		1.9	J	0.77	J	9.8	U	360	J	NA
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	200	U	220	U	200	U	210	U	200	U	220	U	NA
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	5.8	J	800		1.6	B	0.6	B	9.8	U	400	J	NA
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	6.7	J	880		1.7	J	0.75	J	9.8	U	450	J	NA
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	4.9	J	550		1.2	J	0.63	J	9.8	U	280	J	NA
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	6.9	J	1000		1.7	J	0.8	J	9.8	U	400	J	NA
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	70	J	220	U	200	U	210	U	200	U	220	U	NA
Carbazole	NA	NA	**9.00E+05**	1.90E+08	390	U	96	J	390	U	410	U	390	U	73	J	NA
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	6.5	J	960		2.3	J	0.89	J	9.8	U	450	J	NA
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	200	U	23	J	200	U	210	U	200	U	220	U	NA
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	1.1	J	250		9.8	U	10	U	9.8	U	71		NA
Dibenzofuran	NA	NA	NA	NA	200	U	220	U	200	U	210	U	200	U	220	U	NA
Dimethylphthalate	NA	NA	NA	NA	200	U	220	U	200	U	210	U	200	U	220	U	NA
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	10		1700		4	J	10	U	9.8	U	1100	J	NA
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	9.9	U	37	J	9.8	U	10	U	9.8	U	41		NA
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	5.6	B	600		1.2	B	0.6	B	9.8	U	330	J	NA
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	9.9	U	220	U	9.8	U	10	U	9.8	U	15		NA

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP11-0506-04		12TP12-0203-03		12TP12-0506-04		12TP13-0506-03		12TP13-0809-04		12TP14-0405-03		12TP14-0405-CS	
Sample Date:		**Region 3**			**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**12/19/2011**	
Top Depth (feet):	**Region 3**	**Non-**	**PADEP**	**PADEP Non-**	**5**		**2**		**5**		**5**		**8**		**4**		**4**	
Bottom Depth (feet):	**Residential**	**Residential**	**Residential**	**Residential**	**6**		**3**		**6**		**6**		**9**		**5**		**5**	
Duplicate:	**SL**	**SL**	**MSC**	**MSC**														
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	3.3	J	800		3.8	J	10	U	9.8	U	660	J	NA	
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	8.4	J	2000		3.8	J	0.94	B	9.8	U	840	J	NA	
VOLATILES					**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**			
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	12	U	16	U	15	U	14	U	16	U	21		NA	
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	21	U	94	J	72	J	30	B	26	U	140		NA	
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	2.1	J	NA	
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	7.1	U	9.2	U	9	U	8	U	9.1	U	7.3	U	NA	
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	1.7	J	NA	
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	4.8	U	2.6	J	6.2	U	5.5	U	6.2	U	5	U	NA	
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	5	U	6	U	6	U	36		6	U	5	U	NA	
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	9.7	U	13	U	12	U	11	U	12	U	9.9	U	NA	
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	5	U	6	UJ	6	UJ	6	UJ	6	UJ	2	J	NA	
Methyl Cyclohexane	NA	NA	NA	NA	5	U	NA		6	U	18		6	U	5	U	NA	
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	3.7	J	NA	
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	3.2	J	NA	
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	4.8	U	6.3	U	6.2	U	5.5	U	6.2	U	5	U	NA	
PESTICIDES/PCBS					**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**			
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	3.9	U	4.2	UJ	3.9	U	4.1	U	3.9	U	0.59	J	NA	
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	3.9	U	6.7	R	3.9	U	4.1	U	3.9	U	3	J	NA	
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	3.9	U	4.8	J	3.9	U	4.1	U	3.9	U	1.2	J	NA	
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	2	U	12	R	2	U	2.1	U	2	U	2.2	U	NA	
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	2	U	2.2	UJ	2	U	2.1	U	2	U	2.2	U	NA	
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	2	U	2.2	UJ	2	U	2.1	U	2	U	2.2	U	NA	
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	20	U	22	UJ	20	U	21	U	20	U	22	U	NA	
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	1	U	15	R	1	U	1.1	U	1	U	1.1	U	NA	
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2	U	2.2	UJ	2	U	2.1	U	2	U	2.2	U	NA	
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	23	R	16	R	3.9	U	4.1	U	5.8	R	4.2	U	NA	
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	2	U	0.46	J	2	U	2.1	U	2	U	2.2	U	NA	
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	3.9	U	1.9	J	3.9	U	4.1	U	3.9	U	4.2	U	NA	
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	9.7	J	1.1	J	3.9	U	4.1	U	3.9	U	4.2	U	NA	
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	3.9	U	4.2	UJ	3.9	U	4.1	U	3.9	U	4.2	U	NA	
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	5.3	J	2.3	J	3.9	U	4.1	U	3.9	U	1.2	J	NA	
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	20	R	4.6	J	5.8	R	4.1	U	0.94	J	4.2	U	NA	
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	2	U	1.4	J	2	U	2.1	U	2	U	1.2	B	NA	
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	2	U	1.3	R	2	U	2.1	U	2	U	2.2	U	NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP11-0506-04		12TP12-0203-03		12TP12-0506-04		12TP13-0506-03		12TP13-0809-04		12TP14-0405-03		12TP14-0405-CS	
Sample Date:		Region 3			1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/12/2010		12/19/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	5		2		5		5		8		4		4	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	6		3		6		6		9		5		5	
Duplicate:	SL	SL	MSC	MSC														
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	2	U	2.2	UJ	2	U	2.1	U	2	U	1.2	J	NA	
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	20	U	37	R	20	U	21	U	20	U	22	U	NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP11-0506-04		12TP12-0203-03		12TP12-0506-04		12TP13-0506-03		12TP13-0809-04		12TP14-0405-03		12TP14-0405-CS	
Sample Date:		Region 3			1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/12/2010		12/19/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	5		2		5		5		8		4		4	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	6		3		6		6		9		5		5	
Duplicate:	SL	SL	MSC	MSC														
DIOXIN/FURAN																		
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
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Sample ID:					12TP14-0607-04		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0608-03		12TP16-0608-03-D		12TP16-0910-04	
Sample Date:		Region 3			1/12/2010		1/12/2010		12/19/2011		1/12/2010		12/19/2011		12/19/2011		12/19/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	6		3		3		4		6		6		9	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	7		4		4		5		8		8		10	
Duplicate:	SL	SL	MSC	MSC									12TP16-0608-03-D		12TP16-0608-03			
INORGANICS					mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	13800		29400		NA		18000		6210	J	5300	J	15500	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	0.52	B	22.7	L	NA		0.66	R	35.4	J	8.9	J	0.22	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	1.1	L	24.3	J	NA		5.1	J	7		5.7		2.5	
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	92.1		489	L	NA		47.7	L	92.9		108		87.4	
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	0.51	K	3.1	L	NA		0.3	J	0.43	J	0.35	J	0.84	J
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	0.05	B	40.1	J	NA		0.46	R	34.9	J	12.4	J	0.12	J
Calcium	NA	NA	NA	NA	816		43900	J	NA		651	J	4450	J	3180	J	367	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	9		56.7		12	J	22.5		24.5	J	25.2	J	17.5	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	16.6		9.3	J	NA		11.8	J	5.3	J	5.3	J	9.5	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	6.1		463		NA		15.1		47.6	J	68.8	J	26	J
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	0.17	U	0.2	U	NA		0.18	U	0.048	J	0.064	J	0.061	J
Hexavalent Chromium	**290**	5600	660	8400	NA		NA		1.1		NA		5.9	J	1.9	J	NA	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	11000	L	21100	J	NA		25700	J	23100	J	19300	J	18900	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	4.1	J	7900	J	NA		10.2	J	1940		1490		7.1	K
Magnesium	NA	NA	NA	NA	857	J	9320	J	NA		3200	J	2930	J	2650	J	1170	J
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	921		1090	J	NA		739	J	597	J	507	J	1730	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	0.019	U	0.044	K	NA		0.02	U	0.055		0.033		0.0055	U
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	9.5		34.5	J	NA		13.9	J	14	J	17.2	J	11.2	J
Potassium	NA	NA	NA	NA	516	J	2650		NA		1340		664	J	516	J	330	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.41	UR	0.49	UR	NA		0.45	UR	0.12	J	0.088	J	0.305	UL
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	0.11	U	4.6	K	NA		0.12	U	1.1		1.4		0.046	B
Sodium	NA	NA	NA	NA	136	B	1300	K	NA		147	B	185	J	138	J	62.1	J
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	0.61	U	4.2		NA		1.2	K	0.28		0.15	B	0.19	B
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	15.8		35.3		NA		43.8		16.9	J	14	J	22.7	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	14.1		5400		NA		32.3		231	J	188	J	21.6	J
SEMIVOLATILES					ug/kg		ug/kg				ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	9.7	U	6.7	J	NA		11	U	590		400		2	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	9.7	U	11	U	NA		11	U	28.5	U	28	U	2	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	9.7	U	0.86	B	NA		11	U	28.5	U	28	U	2	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	380	U	440	U	NA		420	U	NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	9.7	U	11	J	NA		11	U	180		140		2	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	9.7	U	110		NA		11	U	550		450		2	U
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	200	U	230	U	NA		220	U	NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	9.7	U	150		NA		11	U	490		440		2	U
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	9.7	U	400	J	NA		11	U	1300		1100		2.4	J
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	9.7	U	260	J	NA		11	U	530	J	420	J	2	U
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	9.7	U	180		NA		11	U	380		280		2	U
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	260		230	U	NA		220	U	2850	U	2800	U	200	U
Carbazole	NA	NA	**9.00E+05**	1.90E+08	380	U	440	U	NA		420	U	2850	U	2800	U	200	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	9.7	U	150		NA		11	U	1100		810		2	U
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	200	U	230	U	NA		220	U	2850	U	2800	U	200	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	9.7	U	74		NA		11	U	28.5	U	28	U	2	U
Dibenzofuran	NA	NA	NA	NA	200	U	230	U	NA		220	U	2850	U	2800	U	200	U
Dimethylphthalate	NA	NA	NA	NA	200	U	230	U	NA		220	U	2850	U	2800	U	200	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	9.7	U	140		NA		11	U	2500		1900		4.4	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	9.7	U	1	J	NA		11	U	28.5	U	28	U	2	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	9.7	U	300	J	NA		11	U	340		320		2	U
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	9.7	U	11	J	NA		11	U	28.5	U	28	U	2	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP14-0607-04		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0608-03		12TP16-0608-03-D		12TP16-0910-04	
Sample Date:		Region 3			1/12/2010		1/12/2010		12/19/2011		1/12/2010		12/19/2011		12/19/2011		12/19/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	6		3		3		4		6		6		9	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	7		4		4		5		8		8		10	
Duplicate:	SL	SL	MSC	MSC									12TP16-0608-03-D		12TP16-0608-03			
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	9.7	U	82		NA		11	U	700		560		2.4	J
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	9.7	U	94		NA		11	U	2100		1600		3.2	J
VOLATILES					ug/kg		ug/kg				ug/kg		ug/kg		ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	9.2	J	15	J	NA		13	U	38	J	28	J	12.5	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	63	J	56	B	NA		34	B	160	J	110	J	12.5	U
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	4.9	UJ	8.6	J	NA		5.3	U	4	J	3.4	J	2.55	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	7.2	UJ	14	U	NA		7.7	U	3	UJ	2.8	UJ	2.55	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	4.9	UJ	9.9	U	NA		5.3	U	8.1	J	2.8	UJ	2.55	U
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	5	UJ	10	U	NA		5	U	NA		NA		NA	
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	4.9	UJ	2.4	J	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	4.9	UJ	9.9	U	NA		5.3	U	11	J	9.2	J	2.55	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	9.8	UJ	20	U	NA		11	U	3.6	J	2.5	J	5	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	2	J	10	UJ	NA		5	U	NA		NA		NA	
Methyl Cyclohexane	NA	NA	NA	NA	5	UJ	10	U	NA		5	U	NA		NA		NA	
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	4.9	UJ	11		NA		5.3	U	4.6	J	2.8	UJ	2.55	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	4.9	UJ	9.9	U	NA		5.3	U	3	UJ	2.8	UJ	2.55	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	4.9	UJ	9.9	U	NA		5.3	U	3.6	J	2.5	J	7.5	U
PESTICIDES/PCBS					ug/kg		ug/kg				ug/kg							
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	3.8	U	4.5	U	NA		4.2	U	NA		2.9	UJ	1.05	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	3.8	U	3.3	J	NA		4.2	U	NA		NA		NA	
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	3.8	U	4.5	U	NA		4.2	U	NA		2.9	UJ	1.05	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	2	U	2.3	U	NA		2.2	U	NA		NA		NA	
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	2	U	2.3	U	NA		2.2	U	NA		NA		NA	
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	2	U	1.5	J	NA		2.2	U	NA		NA		NA	
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	20	U	23	U	NA		22	U	NA		NA		NA	
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	0.99	U	1.2	U	NA		1.1	U	NA		NA		NA	
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	2	U	2.3	U	NA		2.2	U	NA		NA		NA	
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	3.8	U	2.5	J	NA		3.2	R	NA		NA		NA	
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	2	U	0.97	J	NA		2.2	U	NA		NA		NA	
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	3.8	U	4.5	U	NA		1.2	J	NA		NA		NA	
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	3.8	U	5.5	R	NA		4.2	U	NA		NA		NA	
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	3.8	U	4.5	U	NA		4.2	U	NA		NA		NA	
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	3.8	U	4.5	U	NA		4.2	U	NA		NA		NA	
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	3.8	U	14	R	NA		4.2	U	NA		NA		NA	
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	2	U	0.93	J	NA		2.2	U	NA		NA		NA	
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	0.72	J	1.1	J	NA		2.2	U	NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP14-0607-04		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0608-03		12TP16-0608-03-D		12TP16-0910-04	
Sample Date:		Region 3			1/12/2010		1/12/2010		12/19/2011		1/12/2010		12/19/2011		12/19/2011		12/19/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	6		3		3		4		6		6		9	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	7		4		4		5		8		8		10	
Duplicate:	SL	SL	MSC	MSC									12TP16-0608-03-D		12TP16-0608-03			
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	2	U	2.3	U	NA		2.2	U	NA		NA		NA	
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	20	U	11	J	NA		22	U	NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP14-0607-04		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0608-03		12TP16-0608-03-D		12TP16-0910-04	
Sample Date:		Region 3			1/12/2010		1/12/2010		12/19/2011		1/12/2010		12/19/2011		12/19/2011		12/19/2011	
Top Depth (feet):	Region 3	Non-	PADEP	PADEP Non-	6		3		3		4		6		6		9	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	7		4		4		5		8		8		10	
Duplicate:	SL	SL	MSC	MSC									12TP16-0608-03-D		12TP16-0608-03			
DIOXIN/FURAN																		
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP16-0910-4		12TP18-0506-01		12TP18-0607-02	
Sample Date:					12/19/2011		12/20/2011		12/20/2011	
Top Depth (feet):	Region 3	Region 3	PADEP	PADEP Non-	9		5		6	
Bottom Depth (feet):	Residential	Non-Residential	Residential	Residential	10		6		7	
Duplicate:	SL	SL	MSC	MSC						
INORGANICS							mg/kg		mg/kg	
Aluminum	**7.70E+04**	9.90E+05	1.90E+05	1.90E+05	NA		9490	J	16100	J
Antimony	**3.10E+01**	4.10E+02	8.80E+01	1.10E+03	NA		5.8	L	0.24	B
Arsenic	**3.90E-01**	1.60E+00	1.20E+01	5.30E+01	NA		16.8	J	6	L
Barium	**1.50E+04**	1.90E+05	4.40E+04	1.90E+05	NA		113	L	45.3	L
Beryllium	**1.60E+02**	2.00E+03	4.40E+02	5.60E+03	NA		0.54		0.59	
Cadmium	**7.00E+01**	8.00E+02	1.10E+02	1.40E+03	NA		1.4	L	0.13	J
Calcium	NA	NA	NA	NA	NA		34500	J	613	J
Chromium	**1.20E+05**	1.50E+06	1.90E+05	1.90E+05	NA		31.3	J	23.3	J
Cobalt	**2.30E+01**	3.00E+02	6.60E+01	8.40E+02	NA		7.9	J	7.3	J
Copper	**3.10E+03**	4.10E+04	8.10E+03	1.00E+05	NA		144	J	12.1	J
Cyanide	**4.70E+04**	6.10E+05	4.40E+03	1.90E+05	NA		0.149	U	0.1535	U
Hexavalent Chromium	**290**	5600	660	8400	0.56		1.1		1	
Iron	**5.50E+04**	7.20E+05	1.50E+05	1.90E+05	NA		53400	J	33200	J
Lead	**4.00E+02**	8.00E+02	5.00E+02	1.00E+03	NA		379		11.6	L
Magnesium	NA	NA	NA	NA	NA		3200		2380	
Manganese	**1.80E+03**	2.30E+04	1.00E+04	1.30E+05	NA		671	J	265	J
Mercury	**7.80E+00**	1.00E+02	6.60E+01	8.40E+02	NA		0.027		0.036	
Nickel	**1.50E+03**	2.00E+04	4.40E+03	5.60E+04	NA		15.2	J	11.7	J
Potassium	NA	NA	NA	NA	NA		652	J	828	J
Selenium	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		0.25	UL	0.275	UL
Silver	**3.90E+02**	5.10E+03	1.10E+03	1.40E+04	NA		0.35	L	0.026	B
Sodium	NA	NA	NA	NA	NA		146		70.4	
Thallium	**7.80E-01**	1.00E+01	1.50E+01	2.00E+02	NA		0.3		0.32	L
Vanadium	**3.90E+02**	5.20E+03	1.50E+03	2.00E+04	NA		18.7	J	36.3	J
Zinc	**2.30E+04**	3.10E+05	6.60E+04	1.90E+05	NA		390	J	31.3	J
SEMIVOLATILES							ug/kg		ug/kg	
2-Methylnaphthalene	**2.30E+05**	2.20E+06	8.80E+05	1.90E+08	NA		4		2.05	U
Acenaphthene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	NA		3.6	J	2.05	U
Acenaphthylene	**3.40E+06**	3.30E+07	1.30E+07	1.90E+08	NA		2.4	J	2.05	U
Acetophenone	**7.80E+06**	1.00E+08	1.00E+07	1.00E+07	NA		NA		NA	
Anthracene	**1.70E+07**	1.70E+08	6.60E+07	1.90E+08	NA		7.5		2.05	U
Benz(a)anthracene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	NA		55		5.8	
Benzaldehyde	**7.80E+06**	1.00E+08	NA	NA	NA		NA		NA	
Benzo(a)pyrene	**1.50E+01**	2.10E+02	5.70E+02	1.90E+08	NA		120		6.6	
Benzo(b)fluoranthene	**1.50E+02**	2.10E+03	5.70E+02	1.90E+08	NA		150		8.6	
Benzo(g,h,i)perylene	NA	NA	**1.30E+07**	1.90E+08	NA		95	J	4.5	J
Benzo(k)fluoranthene	**1.50E+03**	2.10E+04	5.70E+04	1.90E+08	NA		49		2.9	J
Bis(2-ethylhexyl)phthalate	**3.50E+04**	1.20E+05	1.30E+06	1.00E+07	NA		195	U	205	U
Carbazole	NA	NA	**9.00E+05**	1.90E+08	NA		195	U	205	U
Chrysene	**1.50E+04**	2.10E+05	5.70E+05	1.90E+08	NA		81		7.4	
Di-n-butylphthalate	**6.10E+06**	6.20E+07	1.00E+07	1.00E+07	NA		195	U	205	U
Dibenz(a,h)anthracene	**1.50E+01**	2.10E+02	2.50E+03	1.90E+08	NA		5.5		2.05	U
Dibenzofuran	NA	NA	NA	NA	NA		195	U	205	U
Dimethylphthalate	NA	NA	NA	NA	NA		195	U	205	U
Fluoranthene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	NA		94		8.6	
Fluorene	**2.30E+06**	2.20E+07	8.80E+06	1.90E+08	NA		4.3		2.05	U
Indeno(1,2,3-cd)pyrene	**1.50E+02**	2.10E+03	5.70E+03	1.90E+08	NA		70		4.1	
Naphthalene	**3.60E+03**	1.80E+04	4.40E+06	1.90E+08	NA		4.7		2.05	U

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:					12TP16-0910-4		12TP18-0506-01		12TP18-0607-02	
Sample Date:					12/19/2011		12/20/2011		12/20/2011	
Top Depth (feet):	Region 3	Region 3 Non-	PADEP	PADEP Non-	9		5		6	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	10		6		7	
Duplicate:	SL	SL	MSC	MSC						
Phenanthrene	NA	NA	**6.60E+07**	1.90E+08	NA		40		3.7	J
Pyrene	**1.70E+06**	1.70E+07	6.60E+06	1.90E+08	NA		83		8.6	
VOLATILES							ug/kg		ug/kg	
1,2,3-Trichlorobenzene	**4.90E+04**	4.90E+05	NA	NA	NA		2.7	U	2.6	U
1,2,4-Trichlorobenzene	**2.20E+04**	9.90E+04	2.20E+06	1.00E+07	NA		2.7	U	2.6	U
1,2-Dichlorobenzene	**1.90E+06**	9.80E+06	3.80E+06	1.00E+07	NA		2.7	U	2.6	U
1,2-Dichloroethene (cis)	**1.60E+05**	2.00E+06	2.20E+06	1.00E+07	NA		2.7	U	2.6	U
1,2-Dichloroethene (trans)	**1.50E+05**	6.90E+05	1.10E+06	5.50E+06	NA		2.7	U	2.6	U
1,4-Dichlorobenzene	**2.40E+03**	1.20E+04	4.00E+04	2.30E+05	NA		2.7	U	2.6	U
2-Butanone	2.80E+07	2.00E+08	**1.00E+07**	1.00E+07	NA		7.2	J	13	U
Acetone	6.10E+07	6.10E+08	**1.00E+07**	1.00E+07	NA		56		13	U
Benzene	**1.10E+03**	5.40E+03	5.70E+04	3.30E+05	NA		2.7	U	2.6	U
Bromomethane	**7.30E+03**	3.20E+04	9.60E+04	4.60E+05	NA		2.7	U	2.6	U
Carbon Disulfide	**8.20E+05**	3.70E+06	1.00E+07	1.00E+07	NA		2.7	U	2.6	U
Chlorobenzene	**2.90E+05**	1.40E+06	9.60E+05	4.60E+06	NA		2.7	U	2.6	U
Chloromethane	**1.20E+05**	5.00E+05	2.50E+05	1.40E+06	NA		2.7	U	2.6	U
Cyclohexane	**7.00E+06**	2.90E+07	1.00E+07	1.00E+07	NA		NA		NA	
Ethylbenzene	**5.40E+03**	2.70E+04	1.00E+07	1.00E+07	NA		2.7	U	2.6	U
Isopropylbenzene	**2.10E+06**	1.10E+07	7.70E+06	1.00E+07	NA		2.7	U	2.6	U
M+p-xylenes	**5.90E+05**	2.50E+06	1.90E+06	9.10E+06	NA		5.5	U	5	U
Methyl Acetate	7.80E+07	1.00E+09	**1.00E+07**	1.00E+07	NA		NA		NA	
Methyl Cyclohexane	NA	NA	NA	NA	NA		NA		NA	
Methylene Chloride	**5.60E+04**	9.60E+05	9.50E+05	5.40E+06	NA		2.7	U	2.6	U
O-xylene	**6.90E+05**	3.00E+06	1.90E+06	9.10E+06	NA		2.7	U	2.6	U
Tetrachloroethene	**2.20E+04**	1.10E+05	3.40E+05	4.40E+06	NA		2.7	U	2.6	U
Toluene	**5.00E+06**	4.50E+07	1.00E+07	1.00E+07	NA		2.7	U	2.6	U
Trichloroethene	**9.10E+02**	6.40E+03	2.60E+05	1.50E+06	NA		2.7	U	2.6	U
Vinyl Chloride	**6.00E+01**	1.70E+03	1.90E+03	5.80E+05	NA		2.7	U	2.6	U
Xylene (Total)	**6.30E+05**	2.70E+06	1.90E+06	9.10E+06	NA		8	U	8	U
PESTICIDES/PCBS										
4,4'-DDD	**2.00E+03**	7.20E+03	7.50E+04	1.90E+08	NA		1.1	J	1.05	U
4,4'-DDE	**1.40E+03**	5.10E+03	5.30E+04	1.90E+08	NA		NA		NA	
4,4'-DDT	**1.70E+03**	7.00E+03	5.30E+04	1.90E+08	NA		2.2		1.05	U
Aldrin	**2.90E+01**	1.00E+02	1.10E+03	1.90E+08	NA		NA		NA	
Alpha-BHC	**7.70E+01**	2.70E+02	2.80E+03	1.90E+08	NA		NA		NA	
Alpha-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	NA		NA		NA	
Aroclor-1260	**2.20E+02**	7.40E+02	9.00E+03	1.90E+08	NA		NA		NA	
Beta-BHC	**2.70E+02**	9.60E+02	9.90E+03	1.90E+08	NA		NA		NA	
Delta-BHC	NA	NA	**1.30E+05**	1.90E+08	NA		NA		NA	
Dieldrin	**3.00E+01**	1.10E+02	1.10E+03	1.90E+08	NA		NA		NA	
Endosulfan I	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		NA		NA	
Endosulfan II	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		NA		NA	
Endosulfan Sulfate	**3.70E+05**	3.70E+06	1.30E+06	1.90E+08	NA		NA		NA	
Endrin	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		NA		NA	
Endrin Aldehyde	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		NA		NA	
Endrin Ketone	**1.80E+04**	1.80E+05	6.60E+04	1.90E+08	NA		NA		NA	
Gamma-Chlordane	**1.60E+03**	6.50E+03	5.10E+04	1.90E+08	NA		NA		NA	
Heptachlor	**1.10E+02**	3.80E+02	4.00E+03	1.90E+08	NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP16-0910-4		12TP18-0506-01		12TP18-0607-02	
Sample Date:					12/19/2011		12/20/2011		12/20/2011	
Top Depth (feet):	Region 3	Region 3			9		5		6	
Bottom Depth (feet):	Residential	Non-Residential	PADEP Residential	PADEP Non-Residential	10		6		7	
Duplicate:	SL	SL	MSC	MSC						
Heptachlor Epoxide	**5.30E+01**	1.90E+02	2.00E+03	1.90E+08	NA		NA		NA	
Methoxychlor	**3.10E+05**	3.10E+06	1.10E+06	1.90E+08	NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:					12TP16-0910-4		12TP18-0506-01		12TP18-0607-02	
Sample Date:					12/19/2011		12/20/2011		12/20/2011	
Top Depth (feet):	Region 3	Region 3 Non-	PADEP	PADEP Non-	9		5		6	
Bottom Depth (feet):	Residential	Residential	Residential	Residential	10		6		7	
Duplicate:	SL	SL	MSC	MSC						
DIOXIN/FURAN										
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA		NA		NA	
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA		NA		NA	
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA		NA		NA	
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA		NA		NA	
2,3,7,8-TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA	
2,3,7,8-TCDF	NA	NA	NA	NA	NA		NA		NA	
Teq	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA	
Teq Halfnd	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA	
Total HpCDD	NA	NA	NA	NA	NA		NA		NA	
Total HpCDF	NA	NA	NA	NA	NA		NA		NA	
Total HxCDD	NA	NA	NA	NA	NA		NA		NA	
Total HxCDF	NA	NA	NA	NA	NA		NA		NA	
Total PeCDD	NA	NA	NA	NA	NA		NA		NA	
Total PeCDF	NA	NA	NA	NA	NA		NA		NA	
Total TCDD	**4.50E+00**	1.80E+01	1.40E+02	1.90E+11	NA		NA		NA	
Total TCDF	NA	NA	NA	NA	NA		NA		NA	

TABLE 4-8

COMPARISON OF SUBSURFACE SOIL ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NASJRB WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.
NA -- No result is available/applicable for this parameter in this sample.
-- Shading indicates values that exceeded the screening criteria

Database source file: H:\WILLOWGROVE\SITE 12\DATA\HHRA DATA SUMMARIES\WG12SB.DBF data retrieved on: 05/15/12

TABLE 4-9

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 SURFACE WATER VERSUS BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Background Surface Water Samples					Site 12 Surface Water Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
Aluminum	1/8	561	561	145	BGSW03-DUP 03/13/97	2/3	2700	31800	11500	12SW07
Antimony	0/8					1/7	4.7	4.7	1.91	12SW07
Arsenic	0/8					1/7	10.6	10.6	2.76	12SW07
Barium	8/8	87.3	112	101	BGSW05 03/13/97	7/7	49.9 J	434 J	160	12SW07
Beryllium	0/8					1/4	3.1	3.1	0.861	12SW07
Cadmium	0/8					1/7	1.1	1.1	0.303	12SW07
Calcium	8/8	15800	34900	24600	BGSW01 03/13/97	7/7	12800	39900	27900	12SW07
Chromium	0/8					2/7	1.9	37.8	6.01	12SW07
Cobalt	0/8					1/3	32.6	32.6	11.1	12SW07
Copper	1/8	16.6	16.6	5.73	BGSW03-DUP 03/13/97	2/7	6.6	57.4	9.68	12SW07
Cyanide	0/8					5/7	3.2 L	48.8 J	6.82	12SW02
Iron	8/8	85.3	751	321	BGSW03-DUP 03/13/97	7/7	120 K	44700	7130	12SW07
Lead	1/8	1.1	1.1	0.538	BGSW03-DUP 03/13/97	4/7	2.3	88	15.3	12SW07
Magnesium	8/8	6250	12100	8910	BGSW01 03/13/97	7/7	2040	13100	10100	12SW07
Manganese	8/8	26.7	122	67.1	BGSW03-DUP 03/13/97	7/7	16.4 J	2100 J	985	12SW01
Mercury	0/8					1/7	0.2	0.2	0.0714	12SW07
Nickel	1/8	31.4	31.4	11.3	BGSW03-DUP 03/13/97	3/7	0.97	31.8	5.09	12SW07
Potassium	6/8	1750	2860	1830	BGSW01 03/13/97	7/7	905 J	4460 J	1880	12SW07
Sodium	8/8	10700	36200	20100	BGSW02 03/13/97	6/6	4200	37900	13700	12SW02-D
Vanadium	0/8					2/5	6.5	88.8	19.3	12SW07
Zinc	3/8	6.8	18.9	5.28	BGSW03-DUP 03/13/97	7/7	1 L	253 L	43.3	12SW07
4,4'-DDD	0/8					1/7	0.015 J	0.015 J	0.0464	12SW07
4,4'-DDE	0/8					1/7	0.021 J	0.021 J	0.0473	12SW07
4,4'-DDT	0/8					1/7	0.019 J	0.019 J	0.047	12SW07
Aldrin	0/8					1/7	0.015 J	0.015 J	0.0242	12SW07
Alpha-Chlordane	0/8					1/7	0.058 J	0.058 J	0.0303	12SW07
Beta-BHC	0/8					1/7	0.007 J	0.0089 J	0.0229	12SW02-D
Dieldrin	0/8					5/7	0.0029 J	1.6	0.249	12SW07
Endosulfan I	0/8					1/7	0.063 J	0.063 J	0.031	12SW07
Endrin Aldehyde	0/8					1/7	0.037 J	0.037 J	0.0496	12SW07
Heptachlor Epoxide	0/8					1/7	0.0079 J	0.0079 J	0.0236	12SW08
Methoxychlor	0/8					1/7	0.28 J	0.28 J	0.26	12SW07
2-Methylnaphthalene	0/8					1/7	0.029 J	0.029 J	0.0959	12SW07
Acenaphthylene	0/8					2/7	0.035 J	0.15 J	0.103	12SW07
Anthracene	0/8					2/7	0.041 J	1.2 J	0.254	12SW07
Benz(a)anthracene	0/8					3/7	0.043 J	6.3	0.975	12SW07
Benzaldehyde	0/0					1/7	1.5 J	1.5 J	2.5	12SW07
Benzo(a)pyrene	0/8					3/7	0.049 J	7.1	1.1	12SW07
Benzo(b)fluoranthene	0/8					3/7	0.053 J	6.5	1.01	12SW07
Benzo(g,h,i)perylene	0/8					3/7	0.033 J	4.4 J	0.721	12SW07
Benzo(k)fluoranthene	0/8					3/7	0.047 J	4.8 J	0.771	12SW07
Chrysene	0/8					3/7	0.05 J	7.6	1.16	12SW07
Dibenz(a,h)anthracene	0/8					2/7	0.02 J	0.21 J	0.109	12SW07
Fluoranthene	0/8					3/7	0.078 J	13	1.95	12SW07
Indeno(1,2,3-cd)pyrene	0/8					3/7	0.038 J	5 J	0.803	12SW07
Phenanthrene	0/8					2/7	0.04 J	4.8 J	0.769	12SW07
Pyrene	0/8					3/7	0.079 J	12	1.8	12SW07
Bromoform	0/8					3/7	0.17 J	0.22 J	0.222	12SW02
Chloroform	0/8					1/7	0.12 J	0.14 J	0.233	12SW02
Dibromochloromethane	0/8					2/7	0.14 J	0.24 J	0.23	12SW02

Notes:

Units are ug/L.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE 4-10

STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SURFACE WATER TO BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 2

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 12 sw Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 12 sw? # Site 12 sw (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 12 sw > bkg.? P value <=0.05 ?				Student's or Satterthwaite T-test Site 12 sw Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both normal t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 12 sw Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 12 sw & bkg. both normally distributed F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 12 sw Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean	Site 12 sw Mean	t Value	t Table	YN	bkg. Distrib.	Site 12 sw Distrib.	Std.Dev. bkg.	Std.Dev. Site 12 sw	F Value	F Table	YN
Aluminum	NA	1/8	2/3		NA	2	2	0.0545	NA	0.0545	Gehan	Test	N	145	11500			NA							NA
Antimony	NA	0/8	1/7		NA				NA				NA		1.91			NA							NA
Arsenic	NA	0/8	1/7	0.4667	N	1	1	0.4667	NA				NA		2.76			NA							NA
Barium	**Y**	8/8	7/7		NA	4	4	0.0256	**Y**	0.3472			N	101	160			NA	normal	gamma					NA
Beryllium	NA	0/8	1/4		NA	1	1	0.3333	NA				NA		0.861			NA							NA
Cadmium	NA	0/8	1/7		NA				NA				NA		0.303			NA							NA
Calcium	N	8/8	7/7		NA	10	6	0.1818	N	0.2573			N	24600	27900	0.7883	1.7709	N	normal	normal	7720	8080	0.0120	3.8592	**Y**
Chromium	NA	0/8	2/7		NA	1	1	0.4667	NA				NA		6.01			NA							NA
Cobalt	NA	0/8	1/3		NA	1	1	0.2727	NA				NA		11.1			NA							NA
Copper	NA	1/8	2/7		NA	1	1	0.4667	NA	0.4416	Gehan	Test	NA	5.73	9.68			NA							NA
Cyanide	NA	0/8	5/7	0.0070	**Y**	3	3	0.0769	NA				NA		6.82			NA							NA
Iron	**Y**	8/8	7/7		NA	4	4	0.0256	**Y**	0.0760			N	321	7130			NA	normal	lognor					NA
Lead	**Y**	1/8	4/7	0.1002	N	4	4	0.0256	**Y**	0.0256	Gehan	Test	**Y**	0.538	15.3			NA							NA
Magnesium	N	8/8	7/7		NA	7	5	0.1002	N	0.1159			N	8910	10100			NA	normal	nonpara					NA
Manganese	**Y**	8/8	7/7		NA	5	5	0.0070	**Y**	0.0946			N	67.1	985	2.5735	1.9432	**Y**	normal	normal	26.2	944	40.2032	3.8592	N
Mercury	NA	0/8	1/7	0.4667	N	1	1	0.4667	NA				NA		0.0714			NA							NA
Nickel	NA	1/8	3/7		NA	1	1	0.4667	NA	0.4416	Gehan	Test	NA	11.3	5.09			NA							NA
Potassium	N	6/8	7/7	0.2667	N	1	1	0.4667	N	0.5521			N	1830	1880			NA	normal	gamma					NA
Sodium	N	8/8	6/6		NA	1	1	0.4286	N	0.9461			N	20100	13700			NA	normal	gamma					NA
Vanadium	NA	0/8	2/5		NA	2	2	0.1282	NA				NA		19.3			NA							NA
Zinc	NA	3/8	7/7	0.0186	**Y**	2	2	0.2000	N	0.4788	Gehan	Test	NA	5.28	43.3			NA	normal	lognor					NA
4,4'-DDD	NA	0/8	1/7	0.4667	NA				NA				NA		0.0464			NA							NA
4,4'-DDE	NA	0/8	1/7	0.4667	NA				NA				NA		0.0473			NA							NA
4,4'-DDT	NA	0/8	1/7	0.4667	NA				NA				NA		0.047			NA							NA
Aldrin	NA	0/8	1/7	0.4667	NA				NA				NA		0.0242			NA							NA
Alpha-Chlordane	NA	0/8	1/7	0.4667	NA	1	1	0.4667	NA				NA		0.0303			NA							NA
Beta-BHC	NA	0/8	1/7	0.4667	NA				NA				NA		0.0229			NA							NA
Dieldrin	NA	0/8	5/7	0.0070	**Y**	1	1	0.4667	NA				NA		0.249			NA							NA
Endosulfan I	NA	0/8	1/7	0.4667	NA	1	1	0.4667	NA				NA		0.031			NA							NA
Endrin Aldehyde	NA	0/8	1/7	0.4667	NA	1	1	0.4667	NA				NA		0.0496			NA							NA
Heptachlor Epoxide	NA	0/8	1/7	0.4667	NA				NA				NA		0.0236			NA							NA
Methoxychlor	NA	0/8	1/7	0.4667	NA	1	1	0.4667	NA				NA		0.26			NA							NA
2-Methylnaphthalene	NA	0/8	1/7		NA				NA				NA		0.0959			NA							NA
Acenaphthylene	NA	0/8	2/7		NA				NA				NA		0.103			NA							NA
Anthracene	NA	0/8	2/7		NA				NA				NA		0.254			NA							NA
Benz(a)anthracene	NA	0/8	3/7		NA				NA				NA		0.975			NA							NA
Benzaldehyde	NA	0/0	1/7		NA				NA				NA		2.5			NA							NA
Benzo(a)pyrene	NA	0/8	3/7		NA				NA				NA		1.1			NA							NA
Benzo(b)fluoranthene	NA	0/8	3/7		NA				NA				NA		1.01			NA							NA
Benzo(g,h,i)perylene	NA	0/8	3/7		NA				NA				NA		0.721			NA							NA
Benzo(k)fluoranthene	NA	0/8	3/7		NA				NA				NA		0.771			NA							NA
Chrysene	NA	0/8	3/7		NA				NA				NA		1.16			NA							NA
Dibenz(a,h)anthracene	NA	0/8	2/7		NA				NA				NA		0.109			NA							NA
Fluoranthene	NA	0/8	3/7		NA				NA				NA		1.95			NA							NA
Indeno(1,2,3-cd)pyrene	NA	0/8	3/7		NA				NA				NA		0.803			NA							NA
Phenanthrene	NA	0/8	2/7		NA				NA				NA		0.769			NA							NA
Pyrene	NA	0/8	3/7		NA				NA				NA		1.8			NA							NA
Bromoform	NA	0/8	3/7		NA				NA				NA		0.222			NA							NA
Chloroform	NA	0/8	1/7		NA				NA				NA		0.233			NA							NA
Dibromochloromethane	NA	0/8	2/7		NA				NA				NA		0.23			NA							NA

TABLE 4-10

STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SURFACE WATER TO BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 2

Name of Test:	Detection Freq: Z or Fisher				Quantile Test				Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:	Site 12 sw Freq. > bkg. Freq.?				Majority are Site 12 sw?				Ranks of Site 12 sw > bkg.?				Site 12 sw Mean > bkg. Mean ?					Site 12 sw Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:	#ND & Pos.>=5 or use Fisher				# Site 12 sw (s) in Top r								#s>2,#b>2,>=85% Pos; both normal					#s>2,#b>2, Site 12 sw & bkg. both normally distributed						
Test Criterion:	P value <= 0.05 ?				P<=0.05 that #s>=k				P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
	bkg.	Site 12 sw	P		r	k	P		P	Test	Used		bkg.	Site 12 sw	t	t		bkg.	Site 12 sw	Std.Dev.	Std.Dev.	F	F	
Concentration > background? Y/N	Freq.	Freq.	Value	YN			Value	YN	Value			YN	Mean	Mean	Value	Table	YN	Distrib.	Distrib.	bkg.	Site 12 sw	Value	Table	YN

**** Site 12 concentrations in surface water are compared to background surface water (sw).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site surface water subgroup, this would be unlikely if the site and background data sets came from the same population
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of
background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both surface water type distributions match a "normal" shape, then it can be concluded that the site data set
belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both surface water type distributions match a "normal" shape, then it can be concluded that the site and background data sets
belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 12 sw to bkg. surface water. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 12 sw > bkg.) for each chemical appears at the left and is based on four criteria:
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results.
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES.
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies on
detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.)
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 12 sw (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 12 sw results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 12 sw > bkg. with 95 % confidence.
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 12 sw and bkg. data set are comprised of Site 12 sw data if both populations are in fact equal.

TABLE 4-11

COMPARISON OF SURFACE WATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 3

Sample ID:	AWQC	AWQC	AWQC	PADEP	PADEP	12SW01		12SW02		12SW02-D		12SW03		12SW04		12SW05		12SW07		12SW08		12SW08-D	
Sample Date:	CCC	Ingestion of	Ingestion	WQC	Human	01/14/10		01/18/10		01/18/10		01/20/10		01/20/10		01/21/10		01/21/10		01/21/10		01/21/10	
Duplicate:		Water and	of Organism	CCC	Health			12SW02-D		12SW02												12SW08	
		Organism			Criteria																		
TOTAL INORGANICS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L			
Aluminum	**87**	NA	NA	NA	NA	34.2	U	187	B	187	B	35.6	B	82.1	B	168	B	31800		2700		NA	
Antimony	NA	**5.6**	640	220	5.6	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	4.7		2.9	U	NA	
Arsenic	150	**0.018**	0.14	150	10	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	10.6		2.9	U	NA	
Barium	NA	**1000**	NA	4100	2400	193	J	115	J	117	J	173	J	68	J	84.9	J	434	J	49.9	J	NA	
Beryllium	NA	**4**	NA	NA	NA	0.23	U	0.32	B	0.31	B	0.27	B	0.23	U	0.23	U	3.1		0.52	B	NA	
Cadmium	**0.25**	5	NA	0.25	NA	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	1.1		0.34	U	NA	
Calcium	NA	NA	NA	NA	NA	28500		26600		26300		27000		28400		31900		39900		12800		NA	
Chromium	**11**	100	NA	74	NA	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	37.8		1.9		NA	
Cobalt	NA	NA	NA	**19**	NA	2.7	B	1.2	B	1.2	B	2.3	B	0.75	U	0.75	U	32.6		1.3	B	NA	
Copper	NA	**1300**	NA	NA	NA	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	57.4		6.6		NA	
Iron	**1000**	NA	NA	NA	NA	565		656		665		889		120	K	190	K	44700		2760		NA	
Lead	**2.5**	NA	NA	2.5	NA	1.8	U	2.3		2.5		1.8	U	1.8	U	3.6		88		10.6		NA	
Magnesium	NA	NA	NA	NA	NA	11900		8730		8630		10800		11400		12700		13100		2040		NA	
Manganese	NA	**50**	100	NA	NA	2100	J	990	J	1010	J	1660	J	16.4	J	16.7	J	1990	J	114	J	NA	
Mercury	0.77	NA	NA	0.77	**0.05**	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.2		0.1	U	NA	
Nickel	**52**	610	4600	52	610	0.96	U	0.96	U	0.97		0.96	U	0.96	U	0.96	U	31.8		1.2		NA	
Potassium	NA	NA	NA	NA	NA	1140	J	1970	J	1960	J	1450	J	981	J	905	J	4460	J	2280	J	NA	
Sodium	NA	NA	NA	NA	NA	11600		37300		37900		11800		8720		8090		4200		1490	B	NA	
Vanadium	NA	NA	NA	**100**	NA	0.68	U	1	B	1.4	B	0.75	B	0.68	U	0.68	U	88.8		6.5		NA	
Zinc	**120**	7400	26000	120	NA	1.7	L	2	L	1.9	L	1	L	4.6	L	2.9	L	253	L	38.1	L	NA	
Cyanide	**5.2**	140	140	5.2	140	3.6	L	48.8	J	3	UJ	6.8	L	3	UL	6	L	3	UL	3.2	L	NA	
DISSOLVED INORGANICS	ug/L	ug/L	ug/L	ug/L	ug/L													ug/L		ug/L		ug/L	
Aluminum	**87**	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		270		69.2	B	80.3	B
Barium	NA	**1000**	NA	4100	2400	NA		NA		NA		NA		NA		NA		51.2		20.5		20.9	
Calcium	NA	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		25600		10200		10500	
Cobalt	NA	NA	NA	**19**	NA	NA		NA		NA		NA		NA		NA		2.6		0.75	U	0.75	U
Copper	NA	**1300**	NA	NA	NA	NA		NA		NA		NA		NA		NA		1.5	U	1.9		2.4	
Iron	**1000**	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		370		105		77.8	
Magnesium	NA	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		7760		1700		1740	
Manganese	NA	**50**	100	NA	NA	NA		NA		NA		NA		NA		NA		845		19		19.3	
Potassium	NA	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		2120	J	2160	J	2220	J
Selenium	5	170	4200	**4.6**	NA	NA		NA		NA		NA		NA		NA		4.5	J	3.6	UL	3.6	UL
Sodium	NA	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		3640		1220		1210	
Zinc	**120**	7400	26000	120	NA	NA		NA		NA		NA		NA		NA		2.2		2.7	J	8.2	J

TABLE 4-11

COMPARISON OF SURFACE WATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 3

Sample ID:	AWQC	AWQC	AWQC	PADEP	PADEP	12SW01		12SW02		12SW02-D		12SW03		12SW04		12SW05		12SW07		12SW08		12SW08-D
Sample Date:	CCC	Ingestion of	Ingestion	WQC	Human	01/14/10		01/18/10		01/18/10		01/20/10		01/20/10		01/21/10		01/21/10		01/21/10		01/21/10
Duplicate:		Water and	of Organism	CCC	Health			12SW02-D		12SW02												12SW08
		Organism			Criteria																	
SEMIVOLATILES	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		
Benzaldehyde	NA	NA	NA	NA	NA	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	1.5	J	5	U	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	0.22	U	0.21	U	0.22	U	0.21	U	0.22	U	0.22	U	0.029	J	0.2	U	NA
Acenaphthylene	NA	NA	NA	NA	NA	0.22	U	0.035	J	0.037	J	0.21	U	0.22	U	0.22	U	0.15	J	0.2	U	NA
Anthracene	NA	**8300**	40000	NA	8300	0.22	U	0.045	J	0.041	J	0.21	U	0.22	U	0.22	U	1.2	J	0.2	U	NA
Benz(a)anthracene	NA	**0.0038**	0.018	0.1	0.0038	0.22	U	0.043	J	0.047	J	0.21	U	0.22	U	0.22	U	6.3		0.045	J	NA
Benzo(a)pyrene	NA	**0.0038**	0.018	NA	0.0038	0.22	U	0.12	J	0.12	J	0.21	U	0.22	U	0.22	U	7.1		0.049	J	NA
Benzo(b)fluoranthene	NA	**0.0038**	0.018	NA	NA	0.22	U	0.12	J	0.11	J	0.21	U	0.22	U	0.22	U	6.5		0.053	J	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	0.22	U	0.17	J	0.19	J	0.21	U	0.22	U	0.22	U	4.4	J	0.033	J	NA
Benzo(k)fluoranthene	NA	**0.0038**	0.018	NA	0.0038	0.22	U	0.11	J	0.12	J	0.21	U	0.22	U	0.22	U	4.8	J	0.047	J	NA
Chrysene	NA	**0.0038**	0.018	NA	0.0038	0.22	U	0.066	J	0.064	J	0.21	U	0.22	U	0.22	U	7.6		0.05	J	NA
Dibenz(a,h)anthracene	NA	**0.0038**	0.018	NA	0.0038	0.22	U	0.02	J	0.022	J	0.21	U	0.22	U	0.22	U	0.21	J	0.2	U	NA
Fluoranthene	NA	130	140	**40**	130	0.22	U	0.078	J	0.084	J	0.21	U	0.22	U	0.22	U	13		0.1	J	NA
Indeno(1,2,3-cd)pyrene	NA	**0.0038**	0.018	NA	0.0038	0.22	U	0.13	J	0.17	J	0.21	U	0.22	U	0.22	U	5	J	0.038	J	NA
Phenanthrene	NA	NA	NA	**1**	NA	0.22	U	0.21	U	0.22	U	0.21	U	0.22	U	0.22	U	4.8	J	0.04	J	NA
Pyrene	NA	**830**	4000	NA	830	0.22	U	0.098	J	0.11	J	0.21	U	0.22	U	0.22	U	12		0.079	J	NA
VOLATILES	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		
Bromoform	NA	**4.3**	140	370	4.3	0.17	J	0.22	J	0.19	J	0.18	J	0.5	U	0.5	U	0.5	U	0.5	U	NA
Chloroform	NA	**5.7**	470	390	5.7	0.5	U	0.14	J	0.12	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA
Dibromochloromethane	NA	NA	NA	NA	NA	0.5	U	0.24	J	0.2	J	0.14	J	0.5	U	0.5	U	0.5	U	0.5	U	NA
PESTICIDES/PCBS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		
4,4'-DDD	NA	**0.00031**	0.00031	0.001	0.00031	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.015	J	0.1	U	NA
4,4'-DDE	NA	**0.00022**	0.00022	0.001	0.00022	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.021	J	0.1	U	NA
4,4'-DDT	0.001	**0.00022**	0.00022	0.001	0.00022	0.11	U	0.11	U	0.11	U	0.1	UJ	0.1	UJ	0.1	UJ	0.019	J	0.1	UJ	NA
Aldrin	NA	**0.000049**	0.00005	0.1	0.000049	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.015	J	0.05	U	NA
Alpha-Chlordane	0.0043	**0.0008**	0.00081	0.0043	0.0008	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.058	J	0.05	U	NA
Beta-BHC	NA	**0.0091**	0.017	NA	0.0091	0.054	U	0.007	J	0.0089	J	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	NA
Dieldrin	0.056	**0.000052**	0.000054	0.056	0.000052	0.0072	J	0.0057	J	0.0066	J	0.0029	J	0.1	U	0.1	U	1.6		0.029	J	NA
Endosulfan I	**0.056**	NA	NA	0.056	62	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.063	J	0.05	U	NA
Endrin Aldehyde	NA	**0.29**	0.3	NA	0.29	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.037	J	0.1	U	NA
Heptachlor Epoxide	0.0038	**0.000039**	0.000039	0.0038	0.000039	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.056	U	0.0079	J	NA
Methoxychlor	**0.03**	100	NA	NA	NA	0.54	U	0.56	U	0.53	U	0.5	U	0.5	U	0.5	U	0.28	J	0.5	U	NA

TABLE 4-11

COMPARISON OF SURFACE WATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.
NA -- No result is available/applicable for this parameter in this sample.
-- Shading indicates values that exceeded the screening criteria

Database source file: C:\AASTRSK\STATINDA\WG12SW.DBF data retrieved on: 07/09/12

TABLE 4-12

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 SEDIMENT VERSUS BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Background Sediment Samples					Site 12 Sediment Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
Aluminum	8/8	3610 -	10900	6620	BGSD03-DUP 03/13/97	8/8	5400 -	16700	9800	12SD06
Antimony	0/5	-				8/8	0.47 J -	2.2 J	1.02	12SD08
Arsenic	8/8	3.2 -	7.2	4.55	BGSD01 03/13/97	8/8	2.8 -	7.2	4.24	12SD06
Barium	8/8	54.6 -	179	98.2	BGSD03-DUP 03/13/97	8/8	58.2 -	838	193	12SD02
Beryllium	8/8	0.52 -	1.3	0.878	BGSD03-DUP 03/13/97	8/8	0.43 -	1.2 K	0.751	12SD02
Cadmium	0/8	-				8/8	0.07 -	2.1	0.64	12SD02
Calcium	8/8	744 -	18200	4980	BGSD06 03/13/97	8/8	717 -	5970	2760	12SD03
Chromium	8/8	6.8 -	34.5	15.7	BGSD01 03/13/97	8/8	11 -	22.3	16	12SD06
Cobalt	8/8	4.5 -	12.4	7.21	BGSD01 03/13/97	8/8	3.4 -	37.1	10.4	12SD02
Copper	8/8	5.8 -	27.8	13.4	BGSD01 03/13/97	8/8	7.2 -	44.7	17.5	12SD02
Iron	8/8	9540 -	35400	16500	BGSD01 03/13/97	8/8	10800 L -	24000 L	16800	12SD02
Lead	8/8	6.4 -	28.4	15.3	BGSD03-DUP 03/13/97	8/8	14.9 -	90	49.5	12SD04
Magnesium	8/8	999 -	10600	3440	BGSD06 03/13/97	8/8	930 -	2740	1760	12SD03
Manganese	8/8	376 -	759	514	BGSD01 03/13/97	8/8	129 L -	17400 L	2790	12SD02
Mercury	0/8	-				7/8	0.023 -	0.11	0.0474	12SD08
Nickel	8/8	6.8 K -	22.7	12.5	BGSD01 03/13/97	8/8	5.5 -	28.4	11.9	12SD02
Potassium	7/8	514 -	2330	1050	BGSD01 03/13/97	8/8	356 L -	1490 L	844	12SD08
Silver	0/8	-				1/8	0.47 -	0.47	0.121	12SD02
Thallium	0/8	-				3/8	1 L -	13.3	2.27	12SD02
Vanadium	8/8	7.9 -	52.6	22.6	BGSD01 03/13/97	8/8	17 -	36.5	25.7	12SD06
Zinc	8/8	25.4 -	97.6	51.2	BGSD01 03/13/97	8/8	25 -	269	87.4	12SD02
4,4'-DDD	0/8	-				1/7	4 J -	4 J	2.76	12SD01
4,4'-DDE	0/8	-				3/7	5.2 J -	6.5 J	3.89	12SD08
4,4'-DDT	0/8	-				6/8	1.4 J -	5.2 J	2.83	12SD06
Aldrin	0/8	-				2/8	0.43 J -	0.43 J	1.05	12SD01
Alpha-BHC	0/8	-				3/6	0.63 J -	0.68 J	0.983	12SD03
Alpha-Chlordane	0/8	-				3/7	4.8 J -	12 J	4.49	12SD02
Beta-BHC	0/8	-				1/8	16 J -	16 J	4.61	12SD03-D
Delta-BHC	0/8	-				1/7	0.49 J -	0.49 J	1.12	12SD01
Dieldrin	1/8	3.1 J -	3.1 J	2.26	BGSD03 03/13/97	6/7	0.77 J -	55	20.5	12SD07
Endosulfan I	0/8	-				1/5	1.7 J -	1.7 J	1.48	12SD01
Endosulfan Sulfate	0/8	-				1/8	1.5 J -	1.5 J	2.29	12SD07
Endrin Aldehyde	0/8	-				4/7	1.5 J -	7.5 J	2.88	12SD02
Endrin Ketone	0/8	-				3/7	2.4 J -	17 J	6.24	12SD02
Gamma-Chlordane	0/8	-				3/5	3.7 J -	16 J	6.15	12SD02
Heptachlor	0/8	-				2/7	0.45 J -	1 J	1.13	12SD07
Heptachlor Epoxide	0/8	-				4/7	0.72 J -	4.5 J	1.59	12SD01
2-Methylnaphthalene	0/8	-				4/8	2.7 J -	11	184	12SD04
Acenaphthene	0/8	-				4/8	1.1 J -	200 J	174	12SD03-D
Acenaphthylene	0/8	-				6/8	2.7 J -	150 J	165	12SD03-D
Anthracene	0/8	-				8/8	2.2 J -	900	247	12SD03-D
Benz(a)anthracene	1/8	580 -	580	275	BGSD01 03/13/97	8/8	10 J -	3500 J	1090	12SD03-D
Benzo(a)pyrene	1/8	530 J -	530 J	268	BGSD01 03/13/97	8/8	13 -	3500 J	1190	12SD03-D
Benzo(b)fluoranthene	1/8	670 J -	670 J	286	BGSD01 03/13/97	8/8	14 -	4800 J	1300	12SD03-D
Benzo(g,h,i)perylene	0/8	-				8/8	10 J -	1400	521	12SD03-D
Benzo(k)fluoranthene	1/8	300 J -	300 J	240	BGSD01 03/13/97	8/8	15 -	3500 J	1350	12SD02
Bis(2-ethylhexyl) Phthalate	0/8	-				5/8	79 J -	460 J	172	12SD02
Carbazole	0/8	-				4/8	120 J -	440 J	203	12SD02
Chrysene	3/8	90 J -	640	238	BGSD01 03/13/97	8/8	15 -	4200 J	1410	12SD03-D
Di-n-butyl Phthalate	0/8	-				2/8	82 J -	340 J	199	12SD02
Dibenz(a,h)anthracene	0/8	-				8/8	2.4 J -	750	273	12SD03-D
Dibenzofuran	0/8	-				1/8	82 J -	210 J	236	12SD03-D
Fluoranthene	4/8	100 J -	510	221	BGSD01 03/13/97	8/8	33 J -	10000 J	3300	12SD03-D
Fluorene	0/8	-				7/8	0.87 J -	340 J	136	12SD03-D
Indeno(1,2,3-cd)pyrene	0/8	-				8/8	11 -	1900	680	12SD03-D
Naphthalene	0/8	-				4/8	2 J -	5.4 J	183	12SD06
Phenanthrene	1/8	260 J -	260 J	235	BGSD01 03/13/97	8/8	11 -	5800 J	1570	12SD03-D
Pyrene	4/8	100 J -	1300	315	BGSD01 03/13/97	8/8	29 J -	8600 J	2610	12SD03-D
2-Butanone	0/8	-				5/8	6.2 J -	51 J	245	12SD01
Acetone	0/8	-				5/8	59 J -	380 J	372	12SD01
Carbon Disulfide	0/0	-				2/8	1.9 J -	28 J	96.9	12SD03
Chloromethane	0/8	-				1/8	6.6 J -	6.6 J	95.6	12SD01
Methyl Acetate	0/0	-				7/8	12 J -	2300 J	625	12SD01

Notes:

Units are mg/kg for inorganics, ug/kg for organics.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE 4-13

STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SEDIMENT TO BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 3

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 12 sd Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 12 sd? # Site 12 sd (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 12 sd > bkg.? P value <=0.05 ?				Student's or Satterthwaite T-test Site 12 sd Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both normal t-Value > t-Table					Bartlett's Test for Equal Standard Deviations Site 12 sd Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 12 sd & bkg. both normally distributed F-Value<=F-Table (Students T). If not, Satterthwaite					
Concentration > background?	Y/N	bkg. Freq.	Site 12 sd Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean	Site 12 sd Mean	t Value	t Table	YN	bkg. Distrib.	Site 12 sd Distrib.	Std.Dev. bkg.	Std.Dev. Site 12 sd	F Value	F Table	YN
Aluminum	**Y**	8/8	8/8		NA	3	3	0.1000	N	0.0652			N	6620	9800	2.1119	1.7613	**Y**	normal	normal	1950	3780	2.6725	3.8563	**Y**
Antimony	NA	0/5	8/8	0.0008	**Y**				NA				NA		1.02			NA							NA
Arsenic	N	8/8	8/8		NA	3	2	0.5000	N	0.8428			N	4.55	4.24	-0.4210	1.7613	N	normal	normal	1.26	1.63	0.4332	3.8563	**Y**
Barium	N	8/8	8/8		NA	2	2	0.2333	N	0.3227			N	98.2	193			NA	normal	nonpara					NA
Beryllium	N	8/8	8/8		NA	8	4	0.6904	N	0.8437			N	0.878	0.751	-0.9382	1.7613	N	normal	normal	0.28	0.261	0.0339	3.8563	**Y**
Cadmium	NA	0/8	8/8	0.0001	**Y**	1	1	0.5000	NA				NA		0.64			NA							NA
Calcium	N	8/8	8/8		NA	8	6	0.0660	N	0.2869			N	4980	2760			NA	nonpara	normal					NA
Chromium	**Y**	8/8	8/8		NA	12	8	0.0385	**Y**	0.1172			N	15.7	16			NA	gamma	normal					NA
Cobalt	N	8/8	8/8		NA	7	5	0.1573	N	0.3605			N	7.21	10.4			NA	normal	lognor					NA
Copper	N	8/8	8/8		NA	7	5	0.1573	N	0.2293			N	13.4	17.5			NA	normal	gamma					NA
Iron	**Y**	8/8	8/8		NA	9	7	0.0203	**Y**	0.0926			N	16500	16800			NA	lognor	normal					NA
Lead	**Y**	8/8	8/8		NA	6	6	0.0035	**Y**	0.0015			**Y**	15.3	49.5	3.8556	1.8595	**Y**	normal	normal	7.34	24	7.6751	3.8563	N
Magnesium	N	8/8	8/8		NA	7	5	0.1573	N	0.3992			N	3440	1760			NA	nonpara	normal					NA
Manganese	N	8/8	8/8		NA	3	3	0.1000	N	0.7131			N	514	2790			NA	gamma	gamma					NA
Mercury	NA	0/8	7/8		NA				NA				NA		0.0474			NA							NA
Nickel	N	8/8	8/8		NA	7	4	0.5000	N	0.6500			N	12.5	11.9	-0.1838	1.7613	N	normal	normal	5.74	7.23	0.3463	3.8563	**Y**
Potassium	N	7/8	8/8	0.5000	N	8	5	0.3096	N	0.5479			N	1050	844	-0.6306	1.7613	N	normal	normal	817	413	2.8447	3.8563	**Y**
Silver	NA	0/8	1/8		NA				NA				NA		0.121			NA							NA
Thallium	NA	0/8	3/8		NA	3	3	0.1000	NA				NA		2.27			NA							NA
Vanadium	**Y**	8/8	8/8		NA	12	8	0.0385	**Y**	0.0930			N	22.6	25.7	0.4984	1.8595	N	normal	normal	16.4	5.63	6.4182	3.8563	N
Zinc	N	8/8	8/8		NA	8	6	0.0660	N	0.1911			N	51.2	87.4	1.2426	1.8595	N	normal	normal	25.6	78.3	6.9354	3.8563	N
4,4'-DDD	NA	0/8	1/7	0.4667	N	1	1	0.4667	NA				NA		2.76			NA							NA
4,4'-DDE	NA	0/8	3/7	0.0769	N	3	3	0.0769	NA				NA		3.89			NA							NA
4,4'-DDT	**Y**	0/8	6/8	0.0035	**Y**	4	4	0.0385	**Y**				NA		2.83			NA							NA
Aldrin	NA	0/8	2/8	0.2333	N				NA				NA		1.05			NA							NA
Alpha-BHC	NA	0/8	3/6	0.0549	N				NA				NA		0.983			NA							NA
Alpha-Chlordane	NA	0/8	3/7	0.0769	N	3	3	0.0769	NA				NA		4.49			NA							NA
Beta-BHC	NA	0/8	1/8		NA	1	1	0.5000	NA				NA		4.61			NA							NA
Delta-BHC	NA	0/8	1/7	0.4667	N				NA				NA		1.12			NA							NA
Dieldrin	**Y**	1/8	6/7	0.0089	**Y**	5	5	0.0070	**Y**	0.0070	Gehan	Test	**Y**	2.26	20.5			NA							NA
Endosulfan I	NA	0/8	1/5	0.3846	N	1	1	0.3846	NA				NA		1.48			NA							NA

TABLE 4-13

STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SEDIMENT TO BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Name of Test: / Question Posed: / Assumptions Valid: / Test Criterion:		Detection Freq: Z or Fisher Site 12 sd Freq. > bkg. Freq.? #ND & Pos.>=5 or use Fisher P value <= 0.05 ?				Quantile Test Majority are Site 12 sd? # Site 12 sd (s) in Top r P<=0.05 that #s>=k				Mann-Whitney/Gehan Ranks of Site 12 sd > bkg.? P value <=0.05 ?				Student's or Satterthwaite T-test Site 12 sd Mean > bkg. Mean ? #s>2,#b>2,>=85% Pos; both normal t-Value > t-Table				Bartlett's Test for Equal Standard Deviations Site 12 sd Standard Deviation =bkg. Std.Dev.? #s>2,#b>2, Site 12 sd & bkg. both normally distributed F-Value<=F-Table (Students T). If not, Satterthwaite						
Concentration > background? Y/N		bkg. Freq.	Site 12 sd Freq.	P Value	YN	r	k	P Value	YN	P Value	Test	Used	YN	bkg. Mean	Site 12 sd Mean	t Value	t Table	YN	bkg. Distrib.	Site 12 sd Distrib.	Std.Dev. bkg.	Std.Dev. Site 12 sd	F Value	F Table	YN
Endosulfan Sulfate	NA	0/8	1/8	0.5000	N				NA				NA		2.29			NA							NA
Endrin Aldehyde	NA	0/8	4/7	0.0256	Y	1	1	0.4667	NA				NA		2.88			NA							NA
Endrin Ketone	NA	0/8	3/7	0.0769	N	3	3	0.0769	NA				NA		6.24			NA							NA
Gamma-Chlordane	**Y**	0/8	3/5	0.0350	**Y**	3	3	0.0350	**Y**				NA		6.15			NA							NA
Heptachlor	NA	0/8	2/7	0.2000	N				NA				NA		1.13			NA							NA
Heptachlor Epoxide	NA	0/8	4/7	0.0256	**Y**	3	3	0.0769	NA				NA		1.59			NA							NA
2-Methylnaphthalene	NA	0/8	4/8		NA				NA				NA		184			NA							NA
Acenaphthene	NA	0/8	4/8		NA				NA				NA		174			NA							NA
Acenaphthylene	NA	0/8	6/8	0.0035	**Y**				NA				NA		165			NA							NA
Anthracene	NA	0/8	8/8	0.0001	**Y**	3	3	0.1000	NA				NA		247			NA							NA
Benz(a)anthracene	**Y**	1/8	8/8	0.0007	**Y**	4	4	0.0385	**Y**	0.0096	Gehan	Test	**Y**	275	1090			NA							NA
Benzo(a)pyrene	**Y**	1/8	8/8	0.0007	**Y**	4	4	0.0385	**Y**	0.0087	Gehan	Test	**Y**	268	1190			NA							NA
Benzo(b)fluoranthene	**Y**	1/8	8/8	0.0007	**Y**	7	6	0.0203	**Y**	0.0085	Gehan	Test	**Y**	286	1300			NA							NA
Benzo(g,h,i)perylene	**Y**	0/8	8/8	0.0001	**Y**	4	4	0.0385	**Y**				NA		521			NA							NA
Benzo(k)fluoranthene	**Y**	1/8	8/8	0.0007	**Y**	5	5	0.0128	**Y**	0.0057	Gehan	Test	**Y**	240	1350			NA							NA
Bis(2-ethylhexyl) Phthalate	NA	0/8	5/8	0.0128	**Y**	2	2	0.2333	NA				NA		172			NA							NA
Carbazole	NA	0/8	4/8	0.0385	**Y**	2	2	0.2333	NA				NA		203			NA							NA
Chrysene	**Y**	3/8	8/8	0.0128	**Y**	7	6	0.0203	**Y**	0.0145	Gehan	Test	**Y**	238	1410			NA							NA
Di-n-butyl Phthalate	NA	0/8	2/8		NA	1	1	0.5000	NA				NA		199			NA							NA
Dibenz(a,h)anthracene	NA	0/8	8/8	0.0001	**Y**	3	3	0.1000	NA				NA		273			NA							NA
Dibenzofuran	NA	0/8	1/8		NA				NA				NA		236			NA							NA
Fluoranthene	**Y**	4/8	8/8	0.0385	**Y**	5	5	0.0128	**Y**	0.0206	Gehan	Test	**Y**	221	3300			NA							NA
Fluorene	NA	0/8	7/8	0.0007	**Y**				NA				NA		136			NA							NA
Indeno(1,2,3-cd)pyrene	**Y**	0/8	8/8	0.0001	**Y**	5	5	0.0128	**Y**				NA		680			NA							NA
Naphthalene	NA	0/8	4/8		NA				NA				NA		183			NA							NA
Phenanthrene	**Y**	1/8	8/8	0.0007	**Y**	5	5	0.0128	**Y**	0.0061	Gehan	Test	**Y**	235	1570			NA							NA
Pyrene	**Y**	4/8	8/8	0.0385	**Y**	7	6	0.0203	**Y**	0.0256	Gehan	Test	**Y**	315	2610			NA							NA
2-Butanone	NA	0/8	5/8		NA				NA				NA		245			NA							NA
Acetone	NA	0/8	5/8		NA				NA				NA		372			NA							NA
Carbon Disulfide	NA	0/0	2/8		NA				NA				NA		96.9			NA							NA
Chloromethane	NA	0/8	1/8		NA				NA				NA		95.6			NA							NA
Methyl Acetate	NA	0/0	7/8		NA				NA				NA		625			NA							NA

TABLE 4-13

STATISTICAL COMPARISON OF CONCENTRATIONS IN SITE 12 SEDIMENT TO BACKGROUND
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Name of Test:	Detection Freq: Z or Fisher				Quantile Test				Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:	Site 12 sd Freq. > bkg. Freq.?				Majority are Site 12 sd?				Ranks of Site 12 sd > bkg.?				Site 12 sd Mean > bkg. Mean ?					Site 12 sd Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:	#ND & Pos.>=5 or use Fisher				# Site 12 sd (s) in Top r								#s>2,#b>2,>=85% Pos; both normal					#s>2,#b>2, Site 12 sd & bkg. both normally distributed						
Test Criterion:	P value <= 0.05 ?				P<=0.05 that #s>=k				P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
	bkg.	Site 12 sd	P	YN	r	k	P	YN	P	Test	Used	YN	bkg.	Site 12 sd	t	t	YN	bkg.	Site 12 sd	Std.Dev.	Std.Dev.	F	F	YN
Concentration > background? Y/N	Freq.	Freq.	Value				Value		Value				Mean	Mean	Value	Table		Distrib.	Distrib.	bkg.	Site 12 sd	Value	Table	

**** Site 12 concentrations in sediment are compared to background sediment (sd).**

Interpretation of Z-Test or Fisher's Exact Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data's detection frequency is greater than the background data detection frequency.
Interpretation of Quantile Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more upper rank values relative to the background data set.
Since "k" samples from the top "r" ranks of the combined data set belonged to the site sediment subgroup, this would be unlikely if the site and background data sets came from the same population.
Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the site data set has a distribution with more values ranked greater than the ranks of
background data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.
Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both sediment type distributions match a "normal" shape, then it can be concluded that the site data set
belongs to a population having a greater mean relative to the mean of the background population.
Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both sediment type distributions match a "normal" shape, then it can be concluded that the site and background data sets
belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 12 sd to bkg. sediment. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 12 sd > bkg.) for each chemical appears at the left and is based on four criteria
(1) Overall decision is YES if any one of the Mann-Whitney/Gehan, Quantile Test, or T-Test is YES, regardless of other test results
(2) Overall decision is NO if at least one of Mann-Whitney/Gehan, Quantile Test, or T-Test is NO, and none of the aforementioned tests are YES
(3) Overall decision is YES/NO if Z/Fisher Test is YES/NO, respectively, and other tests are NA. Z-test is treated as lowest priority since it relies o
detection frequency, not magnitude of results.
(4) Overall decision is NA if all tests are NA. (Might occur if too few detections to be capable of detecting a statistically significant difference even if one exists.
NOTE: This decision scheme does not utilize the UTL test because random false positive exceedances of the background UTL are probable if there are many site samples, even if site distribution matches background.

* Low power because either N is small or very low frequency of detected values with detections close to the detection limits, which interferes with the power of statistical tests to detect a significant difference between groups

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 12 sd (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 12 sd results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 12 sd > bkg. with 95 % confidence
r,k	The Quantile test calculates the probability that k or more samples from the top r ranks of the combined Site 12 sd and bkg. data set are comprised of Site 12 sd data if both populations are in fact equal.

TABLE 4-14

COMPARISON OF SEDIMENT ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
FORMER NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	EPA Region 3	12SD01		12SD02		12SD03		12SD03-D		12SD04		12SD05		12SD06		12SD07		12SD08	
Sample Date:	BTAG	01/14/10		01/15/10		01/20/10		01/20/10		01/20/10		01/20/10		01/20/10		01/20/10		01/20/10	
Dup Of:	Freshwater							12SD03											
	Sediment																		
INORGANICS	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Aluminum	NA	5400		7780		6880		7170		7580		8810		16700		12300		12800	
Antimony	2	0.73	J	1.1	J	0.47	J	0.55	R	0.71	L	0.8	J	0.84	J	1.3	J	2.2	J
Arsenic	9.8	3.5		6.2		3.4		3.3		3		4.6		7.2		3.3		2.8	
Barium	NA	186		838		95.5		92.5		58.2		78.1		96.6		85.2		111	
Beryllium	NA	0.52	K	1.2	K	0.77	K	0.94	K	0.43		0.51	K	0.91	K	0.69	K	0.89	K
Cadmium	0.99	0.58	K	2.1		0.47	R	0.76	K	0.07		0.39	K	0.37	K	0.29	K	0.56	K
Calcium	NA	2030		3680		5970		3790		717		933		2020		2480		5360	
Chromium	43.4	11		18.7		14.8		15.4		11.7		14.1		22.3		16.6		18.1	
Cobalt	50	7.9		37.1		8.6		9.2		3.4		4.7		7.6		7.3		6.1	
Copper	31.6	15.8		44.7		9.7		12.6		7.2		8.8		16.8		16.4		19	
Iron	20000	15200	L	24000	L	18000	L	20200	L	10800	L	15800	L	18400	L	15500	L	15800	L
Lead	35.8	52.8		45.8		14.9		17		90		72		54.7		24.5		40.3	
Magnesium	NA	1360		2390		2740		2390		930		1150		2020		1680		1950	
Manganese	460	2690	L	17400	L	942	L	947	L	129	L	228	L	463	L	281	L	184	L
Mercury	0.18	0.034		0.03		0.023		0.02	U	0.026		0.019	U	0.087		0.066		0.11	
Nickel	22.7	9.1		28.4		9.3		9.5		5.5		6.1		13.4		10.3		12.6	
Potassium	NA	441	L	1060	L	1180	L	1240	L	356	L	409	L	887	L	898	L	1490	L
Silver	1	0.13	U	0.47		0.12	U	0.11	U	0.12	U	0.12	U	0.15	U	0.17	U	0.19	U
Thallium	NA	1.7	L	13.3		1	L	1.2	L	0.66	U	0.68	U	0.82	U	0.95	U	1	U
Vanadium	NA	17		26.3		23.2		23.7		21.4		26.4		36.5		27.3		27.2	
Zinc	121	71.9		269		45		69.7		25		26.1		80.2		61.4		108	
SEMIVOLATILES	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	20.2	930	U	1200	U	420	U	430	U	11		2.7	J	9.2	J	4.4	J	340	U
Acenaphthene	6.7	930	U	1200	U	85	J	200	J	1.1	J	11	U	3.4	J	6	J	340	U
Acenaphthylene	5.9	930	U	1200	U	63	J	150	J	4.6	J	2.7	J	13	J	23		81	J
Anthracene	57.2	570	J	460	J	360	J	900		4.8	J	2.2	J	21		37		210	J
Benz(a)anthracene	108	2100		2500		1700	J	3500	J	27		10	J	130		260		960	
Benzo(a)pyrene	150	2200		3000		1900	J	3500	J	30		13		160		250		990	
Benzo(b)fluoranthene	NA	2100		3000		2100	J	4800	J	37		14		200		280		1100	
Benzo(g,h,i)perylene	170	990	J	1300	J	1000		1400		19		10	J	93		130		350	
Benzo(k)fluoranthene	240	2800	J	3500	J	2100		3200		26	J	15		150	J	210	J	1100	
Bis(2-ethylhexyl)phthalate	180	230	J	460	J	110	J	160	J	220	U	220	U	280	UL	79	J	110	J
Carbazole	NA	360	J	440	J	140	J	240	J	220	U	220	U	280	UL	300	UL	120	J
Chrysene	166	2800		3600		2200	J	4200	J	29		15		140		220		1000	
Di-n-butylphthalate	6470	930	U	340	J	130	J	82	J	220	U	220	U	280	UL	300	UL	340	U
Dibenz(a,h)anthracene	33	540	J	700	J	450		750		4.9	J	2.4	J	25		38		190	J
Dibenzofuran	415	930	U	1200	U	82	J	210	J	220	U	220	U	280	UL	300	UL	340	U
Fluoranthene	423	7000		8100		5000	J	10000	J	57		25		390		530	J	2400	
Fluorene	77.4	170	J	1200	U	160	J	340	J	1.8	J	0.87	J	7	J	9.4	J	47	J
Indeno(1,2,3-cd)pyrene	17	1300		1700		1200		1900		28		11		140		200		480	
Naphthalene	176	930	U	1200	U	420	U	430	U	4.4	J	2	J	5.4	J	3.3	J	340	U

TABLE 4-14

COMPARISON OF SEDIMENT ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
FORMER NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 3

Sample ID:	EPA Region 3	12SD01		12SD02		12SD03		12SD03-D		12SD04		12SD05		12SD06		12SD07		12SD08	
Sample Date:	BTAG	01/14/10		01/15/10		01/20/10		01/20/10		01/20/10		01/20/10		01/20/10		01/20/10		01/20/10	
Dup Of:	Freshwater							12SD03											
	Sediment																		
Phenanthrene	204	3300		3700		2800	J	5800	J	26		11		110		150		720	
Pyrene	195	5000		6300		4100	J	8600	J	48		21		250		400	J	2000	
TOTAL PAHS	1610	30870		37860		25218		49240		359.6		157.87		1777		2751.1		11628	
VOLATILES	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	NA	51	J	800	U	7.9	J	6.2	J	12	J	1400	U	20	J	1500	U	17	J
Acetone	NA	380	J	800	U	72	J	59	J	150	J	1400	U	270	J	1500	U	260	J
Carbon Disulfide	0.851	5.4	J	320	U	28	J	1.9	J	7.1	UJ	570	U	9.1	U	590	U	14	U
Chloromethane	NA	6.6	J	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Methyl Acetate	NA	2300	J	330		5.6	UJ	6.2	U	54	J	670		130		1500		12	J
PESTICIDES	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.88	4	J	7.1	R	1.7	R	4.2	UJ	4.3	U	4.2	U	5.4	U	5.9	UJ	6.6	U
4,4'-DDE	3.16	4.5	UJ	5.7	R	8.8	R	6.1	L	4.3	U	4.2	U	5.2	J	5.9	UJ	6.5	J
4,4'-DDT	4.16	3.2	J	2.6	J	1.9	J	1.4	J	4.3	U	4.2	U	5.2	J	1.6	J	4.1	J
Total DDT	5.28	7.2		2.6		1.9		7.5		4.3	U	4.2	U	10.4		1.6		10.6	
Aldrin	2	0.43	J	2.3	U	2.1	UJ	2.2	UJ	2.2	U	2.2	U	2.8	U	0.43	J	3.4	U
Alpha-BHC	6	1.8	R	2.9	R	0.68	J	2.2	UJ	2.2	U	2.2	U	0.63	J	3	UJ	0.68	J
Alpha-Chlordane	3.24	8.4	J	12	J	4.8	J	6.4	J	2.2	U	2.2	U	4.9	R	3	UJ	3.4	U
Beta-BHC	5	12	U	23	U	15	R	16	J	1.1	U	1.1	U	1.4	U	1.5	UJ	1.7	U
Delta-BHC	6400	0.49	J	2.3	U	1.8	R	2.2	UJ	2.2	U	2.2	U	2.8	U	3	UJ	2.3	R
Dieldrin	1.9	23	J	83	R	5.2	J	8.4	L	0.77	J	4.2	U	17		55		39	
Endosulfan I	2.9	1.7	J	5	R	1.9	R	2.7	R	2.4	R	2.2	U	2.8	U	3	UJ	3.4	U
Endosulfan II	14	4.5	UJ	4.5	R	4.1	UJ	4.2	UJ	4.3	U	4.2	U	2.6	R	5.9	UJ	3.4	R
Endosulfan Sulfate	5.4	4.5	UJ	4.5	U	4.1	UJ	4.2	UJ	4.3	U	4.2	U	5.4	U	1.5	J	6.6	U
Endrin Aldehyde	2.22	7.8	R	7.5	J	2.3	J	1.8	J	4.3	U	4.2	U	1.5	J	5.9	UJ	1.9	J
Endrin Ketone	2.22	14	J	17	J	4.4	R	5.9	R	4.3	U	4.2	U	5.4	U	2.4	J	6.6	U
Gamma-Chlordane	3.24	7.9	J	16	J	5.6	J	3.7	J	2.2	U	2.2	U	1.4	B	1	B	3	B
Heptachlor	68	2.3	UJ	2.1	R	2.1	UJ	2.2	UJ	2.2	U	0.45	J	2.8	U	1	J	3.4	U
Heptachlor Epoxide	2.47	4.5	J	6	R	2.3	R	2.2	UJ	2.2	U	2.2	U	0.72	J	1.3	J	1.3	J
TOC	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Total Organic Carbon	NA	12240		14570		8796		7092		8997		13190		32800		57130		86860	

TABLE 4-14

COMPARISON OF SEDIMENT ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
FORMER NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
R -- Positive result is considered unusable due to exceedance of technical quality control criteria.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

Database source file: H:\WILLOWGROVE\SITE 12\DATA SUMMARIES\WG12SO.DBF data retrieved on: 04/16/10

TABLE 4-15

OCCURRENCE AND DISTRIBUTION OF ORGANICS AND INORGANICS IN SITE 12 WELLS VERSUS UPGRADIENT WELL SAMPLES
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Upgradient Groundwater Samples					Site 12 Groundwater Samples				
	Frequency of	Range of Positive Detections		Mean of	Sampling Round and	Frequency of	Range of Positive Detections		Mean of	Sampling Round and
Substance	Detection	Minimum	Maximum	All Data	Location of Maximum	Detection	Minimum	Maximum	All Data	Location of Maximum
Total 2,3,7,8-TCDD Equivalents	0/0	-				4/4	0.000045 -	0.00147	0.000702	12MW01S-20120307
Aluminum	1/2	86.5 -	86.5	49.1	02MW02S	7/7	38.1 K -	8570	1530	12MW02O-20120306
Arsenic	1/2	1.3 -	1.3	0.925	02MW02S	3/8	0.23 J -	2.7	0.609	12MW02O-20120306
Barium	2/2	94.8 -	105	100	02MW02S	8/8	29.7 -	310	130	12MW02S-20120306
Cadmium	1/2	0.15 J -	0.15 J	1.33	02MW02S-20090514	4/8	0.14 J -	0.21 J	0.211	12MW03S-20120306
Calcium	2/2	9000 -	10600	9800	02MW02S	8/8	199 J -	47300	33300	12MW01S-20120307
Chromium	1/2	1.8 J -	1.8 J	2.15	02MW02S-20090514	8/8	2.6 J -	24.6 J	8.14	12MW03O-20120306
Cobalt	1/2	0.21 J -	0.21 J	1.36	02MW02S-20090514	7/7	0.51 J -	3.6	1.74	12MW02O-20120306
Copper	1/2	1.4 J -	1.4 J	3.2	02MW02S-20090514	8/8	0.91 J -	7.1	2.38	12MW02O-20120306
Iron	2/2	36.1 J -	3190	1610	02MW02S	8/8	168 J -	12200	2120	12MW02O-20120306
Lead	2/2	0.43 J -	1.5	0.965	02MW02S	4/4	0.81 J -	5.1	1.91	12MW02O-20120306
Magnesium	2/2	3090 J -	3420	3260	02MW02S	8/8	1550 -	22200	12700	12MW03O-20120306
Manganese	2/2	2.1 J -	66.2	34.2	02MW02S	8/8	21.2 -	1680	530	12MW03S-20120306-D
Nickel	1/2	2.3 -	2.3	6.15	02MW02S-20090514	8/8	2.1 J -	20.3 J	9.05	12MW03O-20120306
Potassium	1/2	722 J -	722 J	736	02MW02S-20090514	8/8	301 J -	43300	9340	12MW03O-20120306
Selenium	0/2	-				2/8	0.78 J -	0.96 J	1.16	12MW02S-20120306
Sodium	2/2	7380 -	8150	7770	02MW02S	7/7	5960 L -	17100 L	9160	12MW01O-20120307
Vanadium	0/2	-				4/8	0.32 J -	19.2	3.5	12MW02O-20120306
Zinc	1/2	10.2 -	10.2	6.35	02MW02S-20090514	8/8	7.3 J -	51.1 J	20	12MW04O-20120307
Fluoranthene	0/1	-				1/8	0.06 J -	0.062 J	0.0295	12MW03S-20120306
Phenanthrene	0/1	-				1/8	0.061 J -	0.061 J	0.0295	12MW02S-20120306
Pyrene	0/1	-				1/8	0.062 J -	0.07 J	0.0301	12MW03S-20120306-D
1,2-Dichloroethene (cis)	0/2	-				1/14	0.93 J -	0.93 J	0.299	02MW03I-20120307
Carbon Tetrachloride	0/3	-				1/14	0.61 J -	0.61 J	0.276	02MW03I-20120307
Chloroform	0/3	-				1/14	0.77 J -	0.77 J	0.287	02MW03I-20120307
Trichloroethene	0/3	-				2/14	2 -	4.1	0.65	02MW03SI-20120308

Notes:

Units are ug/L.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected among all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	02MW01I-20090513		02MW01I-20090513-D		02MW01I-20120308		02MW01S-20090513		02MW01S-20120308	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**05/13/2009**		**05/13/2009**		**03/08/2012**		**05/13/2009**		**03/08/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**			**02MW01I-20090513**							
	MCL	**DWEL**												
TOTAL INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**				**ug/L**			
Aluminum			16000	**200**	197		222		NA		23.2	U	NA	
Antimony	6	10	**6**	**6**	0.3	U	0.3	U	NA		0.3	U	NA	
Arsenic	10	10	**0.045**	10	1.2	J	1.1	U	NA		1.1	U	NA	
Barium	2000	7000	2900	**2000**	457		447		NA		167		NA	
Beryllium	4	70	16	**4**	0.033	U	0.033	U	NA		0.033	U	NA	
Cadmium	5	20	6.9	**5**	0.075	U	0.075	U	NA		0.075	U	NA	
Calcium	NA	NA	NA	NA	55600		56100		NA		31400		NA	
Chromium	100	100	**0.31**	100	1.5	J	1.3	J	NA		0.63	U	NA	
Cobalt	NA	NA	**4.7**	11	0.036	U	0.036	U	NA		0.036	U	NA	
Copper	1300	NA	**620**	1000	0.87	J	0.92	J	NA		0.76	J	NA	
Iron	NA	NA	11000	**300**	55.4		71.1		NA		5.3	U	NA	
Lead	15	NA	15	**5**	0.34	J	0.65	J	NA		0.16	J	NA	
Magnesium	NA	NA	NA	NA	14200		14100		NA		11200		NA	
Manganese	NA	1600	320	**50**	3.7		3.7		NA		0.36	J	NA	
Mercury	2	10	**1.6**	2	0.036	U	0.037	J	NA		0.036	U	NA	
Nickel	NA	700	300	**100**	0.79	J	1.3		NA		0.73	J	NA	
Potassium	NA	NA	NA	NA	891	JE	870	JE	NA		1530	E	NA	
Selenium	50	200	78	**50**	1.1	U	1.1	U	NA		1.1	U	NA	
Silver	NA	200	**71**	100	0.077	U	0.077	U	NA		0.077	U	NA	
Sodium	NA	NA	NA	NA	23200		23100		NA		11000		NA	
Thallium	2	NA	**0.16**	2	0.3	U	0.3	U	NA		0.3	U	NA	
Vanadium	NA	NA	**78**	260	1.7	U	1.7	U	NA		1.7	U	NA	
Zinc	NA	10000	4700	**2000**	4	J	12.7		NA		5.6	J	NA	
DISSOLVED INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**										
Aluminum	NA	NA	16000	**200**	NA		NA		NA		NA		NA	
Antimony	6	10	**6**	**6**	NA		NA		NA		NA		NA	
Arsenic	10	10	**0.045**	10	NA		NA		NA		NA		NA	
Barium	2000	7000	2900	**2000**	NA		NA		NA		NA		NA	
Cadmium	5	20	6.9	**5**	NA		NA		NA		NA		NA	
Calcium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Chromium	100	100	**0.31**	100	NA		NA		NA		NA		NA	
Cobalt	NA	NA	**4.7**	11	NA		NA		NA		NA		NA	
Copper	1300	NA	**620**	1000	NA		NA		NA		NA		NA	
Iron	NA	NA	11000	**300**	NA		NA		NA		NA		NA	
Lead	15	NA	15	**5**	NA		NA		NA		NA		NA	
Magnesium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Manganese	NA	1600	320	**50**	NA		NA		NA		NA		NA	
Nickel	NA	700	300	**100**	NA		NA		NA		NA		NA	
Potassium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Selenium	50	200	78	**50**	NA		NA		NA		NA		NA	
Sodium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Thallium	2	NA	**0.16**	2	NA		NA		NA		NA		NA	
Zinc	NA	10000	4700	**2000**	NA		NA		NA		NA		NA	

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	02MW01I-20090513		02MW01I-20090513-D		02MW01I-20120308		02MW01S-20090513		02MW01S-20120308	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**05/13/2009**		**05/13/2009**		**03/08/2012**		**05/13/2009**		**03/08/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**			**02MW01I-20090513**							
	MCL	**DWEL**												
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**				**ug/L**			
Anthracene	NA	10000	1300	**66**	0.05	U	0.05	U	NA		0.05	U	NA	
Bis(2-ethylhexyl)phthalate	NA	NA	**0.071**	6	0.83		0.37		NA		0.55		NA	
Caprolactam	NA	NA	**7700**	NA	0.2	U	0.2	U	NA		0.2	U	NA	
Di-n-butylphthalate	NA	4000	**670**	3700	0.22		0.25		NA		0.28		NA	
Diethylphthalate	NA	30000	**11000**	29000	0.2	U	0.2	U	NA		0.2	U	NA	
Fluoranthene	NA	NA	630	**260**	0.05	U	0.05	U	NA		0.05	U	NA	
Naphthalene	NA	700	**0.14**	100	0.05	U	0.05	U	NA		0.05	U	NA	
Phenanthrene	NA	NA	NA	**1100**	0.05	U	0.05	U	NA		0.05	U	NA	
Pyrene	NA	NA	**87**	130	0.05	U	0.05	U	NA		0.05	U	NA	
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2-Dichloroethene (cis)	70	70	**28**	70	1	U	1	U	0.5	U	1	U	0.5	U
Acetone	NA	NA	**12000**	33000	5	U	5	U	2.5	U	0.95	J	2.5	U
Carbon Tetrachloride	5	100	**0.39**	5	1	U	1	U	0.5	U	1	U	0.5	U
Chloroform	80	350	**0.19**	80	1	U	1	U	0.5	U	1	U	0.5	U
Methylene Chloride	5	2000	9.9	**5**	3.7		4		0.5	U	9.2		0.5	U
Trichloroethene	5	200	**0.44**	5	1	U	1	U	0.5	U	1	U	0.5	U

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	02MW02S-20090514		02MW02S-20120307		02MW03I-20090514		02MW03I-20120307		02MW03SI-20090514	
Sample Date:	Drinking	Drinking	Region 3 SL	for Residential	05/14/2009		03/07/2012		05/14/2009		03/07/2012		05/14/2009	
Duplicate:	Water	Water	Tap Water	Used Aquifer										
	MCL	DWEL												
TOTAL INORGANICS	ug/L	ug/L	ug/L	ug/L	ug/L				ug/L				ug/L	
Aluminum			16000	**200**	23.2	U	NA		23.2	U	NA		23.2	U
Antimony	6	10	**6**	**6**	0.3	U	NA		0.3	U	NA		0.3	U
Arsenic	10	10	**0.045**	10	1.1	U	NA		1.1	U	NA		1.1	U
Barium	2000	7000	2900	**2000**	94.8		NA		449		NA		373	
Beryllium	4	70	16	**4**	0.033	U	NA		0.033	U	NA		0.033	U
Cadmium	5	20	6.9	**5**	0.15	J	NA		0.12	J	NA		0.12	J
Calcium	NA	NA	NA	NA	9000		NA		35100		NA		39000	
Chromium	100	100	**0.31**	100	1.8	J	NA		2.8	J	NA		4.1	J
Cobalt	NA	NA	**4.7**	11	0.21	J	NA		0.36	J	NA		0.036	U
Copper	1300	NA	**620**	1000	1.4	J	NA		3.5		NA		1.7	J
Iron	NA	NA	11000	**300**	36.1	J	NA		62.7		NA		68.7	
Lead	15	NA	15	**5**	0.43	J	NA		0.36	J	NA		0.17	J
Magnesium	NA	NA	NA	NA	3090	N	NA		12400	N	NA		14100	N
Manganese	NA	1600	320	**50**	2.1	E	NA		2.7	E	NA		5.5	E
Mercury	2	10	**1.6**	2	0.036	U	NA		0.13	J	NA		0.11	J
Nickel	NA	700	300	**100**	2.3		NA		2.7		NA		0.2	U
Potassium	NA	NA	NA	NA	722	J	NA		617	J	NA		574	J
Selenium	50	200	78	**50**	1.1	U	NA		1.1	U	NA		1.1	U
Silver	NA	200	**71**	100	0.077	U	NA		1.4		NA		0.077	U
Sodium	NA	NA	NA	NA	7380		NA		10700		NA		9360	
Thallium	2	NA	**0.16**	2	0.3	U	NA		0.3	U	NA		0.3	U
Vanadium	NA	NA	**78**	260	1.7	U	NA		1.7	U	NA		1.7	U
Zinc	NA	10000	4700	**2000**	10.2		NA		21.6		NA		4.2	J
DISSOLVED INORGANICS	ug/L	ug/L	ug/L	ug/L										
Aluminum	NA	NA	16000	**200**	NA		NA		NA		NA		NA	
Antimony	6	10	**6**	**6**	NA		NA		NA		NA		NA	
Arsenic	10	10	**0.045**	10	NA		NA		NA		NA		NA	
Barium	2000	7000	2900	**2000**	NA		NA		NA		NA		NA	
Cadmium	5	20	6.9	**5**	NA		NA		NA		NA		NA	
Calcium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Chromium	100	100	**0.31**	100	NA		NA		NA		NA		NA	
Cobalt	NA	NA	**4.7**	11	NA		NA		NA		NA		NA	
Copper	1300	NA	**620**	1000	NA		NA		NA		NA		NA	
Iron	NA	NA	11000	**300**	NA		NA		NA		NA		NA	
Lead	15	NA	15	**5**	NA		NA		NA		NA		NA	
Magnesium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Manganese	NA	1600	320	**50**	NA		NA		NA		NA		NA	
Nickel	NA	700	300	**100**	NA		NA		NA		NA		NA	
Potassium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Selenium	50	200	78	**50**	NA		NA		NA		NA		NA	
Sodium	NA	NA	NA	NA	NA		NA		NA		NA		NA	
Thallium	2	NA	**0.16**	2	NA		NA		NA		NA		NA	
Zinc	NA	10000	4700	**2000**	NA		NA		NA		NA		NA	

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	02MW02S-20090514		02MW02S-20120307		02MW03I-20090514		02MW03I-20120307		02MW03SI-20090514	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**05/14/2009**		**03/07/2012**		**05/14/2009**		**03/07/2012**		**05/14/2009**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**										
	MCL	**DWEL**												
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**				**ug/L**				**ug/L**	
Anthracene	NA	10000	1300	**66**	0.05	U	NA		0.05	U	NA		0.05	U
Bis(2-ethylhexyl)phthalate	NA	NA	**0.071**	6	0.81		NA		0.35		NA		1.2	
Caprolactam	NA	NA	**7700**	NA	0.27		NA		0.2	U	NA		0.33	
Di-n-butylphthalate	NA	4000	**670**	3700	0.55		NA		0.18	J	NA		0.51	
Diethylphthalate	NA	30000	**11000**	29000	0.12	J	NA		0.2	U	NA		0.11	J
Fluoranthene	NA	NA	630	**260**	0.05	U	NA		0.05	U	NA		0.05	U
Naphthalene	NA	700	**0.14**	100	0.05	U	NA		0.015		NA		0.05	U
Phenanthrene	NA	NA	NA	**1100**	0.05	U	NA		0.05	U	NA		0.05	U
Pyrene	NA	NA	**87**	130	0.05	U	NA		0.05	U	NA		0.05	U
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2-Dichloroethene (cis)	70	70	**28**	70	1	U	0.5	U	0.7	J	0.93	J	0.76	J
Acetone	NA	NA	**12000**	33000	5	U	2.5	U	5	U	2.5	U	5	U
Carbon Tetrachloride	5	100	**0.39**	5	1	U	0.5	U	0.77	J	0.61	J	1	U
Chloroform	80	350	**0.19**	80	1	U	0.5	U	0.74	J	0.77	J	1	U
Methylene Chloride	5	2000	9.9	**5**	4.5		0.5	U	6.4		0.5	U	4.5	
Trichloroethene	5	200	**0.44**	5	1	U	0.5	U	1.6		2		3.9	

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	02MW03SI-20120308	02MW04I-20090513		02MW04I-20120307	02MW04S-20090513		02MW04S-20120307
Sample Date:	Drinking	Drinking	Region 3 SL	for Residential	03/08/2012	05/13/2009		03/07/2012	05/13/2009		03/07/2012
Duplicate:	Water	Water	Tap Water	Used Aquifer							
	MCL	DWEL									
TOTAL INORGANICS	ug/L	ug/L	ug/L	ug/L		ug/L			ug/L		
Aluminum			16000	**200**	NA	46.4	UD	NA	116	UD	NA
Antimony	6	10	**6**	**6**	NA	0.6	UD	NA	1.5	UD	NA
Arsenic	10	10	**0.045**	10	NA	2.2	UD	NA	5.5	UD	NA
Barium	2000	7000	2900	**2000**	NA	361	D	NA	379	D	NA
Beryllium	4	70	16	**4**	NA	0.066	UD	NA	0.16	UD	NA
Cadmium	5	20	6.9	**5**	NA	0.15	UD	NA	0.38	UD	NA
Calcium	NA	NA	NA	NA	NA	44400	D	NA	43900	D	NA
Chromium	100	100	**0.31**	100	NA	1.3	UD	NA	3.2	UD	NA
Cobalt	NA	NA	**4.7**	11	NA	0.072	UD	NA	0.18	UD	NA
Copper	1300	NA	**620**	1000	NA	0.94	JD	NA	1.4	UD	NA
Iron	NA	NA	11000	**300**	NA	10.6	UD	NA	26.5	UD	NA
Lead	15	NA	15	**5**	NA	0.32	UD	NA	0.8	UD	NA
Magnesium	NA	NA	NA	NA	NA	15300	D	NA	13100	D	NA
Manganese	NA	1600	320	**50**	NA	0.52	JD	NA	1	JD	NA
Mercury	2	10	**1.6**	2	NA	0.036	U	NA	0.094	J	NA
Nickel	NA	700	300	**100**	NA	0.76	JD	NA	1.4	JD	NA
Potassium	NA	NA	NA	NA	NA	317	JE	NA	290	JE	NA
Selenium	50	200	78	**50**	NA	2.2	UD	NA	5.5	UD	NA
Silver	NA	200	**71**	100	NA	0.15	UD	NA	0.38	UD	NA
Sodium	NA	NA	NA	NA	NA	10000	D	NA	10300	D	NA
Thallium	2	NA	**0.16**	2	NA	0.6	UD	NA	1.5	UD	NA
Vanadium	NA	NA	**78**	260	NA	3.4	UD	NA	8.5	UD	NA
Zinc	NA	10000	4700	**2000**	NA	9.1	JD	NA	3.4	UD	NA
DISSOLVED INORGANICS	ug/L	ug/L	ug/L	ug/L							
Aluminum	NA	NA	16000	**200**	NA	NA		NA	NA		NA
Antimony	6	10	**6**	**6**	NA	NA		NA	NA		NA
Arsenic	10	10	**0.045**	10	NA	NA		NA	NA		NA
Barium	2000	7000	2900	**2000**	NA	NA		NA	NA		NA
Cadmium	5	20	6.9	**5**	NA	NA		NA	NA		NA
Calcium	NA	NA	NA	NA	NA	NA		NA	NA		NA
Chromium	100	100	**0.31**	100	NA	NA		NA	NA		NA
Cobalt	NA	NA	**4.7**	11	NA	NA		NA	NA		NA
Copper	1300	NA	**620**	1000	NA	NA		NA	NA		NA
Iron	NA	NA	11000	**300**	NA	NA		NA	NA		NA
Lead	15	NA	15	**5**	NA	NA		NA	NA		NA
Magnesium	NA	NA	NA	NA	NA	NA		NA	NA		NA
Manganese	NA	1600	320	**50**	NA	NA		NA	NA		NA
Nickel	NA	700	300	**100**	NA	NA		NA	NA		NA
Potassium	NA	NA	NA	NA	NA	NA		NA	NA		NA
Selenium	50	200	78	**50**	NA	NA		NA	NA		NA
Sodium	NA	NA	NA	NA	NA	NA		NA	NA		NA
Thallium	2	NA	**0.16**	2	NA	NA		NA	NA		NA
Zinc	NA	10000	4700	**2000**	NA	NA		NA	NA		NA

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	02MW03SI-20120308		02MW04I-20090513		02MW04I-20120307		02MW04S-20090513		02MW04S-20120307	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**03/08/2012**		**05/13/2009**		**03/07/2012**		**05/13/2009**		**03/07/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**										
	MCL	**DWEL**												
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**			**ug/L**				**ug/L**			
Anthracene	NA	10000	1300	**66**	NA		0.05	U	NA		0.012		NA	
Bis(2-ethylhexyl)phthalate	NA	NA	**0.071**	6	NA		0.48		NA		0.44		NA	
Caprolactam	NA	NA	**7700**	NA	NA		0.2	U	NA		0.2	U	NA	
Di-n-butylphthalate	NA	4000	**670**	3700	NA		0.21		NA		0.35		NA	
Diethylphthalate	NA	30000	**11000**	29000	NA		0.2	U	NA		0.2	U	NA	
Fluoranthene	NA	NA	630	**260**	NA		0.018		NA		0.028	J	NA	
Naphthalene	NA	700	**0.14**	100	NA		0.05	U	NA		0.053	U	NA	
Phenanthrene	NA	NA	NA	**1100**	NA		0.023	J	NA		0.037	J	NA	
Pyrene	NA	NA	**87**	130	NA		0.029	J	NA		0.046	J	NA	
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2-Dichloroethene (cis)	70	70	**28**	70	0.5	U	1	U	0.5	U	1	U	0.5	U
Acetone	NA	NA	**12000**	33000	2.5	U	5	U	2.5	U	2.7	J	2.5	U
Carbon Tetrachloride	5	100	**0.39**	5	0.5	U	1	U	0.5	U	1	U	0.5	U
Chloroform	80	350	**0.19**	80	0.5	U	1	U	0.5	U	1	U	0.5	U
Methylene Chloride	5	2000	9.9	**5**	0.5	U	2.4		0.5	U	94		0.5	U
Trichloroethene	5	200	**0.44**	5	4.1		1	U	0.5	U	1	U	0.5	U

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	12MW01O-20120307		12MW01S-20120307		12MW02O-20120306		12MW02S-20120306		12MW02S-20120307-D
Sample Date:	Drinking	Drinking	Region 3 SL	for Residential	03/07/2012		03/07/2012		03/06/2012		03/06/2012		03/07/2012
Duplicate:	Water	Water	Tap Water	Used Aquifer									12MW02S-20120307
	MCL	DWEL											
TOTAL INORGANICS	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		ug/L		ug/L		
Aluminum			16000	**200**	26.3	B	48.5		8570		59.6		NA
Antimony	6	10	**6**	**6**	0.16	B	0.21	B	0.26	B	0.25	B	NA
Arsenic	10	10	**0.045**	10	0.5	U	0.5	U	2.7		0.66	J	NA
Barium	2000	7000	2900	**2000**	64.9		111		29.7		310		NA
Beryllium	4	70	16	**4**	0.5	U	0.5	U	0.41	B	0.5	U	NA
Cadmium	5	20	6.9	**5**	0.5	U	0.5	U	0.5	U	0.14	J	NA
Calcium	NA	NA	NA	NA	29000		47300		199	J	46200		NA
Chromium	100	100	**0.31**	100	3.6	J	2.9	J	14.7	J	3.4	J	NA
Cobalt	NA	NA	**4.7**	11	0.088	B	2.5		3.6		1.5		NA
Copper	1300	NA	**620**	1000	1.2	J	1.3	J	7.1		0.91	J	NA
Iron	NA	NA	11000	**300**	168	J	377		12200		477		NA
Lead	15	NA	15	**5**	0.81	J	0.23	B	5.1		0.19	B	NA
Magnesium	NA	NA	NA	NA	12100		12300		1550		11100		NA
Manganese	NA	1600	320	**50**	21.2		630		86.5		662		NA
Mercury	2	10	**1.6**	2	0.1	UL	0.1	UL	0.1	UL	0.1	UL	NA
Nickel	NA	700	300	**100**	2.1	J	5.5	J	7.7	J	3.8	J	NA
Potassium	NA	NA	NA	NA	1220		1960		301	J	2760		NA
Selenium	50	200	78	**50**	2.5	U	2.5	U	2.5	U	0.96	J	NA
Silver	NA	200	**71**	100	0.5	U	0.5	U	0.5	U	0.5	U	NA
Sodium	NA	NA	NA	NA	17100	L	11900	L	18.6	B	8430	L	NA
Thallium	2	NA	**0.16**	2	0.5	B	0.42	B	1.5	B	0.88	B	NA
Vanadium	NA	NA	**78**	260	2.5	U	0.32	J	19.2		0.81	J	NA
Zinc	NA	10000	4700	**2000**	11.1	J	19.6	J	20	J	14.2	J	NA
DISSOLVED INORGANICS	ug/L	ug/L	ug/L	ug/L			ug/L						
Aluminum	NA	NA	16000	**200**	NA		18.6	B	NA		NA		NA
Antimony	6	10	**6**	**6**	NA		0.25	B	NA		NA		NA
Arsenic	10	10	**0.045**	10	NA		0.44	J	NA		NA		NA
Barium	2000	7000	2900	**2000**	NA		113		NA		NA		NA
Cadmium	5	20	6.9	**5**	NA		0.5	U	NA		NA		NA
Calcium	NA	NA	NA	NA	NA		47000		NA		NA		NA
Chromium	100	100	**0.31**	100	NA		2.7		NA		NA		NA
Cobalt	NA	NA	**4.7**	11	NA		2.7		NA		NA		NA
Copper	1300	NA	**620**	1000	NA		1.1	J	NA		NA		NA
Iron	NA	NA	11000	**300**	NA		294		NA		NA		NA
Lead	15	NA	15	**5**	NA		0.11	B	NA		NA		NA
Magnesium	NA	NA	NA	NA	NA		12100		NA		NA		NA
Manganese	NA	1600	320	**50**	NA		676		NA		NA		NA
Nickel	NA	700	300	**100**	NA		6.5		NA		NA		NA
Potassium	NA	NA	NA	NA	NA		1950		NA		NA		NA
Selenium	50	200	78	**50**	NA		2.5	U	NA		NA		NA
Sodium	NA	NA	NA	NA	NA		11900	L	NA		NA		NA
Thallium	2	NA	**0.16**	2	NA		0.15	B	NA		NA		NA
Zinc	NA	10000	4700	**2000**	NA		14.8		NA		NA		NA

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	12MW01O-20120307		12MW01S-20120307		12MW02O-20120306		12MW02S-20120306		12MW02S-20120307-D	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**03/07/2012**		**03/07/2012**		**03/06/2012**		**03/06/2012**		**03/07/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**									**12MW02S-20120307**	
	MCL	**DWEL**												
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**			
Anthracene	NA	10000	1300	**66**	0.05	U	0.05	U	0.05	U	0.05	U	NA	
Bis(2-ethylhexyl)phthalate	NA	NA	**0.071**	6	5	U	5	U	5	U	5	U	NA	
Caprolactam	NA	NA	**7700**	NA	5	U	5	U	5	U	5	U	NA	
Di-n-butylphthalate	NA	4000	**670**	3700	5	U	5	U	5	U	5	U	NA	
Diethylphthalate	NA	30000	**11000**	29000	5	U	5	U	5	U	5	U	NA	
Fluoranthene	NA	NA	630	**260**	0.05	U	0.05	U	0.05	U	0.05	U	NA	
Naphthalene	NA	700	**0.14**	100	0.05	U	0.05	U	0.05	U	0.05	U	NA	
Phenanthrene	NA	NA	NA	**1100**	0.05	U	0.05	U	0.05	U	0.061	J	NA	
Pyrene	NA	NA	**87**	130	0.05	U	0.05	U	0.05	U	0.05	U	NA	
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2-Dichloroethene (cis)	70	70	**28**	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Acetone	NA	NA	**12000**	33000	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Carbon Tetrachloride	5	100	**0.39**	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	80	350	**0.19**	80	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene Chloride	5	2000	9.9	**5**	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	5	200	**0.44**	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	12MW03O-20120306		12MW03S-20120306		12MW03S-20120306-D		12MW04O-20120307		12MW04S-20120306	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**03/06/2012**		**03/06/2012**		**03/06/2012**		**03/07/2012**		**03/06/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**					**12MW03S-20120306**					
	MCL	**DWEL**												
TOTAL INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum			16000	**200**	1600		42.6		38.1	K	213		207	
Antimony	6	10	**6**	**6**	0.26	B	0.59	B	0.19	B	0.46	B	0.22	B
Arsenic	10	10	**0.045**	10	0.5	U	0.29	J	0.23	J	0.5	U	0.5	U
Barium	2000	7000	2900	**2000**	117		156		157		75.5		179	
Beryllium	4	70	16	**4**	0.2	B	0.5	U	0.5	U	0.5	U	0.5	U
Cadmium	5	20	6.9	**5**	0.15	J	0.21	J	0.5	U	0.17	J	0.5	U
Calcium	NA	NA	NA	NA	40100		41300		41700		25300		36900	
Chromium	100	100	**0.31**	100	24.6	J	4.6	J	2.6	J	7.5	J	4.8	J
Cobalt	NA	NA	**4.7**	11	2.6		0.56	J	0.51	J	0.85	J	0.56	J
Copper	1300	NA	**620**	1000	2.9		2		2		1.6	J	2	J
Iron	NA	NA	11000	**300**	1970		311		271		438		1040	
Lead	15	NA	15	**5**	0.87	J	0.39	B	0.16	B	0.86	J	0.33	B
Magnesium	NA	NA	NA	NA	22200		16900		17300		8090		16900	
Manganese	NA	1600	320	**50**	896		1630		1680		128		165	
Mercury	2	10	**1.6**	2	0.1	UL	0.1	UL	0.1	UL	0.1	UL	0.1	UL
Nickel	NA	700	300	**100**	20.3	J	7.7	J	5.3	J	18.6	J	7.9	J
Potassium	NA	NA	NA	NA	43300		13100		13300		1960		10000	
Selenium	50	200	78	**50**	2.5	U	2.5	U	2.5	U	0.78	J	2.5	U
Silver	NA	200	**71**	100	0.5	U	0.032	B	0.5	U	0.5	U	0.5	U
Sodium	NA	NA	NA	NA	5960	L	6620	L	6670	L	6990	L	7100	L
Thallium	2	NA	**0.16**	2	0.53	B	0.65	B	0.19	B	0.33	B	0.25	B
Vanadium	NA	NA	**78**	260	2.7	J	2.5	U	2.5	U	2.5	U	2.5	U
Zinc	NA	10000	4700	**2000**	16	J	20.7	J	7.3	J	51.1	J	14	J
DISSOLVED INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**						**ug/L**			
Aluminum	NA	NA	16000	**200**	309		NA		NA		14	B	NA	
Antimony	6	10	**6**	**6**	0.2	B	NA		NA		0.3	B	NA	
Arsenic	10	10	**0.045**	10	0.5	U	NA		NA		0.37	J	NA	
Barium	2000	7000	2900	**2000**	96.5		NA		NA		73.4		NA	
Cadmium	5	20	6.9	**5**	0.5	U	NA		NA		0.14	J	NA	
Calcium	NA	NA	NA	NA	41200		NA		NA		25800		NA	
Chromium	100	100	**0.31**	100	7.8		NA		NA		2.7		NA	
Cobalt	NA	NA	**4.7**	11	1.1		NA		NA		0.29	B	NA	
Copper	1300	NA	**620**	1000	1.8	J	NA		NA		1.2	J	NA	
Iron	NA	NA	11000	**300**	540		NA		NA		138	J	NA	
Lead	15	NA	15	**5**	0.3	B	NA		NA		0.21	B	NA	
Magnesium	NA	NA	NA	NA	22400		NA		NA		8300		NA	
Manganese	NA	1600	320	**50**	782		NA		NA		126		NA	
Nickel	NA	700	300	**100**	14.1		NA		NA		3.4		NA	
Potassium	NA	NA	NA	NA	38000		NA		NA		1770		NA	
Selenium	50	200	78	**50**	2.5	U	NA		NA		1.4	J	NA	
Sodium	NA	NA	NA	NA	5970	L	NA		NA		7390	L	NA	
Thallium	2	NA	**0.16**	2	0.17	B	NA		NA		0.15	B	NA	
Zinc	NA	10000	4700	**2000**	11.9		NA		NA		20.6		NA	

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Sample ID:	USEPA	USEPA	USEPA	PADEP MSC	12MW03O-20120306		12MW03S-20120306		12MW03S-20120306-D		12MW04O-20120307		12MW04S-20120306	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**03/06/2012**		**03/06/2012**		**03/06/2012**		**03/07/2012**		**03/06/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**					**12MW03S-20120306**					
	MCL	**DWEL**												
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Anthracene	NA	10000	1300	**66**	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Bis(2-ethylhexyl)phthalate	NA	NA	**0.071**	6	5	U	5	U	5	U	5	U	5	U
Caprolactam	NA	NA	**7700**	NA	5	U	5	U	5	U	5	U	5	U
Di-n-butylphthalate	NA	4000	**670**	3700	5	U	5	U	5	U	5	U	5	U
Diethylphthalate	NA	30000	**11000**	29000	5	U	5	U	5	U	5	U	5	U
Fluoranthene	NA	NA	630	**260**	0.05	U	0.062	J	0.06	J	0.05	U	0.05	U
Naphthalene	NA	700	**0.14**	100	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Phenanthrene	NA	NA	NA	**1100**	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Pyrene	NA	NA	**87**	130	0.05	U	0.062	J	0.07	J	0.05	U	0.05	U
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2-Dichloroethene (cis)	70	70	**28**	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Acetone	NA	NA	**12000**	33000	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Carbon Tetrachloride	5	100	**0.39**	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	80	350	**0.19**	80	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene Chloride	5	2000	9.9	**5**	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	5	200	**0.44**	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	USEPA	USEPA	USEPA	PADEP MSC	12MW01O-20120307		12MW01S-20120307		12MW02O-20120306		12MW02S-20120306	
Sample Date:	**Drinking**	**Drinking**	**Region 3 SL**	**for Residential**	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**	
Duplicate:	**Water**	**Water**	**Tap Water**	**Used Aquifer**								
	MCL	**DWEL**										
DIOXIN/FURAN	**pg/L**	**pg/L**	**pg/L**	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**	
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	26	UL	0.617	J	26	U	25.5	UL
1,2,3,7,8-PeCDF	112G	NA	NA	NA	26	UL	1.16	J	26	U	25.5	U
TEQ	30	40	**0.52**	30	0.616	L	1.47		0.0452		0.391	
Total HpCDD	NA	NA	**11**	NA	2.23	J	1.63	J	8.4	B	1.71	J
Total HxCDF	NA	NA	NA	NA	3.67	J	0.565	B	26	U	2.31	B
Total PeCDF	NA	NA	NA	NA	26	UL	1.16	J	26	U	25.5	U

TABLE 4-16

COMPARISON OF GROUNDWATER ANALYTICAL RESULTS TO SCREENING LEVELS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.
D -- Indicates that the analyte was reported from a diluted analysis.
E -- Indicates that the reported value is estimated because of the possible presence of interference (i.e. the serial dilution not within control limits).
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).
K -- Positive result is considered biased high due to exceedance of technical quality control criteria.
L -- Positive result is considered biased low due to exceedance of technical quality control criteria.
N -- Spiked sample recovery not within control limits.
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.
NA -- No result is available/applicable for this parameter in this sample.
-- Shading indicates values that exceeded the screening criteria

Values were screened against the most stringent of the USEPA Region 3 Screening Level (SL) for Tap Water (May, 2012) or the PADEP Medium Specific Criterion (MSC) for Residential Used Aquifer (June, 2009). The most stringent criteria were bolded. Values that exceeded the screening criteria were highlighted.

Database source file: H:\WILLOWGROVE\SITE 12\DATA\GWRES.DBF data retrieved on: 06/01/12

NOTE: Site 2 groundwater data from the 2009 event were not validated. These data to be used for qualitative comparison only.

TABLE 5-1

ENVIRONMENTAL FATE AND TRANSPORT PARAMETERS FOR ORGANIC CHEMICALS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Specific Gravity (@ 20/4°C)(2)	Vapor Pressure (mm Hg @ 20°C)(2)	Solubility (mg/L @ 20°C)(2)	Octanol/Water Partition Coefficient(2)	Organic Carbon Partition Coefficient(3)	Henry's Law Constant (atm-m3/mole)(2)	Bioconcentration Factor (mg/L/mg/kg)(3)	Mobility Index log((solubility*VP)/K_{oc})
VOCS								
Trichloroethene	1.4624	7.10E+01	1.10E+03	5.13E+02	1.66E+02	1.03E-02	9.70E+01	2.67E+00
SVOCS								
Benzo(a)anthracene	1.274	5.00E-09	1E-2 (24°C)	4.07E+05	3.98E+05 (10)	6.60E-07	5.30E+04	-1.59E+01
Benzo(b)fluoranthene	NA	5.00E-07	1.2E-3 (25°C)	3.72E+06	1.23E+06 (10)	1.20E-05	1.40E+05	-1.53E+01
Benzo(k)fluoranthene	NA	9.59E-11	5.5E-4 (25°C)	6.92E+06	1.23E+06 (10)	1.04E-03	1.40E+05	-1.94E+01
Benzo(a)pyrene	1.351	5.00E-09	3.8E-3 (25°C)	9.55E+05	1.02E+06 (10)	4.9E-7 (25°C)	1.40E+05	-1.67E+01
Dibenzo(a,h)anthracene	1.282	1.00E-10	5E-4 (25°C)	9.33E+05	3.80E+06 (10)	7.3E-8 (25°C)	6.90E+05	-1.99E+01
Indeno(1,2,3-cd)pyrene	NA	1E-10 (25°C)	6.2E-02	4.57E+07	3.47E+06 (10)	6.95E-8 (25°C)	3.50E+05	-1.77E+01
PESTICIDES								
Dieldrin	1.75	1.8E-7 (25°C)	1.86E-01	1.23E+04	2.14E+04 (10)	5.84E-5 (25°C)	7.10E+02	-1.18E+01
PCBs								
Aroclor-1260	1.58 (25°C)(4)	4.05E-5(4)	2.7E-3(4)	1.4E+7(4)	6.7E+06	7.4E-1(4)	1.30E+06	-1.38E+01
DIOXINS/FURANS								
TCDDs	NA	1.4E-8 (25°C)	3.3E-4 (25°C)	3.2E+06	1.1E+02 - 3.2E+08	1.70E-05	5.4E+03 - 7.9E=05	-1.66E+01
PeCDDs	NA	5.6E-10 (25°C)	1.18E-04	4.0E+06	7.1E+04 - 2.4E+06	2.60E-06	1.90E+05	-1.88E+01
HxCDDs	NA	4.4E-11 (25°C)	4.4E-6 (25°C)	2.0E+07	1.0E+05 - 1.3E+07	1.10E-05	1.7E+03 - 1.0E+05	-2.18E+01
HpCDDs	NA	3.2E-11 (25°C)	2.4E-06	1.0E+08	3.0E+05 - 6.3E+07	1.26E-05	5.1E+02 - 4.8E+04	-2.28E+01
OCDD	NA	8.25E-13 (25°C)	7.4E-8 (25°C)	1.6E+08	8.3E+05 - 7.9E+07	6.75E-06	7.9E+01 - 1.3E+04	-2.61E+01
TCDFs	NA	2.5E-8 (25°C)	4.2E-4 (22.7°C)	1.6E+06	1.6E+05 - 3.2E+07	1.40E-05	2.5E+03 - 6.6E+04	-1.73E+01
PeCDFs	NA	2.7E-9 (25°C)	2.4E-4 (22.7°C)	2.5E+06	3.9E+05 - 2.5E+07	5.00E-06	5.0E+03 - 1.4E+05	-1.87E+01
HxCDFs	NA	2.8E-10 (25°C)	1.3E-5 (22.7°C)	1.0E+07	2.5E+07	1.10E-05	8.90E+04	-2.18E+01
HpCDFs	NA	4.7E-11 (25°C)	1.4E-6 (22.7°C)	2.5E+07	1.0E+05 - 7.9E+07	1.40E-05	2.90E+04	-2.26E+01
OCDF	NA	3.75E-12 (25°C)	1.16E-6 (25°C)	1.0E+08	1.0E+06 - 2.5E+07	1.88E-06	5.9E+02 - 7.9E+03	-2.41E+01

1 NA - Not available.
2 U.S. EPA, September 1992. Handbook of RCRA Groundwater Monitoring Constituents: Chemical and Physical Properties.
3 U.S. EPA, December 1982. Aquatic Fate Process Data for Organic Priority Pollutants.

TABLE 6-1
SUMMARY OF HUMAN HEALTH RISKS FOR SITE 12
NAS JRB, WILLOW GROVE, PENNSYLVANIA

MEDIA OF CONCERN Receptors --\/	Cumulative Cancer Risk	Maximum Target Organ HI	Population % Lead >10ug/dl	Contributors to unacceptable risk listed if cancer risk > 1E-6, noncancer HQ > 0.2, or blood lead > 10 ug/dL for > 5% of populatior Lifetime receptor-- only cancer risk COCs; child or adult-- only noncancer COCs; "BG"-- not a site-related COC (similar to backgrounc
GROUNDWATER				
Lifetime Resident	7.1E-04	--	NA	Total 2,3,7,8-TCDD Equivalents, Arsenic (BG), Chromium, Trichloroethene
Child Resident	(see lifetime)	7.4	NA	Total 2,3,7,8-TCDD Equivalents, Aluminum, Manganese
Adult Resident	(see lifetime)	2.7	NA	Total 2,3,7,8-TCDD Equivalents, Aluminum, Manganese
Construction Worker	<1E-4	<1	NA	
SURFACE SOIL				
Lifetime Resident	2.5E-04	--	NA	Arsenic (BG), Chromium, Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3 cd)pyrene
Child Resident	(see lifetime)	2.7	<10 ug/dL	Arsenic (BG), Thallium
Adult Resident	(see lifetime)	<1	NA	
Industrial Worker	2.0E-05	<1	<10 ug/dL	
Lifetime Recreational	7.5E-05	--	NA	
Recreational Child	(see lifetime)	<1	<10 ug/dL	
Recreational Adult	(see lifetime)	<1	NA	
TOTAL SOIL (COMBINED SURFACE AND SUBSURFACE)				
Lifetime Resident	4.0E-04	--	NA	Total 2,3,7,8-TCDD Equivalents, Arsenic, Chromium, Aroclor-1260, Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene
Child Resident	(see lifetime)	16	<10 ug/dL	Total 2,3,7,8-TCDD Equivalents, Arsenic, Manganese, Thallium
Adult Resident	(see lifetime)	1.8	NA	Total 2,3,7,8-TCDD Equivalents
Industrial Worker	6.2E-05	1.3	<10 ug/dL	Total 2,3,7,8-TCDD Equivalents
Construction Worker	3.5E-06	2.1	<10 ug/dL	Total 2,3,7,8-TCDD Equivalents
Lifetime Recreational	1.2E-04	--	NA	
Recreational Child	(see lifetime)	4.8	<10 ug/dL	Total 2,3,7,8-TCDD Equivalents, Thallium
Recreational Adult	(see lifetime)	<1	NA	
SURFACE WATER				
Lifetime Recreational	6.0E-03	--	NA	Chromium, Dieldrin, Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene
Recreational Child	(see lifetime)	<1	Qualitative	
Recreational Adult	(see lifetime)	<1	NA	
Construction Worker	7.5E-05	<1	Qualitative	
SEDIMENT				
Lifetime Recreational	4.8E-05	--	NA	
Recreational Child	(see lifetime)	1.5	NA	Manganese (BG), Thallium
Recreational Adult	(see lifetime)	<1	NA	
Construction Worker	1.4E-06	2.3	NA	Manganese (BG), Thallium

In this table, risk drivers are listed for any receptor only if the cumulative cancer risk for all substances exceeds 1 x 10^{-4} or if the HI for any target organ exceeds 1. When these thresholds are exceeded, then all contributing chemicals are listed with individual cancer risks greater than 1 x 10^{-6} or an HQ that is a significant contributor to the target organ HI exceeding 1.

TABLE 7-1

WILDLIFE TOXICITY REFERENCE VALUES
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

PARAMETER	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
VOLATILE ORGANICS (mg/kg/day)				
Acetone	10	50	NA	NA
SEMIVOLATILE ORGANICS (mg/kg/day)				
Acenaphthene	65.6	356	2	20
Acenaphthylene	65.6	356	2	20
Anthracene	65.6	356	2	20
Benzo(a)anthracene	0.615	38.4	2	20
Benzo(a)pyrene	0.615	38.4	2	20
Benzo(b)fluoranthene	0.615	38.4	2	20
Benzo(g,h,i)perylene	0.615	38.4	2	20
Benzo(k)fluoranthene	0.615	38.4	2	20
Bis(2-ethylhexyl)phthalate	18.33	183.3	NA	NA
Chrysene	0.615	38.4	2	20
Dibenzo(a,h)anthracene	0.615	38.4	2	20
Fluoranthene	65.6	356	2	20
Fluorene	65.6	356	2	20
Indeno(1,2,3-cd)pyrene	0.615	38.4	2	20
Phenanthrene	65.6	356	2	20
Pyrene	0.615	38.4	2	20
PESTICIDES/PCBs (mg/kg/day)				
4,4'-DDD	0.147	5.56	0.227	2.7
4,4'-DDE	0.147	5.56	0.227	2.7
4,4'-DDT	0.147	5.56	0.227	2.7
Total DDT	0.147	5.56	0.227	2.7
Aldrin	0.2	1	NA	NA
Aroclor-1260	0.068	0.68	0.18	1.8
Alpha-Chlordane	4.58	9.16	2.14	10.7
alpha-BHC	0.014	0.14	0.56	2.25
beta-BHC	0.4	2	0.56	2.25
delta-BHC	0.014	0.14	0.56	2.25
Dieldrin	0.015	1.27	0.0709	0.8
Endosulfan I	0.15	1.5	10	100
Endosulfan II	0.15	1.5	10	100
Endosulfan sulfate	0.15	1.5	10	100
Endrin	0.092	0.92	0.01	0.1
Endrin Aldehyde	0.092	0.92	0.01	0.1
Endrin Ketone	0.092	0.92	0.01	0.1
Gamma-BHC (Lindane)	8	80	2	20
Gamma-Chlordane	4.58	9.16	2.14	10.7
Heptachlor	0.1	1	NA	NA
Heptachlor Epoxide	0.1	1	NA	NA
Methoxychlor	4	8	NA	NA
DIOXINS and FURANS (mg/kg/day)				
TCDD TEQ	0.000001	0.00001	0.000014	0.00014
INORGANICS (mg/kg/day)				
Antimony	0.059	2.76	NA	NA
Arsenic	1.04	4.55	2.24	4.51
Cadmium	0.8	6.9	1.5	6.3
Chromium	2.40	58.17	2.66	15.63
Hexavalent Chromium	5.66	38.37	NA	NA
Copper	5.6	82.7	4.05	34.76
Lead	4.7	186.4	1.63	44.63
Mercury	0.032	0.16	0.0064	0.064
Nickel	1.70	14.77	6.71	18.57
Selenium	0.143	0.66	0.29	0.82
Silver	6.02	118.6	2.02	60.5
Thallium	0.0074	0.074	NA	NA
Vanadium	4.16	9.44	0.34	1.69
Zinc	75.4	298	66.1	171

Notes:
NA - NOAEL and LOAEL not available
See Table I-1 of Appendix I for the sources of the above values. The NOAELs and LOAELs in Table I-1 of Appendix I were divided by 10 if the values were derived from a subchronic study. If only a NOAEL was available, the value was multiplied by 10 to estimate the LOAEL. If only a LOAEL was available, the value was divided by 10 to estimate the NOAEL.

TABLE 7-2

SOIL BIOACCUMULATION FACTORS (BAFs) AND BIOTA-SEDIMENT ACCUMULATION FACTORS (BSAFs)
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Plant BAFs[1]		Earthworm BAFs[1]		Fish/Invertebrate BSAFs[2]	
Chemicals	**Conservative**	**Average**	**Conservative**	**Average**	**Conservative**	**Average**
Semivolatile Organics						
Acetone	1	1	1	1	1	1
Semivolatile Organics						
Acenaphthene	Eco-SSL	Eco-SSL	1.47	1.47	0.29	0.29
Acenaphthylene	Eco-SSL	Eco-SSL	22.9	22.9	0.29	0.29
Anthracene	Eco-SSL	Eco-SSL	2.42	2.42	0.29	0.29
Benzo(a)anthracene	Eco-SSL	Eco-SSL	1.59	1.59	0.29	0.29
Benzo(a)pyrene	Eco-SSL	Eco-SSL	1.33	1.33	0.29	0.29
Benzo(b)fluoranthene	0.31	0.31	2.6	2.6	0.29	0.29
Benzo(g,h,i)perylene	Eco-SSL	Eco-SSL	2.94	2.94	0.29	0.29
Benzo(k)fluoranthene	Eco-SSL	Eco-SSL	2.6	2.6	0.29	0.29
Bis(2-ethylhexyl)phthalate	0.055[3]	0.055[3]	1	1	1	1
Chrysene	Eco-SSL	Eco-SSL	2.29	2.29	0.29	0.29
Dibenzo(a,h)anthracene	0.13	0.13	2.31	2.31	0.29	0.29
Fluoranthene	0.5	0.5	3.04	3.04	0.29	0.29
Fluorene	Eco-SSL	Eco-SSL	9.57	9.57	0.29	0.29
Indeno(1,2,3-cd)pyrene	0.11	0.11	2.86	2.86	0.29	0.29
Phenanthrene	Eco-SSL	Eco-SSL	1.72	1.72	0.29	0.29
Pyrene	0.72	0.72	1.75	1.75	0.29	0.29
Pesticides/ PCBs						
4,4'-DDD	NV[4]	NV[4]	Eco-SSL	Eco-SSL	0.28	0.28
4,4'-DDE	NV[4]	NV[4]	Eco-SSL	Eco-SSL	7.7	7.7
4,4'-DDT	NV[4]	NV[4]	Eco-SSL	Eco-SSL	1.67	1.67
Total DDT	Eco-SSL	Eco-SSL	11.2	11.2	7.7	7.7
Aldrin	0.691[3]	0.691	3.3[5]	3.3[5]	1.8	1.8
Alpha-Chlordane	0.0245[3]	0.0245	5[5]	5[5]	4.77	4.77
Aroclor-1260	0.0029[3]	0.0029	15.909	6.667	1.85	1.85
alpha-BHC	0.21[3]	0.21	5[5]	5[5]	1.8	1.8
beta-BHC	0.182[3]	0.182	5[5]	5[5]	1.8	1.8
delta-BHC	0.9[3]	0.9	5[5]	5[5]	1.8	1.8
Dieldrin	0.41	0.41	14.7	14.7	1.8	1.8
Endosulfan I	0.332[3]	0.332[3]	1	1	1.8	1.8
Endosulfan II	0.332[3]	0.332[3]	1	1	1.8	1.8
Endosulfan sulfate	0.332[3]	0.332[3]	1	1	1.8	1.8
Endrin	0.0816[3]	0.0816[3]	3.6[5]	3.6[5]	1.8	1.8
Endrin Aldehyde	0.0816[3]	0.0816[3]	3.6[5]	3.6[5]	1.8	1.8
Endrin Ketone	0.0816[3]	0.0816[3]	3.6[5]	3.6[5]	1.8	1.8
Gamma-BHC (Lindane)	0.272[3]	0.272[3]	5[5]	5[5]	1.8	1.8
Gamma-Chlordane	0.0245[3]	0.0245[3]	5[5]	5[5]	2.22	2.22
Heptachlor	0.122[3]	0.122[3]	10[5]	10[5]	1.8	1.8
Heptachlor Epoxide	0.028[3]	0.028[3]	3[5]	3[5]	1.8	1.8
Methoxychlor	0.107[3]	0.107[3]	1	1	1.8	1.8
Inorganics						
Antimony	Eco-SSL	Eco-SSL	1	1	1	1
Arsenic	0.03752	0.03752	Eco-SSL	Eco-SSL	0.69	0.143
Cadmium	Eco-SSL	Eco-SSL	Eco-SSL	Eco-SSL	7.99	0.6
Chromium	0.041	0.041	0.306	0.306	0.468	0.1
Copper	Eco-SSL	Eco-SSL	0.515	0.515	5.25	1.556
Lead	Eco-SSL	Eco-SSL	Eco-SSL	Eco-SSL	0.607	0.071

TABLE 7-2

SOIL BIOACCUMULATION FACTORS (BAFs) AND BIOTA-SEDIMENT ACCUMULATION FACTORS (BSAFs)
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemicals	Plant BAFs[1]		Earthworm BAFs[1]		Fish/Invertebrate BSAFs[2]	
	Conservative	Average	Conservative	Average	Conservative	Average
Mercury	5	0.652	Sample et al (1998) regression	Sample et al (1998) regression	2.868	1.136
Nickel	Eco-SSL	Eco-SSL	1.059[6]	1.059[6]	2.32	0.486
Selenium	Eco-SSL	Eco-SSL	Eco-SSL	Eco-SSL	1	1
Silver	Eco-SSL	Eco-SSL	Eco-SSL	Eco-SSL	1	1
Thallium	0.004[3]	0.004[3]	1	1	1	1
Vanadium	0.00485	0.00485	0.042	0.042	1	1
Zinc	Eco-SSL	Eco-SSL	Eco-SSL	Eco-SSL	7.527	1.936
Dioxins						
2,3,7,8-TCDD (TEQ)	0.0043[3]	0.0043[3]	22.229[7]	11.011[7]	0.025	0.025

Notes:
BAF - Bioaccumulation Factor
BSAF - Biota Sediment Accumulation Factor
Conservative and average refer to the exposure scenarios for which the uptake factors are used (see Section 7.3).
Default value of 1 is assigned to parameters without uptake factors.
(1) "Eco-SSL indicates that regression equations from Tables 4a and 4b of Attachment 4-1 of USEPA (2005) were used to estimate tissue concentrations. Other values in this column are BAFs from Tables 4a and 4b of Attachment 4-1 of USEPA (2005), unless otherwise noted.
(2) BSAFs for organic compounds are from USEPA (2004); only one value is available for conservative and average scenarios. BSAFs for inorganics are from ORNL (1998). Conservative value is 90th percentile, average value is median from source document.
(3) BAF is from ORNL (2009).
(4) USEPA (2005) provided a soil-to-plant BAF for total DDT but not for individual DDT isomers. Because the soil-to-plant uptake of DDT and its isomers is extremely low, assigning a default BAF of 1 would be unrealistically high, as evidenced by USEPA's (2005) soil-to-plant BAF for total DDT of ln(plant conc.) = 0.7524 × ln(soil conc.) - 2.5119; this equation results in a predicted total DDT concentration in vegetation of 0.0597 mg/kg when using the maximum Site 3 soil concentration of 0.666 mg/kg total DDT. Thus, estimated vegetation concentrations of individual DDT isomers were not calculated, and instead, DDT isomers were evaluated primarily by using total DDT concentrations.
(5) See Appendix L for origin of soil-to-earthworm BAF.
(6) BAF from 2005 version of Eco-SSL Guidance Document (Attachment 4-1).
(7) Sample et al (1998).

TABLE 7-3

FOOD CHAIN EXPOSURE PARAMETERS FOR TERRESTRIAL WILDLIFE
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Species/Exposure Inputs	Conservative Scenario[1]		Average Scenario[2]	
	Values	Units	Values	Units
American Robin				
Body Weight	0.0773	kg	0.0804	kg
Food Ingestion Rate[3]	0.01247	kg/day	0.01188	kg/day
Water Ingestion Rate	0.01207	L/day	0.01134	L/day
Soil Ingestion Rate	0.00205	kg/day	0.00076	kg/day
Short-Tailed Shrew				
Body Weight	0.0150	kg	0.0161	kg
Food Ingestion Rate[3]	0.00160	kg/day	0.00143	kg/day
Water Ingestion Rate	0.00428	L/day	0.00360	L/day
Soil Ingestion Rate	0.00005	kg/day	0.00001	kg/day
Bobwhite Quail				
Body Weight	0.154	kg	0.175	kg
Food Ingestion Rate[3]	0.01628	kg/day	0.01366	kg/day
Water Ingestion Rate	0.02276	L/day	0.01926	L/day
Soil Ingestion Rate	0.00226	kg/day	0.00083	kg/day
Meadow Vole				
Body Weight	0.017	kg	0.0358	kg
Food Ingestion Rate[3]	0.00376	kg/day	0.00349	kg/day
Water Ingestion Rate	0.00751	L/day	0.00626	L/day
Soil Ingestion Rate	0.00012	kg/day	0.00004	kg/day
Green Heron				
Body Weight	0.2000	kg	0.2120	kg
Food Ingestion Rate[3]	0.03100	kg/day	0.03000	kg/day
Water Ingestion Rate	0.02200	L/day	0.02100	L/day
Sediment Ingestion Rate	0.00160	kg/day	0.00150	kg/day
Mink				
Body Weight	0.5500	kg	1.10313	kg
Food Ingestion Rate[3]	0.06067	kg/day	0.04504	kg/day
Water Ingestion Rate	0.12134	L/day	0.07308	L/day
Sediment Ingestion Rate	0.00570	kg/day	0.00423	kg/day
Woodchuck[4]				
Body Weight	4.6	kg	4.6	kg
Food Ingestion Rate[3]	0.15	kg/day	0.129	kg/day
Soil Ingestion Rate	0.003	kg/day	0.0026	kg/day

(1) Values used in screening level ecological risk assessment (see Sections 7.3). The derivation of values in this table is presented in Section 7-3 and Table 7-4.

(2) Values used in Step 3A (see Section 7.5).

(3) Food ingestion rates are dry-weight values.

(4) Water ingestion was not included in dose calculations for the woodchuck; see Section 7.3 of text.

TABLE 7-4

DERIVATION OF BODY WEIGHT, FOOD INTAKE, AND WATER INTAKE FACTORS FOR REPRESENTATIVE WILDLIFE RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Species/Factor	Age/Sex/ Season[a]	Value	Study Average	Derivation of Factors Used in Food Chain Modeling
American Robin[b]				
Body Weight (g)	A B	77.3	77.3	Minimum Value 0.0773 kg
				Maximum Value 0.0862 kg
	A M nonbreeding	86.2		Overall Average 0.0804 kg
	A F nonbreeding	83.6	84.9	
	A M breeding	77.4		
	A F breeding	80.6	79	
Food Ingestion Rate (g/g/day)	B B free-living	0.89		Based on Metabolic Scaling (Nagy et al., 1999)
				Conservative value: 0.01247 kg/day Used maximum body weight in below equation
	- B free-living	1.52		
				Average value 0.01188 kg/day Used average body weight in below equation
				Dry weight food ingestion (FI) rates were calculated from Nagy et al.(1999) for insectivorous birds as follows:
	Overall Average		1.21	$FI = (9.7 \times BW(g)^{0.705})/18kJ/g/1000$
Water Ingestion Rate (g/g/day)	A B	0.14		Conservative value: 0.0121 L/day Ingestion rate × Maximum Body weight
				Average value 0.0113 L/day Ingestion rate × Average Body weight
Short-Tailed Shrew[b]				
Body Weight (g)	A B	15	15	Minimum Value 0.0150 kg
				Maximum Value 0.01921 kg
	M summer	19.21	17.27	Overall Study Average 0.01613 kg
	F summer	17.4		
	M fall	16.87		
	M fall	15.58		
Food Ingestion Rate (g/g/day)	A B	0.49		Conservative value: 0.0016 kg/day Maximum ingestion rate × Average Body weight × 0.16[c]
	A B	0.62		Average value 0.00143 kg/day Average ingestion rate × Average Body weight × 0.16[c]
	Overall Average		0.555	
Water Ingestion Rate (g/g/day)	A B	0.223		Conservative value: 0.00428 L/day Ingestion rate × Maximum Body weight
				Average value 0.00360 L/day Ingestion rate × Average Body weight

TABLE 7-4

DERIVATION OF BODY WEIGHT, FOOD INTAKE, AND WATER INTAKE FACTORS FOR REPRESENTATIVE WILDLIFE RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Species/Factor	Age/Sex/ Season[a]	Value	Study Average	Derivation of Factors Used in Food Chain Modeling			
Mink[b]							
Body Weight (g)	A M spring	1734	1354	Minimum Value	0.550	kg	
	A F spring	974		Maximum Value	1.734	kg	
				Overall Study Average	1.1031	kg	
	A M summer	1040	852				
	A M fall	1233					
	A F summer	550					
	A F fall	586					
Food Ingestion Rate (g/g/day)	A M summer	0.13	0.13	Conservative value:	0.0607	kg/day	Maximum ingestion rate × Average Body weight × 0.25[d]
	A M winter	0.12	0.14	Average value	0.04504	kg/day	Average ingestion rate × Average Body weight × 0.25[d]
	A F winter	0.16					
	A M yr-round	0.22	0.22				
	Overall Average		0.163				
Water Ingestion Rate (g/g/day)	A F	0.11	0.105	Conservative value:	0.1213	kg/day	Maximum ingestion rate × Average Body weight
	A M	0.099					
				Average value	0.07308	kg/day	Average ingestion rate × Average Body weight
	A F	0.028	0.028				
	Overall Average		0.0663				
Meadow Vole[b]							
Body Weight (g)	A M summer	40	36.7	Minimum Value	0.017	kg	
	A F summer	33.4		Maximum Value	0.052	kg	
				Overall Study Average	0.0358	kg	
	A M spring	52.4	48.0				
	A F spring	43.5					
	A B spring	26	21.2				
	A B summer	24.3					
	A B fall	17					
	A B winter	17.5					
	A M	35.5	37.3				
	A F	39					
Food Ingestion Rate (g/g/day)		0.3	0.325	Conservative value:	0.003756	kg/day	Maximum ingestion rate × Average Body weight × 0.3 [e]
		0.35					
				Average value	0.003488	kg/day	Average ingestion rate × Average Body weight × 0.3[e]
Water Ingestion Rate	A B	0.21	0.18	Conservative value:	0.007513	L/day	Maximum ingestion rate × Average Body weight
	A B	0.14		Average value	0.006261	L/day	Average ingestion rate × Average Body weight

TABLE 7-4

DERIVATION OF BODY WEIGHT, FOOD INTAKE, AND WATER INTAKE FACTORS FOR REPRESENTATIVE WILDLIFE RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Species/Factor	Age/Sex/ Season[a]	Value	Study Average	Derivation of Factors Used in Food Chain Modeling			
Northern Bobwhite Quail[b]							
Body Weight (g)	A B fall	189.9	191	Minimum Value	0.154	kg	
	A B winter	193.9		Maximum Value	0.194	kg	
	A B spring	190		Overall Average	0.1751	kg	
	A M winter	181	177				
	A M summer	163					
	A F winter	183					
	A F summer	180					
	A M winter	161	157				
	A M summer	154					
	A F winter	157					
	A F summer	157					
Food Ingestion Rate (g/g/ay)	A B winter	0.093	0.078	Conservative value:	0.01628	kg/day	Maximum ingestion rate × Average Body weight
	A B spring	0.067					
	A B summer	0.079		Average value	0.01366	kg/day	Average ingestion rate × Average Body weight
	A B fall	0.072					
Water Ingestion Rate (g/g/day)	A M summer	0.1	0.11	Conservative value:	0.022763	L/day	Maximum ingestion rate × Average Body weight
	A F summer	0.13					
	A M summer	0.11		Average value	0.019261	L/day	Average ingestion rate × Average Body weight
	A F summer	0.1					
Green Heron[f]							
Body Weight (g)	AB	212	212	Mean of 34 adults from Florida = 212 g, standard deviation = 5.92 g (Dunning, 1993)			
				Conservative value:	0.200	kg	Mean minus 2 standard deviations (Dunning, 1993)
				Average value	0.212	kg	Mean (Dunning, 1993)
Food Ingestion Rate (g/g/day)				Conservative value:	0.031	kg/day	Using allometric equation from Nagy (2001) for 0.224 kg marine bird (0.224 kg = mean plus 2 standard deviations from Dunning (1993) green heron data)
				Average value	0.030	kg/day	Using allometric equation from Nagy (2001) for 0.212 kg marine bird
Water Ingestion Rate (L/day)				Conservative value:	0.022	L/day	Using equation 3-15 from USEPA (1993) for 0.224 kg bird
				Average value	0.021	L/day	Using equation 3-15 from USEPA (1993) for 0.212 kg bird
Woodchuck[f]							
Body Weight (kg)	A M	4.6		Mean of males trapped in New York (Boyd et al, 1985); only one value available, so used for conservative and average scenarios.			
Food Ingestion Rate (kg/day)	A M	0.15		Conservative value:	0.15	kg/day	Maximum value during 12 weeks in captivity (Boyd et al, 1985).
	A M	0.129		Average value:	0.129	kg/day	Measured value prior to hibernation (Boyd et al, 1985).

Notes:
(a) A=adult, M=male, F=female, B=both sexes
(b) Data are from Wildlife Exposure Factors Handbook (USEPA, 1993b) unless noted otherwise.
(c) Food ingestion was multiplied by 0.16 (based on 84 percent moisture content in earthworms) to convert to dry weight ingestion rate.
(d) Food ingestion was multiplied by 0.25 (based on 75 percent moisture content in fish) to convert to dry weight ingestion rate.
(e) Food ingestion was multiplied by 0.30 (based on 70 percent moisture content in plant food) to convert to dry weight ingestion rate.
(f) This species not included in USEPA (1993b). Values obtained from other sources as shown.

TABLE 7-5

SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Frequency of Detection	Range of Detected Concentrations[1]		Location of Maximum Concentration	Ecological Screening Value[2]			Hazard Quotient[4]			COPC (Yes/No)	Rationale for COPC Selection[5]
		Minimum	Maximum		Invertebrates	Plants	Wildlife[3]	Invertebrates	Plants	Wildlife		
INORGANICS (mg/kg)												
Aluminum	122/122	2280	21000	SSA12-SS02D-000.5-20071207	600[6]	50	NA	35	420	NA	Yes	ASV, NSV
Antimony	31/32	0.41	10.1	12SB07-000.5-01	78	5	0.27	0.1	2.0	37.4	Yes	ASV
Arsenic	122/122	0.96	29.8	12TP08-000.5-01	60	18	43	0.5	1.7	0.7	Yes	ASV, BIO
Barium	122/122	28.7	242	12TP08-0.502-02	330	500	2000	0.7	0.5	0.1	No	BSV
Beryllium	122/122	0.23	1.3	12TP11-0.502-02	40	10	21	0.03	0.1	0.1	No	BSV
Cadmium	76/86	0.04	9.4	SSA12-SS04D-000.5-20071205	140	32	0.36	0.1	0.3	26.1	Yes	ASV, BIO
Calcium	122/122	314	55800	12TP09-0.502-02	NA	NA	NA	NA	NA	NA	No	Nutrient
Chromium	122/122	4.7	38.5	SSA12-SS03E-000.5-20071206	0.4	1.0	26	96.3	38.5	1.5	Yes	ASV, BIO
Hexavalent Chromium	22/22	0.26	7.4	12SB21-000.5-01	0.4	1.0	130	18.5	7.4	0.1	Yes	ASV, BIO
Cobalt	122/122	2.1	12	12TP02-0.502-02	1000[6]	13	120	0.01	0.9	0.1	No	BSV
Copper	125/125	4.2	458	12TP12-000.5-01	80	70	28	5.7	6.5	16.4	Yes	ASV, BIO
Cyanide	43/85	0.043	0.426	12SB10-0.502-02	NA	NA	1.33	NA	NA	0.3	Yes	NSV
Iron	122/122	5810	37100	12TP08-000.5-01	200[6]	NA	NA	185.5	NA	NA	Yes	ASV, NSV
Lead	131/131	5.4	1410	12SB52-0.502-02	1700	120	11	0.8	11.8	128.2	Yes	ASV, BIO
Magnesium	122/122	478	20600	12TP15-000.5-01	NA	NA	NA	NA	NA	NA	No	Nutrient
Manganese	122/122	106	1020	12TP11-0.502-02	450	220	4000	2.3	4.6	0.3	Yes	ASV
Mercury	116/122	0.007	0.47	SSA12-SS07D-000.5-20071205	0.1	0.3	NA	4.7	1.6	NA	Yes	ASV, BIO
Nickel	122/122	3.5	63.5	SSA12-SS04D-000.5-20071205	280	38	130	0.2	1.7	0.5	Yes	ASV, BIO
Potassium	122/122	163	2480	12TP09-0.502-02	NA	NA	NA	NA	NA	NA	No	Nutrient
Selenium	47/84	0.063	2.6	12TP03-0.502-02	4.1	0.52	0.63	0.6	5.0	4.1	Yes	ASV, BIO
Silver	43/69	0.05	7.7	12TP08-0.502-02	50[6]	560	4.2	0.2	0.01	1.8	Yes	ASV, BIO
Sodium	39/39	33.1	549	SSA12-SB01D-0001-20071207	NA	NA	NA	NA	NA	NA	No	Nutrient
Thallium	49/77	0.11	4.2	SSA12-SS02D-000.5-20071207	NA	1	0.0569	NA	4.2	73.8	Yes	ASV, NSV
Vanadium	122/122	5.7	44.9	12TP10-0.502-02	20[6]	2	7.8	2.2	22.5	5.8	Yes	ASV
Zinc	122/122	16.9	731	SSA12-SS04D-000.5-20071205	120	160	46	6.1	4.6	15.9	Yes	ASV, BIO
PESTICIDES (µg/kg)												
4,4'-DDD	17/110	0.94	19	12TP11-0.502-02	NA	NA	21	NA	NA	0.9	Yes	NSV, BIO
4,4'-DDE	34/116	0.82	82	12TP15-000.5-01	NA	NA	21	NA	NA	3.9	Yes	ASV, NSV, BIO
4,4'-DDT	43/119	1.2	170	12TP15-000.5-01	NA	NA	21	NA	NA	8.1	Yes	ASV, NSV, BIO
Total DDT	53/125	0.82	257	12TP15-000.5-01	NA	NA	21	NA	NA	12.2	Yes	ASV, NSV, BIO
Aldrin	5/125	0.61	2.4	12TP11-000.5-01	NA	3.32	NA	NA	0.7	NA	Yes	NSV, BIO
Alpha-BHC	9/124	0.43	3.2	12TP11-000.5-01	NA	NA	99.4	NA	NA	0.03	Yes	NSV, BIO
Alpha-Chlordane	20/117	0.33	13	12TP05-0.502-02	NA	224	NA	NA	0.1	NA	Yes	NSV, BIO
Beta-BHC	2/100	1.9	13	12TP07-0.502-02	NA	3.98	NA	NA	3.3	NA	Yes	ASV, NSV, BIO
Delta-BHC	20/118	0.39	2.8	12TP08-000.5-01	NA	NA	9940	NA	NA	0.0003	Yes	NSV, BIO
Dieldrin	45/115	1	500	12TP11-000.5-01	NA	NA	4.9	NA	NA	102.0	Yes	ASV, NSV, BIO
Endosulfan I	21/117	0.34	3.9	12SB01-0.502-02	NA	NA	119	NA	NA	0.03	Yes	NSV, BIO
Endosulfan II	2/112	1.7	2.1	12TP01-000.5-01	NA	NA	119	NA	NA	0.02	Yes	NSV, BIO
Endosulfan Sulfate	10/120	1.5	54	12TP15-000.5-01	NA	NA	35.8	NA	NA	1.5	Yes	ASV, NSV, BIO
Endrin	6/122	0.9	19	12TP11-0.502-02	NA	NA	10.1	NA	NA	1.9	Yes	ASV, NSV, BIO

TABLE 7-5

SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Chemical	Frequency of Detection	Range of Detected Concentrations[1]		Location of Maximum Concentration	Ecological Screening Value[2]			Hazard Quotient[4]			COPC (Yes/No)	Rationale for COPC Selection[5]
		Minimum	Maximum		Invertebrates	Plants	Wildlife[3]	Invertebrates	Plants	Wildlife		
Endrin Aldehyde	34/120	0.58	27	12TP11-0.502-02	NA	NA	10.5	NA	NA	2.6	Yes	ASV, NSV, BIO
Endrin Ketone	18/116	0.74	34	12TP11-0.502-02	NA	NA	NA	NA	NA	NA	Yes	NSV, BIO
Gamma-BHC (Lindane)	1/125	2.3	2.3	SSA12-SB01D-0001-20071207	NA	5	NA	NA	0.46	NA	Yes	NSV, BIO
Gamma-Chlordane	12/100	0.46	28	12TP11-0.502-02	NA	224	NA	NA	0.1	NA	Yes	NSV, BIO
Heptachlor	24/119	0.31	2.1	12TP15-000.5-01	NA	NA	5.98	NA	NA	0.4	Yes	NSV, BIO
Heptachlor Epoxide	23/115	0.37	12	12TP11-0.502-02	NA	NA	152	NA	NA	0.1	Yes	NSV, BIO
Methoxychlor	3/118	13	41	12TP08-000.5-01	NA	NA	19.9	NA	NA	2.1	Yes	ASV, NSV, BIO
SEMIVOLATILES (µg/kg)												
2-Methylnaphthalene	58/144	1.2	990	12SB10-0.502-02	29000	NA	100000	0.03	NA	0.01	Yes	NSV
Acenaphthene	69/144	1.6	3200	12TP11-0.502-02	29000	20000	100000	0.1	0.2	0.03	Yes	BIO
Acenaphthylene	76/144	0.86	670	12TP08-0.502-02	29000	NA	100000	0.02	NA	0.01	Yes	NSV, BIO
Anthracene	100/144	0.72	16000	12TP11-0.502-02	29000	NA	100000	0.6	NA	0.2	Yes	NSV, BIO
Benz(a)anthracene	112/144	1.3	21000	12TP11-0.502-02	18000	NA	1100	1.2	NA	19.1	Yes	ASV, NSV, BIO
Benzaldehyde	3/68	26	40	12TP14-0.502-02	NA	NA	NA	NA	NA	NA	Yes	NSV
Benzo(a)pyrene	116/144	2.3	21000	12TP11-0.502-02	18000	NA	1100	1.2	NA	19.1	Yes	ASV, NSV, BIO
Benzo(b)fluoranthene	116/144	1.3	19000	12TP11-0.502-02	18000	NA	1100	1.1	NA	17.3	Yes	ASV, NSV, BIO
Benzo(g,h,i)perylene	109/144	0.74	25000	12TP11-0.502-02	18000	NA	1100	1.4	NA	22.7	Yes	ASV, NSV, BIO
Benzo(k)fluoranthene	118/144	1.1	30000	12TP11-0.502-02	18000	NA	1100	1.7	NA	27.3	Yes	ASV, NSV, BIO
Bis(2-ethylhexyl) Phthalate	12/116	46	1500	12SB01-000.5-01	NA	NA	925	NA	NA	1.6	Yes	ASV, NSV
Carbazole	22/122	44	8200	12TP11-0.502-02	NA	NA	NA	NA	NA	NA	Yes	NSV
Chrysene	124/144	1.4	22000	12TP11-0.502-02	18000	NA	1100	1.2	NA	20	Yes	ASV, NSV, BIO
Di-n-butyl Phthalate	5/122	28	97	12TP12-000.5-01	NA	200000	150	NA	0.0005	0.6	Yes	NSV
Di-n-octyl Phthalate	2/122	48	150	12TP14-0.502-02	NA	NA	709000	NA	NA	0.0002	Yes	NSV
Dibenz(a,h)anthracene	91/144	0.77	12000	12TP11-0.502-02	18000	NA	1100	0.7	NA	10.9	Yes	ASV, NSV, BIO
Dibenzofuran	12/122	29	3700	12TP11-0.502-02	NA	NA	NA	NA	NA	NA	Yes	NSV
Dimethyl Phthalate	28/122	170	540	12SB15-0.502-02	200000	NA	734000	0.003	NA	0.001	Yes	NSV
Fluoranthene	132/144	2.4	44000	12TP11-0.502-02	29000	NA	100000	1.5	NA	0.44	Yes	ASV, NSV, BIO
Fluorene	80/144	0.59	6900	12TP11-0.502-02	29000	NA	100000	0.2	NA	0.07	Yes	BIO, NSV
Indeno(1,2,3-cd)pyrene	105/144	2.9	30000	12TP11-0.502-02	18000	NA	1100	1.7	NA	27.3	Yes	ASV, NSV, BIO
Naphthalene	45/144	2.5	660	12TP11-0.502-02	29000	NA	100000	0.02	NA	0.007	Yes	NSV
Phenanthrene	127/144	1.6	39000	12SB10-0.502-02	29000	NA	100000	1.3	NA	0.4	Yes	ASV, NSV, BIO
Pyrene	129/144	2.1	35000	12TP11-0.502-02	18000	NA	1100	1.9	NA	31.8	Yes	ASV, NSV, BIO
Total PAHs	133/144	5.2	301000	12TP11-0.502-02	NA	NA	NA	NA	NA	NA	Yes	NSV, BIO

TABLE 7-5

SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
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Chemical	Frequency of Detection	Range of Detected Concentrations[1]		Location of Maximum Concentration	Ecological Screening Value[2]			Hazard Quotient[4]			COPC (Yes/No)	Rationale for COPC Selection[5]
		Minimum	Maximum		Invertebrates	Plants	Wildlife[3]	Invertebrates	Plants	Wildlife		
VOLATILES (µg/kg)												
2-Butanone	40/94	5.5	200	12SB15-000.5-01	NA	NA	89600	NA	NA	0.002	Yes	NSV
2-Hexanone	1/122	14	14	12SB15-000.5-01	NA	NA	12600	NA	NA	0.001	Yes	NSV
Acetone	89/120	5.6	4600	12SB22-000.5-01	NA	NA	2500	NA	NA	1.8	Yes	ASV, NSV
Benzene	1/122	2.2	2.2	SSA12-SS09E-000.5-20071206	NA	NA	255	NA	NA	0.009	Yes	NSV
Carbon Disulfide	8/122	1.4	10	12TP03-000.5-01	NA	NA	94.1	NA	NA	0.1	Yes	NSV
Chloromethane	5/122	1.2	2.3	12TP05-0.502-02	NA	NA	10400	NA	NA	0.0002	Yes	NSV
Dichlorodifluoromethane	2/122	1.8	12	SSA12-SS15E-000.5-20071206	NA	NA	39500	NA	NA	0.0003	Yes	NSV
Isopropylbenzene	1/122	2.9	2.9	12SB18-000.5-01	NA	NA	NA	NA	NA	NA	Yes	NSV
Methyl Acetate	20/68	3	440	12SB02-000.5-01	NA	NA	NA	NA	NA	NA	Yes	NSV
Tetrachloroethene	1/122	3.6	3.6	12TP14-0.502-02	NA	NA	9920	NA	NA	0.0004	Yes	NSV
Toluene	2/122	1.6	2	12SB01-0.502-02	NA	200000	5450	NA	0.00001	0.0004	Yes	ASV, NSV
Trichloroethene	1/122	3.9	3.9	12TP14-0.502-02	NA	NA	12400	NA	NA	0.0003	Yes	NSV
Trichlorofluoromethane	1/122	3.8	3.8	SSA12-SS15E-000.5-20071206	NA	NA	16400	NA	NA	0.0002	Yes	NSV

Footnotes:

(1) The duplicate pair was treated as one result with the exception of the minimum and maximum concentrations.

(2) Ecological screening values are preferentially USEPA's Ecological Soil Screening Levels (Eco-SSLs). NOAA's Screening Quick Reference Tables (Buchman 2008) were used for chemicals that do not have an Eco-SSL.

(3) For analytes with a USEPA Eco-SSL, the value is the lowest of avian and mammal Eco-SSLs. Otherwise, the "mammal" value from NOAA's Screening Quick Reference Tables was used.

(4) Hazard quotient = maximum detected concentration ÷ ecological screening value.

(5) Rationale codes: ASV=maximum concentration is greater than ecological screening value for one or more assessment endpoints (invertebrates, plants, wildlife).
BIO=chermical identified by USEPA (2000) as bioaccumulative.
BSV=maximum concentration is equal to or less than all three ecological screening values.
NSV=ecological screening value not available for one or more assessment endpoints (invertebrates, plants, wildlife).
Nutrient=essential nutrient

(6) Ecological screening value for invertebrates not available; value shown is the ecological screening value for soil microbes and microbial processes.

NA: Ecological screening value not available.

TABLE 7-6

SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN BY ASSESSMENT ENDPOINT
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 2

Chemical	Assessment Endpoint[1]		
	Invertebrates[2]	Plants[2]	Wildlife[3]
INORGANICS (mg/kg)			
Aluminum	X	X	
Antimony		X	X
Arsenic		X	X
Cadmium			X
Chromium	X	X	X
Hexavalent Chromium	X	X	X
Copper	X	X	X
Cyanide	X	X	
Iron	X	X	
Lead		X	X
Manganese	X	X	
Mercury	X	X	X
Nickel		X	X
Selenium		X	X
Silver			X
Thallium	X	X	X
Vanadium	X	X	X
Zinc	X	X	X
PESTICIDES (µg/kg)			
4,4'-DDD	X	X	X
4,4'-DDE	X	X	X
4,4'-DDT	X	X	X
Total DDT	X	X	X
Aldrin	X		X
Alpha-BHC	X	X	X
Alpha-Chlordane	X		X
Beta-BHC	X	X	X
Delta-BHC	X	X	X
Dieldrin	X	X	X
Endosulfan I	X	X	X
Endosulfan II	X	X	X
Endosulfan Sulfate	X	X	X
Endrin	X	X	X
Endrin Aldehyde	X	X	X
Endrin Ketone	X	X	X
Gamma-BHC (Lindane)	X		X
Gamma-Chlordane	X		X
Heptachlor	X	X	X
Heptachlor Epoxide	X	X	X
Methoxychlor	X	X	X

TABLE 7-6

SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN BY ASSESSMENT ENDPOINT
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Assessment Endpoint[1]		
	Invertebrates[2]	Plants[2]	Wildlife[3]
SEMIVOLATILES (µg/kg)			
2-Methylnaphthalene		X	
Acenaphthene			X
Acenaphthylene		X	X
Anthracene		X	X
Benz(a)anthracene	X	X	X
Benzaldehyde	X	X	
Benzo(a)pyrene	X	X	X
Benzo(b)fluoranthene	X	X	X
Benzo(g,h,i)perylene	X	X	X
Benzo(k)fluoranthene	X	X	X
Bis(2-ethylhexyl) Phthalate	X	X	X
Carbazole	X	X	
Chrysene	X	X	X
Di-n-butyl Phthalate	X		
Di-n-octyl Phthalate	X	X	
Dibenz(a,h)anthracene		X	X
Dibenzofuran	X	X	
Dimethyl Phthalate		X	
Fluoranthene	X	X	X
Fluorene		X	X
Indeno(1,2,3-cd)pyrene	X	X	X
Naphthalene		X	
Phenanthrene	X	X	X
Pyrene	X	X	X
Total PAHs	X	X	X
VOLATILES (µg/kg)			
2-Butanone	X	X	
2-Hexanone	X	X	
Acetone	X	X	X
Benzene	X	X	
Carbon Disulfide	X	X	
Chloromethane	X	X	
Dichlorodifluoromethane	X	X	
Isopropylbenzene	X	X	
Methyl Acetate	X	X	
Tetrachloroethene	X	X	
Toluene	X		
Trichloroethene	X	X	
Trichlorofluoromethane	X	X	

Footnotes:
(1) This table is derived from Table 7-5. An "X" indicates that the chemical was retained as an ecological chemical of potential concern (COPC) for that particular assessment endpoint. See Section 7.1.5 of text for a complete description of assessment endpoints.
(2) Chemicals in surface soil were retained as ecological COPCs for invertebrates or plants if the maximum detected concentration exceeded the associated screening value, or if an ecological screening value was not available.
(3) Chemicals in surface soil were retained as ecological COPCs for wildlife if the chemical was identified by USEPA (2000) as bioaccumulative, or if the maximum detected concentration exceeded the "wildlife" ecological screening value in Table 7-5.

TABLE 7-7

DATA SUMMARY FOR SUBSURFACE SOIL[1]
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[2]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[3]	ECOLOGICAL SCREENING VALUE[4]	MAXIMUM HAZARD QUOTIENT (HQ)	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE
		MINIMUM	MAXIMUM								
INORGANICS (mg/kg)											
Aluminum	37/37	3470	29400	11700	11700	12TP15-0304-03		50	588	37	
Antimony	7/8	0.92	22.7	8.8	10	12TP15-0304-03	0.34-0.34	0.27	84.1	7	
Arsenic	37/37	0.76	92.2	8.24	8.24	12TP12-0203-03		18	5.1	3	
Barium	37/37	15	804	129	129	12SB20-0304-03-D		330	2.4	4	
Beryllium	35/35	0.2	3.1	0.691	0.691	12TP15-0304-03		10	0.3		
Cadmium	22/25	0.025	105	9.82	11.1	12TP08-0304-03	0.06-0.06	0.36	292	8	
Calcium	37/37	166	67600	5210	5210	12TP08-0304-03		---	---	---	---
Chromium	41/41	4	75.5	23.1	23.1	12TP09-0304-03-D		0.4	188.8	41	
Hexavalent Chromium	13/13	0.4	4.7	1.37	1.37	12SB21-0304-03		0.4	11.8	11	
Cobalt	37/37	1.9	13.9	6.8	6.8	12TP08-0304-03		13	1.1	1	
Copper	37/37	2.6	1170	104	104	12TP09-0304-03-D		28	41.8	7	
Cyanide	11/27	0.044	0.096	0.0728	0.0642	12SB09-0304-03	0.1385-0.2	1.33	0.07		
Iron	37/37	4610	166000	26300	26300	SSA12-SB08D-0202.5-20071205		200	830	37	
Lead	37/37	1.6	7900	342	342	12TP15-0304-03		11	718.2	15	
Magnesium	37/37	357	9320	2040	2040	12TP15-0304-03		---	---	---	---
Manganese	37/37	43.7	1090	405	405	12TP15-0304-03		220	5.0	21	
Mercury	36/37	0.002	0.3	0.0459	0.0469	12TP09-0304-03-D	0.019-0.02	0.1	3.0	---	---
Nickel	37/37	2.4	117	17.5	17.5	12TP09-0304-03-D		38	3.1	4	
Potassium	37/37	103	2650	655	655	12TP15-0304-03		---	---	---	---
Selenium	10/32	0.057	16.4	0.661	1.8	12TP12-0203-03	0.2-0.42	0.52	31.5	1	
Silver	8/10	0.2	19.5	4.84	6.04	12TP12-0203-03	0.0455-0.11	4.2	4.6	4	
Sodium	19/19	41.6	1300	183	183	12TP15-0304-03		---	---	---	---
Thallium	17/18	0.08	41.1	4.62	4.87	SSA12-SB08D-0202.5-20071205	0.71-0.71	0.0569	722.3	17	1
Vanadium	37/37	5.2	45.4	24.5	24.5	SSA12-SB05D-0202.5-20071207		2	22.7	37	
Zinc	37/37	8.6	5400	516	516	12TP15-0304-03		46	117	8	
PESTICIDES (µg/kg)											
4,4'-DDE	3/34	1.6	6.1	1.1	3.67	12TP09-0304-03-D	0.95-4.2	21	0.3		
4,4'-DDT	3/37	4.8	14	1.75	10.6	12TP09-0304-03-D	0.95-4.5	21	0.7		
Total DDT	5/37	1.6	20.1	1.16	8.56	12TP09-0304-03-D		21	0.96		
Alpha-BHC	2/37	0.83	3	0.754	1.92	12TP08-0304-03	0.95-2.3	99.4	0.03		
Alpha-Chlordane	2/37	1.5	7.1	1.18	4.3	12TP09-0304-03	0.95-24	224	0.03		
Aroclor-1260	1/37	350	350	16.4	350	12SB20-0304-03-D	9.5-24	0.332	1054	1	36
Delta-BHC	2/36	0.99	1.6	0.709	1.3	12TP11-0304-03	0.95-2.3	9940	0.0002		
Dieldrin	4/35	2.5	44	2.91	18.9	12TP11-0304-03	0.95-4.2	4.9	9.0	3	
Endosulfan I	3/37	0.46	2	0.712	1.14	12TP08-0304-03	0.95-2.2	119	0.02		
Endosulfan II	1/35	1.9	1.9	1	1.9	12TP12-0203-03	0.95-4.5	119	0.02		
Endosulfan Sulfate	1/35	1.1	1.1	0.976	1.1	12TP12-0203-03	0.95-4.6	35.8	0.03		
Endrin	1/37	13	13	1.36	13	12TP08-0304-03	0.95-4.5	10.1	1.3	1	
Endrin Aldehyde	2/36	2.3	2.7	1.06	2.5	12TP11-0304-03	0.95-4.6	10.5	0.3		
Endrin Ketone	3/35	4.6	15	1.54	8.47	12TP09-0304-03	0.95-4.2	---	---	---	---
Gamma-Chlordane	5/37	0.73	8.9	1.21	2.58	12TP09-0304-03	0.95-24	224	0.04		
Heptachlor	2/34	1.1	1.3	0.679	1.2	12TP08-0304-03	0.95-2.2	5.98	0.2		
Heptachlor Epoxide	3/37	1.1	3.6	0.828	2.57	12TP08-0304-03	0.95-2.3	152	0.02		
Methoxychlor	1/36	11	11	6.91	11	12TP15-0304-03	0.95-240	19.9	0.6		1

TABLE 7-7

DATA SUMMARY FOR SUBSURFACE SOIL[1]
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[2]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[3]	ECOLOGICAL SCREENING VALUE[4]	MAXIMUM HAZARD QUOTIENT (HQ)	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE
		MINIMUM	MAXIMUM								
SEMIVOLATILES (µg/kg)											
2-Methylnaphthalene	6/37	3.1	2200	97.9	421	12TP09-0304-03	1.85-890	29000	0.08		
Acenaphthene	7/37	3.1	5100	189	875	12TP09-0304-03	1.85-220	29000	0.2		
Acenaphthylene	6/37	2.4	170	49.1	65.2	12TP08-0304-03	1.85-4400	29000	0.01		
Anthracene	10/37	5.6	13000	445	1570	12TP09-0304-03	1.85-220	29000	0.4		
Benz(a)anthracene	15/37	1.3	22000	758	1820	12TP09-0304-03	1.85-220	1100	20.0	3	
Benzo(a)pyrene	13/37	2	16000	593	1630	12TP09-0304-03	1.85-220	1100	14.5	3	
Benzo(b)fluoranthene	15/37	1.4	15000	603	1440	12TP09-0304-03	1.85-220	1100	13.6	4	
Benzo(g,h,i)perylene	11/37	0.66	8800	323	1020	12TP09-0304-03	1.85-220	1100	8.00	1	
Benzo(k)fluoranthene	14/37	1.2	18000	632	1630	12TP09-0304-03	1.85-220	1100	16.4	2	
Bis(2-ethylhexyl) Phthalate	3/36	360	23000	817	8290	SSA12-SB08D-0202.5-20071205	185-4400	925	24.9		
Carbazole	4/37	62	8400	352	2160	12TP09-0304-03	185-1900	---	---	---	---
Chrysene	16/37	1.5	24000	834	1890	12TP09-0304-03	1.85-220	1100	21.8	3	
Di-n-butyl Phthalate	1/37	23	23	132	23	12TP12-0203-03	185-4400	150	0.2		2
Dibenz(a,h)anthracene	9/37	3.9	4100	153	546	12TP09-0304-03	1.85-220	1100	3.7		
Dibenzofuran	3/37	49	4600	263	2080	12TP09-0304-03	185-230	---	---	---	---
Dimethyl Phthalate	12/37	170	350	183	248	12SB09-0304-03	190-4400	100	3.5	12	19
Fluoranthene	17/37	3.3	48000	1710	3690	12TP09-0304-03	1.85-220	29000	1.7		
Fluorene	9/37	1	6900	250	934	12TP09-0304-03	1.85-220	29000	0.2		
Indeno(1,2,3-cd)pyrene	11/37	2.5	10000	368	1160	12TP09-0304-03	1.85-220	1100	9.1		
Naphthalene	6/37	4.4	5800	200	1050	12TP09-0304-03	1.85-890	29000	0.2		
Phenanthrene	17/37	2.9	48000	1750	3770	12TP09-0304-03	1.85-220	29000	1.7		
Pyrene	18/37	2	36000	1300	2630	12TP09-0304-03	1.85-220	1100	32.7	4	
Total PAHs	19/37	2	283000	9880	19200	12TP09-0304-03		1000	283	7	
VOLATILES (µg/kg)											
2-Butanone	4/32	5.1	15	17.1	11.3	12TP08-0304-03	11-640	---	---	---	---
Acetone	14/32	11	2200	144	321	SSA12-SB04D-0202.5-20071205	11-14.5	2500	0.9		
Benzene	4/37	4.4	44	6.96	18.5	12TP09-0304-03-D	2.2-260	10	4.4	2	1
Bromomethane	1/37	7.9	78	7.66	78	12TP09-0304-03-D	2.2-260	---	---	---	---
Carbon Disulfide	5/37	1.1	5.3	5.36	2.64	12TP09-0304-03-D	2.2-260	94.1	0.06		1
Chloromethane	3/37	2.6	130	9.32	52.2	12TP09-0304-03-D	2.2-260	10400	0.01		
Ethylbenzene	2/37	1.3	2.4	5.29	1.85	12TP15-0304-03	2.2-260	30	0.1		
Methyl Cyclohexane	1/13	3.8	3.8	13.1	3.8	12TP09-0304-03-D	5.1-260	---	---	---	---
Methylene Chloride	1/37	2.4	2.4	5.42	2.4	12SB19-0304-03	2.2-260	400	0.01		
Toluene	3/36	6.6	13	5.95	10.2	12TP09-0304-03-D	2.2-260	5450	0.002		
DIOXIN/FURAN (ng/kg)											
TCDD TEQ (bird)[5]	1/1	43.62856	43.62856	43.6	43.6	12TP08-0304-03		0.199	219	1	
TCDD TEQ (mammal)[5]	1/1	27.02948	27.02948	27	27	12TP08-0304-03		0.199	136	1	

Footnotes:
(1) Samples collected at various depth intervals from 2 to 4 feet below ground surface.
(2) The duplicate pair was treated as one result with the exception of the minimum and maximum concentrations
(3) Sample-specific quantitation limits.
(4) Lowest ecological screening value from Table 7-5.
(5) 2,3,7,8-TCDD toxic equivalents; concentrations were calculated by assigning a value of one-half the detection limit for non-detected congeners.

TABLE 7-8

SEDIMENT ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 2

Chemical	Frequency of Detection	Range of Detected Concentrations		Location of Maximum Concentration	Range of Nondetects[1]	Ecological Screening Value[2]	Hazard Quotient[3]	COPC (Yes/No)	Rationale for COPC Selection[4]
		Minimum	Maximum						
INORGANICS (mg/kg)									
Aluminum	8/8	5400	16700	12SD06	---	25,500	0.7	No	BSV
Antimony	8/8	0.47	2.2	12SD08	---	2	1.1	Yes	ASV
Arsenic	8/8	2.8	7.2	12SD06	---	9.8	0.7	Yes	BIO
Barium	8/8	58.2	838	12SD02	---	NA	NA	Yes	NSV
Beryllium	8/8	0.43	1.2	12SD02	---	NA	NA	Yes	NSV
Cadmium	8/8	0.07	2.1	12SD02	---	0.99	2.1	Yes	ASV, BIO
Calcium	8/8	717	5970	12SD03	---	NA	NA	No	Nutrient
Chromium	8/8	11	22.3	12SD06	---	43.4	0.5	Yes	BIO
Cobalt	8/8	3.4	37.1	12SD02	---	50	0.7	No	BSV
Copper	8/8	7.2	44.7	12SD02	---	31.6	1.4	Yes	ASV, BIO
Iron	8/8	10800	24000	12SD02	---	20000	1.2	Yes	ASV
Lead	8/8	14.9	90	12SD04	---	35.8	2.5	Yes	ASV, BIO
Magnesium	8/8	930	2740	12SD03	---	NA	NA	No	Nutrient
Manganese	8/8	129	17400	12SD02	---	460	37.8	Yes	ASV
Mercury	7/8	0.023	0.11	12SD08	0.019-0.02	0.18	0.6	Yes	BIO
Nickel	8/8	5.5	28.4	12SD02	---	22.7	1.3	Yes	ASV, BIO
Potassium	8/8	356	1490	12SD08	---	NA	NA	No	Nutrient
Silver	1/8	0.47	0.47	12SD02	0.11-0.19	1	0.5	Yes	BIO
Thallium	3/8	1	13.3	12SD02	0.66-1	NA	NA	Yes	NSV
Vanadium	8/8	17	36.5	12SD06	---	NA	NA	Yes	NSV
Zinc	8/8	25	269	12SD02	---	121	2.2	Yes	ASV, BIO
PESTICIDES (µg/kg)									
4,4'-DDD	1/7	4	4	12SD01	4.2-6.6	4.88	0.8	Yes	BIO
4,4'-DDE	3/7	5.2	6.5	12SD08	4.2-5.9	3.16	2.1	Yes	ASV, BIO
4,4'-DDT	6/8	1.4	5.2	12SD06	4.2-4.3	4.16	1.3	Yes	ASV, BIO
Total DDT	6/8	1.6	10.6	12SD08	4.2-4.3	5.28	2.0	Yes	ASV, BIO
Aldrin	2/8	0.43	0.43	12SD01	2.1-3.4	2	0.2	Yes	BIO
Alpha-BHC	3/6	0.63	0.68	12SD03	2.2-3	6	0.1	Yes	BIO
Alpha-Chlordane	3/7	4.8	12	12SD02	2.2-3	3.24	3.7	Yes	ASV, BIO
Beta-BHC	1/8	16	16	12SD03-D	1.1-23	5	3.2	Yes	ASV, BIO
Delta-BHC	1/7	0.49	0.49	12SD01	2.2-3	6400	0.00008	Yes	BIO
Dieldrin	6/7	0.77	55	12SD07	4.2-4.2	1.9	28.9	Yes	ASV, BIO
Endosulfan I	1/5	1.7	1.7	12SD01	2.2-3.4	2.9	0.6	Yes	BIO
Endosulfan Sulfate	1/8	1.5	1.5	12SD07	4.1-6.6	5.4	0.3	Yes	BIO
Endrin Aldehyde	4/7	1.5	7.5	12SD02	4.2-5.9	2.22	3.4	Yes	ASV, BIO
Endrin Ketone	3/7	2.4	17	12SD02	4.2-6.6	2.22	7.7	Yes	ASV, BIO
Gamma-Chlordane	3/5	3.7	16	12SD02	2.2-2.2	3.24	4.9	Yes	ASV, BIO
Heptachlor	2/7	0.45	1	12SD07	2.1-3.4	68	0.01	Yes	BIO
Heptachlor Epoxide	4/7	0.72	4.5	12SD01	2.2-2.2	2.47	1.8	Yes	BIO

TABLE 7-8

SEDIMENT ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 2

Chemical	Frequency of Detection	Range of Detected Concentrations		Location of Maximum Concentration	Range of Nondetects[1]	Ecological Screening Value[2]	Hazard Quotient[3]	COPC (Yes/No)	Rationale for COPC Selection[4]
		Minimum	Maximum						
SEMIVOLATILES (µg/kg)									
2-Methylnaphthalene	4/8	2.7	11	12SD04	340-1200	20.2	0.5	No	BSV
Acenaphthene	4/8	1.1	200	12SD03-D	11-1200	6.7	29.9	Yes	ASV, BIO
Acenaphthylene	6/8	2.7	150	12SD03-D	930-1200	5.9	25.4	Yes	ASV, BIO
Anthracene	8/8	2.2	900	12SD03-D	---	57.2	15.7	Yes	ASV, BIO
Benz(a)anthracene	8/8	10	3500	12SD03-D	---	108	32.4	Yes	ASV, BIO
Benzo(a)pyrene	8/8	13	3500	12SD03-D	---	150	23.3	Yes	ASV, BIO
Benzo(b)fluoranthene	8/8	14	4800	12SD03-D	---	NA	NA	Yes	NSV, BIO
Benzo(g,h,i)perylene	8/8	10	1400	12SD03-D	---	170	8.2	Yes	ASV, BIO
Benzo(k)fluoranthene	8/8	15	3500	12SD02	---	240	14.6	Yes	ASV, BIO
Bis(2-ethylhexyl)phthalate	5/8	79	460	12SD02	220-280	180	2.6	Yes	ASV
Carbazole	4/8	120	440	12SD02	220-300	NA	NA	Yes	NSV
Chrysene	8/8	15	4200	12SD03-D	---	166	25.3	Yes	ASV, BIO
Di-n-butylphthalate	2/8	82	340	12SD02	220-930	6470	0.05	No	BSV
Dibenz(a,h)anthracene	8/8	2.4	750	12SD03-D	---	33	22.7	Yes	ASV, BIO
Dibenzofuran	1/8	82	210	12SD03-D	220-1200	415	0.5	No	BSV
Fluoranthene	8/8	33	10000	12SD03-D	---	423	23.6	Yes	ASV, BIO
Fluorene	7/8	0.87	340	12SD03-D	1200-1200	77.4	4.4	Yes	ASV, BIO
Indeno(1,2,3-cd)pyrene	8/8	11	1900	12SD03-D	---	17	112	Yes	ASV, BIO
Naphthalene	4/8	2	5.4	12SD06	340-1200	176	0.03	No	BSV
Phenanthrene	8/8	11	5800	12SD03-D	---	204	28.4	Yes	ASV, BIO
Pyrene	8/8	29	8600	12SD03-D	---	195	44.1	Yes	ASV, BIO
Total PAHs	6/6	157.87	49240	12SD03-D	---	1610	30.6	Yes	ASV, BIO
VOLATILES (µg/kg)									
2-Butanone	5/8	6.2	51	12SD01	800-1500	NA	NA	Yes	NSV
Acetone	5/8	59	380	12SD01	800-1500	NA	NA	Yes	NSV
Carbon Disulfide	2/8	1.9	28	12SD03	7.1-590	0.851	32.9	Yes	ASV
Chloromethane	1/8	6.6	6.6	12SD01	5.6-590	NA	NA	Yes	NSV
Methyl Acetate	7/8	12	2300	12SD01	5.6-6.2	NA	NA	Yes	NSV

Footnotes:

(1) Values presented are sample-specific quantitation limits.

(2) Ecological screening values are USEPA Region III BTAG Freshwater Sediment Screening Benchmarks (USEPA, 2006a), except the aluminum screening value is from NOAA's Screening Quick Reference Tables (Buchman 2008), because an aluminum sediment screening value was not available in USEPA (2006a).

(3) Hazard quotient = maximum detected concentration ÷ ecological screening value

(4) Rationale codes: ASV=maximum concentration is greater than screening value
BIO=bioaccumulative chemical
BSV=maximum concentration is less than ecological screening value
NSV=ecological screening value not available
Nutrient=essential nutrient

NA: Ecological screening value not available from USEPA (2006a) nor Buchman (2008).

TABLE 7-9

SURFACE WATER ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 1 OF 2

Chemical	Frequency of Detection	Range of Detected Concentrations		Location of Maximum Concentration	Range of Nondetects[1]	Ecological Screening Value[2]	Hazard Quotient[3]	COPC (Yes/No)	Rationale for COPC Selection[4]
		Minimum	Maximum						
INORGANICS (µg/L)									
Aluminum	2/3	2700	31800	12SW07	34.2-34.2	87	366	Yes	ASV
Antimony	1/7	4.7	4.7	12SW07	2.9-2.9	30	0.2	No	BSV
Arsenic	1/7	10.6	10.6	12SW07	2.9-2.9	5	2.1	Yes	ASV, BIO
Barium	7/7	49.9	434	12SW07	---	4	109	Yes	ASV
Beryllium	1/4	3.1	3.1	12SW07	0.23-0.23	0.66	4.7	Yes	ASV
Cadmium	1/7	1.1	1.1	12SW07	0.34-0.34	0.26[5]	4.2	Yes	ASV, BIO
Calcium	7/7	12800	39900	12SW07	---	116000	0.3	No	BSV
Chromium	2/7	1.9	37.8	12SW07	0.95-0.95	80.7[5]	0.5	Yes	BIO
Cobalt	1/3	32.6	32.6	12SW07	0.75-0.75	23	1.4	Yes	ASV
Copper	2/7	6.6	57.4	12SW07	1.5-1.5	9.8[5]	5.9	Yes	ASV, BIO
Iron	7/7	120	44700	12SW07	---	300	149	Yes	ASV
Lead	4/7	2.3	88	12SW07	1.8-1.8	2.8[5]	31.4	Yes	ASV, BIO
Magnesium	7/7	2040	13100	12SW07	---	82000	0.2	No	BSV
Manganese	7/7	16.4	2100	12SW01	---	120	17.5	Yes	ASV
Mercury	1/7	0.2	0.2	12SW07	0.1-0.1	0.026	7.7	Yes	ASV, BIO
Nickel	3/7	0.97	31.8	12SW07	0.96-0.96	57[5]	0.6	Yes	BIO
Potassium	7/7	905	4460	12SW07	---	53000	0.08	No	BSV
Sodium	6/6	4200	37900	12SW02-D	---	680000	0.06	No	BSV
Vanadium	2/5	6.5	88.8	12SW07	0.68-0.68	20	4.4	Yes	ASV
Zinc	7/7	1	253	12SW07	---	129[5]	2.0	Yes	ASV, BIO
Cyanide	5/7	3.2	48.8	12SW02	3-3	5	9.8	Yes	ASV
PESTICIDES (µg/L)									
4,4'-DDD	1/7	0.015	0.015	12SW07	0.1	0.011	1.4	Yes	ASV, BIO
4,4'-DDE	1/7	0.021	0.021	12SW07	0.1	105	0.0002	Yes	BIO
4,4'-DDT	1/7	0.019	0.019	12SW07	0.1	0.0005	38.0	Yes	ASV, BIO
Total DDT	1/7	0.055	0.055	12SW07	0.1	0.000011	5000	Yes	ASV, BIO
Aldrin	1/7	0.015	0.015	12SW07	0.05	3	0.005	Yes	BIO
Alpha-Chlordane	1/7	0.058	0.058	12SW07	0.05	0.0022	26.4	Yes	ASV, BIO
Beta-BHC	1/7	0.007	0.0089	12SW02-D	0.05	0.01	0.9	Yes	BIO
Dieldrin	5/7	0.0029	1.6	12SW07	0.1-0.11	0.056	28.6	Yes	ASV, BIO
Endosulfan I	1/7	0.063	0.063	12SW07	0.05	0.051	1.2	Yes	ASV, BIO
Endrin Aldehyde	1/7	0.037	0.037	12SW07	0.1	0.036	1.03	Yes	ASV, BIO
Heptachlor Epoxide	1/7	0.0079	0.0079	12SW08	0.05	0.0019	4.2	Yes	ASV, BIO
Methoxychlor	1/7	0.28	0.28	12SW07	0.5	0.019	14.7	Yes	ASV, BIO

TABLE 7-9

SURFACE WATER ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA
PAGE 2 OF 2

Chemical	Frequency of Detection	Range of Detected Concentrations		Location of Maximum Concentration	Range of Nondetects[1]	Ecological Screening Value[2]	Hazard Quotient[3]	COPC (Yes/No)	Rationale for COPC Selection[4]
		Minimum	Maximum						
SEMIVOLATILES (µg/L)									
2-Methylnaphthalene	1/7	0.029	0.029	12SW07	0.2	4.7	0.5	No	BSV
Acenaphthylene	2/7	0.035	0.15	12SW07	0.2-0.22	4840	0.00003	Yes	BIO
Anthracene	2/7	0.041	1.2	12SW07	0.2-0.22	0.012	100	Yes	ASV, BIO
Benz(a)anthracene	3/7	0.043	6.3	12SW07	0.21-0.22	0.018	350	Yes	ASV, BIO
Benzaldehyde	1/7	1.5	1.5	12SW07	5	NA	NA	Yes	NSV
Benzo(a)pyrene	3/7	0.049	7.1	12SW07	0.21-0.22	0.015	473	Yes	ASV, BIO
Benzo(b)fluoranthene	3/7	0.053	6.5	12SW07	0.21-0.22	9.07	0.7	Yes	BIO
Benzo(g,h,i)perylene	3/7	0.033	4.4	12SW07	0.21-0.22	7.64	0.6	Yes	BIO
Benzo(k)fluoranthene	3/7	0.047	4.8	12SW07	0.21-0.22	NA	NA	Yes	NSV, BIO
Chrysene	3/7	0.05	7.6	12SW07	0.21-0.22	NA	NA	Yes	NSV, BIO
Dibenz(a,h)anthracene	3/8	0.02	0.21	12SW07	0.2-5.4	NA	NA	Yes	NSV, BIO
Fluoranthene	3/7	0.078	13	12SW07	0.21-0.22	0.04	325	Yes	ASV, BIO
Indeno(1,2,3-cd)pyrene	3/7	0.038	5	12SW07	0.21-0.22	4.31	1.2	Yes	ASV, BIO
Phenanthrene	2/7	0.04	4.8	12SW07	0.21-0.22	0.4	12.0	Yes	ASV, BIO
Pyrene	3/7	0.079	12	12SW07	0.21-0.22	0.025	480	Yes	ASV, BIO
Total PAHs	6/6	0.534	15.989	12SW07	0.21-0.22	NA	NA	Yes	NSV, BIO
VOLATILES (µg/L)									
Bromoform	3/7	0.17	0.22	12SW02	0.5-0.5	320	0.0007	No	BSV
Chlorodibromomethane	2/7	0.14	0.24	12SW02	0.5-0.5	NA	NA	Yes	NSV
Chloroform	1/7	0.12	0.14	12SW02	0.5	1.8	0.1	No	BSV

Footnotes:

(1) Values presented are sample-specific quantitation limits.

(2) Ecological screening values are USEPA Region III BTAG Freshwater Screening Benchmarks (USEPA, 2006b), except for acenaphthylene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and 4,4'-DDE; screening values for these compounds were not available in USEPA (2006b) so their screening values are chronic fresh water screening values from NOAA's Screening Quick Reference Tables (Buchman 2008).

(3) Hazard quotient = maximum detected concentration ÷ ecological screening value

(4) Rationale codes: ASV=maximum concentration is greater than screening value
BIO=bioaccumulative chemical
BSV=maximum concentration is less than ecological screening value
NSV=ecological screening value not available

(5) Based on average site-specific hardness in of 111 mg/L.

NA: Ecological screening value not available from USEPA (2006b) nor Buchman (2008).

TABLE 7-10

FOOD CHAIN MODEL - ECOLOGICAL HAZARD QUOTIENTS
CONSERVATIVE SCENARIO, INSECTIVOROUS AND HERBIVOROUS RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Herbivorous Receptors HQs						Insectivorous Receptors HQs			
	Bobwhite Quail		Meadow Vole		Woodchuck		Robin		Short-Tailed Shrew	
Chemical	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**
Volatile Organics										
Acetone	NV	NV	1.0E-01	2.1E-02	1.5E-02	3.0E-03	NV	NV	5.1E-02	1.0E-02
Semivolatile Organics										
Acenaphthene	2.4E-02	2.4E-03	3.5E-04	6.4E-05	5.1E-05	9.5E-06	4.2E-01	4.2E-02	7.8E-03	1.4E-03
Acenaphthylene	1.7E-02	1.7E-03	8.5E-04	1.6E-04	1.2E-04	2.2E-05	1.2E+00	1.2E-01	2.5E-02	4.6E-03
Anthracene	2.88E-01	2.9E-02	1.3E-02	2.3E-03	1.7E-03	3.2E-04	3.3E+00	3.3E-01	6.4E-02	1.2E-02
Benzo(a)anthracene	1.8E-01	1.8E-02	3.92E-01	6.3E-03	4.5E-02	7.2E-04	3.0E+00	3.0E-01	5.9E+00	9.5E-02
Benzo(a)pyrene	2.9E-01	2.9E-02	1.1E+00	1.8E-02	1.5E-01	2.4E-03	2.5E+00	2.5E-01	5.0E+00	7.9E-02
Benzo(b)fluoranthene	4.5E-01	4.5E-02	2.3E+00	3.7E-02	3.3E-01	5.3E-03	4.2E+00	4.2E-01	8.7E+00	1.4E-01
Benzo(g,h,i)perylene	1.3E+00	1.3E-01	8.1E+00	1.3E-01	1.2E+00	1.9E-02	6.3E+00	6.3E-01	1.29E+01	2.1E-01
Benzo(k)fluoranthene	3.3E-01	3.3E-02	1.1E+00	1.8E-02	1.3E-01	2.1E-03	6.7E+00	6.7E-01	1.37E+01	2.2E-01
Bis(2-ethylhexyl) Phthalate	NV	NV	1.6E-03	1.6E-04	9.7E-04	9.7E-05	NV	NV	9.0E-03	9.0E-04
Chrysene	1.8E-01	1.8E-02	4.1E-01	6.5E-03	4.8E-02	7.6E-04	4.4E+00	4.4E-01	8.9E+00	1.4E-01
Dibenzo(a,h)anthracene	1.7E-01	1.7E-02	7.0E-01	1.1E-02	8.7E-02	1.4E-03	2.4E+00	2.4E-01	4.9E+00	7.8E-02
Fluoranthene	1.5E+00	1.5E-01	7.9E-02	1.5E-02	1.1E-02	2.1E-03	1.1E+01	1.1E+00	2.2E-01	4.0E-02
Fluorene	5.1E-02	5.1E-03	7.4E-04	1.4E-04	6.9E-05	1.3E-05	5.4E+00	5.4E-01	1.1E-01	2.0E-02
Indeno(1,2,3-cd)pyrene	4.0E-01	4.0E-02	1.5E+00	2.5E-02	1.9E-01	3.0E-03	7.3E+00	7.3E-01	1.50E+01	2.4E-01
Phenanthrene	7.2E-01	7.2E-02	3.2E-02	5.9E-03	4.6E-03	8.4E-04	5.9E+00	5.9E-01	1.1E-01	2.0E-02
Pyrene	1.6E+00	1.6E-01	9.5E+00	1.5E-01	1.4E+00	2.2E-02	5.4E+00	5.4E-01	1.08E+01	1.7E-01
Pesticides/PCBs										
4,4'-DDD	1.2E-03	1.0E-04	9.6E-04	2.5E-05	0.0E+00	0.0E+00	1.5E-01	1.2E-02	1.5E-01	3.9E-03
4,4'-DDE	5.3E-03	4.5E-04	4.0E-03	1.1E-04	2.7E-05	7.2E-07	9.5E-01	8.0E-02	9.6E-01	2.5E-02
4,4'-DDT	1.1E-02	9.3E-04	8.2E-03	2.2E-04	6.2E-05	1.6E-06	1.3E+00	1.1E-01	1.3E+00	3.5E-02
Total DDT	3.0E-02	2.5E-03	5.6E-02	1.5E-03	6.6E-03	1.7E-04	4.0E+00	3.4E-01	4.1E+00	1.1E-01
Aldrin	NV	NV	2.0E-03	3.9E-04	2.7E-04	5.4E-05	NV	NV	4.3E-03	8.6E-04
Alpha-BHC	2.1E-04	5.2E-05	1.2E-02	1.2E-03	1.7E-03	1.7E-04	4.8E-03	1.2E-03	1.2E-01	1.2E-02
Beta-BHC	7.9E-04	2.0E-04	1.5E-03	3.1E-04	1.9E-04	3.9E-05	1.9E-02	4.8E-03	1.7E-02	3.5E-03
Delta-BHC	5.5E-04	1.4E-04	4.1E-02	4.1E-03	5.9E-03	5.9E-04	4.2E-03	1.0E-03	1.1E-01	1.1E-02
Alpha-Chlordane	1.1E-04	2.2E-05	4.1E-05	2.1E-05	3.3E-06	1.6E-06	5.1E-03	1.0E-03	1.5E-03	7.6E-04
Aroclor-1260	NA	NA	NA	NA	3.4E-03	3.4E-04	NA	NA	NA	NA
Dieldrin	4.1E-01	3.7E-02	3.3E+00	3.9E-02	4.5E-01	5.3E-03	1.69E+01	1.5E+00	5.24E+01	6.2E-01
Endosulfan I	2.0E-05	2.0E-06	2.3E-03	2.3E-04	2.9E-04	2.9E-05	7.3E-05	7.3E-06	3.0E-03	3.0E-04
Endosulfan II	1.0E-05	1.0E-06	1.1E-03	1.1E-04	1.6E-04	1.6E-05	3.9E-05	3.9E-06	1.5E-03	1.5E-04
Endosulfan Sulfate	2.7E-04	2.7E-05	2.9E-02	2.9E-03	3.9E-03	3.9E-04	1.0E-03	1.0E-04	4.0E-02	4.0E-03
Endrin	4.3E-02	4.3E-03	5.2E-03	5.2E-04	6.4E-04	6.4E-05	1.1E+00	1.1E-01	8.0E-02	8.0E-03
Endrin Aldehyde	6.4E-02	6.4E-03	7.5E-03	7.5E-04	8.0E-04	8.0E-05	1.6E+00	1.6E-01	1.1E-01	1.1E-02
Endrin Ketone	7.9E-02	7.9E-03	9.3E-03	9.3E-04	1.1E-03	1.1E-04	2.1E+00	2.1E-01	1.4E-01	1.4E-02
Gamma-BHC (Lindane)	5.0E-05	5.0E-06	1.9E-05	1.9E-06	2.6E-06	2.6E-07	9.6E-04	9.6E-05	1.5E-04	1.5E-05
Gamma-Chlordane	2.3E-04	4.5E-05	7.6E-05	3.8E-05	6.2E-06	3.1E-06	1.1E-02	2.2E-03	3.3E-03	1.6E-03
Heptachlor	NV	NV	7.1E-04	7.1E-05	9.2E-05	9.2E-06	NV	NV	2.2E-02	2.2E-03
Heptachlor Epoxide	NV	NV	1.6E-03	1.6E-04	1.3E-04	1.3E-05	NV	NV	3.9E-02	3.9E-03
Methoxychlor	NV	NV	3.5E-04	1.7E-04	3.8E-05	1.9E-05	NV	NV	1.1E-03	5.7E-04
Inorganics										
Antimony	NV	NV	2.5E+00	5.4E-02	4.4E-01	9.4E-03	NV	NV	1.88E+01	4.0E-01
Arsenic	2.5E-01	1.2E-01	4.4E-01	1.0E-01	9.3E-02	2.1E-02	5.4E-01	2.7E-01	3.7E-01	8.4E-02
Cadmium	2.5E-01	5.7E-02	6.9E-01	7.7E-02	1.8E-01	2.0E-02	5.6E+00	1.3E+00	6.9E+00	7.6E-01
Chromium	2.8E-01	4.7E-02	2.7E-01	1.1E-02	4.2E-02	1.7E-03	1.1E+00	1.9E-01	5.8E-01	2.4E-02
Hexavalent Chromium	NV	NV	2.1E-02	3.1E-03	2.3E-03	3.4E-04	NV	NV	4.7E-02	6.9E-03
Copper	2.2E+00	2.6E-01	1.4E+00	9.8E-02	2.6E-01	1.8E-02	1.24E+01	1.4E+00	4.8E+00	3.2E-01
Lead	1.37E+01	5.0E-01	2.9E+00	7.2E-02	1.2E+00	3.0E-02	5.06E+01	1.8E+00	7.3E+00	1.8E-01
Mercury	3.99E+01	4.0E+00	1.63E+01	3.3E+00	2.4E+00	4.8E-01	2.31E+01	2.3E+00	2.8E+00	5.7E-01
Nickel	1.8E-01	6.4E-02	5.9E-01	6.7E-02	9.1E-02	1.0E-02	1.9E+00	6.7E-01	4.3E+00	5.0E-01
Selenium	6.6E-01	2.3E-01	2.4E+00	5.2E-01	4.1E-01	8.8E-02	1.3E+00	4.5E-01	1.5E+00	3.1E-01
Silver	6.2E-02	2.1E-03	1.3E-02	6.6E-04	2.7E-03	1.4E-04	1.4E+00	4.5E-02	2.8E-01	1.4E-02
Thallium	NV	NV	4.5E+00	4.5E-01	3.7E+00	3.7E-01	NV	NV	6.24E+01	6.2E+00
Vanadium	2.0E+00	4.1E-01	9.7E-02	4.3E-02	8.8E-03	3.9E-03	3.9E+00	8.0E-01	6.7E-02	2.9E-02
Zinc	4.6E-01	1.8E-01	6.2E-01	1.6E-01	1.3E-01	3.2E-02	2.1E+00	8.2E-01	1.1E+00	2.7E-01
Dioxins/Furans										
TCDD TEQ	NA	NA	NA	NA	1.8E-02	1.8E-03	NA	NA	NA	NA

Cells are shaded if the value is greater than 1.0.
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
HQ - Ecological Hazard Quotient
NV - NOAEL and LOAEL not available
NA - Analyte was detected in subsurface soil but not surface soil. Thus, HQs are applicable for woodchuck only (see Section 7.4.2 of text).

TABLE 7-11

FOOD CHAIN MODEL - ECOLOGICAL HAZARD QUOTIENTS
CONSERVATIVE SCENARIO, PISCIVOROUS RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Piscivorous Receptor HQs			
	Green Heron		Mink	
Chemical	NOAEL	LOAEL	NOAEL	LOAEL
Semivolatile Organics				
Acenaphthene	2.3E-02	2.3E-03	5.1E-04	9.4E-05
Acenaphthylene	1.7E-02	1.7E-03	3.8E-04	7.1E-05
Anthracene	1.0E-01	1.0E-02	2.3E-03	4.3E-04
Benzo(a)anthracene	4.0E-01	4.0E-02	9.6E-01	1.5E-02
Benzo(a)pyrene	4.0E-01	4.0E-02	9.6E-01	1.5E-02
Benzo(b)fluoranthene	5.5E-01	5.5E-02	1.3E+00	2.1E-02
Benzo(g,h,i)perylene	1.6E-01	1.6E-02	3.8E-01	6.2E-03
Benzo(k)fluoranthene	4.0E-01	4.0E-02	9.6E-01	1.5E-02
Chrysene	4.8E-01	4.8E-02	1.2E+00	1.8E-02
Dibenzo(a,h)anthracene	8.6E-02	8.6E-03	2.1E-01	3.3E-03
Fluoranthene	1.1E+00	1.1E-01	2.6E-02	4.7E-03
Fluorene	3.9E-02	3.9E-03	8.7E-04	1.6E-04
Indeno(1,2,3-cd)pyrene	2.2E-01	2.2E-02	5.2E-01	8.3E-03
Phenanthrene	6.7E-01	6.7E-02	1.5E-02	2.7E-03
Pyrene	9.9E-01	9.9E-02	2.4E+00	3.8E-02
Pesticides/PCBs				
4,4'-DDD	3.9E-03	3.3E-04	4.4E-03	1.2E-04
4,4'-DDE	1.7E-01	1.4E-02	1.9E-01	4.9E-03
4,4'-DDT	2.9E-02	2.5E-03	3.3E-02	8.6E-04
Total DDT	2.8E-01	2.3E-02	3.0E-01	8.0E-03
Aldrin	NA	NA	2.1E-03	4.3E-04
Alpha-BHC	1.7E-03	4.2E-04	4.8E-02	4.8E-03
Alpha-Chlordane	2.0E-02	4.1E-03	6.8E-03	3.4E-03
Beta-BHC	4.0E-02	9.8E-03	4.0E-02	7.9E-03
Delta-BHC	1.2E-03	3.0E-04	3.5E-02	3.5E-03
Dieldrin	1.1E+00	9.5E-02	3.7E+00	4.3E-02
Endosulfan I	2.4E-04	2.4E-05	1.1E-02	1.1E-03
Endosulfan Sulfate	2.1E-04	2.1E-05	9.9E-03	9.9E-04
Endrin Aldehyde	1.04E+00	1.0E-01	8.1E-02	8.1E-03
Endrin Ketone	2.4E+00	2.4E-01	1.8E-01	1.8E-02
Gamma-Chlordane	1.3E-02	2.5E-03	4.3E-03	2.1E-03
Heptachlor	NA	NA	9.9E-03	9.9E-04
Heptachlor Epoxide	NA	NA	4.5E-02	4.5E-03
Inorganics				
Arsenic	3.7E-01	1.8E-01	6.0E-01	1.4E-01
Cadmium	1.8E+00	4.1E-01	2.4E+00	2.7E-01
Chromium	6.8E-01	1.2E-01	5.8E-01	2.4E-02
Copper	9.1E+00	1.1E+00	4.7E+00	3.2E-01
Lead	5.6E+00	2.1E-01	1.5E+00	3.7E-02
Mercury	7.8E+00	7.8E-01	1.1E+00	2.2E-01
Nickel	1.6E+00	5.6E-01	4.5E+00	5.1E-01
Silver	3.8E-02	1.3E-03	9.4E-03	4.8E-04
Zinc	4.8E+00	1.8E+00	3.0E+00	7.6E-01

Cells are shaded if the value is greater than 1.0.
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
HQ - Ecological Hazard Quotient
NA - NOAEL and LOAEL not available

TABLE 7-12

DATA SUMMARY FOR SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[1]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[2]	ECOLOGICAL SCREENING VALUE[3]	MAXIMUM HAZARD QUOTIENT (HQ)	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE	MAXIMUM BACKGROUND CONCENTRATION	MEAN BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MAX BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MEAN BACKGROUND CONCENTRATION
		MINIMUM	MAXIMUM												
INORGANICS (mg/kg)															
Aluminum	122/122	2280	21000	11600	11600	SSA12-SS02D-000.5-20071207		50	420	122		15000	11400	27	68
Antimony	31/32	0.41	10.1	1.51	1.56	12SB07-000.5-01	0.32	0.27	37.4	31	1				
Arsenic	122/122	0.96	29.8	5.14	5.14	12TP08-000.5-01		18	1.7	1		10.6	6.68	3	20
Cadmium	76/86	0.04	9.4	0.869	0.979	SSA12-SS04D-000.5-20071205	0.06-0.08	0.36	26.1	48					
Chromium	122/122	4.7	38.5	17.1	17.1	SSA12-SS03E-000.5-20071206		0.4	96.3	122		20.8	15.4	26	76
Hexavalent Chromium	22/22	0.26	7.4	1.79	1.79	12SB21-000.5-01		0.4	18.5	20					
Copper	125/125	4.2	458	25.2	25.2	12TP12-000.5-01		28	16.4	21		13.4	10.7	69	85
Cyanide	43/85	0.043	0.426	0.0957	0.106	12SB10-0.502-02	0.13-0.21	1.33	0.3			3.8	0.648		
Iron	122/122	5810	37100	16900	16900	12TP08-000.5-01		200	186	122		17600	14900	46	72
Lead	131/131	5.4	1410	72	72	12SB52-0.502-02		11	128	110		64.7	31	29	71
Manganese	122/122	106	1020	402	402	12TP11-0.502-02		220	4.6	102		1190	643		15
Mercury	116/122	0.007	0.47	0.0766	0.0801	SSA12-SS07D-000.5-20071205	0.02-0.021	0.1	4.7	25					
Nickel	122/122	3.5	63.5	10.9	10.9	SSA12-SS04D-000.5-20071205		38	1.7	1		11.2	9.8	48	70
Selenium	47/84	0.063	2.6	0.309	0.396	12TP03-0.502-02	0.21-0.52	0.52	5.0	6					
Silver	43/69	0.05	7.7	0.603	0.932	12TP08-0.502-02	0.1-0.14	4.2	1.8	3					
Thallium	49/77	0.11	4.2	1.31	1.87	SSA12-SS02D-000.5-20071207	0.54-0.77	0.0569	73.8	49	28	0.34	0.225	41	43
Vanadium	122/122	5.7	44.9	24.2	24.2	12TP10-0.502-02		2	22.5	122		28.2	25	32	61
Zinc	122/122	16.9	731	80	80	SSA12-SS04D-000.5-20071205		46	15.9	67		597	90.5	1	23
PESTICIDES (µg/Kg)															
4,4'-DDD	17/110	0.94	19	2.74	4.73	SSA12-SS03E-000.5-20071206	0.95-83	21	0.9		3				
4,4'-DDE	34/116	0.82	82	3.85	9.52	12TP15-000.5-01	0.95-52	21	3.9	4	1				
4,4'-DDT	43/119	1.2	170	5.06	11.4	12TP15-000.5-01	0.95-52	21	8.1	4	1	8.3	3.01	11	31
Total DDT	53/125	0.82	257	7.17	16.9	12TP15-000.5-01		21	12.2	10					
Aldrin	5/125	0.61	2.4	1.18	1.1	12TP11-000.5-01	0.95-44	3.32	0.7		3				
Alpha-BHC	9/124	0.43	3.2	1.02	1.18	12TP11-000.5-01	0.95-27	99.4	0.03						
Alpha-Chlordane	20/117	0.33	13	1.32	2.95	12TP05-0.502-02	0.95-27	224	0.1						
Beta-BHC	2/100	1.9	13	1.14	7.45	SSA12-SS10E-000.5-20071207	0.95-21	3.98	3.3	1	4				
Delta-BHC	20/118	0.39	2.8	1.03	1.27	12TP08-000.5-01	0.95-27	9940	0.0003						
Dieldrin	45/115	1	500	16.2	38.4	SSA12-SS07E-000.5-20071206	0.95-83	4.9	102	33	2	760	179		2
Endosulfan I	21/117	0.34	3.9	1.0	1.280	12SB01-0.502-02	0.95-27	119	0.03						
Endosulfan II	2/112	1.7	2.1	1.65	1.9	12TP01-000.5-01	0.95-52	119	0.02						
Endosulfan Sulfate	10/120	1.5	54	2.49	12.1	SSA12-SS15E-000.5-20071206	0.95-52	35.8	1.5	1					
Endrin	6/122	0.9	19	1.97	8.13	12TP11-0.502-02	0.95-52	10.1	1.9	2	2				
Endrin Aldehyde	34/120	0.58	27	2.93	6.62	SSA12-SS15E-000.5-20071206	0.95-52	10.5	2.6	6	2				
Endrin Ketone	18/116	0.74	34	2.86	9.82	12TP11-0.502-02	0.95-52	---	---	---	---				
Gamma-BHC (Lindane)	1/125	2.3	2.3	1.01	2.3	SSA12-SB01D-0001-20071207	0.95-27	5	0.5		2				
Gamma-Chlordane	12/100	0.46	28	1.82	6.97	12TP11-0.502-02	0.95-27	224	0.1			48	8.67		3
Heptachlor	24/119	0.31	2.1	0.962	0.881	12TP15-000.5-01	0.95-27	5.98	0.4		2				
Heptachlor Epoxide	23/115	0.37	12	1.37	2.03	12TP11-0.502-02	0.95-43	152	0.1			47	7.79		1
Methoxychlor	3/118	13	41	12.3	29	SSA12-SS15E-000.5-20071206	0.95-440	19.9	2.1	2	6				

TABLE 7-12

DATA SUMMARY FOR SURFACE SOIL ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[1]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[2]	ECOLOGICAL SCREENING VALUE[3]	MAXIMUM HAZARD QUOTIENT (HQ)	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE	MAXIMUM BACKGROUND CONCENTRATION	MEAN BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MAX BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MEAN BACKGROUND CONCENTRATION
		MINIMUM	MAXIMUM												
SEMIVOLATILES (µg/kg)															
2-Methylnaphthalene	58/144	1.2	990	78.1	46.8	12SB10-0.502-02	1.9-2200	29000	0.03						
Acenaphthene	69/144	1.6	3200	105	150	12TP11-0.502-02	1.9-2200	29000	0.1			64	178	22	11
Acenaphthylene	76/144	0.86	670	81.7	86.6	12TP08-0.502-02	1.9-2200	29000	0.02			62	177	22	11
Anthracene	100/144	0.72	16000	365	505	12TP11-0.502-02	1.9-270	29000	0.6			160	154	32	34
Benz(a)anthracene	112/144	1.3	21000	865	1100	12TP11-0.502-02	1.95-270	1100	19.1	25		940	306	28	48
Benzaldehyde	3/68	26	40	177	34.3	12TP14-0.502-02	200-2200	---	---	---	---				
Benzo(a)pyrene	116/144	2.3	21000	815	1000	12TP11-0.502-02	1.95-240	1100	19.1	25		1100	394	25	45
Benzo(b)fluoranthene	116/144	1.3	19000	890	1090	12TP11-0.502-02	1.95-270	1100	17.3	26		1500	507	22	42
Benzo(g,h,i)perylene	109/144	0.74	25000	518	669	12TP11-0.502-02	1.95-270	1100	22.7	16		490	225	25	41
Benzo(k)fluoranthene	118/144	1.1	30000	810	981	12TP11-0.502-02	1.95-240	1100	27.3	22		920	370	26	40
Bis(2-ethylhexyl) Phthalate	12/116	46	1500	175	273	SSA12-SS13E-000.5-20071206	190-2200	925	1.6		1	7			
Carbazole	22/122	44	8200	272	678	12TP11-0.502-02	190-4200	---	---	---	---	310	212	7	11
Chrysene	124/144	1.4	22000	949	1100	12TP11-0.502-02	1.95-240	1100	20.0	28		1200	420	25	45
Di-n-butyl Phthalate	5/122	28	97	152	46.2	12TP12-000.5-01	190-2200	150	0.6		12				
Di-n-octyl Phthalate	2/122	48	150	155	99	12TP14-0.502-02	190-2200	709000	0.0002						
Dibenz(a,h)anthracene	91/144	0.77	12000	226	334	12TP11-0.502-02	1.9-270	1100	10.9			160	161	27	27
Dibenzofuran	12/122	29	3700	198	709	12TP11-0.502-02	190-2200	---	---	---	---	120	172	6	5
Dimethyl Phthalate	28/122	170	540	203	317	12SB15-0.502-02	190-2200	200000	0.003						
Fluoranthene	132/144	2.4	44000	2090	2280	12TP11-0.502-02	1.95-230	29000	1.5	1		2600	902	23	46
Fluorene	80/144	0.59	6900	156	223	12TP11-0.502-02	1.9-2200	29000	0.2			160	184	17	17
Indeno(1,2,3-cd)pyrene	105/144	2.9	30000	600	803	12TP11-0.502-02	1.95-270	1100	27.3		13	640	251	24	39
Naphthalene	45/144	2.5	660	82.6	45.1	12TP11-0.502-02	1.9-2200	29000	0.02						
Phenanthrene	127/144	1.6	39000	1250	1410	12SB10-0.502-02	1.95-240	29000	1.3	1		1700	667	22	33
Pyrene	129/144	2.1	35000	1750	1950	12TP11-0.502-02	1.95-240	1100	31.8	36		2100	723	24	45
Total PAHs	133/144	5.2	301000	11300	12200	12TP11-0.502-02		1000[4]	301	75					
VOLATILES (µg/kg)															
2-Butanone	40/94	5.5	200	17.8	23.9	12SB15-000.5-01	11.5-660	---	---	---	---				
2-Hexanone	1/122	14	14	10.6	14	12SB15-000.5-01	11-660	12600	0.001						
Acetone	89/120	5.6	4600	184	245	SSA12-SB03D-1.502-20071205	11.5-20.5	2500	1.8	1					
Benzene	1/122	2.2	2.2	3.54	2.2	SSA12-SS09E-000.5-20071206	2.35-260	10	0.2		1				
Carbon Disulfide	8/122	1.4	10	3.58	4	12TP03-000.5-01	2.35-260	94.1	0.1		1				
Chloromethane	5/122	1.2	2.3	3.5	2	12TP05-0.502-02	2.35-260	10400	0.0002						
Dichlorodifluoromethane	2/122	1.8	12	3.6	6.9	SSA12-SS15E-000.5-20071206	2.35-260	39500	0.0003						
Isopropylbenzene	1/122	2.9	2.9	3.56	2.9	12SB18-000.5-01	2.35-260	---	---	---	---				
Methyl Acetate	20/68	3	440	23.9	73.2	12SB02-000.5-01	4.6-9.8	---	---	---	---				
Tetrachloroethene	1/122	3.6	3.6	3.55	3.6	12TP14-0.502-02	2.35-260	9920	0.0004						
Toluene	2/122	1.6	2	3.53	1.8	12SB01-0.502-02	2.35-260	5450	0.0004						
Trichloroethene	1/122	3.9	3.9	3.55	3.9	12TP14-0.502-02	2.35-260	12400	0.0003						
Trichlorofluoromethane	1/122	3.8	3.8	3.54	3.8	SSA12-SS15E-000.5-20071206	2.35-260	16400	0.0002						

Footnotes:

(1) The duplicate pair was treated as one result with the exception of the minimum and maximum concentrations.

(2) Sample-specific quantitation limits.

(3) Lowest ecological screening value from Table 7-5.

(4) The 1000 µg/kg value is from NOAA's Screening Quick Reference Tables and is a Dutch "target" value that is not specific to invertebrates, plants, or wildlife.

TABLE 7-13

DATA SUMMARY FOR SEDIMENT ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[1]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[2]	ECOLOGICAL SCREENING VALUE	MAXIMUM HAZARD QUOTIENT	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE	MAXIMUM BACKGROUND CONCENTRATION	MEAN BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MAX BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MEAN BACKGROUND CONCENTRATION
		MINIMUM	MAXIMUM												
INORGANICS (mg/kg)															
Antimony	8/8	0.47	2.2	1.02	1.02	12SD08		2	1.1	1					
Arsenic	8/8	2.8	7.2	4.24	4.24	12SD06		9.8	0.7			7.2	4.55		3
Barium	8/8	58.2	838	193	193	12SD02		---	---	---	---	179	98.2	2	3
Beryllium	8/8	0.43	1.2	0.751	0.751	12SD02		---	---	---	---	1.3	0.878		4
Cadmium	8/8	0.07	2.1	0.64	0.64	12SD02		0.99	2.1	1					
Chromium	8/8	11	22.3	16	16	12SD06		43.4	0.5			34.5	15.7		4
Copper	8/8	7.2	44.7	17.5	17.5	12SD02		31.6	1.4	1		27.8	13.4	1	5
Iron	8/8	10800	24000	16800	16800	12SD02		20000	1.2	2		35400	16500		3
Lead	8/8	14.9	90	49.5	49.5	12SD04		35.8	2.5	6		28.4	15.3	6	8
Manganese	8/8	129	17400	2790	2790	12SD02		460	37.8	4		759	514	3	3
Mercury	7/8	0.023	0.11	0.0474	0.0528	12SD08	0.019-0.02	0.18	0.6						
Nickel	8/8	5.5	28.4	11.9	11.9	12SD02		22.7	1.3	1		22.7	12.5	1	3
Silver	1/8	0.47	0.47	0.121	0.47	12SD02	0.11-0.19	1	0.5						
Thallium	3/8	1	13.3	2.27	5.37	12SD02	0.66-1	---	---	---	---				
Vanadium	8/8	17	36.5	25.7	25.7	12SD06		---	---	---	---	52.6	22.6		6
Zinc	8/8	25	269	87.4	87.4	12SD02		121	2.2	1		97.6	51.2	2	6
PESTICIDES (µg/Kg)															
4,4'-DDD	1/7	4	4	2.76	4	12SD01	4.2-6.6	4.88	0.8		1				
4,4'-DDE	3/7	5.2	6.5	3.89	5.93	12SD08	4.2-5.9	3.16	2.1	3	4				
4,4'-DDT	6/8	1.4	5.2	2.83	3.06	12SD06	4.2-4.3	4.16	1.3	1	2				
Total DDT	6/8	1.6	10.6	5.59	5.59	12SD08	4.2-4.3	5.28	2.0	4					
Aldrin	2/8	0.43	0.43	1.1	0.4	12SD01	2.1-3.4	2	0.2		6				
Alpha-BHC	3/6	0.63	0.68	0.948	0.663	12SD03	2.2-3	6	0.1						
Alpha-Chlordane	3/7	4.8	12	4.49	8.67	12SD02	2.2-3	3.24	3.7	3					
Beta-BHC	1/8	16	16	4.61	16	12SD03-D	1.1-23	5	3.2	1	2				
Delta-BHC	1/7	0.49	0.49	1.12	0.49	12SD01	2.2-3	6400	0.0001						
Dieldrin	6/7	0.77	55	20.5	23.6	12SD07	4.2-4.2	1.9	28.9	5	1	3.1	2.26	5	5
Endosulfan I	1/5	1.7	1.7	1.48	1.7	12SD01	2.2-3.4	2.9	0.6		2				
Endosulfan Sulfate	1/8	1.5	1.5	2.29	1.5	12SD07	4.1-6.6	5.4	0.3		1				
Endrin Aldehyde	4/7	1.5	7.5	2.88	3.24	12SD02	4.2-5.9	2.22	3.4	2	3				
Endrin Ketone	3/7	2.4	17	6.24	11.1	12SD02	4.2-6.6	2.22	7.7	3	4				
Gamma-Chlordane	3/5	3.7	16	6.15	9.52	12SD02	2.2-2.2	3.24	4.9	3					
Heptachlor	2/7	0.45	1	1.13	0.725	12SD07	2.1-3.4	68	0.01						
Heptachlor Epoxide	4/7	0.72	4.5	1.59	1.96	12SD01	2.2-2.2	2.47	1.8	1					

TABLE 7-13

DATA SUMMARY FOR SEDIMENT ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[1]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[2]	ECOLOGICAL SCREENING VALUE	MAXIMUM HAZARD QUOTIENT	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE	MAXIMUM BACKGROUND CONCENTRATION	MEAN BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MAX BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MEAN BACKGROUND CONCENTRATION
		MINIMUM	MAXIMUM												
SEMIVOLATILES (µg/kg)															
Acenaphthene	4/8	1.1	200	174	38.3	12SD03-D	11-1200	6.7	29.9	1	4				
Acenaphthylene	6/8	2.7	150	165	42	12SD03-D	930-1200	5.9	25.4	4	2				
Anthracene	8/8	2.2	900	247	247	12SD03-D		57.2	15.7	6					
Benz(a)anthracene	8/8	10	3500	1090	1090	12SD03-D		108	32.4	6		580	275	4	5
Benzo(a)pyrene	8/8	13	3500	1190	1190	12SD03-D		150	23.3	6		530	268	4	5
Benzo(b)fluoranthene	8/8	14	4800	1300	1300	12SD03-D		---	---	---	---	670	286	4	5
Benzo(g,h,i)perylene	8/8	10	1400	521	521	12SD03-D		170	8.2	4					
Benzo(k)fluoranthene	8/8	15	3500	1350	1350	12SD02		240	14.6	5		300	240	5	5
Bis(2-ethylhexyl)phthalate	5/8	79	460	172	203	12SD02	220-280	180	2.6	2	3				
Carbazole	4/8	120	440	203	278	12SD02	220-300	---	---	---	---				
Chrysene	8/8	15	4200	1410	1410	12SD03-D		166	25.3	6		640	238	4	5
Dibenz(a,h)anthracene	8/8	2.4	750	273	273	12SD03-D		33	22.7	6					
Fluoranthene	8/8	33	10000	3300	3300	12SD03-D		423	23.6	5		510	221	5	6
Fluorene	7/8	0.87	340	136	69.4	12SD03-D	1200-1200	77.4	4.4	2	1				
Indeno(1,2,3-cd)pyrene	8/8	11	1900	680	680	12SD03-D		17	112	7					
Phenanthrene	8/8	11	5800	1570	1570	12SD03-D		204	28.4	5		260	235	5	5
Pyrene	8/8	29	8600	2610	2610	12SD03-D		195	44.1	6		1300	315	4	6
Total PAHs	6/6	157.87	49240	17762	17762	12SD03-D		1610	30.6	4					
VOLATILES (µg/kg)															
2-Butanone	5/8	6.2	51	245	21.4	12SD01	800-1500	---	---	---	---				
Acetone	5/8	59	380	372	225	12SD01	800-1500	---	---	---	---				
Carbon Disulfide	2/8	1.9	28	96.9	10.2	12SD03	7.1-590	0.851	32.9	2	6				
Chloromethane	1/8	6.6	6.6	95.6	6.6	12SD01	5.6-590	---	---	---	---				
Methyl Acetate	7/8	12	2300	625	714	12SD01	5.6-6.2	---	---	---	---				

Footnotes:
(1) The duplicate pair was treated as one result with the exception of the minimum and maximum concentrations.
(2) Sample-specific quantitation limits.

TABLE 7-14

DATA SUMMARY FOR SURFACE WATER ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL	FREQUENCY OF DETECTION	RANGE OF DETECTED CONCENTRATIONS[1]		MEAN OF ALL DATA	MEAN OF DETECTED DATA	LOCATION OF MAXIMUM CONCENTRATION	RANGE OF NONDETECTS[2]	ECOLOGICAL SCREENING VALUE	MAXIMUM HAZARD QUOTIENT	NUMBER OF DETECTS > SCREENING VALUE	NUMBER OF NONDETECTS > SCREENING VALUE	MAXIMUM BACKGROUND CONCENTRATION	MEAN BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MAX BACKGROUND CONCENTRATION	NUMBER OF DETECTS > MEAN BACKGROUND CONCENTRATION
		MINIMUM	MAXIMUM												
INORGANICS (µg/L)															
Aluminum	2/3	2700	31800	11500	17300	12SW07	34.2-34.2	87	366	2		561	145	2	2
Arsenic	1/7	10.6	10.6	2.76	10.6	12SW07	2.9-2.9	5	2.1	1					
Barium	7/7	49.9	434	160	160	12SW07	---	4	109	7		112	101	5	5
Beryllium	1/4	3.1	3.1	0.861	3.1	12SW07	0.23-0.23	0.66	4.7	1					
Cadmium	1/7	1.1	1.1	0.303	1.1	12SW07	0.34-0.34	0.26	4.2	1	6				
Chromium	2/7	1.9	37.8	6.01	19.9	12SW07	0.95-0.95	80.7	0.5						
Cobalt	1/3	32.6	32.6	11.1	32.6	12SW07	0.75-0.75	23	1.4	1					
Copper	2/7	6.6	57.4	9.68	32	12SW07	1.5-1.5	9.8	5.9	1		16.6	5.73	1	2
Iron	7/7	120	44700	7130	7130	12SW07	---	300	149	5		751	321	3	6
Lead	4/7	2.3	88	15.3	26.2	12SW07	1.8-1.8	2.8	31.4	3		1.1	0.538	5	5
Manganese	7/7	16.4	2100	985	985	12SW01	---	120	17.5	4		122	67.1	5	6
Mercury	1/7	0.2	0.2	0.0714	0.2	12SW07	0.1-0.1	0.026	7.7	1					
Nickel	3/7	0.97	31.8	5.09	11.2	12SW07	0.96-0.96	57	0.6			31.4	11.3	1	1
Vanadium	2/5	6.5	88.8	19.3	47.7	12SW07	0.68-0.68	20	4.4	1					
Zinc	7/7	1	253	43.3	43.3	12SW07	0	129	2.0	1		18.9	5.28	2	2
Cyanide	5/7	3.2	48.8	6.82	8.95	12SW02	3-3	5	9.8	3					
PESTICIDES (µg/L)															
4,4'-DDD	1/7	0.015	0.015	0.0464	0.015	12SW07	0.1	0.011	1.4	1	6				
4,4'-DDE	1/7	0.021	0.021	0.0473	0.021	12SW07	0.1	105	0.0002						
4,4'-DDT	1/7	0.019	0.019	0.047	0.019	12SW07	0.1	0.0005	38.0	1	6				
Total DDT	1/7	0.055	0.055	0.0469	0.055	12SW07	0.1	0.000011	5000	1	6				
Aldrin	1/7	0.015	0.015	0.0242	0.015	12SW07	0.05	3	0.005						
Alpha-Chlordane	1/7	0.058	0.058	0.0303	0.058	12SW07	0.05	0.0022	26.4	1	6				
Beta-BHC	1/7	0.007	0.0089	0.0229	0.00795	12SW02-D	0.05	0.01	0.9		6				
Dieldrin	5/7	0.0029	1.6	0.249	0.329	12SW07	0.1-0.11	0.056	28.6	1	2				
Endosulfan I	1/7	0.063	0.063	0.031	0.063	12SW07	0.05	0.051	1.2	1					
Endrin Aldehyde	1/7	0.037	0.037	0.0496	0.037	12SW07	0.1	0.036	1.03	1	6				
Heptachlor Epoxide	1/7	0.0079	0.0079	0.0236	0.0079	12SW08	0.05	0.0019	4.2	1	6				
Methoxychlor	1/7	0.28	0.28	0.26	0.28	12SW07	0.5	0.019	14.7	1	6				
SEMIVOLATILES (µg/L)															
Acenaphthylene	2/7	0.035	0.15	0.103	0.093	12SW07	0.2-0.22	4840	0.00003						
Anthracene	2/7	0.041	1.2	0.254	0.622	12SW07	0.2-0.22	0.012	100	2	5				
Benz(a)anthracene	3/7	0.043	6.3	0.975	2.13	12SW07	0.21-0.22	0.018	350	3	4				
Benzaldehyde	1/7	1.5	1.5	2.5	1.5	12SW07	5	NA	NA						
Benzo(a)pyrene	3/7	0.049	7.1	1.1	2.42	12SW07	0.21-0.22	0.015	473	3	4				
Benzo(b)fluoranthene	3/7	0.053	6.5	1.01	2.22	12SW07	0.21-0.22	9.07	0.7						
Benzo(g,h,i)perylene	3/7	0.033	4.4	0.721	1.54	12SW07	0.21-0.22	7.64	0.6						
Benzo(k)fluoranthene	3/7	0.047	4.8	0.771	1.65	12SW07	0.21-0.22	NA	NA						
Chrysene	3/7	0.05	7.6	1.16	2.57	12SW07	0.21-0.22	NA	NA						
Dibenz(a,h)anthracene	3/8	0.02	0.21	0.0985	0.0843	12SW07	0.2-5.4	NA	NA						
Fluoranthene	3/7	0.078	13	1.95	4.39	12SW07	0.21-0.22	0.04	325	3	4				
Indeno(1,2,3-cd)pyrene	3/7	0.038	5	0.803	1.73	12SW07	0.21-0.22	4.31	1.2	1					
Phenanthrene	2/7	0.04	4.8	0.769	2.42	12SW07	0.21-0.22	0.4	12.0	1	---				
Pyrene	3/7	0.079	12	1.8	4.06	12SW07	0.21-0.22	0.025	480	3	4				
Total PAHs	6/6	0.534	15.989	2.44	4.67	12SW07	0.21-0.22	NA	NA						
VOLATILES (µg/L)															
Chloroform	1/7	0.12	0.14	0.233	0.13	12SW02	0.5	NA	NA						

Footnotes:
(1) The duplicate pair was treated as one result with the exception of the minimum and maximum concentrations.
(2) sample-specific quantitation limits.

TABLE 7-15

FOOD CHAIN MODEL - ECOLOGICAL HAZARD QUOTIENTS
AVERAGE SCENARIO, INSECTIVOROUS AND HERBIVOROUS RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Herbivorous Receptors HQs						Insectivorous Receptors HQs			
	Bobwhite Quail		Meadow Vole		Woodchuck		Robin		Short-Tailed Shrew	
Chemical	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**	**NOAEL**	**LOAEL**
Volatile Organics										
Acetone	NV	NV	1.8E-03	3.6E-04	5.2E-04	1.0E-04	NV	NV	1.7E-03	3.3E-04
Semivolatile Organics										
Acenaphthene	1.3E-03	1.3E-04	4.1E-05	7.6E-06	1.3E-05	2.4E-06	1.2E-02	1.2E-03	2.1E-04	3.9E-05
Acenaphthylene	1.9E-03	1.9E-04	6.7E-05	1.2E-05	1.9E-05	3.5E-06	1.4E-01	1.4E-02	2.5E-03	4.7E-04
Anthracene	7.5E-03	7.5E-04	2.6E-04	4.8E-05	7.6E-05	1.4E-05	6.7E-02	6.7E-03	1.2E-03	2.2E-04
Benzo(a)anthracene	4.5E-03	4.5E-04	1.2E-02	1.9E-04	3.5E-03	5.6E-05	1.1E-01	1.1E-02	2.0E-01	3.2E-03
Benzo(a)pyrene	6.1E-03	6.1E-04	1.8E-02	2.9E-04	5.3E-03	8.5E-05	8.4E-02	8.4E-03	1.6E-01	2.5E-03
Benzo(b)fluoranthene	1.3E-02	1.3E-03	4.6E-02	7.3E-04	1.3E-02	2.1E-04	1.8E-01	1.8E-02	3.4E-01	5.4E-03
Benzo(g,h,i)perylene	1.1E-01	1.1E-02	4.3E-01	7.0E-03	1.2E-01	2.0E-03	1.1E-01	1.1E-02	2.2E-01	3.5E-03
Benzo(k)fluoranthene	5.7E-03	5.7E-04	1.7E-02	2.7E-04	5.0E-03	8.0E-05	1.6E-01	1.6E-02	3.1E-01	4.9E-03
Bis(2-ethylhexyl) Phthalate	NV	NV	6.2E-05	6.2E-06	4.0E-05	4.0E-06	NV	NV	8.6E-04	8.6E-05
Chrysene	4.8E-03	4.8E-04	1.2E-02	2.0E-04	3.7E-03	5.9E-05	1.7E-01	1.7E-02	3.2E-01	5.1E-03
Dibenzo(a,h)anthracene	1.7E-03	1.7E-04	5.1E-03	8.2E-05	1.5E-03	2.4E-05	4.0E-02	4.0E-03	7.6E-02	1.2E-03
Fluoranthene	4.6E-02	4.6E-03	1.6E-03	2.9E-04	4.6E-04	8.5E-05	4.8E-01	4.8E-02	8.7E-03	1.6E-03
Fluorene	4.1E-04	4.1E-05	4.2E-06	7.7E-07	2.5E-06	4.7E-07	1.1E-01	1.1E-02	2.0E-03	3.7E-04
Indeno(1,2,3-cd)pyrene	4.0E-03	4.0E-04	1.2E-02	1.9E-04	3.3E-03	5.4E-05	1.3E-01	1.3E-02	2.5E-01	4.0E-03
Phenanthrene	4.1E-02	4.1E-03	1.5E-03	2.7E-04	4.3E-04	7.9E-05	1.6E-01	1.6E-02	2.9E-03	5.4E-04
Pyrene	5.3E-02	5.3E-03	2.0E-01	3.3E-03	5.9E-02	9.4E-04	2.3E-01	2.3E-02	4.5E-01	7.1E-03
Pesticides/PCBs										
4,4'-DDD	6.5E-05	5.4E-06	4.0E-05	1.0E-06	0.0E+00	0.0E+00	3.4E-02	2.9E-03	3.2E-02	8.4E-04
4,4'-DDE	9.1E-05	7.6E-06	5.6E-05	1.5E-06	4.2E-06	1.1E-07	5.8E-02	4.9E-03	5.4E-02	1.4E-03
4,4'-DDT	1.2E-04	9.7E-06	6.3E-05	1.7E-06	6.7E-06	1.8E-07	5.5E-02	4.7E-03	5.1E-02	1.4E-03
Total DDT	8.5E-04	7.2E-05	1.4E-03	3.8E-05	3.8E-04	1.0E-05	1.2E-01	1.0E-02	1.1E-01	2.9E-03
Aldrin	NV	NV	4.2E-04	8.3E-05	1.1E-04	2.3E-05	NV	NV	1.8E-03	3.5E-04
Alpha-BHC	3.9E-05	9.6E-06	1.6E-03	1.6E-04	4.6E-04	4.6E-05	1.4E-03	3.4E-04	3.2E-02	3.2E-03
Beta-BHC	4.0E-05	1.0E-05	5.8E-05	1.2E-05	1.5E-05	2.9E-06	1.5E-03	3.8E-04	1.3E-03	2.6E-04
Delta-BHC	1.4E-04	3.4E-05	6.5E-03	6.5E-04	1.9E-03	1.9E-04	1.4E-03	3.4E-04	3.3E-02	3.3E-03
Alpha-Chlordane	5.7E-06	1.1E-06	2.2E-06	1.1E-06	3.4E-07	1.7E-07	4.6E-04	9.3E-05	1.3E-04	6.5E-05
Aroclor-1260	NA	NA	NA	NA	1.4E-04	1.4E-05	NA	NA	NA	NA
Dieldrin	8.8E-03	7.8E-04	4.7E-02	5.6E-04	1.3E-02	1.5E-04	5.0E-01	4.4E-02	1.4E+00	1.7E-02
Endosulfan I	3.5E-06	3.5E-07	2.7E-04	2.7E-05	6.7E-05	6.7E-06	1.7E-05	1.7E-06	6.6E-04	6.6E-05
Endosulfan II	5.1E-06	5.1E-07	3.7E-04	3.7E-05	1.1E-04	1.1E-05	2.6E-05	2.6E-06	9.9E-04	9.9E-05
Endosulfan Sulfate	7.6E-06	7.6E-07	5.6E-04	5.6E-05	1.6E-04	1.6E-05	3.9E-05	3.9E-06	1.5E-03	1.5E-04
Endrin	2.1E-03	2.1E-04	2.0E-04	2.0E-05	5.7E-05	5.7E-06	1.0E-01	1.0E-02	6.9E-03	6.9E-04
Endrin Aldehyde	3.7E-03	3.7E-04	3.6E-04	3.6E-05	7.9E-05	7.9E-06	1.6E-01	1.6E-02	1.0E-02	1.0E-03
Endrin Ketone	3.2E-03	3.2E-04	2.8E-04	2.8E-05	8.1E-05	8.1E-06	1.5E-01	1.5E-02	1.0E-02	1.0E-03
Gamma-BHC (Lindane)	1.3E-05	1.3E-06	3.5E-06	3.5E-07	9.6E-07	9.6E-08	3.8E-04	3.8E-05	5.6E-05	5.6E-06
Gamma-Chlordane	5.7E-06	1.1E-06	1.4E-06	7.1E-07	4.2E-07	2.1E-07	6.4E-04	1.3E-04	1.8E-04	8.9E-05
Heptachlor	NV	NV	1.3E-04	1.3E-05	3.7E-05	3.7E-06	NV	NV	8.6E-03	8.6E-04
Heptachlor Epoxide	NV	NV	6.7E-05	6.7E-06	1.5E-05	1.5E-06	NV	NV	3.7E-03	3.7E-04
Methoxychlor	NV	NV	4.7E-05	2.4E-05	1.0E-05	5.1E-06	NV	NV	2.9E-04	1.5E-04
Inorganics										
Antimony	NV	NV	1.3E-01	2.8E-03	1.1E-01	2.4E-03	NV	NV	2.3E+00	4.9E-02
Arsenic	1.8E-02	8.8E-03	2.4E-02	5.6E-03	9.6E-03	2.2E-03	7.2E-02	3.6E-02	7.0E-02	1.6E-02
Cadmium	3.3E-02	7.7E-03	7.4E-02	8.3E-03	2.8E-02	3.1E-03	7.5E-01	1.7E-01	8.6E-01	9.6E-02
Chromium	5.1E-02	8.8E-03	3.7E-02	1.5E-03	1.4E-02	5.6E-04	3.5E-01	6.0E-02	2.0E-01	8.3E-03
Hexavalent Chromium	NV	NV	1.6E-03	2.4E-04	5.0E-04	7.4E-05	NV	NV	8.9E-03	1.3E-03
Copper	1.6E-01	1.9E-02	1.3E-01	8.6E-03	4.5E-02	3.1E-03	5.3E-01	6.2E-02	2.1E-01	1.4E-02
Lead	3.5E-01	1.3E-02	7.9E-02	2.0E-03	5.8E-02	1.5E-03	2.7E+00	9.9E-02	4.9E-01	1.2E-02
Mercury	6.7E-01	6.7E-02	1.6E-01	3.1E-02	4.5E-02	8.9E-03	1.06E+01	1.1E+00	1.3E+00	2.5E-01
Nickel	1.5E-02	5.5E-03	4.5E-02	5.2E-03	1.6E-02	1.9E-03	2.7E-01	9.7E-02	6.1E-01	7.0E-02
Selenium	4.2E-02	1.5E-02	9.7E-02	2.1E-02	3.0E-02	6.5E-03	2.1E-01	7.4E-02	2.5E-01	5.3E-02
Silver	1.7E-03	5.8E-05	2.5E-04	1.3E-05	4.9E-04	2.5E-05	9.3E-02	3.1E-03	1.8E-02	9.3E-04
Thallium	NV	NV	2.8E-01	2.8E-02	3.7E-01	3.7E-02	NV	NV	1.59E+01	1.6E+00
Vanadium	3.7E-01	7.5E-02	1.0E-02	4.6E-03	4.1E-03	1.8E-03	1.1E+00	2.3E-01	2.7E-02	1.2E-02
Zinc	7.0E-02	2.7E-02	7.2E-02	1.8E-02	2.4E-02	6.1E-03	8.2E-01	3.2E-01	4.3E-01	1.1E-01
Dioxins/Furans										
TCDD TEQ	NA	NA	NA	NA	1.5E-02	1.5E-03	NA	NA	NA	NA

Cells are shaded if the value is greater than 1.0.
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
HQ - Ecological Hazard Quotient
NA - NOAEL and LOAEL not available
NA - Analyte was detected in subsurface soil but not surface soil. Thus, HQs are applicable for woodchuck only (see Section 7.4.2 of text).

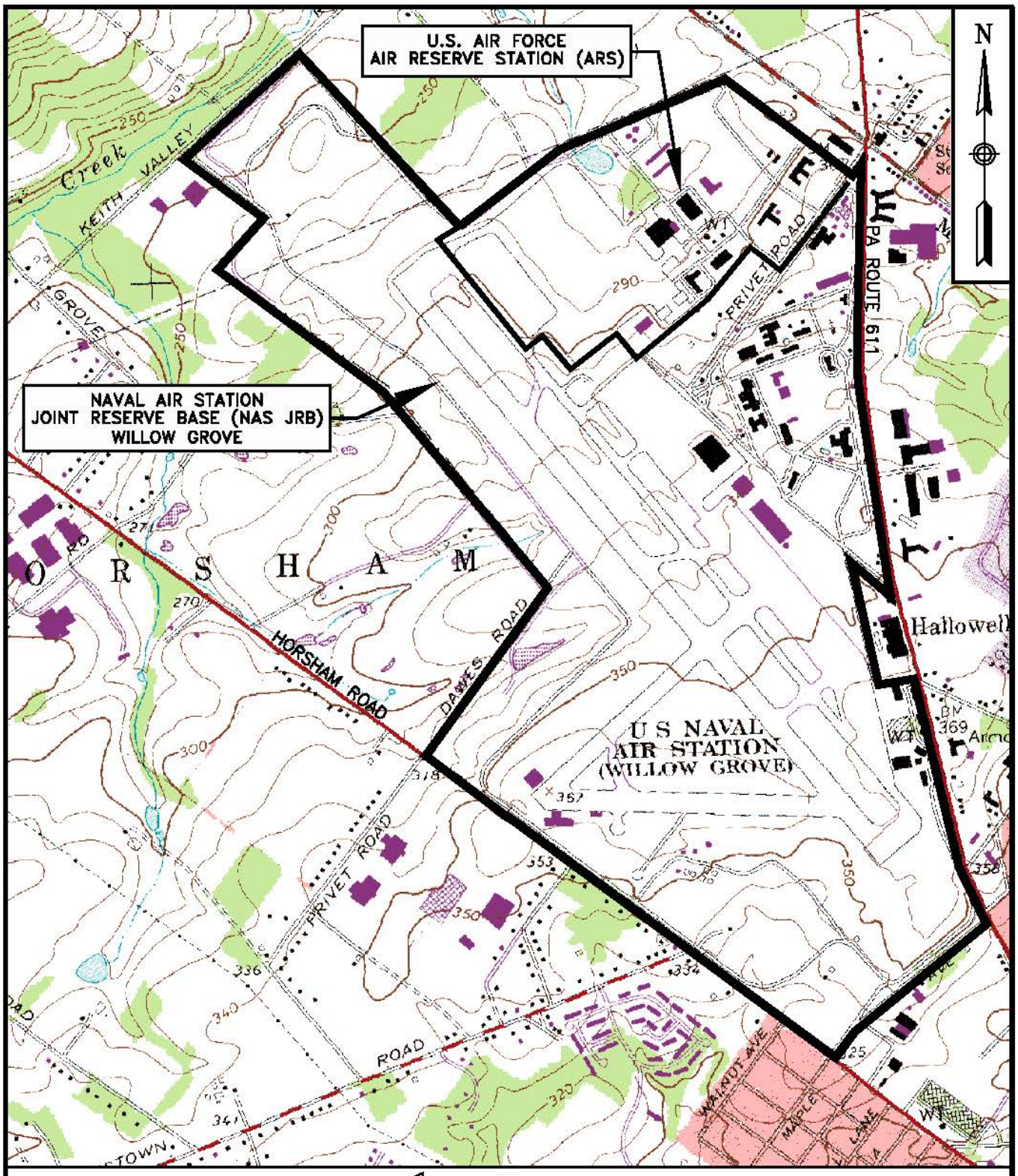
TABLE 7-16

FOOD CHAIN MODEL - ECOLOGICAL HAZARD QUOTIENTS
AVERAGE SCENARIO, PISCIVOROUS RECEPTORS
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Piscivorous Receptor HQs			
	Green Heron		Mink	
	NOAEL	LOAEL	NOAEL	LOAEL
Semivolatile Organics				
Acenaphthene	1.8E-02	1.8E-03	1.7E-04	3.0E-05
Acenaphthylene	1.6E-02	1.6E-03	1.4E-04	2.6E-05
Anthracene	2.6E-02	2.6E-03	2.3E-04	4.3E-05
Benzo(a)anthracene	1.1E-01	1.1E-02	1.1E-01	1.8E-03
Benzo(a)pyrene	1.2E-01	1.2E-02	1.2E-01	1.9E-03
Benzo(b)fluoranthene	1.4E-01	1.4E-02	1.3E-01	2.1E-03
Benzo(g,h,i)perylene	5.5E-02	5.5E-03	5.3E-02	8.5E-04
Benzo(k)fluoranthene	1.4E-01	1.4E-02	1.4E-01	2.2E-03
Chrysene	1.5E-01	1.5E-02	1.4E-01	2.3E-03
Dibenzo(a,h)anthracene	2.9E-02	2.9E-03	2.8E-02	4.4E-04
Fluoranthene	3.5E-01	3.5E-02	3.1E-03	5.8E-04
Fluorene	1.4E-02	1.4E-03	1.3E-04	2.4E-05
Indeno(1,2,3-cd)pyrene	7.1E-02	7.1E-03	6.9E-02	1.1E-03
Phenanthrene	1.6E-01	1.6E-02	1.5E-03	2.7E-04
Pyrene	2.7E-01	2.7E-02	2.6E-01	4.2E-03
Pesticides/PCBs				
4,4'-DDD	2.5E-03	2.1E-04	1.2E-03	3.0E-05
4,4'-DDE	9.2E-02	7.8E-03	4.1E-02	1.1E-03
4,4'-DDT	1.5E-02	1.2E-03	6.6E-03	1.7E-04
Total DDT	1.3E-01	1.1E-02	5.9E-02	1.6E-03
Aldrin	NA	NA	8.0E-04	1.6E-04
Alpha-BHC	1.5E-03	3.8E-04	1.8E-02	1.8E-03
Alpha-Chlordane	7.0E-03	1.4E-03	9.5E-04	4.7E-04
Beta-BHC	1.0E-02	2.6E-03	4.2E-03	8.5E-04
Delta-BHC	1.1E-03	2.8E-04	1.3E-02	1.3E-03
Dieldrin	3.7E-01	3.2E-02	5.0E-01	5.9E-03
Endosulfan I	1.9E-04	1.9E-05	3.6E-03	3.6E-04
Endosulfan Sulfate	1.9E-04	1.9E-05	3.7E-03	3.7E-04
Endrin Aldehyde	3.6E-01	3.6E-02	1.2E-02	1.2E-03
Endrin Ketone	7.88E-01	7.9E-02	2.5E-02	2.5E-03
Gamma-Chlordane	4.5E-03	8.9E-04	6.1E-04	3.0E-04
Heptachlor	NA	NA	3.7E-03	3.7E-04
Heptachlor Epoxide	NA	NA	5.8E-03	5.8E-04
Inorganics				
Arsenic	5.2E-02	2.6E-02	4.0E-02	9.1E-03
Cadmium	4.0E-02	9.3E-03	2.4E-02	2.6E-03
Chromium	1.3E-01	2.2E-02	5.3E-02	2.2E-03
Copper	9.8E-01	1.1E-01	2.1E-01	1.4E-02
Lead	5.2E-01	1.9E-02	7.1E-02	1.8E-03
Mercury	1.2E+00	1.2E-01	7.5E-02	1.5E-02
Nickel	1.3E-01	4.9E-02	1.7E-01	1.9E-02
Silver	8.9E-03	3.0E-04	9.0E-04	4.6E-05
Zinc	3.7E-01	1.4E-01	9.6E-02	2.4E-02

Cells are shaded if the value is greater than 1.0.
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
HQ - Ecological Hazard Quotient
NA - NOAEL and LOAEL not available

FIGURES



BASE MAP IS A PORTION OF THE AMBLER, PA U.S.G.S. 7.5 MINUTE QUADRANGLE MAP, DATED 1963, PHOTOREVISED IN 1983.

QUADRANGLE LOCATION

0 1500 3000

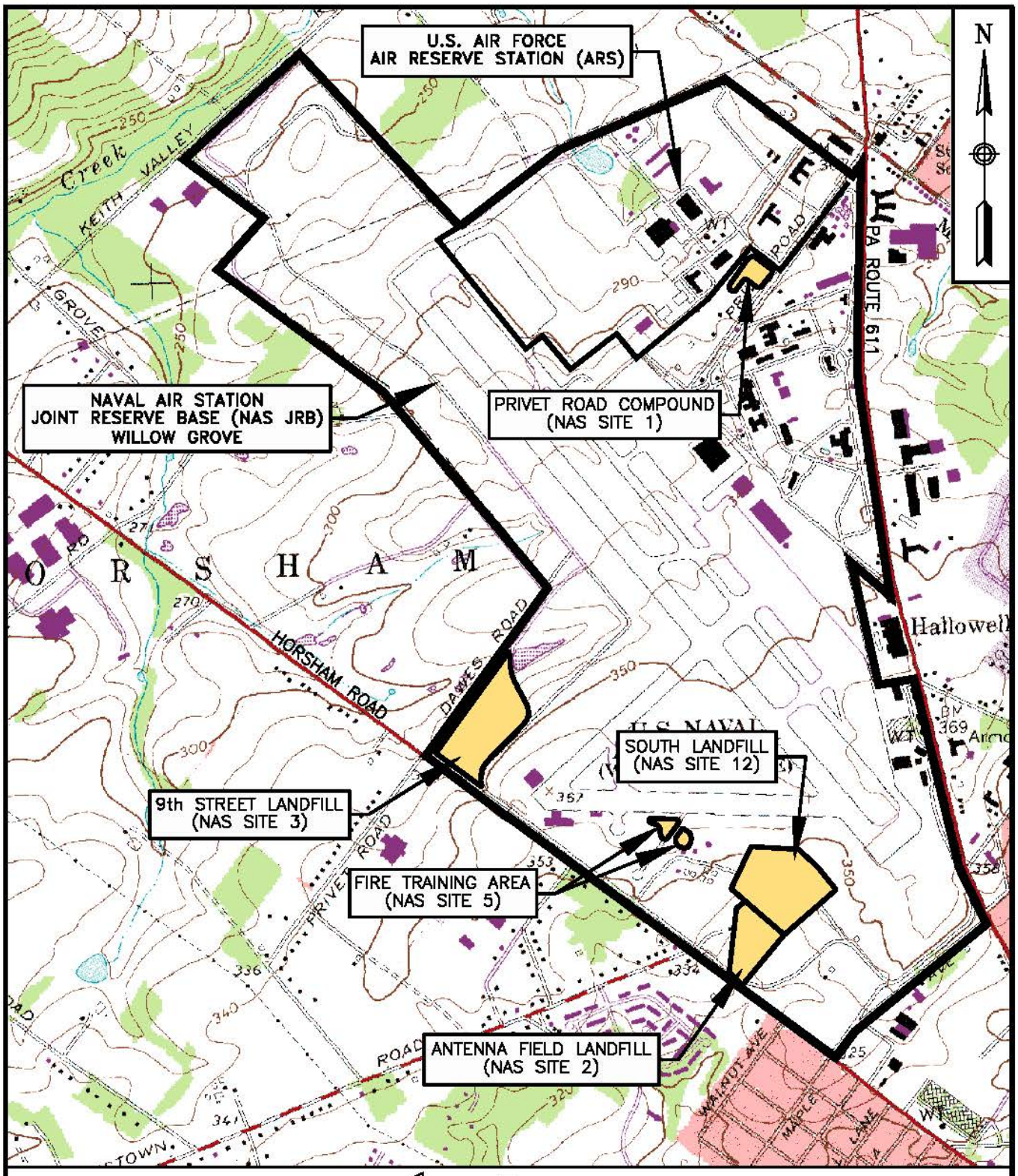
SCALE IN FEET

TETRA TECH

LOCATION MAP
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	112G02014CM03-1
REV	0
DATE	10/01/12
FIGURE NUMBER	FIGURE 1-1

112G02014\D307\112G02014CM03-1.DWG 10/01/12 MKB



112G02014\0307\112G02014CM03-2.DWG 10/01/12 MKB

BASE MAP IS A PORTION OF THE AMBLER, PA U.S.G.S. 7.5 MINUTE QUADRANGLE MAP, DATED 1963, PHOTOREVISED IN 1983.

QUADRANGLE LOCATION

0 1500 3000

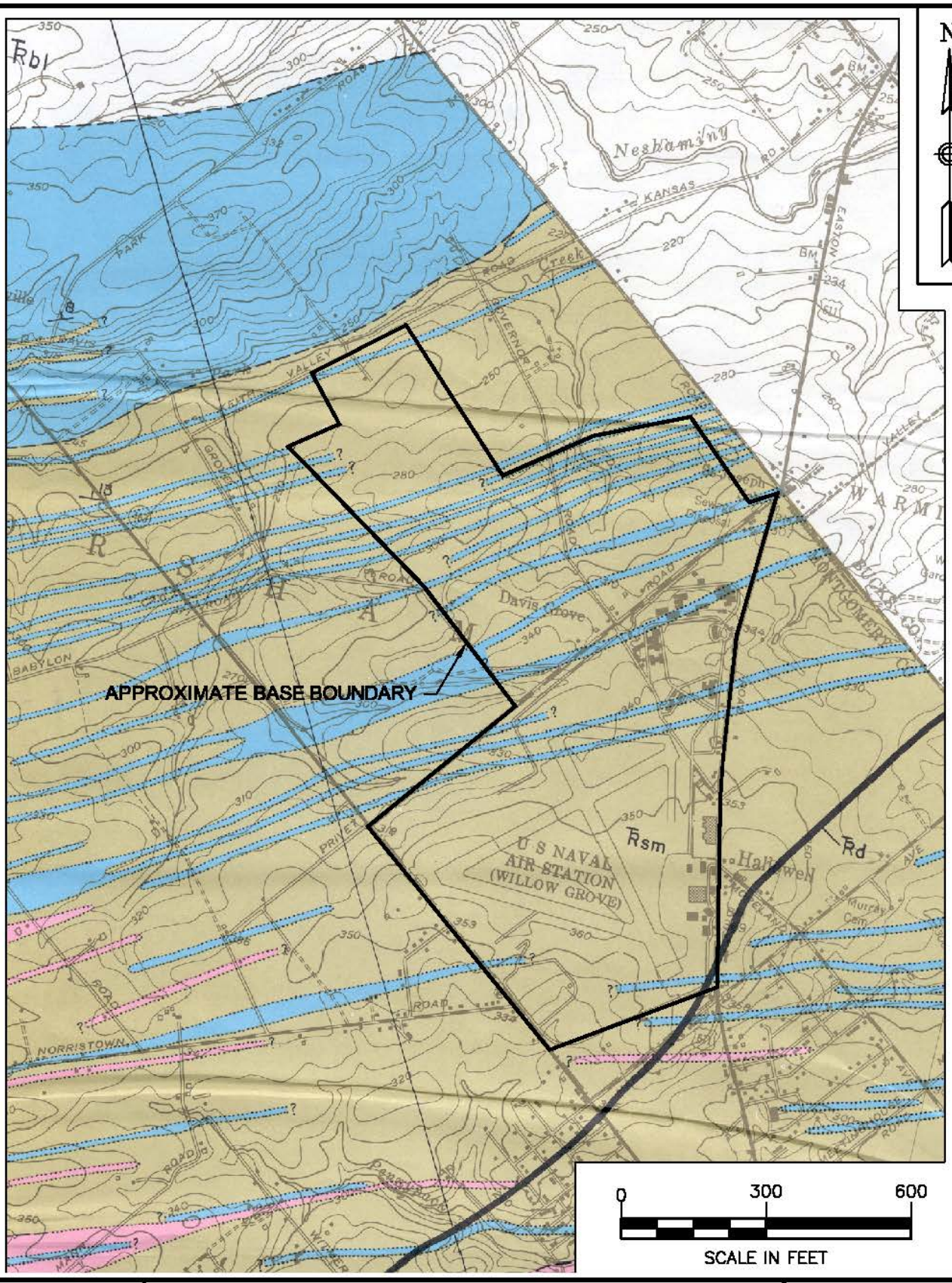
SCALE IN FEET

TETRA TECH

LOCATION OF IR SITES
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	112G02014CM03-2
REV	0
DATE	10/01/12
FIGURE NUMBER	FIGURE 1-2

112G02014\0307\112G02014GG01-1.DWG 10/01/12 MKB



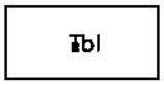
TETRA TECH

GENERAL GEOLOGICAL MAP
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

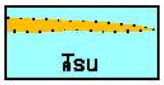
SCALE	AS NOTED
FILE	112G02014GG01-1
REV	0
DATE	10/01/12
FIGURE NUMBER	FIGURE 1-3.1

112G02014\0307\112G02014GG01-2.DWG 10/01/12 MKB

Diabase
Not tapped by wells in this area.

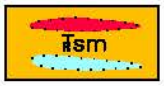


Brunswick and Lockatong formations, undifferentiated; gray to black, and red shale and sandstone; the water-bearing properties of these formations have not been studied for this report.



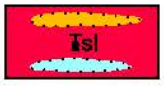
Upper shale member

Red shale and siltstone, containing beds of fine-grained arkosic sandstone (shown in brown); reported yields from wells in this member range from 10 to 80 gmp; average specific capacity of wells is 0.5 gpm per foot of drawdown.



Middle arkose member

Fine- and medium-grained arkosic sandstone, containing beds of coarse-grained arkosic sandstone (shown in pink) and red shale and siltstone (shown in blue); reported yields from wells in this member range from 10 to 800 gpm and average 130 gpm; average specific capacity of wells is 5.0 gpm per foot of drawdown.



Lower arkose member

Medium to coarse, coarse, and very coarse-grained arkosic sandstone and arkosic conglomerate, containing beds of fine- and meduim-grained arkosic sandstone (shown in brown) and red shale and siltstone (shown in blue); reported yields from wells in this member range from 10 to 500 gpm and average 110 gom; average specific capacity of wells is 3.0 gpm per foot of drawdown.

Rocks of Ordovician to Precambrian age; these rocks have not been studied in this area.

UPPER TRIASSIC

Stockton formation

TRIASSIC

TETRA TECH

GENERAL GEOLOGICAL MAP
LEGEND OF SYMBOLS
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	112G02014GG01-2
REV	0
DATE	10/01/12
FIGURE NUMBER	FIGURE 1-3.2

112G02014\0307\112G02014CM04.DWG 08/01/13 MKB

CONTROL TOWER

AVENUE B

EASTON ROAD

NAVAL AIR STATION JOINT RESERVE BASE
WILLOW GROVE, PENNSYLVANIA

RUNWAY

STORM WATER
RETENTION POND

9th STREET

FIRE
TRAINING
AREA
(NAS SITE 5)

SOUTH
LANDFILL
(NAS
SITE 12)

1st STREET

MAPLE AVENUE

2nd
STREET

9th STREET LANDFILL
(NAS SITE 3)

ANTENNA FIELD
LANDFILL (NAS SITE 2)

GROUNDWATER
FLOW DIRECTION

HORSHAM ROAD

PRECISION ROAD

HALLOWELL ROAD

WALNUT GROVE

AVE. A

AVE. B

AVE. C

AVE. D

AVE. E

EDGEWOOD AVE.

PROSPECT AVENUE

MAPLE AVENUE

MORELAND AVENUE

BLAIR MILL ROAD

WATSON AVENUE

COLUMBIA AVENUE

MEETINGHOUSE ROAD

COTTAGE AVENUE

UPLAND AVENUE

PENNY PACK CREEK

FAIR OAKS AVENUE

SAWMILL LANE

GILBRALTER ROAD

EASTON ROAD

BLAIR MILL ROAD

DRESHER ROAD

SAWYERS WAY

CREEK

PENNYPACK

NORRISTOWN ROAD

WITMER ROAD

N

0 1,200 2,400
SCALE IN FEET

LEGEND

- PUBLIC SUPPLY WELL
- PRIVATE WELLS (APPROXIMATELY 2 WELLS PER DOT)
- GROUNDWATER FLOW DIRECTION

TETRA TECH

APPROXIMATE LOCATION OF
PUBLIC AND PRIVATE WELLS
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014CM04	AS NOTED
FIGURE NUMBER: FIGURE 1–4	REV: 0 DATE: 08/01/13

112G02014\0307\112G02014GM02-11.DWG 06/15/12 NKB

N

Road
Vegetation
Veg.
Debris
Transformer
Well
A
B
C
D
E
1
2
3
4
5
6
Scattered Debris
MAGAZINE
87
88
118
TRAILER
APPROXIMATE LOCATION OF STORM WATER OUTFALL

LEGEND

- SITE 12 BOUNDARY
- OUTLINE OF EM ANOMALOUS AREA
- EM LINEAR ANOMALY

EM ANOMALIES ARE INDICATED BY THE COLORS RED AND BLUE. DARKER SHADES INDICATE STRONGER ANOMALIES.

0 100 200
SCALE IN FEET

TETRA TECH

ELECTROMAGNETIC SURVEY RESULTS
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-11	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 2-1	0 / 06/15/12

112G02014\0307\112G02014GM02-16.DWG 09/06/12 MKB

SSA12-SS02E
SSA12-SS01E
SSA12-SS03E
SSA12-SS04E
SSA12-SS09D
SSA12-SS05E
SSA12-SS07E
SSA12-SS06E
SSA12-SS10E
SSA12-SS11E
SSA12-SS12E
SSA12-SS13E
SSA12-SS14E
SSA12-SS15E
SSA12-SS16E
SSA12-SS17E
SSA12-SS18E
SSA12-SS08E
SSA12-SS09E
SSA12-SS10D
SSA12-SS08D
SSA12-SS05D
SSA12-SS07D
SSA12-SS06D
SSA12-SS03D
SSA12-SS04D
SSA12-SS02D
SSA12-SS19E
SSA12-SS01D

A
B
C
D
E

1
2
3
4
5
6

Road
Vegetation
Veg.
Debris
Transformer
Well
Scattered Debris
87
88
FORMER MAGAZINE
118
TRAILER
APPROXIMATE LOCATION OF STORM WATER OUTFALL

N

LEGEND

⊗ SURFACE SOIL SAMPLE LOCATION

SITE 12 BOUNDARY

0 100 200

SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE LOCATION MAP
SSA12 CONFIRMATION SOIL INVESTIGATION
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-16	AS NOTED
FIGURE NUMBER	**REV / DATE**
FIGURE 2-2	**0 / 09/06/12**

112G02014\0307\112G02014GM02-15.DWG 10/11/12 MKB

N

12TP09-01
12TP09-02
D
12TP15-01
12TP15-02
A
12TP08-01
12TP08-02
12TP14-01
12TP14-02
B
12TP10-01
12TP10-02
12TP05-01
12TP05-02
C
12SB05-01
12SB05-02
12TP07-01
12TP07-02
12TP06-01
12TP06-02
12TP04-01
12TP04-02
12TP03-01
12TP03-02
12TP01-01
12TP01-02
12TP02-01
12TP02-02
12SB01-01
12SB01-02
12SB02-01
12SB02-02
12SB03-01
12SB03-02
12TP13-01
12TP13-02
12TP12-01
12TP12-02
E
12SB04-01
12SB04-02
12TP11-01
12TP11-02
FORMER MAGAZINE
Road
Vegetation
Veg.
Debris
Well
Transformer
Scattered Debris
118
TRAILER
88
87
APPROXIMATE LOCATION OF STORM WATER OUTFALL

LEGEND

- SURFACE SOIL SAMPLE LOCATION
- SITE 12 BOUNDARY
- OUTLINE OF EM ANOMALOUS AREA
- EM LINEAR ANOMALY

0 100 200
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE LOCATION MAP PHASE I SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-15	AS NOTED
FIGURE NUMBER: FIGURE 2-3	REV: 0 DATE: 10/11/12

112G02014\0307\112G02014GM02-1.DWG 09/06/12 MKB

N

Road
Vegetation
12SB23
12SB22
Vegetation
D
12SB24
Veg.
Veg.
Road
Debris
Debris
Transformer
Well
12SB39
A
12SB40
12SB58
12SB57
Veg.
B
Veg.
12SB56
12SB55
12SB54
12SB26
12SB17
12SB53
12SB28
E
12SB52
12SB51
12SB27
12SB30
12SB14
87
FORMER MAGAZINE
12SB50
12SB49
88
12SB13
12SB29
12SB45
12SB46
12SB47
C
Vegetation
Vegetation
12SB18
12SB15
12SB42
12SB43
12SB16
12SB48
12SB44
12SB12
12SB40
12SB41
12SB19
Scattered Debris
12SB31
12SB32
12SB34
12SB33
12SB11
12TP16
12TP16-01/02
Vegetation
12SB10
12TP18
12SB38
12SB06
12SB08
12SB37
12SB35
12TP17
12TP17-01/02
12SB36
12SB07
12SB09
APPROXIMATE LOCATION OF STORM WATER OUTFALL
118
TRAILER

LEGEND

- SOIL BORING SAMPLE LOCATION
- STEP-OUT SAMPLE LOCATION
- TEST PIT SAMPLE LOCATION
- TEST PIT LOCATION SURVEYED
- SITE 12 BOUNDARY

0 100 200
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE LOCATION MAP
PHASE II
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-1	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 2-4	0 / 09/06/12

112G02014\0307\112G02014GM02-17.DWG 09/06/12 MKB

N

SSA12-SB10D
SSA12-SB08D
SSA12-SB09D
SSA12-SB05D
SSA12-SB07D
SSA12-SB06D
SSA12-SB03D
SSA12-SB04D
SSA12-SB02D
SSA12-SB01D

A
B
C
D
E

Road
Vegetation
Veg.
Debris
Transformer
Well
Scattered Debris
87
88
118
TRAILER
FORMER MAGAZINE

APPROXIMATE LOCATION OF STORM WATER OUTFALL

LEGEND

SUBSURFACE SOIL SAMPLE LOCATION
DRUM LOCATION

SITE 12 BOUNDARY

0 100 200
SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE LOCATION MAP
SSA12 CONFIRMATION SOIL INVESTIGATION
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-17	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 2-5	0 / 09/06/12

112G02014\0307\112G02014GM02-12.DWG 09/06/12 MKB

N

12TP09-03
12TP09-04
12TP09-05
12TP15-03
12TP15-04
12TP08-03
12TP14-03
12TP14-04
12TP10-03
12TP10-04
12TP07-03
12TP05-03
12TP05-04
12TP13-03
12TP13-04
12TP12-03
12TP12-04
12TP11-03
12TP11-04
12TP04-03
12TP04-04
12TP06-03
12TP06-04
12TP03-03
12TP03-05
12TP03-04
12TP02-03
12TP02-04
12TP01-04
12TP01-03

A
B
C
D
E

Road
Vegetation
Veg.
Debris
Transformer
Well
Scattered Debris
87
88
FORMER MAGAZINE
118
TRAILER
APPROXIMATE LOCATION OF STORM WATER OUTFALL

LEGEND

- SUBSURFACE SOIL SAMPLE LOCATION
- SITE 12 BOUNDARY
- OUTLINE OF EM ANOMALOUS AREA
- EM LINEAR ANOMALY

0 100 200
SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE LOCATION MAP PHASE I SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-12	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 2-6	0 / 09/06/12

112G02014\03O7\112G02014GM02-14.DWG 09/06/12 MKB

12SB23
12SB22
12TP09-03
12SB24
02MW02S
12TP15-03
12TP08-03
12TP14-03
12TP10-03
12SB17
12SB26
12TP12-03
12SB28
12SB21
12SB20
12SB25
12SB30
12SB14
12SB27
12SB18
87
FORMER MAGAZINE
12SB15
88
12SB29
12SB13
12MW04O
12MW04S
12TP03-04
12MW01O
12MW01S
12SB16
12SB19
12TP02-03
12SB12
12TP16
12SB11
12TP16-03
12TP16-04
12MW03O
12MW03S
12TP18-02
12SB06
12TP18
12SB10
12TP18-01
12SB08
12TP17
12SB07
12MW02S
12SB09
12MW02O
APPROXIMATE LOCATION OF STORM WATER OUTFALL
118
TRAILER

N

LEGEND

- MONITORING WELL LOCATION
- SOIL BORING SAMPLE LOCATION
- CHROMIUM SPECIATION SOIL SAMPLE LOCATION
- TEST PIT SAMPLE LOCATION
- TEST PIT LOCATION SURVEYED

0 100 200
SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE LOCATION MAP PHASE II SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-14	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 2-7	0 / 09/06/12

112G02014\0307\112G02014GM02-13.DWG 08/28/12 MKB

N

87

88

FORMER MAGAZINE

12SD06

12SD08
12SW08

12SD07
12SW07

12SD02
12SW02

12SD03
12SW03

12SD04
12SW04

12SD05
12SW05

12SD01
12SW01

APPROXIMATE LOCATION OF STORM WATER OUTFALL

118

TRAILER

LEGEND

- SURFACE WATER SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- SITE 12 BOUNDARY

0 100 200

SCALE IN FEET

TETRA TECH

SURFACE WATER/SEDIMENT SAMPLE LOCATION MAP SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-13	AS NOTED
FIGURE NUMBER: FIGURE 2-8	REV: 0 DATE: 08/28/12

112G02014\0307\112G02014GM02-6.DWG 08/28/12 MKB

N

MARINE RESERVE COMPOUND

185

839

164

152

153

02MW02S

SITE 12

FORMER MAGAZINE

12MW04D
12MW04S

12MW01D
12MW01S

12MW03D
12MW03S

02MW04I
02MW04S

12MW02S
12MW02D

APPROXIMATE LOCATION OF STORM WATER OUTFALL

02MW03I
02MW03SI

118

TRAILER

SITE 2

HORSHAM ROAD

NORRISTOWN ROAD

02MW01S
02MW01I

63

133

114

LEGEND

MONITORING WELL LOCATION (EXISTING)

SITE BOUNDARY

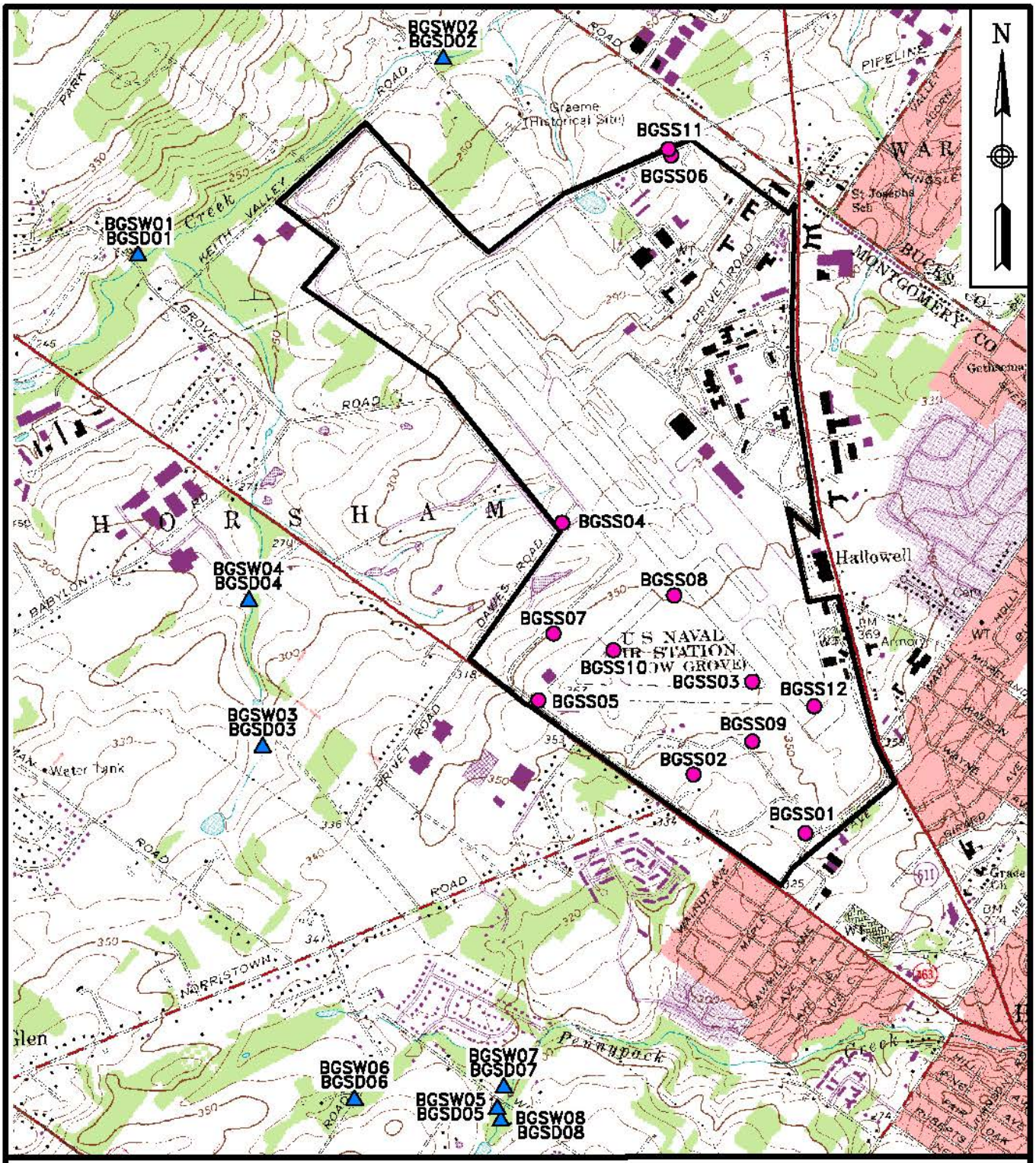
0 150 300

SCALE IN FEET

TETRA TECH

MONITORING WELL LOCATION MAP
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-6	AS NOTED
FIGURE NUMBER: FIGURE 2-9	REV: 0 DATE: 08/28/12



LEGEND

- BACKGROUND SOIL SAMPLE
- BACKGROUND SURFACE WATER/SEDIMENT SAMPLE

0 2,000 4,000

SCALE IN FEET

BASE MAP IS A PORTION OF THE AMBLER, PA U.S.G.S. 7.5 MINUTE QUADRANGLE MAP, DATED 1963, PHOTOREVISED IN 1983.

TETRA TECH

BACKGROUND SAMPLE LOCATIONS
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	112G02014CM01
REV	0
DATE	08/28/12
FIGURE NUMBER	FIGURE 2-10

112G02014\0307\112G02014CM01.DWG 08/28/12 MKB

112G02014\0307\112G02014GM02-02.DWG 09/06/12 MKB

185
MARINE RESERVE COMPOUND
149
639
152
59
153
118
TRAILER
SITE 12
SITE 2
02MW02S
12MW04O
12MW04S
12MW03O
12MW03S
DRAINAGE DITCH
12MW01O
12MW01S
87
88
FORMER MAGAZINE
02MW04I
02MW04S
12MW02S
12MW02O
APPROXIMATE LOCATION OF STORM WATER OUTFALL
02MW03I
02MW03SI
BASE BOUNDARY
02MW01S
02MW01I
UNNAMED CREEK
63
N

LEGEND

MONITORING WELL LOCATION

SITE 12 BOUNDARY

0 150 300

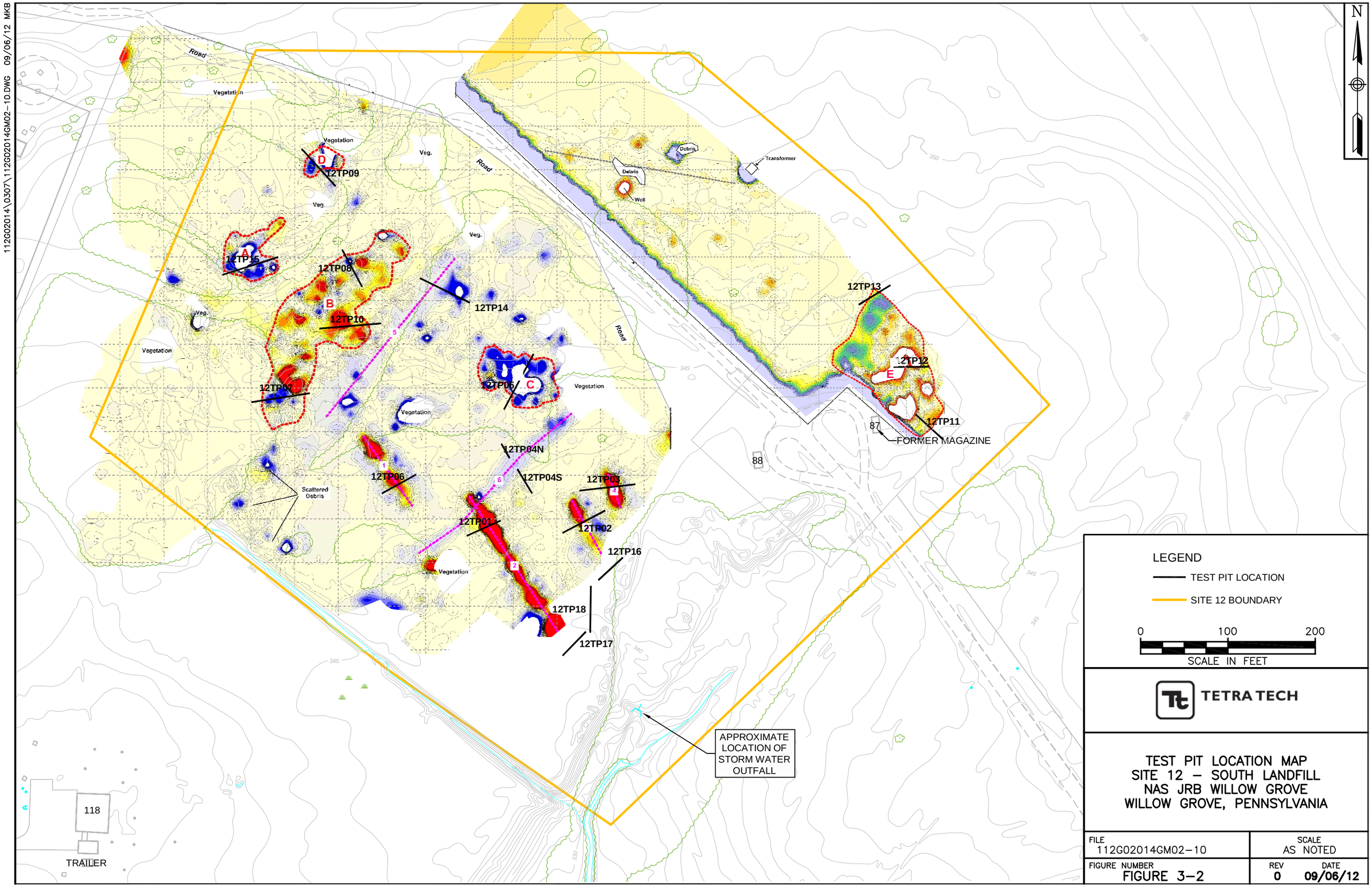
SCALE IN FEET

TETRA TECH

SITE LAYOUT
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-02	AS NOTED
FIGURE NUMBER: FIGURE 3-1	REV: 0 DATE: 09/06/12

112G02014\0307\112G02014GM02-10.DWG 09/06/12 MKB



TETRA TECH

TEST PIT LOCATION MAP
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-10	AS NOTED
FIGURE NUMBER: FIGURE 3-2	REV: 0 / DATE: 09/06/12

112G02014\0307\112G02014GS02-1.DWG 08/29/12 MKB

A

A'

VERTICAL SCALE IN FEET

350
340
330
320
310
300
290
280
270
260
250
240
230
220
210
200
190
180

EXISTING GROUND

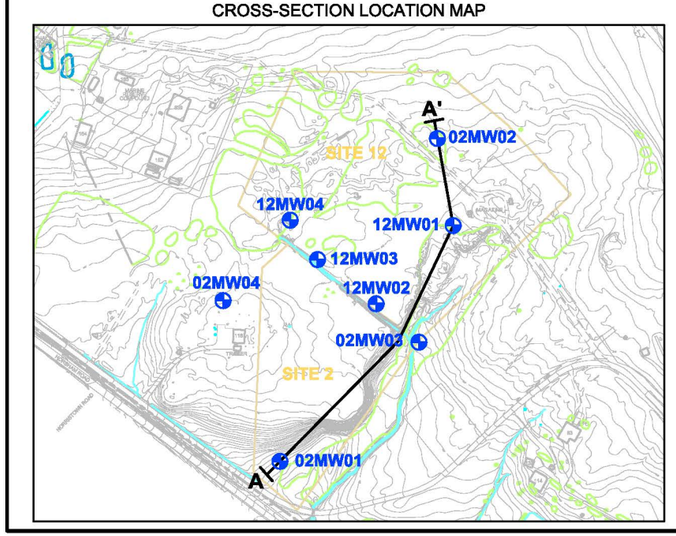
02MW01

02MW03

12MW01

02MW02

CROSS-SECTION LOCATION MAP



LITHOLOGY

- SILT
- CLAYSTONE
- SANDSTONE
- WEATHERED SANDSTONE
- SILTSTONE
- SHALE

60
30
0
VERTICAL SCALE IN FEET

0
100
200
HORIZONTAL SCALE IN FEET

TETRA TECH

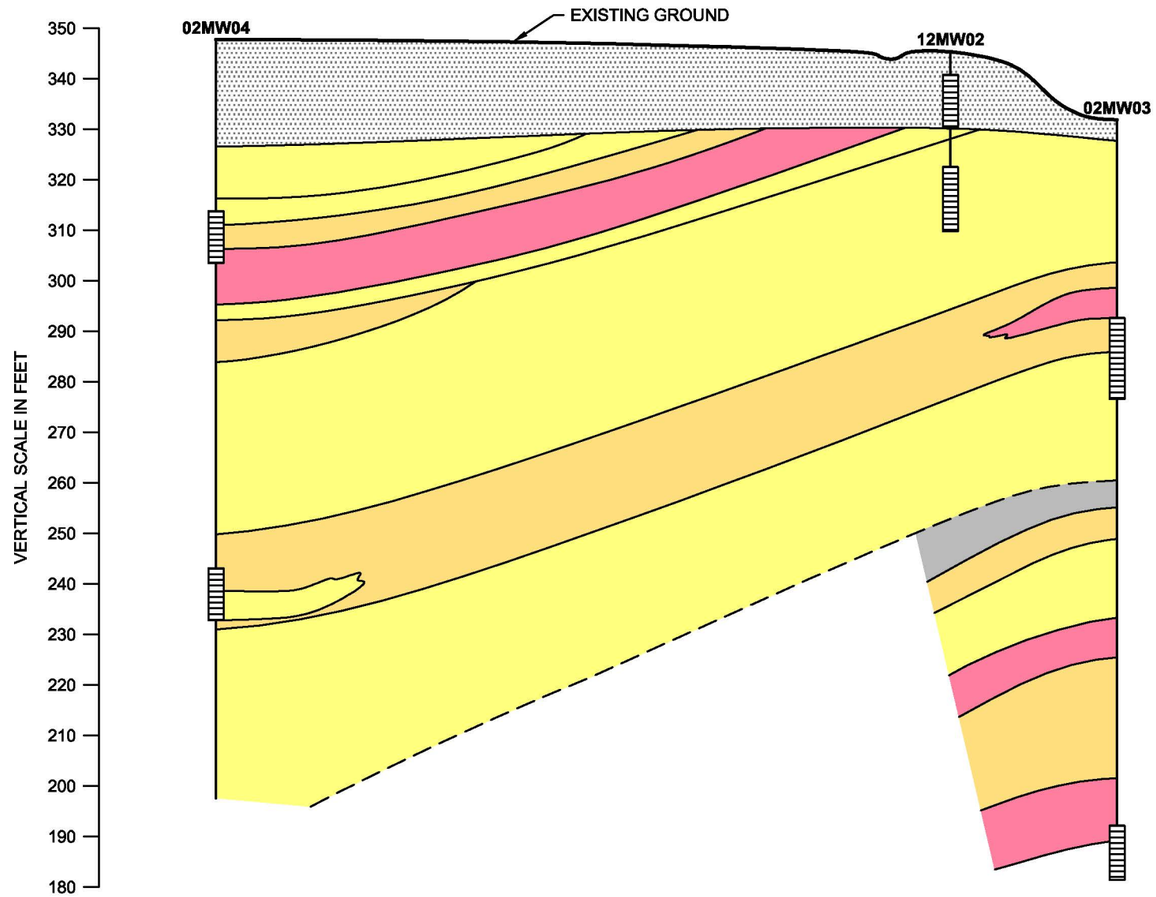
GEOLOGIC CROSS SECTION A – A'
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GS02-1	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3-3	0 / 08/29/12

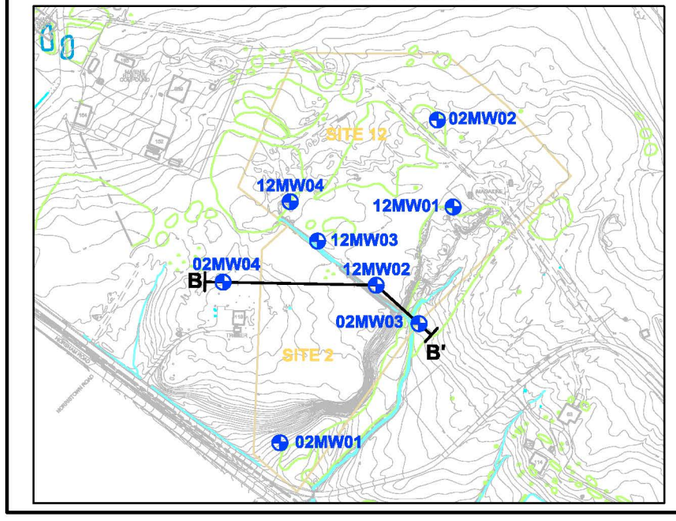
112G02014\0307\112G02014GS02-2.DWG 08/29/12 MKB

B

B'

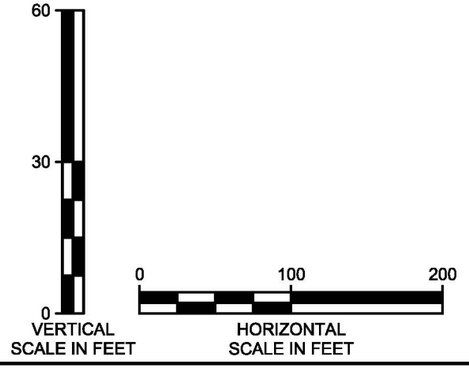


CROSS-SECTION LOCATION MAP



LITHOLOGY

- SILT
- CLAYSTONE
- SANDSTONE
- WEATHERED SANDSTONE
- SILTSTONE
- SHALE



TETRA TECH

GEOLOGIC CROSS SECTION B – B'
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GS02-1	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3-4	0 / 08/29/12

112G02014\0307\112G02014GM02-9.DWG 09/19/12 MKB

MARINE RESERVE COMPOUND

185
149
639
164
152
153

337.27
02MW02S

340.59
12MW04O

SITE 12

336.20
12MW01O

FORMER MAGAZINE

332.49
12MW03O

340
335
340

12MW02O
334.06

118
TRAILER

SITE 2

HORSHAM ROAD
NORRISTOWN ROAD

330
325
320
315
335
339
325
315
320

311.62
02MW01S

63
114

N

LEGEND

- MONITORING WELL LOCATION (EXISTING)
- SITE BOUNDARY
- 336.20 GROUNDWATER ELEVATION (FEET,MSL)
- 335 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

0 150 300
SCALE IN FEET

TETRA TECH

GROUNDWATER ELEVATION MAP
OVERBURDEN FLOW ZONE
MARCH 2012
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-9	AS NOTED
FIGURE NUMBER: FIGURE 3-5	REV: 0 DATE: 09/19/12

112G02014\0307\112G02014GM02-7.DWG 08/28/12 MKB

MARINE RESERVE COMPOUND

185
839
164
152
55
153

335
330
325
320
315

SITE 12

SITE 2

A
B
C
D
E

12MW04S
334.83

12MW03S
332.90

02MW04S
321.31

12MW02S
333.95

337.27
02MW02S

12MW01S
334.71

323.13
02MW03SI

313.62
02MW01S

FORMER MAGAZINE

118
TRAILER

63
133
114

HORSHAM ROAD

NORRISTOWN ROAD

N

LEGEND

- MONITORING WELL LOCATION (EXISTING)
- SITE BOUNDARY
- 333.95 GROUNDWATER ELEVATION (FEET,MSL)
- 320 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

0 150 300
SCALE IN FEET

TETRA TECH

GROUNDWATER ELEVATION MAP
SHALLOW FLOW ZONE
MARCH 2012
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-7	AS NOTED
FIGURE NUMBER: FIGURE 3-6	REV: 0 DATE: 08/28/12

112G02014\0307\112G02014GM02-B.DWG 09/19/12 MKB

N

MARINE RESERVE COMPOUND

185

639

164

152

153

02MW02S

SITE 12

FORMER MAGAZINE

315.68
02MW04I

316.03
02MW03I

SITE 2

118

TRAILER

HORSHAM ROAD

NORRISTOWN ROAD

315

310

305

304.68
02MW01I

63

133

114

LEGEND

- MONITORING WELL LOCATION (EXISTING)
- SITE BOUNDARY
- 316.03 GROUNDWATER ELEVATION (FEET,MSL)
- 310 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

0 150 300
SCALE IN FEET

TETRA TECH

GROUNDWATER ELEVATION MAP
INTERMEDIATE FLOW ZONE
MARCH 2012
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM02-8	AS NOTED
FIGURE NUMBER: FIGURE 3-7	REV: 0 DATE: 09/19/12

112G02014\0307\112G02014GS02-2.DWG 10/10/12 MKB

A

A'

EXISTING GROUND

02MW01

02MW03

12MW01

02MW02

313.62

323.13

334.71

337.27

336.20

304.68

316.03

315

320

325

330

335

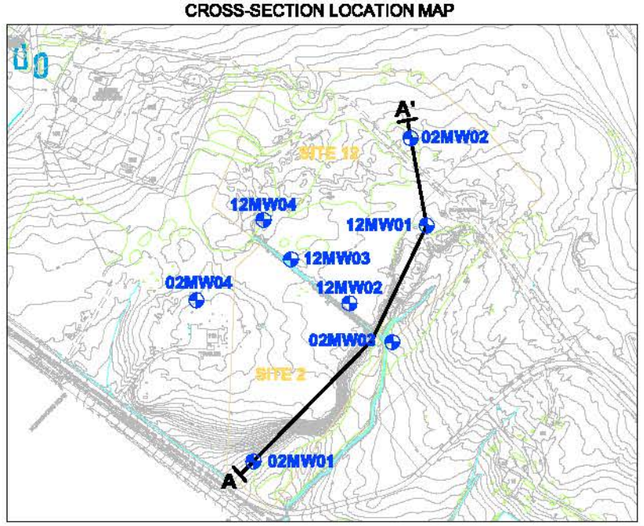
310

305

VERTICAL SCALE IN FEET

350
340
330
320
310
300
290
280
270
260
250
240
230
220
210
200
190
180

CROSS-SECTION LOCATION MAP



LEGEND

- WATER TABLE
- 304.68 GROUNDWATER ELEVATION MARCH 8, 2011
- 305 GROUNDWATER CONTOUR

LITHOLOGY

- SILT
- CLAYSTONE
- SANDSTONE
- WEATHERED SANDSTONE
- SILTSTONE
- SHALE

60
30
0
VERTICAL SCALE IN FEET

0 100 200
HORIZONTAL SCALE IN FEET

TETRA TECH

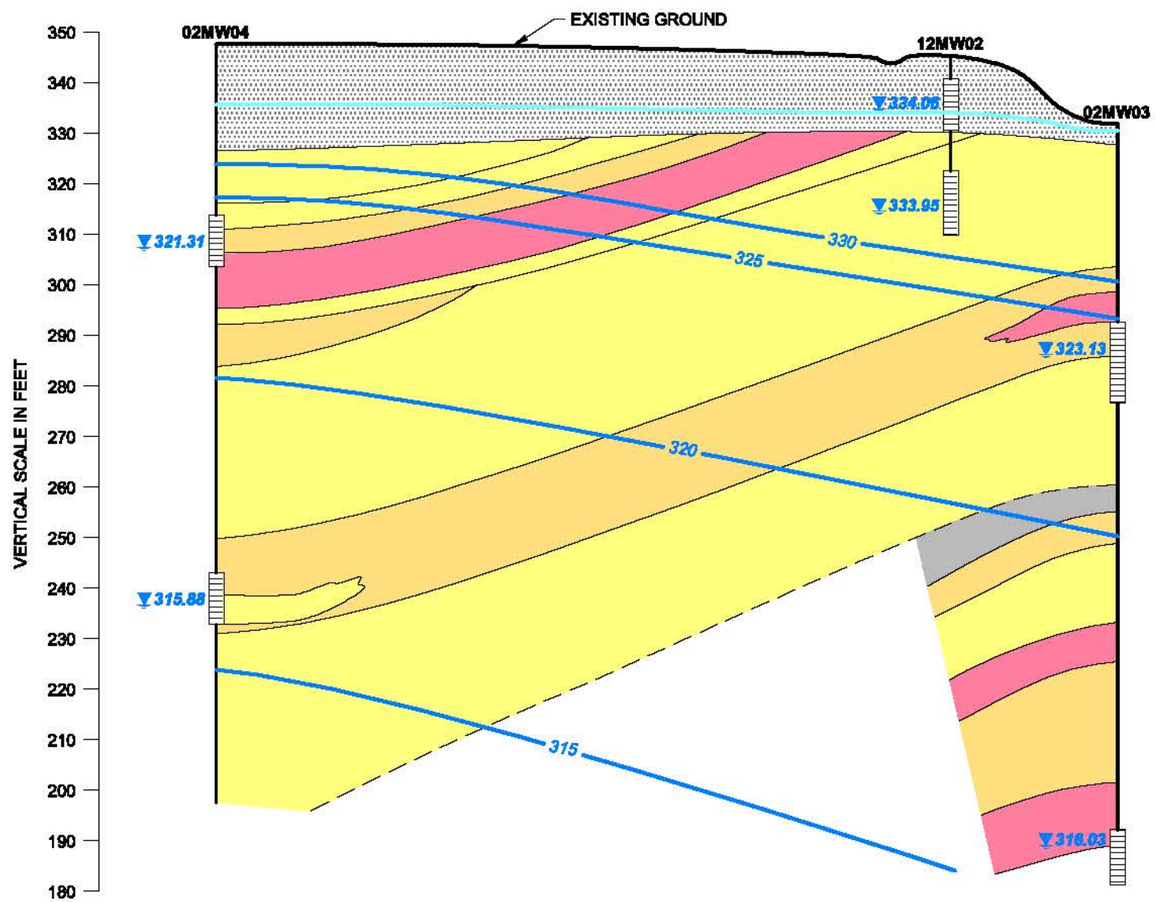
HYDROGEOLOGIC CROSS SECTION A – A'
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GS02-2	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3-8	0 / 10/10/12

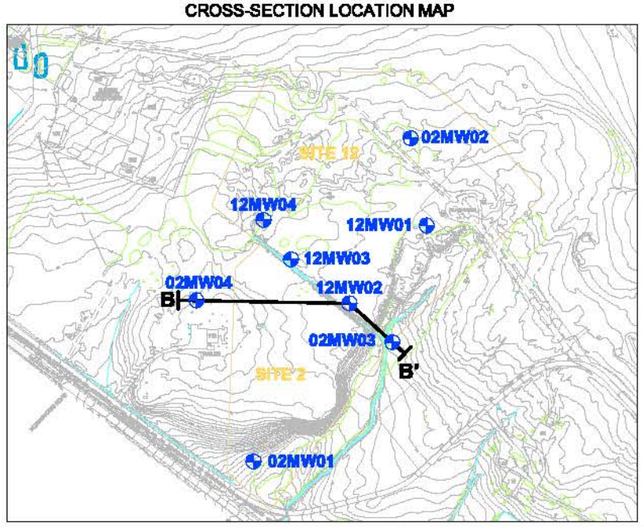
112G02014\0307\112G02014GS02-2.DWG 10/10/12 MKB

B

B'



CROSS-SECTION LOCATION MAP

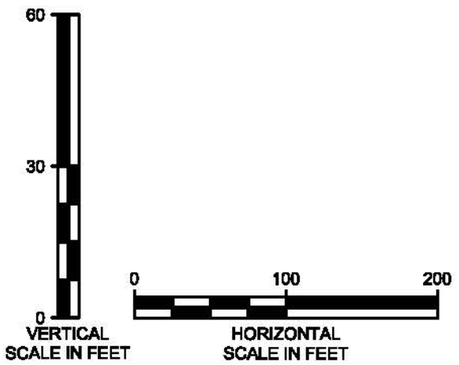


LEGEND

- WATER TABLE
- 304.68 GROUNDWATER ELEVATION MARCH 8, 2011
- 305 GROUNDWATER CONTOUR

LITHOLOGY

- SILT
- CLAYSTONE
- SANDSTONE
- WEATHERED SANDSTONE
- SILTSTONE
- SHALE



TETRA TECH

HYDROGEOLOGIC CROSS SECTION B – B'
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GS02-2	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3-9	0 / 10/10/12

112G02014\0307\112G02014GM08-3.DWG 09/18/12 MKB

SSA12-SS16E Duplicate

Depth	0 - 0.5'	0 - 0.5'
Date	12/5/07	12/5/07
Inorganics	mg/kg	mg/kg
Arsenic	*8.4*	*6.5*
Thallium	*3 K*	*2.2 K*

SSA12-SS17E

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*4.7*
Thallium	*3.8 K*
Semivolatiles	µg/kg
Benz(a)anthracene	*3700 J*
Benzo(a)pyrene	*2600*
Benzo(b)fluoranthene	*2800*
Benzo(k)fluoranthene	*2700 J*
Dibenz(a,h)anthracene	*610 J*
Indeno(1,2,3-cd)pyrene	*2400 J*

SSA12-SS02E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*5*
Thallium	*1.8 J*

SSA12-SS01E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*2.2*
Thallium	*1.3 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*520 J*
Benzo(a)pyrene	*480 J*
Benzo(b)fluoranthene	*500 J*
Indeno(1,2,3-cd)pyrene	*330 J*

SSA12-SS08D

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*6*
Thallium	*3.6 K*
Semivolatiles	µg/kg
Benz(a)anthracene	*2600 J*
Benzo(a)pyrene	*2500 J*
Benzo(b)fluoranthene	*2900 J*
Benzo(k)fluoranthene	*2200 J*
Dibenz(a,h)anthracene	*560 J*
Indeno(1,2,3-cd)pyrene	*1700 J*
Pesticides	µg/kg
Dieldrin	*71 J*

SSA12-SS10D

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*5.8*
Thallium	*2.1 K*

SSA12-SS13E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*6.9*
Thallium	*2.4 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*520 J*
Benzo(a)pyrene	*630 J*
Benzo(b)fluoranthene	*610 J*
Dibenz(a,h)anthracene	*140 J*
Indeno(1,2,3-cd)pyrene	*490 J*

SSA12-SS03E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*2.8*
Thallium	*2.5 K*
Pesticides	µg/kg
Dieldrin	*38 J*

SSA12-SS04E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*3.3*
Thallium	*2.4 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*200 J*
Benzo(a)pyrene	*220 J*
Benzo(b)fluoranthene	*240 J*
Indeno(1,2,3-cd)pyrene	*170 J*

SSA12-SS05E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*6.7*
Thallium	*3 K*
Semivolatiles	µg/kg
Benzo(a)pyrene	*130 J*
Pesticides	µg/kg
Dieldrin	*37 J*

SSA12-SS18E

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*4.1*
Thallium	*3.3 K*
Semivolatiles	µg/kg
Benz(a)anthracene	*660 J*
Benzo(a)pyrene	*630 J*
Benzo(b)fluoranthene	*670*
Indeno(1,2,3-cd)pyrene	*420 J*

SSA12-SS07D

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*12.8*
Semivolatiles	µg/kg
Benzo(a)pyrene	*140 J*

SSA12-SS10E

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*5.8*
Thallium	*2.1 K*

SSA12-SS07E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*6.2*
Thallium	*3.8 J*
Semivolatiles	µg/kg
Benzo(a)pyrene	*140 J*
Pesticides	µg/kg
Dieldrin	*500 J*

SSA12-SS05D

Depth	0 - 0.5'
Date	12/7/07
Inorganics	mg/kg
Arsenic	*6.8*
Thallium	*3.6 J*

SSA12-SS06E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*5.8*
Thallium	*3.6 K*

SSA12-SS06D

Depth	0 - 0.5'
Date	12/7/07
Inorganics	mg/kg
Arsenic	*6.3*
Thallium	*2.7 J*

SSA12-SS03D

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*6.3*
Thallium	*3.1 K*

SSA12-SS15E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*9*
Thallium	*3.3 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*1900 J*
Benzo(a)pyrene	*2100 J*
Benzo(b)fluoranthene	*2500 J*
Benzo(k)fluoranthene	*1800 J*
Dibenz(a,h)anthracene	*690 J*
Indeno(1,2,3-cd)pyrene	*1700 J*

SSA12-SS14E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*5.5*
Thallium	*2.7 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*2000 J*
Benzo(a)pyrene	*2200 J*
Benzo(b)fluoranthene	*2700 J*
Benzo(k)fluoranthene	*1600*
Dibenz(a,h)anthracene	*670 J*
Indeno(1,2,3-cd)pyrene	*1800 J*

SSA12-SS08E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*2.8*
Thallium	*2.6 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*660*
Benzo(a)pyrene	*650*
Benzo(b)fluoranthene	*710*
Dibenz(a,h)anthracene	*160 J*
Indeno(1,2,3-cd)pyrene	*400*

SSA12-SS09E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Arsenic	*6.2*
Thallium	*2.8 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*1800 J*
Benzo(a)pyrene	*1600 J*
Benzo(b)fluoranthene	*1800 J*
Dibenz(a,h)anthracene	*490 J*
Indeno(1,2,3-cd)pyrene	*1200 J*

SSA12-SS04D

Depth	0 - 0.5'
Date	12/7/07
Inorganics	mg/kg
Arsenic	*5.2*
Thallium	*4.2 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*430 J*
Benzo(a)pyrene	*580 J*
Benzo(b)fluoranthene	*630 J*

SSA12-SB03D

Depth	1.5' - 2'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*5.2*
Thallium	*3.3 K*

SSA12-SS02D

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*6.3*
Thallium	*3.8 K*

SSA12-SS19E

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	*3*
Thallium	*1.8 J*
Semivolatiles	µg/kg
Benz(a)anthracene	*500*
Benzo(a)pyrene	*500*
Benzo(b)fluoranthene	*480*
Dibenz(a,h)anthracene	*100 J*
Indeno(1,2,3-cd)pyrene	*280*

SSA12-SS01D

Depth	0 - 0.5'	0.5' - 1'
Date	12/7/07	12/7/07
Inorganics	mg/kg	mg/kg
Arsenic	*4.2*	*4*
Thallium	*3 J*	*2.9 J*
Semivolatiles	µg/kg	µg/kg
Benz(a)anthracene	*2000 J*	*1800 J*
Benzo(a)pyrene	*1900 J*	*1600 J*
Benzo(b)fluoranthene	*1800 J*	*1500 J*
Benzo(k)fluoranthene	*1900 J*	*1500 J*
Dibenz(a,h)anthracene	*570 J*	*450 J*
Indeno(1,2,3-cd)pyrene	*1400 J*	*1100 J*

SSA12-SS09D

SSA12-SS11E

SSA12-SS12E

SITE 2

LEGEND

- SSA12 SOIL BORING LOCATION/ EPIC FEATURE LOCATION
- SSA12 SOIL BORING LOCATION/ DRUM LOCATION
- SITE 12 BOUNDARY

0 120 240

SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING CRITERIA
SSA12 CONFIRMATION SOIL INVESTIGATION
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE 112G02014GM08-3	SCALE AS NOTED
FIGURE NUMBER FIGURE 4-1A	REV 0 / DATE 09/18/12

112G02014\0307\112G02014GM06-3.DWG 10/04/12 MKB

N

12TP09-01	
Depth	0 - 0.5
Date	1/8/10
Inorganics	mg/kg
Arsenic	3.7 K
Semivolatiles	µg/kg
Benz(a)anthracene	310
Benzo(a)pyrene	340
Benzo(b)fluoranthene	300
Dibenz(a,h)anthracene	65 J
Indeno(1,2,3-cd)pyrene	250

12TP09-02	
Depth	0.5' - 2'
Date	1/8/10
Inorganics	mg/kg
Arsenic	3.8 K
Semivolatiles	µg/kg
Benz(a)anthracene	1000
Benzo(a)pyrene	900
Benzo(b)fluoranthene	740
Dibenz(a,h)anthracene	180 J
Indeno(1,2,3-cd)pyrene	310

12TP08-02	
Depth	0.5' - 2'
Date	1/7/10
Inorganics	mg/kg
Arsenic	9.6
Semivolatiles	µg/kg
Benz(a)anthracene	7600
Benzo(a)pyrene	6800
Benzo(b)fluoranthene	6800
Benzo(k)fluoranthene	5600
Dibenz(a,h)anthracene	1300 J
Indeno(1,2,3-cd)pyrene	2700

12TP08-01	
Depth	0 - 0.5'
Date	1/7/10
Inorganics	mg/kg
Arsenic	29.8
Semivolatiles	µg/kg
Benz(a)anthracene	3800
Benzo(a)pyrene	5200
Benzo(b)fluoranthene	4900
Benzo(k)fluoranthene	5000
Dibenz(a,h)anthracene	950 J
Indeno(1,2,3-cd)pyrene	2000

12TP15-02	
Depth	0.5' - 2'
Date	1/12/10
Inorganics	mg/kg
Arsenic	8.4 J
Semivolatiles	ug/kg
Benz(a)anthracene	1300
Benzo(a)pyrene	1100
Benzo(b)fluoranthene	1500
Dibenz(a,h)anthracene	230
Indeno(1,2,3-cd)pyrene	540

12TP15-01	
Depth	0 - 0.5'
Date	1/12/10
Inorganics	mg/kg
Arsenic	8.6 J
Semivolatiles	ug/kg
Benz(a)anthracene	3400
Benzo(a)pyrene	3800
Benzo(b)fluoranthene	3700
Benzo(k)fluoranthene	3400 J
Dibenz(a,h)anthracene	930
Indeno(1,2,3-cd)pyrene	2000

12TP10-01	
Depth	0 - 0.5'
Date	1/8/10
Inorganics	mg/kg
Arsenic	5.2 K
Semivolatiles	µg/kg
Benzo(a)pyrene	17

12TP10-02	
Depth	0.5' - 2'
Date	1/8/10
Inorganics	mg/kg
Arsenic	2.1 K
Semivolatiles	µg/kg
Benzo(a)pyrene	18

12TP14-01	
Depth	0 - 0.5'
Date	1/12/10
Inorganics	mg/kg
Arsenic	5.2
Semivolatiles	ug/kg
Benz(a)anthracene	530 J
Benzo(a)pyrene	450 J
Benzo(b)fluoranthene	550 J
Dibenz(a,h)anthracene	82 J
Indeno(1,2,3-cd)pyrene	260 J

12TP14-02	
Depth	0.5' - 2'
Date	1/11/10
Inorganics	mg/kg
Arsenic	7.4
Semivolatiles	ug/kg
Benzo(a)pyrene	65
Dibenz(a,h)anthracene	18 J

12TP05-01	
Depth	0 - 0.5'
Date	1/8/10
Inorganics	mg/kg
Arsenic	8.5 K
Semivolatiles	µg/kg
Benz(a)anthracene	1300 J
Benzo(a)pyrene	1300 J
Benzo(b)fluoranthene	1700 J
Dibenz(a,h)anthracene	210
Indeno(1,2,3-cd)pyrene	930 J

12TP05-02	
Depth	0.5' - 2'
Date	1/8/10
Inorganics	mg/kg
Arsenic	5.1 K
Semivolatiles	µg/kg
Benz(a)anthracene	210 J
Benzo(a)pyrene	260 J
Benzo(b)fluoranthene	330 J
Dibenz(a,h)anthracene	47
Indeno(1,2,3-cd)pyrene	210 J

12SB03-01	
Depth	0 - 0.5'
Date	1/11/10
Inorganics	mg/kg
Arsenic	4.6 J
Semivolatiles	µg/kg
Benz(a)anthracene	160
Benzo(a)pyrene	120
Benzo(b)fluoranthene	160
Dibenz(a,h)anthracene	18

12TP13-01	
Depth	0 - 0.5'
Date	1/11/10
Inorganics	mg/kg
Arsenic	4.4 J
Semivolatiles	ug/kg
Benz(a)anthracene	580
Benzo(a)pyrene	630
Benzo(b)fluoranthene	640
Dibenz(a,h)anthracene	150 J
Indeno(1,2,3-cd)pyrene	370

12TP13-02	
Depth	0.5' - 2'
Date	1/11/10
Inorganics	mg/kg
Arsenic	2.7 J
Semivolatiles	µg/kg
Benz(a)anthracene	3400
Benzo(a)pyrene	2600
Benzo(b)fluoranthene	2700
Benzo(k)fluoranthene	2900
Dibenz(a,h)anthracene	730 J
Indeno(1,2,3-cd)pyrene	1500

12TP12-02	
Depth	0.5' - 2'
Date	1/11/10
Inorganics	mg/kg
Arsenic	5.5 J
Semivolatiles	µg/kg
Benz(a)anthracene	660
Benzo(a)pyrene	640
Benzo(b)fluoranthene	630
Dibenz(a,h)anthracene	130 J
Indeno(1,2,3-cd)pyrene	310

12TP12-01	
Depth	0 - 0.5'
Date	1/11/10
Inorganics	mg/kg
Arsenic	5.5 J
Thallium	0.9 K
Semivolatiles	µg/kg
Benz(a)anthracene	480
Benzo(a)pyrene	500
Benzo(b)fluoranthene	510
Dibenz(a,h)anthracene	87 J
Indeno(1,2,3-cd)pyrene	190 J

12SB03-02	
Depth	0.5' - 2'
Date	1/11/10
Inorganics	mg/kg
Arsenic	5.3 J

12SB04-02	
Depth	0.5' - 2'
Date	1/11/10
Inorganics	mg/kg
Arsenic	5 J
Thallium	0.61 K

12SB04-01	
Depth	0 - 0.5'
Date	1/11/10
Inorganics	mg/kg
Arsenic	4.6 J
Semivolatiles	µg/kg
Benzo(a)pyrene	53

12TP07-01	
Depth	0 - 0.5'
Date	1/7/10
Inorganics	mg/kg
Arsenic	6.6 K
Semivolatiles	µg/kg
Benzo(a)pyrene	37

12TP07-02	
Depth	0.5' - 2'
Date	1/7/10
Inorganics	mg/kg
Arsenic	5.6 K
Semivolatiles	µg/kg
Benzo(a)pyrene	53

12TP04-02	
Depth	0.5' - 2'
Date	1/5/10
Inorganics	mg/kg
Arsenic	3.1 L

12TP03-01	
Depth	0 - 0.5'
Date	1/5/10
Inorganics	mg/kg
Arsenic	2.8 L
Semivolatiles	µg/kg
Benz(a)anthracene	1600
Benzo(a)pyrene	1400
Benzo(b)fluoranthene	1700
Dibenz(a,h)anthracene	260
Indeno(1,2,3-cd)pyrene	700

12TP03-02		
Depth	0.5' - 2'	0.5' - 2'
Date	1/5/10	1/15/10
Inorganics	mg/kg	mg/kg
Arsenic	1.8 L	1.9 L
Semivolatiles	µg/kg	µg/kg
Benz(a)anthracene	2000	2400
Benzo(a)pyrene	1700	2100
Benzo(b)fluoranthene	1700	2200
Benzo(k)fluoranthene	1900	2700
Dibenz(a,h)anthracene	250 J	340
Indeno(1,2,3-cd)pyrene	630	740

12TP11-01	
Depth	0 - 0.5'
Date	1/11/10
Inorganics	mg/kg
Arsenic	5.5 J
Semivolatiles	µg/kg
Benz(a)anthracene	7300
Benzo(a)pyrene	7000
Benzo(b)fluoranthene	6300
Benzo(k)fluoranthene	10000
Dibenz(a,h)anthracene	2200
Indeno(1,2,3-cd)pyrene	5100
Pesticides/PCBs	µg/kg
Dieldrin	450

12TP11-02	
Depth	0.5' - 2'
Date	1/11/10
Inorganics	mg/kg
Arsenic	3.9 J
Thallium	1.1 K
Semivolatiles	µg/kg
Benz(a)anthracene	21000 J
Benzo(a)pyrene	21000 J
Benzo(b)fluoranthene	18000 J
Benzo(k)fluoranthene	30000
Chrysene	22000 J
Dibenz(a,h)anthracene	12000
Indeno(1,2,3-cd)pyrene	30000
Pesticides/PCBs	µg/kg
Dieldrin	84 J

12SB05-01	
Depth	0 - 0.5'
Date	1/14/10
Inorganics	mg/kg
Arsenic	9.1
Semivolatiles	µg/kg
Benzo(a)pyrene	88
Dibenz(a,h)anthracene	18

12SB05-02	
Depth	0.5' - 2'
Date	1/14/10
Inorganics	mg/kg
Arsenic	6.8
Thallium	0.96 K

12TP01-01	
Depth	0 - 0.5'
Date	1/13/10
Inorganics	mg/kg
Arsenic	4.9
Semivolatiles	µg/kg
Benz(a)anthracene	210
Benzo(a)pyrene	200
Benzo(b)fluoranthene	290 J
Dibenz(a,h)anthracene	27

12TP01-02	
Depth	0.5' - 2'
Date	1/13/10
Inorganics	mg/kg
Arsenic	3.9
Semivolatiles	µg/kg
Benz(a)anthracene	690 J
Benzo(a)pyrene	590 J
Benzo(b)fluoranthene	750 J
Dibenz(a,h)anthracene	98 J
Indeno(1,2,3-cd)pyrene	390 J

12TP06-01	
Depth	0 - 0.5'
Date	1/8/10
Inorganics	mg/kg
Arsenic	7.2 L
Thallium	0.83 J
Semivolatiles	µg/kg
Benz(a)anthracene	190
Benzo(a)pyrene	250 J
Benzo(b)fluoranthene	360 J
Dibenz(a,h)anthracene	42
Indeno(1,2,3-cd)pyrene	210 J

12TP06-02	
Depth	0.5' - 2'
Date	1/8/10
Inorganics	mg/kg
Arsenic	3.8 L
Semivolatiles	µg/kg
Benzo(a)pyrene	68

12SB02-02		
Depth	0.5' - 2'	0.5' - 2'
Date	1/12/10	1/12/10
Inorganics	mg/kg	mg/kg
Arsenic	4.7	4.1
Thallium	0.83 K	0.96 K

12SB01-01	
Depth	0 - 0.5'
Date	1/13/10
Inorganics	mg/kg
Arsenic	5.4
Thallium	1.2 K
Semivolatiles	µg/kg
Benz(a)anthracene	1800
Benzo(a)pyrene	2100
Benzo(b)fluoranthene	3100
Benzo(k)fluoranthene	2100
Dibenz(a,h)anthracene	410
Indeno(1,2,3-cd)pyrene	1200

12SB01-02	
Depth	0.5' - 2'
Date	1/13/10
Inorganics	mg/kg
Arsenic	6.1
Semivolatiles	µg/kg
Benz(a)anthracene	4100
Benzo(a)pyrene	4700
Benzo(b)fluoranthene	5200
Benzo(k)fluoranthene	2400
Dibenz(a,h)anthracene	820
Indeno(1,2,3-cd)pyrene	2300

12TP04-01	
Depth	0 - 0.5'
Date	1/5/10
Inorganics	mg/kg
Arsenic	3.1 L
Semivolatiles	µg/kg
Benz(a)anthracene	210
Benzo(a)pyrene	270
Benzo(b)fluoranthene	390
Dibenz(a,h)anthracene	110
Indeno(1,2,3-cd)pyrene	160

12TP02-01	
Depth	0 - 0.5'
Date	1/14/10
Inorganics	mg/kg
Arsenic	3.3 L
Thallium	0.83 J
Semivolatiles	µg/kg
Benz(a)anthracene	1300
Benzo(a)pyrene	1300
Benzo(b)fluoranthene	1200
Dibenz(a,h)anthracene	200 J
Indeno(1,2,3-cd)pyrene	700

12TP02-02	
Depth	0.5' - 2'
Date	1/4/10
Inorganics	mg/kg
Arsenic	2.2 L
Semivolatiles	µg/kg
Benz(a)anthracene	270
Benzo(a)pyrene	230
Benzo(b)fluoranthene	250
Dibenz(a,h)anthracene	31 J
Indeno(1,2,3-cd)pyrene	190 J

12SB02-01	
Depth	0 - 0.5'
Date	1/12/10
Inorganics	mg/kg
Arsenic	6.8
Semivolatiles	µg/kg
Benz(a)anthracene	210
Benzo(a)pyrene	190
Benzo(b)fluoranthene	230
Dibenz(a,h)anthracene	29
Indeno(1,2,3-cd)pyrene	150

SITE 2

LEGEND

- ⊗ SURFACE SOIL LOCATION
- J ESTIMATED VALUE
- K POSITIVE RESULT BIASED HIGH
- L POSITIVE RESULT BIASED LOW
- mg/kg MILLIGRAMS PER KILOGRAM
- ug/kg MICROGRAMS PER KILOGRAM
- SITE 12 BOUNDARY

0 100 200

SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING LEVELS PHASE I
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM06-09	AS NOTED
FIGURE NUMBER: FIGURE 4-1B	REV: 0 DATE: 10/04/12

112G02014\0307\112G02014GM08-4.DWG 09/18/12 MKB

12SB22-01
Depth 0 - 0.5'
Date 12/14/11
Inorganics mg/kg
Arsenic ***5.7 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***31***

12SB22-02
Depth 0.5' - 2'
Date 12/14/11
Inorganics mg/kg
Arsenic ***4.3 J***

12SB24-01
Depth 0 - 0.5'
Date 12/14/11
Inorganics mg/kg
Arsenic ***4.8 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***18***

12SB24-02
Depth 0.5' - 2'
Date 12/14/11
Inorganics mg/kg
Arsenic ***3.3 J***

12SB15-01
Depth 0 - 0.5' Duplicate 0 - 0.5'
Date 12/15/11 12/15/11
Inorganics mg/kg mg/kg
Arsenic ***1.5 J*** ***1.4 J***
Semivolatiles µg/kg µg/kg
Benzo(a)pyrene ***81*** ***59***

12SB13-01
Depth 0 - 0.5'
Date 12/16/11
Inorganics mg/kg
Arsenic ***3.1 L***
Semivolatiles µg/kg
Benz(a)anthracene ***270***
Benzo(a)pyrene ***320***
Benzo(b)fluoranthene ***510***
Dibenz(a,h)anthracene ***17***

12SB26-02
Depth 0.5' - 2'
Date 12/16/11
Inorganics mg/kg
Arsenic ***1.8 L***

12SB26-01
Depth 0 - 0.5' Duplicate 0 - 0.5'
Date 12/16/11 12/16/11
Inorganics mg/kg mg/kg
Arsenic ***2.5 L*** ***3.6 L***
Semivolatiles µg/kg µg/kg
Benz(a)anthracene ***770*** ***490***
Benzo(a)pyrene ***710*** ***490***
Benzo(b)fluoranthene ***1100*** ***750***
Dibenz(a,h)anthracene ***39*** ***26***
Indeno(1,2,3-cd)pyrene ***290*** ***200***

12SB28-01
Depth 0 - 0.5'
Date 12/29/11
Inorganics mg/kg
Arsenic ***5 J***
Semivolatiles µg/kg
Benz(a)anthracene ***670***
Benzo(a)pyrene ***580***
Benzo(b)fluoranthene ***820***
Dibenz(a,h)anthracene ***110***
Indeno(1,2,3-cd)pyrene ***310***

12SB20-02
Depth 0.5' - 2'
Date 12/14/11
Inorganics mg/kg
Arsenic ***4 J***

12SB18-02
Depth 0.5' - 2'
Date 12/14/11
Inorganics mg/kg
Arsenic ***3.5 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***77***

12SB16-01
Depth 0 - 0.5'
Date 12/15/11
Inorganics mg/kg
Arsenic ***5 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***62***

12SB15-02
Depth 0.5' - 2'
Date 12/15/11
Inorganics mg/kg
Arsenic ***1.1 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***30***

12SB13-02
Depth 0.5' - 2'
Date 12/16/11
Inorganics mg/kg
Arsenic ***5.1 L***
Semivolatiles µg/kg
Benzo(a)pyrene ***70***

12SB28-02
Depth 0.5' - 2'
Date 12/16/11
Inorganics mg/kg
Arsenic ***3.6 L***

12SB20-01
Depth 0 - 0.5' Duplicate 0 - 0.5'
Date 12/14/11 12/14/11
Inorganics mg/kg mg/kg
Arsenic ***2.5 J*** ***2.7 J***

12SB16-02
Depth 0.5' - 2'
Date 12/15/11
Inorganics mg/kg
Arsenic ***4.6 J***

12SB27-02
Depth 0.5' - 2'
Date 12/28/11
Inorganics mg/kg
Arsenic ***7.2 J***
Semivolatiles µg/kg
Benz(a)anthracene ***200***
Benzo(a)pyrene ***230***
Benzo(b)fluoranthene ***340***
Dibenz(a,h)anthracene ***41***

12SB19-02
Depth 0.5' - 2'
Date 12/14/11
Inorganics mg/kg
Arsenic ***4.2 J***
Semivolatiles µg/kg
Benz(a)anthracene ***2600***
Benzo(a)pyrene ***2400***
Benzo(b)fluoranthene ***3200***
Dibenz(a,h)anthracene ***140***
Indeno(1,2,3-cd)pyrene ***1000***

12SB19-01
Depth 0 - 0.5'
Date 12/14/11
Inorganics mg/kg
Arsenic ***2.7 J***
Semivolatiles µg/kg
Benz(a)anthracene ***250***
Benzo(a)pyrene ***250***
Benzo(b)fluoranthene ***350***

12SB18-01
Depth 0 - 0.5'
Date 12/14/11
Inorganics mg/kg
Arsenic ***5.4 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***56***

12SB10-02
Depth 0.5' - 2'
Date 12/15/11
Inorganics mg/kg
Arsenic ***0.96 J***
Semivolatiles µg/kg
Benz(a)anthracene ***6000 K***
Benzo(a)pyrene ***4600 K***
Benzo(b)fluoranthene ***6000 K***
Benzo(k)fluoranthene ***2200 K***
Dibenz(a,h)anthracene ***220 K***
Indeno(1,2,3-cd)pyrene ***2000 K***

12SB11-02
Depth 0.5' - 1'
Date 12/15/11
Inorganics mg/kg
Arsenic ***1.8 J***

12SB12-01
Depth 0 - 0.5'
Date 12/28/11
Inorganics mg/kg
Arsenic ***4.8 J***

12SB25-01
Depth 0 - 0.5'
Date 12/16/11
Inorganics mg/kg
Arsenic ***4.7 L***
Semivolatiles µg/kg
Benz(a)anthracene ***260***
Benzo(a)pyrene ***280***
Benzo(b)fluoranthene ***450***

12SB25-02
Depth 0.5' - 2'
Date 12/16/11
Inorganics mg/kg
Arsenic ***3 L***
Semivolatiles µg/kg
Benzo(a)pyrene ***100***

12SB27-01
Depth 0 - 0.5'
Date 12/28/11
Inorganics mg/kg
Arsenic ***14.4 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***98***
Dibenz(a,h)anthracene ***16***

12SB10-01
Depth 0 - 0.5'
Date 12/15/11
Inorganics mg/kg
Arsenic ***1.1 J***
Semivolatiles µg/kg
Benz(a)anthracene ***530***
Benzo(a)pyrene ***440***
Benzo(b)fluoranthene ***570***
Dibenz(a,h)anthracene ***25***
Indeno(1,2,3-cd)pyrene ***220***

12SB11-01
Depth 0 - 0.5'
12/15/11
Inorganics mg/kg
Arsenic ***3.3 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***76 K***

12SB12-02
Depth 0.5' - 2'
Date 12/28/11
Inorganics mg/kg
Arsenic ***5.6 J***

12SB08-02
Depth 0.5' - 2'
Date 12/28/11
Inorganics mg/kg
Arsenic ***2.8 J***

12SB06-01
Depth 0 - 0.5' Duplicate 0 - 0.5'
Date 12/28/11 12/28/11
Inorganics mg/kg mg/kg
Arsenic ***5.3 J*** ***5.6 J***
Lead ***445*** ***356***

12SB08-01
Depth 0 - 0.5'
Date 12/28/11
Inorganics mg/kg
Arsenic ***2.8 J***

12SB06-02
Depth 0.5' - 2'
Date 12/28/11
Inorganics mg/kg
Arsenic ***8.6 J***

12SB09-01
Depth 0 - 0.5'
Date 12/15/11
Inorganics mg/kg
Arsenic ***2.1 J***

12SB09-02
Depth 0.5' - 2'
Date 12/15/11
Inorganics mg/kg
Arsenic ***3 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***120***
Benzo(b)fluoranthene ***170***

12SB07-02
Depth 0.5' - 2'
Date 12/28/11
Inorganics mg/kg
Arsenic ***3.2 J***

12SB07-01
Depth 0.5' - 2'
Date 12/28/11
Inorganics mg/kg
Arsenic ***7.1 J***
Lead ***883***
Semivolatiles µg/kg
Benzo(a)pyrene ***36***

SITE 12
SITE 2
MAGAZINE
TRAILER
Road
Debris
Vegetation
Transformer

LEGEND
PHASE II SOIL BORING SAMPLE LOCATION
SITE 12 BOUNDARY
0 120 240
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING CRITERIA PHASE II SOIL BORING LOCATIONS SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM08-4	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 4-1C	0 / 09/18/12

112G02014\0307\112G02014GM08-8.DWG 10/12/12 MKB

A
B
C
D
E

SITE

12TP16-01
Depth	0 - 0.5'
Date	12/19/11
Inorganics	mg/kg
Arsenic	4.9
Semivolatiles	ug/kg
Benzo(a)pyrene	22

12TP16-02
Depth	0.5' - 2'
Date	12/19/11
Inorganics	mg/kg
Arsenic	3.6
Thallium	0.81
Semivolatiles	ug/kg
Benzo(a)pyrene	62

12TP16
12TP16-03
12TP16-04
12TP18-02
12TP18
12TP18-01
12TP17

12TP17-01
Depth	0 - 0.5'
Date	12/20/11
Inorganics	mg/kg
Arsenic	5.2 L

12TP17-02
Depth	0.5' - 2'
Date	12/20/11
Inorganics	mg/kg
Arsenic	2.3 L

MAGAZINE

SITE 2

118
TRAILER

Road
Vegetation
Veg.
Scattered Debris
Debris
Well
Transformer

539
53
87
88

LEGEND

- PHASE II STEP-OUT SAMPLE LOCATION
- TEST PIT LOCATION
- SITE 12 BOUNDARY

0 120 240
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING CRITERIA PHASE II TEST PIT SAMPLES SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM08-8	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 4-1D	0 / 10/12/12

112G02014\0307\112G02014GM08-5.DWG 10/12/12 MKB

12SB23-02
Depth 0.5' - 2'
Date 12/22/11
Inorganics mg/kg
Arsenic 5.2 J

12SB23-01
Depth 0 - 0.5'
Date 12/22/11
Inorganics mg/kg
Arsenic 4.8 J
Semivolatiles ug/kg
Benzo(a)pyrene 64
Dibenz(a,h)anthracene 18 J

12SB58-01
Depth 0 - 0.5'
Date 12/29/11
Semivolatiles ug/kg
Benz(a)anthracene 7600
Benzo(a)pyrene 6400
Benzo(b)fluoranthene 8800
Benzo(k)fluoranthene 3100 J
Dibenz(a,h)anthracene 1400 J
Indeno(1,2,3-cd)pyrene 3500
Pesticides/PCBs ug/kg
Dieldrin 33

12SB58-02
Depth 0 - 0.5'
Date 12/29/11
Semivolatiles ug/kg
Benzo(a)pyrene 33

12SB67-01 Duplicate
Depth 0 - 0.5' 0 - 0.5'
Date 12/29/11 12/29/11
Semivolatiles ug/kg ug/kg
Benzo(a)pyrene 18 J ND

12SB21-01
Depth 0 - 0.5'
Date 12/22/11
Inorganics mg/kg
Arsenic 7.5 J
Semivolatiles ug/kg
Benzo(a)pyrene 23

12SB21-02
Depth 0.5' - 2'
Date 12/22/11
Inorganics mg/kg
Arsenic 5.1 J

12SB42-02
Depth 0.5' - 2'
Date 1/4/12
Semivolatiles ug/kg
Benzo(a)pyrene 39

12SB44-02
Depth 0.5' - 2'
Date 1/4/12
Semivolatiles ug/kg
Benz(a)anthracene 410
Benzo(a)pyrene 380
Benzo(b)fluoranthene 500
Dibenz(a,h)anthracene 62
Indeno(1,2,3-cd)pyrene 210

12SB43-02
Depth 0.5' - 2'
Date 1/4/12
Semivolatiles ug/kg
Benz(a)anthracene 910
Benzo(a)pyrene 840
Benzo(b)fluoranthene 1100
Dibenz(a,h)anthracene 170
Indeno(1,2,3-cd)pyrene 450

12SB54-02
Depth 0.5' - 2'
Date 12/29/11
Semivolatiles ug/kg
Benz(a)anthracene 5300
Benzo(a)pyrene 4900
Benzo(b)fluoranthene 6400
Benzo(k)fluoranthene 2800
Dibenz(a,h)anthracene 1000
Indeno(1,2,3-cd)pyrene 2700

12SB55-02
Depth 0.5' - 2'
Date 12/29/11
Semivolatiles ug/kg
Benzo(a)pyrene 29

12SB53-02
Depth 0.5' - 2'
Date 12/29/11
Inorganics mg/kg
Lead 470
Semivolatiles ug/kg
Benzo(a)pyrene 110
Dibenz(a,h)anthracene 18

12SB51-02
Depth 0.5' - 2'
Date 12/29/11
Semivolatiles ug/kg
Benzo(a)pyrene 47

12SB52-02
Depth 0.5' - 2'
Date 12/29/11
Inorganics mg/kg
Lead 1410
Semivolatiles ug/kg
Benz(a)anthracene 290
Benzo(a)pyrene 290
Benzo(b)fluoranthene 370
Dibenz(a,h)anthracene 47
Indeno(1,2,3-cd)pyrene 170

12SB31-02 Duplicate
Depth 0.5' - 2' 0.5' - 2'
Date 1/4/12 1/4/12
Semivolatiles ug/kg ug/kg
Benz(a)anthracene 1500 920
Benzo(a)pyrene 1800 1300
Benzo(b)fluoranthene 2800 2100
Dibenz(a,h)anthracene 350 J 270
Indeno(1,2,3-cd)pyrene 1300 800

12SB39-01
Depth 0 - 0.5'
Date 1/4/12
Semivolatiles ug/kg
Benz(a)anthracene 840
Benzo(a)pyrene 800
Benzo(b)fluoranthene 1100
Dibenz(a,h)anthracene 140
Indeno(1,2,3-cd)pyrene 410 J

12SB34-02
Depth 0.5' - 2'
Date 1/4/12
Semivolatiles ug/kg
Benzo(a)pyrene 22

12SB40-01
Depth 0 - 0.5'
Date 1/4/12
Semivolatiles ug/kg
Benz(a)anthracene 510
Benzo(a)pyrene 470
Benzo(b)fluoranthene 670
Dibenz(a,h)anthracene 79
Indeno(1,2,3-cd)pyrene 250 J

12SB32-02
Depth 0.5' - 2'
Date 1/4/12
Semivolatiles ug/kg
Benzo(a)pyrene 61

12SB33-02
Depth 0.5' - 2'
Date 1/4/12
Semivolatiles ug/kg
Benzo(a)pyrene 160
Benzo(b)fluoranthene 260
Dibenz(a,h)anthracene 27

12SB41-01
Depth 0 - 0.5'
Date 1/4/12
Semivolatiles ug/kg
Benz(a)anthracene 350
Benzo(a)pyrene 330
Benzo(b)fluoranthene 460
Dibenz(a,h)anthracene 54
Indeno(1,2,3-cd)pyrene 180 J

12SB56 12SB50 12SB49 12SB45 12SB46 12SB47 12SB38 12SB37 12SB35 12SB36

MAGAZINE

SITE 2

118 TRAILER

LEGEND

PHASE II STEP-OUT SAMPLE LOCATION

SITE 12 BOUNDARY

0 120 240

SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING CRITERIA PHASE II STEP-OUT SAMPLES SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM08-5	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 4-1E	0 / 10/12/12

112G02014\0307\112G02014GM08-2.DWG 09/18/12 MKB

SSA12-SB10D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	***5.4***
Thallium	***3.2 K***
Semivolatiles	
Benzo(a)pyrene	***100 J***

SSA12-SB08D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	***13.3***
Iron	***166000***
Lead	***1250***
Thallium	***41.1 K***

SSA12-SB05D

Depth	2' - 2.5'
Date	12/7/07
Inorganics	mg/kg
Arsenic	***6.9***
Thallium	***7 J***

SSA12-SB07D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	***11.8***
Thallium	***6.1 K***

SSA12-SB06D

Depth	2' - 2.5'
Date	12/7/07
Inorganics	mg/kg
Arsenic	***7.4***
Thallium	***5.8 J***

SSA12-SB04D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Arsenic	***6.2***
Thallium	***3.8 K***

SSA12-SB02D

		Duplicate
Depth	2' - 2.5'	2' - 2.5'
Date	12/5/07	12/5/07
Inorganics	mg/kg	mg/kg
Arsenic	***4.7***	***4.7***
Thallium	***4 J***	***4 J***

SSA12-SB03D
SSA12-SB09D
SSA12-SB01D
SITE 12
SITE 2
MAGAZINE
TRAILER
Road
Vegetation
Veg.
Debris
Well
Transformer
Scattered Debris
639
152
153
118
87
88

N

LEGEND

- SSA12 RMC SOIL BORING LOCATION/ DRUM LOCATION
- SITE 12 BOUNDARY

0 120 240

SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE
RESULTS ABOVE
HUMAN HEALTH SCREENING CRITERIA
SSA12 SOIL BORINGS
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM08-1	AS NOTED

FIGURE NUMBER	REV	DATE
FIGURE 4-2A	0	09/18/12

112G02014\0307\112G02014GM06-4.DWG 08/01/13 MKB

12TP09-03

		Duplicate
Depth	3' - 4'	3' - 4'
Date	1/18/10	1/18/10
Inorganics	mg/kg	mg/kg
Arsenic	*16.6 K*	*12.9 K*
Iron	*55600*	*ND*
Lead	*872 J*	*ND*
Thallium	*1.9*	*1.3*
Semivolatiles	ug/kg	ug/kg
Benz(a)anthracene	*22000 J*	*ND*
Benzo(a)pyrene	*16000 J*	*ND*
Benzo(b)fluoranthene	*15000*	*ND*
Benzo(k)fluoranthene	*18000 J*	*ND*
Chrysene	*24000 J*	*ND*
Dibenz(a,h)anthracene	*4100 J*	*ND*
Indeno(1,2,3-cd)pyrene	*10000*	*ND*
Naphthalene	*5800*	*ND*

12TP09-04

Depth	5' - 6'
Date	1/18/10
Inorganics	mg/kg
Arsenic	*1.7 K*

12TP08-03

Depth	3' - 4'
Date	1/17/10
Inorganics	mg/kg
Arsenic	*24 K*
Cadmium	*105*
Iron	*81600*
Lead	*435 J*
Thallium	*ND*
Semivolatiles	ug/kg
Benz(a)anthracene	*1700*
Benzo(a)pyrene	*1400*
Benzo(b)fluoranthene	*1400*
Benzo(k)fluoranthene	*1800 J*
Dibenz(a,h)anthracene	*250*
Indeno(1,2,3-cd)pyrene	*540*
Dioxin/Furan	ng/kg
Teq	*27*
Total TCDD	*92*

12TP15-03

Depth	3' - 4'
Date	1/12/10
Inorganics	mg/kg
Arsenic	*24.3 J*
Lead	*7900 J*
Thallium	*4.2*
Semivolatiles	ug/kg
Benzo(a)pyrene	*150*
Benzo(b)fluoranthene	*400 J*
Dibenz(a,h)anthracene	*74*
Indeno(1,2,3-cd)pyrene	*300 J*

12TP09-05

Depth	5' - 6'
Date	1/18/10
Dioxin/Furan	ng/kg
2,3,7,8-TCDD	*5.69 J*
Teq	*247*
Total TCDD	*928*

12TP15-04

Depth	4' - 5'
Date	1/12/10
Inorganics	mg/kg
Arsenic	*5.1 J*
Thallium	*1.2 K*

12TP14-03

Depth	4' - 5'
Date	1/12/10
Inorganics	mg/kg
Arsenic	*6.2*
Semivolatiles	ug/kg
Benz(a)anthracene	*360*
Benzo(a)pyrene	*400*
Benzo(b)fluoranthene	*450*
Dibenz(a,h)anthracene	*71*
Indeno(1,2,3-cd)pyrene	*330*

12TP14-04

Depth	6' - 7'
Date	1/12/10
Inorganics	mg/kg
Arsenic	*1.1 L*

12TP03-04

Depth	5' - 6'
Date	1/5/10
Inorganics	mg/kg
Arsenic	*108 L*
Lead	*5540 J*
Thallium	*2.7*
Semivolatiles	ug/kg
Benz(a)anthracene	*1300*
Benzo(a)pyrene	*2200*
Benzo(b)fluoranthene	*2800*
Benzo(k)fluoranthene	*1800*
Dibenz(a,h)anthracene	*330*
Indeno(1,2,3-cd)pyrene	*900*
Dioxin/Furan	ng/kg
Teq	*40.4*
Total TCDD	*73.2*

12TP13-04

Depth	8' - 9'
Date	1/11/10
Inorganics	mg/kg
Arsenic	*1.6 J*

12TP12-03

Depth	2' - 3'
Date	1/11/10
Inorganics	mg/kg
Arsenic	*92.2 J*
Iron	*57600 J*
Lead	*1400 J*
Thallium	*2.2 K*
Semivolatiles	ug/kg
Benz(a)anthracene	*700*
Benzo(a)pyrene	*800*
Benzo(b)fluoranthene	*880*
Dibenz(a,h)anthracene	*250*
Indeno(1,2,3-cd)pyrene	*600*

12TP13-03

Depth	5' - 6'
Date	1/11/10
Inorganics	mg/kg
Arsenic	*4.2 J*

12TP12-04

Depth	5' - 6'
Date	1/11/10
Inorganics	mg/kg
Arsenic	*3.2 J*

12TP11-03

Depth	3' - 4'
Date	1/11/10
Inorganics	mg/kg
Arsenic	*8.9*
Thallium	*0.8*
Semivolatiles	ug/kg
Benz(a)anthracene	*520*
Benzo(a)pyrene	*820*
Benzo(b)fluoranthene	*1200*
Dibenz(a,h)anthracene	*140 J*
Indeno(1,2,3-cd)pyrene	*430*
Pesticides/PCBS	ug/kg
Dieldrin	*44*

12TP11-04

Depth	5' - 6'
Date	1/11/10
Inorganics	mg/kg
Arsenic	*1 J*

12TP10-03

Depth	4' - 5'
Date	1/8/10
Inorganics	mg/kg
Arsenic	*12.6 K*
Iron	*93000*
Lead	*2180 J*
Thallium	*1.7*
Semivolatiles	ug/kg
Benz(a)anthracene	*5100*
Benzo(a)pyrene	*3600*
Benzo(b)fluoranthene	*3000*
Benzo(k)fluoranthene	*3900 J*
Dibenz(a,h)anthracene	*700 J*
Indeno(1,2,3-cd)pyrene	*2700*

12TP10-04

Depth	8' - 9'
Date	1/18/10
Inorganics	mg/kg
Arsenic	*0.77 J*

12TP05-03

		Duplicate
Depth	2' - 4'	2' - 4'
Date	1/6/10	1/6/10
Inorganics	mg/kg	mg/kg
Arsenic	*4.4 K*	*3.5 K*
Thallium	*0.89*	*1*

12TP05-04

Depth	9' - 10'
Date	1/6/10
Inorganics	mg/kg
Arsenic	*0.58 R*

12TP07-03

Depth	6' - 7'
Date	1/17/10
Inorganics	mg/kg
Arsenic	*1.7 K*

12TP03-05

Depth	8' - 9'
Date	1/5/10
Inorganics	mg/kg
Arsenic	*2.2 L*
Thallium	*1.2 J*
Semivolatiles	ug/kg
Benz(a)anthracene	*1100*
Benzo(a)pyrene	*850*
Benzo(b)fluoranthene	*870*
Dibenz(a,h)anthracene	*110 J*
Indeno(1,2,3-cd)pyrene	*560*

12TP04-03

Depth	4' - 5'
Date	1/5/10
Inorganics	mg/kg
Arsenic	*3.5 L*

12TP06-03

		Duplicate
Depth	5' - 6'	5' - 6'
Date	1/6/10	1/6/10
Inorganics	mg/kg	mg/kg
Arsenic	*6.5 L*	*NA*
Semivolatiles	ug/kg	ug/kg
Benz(a)anthracene	*2500*	*NA*
Benzo(a)pyrene	*2100*	*NA*
Benzo(b)fluoranthene	*2800*	*NA*
Benzo(k)fluoranthene	*2200*	*NA*
Dibenz(a,h)anthracene	*340*	*NA*
Indeno(1,2,3-cd)pyrene	*880*	*NA*
Dioxin/Furan	ng/kg	ng/kg
Teq	*7.26*	*4.61*
Total TCDD	*33.8*	*44.7*

*Duplicate was analyzed for Dioxins/Furans only

12TP04-04

Depth	6' - 7'
Date	1/5/10
Inorganics	mg/kg
Arsenic	*2.1 L*
Thallium	*ND*

12TP06-04

Depth	9' - 10'
Date	1/6/10
Inorganics	mg/kg
Arsenic	*1.4 L*

12TP01-04

Depth	7' - 8'
Date	1/4/10
Inorganics	mg/kg
Arsenic	*2.5 L*
Manganese	*3740*
Thallium	*3.2*

12TP01-03

Depth	5' - 6'
Date	1/4/10
Inorganics	mg/kg
Arsenic	*5.3 L*
Naphthalene	*13000 J*

12TP02-04

Depth	9' - 10'
Date	1/4/10
Inorganics	mg/kg
Arsenic	*1.8 L*
Semivolatiles	ug/kg
Benzo(a)pyrene	*33*

12TP02-03

Depth	4' - 5'
Date	1/4/10
Inorganics	mg/kg
Arsenic	*13.1 L*
Cobalt	*23.1*
Iron	*59300*
Lead	*3500 J*
Thallium	*3*
Semivolatiles	ug/kg
Benz(a)anthracene	*260*
Benzo(a)pyrene	*230 J*
Benzo(b)fluoranthene	*370*
Dioxin/Furan	ng/kg
2,3,7,8-TCDD	*34.4 J*
Teq	*603*
Total TCDD	*1650*

12TP03-03

Depth	6' - 7'
Date	1/5/10
Inorganics	mg/kg
Arsenic	*5.1 L*
Semivolatiles	ug/kg
Benz(a)anthracene	*1900*
Benzo(a)pyrene	*2200*
Benzo(b)fluoranthene	*2800*
Benzo(k)fluoranthene	*3000*
Dibenz(a,h)anthracene	*530 J*
Indeno(1,2,3-cd)pyrene	*1200*

Road
Vegetation
Debris
Well
Transformer
Scattered Debris
SITE 2

LEGEND

- SUBSURFACE SOIL SAMPLE LOCATION
- J — ESTIMATED VALUE
- K — POSITIVE RESULT BIASED HIGH
- L — POSITIVE RESULT BIASED LOW
- NA — NOT ANALYZED
- mg/kg — MILLIGRAMS PER KILOGRAM
- ug/kg — MICROGRAMS PER KILOGRAM
- SITE 12 BOUNDARY

0 100 200
SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE RESULTS ABOVE SCREENING LEVELS PHASE I SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE 112G02014GM06-4	SCALE AS NOTED
FIGURE NUMBER FIGURE 4-2B	REV 0 / DATE 08/01/13

112G02014\0307\112G02014GM08-2.DWG 9/21/12 MKB

N

12SB23-03
Depth 3' - 4'
Date 12/22/11
Inorganics mg/kg
Arsenic ***3.4 J***

12SB22-03
Depth 3' - 4'
Date 12/14/11
Inorganics mg/kg
Arsenic ***3 J***

12SB24-03
Depth 3' - 4'
Date 12/14/11
Inorganics mg/kg
Arsenic ***1.2 J***

12SB21-03
Depth 3' - 4'
Date 12/22/11
Inorganics mg/kg
Arsenic ***7.1 J***

12SB20-03

	3' - 4'	Duplicate 3' - 4'
Depth		
Date	12/22/11	12/22/11
Inorganics	mg/kg	mg/kg
Arsenic	***3.1 J***	***3.9***
Pesticides/PCBS	µg/kg	µg/kg
Aroclor-1260	*ND*	***350 J***

12SB18-03
Depth 3' - 4'
Date 12/14/11
Inorganics mg/kg
Arsenic ***2.7 J***

12SB16-03 ***Duplicate***

	3' - 4'	3' - 4'
Depth		
Date	12/15/11	12/15/11
Inorganics	mg/kg	mg/kg
Arsenic	***5.2 J***	***3.3 J***

12SB15-03
Depth 3' - 4'
Date 12/15/11
Inorganics mg/kg
Arsenic ***3.3 J***

12SB19-03
Depth 3' - 4'
Date 12/14/11
Inorganics mg/kg
Arsenic ***3.9 J***
Semivolatiles µg/kg
Benz(a)anthracene ***360***
Benzo(a)pyrene ***330***
Benzo(b)fluoranthene ***440***

12SB10-03
Depth 3' - 4'
Date 12/15/11
Inorganics mg/kg
Arsenic ***1.1 J***
Semivolatiles µg/kg
Benz(a)anthracene ***1800 K***
Benzo(a)pyrene ***1400 K***
Benzo(b)fluoranthene ***1900 K***
Dibenz(a,h)anthracene ***71 K***
Indeno(1,2,3-cd)pyrene ***640 K***

12SB11-03
Depth 3' - 4'
Date 12/15/11
Inorganics mg/kg
Arsenic ***3.7 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***34***

12SB09-03
Depth 3' - 4'
Date 12/15/11
Inorganics mg/kg
Arsenic ***2.4 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***36***

12SB17-03
Depth 3' - 4'
Date 12/28/11
Inorganics mg/kg
Arsenic ***3.6 J***

12SB25-03
Depth 3' - 4'
Date 12/16/11
Inorganics mg/kg
Arsenic ***1.6 L***

12SB26-03
Depth 3' - 4'
Date 12/16/11
Inorganics mg/kg
Arsenic ***3.5 L***

12SB28-03
Depth 3' - 4'
Date 12/16/11
Inorganics mg/kg
Arsenic ***1.1 L***

12SB30-03
Depth 3' - 4'
Date 12/22/11
Inorganics mg/kg
Arsenic ***2.6 J***

12SB14-03
Depth 3' - 4'
Date 12/15/11
Inorganics mg/kg
Arsenic ***0.76 J***

12SB13-03
Depth 3' - 4'
Date 12/16/11
Inorganics mg/kg
Arsenic ***1.7 L***

12SB29-03
Depth 3' - 4'
Date 12/16/11
Inorganics mg/kg
Arsenic ***2.4 L***

12SB12-03
Depth 3' - 4'
Date 12/28/11
Inorganics mg/kg
Arsenic ***10.7 J***
Semivolatiles µg/kg
Benzo(a)pyrene ***23***

12SB06-03
Depth 3' - 4'
Date 12/28/11
Inorganics mg/kg
Arsenic ***3.3 J***

12SB08-03
Depth 3' - 4'
Date 12/28/11
Inorganics mg/kg
Arsenic ***4 J***

12SB07-03
Depth 3' - 4'
Date 12/28/11
Inorganics mg/kg
Arsenic ***2.5 J***

SITE 12

SITE

639
153
118
TRAILER
87
WILLOW LANE

LEGEND

SUBSURFACE SOIL SAMPLE LOCATION

SITE 12 BOUNDARY

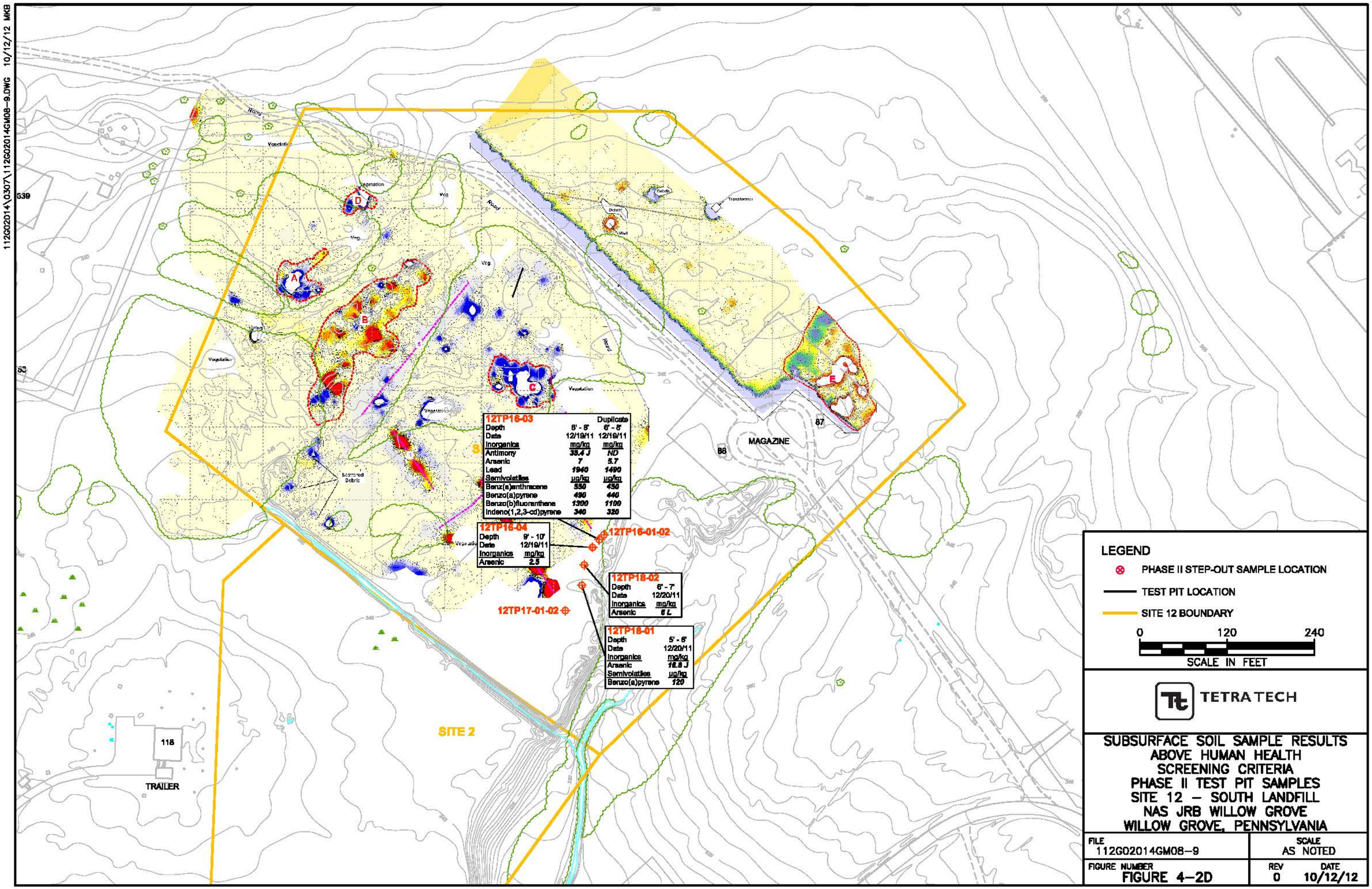
0 120 240
SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING CRITERIA PHASE II SOIL BORINGS SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM08-2	AS NOTED
FIGURE NUMBER	**REV** / **DATE**
FIGURE 4-2C	0 / 9/21/12

112G02014\G307\112G02014GM08-9.DWG 10/12/12 MKB



112G02014\0307\112G02014GM06-6.DWG 07/29/13 MKB

12SD08	
Date	1/20/10
Inorganics	mg/kg
Antimony	2.2 J
Lead	40.3
Semivolatiles	µg/kg
Acenaphthylene	81 J
Anthracene	210 J
Benz(a)anthracene	960
Benzo(a)pyrene	990
Benzo(g,h,i)perylene	350
Benzo(k)fluoranthene	1100
Chrysene	1000
Dibenz(a,h)anthracene	190
Fluoranthene	2400
Phenanthrene	720
Pyrene	2000
Total PAHs	11628
Pesticides	µg/kg
4,4'-DDE	6.5 J
Total DDT	10.6
Dieldrin	39

12SW08	
Date	1/21/10
Total Inorganics	µg/L
Aluminum	2700
Manganese	114 J
Iron	2760
Lead	10.6
Semivolatiles	µg/L
Benz(a)anthracene	0.045 J
Benzo(a)pyrene	0.049 J
Fluoranthene	0.1 J
Pyrene	0.079 J
Pesticides	µg/L
Heptachlor Epoxide	0.0079 J

12SW07	
Date	1/21/10
Total Inorganics	µg/L
Aluminum	31800
Arsenic	10.6
Beryllium	3.1
Cadmium	1.1
Chromium	37.8
Cobalt	32.6
Copper	57.4
Iron	44700
Lead	88
Manganese	1990 J
Mercury	0.2
Vanadium	88.8
Zinc	253 L
Dissolved Inorganics	µg/L
Aluminum	270
Iron	370
Manganese	845
Selenium	4.5 J
Semivolatiles	µg/L
Anthracene	0.22
Benz(a)anthracene	1.3
Benzo(a)pyrene	1.5
Fluoranthene	2.9
Phenanthrene	0.78
Pyrene	2.3
Pesticides	µg/L
4,4'-DDD	0.015 J
4,4'-DDT	0.019 J
TOTAL DDT	0.055
Alpha-Chlordane	0.058 J
Endosulfan I	0.063 J
Endrin Aldehyde	0.037 J
Methoxychlor	0.28 J

12SD07	
Date	1/20/10
Semivolatiles	µg/kg
Acenaphthylene	23
Benz(a)anthracene	260
Benzo(a)pyrene	250
Chrysene	220
Dibenz(a,h)anthracene	38
Fluoranthene	530 J
Pyrene	400
Total PAHs	2751.1
Pesticides	µg/kg
Dieldrin	55
Endrin Ketone	2.4 J

12SW01	
Date	1/14/10
Total Inorganics	µg/L
Barium	193 J
Iron	565
Manganese	2100 J

12SD01	
Date	1/14/10
Semivolatiles	µg/kg
Anthracene	570 J
Benz(a)anthracene	2100
Benzo(a)pyrene	2200
Benzo(g,h,i)perylene	990 J
Benzo(k)fluoranthene	2800 J
Bis(2-ethylhexyl)phthalate	230 J
Chrysene	2800
Dibenz(a,h)anthracene	540
Fluoranthene	7000
Fluorene	170 J
Phenanthrene	3300
Pyrene	5000
Total PAHs	30870
Volatiles	µg/kg
Carbon Disulfide	5.4 J
Pesticides	µg/kg
Total DDT	7.2
Alpha-Chlordane	8.4 J
Dieldrin	23 J
Endrin Ketone	14 J
Gamma-Chlordane	7.9 J
Heptachlor Epoxide	4.5 J

12SD03		Duplicate
Date	1/20/10	1/20/10
Inorganics	mg/kg	mg/kg
Iron	18000 L	20200 L
Manganese	942 L	947 L
Semivolatiles	µg/kg	µg/kg
Acenaphthene	85	200
Acenaphthylene	63	150 J
Anthracene	360 J	900
Benz(a)anthracene	1700 J	3500 J
Benzo(a)pyrene	1900 J	3500 J
Benzo(g,h,i)perylene	1000	1400
Benzo(k)fluoranthene	2100	3200
Chrysene	2200 J	4200 J
Dibenz(a,h)anthracene	450	750
Fluoranthene	5000 J	10000
Fluorene	160 J	340 J
Phenanthrene	2800 J	5800 J
Pyrene	4100 J	8600 J
Total PAHs	25218	49240
Volatiles	µg/kg	µg/kg
Carbon Disulfide	28 J	1.9 J
Pesticides	µg/kg	µg/kg
4,4'-DDE	ND	6.1 L
Total DDT	ND	7.5
Alpha-Chlordane	4.8 J	6.4 J
Beta-BHC	ND	16 J
Dieldrin	5.2 J	8.4 L
Endrin Aldehyde	2.3 J	ND
Gamma-Chlordane	5.6 J	3.7 J

12SW03	
Date	1/20/10
Total Inorganics	µg/L
Barium	173 J
Iron	889
Manganese	1660 J
Cyanide	6.8 L

12SW02		Duplicate
Date	1/18/10	
Total Inorganics	µg/L	µg/L
Barium	115 J	117 J
Iron	656	665
Manganese	990 J	1010 J
Cyanide	48.8 J	ND
Semivolatiles	µg/L	µg/L
Anthracene	0.045 J	0.041 J
Benz(a)anthracene	0.043 J	0.047 J
Benzo(a)pyrene	0.12 J	0.12 J
Fluoranthene	0.078 J	0.084 J
Pyrene	0.098 J	0.11 J

12SD06	
Date	1/20/10
Inorganics	mg/kg
Lead	54.7
Manganese	463 L
Semivolatiles	µg/kg
Benz(a)anthracene	130
Benzo(a)pyrene	160
Pyrene	250
Total PAHs	1777
Pesticides	µg/kg
4,4'-DDE	5.2 J
4,4'-DDT	5.2 J
Total DDT	10.4
Dieldrin	17

12SD05	
Date	1/20/10
Inorganics	mg/kg
Lead	72

12SW05	
Date	1/21/10
Total Inorganics	µg/L
Barium	84.9 J
Lead	3.6
Cyanide	6 L

12SW04	
Date	1/20/10
Total Inorganics	µg/L
Barium	68 J

12SD04	
Date	1/20/10
Inorganics	mg/kg
Lead	90

12SD02	
Date	1/15/10
Inorganics	mg/kg
Cadmium	2.1
Copper	44.7
Iron	24000 L
Lead	45.8
Manganese	17400 L
Nickel	28.4
Semivolatiles	µg/kg
Anthracene	460 J
Benz(a)anthracene	2500
Benzo(a)pyrene	3000
Benzo(g,h,i)perylene	1300 J
Benzo(k)fluoranthene	3500 J
Bis(2-ethylhexyl)phthalate	460 J
Chrysene	3600
Dibenz(a,h)anthracene	700
Fluoranthene	8100
Phenanthrene	3700
Pyrene	6300
Total PAHs	37860
Pesticides	µg/kg
Alpha-Chlordane	12 J
Endrin Aldehyde	7.5 J
Endrin Ketone	17 J
Gamma-Chlordane	16 J

LEGEND

- SURFACE WATER SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- SITE 12 BOUNDARY

0 120 240

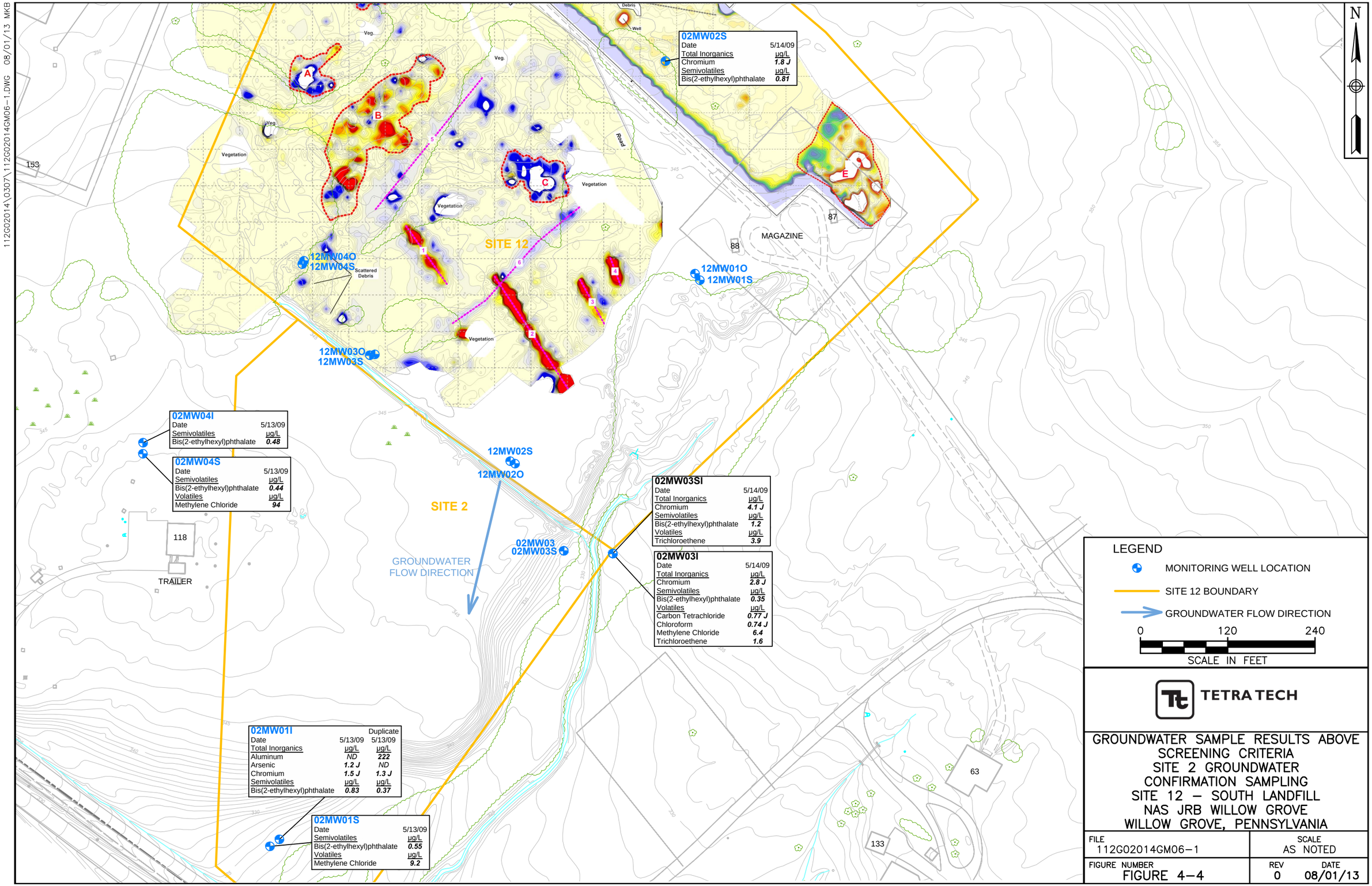
SCALE IN FEET

TETRA TECH

SURFACE WATER/SEDIMENT SAMPLE RESULTS ABOVE HUMAN HEALTH SCREENING CRITERIA SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM06-6	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 4-3	0 / 07/29/13

112G02014\0307\112G02014GM06-1.DWG 08/01/13 MKB



TETRA TECH

GROUNDWATER SAMPLE RESULTS ABOVE SCREENING CRITERIA
SITE 2 GROUNDWATER CONFIRMATION SAMPLING
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM06-1	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 4-4	0 / 08/01/13

112G02014\0307\112G02014GM06-5.DWG 08/01/13 MKB

N

12MW04O

Date	3/7/12
Total Inorganics	µg/L
Aluminum	***213***
Chromium	***7.5 J***
Iron	***438***
Manganese	***128***
Dissolved Inorganics	µg/L
Arsenic	***0.37 J***
Chromium	***2.7***
Manganese	***126***

12MW04S

Date	3/6/12
Total Inorganics	µg/L
Aluminum	***207***
Chromium	***4.8 J***
Iron	***1040***
Manganese	***165***

12MW03S

Date	3/6/12	Duplicate 3/6/12
Total Inorganics	µg/L	µg/L
Arsenic	***0.29***	***0.23***
Chromium	***4.6 J***	***2.6 J***
Iron	***311***	*ND*
Manganese	***1630***	***1680***

12MW03O

Date	3/7/12
Total Inorganics	µg/L
Aluminum	***1600***
Chromium	***24.6 J***
Iron	***1970***
Manganese	***896***
Dissolved Inorganics	µg/L
Aluminum	***309***
Chromium	***7.8***
Iron	***540***
Manganese	***782***

12MW02S

Date	3/7/12	Duplicate 3/7/12
Total Inorganics	µg/L	µg/L
Arsenic	***0.66***	*ND*
Chromium	***3.4 J***	*ND*
Iron	***477***	*ND*
Manganese	***662***	*ND*

12MW02O

Date	3/6/12
Total Inorganics	µg/L
Aluminum	***8570***
Arsenic	***2.7***
Chromium	***14.7 J***
Iron	***12200***
Lead	***5.1***
Manganese	***86.5***

12MW01O

Date	3/7/12
Total Inorganics	µg/L
Chromium	***3.6 J***
Dioxins/Furans	pg/L
TEQ	***0.616 L***

12MW01S

Date	3/7/12
Total Inorganics	µg/L
Chromium	***2.9 J***
Iron	***377***
Manganese	***630***
Dissolved Inorganics	µg/L
Arsenic	***0.44 J***
Chromium	***2.7***
Manganese	***676***
Dioxins/Furans	pg/L
TEQ	***1.47***

02MW03I

Date	3/7/12
Volatiles	µg/L
Carbon Tetrachloride	***0.61 J***
Chloroform	***0.77 J***
Trichloroethene	***2***

02MW03SI

Date	3/8/12
Volatiles	µg/L
Trichloroethene	***4***

02MW02S
02MW04I
02MW04S
02MW03
02MW03S
02MW01S
02MW01I

SITE 12
SITE 2
A
B
C
E
1
2
3
4
5
6
Veg.
Vegetation
Road
Debris
Well
Scattered Debris
GROUNDWATER FLOW DIRECTION
TRAILER
118
153
87
63
133

LEGEND

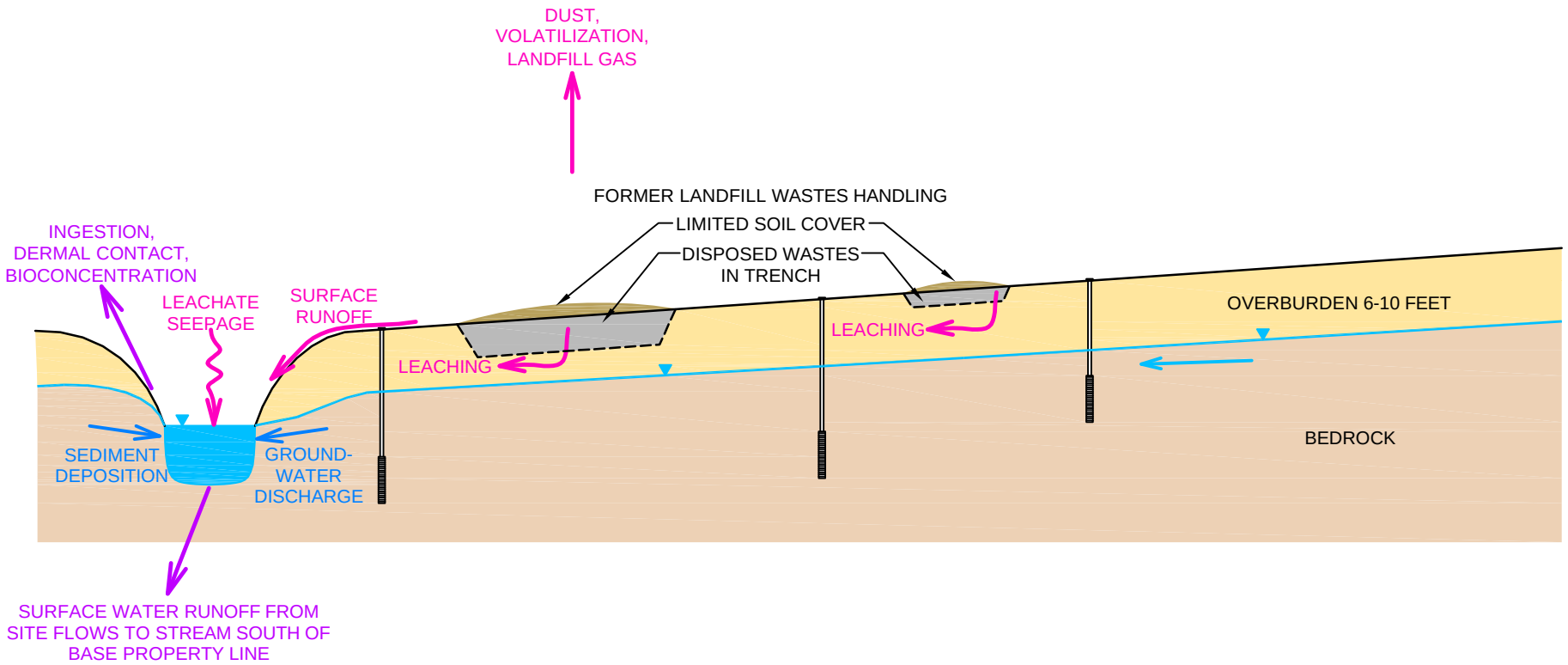
- MONITORING WELL LOCATION
- SITE 12 BOUNDARY
- GROUNDWATER FLOW DIRECTION

0 120 240
SCALE IN FEET

TETRA TECH

GROUNDWATER SAMPLE RESULTS ABOVE SCREENING CRITERIA MARCH 2012 SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM06-5	AS NOTED
FIGURE NUMBER	**REV / DATE**
FIGURE 4-5	0 / 08/01/13



LEGEND

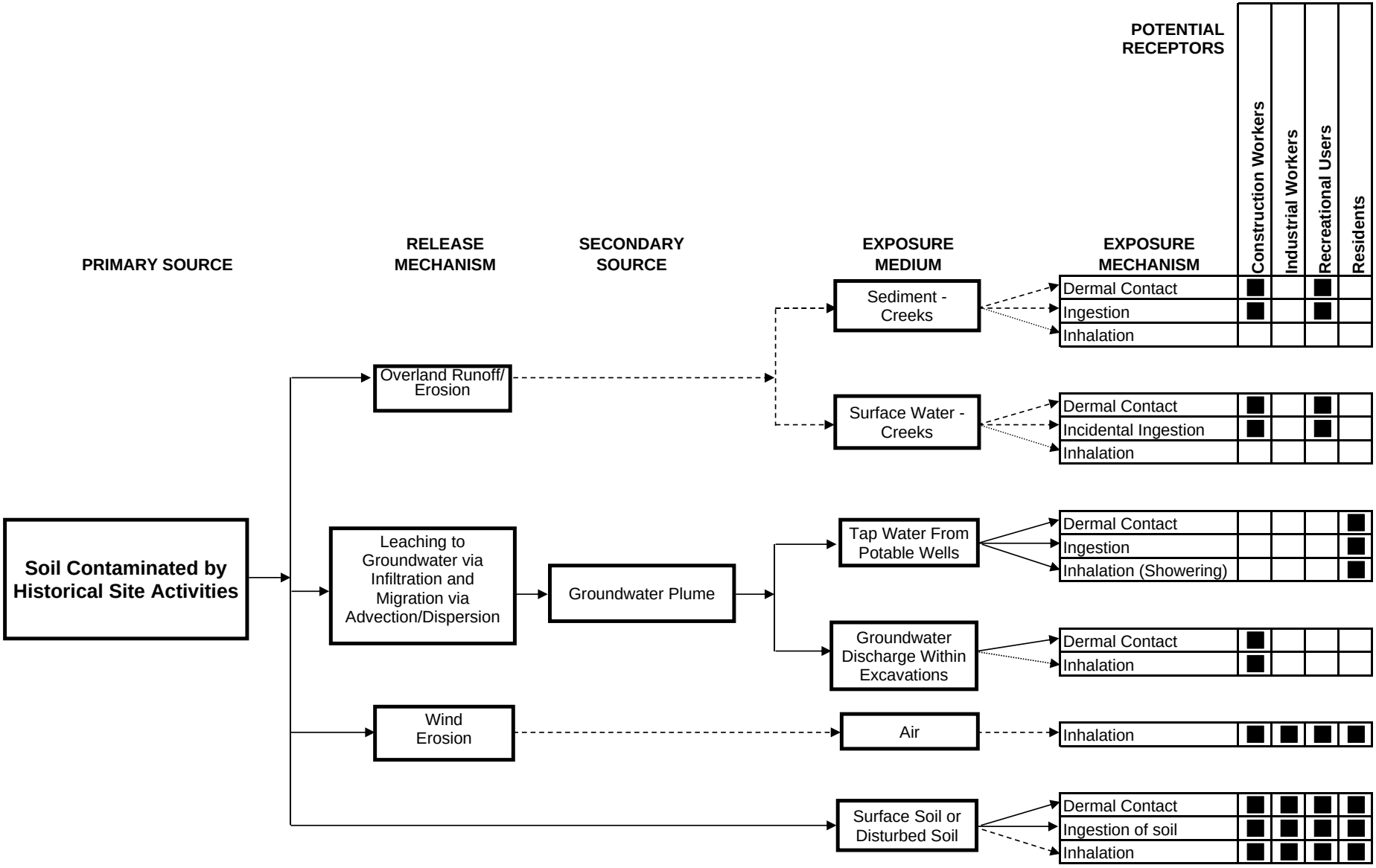
- GROUNDWATER LEVEL
- GROUNDWATER FLOW DIRECTION
- RELEASE MECHANISM
- EXPOSURE ROUTE

TETRA TECH

CONCEPTUAL SITE MODEL SCHEMATIC
HUMAN RECEPTORS
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

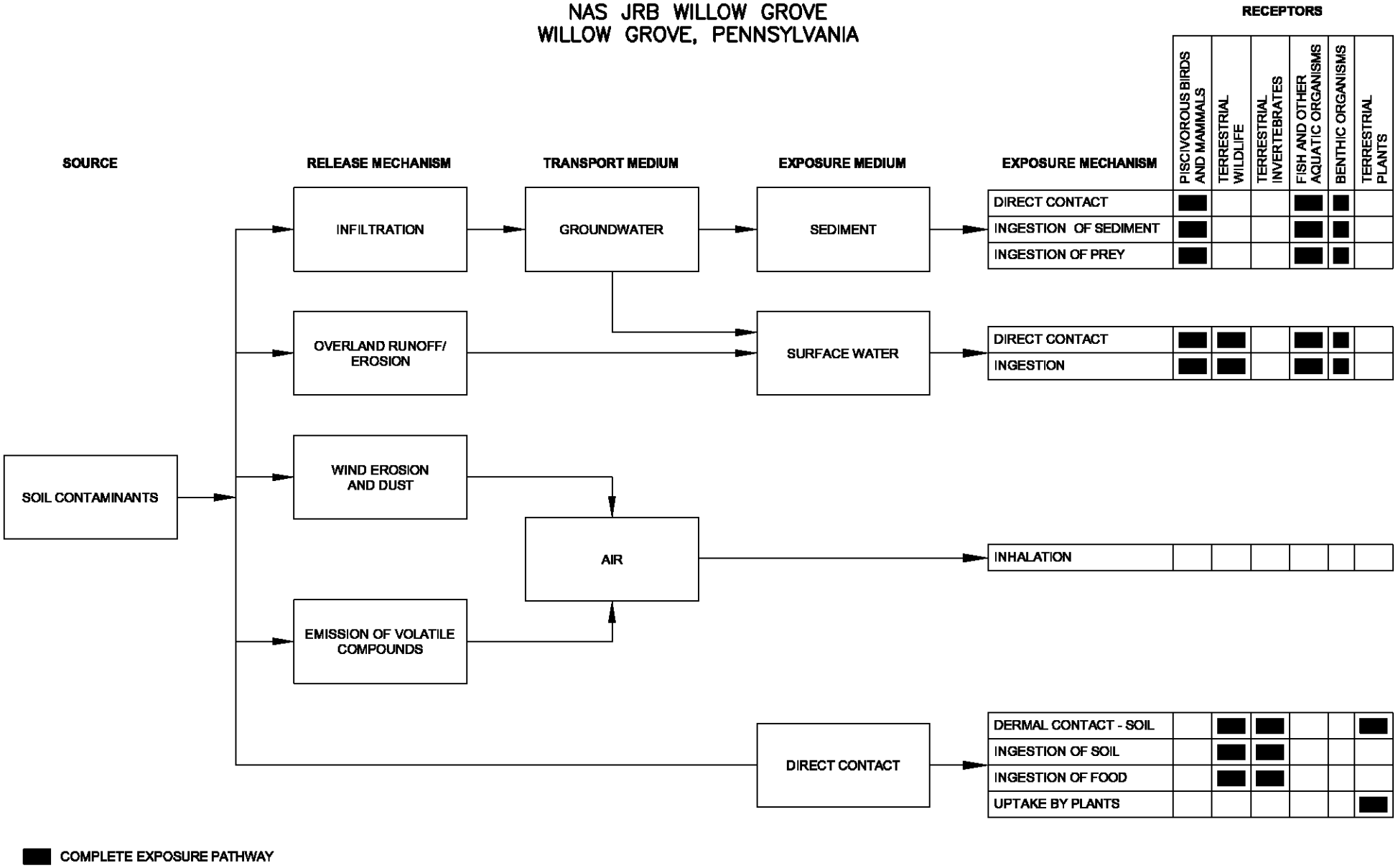
SCALE	AS NOTED
FILE	112G02014CM02
REV	0
DATE	09/19/12
FIGURE NUMBER	FIGURE 6–1

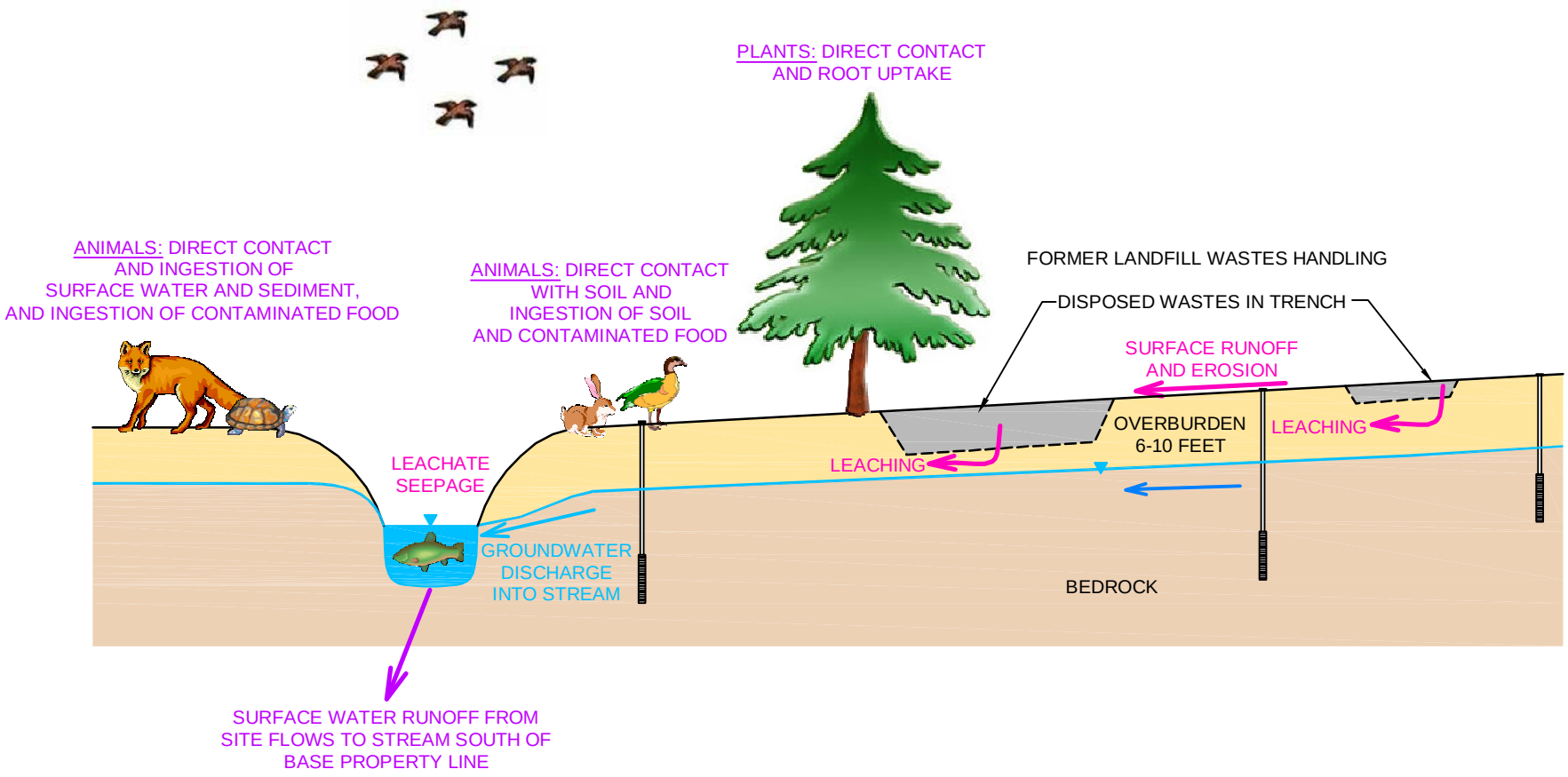
FIGURE 6-2
CONCEPTUAL SITE MODEL - HUMAN HEALTH RISK ASSESSMENT
SITE 12, NAS JRB WILLOW GROVE, PENNSYLVANIA



Blank space indicates incomplete exposure pathway or not applicable potential exposure.

FIGURE 7-1
ECOLOGICAL CONCEPTUAL EXPOSURE MODEL
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA





LEGEND

- GROUNDWATER LEVEL
- GROUNDWATER FLOW DIRECTION
- RELEASE MECHANISM
- EXPOSURE ROUTE

TETRA TECH

CONCEPTUAL SITE MODEL
ECOLOGICAL RECEPTORS
SITE 12 – SOUTH LANDFILL
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	112G02014SCM01
REV	0
DATE	07/02/12
FIGURE NUMBER	FIGURE 7–2

112G02014\0307\112G02014GM05-4.DWG 09/19/12 MKB

12TP15-01

	0 - 0.5'
Depth	
Date	1/12/10
Inorganics	mg/kg
Aluminum	***14000***
Antimony	***0.72 J***
Cadmium	***0.76 J***
Iron	***17100 J***
Lead	***56.6 J***
Manganese	***774 J***
Mercury	***0.2 K***
Silver	***4.5 K***
Vanadium	***23.6***
Zinc	***77.8***
Semivolatiles	µg/kg
Benz(a)anthracene	***3400***
Benzo(a)pyrene	***3800***
Benzo(b)fluoranthene	***3700***
Benzo(g,h,i)perylene	***1500 J***
Benzo(k)fluoranthene	***5400 J***
Chrysene	***3900***
Indeno(1,2,3-cd)pyrene	***2000***
Pyrene	***5600***
Total PAHs	***39140***
Total PAHs Halfnd	***40880***
Pesticides/PCBs	µg/kg
4,4'-DDE	***82***
4,4'-DDT	***170***
Total DDT	***257.2***
Total DDT Halfnd	***257.2***
Dieldrin	***11***

12TP15-02

	0.5' - 2'
Depth	
Date	1/12/10
Inorganics	mg/kg
Aluminum	***12700***
Antimony	***0.76 J***
Cadmium	***0.67***
Iron	***15500 J***
Lead	***52.6 J***
Manganese	***663 J***
Mercury	***0.24 K***
Vanadium	***22.3***
Zinc	***74.9***
Semivolatiles	µg/kg
Benz(a)anthracene	***1200***
Benzo(b)fluoranthene	***1500***
Chrysene	***1300***
Pyrene	***2200***
Total PAHs	***13807***
Total PAHs Halfnd	***13807***
Pesticides/PCBs	µg/kg
4,4'-DDD	***28 R***
4,4'-DDE	***26 J***
4,4'-DDT	***27 J***
Total DDT	***53***
Total DDT Halfnd	***53***

SSA12-SS08D

	0 - 0.5'
Depth	
Date	12/5/07
Inorganics	mg/kg
Aluminum	***14400***
Iron	***19100***
Lead	***66.7***
Manganese	***488 K***
Mercury	***0.24 K***
Thallium	***3.6 K***
Vanadium	***29.7***
Zinc	***133***
Semivolatiles	µg/kg
Benz(a)anthracene	***2600 J***
Benzo(a)pyrene	***2500 J***
Benzo(b)fluoranthene	***2900 J***
Benzo(g,h,i)perylene	***1500 J***
Benzo(k)fluoranthene	***2200 J***
Chrysene	***2900 J***
Indeno(1,2,3-cd)pyrene	***1700 J***
Pyrene	***5300 J***
Pesticides	µg/kg
Dieldrin	***71 J***

12SB59-01

	0 - 0.5'
Depth	
Date	12/29/11
Semivolatiles	µg/kg
Benz(a)anthracene	***7600***
Benzo(a)pyrene	***6400***
Benzo(b)fluoranthene	***8800***
Benzo(g,h,i)perylene	***4600 J***
Benzo(k)fluoranthene	***3100 J***
Chrysene	***7800***
Dibenz(a,h)anthracene	***1400 J***
Indeno(1,2,3-cd)pyrene	***3500***
Pyrene	***15000***
Total PAHs	***87174***
Total PAHs Halfnd	***87174***
Pesticides/PCBs	µg/kg
Dieldrin	***33***

SSA12-SS10D

	0 - 0.5'
Depth	
Date	12/5/07
Inorganics	mg/kg
Aluminum	***13400***
Iron	***14300***
Lead	***37.6***
Manganese	***632 K***
Mercury	***0.17 K***
Thallium	***2.1 K***
Vanadium	***24.8***
Zinc	***241***
Pesticides	µg/kg
Dieldrin	***5.9 J***

12SB23-01

	0 - 0.5'
Depth	
Date	12/22/11
Inorganics	mg/kg
Aluminum	***11000***
Cadmium	***0.45 J***
Iron	***16200 J***
Lead	***37.2 J***
Manganese	***397 J***
Mercury	***0.111***
Vanadium	***27.3 J***
Zinc	***66.6 J***

12SB23-02

	0.5' - 2'
Depth	
Date	12/22/11
Inorganics	mg/kg
Aluminum	***16700***
Iron	***37000 J***
Lead	***12 J***
Vanadium	***34.4 J***

12SB22-01

	0 - 0.5'
Depth	
Date	12/14/11
Inorganics	mg/kg
Aluminum	***8680 J***
Antimony	***0.64 J***
Iron	***11800 J***
Lead	***37.9 J***
Manganese	***368 J***
Mercury	***0.214***
Vanadium	***19.4 J***
Zinc	***46.4 J***
Misc. Parameters	µg/kg
Hexavalent Chromium	***2.2***

12SB22-02

	0.5' - 2'
Depth	
Date	12/14/11
Inorganics	mg/kg
Aluminum	***7740 J***
Iron	***10300 J***
Lead	***12.1 J***
Manganese	***299 J***
Mercury	***ND***
Vanadium	***15.5 J***
Misc. Parameters	µg/kg
Hexavalent Chromium	***1.1***

12TP09-01

	0 - 0.5'
Depth	
Date	1/8/10
Inorganics	mg/kg
Aluminum	***13000***
Antimony	***0.88 J***
Cadmium	***0.69 K***
Iron	***14200***
Lead	***57.1 J***
Manganese	***401***
Vanadium	***23.6***
Zinc	***77.4***
Semivolatiles	µg/kg
Total PAHs	***3773***
Total PAHs Halfnd	***4088***
Pesticides/PCBs	µg/kg
Dieldrin	***11***

12TP09-02

	0.5' - 2'
Depth	
Date	1/8/10
Inorganics	mg/kg
Aluminum	***20700***
Antimony	***2.1 J***
Cadmium	***1.4 K***
Chromium	***35.6***
Copper	***30.5 K***
Iron	***18400***
Lead	***33.4 J***
Manganese	***401***
Vanadium	***31.7***
Zinc	***144***
Semivolatiles	µg/kg
Pyrene	***1600***
Total PAHs	***10957***
Total PAHs Halfnd	***11287***

12SB24-01

	0 - 0.5'
Depth	
Date	12/14/11
Inorganics	mg/kg
Aluminum	***9050 J***
Antimony	***1.5 J***
Cadmium	***0.51***
Iron	***10900 J***
Lead	***44.6 J***
Manganese	***412 J***
Vanadium	***17.9 J***
Zinc	***54.2 J***

12SB24-02

	0.5' - 2'
Depth	
Date	12/14/11
Inorganics	mg/kg
Aluminum	***10700 J***
Iron	***13800 J***
Manganese	***251 J***
Thallium	***0.23 J***
Vanadium	***20.3 J***

SSA12-SS16E

	0 - 0.5'	Duplicate 0 - 0.5'
Depth		
Date	12/5/07	12/5/07
Inorganics	mg/kg	mg/kg
Aluminum	***7630***	***7840***
Cadmium	***0.59 J***	***0.61 J***
Copper	***29.6 J***	***28.6 J***
Iron	***16000***	***13500***
Lead	***74.4***	***71.6***
Manganese	***324 K***	***317 K***
Mercury	***0.14 K***	***0.11 K***
Silver	***5.2***	***4.5***
Thallium	***3 K***	***2.2 K***
Vanadium	***18.2***	***16.6***
Zinc	***109***	***106***
Pesticides	µg/kg	µg/kg
Dieldrin	***5 J***	***5.7 J***

SSA12-SS18E

	0 - 0.5'
Depth	
Date	12/5/07
Inorganics	mg/kg
Aluminum	***12400***
Copper	***227 J***
Iron	***20600***
Lead	***29.1***
Manganese	***320 K***
Thallium	***3.3 K***
Vanadium	***30.6***
Semivolatiles	µg/kg
Pyrene	***1400 J***

12SB57-02

	0 - 0.5'	Duplicate 0 - 0.5'
Depth		
Date	12/29/11	12/29/11
Pesticides/PCBs	µg/kg	µg/kg
Dieldrin	***8 J***	*ND*

SSA12-SS05D

	0 - 0.5'
Depth	
Date	12/7/07
Inorganics	mg/kg
Aluminum	***13400***
Iron	***16600 J***
Lead	***35.5***
Manganese	***605 J***
Mercury	***0.13***
Thallium	***3.6 J***
Vanadium	***29.6***
Zinc	***54.5***

SSA12-SS07D

	0 - 0.5'
Depth	
Date	12/5/07
Inorganics	mg/kg
Aluminum	***7260***
Iron	***11900***
Lead	***40.5***
Manganese	***271 K***
Mercury	***0.47 K***
Vanadium	***19.5***
Zinc	***48.9***
Pesticides	µg/kg
Dieldrin	***20 J***

SSA12-SS06D

	0 - 0.5'
Depth	
Date	12/7/07
Inorganics	mg/kg
Aluminum	***14800***
Iron	***15800 J***
Lead	***32.5***
Manganese	***685 J***
Mercury	***0.17***
Thallium	***2.7 J***
Vanadium	***27.4***
Zinc	***88.2***

12SB21-02

	0.5' - 2'
Depth	
Date	12/22/11
Inorganics	mg/kg
Aluminum	***13600***
Iron	***20700 J***
Vanadium	***29 J***
Misc. Parameters	µg/kg
Hexavalent Chromium	***2.6***

12SB21-01

	0 - 0.5'
Depth	
Date	12/22/11
Inorganics	mg/kg
Aluminum	***11500***
Cadmium	***0.57 J***
Iron	***18400 J***
Lead	***47.2 J***
Manganese	***803 J***
Vanadium	***28.7 J***
Zinc	***61.1 J***
Misc. Parameters	µg/kg
Hexavalent Chromium	***7.4***

SSA12-SS04D

	0 - 0.5'
Depth	
Date	12/5/07
Inorganics	mg/kg
Aluminum	***13700***
Cadmium	***9.4***
Chromium	***27.1***
Copper	***51.9 J***
Iron	***22100***
Lead	***102***
Manganese	***753 K***
Mercury	***0.18 K***
Nickel	***63.5***
Thallium	***3.8 K***
Vanadium	***32.7***
Zinc	***731***

SSA12-SS03D

	0 - 0.5'	Duplicate 0 - 0.5'
Depth		
Date	12/5/07	12/5/07
Inorganics	mg/kg	mg/kg
Aluminum	***13400***	***15100***
Cadmium	***5.2 L***	***0.68 J***
Copper	***39.9 J***	*ND*
Iron	***21200***	***19600***
Lead	***66***	***23.3***
Manganese	***647 K***	***502 K***
Mercury	***0.13 K***	*ND*
Thallium	***3.1 K***	***3.3 K***
Vanadium	***31.8***	***27.4***
Zinc	***466***	***139***
Volatiles	µg/kg	µg/kg
Acetone	*ND*	***4600 J***

12SB05-01

	0 - 0.5'
Depth	
Date	1/14/10
Inorganics	mg/kg
Aluminum	***13300***
Cadmium	***0.71 K***
Iron	***17000 L***
Lead	***47.2 J***
Manganese	***475***
Vanadium	***28.9***
Zinc	***66***
Semivolatiles	µg/kg
Total PAHs	***1328***
Total PAHs Halfnd	***1328***
Pesticides/PCBs	µg/kg
Dieldrin	***8.5***

SSA12-SS02D

	0 - 0.5'
Depth	
Date	12/7/07
Inorganics	mg/kg
Aluminum	***21000***
Chromium	***30.3***
Copper	***30.8***
Iron	***21300 J***
Lead	***84.7***
Manganese	***164***
Mercury	***0.16***
Thallium	***4.2***
Vanadium	***42.8***
Zinc	***104***
Pesticides	µg/kg
Dieldrin	***20 J***

12SB05-02

	0.5' - 2'
Depth	
Date	1/14/10
Inorganics	mg/kg
Aluminum	***19100***
Iron	***25500 L***
Manganese	***312***
Thallium	***0.94 K***
Vanadium	***39.1***

12SB20-01

	0 - 0.5'	Duplicate 0 - 0.5'
Depth		
Date	12/14/11	12/14/11
Inorganics	mg/kg	mg/kg
Aluminum	***5830 J***	***6630 J***
Antimony	***0.91 J***	***0.65 J***
Cadmium	***0.73***	***0.86***
Iron	***12200 J***	***13600 J***
Lead	***36.8 J***	***39.8 J***
Manganese	***256 J***	***282 J***
Vanadium	***20.1 J***	***22.8 J***
Zinc	***61.6 J***	***65.5 J***

12SB20-02

	0.5' - 2'
Depth	
Date	12/14/11
Inorganics	mg/kg
Aluminum	***10700 J***
Antimony	***0.49 J***
Iron	***21300 J***
Lead	***15.6 J***
Manganese	***238 J***
Vanadium	***26.4 J***

12TP07-01

	0 - 0.5'
Depth	
Date	1/7/10
Inorganics	mg/kg
Aluminum	***18500***
Antimony	***1.1 J***
Cadmium	***0.78 K***
Chromium	***26.3***
Iron	***26500***
Lead	***52.6 J***
Manganese	***326***
Vanadium	***41.3***
Zinc	***73.4***

12TP07-02

	0.5' - 2'
Depth	
Date	1/7/10
Inorganics	mg/kg
Aluminum	***15000***
Antimony	***0.73 K***
Cadmium	***0.42 R***
Copper	***32.9 K***
Iron	***18100***
Lead	***53 J***
Manganese	***455***
Thallium	***0.69***
Vanadium	***26.4***
Zinc	***77.2***

12TP10-01

	0 - 0.5'
Depth	
Date	1/8/10
Inorganics	mg/kg
Aluminum	***15800***
Cadmium	***0.41 R***
Iron	***20900***
Lead	***17.1 J***
Manganese	***293***
Vanadium	***35.1***
Zinc	***35.7***

12TP10-02

	0.5' - 2'
Depth	
Date	1/8/10
Inorganics	mg/kg
Aluminum	***20300***
Cadmium	***0.7 R***
Chromium	***27.7***
Iron	***28100***
Lead	***44.7 J***
Manganese	***283***
Thallium	***0.78***
Vanadium	***44.9***
Zinc	***46.2***
Pesticides/PCBs	µg/kg
Dieldrin	***5.1***

SSA12-SS17E

	0 - 0.5'
Depth	
Date	12/5/07
Inorganics	mg/kg
Aluminum	***12000***
Iron	***26600***
Lead	***43.6***
Manganese	***405 K***
Mercury	***0.38 K***
Thallium	***3.8 K***
Vanadium	***25.1***
Zinc	***72.7***
Semivolatiles	µg/kg
Benz(a)anthracene	***3700 J***
Benzo(a)pyrene	***2600***
Benzo(b)fluoranthene	***2800***
Benzo(g,h,i)perylene	***2000 J***
Benzo(k)fluoranthene	***2700 J***
Chrysene	***4000 J***
Indeno(1,2,3-cd)pyrene	***2400 J***
Pyrene	***8100 J***

12TP08-02

	0.5' - 2'
Depth	
Date	1/7/10
Inorganics	mg/kg
Aluminum	***13900***
Antimony	***0.92 J***
Cadmium	***4.2 K***
Copper	***98.8 K***
Iron	***19200***
Lead	***88.6 J***
Manganese	***399***
Silver	***7.7***
Vanadium	***19.5***
Zinc	***213***
Semivolatiles	µg/kg
Benz(a)anthracene	***7600***
Benzo(a)pyrene	***6800***
Benzo(b)fluoranthene	***5600***
Benzo(g,h,i)perylene	***1800 J***
Benzo(k)fluoranthene	***8600 J***
Chrysene	***8000***
Dibenz(a,h)anthracene	***1300 J***
Indeno(1,2,3-cd)pyrene	***2700***
Pyrene	***14000***
Total PAHs	***85720***
Total PAHs Halfnd	***87720***
Pesticides/PCBs	µg/kg
Endrin Aldehyde	***20 J***

12TP08-01

	0 - 0.5'
Depth	
Date	1/7/10
Inorganics	mg/kg
Aluminum	***8960***
Antimony	***2 K***
Arsenic	***29.8***
Cadmium	***2.3 K***
Copper	***31 K***
Iron	***37100***
Lead	***88.3 J***
Manganese	***237***
Vanadium	***26.3***
Zinc	***172***
Semivolatiles	µg/kg
Benz(a)anthracene	***5800***
Benzo(a)pyrene	***5200***
Benzo(b)fluoranthene	***4900***
Benzo(g,h,i)perylene	***1400***
Benzo(k)fluoranthene	***6000 J***
Chrysene	***6100***
Indeno(1,2,3-cd)pyrene	***2000***
Pyrene	***10000***
Total PAHs	***67110***
Total PAHs Halfnd	***68510***
Pesticides/PCBs	µg/kg
Total DDT	***42.2***
Total DDT Halfnd	***42.2***
Endrin Aldehyde	***12 J***
Methoxychlor	***33 J***

SSA12-S301D

12SB59-02 12SB48-01 12SB48-02 12SB58-01 12SB58-02 12SB57-01

Vegetation Veg. Debris Wall Transition Scattered Debris

LEGEND

- SOIL BORING SAMPLE LOCATION
- STEP-OUT SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION
- SSA12 RMC SOIL BORING/EPIC FEATURE
- SSA12 RMC SOIL BORING/DRUM LOCATION
- SITE 12 BOUNDARY

0 120 240

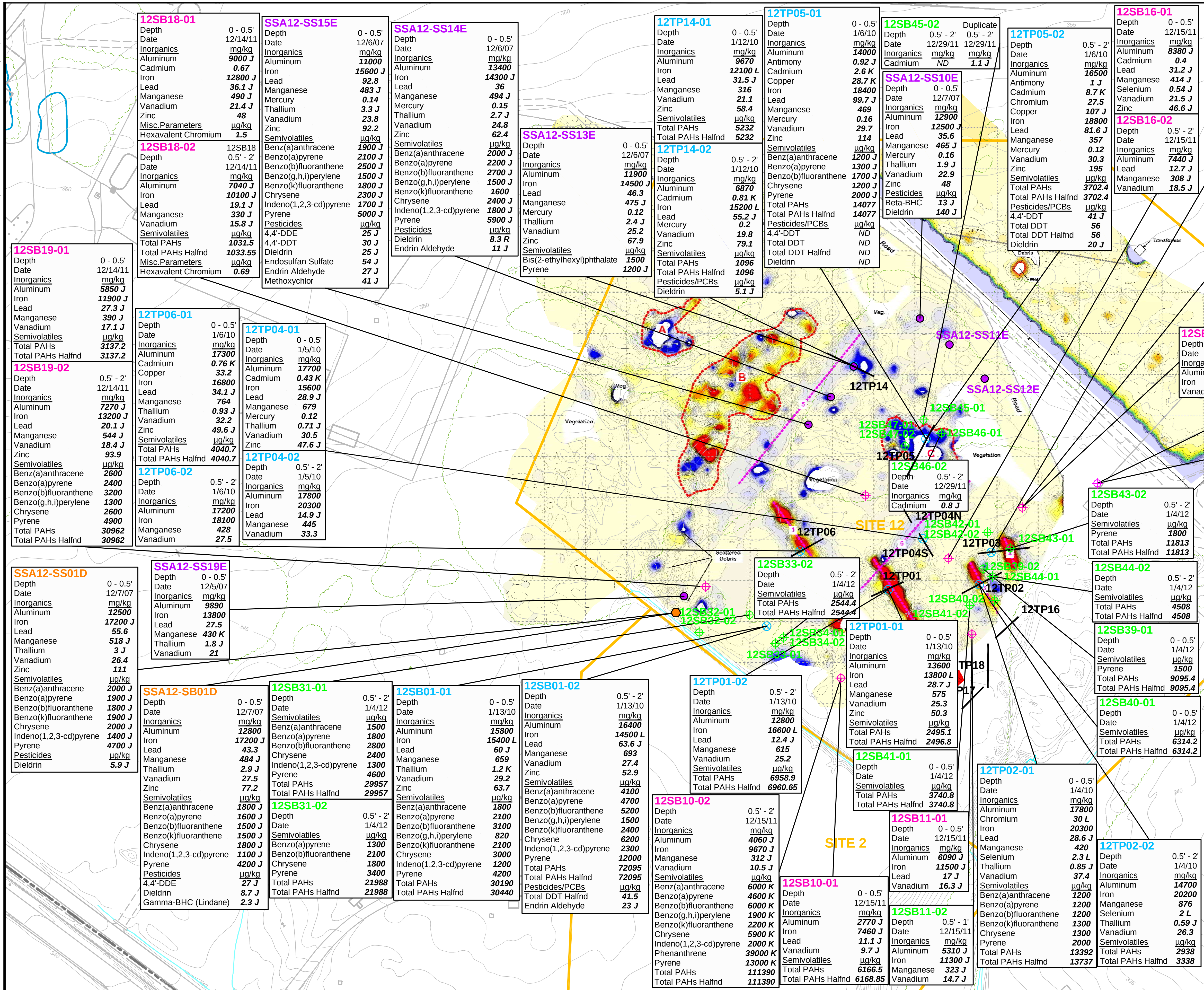
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE ECOLOGICAL SCREENING CRITERIA SITE 12 – SOUTH LANDFILL (WEST) NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM05-4	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 7-3	0 / 09/19/12

112G02014\0307\112G02014GM05-5.DWG 09/19/12 MKB



12SB18-01

Depth	0 - 0.5'
Date	12/14/11
Inorganics	mg/kg
Aluminum	9000 J
Cadmium	0.67
Iron	12800 J
Lead	36.1 J
Manganese	490 J
Vanadium	21.4 J
Zinc	48
Misc.Parameters	µg/kg
Hexavalent Chromium	1.5

12SB18-02 12SB18

Depth	0.5' - 2'
Date	12/14/11
Inorganics	mg/kg
Aluminum	7040 J
Iron	10100 J
Lead	19.1 J
Manganese	330 J
Vanadium	15.8 J
Semivolatiles	µg/kg
Total PAHs	1031.5
Total PAHs Halfnd	1033.55
Misc.Parameters	µg/kg
Hexavalent Chromium	0.69

SSA12-SS15E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Aluminum	11000
Iron	15600 J
Lead	92.8
Manganese	483 J
Mercury	0.14
Thallium	3.3 J
Vanadium	23.8
Zinc	92.2
Semivolatiles	µg/kg
Benz(a)anthracene	1900 J
Benzo(a)pyrene	2100 J
Benzo(b)fluoranthene	2500 J
Benzo(g,h,i)perylene	1500 J
Benzo(k)fluoranthene	1800 J
Chrysene	2300 J
Indeno(1,2,3-cd)pyrene	1700 J
Pyrene	5000 J
Pesticides	µg/kg
4,4'-DDE	25 J
4,4'-DDT	30 J
Dieldrin	25 J
Endosulfan Sulfate	54 J
Endrin Aldehyde	27 J
Methoxychlor	41 J

SSA12-SS14E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Aluminum	13400
Iron	14300 J
Lead	36
Manganese	494 J
Mercury	0.15
Thallium	2.7 J
Vanadium	24.8
Zinc	62.4
Semivolatiles	µg/kg
Benz(a)anthracene	2000 J
Benzo(a)pyrene	2200 J
Benzo(b)fluoranthene	2700 J
Benzo(g,h,i)perylene	1500 J
Benzo(k)fluoranthene	1600
Chrysene	2400 J
Indeno(1,2,3-cd)pyrene	1800 J
Pyrene	5900 J
Pesticides	µg/kg
Dieldrin	8.3 R
Endrin Aldehyde	11 J

SSA12-SS13E

Depth	0 - 0.5'
Date	12/6/07
Inorganics	mg/kg
Aluminum	11900
Iron	14500 J
Lead	46.3
Manganese	475 J
Mercury	0.12
Thallium	2.4 J
Vanadium	25.2
Zinc	67.9
Semivolatiles	µg/kg
Bis(2-ethylhexyl)phthalate	1500
Pyrene	1200 J

12TP14-01

Depth	0 - 0.5'
Date	1/12/10
Inorganics	mg/kg
Aluminum	9670
Iron	12100 L
Lead	31.5 J
Manganese	316
Vanadium	21.1
Zinc	58.4
Semivolatiles	µg/kg
Total PAHs	5232
Total PAHs Halfnd	5232

12TP14-02

Depth	0.5' - 2'
Date	1/12/10
Inorganics	mg/kg
Aluminum	6870
Cadmium	0.81 K
Iron	15200 L
Lead	55.2 J
Mercury	0.2
Vanadium	19.8
Zinc	79.1
Semivolatiles	µg/kg
Total PAHs	1096
Total PAHs Halfnd	1096
Pesticides/PCBs	µg/kg
Dieldrin	5.1 J

12TP05-01

Depth	0 - 0.5'
Date	1/6/10
Inorganics	mg/kg
Aluminum	14000
Antimony	0.92 J
Cadmium	2.6 K
Copper	28.7 K
Iron	18400
Lead	99.7 J
Manganese	469
Mercury	0.16
Vanadium	29.7
Zinc	114
Semivolatiles	µg/kg
Benz(a)anthracene	1200 J
Benzo(a)pyrene	1300 J
Benzo(b)fluoranthene	1700 J
Chrysene	1200 J
Pyrene	2000 J
Total PAHs	14077
Total PAHs Halfnd	14077
Pesticides/PCBs	µg/kg
4,4'-DDT	ND
Total DDT	ND
Total DDT Halfnd	ND
Dieldrin	ND

12SB45-02

		Duplicate
Depth	0.5' - 2'	0.5' - 2'
Date	12/29/11	12/29/11
Inorganics	mg/kg	mg/kg
Cadmium	ND	1.1 J

SSA12-SS10E

Depth	0 - 0.5'
Date	12/7/07
Inorganics	mg/kg
Aluminum	12900
Iron	12500 J
Lead	35.6
Manganese	465 J
Mercury	0.16
Thallium	1.9 J
Vanadium	22.9
Zinc	48
Pesticides	µg/kg
Beta-BHC	13 J
Dieldrin	140 J

12TP05-02

Depth	0.5' - 2'
Date	1/6/10
Inorganics	mg/kg
Aluminum	16500
Antimony	1 J
Cadmium	8.7 K
Chromium	27.5
Copper	107 J
Iron	18800
Lead	81.6 J
Manganese	357
Mercury	0.12
Vanadium	30.3
Zinc	195
Semivolatiles	µg/kg
Total PAHs	3702.4
Total PAHs Halfnd	3702.4
Pesticides/PCBs	µg/kg
4,4'-DDT	41 J
Total DDT	56
Total DDT Halfnd	56
Dieldrin	20 J

12SB16-01

Depth	0 - 0.5'
Date	12/15/11
Inorganics	mg/kg
Aluminum	8380 J
Cadmium	0.4
Lead	31.2 J
Manganese	414 J
Selenium	0.54 J
Vanadium	21.5 J
Zinc	46.6 J

12SB16-02

Depth	0.5' - 2'
Date	12/15/11
Inorganics	mg/kg
Aluminum	7440 J
Lead	12.7 J
Manganese	308 J
Vanadium	18.5 J

12TP03-01

Depth	0 - 0.5'
Date	1/5/10
Inorganics	mg/kg
Aluminum	12600
Iron	18700
Lead	20.7 J
Manganese	442
Selenium	2.2 L
Vanadium	27.4
Semivolatiles	µg/kg
Benz(a)anthracene	1600
Benzo(a)pyrene	1400
Benzo(b)fluoranthene	1700
Benzo(k)fluoranthene	1400
Chrysene	1600
Pyrene	2700
Total PAHs	16127
Total PAHs Halfnd	16347

12TP03-02

		Duplica
Depth	0.5' - 2'	0.5' - 2
Date	1/5/10	1/5/10
Inorganics	mg/kg	mg/kg
Aluminum	14700	14800
Copper	36.8 J	ND
Iron	21300	17700
Manganese	604	655
Selenium	2.6 L	ND
Vanadium	26.7	24.2
Semivolatiles	µg/kg	µg/kg
Benz(a)anthracene	2000	2400
Benzo(a)pyrene	1700	2100
Benzo(b)fluoranthene	1700	2200
Benzo(k)fluoranthene	1900	2700
Chrysene	1900	2300
Pyrene	3900	5200
Total PAHs	22310	26595
Total PAHs Halfnd	22710	26795
Pesticides/PCBs	µg/kg	µg/kg
Endrin	ND	12 J
Endrin Aldehyde	ND	11 J

12SB15-01

		Duplicate
Depth	0 - 0.5'	0 - 0.5'
Date	12/15/11	12/15/11
Inorganics	mg/kg	mg/kg
Aluminum	3930 J	4010 J
Iron	9450 J	9650 J
Lead	24 J	21.2 J
Manganese	274 J	ND
Vanadium	12 J	11.8 J
Semivolatiles	µg/kg	µg/kg
Total PAHs	1151	ND
Total PAHs Halfnd	1153	ND

12SB14-02

Depth	0.5' - 2'
Date	12/15/11
Inorganics	mg/kg
Aluminum	4240 J
Iron	10300 J
Manganese	259 J
Vanadium	10.6 J
Semivolatiles	µg/kg
Benz(a)anthracene	3100 K
Benzo(a)pyrene	2600 K
Benzo(b)fluoranthene	3600 K
Benzo(g,h,i)perylene	1400 K
Chrysene	2900 K
Indeno(1,2,3-cd)pyrene	1700 K
Pyrene	5900 K
Total PAHs	40747
Total PAHs Halfnd	40747

12SB15-02

Depth	0.5' - 2'
Date	12/15/11
Inorganics	mg/kg
Aluminum	4190 J
Iron	10600 J
Vanadium	9.7 J

12SB14-01

Depth	0 - 0.5'
Date	12/16/11
Inorganics	mg/kg
Aluminum	4160
Cadmium	0.47
Iron	9790
Lead	49.1 L
Vanadium	17.1 L
Zinc	49.6

12SB19-01

Depth	0 - 0.5'
Date	12/14/11
Inorganics	mg/kg
Aluminum	5850 J
Iron	11900 J
Lead	27.3 J
Manganese	390 J
Vanadium	17.1 J
Semivolatiles	µg/kg
Total PAHs	3137.2
Total PAHs Halfnd	3137.2

12SB19-02

Depth	0.5' - 2'
Date	12/14/11
Inorganics	mg/kg
Aluminum	7270 J
Iron	13200 J
Lead	20.1 J
Manganese	544 J
Vanadium	18.4 J
Zinc	93.9
Semivolatiles	µg/kg
Benz(a)anthracene	2600
Benzo(a)pyrene	2400
Benzo(b)fluoranthene	3200
Benzo(g,h,i)perylene	1300
Chrysene	2600
Pyrene	4900
Total PAHs	30962
Total PAHs Halfnd	30962

12TP06-01

Depth	0 - 0.5'
Date	1/6/10
Inorganics	mg/kg
Aluminum	17300
Cadmium	0.76 K
Copper	33.2
Iron	16800
Lead	34.1 J
Manganese	764
Thallium	0.93 J
Vanadium	32.2
Zinc	49.6 J
Semivolatiles	µg/kg
Total PAHs	4040.7
Total PAHs Halfnd	4040.7

12TP06-02

Depth	0.5' - 2'
Date	1/6/10
Inorganics	mg/kg
Aluminum	17200
Iron	18100
Manganese	428
Vanadium	27.5

12TP04-01

Depth	0 - 0.5'
Date	1/5/10
Inorganics	mg/kg
Aluminum	17700
Cadmium	0.43 K
Iron	15600
Lead	28.9 J
Manganese	679
Mercury	0.12
Thallium	0.71 J
Vanadium	30.5
Zinc	47.6 J

12TP04-02

Depth	0.5' - 2'
Date	1/5/10
Inorganics	mg/kg
Aluminum	17800
Iron	20300
Lead	14.9 J
Manganese	445
Vanadium	33.3

12SB46-02

Depth	0.5' - 2'
Date	12/29/11
Inorganics	mg/kg
Cadmium	0.8 J

12SB43-02

Depth	0.5' - 2'
Date	1/4/12
Semivolatiles	µg/kg
Pyrene	1800
Total PAHs	11813
Total PAHs Halfnd	11813

12SB44-02

Depth	0.5' - 2'
Date	1/4/12
Semivolatiles	µg/kg
Total PAHs	4508
Total PAHs Halfnd	4508

12SB39-01

Depth	0 - 0.5'
Date	1/4/12
Semivolatiles	µg/kg
Pyrene	1500
Total PAHs	9095.4
Total PAHs Halfnd	9095.4

12SB40-01

Depth	0 - 0.5'
Date	1/4/12
Semivolatiles	µg/kg
Total PAHs	6314.2
Total PAHs Halfnd	6314.2

SSA12-SS01D

Depth	0 - 0.5'
Date	12/7/07
Inorganics	mg/kg
Aluminum	12500
Iron	17200 J
Lead	55.6
Manganese	518 J
Thallium	3 J
Vanadium	26.4
Zinc	111
Semivolatiles	µg/kg
Benz(a)anthracene	2000 J
Benzo(a)pyrene	1900 J
Benzo(b)fluoranthene	1800 J
Benzo(k)fluoranthene	1900 J
Chrysene	2000 J
Indeno(1,2,3-cd)pyrene	1400 J
Pyrene	4700 J
Pesticides	µg/kg
Dieldrin	5.9 J

SSA12-SS19E

Depth	0 - 0.5'
Date	12/5/07
Inorganics	mg/kg
Aluminum	9890
Iron	13800
Lead	27.5
Manganese	430 K
Thallium	1.8 J
Vanadium	21

12SB33-02

Depth	0.5' - 2'
Date	1/4/12
Semivolatiles	µg/kg
Total PAHs	2544.4
Total PAHs Halfnd	2544.4

SSA12-SB01D

Depth	0 - 0.5'
Date	12/7/07
Inorganics	mg/kg
Aluminum	12800
Iron	17200 J
Lead	43.3
Manganese	484 J
Thallium	2.9 J
Vanadium	27.5
Zinc	77.2
Semivolatiles	µg/kg
Benz(a)anthracene	1800 J
Benzo(a)pyrene	1600 J
Benzo(b)fluoranthene	1500 J
Benzo(k)fluoranthene	1500 J
Chrysene	1800 J
Indeno(1,2,3-cd)pyrene	1100 J
Pyrene	4200 J
Pesticides	µg/kg
4,4'-DDE	27 J
Dieldrin	8.7 J
Gamma-BHC (Lindane)	2.3 J

12SB31-01

Depth	0.5' - 2'
Date	1/4/12
Semivolatiles	µg/kg
Benz(a)anthracene	1500
Benzo(a)pyrene	1800
Benzo(b)fluoranthene	2800
Chrysene	2400
Indeno(1,2,3-cd)pyrene	1300
Pyrene	4600
Total PAHs	29957
Total PAHs Halfnd	29957

12SB31-02

Depth	0.5' - 2'
Date	1/4/12
Semivolatiles	µg/kg
Benzo(a)pyrene	1300
Benzo(b)fluoranthene	2100
Chrysene	1800
Pyrene	3400
Total PAHs	21988
Total PAHs Halfnd	21988

12SB01-01

Depth	0 - 0.5'
Date	1/13/10
Inorganics	mg/kg
Aluminum	15800
Iron	15400 L
Lead	60 J
Manganese	659
Thallium	1.2 K
Vanadium	29.2
Zinc	63.7
Semivolatiles	µg/kg
Benz(a)anthracene	1800
Benzo(a)pyrene	2100
Benzo(b)fluoranthene	3100
Benzo(g,h,i)perylene	820
Benzo(k)fluoranthene	2100
Chrysene	3000
Indeno(1,2,3-cd)pyrene	1200
Pyrene	4200
Total PAHs	30190
Total PAHs Halfnd	30440

12SB01-02

Depth	0.5' - 2'
Date	1/13/10
Inorganics	mg/kg
Aluminum	16400
Iron	14500 L
Lead	63.6 J
Manganese	693
Vanadium	27.4
Zinc	52.9
Semivolatiles	µg/kg
Benz(a)anthracene	4100
Benzo(a)pyrene	4700
Benzo(b)fluoranthene	5200
Benzo(g,h,i)perylene	1500
Benzo(k)fluoranthene	2400
Chrysene	6200
Indeno(1,2,3-cd)pyrene	2300
Pyrene	12000
Total PAHs	72095
Total PAHs Halfnd	72095
Pesticides/PCBs	µg/kg
Total DDT Halfnd	41.5
Endrin Aldehyde	23 J

12TP01-02

Depth	0.5' - 2'
Date	1/13/10
Inorganics	mg/kg
Aluminum	12800
Iron	16600 L
Lead	12.4 J
Manganese	615
Vanadium	25.2
Semivolatiles	µg/kg
Total PAHs	6958.9
Total PAHs Halfnd	6960.65

12TP01-01

Depth	0 - 0.5'
Date	1/13/10
Inorganics	mg/kg
Aluminum	13600
Iron	13800 L
Lead	28.7 J
Manganese	575
Vanadium	25.3
Zinc	50.3
Semivolatiles	µg/kg
Total PAHs	2495.1
Total PAHs Halfnd	2496.8

12SB41-01

Depth	0 - 0.5'
Date	1/4/12
Semivolatiles	µg/kg
Total PAHs	3740.8
Total PAHs Halfnd	3740.8

12SB10-02

Depth	0.5' - 2'
Date	12/15/11
Inorganics	mg/kg
Aluminum	4060 J
Iron	9670 J
Manganese	312 J
Vanadium	10.5 J
Semivolatiles	µg/kg
Benz(a)anthracene	6000 K
Benzo(a)pyrene	4600 K
Benzo(b)fluoranthene	6000 K
Benzo(g,h,i)perylene	1900 K
Benzo(k)fluoranthene	2200 K
Chrysene	5900 K
Indeno(1,2,3-cd)pyrene	2000 K
Phenanthrene	39000 K
Pyrene	13000 K
Total PAHs	111390
Total PAHs Halfnd	111390

12SB10-01

Depth	0 - 0.5'
Date	12/15/11
Inorganics	mg/kg
Aluminum	2770 J
Iron	7460 J
Lead	11.1 J
Vanadium	9.7 J
Semivolatiles	µg/kg
Total PAHs	6166.5
Total PAHs Halfnd	6168.85

12SB11-01

Depth	0 - 0.5'
Date	12/15/11
Inorganics	mg/kg
Aluminum	6090 J
Iron	11500 J
Lead	17 J
Vanadium	16.3 J

12SB11-02

Depth	0.5' - 1'
Date	12/15/11
Inorganics	mg/kg
Aluminum	5310 J
Iron	11300 J
Manganese	323 J
Vanadium	14.7 J

12TP02-01

Depth	0 - 0.5'
Date	1/4/10
Inorganics	mg/kg
Aluminum	17800
Chromium	30 L
Iron	20300
Lead	28.6 J
Manganese	420
Selenium	2.3 L
Thallium	0.85 J
Vanadium	37.4
Semivolatiles	µg/kg
Benz(a)anthracene	1200
Benzo(a)pyrene	1200
Benzo(b)fluoranthene	1200
Benzo(k)fluoranthene	1300
Chrysene	1300
Pyrene	2000
Total PAHs	13392
Total PAHs Halfnd	13737

12TP02-02

Depth	0.5' - 2'
Date	1/4/10
Inorganics	mg/kg
Aluminum	14700
Iron	20200
Manganese	876
Selenium	2 L
Thallium	0.59 J
Vanadium	26.3
Semivolatiles	µg/kg
Total PAHs	2938
Total PAHs Halfnd	3338

LEGEND

- SOIL BORING SAMPLE LOCATION
- STEP-OUT SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION
- SSA12 RMC SOIL BORING/EPIC FEATURE
- SSA12 RMC SOIL BORING/DRUM LOCATION
- SITE 12 BOUNDARY

0 120 240
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE ECOLOGICAL SCREENING CRITERIA SITE 12 – SOUTH LANDFILL (CENTRAL AREA) NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM05-5	AS NOTED

FIGURE NUMBER	REV	DATE
FIGURE 7–4	0	09/19/12

112G02014\0307\112G02014GM05-7.DWG 09/19/12 MKB

N

12SB12-02	
Depth	0.5' - 2'
Date	12/28/11
Inorganics	mg/kg
Aluminum	11400 J
Iron	17900 J
Lead	20.1
Manganese	526 J
Vanadium	22.3 J
Misc. Parameters	µg/kg
Hexavalent Chromium	1.7

12SB12-01	
Depth	0 - 0.5'
Date	12/28/11
Inorganics	mg/kg
Aluminum	10900 J
Antimony	0.51 L
Cadmium	0.56
Iron	20200 J
Lead	40
Manganese	555 J
Vanadium	26.9 J
Zinc	447 J
Misc. Parameters	µg/kg
Hexavalent Chromium	3.1 J

12SB13-01	
Depth	0 - 0.5'
Date	12/16/11
Inorganics	mg/kg
Aluminum	4360
Cadmium	0.61
Iron	8190
Lead	29.9 L
Manganese	331
Vanadium	11.8 L
Zinc	46.5
Semivolatiles	µg/kg
Total PAHs	3689.7
Total PAHs Halfnd	3689.7
Misc. Parameters	µg/kg
Hexavalent Chromium	0.45 J

12SB13-02	
Depth	0.5' - 2'
Date	12/16/11
Inorganics	mg/kg
Aluminum	2280
Antimony	1.8 J
Cadmium	0.67
Iron	5810
Lead	71.3 L
Vanadium	5.7 L
Zinc	65
Misc. Parameters	µg/kg
Hexavalent Chromium	0.44 J

12SB02-01	
Depth	0 - 0.5'
Date	1/12/10
Inorganics	mg/kg
Aluminum	12100
Cadmium	0.71 K
Iron	13700 L
Lead	301 J
Manganese	452
Vanadium	25.5
Semivolatiles	µg/kg
Total PAHs	2222.6
Total PAHs Halfnd	2222.6

12SB38-01	
Depth	0 - 0.5'
Date	1/4/12
Inorganics	mg/kg
Lead	67.9

12SB02-02		Duplicate
Depth	0.5' - 2'	0.5' - 2'
Date	1/12/10	1/12/10
Inorganics	mg/kg	mg/kg
Aluminum	12300	12900
Iron	14800 L	14200 L
Lead	32.1 J	64.7 J
Manganese	799	677
Thallium	0.83 K	0.96 K
Vanadium	25.4	24.7

12SB06-01		Duplicate
Depth	0 - 0.5'	0 - 0.5'
Date	12/28/11	12/28/11
Inorganics	mg/kg	mg/kg
Aluminum	8420 J	8680 J
Antimony	1.8 L	1.4 L
Iron	14000 J	14000 J
Lead	445	356
Thallium	ND	0.11 J
Vanadium	20.1 J	20.6 J
Misc. Parameters	µg/kg	µg/kg
Hexavalent Chromium	3.2	2.3

12SB06-02	
Depth	0.5' - 2'
Date	12/28/11
Inorganics	mg/kg
Aluminum	15300 J
Iron	32300 J
Lead	13.6
Vanadium	30.3 J
Misc. Parameters	µg/kg
Hexavalent Chromium	2

12TP16-01	
Depth	0 - 0.5'
Date	12/19/11
Inorganics	mg/kg
Aluminum	13400 J
Iron	22400 J
Lead	17.3
Manganese	254 J
Vanadium	31.4 J

12TP16-02	
Depth	0.5' - 2'
Date	12/19/11
Inorganics	mg/kg
Aluminum	10900 J
Iron	17900 J
Lead	15.8
Manganese	681 J
Thallium	0.81
Vanadium	24.7 J
Semivolatiles	µg/kg
Total PAHs	1041.3
Total PAHs Halfnd	1041.3

12TP17-02	
Depth	0.5' - 2'
Date	12/20/11
Inorganics	mg/kg
Aluminum	12200 J
Iron	29600 J
Manganese	377 J
Thallium	0.67 L
Vanadium	27.9 J

12TP17-01	
Depth	0 - 0.5'
Date	12/20/11
Inorganics	mg/kg
Aluminum	15300 J
Cadmium	0.44 L
Iron	18900 J
Lead	21.8
Thallium	0.19 K
Vanadium	29.8 J

12SB09-02		Duplicate
Depth	0.5' - 2'	0.5' - 2'
Date	12/15/11	12/15/11
Inorganics	mg/kg	mg/kg
Aluminum	5280 J	ND
Iron	7790 J	ND
Manganese	227 J	ND
Vanadium	11.6 J	ND
Semivolatiles	µg/kg	µg/kg
Total PAHs	1898.1	ND
Total PAHs Halfnd	1899.125	ND
Misc. Parameters	µg/kg	µg/kg
Hexavalent Chromium	1.6	1.4

12SB09-01	
Depth	0 - 0.5'
Date	12/15/11
Inorganics	mg/kg
Aluminum	3970 J
Iron	7180 J
Vanadium	10.4 J
Misc. Parameters	µg/kg
Hexavalent Chromium	2.6

12SB08-02	
Depth	0.5' - 2'
Date	12/28/11
Inorganics	mg/kg
Aluminum	11000 J
Iron	24300 J
Manganese	252 J
Vanadium	21.5 J

12SB08-01	
Depth	0 - 0.5'
Date	12/28/11
Inorganics	mg/kg
Aluminum	9470 J
Iron	23800 J
Lead	17.5
Manganese	430 J
Vanadium	23.4 J

12SB07-01	
Depth	0 - 0.5'
Date	12/28/11
Inorganics	mg/kg
Aluminum	7420 J
Antimony	10.1 L
Iron	15400 J
Lead	883
Manganese	411 J
Vanadium	19 J

12SB07-02	
Depth	0.5' - 2'
Date	12/28/11
Inorganics	mg/kg
Aluminum	9870 J
Antimony	0.6 L
Iron	15200 J
Lead	56.6
Manganese	375 J
Vanadium	17.5 J

12SB35-01		Duplicate
Depth	0 - 0.5'	0 - 0.5'
Date	1/4/12	1/4/12
Inorganics	mg/kg	mg/kg
Lead	138	107

12SB36-01	
Depth	0 - 0.5'
Date	1/4/12
Inorganics	mg/kg
Lead	295

12SB37-01	
Depth	0 - 0.5'
Date	1/4/12
Inorganics	mg/kg
Lead	51.5

12TP14 12TP05 12TP04N 12TP04S 12TP06 12TP03 12TP01 12TP02 12TP16 12TP16-03 12TP16-04 12TP18-01 12TP18 12TP18-02 12TP17

12SB38-02 12SB37-02 12SB35-02 12SB36-02

SITE 12

A B C D E

Road Vegetation Transformer

LEGEND

- SOIL BORING SAMPLE LOCATION
- STEP-OUT SAMPLE LOCATION
- TEST PIT SAMPLE LOCATION
- SITE 12 BOUNDARY

0 120 240

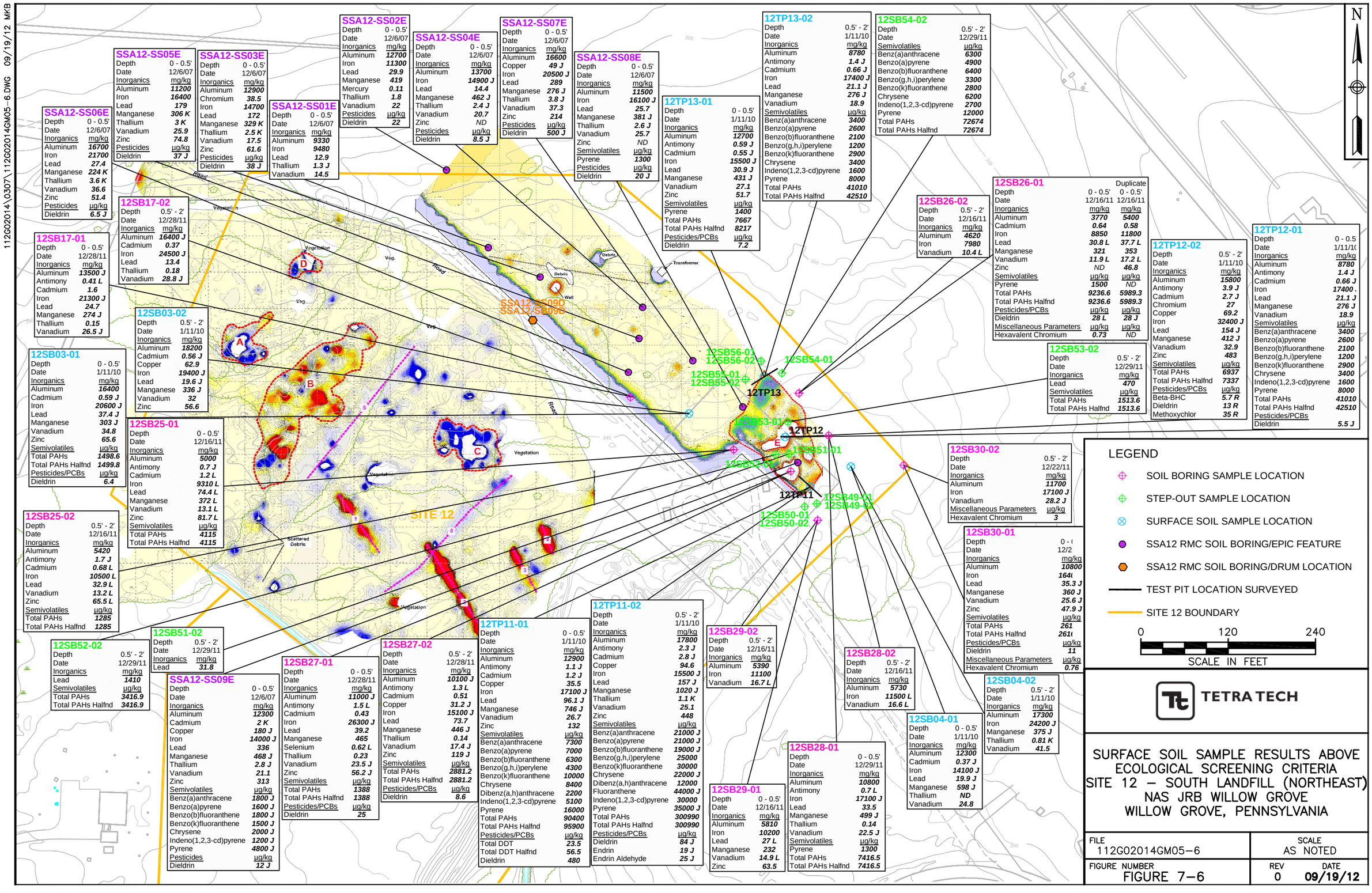
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE ECOLOGICAL SCREENING CRITERIA
SITE 12 – SOUTH LANDFILL (SOUTHEAST)
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM05-7	AS NOTED
FIGURE NUMBER: FIGURE 7-5	REV: 0 DATE: 09/19/12

112G02014\0307\112G02014GM05-6.DWG 09/19/12 MKB



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12TP15-03

Depth	3' - 4'	12TP15-CS 3' - 4'
Date	01/12/10	12/19/11
Inorganics	mg/kg	mg/kg
Aluminum	**29400**	ND
Antimony	**22.7 L**	ND
Arsenic	**24.3 J**	ND
Barium	**489 L**	ND
Cadmium	**40.1 J**	ND
Chromium	**56.7**	**12 J**
Copper	**463**	ND
Iron	**21100 J**	ND
Lead	**7900 J**	ND
Manganese	**1090 J**	ND
Silver	**4.6 K**	ND
Thallium	**4.2**	ND
Vanadium	**35.3**	ND
Zinc	**5400**	ND
Semivolatiles	µg/kg	µg/kg
Total PAHs	**1969.7**	ND
Total PAHs Halfnd	**1975.63**	ND
PCBs	µg/kg	µg/kg
Total Aroclor Halfnd	**96.5**	ND
Miscellaneous Parameters	µg/kg	µg/kg
Hexavalent Chromium	ND	**1.1**

SSA12-SB08D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Aluminum	**20100**
Antimony	**10.4 J**
Cadmium	**15.7**
Chromium	**58.8**
Copper	**654 J**
Iron	**166000**
Lead	**1250**
Manganese	**1020 K**
Mercury	**0.12 K**
Nickel	**115**
Silver	**7**
Thallium	**41.1 K**
Vanadium	**29.4**
Zinc	**2100**
Semivolatiles	µg/kg
Bis(2-ethylhexyl)phthalate	**23000 J**
Pesticides	µg/kg
Dieldrin	**23 J**

12SB22-03

Depth	3' - 4'
Date	12/14/11
Inorganics	mg/kg
Aluminum	**7950 J**
Iron	**14000 J**
Vanadium	**18.6 J**
PCBs	µg/kg
Total Aroclor Halfnd	**35**
Miscellaneous Parameters	µg/kg
Hexavalent Chromium	**0.63**

12SB23-03

Depth	3' - 4'
Date	12/22/11
Inorganics	mg/kg
Aluminum	**14000**
Iron	**33200 J**
Lead	**13.5 J**
Vanadium	**30.2 J**
PCBs	µg/kg
Total Aroclor Halfnd	**36.75**

12TP09-03

Depth	3' - 4'	Duplicate 3' - 4'	12TP09-CS 3' - 4'
Date	01/8/10	01/6/10	12/19/11
Inorganics	mg/kg	mg/kg	mg/kg
Aluminum	**28300**	**23700**	ND
Antimony	**12.8**	**12.1**	ND
Barium	**335**	**333**	ND
Cadmium	**40.2**	**46.8**	ND
Chromium	**58.1**	**75.5**	ND
Copper	**1110**	**1170**	ND
Iron	**55600**	**50900**	ND
Lead	**872**	**378**	ND
Manganese	**795**	**910**	ND
Mercury	**0.22**	**0.3**	ND
Nickel	**98.1**	**117**	ND
Silver	**3.2**	**4.3**	ND
Thallium	**1.9**	**1.3**	ND
Vanadium	**32.1**	**34**	ND
Zinc	**4560**	**1200**	ND

Semivolatiles	3' - 4' µg/kg	Duplicate 3' - 4' µg/kg	12TP09-CS 3' - 4' µg/kg
Benz(a)anthracene	**22000**	ND	ND
Benzo(a)pyrene	**16000**	ND	ND
Benzo(b)fluoranthene	**15000**	ND	ND
Benzo(g,h,i)perylene	**8800**	ND	ND
Benzo(k)fluoranthene	**18000**	ND	ND
Chrysene	**24000**	ND	ND
Dibenz(a,h)anthracene	**4100**	ND	ND
Indeno(1,2,3-cd)pyrene	**10000**	ND	ND
Phenanthrene	**48000 J**	ND	ND
Pyrene	**36000 J**	ND	ND
Total PAHs	**282900**	ND	ND
Total PAHs Halfnd	**285100**	ND	ND
Volatiles	µg/kg	µg/kg	µg/kg
Benzene	**11**	**44**	ND
Pesticides	µg/kg	µg/kg	µg/kg
Total DDT Halfnd	ND	**22.25**	ND
Dieldrin	ND	**6**	ND
PCBs	µg/kg	µg/kg	µg/kg
Total Aroclor Halfnd	**92.5**	**22.25**	ND
Miscellaneous Parameters	µg/kg	µg/kg	µg/kg
Hexavalent Chromium	ND	ND	**2.2**

12TP08-03

Depth	3' - 4'	12TP08-CS 3' - 4'
Date	01/7/10	12/19/11
Inorganics	mg/kg	mg/kg
Aluminum	**21100**	ND
Arsenic	**24 K**	ND
Cadmium	**105**	ND
Chromium	**55**	ND
Cobalt	**13.9 J**	ND
Copper	**412 K**	ND
Iron	**81600**	ND
Lead	**435 J**	ND
Manganese	**946**	ND
Mercury	**0.25**	ND
Nickel	**54.4 J**	ND
Silver	**10.5**	ND
Vanadium	**30.1**	ND
Zinc	**2680**	ND
Semivolatiles	µg/kg	µg/kg
Benz(a)anthracene	**1700**	ND
Benzo(a)pyrene	**1400**	ND
Benzo(b)fluoranthene	**1400**	ND
Benzo(k)fluoranthene	**1800 J**	ND
Chrysene	**1900**	ND
Pyrene	**3200**	ND
Total PAHs	**18782**	ND
Total PAHs Halfnd	**19022**	ND
Volatiles	µg/kg	µg/kg
Benzene	**17 J**	ND
Pesticides	µg/kg	µg/kg
Endrin	**13 J**	ND
Miscellaneous Parameters	µg/kg	µg/kg
Hexavalent Chromium	ND	**1.5**

Dioxin/Furan	3' - 4' ng/kg	12TP08-CS 3' - 4' ng/kg
1,2,3,4,6,7,8,9-OCDD	**2080 J**	ND
1,2,3,4,6,7,8,9-OCDF	**34.6 J**	ND
1,2,3,4,6,7,8-HpCDD	**298 J**	ND
1,2,3,4,6,7,8-HpCDF	**50.5 J**	ND
1,2,3,4,7,8,9-HpCDF	**4.58 J**	ND
1,2,3,4,7,8-HxCDD	**5.06 J**	ND
1,2,3,4,7,8-HxCDF	**36.3 J**	ND
1,2,3,6,7,8-HxCDD	**12.2 J**	ND
1,2,3,6,7,8-HxCDF	**13.1 J**	ND
1,2,3,7,8,9-HxCDD	**17.5 J**	ND
1,2,3,7,8,9-HxCDF	**0.633 J**	ND
1,2,3,7,8-PeCDD	**4.66 J**	ND
1,2,3,7,8-PeCDF	**10.1**	ND
2,3,4,6,7,8-HxCDF	**17.2 J**	ND
2,3,4,7,8-PeCDF	**17.6**	ND
2,3,7,8-TCDD	**1.53**	ND
2,3,7,8-TCDF	**8.92 J**	ND
Total HpCDD	**552**	ND
Total HpCDF	**83.7**	ND
Total HxCDD	**184**	ND
Total HxCDF	**144**	ND
Total PeCDD	**109**	ND
Total PeCDF	**227**	ND
Total TCDD	**92**	ND
Total TCDF	**368**	ND
TEQ	**27**	ND
TEQ Bird	**43.62856**	ND
TEQ Bird Halfnd	**43.62856**	ND
TEQ Fish	**26.55156**	ND
TEQ Fish Halfnd	**26.55156**	ND
TEQ Halfnd	**27.02948**	ND

12SB24-03

Depth	3' - 4'
Date	12/14/11
Inorganics	mg/kg
Aluminum	**4930 J**
Iron	**9270 J**
Vanadium	**12.9 J**
PCBs	µg/kg
Total Aroclor Halfnd	**33.25**

12TP05-03

Depth	2' - 4'	Duplicate 2' - 4'
Date	01/6/10	01/6/10
Inorganics	mg/kg	mg/kg
Aluminum	**17800**	**16200**
Cobalt	**13.8 J**	ND
Iron	**22500**	**19300**
Manganese	**390**	**236**
Mercury	ND	**0.13**
Thallium	**0.89**	**1**
Vanadium	**39.4**	**35.4**
Semivolatiles	µg/kg	µg/kg
Total PAHs Halfnd	ND	**88.5**
PCBs	µg/kg	µg/kg
Total Aroclor Halfnd	**87.5**	**88.5**

12SB15-03

Depth	3' - 4'
Date	12/15/11
Inorganics	mg/kg
Aluminum	**6020 J**
Iron	**9990 J**
Vanadium	**14.8 J**
PCBs	µg/kg
Total Aroclor Halfnd	**36.75**

12SB14-03

Depth	3' - 4'
Date	12/15/11
Inorganics	mg/kg
Aluminum	**4940 J**
Iron	**4610 J**
Vanadium	**5.2 J**
PCBs	µg/kg
Total Aroclor Halfnd	**35**

12SB13-03

Depth	3' - 4'
Date	12/16/11
Inorganics	mg/kg
Aluminum	**5040**
Iron	**6730**
Manganese	**881**
Vanadium	**9.2 L**
PCBs	µg/kg
Total Aroclor Halfnd	**35**
Miscellaneous Parameters	µg/kg
Hexavalent Chromium	**0.54 J**

12SB06-03

Depth	3' - 4'
Date	12/28/11
Inorganics	mg/kg
Aluminum	**8600 J**
Iron	**15800 J**
Manganese	**337 J**
Thallium	**0.08 J**
Vanadium	**20.4 J**
PCBs	µg/kg
Total Aroclor Halfnd	**35**

12SB12-03

Depth	3' - 4'
Date	12/28/11
Inorganics	mg/kg
Aluminum	**8090**
Antimony	**0.92**
Cadmium	**0.86**
Iron	**18200**
Lead	**74.2**
Manganese	**535**
Vanadium	**16.2**
Zinc	**56.7**
PCBs	µg/kg
Total Aroclor Halfnd	**38.5**
Miscellaneous Parameters	µg/kg
Hexavalent Chromium	**0.58**

12SB07-03

Depth	3' - 4'
Date	12/28/11
Inorganics	mg/kg
Aluminum	**9950 J**
Iron	**15700 J**
Lead	**12.5**
Manganese	**798 J**
Vanadium	**18 J**
PCBs	µg/kg
Total Aroclor Halfnd	**40.25**

12SB08-03

Depth	3' - 4'
Date	12/28/11
Inorganics	mg/kg
Aluminum	**12500 J**
Iron	**25200 J**
Lead	**11.6**
Vanadium	**25.6 J**
PCBs	µg/kg
Total Aroclor Halfnd	**36.75**

12SB11-03

Depth	3' - 4'
Date	12/15/11
Inorganics	mg/kg
Aluminum	**5920 J**
Iron	**14300 J**
Manganese	**406 J**
Thallium	**0.43**
Vanadium	**15.4 J**
PCBs	µg/kg
Total Aroclor Halfnd	**35**

12SB09-03

Depth	3' - 4'	12SB09-03 3' - 4'
Date	12/15/11	12/15/11
Inorganics	mg/kg	mg/kg
Aluminum	NA	**5990 J**
Iron	NA	**13200 J**
Lead	ND	**16.8 J**
Manganese	ND	**419 J**
Thallium	ND	**0.63**
Vanadium	ND	**13.6 J**
PCBs	µg/kg	µg/kg
Total Aroclor Halfnd	ND	**35**
Miscellaneous Parameters	µg/kg	µg/kg
Hexavalent Chromium	**0.62**	**0.096 J**

12SB10-03

Depth	3' - 4'
Date	12/15/11
Inorganics	mg/kg
Aluminum	**3910 J**
Iron	**11800 J**
Manganese	**386 J**
Vanadium	**12.5 J**
Semivolatiles	µg/kg
Benz(a)anthracene	**1800 K**
Benzo(a)pyrene	**1400 K**
Benzo(b)fluoranthene	**1900 K**
Chrysene	**1600 K**
Pyrene	**4100 K**
Total PAHs	**35794**
Total PAHs Halfnd	**35794**
PCBs	µg/kg
Total Aroclor Halfnd	**35**

12SB16-03

Depth	3' - 4'	Duplicate 3' - 4'
Date	12/15/11	12/15/11
Inorganics	mg/kg	mg/kg
Aluminum	**11400 J**	**7070 J**
Iron	**20300 J**	**12800 J**
Lead	**12 J**	**7.5 J**
Manganese	**229 J**	ND
Vanadium	**28.3 J**	ND
PCBs	µg/kg	µg/kg
Total Aroclor Halfnd	**36.75**	**36.75**

12SB18-03

Depth	3' - 4'
Date	12/14/11
Inorganics	mg/kg
Aluminum	**7390 J**
Iron	**15000 J**
Manganese	**226 J**
Vanadium	**20.3 J**
PCBs	µg/kg
Total Aroclor Halfnd	**36.75**
Miscellaneous Parameters	µg/kg
Hexavalent Chromium	**0.54**

12SB19-03

Depth	3' - 4'
Date	12/14/11
Inorganics	mg/kg
Aluminum	**7260 J**
Iron	**13000 J**
Lead	**17.4 J**
Manganese	**770 J**
Vanadium	**18.7 J**
Semivolatiles	µg/kg
Total PAHs	**5219**
Total PAHs Halfnd	**5219**
PCBs	µg/kg
Total Aroclor Halfnd	**36.75**

12SB20-03

Depth	3' - 4'	Duplicate 3' - 4'
Date	12/22/11	12/22/11
Inorganics	mg/kg	mg/kg
Aluminum	**9080**	**9720**
Antimony	**2 J**	**5.9 J**
Barium	**123 J**	**804 J**
Cadmium	**1.9 J**	**4 J**
Copper	**22.9 J**	**99.2 J**
Iron	**23800 J**	**29300 J**
Lead	**64.1 J**	**261 J**
Manganese	**384 J**	**783 J**
Vanadium	**23.8 J**	**24.8 J**
Zinc	**139 J**	**292 J**
PCBs	µg/kg	µg/kg
Aroclor-1260	ND	**350 J**
Total Aroclor	ND	**350**
Total Aroclor Halfnd	**36.75**	**381.5**

SSA12-SB06D

Date	2' - 2.5'
Date	12/7/07
Inorganics	mg/kg
Aluminum	**18700**
Iron	**31600 J**
Manganese	**263 J**
Thallium	**5.8 J**
Vanadium	**41.6**

SSA12-SB05D

Depth	2' - 2.5'
Date	12/7/07
Inorganics	mg/kg
Aluminum	**19700**
Chromium	**27.7 J**
Iron	**31800 J**
Thallium	**7 J**
Vanadium	**45.4**

SSA12-SB07D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Aluminum	**17900**
Chromium	**26.8**
Iron	**36900**
Lead	**11.2**
Thallium	**6.1 K**
Vanadium	**42**

SSA12-SB04D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Aluminum	**13900**
Iron	**24300**
Manganese	**437 K**
Thallium	**3.8 K**
Vanadium	**34.5**

SSA12-SB02D

Depth	2' - 2.5'	Duplicate 2' - 2.5'
Date	12/7/07	12/7/07
Inorganics	mg/kg	mg/kg
Aluminum	**12100**	**12400**
Iron	**21900 J**	**21200 J**
Manganese	**240 J**	**392 J**
Thallium	**3.7 J**	**4 J**
Vanadium	**36.6**	**35.1**

SSA12-SB10D

Depth	2' - 2.5'
Date	12/5/07
Inorganics	mg/kg
Aluminum	**18700**
Chromium	**28.6**
Iron	**21600**
Thallium	**3.2 K**
Vanadium	**43**

SSA12-SB01D

12TP09-01
12TP09-02
12TP09-04
12TP09-05
12TP09
12TP15-03
12TP15-04
12TP15
12TP08
12TP08-03
12TP10
12TP10-02
12TP10-04
12TP07
12TP07-03
SITE 12
SSA12-SS01D
TRAILER

LEGEND

- SOIL BORING SAMPLE LOCATION
- SUBSURFACE SOIL SAMPLE LOCATION
- TEST PIT LOCATION SURVEYED
- SSA12 RMC SOIL BORING/DRUM LOCATION
- SITE 12 BOUNDARY

0 120 240
SCALE IN FEET

TETRA TECH

SUBSURFACE SOIL SAMPLE RESULTS ABOVE ECOLOGICAL SCREENING CRITERIA SITE 12 – SOUTH LANDFILL (SOUTH) NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM05-2	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 7-7	0 / 09/19/12

112G02014\0307\112G02014GM05-3.DWG 09/19/12 MKB

12TP12-03

Depth	2' - 3'
Date	01/11/10
Inorganics	mg/kg
Aluminum	***12100***
Antimony	***15.4 J***
Arsenic	***92.2 J***
Barium	***729 L***
Cadmium	***28.7 J***
Chromium	***65.4***
Copper	***661***
Iron	***57600 J***
Lead	***1400 J***
Manganese	***727 J***
Nickel	***64.3 J***
Selenium	***16.4 L***
Silver	***19.5 K***
Thallium	***2.2 K***
Vanadium	***23.2***
Zinc	***2950***
Semivolatiles	µg/kg
Pyrene	***2000***
Total PAHs	***10427***
Total PAHs Halfnd	***10757***

12SB26-03

Depth	3' - 4'
Date	12/16/11
Inorganics	mg/kg
Aluminum	***5730***
Iron	***13200***
Vanadium	***18.2 L***
PCBs	µg/kg
Total Aroclor Halfnd	***35***
Miscellaneous Parameters	µg/kg
Hexavalent Chromium	***1.1 J***

12SB17-03

Depth	3' - 4'
Date	12/28/11
Inorganics	mg/kg
Aluminum	***14400 J***
Iron	***20800 J***
Manganese	***394 J***
Thallium	***0.14***
Vanadium	***26.2 J***
PCBs	µg/kg
Total Aroclor Halfnd	***36.75***

12SB28-03

Depth	3' - 4'
Date	12/16/11
Inorganics	mg/kg
Aluminum	***4050***
Iron	***6230 L***
Thallium	***0.34***
Vanadium	***11.7 L***
PCBs	µg/kg
Total Aroclor Halfnd	***35***

12SB25-03

Depth	3' - 4'
Date	12/16/11
Inorganics	mg/kg
Aluminum	***3470***
Iron	***7250***
Vanadium	***9.7 L***
PCBs	µg/kg
Total Aroclor Halfnd	***35***

12SB30-03

Depth	3' - 4'
Date	12/22/11
Inorganics	mg/kg
Aluminum	***8770***
Iron	***14800 J***
Vanadium	***24.6 J***
PCBs	µg/kg
Total Aroclor Halfnd	***35***
Miscellaneous Parameters	µg/kg
Hexavalent Chromium	***1.1***

12TP11-03

Depth	3' - 4'
Date	01/11/10
Inorganics	mg/kg
Aluminum	***16600***
Antimony	***2.1 J***
Cadmium	***3.1 K***
Copper	***125 K***
Iron	***20900***
Lead	***195 J***
Manganese	***499***
Thallium	***0.8***
Vanadium	***30.6***
Zinc	***317***
Semivolatiles	µg/kg
Benzo(b)fluoranthene	***1200***
Bis(2-ethylhexyl)phthalate	***1500***
Total PAHs	***7440***
Total PAHs Halfnd	***7880***
Pesticides	µg/kg
Dieldrin	***44***

12SB29-03

Depth	3' - 4'
Date	12/16/11
Inorganics	mg/kg
Aluminum	***5300***
Iron	***11400***
Vanadium	***19.1 L***
PCBs	µg/kg
Total Aroclor Halfnd	***35***

SSA12-SS09D

12SB56-01
12SB56-02
12SB54-01
12SB54-02
12SB55-01
12SB55-02
12TP13-03
12TP13-04
12TP13
12SB53-02
12SB53-01
12TP12
12TP12-04
12SB51-01
12SB51-02
12SB52-01
12SB52-02
12SB27-01
12SB27-02
12TP11-04
12TP11
12SB49-01
12SB49-02
12SB50-01
12SB50-02

SITE 12

SITE 2

Scattered Debris

TRAILER

LEGEND

- CHROMIUM SPECIATION SOIL SAMPLE LOCATIO
- SUBSURFACE SOIL SAMPLE LOCATION
- STEP-OUT SAMPLE LOCATION
- TEST PIT SAMPLE LOCATION
- TEST PIT LOCATION SURVEYED
- SITE 12 BOUNDARY

0 120 240
SCALE IN FEET

TETRA TECH

SURFACE SOIL SAMPLE RESULTS ABOVE ECOLOGICAL SCREENING CRITERIA
SITE 12 – SOUTH LANDFILL (NORTH)
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM05-3	AS NOTED
FIGURE NUMBER: FIGURE 7-8	REV: 0 DATE: 09/19/12

112G02014\0307\112G02014GM05-1.DWG 09/19/12 MKB

12SD08

Date	1/20/10
Inorganics	mg/kg
Antimony	*2.2 J*
Lead	*40.3*
Semivolatiles	µg/kg
Acenaphthylene	*81 J*
Anthracene	*210 J*
Benz(a)anthracene	*960*
Benzo(a)pyrene	*990*
Benzo(g,h,i)perylene	*350*
Benzo(k)fluoranthene	*1100*
Chrysene	*1000*
Dibenz(a,h)anthracene	*190*
Fluoranthene	*2400*
Phenanthrene	*720*
Pyrene	*2000*
Total PAHs	*11628*
Pesticides	µg/kg
4,4'-DDE	*6.5 J*
Total DDT	*10.6*
Dieldrin	*39*

12SW07

Date	1/21/10
Total Inorganics	µg/L
Aluminum	*31800*
Arsenic	*10.6*
Barium	*434 J*
Beryllium	*3.1*
Cadmium	*1.1*
Chromium	*37.8*
Cobalt	*32.6*
Copper	*57.4*
Iron	*44700*
Lead	*88*
Manganese	*1990 J*
Mercury	*0.2*
Vanadium	*88.8*
Zinc	*253 L*
Dissolved Inorganics	µg/L
Aluminum	*270*
Barium	*51.2*
Iron	*370*
Manganese	*845*
Selenium	*4.5 J*
Semivolatiles	µg/L
Anthracene	*0.22*
Benz(a)anthracene	*1.3*
Benzo(a)pyrene	*1.5*
Fluoranthene	*2.9*
Phenanthrene	*0.78*
Pyrene	*2.3*
Pesticides	µg/L
4,4'-DDD	*0.015 J*
4,4'-DDT	*0.019 J*
TOTAL DDT	*0.055*
Alpha-Chlordane	*0.058 J*
Endosulfan I	*0.063 J*
Endrin Aldehyde	*0.037 J*
Methoxychlor	*0.28 J*

12SD06

Date	1/20/10
Inorganics	mg/kg
Lead	*54.7*
Manganese	*463 L*
Semivolatiles	µg/kg
Benz(a)anthracene	*130*
Benzo(a)pyrene	*160*
Pyrene	*250*
Total PAHs	*1777*
Pesticides	µg/kg
4,4'-DDE	*5.2 J*
4,4'-DDT	*5.2 J*
Total DDT	*10.4*
Dieldrin	*17*

12SD03

		Duplicate
Date	1/20/10	1/20/10
Inorganics	mg/kg	mg/kg
Iron	*ND*	*20200 L*
Manganese	*942 L*	*947 L*
Semivolatiles	µg/kg	µg/kg
Acenaphthene	*85*	*200*
Acenaphthylene	*63*	*150 J*
Anthracene	*360 J*	*900*
Benz(a)anthracene	*1700 J*	*3500 J*
Benzo(a)pyrene	*1900 J*	*3500 J*
Benzo(g,h,i)perylene	*1000*	*1400*
Benzo(k)fluoranthene	*2100*	*3200*
Chrysene	*2200 J*	*4200 J*
Dibenz(a,h)anthracene	*450*	*750*
Fluoranthene	*5000 J*	*10000*
Fluorene	*160 J*	*340 J*
Phenanthrene	*2800 J*	*5800 J*
Pyrene	*4100 J*	*8600 J*
Total PAHs	*25218*	*49240*
Volatiles	µg/kg	µg/kg
Carbon Disulfide	*28 J*	*1.9 J*
Pesticides	µg/kg	µg/kg
4,4'-DDE	*ND*	*6.1 L*
Total DDT	*ND*	*7.5*
Alpha-Chlordane	*4.8 J*	*6.4 J*
Beta-BHC	*ND*	*16 J*
Dieldrin	*5.2 J*	*8.4 L*
Endrin Aldehyde	*2.3 J*	*ND*
Gamma-Chlordane	*5.6 J*	*3.7 J*

12SW03

Date	1/20/10
Total Inorganics	µg/L
Barium	*173 J*
Iron	*889*
Manganese	*1660 J*
Cyanide	*6.8 L*

12SD05

Date	1/20/10
Inorganics	mg/kg
Lead	*72*

12SW05

Date	1/21/10
Total Inorganics	µg/L
Barium	*84.9 J*
Lead	*3.6*
Cyanide	*6 L*

12SD04

Date	1/20/10
Inorganics	mg/kg
Lead	*90*

12SW04

Date	1/20/10
Total Inorganics	µg/L
Barium	*68 J*

12SW08

		Duplicate
Date	1/21/10	1/21/10
Total Inorganics	µg/L	µg/L
Aluminum	*2700*	*ND*
Barium	*49.9 J*	*ND*
Iron	*2760*	*ND*
Lead	*10.6*	*ND*
Dissolved Inorganics	µg/L	µg/L
Barium	*20.5*	*20.9*
Semivolatiles	µg/L	µg/L
Benz(a)anthracene	*0.045 J*	*ND*
Benzo(a)pyrene	*0.049 J*	*ND*
Fluoranthene	*0.1 J*	*ND*
Pyrene	*0.079 J*	*ND*
Pesticides	µg/L	µg/L
Heptachlor Epoxide	*0.0079 J*	*ND*

12SW02

		Duplicate
Date	1/18/10	
Total Inorganics	µg/L	µg/L
Barium	*115 J*	*117 J*
Iron	*656*	*665*
Manganese	*990 J*	*1010 J*
Cyanide	*48.8 J*	*ND*
Semivolatiles	µg/L	µg/L
Anthracene	*0.045 J*	*0.041 J*
Benz(a)anthracene	*0.043 J*	*0.047 J*
Benzo(a)pyrene	*0.12 J*	*0.12 J*
Fluoranthene	*0.078 J*	*0.084 J*
Pyrene	*0.098 J*	*0.11 J*

12SD02

Date	1/15/10
Inorganics	mg/kg
Cadmium	*2.1*
Copper	*44.7*
Iron	*24000 L*
Lead	*45.8*
Manganese	*17400 L*
Nickel	*28.4*
Semivolatiles	µg/kg
Anthracene	*460 J*
Benz(a)anthracene	*2500*
Benzo(a)pyrene	*3000*
Benzo(g,h,i)perylene	*1300 J*
Benzo(k)fluoranthene	*3500 J*
Bis(2-ethylhexyl)phthalate	*460 J*
Chrysene	*3600*
Dibenz(a,h)anthracene	*700*
Fluoranthene	*8100*
Phenanthrene	*3700*
Pyrene	*6300*
Total PAHs	*37860*
Pesticides	µg/kg
Alpha-Chlordane	*12 J*
Endrin Aldehyde	*7.5 J*
Endrin Ketone	*17 J*
Gamma-Chlordane	*16 J*

12SD01

Date	1/14/10
Semivolatiles	µg/kg
Anthracene	*570 J*
Benz(a)anthracene	*2100*
Benzo(a)pyrene	*2200*
Benzo(g,h,i)perylene	*990 J*
Benzo(k)fluoranthene	*2800 J*
Bis(2-ethylhexyl)phthalate	*230 J*
Chrysene	*2800*
Dibenz(a,h)anthracene	*540 J*
Fluoranthene	*7000*
Fluorene	*170 J*
Phenanthrene	*3300*
Pyrene	*5000*
Total PAHs	*30870*
Volatiles	µg/kg
Carbon Disulfide	*5.4 J*
Pesticides	µg/kg
Total DDT	*7.2*
Alpha-Chlordane	*8.4 J*
Dieldrin	*23 J*
Endrin Ketone	*14 J*
Gamma-Chlordane	*7.9 J*
Heptachlor Epoxide	*4.5 J*

12SD07

Date	1/20/10
Semivolatiles	µg/kg
Acenaphthylene	*23*
Benz(a)anthracene	*260*
Benzo(a)pyrene	*250*
Chrysene	*220*
Dibenz(a,h)anthracene	*38*
Fluoranthene	*530 J*
Pyrene	*400 J*
Total PAHs	*2751.1*
Pesticides	µg/kg
Dieldrin	*55*
Endrin Ketone	*2.4 J*

12SW01

Date	1/14/10
Total Inorganics	µg/L
Barium	*193 J*
Iron	*565*
Manganese	*2100 J*

SITE 2

MAGAZINE

TRAILER

LEGEND

- SURFACE WATER SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- SITE 12 BOUNDARY

0 120 240

SCALE IN FEET

TETRA TECH

SURFACE WATER AND SEDIMENT SAMPLE RESULTS ABOVE ECOLOGICAL SCREENING CRITERIA SITE 12 – SOUTH LANDFILL NAS JRB WILLOW GROVE WILLOW GROVE, PENNSYLVANIA

FILE	SCALE
112G02014GM05-1	AS NOTED
FIGURE NUMBER: FIGURE 7-9	REV: 0 DATE: 09/19/12

APPENDIX A

EM SURVEY REPORT

Geophysical Survey Results

NAS JRB Willow Grove Site

Willow Grove, Pennsylvania

May 12, 2008

Prepared for:

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AGS Project No. 08-195-7

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2 EM In-Phase Response Map, Buried Anomalies, and Site Features - Site Screening Area 12 (Southwest)

3 EM In-Phase Response Map, Buried Anomalies, and Site Features - Site Screening Area 12 (Northeast)

1.0 Introduction

This report presents the findings of a geophysical investigation that was completed at the Naval Air Station Joint Reserve Base (NAS JRB) in Willow Grove, Pennsylvania. Currently, the Navy is conducting remedial investigations (RI) at two Installation Restoration (IR) program sites at the base, and further non-intrusive subsurface information is required to add to the site databases. The two sites include the Ninth Street Landfill (NSL) site and the Site Screening Area 12 (SSA12) site, which is comprised of two adjacent survey areas. The Ninth Street Landfill area is approximately 800 feet long by 500 feet wide (9.2 acres), and the terrain is gently-dipping to the west-northwest. There are several gullies, hummocks, and a shallow drainage swale that runs through the southwestern part of the site. There is a large playing field, picnic area, and wooded / vegetated section that are found at this location. This area was known to have received miscellaneous waste materials in the past, and recent trenching activities (May 2007) have confirmed this fact.

The SSA12 site includes two adjacent areas that are separated by a chain-link fence near the airfield. AGS has designated these areas as the SSA12 (Southwest) and the SSA12 (Northeast) for this report. The southwest area is approximately 800 feet long by 750 feet wide (13.8 acres), and the northeast area is 600 feet long by 200 feet wide (2.8 acres). Historic information has indicated that this area served as a waste disposal site, as well. AGS conducted this investigation during the period of April 7 through 11, 2008.

2.0 Objectives

The primary objective of the survey was to investigate the results of past landfill activities that may have altered the terrain in the survey areas. The specific purpose of the survey was to locate potential buried waste materials and to delineate the lateral extent of these materials. Some physical evidence of waste dumping is present in the form of suspicious mounds, linear depressions, and debris at the ground surface. In addition, areas of historical landfill activity are documented that required further investigation using geophysical methods. It is our understanding that some of the anomalies detected in our survey may be investigated at a later time with excavations or test pits.

3.0 Geophysical Investigation

3.1 Methodology

The electromagnetic conductivity (EM) method was chosen as the primary technique for meeting the project objectives. AGS anticipated that a strong or measurable electrical contrast would exist between native soils and areas containing buried metallic and non-metallic waste materials, buried 55-gallon storage drums, buried utilities, and

areas where subsurface conditions have been altered through the years.

The electromagnetic (EM) method uses the principle of electromagnetic induction to measure the variability of electrical conductivity of subsurface materials. Significant contrasts in the electrical properties between non-indigenous materials and surrounding soil enable accurate delineation of fill, buried materials, and air spaces. The large EM response to metal and waste materials makes this technique particularly well suited to identifying buried metal objects such as USTs, buried drums, pipelines, reinforced building foundations, or other metal components of buried structures, as well as wastes that possess a different electrical character than the surrounding soils. It is, however, equally sensitive to metal objects on the ground surface, and it is important to take careful field notes that indicate the position of surface metal to avoid mis-interpretation.

The EM-31 ground conductivity meter by Geonics was used to measure the presence of buried metal objects such as USTs, and to determine the electrical conductivity of the underlying soils. The EM-31 is a one-man, portable system that induces a sinusoidal, 9.8 kilohertz (kHz) signal into the ground. The transmitted signal induces eddy currents into the subsurface materials, which, in turn, generate a secondary magnetic field that is measured by the receiver coil. Two measurements are recorded at each station point; the in-phase response, which is measured in parts per thousand (ppt), and the quadrature response, which is measured in milliSeimens per meter (mS/m). For the interpretation of high-conductivity targets such as USTs, the in-phase response is more discriminative, although both modes are affected. Lower contrast targets such as clay layers, contaminant plumes, and waste disposal areas are better indicated with the quadrature response. The EM data can be viewed in contour or profile format, or the data can be acquired in a scan mode. AGS used a Trimble ProXRS Global Positioning System (GPS) concurrently with the EM31 survey.

3.2 Data Acquisition and Analysis

AGS completed a site walkover with Tetra Tech personnel prior to the initiation of the geophysical survey. The survey boundaries were shown to AGS field personnel, specific objectives of the investigation were re-iterated, and the schedule for completion of the work was discussed.

The field procedure for the EM survey involved (1) equipment setup, (2) before survey calibration and equipment checkout, (3) test run completion, and (4) production profile recording, where required. The EM data were collected at one second intervals along traverses spaced from 5-10 feet apart, depending on site conditions. The time interval corresponded to data stations spaced approximately every 2.5 feet along each traverse. The EM instrument was coupled with a Trimble Pro-XR global position system (GPS) such that each EM data point was assigned a corresponding GPS coordinate. This

equipment arrangement provided an accurate indication of existing subsurface conditions. The data were downloaded to a field computer and processed to provide preliminary EM quadrature and in-phase contour maps to assess data quality and to perform preliminary interpretations.

4.0 Survey Results and Interpretation

The geophysical survey results are presented on Figures 1 through 3 of this report. Figure 1 is an EM in-phase map of the NSL area, Figure 2 is an EM in-phase map of the SSA12 (Southwest) area, and Figure 3 is an in-phase map of the SSA12 (Northeast) area. AGS has annotated the significant anomalies on the maps, and have overlain the locations of various site features on the maps, in order to provide points of reference for future activities. AGS collected GPS data over the site features following our EM survey. A discussion of the buried anomalies and targets detected in this investigation is included in the following sections.

4.1 Ninth Street Landfill

Figure 1 shows the EM in-phase responses from the NSL area. AGS detected three large areas that indicated the presence of possible buried waste materials. These areas have been labeled in red as "A", "B", and "C" on the map, and the approximate extent of each area has been outlined with a red dotted line. Area "A" is located in the southwestern part of the survey area and its dimensions are approximately 400' long by 50' wide. It is a linear feature that runs from the northwest to the southeast, and possesses very strong EM signatures. The anomalous responses are both positive and negative, which is a function of the composition of the buried materials, amount and position of the buried materials, and the combined affects of the buried materials. The southeastern part of Area “A” does not possess the strong EM responses observed in the remaining sections of the anomaly, which suggests that the amount of buried metal is less here.

In the field, AGS noted the presence of a linear surface depression, which is coincident with Area “A”, where exposed metal debris was observed. The depression is approximately 110 feet long by 25 feet wide. A portion of this EM anomaly is due to the exposed metal debris in the surface depression, and the remaining part of the EM anomaly is due to buried metal objects, presumably within flat, re-graded areas that extend beyond the limits of the surface depression to the northwest and southeast. Based on the EM responses, surface topography, and observed debris, it is apparent that a man-made trench was constructed in the past, and debris was dumped into the trench at a later time.

Area "B" is an irregularly-shaped part of the survey area that is located to the northeast of Area “A”. This anomaly is approximately 200 feet long by 160 feet wide, and is located in an open, accessible landscape. Anomalies in Area “B” exhibit moderately-

strong, discontinuous EM responses that are evenly dispersed throughout the area limits. The character of these anomalies is very different from that of Area “A”, in that the responses are more subdued and of lower magnitude. Although the data indicates that dumping has probably occurred here, it appears that a lower amount of metal debris is present. AGS believes that the dominant wastes in Area “B” are more non-metallic in nature, and that they are spread out more thinly over its extent. The boundaries of this anomaly are well-defined on the EM contour map.

Area "C" is located to the southeast of area "B", next to the open grass field and exercise stations. It is approximately 140' long by 50' wide, and runs parallel to the access road. Some surface debris was observed within area "C", as shown on the map, however, it appears that an additional, significant amount of buried debris is also present beyond the surface materials. The EM responses are very strong here, which suggests that buried metal is present.

AGS detected two discrete, unknown anomalies in the northern part of the survey area. Unknown anomaly 1 is located between the volleyball court and the playground. It strongly suggests the presence of buried metal, as indicated by the high-magnitude EM responses. A second discrete, unknown anomaly, Anomaly 2, was found in a sparsely-wooded area to the southwest of the volleyball court. It exhibits moderately-strong EM values and covers an area of approximately 20' by 20'. Again, it appears that some buried metal is present at this location. AGS found two 55-gallon drum carcasses near the northern extent of area "A". Their locations are shown as a magenta "x" on the map.

Numerous man-made items at the ground surface caused anomalous EM responses. These included the sheds, playground, picnic tables, bike rack, discarded wire rope, and other miscellaneous objects.

4.2 Site Screening Area 12 (Southwest)

Figure 2 shows the EM in-phase responses from the SSA12 (Southwest) area. AGS detected four large areas that indicated the presence of buried waste materials. These areas have been labeled in red as "A", "B", "C", and "D" on the map, and the approximate extent of each area has been outlined with a red dotted line. Area "A" is located in the northwestern part of the survey area and its dimensions are approximately 80' long by 60' wide. It is an irregularly-shaped feature that possesses very strong EM signatures (both positive and negative). A portion of this anomaly is due to exposed metal debris, and the remainder is due to buried metal objects.

Area "B" is the most significant anomalous area observed on the map. It is an irregularly-shaped anomaly that exhibits strong deviations from the background values of approximately -0.5 to 0 ppt. It is approximately 250' long by 80' wide, and is oriented in a southwest-to-northeast manner. This area exhibits moderately-strong,

discontinuous EM responses, which suggests the presence of miscellaneous debris or waste materials. It appears that the area contains both metallic and non-metallic debris. The boundaries of area "B" are very well-defined.

Area "C" is located to the southeast of area "B", next to a large area of dense vegetation. It covers an area that is approximately 85' long by 50' wide, and exhibits very strong, negative in-phase values, which indicate buried metal sources. Some surface debris was observed within area "C", however, it appears that an additional, significant amount of buried debris is also present.

Area "D" is a smaller anomalous area to the north of areas "A" and "B". It is approximately 40' long by 20' wide, but strong EM responses are present that indicates the presence of metallic debris. It is between two densely-vegetated areas.

AGS detected six, strong, linear anomalies in the southern part of the survey area. Linear anomalies 1 through 4 are located near the southern boundary and are roughly parallel to one another. They are oriented in a southeast-to-northwest manner. Based on the EM signal strength, position, and orientation, it appears the anomalies may be related or have a similar nature and purpose. The EM responses suggest that these features are former buried trenches with possible piping. Linear anomalies 5 and 6 run roughly perpendicular to anomalies 1 through 4. Both are approximately 250' long, and appear to be related to anomalies 1 through 4. AGS believes these anomalies are due to trenches, as well. Anomaly 5 is somewhat wider than anomaly 6.

AGS detected numerous, discrete, man-made items that were both buried, and located at the ground surface. They appear as small, closed-contours on the EM map. They represent a minor amount of metal debris.

4.3 Site Screening Area 12 (Northeast)

AGS detected a single, large area in the eastern part of the survey area that indicated the presence of buried waste materials. The area has been labeled in red as "A" on the map, and the approximate extent of the area has been outlined with a red dotted line. Area "A" is located in the southeastern corner of the survey area and its dimensions are approximately 140' long by 75' wide. Anomaly "A" may extend to the northeast, southwest, and southeast of our survey area, because these boundaries are not apparent or well-defined on the map. Very strong EM values are present that indicates the presence of buried metal. The boundary between background materials and the metals is well-defined. AGS did not observe any metal objects at the ground surface here.

AGS detected a pipeline that extends from the transformer to the west. It exhibits a notable, linear EM response that runs across the map. It runs below an existing debris pile toward the access road.

AGS detected several small, discrete, anomalies that are probably due to the presence of minor, miscellaneous debris. They appear as small, closed-contours on the EM map.

5.0 Data Quality

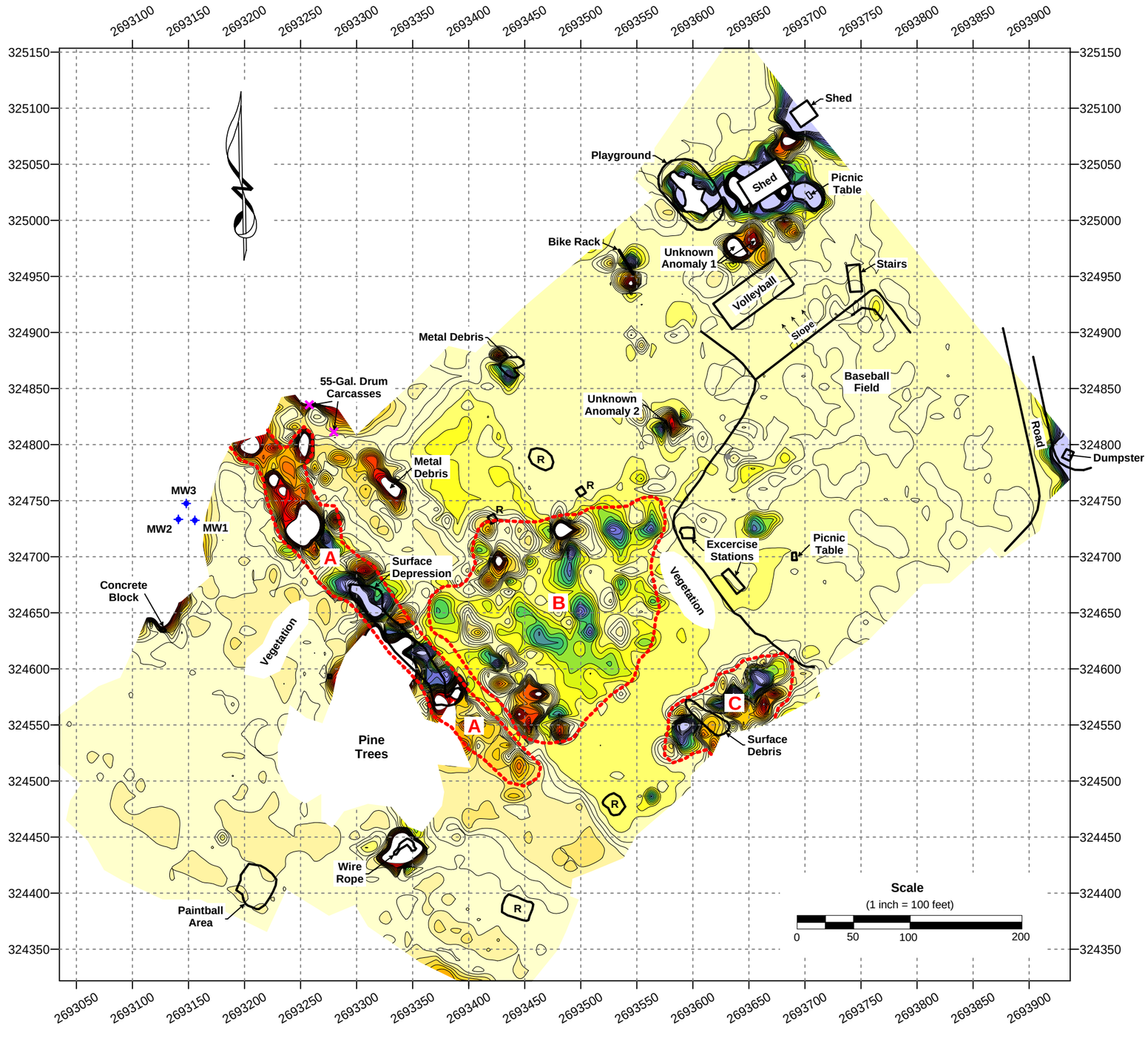
The EM conductivity data was of very good quality. The geophysical responses provided a significant amount of subsurface information and the range of values observed was consistent with that anticipated from the known and assumed subsurface conditions at the site.

6.0 Limitations

In general, there are limitations unique to the EM geophysical method employed for this investigation. These limitations include maximum depths of investigation for the EM method. Also, the method relies on a significant contrast in physical properties between the background soils and the object or feature of interest in order to detect it. The instrument also responds differently to above or below ground cultural features such as utilities, fences, and debris. These features may cause interference, which can limit the effective detection of other objects / features in the immediate vicinity.

7.0 Standard Care and Warranty

The scope of AGS' services for this project consisted of using geophysical techniques to characterize the shallow subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the standard of care ordinarily exercised by members of the profession currently employing similar techniques. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by AGS.



Legend

- A — Anomalous Area
- × — 55-Gallon Drum Carcass
- R — Wooden Reel

Notes

(1) An EM31 electromagnetic instrument and a Trimble ProXRS global positioning system (GPS) were used for the survey. Data from these instruments were combined to generate the contour map.The in-phase response is sensitive to the presence of buried metal objects. The instrument can penetrate to a depth of approximately 15 feet bgs. The contour interval for this figure is 0.5 ppt.

(2) AGS detected three large areas that indicated the presence of buried waste materials. These areas have been labeled in red as "A", "B", and "C" on the map, and the approximate extent of each area has been outlined with a red dotted line. Area "A" is located in the southwestern part of the survey area and its dimensions are approximately 400' long by 50' wide. It is a linear feature that runs from the northwest to the southeast, and possesses very strong EM signatures (both positive and negative). A portion of this anomaly is due to exposed metal debris within a surface depression, and the remainder is due to buried metal objects within the flat, re-graded portions of the same trench. Based on the EM responses, surface topography, and observed debris, it is apparent that a man-made trench was constructed in the past, and debris was dumped into the trench at a later time. Area "A" is very well defined on the map. Area "B" is an irregularly-shaped part of the survey area that exhibits moderately-strong, discontinuous EM responses. It is located in an open area to the northeast of are "A". The data indicates that dumping has occurred here, but it does not possess the same amount of metal debris as area "A". Although the data is not as strong as area "A", the boundaries of area "B" are also very well-defined. Area "B" is approximately 200' long by 160' wide. Area "C" is located to the southeast of area "B", next to the open grass field and excercise stations. It is approximately 140' long by 50' wide, and runs parallel to the access road. Some surface debris was observed within area "C", as shown on the map, however, it appears that an additional, significant amount of buried debris is also present. The EM responses are very strong here.

(3) AGS detected two discrete, unknown anomalies in the northern part of the survey area. Unknown anomaly 1 is located between the volleyball court and the playground. It strongly suggests the presence of buried metal, as indicated by the high-magnitude EM responses. A second discrete, unknown anomaly, Anomaly 2, was found in a sparsely-wooded area to the southwest of the volleyball court. It exhibits moderately-strong EM values and covers an area of approximately 20' by 20'. Again, it appears that some buried metal is present at this location.

(4) AGS found two 55-gallon drum carcasses near the northern extent of area "A". Their locations are shown as a magenta "x" on the map.

(5) Numerous man-made items at the ground surface caused anomalous EM responses. These included the sheds, playground, picnic tables, bike rack, discarded wire rope, and other miscellaneous objects.

(6) The depth of investigation for the EM unit was approximately 15 feet bgs.

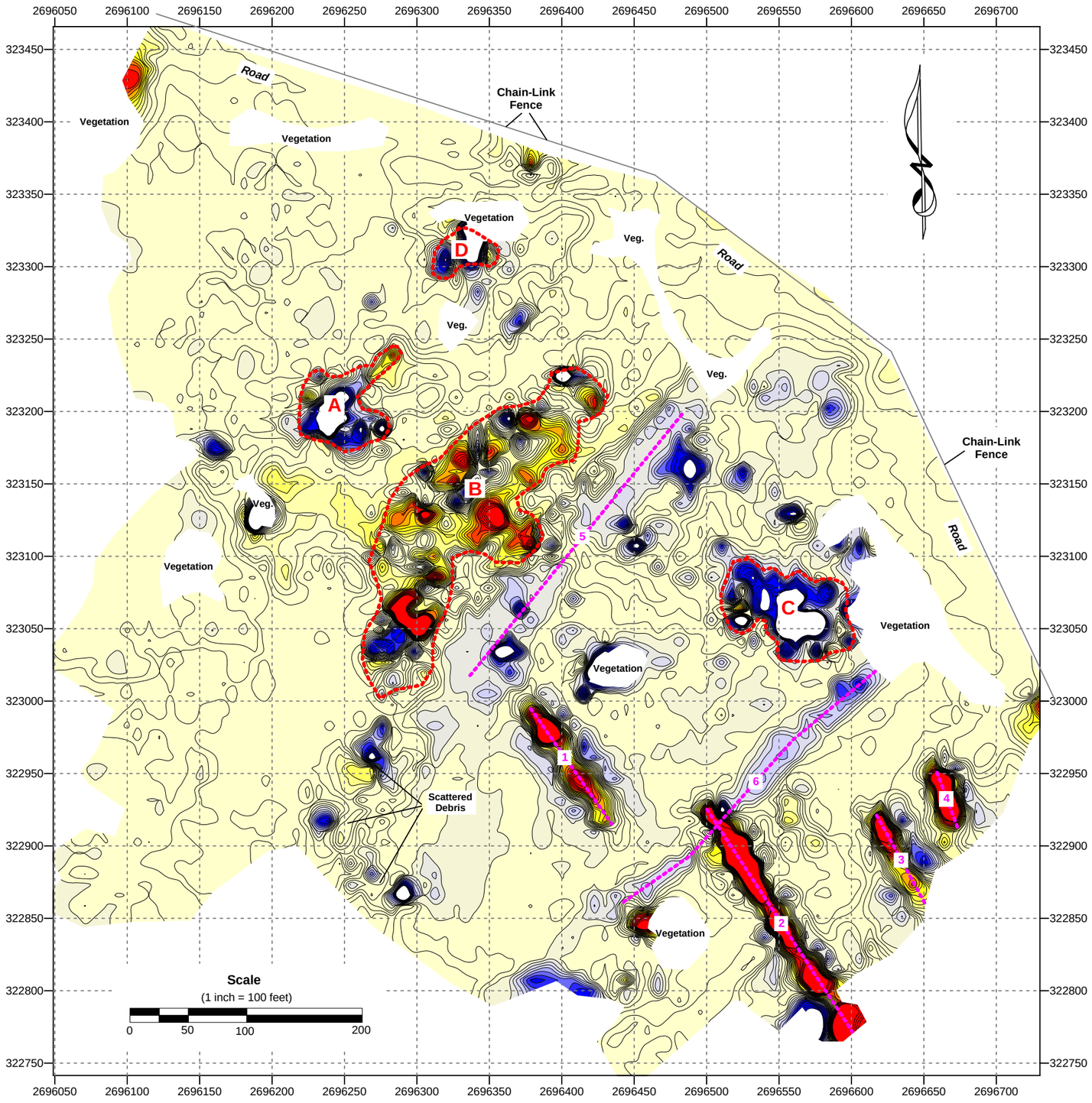
(7) The Pennsylvania State Plane coordinate system was used for this map.
System: U.S. State Plane 1983
Zone: Pennsylvania South 3702
Datum: NAD 1983 (Conus)
US Survey Feet

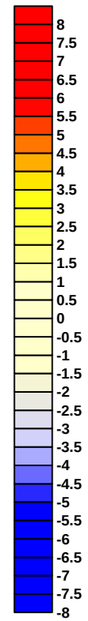
FIGURE 1
EM In-Phase Response Map, Buried Anomalies, and Site Features
Ninth Street Landfill Area
NAS JRB Willow Grove Site
Willow Grove, Pennsylvania

Tetra Tech NUS, Inc.
234 Mall Boulevard, Suite 260
King of Prussia, Pennsylvania

Date: May 12, 2008
AGS Reference: 08-195-1/pm

ADVANCED GEOLOGICAL SERVICES





Legend

A — Anomalous Area

Linear EM Anomaly

Notes

(1) An EM31 electromagnetic instrument and a Trimble ProXRS global positioning system (GPS) were used for the survey. Data from these instruments were combined to generate the contour map.The in-phase response is sensitive to the presence of buried metal objects. The instrument can penetrate to a depth of approximately 15 feet bgs. The contour interval for this figure is 0.5 ppt.

(2) AGS detected four large areas that indicated the presence of buried waste materials. These areas have been labeled in red as "A", "B", "C", and "D" on the map, and the approximate extent of each area has been outlined with a red dotted line. Area "A" is located in the northwestern part of the survey area and its dimensions are approximately 80' long by 60' wide. It is an irregularly-shaped feature that possesses very strong EM signatures (both positive and negative). A portion of this anomaly is due to exposed metal debris, and the remainder is due to buried metal objects. Area "B" is the most significant anomalous area observed on the map. It is an irregularly-shaped anomaly that exhibits strong deviations from the background values of approximately -0.5 to 0 ppt. It is approximately 250' long by 80' wide, and is oriented in a southwest-to-northeast manner. This area exibits moderately-strong, discontinuous EM responses, which suggests the presence of miscellaneous debris or waste materials. The boundaries of area "B" are very well-defined. Area "C" is located to the southeast of area "B". It is approximately 85' long by 50' wide, and exhibits very strong, negative in-phase values, which indicate metal sources. Some surface debris was observed within area "C", however, it appears that an additional, significant amount of buried debris is also present. The EM responses are very strong here. Area "D" is a smaller anomalous area to the north of areas "A" and "B". It is approximately 40' long by 20' wide, but strong EM responses are present that indicates the presence of metallic debris.

(3) AGS detected six, strong, linear anomalies in the southern part of the survey area. Linear anomalies 1 through 4 are located near the southern boundary and are roughly parallel to one another. They are oriented in a southeast-to-northwest manner. Based on the EM signal strength, position, and orientation, it appears the anomalies may be related or have a similar nature and purpose. The EM responses suggest that these features are former buried trenches with possible piping. Linear anomalies 5 and 6 run roughly perpendicular to anomalies 1 through 4. Both are approximately 250' long, and appear to be related to anomalies 1 through 4. AGS believes these anomalies are due to trenches, as well. Anomaly 5 is somewhat wider than anomaly 6.

(4) AGS detected numerous, discrete, man-made items that were both buried, and located at the ground surface. They appear as small, closed-contours on the EM map. They represent a minor amount of metal debris.

(5) The depth of investigation for the EM unit was approximately 15 feet bgs.

(6) The Pennsylvania State Plane coordinate system was used for this map.
System: U.S. State Plane 1983
Zone: Pennsylvania South 3702
Datum: NAD 1983 (Conus)
US Survey Feet

FIGURE 2

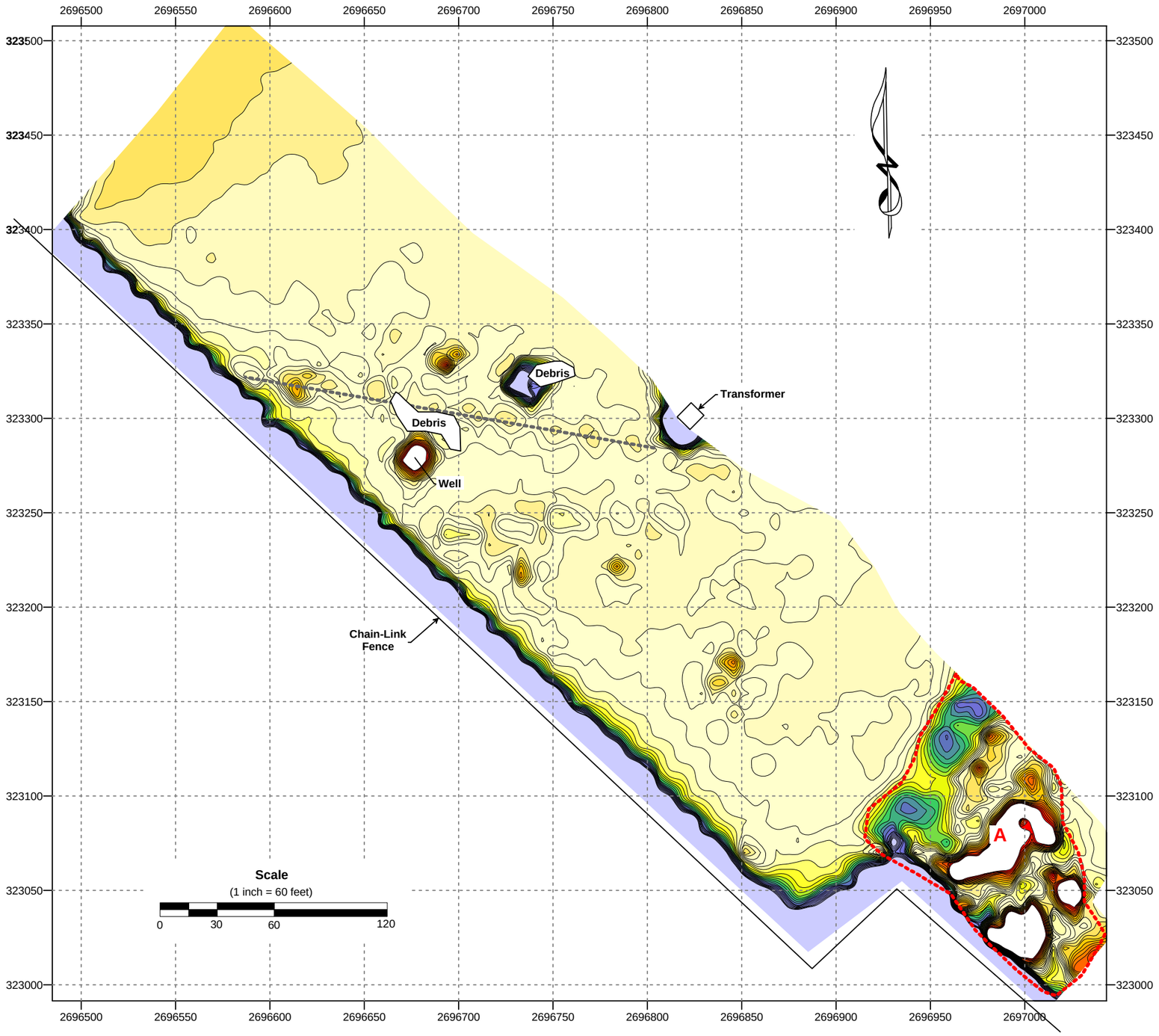
EM In-Phase Response Map, Buried Anomalies, and Site Features
Site Screening Area 12 (Southwest)
NAS JRB Willow Grove Site
Willow Grove, Pennsylvania

Tetra Tech NUS, Inc.
234 Mall Boulevard, Suite 260
King of Prussia, Pennsylvania

Date: May 12, 2008

AGS Reference: 08-195-1/pm

ADVANCED GEOLOGICAL SERVICES



Legend

A — Anomalous Area

Buried Pipeline

8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
-5
-5.5
-6
-6.5
-7
-7.5
-8

In-Phase Responses (ppt)

Notes

(1) An EM31 electromagnetic instrument and a Trimble ProXRS global positioning system (GPS) were used for the survey. Data from these instruments were combined to generate the contour map.The in-phase response is sensitive to the presence of buried metal objects. The instrument can penetrate to a depth of approximately 15 feet bgs. The contour interval for this figure is 0.5 ppt.
(2) AGS detected a single, large area that indicated the presence of buried waste materials. The area has been labeled in red as "A" on the map, and the approximate extent of the area has been outlined with a red dotted line. Area "A" is located in the southeastern corner of the survey area and its dimensions are approximately 140' long by 75' wide. Anomaly "A" may extend to the northeast, southwest, and southeast of our survey area, because these boundaries are not apparent on the map. Very strong EM values are present that indicates the presence of buried metal. The boundary between background materials and the metals is well-defined. AGS did not observe any metal objects at the ground surface here.
(3) AGS detected a pipeline that extends from the transformer to the west. It exhibits a notable, linear EM response that runs across the map.
(4) AGS detected several small, discrete, anomalies that are probably due to the presence of minor, miscellaneous debris. They appear as small, closed-contours on the EM map.
(5) The depth of investigation for the EM unit was approximately 15 feet bgs.
(6) The Pennsylvania State Plane coordinate system was used for this map.
System: U.S. State Plane 1983
Zone: Pennsylvania South 3702
Datum: NAD 1983 (Conus)
US Survey Feet

FIGURE 3
EM In-Phase Response Map, Buried Anomalies, and Site Features
Site Screening Area 12 (Northeast)
NAS JRB Willow Grove Site
Willow Grove, Pennsylvania

Tetra Tech NUS, Inc.
234 Mall Boulevard, Suite 260
King of Prussia, Pennsylvania

Date: May 12, 2008
AGS Reference: 08-195-1/pm

ADVANCED GEOLOGICAL SERVICES

APPENDIX B

SAMPLE COLLECTION LOGS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB01-000.5-01
Sample Location: 12SB01
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-13-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1500	0 - 0.5	Dark Brown	clayey SILT, moist (frozen)
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB01-0.5-2-02
Sample Location: 12SB01
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-13-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1530	0.5' - 2'	Brown	clayey SILT, some sand, moist, no odor
Method: hand auger			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB02-0005-01
Sample Location: 12SB02
Sampled By: JS Tomalavage
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/2/10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	0-0.5'	DRK BRN	LOOSE TO PARTLY FROZEN SILT W/TRACE CLAY
Method: GRAB HAND AUGER			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): JS Tomalavage

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12
Project No.: 02014

Sample ID No.: 12SB02-0502-02
Sample Location: 12SB02
Sampled By: JS Tomalavage
C.O.C. No.:

~~[X] Surface Soil~~
~~X~~ Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/12/10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1405	0.5'-2.0'	BRN	FIRM SILT w/MORE CLAY/ MOIST
Method: GRAB HAND AUGER			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

COLLECTED DUPLICATE

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	12SB-DUP-02-0502-02

Signature(s):

JS Tomalavage

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB03-000.5-01
Sample Location: 12SB03
Sampled By: J. Tomalavage
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1100	0-0.5'	Dk. Brown	Sandy clayey SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB03-0.5-2.0
Sample Location: 12SB03
Sampled By: J. Tomalavage
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1125	0.5'-2.0'	Lt. Brown	Silty F SAND, moist
Method: hand auger			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald W. Lake

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB04-000.5-01
Sample Location: 12SB04
Sampled By: J. Tomalavage
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1210	0 - 0.5'	Dark Brown	sandy clayey SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB04-0.5-2-02
Sample Location: 12SB04
Sampled By: J. Tomalavage
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1230	0.5'-2'	Light Brown	silty F SAND, moist
Method: hand auger			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 125B05-000.5-01
Sample Location: 125B05
Sampled By: D. Walen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-14-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1325	0 – 0.5'	Dark Brown	clayey SILT, moist (frozen)
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Walen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB05-0.5-2-02
Sample Location: 12SB05
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-14-10 Time: 1340 Method: hand auger Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0.5'-2'	medium Brown	clayey SILT, moist, no odor

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B06-0001.5-01
Sample Location:
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1340	00-0.5'	Brown	Fine grained sandy Silt trace clay roots & pebbles
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	6	
TCL SVOC/PAH Sim	8 oz Glass Jar	2	
Pest/ PCB	8 oz Glass Jar	2	
Metals, Hg , Cn, pH	8 oz Glass Jar	2	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	125B-DUP05-1200

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB06-0.5-02-02
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1405	0.5' - 2.0'	Lt Brown	Clayey Silt trace Sand + roots orange mottles
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

0.5 - 1 = Brown Fine grained sandy Silt
1 - 2 = Lt Brown clayey silt trace sand orange mottles

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB07-000.5-01
Sample Location: 12SB07
Sampled By: CM/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 09:30	0 - 0.5'	Brown	Sandy Silt, moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings			NA	
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB07-0.5-02
Sample Location: 12SB07
Sampled By: CM/xc
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 09:50	0.5' – 2'	Light Brown to Brown	Silty clay with some Sand. moist
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

0.5 - 1.0 Silty Fine grained Sand lt brown
1.0 - 1.5 silty clay f brown pebble
1.5 - 2.0 brown silty clay

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Chen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB08-0005-01
Sample Location: 12SB08
Sampled By: CM/KC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 10:35	0 – 0.5'	Brown	Clayey silt with some roots trace of fine sands moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N/A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB08-0.5-2.0-01
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1050	0.5-2.0	Red Lt Brown	Fine grained Sandy Silt trace roots Rock fragments Dry
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

0.5 - 1.0 - Red Lt Brown Fine grained Sandy Silt
1.0 - 2.0 - Red Lt Brown Fine grained Sandy Silt

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB09-000.5-01
Sample Location: 12SB09
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1140	0-6"	Brown	SILT, tr. to some CLAY wet/moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 125809-0.5-02-02
Sample Location: 125809
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1150	0.5'-2'	BROWN	SILT, tr. clay moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings			NA	
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: Cr(VI) only
125B-DUP-03 (1230)

Signature(s):

Donald Winkler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB10-000.5-01
Sample Location: 12SB10
Sampled By: DW/XX
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1325	0-6"	BRN	SILT, some CLAY moist/wet
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald White

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB10-0.5-2-02
Sample Location: 12SB10
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1335	0.5-2'	Brown/ Red-Brown	SILT, tr. clay
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whaley

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB11-0005-01
Sample Location: 12SB11
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1045	0-6"	Brown	SILT, some clay moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 1258[1]-0.5-2-02
Sample Location: 12SB11
Sampled By: TW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1005	0.5'-2'	Brown	sandy SILT, trace clay moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12 SB12-00015-01
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1140	00 0.5'	Brown	Silty coarse grained sand and gravel Roots
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	4	
TCL SVOC/PAH Sim	8 oz Glass Jar	2	
Pest/ PCB	8 oz Glass Jar	2	
Metals, Hg , Cn, pH	8 oz Glass Jar	2	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar	~~2~~	
Chromium (VI)	4 oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB12-0502-02
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1215	0.5 - 2.0	Lt Brown	Fine grained sandy clay trace gravel
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

0.5 - 1.0 - Gravely coarse grained sand with clay moist
1.0 - 2.0 Fine grained sandy clay trace gravel

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB13-000.5-01
Sample Location: 12SB13
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0900	0-6"	BRN	SILT some clay, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Whaley

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB13-0.5-2-02
Sample Location: 12SB13
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0910	0.5'-2'	BRN	SILT some clay silty sand moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dawn Weber

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB14-0005-01
Sample Location: 12SB14
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0830	~~BGS~~ 0-6"	~~SLCT~~ BRN	SILT, some clay, moist/wet
Method: Disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB14-0.5-02
Sample Location: 12SB14
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/5/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1605	0.5-2'	Red BRN	Sandy SILT moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald W Baker

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB15-000.5-01
Sample Location: 12 SB15
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	0-6"	BROWN	SILT, moist/wet
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				N/A

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12SB-DUP-04

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB15-0.5U2-02
Sample Location: 12SB15
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1455	0.5 - 2'	Red Brown	sandy SILT moist
Method: disposable trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB16-000.5-01
Sample Location: 12SB16
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0845	0-6"	Brown	SILT, tr. clay moist
Method: Disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N/A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald White

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB16-0.5-02-02
Sample Location: 12SB16
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/5/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0850	0.5-2'	M. Brown	SILT, tr. to some CLAY moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B17-0005-01
Sample Location: 125B17
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	00 - 0.5	BROWN	silty clay trace sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB17-0502-02
Sample Location: 12SB17
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1540	0.5-2.0	Brown Lt Brown	silty clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 125B18-000.5-01
Sample Location: 125B18
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1540	0-6"	Brn	clay & silt moist
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				NA

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB18-0.5021-02
Sample Location: 12SB18
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1550	0.5'-2'	LT BRN	SILT some clay moist
Method: disposable towel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel W Kahn

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB19-0304-03
Sample Location: 12SB19
Sampled By: DW/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	3-4'	BRWN Lt. Brwn.	clayey silt moist to wet
Method: disposable towel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB19-0005 01
Sample Location: 12SB19
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1410	0-6"	Brn	clayey silt moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB20-000.5-01
Sample Location: 12SB20
Sampled By: DW/KC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 2/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1310	0-6"	BRN	clayey silt moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings			N/A	
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	12SB-DUP-01 (1200)

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB20-0.5-02-02
Sample Location: 12SB20
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1300	6"-24"	BRN	SILT & clayey silt
Method: disposable bowl			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB21-0005-01
Sample Location: 12SB21
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	0-0.5'	Brown	Silty Clay trace Sand Roots and rocks
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	1	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B21-0520-02
Sample Location: 125B21
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1505	0.5-2.0	Light Brown	Silty Clay trace roots rocks moist
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB22-000.5-01
Sample Location: 12SB22
Sampled By: DW/RC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1130	0-6"	Brn	clayey silt moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 125B22-0.5-02-01
Sample Location: 125B22
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1140	6" - 24"	4. 8 YR	clayey silt, moist
Method: disposable bowl			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Whale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B23-0001.5-C
Sample Location: 125B23
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1315	0-0.5'	Brown	Fine grained sandy silt some pebbles
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB23-0.5210-02
Sample Location: 12SB23
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1325	0.5-2'	Lt Brown	Silty clay trace roots and Rocks
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB24-000.5-01
Sample Location: 12SB24
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1055	0-6"	BROWN	clayey silt, moist
Method: trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Wilhelm

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB24-0.5-02
Sample Location: 12SB24
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	6"-24"	BRN	clayey silt, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB25-000.5-01
Sample Location: 12SB25
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1400	0-6"	BRN	clayey SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): David Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB25-0.5-2-02
Sample Location: 12SB25
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1410	0.5 - 2'	Dk Brn/Black and lt. BRN.	SILTY SAND and SILT to some CLAY
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				NA

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald W Kalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB26-000.5-0
Sample Location: 12SB26
Sampled By: bw/xc
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1225	0-6"	Brown	SILT w. clay moist
Method: disposable towel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12SB-DUP-05 (1300)

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB26-0.5-02-02
Sample Location: 12SB26
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1235	0.5 - 2'	M. Brown	SILT to sandy SILT tr. to some clay moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Winkler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB27-0005-01
Sample Location: 12SB27
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1620	00 - 0.5	Black Brown	Cinders ash to silty sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B27-0.5B2-02
Sample Location: 125B27
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 12/28/11	0.5-2'	BROWN	SILTY FINE TO COARSE GRAINED SAND
Time: 1635			
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B28-000.5-0
Sample Location: 125B28
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0930	0.0 - 0.5	Black to Brown	Cinders, Ash to Silty Sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB28-0.5-2-02
Sample Location: 12SB28
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	0.5-2'	Lt. BRN	SILT some clay
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings			NA	
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David White

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB29-0005-01
Sample Location: 12SB29
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1035	0-6"	Brown	Silt, trace clay, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB290.502-02
Sample Location: 12SB29
Sampled By: DW/KC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/14	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1045	0.5'-2'	Lt. Brown	SILT, tr. clay
Method: disposable trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B30-0005-01
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1110	0-0.5	Brown	Sandy Silt roots moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB30-0.5-02-02
Sample Location: Site 12
Sampled By:
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1130	0.5-2	Brown	Sandy Silt trace fine sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB31-0.5-2-C
Sample Location: SB01-NW
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0935	0.5-2'	Brown	Silty Fine grained Sand trace clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 1200
12-DUP01-010412

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B32-0.5-02-02
Sample Location: 125B01-W
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0955	0.5 - 2	Brown Red Brown	Clayey Silt fine grained sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB33-0.5020
Sample Location: 12SB01-S
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1010	0.5-2'	Brown Olive Green	Clayey silt trace roots rocks fine sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B34-0.5-02-02
Sample Location: 125B01-SE
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/4/02	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	0.5 - 2	Red Brown Brown	clayey Silt trace roots Fine Sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB35-00015-01
Sample Location: 12SB02-E
Sampled By:
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1100	00-0.5'	Dark Brown	Silty Clay trace pebbles Moist
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH/ Sim	8 oz Glass Jar		
Lead Only	4 oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.: Assigned Time = 1300 12SB-DUP02-010412

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB36-0005-01
Sample Location: 12SB02-S
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1110	0-0.5'	Dark Brown	Clayey Silt trace Roots
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar		
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B37-000.5-01
Sample Location: 125B02-W
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1115	00 - 0.5'	Dark Brown	Clayey Silt trace Roots pebbles
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar		
Lead Only	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125133SF00015-01
Sample Location: 12SB02-N
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/4/12			
Time: 1120	00-0.5'	Dark Brown	clayey Silt roots trace Rocks
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar		
Lead Only	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B39-0001S-01
Sample Location: 12STP02-N
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 1/4/12	00-01.5'	Dark Brown	Clayey Silt some roots trace rock fragments
Time: 1140			
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

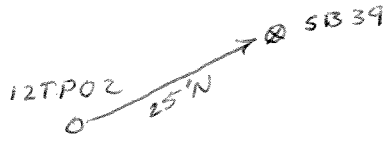
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B40-0005-0
Sample Location: 12TP02-E
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1145	00-0.5'	Brown	Clayey Silt trace roots and rocks
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

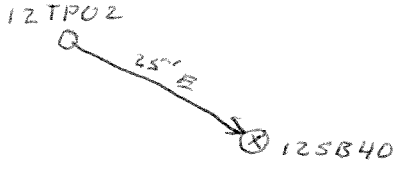
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB41-00015-01
Sample Location: 12FP02-S
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 1/4/12			
Time: 1150	00-015'	Brown	Clayey Silt trace roots + Rocks
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	2	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125342-0502-02
Sample Location: 12TP03-02 N
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1225	0.5-2'	Red Brown	clayey Silt trace roots and rock fragments
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

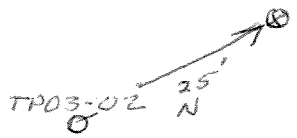
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH/ Sim	4 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB43-0.5-2-02
Sample Location: 12SB0302-E
Sampled By:
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1250	0.5-2'	Brown	Fine grained sandy Silt and rock fragments
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

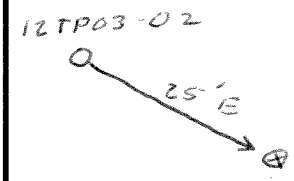
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH/ Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB44-0.5-02-02
Sample Location: 12TP03-02 S
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/4/12	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1305	0.5 - 2	Brown	clayey silt trace roots and rock fragments
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

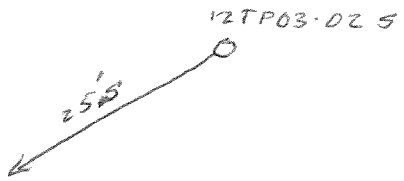
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH/ Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B45-0602-02
Sample Location: 125POS-E
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1505	0.5-2.0	Brown	Sandy Silt to Silty Clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
Cadmium Copper	4oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 1400
125B-DUP03-122911

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B46-0.5-2-02
Sample Location: 12SB05-W
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	0.5-2.0	Brown Black	Sandy silt some cinder material trace clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
Cadmium / Copper	4oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB47-0.5-02-02
Sample Location: 12TP05-N
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	0.5-2.0	Lt Brown	Fine grained sandy silt to silty clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
Cadmium, Copper	4oz Glass Jar	1	

OBSERVATIONS / NOTES:

0.0 0.5 = Brown Sandy Silt roots

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB48-0.5021-22
Sample Location: 12TP08-NE
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1400	0.5-2.0	Lt Brown	Sandy Silt to Silty Clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH Sim	8oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 1300
12SBDUP02-122911

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB49-0.5-2.0-02
Sample Location: 12TP11-S
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1120	0.5-2.0	Lt Brown	Silty clay to clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH Sim	8oz Glass Jar	2	
Lead only	4oz Glass Jar	2	

OBSERVATIONS / NOTES:

0.0-0.5 = Lt Brown Silty clay & silt trace Sand
0.5-1.5 Lt Brown Silty Clay
1.5-2.0 Lt Brown Clay

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB50-0102-02
Sample Location: 12TP11-SW
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/20/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1255	0.5-2.0	Lt Brown	Clayey Silt trace sand to Silty Clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH Sim	802	1	
Lead only	402	1	

OBSERVATIONS / NOTES:

0.0 0.5 DK Brown clayey silt roots trace fine sand
0.5-1.5 Lt Brown clayey silt
1.5-2.0 Lt Brown Silty Clay

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB51-0.5-2-02
Sample Location: 12TP12-S
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1130	0.5-2'	Light Brown Brown	Silty Fine to medium grained Sand some Gravel
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Sampler		
TCL SVOC/ PAH Sim	8 oz Glass Jar		
Pest/PCB	8 oz Glass Jar		
Metals, Cn, Hg, pH	4 oz Glass Jar		
ORP	4 oz Glass jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass jar		
Chromium (VI)	4 oz Glass jar		
PAH/Sim	8oz Glass Jar	1	
Lead Only	4oz Glass Jar	1	

OBSERVATIONS / NOTES:

0-0.5' Brown sandy Silt roots trace coarse sand
0.5-2' Light Brown Silty Fine to medium grained sand some gravel

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB52-0502-02
Sample Location: 12TP12-SW
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1145	0.5-2'	Brown To Light Brown	Sandy gravel to silty fine grained sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

0-0.5 Black cinder like material
0.5-1.5 Light Brown sandy gravel ash waste material
1.5-2 Light Brown silty fine grained sand

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB53-0.5-02-02
Sample Location: 12TP12-NE
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 12/29/11			
Time: 1205	0.5-2.0	Brown Red Brown	Silty sand with gravel ash glass metal
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH Sim	8 oz Glass Jar	1	
Lead only	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB54-0.5-02-02
Sample Location: 12SB13-E
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1030	0.5-2'	Brown Black	Clayey Silt to coarse Ash like material and Gravel
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB55-0.5-02-02
Sample Location: 12TP13-W
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1045	0.5 - 2'	Light Brown	clayey Silt Dry Ash + Cinders
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B56-0502-02
Sample Location: 125B13-N
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1035	0.5-2	Light Brown	clayey silt trace sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH Sim	8 oz Glass Jar	1	
Lead Only	4 oz Glass Jar		

OBSERVATIONS / NOTES:

00-0.5 - Dark Brown clayey silt
0.5-1.0 = Black gravely ash
1.0-2.0 = Light Brown clayey silt trace sand

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B57-000.5-01
Sample Location: 12TP15-SW
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	00-0.5	Dark Brown	Fine grained sandy silt roots rocks
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH Sim	8 oz Glass Jar	2	
Pest	8 oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 1200
125B-DUP01-122911

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B53-00015-01
Sample Location: 12TP15-W
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1335	00-015	Brown	silty clay roots trace fine sand rock frag
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH SIM	8oz Glass Jar	1	
Pest	8oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB59-0005-02
Sample Location: 12TP15-N
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	00-0.5	Brown	Silty Clay asphalt rocks gravel roots
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		
PAH SIM	8	1	
Pest	8	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP01-000.5-01
Sample Location: 12TP01
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10 / Time: 1300 / Method: Disp. trowel / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0 - 0.5'	Brown	SILT, trace of clay, Moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP01-0.5-2-02
Sample Location: 12TP01
Sampled By: D.Urbaitis
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	0.5'-2'	Brown	clayey SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): D. Urbaitis

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP02-000.5-01
Sample Location: 12TP02
Sampled By: D.Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10 / Time: 1510 / Method: disposable trowel / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-0.5'	Brown	Clayey SILT, moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP02-0.5-02-0
Sample Location: 12TP02
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10 / Time: 1525 / Method: disposable towel / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0.5'-2'	Brown	clayey SILT, moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP03-000.5-01
Sample Location: 12TP03
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0840	0 - 0.5	Brown	clayey SILT, some plant roots, moist
Method: disposable trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dold Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other: _____
[] QA Sample Type: _____

Sample ID No.: 12TP03-0.5-02-02
Sample Location: 12TP03
Sampled By: D. Whalen
C.O.C. No.: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10 / Time: 0850 / Method: disposable trowel / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0.5'-2'	Brown	sandy SILT, some F Gravel, Moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12TP-DUP-01

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP04-000.5-01
Sample Location: 12TP04
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1445	0 - 0.5	Brown	clayey SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP04-0.5-02-02
Sample Location: 12TP04
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1455	0.5'-02'	Brown	clayey SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP05-000.5-01
Sample Location: 12TP05
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1000	0 – 0.5	Brown	clayey SILT, some plant roots, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP05-0.5-02-02
Sample Location: 12TP05
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1010	0.5'-2'	Brown	clayey SILT, moist some rusty metal fragments
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12TP-DUP-02

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP06-0005-01
Sample Location: 12TP06
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10 / Time: 1425 / Method: disp. trowel / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0 - 0.5	Dark Brown	SILT, moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP06-0.5-02-02
Sample Location: 12TP06
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10 / Time: 1440 / Method: disp. trowel / Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0.5-2'	Brown	silty SAND and clayey SILT moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP07-000.5-01
Sample Location: 12TP07
Sampled By: D.Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1010	0'-0.5'	Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings			NA	
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP07-0.5-02-02
Sample Location: 12TP07
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1335	0.5'-02'	Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP08-000.5-01
Sample Location: 12TP08
Sampled By: Dewhalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1325	0-0.5'	Brown	sandy SILT, moist some glass fragments
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Dale Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP08-0.5-2-02
Sample Location: 12TP08
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1335	0.5'-2'	Brown to Dk. Brown	clayey SILT and silty SAND, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP09-000.5-01
Sample Location: 12TP09
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0910	0-0.5	Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP09-0.5-2-02
Sample Location: 12TP09
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0915	0.5'-2'	Brown	clayey SILT, some SAND, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP10-000.5-01
Sample Location: 12TP10
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1145	0 - 0.5'	Light Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP10-0.5-02-02
Sample Location: 12TP10
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1150	0.5'-2'	Light Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP11-0005-01
Sample Location: 12TP11
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1040	0-6"	Dark Brown	Sandy SILT, moist
Method: Disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP11-0.5o2-02
Sample Location: 12TP11
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1050	0.5'-2'	Dark Brown	clayey sandy SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

D. Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP12-000.5-01
Sample Location: 12TP12
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1240	0 - 0.5'	Dark Brown	clayey SILT, some sand, moist
Method: Disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP12-0.5-2-02
Sample Location: 12TP12
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1250	0.5'-2'	Brown	sandy to clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

Sample collected from within area of scrap metal.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP13-000.5-01
Sample Location: 12TP13
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1455	0 - 0.5'	Brown	clayey SILT, moist
Method: Disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N/A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP13-0.5-2-02
Sample Location: 12TP13
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1505	0.5'-2'	Brown and Black	clayey SILT, some cinders moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP14-000.5-01
Sample Location: 12TP14
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0910	0 - 0.5'	Brown	sandy SILT/silty SAND moist
Method: Disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald W Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP14-0.5 02-02
Sample Location: 12TP12
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0920	0.5'-2'	Brown, Lt. Brown, Black	silty SAND, sandy SILT, some cinders; moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP15-0005-01
Sample Location: 12TP15
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1315	0-0.5'	Brown	sandy SILT, Moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

Sample ID No.: 12TP15-0.5'-2'
Sample Location: 12TP15
Sampled By: D. Whalen
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	0.5'-2'	BRN and Dark GRAY-BRN	clayey SILT and silty SAND, MOIST
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald W Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP16-000.5-01
Sample Location: 12TP16
Sampled By: CM/XC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 9:15	0 - 0.5'	Brown	Sandy silt with trace of fine gravel, moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N/A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

KS Chen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP16-0.5-2-02
Sample Location: 12TP16
Sampled By: CM / XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 9:35	0.5' - 2'	Brown	Sandy Silt, moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Chen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP17-010015-01
Sample Location: 12TP17
Sampled By: CM/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/20/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	0-0.5'	Brown	Sandy silt roots some Rocks moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	9	
TCL SVOC/PAH Sim	8 oz Glass Jar	2	
Pest/ PCB	8 oz Glass Jar	2	
Metals, Hg , Cn, pH	8 oz Glass Jar	2	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

No signs of waste observed until southwest corner of pit bucket was found

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other: _____
[] QA Sample Type: _____

Sample ID No.: 12TP17-0502
Sample Location: 12TP17
Sampled By: XC/CM
C.O.C. No.: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/20/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1020	0.5-2.0'	Red Brown	Sandy Silt Moist trace clay Roots Rock Frag
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar	N/A	
Total Chromium	4 oz Glass Jar	N/A	
Chromium (VI)	4 oz Glass Jar	N/A	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B06-0304-03
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1420	3-4	Lt Brown	Silty medium to coarse grained sand trace Rock Frag
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

2-3 = Lt Brown clayey silt trace sand
3-4 = Lt Brown silty medium to coarse grained sand trace Rock Frag

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B07-0304-03
Sample Location: 125B07
Sampled By:
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1010	3-4'	Brown Gray	Silty clay with gray Brown mottles
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Sampler	3	
TCL SVOC/ PAH Sim	8 oz Glass Jar	1	
Pest/PCB	8 oz Glass Jar	1	
Metals, Cn, Hg, pH	4 oz Glass Jar	1	
ORP	4 oz Glass jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass jar		
Chromium (VI)	4 oz Glass jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 129B08-0304-03
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1110	3-4	Brown Gray	Silty Clay trace Sand + Rock Fragments
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

Red brown clayey silt
Brown Gray Silty Clay trace Sand Rock Frag

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB09-0304-03
Sample Location: 12SB09
Sampled By: DW/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1200	3'-4'	BROWN / RED BROWN	SILT MOIST
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB10-0304-03
Sample Location: 12SB10
Sampled By: DW/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	3-4'	RED-BROWN	SILT, tr. clay some siltstone fragments MOIST
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Washburn

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB12-0304-03
Sample Location: 12SB12
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1015	3'-4'	Red Brown	Sandy SILT, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B12-0304-03
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/28/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1235	3-4'	Brown Black	silty clay trace gravel gravel to coarse grained sandy ash
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB13-0304-03
Sample Location: 12SB13
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 12/16/11	3'-4'	BRN to gray BRN	sandy silt/silty sand moist
Time: 0920			
Method: disposable trowels			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB14-0304-03
Sample Location: 12SB14
Sampled By: DW/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 12/15/11			
Time: 1610			
Method: disposable trowel	3 - 4	10. BRN	Sandy silt and SILT, some CLAY moist
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

NA

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Kuhn

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB15-0304-03
Sample Location: 12SB15
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1505	3'-4'	Lt. Brown	SILT, moist tr. clay
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				NA

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB16-0304-03
Sample Location: 12SB16
Sampled By: DW/YC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0900	3'-4'	lt. Brown	fr. to SILT, some CLAY
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

~~Duplicate ID No.:~~ 12SB-DUP-02

Signature(s):

Donald W Lake

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B17-0304-03
Sample Location: 125B17
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/29/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1555	3-4	Brown	Silty Clay trace Sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB18-0304-03
Sample Location: 12SB18
Sampled By: DW/KC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	3-4'	BRN - red BRN	clayey to sandy SILT moist
Method: disposable bowl			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				NA

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB19-0.5'02-0D
Sample Location: 12SB19
Sampled By: DW/XC
C.O.C. No.:

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1420	0.5' - 2'	BROWN	SANDY SILT to clayey silt moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125BZ0-0304-03
Sample Location: 125BZ0
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1550			
Method: Disposable Trowel	3-4	Brown	silty clay ash metal rocks debris
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	6	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	2	

OBSERVATIONS / NOTES:

Ash Fill material encountered at 4 feet along with water water encountered at 4 feet

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 125B-DUP-06
1200 Assigned time

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B21-0304-03
Sample Location: 125B21
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	3-4'	Light Brown	Silty sand trace clay rock Fragments
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB22-0304-03
Sample Location: 12SB22
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/14/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1150	Lt. BRN - red BRN 3-4'	~~clayey silt~~	clayey silt, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald W Kahn

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 125B23-0204-03
Sample Location: 125B23
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1335	2-4	Lt brown Red brown	Silty clay trace sand + rock frag
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SB24-0304-02
Sample Location: 12SB24
Sampled By: DW/KC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/4/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1025	3-4'	Brown to Red Gray	sandy silt and clayey silt and f. sand moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB25-0304-03
Sample Location: 12SB25
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1420	3'-4'	Lt. Brn to Gray BRN	Silty sand and SILT, some clay wet
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings			NA	
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB26-0304-01
Sample Location: 12SB26
Sampled By: DWIXC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1245	3'-4'	Lt. Brown	SILT fr. to some CLAY, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar	✓	
ORP	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD
Cr(VI) only

Duplicate ID No.:

Signature(s):

Dadd Whelan

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB0304-03
Sample Location: 12SB28
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1530	3'-4'	Lt. BRN	Sandy silt, tr. clay moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dawn Wheeler

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SB29-0304-03
Sample Location: 12SB29
Sampled By: DW/KC
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/16/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1055	3'-4'	LT. BROWN	SILT tr. clay moist
Method: disposable towel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 5g Encore	✓	
TCL SVOCs, PAH SIM	1 x 8 oz. jar	✓	
Pest/PCBs	1 x 8 oz. jar	✓	
TAL metals, mercury, CN, pH	1 x 8 oz. jar	✓	
hexavalent chromium	1 x 4 oz. jar		
ORP	1 x 4 oz. jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Whale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12SB30-0304-03
Sample Location: Site 12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/22/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1150	3-4'	Lt Brown	Sandy Silt trace Fine Sand
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12
Project No.: 02014

Sample ID No.: 12TP01-0506-03
Sample Location: 12TP01
Sampled By: D. Whalen
C.O.C. No.:

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1250	5'-6'	Brown	Sandy SILT
Method: disposable trowel			
Monitor Reading (ppm): 6.2			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N/A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP01-0708-04
Sample Location: 12TP01
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	7'-8'	Brown	silty SAND, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP02-0405-03
Sample Location: 12TP02
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	4'-5'	Black	silty SAND some glass and metal fragments, septic odor
Method: Disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	
Dioxin	1x 4 oz jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): D. Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP02-0910-04
Sample Location: 12TP02
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-4-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1645	9-10	Brown	silty SAND some sandstone fragments, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP03-0607-03
Sample Location: 12TP03
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1000	6'-7'	Brownish-Gray	SILT, moist
Method: disposable trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP03-0506-04
Sample Location: 12TP03
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10 / Time: 1030 / Method: disposable trowel / Monitor Reading (ppm):	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	5'-6'	Dark Brown-Gray	silty SAND, moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	
Dioxin	4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP03-0809-05
Sample Location: 12TP03
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1100	8'-9'	Brown	silty SAND, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP04-0405-03
Sample Location: 12TP04
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10 / Time: 1335 / Method: disposable trowel / Monitor Reading (ppm): 86	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	4'-5'	Brown	clayey SILT, moist, Fuel odor

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP04-0607-04
Sample Location: 12TP04
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-5-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	6'-7'	Brown	clayey SILT, some sand, moist
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP05-0204-03
Sample Location: 12TP05
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1100	2'-4'	light Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP05-0910-04
Sample Location: 12TP05
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1120	9'-10'	red-Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP06-0506-03
Sample Location: 12TP06
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1415	5'-6'	Dark Gray to Black	clayey SILT, some charred wood and glass fragments, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	
Dioxin	4 oz Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12TP-DUP-04 (Dioxin only)

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP06-0910-04
Sample Location: 12TP06
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-6-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1500	9'-10'	Red-Brown	SILT, trace clay, moist
Method: disp. trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald W Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP07-0607-03
Sample Location: 12TP07
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1045	6'-7'	Brown	sandy SILT, some sandstone fragments, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP08-0304-03
Sample Location: 12TP08
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-7-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1315	3'-4'	Dark Gray to Black	Silty SAND, some charred glass and metal fragments, Moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	
Dioxin	1x 4oz Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP09-0304-03
Sample Location: 12TP09
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0930	3'-4'	Gray, Black, Brown, Rust	Silty SAND and Fine gravel, glass, metal, wood fragments; Moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP09-0506-04
Sample Location: 12TP09
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0955	5'-6'	Red-Brown	clayey SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP09-0506-05
Sample Location: 12TP09
Sampled By: Durhalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 1-8-10	5'-6'	Black	Silty SAND and cinders, charred debris, metal fragments paper ; MOIST
Time: 1020			
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial		
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar		
TAL metals, CN	1 x 4 oz. jar		
Dioxin	1x4oz Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Durhalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP10-0405-03
Sample Location: 12TP10
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1225	4'-5'	Brown	sandy clayey SILT, moist some glass, metal fragments
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP10-0809-04
Sample Location: 12TP10
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-8-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1325	8'-9'	Red-Brown	silty SAND, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP11-0304-03
Sample Location: 12TP11
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1125	3'-4'	Lt. Brown/ Dark Gray	clayey sandy SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

D. Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP11-0506-04
Sample Location: 12TP11
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1150	5'-6'	Light Brown	sandy SILT, some rock fragments, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP12-0203-03
Sample Location: 12TP12
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1300	2'-3'	Dark Brown to Dark Gray	Sandy SILT, some F Gravel some charred debris; glass, china metal fragments; moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP12-0506-04
Sample Location: 12TP12
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1320	5'-6'	Brown	sandy SILT, some sandstone fragments, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Dodd Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP13-0506-03
Sample Location: 12TP13
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1440	5'-6'	Brownish Gray	silty CLAY, moist, stale organic odor
Method: disp. trowel			
Monitor Reading (ppm): 1.3			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP13-0809-04
Sample Location: 12TP13
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-11-10 / Time: 1520 / Method: disp. trowel / Monitor Reading (ppm): 0.5	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	8'-9'	Dark Reddish Brown	Silty CLAY, moist

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12TP14-0405-03
Sample Location: 12TP14
Sampled By: Dinwalen
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0940	4'-5'	Brown + orange Brown	clayey SILT and silty SAND; moist to wet
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dodd Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP14-0607-04
Sample Location: 12TP14
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	6'-7'	Red-Brown	sandy SILT, moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

[ ] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP15-0304-03
Sample Location: 12TP15
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1415	3'-4'	Dk Gray and Rusty BRN	Silty SAND, some F. GRAVEL, glass fragments, metal fragments Moist
Method: disp. trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald W Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

[ ] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP15-0405-04
Sample Location: 12TP15
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-12-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1435	4'-5'	Lt. Brown	clayey SILT, moist
Method:			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			N/A	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	
SVOC/Pest/PCB	1 x 8 oz. jar	✓	
Metals/CN	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dold Whalen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP16-0608-03
Sample Location: 12TP16
Sampled By: CM / XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 10:20	6'-8'	Dark Gray to Black	Silty Sand with Charred debris, metal fragment and some glass. moist, Fuel odor
Method: Disposable Trowel			
Monitor Reading (ppm): 2.1			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	6	
TCL SVOC/PAH Sim	8 oz Glass Jar	2	
Pest/ PCB	8 oz Glass Jar	2	
Metals, Hg , Cn, pH	8 oz Glass Jar	2	
ORP	4 oz Glass Jar	2	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	2	
Dioxin/Furans	8 OZ Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12TP-DUP-01 Assigned

Signature(s):

Chen

Time: 12:00

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP16-0910-04
Sample Location: 12TP16
Sampled By: CM/KC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011 Time: 12:10 Method: Disposable Trowel Monitor Reading (ppm): 0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	9'-10'	Brow	Sandy Silt

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP18-050601
Sample Location: 12TP18
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/20/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1250	5-6'	Gray Black	Ash coarse grained cons wire cerhangles with trace sandy silt
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP18-0607-02
Sample Location: 12TP18
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/20/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1430	6-7'	Lt Yellow	Silty clay with some gray mottles
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers	3	
TCL SVOC/PAH Sim	8 oz Glass Jar	1	
Pest/ PCB	8 oz Glass Jar	1	
Metals, Hg , Cn, pH	8 oz Glass Jar	1	
ORP	4 oz Glass Jar	1	
ORP/pH	4 oz Glass Jar		
Total Chromium	4 oz Glass Jar		
Chromium (VI)	4 oz Glass Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP02-0405-CS
Sample Location: 12TP02
Sampled By: CM/XC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 14:05	4'-5'	Black	Silty Sand, some glass, and metal fragment
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	2	
Chromium (VI)	4 oz Glass Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12TP-DUP-02
Assigned Time: 12:00

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12TP03-0506-CS
Sample Location: 12TP03
Sampled By: CM/XC
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 14:25	5'-6'	Dark Gray to Black	Silty Sand, moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Chen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP14-0405-CS
Sample Location: 12TP14
Sampled By: CM/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 15:15	4'-5'	Light Brown	Sandy silt with trace of ash. moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Chen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP09-0304-CS
Sample Location: 12TP09
Sampled By: CM/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 15:50	3'-4'	Gray to Black	Silty Sand and fine gravel with some glass metal fragments. moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Liz Chen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP15-0304-CS
Sample Location: 12TP15
Sampled By: CM/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 15:35	3'-4'	Dark Gray to Black	Silty Sand, Some Fine gravel glass. metal fragments. moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP10-0405-CS
Sample Location: 12TP10
Sampled By: CM / XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 16:10	4'-5'	Gray to Black	Sandy Silt, trace of clay Some glass, metal fragments, moist
Method: Disposable Trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP08-0304-CS
Sample Location: 12TP08
Sampled By: CM/XC
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/19/2011	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 16:35	3'-4'	Dark Gray to Black	Silty Sand, some charred glass and metal fragments moist.
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
			NA	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

Sample ID No.: 12TP12-0203-CS
Sample Location: 12TP12
Sampled By:
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 12/20/11	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	02-03'	Gray to Black	Coarse grained ash cinder some clayey silt
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC	5 gram Encore Samplers		
TCL SVOC/PAH Sim	8 oz Glass Jar		
Pest/ PCB	8 oz Glass Jar		
Metals, Hg , Cn, pH	8 oz Glass Jar		
ORP	4 oz Glass Jar		
ORP/pH	4 oz Glass Jar	1	
Total Chromium	4 oz Glass Jar	1	
Chromium (VI)	4 oz Glass Jar	1	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

Sample ID No.: 12SW01
Sample Location: 12SW01
Sampled By: D. Whalen
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-14-10 / Time: 1530 / Depth: 6" / Method: direct fill	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	~~Other~~ ORP NA
	CLEAR	6.30	0.362	9.47	0.52	11.34	0	63

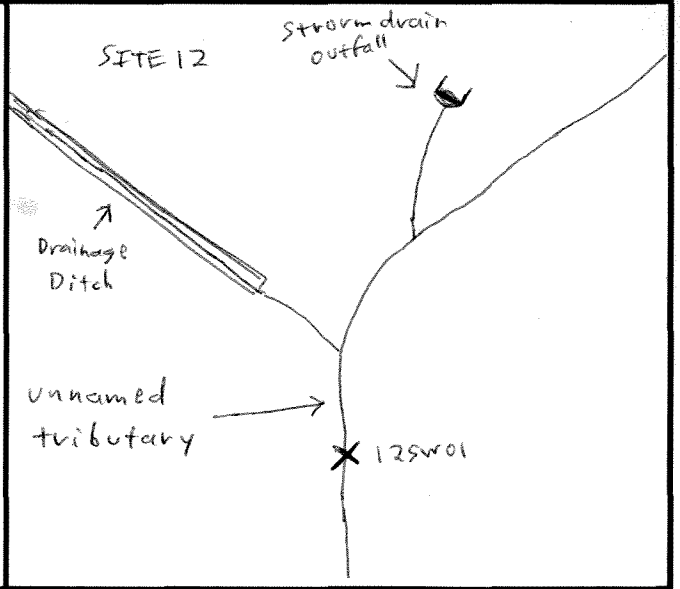
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	✓
SVOC, PAH SIM	4° C	4 x 1L amber	✓
PEST/PCB	4° C	2 x 1L amber	✓
TAL Metals	HNO3	500 ml poly	✓
CN	NaOH	250 ml poly	✓

OBSERVATIONS / NOTES:

Water was clear, cold, no odor.
Stream was app. 6' wide, 9" deep in center.

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Donald Whalen

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

Sample ID No.: 12SW02
Sample Location:
Sampled By: D. Whalen
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-18-10 / Time: 1440 / Depth: 3" / Method: direct fill	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	~~Other~~ ORP NA
	clear	5.92	0.455	6.87	3.39	12.06	—	82

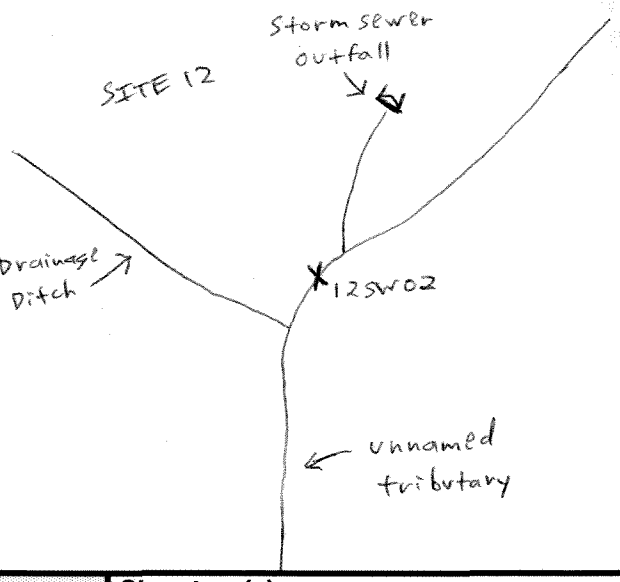
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	✓
SVOC, PAH SIM	4° C	4 x 1L amber	✓
PEST/PCB	4° C	2 x 1L amber	✓
TAL Metals	HNO3	500 ml poly	✓
CN	NaOH	250 ml poly	✓

OBSERVATIONS / NOTES:

Water was clear, cold, no odor. Stream was approximately 4' wide and 5" deep.

MAP:



Circle if Applicable:

MS/MSD | Duplicate ID No.: 12SW-DUP-01

Signature(s):

Dadd Whalen

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

Sample ID No.: 12SW03
Sample Location: 12SW03
Sampled By: D. Whalen
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-20-10 / Time: 1140 / Depth: 3" / Method: direct fill	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	~~Other~~ ORP NA
	clear	6.49	0.366	9.99	0.74	10.31	—	24

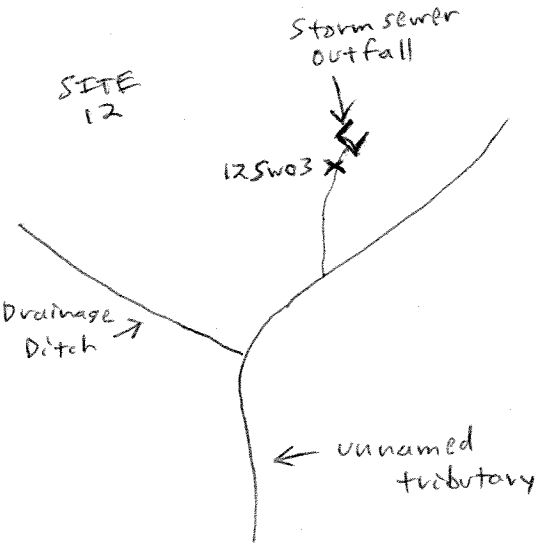
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	✓
SVOC, PAH SIM	4° C	4 x 1L amber	✓
PEST/PCB	4° C	2 x 1L amber	✓
TAL Metals	HNO3	500 ml poly	✓
CN	NaOH	250 ml poly	✓

OBSERVATIONS / NOTES:

Sample collected at storm sewer outfall.
Water was clear, cold, no odor.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

Sample ID No.: 12SW04
Sample Location:
Sampled By: D. Whalen
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1-20-10 / Time: 1250 / Depth: 3" / Method: direct fill	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	~~Other~~ NA ORP
	clear	6.53	0.316	4.60	2.25	10.12	—	192

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	✓
SVOC, PAH SIM	4° C	4 x 1L amber	✓
PEST/PCB	4° C	2 x 1L amber	✓
TAL Metals	HNO3	500 ml poly	✓
CN	NaOH	250 ml poly	✓

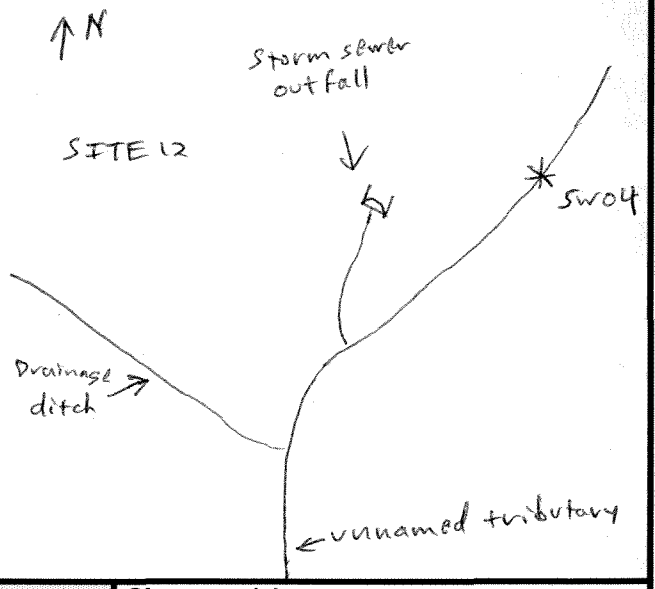
OBSERVATIONS / NOTES:

Sample collected from unnamed tributary ~ 100' upstream from confluence with storm water outfall.

Water was clear, cold, no odor.

The stream was app. 4' wide, 6" deep, very slow moving.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

D. Whalen

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

Sample ID No.: 125W05
Sample Location: SW05
Sampled By: D. Wahlb, C. Meyer
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1/21/10	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
Time: 1020								
Depth: N/A								
Method: Direct Fill	Clear	6.05	0.359	4.86	1.77	5.41	0.10	214

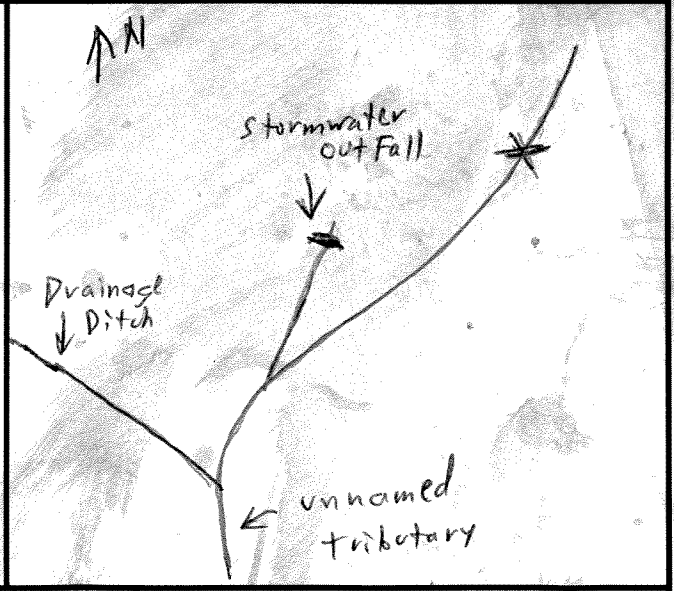
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	3
SVOC, PAH SIM	4° C	4 x 1L amber	4
PEST/PCB	4° C	2 x 1L amber	2
TAL Metals	HNO3	500 ml poly	1
CN	NaOH	250 ml poly	1

OBSERVATIONS / NOTES:

The sample was collected from an area of ponded water below (downstream) of the drainage swale coming from the site

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Dwahlb

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

Sample ID No.: 12SW07
Sample Location: SW07
Sampled By: P. Whalen, C. Meyer
C.O.C. No.:

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 11/21/10 Time: 1335 Depth: N/A Method: Direct Fill	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
	Brown	6.54	0.243	2.86	>2000	2.80	0.0	-15

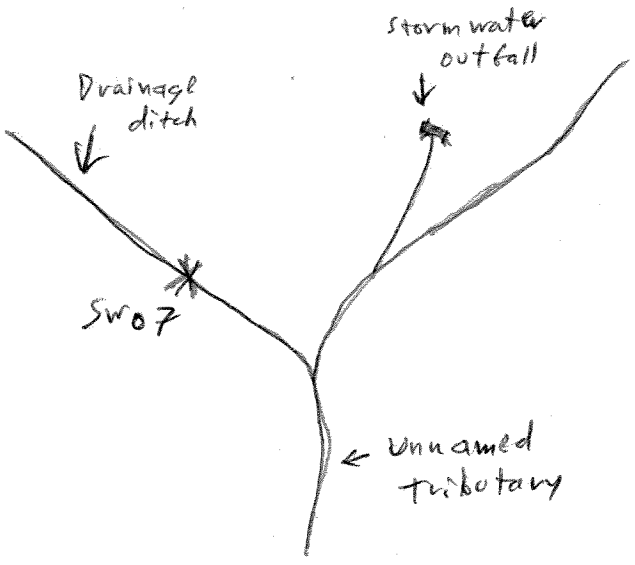
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	3
SVOC, PAH SIM	4° C	4 x 1L amber	4
PEST/PCB	4° C	2 x 1L amber	2
TAL Metals	HNO3	500 ml poly	1
CN	NaOH	250 ml poly	1
Dissolved metals	HNO3	500 ml poly	3

OBSERVATIONS / NOTES:

Dissolved metals sample collected due to elevated turbidity.

MAP:



Circle if Applicable:

MS/MSD 12SW07-F

Duplicate ID No.:

Signature(s):

David Whalen

Tetra Tech NUS, Inc.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Site 12 RI
Project No.: 02014

[X] Stream
[] Spring
[] Pond
[] Lake
[] Other: _____
[] QA Sample Type: _____

Sample ID No.: 12SW08
Sample Location: SW08
Sampled By: D. Wahla, C. Mayer
C.O.C. No.: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 11/21/10 Time: 1145 Depth: N/A Method: Direct Fill	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other ORP ~~NA~~
	Brown Tint	6.75	0.107	2.54	27	9.13	0.0	268

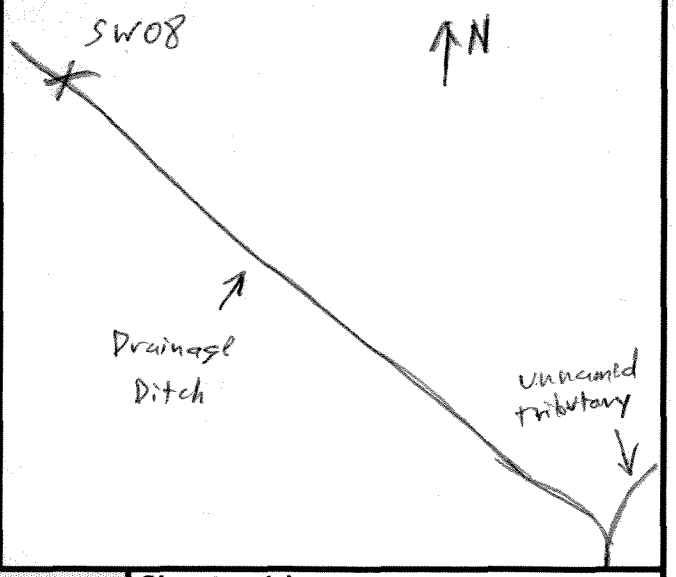
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 ml	3
SVOC, PAH SIM	4° C	4 x 1L amber	4
PEST/PCB	4° C	2 x 1L amber	2
TAL Metals	HNO3	500 ml poly	1
CN	NaOH	250 ml poly	1
Dissolved metals	HNO3	500ml Poly	1

OBSERVATIONS / NOTES:

The sample was collected from ponded water 100 ft upstream of the antenna Field south fence line The water had a brown Tint and filtered samples were taken for metals analysis

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: 12SW08-F ~~DUP~~ = 12SW-F-DUP-01

Signature(s):

D. Wahla

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SD01
Sample Location: 12SD01
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-14-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1615	0-6"	Brown	Fine SAND, tr. SILT; SATURATED
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN, TOC	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

CO-located with 12SW01.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 125D02
Sample Location: 125D02
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-15-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1430			
Method: disposable trowel	0-6"	Brown	F-C SAND, some SILT; saturated.
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN, TOC	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

Co-located with 125W02

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 12SD03
Sample Location: 12SD03
Sampled By: D. Whalen
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-20-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1140	0-6"	Brown	F-C SAND, tr. SILT; SATURATED
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN, TOC	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

Co-located with 12SW03

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 12SD-DUP-01

Signature(s):

Donald Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SD04
Sample Location: 12SD04
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-20-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	0-6"	Brown	F-M SAND, some SILT; SATURATED
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN, TOC	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

co-located with 12SW04

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 12
Project No.: 02014

Sample ID No.: 12SD05
Sample Location: SD05
Sampled By: D. Whalen, C. Meyer
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/21/10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1040	0-6"	Brown to Gray	Silty sand and rock frag to a gray clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	3	
SVOC/Pest/PCB	1 x 8 oz. jar	1	
Metals/CN/TOC	1 x 4 oz. jar	1	

OBSERVATIONS / NOTES:

The sediment went From a Brown silty sand with rock fragments to a gray clay from 0-0.1 feet Stayed a gray clay to 0.4 feet went back to brown silty sand with rock Fragments

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12 RI
Project No.: 02014

Sample ID No.: 12SD06
Sample Location: 12SD06
Sampled By: D. Whalen
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1-20-10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1440	0-6"	Brown	Clayey SILT, wet
Method: disposable trowel			
Monitor Reading (ppm): 0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

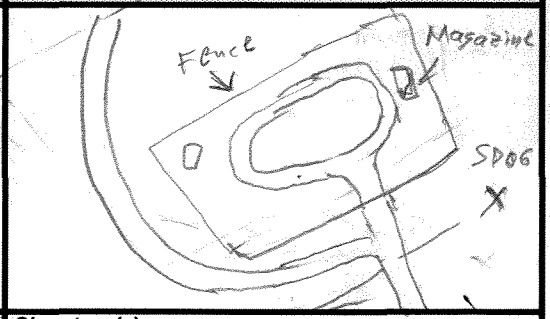
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 x 40 ml vial	✓	
TCL SVOCs, PAH SIM, PEST/PCBs	1 x 8 oz. jar	✓	
TAL metals, CN, TOC	1 x 4 oz. jar	✓	

OBSERVATIONS / NOTES:

Drainage channel was dry.
No surface water sample collected.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

Sample ID No.: 125007
Sample Location: SD07
Sampled By: D. Whalen, C. Meyer
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/21/10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1300	0-6"	Brown	silty sand with roots and rocks some clay
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N/A	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	9
SVOC/Pest/PCB	1 x 8 oz. jar	✓	2
Metals/CN/TOC	1 x 4 oz. jar	✓	2

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

(MS/MSD)

Duplicate ID No.:

Signature(s):

Dale Whalen

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 12
Project No.: 02014

Sample ID No.: 12SD05
Sample Location: SD05
Sampled By: D. Whalen, C. Mayle
C.O.C. No.:

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 1/21/10	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1230	0-6"	Dark Brown	Silty sand with roots and rocks some clay
Method: Disposable Trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			NA	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	3 x 5 g Encore	✓	3
SVOC/Pest/PCB	1 x 8 oz. jar	✓	1
Metals/CN/TOC	1 x 4 oz. jar	✓	1

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Dabl Whalen

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW01S
Sample Location: 02MW01S
Sampled By: DW/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5/13/09	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1340	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: Redi Flo 2 Pump	Clear	6.27	0.295	11.7	0.0	10.68	220	—

PURGE DATA:

Date: 5-13-09	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	~~Other~~ WL
Method: Redi Flo 2 pump	0	6.45	0.300	11.7	0.04	18.62	240	9.61'
Monitor Reading (ppm): 0	4 gal	5.81	0.296	11.7	0.0	13.21	251	9.61'
Well Casing Diameter & Material	8	5.80	0.296	11.6	0.0	12.29	248	9.62'
Type: 4" PVC	12	5.79	0.295	11.6	0.0	11.51	246	9.63'
Total Well Depth (TD): 22' TOC	16	5.85	0.296	11.6	0.0	11.15	242	9.63'
Static Water Level (WL): 9.58	20	6.03	0.295	11.6	0.0	10.91	231	9.63'
One Casing Volume(gal/L): 8.1	24	6.20	0.295	11.6	0.0	10.77	223	9.63'
Start Purge (hrs): 1255	28	6.23	0.295	11.7	0.0	10.72	221	9.63'
End Purge (hrs): 1335	32	6.27	0.295	11.7	0.0	10.68	220	9.63'
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 32								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	✓
TCL SVOC	none	2 x 1L	✓
PAHs SIM	none	2 x 1L	✓
Total Metals	HNO3	1L poly	✓
Diss. Metals	HNO3	1L poly	

OBSERVATIONS / NOTES:

Vertical pump placement: 12' TOC

well screen: 5'-20' BGS

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Daniel Whalen

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW01I
Sample Location: 02MW01I
Sampled By: DW/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-13-09	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1520	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: Redi Flo 2 Pump	CLEAR	7.00	0.504	15.1	2.77	8.71	95	

PURGE DATA:

Date: 5/13/09	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Redi Flo 2 Pump								
Monitor Reading (ppm): 0	—	SEE	LOW	FLOW	PURGE	DATA	SHEET	—
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 1								
Static Water Level (WL): 27.92								
One Casing Volume(gal/L):								
Start Purge (hrs): 1407								
End Purge (hrs): 1515								
Total Purge Time (min): 68								
Total Vol. Purged (gal/L): 7								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	✓
TCL SVOC	none	2 x 1L	✓
PAHs SIM	none	2 x 1L	✓
Total Metals	HNO3	1L poly	✓
Diss. Metals	HNO3	1L poly	

OBSERVATIONS / NOTES:

Vertical pump placement: 76' bgs

Circle if Applicable:

MS/MSD

Duplicate ID No.: 02DUP01

Signature(s):

Donald Whaler

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove Site 2
PROJECT NUMBER: 02014

WELL ID.: 02MW01I
DATE: 5/13/09

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1407	27.92	400							START PURGE
1410	27.94	400	7.01	0.481	107	18.21	13.4	190	
1415	27.95	400	6.53	0.504	65.6	12.15	14.1	159	
1420	27.97	400	6.54	0.506	35.4	10.71	14.3	137	
1425	27.97	400	6.55	0.507	18.3	9.89	14.7	120	
1430	27.99	400	6.72	0.506	12.7	9.56	14.8	111	
1435	28.00	400	6.84	0.506	7.4	9.33	14.8	103	
1440	28.00	400	6.91	0.503	5.92	9.21	14.9	99	
1445	28.00	400	6.98	0.502	4.84	9.10	14.9	96	
1450	28.00	400	7.00	0.503	4.43	9.00	15.0	96	
1455	28.00	400	7.01	0.503	3.81	8.88	15.1	96	
1500	28.00	400	7.01	0.502	3.24	8.77	15.2	96	
1505	28.00	400	7.01	0.502	2.70	8.71	15.3	96	
1510	28.00	400	7.01	0.502	2.45	8.68	15.2	95	
1515	28.00	400	7.00	0.504	2.77	8.71	15.1	95	Finish Purge

SIGNATURE(S): Donald W. Haley

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW02S
Sample Location: 02MW02S
Sampled By: DW/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5/14/09	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 0955	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: Redi Flo 2 Pump	clear	5.69	0.117	10.9	0.0	12.81	267	

PURGE DATA:

Date: 5/14/09	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	~~Other~~ WL
Method: Redi Flo 2 Pump	0	5.09	0.227	11.9	2.86	12.62	282	
Monitor Reading (ppm): 0	5	5.44	0.119	11.1	0.75	14.61	279	9.9'
Well Casing Diameter & Material	11	5.52	0.115	11.0	0.59	14.42	280	
Type: 4" PVC	16	5.59	0.115	10.9	0.34	14.40	282	
Total Well Depth (TD): 27' toc	22	5.62	0.115	10.9	0.12	13.67	270	9.9'
Static Water Level (WL): 9.52'	28	5.69	0.115	10.6	0.0	12.60	265	
One Casing Volume(gal/L): 11.4	34	5.68	0.116	11.0	0.0	12.88	270	9.9'
Start Purge (hrs): 0915	39	5.69	0.117	10.9	0.0	12.81	267	
End Purge (hrs): 0955								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 40								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	✓
TCL SVOC	none	2 x 1L	✓
PAHs SIM	none	2 x 1L	✓
Total Metals	HNO3	1L poly	✓
Diss. Metals	HNO3	1L poly	

OBSERVATIONS / NOTES:

Vertical pump placement:

well screen 5-25' BGS
purge rate ~ 1 gpm
water was clear

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald J. Wheeler

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW03SI
Sample Location: 02MW03SI
Sampled By: DW/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Date: 5-14-09	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Time: 1130								
Method: Redi Flo 2	CLEAR	7.64	0.326	12.4	0.70	7.35	143	

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other	WL
Date: 5/14/09									
Method: Redi Flo 2	0	6.38	0.331	12.2	80.7	14.67	271	cloudy	10.0
Monitor Reading (ppm): 0	4	6.72	0.327	12.4	50.7	9.58	258	"	
Well Casing Diameter & Material	8	6.87	0.327	12.3	34.1	8.47	239		10.37
Type: 2" PVC	12	6.99	0.327	12.4	24.6	8.11	223		
Total Well Depth (TD): 57	16	7.23	0.327	12.3	13.0	7.89	200	clear	10.47
Static Water Level (WL): 10.00	20	7.51	0.327	12.4	2.76	7.56	166	"	
One Casing Volume(gal/L): 7.7	24	7.63	0.326	12.4	1.09	7.47	154	"	10.53
Start Purge (hrs): 1044	28	7.61	0.326	12.4	0.85	7.37	145	"	
End Purge (hrs): 1129	32	7.64	0.326	12.4	0.70	7.35	143	"	
Total Purge Time (min): 45									
Total Vol. Purged (gal/L): 32									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	9
TCL SVOC	none	2 x 1L	6
PAHs SIM	none	2 x 1L	6
Total Metals	HNO3	1L poly	3
Diss. Metals	HNO3	1L poly	—

OBSERVATIONS / NOTES:

Vertical pump placement: 40' BGS
Screen 40-55' BGS

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Donald W Lahm

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW03I
Sample Location: 02MW03I
Sampled By: DW/JI
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-14-09	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1325	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: Redi Flo 2	Clear	7.04	0.213	12.3	1.00	8.22	109	

PURGE DATA:

Date: 5-14-09	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Redi Flo 2 Pump								
Monitor Reading (ppm): 0			SEE	LOW	FLOW PURGE DATA SHEET			
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 150.6								
Static Water Level (WL): 17.30								
One Casing Volume(gal/L):								
Start Purge (hrs): 1217								
End Purge (hrs): 1320								
Total Purge Time (min): 63								
Total Vol. Purged (gal/L): 5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	✓
TCL SVOC	none	2 x 1L	✓
PAHs SIM	none	2 x 1L	✓
Total Metals	HNO3	1L poly	✓
Diss. Metals	HNO3	1L poly	—

OBSERVATIONS / NOTES:

Vertical pump placement: 145' bgs

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

David Wheldon

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove Site 2
PROJECT NUMBER: 02014

WELL ID.: 02MW03F
DATE: 5-14-09

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1217	17.32	300							START
1220	17.34	300	7.94	0.298	0.59	12.97	12.1	204	clear
1225	17.34	300	7.86	0.297	7.81	10.61	12.1	198	
1230	17.34	300	7.78	0.297	7.25	9.33	12.1	193	
1235	17.34	300	7.69	0.299	5.89	9.10	12.1	184	
1240	17.34	300	7.53	0.302	4.41	8.96	12.1	168	
1246	17.34	300	7.32	0.306	2.13	8.83	12.1	148	
1250	17.34	300	7.24	0.308	2.08	8.72	12.1	135	
1255	17.34	300	7.13	0.310	2.00	8.63	12.2	126	
1300	17.34	300	7.08	0.311	1.60	8.52	12.2	118	
1305	17.34	300	7.07	0.312	1.31	8.46	12.3	114	
1310	17.34	300	7.05	0.312	1.00	8.37	12.3	112	
1315	17.34	300	7.03	0.313	0.70	8.31	12.2	110	
1320	17.34	300	7.04	0.313	1.00	8.22	12.3	109	Finish

SIGNATURE(S): Donald W Kuba

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW04S
Sample Location: 02MW04S
Sampled By: DW/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-13-09	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1025	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: Redi-Flo2 Pump	clear	6.65	.356	14.4	1.5	8.21	148	

PURGE DATA:

Date: 5/13/09	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: RediFlo 2 Pump								
Monitor Reading (ppm): 0	—	SEE Low Flow PURGE DATA SHEET —						
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 46.3								
Static Water Level (WL): 27.10								
One ~~Casing~~ Screen Volume(gal/L): 1.63								
Start Purge (hrs): 0920								
End Purge (hrs): 1020								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 12								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	✓
TCL SVOC	none	2 x 1L	✓
PAHs SIM	none	2 x 1L	✓
Total Metals	HNO3	1L poly	✓
Diss. Metals	HNO3	1L poly	✓

OBSERVATIONS / NOTES:

Vertical pump placement: 34' bgs

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Wheaton

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove Site 2
PROJECT NUMBER: 02014

WELL ID.: 02 MW 04 S
DATE: 5-13-09

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0920	27.10	300							START PURGE
0925	27.14	300	5.91	0.271		11.66	15.0	212	clear
0930	27.14	350	6.01	0.275	5.29	10.28	15.7	191	
0935	27.14	350	6.46	0.344	6.78	9.30	16.6	147	
0940	27.13	350	6.50	0.343	6.25	8.91	17.0	145	
0945	27.15	600	6.49	0.354	5.75	9.12	15.7	147	
0950	27.19	750	6.48	0.361	5.31	9.36	14.4	152	
0955	27.19	750	6.47	0.361	4.58	8.83	14.5	153	
1000	27.19	750	6.53	0.360	1.79	8.61	14.6	150	
1005	27.19	750	6.62	0.358	0.83	8.50	14.5	147	
1010	27.19	750	6.63	0.357	0.76	8.43	14.3	148	
1015	27.19	750	6.64	0.357	0.0	8.29	14.3	148	
1020	27.19	750	6.65	0.356	1.5	8.21	14.4	148	complete Purge

SIGNATURE(S): David Mahler

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Willow Grove Site 2
Project No.: 02014

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW04I
Sample Location: 02MW04I
Sampled By: DW
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 5-13-09 / Time: 1215	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other NA
Method: Redi Flo 2 Pump	CLEAR	7.07	0.356	14.1	0.0	8.81	107	

PURGE DATA:

Date: 5-13-09	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Redi Flo 2 Pump								
Monitor Reading (ppm): 0	—	SEE	LOW	FLOW	PURGE	DATA	SHEET	—
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 117.4								
Static Water Level (WL): 32.80								
One Casing Volume(gal/L):								
Start Purge (hrs): 1105								
End Purge (hrs): 1210								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): 6								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOC	HCL	3 x 40 ml	✓
TCL SVOC	none	2 x 1L	✓
PAHs SIM	none	2 x 1L	✓
Total Metals	HNO3	1L poly	✓
Diss. Metals	HNO3	1L poly	✓

OBSERVATIONS / NOTES:

Vertical pump placement: 110' bgs

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Donald Whaley

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove Site 2
PROJECT NUMBER: 02014

WELL ID.: 02MW04I
DATE: 5-13-09

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1105	32.80	400							START PURGE
1110	32.85	400	6.54	0.358	1.43	14.89	13.3	226	clear
1115	32.84	400	6.47	0.358	0.11	10.84	13.7	167	
1120	32.84	400	6.50	0.358	1.60	10.01	13.9	143	
1125	32.84	400	6.50	0.359	1.98	9.73	13.9	136	
1130	32.84	400	6.56	0.355	1.20	9.54	14.1	130	
1135	32.84	400	6.75	0.358	1.66	9.39	14.0	117	
1140	32.84	400	6.91	0.358	0.96	9.36	13.9	108	
1145	32.84	400	6.97	0.356	0.91	9.25	14.0	105	
1150	32.84	400	7.03	0.356	0.69	9.20	14.1	104	
1155	32.84	400	7.06	0.356	0.38	9.09	14.1	106	
1200	32.84	400	7.06	0.357	0.15	9.08	14.0	107	
1205	32.84	400	7.05	0.357	0.11	8.96	14.1	108	
1210	32.84	400	7.07	0.356	0.0	8.81	14.1	107	Finish PURGE

SIGNATURE(S): Daniel Wheeler

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW01$
Sample Location: Site 2
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-8-12 / Time: 1040 / Method: submersible pump	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity %	ORP
	clear	6.20	0.301	11.24	0.0	3.82	0.1	213

PURGE DATA:

Date: 3-8-12 / Method: submersible pump / Monitor Reading (ppm): 0.6 / Well Casing Diameter & Material Type: 4" PVC / Total Well Depth (TD): 25' / Static Water Level (WL): 12.03 / One Casing Volume (gal/L): 8.46 / Start Purge (hrs): 0940 / End Purge (hrs): 1040 / Total Purge Time (min): 60 / Total Vol. Purged (gal/L): 26	Well Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
	start	6.34	0.301	10.92	10.3	11.78	0.1	205
	0.5	6.22	0.301	11.14	12.9	5.25	0.1	203
	1.0	6.23	0.302	11.19	3.4	4.49	0.1	208
	1.5	6.24	0.301	11.15	0.0	4.12	0.1	212
	2.0	6.23	0.301	11.19	0.0	3.99	0.1	213
	2.5	6.21	0.301	11.22	0.0	3.88	0.1	213
	3.0	6.20	0.301	11.24	0.0	3.82	0.1	213

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	-
Pesticides/PCBs	Ice	1 liter Amber bottles	-
Dioxins/Furans	Ice	1 liter Amber bottles	-
Total Metals	HNO3	1 Liter HDPE bottle	-
Dissolved Metals	HNO3	1 Liter HDPE bottle	-
Cyanide	NaOH	250 mL HDPE bottle	-

OBSERVATIONS / NOTES:

- Pump set in screened interval of well
- Water level in well stable throughout purge activities

Circle if Applicable:

MS/MSD	Duplicate ID No.:
-	-

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW01I
Sample Location: Site 2
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-8-12 / Time: 0920 / Method: Low Flow	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity %	ORP
	Clear	6.71	0.613	14.18	0.7	1.00	0.3	112

PURGE DATA:

Date: 3-8-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): ~~78~~								
Static Water Level (WL): 20.60'		(see Low Flow purge sheets)						
One Casing Volume(gal/L):								
Start Purge (hrs): 0810								
End Purge (hrs): 0920								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 6.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	—
Pesticides/PCBs	Ice	1 liter Amber bottles	—
Dioxins/Furans	Ice	1 liter Amber bottles	—
Total Metals	HNO3	1 Liter HDPE bottle	—
Dissolved Metals	HNO3	1 Liter HDPE bottle	—
Cyanide	NaOH	250 mL HDPE bottle	—

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05

WELL ID.: 02MW01I
DATE: 3-8-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0800	20.60	—	—	—	—	—	—	—	—	Initial
0810	20.63	400	6.01	0.608	22.5	11.53	13.73	266	0.3	clear
0815	20.63	400	6.35	0.618	20.1	2.28	13.66	206	0.3	clear
0820	20.63	400	6.41	0.616	49.8	1.81	13.77	174	0.3	slight Tint (Tan)
0825	20.63	400	6.45	0.615	25.2	1.60	13.83	155	0.3	clear
0830	20.63	400	6.49	0.615	18.3	1.50	13.85	146	0.3	clear
0835	20.63	400	6.52	0.615	11.2	1.41	13.89	139	0.3	clear
0840	20.63	400	6.56	0.615	8.8	1.37	13.93	133	0.3	clear
0845	20.63	400	6.60	0.615	6.1	1.30	13.96	129	0.3	clear
0850	20.63	400	6.66	0.615	3.5	1.21	14.02	121	0.3	clear
0855	20.63	400	6.70	0.614	3.0	1.16	14.06	116	0.3	clear
0900	20.63	400	6.71	0.614	2.4	1.11	14.08	113	0.3	clear
0905	20.63	400	6.71	0.614	1.5	1.07	14.10	112	0.3	clear
0910	20.63	400	6.71	0.613	1.2	1.05	14.14	111	0.3	clear
0915	20.63	400	6.71	0.613	0.9	1.02	14.16	112	0.3	clear
0920	20.63	400	6.71	0.613	0.7	1.00	14.18	112	0.3	clear - collect sample

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW02S20120307
Sample Location: 02MW02S
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/7/12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1305	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	%	
Method: REDI-FLOW	CLEAR	5.70	0.12	11.06	2	0	—	189

PURGE DATA:

Date: 3/7/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: 3 X WELL VOL.								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 27TOC								
Static Water Level (WL): 12.12								
One Casing Volume (gal/L): 9.8								
Start Purge (hrs): 1280								
End Purge (hrs): 1300								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 60								

Low Flow Log

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	4
SVOCs and low level PAHs	Ice	1 liter Amber bottles	0
Pesticides/PCBs	Ice	1 liter Amber bottles	0
Dioxins/Furans	Ice	1 liter Amber bottles	0
Total Metals	HNO3	1 Liter HDPE bottle	0
Dissolved Metals	HNO3	1 Liter HDPE bottle	0
Cyanide	NaOH	250 mL HDPE bottle	0

OBSERVATIONS / NOTES:

COLLECTED 12GW-DUP02

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	12GW-DUP02

Signature(s):

JS Tomalonis

~~LOW FLOW~~ PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05

WELL ID.: 02MW02S
DATE: 3/7/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow ~~(mL/Min.)~~ GPM	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
										20' of 5 SCREEN, P4 MP
1226	12.12	.0	—	—	—	—	—	—	—	3x VOL VOL (9.8GA)
1230	—	—	—	—	—	—	—	—	—	P4 MP ON
1235	12.80	2.5	5.74	0.12	1	0	11.27	169	—	10 GAL
1240	12.80	<2	5.7	0.12	<1	0	11.05	163	—	20 GAL
1245	12.80	2	5.67	0.12	<1	0	11.00	172	—	30 GAL
1250	12.80	2	5.65	0.12	<1	0	11.02	185	—	40 GAL
1255	12.80	2	5.65	0.12	<1	0	11.00	198	—	50 GAL
1300	12.80		5.70	0.12	<1	0	11.06	189	—	REDUCED FLOW RATE TO SAMPLE FOR VOC 60 GAL TOTAL

SIGNATURE(S): JS Tomaburgo

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW03SI20120308
Sample Location: 02MW03SI
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 3/8/12	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	%	
Time: 0915								
Method: REDIFlow pump	CLEAR	7.44	0.03	12.21	48	0	—	133

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 3/8/12								
Method: 3 well vol. min.								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 57.20			SC=					
Static Water Level (WL): 10.53				PUMP SHUT				
One Casing Volume(gal/L): 7.6								
Start Purge (hrs): 0834								
End Purge (hrs): 0915								
Total Purge Time (min): 41								
Total Vol. Purged (gal/L): ~35								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	
Pesticides/PCBs	Ice	1 liter Amber bottles	
Dioxins/Furans	Ice	1 liter Amber bottles	
Total Metals	HNO3	1 Liter HDPE bottle	
Dissolved Metals	HNO3	1 Liter HDPE bottle	
Cyanide	NaOH	250 mL HDPE bottle	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

J S Tankard

~~LOW FLOW~~ PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 02MW03SI
DATE: 3/8/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow ~~mL/Min.~~ GPM	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0840	10.53	0	—	—	—	—	—	—	—	15' SCREEN, PURGE
0835	10.53	~~mmp~~	ON						—	3 VOL. +, 1 VOL = 7.6 GAL
0838	10.66	~1	7.26	0.03	71.7	11.81	11.91	223	—	
0845	10.85	~1	7.43	0.03	75.1	2.15	12.15	181	—	7 GAL
0850	10.91	~1	7.40	0.03	62.0	0	12.18	171	—	12 GAL
0855	11.00	~1	7.42	0.03	68.7	0	12.19	162	—	15 GAL
0900	11.00	~1	7.43	0.03	68.0	0	12.19	150	—	20 GAL
0905	11.00	~1	7.40	0.03	58.0	0	12.20	145	—	25 GAL
0910	11.00	~1	7.43	0.03	58.0	0	12.20	138	—	30 GAL
0915	11.00	~1	7.44	0.03	48.0	0	12.21	133	—	SAMPLING FOR VOC

SIGNATURE(S): JS Tomsheck

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW03I20120307
Sample Location: 02MW03
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/7/12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 15-45	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	%	
Method: REDI Flow	CLEAR	6.91	0.35	12.42	12.8	0	—	105

PURGE DATA:

Date: 3/7/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Low Flow								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 17.7								
Static Water Level (WL): 17.4								
One Casing Volume (gal/L): 2								
Start Purge (hrs): 1445								
End Purge (hrs): 1545								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): ~10								

See low flow log

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	0
Pesticides/PCBs	Ice	1 liter Amber bottles	0
Dioxins/Furans	Ice	1 liter Amber bottles	0
Total Metals	HNO3	1 Liter HDPE bottle	0
Dissolved Metals	HNO3	1 Liter HDPE bottle	0
Cyanide	NaOH	250 mL HDPE bottle	0

OBSERVATIONS / NOTES:

DO PROBE MAY NOT BE FUNCTIONING

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

JS Tamburgo

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 02MW03I
DATE: 3/2/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1445	17.50	—	—	—	—	—	—	—	—	pump on
1450	17.50	330	8.24	0.30	190	0	13.52	167	—	
1455	17.50	360	7.32	0.32	190	0	12.84	170	—	
1500	17.50	600	7.10	0.33	171	0	12.50	136	—	
1505	17.50	600	7.00	0.34	122	0	12.54	110	—	
1510	17.50	600	6.95	0.34	86	0	12.52	106	—	
1515	17.50	600	6.94	0.34	68.5	0	12.56	105	—	
1520	17.50	600	6.93	0.35	51.1	0	12.54	104	—	
1524	17.50	600	6.92	0.35	36.4	0	12.55	104	—	
1530	17.50	600	6.92	0.35	28.8	0	12.52	104	—	
1535	17.50	600	6.91	0.35	19.6	0	12.51	104	—	
1540	17.50	600	6.91	0.35	15.6	0	12.53	105	—	
1545	17.50	600	6.91	0.31	12.8	0	12.54	105	—	sample collected, TOTAL 6qt

SIGNATURE(S): [signature]

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW04S
Sample Location: site 2
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-7-12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1520	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	%	
Method: Low Flow	clear	6.48	0.380	13.86	0.0	0.91	0.2	91

PURGE DATA:

Date: 3-7-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD):		(See	Low	Flow	purge	sheets)		
Static Water Level (WL): 28.63								
One Casing Volume(gal/L):								
Start Purge (hrs): 1420								
End Purge (hrs): 1520								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 5.75								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	—
Pesticides/PCBs	Ice	1 liter Amber bottles	—
Dioxins/Furans	Ice	1 liter Amber bottles	—
Total Metals	HNO3	1 Liter HDPE bottle	—
Dissolved Metals	HNO3	1 Liter HDPE bottle	—
Cyanide	NaOH	250 mL HDPE bottle	—

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 02MW04P
DATE: 3-7-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1410	28.63	-	-	-	-	-	-	-	-	Initial
1420	28.65	400	6.61	0.374	502	8.32	13.93	5	0.2	cloudy (Brown)
1425	28.65	400	6.46	0.378	94.5	2.10	13.67	43	0.2	Tinted (Tan)
1430	28.65	400	6.46	0.378	33.2	1.58	13.62	60	0.2	slight Tint (Tan)
1435	28.65	400	6.44	0.377	17.0	1.36	13.69	70	0.2	clear
1440	28.65	400	6.45	0.379	10.2	1.22	13.64	73	0.2	clear
1445	28.65	400	6.46	0.380	4.5	1.12	13.66	79	0.2	clear
1450	28.65	400	6.46	0.380	2.7	1.09	13.72	81	0.2	clear
1455	28.65	400	6.47	0.380	0.9	1.07	13.74	84	0.2	clear
1500	28.65	400	6.50	0.380	0.2	1.05	13.76	85	0.2	clear
1505	28.65	400	6.48	0.380	0.1	0.97	13.79	87	0.2	clear
1510	28.65	400	6.48	0.380	0.0	0.94	13.84	89	0.2	clear
1515	28.65	400	6.48	0.380	0.0	0.92	13.83	90	0.2	clear
1520	28.65	400	6.48	0.380	0.0	0.91	13.86	91	0.2	clear - collect sample

SIGNATURE(S): WHAP

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 02MW04I
Sample Location: Site 2
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-7-12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1350	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	% PPT	
Method: Low Flow	clear	6.81	0.382	13.77	0.9	1.41	0.2	117

PURGE DATA:

Date: 3-7-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 115								
Static Water Level (WL): 33.67		(See	Low	Flow	Purge	sheets)		
One Casing Volume(gal/L):								
Start Purge (hrs): 1245								
End Purge (hrs): 1350								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): 6.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	—
Pesticides/PCBs	Ice	1 liter Amber bottles	—
Dioxins/Furans	Ice	1 liter Amber bottles	—
Total Metals	HNO3	1 Liter HDPE bottle	—
Dissolved Metals	HNO3	1 Liter HDPE bottle	—
Cyanide	NaOH	250 mL HDPE bottle	—

OBSERVATIONS / NOTES:

- pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 02MW04I
DATE: 3-7-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1235	33.67	–	–	–	–	–	–	–	–	Initial
1245	33.68	400	6.90	0.364	417	9.76	13.81	18	0.2	cloudy (Tan)
1250	33.69	400	6.81	0.380	254	3.86	13.45	89	0.2	" "
1255	33.70	400	6.80	0.380	158	2.70	13.54	99	0.2	Tinted (Tan)
1300	33.70	400	6.82	0.380	86.7	1.97	13.63	105	0.2	" "
1305	33.70	400	6.81	0.381	42.5	1.75	13.70	107	0.2	slight Tint (Tan)
1310	33.70	400	6.81	0.382	26.4	1.80	13.66	109	0.2	clear
1315	33.70	400	6.80	0.382	15.5	1.69	13.68	110	0.2	clear
1320	33.70	400	6.81	0.383	10.4	1.56	13.59	112	0.2	clear
1325	33.70	400	6.81	0.383	6.6	1.55	13.63	113	0.2	clear
1330	33.70	400	6.82	0.383	4.0	1.49	13.59	113	0.2	clear
1335	33.70	400	6.81	0.382	3.2	1.44	13.68	114	0.2	clear
1340	33.70	400	6.81	0.383	2.0	1.47	13.69	115	0.2	clear
1345	33.70	400	6.81	0.382	1.5	1.43	13.75	117	0.2	clear
1350	33.70	400	6.81	0.382	0.9	1.41	13.77	117	0.2	clear - collect sample

SIGNATURE(S): _____

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW01
Sample Location: Site 12
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-7-12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1200	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	~~%~~ PPT	
Method: Low Flow	clear	6.27	0.290	11.48	1.0	0.92	0.1	183

PURGE DATA:

Date: 3-7-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD):		(See Low Flow purge sheets)						
Static Water Level (WL): 9.42								
One Casing Volume(gal/L):								
Start Purge (hrs): 1100								
End Purge (hrs): 1200								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 6.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	2
Pesticides/PCBs	Ice	1 liter Amber bottles	2
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	1 Liter HDPE bottle	
Dissolved Metals	HNO3	1 Liter HDPE bottle	—
Cyanide	NaOH	250 mL HDPE bottle	1

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05

WELL ID.: 12MW01D
DATE: 3-7-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1050	9.42	–	–	–	–	–	–	–	–	Initial
1100	9.51	400	6.37	0.295	450	7.15	10.52	182	0.1	cloudy (Brown)
1105	9.50	400	6.34	0.302	796	3.77	10.46	187	0.1	" "
1110	9.50	400	6.36	0.298	738	2.69	10.71	192	0.1	" "
1115	9.50	400	6.31	0.293	406	2.09	10.83	193	0.1	" "
1120	9.50	400	6.34	0.292	228	1.71	10.85	189	0.1	" "
1125	9.50	400	6.31	0.294	72.3	1.65	10.97	185	0.1	Tinted (Brown)
1130	9.50	400	6.29	0.291	37.5	1.40	11.28	195	0.1	slight Tint (Tan)
1135	9.50	400	6.30	0.289	17.0	1.19	11.46	183	0.1	clear
1140	9.50	400	6.28	0.289	4.5	1.11	11.38	182	0.1	clear
1145	9.50	400	6.28	0.290	4.1	1.08	11.34	183	0.1	clear
1150	9.50	400	6.28	0.290	3.3	1.00	11.44	182	0.1	clear
1155	9.50	400	6.27	0.290	2.3	0.95	11.46	183	0.1	clear
1200	9.50	400	6.27	0.290	1.0	0.92	11.48	183	0.1	clear - collect sample

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW01S
Sample Location: Site 12
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-7-12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 0940	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	%	
Method: Low Flow	clear	6.55	0.381	13.24	1.7	0.75	0.2	52

PURGE DATA:

Date: 3-7-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD):		(See Low Flow purge sheets)						
Static Water Level (WL): 11.54'								
One Casing Volume(gal/L):								
Start Purge (hrs): 0830								
End Purge (hrs): 0940								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 6.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	6
SVOCs and low level PAHs	Ice	1 liter Amber bottles	6
Pesticides/PCBs	Ice	1 liter Amber bottles	6
Dioxins/Furans	Ice	1 liter Amber bottles	3
Total Metals	HNO3	1 Liter HDPE bottle	2
Dissolved Metals	HNO3	1 Liter HDPE bottle	2
Cyanide	NaOH	250 mL HDPE bottle	2

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
Yes	—

Signature(s):

VAR

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 12MW01S
DATE: 3-7-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0820	11.54	-	-	-	-	-	-	-	-	Initial
0830	11.56	400	6.24	0.415	322	10.08	10.76	149	0.2	Cloudy (Brown)
0835	11.57	400	6.41	0.395	180	3.99	10.91	103	0.2	Tinted (Brown)
0840	11.58	400	6.46	0.385	159	2.01	11.44	77	0.2	" "
0845	11.57	400	6.47	0.371	170	1.65	11.97	74	0.2	" "
0850	11.57	400	6.47	0.366	97.7	1.40	12.84	81	0.2	" "
0855	11.57	400	6.49	0.367	75.1	1.29	12.97	79	0.2	Slight Tint (Tan)
0900	11.57	400	6.52	0.370	56.4	1.18	13.00	75	0.2	" " "
0905	11.57	400	6.53	0.374	35.7	1.07	13.05	69	0.2	" " "
0910	11.57	400	6.56	0.378	27.0	1.00	13.06	65	0.2	clear
0915	11.57	400	6.56	0.381	20.7	0.93	13.08	60	0.2	clear
0920	11.57	400	6.56	0.383	14.0	0.89	13.10	59	0.2	clear
0925	11.57	400	6.55	0.386	9.2	0.84	13.11	56	0.2	clear
0930	11.57	400	6.55	0.384	6.0	0.80	13.14	55	0.2	clear
0935	11.57	400	6.55	0.382	3.2	0.78	13.19	54	0.2	clear
0940	11.57	400	6.55	0.381	1.7	0.75	13.24	52	0.2	clear - collect sample

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW02Φ
Sample Location: Site 12
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-6-12 / Time: 1430	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity %	ORP
Method: Low Flow	clear	6.74	0.402	11.10	3.8	0.51	0.2	-112

PURGE DATA:

Date: 3-6-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Submersible Pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):		(see Low Flow Purge sheets)						
Static Water Level (WL): 12.12								
One Casing Volume(gal/L):								
Start Purge (hrs): 1325								
End Purge (hrs): 1430								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): 6.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	2
Pesticides/PCBs	Ice	1 liter Amber bottles	2
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	1 Liter HDPE bottle	1
Dissolved Metals	HNO3	1 Liter HDPE bottle	-
Cyanide	NaOH	250 mL HDPE bottle	1

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05

WELL ID.: 12MW020
DATE: 3-6-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1315	12.12'	–	–	–	–	–	–	–	–	Initial
1325	12.17'	400	7.20	0.544	746	6.50	10.28	-83	0.3	Cloudy (Brown)
1330	12.19'	375	7.10	0.502	785	2.93	10.43	-110	0.2	" "
1335	12.19'	375	6.97	0.450	301	1.23	10.83	-114	0.2	" "
1340	12.19'	375	6.86	0.435	69.4	1.04	10.87	-114	0.2	Tinted (Tan)
1345	12.18'	375	6.83	0.429	30.5	0.87	10.94	-116	0.2	clear
1350	12.19'	375	6.81	0.423	19.8	0.79	11.01	-112	0.2	clear
1355	12.19'	375	6.79	0.417	14.0	0.72	10.99	-115	0.2	clear
1400	12.18'	375	6.77	0.414	13.1	0.67	10.97	-116	0.2	clear
1405	12.18'	375	6.77	0.411	9.0	0.62	10.97	-115	0.2	clear
1410	12.19'	375	6.75	0.407	6.6	0.60	11.01	-115	0.2	clear
1415	12.19'	375	6.75	0.404	5.3	0.56	11.08	-113	0.2	clear
1420	12.18'	375	6.75	0.403	5.0	0.55	11.12	-113	0.2	clear
1425	12.18'	375	6.75	0.403	4.5	0.53	11.07	-112	0.2	clear
1430	12.18'	375	6.74	0.402	3.8	0.51	11.10	-112	0.2	clear - collect sample

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW028
Sample Location: Site 12
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-6-12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1250	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	%	
Method: Low Flow	clear	6.81	0.372	12.47	2.8	0.56	0.2	-46

PURGE DATA:

Date: 3-6-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):		(see Low Flow purge sheets)						
Static Water Level (WL): 12.41'								
One Casing Volume(gal/L):								
Start Purge (hrs): 1150								
End Purge (hrs): 1250								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 5.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	2
Pesticides/PCBs	Ice	1 liter Amber bottles	2
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	1 Liter HDPE bottle	1
Dissolved Metals	HNO3	1 Liter HDPE bottle	—
Cyanide	NaOH	250 mL HDPE bottle	1

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 12MW02S
DATE: 3-6-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1140	12.41	–	–	–	–	–	–	–	–	Initial
1150	12.44	400	9.56	0.280	168	6.81	11.77	40	0.1	Tinted (Tan)
1155	12.43	400	8.93	0.377	59.3	1.54	12.34	-91	0.2	slight Tint (Tan)
1200	12.43	400	7.70	0.402	38.6	1.29	12.49	-116	0.2	" " "
1205	12.43	400	7.04	0.398	22.2	1.03	12.53	-95	0.2	clear
1210	12.43	400	6.94	0.398	14.6	0.90	12.52	-75	0.2	clear
1215	12.43	400	6.93	0.392	9.9	0.82	12.56	-70	0.2	clear
1220	12.43	400	6.92	0.386	6.1	0.94	12.52	-67	0.2	clear
1225	12.43	400	6.90	0.382	5.2	0.78	12.46	-63	0.2	clear
1230	12.43	400	6.87	0.379	4.5	0.66	12.49	-59	0.2	clear
1235	12.43	400	6.84	0.376	3.9	0.60	12.47	-55	0.2	clear
1240	12.43	400	6.82	0.374	3.0	0.58	12.45	-50	0.2	clear
1245	12.43	400	6.81	0.373	3.0	0.57	12.44	-48	0.2	clear
1250	12.43	400	6.81	0.372	2.9	0.56	12.47	-46	0.2	clear - collect sample

SIGNATURE(S): _____

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW03020120306
Sample Location: 12MW03
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/6/12 Time: 1505	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity %	ORP
Method: REDI Flow pump	HAZY	6.71	0.54	12.82	44.0	0	—	118

PURGE DATA:

Date: 3/6/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Low Flow								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): ~18.20								
Static Water Level (WL): 15.98								
One Casing Volume (gal/L): 0.4								
Start Purge (hrs): 1355								
End Purge (hrs): 1505								
Total Purge Time (min): ~35								
Total Vol. Purged (gal/L): ~2								

SEE Low Flow log

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	2
Pesticides/PCBs	Ice	1 liter Amber bottles	2
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	500 ~~1 Liter~~ HDPE bottle	1
Dissolved Metals	HNO3	500 ~~1 Liter~~ HDPE bottle	1
Cyanide	NaOH	500 ~~250 mL~~ HDPE bottle	1

OBSERVATIONS / NOTES:

DTW DROPPED TO PUMP INTAKE; SHUT PUMP OFF, ALLOWED TO RECOVER THEN SAMPLED. COLLECTED TOTAL & DISSOLVED (FILTERED) METALS

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

J. Tamburro

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 12MW030
DATE: 3/6/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1342	15.98	0	—	—	—	—	—		—	STATIC DTW
1355	16.05	180	6.62	0.53	488	2.54	10.79	129	—	PUMP ON
1405	16.09	330	6.61	0.54	35.0	0	12.32	133	—	
1416	16.09	~100	6.60	0.55	7.7	0	11.73	135		WATER @ PUMP INTAKE
1423	16.10	~100	6.60	0.55	14.5	0	10.63	114		
1430	16.10	~75	6.62	0.54	20	0	12.98	59		
1434	16.10	0	—	—	—	—	—	—		PUMP OFF
1505	15.84	~100	6.71	0.54	4410	0	12.82	118		PUMP ON SAMPLING

SIGNATURE(S): [signature]

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MWΦ3S20120306
Sample Location: 12MWΦ3
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/6/12 Time: 11:00	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity %	ORP
Method: RediFlow pump	clear	6.46	0.43	12.45	0.4	0	—	79

PURGE DATA:

Date: 3/6/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Low Flow								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 29 TOC				SEE LOW				
Static Water Level (WL): 15.94								
One Casing Volume (gal/L): ~2					FLOW			
Start Purge (hrs): 0950						WQ		
End Purge (hrs): 1100								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 26								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	2
Pesticides/PCBs	Ice	1 liter Amber bottles	2
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	500ml | ~~1 Liter~~ HDPE bottle	1
Dissolved Metals	HNO3	1 Liter HDPE bottle	0
Cyanide	NaOH	500ml | ~~250 mL~~ HDPE bottle	1

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	12GW-Dup01

Signature(s):

JS Tomalavage

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 12MW03S
DATE: 3/6/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0940	15.94	0	—	—	—	—	—	—	—	
0950	16.01	600	6.14	0.41	5.6	6.82	11.89	125	—	PUMP ON
0958	16.01	280	6.24	0.42	5.0	1.67	12.15	110	—	REDUCED FLOW
1005	16.01	280	6.33	0.42	2.5	0	12.09	97	—	
1012	16.01	300	6.36	0.43	1.4	0	12.23	87	—	
1021	16.01	280	6.39	0.43	1.0	0	12.33	85	—	
1030	16.01	300	6.39	0.43	0.7	0	12.47	78	—	
1040	16.01	300	6.43	0.43	0.6	0	12.39	79	—	
1045	16.01	300	6.44	0.43	0.6	0	12.40	80	—	
1050	16.01	300	6.45	0.43	0.5	0	12.45	79	—	
1055	16.01	300	6.46	0.43	0.4	0	12.48	80	—	
1100	16.01	300	6.46	0.43	0.4	0	12.45	79	—	SAMPLING

SIGNATURE(S): JS Tamburrano

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW04020120307
Sample Location: 12MW04O
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/7/12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1010	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	%	
Method: RED FLOW PUMP	CLEAR	6.32	0.25	11.19	6.7	0	—	205

PURGE DATA:

Date: 3/7/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Low Flow								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 17.5 TOC								
Static Water Level (WL): 8.15								
One Casing Volume (gal/L): 1.5								
Start Purge (hrs): 0930								
End Purge (hrs): 1010								
Total Purge Time (min): 100								
Total Vol. Purged (gal/L): ~12								

SEE Low Flow log

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	2
Pesticides/PCBs	Ice	1 liter Amber bottles	2
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	500 ~~1 liter~~ HDPE bottle	1
Dissolved Metals	HNO3	500 ~~1 Liter~~ HDPE bottle	0
Cyanide	NaOH	500 ~~250~~ mL HDPE bottle	1

OBSERVATIONS / NOTES:

DISCHARGE TURNED HAZY, FILTERED FOR DISSOLVED METALS

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

JS Tomalavage

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 12MW04O
DATE: 3/7/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0822	8.15	0	—	—	—	—	—	—	—	
0830	8.15	—	—	—	—	—	—	—	—	PUMP ON
0835	8.28	375	6.35	0.33	145.8	0	9.03	274	—	
0845	8.31	390	6.42	0.32	30.4	0	9.88	263	—	
0855	8.31	385	6.40	0.29	11.5	0	10.42	248	—	
0905	8.31	385	6.38	0.28	86.3	0	10.59	235	—	
0915	8.31	385	6.37	0.27	48.3	0	10.70	220	—	
0925	8.32	400	6.35	0.26	49	0	10.71	212	—	
0930	8.32	400	6.34	0.26	30.4	0	10.72	212	—	
0940	8.33	400	6.32	0.25	13.1	0	10.75	206	—	
0945	8.32	400	6.33	0.25	9.8	0	10.84	208	—	
0950	8.32	400	6.32	0.25	13	0	10.80	208	—	
0955	8.32	400	6.32	0.25	13	0	10.98	207	—	
1000	8.33	400	6.32	0.25	8.9	0	11.01	206	—	
1005	8.32	400	6.33	0.25	9.8	0	11.11	205	—	
1010	8.32	400	6.32	0.25	6.7	0	11.19	205	—	SAMPLING DISCHARGE TUBING HAS BEEN FILTERED FOR DISSOLVED METALS

SIGNATURE(S): JS Tomahawk

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASJRB Willow Grove
Project No.: CTO-WE05

[] Domestic Well Data
[x] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 12MW04
Sample Location: Site 12
Sampled By: VAS/JT
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-6-12	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1045	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	%	
Method: Low Flow	clear	6.45	0.379	13.19	5.0	1.03	0.2	97

PURGE DATA:

Date: 3-6-12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: submersible pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD):			(see	Low	Flow	purge	sheets)	
Static Water Level (WL): 17.77'								
One Casing Volume(gal/L):								
Start Purge (hrs): 0935								
End Purge (hrs): 1045								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 6.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	40 mL vials	2
SVOCs and low level PAHs	Ice	1 liter Amber bottles	1
Pesticides/PCBs	Ice	1 liter Amber bottles	1
Dioxins/Furans	Ice	1 liter Amber bottles	1
Total Metals	HNO3	1 Liter HDPE bottle	1
Dissolved Metals	HNO3	1 Liter HDPE bottle	—
Cyanide	NaOH	250 mL HDPE bottle	1

OBSERVATIONS / NOTES:

- Pump set in screened interval of well

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
WELL ID.: 12MW04S
DATE: 3-6-12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0920	17.77	-	-	-	-	-	-	-	-	Start 12
0935	17.80	400	6.18	0.390	905	7.76	11.38	100	0.2	cloudy Orange-Brown
0940	17.80	400	6.30	0.391	552	2.13	12.21	66	0.2	" " "
0945	17.80	400	6.40	0.387	291	1.74	12.55	71	0.2	" " "
0950	17.80	400	6.43	0.386	139	1.52	12.61	77	0.2	Tinted Brown
0955	17.80	400	6.42	0.383	75.5	1.40	12.61	82	0.2	" "
1000	17.80	400	6.44	0.383	54.7	1.34	12.64	85	0.2	slight Tint Brown
1005	17.80	400	6.43	0.382	42.3	1.29	12.77	87	0.2	" " "
1010	17.80	400	6.44	0.383	32.6	1.25	12.81	89	0.2	" " "
1015	17.80	400	6.45	0.382	32.1	1.21	12.85	90	0.2	" " "
1020	17.80	400	6.46	0.381	26.0	1.17	12.89	91	0.2	clear
1025	17.80	400	6.46	0.381	17.9	1.13	12.97	92	0.2	clear
1030	17.80	400	6.46	0.380	12.0	1.10	13.06	93	0.2	clear
1035	17.80	400	6.45	0.380	8.7	1.06	13.13	95	0.2	clear
1040	17.80	400	6.45	0.379	6.8	1.04	13.16	96	0.2	clear
1045	17.80	400	6.45	0.379	5.0	1.03	13.19	97	0.2	clear - collect sample

SIGNATURE(S):

APPENDIX C

TEST PIT LOGS

TEST PIT LOG

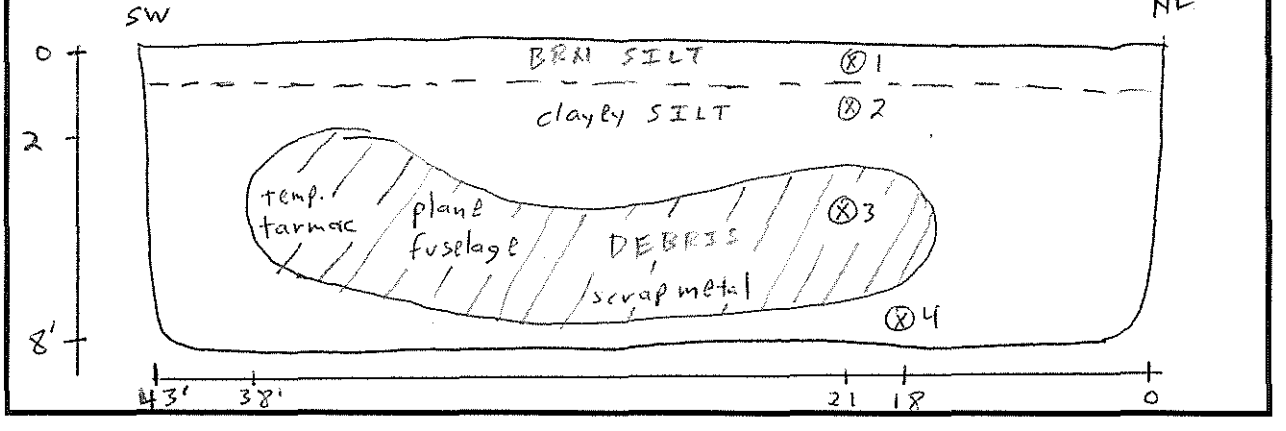
Page ___ of ___

Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP01
DATE: 1-4-10
GEOLOGIST: D. whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN Source (ppm)	 BZ (ppm)
1		BRN SILT, tr. CLAY		Moist	0	0
		clayey SILT			0	0
2		Debris: scrap metal, fence wire,				
		aluminum plane parts			0	0
		airplane fuselage				
		bottles, charred wood, china,		↓	0	0
		wires, rubber fuel tank		perched ground-		
5		(empty), temporary tarmac,		water at 5' bgs	0	0
		crushed drum containing tar		within debris		
		↓			6.2	0
					0	0
		↓				
8				Groundwater	0	0
	11=11=11	Bedrock		at 8' outside		
				debris		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP01-000.5-01, 12TP01-0.502-02, 12TP01-0506-03, 12TP01-0708-04,

PHOTO LOG:

TEST PIT LOG

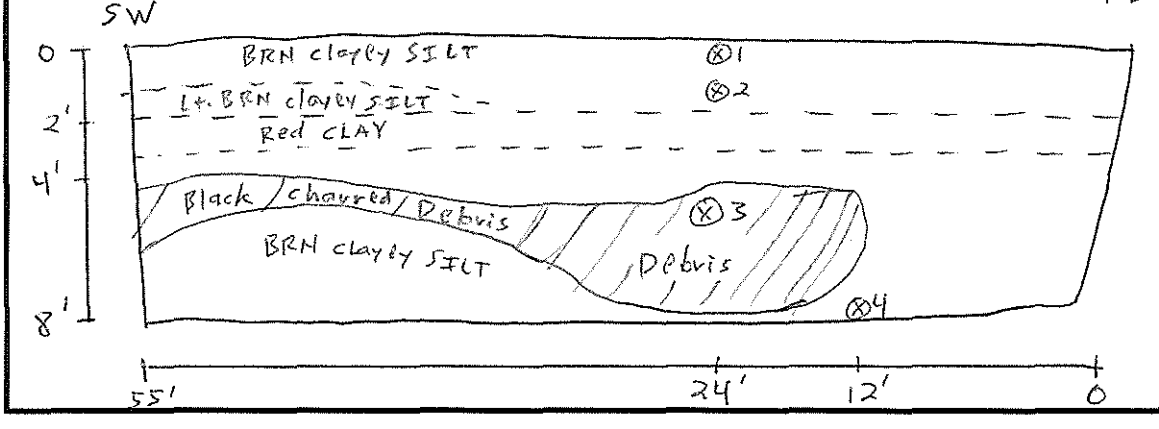
Page ___ of ___

Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP02
DATE: 1-4-10
GEOLOGIST: D. Whalen

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	BZ (ppm)
0		BRN clayey SILT		Moist	0	0
2		Red-BRN SILTY CLAY, stiff			0	0
4		Black charred debris		stale septic odor	0	0
		nails, glass frags, wire, scrap metal			0	0
				perched groundwater at 5' within debris	0	0
8		Bedrock				
				Groundwater at 8' outside debris		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP02-000.5-01, 12TP02-0.502-02, 12TP02-0405-03, 12TP02-0405-03, 12TP02-0910-04

PHOTO LOG:

TEST PIT LOG

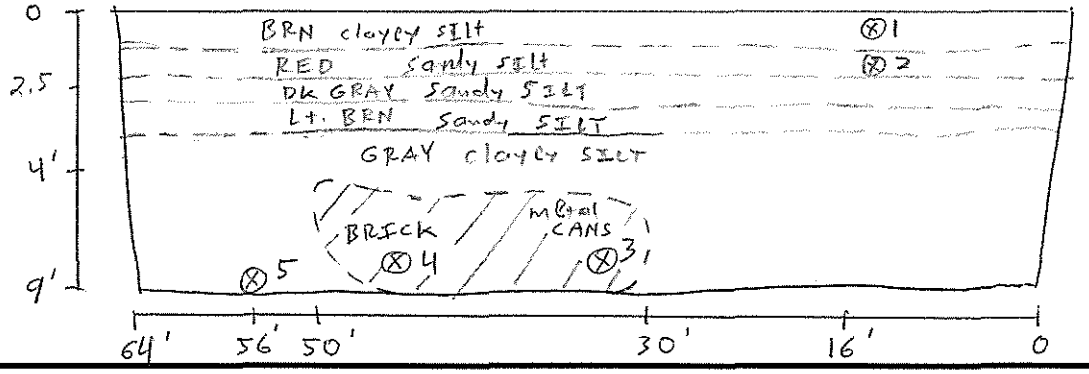
Page ___ of ___

Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP03
DATE: 1-5-10
GEOLOGIST: D. Whalen

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	BZ (ppm)
1		BRN CLAYEY SILT		moist	0	0
		RED SANDY SILT				
		DK. GRAY SANDY SILT			0	0
3		Lt. BRN SANDY SILT				
		BRN-GRAY clayey SILT			0	0
4		crushed metal cans, bottles			0	0
		yellow fire brick (from boiler)		perched ground-		
		black ash		water ~ 5'	0	0
				within debris		
					0	0
				wet at 8.5'	0	0
9		Bedrock		outside debris		
	11=11=11					

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP03-000.5-01, 12TP03-0.502-02, 12TP03-0607-03, 12TP03-0506-04, 12TP03-0809-05

PHOTO LOG:

TEST PIT LOG

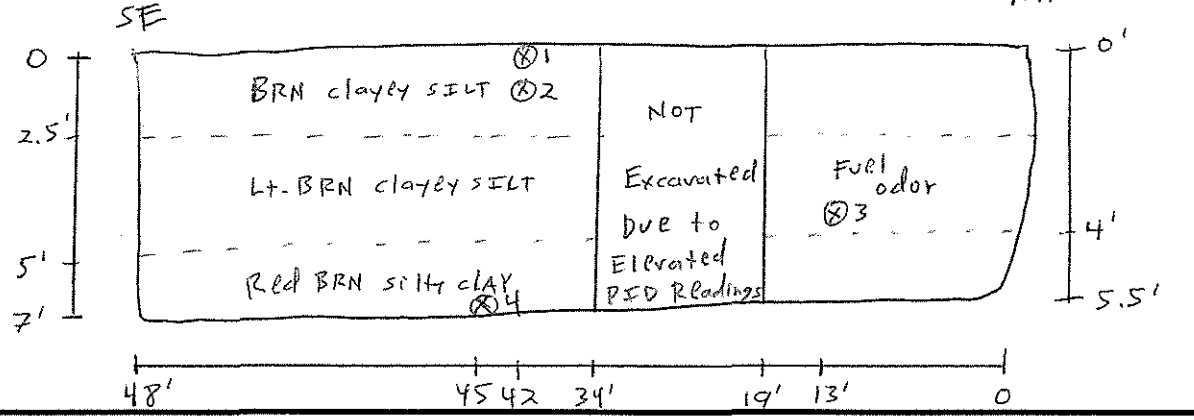
Page ___ of ___

Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP04
DATE: 1-5-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	BZ (ppm)
		BRN clayey SILT		Moist	0	0
		↓		↓		
		↓		↓	0	0
2.5	-----	Lt. BRN clayey SILT		↓		
		↓		↓	0	0
		↓		↓		
		↓		↓		
4		Red BRN SILTY CLAY/clayey SILT		↓	86	0
		↓		↓		
		↓		↓		
7	-----	weathered sandstone		Groundwater above bedrock		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Stop excavating 19' from NW end due to fuel odor, elevated PID readings; backfill excavation, move 15' SE and resume excavating.

PHOTO LOG:

TEST PIT LOG

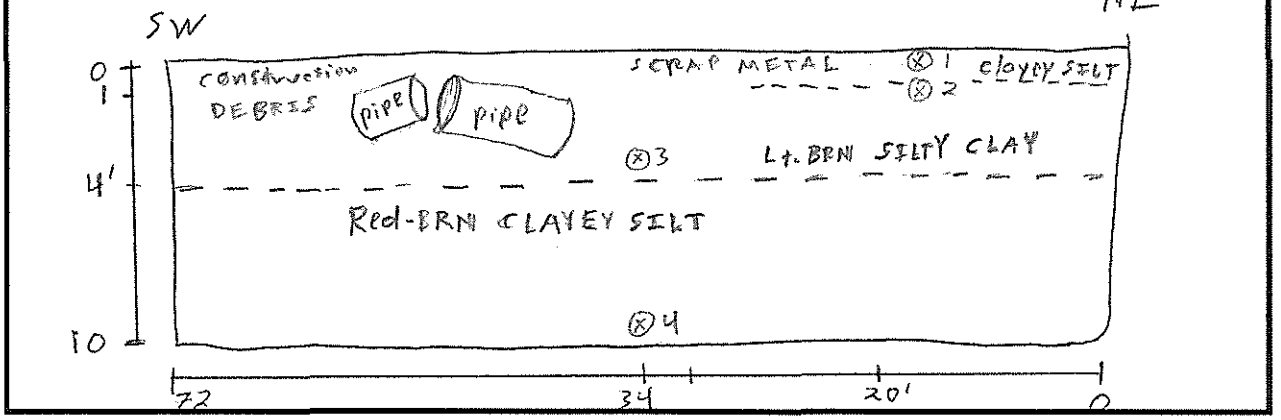
Page ___ of ___

Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP05
DATE: 1-6-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	BZ (ppm)
1	-----	BRN CLAYEY SILT Bricks,		Moist		
2		Lt. BRN silty CLAY concrete,		↓	0	0
		scrap metal		↓		
		(fence posts, nails, etc.)		↓	0	0
		Reinforced concrete pipe		perched		
4	-----	Red BRN clayey SILT		groundwater	0	0
		↓		leaks from pipe		
		↓			0	0
		↓				
10		Bedrock - RED-GRY SANDSTONE		Groundwater	0	0
	11=11=11			at 10'		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples: 12TP05-000.5-01, 12TP05-0.502-02, 12TP05-0204-03, 12TP05-0910-04

PHOTO LOG:

TEST PIT LOG

Tetra Tech NUS, Inc.

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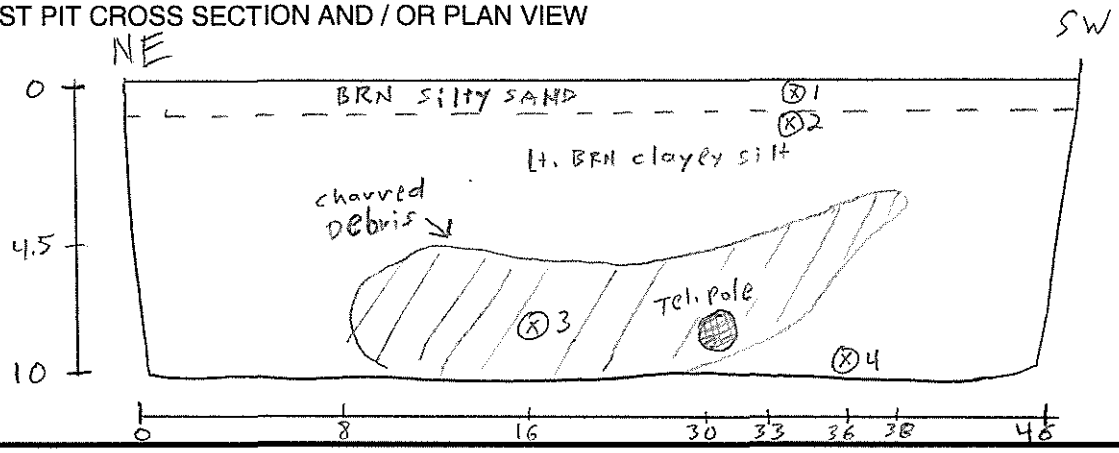
PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP06
DATE: 1-6-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	BZ (ppm)
1	------	BRN silty SAND		moist		
					0	0
		Lt. BRN clayey SILT, some SAND				
		↓			0	0
4.5	----	charred debris - metal cans,		↓	0	0
		bottles, scrapmetal, china,		perched		
		wood, telephone pole		groundwater	0	0
				within debris		
		↓			0	0
		↓			0	0
10		Bedrock - Red-Gry sandstone				
	=11=11=11					

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP06-000.5-01, 12TP06-0.502-02, 12TP06-0506-03, 12TP06-0910-04

PHOTO LOG:

TEST PIT LOG

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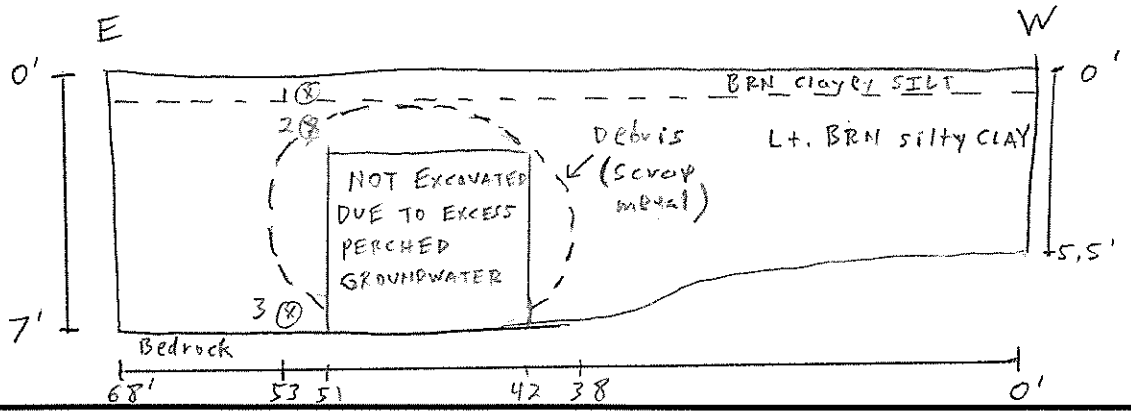
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP07
DATE: 1-7-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
1		BRN CLAYEY SILT		Moist		
					0	0
		lt. BRN silty CLAY/clayey SILT		↓		
2		SCRAP METAL debris (unable		↓	0	0
		to characterize completely due		perched		
		to excessive perched ground-		groundwater	0	0
		water)		at ~3' bgs		
		↓		within debris	0	0
		↓				
7'		Bedrock - SANDSTONE			0	0
	ll=ll=ll					

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP07-000.5-01, 12TP07-0.502-02, 12TP07-0607-03

PHOTO LOG:

TEST PIT LOG

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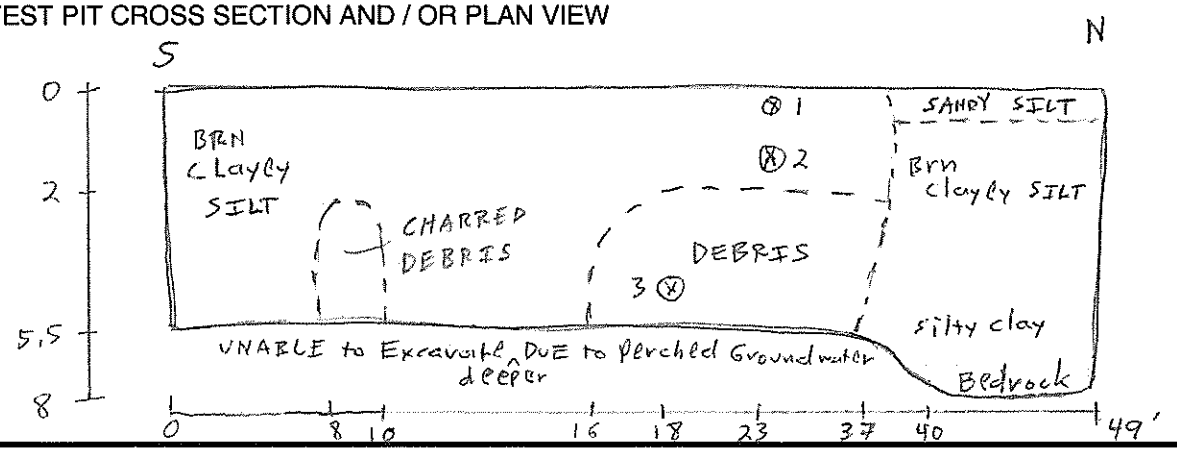
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP08
DATE: 1-7-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
1		BRN clayey SILT		MOIST	0	0
		↓		↓		
		↓		↓	0	0
3		Debris: electrical conduit,		↓		
		wire cable, scrapmetal,		↓	0	0
		bricks, cans, charred debris		↓		
		partially melted bottles		↓	0	0
		↓		↓		
5.5		↓		perched water	0	0
				within debris		
		silty CLAY			0	0
8		Bedrock			0	0
	=11=11=					

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP08-000.5-01, 12TP08-0.502-02, 12TP08-0304-03

PHOTO LOG:

TEST PIT LOG

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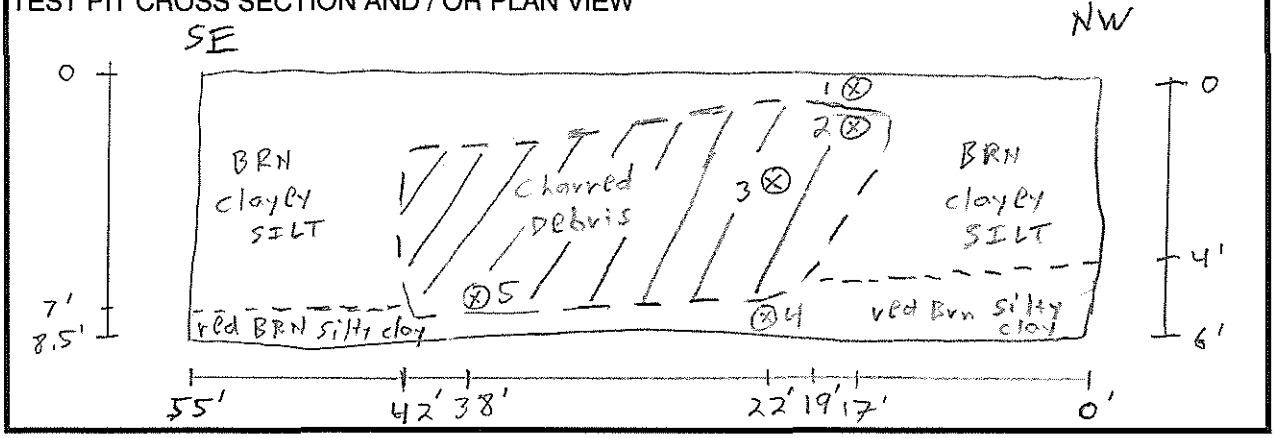
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP09
DATE: 1-8-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
0.5		Dark Brn SILT		MOIST	0	0
		BRN silty CLAY				
		scrap metal			0	0
2.5		charred debris			0	0
		glass fragments, bottles,				
		bed spring, wire, china,			0	0
		asphalt chunks				
		↓		↓	0	0
6'		↓		perched water		
7'		Reddish Brown silty CLAY		within debris	0	0
8.5		Bedrock			0	0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP09-000.5-01, 12TP09-0.502-02, 12TP09-0304-03, 12TP09-0506-04, 12TP09-0506-04

PHOTO LOG:

TEST PIT LOG

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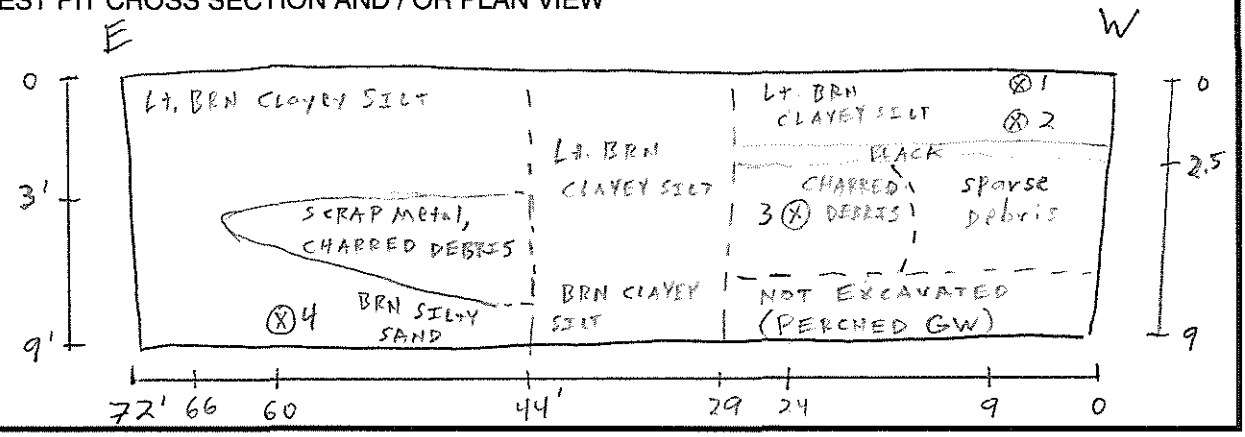
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP10
DATE: 1-8-10
GEOLOGIST: D. Whalen

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
0		Lt. BRN CLAYEY SILT		Moist		
		↓			0	0
2.5	- - - -					
		Dk. GRAY-BRN SANDY SILT			0	0
3		SCRAP METAL, PIPE, WIRE		↓		
		CABLE, GRAY SHALE fragments,		Perched GW @	0	0
		BOTTLES, mechanic's dolly,		~5' within		
		crushed empty drum, metal pipes,		debris	0	0
		china, crushed drum containing				
		hardened tar			0	0
		↓				
		↓			0	0
		BRN silty SAND				
9		BEDROCK		GW @ 9'	0	0
	11=11=11			outside debris		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP10-000.5-01, 12TP10-0.502-02, 12TP10-0405-03, 12TP10-0809-04

PHOTO LOG:

TEST PIT LOG

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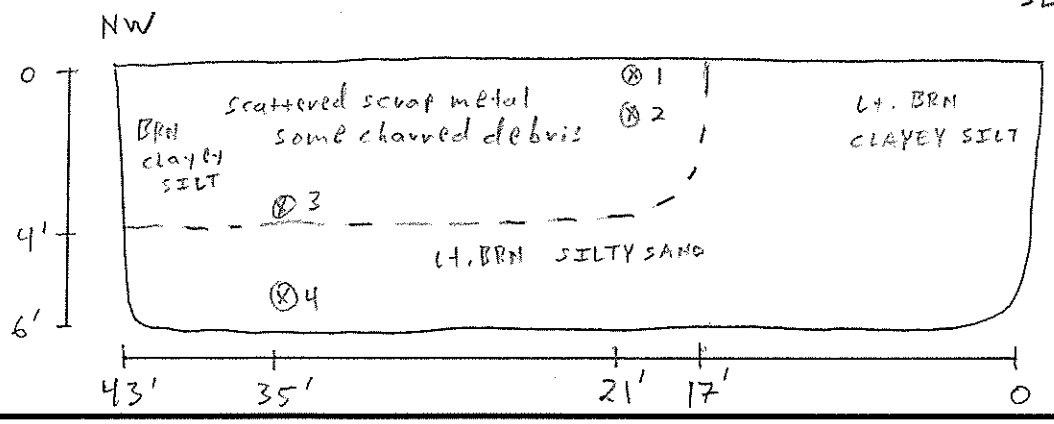
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP11
DATE: 1-11-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
		BRN clayey SILT		moist		
		scrap metal, pipe			0	0
		some charred debris				
		↓			0	0
		↓			0	0
4		Lt. BRN silty SAND/sandy SILT				
					0	0
		↓		↓	0	0
6		SANDSTONE BEDROCK		Groundwater @ 6'		
	11=11=11					

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP11-0005-01, 12TP11-0.502-02, 12TP11-0304-03(ms/msd), 12TP11-0506-04

PHOTO LOG:

TEST PIT LOG

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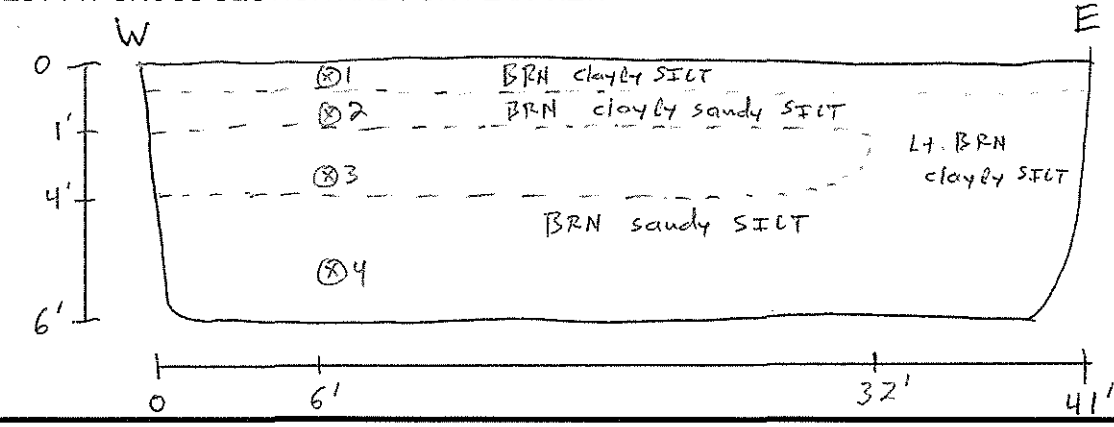
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12

TEST PIT NUMBER: 12TP12
DATE: 1-11-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
0.5		BRN clayey SILT Topsoil		Moist		
					0	0
		BRN clayey sandy SILT				
					0	0
1		Debris: scrap metal, glass				
		fragments, china, charred			0	0
4		debris, perforated steel planking				
					0	0
		BRN sandy SILT				
		↓			0	0
		↓				
		↓		↓	0	0
6		SANDSTONE BEDROCK		Groundwater		
				at 6'		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP12-000.5-01, 12TP12-0.502-02, 12TP12-0203-03, 12TP12-0506-04

PHOTO LOG:

TEST PIT LOG

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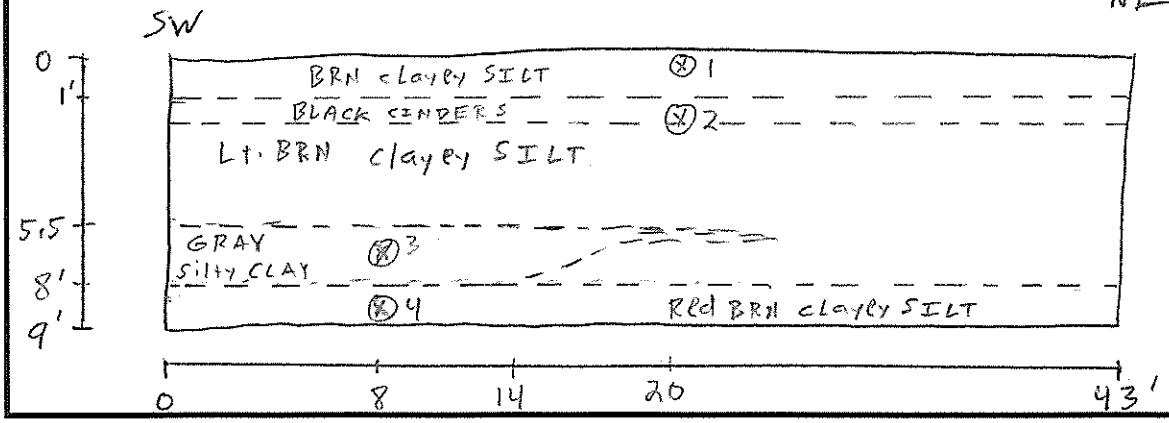
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP13
DATE: 1-11-10
GEOLOGIST: D. Whalen

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
0						
		BRN to Lt. BRN clayey to sandy		moist	0	0
1		SILT				
1.5		Black cinders (intermittent)			0	0
		Lt. BRN SILT, some CLAY			0	0
		(very STIFF)				
					0	0
5.5		Gray silty CLAY (possibly				
		treatment plant sludge?)			0	0
8		RED-BRN silty CLAY			0	0
		↓		↓		
9		↓		groundwater	0	0
		Bedrock		at ~ 9'		

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect sample 12TP13-000.5-01, 12TP13-0.502-02, 12TP13-0506-03, 12TP13-0809-04

PHOTO LOG:

TEST PIT LOG

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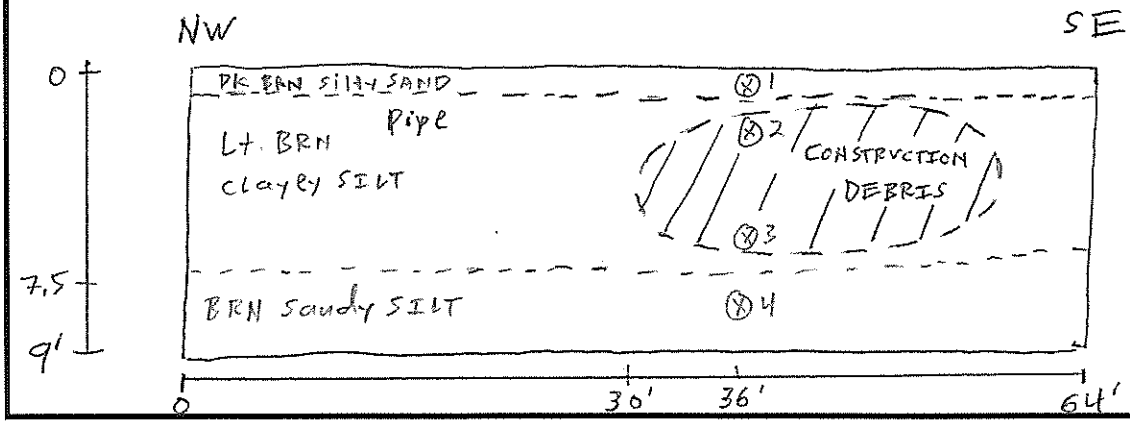
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP14
DATE: 1-12-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
		DK BRN silty SAND		moist		
1		Lt. BRN clayey SILT			0	0
2		CONSTRUCTION DEBRIS:			0	0
		chunks of reinforced concrete,				
		cinder blocks, charred wood,			0	0
		asphalt, wire fence, fence		perched water		
		posts		at ~ 5'	0	0
					0	0
7.5		BRN silty SAND/sandy SILT				
		and Rock fragments			0	0
9		sandstone Bedrock			0	0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP14-000.5-01, 12TP14-0.502-02, 12TP14-0405-03, 12TP14-0607-04

PHOTO LOG:

TEST PIT LOG

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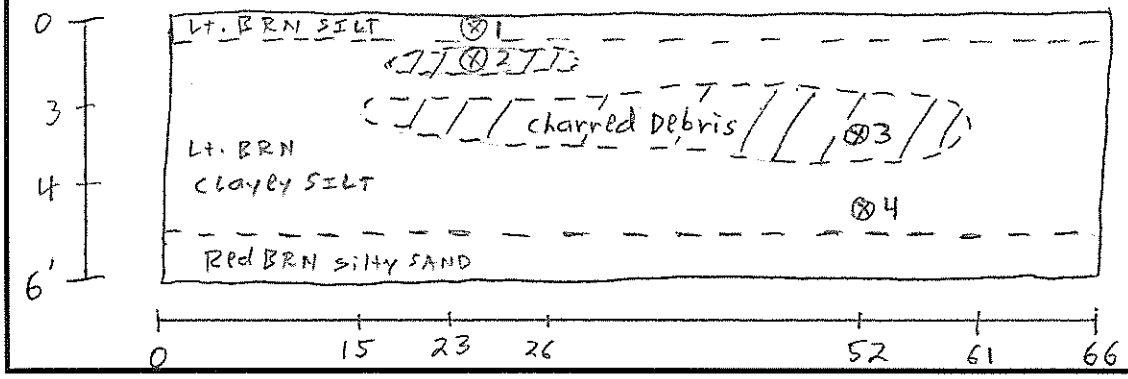
Tetra Tech NUS, Inc.

PROJECT NAME: Site 12 RI
PROJECT NUMBER: 02014
LOCATION: Willow Grove Site 12
TEST PIT NUMBER: 12TP15
DATE: 1-12-10
GEOLOGIST: D. Whalen

Depth (Ft.) 0	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READIN: Source (ppm)	BZ (ppm)
0.5		Brown sandy SILT		MOIST		
		lt. Brown clayey SILT			0	0
3		charred debris: asphalt,			0	0
		roofing paper, bottles,				
		china, scrap metal,			0	0
		crushed drum (empty)				
					0	0
4		lt. BRN clayey SILT				
					0	0
		Red-Brown silty SAND/sandy				
		SILT, some Rock Fragments			0	0
				↓		
6		Bedrock		groundwater @ 6'	0	0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Collect samples 12TP15-000.5-01, 12TP15-0.502-02, 12TP15-0304-03, 12TP15-0405-04

PHOTO LOG:

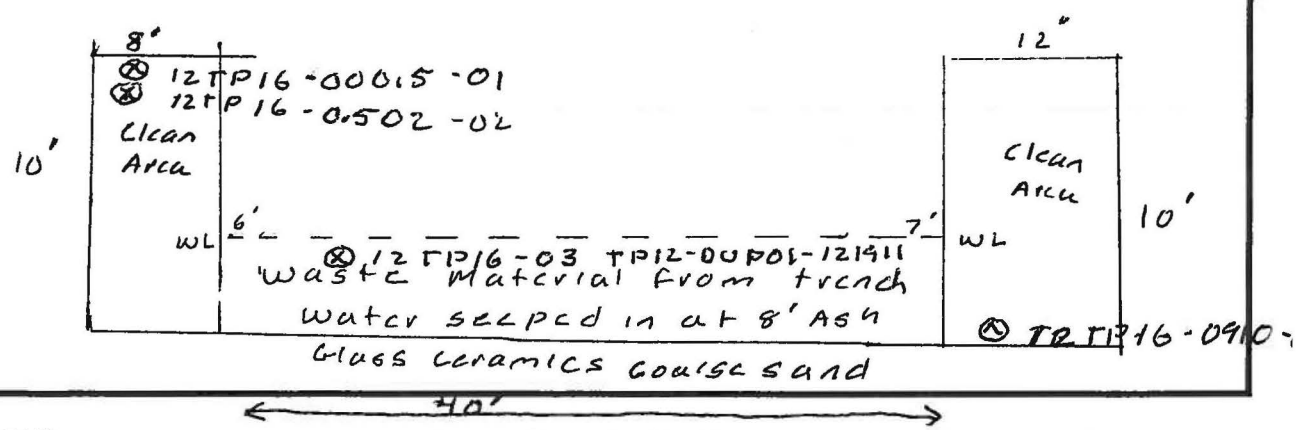
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
LOCATION: Site 12
TEST PIT No.: TP-16
DATE: 12/19/2011
GEOLOGIST: CM

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
1		Brown Sandy Silt trace clay		some Roots	0.0	0.0
2		Brown Sandy Silt trace clay		Roots	0.0	0.0
3		Red Brown Sandy Silt trace clay		Moist	0.0	0.0
4		Red Brown Sandy Silt trace clay		Moist	0.0	0.0
5		Lt Brown sandy silt trace clay		Moist	0.0	0.0
6		Lt Brown Sandy Silt trace clay		Moist	0.0	0.0
7		Black ash with ceramic + Glass		wet	0.0	0.0
8		Black ash with Ceramic + Glass		wet	0.0	0.0
9		Lt Brown Sandy Silt		Moist	0.0	0.0
10		Lt Brown Sandy Silt		Moist	0.0	0.0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Water encountered at 8 feet came up to 6-7 feet into waste material

PHOTO LOG:

TEST PIT LOG

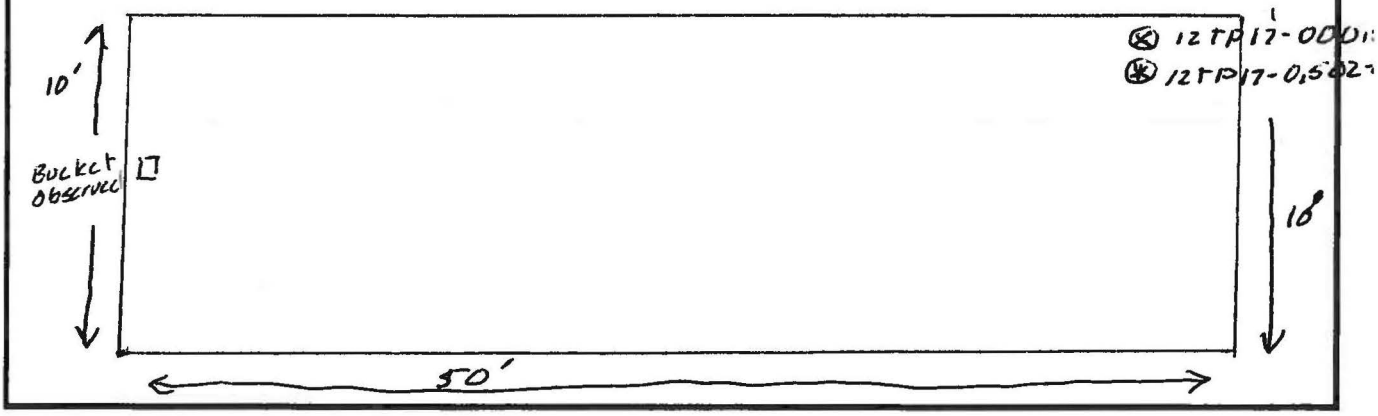
Tetra Tech NUS, Inc.

Page ___ of ___

PROJECT NAME: NASJRB Willow Grove
PROJECT NUMBER: CTO-WE05
LOCATION: Site 12
TEST PIT No.: TP-17
DATE: 12/19/2011
GEOLOGIST: CM

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
1		Brown Sandy Silt roots		Moist	0.0	0.0
2		Brown Red Brown Sandy Silt Rock Frag		Moist	0.0	0.0
3		Brown Sandy Silt Rock Frag		Moist	0.0	0.0
4		Gray Sandy Silt Rock Frag		Moist	0.0	0.0
5		Gray Sandy Silt Rock Frag		Dry	0.0	0.0
6		Brown Sandy Silt Rock Frag		Dry	0.0	0.0
7		Brown Sandy Silt Rock Frag		Moist	0.0	0.0
8		Brown Sandy Silt Rock Frag		Moist	0.0	0.0
9		Gray Sandy Silt Rock Frag		Moist	0.0	0.0
10		Saprolite water		Wet	0.0	0.0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: No waste observed until a bucket was found in the North East corner of the excavation

PHOTO LOG:

Tetra Tech

TEST PIT LOG

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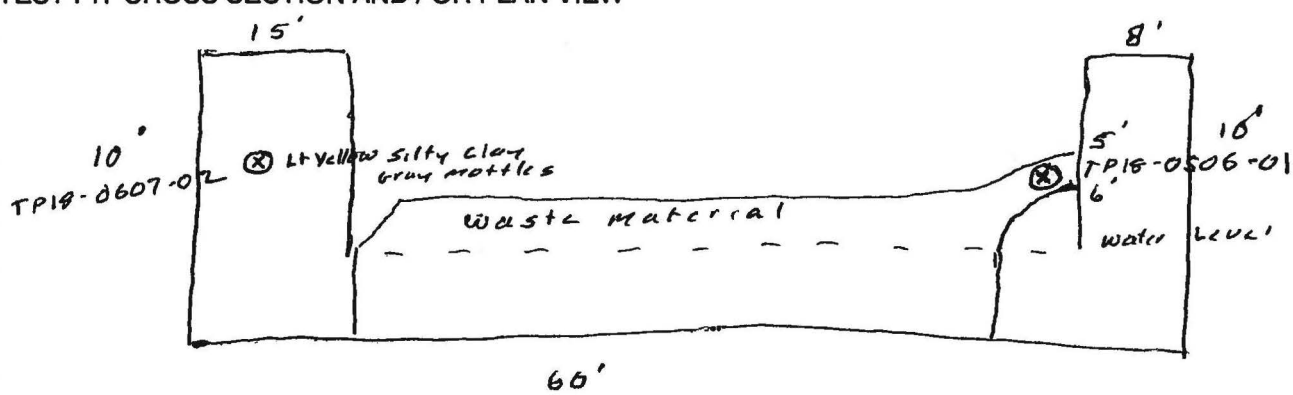
PROJECT NAME: NAS JRB Willow Group
PROJECT NUMBER: CTO - WE05
LOCATION: Site 12
TEST PIT No.: 12 TP18 - 122011
DATE: 12/20/11
GEOLOGIST: Chuck Meyer

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION: Soil/Waste Characteristics (lithology, density, color, etc.)	USCS	Remarks	PID/FID READING: Source (ppm)	PID/FID READING: BZ (ppm)
1		Brown Fine grained sandy silt		Roots + Rocks	0.0	0.0
2		Brown Fine grained sandy silt		Rock Frag Dry	0.0	0.0
3		Brown Fine grained sandy silt		Rock Frag Dry	0.0	0.0
4		Red Brown Fine grained sandy silt		Rock Frag Dry	0.0	0.0
5		Lt Brown Gray Black Ash coase grained coal with ceramics sandy silt		Waste Material	0.0	0.0
6		Gray Brown Gray Black Ash waste sandy	silt	Waste material	0.0	0.0
7		Brown Gray Black Ash waste sandy	silt	Waste material	0.0	0.0
8		Brown Gray Black Ash waste sandy	silt	Wet	0.0	0.0
9		Brown Gray Black Ash Waste Sandy	silt	Wet	0.0	0.0
10		Brown Gray Black Ash waste sandy	silt	Wet	0.0	0.0

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: Waste material pinched out 8 feet from South West council of Test pit and 15 feet southwest of North eastern end of the test pit

PHOTO LOG:

APPENDIX D

TEST PIT PHOTOGRAPHS

Photo 12TP01-01. View of excavated pieces of plane fuselage.

Photo 12TP01-02. View of interior of excavation showing plane fuselage at bottom.

Photo 12TP01-03. Excavated pieces of plane fuselage.

Photo 12TP01-04. View of excavated rubber fuel tank.

Photo 12TP02-01. View of interior of excavation showing top of layer of charred debris 4 feet bgs.

Photo 12TP02-02. View of interior of excavation showing perched groundwater at 5 feet bgs.

Photo 12TP02-03. View of excavated charred debris.

Photo 12TP03-01. View of excavated debris (crushed cans).

Photo 12TP03-02. View of interior of test pit, showing fire brick and perched groundwater.

Photo 12TP03-03. View of excavated scrap metal.

Photo 12TP04-01. View of interior of northern section of test pit at location where elevated PID readings and fuel odors were encountered.

Photo 12TP04-02. View sidewall of northern section of test pit at location where elevated PID readings and fuel odors were encountered.

Photo 12TP04-03. View of interior of completed southern section of test pit showing groundwater on top of bedrock.

Photo 12TP04-04. View of excavated soil at northern section of test pit.

Photo 12TP05-01. View of excavation sidewall showing scrap metal in the foreground.

Photo 12TP05-02. View of test pit wall, showing length of reinforced concrete pipe leaking perched groundwater into the excavation.

Photo 12TP05-03. View of completed test pit showing perched groundwater.

Photo 12TP05-04. View of completed test pit showing excavated soil.

Photo TP06-01. View of interior of excavation, showing collapsed sidewall and charred debris.

Photo TP06-02. Close-up of excavated debris.

Photo TP06-03. View of interior of excavation showing charred debris.

Photo TP07-01. View of interior of excavation showing scrap metal in sidewall.

Photo TP07-02. View of test pit sidewall.

Photo 12TP07-03. View of completed test pit filled with perched groundwater, looking east.

Photo 12TP07-04. View of completed test pit showing excavated soil.

Photo 12TP08-01. View of test pit sidewall, showing buried debris.

Photo 12TP08-02. View of excavated debris.

Photo 12TP08-03. View of excavation in progress, looking northwest.

Photo 12TP09-01. View of interior of excavation, showing charred debris.

Photo 12TP09-02. View of test pit sidewall, showing charred debris.

Photo 12TP09-03. View of interior of excavation, showing charred debris.

Photo 12TP09-04. View of excavated soil.

Photo 12TP10-01. View of excavated scrap metal.

Photo 12TP10-02. View of excavated debris (mechanic's dolly).

Photo 12TP10-03. Interior of excavation filled with perched groundwater.

Photo 12TP10-04. View of collapsed sidewall, showing debris layer.

Photo 12TP10-05. View of excavated scrap metal.

Photo 12TP10-06. View of excavation filled with perched groundwater.

Photo 12TP10-07. View of completed excavation, looking west.

Photo 12TP11-01. View of excavated soil and piece of scrap metal.

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Photo 12TP11-02. View of excavated soil.

Photo 12TP11-03. View completed test pit.

Photo 12TP12-01. View test pit sidewall showing exposed metal pipe.

Photo 12TP12-02. View of excavated scrap metal.

Photo 12TP12-03. View of excavated soil and scrap metal.

Photo 12TP12-04. View test pit sidewall showing exposed bottle and rusted metal fragments.

Photo 12TP12-05. View completed test pit.

Photo 12TP13-01. View of test pit sidewall.

Photo 12TP13-02. View of interior of test pit.

Photo 12TP13-03. View of excavated soil.

Photo 12TP13-04. View of completed test pit.

Photo 12TP14-01. View of excavated wire fence material.

Photo 12TP14-02. View of excavated debris.

Photo 12TP14-03. View of completed test pit.

Photo 12TP15-01. Excavated crushed drum.

Photo 12TP15-02. View of excavation sidewall showing layer of charred debris.

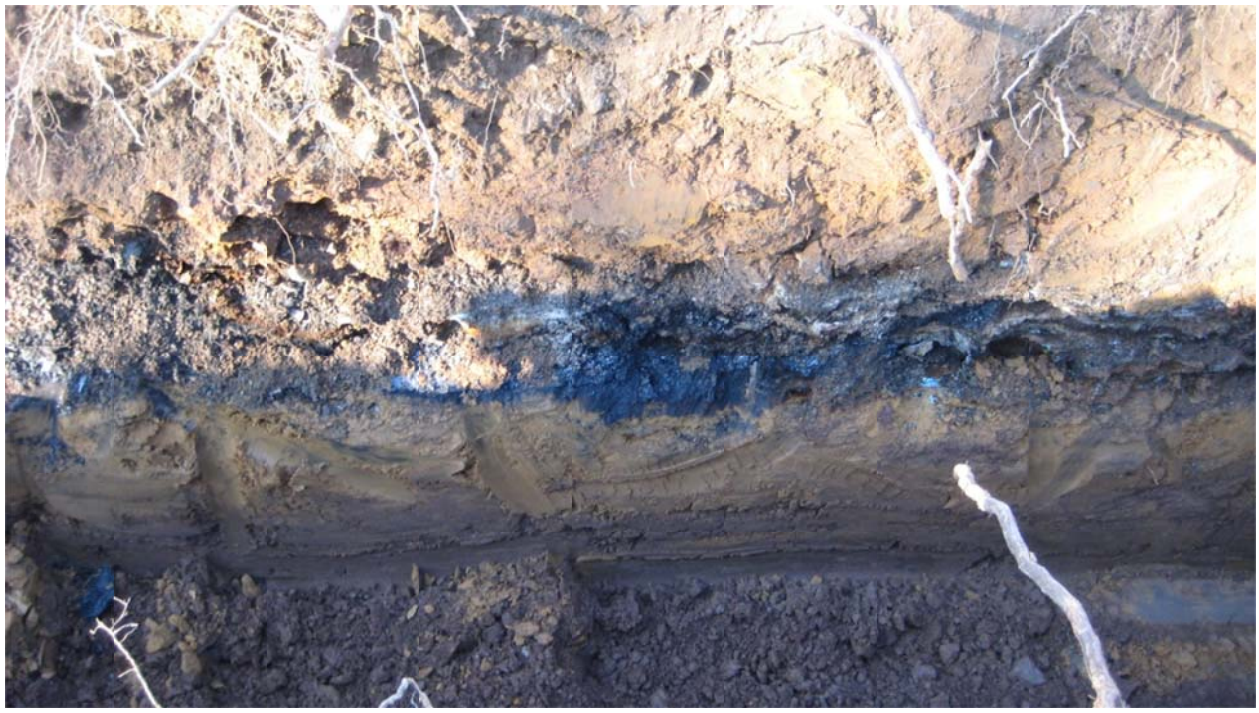


Photo 12TP15-03. View of excavation sidewall showing layer of charred debris.

Photo 12TP15-04. View of excavated scrap metal.

Photo 12TP16-01. View of test pit, looking northeast.

Photo 12TP17-01. View of test pit, looking northeast.

Photo 12TP18-01. View of test pit, looking southwest.

Photo 12TP18-02. View of test pit sidewall.

Photo 12TP18-03. View of excavated debris.

APPENDIX E

BORING LOGS

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Willow Grove
PROJECT NUMBER: 112G02014
DRILLING COMPANY: Talon
DRILLING RIG: ACKER soil MAX ATV

BORING NUMBER: 12MW01
DATE: 1-12-12
GEOLOGIST: D. Whalen / JS Tamm/HALLGE
DRILLER: D. Burgess

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1 @ 1120	1	2/2	14/24			BRN	clayey SILT	ML	moist	0			
	2	2/3								0			
S-2 @ 1127	3	4/5	14/24			GRY	SANDY SILT	SM		0			
	4	6/6				GRY	clayey SILT			0			
S-3 @ 1130	5	5/7	16/24				clayey SILT	ML	wet	0	0		0
	6	10/10				lt BRN	silty SAND	SM	moist	0			
S-4 @ 1132	7	5/5	17/24			BRN	clayey SILT some rock fragments			0			
	8	6/15								0			
S-5 @ 1137	9	12/40	16/24			BRN red	weathered sandstone and silty SAND		moist	0			
	10	30/30				GRY			wet	0	0		0
S-6 @ 1142	11	50/10cm	8/9			BRN	silty SAND	SM	moist	0			
	12								spoon refusal @ 11'				
1309	13					RED BRN	weathered siltstone		dry				
	14						↓						
	15									0	0		0
	16					RED GRAY	FGR SANDSTONE		wet ~16'				
	17								moist				
	18								dry, dusty				
	19												
1309	20					red-gray	FGR SANDSTONE			0	0		0
1/16/12 0933					HARD	RED BRN	SILTY F. SAND			0	0	0	0
									WATER ENTRY @ ~27				
1058	35						EOB						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: _____

Drilling Area Background (ppm): 0

Converted to Well: Yes X No _____ Well I.D. #: 12MW01S

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: Willow Grove
PROJECT NUMBER: 112G02014
DRILLING COMPANY: TALON
DRILLING RIG: ACKER SOIL MAX ATV
BORING NUMBER: 12MW02
DATE: 1/16/12 - 1/18/12
GEOLOGIST: J.S. TOMA/HAGGE
DRILLER: DAN BURGESS

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
430	1	4/4	12/24		BRN	BRN	CLAYEY SILT			0	0	0	0
	2	6/10											
	3	5/5	12/24			BRN	SANDY SILT						
	4	7/8											
	5	8/9	16/24			BRN	CLAYEY SILT						
	6	9/9				GRY	FINE SAND						
	7	9/10	16/24			BRN	CLAYEY SILT			0	0	0	0
	8	12/14				BRN	MOTTLED SILTY CLAY						
	9	7/12	13/24			GRY	WEATHERED VF SANDSTONE FRAGS						
	10	14/19											
	11	10/14	18/24										
	12	20/30					SAME AS ABOVE						
	13	22/30	2/24										
500	14	37/100/4							SPOON REFUSAL @ 14	0	0	0	0
	15												
	16												
	17												
	18												
	19												
	20								SET 6" STEEL CASING				
1/17/12													
1/18/12					HARD	RACD BRN	SILT V.F. SANDSTONE		WATER ENTRY @ 22' & 35'				
	40						EOB						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes X No _____ Well I.D. #: 12MW02S

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: Willow Grove
PROJECT NUMBER: 112G02014
DRILLING COMPANY: TAION
DRILLING RIG: ACKER SOIL MAX ATV
BORING NUMBER: 12MWØ3
DATE: 1/18/12 – 1/19/12
GEOLOGIST: JS TOMA/AVAGE
DRILLER: DAN BURGESS

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1/18/12													
3US	1	2/2	13/24			RD BRN	MOTTLED CLAYEY SILT			0	0	0	0
	2	10/12	24										
	3	6/8	8/24										
	4	6/6											
	5	9/8	0/24				SAME AS ABOVE						
	6	8/8											
	7	10/15	6/24										
	8	17/12											
	9	6/7	8/24			ORN	SANDY SILT						
	10	15/20				RD BRN	CLAYEY SILT		WET @ 10'				
	11	15/20	24/24				W/ SANDSTONE FRAGS						
1/20	12	30/50/4							SPOON REFUSAL @ 12'	0	0	0	0
	13												
	14												
	15												
	16												
	17												
	18												
	19								6" STEEL CASING SET TO 19'				
1/19/12	20												
8:06					HARD	RD BRN	SILTY V.F. SAND STONE		WATER ENTRY 24' & 27'				
	25												
8:30	30						EOB						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: _____

Drilling Area Background (ppm): 0

Converted to Well: Yes X No _____ Well I.D. #: 12MWØ3S

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: Willow Grove
PROJECT NUMBER: 112G02014
DRILLING COMPANY: TALON
DRILLING RIG: ACKER SOIL/MAX ATV
BORING NUMBER: 12MW04
DATE: 1/19/12 - 1/20/12
GEOLOGIST: JS TOMA/AVAGE
DRILLER: DAN BURGESS

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
9/12													
1315	1	3/3	11/			BRN	CLAYEY SILT			0	0	0	0
	2	4/7	/24										
	3	3/3	1/										
	4	V-/7	/24										
	5	10/13	18/										
1455	6	22/50/3	/24			BLK	CINDER & GRAVEL LAYER ~ 1" THICK			0	0	0	0
	7					RD BRN	CLAYEY SILT W/ ROCK FRAGS		SPOON REFUSAL @ ~8' WET				
	8												
	9												
	10												
	11				HARD	RD	SANDY SILTSTONE						
	12												
	13												
	14												
	15												
	16												
	17												
	18								SET 6" STEEL CASING 19±				
1602	19												
1/20/12	20												
0815						GRY	25'-28' GRY SANDY SILTSTONE			0	0	0	0
						RD	28-32' RD SANDY SILTSTONE		WATER ENTRY @ 28 & 32				
	11			11									
	31						EOB						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes X No _____ Well I.D. #: 12MW04S

APPENDIX F

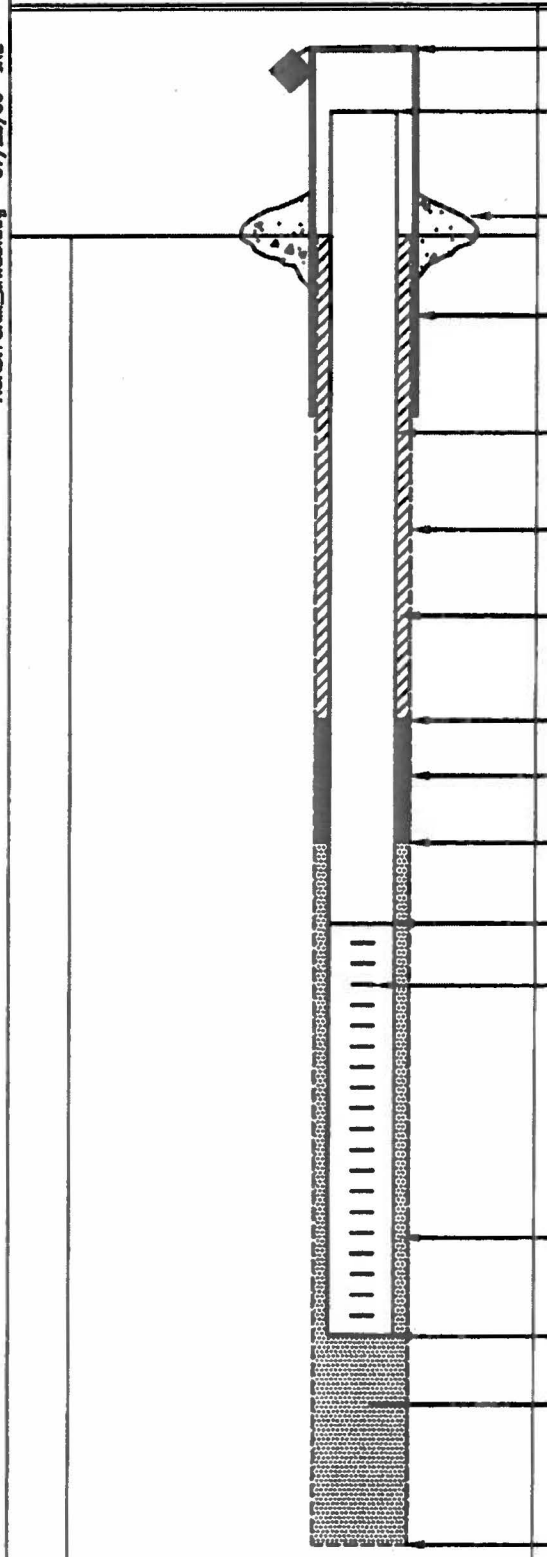
MONITORING WELL CONSTRUCTION LOGS

WELL NO.: 12 MW 10

Tetra Tech

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT: MASJRB Willow Grove	LOCATION: SITE 12	DRILLER: TALON DRILLING	
PROJECT NO.: 112G02014	BORING: 12MW01	DRILLING METHOD: HSA	
DATE BEGUN: 1/12/12	DATE COMPLETED: 1/12/12		
FIELD GEOLOGIST: D. WHELAN		DEVELOPMENT METHOD: WHALE PUMP	
GROUND ELEVATION: 343.18	DATUM: NAVD 88		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 346.05/2.87

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 345.65/2.47

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5-7/8"
TYPE OF SURFACE CASING: STEEL

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: SCH. 40 PVC

BOREHOLE DIAMETER: 6"

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 341/2

TYPE OF SEAL: BENTONITE CHIPS

DEPTH TOP OF SAND PACK: 2.5'

ELEVATION/DEPTH TOP OF SCREEN: 338.7/4.5

TYPE OF SCREEN: SCH. 40 PVC

SLOT SIZE x LENGTH: 0.010" X 10'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: NO.1 FILTER SAND

ELEVATION/DEPTH BOTTOM OF SCREEN: 328.7/14.5

ELEVATION/DEPTH BOTTOM OF SAND PACK: 328.7/14.5

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 328.7/14.5'

ACAD: FORM_MWSU.dwg 07/20/99 INL

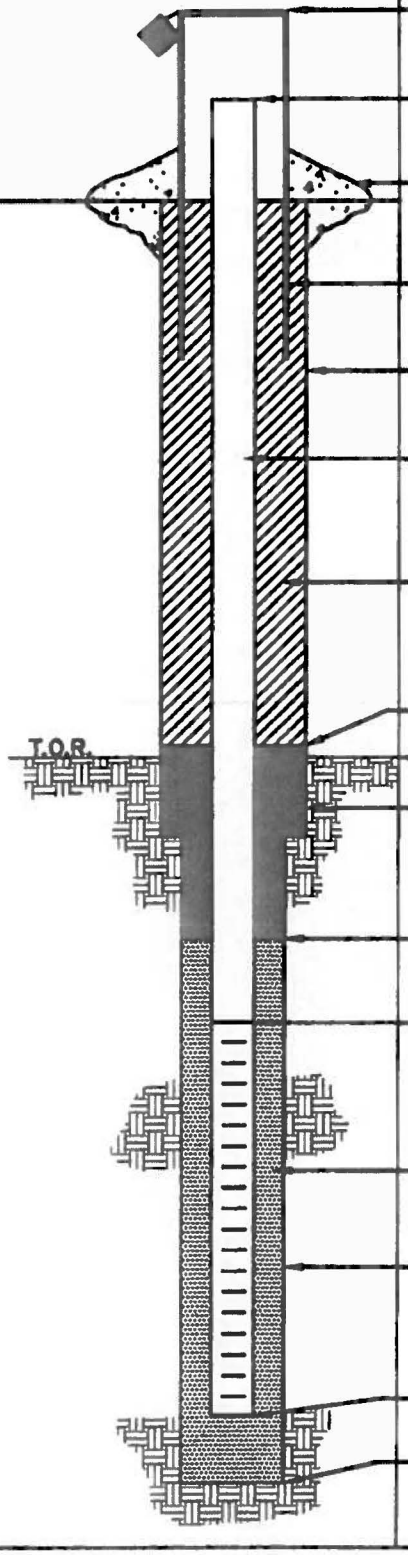
WELL NO.: 12MW01S

Tetra Tech

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT NAS JRB Willow Grove LOCATION SITE 12
PROJECT NO. 112G02014 BORING 12MW01
DATE BEGUN 1/16/12 DATE COMPLETED 2/21/12
FIELD GEOLOGIST JS Toma/AVA GS
GROUND ELEVATION 346.25 DATUM NAVD 88

DRILLER TALON DRILLING
DRILLING METHOD AIR ROTARY
DEVELOPMENT METHOD WHALE PUMP



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 349/2.75
ELEVATION/HEIGHT TOP OF RISER: 348.7/2.46
TYPE OF SURFACE SEAL: CONCRETE
I.D. OF SURFACE CASING: 5 7/8"
DIAMETER OF HOLE: 6"
RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: SCH. 40 PVC
TYPE OF BACKFILL: CEMENT
ELEVATION/DEPTH TOP OF SEAL: 326.3/20
ELEVATION/DEPTH TOP OF BEDROCK: 331.3/15
TYPE OF SEAL: BENTONITE CHIPS
ELEVATION/DEPTH TOP OF SAND: 323.3/23
ELEVATION/DEPTH TOP OF SCREEN: 321.3/25
TYPE OF SCREEN: SCH. 40 PVC
SLOT SIZE x LENGTH: 0.020" X 10'
I.D. SCREEN: 2"
TYPE OF SAND PACK: NO. 1 FILTER SAND
DIAMETER OF HOLE IN BEDROCK: 6"
CORE/REAM: AIR HAMMER
ELEVATION/DEPTH BOTTOM SCREEN: 311.3/35
ELEVATION/DEPTH BOTTOM OF SAND: 311.3/35
ELEVATION/DEPTH BOTTOM OF HOLE: 311.3/35
BACKFILL MATERIAL BELOW SAND: NA

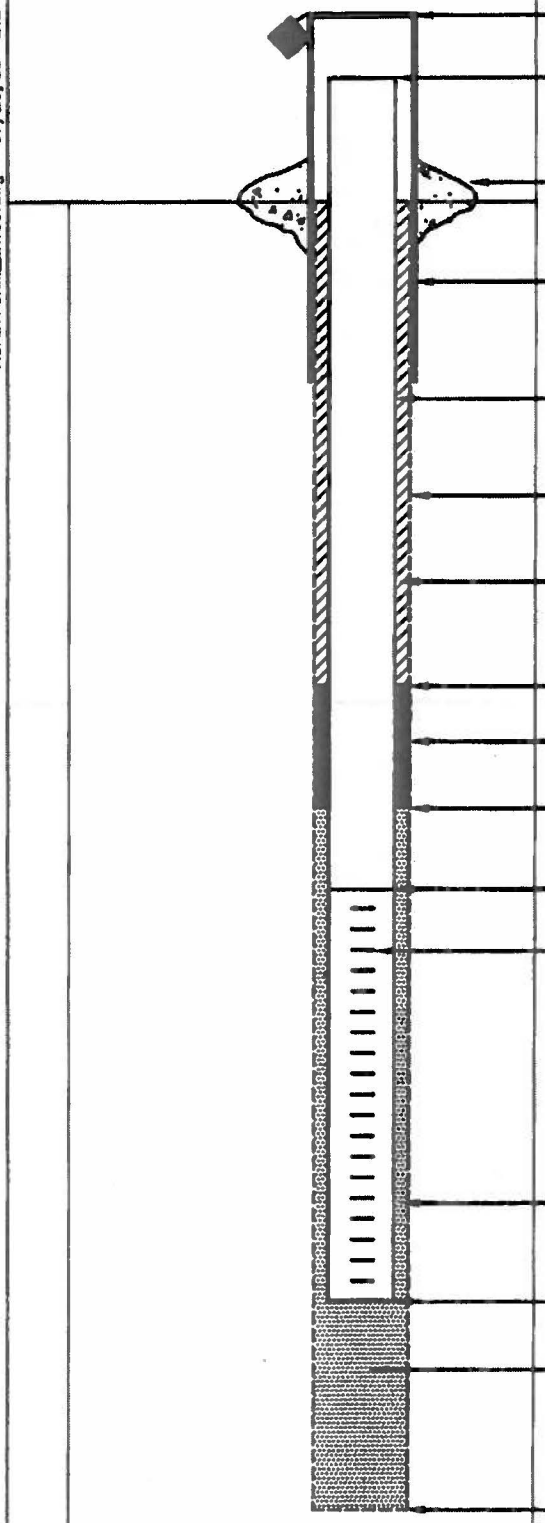
ACAD: FORM_MWNBR.dwg 07/20/99 INL

WELL NO.: 12MW02O

Tetra Tech

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NAS JRB Willow Grove	LOCATION Site 12	DRILLER JAlon Drilling	
PROJECT NO. 112G02014	BORING 12MW02	DRILLING METHOD HSA	
DATE BEGUN 1/17/12	DATE COMPLETED 1/17/12		
FIELD GEOLOGIST J S Tomalavage		DEVELOPMENT METHOD Whale Pump	
GROUND ELEVATION 343.92	DATUM NAVD 88		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 346.6/2.68

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 346.2/2.25

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5-7/8"

TYPE OF SURFACE CASING: STEEL

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: SCH.40 PVC

BOREHOLE DIAMETER: 6"

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 341.9/2

TYPE OF SEAL: BENTONITE CHIPS

DEPTH TOP OF SAND PACK: 3

ELEVATION/DEPTH TOP OF SCREEN: 339.9/4

TYPE OF SCREEN: SCH 40 PVC

SLOT SIZE x LENGTH: 0.010" X 10'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: NO.1 FILTER SAND

ELEVATION/DEPTH BOTTOM OF SCREEN: 329.9/14

ELEVATION/DEPTH BOTTOM OF SAND PACK: 329.9/14

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 329.9/14

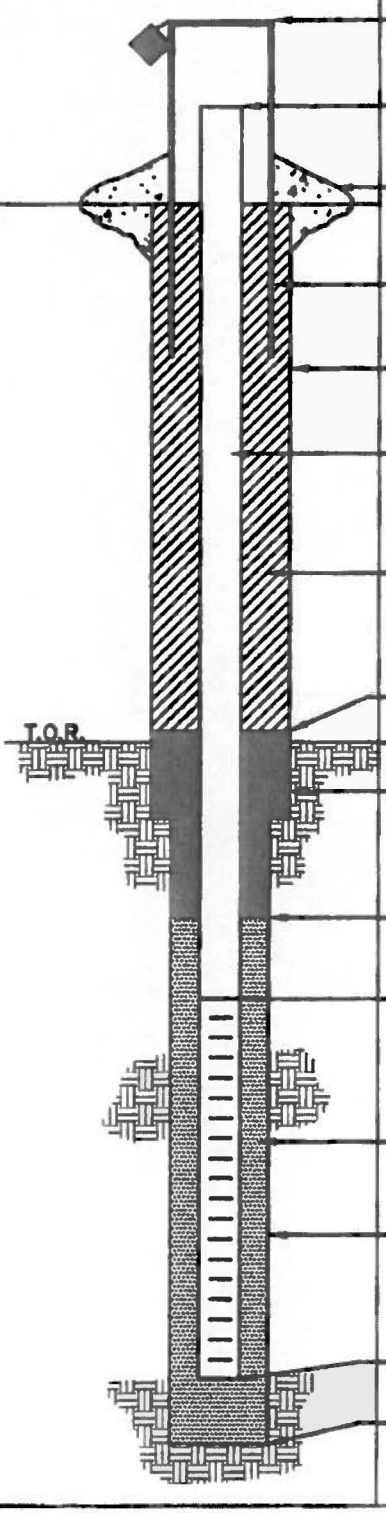
ACAD:FORM_MWSU.dwg 07/20/09 INI

WELL NO.: 12MWΦ2S

Tetra Tech

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT NAS JRB Willow Grove LOCATION SITE 12	DRILLER TALON DRILLING
PROJECT NO. 112G02014 BORING 12MWΦ2	DRILLING METHOD AIR ROTARY
DATE BEGUN 1/17/12 DATE COMPLETED 2/21/12	DEVELOPMENT METHOD WHALE PUMP
FIELD GEOLOGIST T. S. TOMALAVAGE	
GROUND ELEVATION 343.91 DATUM NAVD 88	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 346.3/2.63

ELEVATION/HEIGHT TOP OF RISER: 346.3/2.35

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5 7/8"

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: SCH 40 PVC

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 325.9/18

ELEVATION/DEPTH TOP OF BEDROCK: 328.9/15

TYPE OF SEAL: BENTONITE CHIPS

ELEVATION/DEPTH TOP OF SAND: 323.9/20

ELEVATION/DEPTH TOP OF SCREEN: 321.9/22
TYPE OF SCREEN: SCH 40 PVC
SLOT SIZE x LENGTH: 0.020" X 13'
I.D. SCREEN: 2"

TYPE OF SAND PACK: NO.1 FILTER SAND

DIAMETER OF HOLE IN BEDROCK: 6"
CORE/REAM: AIR HAMMER

ELEVATION/DEPTH BOTTOM SCREEN: 308.9/35
ELEVATION/DEPTH BOTTOM OF SAND: 303.9/40
ELEVATION/DEPTH BOTTOM OF HOLE: 303.9/40
BACKFILL MATERIAL BELOW SAND: FILTER SAND (NO.1)

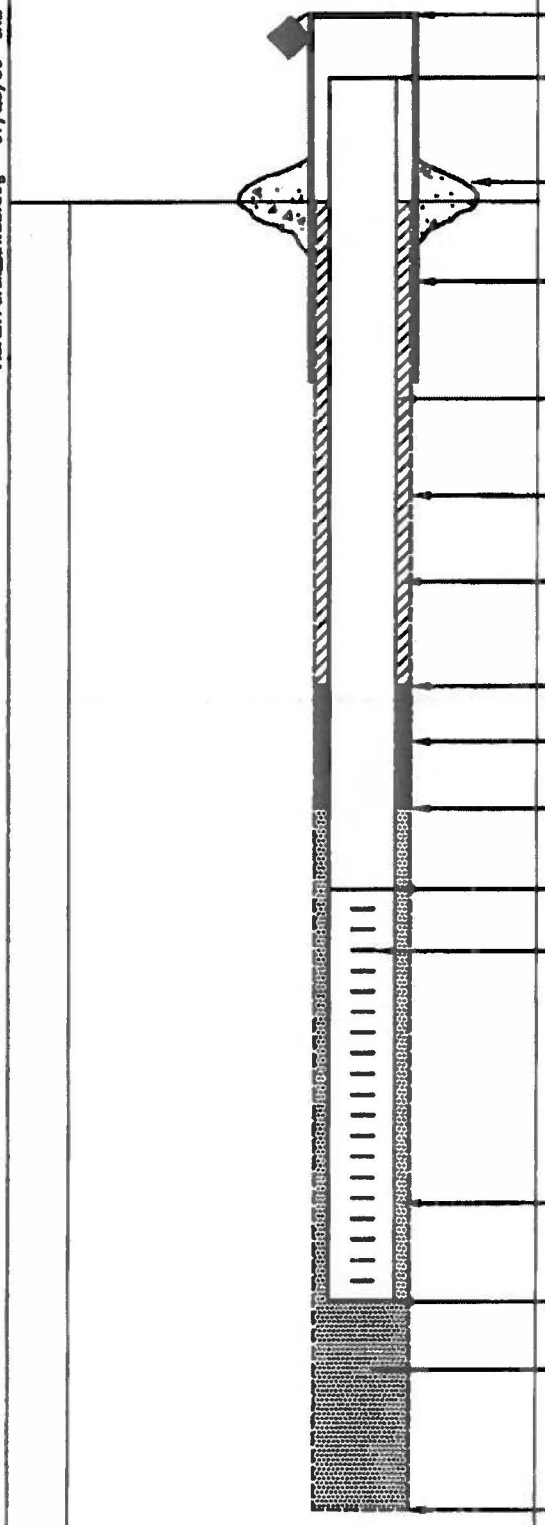
ACAD:FORM_MWDNBR.dwg 07/28/99 INL

WELL NO.: 12MW03O

Tetra Tech

OVERBURDEN
MONITORING WELL SHEET
STICK-UP

PROJECT NAS JRB WILLOW GROVE	LOCATION SITE 12	DRILLER TAYLOR DRILLING	
PROJECT NO. 112G02014	BORING 12 MW 03	DRILLING METHOD HSA	
DATE BEGUN 1/19/12	DATE COMPLETED 1/19/12		
FIELD GEOLOGIST S.S TAMALIVAGE		DEVELOPMENT METHOD WHALE PUMP	
GROUND ELEVATION 345.39	DATUM NAVD 88		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 348.39/3.12

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 348.26/2.87

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5 7/8"

TYPE OF SURFACE CASING: STEEL

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: SCH.40 PVC

BOREHOLE DIAMETER: 6"

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 342.4/3

TYPE OF SEAL: BENTONITE CHIPS

DEPTH TOP OF SAND PACK: 3.5

ELEVATION/DEPTH TOP OF SCREEN: 340.4/5

TYPE OF SCREEN: SCH 40 PVC

SLOT SIZE x LENGTH: 0.010" X 10'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: NO.1 FILTER SAND

ELEVATION/DEPTH BOTTOM OF SCREEN: 330.4/15

ELEVATION/DEPTH BOTTOM OF SAND PACK: 330.4/15

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 330.4/15

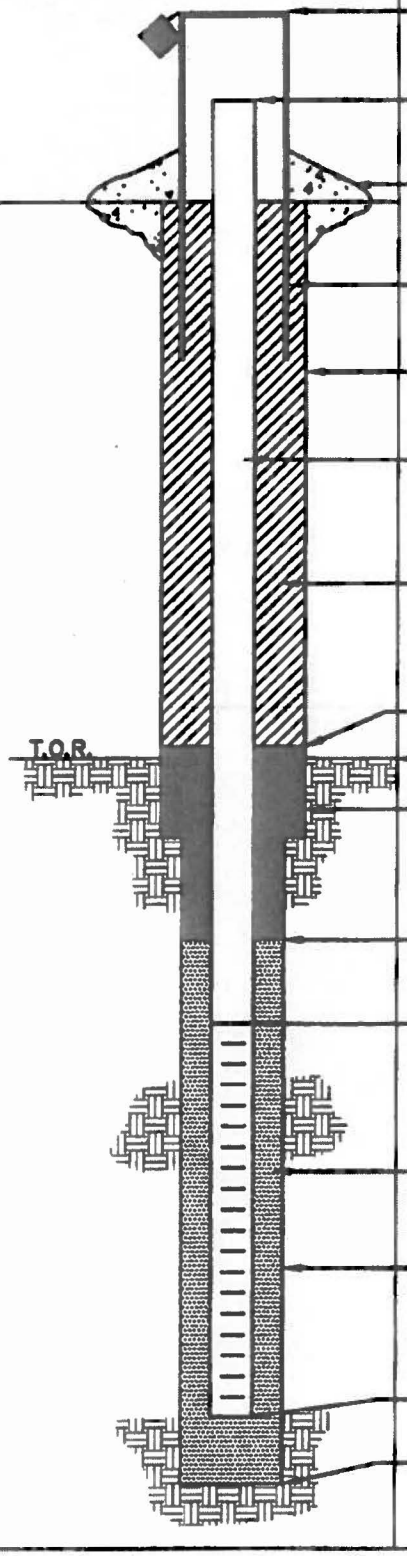
ACAD: FORM_MWSU.dwg 07/28/99 INL

WELL NO.: 12MW03S

Tetra Tech

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT NAS JRB Willow Grove | LOCATION SITE 12 | DRILLER TABN DRILLING
PROJECT NO. 112G02014 | BORING 12MW03 | DRILLING METHOD AIR ROTARY
DATE BEGUN 1/18/12 | DATE COMPLETED 2/21/12 | DEVELOPMENT METHOD WATER PUMP
FIELD GEOLOGIST J STOMALAVAGE
GROUND ELEVATION 345.58 | DATUM NAVD 88



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 348.7 / 3.12

ELEVATION/HEIGHT TOP OF RISER: 348.4 / 2.82

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5 7/8"

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: SCH 40 PVC

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 327.6 / 18

ELEVATION/DEPTH TOP OF BEDROCK: 330.6 / 15

TYPE OF SEAL: BENTONITE CHIPS

ELEVATION/DEPTH TOP OF SAND: 325.6 / 20

ELEVATION/DEPTH TOP OF SCREEN: 323.6 / 22
TYPE OF SCREEN: SCH 40 PVC
SLOT SIZE x LENGTH: 0.020" x 10'
I.D. SCREEN: 2"

TYPE OF SAND PACK: NO.1 FILTER SAND

DIAMETER OF HOLE IN BEDROCK: 6"
CORE/REAM: AIR HAMMER

ELEVATION/DEPTH BOTTOM SCREEN: 313.6 / 32
ELEVATION/DEPTH BOTTOM OF SAND: 310.6 / 35
ELEVATION/DEPTH BOTTOM OF HOLE: 310.6 / 35
BACKFILL MATERIAL BELOW SAND: FILTER SAND (NO.1)

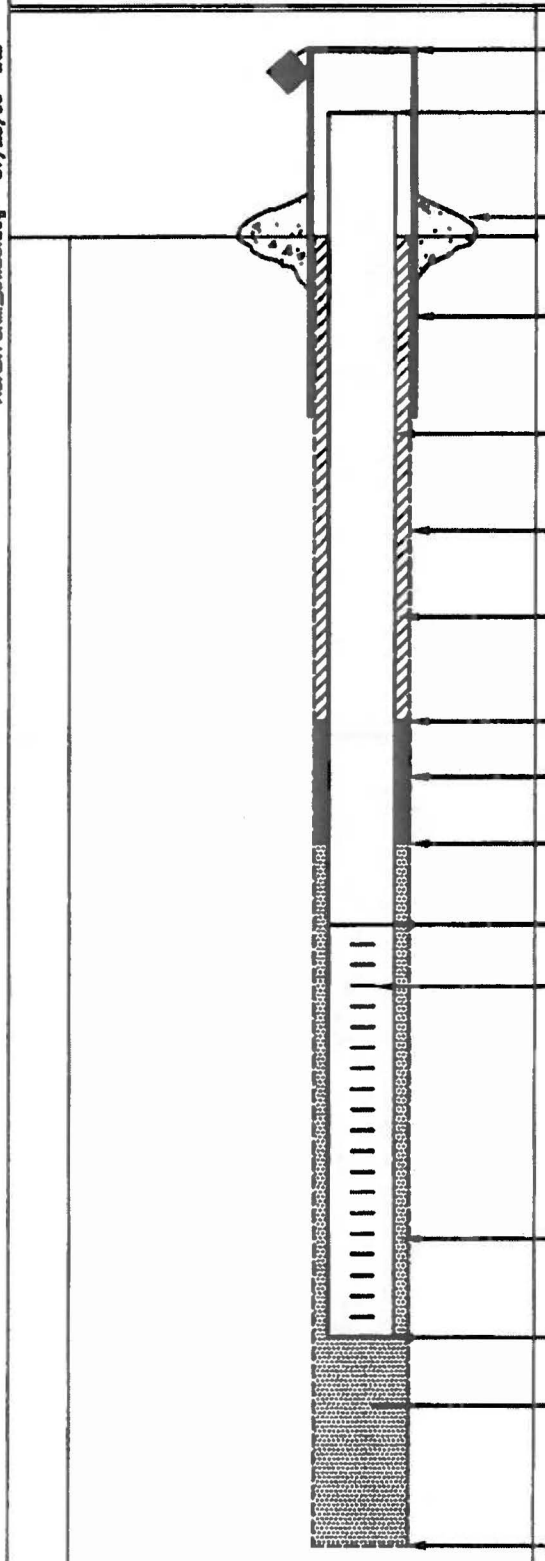
ACAD:FORM_MWNBR.dwg 07/29/99 INL

WELL NO.: 12MW04O

Tetra Tech

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NAS JRB WILLOW GROVE	LOCATION SITE 12	DRILLER TALON DRILLING	
PROJECT NO. 112G02014	BORING 12MW04	DRILLING METHOD HSA	
DATE BEGUN 1/20/12	DATE COMPLETED 1/20/12		
FIELD GEOLOGIST J. TRIMARCHI		DEVELOPMENT METHOD WHALE PUMP	
GROUND ELEVATION 346.09	DATUM NAVD 88		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 349/2.9'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 348.74/2.6'

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5 7/8"
TYPE OF SURFACE CASING: STEEL

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: SCH.40 PVC

BOREHOLE DIAMETER: 6"

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 343.6/2.5'

TYPE OF SEAL: BENTONITE CHIPS

DEPTH TOP OF SAND PACK: 343.1/3

ELEVATION/DEPTH TOP OF SCREEN: 341.1/5

TYPE OF SCREEN: SCH.40 PVC

SLOT SIZE x LENGTH: 0.010" X 10'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: NO.1 FILTER SAND

ELEVATION/DEPTH BOTTOM OF SCREEN: 331.1/15'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 331.1/15'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 331.1/15'

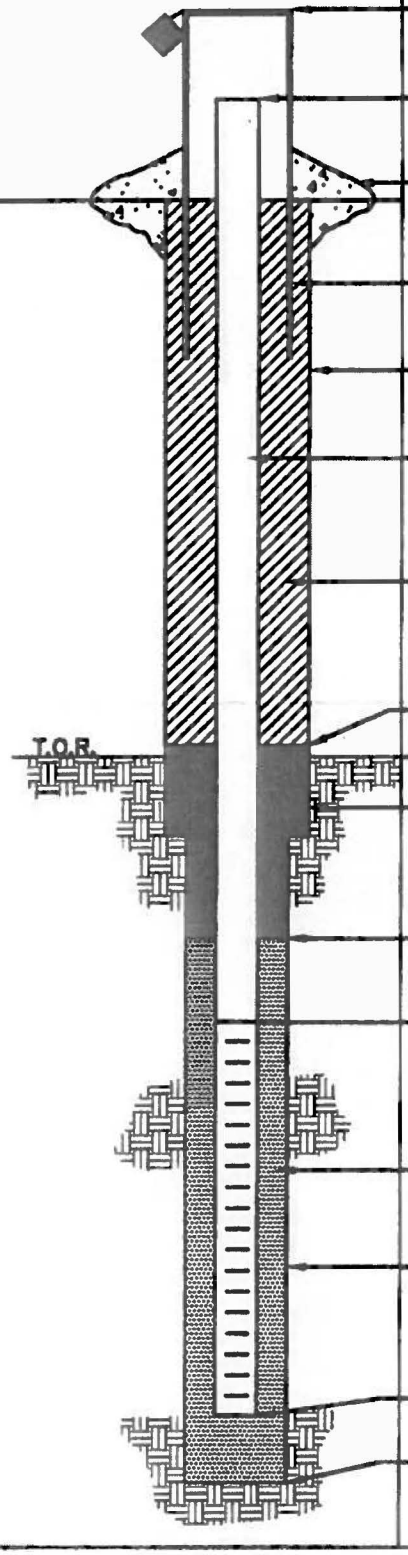
ACAD: FORM_MWSU.dwg 07/28/09 INL

WELL NO.: 12MWΦ4S

Tetra Tech

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT NAS JRB WILLOW GROVE	LOCATION SITE 12	DRILLER TALON DRILLING
PROJECT NO. 112G03014	BORING 12MWΦ4	DRILLING METHOD AIR ROTARY
DATE BEGUN 11/20/12	DATE COMPLETED 2/21/12	
FIELD GEOLOGIST JS Toma/MAG		DEVELOPMENT METHOD WHALE PUMP
GROUND ELEVATION 347.43	DATUM NAVD 88	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 350.4/2.92

ELEVATION/HEIGHT TOP OF RISER: 348.8/2.70

TYPE OF SURFACE SEAL: CONCRETE

I.D. OF SURFACE CASING: 5 7/8"

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: SCH 40 PVC

TYPE OF BACKFILL: CEMENT

ELEVATION/DEPTH TOP OF SEAL: 327.4/20

ELEVATION/DEPTH TOP OF BEDROCK: 332.4/15

TYPE OF SEAL: BENTONITE CHIPS

ELEVATION/DEPTH TOP OF SAND: 324.4/23

ELEVATION/DEPTH TOP OF SCREEN: 322.4/25
TYPE OF SCREEN: SCH 40 PVC
SLOT SIZE x LENGTH: 0.020" X 10'
I.D. SCREEN: 2"

TYPE OF SAND PACK: #0 FILTER SAND

DIAMETER OF HOLE IN BEDROCK: 6"
CORE/REAM: AIR HAMMER

ELEVATION/DEPTH BOTTOM SCREEN: 312.4/35
ELEVATION/DEPTH BOTTOM OF SAND: 312.4/35
ELEVATION/DEPTH BOTTOM OF HOLE: 312.4/35
BACKFILL MATERIAL BELOW SAND: NA

ACAD: FORM_JWINBR.dwg 07/28/99 INL

APPENDIX G

SURVEY DATA

Dennis W. Sklar, Inc. - Professional Land Surveying

2837 Ogden Avenue - Bensalem - Pennsylvania - 19020

Telephone: 215-268-7988 Fax: 215-268-7966 Email: dwspls@comcast.net

Willow Grove Air Station
Site 12
Sample Points

Project #: 155 March 2, 2010
Horizontal Datum: Pennsylvania State Plane Coordinates NAD 83 South Zone
Vertical Datum: NAVD 88
Monuments Used: Site Datum Provided By Client (Tie To "NGS PITCAIRN A" And Verified)

	Elevation in Feet	Coordinates in Feet		
Sampling		Y	X	
Point #	Ground	North	East	Date Of Survey
12TP01E	343.9	322898.2	2696536.2	March 2, 2010
12TP01W	344.3	322880.5	2696497.1	March 2, 2010
12TP02E	344.7	322909.7	2696655.7	March 2, 2010
12TP02W	344.7	322883.9	2696606.9	March 2, 2010
12TP03E	344.6	322939.8	2696690.3	March 2, 2010
12TP03W	344.8	322932.4	2696626.3	March 2, 2010
12TP04NN	344.5	322986.1	2696536.7	March 2, 2010
12TP04NS	344.4	322969.6	2696546.3	March 2, 2010
12TP04SN	344.2	322957.0	2696555.1	March 2, 2010
12TP04SS	344.5	322929.2	2696572.2	March 2, 2010
12TP05N	346.3	323089.0	2696573.7	March 2, 2010
12TP05S	344.5	323025.2	2696539.8	March 2, 2010
TP06E	345.6	322950.9	2696439.1	March 2, 2010
12TP06W	345.4	322929.1	2696400.0	March 2, 2010
12TP07E	346.1	323044.1	2696317.4	March 2, 2010
12TP07W	345.6	323033.7	2696250.4	March 2, 2010
12TP08N	348.5	323208.3	2696354.5	March 2, 2010
12TP08S	347.4	323165.9	2696377.4	March 2, 2010
12TP09N	350.5	323323.8	2696308.0	March 2, 2010
12TP09S	350.5	323280.8	2696347.1	March 2, 2010
12TP10E	348.1	323123.9	2696399.1	March 2, 2010
12TP10W	347.8	323117.8	2696328.4	March 2, 2010
12TP11N	344.9	323020.0	2697011.1	March 2, 2010
12TP11S	344.2	322991.1	2697042.7	March 2, 2010
12TP12W	345.5	323073.9	2696986.0	March 2, 2010
12TP12W	344.5	323074.3	2697027.4	March 2, 2010
12TP13E	346.7	323167.9	2696982.5	March 2, 2010
12TP13W	346.7	323145.3	2696946.2	March 2, 2010
12TP14N	350.1	323175.8	2696443.4	March 2, 2010
12TP14S	349.2	323147.6	2696500.8	March 2, 2010
12TP15E	348.8	323200.0	2696281.3	March 2, 2010
12TP15W	347.4	323179.4	2696217.2	March 2, 2010

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Willow Grove Air Station
Site 12
Sample Points

Project #: 155 March 2, 2010
Horizontal Datum: Pennsylvania State Plane Coordinates NAD 83 South Zone
Vertical Datum: NAVD 88
Monuments Used: Site Datum Provided By Client (Tie To "NGS PITCAIRN A" And Verified)

	Elevation in Feet	Coordinates in Feet		
Sampling		Y	X	
Point #	Ground	North	East	Date Of Survey
12SB01-01, 12SB01-02	345.8	322844.4	2696370.1	March 2, 2010
12SB02-01, 12SB01-02	336.5	322783.5	2696796.6	March 2, 2010
12SB03-01, 12SB03-02	345.4	323105.9	2696860.5	March 2, 2010
12SB04-01, 12SB04-02	344.8	323032.9	2697082.8	March 2, 2010
12SB05-01, 12SB05-02	344.7	323003.9	2696220.4	March 2, 2010
12TP01-01, 12TP01-02	344.1	322888.5	2696517.7	March 2, 2010
12TP02-01, 12TP02-02	344.6	322894.8	2696628.2	March 2, 2010
12TP03-01, 12TP03-02	344.7	322934.0	2696642.7	March 2, 2010
12TP04-01, 12TP04-02	344.4	322950.5	2696559.9	March 2, 2010
12TP05-01, 12TP05-02	345.8	323072.0	2696563.6	March 2, 2010
12TP06-01, 12TP06-02	345.4	322935.6	2696410.6	March 2, 2010
12TP07-01, 12TP07-02	345.6	323041.7	2696302.5	March 2, 2010
12TP08-01, 12TP08-02	347.1	323185.8	2696366.2	March 2, 2010
12TP09-01, 12TP09-02	349.4	323309.8	2696320.9	March 2, 2010
12TP10-01, 12TP10-02	347.3	323118.1	2696337.2	March 2, 2010
12TP11-01, 12TP11-02	343.4	323005.2	2697027.2	March 2, 2010
12TP12-01, 12TP12-02	345.1	323073.5	2696992.4	March 2, 2010

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Willow Grove Air Station
Site 12
Sample Points

Project #: 155 March 2, 2010
Horizontal Datum: Pennsylvania State Plane Coordinates NAD 83 South Zone
Vertical Datum: NAVD 88
Monuments Used: Site Datum Provided By Client (Tie To "NGS PITCAIRN A" And Verified)

	Elevation in Feet	Coordinates in Feet		
Sampling		Y	X	
Point #	Ground	North	East	Date Of Survey
12TP13-01, 12TP13-02	346.9	323156.8	2696963.3	March 2, 2010
12TP14-01, 12TP14-02	349.6	323160.2	2696475.7	March 2, 2010
12TP15-01, 12TP15-02	348.4	323186.2	2696240.1	March 2, 2010

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Willow Grove Air Station
Site 12
Sample Points

Project #: 155 March 2, 2010
Horizontal Datum: Pennsylvania State Plane Coordinates NAD 83 South Zone
Vertical Datum: NAVD 88
Monuments Used: Site Datum Provided By Client (Tie To "NGS PITCAIRN A" And Verified)

	Elevation in Feet	Coordinates in Feet		
Sampling		Y	X	
Point #	Ground	North	East	Date Of Survey
12SD06	341.7	322932.7	2696990.6	March 2, 2010
12SW01/12SD01	325.9	322502.6	2696643.7	March 2, 2010
12SW02/12SD02	328.9	322610.0	2696657.0	March 2, 2010
12SW03/12SD03	329.8	322647.7	2696686.6	March 2, 2010
12SW04/12SD04	331.7	322680.0	2696761.3	March 2, 2010
12SW05/12SD05	333.2	322719.7	2696794.6	March 2, 2010
12SW07/12SD07	339.6	322604.5	2696563.5	March 2, 2010
12SW08/12SD08	342.6	322789.8	2696341.0	March 2, 2010

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Willow Grove Air Station
Site 12
Sample Points

Project #: 155 March 2, 2010
Horizontal Datum: Pennsylvania State Plane Coordinates NAD 83 South Zone
Vertical Datum: NAVD 88
Monuments Used: Site Datum Provided By Client (Tie To "NGS PITCAIRN A" And Verified)

	Elevation in Feet	Coordinates in Feet		
Sampling		Y	X	
Point #	Ground	North	East	Date Of Survey
12TP01-03	344.1	322888.5	2696517.7	March 2, 2010
12TP01-04	343.9	322889.9	2696520.3	March 2, 2010
12TP02-03	344.6	322894.8	2696628.2	March 2, 2010
12TP02-04	344.7	322888.9	2696617.5	March 2, 2010
12TP03-03	344.6	322935.8	2696658.8	March 2, 2010
12TP03-04	344.8	322938.3	2696674.6	March 2, 2010
12TP03-05	344.4	322939.0	2696682.4	March 2, 2010
12TP04-03	344.2	322975.7	2696543.2	March 2, 2010
12TP04-04	344.5	322948.5	2696561.4	March 2, 2010
12TP05-03, 12TP05-04	345.4	323059.4	2696557.0	March 2, 2010
12TP06-03	345.1	322943.9	2696425.9	March 2, 2010
12TP06-04	345.4	322934.1	2696407.8	March 2, 2010
12TP07-03	345.6	323041.7	2696302.5	March 2, 2010
12TP08-03	348.1	323180.4	2696368.7	March 2, 2010
12TP09-03, 12TP09-04	349.2	323308.2	2696322.6	March 2, 2010
12TP09-04				
12TP09-05	349.9	323297.6	2696333.2	March 2, 2010
12TP10-03	348.1	323119.8	2696351.2	March 2, 2010
12TP10-04	348.0	323122.7	2696387.6	March 2, 2010
12TP11-03, 12TP11-04	344.2	323014.5	2697017.1	March 2, 2010
12TP12-03, 12TP12-04	345.1	323073.5	2696992.4	March 2, 2010
12TP13-03, 12TP13--04	346.5	323150.5	2696952.3	March 2, 2010
12TP14-03, 12TP14-04	349.6	323160.2	2696475.7	March 2, 2010
12TP15-03, 12TP15-04	349.0	323194.5	2696267.2	March 2, 2010

APPENDIX H

GEOPHYSICAL LOGS

Borehole Geophysical Logs for Four Wells, Willow Grove Naval Air Station, Horsham, PA, January 2012

Pierre Lacombe
USGS New Jersey Water Science Center,
January 25, 2012

Introduction

On January 23 and 24, 2012, Pierre Lacombe and Ron Sloto of the USGS and Joe Tomalavage of TetraTech geophysically logged the following four wells in Area 12 of the former Willow Grove Naval Air station(fig. 1 and 2).

Site ID	PA WSC ID	USGS GWSI ID
12MW-01S	MG-2197	401125075083401
12MW-02S	MG-2198	401122075083801
12MW-03S	MG-2199	401124075084001
12MW-04S	MG-2200	401125075084101

The geophysical logs are presented in this report. (Fig 3 to 7)

The site was forested. Recent melting snow and rains on January 23 made the land surface quite muddy.

Data collection

The logs were collected with a Mount Sopris Instruments MGXII logging system. The logs include: natural gamma, electrical resistivity, self-potential, fluid resistivity, fluid temperature, and acoustic borehole image. All data were collected in a digital format. All digital data is available as Log ASCII Standard files (.LAS) and as raw data files (.rd).

The model and serial number of each tool as well as other pertinent information Is available on the header for each log.

Data Processing

The various logs were complied using WellCAD and are available as .WCD files.

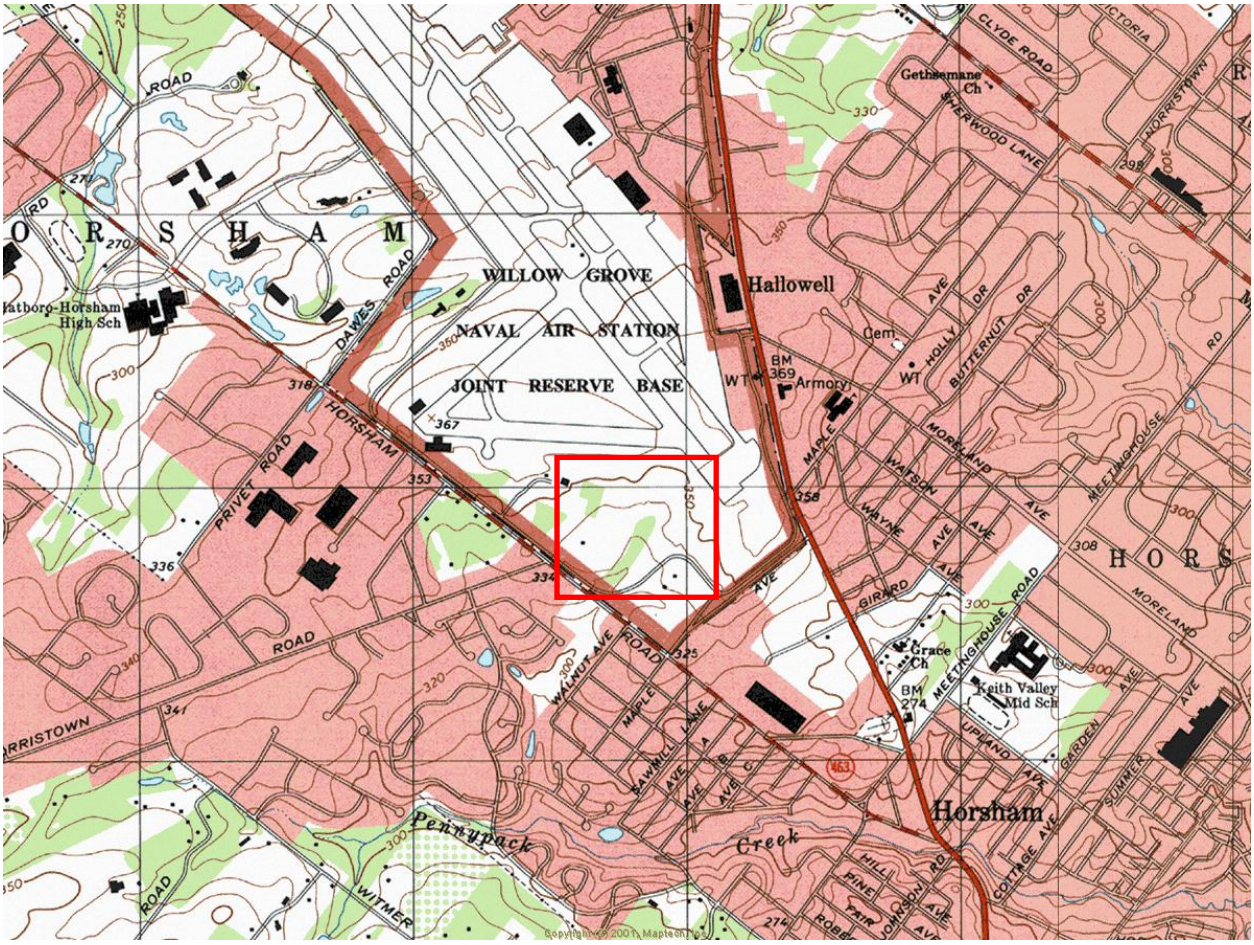

Figure 1.Topographic map showing general location of four wells. Red box outlines the area where wells were drilled, Willow Grove Naval Air Station Joint Reserve Base, Horsham, PA.

Figure 2. Air photograph of Area 12 showing the approximate locations of shallow wells MG-2197 to MG-2200 also known as 12MW-01S to 12MW-04S, Willow Grove Naval Air Station Joint Reserve Base, Horsham, PA.

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BOREHOLE GEOPHYSICAL LOG

English/Metric units E

SiteID (C1) 401125075083401	**Station name (C12)** MG-2197	**Other ID** 12MW-01S
County Montgomery	**State** Horesham PA	**Log date** Jan 23 2012
Owner U.S. Navy, Willow Grove Air Station		**Project** Area 12 Willow Grove NAS
Location description Area 12, about 200 ft west of former muntion bunker, by road side		
Latitude 40.190306	**Longitude** 75.142782	**Lat/Long datum** NAD83
Altitude LMP 341 ft	**Altitude datum** NGVD88	**Log measurement point (LMP)** LS
Height LMP Depth below (-) /above (+) LS 0	**Description of LMP** Land surface,	
Borehole depth 35 ft	**Borehole diameter** 10 in and 6 in	**Casing bottom** 19.5 ft
Casing diameter 10 in and 6 in	**Casing type** Steel	**Source of data** Tetra Tech Geologoist
Logging unit USGS NJ WSC	**Log orientiation** MN	**Magnetic declination** 12.5
Recorded by Pierre Lacombe	**Observed by** Ron Sloto	
Software non-ASCII logs MS Log Mount Sopris	**Type of log** NG, ER, FC, FR, ABI	
Fluid type Water	**Fluid depth below LMP** 8.5 ft	**at time** HH:MM

Hydrologic conditions OverCast Snow melting on ground, rainin off and on, all wet and muddy

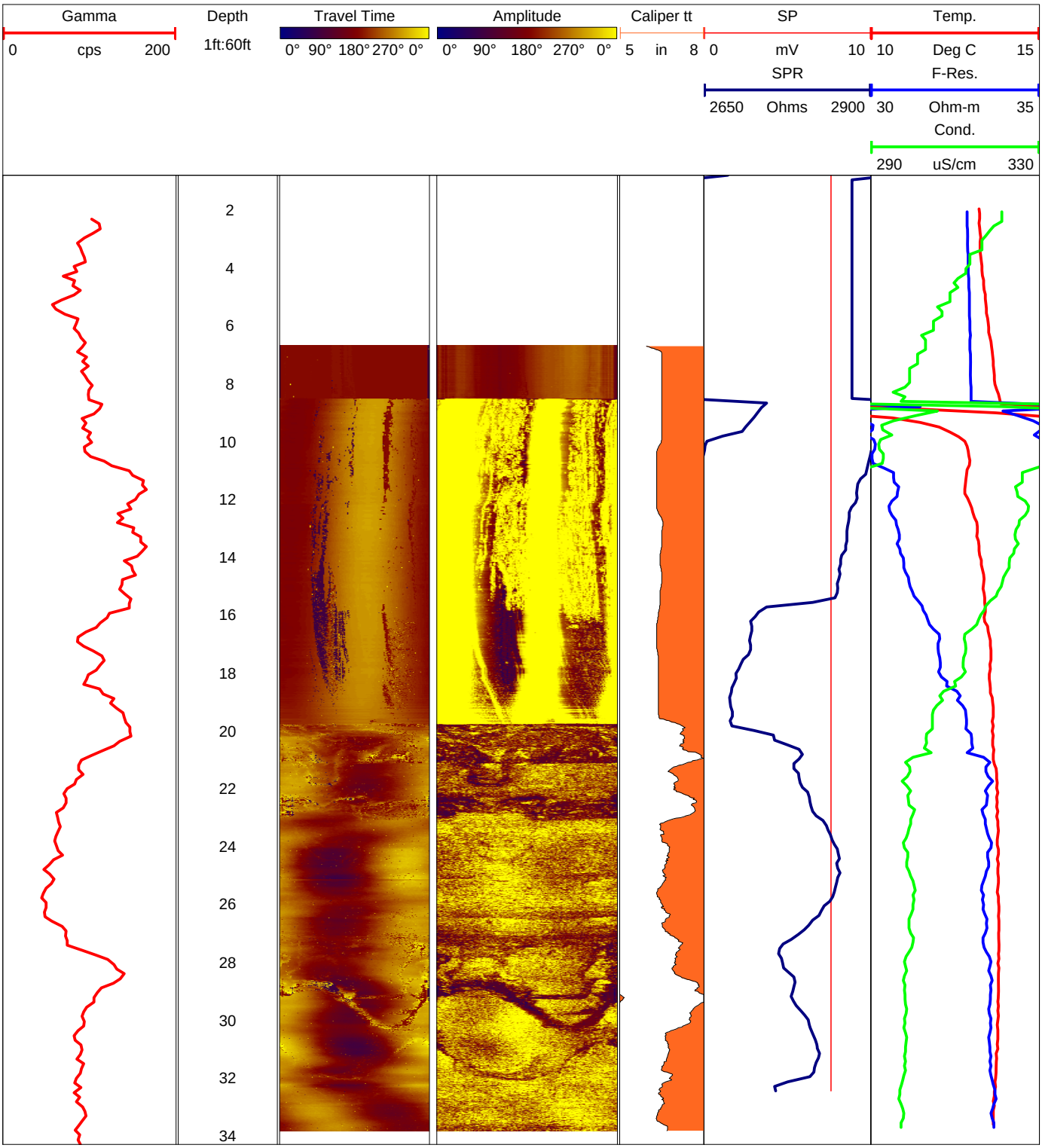
Tool manufacturer and model, tool serial number, log date and time, logging direction and speed, depth error after logging, log parameter(s) and date(s) of calibration check

Tool run 1 Mt Sopris, 2PGA-1000, SN-2523, Jan 23 2012 downhole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 2 Mt Sopris, 2PGA-1000, SN-2523, Jan 23 2012, uphole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 3 Mt Sopris, 2WQA-1000, 229, Jan 23 2012, pm downphole, 15 fpm, 0.05 ft no parameter, no calibration check

Remarks Mt Sopris, ABI from PA, ALT-Fac40-002101 SN2825, Jan 23 2012, pm upphole, 2.5 fpm, 0.05 ft no parameter, no calibration check


Gamma
0 cps 200
Depth
1ft:60ft
Travel Time
0° 90° 180° 270° 0°
Amplitude
0° 90° 180° 270° 0°
Caliper tt
5 in 8
SP
0 mV 10
SPR
2650 Ohms 2900
Temp.
10 Deg C 15
F-Res.
30 Ohm-m 35
Cond.
290 uS/cm 330
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

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BOREHOLE GEOPHYSICAL LOG

English/Metric units E

SiteID (C1) 401122075083801	**Station name (C12)** MG-2198	**Other ID** 12MW-02S
County Montgomery	**State** Horesham PA	**Log date** Jan 24 2012
Owner U.S. Navy, Willow Grove Air Station		**Project** Area 12, Willow Grove NAS
Location description Area 12 about 100 ft north east of Antenna Field		
Latitude 40.189643	**Longitude** 75.143756	**Lat/Long datum** NAD83
Altitude LMP 335	**Altitude datum** NGVD88	**Log measurement point (LMP)** LS
Height LMP Depth below (-) /above (+) LS 0	**Description of LMP** Land surface,	
Borehole depth 39.5 ft	**Borehole diameter** 10 in 6 in	**Casing bottom** 20.8 ft
Casing diameter 10 in 6 in	**Casing type** Steel	**Source of data** site Visit
Logging unit USGS NJ WSC	**Log orientiation** MN	**Magnetic declination** 12.5
Recorded by Pierre Lacombe	**Observed by** Ron Sloto	
Software non-ASCII logs MS Log Mount Sopris	**Type of log** NG, ER, FC, FR, ABI	
Fluid type Water	**Fluid depth below LMP** 8.8 ft	**at time** HH:MM

Hydrologic conditions Over cast but drying up muddy ground

Tool manufacturer and model, tool serial number, log date and time, logging direction and speed, depth error after logging, log parameter(s) and date(s) of calibration check

Tool run 1 Mt Sopris, 2PGA-1000, SN-2523, Jan 24 2012 downhole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 2 Mt Sopris, 2PGA-1000, SN-2523, Jan 24 2012, uphole, 15 fpm, 0.05 ft no parameter, no calibration check

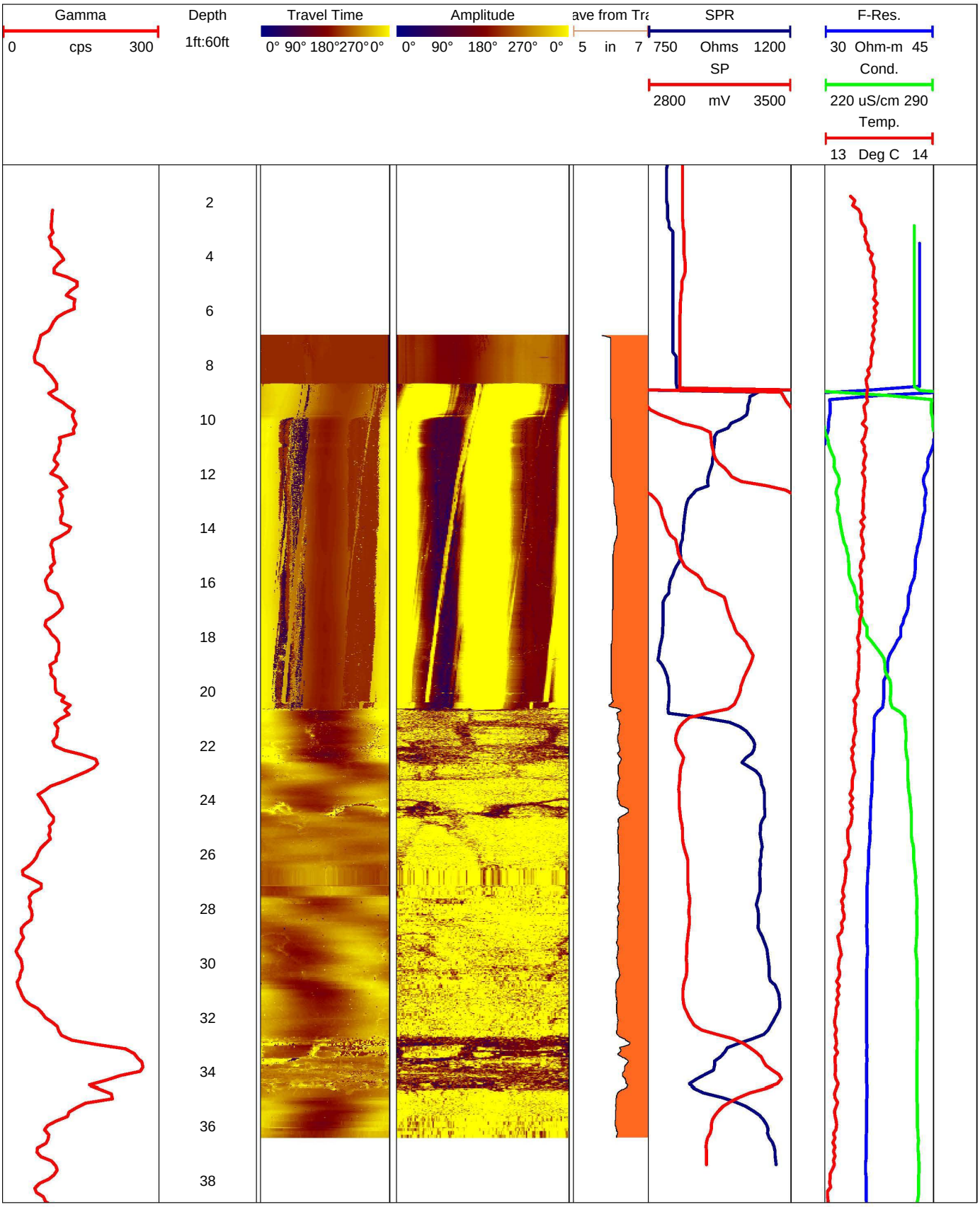
Tool run 3 Mt Sopris, 2WQA-1000, 229, Jan 24 2012, pm downphole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 4 Mt Sopris, ABI from PA, ALT-Fac40-002101 SN2825, Jan 24 2012, pm upphole, 2.5 fpm, 0.05 ft no parameter, no calibration check

Tool run 5

Tool run 6

Remarks


Gamma
0 cps 300
Depth
1ft:60ft
Travel Time
0° 90° 180° 270° 0°
Amplitude
0° 90° 180° 270° 0°
ave from Tra
5 in 7
SPR
750 Ohms 1200
SP
2800 mV 3500
F-Res.
30 Ohm-m 45
Cond.
220 uS/cm 290
Temp.
13 Deg C 14
2
4
6
8
10
12
14
16
18
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22
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34
36
38

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BOREHOLE GEOPHYSICAL LOG

English/Metric units E

SiteID (C1) 401124075084001	**Station name (C12)** MG-2199	**Other ID** 12MW-03S
County Montgomery	**State** Horesham PA	**Log date** Jan 24 2012
Owner U.S. Navy, Willow Grove Air Station		**Project** Area 12, Willow Grove NAS
Location description Area 12 about 100 ft northeast of Antenna field		
Latitude 40.190025	**Longitude** 75.144436	**Lat/Long datum** NAD83
Altitude LMP 335	**Altitude datum** NGVD88	**Log measurement point (LMP)** TOC
Height LMP Depth below (-) /above (+) LS0.5 ft	**Description of LMP** top of casing	
Borehole depth 34.7	**Borehole diameter** 10 in and 6 in	**Casing bottom** 19.5 ft
Casing diameter 10 in and 6 in	**Casing type** Steel	**Source of data** Site Visit
Logging unit USGS NJ WSC	**Log orientiation** MN	**Magnetic declination** 12.5
Recorded by Pierre Lacombe	**Observed by** Ron Sloto	
Software non-ASCII logs MS Log Mount Sopris	**Type of log** NG, ER, FC, FR, ABI	
Fluid type Water	**Fluid depth below LMP** 11.9 ft	**at time** HH:MM

Hydrologic conditions Wet, muddy ground, overcast

Tool manufacturer and model, tool serial number, log date and time, logging direction and speed, depth error after logging, log parameter(s) and date(s) of calibration check

Tool run 1 Mt Sopris, 2PGA-1000, SN-2523, Jan 23 2012 downhole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 2 Mt Sopris, 2PGA-1000, SN-2523, Jan 23 2012, uphole, 15 fpm, 0.05 ft no parameter, no calibration check

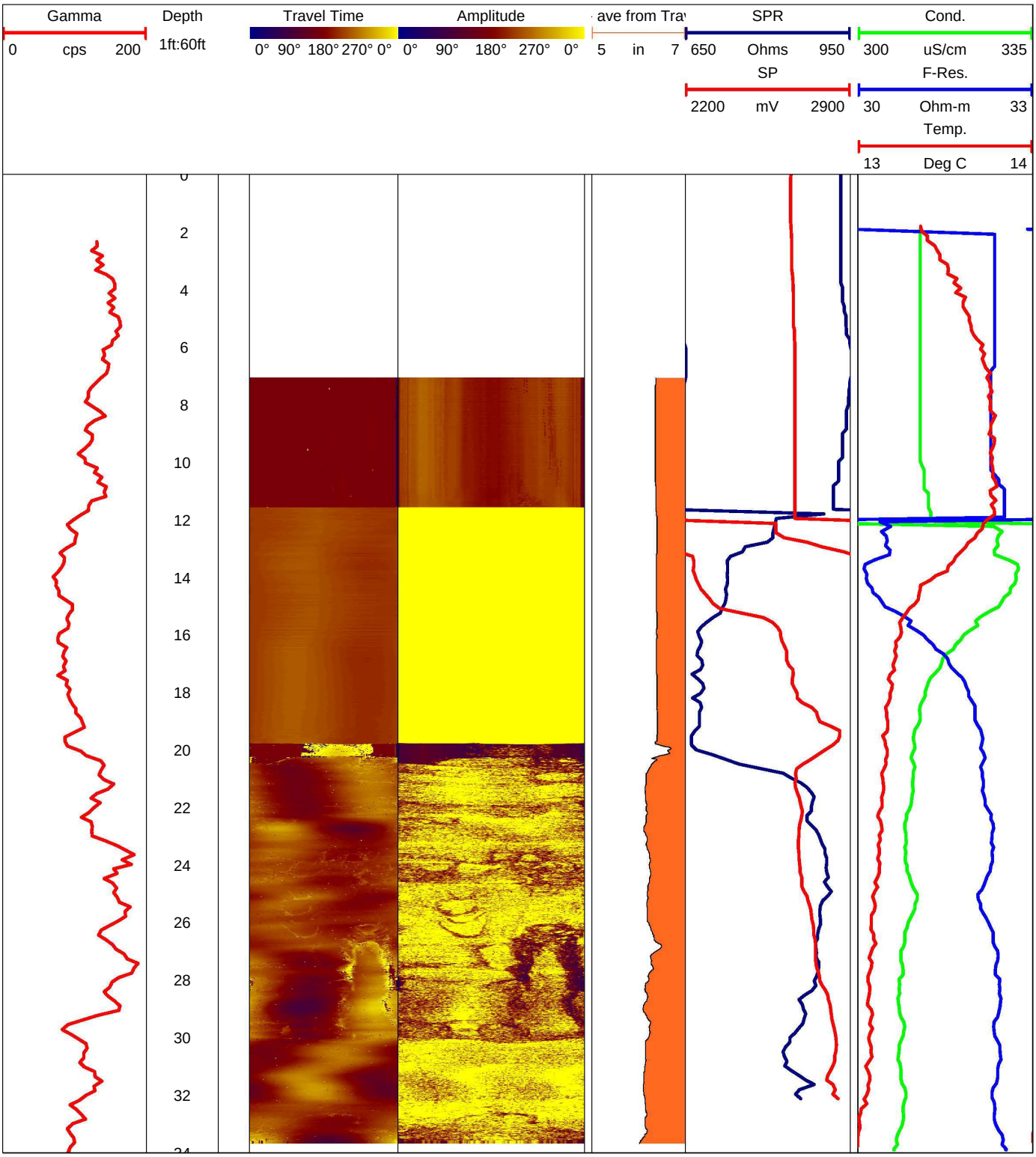
Tool run 3 Mt Sopris, 2WQA-1000, 229, Jan 23 2012, pm downphole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 4 Mt Sopris, ABI from PA, ALT-Fac40-002101 SN2825, Jan 23 2012, pm upphole, 2.5 fpm, 0.05 ft no parameter, no calibration check

Tool run 5 Assisted by Jim

Tool run 6

Remarks


Gamma
0 cps 200
Depth
1ft:60ft
Travel Time
0° 90° 180° 270° 0°
Amplitude
0° 90° 180° 270° 0°
ave from Tra
5 in 7
SPR
650 Ohms 950
SP
2200 mV 2900
Cond.
300 uS/cm 335
F-Res.
30 Ohm-m 33
Temp.
13 Deg C 14
0
2
4
6
8
10
12
14
16
18
20
22
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26
28
30
32

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BOREHOLE GEOPHYSICAL LOG

English/Metric units E/M

SiteID (C1) 401125075084101	**Station name (C12)** MG-2200	**Other ID** 12MW-04S
County Montgomery	**State** Horesham PA	**Log date** Jan 24 2012
Owner U.S. Navy, Willow Grove Air Station		**Project** Area 12, Willow Grove NAS
Location description Area 12, 100 ft north of Antenna field		
Latitude 40.190329	**Longitude** 75.144729	**Lat/Long datum** NAD83
Altitude LMP 335 ft	**Altitude datum** NGVD88	**Log measurement point (LMP)** TOC
Height LMP Depth below (-) /above (+) LS 6 in	**Description of LMP** top of casing	
Borehole depth 34.6 ft	**Borehole diameter** 10 in 6 in	**Casing bottom** 19.7 ft
Casing diameter 10 in 6 in	**Casing type** Steel	**Source of data** Site Visit
Logging unit USGS NJ WSC	**Log orientiation** MN	**Magnetic declination** 12.5
Recorded by Pierre Lacombe	**Observed by** Ron Sloto	
Software non-ASCII logs MS Log Mount Sopris	**Type of log** NG, ER, FC, FR, ABI	
Fluid type Water	**Fluid depth below LMP** 13.8 ft	**at time** HH:MM
Hydrologic conditions Over cast, muddy ground		

Tool manufacturer and model, tool serial number, log date and time, logging direction and speed, depth error after logging, log parameter(s) and date(s) of calibration check

Tool run 1 Mt Sopris, 2PGA-1000, SN-2523, Jan 24 2012 downhole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 2 Mt Sopris, 2PGA-1000, SN-2523, Jan 24 2012, uphole, 15 fpm, 0.05 ft no parameter, no calibration check

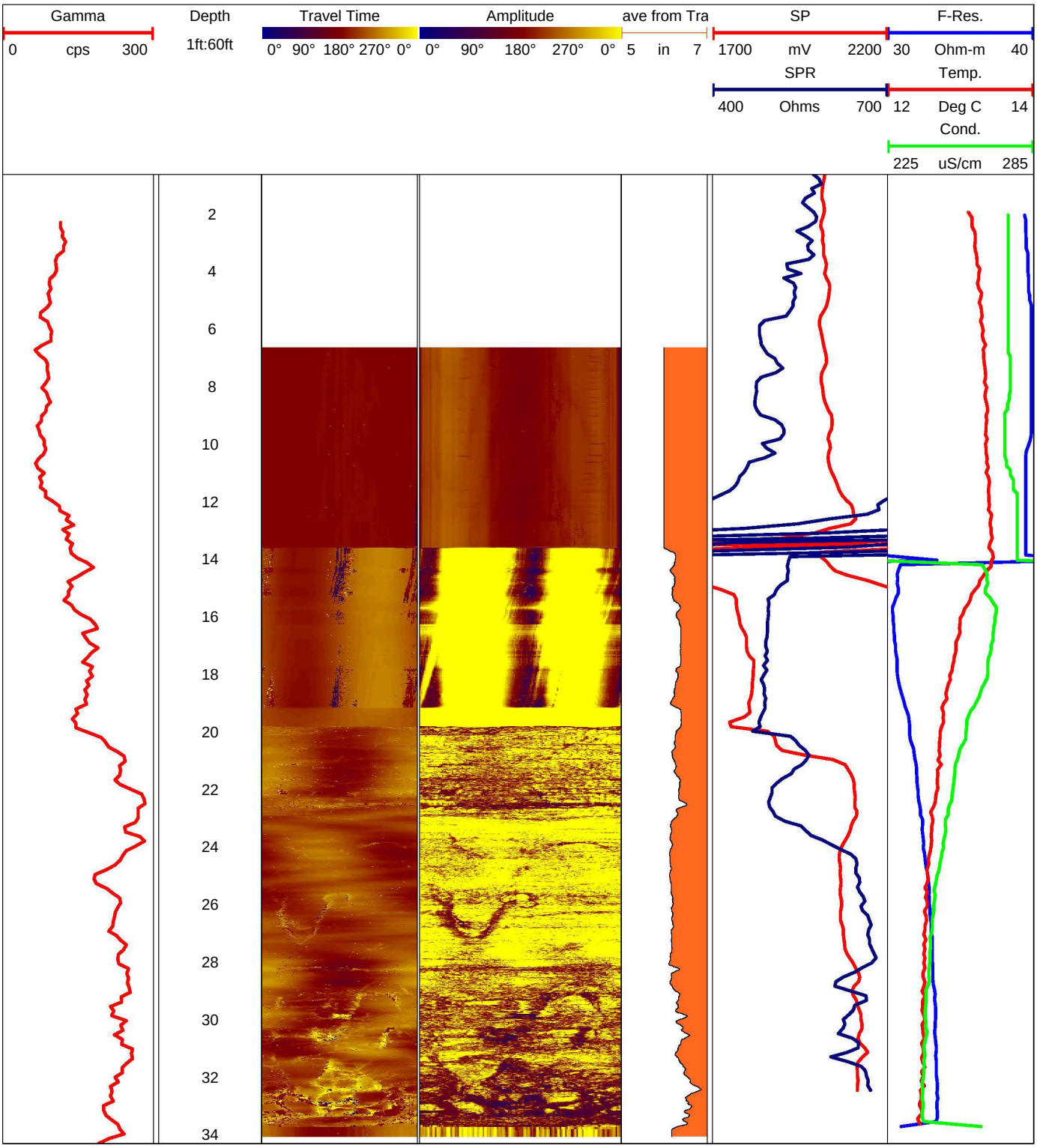
Tool run 3 Mt Sopris, 2WQA-1000, 229, Jan 24 2012, pm downphole, 15 fpm, 0.05 ft no parameter, no calibration check

Tool run 4 Mt Sopris, ABI from PA, ALT-Fac40-002101 SN2825, Jan 24 2012, pm upphole, 2.5 fpm, 0.05 ft no parameter, no calibration check

Tool run 5

Tool run 6

Remarks


Gamma
0 cps 300
Depth
1ft:60ft
Travel Time
0° 90° 180° 270° 0°
Amplitude
0° 90° 180° 270° 0°
ave from Tra
5 in 7
SP
1700 mV 2200
SPR
400 Ohms 700
F-Res.
30 Ohm-m 40
Temp.
12 Deg C 14
Cond.
225 uS/cm 285
2
4
6
8
10
12
14
16
18
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APPENDIX I

PART 1 - ANALYTICAL RESULTS

PART 2 - BACKGROUND INVESTIGATION

PART 3 - DATA VALIDATION REPORTS

PART 1

ANALYTICAL RESULTS

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12MW01O-20120307		12MW01S-20120307		12MW02O-20120306		12MW02S-20120306		12MW02S-20120307-D		12MW03O-20120306	
Sample Date:	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**	
Duplicate:									**12MW02S**			
DIOXIN/FURAN	**pg/L**		**pg/L**		**pg/L**		**pg/L**					
1,2,3,4,6,7,8,9-OCDD	17	B	15	B	42.1	B	14.8	B	NA		NA	
1,2,3,4,6,7,8,9-OCDF	2.36	B	9.07	B	6.6	B	2.3	B	NA		NA	
1,2,3,4,6,7,8-HpCDD	2.23	B	1.63	B	3.06	B	1.89	B	NA		NA	
1,2,3,4,6,7,8-HpCDF	1.61	B	1.82	B	26	U	1.06	B	NA		NA	
1,2,3,4,7,8,9-HpCDF	26	UL	26	U	26	U	25.5	UL	NA		NA	
1,2,3,4,7,8-HxCDD	26	UL	0.617	J	26	U	25.5	UL	NA		NA	
1,2,3,4,7,8-HxCDF	1.66	B	0.565	B	26	U	0.782	B	NA		NA	
1,2,3,6,7,8-HxCDD	2.04	B	1.13	B	26	U	1.26	B	NA		NA	
1,2,3,6,7,8-HxCDF	2.02	B	0.947	B	26	U	1.52	B	NA		NA	
1,2,3,7,8,9-HxCDD	26	UL	0.569	B	26	U	25.5	UL	NA		NA	
1,2,3,7,8,9-HxCDF	26	UL	26	U	26	U	25.5	UL	NA		NA	
1,2,3,7,8-PeCDD	26	UL	0.946	B	26	U	25.5	U	NA		NA	
1,2,3,7,8-PeCDF	26	UL	1.16	J	26	U	25.5	U	NA		NA	
2,3,4,6,7,8-HxCDF	26	UL	0.627	B	26	U	25.5	UL	NA		NA	
2,3,4,7,8-PeCDF	26	UL	26	U	26	U	25.5	U	NA		NA	
2,3,7,8-TCDD	10.4	UL	10.4	U	10.4	U	10.2	UL	NA		NA	
2,3,7,8-TCDF	10.4	UL	10.4	U	10.4	U	10.2	UL	NA		NA	
Teq	0.616	L	1.47		0.0452		0.391		NA		NA	
Total HpCDD	2.23	J	1.63	J	8.4	B	1.71	J	NA		NA	
Total HpCDF	26	UL	1.82	B	26	U	25.5	UL	NA		NA	
Total HxCDD	2.04	B	1.13	B	5.68	B	1.26	B	NA		NA	
Total HxCDF	3.67	J	0.565	B	26	U	2.31	B	NA		NA	
Total PeCDD	26	UL	0.946	B	26	U	25.5	U	NA		NA	
Total PeCDF	26	UL	1.16	J	26	U	25.5	U	NA		NA	
Total TCDD	10.4	UL	10.4	U	10.4	U	10.2	UL	NA		NA	
Total TCDF	10.4	UL	10.4	U	10.4	U	10.2	UL	NA		NA	
TOTAL INORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**	
Aluminum	26.3	B	48.5		8570		59.6		NA		1600	
Antimony	0.16	B	0.21	B	0.26	B	0.25	B	NA		0.26	B
Arsenic	0.5	U	0.5	U	2.7		0.66	J	NA		0.5	U
Barium	64.9		111		29.7		310		NA		117	
Beryllium	0.5	U	0.5	U	0.41	B	0.5	U	NA		0.2	B
Cadmium	0.5	U	0.5	U	0.5	U	0.14	J	NA		0.15	J
Calcium	29000		47300		199	J	46200		NA		40100	
Chromium	3.6	J	2.9	J	14.7	J	3.4	J	NA		24.6	J
Cobalt	0.088	B	2.5		3.6		1.5		NA		2.6	
Copper	1.2	J	1.3	J	7.1		0.91	J	NA		2.9	
Cyanide	NA		NA		NA		NA		NA		NA	
Iron	168	J	377		12200		477		NA		1970	
Lead	0.81	J	0.23	B	5.1		0.19	B	NA		0.87	J
Magnesium	12100		12300		1550		11100		NA		22200	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW01O-20120307**		**12MW01S-20120307**		**12MW02O-20120306**		**12MW02S-20120306**		**12MW02S-20120307-D**		**12MW03O-20120306**	
Sample Date:	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**	
Duplicate:									**12MW02S**			
Manganese	21.2		630		86.5		662		NA		896	
Mercury	0.1	UL	0.1	UL	0.1	UL	0.1	UL	NA		0.1	UL
Nickel	2.1	J	5.5	J	7.7	J	3.8	J	NA		20.3	J
Potassium	1220		1960		301	J	2760		NA		43300	
Selenium	2.5	U	2.5	U	2.5	U	0.96	J	NA		2.5	U
Silver	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U
Sodium	17100	L	11900	L	18.6	B	8430	L	NA		5960	L
Thallium	0.5	B	0.42	B	1.5	B	0.88	B	NA		0.53	B
Vanadium	2.5	U	0.32	J	19.2		0.81	J	NA		2.7	J
Zinc	11.1	J	19.6	J	20	J	14.2	J	NA		16	J
DISSOLVED INORGANICS			**ug/L**								**ug/L**	
Aluminum	NA		18.6	B	NA		NA		NA		309	
Antimony	NA		0.25	B	NA		NA		NA		0.2	B
Arsenic	NA		0.44	J	NA		NA		NA		0.5	U
Barium	NA		113		NA		NA		NA		96.5	
Beryllium	NA		0.5	U	NA		NA		NA		0.5	U
Cadmium	NA		0.5	U	NA		NA		NA		0.5	U
Calcium	NA		47000		NA		NA		NA		41200	
Chromium	NA		2.7		NA		NA		NA		7.8	
Cobalt	NA		2.7		NA		NA		NA		1.1	
Copper	NA		1.1	J	NA		NA		NA		1.8	J
Iron	NA		294		NA		NA		NA		540	
Lead	NA		0.11	B	NA		NA		NA		0.3	B
Magnesium	NA		12100		NA		NA		NA		22400	
Manganese	NA		676		NA		NA		NA		782	
Mercury	NA		NA		NA		NA		NA		NA	
Nickel	NA		6.5		NA		NA		NA		14.1	
Potassium	NA		1950		NA		NA		NA		38000	
Selenium	NA		2.5	U	NA		NA		NA		2.5	U
Silver	NA		0.5	U	NA		NA		NA		0.5	U
Sodium	NA		11900	L	NA		NA		NA		5970	L
Thallium	NA		0.15	B	NA		NA		NA		0.17	B
Vanadium	NA		2.5	U	NA		NA		NA		2.5	U
Zinc	NA		14.8		NA		NA		NA		11.9	
MISCELLANEOUS PARAMETERS (Ana	**mg/L**		**mg/L**		**mg/L**		**mg/L**				**mg/L**	
Cyanide	0.0025	U	0.0025	U	0.0025	U	0.0025	U	NA		0.0025	U
SEMIVOLATILES (Analytical Fraction	**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**	
1,1-Biphenyl	5	U	5	U	5	U	5	U	NA		5	U
1,2,4,5-Tetrachlorobenzene	5	U	5	U	5	U	5	U	NA		5	U
2,2'-Oxybis(1-chloropropane)	5	U	5	U	5	U	5	U	NA		5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW01O-20120307**		**12MW01S-20120307**		**12MW02O-20120306**		**12MW02S-20120306**		**12MW02S-20120307-D**		**12MW03O-20120306**	
Sample Date:	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**	
Duplicate:									**12MW02S**			
2,3,4,6-Tetrachlorophenol	5	U	5	U	5	U	5	U	NA		5	U
2,4,5-Trichlorophenol	5	U	5	U	5	U	5	U	NA		5	U
2,4,6-Trichlorophenol	5	U	5	U	5	U	5	U	NA		5	U
2,4-Dichlorophenol	5	U	5	U	5	U	5	U	NA		5	U
2,4-Dimethylphenol	5	U	5	U	5	U	5	U	NA		5	U
2,4-Dinitrophenol	5	U	5	U	5	U	5	U	NA		5	U
2,4-Dinitrotoluene	5	U	5	U	5	U	5	U	NA		5	U
2,6-Dinitrotoluene	5	U	5	U	5	U	5	U	NA		5	U
2-Chloronaphthalene	5	U	5	U	5	U	5	U	NA		5	U
2-Chlorophenol	5	U	5	U	5	U	5	U	NA		5	U
2-Methylphenol	5	U	5	U	5	U	5	U	NA		5	U
2-Nitroaniline	5	U	5	U	5	U	5	U	NA		5	U
2-Nitrophenol	5	U	5	U	5	U	5	U	NA		5	U
3&4-Methylphenol	5	U	5	U	5	U	5	U	NA		5	U
3-Nitroaniline	5	U	5	U	5	U	5	U	NA		5	U
4,6-Dinitro-2-methylphenol	5	U	5	U	5	U	5	U	NA		5	U
4-Bromophenyl Phenyl Ether	5	U	5	U	5	U	5	U	NA		5	U
4-Chloro-3-methylphenol	5	U	5	U	5	U	5	U	NA		5	U
4-Chloroaniline	5	U	5	U	5	U	5	U	NA		5	U
4-Chlorophenyl Phenyl Ether	5	U	5	U	5	U	5	U	NA		5	U
4-Nitroaniline	5	U	5	U	5	U	5	U	NA		5	U
4-Nitrophenol	5	U	5	U	5	U	5	U	NA		5	U
Acenaphthene	5	U	5	U	5	U	5	U	NA		5	U
Acenaphthylene	5	U	5	U	5	U	5	U	NA		5	U
Acetophenone	5	U	5	U	5	U	5	U	NA		5	U
Atrazine	5	U	5	U	5	U	5	U	NA		5	U
Benzaldehyde	5	U	5	U	5	U	5	U	NA		5	U
Bis(2-chloroethoxy)methane	5	U	5	U	5	U	5	U	NA		5	U
Bis(2-chloroethyl)ether	5	U	5	U	5	U	5	U	NA		5	U
Bis(2-ethylhexyl)phthalate	5	U	5	U	5	U	5	U	NA		5	U
Butylbenzylphthalate	5	U	5	U	5	U	5	U	NA		5	U
Caprolactam	5	U	5	U	5	U	5	U	NA		5	U
Carbazole	5	U	5	U	5	U	5	U	NA		5	U
Di-n-butylphthalate	5	U	5	U	5	U	5	U	NA		5	U
Di-n-octylphthalate	5	U	5	U	5	U	5	U	NA		5	U
Dibenzofuran	5	U	5	U	5	U	5	U	NA		5	U
Diethylphthalate	5	U	5	U	5	U	5	U	NA		5	U
Dimethylphthalate	5	U	5	U	5	U	5	U	NA		5	U
Hexachlorobenzene	5	U	5	U	5	U	5	U	NA		5	U
Hexachlorobutadiene	5	U	5	U	5	U	5	U	NA		5	U
Hexachlorocyclopentadiene	5	U	5	U	5	U	5	U	NA		5	U
Hexachloroethane	5	U	5	U	5	U	5	U	NA		5	U
Isophorone	5	U	5	U	5	U	5	U	NA		5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW01O-20120307**		**12MW01S-20120307**		**12MW02O-20120306**		**12MW02S-20120306**		**12MW02S-20120307-D**		**12MW03O-20120306**	
Sample Date:	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**	
Duplicate:									**12MW02S**			
N-Nitroso-di-n-propylamine	5	U	5	U	5	U	5	U	NA		5	U
N-Nitrosodiphenylamine (1)	5	U	5	U	5	U	5	U	NA		5	U
Nitrobenzene	5	U	5	U	5	U	5	U	NA		5	U
Pentachlorophenol	5	U	5	U	5	U	5	U	NA		5	U
Phenanthrene	5	U	5	U	5	U	5	U	NA		5	U
Phenol	5	U	5	U	5	U	5	U	NA		5	U
PAHS	**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**	
2-Methylnaphthalene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Acenaphthene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Acenaphthylene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Anthracene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Benz(a)anthracene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Benzo(a)pyrene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Benzo(b)fluoranthene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Benzo(g,h,i)perylene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Benzo(k)fluoranthene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Chrysene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Dibenz(a,h)anthracene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Fluoranthene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Fluorene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Indeno(1,2,3-cd)pyrene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Naphthalene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
Phenanthrene	0.05	U	0.05	U	0.05	U	0.061	J	NA		0.05	U
Pyrene	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U
VOLATILES	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1,1-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
1,2,4-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene (cis)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene (trans)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW01O-20120307**		**12MW01S-20120307**		**12MW02O-20120306**		**12MW02S-20120306**		**12MW02S-20120307-D**		**12MW03O-20120306**	
Sample Date:	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**	
Duplicate:									**12MW02S**			
1,4-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dioxane	10	UR	10	UR	10	UR	10	UR	10	UR	10	UR
2-Butanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
2-Hexanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
4-Methyl-2-pentanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Acetone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon Disulfide	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon Tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
M+p-xylenes	1	U	1	U	1	U	1	U	1	U	1	U
Methyl Acetate	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Cyclohexane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Tert-butyl Ether	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene Chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
O-xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl Chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (Total)	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
PCBS	**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**	
Aroclor-1016	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U
Aroclor-1221	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U
Aroclor-1232	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U
Aroclor-1242	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW01O-20120307**		**12MW01S-20120307**		**12MW02O-20120306**		**12MW02S-20120306**		**12MW02S-20120307-D**		**12MW03O-20120306**	
Sample Date:	**3/7/2012**		**3/7/2012**		**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**	
Duplicate:									**12MW02S**			
Aroclor-1248	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U
Aroclor-1254	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U
Aroclor-1260	0.25	U	0.255	U	0.25	U	0.255	U	NA		0.26	U
PESTICIDES	**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**	
4,4'-DDD	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
4,4'-DDE	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
4,4'-DDT	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Aldrin	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Alpha-BHC	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Alpha-Chlordane	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Beta-BHC	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Delta-BHC	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Dieldrin	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Endosulfan I	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Endosulfan II	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Endosulfan Sulfate	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Endrin	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Endrin Aldehyde	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Endrin Ketone	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Gamma-BHC (Lindane)	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Gamma-Chlordane	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Heptachlor	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Heptachlor Epoxide	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Methoxychlor	0.0255	U	0.0255	U	0.0255	U	0.0255	U	NA		0.0255	U
Toxaphene	0.255	U	0.255	U	0.255	U	0.255	U	NA		0.255	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12MW03S-20120306		12MW03S-20120306-D		12MW04O-20120307		12MW04S-20120306		12RB01-20120307	
Sample Date:	**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**		**3/7/2012**	
Duplicate:			**12MW03S**							
DIOXIN/FURAN									**pg/L**	
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		5.51	J
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		2.4	J
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		1.96	J
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		1.36	J
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		0.448	J
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		28.4	U
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		0.607	J
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		1.38	J
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		1.05	J
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		0.699	J
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		0.301	J
1,2,3,7,8-PeCDD	NA		NA		NA		NA		0.831	J
1,2,3,7,8-PeCDF	NA		NA		NA		NA		0.65	J
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		0.523	J
2,3,4,7,8-PeCDF	NA		NA		NA		NA		28.4	U
2,3,7,8-TCDD	NA		NA		NA		NA		11.4	U
2,3,7,8-TCDF	NA		NA		NA		NA		11.4	U
Teq	NA		NA		NA		NA		1.35	
Total HpCDD	NA		NA		NA		NA		3.46	J
Total HpCDF	NA		NA		NA		NA		1.81	J
Total HxCDD	NA		NA		NA		NA		2.08	J
Total HxCDF	NA		NA		NA		NA		1.85	J
Total PeCDD	NA		NA		NA		NA		28.4	U
Total PeCDF	NA		NA		NA		NA		28.4	U
Total TCDD	NA		NA		NA		NA		11.4	U
Total TCDF	NA		NA		NA		NA		11.4	U
TOTAL INORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	42.6		38.1	K	213		207		10	U
Antimony	0.59	B	0.19	B	0.46	B	0.22	B	1	U
Arsenic	0.29	J	0.23	J	0.5	U	0.5	U	0.45	J
Barium	156		157		75.5		179		0.86	J
Beryllium	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cadmium	0.21	J	0.5	U	0.17	J	0.5	U	0.5	U
Calcium	41300		41700		25300		36900		262	J
Chromium	4.6	J	2.6	J	7.5	J	4.8	J	2.3	J
Cobalt	0.56	J	0.51	J	0.85	J	0.56	J	0.5	U
Copper	2		2		1.6	J	2	J	0.59	J
Cyanide	NA		NA		NA		NA		NA	
Iron	311		271		438		1040		33.8	J
Lead	0.39	B	0.16	B	0.86	J	0.33	B	0.19	J
Magnesium	16900		17300		8090		16900		31.4	J

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW03S-20120306**		**12MW03S-20120306-D**		**12MW04O-20120307**		**12MW04S-20120306**		**12RB01-20120307**	
Sample Date:	**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**		**3/7/2012**	
Duplicate:			**12MW03S**							
Manganese	1630		1680		128		165		1.1	
Mercury	0.1	UL	0.1	UL	0.1	UL	0.1	UL	0.1	UL
Nickel	7.7	J	5.3	J	18.6	J	7.9	J	1.1	J
Potassium	13100		13300		1960		10000		57.3	J
Selenium	2.5	U	2.5	U	0.78	J	2.5	U	2.5	U
Silver	0.032	B	0.5	U	0.5	U	0.5	U	0.5	U
Sodium	6620	L	6670	L	6990	L	7100	L	84.4	J
Thallium	0.65	B	0.19	B	0.33	B	0.25	B	0.21	J
Vanadium	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Zinc	20.7	J	7.3	J	51.1	J	14	J	12.8	J
DISSOLVED INORGANICS					**ug/L**				**ug/L**	
Aluminum	NA		NA		14	B	NA		10	U
Antimony	NA		NA		0.3	B	NA		0.32	J
Arsenic	NA		NA		0.37	J	NA		0.5	U
Barium	NA		NA		73.4		NA		0.74	J
Beryllium	NA		NA		0.5	U	NA		0.5	U
Cadmium	NA		NA		0.14	J	NA		0.5	U
Calcium	NA		NA		25800		NA		247	J
Chromium	NA		NA		2.7		NA		2.4	
Cobalt	NA		NA		0.29	B	NA		0.5	U
Copper	NA		NA		1.2	J	NA		0.77	J
Iron	NA		NA		138	J	NA		30.1	J
Lead	NA		NA		0.21	B	NA		0.31	J
Magnesium	NA		NA		8300		NA		38.2	J
Manganese	NA		NA		126		NA		0.68	J
Mercury	NA		NA		NA		NA		NA	
Nickel	NA		NA		3.4		NA		1.1	
Potassium	NA		NA		1770		NA		47.7	J
Selenium	NA		NA		1.4	J	NA		2.5	U
Silver	NA		NA		0.5	U	NA		0.5	U
Sodium	NA		NA		7390	L	NA		92.6	J
Thallium	NA		NA		0.15	B	NA		1.5	
Vanadium	NA		NA		2.5	U	NA		2.5	U
Zinc	NA		NA		20.6		NA		9.8	
MISCELLANEOUS PARAMETERS (Ana	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Cyanide	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
**SEMIVOLATILES (Analytical Fraction (	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1-Biphenyl	5	U	5	U	5	U	5	U	5	U
1,2,4,5-Tetrachlorobenzene	5	U	5	U	5	U	5	U	5	U
2,2'-Oxybis(1-chloropropane)	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12MW03S-20120306		12MW03S-20120306-D		12MW04O-20120307		12MW04S-20120306		12RB01-20120307	
Sample Date:	3/6/2012		3/6/2012		3/7/2012		3/6/2012		3/7/2012	
Duplicate:			12MW03S							
2,3,4,6-Tetrachlorophenol	5	U	5	U	5	U	5	U	5	U
2,4,5-Trichlorophenol	5	U	5	U	5	U	5	U	5	U
2,4,6-Trichlorophenol	5	U	5	U	5	U	5	U	5	U
2,4-Dichlorophenol	5	U	5	U	5	U	5	U	5	U
2,4-Dimethylphenol	5	U	5	U	5	U	5	U	5	U
2,4-Dinitrophenol	5	U	5	U	5	U	5	U	5	U
2,4-Dinitrotoluene	5	U	5	U	5	U	5	U	5	U
2,6-Dinitrotoluene	5	U	5	U	5	U	5	U	5	U
2-Chloronaphthalene	5	U	5	U	5	U	5	U	5	U
2-Chlorophenol	5	U	5	U	5	U	5	U	5	U
2-Methylphenol	5	U	5	U	5	U	5	U	5	U
2-Nitroaniline	5	U	5	U	5	U	5	U	5	U
2-Nitrophenol	5	U	5	U	5	U	5	U	5	U
3&4-Methylphenol	5	U	5	U	5	U	5	U	5	U
3-Nitroaniline	5	U	5	U	5	U	5	U	5	U
4,6-Dinitro-2-methylphenol	5	U	5	U	5	U	5	U	5	U
4-Bromophenyl Phenyl Ether	5	U	5	U	5	U	5	U	5	U
4-Chloro-3-methylphenol	5	U	5	U	5	U	5	U	5	U
4-Chloroaniline	5	U	5	U	5	U	5	U	5	U
4-Chlorophenyl Phenyl Ether	5	U	5	U	5	U	5	U	5	U
4-Nitroaniline	5	U	5	U	5	U	5	U	5	U
4-Nitrophenol	5	U	5	U	5	U	5	U	5	U
Acenaphthene	5	U	5	U	5	U	5	U	5	U
Acenaphthylene	5	U	5	U	5	U	5	U	5	U
Acetophenone	5	U	5	U	5	U	5	U	5	U
Atrazine	5	U	5	U	5	U	5	U	5	U
Benzaldehyde	5	U	5	U	5	U	5	U	5	U
Bis(2-chloroethoxy)methane	5	U	5	U	5	U	5	U	5	U
Bis(2-chloroethyl)ether	5	U	5	U	5	U	5	U	5	U
Bis(2-ethylhexyl)phthalate	5	U	5	U	5	U	5	U	5	U
Butylbenzylphthalate	5	U	5	U	5	U	5	U	5	U
Caprolactam	5	U	5	U	5	U	5	U	5	U
Carbazole	5	U	5	U	5	U	5	U	5	U
Di-n-butylphthalate	5	U	5	U	5	U	5	U	5	U
Di-n-octylphthalate	5	U	5	U	5	U	5	U	5	U
Dibenzofuran	5	U	5	U	5	U	5	U	5	U
Diethylphthalate	5	U	5	U	5	U	5	U	5	U
Dimethylphthalate	5	U	5	U	5	U	5	U	5	U
Hexachlorobenzene	5	U	5	U	5	U	5	U	5	U
Hexachlorobutadiene	5	U	5	U	5	U	5	U	5	U
Hexachlorocyclopentadiene	5	U	5	U	5	U	5	U	5	U
Hexachloroethane	5	U	5	U	5	U	5	U	5	U
Isophorone	5	U	5	U	5	U	5	U	5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12MW03S-20120306		12MW03S-20120306-D		12MW04O-20120307		12MW04S-20120306		12RB01-20120307	
Sample Date:	3/6/2012		3/6/2012		3/7/2012		3/6/2012		3/7/2012	
Duplicate:			12MW03S							
N-Nitroso-di-n-propylamine	5	U	5	U	5	U	5	U	5	U
N-Nitrosodiphenylamine (1)	5	U	5	U	5	U	5	U	5	U
Nitrobenzene	5	U	5	U	5	U	5	U	5	U
Pentachlorophenol	5	U	5	U	5	U	5	U	5	U
Phenanthrene	5	U	5	U	5	U	5	U	5	U
Phenol	5	U	5	U	5	U	5	U	5	U
PAHS	ug/L		ug/L		ug/L		ug/L		ug/L	
2-Methylnaphthalene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Acenaphthene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Acenaphthylene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Anthracene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benz(a)anthracene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzo(a)pyrene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzo(b)fluoranthene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzo(g,h,i)perylene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzo(k)fluoranthene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Chrysene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Dibenz(a,h)anthracene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Fluoranthene	0.062	J	0.06	J	0.05	U	0.05	U	0.05	U
Fluorene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Indeno(1,2,3-cd)pyrene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Naphthalene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Phenanthrene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Pyrene	0.062	J	0.07	J	0.05	U	0.05	U	0.05	U
VOLATILES	ug/L		ug/L		ug/L		ug/L		ug/L	
1,1,1-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
1,2,4-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene (cis)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene (trans)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW03S-20120306**		**12MW03S-20120306-D**		**12MW04O-20120307**		**12MW04S-20120306**		**12RB01-20120307**	
Sample Date:	**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**		**3/7/2012**	
Duplicate:			**12MW03S**							
1,4-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dioxane	10	UR	10	UR	10	UR	10	UR	10	UR
2-Butanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
2-Hexanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
4-Methyl-2-pentanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Acetone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon Disulfide	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon Tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
M+p-xylenes	1	U	1	U	1	U	1	U	1	U
Methyl Acetate	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Cyclohexane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Tert-butyl Ether	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene Chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
O-xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl Chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (Total)	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
PCBS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aroclor-1016	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U
Aroclor-1221	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U
Aroclor-1232	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U
Aroclor-1242	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12MW03S-20120306**		**12MW03S-20120306-D**		**12MW04O-20120307**		**12MW04S-20120306**		**12RB01-20120307**	
Sample Date:	**3/6/2012**		**3/6/2012**		**3/7/2012**		**3/6/2012**		**3/7/2012**	
Duplicate:			**12MW03S**							
Aroclor-1248	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U
Aroclor-1254	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U
Aroclor-1260	0.25	U	0.25	U	0.25	U	0.26	U	0.255	U
PESTICIDES	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
4,4'-DDD	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
4,4'-DDE	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
4,4'-DDT	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Aldrin	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Alpha-BHC	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Alpha-Chlordane	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Beta-BHC	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Delta-BHC	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Dieldrin	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Endosulfan I	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Endosulfan II	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Endosulfan Sulfate	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Endrin	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Endrin Aldehyde	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Endrin Ketone	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Gamma-BHC (Lindane)	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Gamma-Chlordane	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Heptachlor	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Heptachlor Epoxide	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Methoxychlor	0.0255	U	0.0255	U	0.026	U	0.0255	U	0.026	U
Toxaphene	0.255	U	0.255	U	0.26	U	0.255	U	0.26	U

Data Qualifiers:
B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present
J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL)
K -- Positive result is considered biased high due to exceedance of technical quality control criteria
L -- Positive result is considered biased low due to exceedance of technical quality control criteria
R -- Positive result is considered unusable due to exceedance of technical quality control criteria
U -- Value is a non-detected result as reported by the laboratory.
UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria
UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria
NA -- No result is available/applicable for this parameter in this sample

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SB01D-0001-20071207		SSA12-SB03D-1.502-20071205		SSA12-SS01D-000.5-20071207		SSA12-SS01E-000.5-20071206		SSA12-SS02D-000.5-20071207	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/6/2007**		**12/7/2007**	
Duplicate:										
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12800		15100		12500		9330		21000	
Antimony	1.3	B	0.71	B	1.4	B	0.69	B	1.7	B
Arsenic	4		5.2		4.2		2.2		5.2	
Barium	98.3		84.1		107		38.9		139	
Beryllium	0.85	K	0.81	K	0.84	K	0.38	K	1.3	K
Cadmium	0.06	U	0.68	J	0.07	U	0.06	UR	0.08	U
Calcium	3300		1090		4080		587		2760	
Chromium	19	J	18.6		20.6	J	8.8		30.3	J
Cobalt	6.8	J	8.6	K	6.7	J	4	K	6.7	J
Copper	16.7	J	16.4	J	19.6	J	6.8	J	30.8	J
Iron	17200	J	19600		17200	J	9480		21300	J
Lead	43.3		23.3		55.6		12.9		84.7	
Magnesium	2100		1460		2290		925		3070	
Manganese	484	J	502	K	518	J	204	K	164	J
Mercury	0.098		0.072	K	0.099		0.026	K	0.16	
Nickel	13.7	J	17.5		15.1	J	6.2		20.1	J
Potassium	1330		699	L	1590		474	L	1440	
Selenium	0.41	UL	0.41	UL	0.45	UL	0.39	UL	0.5	UL
Silver	0.06	UR	0.06	UR	0.07	UR	0.06	UR	0.08	UR
Sodium	549	K	119	B	131	B	81.2	B	170	B
Thallium	2.9	J	3.3	K	3	J	1.3	J	4.2	J
Vanadium	27.5		27.4		26.4		14.5		42.8	
Zinc	77.2		139		111		21.6		104	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	430	U	210	U	470	U	200	U	270	U
2,2'-Oxybis(1-chloropropane)	430	U	210	U	470	U	200	U	270	U
2,4,5-Trichlorophenol	430	U	210	U	470	U	200	U	270	U
2,4,6-Trichlorophenol	430	U	210	U	470	U	200	U	270	U
2,4-Dichlorophenol	430	U	210	U	470	U	200	U	270	U
2,4-Dimethylphenol	430	U	210	U	470	U	200	U	270	U
2,4-Dinitrophenol	840	U	410	U	900	U	400	U	520	U
2,4-Dinitrotoluene	430	U	210	U	470	U	200	U	270	U
2,6-Dinitrotoluene	430	U	210	U	470	U	200	U	270	U
2-Chloronaphthalene	430	U	210	U	470	U	200	U	270	U
2-Chlorophenol	430	U	210	U	470	U	200	U	270	U
2-Methylnaphthalene	430	U	210	U	470	U	200	U	270	U
2-Methylphenol	430	U	210	U	470	U	200	U	270	U
2-Nitroaniline	840	U	410	U	900	U	400	U	520	U
2-Nitrophenol	430	U	210	U	470	U	200	U	270	U
3,3'-Dichlorobenzidine	430	U	210	U	470	U	200	U	270	U
3-Nitroaniline	840	U	410	U	900	U	400	U	520	U
4,6-Dinitro-2-methylphenol	840	U	410	U	900	U	400	U	520	U
4-Bromophenyl Phenyl Ether	430	U	210	U	470	U	200	U	270	U

Sample ID:	SSA12-SB01D-0001-20071207		SSA12-SB03D-1.502-20071205		SSA12-SS01D-000.5-20071207		SSA12-SS01E-000.5-20071206		SSA12-SS02D-000.5-20071207	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/6/2007**		**12/7/2007**	
Duplicate:										
4-Chloro-3-methylphenol	430	U	210	U	470	U	200	U	270	U
4-Chloroaniline	430	U	210	U	470	U	200	U	270	U
4-Chlorophenyl Phenyl Ether	430	U	210	U	470	U	200	U	270	U
4-Methylphenol	840	U	410	U	900	U	400	U	520	U
4-Nitroaniline	840	U	410	U	900	U	400	U	520	U
4-Nitrophenol	840	U	410	U	900	U	400	U	520	U
Acenaphthene	140	J	210	U	160	J	200	U	270	U
Acenaphthylene	130	J	210	U	170	J	170	J	270	U
Acetophenone	430	U	210	U	470	U	200	U	270	U
Anthracene	600	J	210	U	630	J	130	J	270	U
Atrazine	430	U	210	U	470	U	200	U	270	U
Benz(a)anthracene	1800	J	210	U	2000	J	520	J	430	J
Benzaldehyde	430	U	210	U	470	U	200	U	270	U
Benzo(a)pyrene	1600	J	210	U	1900	J	480	J	580	J
Benzo(b)fluoranthene	1500	J	210	U	1800	J	500	J	630	J
Benzo(g,h,i)perylene	870	J	210	U	1100	J	290	J	430	J
Benzo(k)fluoranthene	1500	J	210	U	1900	J	500	J	620	J
Bis(2-chloroethoxy)methane	430	U	210	U	470	U	200	U	270	U
Bis(2-chloroethyl)ether	430	U	210	U	470	U	200	U	270	U
Bis(2-ethylhexyl)phthalate	430	U	210	U	470	U	200	U	340	
Butylbenzylphthalate	430	U	210	U	470	U	200	U	270	U
Caprolactam	430	U	210	U	470	U	200	U	270	U
Carbazole	220	J	210	U	290	J	200	U	270	U
Chrysene	1800	J	210	U	2000	J	620	J	640	J
Di-n-butylphthalate	430	U	210	U	470	U	200	U	270	U
Di-n-octylphthalate	430	U	210	U	470	U	200	U	270	U
Dibenz(a,h)anthracene	450	J	210	U	570	J	200	U	270	U
Dibenzofuran	430	U	210	U	470	U	200	U	270	U
Diethylphthalate	430	U	210	U	470	U	200	U	270	U
Dimethylphthalate	430	U	210	U	470	U	200	U	270	U
Fluoranthene	4800	J	210	U	4700	J	1200	J	930	J
Fluorene	150	J	210	U	160	J	200	U	270	U
Hexachlorobenzene	430	U	210	U	470	U	200	U	270	U
Hexachlorobutadiene	430	U	210	U	470	U	200	U	270	U
Hexachlorocyclopentadiene	430	U	210	U	470	U	200	U	270	U
Hexachloroethane	430	U	210	U	470	U	200	U	270	U
Indeno(1,2,3-cd)pyrene	1100	J	210	U	1400	J	330	J	470	J
Isophorone	430	U	210	U	470	U	200	U	270	U
N-Nitroso-di-n-propylamine	430	U	210	U	470	U	200	U	270	U
N-Nitrosodiphenylamine (1)	430	U	210	U	470	U	200	U	270	U
Naphthalene	430	U	210	U	470	U	200	U	270	U
Nitrobenzene	430	U	210	U	470	U	200	U	270	U
Pentachlorophenol	840	U	410	U	900	U	400	U	520	U
Phenanthrene	1800	J	210	U	1900	J	560	J	360	J
Phenol	430	U	210	U	470	U	200	U	270	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**SSA12-SB01D-0001-20071207**		**SSA12-SB03D-1.502-20071205**		**SSA12-SS01D-000.5-20071207**		**SSA12-SS01E-000.5-20071206**		**SSA12-SS02D-000.5-20071207**	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/6/2007**		**12/7/2007**	
Duplicate:										
Pyrene	4200	J	210	U	4700	J	1100	J	1100	
Total Pahs	22440			U	25090		6400		6190	
Total Pahs Halfnd	22870		1785		25560		6900		7135	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,1,2,2-Tetrachloroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,1,2-Trichloroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,1-Dichloroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,1-Dichloroethene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2,4-Trichlorobenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dibromo-3-chloropropane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dibromoethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dichlorobenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dichloroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dichloroethene (cis)	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dichloroethene (trans)	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,2-Dichloropropane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,3-Dichlorobenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
1,4-Dichlorobenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
2-Butanone	12	B	660	U	15	B	10	B	29	B
2-Hexanone	14	U	660	U	17	U	13	U	22	U
4-Methyl-2-pentanone	14	U	660	U	17	U	13	U	22	U
Acetone	140		4600	J	200		170		470	
Benzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Bromodichloromethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Bromoform	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Bromomethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Carbon Disulfide	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Carbon Tetrachloride	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Chlorobenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Chloroethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Chloroform	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Chloromethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
cis-1,3-Dichloropropene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Cyclohexane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Dibromochloromethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Dichlorodifluoromethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Ethylbenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Isopropylbenzene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
M,p-xylene	11	U	520	U	14	U	11	U	17	U
Methyl Acetate	5.7	U	260	J	6.8	U	5.3	U	8.7	U
Methyl Cyclohexane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Methyl Tert-butyl Ether (mtbe)	5.7	U	260	U	6.8	U	5.3	U	8.7	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**SSA12-SB01D-0001-20071207**		**SSA12-SB03D-1.502-20071205**		**SSA12-SS01D-000.5-20071207**		**SSA12-SS01E-000.5-20071206**		**SSA12-SS02D-000.5-20071207**	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/6/2007**		**12/7/2007**	
Duplicate:										
Methylene Chloride	5.7	U	260	U	6.8	U	5.3	U	8.7	U
O-xylene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Styrene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Tetrachloroethene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Toluene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
trans-1,3-Dichloropropene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Trichloroethene	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Trichlorofluoromethane	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Vinyl Chloride	5.7	U	260	U	6.8	U	5.3	U	8.7	U
Xylene (Total)	5.7	U	260	U	6.8	U	5.3	U	8.7	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	8.4	UJ	4.1	UJ	4.5	UJ	4	UJ	5.2	UJ
4,4'-DDE	27	J	4.1	UJ	8.2	J	4	UJ	7.6	R
4,4'-DDT	12	J	4.1	UJ	6.8	J	4	UJ	7.9	J
Aldrin	4.3	UJ	2.1	UJ	2.3	UJ	2	UJ	2.7	UJ
Alpha-BHC	4.3	UJ	2.1	UJ	2.3	UJ	2	UJ	2.7	UJ
Alpha-Chlordane	6	R	2.1	UJ	2.7	J	2	UJ	2.7	UJ
Aroclor-1016	61	UJ	30	UJ	33	UJ	29	UJ	38	UJ
Aroclor-1221	86	UJ	42	UJ	47	UJ	41	UJ	53	UJ
Aroclor-1232	43	UJ	21	UJ	23	UJ	20	UJ	27	UJ
Aroclor-1242	43	UJ	21	UJ	23	UJ	20	UJ	27	UJ
Aroclor-1248	43	UJ	21	UJ	23	UJ	20	UJ	27	UJ
Aroclor-1254	43	UJ	21	UJ	23	UJ	20	UJ	27	UJ
Aroclor-1260	43	UJ	21	UJ	23	UJ	20	UJ	27	UJ
Beta-BHC	2.2	UJ	1.1	UJ	29	R	1	UJ	16	R
Delta-BHC	4.3	UJ	2.1	UJ	1.4	J	2	UJ	1.9	J
Dieldrin	8.7	J	4.1	UJ	5.9	J	2.8	J	20	J
Endosulfan I	4.3	UJ	2.1	UJ	1.6	J	2	UJ	0.67	J
Endosulfan II	8.4	UJ	4.1	UJ	4.5	UJ	4	UJ	5.2	UJ
Endosulfan Sulfate	82	R	4.1	UJ	4.5	UJ	1.5	J	16	J
Endrin	10	R	4.1	UJ	4.5	UJ	4	UJ	5.2	UJ
Endrin Aldehyde	10	J	4.1	UJ	4.5	UJ	1.8	J	11	R
Endrin Ketone	15	J	4.1	UJ	4.5	UJ	4	UJ	5.2	UJ
Gamma-BHC (Lindane)	2.3	J	2.1	UJ	2.3	UJ	2	UJ	2.7	UJ
Gamma-Chlordane	4.3	UJ	2.1	UJ	8.5	J	2	UJ	2.7	UJ
Heptachlor	4.3	UJ	2.1	UJ	1.1	J	0.87	J	2.7	UJ
Heptachlor Epoxide	4.3	UJ	2.1	UJ	2.3	UJ	2	UJ	2.7	UJ
Methoxychlor	43	UJ	21	UJ	23	UJ	20	UJ	27	UJ
Total Aroclor		U		U		U		U		U
Total Aroclor Halfnd	181		88.5		97.5		85		113	
Total Ddt	39			U	15			U	7.9	
Total Ddt Halfnd	43.2		6.15		17.25		6		10.5	
Toxaphene	210	UJ	100	UJ	110	UJ	100	UJ	130	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS02E-000.5-20071206		SSA12-SS03D-000.5-20071205		SSA12-SS03E-000.5-20071206		SSA12-SS04D-000.5-20071205		SSA12-SS04E-000.5-20071206	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/5/2007**		**12/6/2007**	
Duplicate:										
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12700		13400		12900		13700		13700	
Antimony	0.57	B	1.1	B	1.2	B	1.4	B	0.51	B
Arsenic	5		6.3		2.8		6.3		3.3	
Barium	70		142		57.6		130		78.3	
Beryllium	0.77		0.81	K	0.44	K	0.86	K	0.84	K
Cadmium	0.07	UR	5.2	L	0.06	UR	9.4		0.06	U
Calcium	626		1970		850		1960		980	
Chromium	13.2		21.1		38.5		27.1		12.3	J
Cobalt	4.3	K	7.7	K	4.7	K	8.9	K	5.7	J
Copper	12.6	J	39.9	J	15	J	51.9	J	10.9	J
Iron	11300		21200		14700		22100		14900	J
Lead	29.9		66		172		102		14.4	
Magnesium	1190		1750		1070		1840		1440	
Manganese	419	K	647	K	329	K	753	K	462	J
Mercury	0.11	K	0.13	K	0.043	K	0.18	K	0.028	
Nickel	9.3		37.4		8.1		63.5		9.9	J
Potassium	464	L	917	L	526	L	925	L	481	L
Selenium	0.46	UL	0.45	UL	0.43	UL	0.46	UL	0.39	UL
Silver	0.07	UR	0.12	L	0.06	UR	0.44	L	0.06	UR
Sodium	104	B	96.5	B	98.3	B	119	B	102	B
Thallium	1.8	J	3.1	K	2.5	K	3.8	K	2.4	J
Vanadium	22		31.8		17.5		32.7		20.7	
Zinc	40.2		466		61.6		731		27.6	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	240	U	240	U	220	U	240	U	210	U
2,2'-Oxybis(1-chloropropane)	240	U	240	U	220	U	240	U	210	U
2,4,5-Trichlorophenol	240	U	240	U	220	U	240	U	210	U
2,4,6-Trichlorophenol	240	U	240	U	220	U	240	U	210	U
2,4-Dichlorophenol	240	U	240	U	220	U	240	U	210	U
2,4-Dimethylphenol	240	U	240	U	220	U	240	U	210	U
2,4-Dinitrophenol	460	U	460	U	420	U	460	U	400	U
2,4-Dinitrotoluene	240	U	240	U	220	U	240	U	210	U
2,6-Dinitrotoluene	240	U	240	U	220	U	240	U	210	U
2-Chloronaphthalene	240	U	240	U	220	U	240	U	210	U
2-Chlorophenol	240	U	240	U	220	U	240	U	210	U
2-Methylnaphthalene	240	U	240	U	220	U	240	U	210	U
2-Methylphenol	240	U	240	U	220	U	240	U	210	U
2-Nitroaniline	460	U	460	U	420	U	460	U	400	U
2-Nitrophenol	240	U	240	U	220	U	240	U	210	U
3,3'-Dichlorobenzidine	240	U	240	U	220	U	240	U	210	U
3-Nitroaniline	460	U	460	U	420	U	460	U	400	U
4,6-Dinitro-2-methylphenol	460	U	460	U	420	U	460	U	400	U
4-Bromophenyl Phenyl Ether	240	U	240	U	220	U	240	U	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS02E-000.5-20071206		SSA12-SS03D-000.5-20071205		SSA12-SS03E-000.5-20071206		SSA12-SS04D-000.5-20071205		SSA12-SS04E-000.5-20071206	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/5/2007**		**12/6/2007**	
Duplicate:										
4-Chloro-3-methylphenol	240	U	240	U	220	U	240	U	210	U
4-Chloroaniline	240	U	240	U	220	U	240	U	210	U
4-Chlorophenyl Phenyl Ether	240	U	240	U	220	U	240	U	210	U
4-Methylphenol	460	U	460	U	420	U	460	U	400	U
4-Nitroaniline	460	U	460	U	420	U	460	U	400	U
4-Nitrophenol	460	U	460	U	420	U	460	U	400	U
Acenaphthene	240	U	240	U	220	U	240	U	210	U
Acenaphthylene	240	U	240	U	220	U	240	U	210	U
Acetophenone	240	U	240	U	220	U	240	U	210	U
Anthracene	240	U	240	U	220	U	240	U	210	U
Atrazine	240	U	240	U	220	U	240	U	210	U
Benz(a)anthracene	240	U	240	U	220	U	240	U	200	J
Benzaldehyde	240	U	240	U	220	U	240	U	210	U
Benzo(a)pyrene	240	U	240	U	220	U	240	U	220	J
Benzo(b)fluoranthene	240	U	240	U	220	U	240	U	240	J
Benzo(g,h,i)perylene	240	U	240	U	220	U	240	U	150	J
Benzo(k)fluoranthene	130	J	240	U	99	J	240	U	250	
Bis(2-chloroethoxy)methane	240	U	240	U	220	U	240	U	210	U
Bis(2-chloroethyl)ether	240	U	240	U	220	U	240	U	210	U
Bis(2-ethylhexyl)phthalate	240	U	240	U	440		240	U	210	U
Butylbenzylphthalate	240	U	240	U	220	U	240	U	210	U
Caprolactam	240	U	240	U	220	U	240	U	210	U
Carbazole	240	U	240	U	220	U	240	U	210	U
Chrysene	160	J	240	U	110	J	240	U	280	J
Di-n-butylphthalate	240	U	240	U	220	U	240	U	210	U
Di-n-octylphthalate	240	U	240	U	220	U	240	U	210	U
Dibenz(a,h)anthracene	240	U	240	U	220	U	240	U	210	U
Dibenzofuran	240	U	240	U	220	U	240	U	210	U
Diethylphthalate	240	U	240	U	220	U	240	U	210	U
Dimethylphthalate	240	U	240	U	220	U	240	U	210	U
Fluoranthene	360	J	120	J	220		130	J	590	J
Fluorene	240	U	240	U	220	U	240	U	210	U
Hexachlorobenzene	240	U	240	U	220	U	240	U	210	U
Hexachlorobutadiene	240	U	240	U	220	U	240	U	210	U
Hexachlorocyclopentadiene	240	U	240	U	220	U	240	U	210	U
Hexachloroethane	240	U	240	U	220	U	240	U	210	U
Indeno(1,2,3-cd)pyrene	240	U	240	U	220	U	240	U	170	J
Isophorone	240	U	240	U	220	U	240	U	210	U
N-Nitroso-di-n-propylamine	240	U	240	U	220	U	240	U	210	U
N-Nitrosodiphenylamine (1)	240	U	240	U	220	U	240	U	210	U
Naphthalene	240	U	240	U	220	U	240	U	210	U
Nitrobenzene	240	U	240	U	220	U	240	U	210	U
Pentachlorophenol	460	U	460	U	420	U	460	U	400	U
Phenanthrene	270	J	240	U	130	J	240	U	300	J
Phenol	240	U	240	U	220	U	240	U	210	U

Sample ID:	**SSA12-SS02E-000.5-20071206**		**SSA12-SS03D-000.5-20071205**		**SSA12-SS03E-000.5-20071206**		**SSA12-SS04D-000.5-20071205**		**SSA12-SS04E-000.5-20071206**	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/5/2007**		**12/6/2007**	
Duplicate:										
Pyrene	330	J	240	U	180	J	240	U	500	J
Total Pahs	1250		120		739		130		2900	
Total Pahs Halfnd	2690		2040		2059		2050		3635	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,1,2,2-Tetrachloroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,1,2-Trichloro-1,2,2-trifluoroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,1,2-Trichloroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,1-Dichloroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,1-Dichloroethene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2,4-Trichlorobenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dibromo-3-chloropropane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dibromoethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dichlorobenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dichloroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dichloroethene (cis)	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dichloroethene (trans)	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,2-Dichloropropane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,3-Dichlorobenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
1,4-Dichlorobenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
2-Butanone	19	B	26	B	24	B	35	B	19	B
2-Hexanone	18	U	17	U	15	U	17	U	14	U
4-Methyl-2-pentanone	18	U	17	U	15	U	17	U	14	U
Acetone	270		310		300		380		230	
Benzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Bromodichloromethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Bromoform	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Bromomethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Carbon Disulfide	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Carbon Tetrachloride	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Chlorobenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Chloroethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Chloroform	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Chloromethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
cis-1,3-Dichloropropene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Cyclohexane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Dibromochloromethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Dichlorodifluoromethane	7.2	U	6.8	U	6.1	U	1.8	J	5.6	U
Ethylbenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Isopropylbenzene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
M,p-xylene	14	U	14	U	12	U	14	U	11	U
Methyl Acetate	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Methyl Cyclohexane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Methyl Tert-butyl Ether (mtbe)	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U

Sample ID:	**SSA12-SS02E-000.5-20071206**		**SSA12-SS03D-000.5-20071205**		**SSA12-SS03E-000.5-20071206**		**SSA12-SS04D-000.5-20071205**		**SSA12-SS04E-000.5-20071206**	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/5/2007**		**12/6/2007**	
Duplicate:										
Methylene Chloride	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
O-xylene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Styrene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Tetrachloroethene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Toluene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
trans-1,3-Dichloropropene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Trichloroethene	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Trichlorofluoromethane	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Vinyl Chloride	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
Xylene (Total)	7.2	U	6.8	U	6.1	U	6.8	U	5.6	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	37	R	4.6	UJ	19	J	8.3	R	4	UJ
4,4'-DDE	4.6	UJ	4.6	UJ	4.2	UJ	4.6	UJ	4	UJ
4,4'-DDT	5	J	4.6	UJ	3.2	J	4.6	UJ	4	UJ
Aldrin	2.4	UJ	2.4	UJ	0.83	J	2.4	UJ	2.1	UJ
Alpha-BHC	2.4	UJ	2.4	UJ	2.2	UJ	2.4	UJ	2.1	UJ
Alpha-Chlordane	3.7	J	2.4	UJ	4.6	J	2.4	UJ	2.1	UJ
Aroclor-1016	33	UJ	33	UJ	31	UJ	34	UJ	29	UJ
Aroclor-1221	47	UJ	47	UJ	44	UJ	48	UJ	41	UJ
Aroclor-1232	24	UJ	24	UJ	22	UJ	24	UJ	21	UJ
Aroclor-1242	24	UJ	24	UJ	22	UJ	24	UJ	21	UJ
Aroclor-1248	24	UJ	24	UJ	22	UJ	24	UJ	21	UJ
Aroclor-1254	24	UJ	24	UJ	22	UJ	24	UJ	21	UJ
Aroclor-1260	24	UJ	24	UJ	22	UJ	24	UJ	21	UJ
Beta-BHC	1.2	UJ	1.2	UJ	1.1	UJ	6.6	R	1	UJ
Delta-BHC	2.4	UJ	0.57	J	2.2	UJ	0.88	J	2.1	UJ
Dieldrin	22	J	1.2	J	38	J	4.6	UJ	8.5	J
Endosulfan I	2.4	UJ	2.4	UJ	2.2	UJ	2.4	UJ	2.1	UJ
Endosulfan II	4.6	UJ	4.6	UJ	4.2	UJ	4.6	UJ	4	UJ
Endosulfan Sulfate	5.4	J	4.6	UJ	4.2	UJ	4.6	UJ	4	UJ
Endrin	4.6	UJ	4.6	UJ	4.2	UJ	4.6	UJ	4	UJ
Endrin Aldehyde	4	R	4.6	UJ	4.2	UJ	4.6	UJ	4	UJ
Endrin Ketone	4.6	UJ	4.6	UJ	4.2	UJ	4.6	UJ	4	UJ
Gamma-BHC (Lindane)	2.4	UJ	2.4	UJ	2.2	UJ	2.4	UJ	2.1	UJ
Gamma-Chlordane	3.3	R	2.4	UJ	6.5	R	2.4	UJ	2.1	UJ
Heptachlor	2.4	UJ	2.4	UJ	2.2	UJ	0.8	J	2.1	UJ
Heptachlor Epoxide	2.4	UJ	2.4	UJ	2.3	J	2.4	UJ	2.1	UJ
Methoxychlor	24	UJ	24	UJ	22	UJ	24	UJ	21	UJ
Total Aroclor		U		U		U		U		U
Total Aroclor Halfnd	100		100		92.5		101		87.5	
Total Ddt	5			U	22.2			U		U
Total Ddt Halfnd	7.3		6.9		24.3		4.6		6	
Toxaphene	120	UJ	120	UJ	110	UJ	120	UJ	100	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS05D-000.5-20071207		SSA12-SS05E-000.5-20071206		SSA12-SS06D-000.5-20071207		SSA12-SS06E-000.5-20071206		SSA12-SS07D-000.5-20071205	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/7/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	13400		11200		14800		16700		7260	
Antimony	0.77	B	0.83	B	0.7	B	0.91	B	0.8	B
Arsenic	6.8		6.7		6.3		5.8		12.8	
Barium	88.5		79.6		84.6		67		59.7	
Beryllium	0.95	K	0.71	K	1	K	0.74	K	0.65	K
Cadmium	0.07	U	0.18	B	0.07	U	0.06	UR	0.07	UR
Calcium	1900		2050		742		780		1360	
Chromium	17	J	17.5		16.8	J	23.1		11.7	
Cobalt	6.1	J	5.2	K	5.8	J	5.5	K	3.9	K
Copper	15.1	J	24.6	J	16.7	J	14.4	J	16.1	J
Iron	16600	J	16400		15800	J	21700		11900	
Lead	35.5		179		32.5		27.4		40.5	
Magnesium	1540		1830		1430		2050		998	
Manganese	605	J	306	K	685	J	224	K	271	K
Mercury	0.13		0.069	K	0.17		0.043	K	0.47	K
Nickel	11.1	J	11.4		11.2	J	11.7		8.1	
Potassium	659	L	728	L	528	L	667	L	537	L
Selenium	0.45	UL	0.44	UL	0.45	UL	0.42	UL	0.49	UL
Silver	0.07	UR	0.07	UR	0.07	UR	0.06	UR	0.09	L
Sodium	95.5	B	143	B	88.2	B	226	B	108	B
Thallium	3.6	J	3	K	2.7	J	3.6	K	1.5	R
Vanadium	29.6		25.9		27.4		36.6		19.5	
Zinc	54.5		74.8		88.2		51.4		48.9	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	230	U	230	U	240	U	220	U	250	U
2,2'-Oxybis(1-chloropropane)	230	U	230	U	240	U	220	U	250	U
2,4,5-Trichlorophenol	230	U	230	U	240	U	220	U	250	U
2,4,6-Trichlorophenol	230	U	230	U	240	U	220	U	250	U
2,4-Dichlorophenol	230	U	230	U	240	U	220	U	250	U
2,4-Dimethylphenol	230	U	230	U	240	U	220	U	250	U
2,4-Dinitrophenol	450	U	450	U	460	U	420	U	490	U
2,4-Dinitrotoluene	230	U	230	U	240	U	220	U	250	U
2,6-Dinitrotoluene	230	U	230	U	240	U	220	U	250	U
2-Chloronaphthalene	230	U	230	U	240	U	220	U	250	U
2-Chlorophenol	230	U	230	U	240	U	220	U	250	U
2-Methylnaphthalene	230	U	230	U	240	U	220	U	160	J
2-Methylphenol	230	U	230	U	240	U	220	U	250	U
2-Nitroaniline	450	U	450	U	460	U	420	U	490	U
2-Nitrophenol	230	U	230	U	240	U	220	U	250	U
3,3'-Dichlorobenzidine	230	U	230	U	240	U	220	U	250	U
3-Nitroaniline	450	U	450	U	460	U	420	U	490	U
4,6-Dinitro-2-methylphenol	450	U	450	U	460	U	420	U	490	U
4-Bromophenyl Phenyl Ether	230	U	230	U	240	U	220	U	250	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS05D-000.5-20071207		SSA12-SS05E-000.5-20071206		SSA12-SS06D-000.5-20071207		SSA12-SS06E-000.5-20071206		SSA12-SS07D-000.5-20071205	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/7/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
4-Chloro-3-methylphenol	230	U	230	U	240	U	220	U	250	U
4-Chloroaniline	230	U	230	U	240	U	220	U	250	U
4-Chlorophenyl Phenyl Ether	230	U	230	U	240	U	220	U	250	U
4-Methylphenol	450	U	450	U	460	U	420	U	490	U
4-Nitroaniline	450	U	450	U	460	U	420	U	490	U
4-Nitrophenol	450	U	450	U	460	U	420	U	490	U
Acenaphthene	230	U	230	U	240	U	220	U	250	U
Acenaphthylene	230	U	230	U	240	U	220	U	250	U
Acetophenone	230	U	230	U	240	U	220	U	250	U
Anthracene	230	U	230	U	240	U	220	U	250	U
Atrazine	230	U	230	U	240	U	220	U	250	U
Benz(a)anthracene	230	U	230	U	240	U	220	U	120	J
Benzaldehyde	230	U	230	U	240	U	220	U	250	U
Benzo(a)pyrene	230	U	130	J	240	U	220	U	140	J
Benzo(b)fluoranthene	230	U	230	U	240	U	220	U	250	U
Benzo(g,h,i)perylene	230	U	230	U	240	U	220	U	250	U
Benzo(k)fluoranthene	230	U	130	J	240	U	220	U	150	J
Bis(2-chloroethoxy)methane	230	U	230	U	240	U	220	U	250	U
Bis(2-chloroethyl)ether	230	U	230	U	240	U	220	U	250	U
Bis(2-ethylhexyl)phthalate	230	U	230	U	240	U	220	U	250	U
Butylbenzylphthalate	230	U	230	U	240	U	220	U	250	U
Caprolactam	230	U	230	U	240	U	220	U	250	U
Carbazole	230	U	230	U	240	U	220	U	250	U
Chrysene	230	U	160	J	240	U	220	U	280	J
Di-n-butylphthalate	230	U	230	U	240	U	220	U	250	U
Di-n-octylphthalate	230	U	230	U	240	U	220	U	250	U
Dibenz(a,h)anthracene	230	U	230	U	240	U	220	U	250	U
Dibenzofuran	230	U	230	U	240	U	220	U	250	U
Diethylphthalate	230	U	230	U	240	U	220	U	250	U
Dimethylphthalate	230	U	230	U	240	U	220	U	250	U
Fluoranthene	230	U	310		140	J	220	U	340	J
Fluorene	230	U	230	U	240	U	220	U	250	U
Hexachlorobenzene	230	U	230	U	240	U	220	U	250	U
Hexachlorobutadiene	230	U	230	U	240	U	220	U	250	U
Hexachlorocyclopentadiene	230	U	230	U	240	U	220	U	250	U
Hexachloroethane	230	U	230	U	240	U	220	U	250	U
Indeno(1,2,3-cd)pyrene	230	U	230	U	240	U	220	U	250	U
Isophorone	230	U	230	U	240	U	220	U	250	U
N-Nitroso-di-n-propylamine	230	U	230	U	240	U	220	U	250	U
N-Nitrosodiphenylamine (1)	230	U	230	U	240	U	220	U	250	U
Naphthalene	230	U	230	U	240	U	220	U	250	U
Nitrobenzene	230	U	230	U	240	U	220	U	250	U
Pentachlorophenol	450	U	450	U	460	U	420	U	490	U
Phenanthrene	230	U	160	J	240	U	220	U	300	J
Phenol	230	U	230	U	240	U	220	U	250	U

Sample ID:	**SSA12-SS05D-000.5-20071207**		**SSA12-SS05E-000.5-20071206**		**SSA12-SS06D-000.5-20071207**		**SSA12-SS06E-000.5-20071206**		**SSA12-SS07D-000.5-20071205**	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/7/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
Pyrene	230	U	240		140	J	220	U	320	J
Total Pahs		U	1130		280			U	1810	
Total Pahs Halfnd	1955		2395		2080		1870		2935	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,1,2,2-Tetrachloroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,1,2-Trichloro-1,2,2-trifluoroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,1,2-Trichloroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,1-Dichloroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,1-Dichloroethene	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2,4-Trichlorobenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dibromo-3-chloropropane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dibromoethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dichlorobenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dichloroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dichloroethene (cis)	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dichloroethene (trans)	7	U	7	U	6.9	U	5.6	U	8.3	U
1,2-Dichloropropane	7	U	7	U	6.9	U	5.6	U	8.3	U
1,3-Dichlorobenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
1,4-Dichlorobenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
2-Butanone	25	B	26	B	32	B	9.3	B	11	B
2-Hexanone	17	U	17	U	17	U	14	U	21	U
4-Methyl-2-pentanone	17	U	17	U	17	U	14	U	21	U
Acetone	510		300		450		140		210	
Benzene	7	U	7	U	6.9	U	5.6	U	8.3	U
Bromodichloromethane	7	U	7	U	6.9	U	5.6	U	8.3	U
Bromoform	7	U	7	U	6.9	U	5.6	U	8.3	U
Bromomethane	7	U	7	U	6.9	U	5.6	U	8.3	U
Carbon Disulfide	7	U	7	U	6.9	U	5.6	U	8.3	U
Carbon Tetrachloride	7	U	7	U	6.9	U	5.6	U	8.3	U
Chlorobenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
Chloroethane	7	U	7	U	6.9	U	5.6	U	8.3	U
Chloroform	7	U	7	U	6.9	U	5.6	U	8.3	U
Chloromethane	7	U	7	U	6.9	U	5.6	U	8.3	U
cis-1,3-Dichloropropene	7	U	7	U	6.9	U	5.6	U	8.3	U
Cyclohexane	7	U	7	U	6.9	U	5.6	U	8.3	U
Dibromochloromethane	7	U	7	U	6.9	U	5.6	U	8.3	U
Dichlorodifluoromethane	7	U	7	U	6.9	U	5.6	U	8.3	U
Ethylbenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
Isopropylbenzene	7	U	7	U	6.9	U	5.6	U	8.3	U
M,p-xylene	14	U	14	U	14	U	11	U	17	U
Methyl Acetate	7	U	7	U	6.9	U	5.6	U	8.3	U
Methyl Cyclohexane	7	U	7	U	6.9	U	5.6	U	8.3	U
Methyl Tert-butyl Ether (mtbe)	7	U	7	U	6.9	U	5.6	U	8.3	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**SSA12-SS05D-000.5-20071207**		**SSA12-SS05E-000.5-20071206**		**SSA12-SS06D-000.5-20071207**		**SSA12-SS06E-000.5-20071206**		**SSA12-SS07D-000.5-20071205**	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/7/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
Methylene Chloride	7	U	7	U	6.9	U	5.6	U	8.3	U
O-xylene	7	U	7	U	6.9	U	5.6	U	8.3	U
Styrene	7	U	7	U	6.9	U	5.6	U	8.3	U
Tetrachloroethene	7	U	7	U	6.9	U	5.6	U	8.3	U
Toluene	7	U	7	U	6.9	U	5.6	U	8.3	U
trans-1,3-Dichloropropene	7	U	7	U	6.9	U	5.6	U	8.3	U
Trichloroethene	7	U	7	U	6.9	U	5.6	U	8.3	U
Trichlorofluoromethane	7	U	7	U	6.9	U	5.6	U	8.3	U
Vinyl Chloride	7	U	7	U	6.9	U	5.6	U	8.3	U
Xylene (Total)	7	U	7	U	6.9	U	5.6	U	8.3	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.5	UJ	12	J	9.1	R	4.2	UJ	2.5	J
4,4'-DDE	4.5	UJ	2.5	J	4.6	UJ	2.1	J	7.1	J
4,4'-DDT	4.5	UJ	4.6	J	3.4	J	3.5	J	13	J
Aldrin	2.3	UJ	0.91	J	2.4	UJ	2.2	UJ	2.5	UJ
Alpha-BHC	2.3	UJ	0.71	J	2.4	UJ	2.2	UJ	2.5	UJ
Alpha-Chlordane	2.3	UJ	4.5	R	2.4	UJ	2.2	UJ	2.5	UJ
Aroclor-1016	33	UJ	33	UJ	34	UJ	31	UJ	35	UJ
Aroclor-1221	47	UJ	47	UJ	48	UJ	44	UJ	50	UJ
Aroclor-1232	23	UJ	23	UJ	24	UJ	22	UJ	25	UJ
Aroclor-1242	23	UJ	23	UJ	24	UJ	22	UJ	25	UJ
Aroclor-1248	23	UJ	23	UJ	24	UJ	22	UJ	25	UJ
Aroclor-1254	23	UJ	23	UJ	24	UJ	22	UJ	25	UJ
Aroclor-1260	23	UJ	23	UJ	24	UJ	22	UJ	25	UJ
Beta-BHC	1.2	UJ	9	R	1.2	UJ	1.1	UJ	1.3	UJ
Delta-BHC	2.3	UJ	2.3	UJ	1	J	2.2	UJ	1.1	J
Dieldrin	1.4	J	37	J	4.1	J	6.5	J	20	J
Endosulfan I	2.3	UJ	1.4	J	2.4	UJ	2.2	UJ	2.5	UJ
Endosulfan II	4.5	UJ	4.5	UJ	4.6	UJ	4.2	UJ	4.9	UJ
Endosulfan Sulfate	4.5	UJ	2.5	J	4.6	UJ	4.2	UJ	4.9	UJ
Endrin	4.5	UJ	4.5	UJ	4.6	UJ	4.2	UJ	4.9	UJ
Endrin Aldehyde	4.5	UJ	4.5	UJ	4.6	UJ	4.2	UJ	3.4	J
Endrin Ketone	4.5	UJ	4.5	UJ	4.6	UJ	4.2	UJ	5.7	J
Gamma-BHC (Lindane)	2.3	UJ	2.3	UJ	2.4	UJ	2.2	UJ	2.5	UJ
Gamma-Chlordane	2.3	UJ	7.5	R	13	R	2.2	UJ	2.5	UJ
Heptachlor	2.3	UJ	2.3	UJ	0.83	J	2.2	UJ	0.85	J
Heptachlor Epoxide	2.3	UJ	2.4	J	0.99	J	2.2	UJ	1.8	J
Methoxychlor	23	UJ	23	UJ	24	UJ	22	UJ	25	UJ
Total Aroclor		U		U		U		U		U
Total Aroclor Halfnd	97.5		97.5		101		92.5		105	
Total Ddt		U	19.1		3.4		5.6		22.6	
Total Ddt Halfnd	6.75		19.1		5.7		7.7		22.6	
Toxaphene	110	UJ	110	UJ	120	UJ	110	UJ	120	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS07E-000.5-20071206		SSA12-SS08D-000.5-20071205		SSA12-SS08E-000.5-20071206		SSA12-SS09E-000.5-20071206		SSA12-SS10D-000.5-20071205	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	16600		14400		11500		12300		13400	
Antimony	1.4	B	0.93	B	0.71	B	3.1	B	1.1	B
Arsenic	6.2		6		2.8		6.2		5.8	
Barium	130		103		100		171		97	
Beryllium	0.94	K	0.9	K	0.97	K	0.75	K	0.91	K
Cadmium	0.42	B	0.09	B	0.07	U	2	K	0.07	UR
Calcium	3720		4520		1580		6650		1440	
Chromium	25.9	J	18.9		19	J	18.3	J	15.8	
Cobalt	5.7	J	5.4	K	7.3	J	5.4	J	5	K
Copper	49	J	24.8	J	18	J	180	J	21.5	J
Iron	20500	J	19100		16100	J	14000	J	14300	
Lead	289		66.7		25.7		336		37.6	
Magnesium	2180		2740		1840		2260		1500	
Manganese	276	J	488	K	381	J	468	J	632	K
Mercury	0.1		0.24	K	0.042		0.059		0.17	K
Nickel	15.4	J	12.7		13.9	J	13.4	J	10.9	
Potassium	831	L	886	L	1290		1150		584	L
Selenium	0.52	UL	0.46	UL	0.48	UL	0.44	UL	0.45	UL
Silver	0.08	UR	3.5		0.07	UR	0.87	L	0.07	UR
Sodium	187	B	125	B	135	B	168	B	90.1	B
Thallium	3.8	J	3.6	K	2.6	J	2.8	J	2.1	K
Vanadium	37.3		29.7		25.7		21.1		24.8	
Zinc	214		133		43		313		241	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	270	U	480	U	260	U	230	U	230	U
2,2'-Oxybis(1-chloropropane)	270	U	480	U	260	U	230	U	230	U
2,4,5-Trichlorophenol	270	U	480	U	260	U	230	U	230	U
2,4,6-Trichlorophenol	270	U	480	U	260	U	230	U	230	U
2,4-Dichlorophenol	270	U	480	U	260	U	230	U	230	U
2,4-Dimethylphenol	270	U	480	U	260	U	230	U	230	U
2,4-Dinitrophenol	520	U	930	U	510	U	450	U	450	U
2,4-Dinitrotoluene	270	U	480	U	260	U	230	U	230	U
2,6-Dinitrotoluene	270	U	480	U	260	U	230	U	230	U
2-Chloronaphthalene	270	U	480	U	260	U	230	U	230	U
2-Chlorophenol	270	U	480	U	260	U	230	U	230	U
2-Methylnaphthalene	270	U	480	U	260	U	230	U	230	U
2-Methylphenol	270	U	480	U	260	U	230	U	230	U
2-Nitroaniline	520	U	930	U	510	U	450	U	450	U
2-Nitrophenol	270	U	480	U	260	U	230	U	230	U
3,3'-Dichlorobenzidine	270	U	480	UJ	260	U	230	U	230	U
3-Nitroaniline	520	U	930	U	510	U	450	U	450	U
4,6-Dinitro-2-methylphenol	520	U	930	U	510	U	450	U	450	U
4-Bromophenyl Phenyl Ether	270	U	480	U	260	U	230	U	230	U

Sample ID:	SSA12-SS07E-000.5-20071206		SSA12-SS08D-000.5-20071205		SSA12-SS08E-000.5-20071206		SSA12-SS09E-000.5-20071206		SSA12-SS10D-000.5-20071205	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
4-Chloro-3-methylphenol	270	U	480	U	260	U	230	U	230	U
4-Chloroaniline	270	U	480	U	260	U	230	U	230	U
4-Chlorophenyl Phenyl Ether	270	U	480	U	260	U	230	U	230	U
4-Methylphenol	520	U	930	U	510	U	450	U	450	U
4-Nitroaniline	520	U	930	U	510	U	450	U	450	U
4-Nitrophenol	520	U	930	U	510	U	450	U	450	U
Acenaphthene	270	U	220	J	260	U	170	J	230	U
Acenaphthylene	270	U	480	U	260	U	230	U	230	U
Acetophenone	270	U	480	U	260	U	230	U	230	U
Anthracene	270	U	720	J	110	J	710	J	230	U
Atrazine	270	U	480	U	260	U	230	U	230	U
Benz(a)anthracene	270	U	2600	J	660		1800	J	230	U
Benzaldehyde	270	U	480	U	260	U	230	U	230	U
Benzo(a)pyrene	140	J	2500	J	650		1600	J	230	U
Benzo(b)fluoranthene	270	U	2900	J	710		1800	J	230	U
Benzo(g,h,i)perylene	270	U	1500	J	350		970	J	230	U
Benzo(k)fluoranthene	170	J	2200	J	650		1500	J	230	U
Bis(2-chloroethoxy)methane	270	U	480	U	260	U	230	U	230	U
Bis(2-chloroethyl)ether	270	U	480	U	260	U	230	U	230	U
Bis(2-ethylhexyl)phthalate	270	U	480	UJ	260	U	230	U	230	U
Butylbenzylphthalate	270	U	480	UJ	260	U	230	U	230	U
Caprolactam	270	U	480	U	260	U	230	U	230	U
Carbazole	270	U	480	U	260	U	230	U	230	U
Chrysene	190	J	2900	J	710		2000	J	110	J
Di-n-butylphthalate	270	U	480	U	260	U	230	U	230	U
Di-n-octylphthalate	270	U	480	UJ	260	U	230	U	230	U
Dibenz(a,h)anthracene	270	U	560	J	160	J	490	J	230	U
Dibenzofuran	270	U	480	U	260	U	230	U	230	U
Diethylphthalate	270	U	480	U	260	U	230	U	230	U
Dimethylphthalate	270	U	480	U	260	U	230	U	230	U
Fluoranthene	410	J	4900	J	1300		5100	J	240	J
Fluorene	270	U	160	J	260	U	280	J	230	U
Hexachlorobenzene	270	U	480	U	260	U	230	U	230	U
Hexachlorobutadiene	270	U	480	U	260	U	230	U	230	U
Hexachlorocyclopentadiene	270	U	480	U	260	U	230	U	230	U
Hexachloroethane	270	U	480	U	260	U	230	U	230	U
Indeno(1,2,3-cd)pyrene	270	U	1700	J	400		1200	J	230	U
Isophorone	270	U	480	U	260	U	230	U	230	U
N-Nitroso-di-n-propylamine	270	U	480	U	260	U	230	U	230	U
N-Nitrosodiphenylamine (1)	270	U	480	U	260	U	230	U	230	U
Naphthalene	270	U	480	U	260	U	230	U	230	U
Nitrobenzene	270	U	480	U	260	U	230	U	230	U
Pentachlorophenol	520	U	930	U	510	U	450	U	450	U
Phenanthrene	280	J	2800	J	510		2800	J	160	J
Phenol	270	U	480	U	260	U	230	U	230	U

Sample ID:	**SSA12-SS07E-000.5-20071206**		**SSA12-SS08D-000.5-20071205**		**SSA12-SS08E-000.5-20071206**		**SSA12-SS09E-000.5-20071206**		**SSA12-SS10D-000.5-20071205**	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
Pyrene	360	J	5300	J	1300		4800	J	200	J
Total Pahs	1550		30960		7510		25220		710	
Total Pahs Halfnd	3035		31680		8160		25565		2205	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,1,2,2-Tetrachloroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,1,2-Trichloroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,1-Dichloroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,1-Dichloroethene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2,4-Trichlorobenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dibromo-3-chloropropane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dibromoethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dichlorobenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dichloroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dichloroethene (cis)	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dichloroethene (trans)	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,2-Dichloropropane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,3-Dichlorobenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
1,4-Dichlorobenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
2-Butanone	25	B	16	B	11	B	13	B	11	B
2-Hexanone	21	U	18	U	19	U	16	U	16	U
4-Methyl-2-pentanone	21	U	18	U	19	U	16	U	16	U
Acetone	340		360		160		140		170	
Benzene	8.6	U	7.4	U	7.6	U	2.2	J	6.5	U
Bromodichloromethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Bromoform	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Bromomethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Carbon Disulfide	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Carbon Tetrachloride	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Chlorobenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Chloroethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Chloroform	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Chloromethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
cis-1,3-Dichloropropene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Cyclohexane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Dibromochloromethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Dichlorodifluoromethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Ethylbenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Isopropylbenzene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
M,p-xylene	17	U	15	U	15	U	13	U	13	U
Methyl Acetate	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Methyl Cyclohexane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Methyl Tert-butyl Ether (mtbe)	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U

Sample ID:	**SSA12-SS07E-000.5-20071206**		**SSA12-SS08D-000.5-20071205**		**SSA12-SS08E-000.5-20071206**		**SSA12-SS09E-000.5-20071206**		**SSA12-SS10D-000.5-20071205**	
Sample Date:	**12/6/2007**		**12/5/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
Methylene Chloride	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
O-xylene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Styrene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Tetrachloroethene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Toluene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
trans-1,3-Dichloropropene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Trichloroethene	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Trichlorofluoromethane	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Vinyl Chloride	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
Xylene (Total)	8.6	U	7.4	U	7.6	U	6.4	U	6.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	52	UJ	4.6	UJ	2.4	J	4.5	UJ	16	R
4,4'-DDE	52	UJ	6.2	J	5.1	UJ	5	R	4.5	UJ
4,4'-DDT	52	UJ	13	J	5.1	UJ	7.4	R	4.9	R
Aldrin	27	UJ	0.76	J	2.6	UJ	2.3	UJ	2.3	UJ
Alpha-BHC	27	UJ	2.4	UJ	2.6	UJ	2.3	UJ	2.3	UJ
Alpha-Chlordane	27	UJ	2.4	UJ	2.6	UJ	2.2	R	1.9	J
Aroclor-1016	380	UJ	34	UJ	37	UJ	32	UJ	33	UJ
Aroclor-1221	540	UJ	48	UJ	52	UJ	46	UJ	47	UJ
Aroclor-1232	270	UJ	24	UJ	26	UJ	23	UJ	23	UJ
Aroclor-1242	270	UJ	24	UJ	26	UJ	23	UJ	23	UJ
Aroclor-1248	270	UJ	24	UJ	26	UJ	23	UJ	23	UJ
Aroclor-1254	270	UJ	24	UJ	26	UJ	23	UJ	23	UJ
Aroclor-1260	270	UJ	24	UJ	26	UJ	23	UJ	23	UJ
Beta-BHC	14	UJ	1.2	UJ	18	R	16	R	1.2	UJ
Delta-BHC	27	UJ	1.4	J	0.87	J	2.3	UJ	2.3	UJ
Dieldrin	500	J	71	J	20	J	12	J	5.9	J
Endosulfan I	27	UJ	1	J	1.2	J	0.91	J	2.3	UJ
Endosulfan II	52	UJ	4.6	UJ	5.1	UJ	4.5	UJ	4.5	UJ
Endosulfan Sulfate	52	UJ	15	R	5.1	UJ	8.8	J	4.5	UJ
Endrin	52	UJ	4.6	UJ	5.1	UJ	4.5	UJ	4.5	UJ
Endrin Aldehyde	52	UJ	5.1	J	2.8	J	4.7	J	4.5	UJ
Endrin Ketone	52	UJ	4.6	UJ	6.7	R	4.5	UJ	4.5	UJ
Gamma-BHC (Lindane)	27	UJ	2.4	UJ	2.6	UJ	2.3	UJ	2.3	UJ
Gamma-Chlordane	27	UJ	2.4	UJ	2.6	UJ	13	R	3.6	R
Heptachlor	27	UJ	2.4	UJ	2.6	UJ	2.3	UJ	2.3	UJ
Heptachlor Epoxide	27	UJ	2.4	UJ	2.6	UJ	1.6	J	2.3	UJ
Methoxychlor	270	UJ	24	UJ	26	UJ	23	UJ	23	UJ
Total Aroclor		U		U		U		U		U
Total Aroclor Halfnd	1135		101		109.5		96.5		97.5	
Total Ddt		U	19.2		2.4			U		U
Total Ddt Halfnd	78		21.5		7.5		2.25		2.25	
Toxaphene	1300	UJ	120	UJ	130	UJ	110	UJ	110	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS10E-000.5-20071207		SSA12-SS13E-000.5-20071206		SSA12-SS14E-000.5-20071206		SSA12-SS15E-000.5-20071206		SSA12-SS16E-000.5-20071205	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12900		11900		13400		11000		7630	
Antimony	0.68	B	0.79	B	0.71	B	0.77	B	0.97	B
Arsenic	6.2		6.9		5.5		9		8.4	
Barium	82.9		69.7		95.1		102		104	
Beryllium	0.85		0.71	K	0.91	K	0.88	K	0.69	K
Cadmium	0.07	U	0.07	U	0.07	U	0.08	B	0.59	J
Calcium	1360		2770		2990		6040		1640	
Chromium	14.1	J	15.8	J	16.3	J	17	J	12.1	
Cobalt	4.9	J	5.9	J	5.6	J	5.3	J	5.3	K
Copper	16.9	J	17.3	J	23.5	J	25.1	J	29.6	J
Iron	12500	J	14500	J	14300	J	15600	J	16000	
Lead	35.6		46.3		36		92.8		74.4	
Magnesium	1300		1560		1660		2910		1170	
Manganese	465	J	475	J	494	J	483	J	324	K
Mercury	0.16		0.12		0.15		0.14		0.14	K
Nickel	9.2	J	11.1	J	10.8	J	13	J	9.2	
Potassium	552	L	942	L	774	L	1050	L	1220	
Selenium	0.44	UL	0.45	UL	0.46	UL	0.46	UL	0.44	UL
Silver	0.07	UR	0.26	L	0.07	UR	0.17	L	5.2	
Sodium	87.1	B	111	B	114	B	134	B	126	B
Thallium	1.9	J	2.4	J	2.7	J	3.3	J	3	K
Vanadium	22.9		25.2		24.8		23.8		18.2	
Zinc	48		67.9		62.4		92.2		109	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	240	U	240	U	490	U	250	U	220	U
2,2'-Oxybis(1-chloropropane)	240	U	240	U	490	U	250	U	220	U
2,4,5-Trichlorophenol	240	U	240	U	490	U	250	U	220	U
2,4,6-Trichlorophenol	240	U	240	U	490	U	250	U	220	U
2,4-Dichlorophenol	240	U	240	U	490	U	250	U	220	U
2,4-Dimethylphenol	240	U	240	U	490	U	250	U	220	U
2,4-Dinitrophenol	460	U	460	U	940	U	490	U	430	U
2,4-Dinitrotoluene	240	U	240	U	490	U	250	U	220	U
2,6-Dinitrotoluene	240	U	240	U	490	U	250	U	220	U
2-Chloronaphthalene	240	U	240	U	490	U	250	U	220	U
2-Chlorophenol	240	U	240	U	490	U	250	U	220	U
2-Methylnaphthalene	240	U	240	U	490	U	250	U	220	U
2-Methylphenol	240	U	240	U	490	U	250	U	220	U
2-Nitroaniline	460	U	460	U	940	U	490	U	430	U
2-Nitrophenol	240	U	240	U	490	U	250	U	220	U
3,3'-Dichlorobenzidine	240	U	240	U	490	U	250	U	220	U
3-Nitroaniline	460	U	460	U	940	U	490	U	430	U
4,6-Dinitro-2-methylphenol	460	U	460	U	940	U	490	U	430	U
4-Bromophenyl Phenyl Ether	240	U	240	U	490	U	250	U	220	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS10E-000.5-20071207		SSA12-SS13E-000.5-20071206		SSA12-SS14E-000.5-20071206		SSA12-SS15E-000.5-20071206		SSA12-SS16E-000.5-20071205	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
4-Chloro-3-methylphenol	240	U	240	U	490	U	250	U	220	U
4-Chloroaniline	240	U	240	U	490	U	250	U	220	U
4-Chlorophenyl Phenyl Ether	240	U	240	U	490	U	250	U	220	U
4-Methylphenol	460	U	460	U	940	U	490	U	430	U
4-Nitroaniline	460	U	460	U	940	U	490	U	430	U
4-Nitrophenol	460	U	460	U	940	U	490	U	430	U
Acenaphthene	240	U	240	U	130	J	250	U	220	U
Acenaphthylene	240	U	240	U	390	J	180	J	220	U
Acetophenone	240	U	240	U	490	U	250	U	220	U
Anthracene	240	U	240	U	650	J	480	J	220	U
Atrazine	240	U	240	U	490	U	250	U	220	U
Benz(a)anthracene	240	U	520	J	2000	J	1900	J	220	U
Benzaldehyde	240	U	240	U	490	U	250	U	220	U
Benzo(a)pyrene	240	U	630	J	2200	J	2100	J	220	U
Benzo(b)fluoranthene	240	U	610	J	2700	J	2500	J	220	U
Benzo(g,h,i)perylene	240	U	460	J	1500	J	1500	J	220	U
Benzo(k)fluoranthene	240	U	630	J	1600		1800	J	94	J
Bis(2-chloroethoxy)methane	240	U	240	U	490	U	250	U	220	U
Bis(2-chloroethyl)ether	240	U	240	U	490	U	250	U	220	U
Bis(2-ethylhexyl)phthalate	360		1500		490	U	250	U	220	U
Butylbenzylphthalate	240	U	240	U	490	U	250	U	220	U
Caprolactam	240	U	240	U	490	U	250	U	220	U
Carbazole	240	U	240	U	490	U	250	J	220	U
Chrysene	110	J	680	J	2400	J	2300	J	140	J
Di-n-butylphthalate	240	U	240	U	490	U	250	U	220	U
Di-n-octylphthalate	240	U	240	U	490	U	250	U	220	U
Dibenz(a,h)anthracene	240	U	140	J	670	J	690	J	220	U
Dibenzofuran	240	U	240	U	490	U	250	U	220	U
Diethylphthalate	240	U	240	U	490	U	250	U	220	U
Dimethylphthalate	240	U	240	U	490	U	250	U	220	U
Fluoranthene	220	J	1100	J	5300	J	4900	J	190	J
Fluorene	240	U	240	U	200	J	250	U	220	U
Hexachlorobenzene	240	U	240	U	490	U	250	U	220	U
Hexachlorobutadiene	240	U	240	U	490	U	250	U	220	U
Hexachlorocyclopentadiene	240	U	240	U	490	U	250	U	220	U
Hexachloroethane	240	U	240	U	490	U	250	U	220	U
Indeno(1,2,3-cd)pyrene	240	U	490	J	1800	J	1700	J	220	U
Isophorone	240	U	240	U	490	U	250	U	220	U
N-Nitroso-di-n-propylamine	240	U	240	U	490	U	250	U	220	U
N-Nitrosodiphenylamine (1)	240	U	240	U	490	U	250	U	220	U
Naphthalene	240	U	240	U	490	U	250	U	220	U
Nitrobenzene	240	U	240	U	490	U	250	U	220	U
Pentachlorophenol	460	U	460	U	940	U	490	U	430	U
Phenanthrene	140	J	460	J	2500	J	2100	J	140	J
Phenol	240	U	240	U	490	U	250	U	220	U

Sample ID:	**SSA12-SS10E-000.5-20071207**		**SSA12-SS13E-000.5-20071206**		**SSA12-SS14E-000.5-20071206**		**SSA12-SS15E-000.5-20071206**		**SSA12-SS16E-000.5-20071205**	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
Pyrene	210	J	1200	J	5900	J	5000	J	190	J
Total Pahs	680		6920		29940		27150		754	
Total Pahs Halfnd	2240		7640		30430		27650		2074	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,1,2,2-Tetrachloroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,1,2-Trichloro-1,2,2-trifluoroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,1,2-Trichloroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,1-Dichloroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,1-Dichloroethene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2,4-Trichlorobenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dibromo-3-chloropropane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dibromoethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dichlorobenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dichloroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dichloroethene (cis)	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dichloroethene (trans)	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,2-Dichloropropane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,3-Dichlorobenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
1,4-Dichlorobenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
2-Butanone	20	B	24	B	30	B	25	B	7.9	B
2-Hexanone	20	U	18	U	20	U	21	U	17	U
4-Methyl-2-pentanone	20	U	18	U	20	U	21	U	17	U
Acetone	230		280		310		290		130	J
Benzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Bromodichloromethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Bromoform	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Bromomethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Carbon Disulfide	1.9	J	7.4	U	7.9	U	8.3	U	3.2	J
Carbon Tetrachloride	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Chlorobenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Chloroethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Chloroform	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Chloromethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
cis-1,3-Dichloropropene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Cyclohexane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Dibromochloromethane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Dichlorodifluoromethane	7.9	U	7.4	U	7.9	U	12		6.8	U
Ethylbenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Isopropylbenzene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
M,p-xylene	16	U	15	U	16	U	17	U	14	U
Methyl Acetate	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Methyl Cyclohexane	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Methyl Tert-butyl Ether (mtbe)	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**SSA12-SS10E-000.5-20071207**		**SSA12-SS13E-000.5-20071206**		**SSA12-SS14E-000.5-20071206**		**SSA12-SS15E-000.5-20071206**		**SSA12-SS16E-000.5-20071205**	
Sample Date:	**12/7/2007**		**12/6/2007**		**12/6/2007**		**12/6/2007**		**12/5/2007**	
Duplicate:										
Methylene Chloride	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
O-xylene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Styrene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Tetrachloroethene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Toluene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
trans-1,3-Dichloropropene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Trichloroethene	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Trichlorofluoromethane	7.9	U	7.4	U	7.9	U	3.8	J	6.8	U
Vinyl Chloride	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
Xylene (Total)	7.9	U	7.4	U	7.9	U	8.3	U	6.8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	23	UJ	4.6	UJ	4.7	UJ	9.7	UJ	11	R
4,4'-DDE	23	UJ	3.4	R	15	J	25	J	4.3	UJ
4,4'-DDT	23	UJ	11	R	14	J	30	J	7.8	R
Aldrin	12	UJ	2.4	UJ	0.61	J	5	UJ	2.2	UJ
Alpha-BHC	12	UJ	2.4	UJ	2.4	UJ	5	UJ	2.2	UJ
Alpha-Chlordane	12	UJ	1.1	J	2.8	J	5	UJ	1.3	J
Aroclor-1016	170	UJ	33	UJ	34	UJ	71	UJ	32	UJ
Aroclor-1221	240	UJ	47	UJ	49	UJ	100	UJ	45	UJ
Aroclor-1232	120	UJ	24	UJ	24	UJ	50	UJ	22	UJ
Aroclor-1242	120	UJ	24	UJ	24	UJ	50	UJ	22	UJ
Aroclor-1248	120	UJ	24	UJ	24	UJ	50	UJ	22	UJ
Aroclor-1254	120	UJ	24	UJ	24	UJ	50	UJ	22	UJ
Aroclor-1260	120	UJ	24	UJ	24	UJ	50	UJ	22	UJ
Beta-BHC	13	J	14	R	1.2	UJ	67	R	7.8	R
Delta-BHC	12	UJ	1.6	J	2.2	J	5	UJ	2.2	UJ
Dieldrin	140	J	4.6	UJ	8.3	R	25	J	5	J
Endosulfan I	12	UJ	1.3	J	3.9	R	5	UJ	0.91	J
Endosulfan II	23	UJ	4.6	UJ	4.7	UJ	150	R	4.3	UJ
Endosulfan Sulfate	23	UJ	23	R	16	R	54	J	3.5	J
Endrin	23	UJ	4.6	UJ	4.7	UJ	6.9	J	4.3	UJ
Endrin Aldehyde	23	UJ	5.6	R	11	J	27	J	1.7	J
Endrin Ketone	23	UJ	14	J	12	J	9.7	UJ	4.3	UJ
Gamma-BHC (Lindane)	12	UJ	2.4	UJ	2.4	UJ	5	UJ	2.2	UJ
Gamma-Chlordane	12	UJ	2.4	UJ	15	R	7.6	R	2.2	UJ
Heptachlor	12	UJ	2.4	UJ	1.9	J	5	UJ	2.2	UJ
Heptachlor Epoxide	12	UJ	1.3	J	2.4	UJ	5	UJ	0.94	J
Methoxychlor	120	UJ	24	UJ	24	UJ	41	J	22	UJ
Total Aroclor		U		U		U		U		U
Total Aroclor Halfnd	505		100		101.5		210.5		93.5	
Total Ddt		U		U	29		55			U
Total Ddt Halfnd	34.5		2.3		31.35		59.85		2.15	
Toxaphene	580	UJ	120	UJ	120	UJ	240	UJ	110	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS16E-000.5-20071205-D		SSA12-SS17E-000.5-20071205		SSA12-SS18E-000.5-20071205		SSA12-SS19E-000.5-20071205		SSA12-SB02D-0202.5-20071207	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/7/2007**	
Duplicate:	**SSA12-SS16E-000.5-20071205**									
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	7840		12000		12400		9890		12100	
Antimony	0.57	B	1.1	B	0.62	B	0.77	B	0.33	UR
Arsenic	6.5		4.7		4.1		3		4.7	
Barium	100		98.6		66.4		77.9		50	
Beryllium	0.66	K	0.79	K	0.7	K	0.77	K	0.66	K
Cadmium	0.61	J	0.07	UR	0.07	UR	0.06	UR	0.06	U
Calcium	1830		4560		1710		1850		692	
Chromium	11.2		16.6		18.9		13.3		21.4	J
Cobalt	5	K	6.1	K	7.8	K	6.2	K	5.6	J
Copper	28.6	J	23.1	J	227	J	12.5	J	11.2	J
Iron	13500		26600		20600		13800		21900	J
Lead	71.6		43.6		29.1		27.5		7.5	
Magnesium	1270		2180		1920		1510		1820	
Manganese	317	K	405	K	320	K	430	K	240	J
Mercury	0.11	K	0.38	K	0.056	K	0.054	K	0.019	U
Nickel	8.9		13		11.6		10		8.4	J
Potassium	1340		1400		1130		1230		664	L
Selenium	0.4	UL	0.48	UL	0.45	UL	0.4	UL	0.38	UL
Silver	4.5		0.68	L	0.07	UR	0.06	UR	0.06	UR
Sodium	112	B	184	B	122	B	99.6	B	133	B
Thallium	2.2	K	3.8	K	3.3	K	1.8	J	3.7	J
Vanadium	16.6		25.1		30.6		21		36.6	
Zinc	106		72.7		45.3		43.1		19.3	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	210	U	250	U	230	U	200	U	200	U
2,2'-Oxybis(1-chloropropane)	210	U	250	U	230	U	200	U	200	U
2,4,5-Trichlorophenol	210	U	250	U	230	U	200	U	200	U
2,4,6-Trichlorophenol	210	U	250	U	230	U	200	U	200	U
2,4-Dichlorophenol	210	U	250	U	230	U	200	U	200	U
2,4-Dimethylphenol	210	U	250	U	230	U	200	U	200	U
2,4-Dinitrophenol	410	U	490	U	450	U	400	U	400	U
2,4-Dinitrotoluene	210	U	250	U	230	U	200	U	200	U
2,6-Dinitrotoluene	210	U	250	U	230	U	200	U	200	U
2-Chloronaphthalene	210	U	250	U	230	U	200	U	200	U
2-Chlorophenol	210	U	250	U	230	U	200	U	200	U
2-Methylnaphthalene	210	U	250	U	230	U	200	U	200	U
2-Methylphenol	210	U	250	U	230	U	200	U	200	U
2-Nitroaniline	410	U	490	U	450	U	400	U	400	U
2-Nitrophenol	210	U	250	U	230	U	200	U	200	U
3,3'-Dichlorobenzidine	210	U	250	U	230	U	200	U	200	U
3-Nitroaniline	410	U	490	U	450	U	400	U	400	U
4,6-Dinitro-2-methylphenol	410	U	490	U	450	U	400	U	400	U
4-Bromophenyl Phenyl Ether	210	U	250	U	230	U	200	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	SSA12-SS16E-000.5-20071205-D		SSA12-SS17E-000.5-20071205		SSA12-SS18E-000.5-20071205		SSA12-SS19E-000.5-20071205		SSA12-SB02D-0202.5-20071207	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/7/2007**	
Duplicate:	**SSA12-SS16E-000.5-20071205**									
4-Chloro-3-methylphenol	210	U	250	U	230	U	200	U	200	U
4-Chloroaniline	210	U	250	U	230	U	200	U	200	U
4-Chlorophenyl Phenyl Ether	210	U	250	U	230	U	200	U	200	U
4-Methylphenol	410	U	490	U	450	U	400	U	400	U
4-Nitroaniline	410	U	490	U	450	U	400	U	400	U
4-Nitrophenol	410	U	490	U	450	U	400	U	400	U
Acenaphthene	210	U	250	J	230	U	200	U	200	U
Acenaphthylene	210	U	420	J	230	U	200	U	200	U
Acetophenone	210	U	250	U	230	U	200	U	200	U
Anthracene	210	U	1200	J	170	J	91	J	200	U
Atrazine	210	U	250	U	230	U	200	U	200	U
Benz(a)anthracene	210	U	3700	J	660	J	500		200	U
Benzaldehyde	210	U	250	U	230	U	200	U	200	U
Benzo(a)pyrene	210	U	2600		630	J	500		200	U
Benzo(b)fluoranthene	210	U	2800		670		480		200	U
Benzo(g,h,i)perylene	210	U	2000	J	390	J	250		200	U
Benzo(k)fluoranthene	91	J	2700	J	630	J	590		200	U
Bis(2-chloroethoxy)methane	210	U	250	U	230	U	200	U	200	U
Bis(2-chloroethyl)ether	210	U	250	U	230	U	200	U	200	U
Bis(2-ethylhexyl)phthalate	210	U	250	U	230	U	200	U	200	U
Butylbenzylphthalate	210	U	250	U	230	U	200	U	200	U
Caprolactam	210	U	250	U	230	U	200	U	200	U
Carbazole	210	U	340	J	230	U	200	U	200	U
Chrysene	130	J	4000	J	740	J	520		200	U
Di-n-butylphthalate	210	U	250	U	230	U	200	U	200	U
Di-n-octylphthalate	210	U	250	U	230	U	200	U	200	U
Dibenz(a,h)anthracene	210	U	610	J	230	U	100	J	200	U
Dibenzofuran	210	U	250	U	230	U	200	U	200	U
Diethylphthalate	210	U	250	U	230	U	200	U	200	U
Dimethylphthalate	210	U	250	U	230	U	200	U	200	U
Fluoranthene	200	J	8500	J	1500	J	930		200	U
Fluorene	210	U	220	J	230	U	200	U	200	U
Hexachlorobenzene	210	U	250	U	230	U	200	U	200	U
Hexachlorobutadiene	210	U	250	U	230	U	200	U	200	U
Hexachlorocyclopentadiene	210	U	250	U	230	U	200	U	200	U
Hexachloroethane	210	U	250	U	230	U	200	U	200	U
Indeno(1,2,3-cd)pyrene	210	U	2400	J	420	J	280		200	U
Isophorone	210	U	250	U	230	U	200	U	200	U
N-Nitroso-di-n-propylamine	210	U	250	U	230	U	200	U	200	U
N-Nitrosodiphenylamine (1)	210	U	250	U	230	U	200	U	200	U
Naphthalene	210	U	250	U	230	U	200	U	200	U
Nitrobenzene	210	U	250	U	230	U	200	U	200	U
Pentachlorophenol	410	U	490	U	450	U	400	U	400	U
Phenanthrene	130	J	4500	J	660		410		200	U
Phenol	210	U	250	U	230	U	200	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SSA12 CONFIRMATION SOIL INVESTIGATION
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**SSA12-SS16E-000.5-20071205-D**		**SSA12-SS17E-000.5-20071205**		**SSA12-SS18E-000.5-20071205**		**SSA12-SS19E-000.5-20071205**		**SSA12-SB02D-0202.5-20071207**	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/7/2007**	
Duplicate:	**SSA12-SS16E-000.5-20071205**									
Pyrene	190	J	8100	J	1400	J	1000		200	U
Total Pahs	741		44000		7870		5651			U
Total Pahs Halfnd	2001		44250		8560		6151		1700	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,1,2,2-Tetrachloroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,1,2-Trichloro-1,2,2-trifluoroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,1,2-Trichloroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,1-Dichloroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,1-Dichloroethene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2,4-Trichlorobenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dibromo-3-chloropropane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dibromoethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dichlorobenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dichloroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dichloroethene (cis)	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dichloroethene (trans)	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,2-Dichloropropane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,3-Dichlorobenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
1,4-Dichlorobenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
2-Butanone	31	B	15	B	16	U	19	B	4	B
2-Hexanone	17	U	17	U	16	U	13	U	14	U
4-Methyl-2-pentanone	17	U	17	U	16	U	13	U	14	U
Acetone	390	J	130		36	B	200		31	B
Benzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Bromodichloromethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Bromoform	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Bromomethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Carbon Disulfide	6.9	U	6.9	U	6.3	U	5.2	U	1.1	J
Carbon Tetrachloride	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Chlorobenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Chloroethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Chloroform	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Chloromethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
cis-1,3-Dichloropropene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Cyclohexane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Dibromochloromethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Dichlorodifluoromethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Ethylbenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Isopropylbenzene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
M,p-xylene	14	U	14	U	13	U	10	U	11	U
Methyl Acetate	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Methyl Cyclohexane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Methyl Tert-butyl Ether (mtbe)	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U

Sample ID:	**SSA12-SS16E-000.5-20071205-D**		**SSA12-SS17E-000.5-20071205**		**SSA12-SS18E-000.5-20071205**		**SSA12-SS19E-000.5-20071205**		**SSA12-SB02D-0202.5-20071207**	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/5/2007**		**12/7/2007**	
Duplicate:	**SSA12-SS16E-000.5-20071205**									
Methylene Chloride	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
O-xylene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Styrene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Tetrachloroethene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Toluene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
trans-1,3-Dichloropropene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Trichloroethene	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Trichlorofluoromethane	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Vinyl Chloride	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
Xylene (Total)	6.9	U	6.9	U	6.3	U	5.2	U	5.6	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	2.5	J	4.9	UJ	1.8	J	4	UJ	4	UJ
4,4'-DDE	1.7	J	9.9	R	4.5	UJ	4	UJ	4	UJ
4,4'-DDT	6	J	8.8	J	4.7	J	1.5	J	4	UJ
Aldrin	2.1	UJ	2.5	UJ	2.3	UJ	2	UJ	2	UJ
Alpha-BHC	2.1	UJ	2.5	UJ	2.3	UJ	2	UJ	2	UJ
Alpha-Chlordane	2	J	2.5	UJ	2.3	UJ	2	UJ	2	UJ
Aroclor-1016	30	UJ	35	UJ	32	UJ	29	UJ	29	UJ
Aroclor-1221	43	UJ	50	UJ	46	UJ	41	UJ	41	UJ
Aroclor-1232	21	UJ	25	UJ	23	UJ	20	UJ	20	UJ
Aroclor-1242	21	UJ	25	UJ	23	UJ	20	UJ	20	UJ
Aroclor-1248	21	UJ	25	UJ	23	UJ	20	UJ	20	UJ
Aroclor-1254	21	UJ	25	UJ	23	UJ	20	UJ	20	UJ
Aroclor-1260	21	UJ	25	UJ	23	UJ	20	UJ	20	UJ
Beta-BHC	8.9	R	1.3	UJ	13	R	12	R	1	UJ
Delta-BHC	2.1	UJ	1.5	J	1.7	J	2	UJ	2	UJ
Dieldrin	5.7	J	4.9	UJ	4.5	UJ	4	UJ	4	UJ
Endosulfan I	1	J	1.6	J	0.6	J	0.68	J	2	UJ
Endosulfan II	4.1	UJ	4.9	UJ	4.5	UJ	4	UJ	4	UJ
Endosulfan Sulfate	2.4	J	4.9	UJ	22	J	4	UJ	4	UJ
Endrin	4.1	UJ	4.9	UJ	4.5	UJ	4	UJ	4	UJ
Endrin Aldehyde	4.1	UJ	6.7	J	3.6	J	4	UJ	4	UJ
Endrin Ketone	1.8	J	11	J	8.8	J	4	UJ	9.4	R
Gamma-BHC (Lindane)	2.1	UJ	2.5	UJ	2.3	UJ	2	UJ	2	UJ
Gamma-Chlordane	3.2	R	2.5	UJ	2.3	UJ	2	UJ	2	UJ
Heptachlor	2.1	UJ	0.68	J	2.3	UJ	2	UJ	2	UJ
Heptachlor Epoxide	0.92	J	2.5	UJ	0.9	J	2	UJ	2	UJ
Methoxychlor	21	UJ	25	UJ	13	J	20	UJ	20	UJ
Total Aroclor		U		U		U		U		U
Total Aroclor Halfnd	89		105		96.5		85		85	
Total Ddt	10.2		8.8		6.5		1.5			U
Total Ddt Halfnd	10.2		11.25		8.75		5.5		6	
Toxaphene	100	UJ	120	UJ	110	UJ	100	UJ	100	UJ

Sample ID:	**SSA12-SB02D-0202.5-20071207-D**		**SSA12-SB04D-0202.5-20071205**		**SSA12-SB05D-0202.5-20071207**		**SSA12-SB06D-0202.5-20071207**	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/7/2007**	
Duplicate:	**SSA12-SB02D-0202.5-20071207**							
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12400		13900		19700		18700	
Antimony	0.33	UR	0.48	B	0.35	UR	0.61	B
Arsenic	4.7		6.2		6.9		7.4	
Barium	51.5		49.1		56.6		46.3	
Beryllium	0.62	K	0.71	K	0.7	K	0.61	K
Cadmium	0.06	U	0.06	UR	0.06	U	0.06	U
Calcium	761		673		750		589	
Chromium	20.4	J	19.9		27.7	J	23.1	J
Cobalt	11.9	J	11	K	6.1	J	10.6	J
Copper	11.3	J	12.5	J	16.9	J	19.5	J
Iron	21200	J	24300		31800	J	31600	J
Lead	8.1		10.3		10.7		9.3	
Magnesium	1860		1650		2230		2010	
Manganese	392	J	437	K	206	J	263	J
Mercury	0.02	U	0.037	K	0.037		0.034	
Nickel	9.9	J	11.2		12.1	J	12.3	J
Potassium	694	L	661	L	814	L	710	L
Selenium	0.37	UL	0.4	UL	0.4	UL	0.4	UL
Silver	0.06	UR	0.06	UR	0.06	UR	0.06	UR
Sodium	141	B	126	B	144	B	136	B
Thallium	4	J	3.8	K	7	J	5.8	J
Vanadium	35.1		34.5		45.4		41.6	
Zinc	22.4		35.7		30		28.1	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	210	U	200	U	220	U	210	U
2,2'-Oxybis(1-chloropropane)	210	U	200	U	220	U	210	U
2,4,5-Trichlorophenol	210	U	200	U	220	U	210	U
2,4,6-Trichlorophenol	210	U	200	U	220	U	210	U
2,4-Dichlorophenol	210	U	200	U	220	U	210	U
2,4-Dimethylphenol	210	U	200	U	220	U	210	U
2,4-Dinitrophenol	400	U	400	U	420	U	410	U
2,4-Dinitrotoluene	210	U	200	U	220	U	210	U
2,6-Dinitrotoluene	210	U	200	U	220	U	210	U
2-Chloronaphthalene	210	U	200	U	220	U	210	U
2-Chlorophenol	210	U	200	U	220	U	210	U
2-Methylnaphthalene	210	U	200	U	220	U	210	U
2-Methylphenol	210	U	200	U	220	U	210	U
2-Nitroaniline	400	U	400	U	420	U	410	U
2-Nitrophenol	210	U	200	U	220	U	210	U
3,3'-Dichlorobenzidine	210	U	200	U	220	U	210	U
3-Nitroaniline	400	U	400	U	420	U	410	U
4,6-Dinitro-2-methylphenol	400	U	400	U	420	U	410	U
4-Bromophenyl Phenyl Ether	210	U	200	U	220	U	210	U

Sample ID:	SSA12-SB02D-0202.5-20071207-D		SSA12-SB04D-0202.5-20071205		SSA12-SB05D-0202.5-20071207		SSA12-SB06D-0202.5-20071207	
Sample Date:	12/7/2007		12/5/2007		12/7/2007		12/7/2007	
Duplicate:	SSA12-SB02D-0202.5-20071207							
4-Chloro-3-methylphenol	210	U	200	U	220	U	210	U
4-Chloroaniline	210	U	200	U	220	U	210	U
4-Chlorophenyl Phenyl Ether	210	U	200	U	220	U	210	U
4-Methylphenol	400	U	400	U	420	U	410	U
4-Nitroaniline	400	U	400	U	420	U	410	U
4-Nitrophenol	400	U	400	U	420	U	410	U
Acenaphthene	210	U	200	U	220	U	210	U
Acenaphthylene	210	U	200	U	220	U	210	U
Acetophenone	210	U	200	U	220	U	210	U
Anthracene	210	U	200	U	220	U	210	U
Atrazine	210	U	200	U	220	U	210	U
Benz(a)anthracene	210	U	200	U	220	U	210	U
Benzaldehyde	210	U	200	U	220	U	210	U
Benzo(a)pyrene	210	U	200	U	220	U	210	U
Benzo(b)fluoranthene	210	U	200	U	220	U	210	U
Benzo(g,h,i)perylene	210	U	200	U	220	U	210	U
Benzo(k)fluoranthene	210	U	200	U	220	U	210	U
Bis(2-chloroethoxy)methane	210	U	200	U	220	U	210	U
Bis(2-chloroethyl)ether	210	U	200	U	220	U	210	U
Bis(2-ethylhexyl)phthalate	210	U	200	U	220	U	360	J
Butylbenzylphthalate	210	U	200	U	220	U	210	U
Caprolactam	210	U	200	U	220	U	210	U
Carbazole	210	U	200	U	220	U	210	U
Chrysene	210	U	200	U	220	U	210	U
Di-n-butylphthalate	210	U	200	U	220	U	210	U
Di-n-octylphthalate	210	U	200	U	220	U	210	U
Dibenz(a,h)anthracene	210	U	200	U	220	U	210	U
Dibenzofuran	210	U	200	U	220	U	210	U
Diethylphthalate	210	U	200	U	220	U	210	U
Dimethylphthalate	210	U	200	U	220	U	210	U
Fluoranthene	210	U	200	U	220	U	210	U
Fluorene	210	U	200	U	220	U	210	U
Hexachlorobenzene	210	U	200	U	220	U	210	U
Hexachlorobutadiene	210	U	200	U	220	U	210	U
Hexachlorocyclopentadiene	210	U	200	U	220	U	210	U
Hexachloroethane	210	U	200	U	220	U	210	U
Indeno(1,2,3-cd)pyrene	210	U	200	U	220	U	210	U
Isophorone	210	U	200	U	220	U	210	U
N-Nitroso-di-n-propylamine	210	U	200	U	220	U	210	U
N-Nitrosodiphenylamine (1)	210	U	200	U	220	U	210	U
Naphthalene	210	U	200	U	220	U	210	U
Nitrobenzene	210	U	200	U	220	U	210	U
Pentachlorophenol	400	U	400	U	420	U	410	U
Phenanthrene	210	U	200	U	220	U	210	U
Phenol	210	U	200	U	220	U	210	U

Sample ID:	**SSA12-SB02D-0202.5-20071207-D**		**SSA12-SB04D-0202.5-20071205**		**SSA12-SB05D-0202.5-20071207**		**SSA12-SB06D-0202.5-20071207**	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/7/2007**	
Duplicate:	**SSA12-SB02D-0202.5-20071207**							
Pyrene	210	U	200	U	220	U	210	U
Total Pahs		U		U		U		U
Total Pahs Halfnd	1785		1700		1870		1785	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	5.4	U	260	U	5.9	U	5.8	U
1,1,2,2-Tetrachloroethane	5.4	U	260	U	5.9	U	5.8	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.4	U	260	U	5.9	U	5.8	U
1,1,2-Trichloroethane	5.4	U	260	U	5.9	U	5.8	U
1,1-Dichloroethane	5.4	U	260	U	5.9	U	5.8	U
1,1-Dichloroethene	5.4	U	260	U	5.9	U	5.8	U
1,2,4-Trichlorobenzene	5.4	U	260	U	5.9	U	5.8	U
1,2-Dibromo-3-chloropropane	5.4	U	260	U	5.9	U	5.8	U
1,2-Dibromoethane	5.4	U	260	U	5.9	U	5.8	U
1,2-Dichlorobenzene	5.4	U	260	U	5.9	U	5.8	U
1,2-Dichloroethane	5.4	U	260	U	5.9	U	5.8	U
1,2-Dichloroethene (cis)	5.4	U	260	U	5.9	U	5.8	U
1,2-Dichloroethene (trans)	5.4	U	260	U	5.9	U	5.8	U
1,2-Dichloropropane	5.4	U	260	U	5.9	U	5.8	U
1,3-Dichlorobenzene	5.4	U	260	U	5.9	U	5.8	U
1,4-Dichlorobenzene	5.4	U	260	U	5.9	U	5.8	U
2-Butanone	3.7	B	640	U	7.5	B	7.1	B
2-Hexanone	14	U	640	U	15	U	14	U
4-Methyl-2-pentanone	14	U	640	U	15	U	14	U
Acetone	27	B	2200	J	83	B	110	
Benzene	5.4	U	260	U	5.9	U	5.8	U
Bromodichloromethane	5.4	U	260	U	5.9	U	5.8	U
Bromoform	5.4	U	260	U	5.9	U	5.8	U
Bromomethane	5.4	U	260	U	5.9	U	5.8	U
Carbon Disulfide	5.4	U	260	U	5.9	U	2.1	J
Carbon Tetrachloride	5.4	U	260	U	5.9	U	5.8	U
Chlorobenzene	5.4	U	260	U	5.9	U	5.8	U
Chloroethane	5.4	U	260	U	5.9	U	5.8	U
Chloroform	5.4	U	260	U	5.9	U	5.8	U
Chloromethane	5.4	U	260	U	5.9	U	5.8	U
cis-1,3-Dichloropropene	5.4	U	260	U	5.9	U	5.8	U
Cyclohexane	5.4	U	260	U	5.9	U	5.8	U
Dibromochloromethane	5.4	U	260	U	5.9	U	5.8	U
Dichlorodifluoromethane	5.4	U	260	U	5.9	U	5.8	U
Ethylbenzene	5.4	U	260	U	5.9	U	5.8	U
Isopropylbenzene	5.4	U	260	U	5.9	U	5.8	U
M,p-xylene	11	U	510	U	12	U	12	U
Methyl Acetate	5.4	U	260	U	5.9	U	5.8	U
Methyl Cyclohexane	5.4	U	260	U	5.9	U	5.8	U
Methyl Tert-butyl Ether (mtbe)	5.4	U	260	U	5.9	U	5.8	U

Sample ID:	**SSA12-SB02D-0202.5-20071207-D**		**SSA12-SB04D-0202.5-20071205**		**SSA12-SB05D-0202.5-20071207**		**SSA12-SB06D-0202.5-20071207**	
Sample Date:	**12/7/2007**		**12/5/2007**		**12/7/2007**		**12/7/2007**	
Duplicate:	**SSA12-SB02D-0202.5-20071207**							
Methylene Chloride	5.4	U	260	U	5.9	U	5.8	U
O-xylene	5.4	U	260	U	5.9	U	5.8	U
Styrene	5.4	U	260	U	5.9	U	5.8	U
Tetrachloroethene	5.4	U	260	U	5.9	U	5.8	U
Toluene	5.4	U	260	U	5.9	U	5.8	U
trans-1,3-Dichloropropene	5.4	U	260	U	5.9	U	5.8	U
Trichloroethene	5.4	U	260	U	5.9	U	5.8	U
Trichlorofluoromethane	5.4	U	260	U	5.9	U	5.8	U
Vinyl Chloride	5.4	U	260	U	5.9	U	5.8	U
Xylene (Total)	5.4	U	260	U	5.9	U	5.8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4	UJ	4	UJ	4.2	UJ	4.1	UJ
4,4'-DDE	4	UJ	4	UJ	4.2	UJ	4.1	UJ
4,4'-DDT	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Aldrin	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Alpha-BHC	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Alpha-Chlordane	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Aroclor-1016	29	UJ	29	UJ	30	UJ	30	UJ
Aroclor-1221	41	UJ	41	UJ	43	UJ	43	UJ
Aroclor-1232	21	UJ	20	UJ	22	UJ	21	UJ
Aroclor-1242	21	UJ	20	UJ	22	UJ	21	UJ
Aroclor-1248	21	UJ	20	UJ	22	UJ	21	UJ
Aroclor-1254	21	UJ	20	UJ	22	UJ	21	UJ
Aroclor-1260	21	UJ	20	UJ	22	UJ	21	UJ
Beta-BHC	1	UJ	1	UJ	1.1	UJ	1.1	UJ
Delta-BHC	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Dieldrin	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Endosulfan I	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Endosulfan II	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Endosulfan Sulfate	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Endrin	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Endrin Aldehyde	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Endrin Ketone	4	UJ	4	UJ	4.2	UJ	4.1	UJ
Gamma-BHC (Lindane)	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Gamma-Chlordane	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Heptachlor	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Heptachlor Epoxide	2.1	UJ	2	UJ	2.2	UJ	2.1	UJ
Methoxychlor	21	UJ	20	UJ	22	UJ	21	UJ
Total Aroclor		U		U		U		U
Total Aroclor Halfnd	87.5		85		91.5		89	
Total Ddt		U		U		U		U
Total Ddt Halfnd	6		6		6.3		6.15	
Toxaphene	100	UJ	100	UJ	110	UJ	100	UJ

Sample ID:	**SSA12-SB07D-0202.5-20071205**		**SSA12-SB08D-0202.5-20071205**		**SSA12-SB10D-0202.5-20071205**	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**	
Duplicate:						
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	17900		20100		18700	
Antimony	0.52	B	10.4	J	0.34	UL
Arsenic	11.8		13.3		5.4	
Barium	51		233		53.6	
Beryllium	0.7	K	0.49	K	0.62	K
Cadmium	0.06	UR	15.7		0.06	UR
Calcium	868		4750		765	
Chromium	26.8		58.8		28.6	
Cobalt	5.1	K	11	K	4.5	K
Copper	16.1	J	654	J	15.1	J
Iron	36900		166000		21600	
Lead	11.2		1250		10.9	
Magnesium	2190		2300		2680	
Manganese	185	K	1020	K	111	K
Mercury	0.072	K	0.12	K	0.044	K
Nickel	10.7		115		13	
Potassium	814	L	600	L	846	L
Selenium	0.39	UL	0.42	UL	0.38	UL
Silver	0.06	UR	7		0.06	UR
Sodium	101	B	195	B	127	B
Thallium	6.1	K	41.1	K	3.2	K
Vanadium	42		29.4		43	
Zinc	39.8		2100		35.5	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	210	U	220	U	200	U
2,2'-Oxybis(1-chloropropane)	210	U	220	U	200	U
2,4,5-Trichlorophenol	210	U	220	U	200	U
2,4,6-Trichlorophenol	210	U	220	U	200	U
2,4-Dichlorophenol	210	U	220	U	200	U
2,4-Dimethylphenol	210	U	220	U	200	U
2,4-Dinitrophenol	410	U	420	U	380	U
2,4-Dinitrotoluene	210	U	220	U	200	U
2,6-Dinitrotoluene	210	U	220	U	200	U
2-Chloronaphthalene	210	U	220	U	200	U
2-Chlorophenol	210	U	220	U	200	U
2-Methylnaphthalene	210	U	220	U	200	U
2-Methylphenol	210	U	220	U	200	U
2-Nitroaniline	410	U	420	U	380	U
2-Nitrophenol	210	U	220	U	200	U
3,3'-Dichlorobenzidine	210	U	220	U	200	U
3-Nitroaniline	410	U	420	U	380	U
4,6-Dinitro-2-methylphenol	410	U	420	U	380	U
4-Bromophenyl Phenyl Ether	210	U	220	U	200	U

Sample ID:	SSA12-SB07D-0202.5-20071205		SSA12-SB08D-0202.5-20071205		SSA12-SB10D-0202.5-20071205	
Sample Date:	12/5/2007		12/5/2007		12/5/2007	
Duplicate:						
4-Chloro-3-methylphenol	210	U	220	U	200	U
4-Chloroaniline	210	U	220	U	200	U
4-Chlorophenyl Phenyl Ether	210	U	220	U	200	U
4-Methylphenol	410	U	420	U	380	U
4-Nitroaniline	410	U	420	U	380	U
4-Nitrophenol	410	U	420	U	380	U
Acenaphthene	210	U	220	U	200	U
Acenaphthylene	210	U	220	U	200	U
Acetophenone	210	U	220	U	200	U
Anthracene	210	U	220	U	200	U
Atrazine	210	U	220	U	200	U
Benz(a)anthracene	210	U	220	U	200	U
Benzaldehyde	210	U	220	U	200	U
Benzo(a)pyrene	210	U	100	J	200	U
Benzo(b)fluoranthene	210	U	220	U	200	U
Benzo(g,h,i)perylene	210	U	220	U	200	U
Benzo(k)fluoranthene	210	U	120	J	200	U
Bis(2-chloroethoxy)methane	210	U	220	U	200	U
Bis(2-chloroethyl)ether	210	U	220	U	200	U
Bis(2-ethylhexyl)phthalate	210	U	23000	J	200	U
Butylbenzylphthalate	210	U	220	U	200	U
Caprolactam	210	U	220	U	200	U
Carbazole	210	U	220	U	200	U
Chrysene	210	U	130	J	200	U
Di-n-butylphthalate	210	U	220	U	200	U
Di-n-octylphthalate	210	U	220	U	200	U
Dibenz(a,h)anthracene	210	U	220	U	200	U
Dibenzofuran	210	U	220	U	200	U
Diethylphthalate	210	U	220	U	200	U
Dimethylphthalate	210	U	220	U	200	U
Fluoranthene	210	U	200	J	200	U
Fluorene	210	U	220	U	200	U
Hexachlorobenzene	210	U	220	U	200	U
Hexachlorobutadiene	210	U	220	U	200	U
Hexachlorocyclopentadiene	210	U	220	U	200	U
Hexachloroethane	210	U	220	U	200	U
Indeno(1,2,3-cd)pyrene	210	U	220	U	200	U
Isophorone	210	U	220	U	200	U
N-Nitroso-di-n-propylamine	210	U	220	U	200	U
N-Nitrosodiphenylamine (1)	210	U	220	U	200	U
Naphthalene	210	U	220	U	200	U
Nitrobenzene	210	U	220	U	200	U
Pentachlorophenol	410	U	420	U	380	U
Phenanthrene	210	U	100	J	200	U
Phenol	210	U	220	U	200	U

Sample ID:	**SSA12-SB07D-0202.5-20071205**		**SSA12-SB08D-0202.5-20071205**		**SSA12-SB10D-0202.5-20071205**	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**	
Duplicate:						
Pyrene	210	U	190	J	200	U
Total Pahs		U	840			U
Total Pahs Halfnd	1785		2050		1700	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	5.3	U	5.5	U	5.5	U
1,1,2,2-Tetrachloroethane	5.3	U	5.5	U	5.5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.3	U	5.5	U	5.5	U
1,1,2-Trichloroethane	5.3	U	5.5	U	5.5	U
1,1-Dichloroethane	5.3	U	5.5	U	5.5	U
1,1-Dichloroethene	5.3	U	5.5	U	5.5	U
1,2,4-Trichlorobenzene	5.3	U	5.5	U	5.5	U
1,2-Dibromo-3-chloropropane	5.3	U	5.5	U	5.5	U
1,2-Dibromoethane	5.3	U	5.5	U	5.5	U
1,2-Dichlorobenzene	5.3	U	5.5	U	5.5	U
1,2-Dichloroethane	5.3	U	5.5	U	5.5	U
1,2-Dichloroethene (cis)	5.3	U	5.5	U	5.5	U
1,2-Dichloroethene (trans)	5.3	U	5.5	U	5.5	U
1,2-Dichloropropane	5.3	U	5.5	U	5.5	U
1,3-Dichlorobenzene	5.3	U	5.5	U	5.5	U
1,4-Dichlorobenzene	5.3	U	5.5	U	5.5	U
2-Butanone	6.2	B	10	B	14	U
2-Hexanone	13	U	14	U	14	U
4-Methyl-2-pentanone	13	U	14	U	14	U
Acetone	380		940	J	32	B
Benzene	5.3	U	4.4	J	5.5	U
Bromodichloromethane	5.3	U	5.5	U	5.5	U
Bromoform	5.3	U	5.5	U	5.5	U
Bromomethane	5.3	U	5.5	U	5.5	U
Carbon Disulfide	5.3	U	5.5	U	1.3	J
Carbon Tetrachloride	5.3	U	5.5	U	5.5	U
Chlorobenzene	5.3	U	5.5	U	5.5	U
Chloroethane	5.3	U	5.5	U	5.5	U
Chloroform	5.3	U	5.5	U	5.5	U
Chloromethane	5.3	U	5.5	U	5.5	U
cis-1,3-Dichloropropene	5.3	U	5.5	U	5.5	U
Cyclohexane	5.3	U	5.5	U	5.5	U
Dibromochloromethane	5.3	U	5.5	U	5.5	U
Dichlorodifluoromethane	5.3	U	5.5	U	5.5	U
Ethylbenzene	5.3	U	5.5	U	5.5	U
Isopropylbenzene	5.3	U	5.5	U	5.5	U
M,p-xylene	11	U	11	U	11	U
Methyl Acetate	5.3	U	5.5	U	5.5	U
Methyl Cyclohexane	5.3	U	5.5	U	5.5	U
Methyl Tert-butyl Ether (mtbe)	5.3	U	5.5	U	5.5	U

Sample ID:	**SSA12-SB07D-0202.5-20071205**		**SSA12-SB08D-0202.5-20071205**		**SSA12-SB10D-0202.5-20071205**	
Sample Date:	**12/5/2007**		**12/5/2007**		**12/5/2007**	
Duplicate:						
Methylene Chloride	5.3	U	5.5	U	5.5	U
O-xylene	5.3	U	5.5	U	5.5	U
Styrene	5.3	U	5.5	U	5.5	U
Tetrachloroethene	5.3	U	5.5	U	5.5	U
Toluene	5.3	U	16	B	5.5	U
trans-1,3-Dichloropropene	5.3	U	5.5	U	5.5	U
Trichloroethene	5.3	U	5.5	U	5.5	U
Trichlorofluoromethane	5.3	U	5.5	U	5.5	U
Vinyl Chloride	5.3	U	5.5	U	5.5	U
Xylene (Total)	5.3	U	5.5	U	5.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.1	UJ	4.2	UJ	3.8	UJ
4,4'-DDE	4.1	UJ	1.6	J	3.8	UJ
4,4'-DDT	4.1	UJ	4.2	UJ	3.8	UJ
Aldrin	2.1	UJ	2.2	UJ	2	UJ
Alpha-BHC	2.1	UJ	0.83	J	2	UJ
Alpha-Chlordane	2.1	UJ	2.2	UJ	2	UJ
Aroclor-1016	30	UJ	31	UJ	28	UJ
Aroclor-1221	43	UJ	44	UJ	40	UJ
Aroclor-1232	21	UJ	22	UJ	20	UJ
Aroclor-1242	21	UJ	22	UJ	20	UJ
Aroclor-1248	21	UJ	22	UJ	20	UJ
Aroclor-1254	21	UJ	22	UJ	20	UJ
Aroclor-1260	21	UJ	22	UJ	20	UJ
Beta-BHC	1.1	UJ	1.1	UJ	0.99	UJ
Delta-BHC	2.1	UJ	2.2	UJ	2	UJ
Dieldrin	4.1	UJ	23	J	3.8	UJ
Endosulfan I	2.1	UJ	2.2	UJ	2	UJ
Endosulfan II	4.1	UJ	4.2	UJ	3.8	UJ
Endosulfan Sulfate	4.1	UJ	9.6	R	3.8	UJ
Endrin	4.1	UJ	4.2	UJ	3.8	UJ
Endrin Aldehyde	4.1	UJ	4.2	UJ	3.8	UJ
Endrin Ketone	4.1	UJ	4.2	UJ	3.8	UJ
Gamma-BHC (Lindane)	2.1	UJ	2.2	UJ	2	UJ
Gamma-Chlordane	2.1	UJ	2.2	UJ	0.95	J
Heptachlor	2.1	UJ	2.2	UJ	2	UJ
Heptachlor Epoxide	2.1	UJ	2.2	UJ	2	UJ
Methoxychlor	21	UJ	22	UJ	20	UJ
Total Aroclor		U		U		U
Total Aroclor Halfnd	89		92.5		84	
Total Ddt		U	1.6			U
Total Ddt Halfnd	6.15		5.8		5.7	
Toxaphene	100	UJ	110	UJ	97	UJ

Data Qualifiers:

B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.

J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).

K -- Positive result is considered biased high due to exceedance of technical quality control criteria.

L -- Positive result is considered biased low due to exceedance of technical quality control criteria.

R -- Positive result is considered unusable due to exceedance of technical quality control criteria.

U -- Value is a non-detected result as reported by the laboratory.

UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.

UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.

NA -- No result is available/applicable for this parameter in this sample.

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB01-0.502-02**		**12SB01-000.5-01**		**12SB02-0.502-02**		**12SB02-0.502-02-D**		**12SB02-000.5-01**		**12SB03-0.502-02**		**12SB03-000.5-01**		**12SB04-0.502-02**	
Sample Date:	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:							**12SB02-0.502-02**									
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	16400		15800		12300		12900		12100		18200		16400		17300	
Antimony	0.49	B	0.71	B	0.52	B	0.57	B	1.4	B	0.48	R	0.71	R	0.66	R
Arsenic	6.1		5.4		4.7		4.1		6.8		5.2	J	4.6	J	5	J
Barium	127		120		164		112		95.4		91.8	L	94.8	L	70	L
Beryllium	0.98	K	0.93	K	1	K	0.78	K	0.68	K	0.66	J	0.74	J	0.47	J
Cadmium	0.37	B	0.39	B	0.28	B	0.26	B	0.71	K	0.56	J	0.59	J	0.38	R
Calcium	9120		2320		876		862		1620		837	J	1040	J	765	J
Chromium	18.4		21.6		16.9		16.9		16		21.1		22.3		24.1	
Cobalt	7		7.8		7.8		6.5		6.5		6.9	J	7.3	J	6.9	J
Copper	15		14.8		9.4		9.7		14		62.9		23.2		10.5	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB01-0.502-02**		**12SB01-000.5-01**		**12SB02-0.502-02**		**12SB02-0.502-02-D**		**12SB02-000.5-01**		**12SB03-0.502-02**		**12SB03-000.5-01**		**12SB04-0.502-02**	
Sample Date:	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:							**12SB02-0.502-02**									
Iron	14500	L	15400	L	14800	L	14200	L	13700	L	19400	J	20600	J	24200	J
Lead	63.6	J	60	J	32.1	J	64.7	J	301	J	19.6	J	37.4	J	10.9	J
Magnesium	5140	J	2060	J	1310	J	1420	J	1490	J	1820	J	2010	J	2250	J
Manganese	693		659		799		677		452		336	J	303	J	375	J
Mercury	0.064		0.071		0.069		0.042		0.097		0.033	K	0.021	U	0.03	K
Nickel	11.5		12.7		9.4		10.2		10.8		11.6	J	13.2	J	11.9	J
Potassium	922	J	1290	J	480	J	557	J	746	J	677	L	937	L	808	L
Selenium	0.43	UR	0.53	UR	0.43	UR	0.46	UR	0.45	UR	0.41	UR	0.49	UR	0.41	UR
Silver	0.12	U	0.14	U	0.12	U	0.12	U	0.12	U	0.11	U	0.13	U	0.11	U
Sodium	150	B	148	B	137	B	144	B	146	B	143	B	157	B	149	B
Thallium	0.64	U	1.2	K	0.83	K	0.96	K	0.66	U	0.6	U	0.72	U	0.81	K
Vanadium	27.4		29.2		25.4		24.7		25.5		32		34.8		41.5	
Zinc	52.9		63.7		34.1		33.8		59.3		56.6		65.6		30.7	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.18	U	0.21	U	0.19	U	0.18	U	0.19	U	0.17	U	0.21	U	0.17	U
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		NA		NA	
Ph	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
1,2,4,5-Tetrachlorobenzene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
2,2'-Oxybis(1-chloropropane)	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
2,3,4,6-Tetrachlorophenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2,4,5-Trichlorophenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2,4,6-Trichlorophenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2,4-Dichlorophenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2,4-Dimethylphenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2,4-Dinitrophenol	410	U	490	U	420	U	420	U	430	U	380	U	470	U	400	U
2,4-Dinitrotoluene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
2,6-Dinitrotoluene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
2-Chloronaphthalene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
2-Chlorophenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2-Methylnaphthalene	44	J	250	U	220	U	220	U	220	U	200	U	240	U	210	U
2-Methylphenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
2-Nitroaniline	210	U	250	U	420	U	420	U	430	U	380	U	470	U	400	U
2-Nitrophenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB01-0.502-02		12SB01-000.5-01		12SB02-0.502-02		12SB02-0.502-02-D		12SB02-000.5-01		12SB03-0.502-02		12SB03-000.5-01		12SB04-0.502-02	
Sample Date:	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:							**12SB02-0.502-02**									
3-Nitroaniline	210	U	250	U	420	U	420	U	430	U	380	U	470	U	400	U
4,6-Dinitro-2-methylphenol	410	U	490	U	420	U	420	U	430	U	380	U	470	U	400	U
4-Bromophenyl Phenyl Ether	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
4-Chloro-3-methylphenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
4-Chloroaniline	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
4-Chlorophenyl Phenyl Ether	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
4-Methylphenol	310	U	370	U	420	U	420	U	430	U	380	U	470	U	400	U
4-Nitroaniline	210	U	250	U	420	U	420	U	430	U	380	U	470	U	400	U
4-Nitrophenol	410	U	490	U	420	U	420	U	430	U	380	U	470	U	400	U
Acenaphthene	360		120	J	220	U	220	U	220	U	200	U	240	U	210	U
Acenaphthylene	530		250	J	220	U	220	U	220	U	200	U	240	U	210	U
Acetophenone	210	U	250	U	420	U	420	U	430	U	380	U	470	U	400	U
Anthracene	1100		510		220	U	220	U	41	J	200	U	240	U	210	U
Atrazine	210	U	250	U	220	UJ	220	UJ	220	UJ	200	UJ	240	UJ	210	UJ
Benz(a)anthracene	4100		1800		220	U	220	U	210	J	200	U	140	J	210	U
Benzaldehyde	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Benzo(a)pyrene	4700		2100		23	J	220	U	230		200	U	180	J	210	U
Benzo(b)fluoranthene	5200		3100		23	J	220	U	230		200	U	160	J	210	U
Benzo(g,h,i)perylene	1500		820		220	U	220	U	160	J	200	U	84	J	210	U
Benzo(k)fluoranthene	2400		2100		220	U	220	U	130	J	200	U	91	J	210	U
Bis(2-chloroethoxy)methane	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Bis(2-chloroethyl)ether	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Bis(2-ethylhexyl)phthalate	210	U	140	J	55	J	220	U	220	U	63	J	240	U	210	U
Butylbenzylphthalate	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Caprolactam	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Carbazole	530		500		420	U	420	U	430	U	380	U	470	U	400	U
Chrysene	6200		3000		32	J	220	U	290		200	U	180	J	210	U
Di-n-butylphthalate	210	U	250	U	220	U	220	U	220	U	200	U	42	J	210	U
Di-n-octylphthalate	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Dibenz(a,h)anthracene	820		410		220	U	220	U	74	J	200	U	240	U	210	U
Dibenzofuran	410		160	J	220	U	220	U	220	U	200	U	240	U	210	U
Diethylphthalate	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Dimethylphthalate	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Fluoranthene	18000		6100		69	J	220	U	540		200	U	320		210	U
Fluorene	800		280		220	U	220	U	220	U	200	U	240	U	210	U
Hexachlorobenzene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Hexachlorobutadiene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Hexachlorocyclopentadiene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Hexachloroethane	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Indeno(1,2,3-cd)pyrene	2300		1200		220	U	220	U	190	J	200	U	100	J	210	U
Isophorone	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
N-Nitroso-di-n-propylamine	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
N-Nitrosodiphenylamine (1)	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Naphthalene	41	J	250	U	220	U	220	U	220	U	200	U	240	U	210	U
Nitrobenzene	210	U	250	U	220	U	220	U	220	U	200	U	240	U	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB01-0.502-02		12SB01-000.5-01		12SB02-0.502-02		12SB02-0.502-02-D		12SB02-000.5-01		12SB03-0.502-02		12SB03-000.5-01		12SB04-0.502-02	
Sample Date:	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:							**12SB02-0.502-02**									
Pentachlorophenol	410	U	490	U	420	U	420	U	430	U	380	U	470	U	400	U
Phenanthrene	12000		4200		47	J	220	U	270		200	U	110	J	210	U
Phenol	410	U	490	U	220	U	220	U	220	U	200	U	240	U	210	U
Pyrene	12000		4200		54	J	220	U	470		200	U	300		210	U
Total Pahs	72095		30190		291.48		105.29		2936.6		92.1		1770.6		9.84	
Total Pahs Halfnd	72095		30440		406.98		220.79		2936.6		392.1		1890.6		359.84	
PAHS					**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	NA		NA		1.4	J	1.7	J	25		2	J	3.7	J	10	U
Acenaphthene	NA		NA		11	U	11	U	5.6	J	2.1	J	3.8	J	10	U
Acenaphthylene	NA		NA		2.4	J	1.9	J	27		1.1	B	12		10	U
Anthracene	NA		NA		1.7	J	1.4	J	34		1.6	J	23		10	U
Benz(a)anthracene	NA		NA		8.3	J	7	J	210		6.2	J	160		1.3	J
Benzo(a)pyrene	NA		NA		10	J	8.9	J	190		7	J	120		1	B
Benzo(b)fluoranthene	NA		NA		15		10	J	230		8.6	J	160		1.3	J
Benzo(g,h,i)perylene	NA		NA		8.5	J	7.2	J	98		5.5	J	53		0.74	J
Benzo(k)fluoranthene	NA		NA		9.2	J	10	J	150		7.8	J	110		1.1	J
Chrysene	NA		NA		12		10	J	190		8.6	J	120		1.4	J
Dibenz(a,h)anthracene	NA		NA		2.1	J	1.8	J	29		1.1	J	18		10	U
Fluoranthene	NA		NA		17		16		370		17		290	J	2.4	J
Fluorene	NA		NA		0.68	J	0.59	J	11		1.6	J	6.1	J	10	U
Indeno(1,2,3-cd)pyrene	NA		NA		9.2	J	7.7	J	160		6.2	B	89		0.87	B
Naphthalene	NA		NA		1.3	B	1.5	B	13		1.4	B	2.4	B	10	U
Phenanthrene	NA		NA		8.9	J	8.1	J	190		10		110		1.6	J
Pyrene	NA		NA		14		13		290		13		220		1.9	B
Total Pahs	NA		NA		120.38		105.29		2222.6		92.1		1498.6		9.84	
Total Pahs Halfnd	NA		NA		126.53		111.54		2222.6		96.45		1499.8		46.725	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,1,2,2-Tetrachloroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,1,2-Trichloroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,1,2-Trichlorotrifluoroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,1-Dichloroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,1-Dichloroethene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2,3-Trichlorobenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2,4-Trichlorobenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dibromo-3-chloropropane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dibromoethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dichlorobenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dichloroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dichloroethene (cis)	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dichloroethene (trans)	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,2-Dichloropropane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,3-Dichlorobenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB01-0.502-02**		**12SB01-000.5-01**		**12SB02-0.502-02**		**12SB02-0.502-02-D**		**12SB02-000.5-01**		**12SB03-0.502-02**		**12SB03-000.5-01**		**12SB04-0.502-02**	
Sample Date:	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:							**12SB02-0.502-02**									
1,4-Dichlorobenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	20		34		14	J	17		20		12	U	4.9	B	13	U
2-Hexanone	14	U	24	U	15	U	16	U	16	U	12	U	11	U	13	U
4-Methyl-2-pentanone	14	U	24	U	15	U	16	U	16	U	12	U	11	U	13	U
Acetone	180		350		130		170		260		83	J	130	J	120	J
Benzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Bromoform	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Bromomethane	8.4	U	14	U	8.5	U	9.4	U	9.5	U	7.3	U	6.4	U	7.8	U
Carbon Disulfide	1.4	J	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Carbon Tetrachloride	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Chlorobenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Chloroethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Chloroform	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Chloromethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	1.2	J	4.4	U	5.4	U
cis-1,3-Dichloropropene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Cyclohexane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Dibromochloromethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Dichlorodifluoromethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Ethylbenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Isopropylbenzene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
M+p-xylenes	11	U	19	U	12	U	13	U	13	U	10	U	8.8	U	11	U
Methyl Acetate	5.7	U	15		17		5.7	J	440	J	5	UJ	14	J	18	J
Methyl Cyclohexane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Methyl Tert-butyl Ether	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Methylene Chloride	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
O-xylene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Styrene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Tetrachloroethene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Toluene	2	J	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
trans-1,3-Dichloropropene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Trichloroethene	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Trichlorofluoromethane	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Vinyl Chloride	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
Xylene (Total)	5.7	U	9.5	U	5.8	U	6.4	U	6.5	U	5	U	4.4	U	5.4	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	83	U	3.9	J	4.2	U	4.2	U	19	R	3.8	U	6.1	R	4	U
4,4'-DDE	79	R	22	R	4.2	U	4.2	U	2.3	J	1.2	J	2.6	J	4	U
4,4'-DDT	14	R	4.9	U	4.2	U	4.2	U	3	J	1.3	J	2.3	J	4	U
Aldrin	2.1	U	2.5	U	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Alpha-BHC	2.1	U	2.5	U	2.2	U	2.2	U	0.87	J	2	U	0.48	J	2.1	U
Alpha-Chlordane	2.1	U	2.5	U	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB01-0.502-02**		**12SB01-000.5-01**		**12SB02-0.502-02**		**12SB02-0.502-02-D**		**12SB02-000.5-01**		**12SB03-0.502-02**		**12SB03-000.5-01**		**12SB04-0.502-02**	
Sample Date:	**1/13/2010**		**1/13/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:							**12SB02-0.502-02**									
Aroclor-1016	30	U	36	U	30	U	31	U	32	U	28	U	34	U	29	U
Aroclor-1221	43	U	51	U	43	U	44	U	45	U	39	U	49	U	41	U
Aroclor-1232	21	U	25	U	22	U	22	U	22	U	20	U	24	U	21	U
Aroclor-1242	21	U	25	U	22	U	22	U	22	U	20	U	24	U	21	U
Aroclor-1248	21	U	25	U	22	U	22	U	22	U	20	U	24	U	21	U
Aroclor-1254	21	U	25	U	22	U	22	U	22	U	20	U	24	U	21	U
Aroclor-1260	21	U	25	U	22	U	22	U	22	U	20	U	24	U	21	U
Beta-BHC	21	U	13	U	1.1	U	1.1	U	1.1	U	0.98	U	1.2	U	1	U
Delta-BHC	1.3	J	1.9	R	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Dieldrin	83	U	49	U	4.2	U	4.2	U	15	R	1	J	6.4		4	U
Endosulfan I	3.9	J	3.7	R	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Endosulfan II	16	R	9.1	R	4.2	U	4.2	U	1.8	R	3.8	U	4.7	U	4	U
Endosulfan Sulfate	4.1	U	4.9	U	4.2	U	4.2	U	4.3	U	3.8	U	4.7	U	4	U
Endrin	4.1	U	4.9	U	4.2	U	4.2	U	4.3	U	3.8	U	4.7	U	4	U
Endrin Aldehyde	23	J	21	R	4.2	U	4.2	U	1.5	J	3.8	U	1.5	J	4	U
Endrin Ketone	27	J	9.9	J	4.2	U	4.2	U	4.3	U	3.8	U	1.9	J	4	U
Gamma-BHC (Lindane)	2.1	U	2.5	U	2.2	U	2.2	U	2.2	U	2	U	2.4	U	2.1	U
Gamma-Chlordane	16	J	5.7	R	2.2	U	2.2	U	1.2	B	2	U	1.2	J	2.1	U
Heptachlor	2.4	R	3.3	R	2.2	U	2.2	U	1.1	R	2	U	0.55	J	2.1	U
Heptachlor Epoxide	43	U	9.7	R	2.2	U	2.2	U	1.7	J	2	U	2.4	U	2.1	U
Methoxychlor	430	U	99	R	22	U	22	U	22	U	20	U	24	U	21	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	89		106		91.5		92.5		93.5		83.5		101.5		87.5	
Total Ddt		U	3.9			U		U	5.3		2.5		4.9			U
Total Ddt Halfnd	41.5		6.35		6.3		6.3		5.3		4.4		4.9		6	
Toxaphene	100	U	120	U	110	U	110	U	110	U	95	U	120	U	100	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB04-000.5-01**		**12SB05-0.502-02**		**12SB05-000.5-01**		**12SB06-0.502-02**		**12SB06-000.5-01**		**12SB06-000.5-01-D**		**12SB06-0304-03**		**12SB07-0.502-02**	
Sample Date:	**1/11/2010**		**1/14/2010**		**1/14/2010**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**	
Duplicate:											**12SB06-000.5-01**					
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12300		19100		13300		15300	J	8420	J	8680	J	8600	J	9870	J
Antimony	0.48	R	0.74	B	0.54	B	0.23	B	1.8	L	1.4	L	0.12	B	0.6	L
Arsenic	4.6	J	6.8		9.1		8.6	J	5.3	J	5.6	J	3.3	J	3.2	J
Barium	84.8	L	88.1		93.1		69.7	K	58.3	K	53.8	K	38.9	K	77.3	K
Beryllium	0.63	J	0.57	K	0.75	K	0.57	J	0.55	J	0.54	J	0.46	J	0.63	J
Cadmium	0.37	J	0.28	B	0.71	K	0.11	K	0.11	K	0.086	J	0.079	J	0.14	K
Calcium	863	J	950		1360		639	J	609	J	454	J	305	J	547	J
Chromium	15.9		24.5		17.3		19.7	J	13.6	J	14.2	J	15.3	J	11.7	J
Cobalt	7.3	J	8.3		7.7		6.7	J	4	J	4	J	5.9	J	5	J
Copper	9.6		10.5		24.4		11	J	7.9	J	7.9	J	8.4	J	8.6	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB04-000.5-01**		**12SB05-0.502-02**		**12SB05-000.5-01**		**12SB06-0.502-02**		**12SB06-000.5-01**		**12SB06-000.5-01-D**		**12SB06-0304-03**		**12SB07-0.502-02**	
Sample Date:	**1/11/2010**		**1/14/2010**		**1/14/2010**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**	
Duplicate:											**12SB06-000.5-01**					
Iron	14100	J	25500	L	17000	L	32300	J	14000	J	14000	J	15800	J	15200	J
Lead	19.9	J	11	J	47.2	J	13.6		445		356		7.7		56.6	
Magnesium	1390	J	2100	J	1680	J	2270	J	1270	J	1120	J	1290	J	1210	J
Manganese	598	J	312		475		183	J	148	J	138	J	337	J	375	J
Mercury	0.088	K	0.03		0.078		0.026		0.071		0.074		0.007	J	0.024	
Nickel	9.3	J	11.3		11.9		9.4	J	6.9	J	6.9	J	6.7	J	6.8	J
Potassium	507	L	840	J	938	J	419	J	283	J	240	J	273	J	309	J
Selenium	0.37	UR	0.44	UR	0.48	UR	0.07	J	0.25	J	0.35	B	0.22	UL	0.17	J
Silver	0.1	U	0.12	U	0.13	U	0.029	B	0.069	B	0.066	J	0.015	B	0.032	B
Sodium	122	B	147	B	140	B	35.2	J	34.2	J	33.1	J	58.3	J	40.8	J
Thallium	0.54	U	0.94	K	0.7	U	0.18	B	0.15	B	0.11	J	0.08	J	0.12	B
Vanadium	24.8		39.1		28.9		30.3	J	20.1	J	20.6	J	20.4	J	17.5	J
Zinc	33.1		33		66		33.1	J	36.3	J	32.9	J	18.6	J	21.1	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.2	U	0.18	U	0.21	U	0.05	J	0.119	J	0.114	J	0.1475	U	0.1565	U
Hexavalent Chromium	NA		NA		NA		2		3.2		2.3		0.4		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
							mv		**mv**				**mv**			
Oxidation Reduction Potential	NA		NA		NA		373.2		334.4		NA		381.3		NA	
							s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	NA		NA		NA		4.86		4.88		4.86		4.68		5.23	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	240	U	220	U	240	U	NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	240	U	220	U	240	U	NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2,3,4,6-Tetrachlorophenol	240	U	220	U	240	U	NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2,4,6-Trichlorophenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2,4-Dichlorophenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2,4-Dimethylphenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2,4-Dinitrophenol	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
2,4-Dinitrotoluene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2,6-Dinitrotoluene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2-Chloronaphthalene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2-Chlorophenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2-Methylnaphthalene	240	U	220	U	59	J	6.4		7.5		2.3	U	1.95	U	2.05	U
2-Methylphenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
2-Nitroaniline	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
2-Nitrophenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
3&4-Methylphenol	NA		NA		NA		210	U	230	U	230	U	195	U	205	U
3,3'-Dichlorobenzidine	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB04-000.5-01		12SB05-0.502-02		12SB05-000.5-01		12SB06-0.502-02		12SB06-000.5-01		12SB06-000.5-01-D		12SB06-0304-03		12SB07-0.502-02	
Sample Date:	**1/11/2010**		**1/14/2010**		**1/14/2010**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**	
Duplicate:											**12SB06-000.5-01**					
3-Nitroaniline	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
4,6-Dinitro-2-methylphenol	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
4-Bromophenyl Phenyl Ether	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
4-Chloro-3-methylphenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
4-Chloroaniline	240	U	220	U	240	U	210	UL	230	UL	230	UL	195	UL	205	UL
4-Chlorophenyl Phenyl Ether	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
4-Methylphenol	470	U	420	U	460	U	NA		NA		NA		NA		NA	
4-Nitroaniline	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
4-Nitrophenol	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
Acenaphthene	240	U	220	U	240	U	3	J	6.1		2.3	U	1.95	U	2.05	U
Acenaphthylene	240	U	220	U	240	U	3	J	5.6		2.3	U	1.95	U	2.05	U
Acetophenone	470	U	420	U	460	U	NA		NA		NA		NA		NA	
Anthracene	240	U	220	U	240	U	2.1	U	2.3	U	2.3	U	1.95	U	3.3	J
Atrazine	240	UJ	220	UJ	240	UJ	NA		NA		NA		NA		NA	
Benz(a)anthracene	54	J	220	U	70	J	2.1	U	2.3	U	2.3	U	1.95	U	2.05	U
Benzaldehyde	240	U	220	U	240	U	NA		NA		NA		NA		NA	
Benzo(a)pyrene	67	J	220	U	82	J	2.1	U	2.3	U	2.8	J	1.95	U	7.1	
Benzo(b)fluoranthene	62	J	220	U	110	J	2.1	U	2.8	J	4.6		1.95	U	8.3	
Benzo(g,h,i)perylene	240	U	220	U	41	J	2.1	U	2.3	U	2.3	U	1.95	U	3.7	J
Benzo(k)fluoranthene	240	U	220	U	240	U	2.1	U	2.3	U	2.3	U	1.95	U	2.9	J
Bis(2-chloroethoxy)methane	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Bis(2-chloroethyl)ether	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Bis(2-ethylhexyl)phthalate	240	U	220	U	66	J	210	U	230	U	230	U	195	U	205	U
Butylbenzylphthalate	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Caprolactam	240	U	220	U	240	U	NA		NA		NA		NA		NA	
Carbazole	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
Chrysene	86	J	220	U	150	J	2.1	U	2.3	J	3.7	J	1.95	U	10	
Di-n-butylphthalate	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Di-n-octylphthalate	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Dibenz(a,h)anthracene	240	U	220	U	240	U	2.1	U	2.3	U	2.3	U	1.95	U	2.05	U
Dibenzofuran	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Diethylphthalate	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Dimethylphthalate	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Fluoranthene	170	J	220	U	190	J	2.1	U	6.1		8.8		1.95	U	19	
Fluorene	240	U	220	U	240	U	2.1	U	4.2	J	2.3	U	1.95	U	2.05	U
Hexachlorobenzene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Hexachlorobutadiene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Hexachlorocyclopentadiene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Hexachloroethane	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Indeno(1,2,3-cd)pyrene	240	U	220	U	240	U	2.1	U	2.3	U	2.3	U	1.95	U	3.3	J
Isophorone	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
N-Nitroso-di-n-propylamine	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
N-Nitrosodiphenylamine (1)	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Naphthalene	240	U	220	U	240	U	9		8.9		2.3	U	1.95	U	2.05	U
Nitrobenzene	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB04-000.5-01**		**12SB05-0.502-02**		**12SB05-000.5-01**		**12SB06-0.502-02**		**12SB06-000.5-01**		**12SB06-000.5-01-D**		**12SB06-0304-03**		**12SB07-0.502-02**	
Sample Date:	**1/11/2010**		**1/14/2010**		**1/14/2010**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**	
Duplicate:											**12SB06-000.5-01**					
Pentachlorophenol	470	U	420	U	460	U	210	U	230	U	230	U	195	U	205	U
Phenanthrene	75	J	220	U	160	J	2.1	U	5.2		6.5		1.95	U	11	
Phenol	240	U	220	U	240	U	210	U	230	U	230	U	195	U	205	U
Pyrene	150	J	220	U	150	J	2.1	U	5.2		6.9		1.95	U	18	
Total Pahs	818.7		55.27		1338		21.4		53.9		33.3			U	86.6	
Total Pahs Halfnd	1058.7		176.27		1338		35.05		61.95		45.95		16.575		93.775	
PAHS	**ug/kg**		**ug/kg**		**ug/kg**											
2-Methylnaphthalene	2.4	J	3.4	J	63		NA		NA		NA		NA		NA	
Acenaphthene	2.5	J	11	U	4.8	J	NA		NA		NA		NA		NA	
Acenaphthylene	7.9	J	0.88	J	12		NA		NA		NA		NA		NA	
Anthracene	12		0.72	J	18		NA		NA		NA		NA		NA	
Benz(a)anthracene	46		2.7	J	73		NA		NA		NA		NA		NA	
Benzo(a)pyrene	55		3.2	J	88		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	57		6.4	J	140		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	41		2.9	J	66		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	71		3.3	J	100		NA		NA		NA		NA		NA	
Chrysene	62		7	J	150		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	9	J	0.77	J	16		NA		NA		NA		NA		NA	
Fluoranthene	120		7.9	J	200		NA		NA		NA		NA		NA	
Fluorene	2.9	J	11	U	6.2	J	NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	47		2.9	J	71		NA		NA		NA		NA		NA	
Naphthalene	1.9	B	1.7	B	20		NA		NA		NA		NA		NA	
Phenanthrene	55		7.1	J	150		NA		NA		NA		NA		NA	
Pyrene	94		6.1	J	150		NA		NA		NA		NA		NA	
Total Pahs	684.7		55.27		1328		NA		NA		NA		NA		NA	
Total Pahs Halfnd	685.65		67.12		1328		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,1,2,2-Tetrachloroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,1,2-Trichloroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,1,2-Trichlorotrifluoroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,1-Dichloroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,1-Dichloroethene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2,3-Trichlorobenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2,4-Trichlorobenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dibromo-3-chloropropane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dibromoethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dichlorobenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dichloroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dichloroethene (cis)	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dichloroethene (trans)	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,2-Dichloropropane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,3-Dichlorobenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB04-000.5-01		12SB05-0.502-02		12SB05-000.5-01		12SB06-0.502-02		12SB06-000.5-01		12SB06-000.5-01-D		12SB06-0304-03		12SB07-0.502-02	
Sample Date:	**1/11/2010**		**1/14/2010**		**1/14/2010**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**	
Duplicate:											**12SB06-000.5-01**					
1,4-Dichlorobenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	13	J	21		12	J	14	U	16	U	16.5	U	12	U	15	U
2-Hexanone	16	U	15	U	19	U	14	U	16	U	16.5	U	12	U	15	U
4-Methyl-2-pentanone	16	U	15	U	19	U	14	U	16	U	16.5	U	12	U	15	U
Acetone	270	J	180		220		51		50		52		12	U	180	
Benzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Bromoform	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Bromomethane	9.6	U	8.5	U	11	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Carbon Disulfide	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Carbon Tetrachloride	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Chlorobenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Chloroethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Chloroform	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Chloromethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
cis-1,3-Dichloropropene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Cyclohexane	6.6	U	5.8	U	7.4	U	NA		NA		NA		NA		NA	
Dibromochloromethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Dichlorodifluoromethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Ethylbenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Isopropylbenzene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
M+p-xylenes	13	U	12	U	15	U	5.5	U	6.5	U	6.5	U	4.75	U	6	U
Methyl Acetate	11	J	41		13		NA		NA		NA		NA		NA	
Methyl Cyclohexane	6.6	U	5.8	U	7.4	U	NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Methylene Chloride	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
O-xylene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Styrene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Tetrachloroethene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Toluene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
trans-1,3-Dichloropropene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Trichloroethene	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Trichlorofluoromethane	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Vinyl Chloride	6.6	U	5.8	U	7.4	U	2.75	U	3.2	U	3.3	U	2.35	U	3	U
Xylene (Total)	6.6	U	5.8	U	7.4	U	8.5	U	9.5	U	10	U	7	U	9	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.7	U	4.2	U	1.9	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
4,4'-DDE	4.7	U	0.82	J	5.4		1.1	U	1.2	U	1.15	U	1	U	1.05	U
4,4'-DDT	4.7	U	4.2	U	6	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Aldrin	2.4	U	2.2	U	1.7	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Alpha-BHC	2.4	U	2.2	U	1.7	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Alpha-Chlordane	2.4	U	3.1	R	4	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB04-000.5-01**		**12SB05-0.502-02**		**12SB05-000.5-01**		**12SB06-0.502-02**		**12SB06-000.5-01**		**12SB06-000.5-01-D**		**12SB06-0304-03**		**12SB07-0.502-02**	
Sample Date:	**1/11/2010**		**1/14/2010**		**1/14/2010**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**	
Duplicate:											**12SB06-000.5-01**					
Aroclor-1016	34	U	30	U	24	U	11	U	12	U	12	U	10	U	10.5	U
Aroclor-1221	49	U	43	U	34	U	11	U	12	U	12	U	10	U	10.5	U
Aroclor-1232	24	U	22	U	17	U	11	U	12	U	12	U	10	U	10.5	U
Aroclor-1242	24	U	22	U	17	U	11	U	12	U	12	U	10	U	10.5	U
Aroclor-1248	24	U	22	U	17	U	11	U	12	U	12	U	10	U	10.5	U
Aroclor-1254	24	U	22	U	17	U	11	U	12	U	12	U	10	U	10.5	U
Aroclor-1260	24	U	22	U	17	U	11	U	12	U	12	U	10	U	10.5	U
Beta-BHC	1.2	U	1.1	U	5.9	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Delta-BHC	2.4	U	2.2	U	0.42	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Dieldrin	1.7	J	1.3	J	8.5		1.1	U	1.2	U	1.15	U	1	U	1.05	U
Endosulfan I	2.4	U	2.2	U	0.55	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Endosulfan II	4.7	U	4.2	U	3.3	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Endosulfan Sulfate	4.7	U	4.2	U	1.5	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Endrin	4.7	U	4.2	U	3.3	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Endrin Aldehyde	4.7	U	4.2	U	2.1	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Endrin Ketone	4.7	U	4.2	U	2.1	J	1.1	UJ	1.2	UJ	1.15	UJ	1	UJ	1.05	U
Gamma-BHC (Lindane)	2.4	U	2.2	U	1.7	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Gamma-Chlordane	2.4	U	4.6	R	1.7	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Heptachlor	2.4	U	0.93	J	0.49	J	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Heptachlor Epoxide	2.4	U	2.2	U	2.3	R	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Methoxychlor	24	U	22	U	17	U	1.1	U	1.2	U	1.15	U	1	U	1.05	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	101.5		91.5		71.5		38.5		42		42		35		36.75	
Total Ddt		U	0.82		13.3			U		U		U		U		U
Total Ddt Halfnd	7.05		5.02		13.3		1.65		1.8		1.725		1.5		1.575	
Toxaphene	120	U	110	U	83	U	11	U	12	U	11.5	U	10	U	10.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB07-000.5-01		12SB07-0304-03		12SB08-0.502-02		12SB08-000.5-01		12SB08-0304-03		12SB09-0.502-02		12SB09-0.502-02-D		12SB09-000.5-01	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:													**12SB09-0.502-02**			
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**				**mg/kg**	
Aluminum	7420	J	9950	J	11000	J	9470	J	12500	J	5280	J	NA		3970	J
Antimony	10.1	L	0.12	B	0.22	B	0.35	B	0.23	B	0.13	B	NA		0.17	B
Arsenic	7.1	J	2.5	J	2.8	J	2.8	J	4	J	3	J	NA		2.1	J
Barium	44.1	K	202	K	47.7	K	54.2	K	63.7	K	44.2	J	NA		32.5	J
Beryllium	0.54	J	1.4	J	0.71	J	0.68	J	0.78	J	0.47	J	NA		0.31	J
Cadmium	0.19	K	0.13	K	0.12	K	0.16	K	0.13	K	0.33		NA		0.14	B
Calcium	863	J	988	J	362	J	1000	J	436	J	627	J	NA		592	J
Chromium	12.9	J	14.1	J	19.1	J	17	J	19	J	8.7		NA		7.7	
Cobalt	6	J	5.9	J	6.5	J	8.6	J	5.9	J	3	J	NA		2.1	J
Copper	12.6	J	4.6	J	6.6	J	6.8	J	11	J	5.3	J	NA		4.8	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB07-000.5-01**		**12SB07-0304-03**		**12SB08-0.502-02**		**12SB08-000.5-01**		**12SB08-0304-03**		**12SB09-0.502-02**		**12SB09-0.502-02-D**		**12SB09-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:													**12SB09-0.502-02**			
Iron	15400	J	15700	J	24300	J	23800	J	25200	J	7790	J	NA		7180	J
Lead	883		12.5		10.3		17.5		11.6		10.6	J	NA		11	J
Magnesium	1020	J	1160	J	1540	J	1520	J	2180	J	851	J	NA		618	J
Manganese	411	J	798	J	252	J	430	J	212	J	227	J	NA		127	J
Mercury	0.041		0.023		0.017		0.039		0.021		0.028		NA		0.042	
Nickel	6.8	J	9	J	9.9	J	9.3	J	9.5	J	4.3	J	NA		3.5	J
Potassium	345	J	251	J	556	J	719	J	577	J	163	L	NA		191	L
Selenium	0.26	J	0.33	J	0.21	U	0.3	U	0.27	U	0.19	J	NA		0.12	J
Silver	0.1	B	0.056	B	0.023	B	0.026	B	0.034	B	0.028	B	NA		0.024	B
Sodium	39.9	J	63.7	J	51.3	J	48.2	J	49.2	J	45	J	NA		28.5	B
Thallium	0.14	B	0.14	B	0.12	B	0.12	B	0.26	B	0.14	B	NA		0.17	B
Vanadium	19	J	18	J	21.5	J	23.4	J	25.6	J	11.6	J	NA		10.4	J
Zinc	30.5	J	25.1	J	20	J	29.2	J	29.8	J	23	J	NA		28	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.101	J	0.091	J	0.055	J	0.081	J	0.07	J	0.077	J	NA		0.059	J
Hexavalent Chromium	NA		NA		NA		NA		NA		1.6		1.4		2.6	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
											mv				**mv**	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		275.8		NA		280.4	
	s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**				**s.u.**	
Ph	5.06		5.47		4.84		5.49		4.76		6.52		NA		5.56	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,4,6-Trichlorophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,4-Dichlorophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,4-Dimethylphenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,4-Dinitrophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,4-Dinitrotoluene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2,6-Dinitrotoluene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2-Chloronaphthalene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2-Chlorophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2-Methylnaphthalene	2.2	U	2.2	U	2.05	U	2.3	U	2.05	U	2.05	U	NA		2.45	U
2-Methylphenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2-Nitroaniline	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
2-Nitrophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
3&4-Methylphenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
3,3'-Dichlorobenzidine	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB07-000.5-01		12SB07-0304-03		12SB08-0.502-02		12SB08-000.5-01		12SB08-0304-03		12SB09-0.502-02		12SB09-0.502-02-D		12SB09-000.5-01	
Sample Date:	12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/15/2011		12/15/2011		12/15/2011	
Duplicate:													12SB09-0.502-02			
3-Nitroaniline	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
4,6-Dinitro-2-methylphenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
4-Bromophenyl Phenyl Ether	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
4-Chloro-3-methylphenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
4-Chloroaniline	220	UL	220	UL	205	UL	230	UL	205	UL	205	UL	NA		245	UL
4-Chlorophenyl Phenyl Ether	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
4-Nitrophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Acenaphthene	2.2	J	2.2	U	2.05	U	2.3	U	2.05	U	9		NA		2.45	U
Acenaphthylene	2.2	U	2.2	U	2.05	U	2.3	U	2.05	U	9		NA		2.45	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	18		2.2	U	2.05	U	2.3	U	2.05	U	31		NA		3	J
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	50		2.2	U	2.05	U	2.3	U	2.05	U	110		NA		16	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	36		2.2	U	2.05	U	2.3	J	2.05	U	120		NA		14	
Benzo(b)fluoranthene	49		2.2	U	2.05	U	4.2	J	2.05	U	170		NA		19	
Benzo(g,h,i)perylene	16		2.2	U	2.05	U	2.3	U	2.05	U	79		NA		8.5	
Benzo(k)fluoranthene	19		2.2	U	2.05	U	2.3	U	2.05	U	63		NA		8	
Bis(2-chloroethoxy)methane	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Bis(2-chloroethyl)ether	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Bis(2-ethylhexyl)phthalate	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Butylbenzylphthalate	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Chrysene	51		2.2	U	2.05	U	3.2	J	2.05	U	150		NA		16	
Di-n-butylphthalate	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Di-n-octylphthalate	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Dibenz(a,h)anthracene	4.9		2.2	U	2.05	U	2.3	U	2.05	U	6.6		NA		2.45	U
Dibenzofuran	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Diethylphthalate	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Dimethylphthalate	220	U	220	U	205	U	230	U	205	U	420		NA		460	J
Fluoranthene	120		2.2	U	3.3	J	6.5		3.3	J	440		NA		42	
Fluorene	4.9		2.2	U	2.05	U	2.3	U	2.05	U	23		NA		2.45	U
Hexachlorobenzene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Hexachlorobutadiene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Hexachlorocyclopentadiene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Hexachloroethane	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Indeno(1,2,3-cd)pyrene	19		2.2	U	2.05	U	2.3	U	2.05	U	95		NA		9.4	
Isophorone	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
N-Nitroso-di-n-propylamine	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
N-Nitrosodiphenylamine (1)	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Naphthalene	2.2	U	2.2	U	2.05	U	2.3	U	2.05	U	2.5	J	NA		2.45	U
Nitrobenzene	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U

Sample ID:	**12SB07-000.5-01**		**12SB07-0304-03**		**12SB08-0.502-02**		**12SB08-000.5-01**		**12SB08-0304-03**		**12SB09-0.502-02**		**12SB09-0.502-02-D**		**12SB09-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:													**12SB09-0.502-02**			
Pentachlorophenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Phenanthrene	73		2.2	U	2.5	J	3.7	J	2.9	J	290		NA		19	
Phenol	220	U	220	U	205	U	230	U	205	U	205	U	NA		245	U
Pyrene	91		2.2	U	2.5	J	5.1		2.5	J	300		NA		32	
Total Pahs	554			U	8.3		25		8.7		1898.1		NA		186.9	
Total Pahs Halfnd	557.3		18.7		22.65		37.65		23.05		1899.125		NA		194.25	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
1,1,1-Trichloroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,1,2,2-Tetrachloroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,1,2-Trichloroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,1,2-Trichlorotrifluoroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,1-Dichloroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,1-Dichloroethene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2,3-Trichlorobenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2,4-Trichlorobenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dibromo-3-chloropropane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dibromoethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dichlorobenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dichloroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dichloroethene (cis)	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dichloroethene (trans)	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,2-Dichloropropane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,3-Dichlorobenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB07-000.5-01		12SB07-0304-03		12SB08-0.502-02		12SB08-000.5-01		12SB08-0304-03		12SB09-0.502-02		12SB09-0.502-02-D		12SB09-000.5-01	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:													**12SB09-0.502-02**			
1,4-Dichlorobenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	14.5	U	14.5	U	13	U	13	J	13	U	13	U	NA		16.5	U
2-Hexanone	14.5	U	14.5	U	13	U	16	U	13	U	13	U	NA		16.5	U
4-Methyl-2-pentanone	14.5	U	14.5	U	13	U	16	U	13	U	13	U	NA		16.5	U
Acetone	36		14.5	U	13	U	210		13	U	13	U	NA		14	J
Benzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Bromoform	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Bromomethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Carbon Disulfide	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Carbon Tetrachloride	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Chlorobenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Chloroethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Chloroform	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Chloromethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
cis-1,3-Dichloropropene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Dichlorodifluoromethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Ethylbenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Isopropylbenzene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
M+p-xylenes	6	U	6	U	5	U	6.5	U	5.5	U	5	U	NA		6.5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Methylene Chloride	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
O-xylene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Styrene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Tetrachloroethene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Toluene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
trans-1,3-Dichloropropene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Trichloroethene	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Trichlorofluoromethane	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Vinyl Chloride	2.95	U	2.95	U	2.6	U	3.25	U	2.65	U	2.55	U	NA		3.3	U
Xylene (Total)	9	U	9	U	8	U	9.5	U	8	U	7.5	U	NA		10	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
4,4'-DDD	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
4,4'-DDE	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
4,4'-DDT	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Aldrin	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Alpha-BHC	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Alpha-Chlordane	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB07-000.5-01**		**12SB07-0304-03**		**12SB08-0.502-02**		**12SB08-000.5-01**		**12SB08-0304-03**		**12SB09-0.502-02**		**12SB09-0.502-02-D**		**12SB09-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:													**12SB09-0.502-02**			
Aroclor-1016	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Aroclor-1221	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Aroclor-1232	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Aroclor-1242	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Aroclor-1248	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Aroclor-1254	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Aroclor-1260	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U
Beta-BHC	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Delta-BHC	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Dieldrin	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Endosulfan I	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Endosulfan II	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Endosulfan Sulfate	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Endrin	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Endrin Aldehyde	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Endrin Ketone	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Gamma-BHC (Lindane)	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Gamma-Chlordane	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Heptachlor	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Heptachlor Epoxide	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Methoxychlor	1.15	U	1.15	U	1.05	U	1.2	U	1.05	U	1.05	U	NA		1.25	U
Total Aroclor		U		U		U		U		U		U	NA			U
Total Aroclor Halfnd	40.25		40.25		36.75		42		36.75		36.75		NA		43.75	
Total Ddt		U		U		U		U		U		U	NA			U
Total Ddt Halfnd	1.725		1.725		1.575		1.8		1.575		1.575		NA		1.875	
Toxaphene	11.5	U	11.5	U	10.5	U	12	U	10.5	U	10.5	U	NA		12.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB09-0304		12SB09-0304-03		12SB10-0.502-02		12SB10-000.5-01		12SB10-0304-03		12SB11-0.501-02		12SB11-000.5-01		12SB11-0304-03	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS			**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	NA		5990	J	4060	J	2770	J	3910	J	5310	J	6090	J	5920	J
Antimony	NA		0.33	B	0.17	B	0.25	B	0.23	B	0.14	B	0.32	B	0.28	B
Arsenic	NA		2.4	J	0.96	J	1.1	J	1.1	J	1.8	J	3.3	J	3.7	J
Barium	NA		111	J	67.2	J	53.1	J	70	J	62.2	J	62.9	J	114	J
Beryllium	NA		0.68	J	0.56	J	0.4	J	0.52	J	0.53	J	0.65	J	0.68	J
Cadmium	NA		0.11	B	0.084	B	0.12	B	0.12	B	0.071	B	0.18		0.12	B
Calcium	NA		504	J	3080	J	2000	J	5700	J	381	J	698	J	599	J
Chromium	NA		11.8		8.5		8.1		9.5		10.5		11.5		13.6	
Cobalt	NA		5.3	J	4.5	J	3.5	J	5.4	J	5.2	J	3.2	J	5.2	J
Copper	NA		5.4	J	5.7	J	6.2	J	7.1	J	6.8	J	8.2	J	3.9	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB09-0304**		**12SB09-0304-03**		**12SB10-0.502-02**		**12SB10-000.5-01**		**12SB10-0304-03**		**12SB11-0.501-02**		**12SB11-000.5-01**		**12SB11-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:																
Iron	NA		13200	J	9670	J	7460	J	11800	J	11300	J	11500	J	14300	J
Lead	NA		16.8	J	7.2	J	11.1	J	10.9	J	7	J	17	J	10.2	J
Magnesium	NA		1120	J	2120	J	1290	J	4370	J	923	J	940	J	1010	J
Manganese	NA		419	J	312	J	213	J	386	J	323	J	177	J	406	J
Mercury	NA		0.035		0.007	J	0.022		0.009	J	0.018		0.034		0.012	
Nickel	NA		6.6	J	5.3	J	4.4	J	6.4	J	5.6	J	5.5	J	6.2	J
Potassium	NA		635	L	440	L	354	L	439	L	362	L	304	L	623	L
Selenium	NA		0.17	J	0.076	J	0.081	J	0.22	U	0.07	J	0.23	J	0.19	J
Silver	NA		0.024	B	0.013	B	0.022	B	0.012	B	0.014	B	0.042	B	0.05	B
Sodium	NA		56.6	J	67.6	J	41.6	B	66.4	J	42.5	J	42.1	B	57.5	J
Thallium	NA		0.63		0.15	B	0.28	B	0.12	B	0.08	B	0.13	B	0.43	
Vanadium	NA		13.6	J	10.5	J	9.7	J	12.5	J	14.7	J	16.3	J	15.4	J
Zinc	NA		27.6	J	16.9	J	27.9	J	20.1	J	18.3	J	29	J	21.1	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	NA		0.096	J	0.426		0.111	J	0.144	U	0.085	J	0.073	J	0.053	J
Hexavalent Chromium	0.62		NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
			mv													
Oxidation Reduction Potential	NA		356.7		NA		NA		NA		NA		NA		NA	
			s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	NA		5.25		7.52		6.68		7.42		5.41		5.22		5.7	
SEMIVOLATILES			**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,4,6-Trichlorophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,4-Dichlorophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,4-Dimethylphenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,4-Dinitrophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,4-Dinitrotoluene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2,6-Dinitrotoluene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2-Chloronaphthalene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2-Chlorophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2-Methylnaphthalene	NA		1.95	U	990	K	2.35	U	290	K	1.95	U	2.35	U	7.9	
2-Methylphenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2-Nitroaniline	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
2-Nitrophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
3&4-Methylphenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
3,3'-Dichlorobenzidine	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB09-0304		12SB09-0304-03		12SB10-0.502-02		12SB10-000.5-01		12SB10-0304-03		12SB11-0.501-02		12SB11-000.5-01		12SB11-0304-03	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:																
3-Nitroaniline	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
4,6-Dinitro-2-methylphenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
4-Bromophenyl Phenyl Ether	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
4-Chloro-3-methylphenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
4-Chloroaniline	NA		195	UL	950	UL	235	UL	1900	UL	195	UL	235	UL	195	UL
4-Chlorophenyl Phenyl Ether	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
4-Nitrophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Acenaphthene	NA		3.6	J	1900		40		870		1.95	U	3.8	J	1.95	U
Acenaphthylene	NA		1.95	U	260		9.5		63		1.95	U	3.3	J	2.4	J
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		6.7		5500	K	220		1600		1.95	U	13	K	5.6	
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		33		6000	K	530		1800	K	4.8		77	K	35	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		36		4600	K	440		1400	K	5.9		76	K	34	
Benzo(b)fluoranthene	NA		54		6000	K	570		1900	K	7.9		110	K	49	
Benzo(g,h,i)perylene	NA		24		1900	K	200		610	K	3.6	J	35	K	19	J
Benzo(k)fluoranthene	NA		21		2200	K	230		600	K	4		44		16	
Bis(2-chloroethoxy)methane	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Bis(2-chloroethyl)ether	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Bis(2-ethylhexyl)phthalate	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Butylbenzylphthalate	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	NA		195	U	2200	K	235	U	1900	U	195	U	235	U	195	U
Chrysene	NA		48		5900	K	470		1600	K	7.1		91	K	43	
Di-n-butylphthalate	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Di-n-octylphthalate	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Dibenz(a,h)anthracene	NA		1.95	U	220	K	25		71	K	1.95	U	3.3	J	1.95	U
Dibenzofuran	NA		195	U	3300	K	235	U	1600	J	195	U	235	U	195	U
Diethylphthalate	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Dimethylphthalate	NA		350	J	950	U	310	J	1900	U	300	J	400	J	270	J
Fluoranthene	NA		140		18000	K	1500		6600		19		220	K	88	
Fluorene	NA		7.9		3300	K	52		1200	K	1.95	U	5.7		2.8	J
Hexachlorobenzene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Hexachlorobutadiene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Hexachlorocyclopentadiene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Hexachloroethane	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Indeno(1,2,3-cd)pyrene	NA		24		2000	K	220		640	K	3.6	J	37		18	
Isophorone	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
N-Nitroso-di-n-propylamine	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
N-Nitrosodiphenylamine (1)	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Naphthalene	NA		1.95	U	620	K	2.35	U	450	K	1.95	U	2.35	U	6.7	
Nitrobenzene	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB09-0304**		**12SB09-0304-03**		**12SB10-0.502-02**		**12SB10-000.5-01**		**12SB10-0304-03**		**12SB11-0.501-02**		**12SB11-000.5-01**		**12SB11-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:																
Pentachlorophenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Phenanthrene	NA		95		39000	K	700		12000	K	14		93	K	36	
Phenol	NA		195	U	950	U	235	U	1900	U	195	U	235	U	195	U
Pyrene	NA		95		13000	K	960		4100	K	13		160	K	67	
Total Pahs	NA		588.2		111390		6166.5		35794		82.9		972.1		430.4	
Total Pahs Halfnd	NA		592.1		111390		6168.85		35794		89.725		974.45		432.35	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES			**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,1,2,2-Tetrachloroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,1,2-Trichloroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,1,2-Trichlorotrifluoroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,1-Dichloroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,1-Dichloroethene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2,3-Trichlorobenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2,4-Trichlorobenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dibromo-3-chloropropane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dibromoethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dichlorobenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dichloroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dichloroethene (cis)	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dichloroethene (trans)	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,2-Dichloropropane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,3-Dichlorobenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB09-0304		12SB09-0304-03		12SB10-0.502-02		12SB10-000.5-01		12SB10-0304-03		12SB11-0.501-02		12SB11-000.5-01		12SB11-0304-03	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:																
1,4-Dichlorobenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	NA		5.1	J	11.5	U	14.5	U	12	U	12	U	17	UJ	12.5	U
2-Hexanone	NA		12.5	U	11.5	U	14.5	U	12	U	12	U	17	UJ	12.5	U
4-Methyl-2-pentanone	NA		12.5	U	11.5	U	14.5	U	12	U	12	U	17	UJ	12.5	U
Acetone	NA		12	J	11.5	U	14.5	U	12	U	12	U	17	UJ	12.5	U
Benzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Bromoform	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Bromomethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Carbon Disulfide	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Carbon Tetrachloride	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Chlorobenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Chloroethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Chloroform	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Chloromethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
cis-1,3-Dichloropropene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Dichlorodifluoromethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Ethylbenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Isopropylbenzene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
M+p-xylenes	NA		5	U	4.7	U	6	U	4.8	U	4.9	U	7	UJ	4.95	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Methylene Chloride	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
O-xylene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Styrene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Tetrachloroethene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Toluene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
trans-1,3-Dichloropropene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Trichloroethene	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Trichlorofluoromethane	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Vinyl Chloride	NA		2.55	U	2.35	U	2.9	U	2.4	U	2.45	U	3.4	UJ	2.5	U
Xylene (Total)	NA		7.5	U	7	U	8.5	U	7	U	7.5	U	10	UJ	7.5	U
PESTICIDES/PCBS			**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
4,4'-DDE	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
4,4'-DDT	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Aldrin	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Alpha-BHC	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Alpha-Chlordane	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB09-0304**		**12SB09-0304-03**		**12SB10-0.502-02**		**12SB10-000.5-01**		**12SB10-0304-03**		**12SB11-0.501-02**		**12SB11-000.5-01**		**12SB11-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:																
Aroclor-1016	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Aroclor-1221	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Aroclor-1232	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Aroclor-1242	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Aroclor-1248	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Aroclor-1254	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Aroclor-1260	NA		10	U	10	U	12	U	10	U	10	U	12	U	10	U
Beta-BHC	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Delta-BHC	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Dieldrin	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Endosulfan I	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Endosulfan II	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Endosulfan Sulfate	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Endrin	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Endrin Aldehyde	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Endrin Ketone	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Gamma-BHC (Lindane)	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Gamma-Chlordane	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Heptachlor	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Heptachlor Epoxide	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Methoxychlor	NA		1	UJ	0.95	UJ	1.2	U	1	U	1	U	1.2	U	1	U
Total Aroclor	NA			U		U		U		U		U		U		U
Total Aroclor Halfnd	NA		35		35		42		35		35		42		35	
Total Ddt	NA			U		U		U		U		U		U		U
Total Ddt Halfnd	NA		1.5		1.425		1.8		1.5		1.5		1.8		1.5	
Toxaphene	NA		10	UJ	9.5	UJ	12	U	10	U	10	U	12	U	10	U

Sample ID:	12SB12-0.502-02		12SB12-000.5-01		12SB12-0304-03		12SB13-0.502-02		12SB13-000.5-01		12SB13-0304-03		12SB14-0.502-02		12SB14-000.5-01	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	11400	J	10900	J	8090	J	2280		4360		5040		4240	J	4160	
Antimony	0.27	B	0.51	L	0.92	L	1.8	J	0.25	B	0.1	B	0.25	B	0.34	B
Arsenic	5.6	J	4.8	J	10.7	J	5.1	L	3.1	L	1.7	L	3.3	J	3.1	L
Barium	84.4	K	90.9	K	97.2	K	40.8		64		49.7		66.5	J	49.8	
Beryllium	0.9	J	0.82	J	0.79	J	0.23	L	0.49	L	0.43	L	0.54	J	0.49	L
Cadmium	0.23		0.56		0.86		0.67		0.61		0.06	J	0.13	B	0.47	
Calcium	910	J	1860	J	1140	J	800		2360		184		1330	J	1600	
Chromium	16.4	J	20.9	J	12.8	J	4.7	J	8.3	J	6.2	J	7.9		13.7	J
Cobalt	5.6	J	8.6	J	5.8	J	2.6	L	4.9	L	3.7	L	4.7	J	5.3	L
Copper	10.5	J	15.2	J	17.4	J	9.8	L	7.4	L	3.2	L	19.4	J	10.4	L
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB12-0.502-02**		**12SB12-000.5-01**		**12SB12-0304-03**		**12SB13-0.502-02**		**12SB13-000.5-01**		**12SB13-0304-03**		**12SB14-0.502-02**		**12SB14-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**	
Duplicate:																
Iron	17900	J	20200	J	18200	J	5810		8190		6730		10300	J	9790	
Lead	20.1		40		74.2		71.3	L	29.9	L	6.7	L	9.2	J	49.1	L
Magnesium	1440	J	2050	J	1140	J	478		1790		531		1190	J	1290	
Manganese	526	J	555	J	535	J	205		331		881		259	J	197	
Mercury	0.03		0.065		0.068		0.056		0.049		0.021		0.018		0.04	
Nickel	8.3	J	10.4	J	12.4	J	3.5	L	5.8	L	4.6	L	8.3	J	6.8	L
Potassium	276	J	605	J	313	J	175	L	331	L	146	L	314	L	569	L
Selenium	0.21	J	0.42	J	0.29	J	0.1	J	0.18	J	0.15	J	0.11	J	0.11	J
Silver	0.049	B	0.15		0.79		0.27		0.06	B	0.026	B	0.039	B	0.13	
Sodium	48.9	J	48.4	J	64.7	J	52.4	J	44.8	B	188	J	59.3	J	80.4	J
Thallium	0.16	B	0.17	B	0.22	B	0.13	B	0.096	B	0.078	B	0.1	B	0.13	B
Vanadium	22.3	J	26.9	J	16.2	J	5.7	L	11.8	L	9.2	L	10.6	J	17.1	L
Zinc	34.7	J	447	J	56.7	J	65		46.5		22.2		20.9	J	49.6	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.097	J	0.166	J	0.079	J	0.058	J	0.076	J	0.151	U	0.1455	U	0.101	J
Hexavalent Chromium	1.7		3.1	J	0.58		0.44	J	0.45	J	0.54	J	NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
	mv		**mv**		**mv**		**mv**		**mv**		**mv**					
Oxidation Reduction Potential	293.1		271.7		281.5		232.4		270.2		101.7		NA		NA	
	s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	6.35		6.37		6.2		7.01		6.81		6.54		7.22		6.45	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,4,6-Trichlorophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,4-Dichlorophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,4-Dimethylphenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,4-Dinitrophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,4-Dinitrotoluene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2,6-Dinitrotoluene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2-Chloronaphthalene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2-Chlorophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2-Methylnaphthalene	2.9	J	2.3	U	3.1	J	26		3.7	J	2	U	48		2.55	U
2-Methylphenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2-Nitroaniline	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
2-Nitrophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
3&4-Methylphenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
3,3'-Dichlorobenzidine	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB12-0.502-02		12SB12-000.5-01		12SB12-0304-03		12SB13-0.502-02		12SB13-000.5-01		12SB13-0304-03		12SB14-0.502-02		12SB14-000.5-01	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**	
Duplicate:																
3-Nitroaniline	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
4,6-Dinitro-2-methylphenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
4-Bromophenyl Phenyl Ether	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
4-Chloro-3-methylphenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
4-Chloroaniline	205	UL	230	UL	215	UL	200	U	205	U	200	U	190	UL	255	U
4-Chlorophenyl Phenyl Ether	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
4-Nitrophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Acenaphthene	2.05	U	2.3	U	3.1	J	3.7	J	14		2	U	260		2.55	U
Acenaphthylene	2.05	U	2.3	U	3.5	J	4.1		12		2	U	41		2.55	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	2.05	U	2.3	J	6.1		14		49		2	U	1800	K	2.55	U
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	2.05	U	14		24		60		270		2.4	J	3100	K	19	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	2.05	U	14		23		70		320		2	U	2600	K	20	
Benzo(b)fluoranthene	3.3	J	20		30		99		510		2.4	J	3600	K	27	
Benzo(g,h,i)perylene	2.05	U	7.9		14		35		160		2	U	1400	K	11	
Benzo(k)fluoranthene	2.05	U	7.9		12		34		160		2	U	1100	K	10	
Bis(2-chloroethoxy)methane	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Bis(2-chloroethyl)ether	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Bis(2-ethylhexyl)phthalate	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Butylbenzylphthalate	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	205	U	230	U	215	U	200	U	205	U	200	U	430		255	U
Chrysene	2.9	J	17		25		78		340		2.8	J	2900	K	22	
Di-n-butylphthalate	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Di-n-octylphthalate	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Dibenz(a,h)anthracene	2.05	U	2.3	U	3.9	J	4.1		17		2	U	140		2.55	U
Dibenzofuran	205	U	230	U	215	U	200	U	205	U	200	U	310	J	255	U
Diethylphthalate	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Dimethylphthalate	205	U	230	U	215	U	270	J	220	J	180	J	390		280	J
Fluoranthene	5.8		38		59		170		780		4.8		8500	K	45	
Fluorene	2.05	U	2.3	U	3.5	J	6.9		19		2	U	520		2.55	U
Hexachlorobenzene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Hexachlorobutadiene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Hexachlorocyclopentadiene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Hexachloroethane	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Indeno(1,2,3-cd)pyrene	2.05	U	8.3		16		37		140		2	U	1700	K	12	
Isophorone	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
N-Nitroso-di-n-propylamine	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
N-Nitrosodiphenylamine (1)	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Naphthalene	3.7	J	2.3	U	4.4		24		5		2	U	38		2.55	U
Nitrobenzene	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB12-0.502-02**		**12SB12-000.5-01**		**12SB12-0304-03**		**12SB13-0.502-02**		**12SB13-000.5-01**		**12SB13-0304-03**		**12SB14-0.502-02**		**12SB14-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**	
Duplicate:																
Pentachlorophenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Phenanthrene	3.7	J	23		35		99		340		4		7100	K	21	
Phenol	205	U	230	U	215	U	200	U	205	U	200	U	190	U	255	U
Pyrene	5		30		45		130		550		4		5900	K	36	
Total Pahs	27.3		182.4		310.6		894.8		3689.7		20.4		40747		223	
Total Pahs Halfnd	37.55		189.3		310.6		894.8		3689.7		31.4		40747		231.925	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,1,2,2-Tetrachloroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
1,1,2-Trichloroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,1,2-Trichlorotrifluoroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,1-Dichloroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,1-Dichloroethene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,2,3-Trichlorobenzene	2.75	U	3.6	UL	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
1,2,4-Trichlorobenzene	2.75	U	3.6	UL	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
1,2-Dibromo-3-chloropropane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
1,2-Dibromoethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,2-Dichlorobenzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
1,2-Dichloroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,2-Dichloroethene (cis)	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,2-Dichloroethene (trans)	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,2-Dichloropropane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
1,3-Dichlorobenzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB12-0.502-02**		**12SB12-000.5-01**		**12SB12-0304-03**		**12SB13-0.502-02**		**12SB13-000.5-01**		**12SB13-0304-03**		**12SB14-0.502-02**		**12SB14-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**	
Duplicate:																
1,4-Dichlorobenzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	13.5	U	18	U	14.5	U	15.5	UJ	13.5	U	12.5	U	12.5	U	20.5	U
2-Hexanone	13.5	U	18	U	14.5	U	15.5	UJ	13.5	U	12.5	U	12.5	U	20.5	U
4-Methyl-2-pentanone	13.5	U	18	U	14.5	U	15.5	UJ	13.5	U	12.5	U	12.5	U	20.5	U
Acetone	13.5	U	18	U	14.5	U	15.5	UJ	13.5	U	12.5	U	12.5	U	20.5	U
Benzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Bromoform	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Bromomethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Carbon Disulfide	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Carbon Tetrachloride	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Chlorobenzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Chloroethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Chloroform	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Chloromethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
cis-1,3-Dichloropropene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Dichlorodifluoromethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Ethylbenzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Isopropylbenzene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	UJ
M+p-xylenes	5.5	U	7	U	6	U	6	UJ	5.5	U	5	U	5	U	8	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Methylene Chloride	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
O-xylene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Styrene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Tetrachloroethene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Toluene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
trans-1,3-Dichloropropene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Trichloroethene	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Trichlorofluoromethane	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Vinyl Chloride	2.75	U	3.6	U	2.9	U	3.1	UJ	2.7	U	2.55	U	2.55	U	4.1	U
Xylene (Total)	8	U	10.5	U	8.5	U	9.5	UJ	8	U	7.5	U	7.5	U	12.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
4,4'-DDE	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
4,4'-DDT	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Aldrin	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Alpha-BHC	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Alpha-Chlordane	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB12-0.502-02**		**12SB12-000.5-01**		**12SB12-0304-03**		**12SB13-0.502-02**		**12SB13-000.5-01**		**12SB13-0304-03**		**12SB14-0.502-02**		**12SB14-000.5-01**	
Sample Date:	**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/15/2011**		**12/16/2011**	
Duplicate:																
Aroclor-1016	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Aroclor-1221	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Aroclor-1232	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Aroclor-1242	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Aroclor-1248	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Aroclor-1254	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Aroclor-1260	10.5	U	12	U	11	U	10.5	UJ	10.5	UJ	10	U	10	U	13.5	U
Beta-BHC	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Delta-BHC	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Dieldrin	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Endosulfan I	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Endosulfan II	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Endosulfan Sulfate	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Endrin	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Endrin Aldehyde	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Endrin Ketone	1.05	U	1.2	U	1.1	UJ	1.05	U	1.05	UL	1	U	1	U	1.35	U
Gamma-BHC (Lindane)	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Gamma-Chlordane	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Heptachlor	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Heptachlor Epoxide	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Methoxychlor	1.05	U	1.2	U	1.1	U	1.05	U	1.05	UL	1	U	1	U	1.35	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	36.75		42		38.5		36.75		36.75		35		35		47.25	
Total Ddt		U		U		U		U		U		U		U		U
Total Ddt Halfnd	1.575		1.8		1.65		1.575		1.575		1.5		1.5		2.025	
Toxaphene	10.5	U	12	U	11	U	10.5	U	10.5	UL	10	U	10	U	13.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB14-0304-03**		**12SB15-0.502-02**		**12SB15-000.5-01**		**12SB15-000.5-01-D**		**12SB15-0304-03**		**12SB16-0.502-02**		**12SB16-000.5-01**		**12SB16-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:							**12SB15-000.5-01**									
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	4940	J	4190	J	3930	J	4010	J	6020	J	7440	J	8380	J	11400	J
Antimony	0.039	B	0.24	B	0.39	B	0.29	B	0.13	B	0.21	B	0.53	B	0.22	B
Arsenic	0.76	J	1.1	J	1.5	J	1.4	J	3.3	J	4.6	J	5	J	5.2	J
Barium	25.8	J	51.5	J	55.3	J	52.7	J	23.2	J	60.3	J	93.2	J	60.2	J
Beryllium	0.22	B	0.42	J	0.52	J	0.45	J	0.23	B	0.72	J	0.79	J	0.44	J
Cadmium	0.018	B	0.064	B	0.17		0.14	B	0.035	B	0.1	B	0.4		0.1	B
Calcium	166	J	393	J	787	J	645	J	283	J	410	J	1770	J	630	J
Chromium	4		9.6		11		10.5		10.6		12.6		15.2		18.2	J
Cobalt	2.6	J	3.8	J	4.4	J	3.7	J	1.9	J	4.6	J	5.8	J	5.4	J
Copper	3.2	J	4.2	J	6.1	J	5.8	J	4.4	J	4.9	J	9.3	J	8.8	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB14-0304-03**		**12SB15-0.502-02**		**12SB15-000.5-01**		**12SB15-000.5-01-D**		**12SB15-0304-03**		**12SB16-0.502-02**		**12SB16-000.5-01**		**12SB16-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:							**12SB15-000.5-01**									
Iron	4610	J	10600	J	9450	J	9650	J	9990	J	12600	J	14300	J	20300	J
Lead	1.6	J	8.1	J	24	J	21.2	J	5.5	J	12.7	J	31.2	J	12	J
Magnesium	357	J	732	J	813	J	789	J	849	J	945	J	1360	J	1370	J
Manganese	90.3	J	158	J	274	J	192	J	87.2	J	308	J	414	J	229	J
Mercury	0.013		0.008	J	0.037		0.03		0.018		0.046		0.075		0.037	
Nickel	2.8	J	4.4	J	5.6	J	5.2	J	3.9	J	5.8	J	7.9	J	7.6	J
Potassium	103	L	482	L	487	L	467	L	149	L	200	L	528	L	313	L
Selenium	0.225	U	0.285	U	0.375	U	0.096	J	0.12	J	0.3	J	0.54	J	0.1	J
Silver	0.0455	U	0.025	B	0.036	B	0.032	B	0.013	B	0.032	B	0.079	B	0.029	B
Sodium	223	J	46.5	J	45.4	B	34.9	B	26.9	B	35.2	B	47.8	J	47.2	J
Thallium	0.041	B	0.11	B	0.15	B	0.095	B	0.09	B	0.12	B	0.28	B	0.13	B
Vanadium	5.2	J	9.7	J	12	J	11.8	J	14.8	J	18.5	J	21.5	J	28.3	J
Zinc	8.6	J	17	J	30.8	J	26.8	J	19.8	J	22.7	J	46.6	J	26.3	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.066	J	0.077	J	0.093	J	0.1855	U	0.1525	U	0.079	J	0.209	J	0.045	J
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		NA		NA	
	s.u.		**s.u.**		**s.u.**				**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	7.21		5.23		5.91		NA		5.65		4.96		5.79		5.32	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,4,6-Trichlorophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,4-Dichlorophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,4-Dimethylphenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,4-Dinitrophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,4-Dinitrotoluene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2,6-Dinitrotoluene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2-Chloronaphthalene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2-Chlorophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2-Methylnaphthalene	1.9	U	2	U	2.45	U	2.45	U	2	U	1.95	U	2.55	U	2.05	U
2-Methylphenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2-Nitroaniline	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
2-Nitrophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
3&4-Methylphenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
3,3'-Dichlorobenzidine	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB14-0304-03		12SB15-0.502-02		12SB15-000.5-01		12SB15-000.5-01-D		12SB15-0304-03		12SB16-0.502-02		12SB16-000.5-01		12SB16-0304-03	
Sample Date:	12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011		12/15/2011	
Duplicate:							12SB15-000.5-01									
3-Nitroaniline	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
4,6-Dinitro-2-methylphenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
4-Bromophenyl Phenyl Ether	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
4-Chloro-3-methylphenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
4-Chloroaniline	190	UL	200	UL	245	UL	245	UL	200	UL	195	UL	255	UL	205	UL
4-Chlorophenyl Phenyl Ether	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
4-Nitrophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Acenaphthene	1.9	U	2	U	5		5.5		2	U	1.95	U	4.1	J	2.05	U
Acenaphthylene	1.9	U	2	U	2.5	J	3.5	J	2	U	1.95	U	6.1		2.05	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	1.9	U	4.9		22		18		2	U	1.95	U	9.7		2.05	U
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	2.3	J	26		97		72		2	U	3.2	J	51		4.5	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	1.9	U	30		81		59		2	U	3.2	J	62		3.7	J
Benzo(b)fluoranthene	1.9	J	46		110		83		2	U	4.7		94		4.9	
Benzo(g,h,i)perylene	1.9	U	22		50		26	J	2	U	1.95	U	34		2.05	U
Benzo(k)fluoranthene	1.9	U	17		44		31		2	U	2.4	J	37		2.1	J
Bis(2-chloroethoxy)methane	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Bis(2-chloroethyl)ether	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Bis(2-ethylhexyl)phthalate	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Butylbenzylphthalate	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Chrysene	1.9	J	37		99		79		2	U	4		76		4.9	
Di-n-butylphthalate	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Di-n-octylphthalate	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Dibenz(a,h)anthracene	1.9	U	2	U	5		3	J	2	U	1.95	U	2.6	J	2.05	U
Dibenzofuran	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Diethylphthalate	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Dimethylphthalate	190	U	540		270	J	480	J	280	J	390		450	J	340	J
Fluoranthene	3.9		91		270		200		2	U	9.5		200		12	
Fluorene	1.9	U	3.3	J	6		7.5		2	U	1.95	U	7.2		2.05	U
Hexachlorobenzene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Hexachlorobutadiene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Hexachlorocyclopentadiene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Hexachloroethane	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Indeno(1,2,3-cd)pyrene	1.9	U	21		49		29		2	U	1.95	U	31		2.5	J
Isophorone	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
N-Nitroso-di-n-propylamine	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
N-Nitrosodiphenylamine (1)	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Naphthalene	1.9	U	2	U	2.45	U	2.45	U	2	U	1.95	U	3.1	J	2.05	U
Nitrobenzene	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB14-0304-03**		**12SB15-0.502-02**		**12SB15-000.5-01**		**12SB15-000.5-01-D**		**12SB15-0304-03**		**12SB16-0.502-02**		**12SB16-000.5-01**		**12SB16-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:							**12SB15-000.5-01**									
Pentachlorophenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Phenanthrene	3.1	J	46		120		100		2	U	6.7		110		8.6	
Phenol	190	U	200	U	245	U	245	U	200	U	195	U	255	U	205	U
Pyrene	3.1	J	62		190		140		2	U	6.7		130		8.6	
Total Pahs	16.2		406.2		1150.5		856.5			U	40.4		857.8		51.8	
Total Pahs Halfnd	26.65		411.2		1152.95		858.95		17		49.175		859.075		60	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,1,2,2-Tetrachloroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,1,2-Trichloroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,1,2-Trichlorotrifluoroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,1-Dichloroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,1-Dichloroethene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2,3-Trichlorobenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2,4-Trichlorobenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dibromo-3-chloropropane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dibromoethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dichlorobenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dichloroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dichloroethene (cis)	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dichloroethene (trans)	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,2-Dichloropropane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,3-Dichlorobenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB14-0304-03**		**12SB15-0.502-02**		**12SB15-000.5-01**		**12SB15-000.5-01-D**		**12SB15-0304-03**		**12SB16-0.502-02**		**12SB16-000.5-01**		**12SB16-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:							**12SB15-000.5-01**									
1,4-Dichlorobenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	12.5	U	12	U	200	J	15	UJ	12.5	U	12	U	15	J	13	U
2-Hexanone	12.5	U	12	U	14	J	15	U	12.5	U	12	U	17	U	13	U
4-Methyl-2-pentanone	12.5	U	12	U	16	U	15	U	12.5	U	12	U	17	U	13	U
Acetone	12.5	U	12	U	340	J	14	J	12.5	U	12	U	120		13	U
Benzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Bromoform	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Bromomethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Carbon Disulfide	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Carbon Tetrachloride	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Chlorobenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Chloroethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Chloroform	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Chloromethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
cis-1,3-Dichloropropene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Dichlorodifluoromethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Ethylbenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Isopropylbenzene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
M+p-xylenes	4.95	U	4.85	U	6.5	U	6	U	5	U	4.85	U	6.5	U	5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Methylene Chloride	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
O-xylene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Styrene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Tetrachloroethene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Toluene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
trans-1,3-Dichloropropene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Trichloroethene	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Trichlorofluoromethane	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Vinyl Chloride	2.5	U	2.45	U	3.2	U	3	U	2.5	U	2.45	U	3.35	U	2.6	U
Xylene (Total)	7.5	U	7.5	U	9.5	U	9	U	7.5	U	7.5	U	10	U	8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
4,4'-DDE	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
4,4'-DDT	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Aldrin	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Alpha-BHC	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Alpha-Chlordane	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB14-0304-03**		**12SB15-0.502-02**		**12SB15-000.5-01**		**12SB15-000.5-01-D**		**12SB15-0304-03**		**12SB16-0.502-02**		**12SB16-000.5-01**		**12SB16-0304-03**	
Sample Date:	**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**		**12/15/2011**	
Duplicate:							**12SB15-000.5-01**									
Aroclor-1016	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Aroclor-1221	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Aroclor-1232	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Aroclor-1242	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Aroclor-1248	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Aroclor-1254	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Aroclor-1260	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	U	13	U	10.5	U
Beta-BHC	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Delta-BHC	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Dieldrin	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Endosulfan I	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Endosulfan II	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Endosulfan Sulfate	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Endrin	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Endrin Aldehyde	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Endrin Ketone	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Gamma-BHC (Lindane)	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Gamma-Chlordane	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Heptachlor	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Heptachlor Epoxide	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Methoxychlor	1	U	1.05	U	1.25	U	1.25	U	1.05	U	1	UJ	1.3	U	1.05	UJ
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	35		36.75		43.75		43.75		36.75		35		45.5		36.75	
Total Ddt		U		U		U		U		U		U		U		U
Total Ddt Halfnd	1.5		1.575		1.875		1.875		1.575		1.5		1.95		1.575	
Toxaphene	10	U	10.5	U	12.5	U	12.5	U	10.5	U	10	UJ	13	U	10.5	UJ

Sample ID:	**12SB16-0304-03-D**		**12SB17-0.502-02**		**12SB17-000.5-01**		**12SB17-0304-03**		**12SB18-0.502-02**		**12SB18-000.5-01**		**12SB18-0304-03**		**12SB19-0.502-02**	
Sample Date:	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**	
Duplicate:	**12SB16-0304-03**															
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	7070	J	16400	J	13500	J	14400	J	7040	J	9000	J	7390	J	7270	J
Antimony	0.14	B	0.21	B	0.41	L	0.13	B	0.32	B	0.64	B	0.18	B	2	B
Arsenic	3.3	J	5.8	J	5.8	J	3.6	J	3.5	J	5.4	J	2.7	J	4.2	J
Barium	37	J	85.2	K	64	K	72.7	K	59.7	J	76	J	36.1	J	135	J
Beryllium	0.33	J	0.76	J	0.75	J	0.82	J	0.56	J	0.77	J	0.45	J	0.85	J
Cadmium	0.14	B	0.37		1.6		0.085	J	0.24		0.67		0.062	J	0.33	
Calcium	356	J	751	J	771	J	466	J	588	J	1150	J	436	J	2080	J
Chromium	11.4		19.8	J	18.1	J	17.8	J	10.8	J	15.1	J	12.1	J	15.9	J
Cobalt	4.8	J	4.9	J	4.8	J	7.4	J	4.2	J	5.5	J	7.5	J	5.8	J
Copper	6.2	J	8.5	J	9.3	J	6.1	J	7.4	J	11	J	6.8	J	11.1	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB16-0304-03-D**		**12SB17-0.502-02**		**12SB17-000.5-01**		**12SB17-0304-03**		**12SB18-0.502-02**		**12SB18-000.5-01**		**12SB18-0304-03**		**12SB19-0.502-02**	
Sample Date:	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**	
Duplicate:	**12SB16-0304-03**															
Iron	12800	J	24500	J	21300	J	20800	J	10100	J	12800	J	15000	J	13200	J
Lead	7.5	J	13.4		24.7		9.5		19.1	J	36.1	J	9.4	J	20.1	J
Magnesium	949	J	2060	J	1680	J	1750	J	1070	J	1340	J	1450	J	2060	J
Manganese	174	J	208	J	274	J	394	J	330	J	490	J	226	J	544	J
Mercury	0.047		0.02		0.039		0.023		0.062		0.097		0.033		0.043	
Nickel	5.4	J	9.3	J	8.6	J	9.3	J	6.6	J	8.7	J	7	J	8.1	J
Potassium	194	L	436	J	424	J	365	J	334	J	549	J	622	J	499	J
Selenium	0.057	J	0.27	UL	0.21	B	0.245	UL	0.2	J	0.38	J	0.26	U	0.19	J
Silver	0.018	B	0.05	J	0.063	J	0.033	B	0.055	B	0.12	J	0.016	B	0.041	B
Sodium	22.7	B	39.9	J	49.4	J	55.4	J	58.9	J	145	J	101	J	96.8	J
Thallium	0.19	B	0.18		0.15		0.14		0.11	B	0.15	B	0.11	B	0.1	B
Vanadium	18.2	J	28.8	J	26.5	J	26.2	J	15.8	J	21.4	J	20.3	J	18.4	J
Zinc	22.7	J	33.7	J	38.6	J	24.9	J	31.1	J	48	J	23.6	J	93.9	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.055	J	0.064	J	0.076	J	0.057	J	0.097	J	0.164	J	0.044	J	0.067	J
Hexavalent Chromium	NA		NA		NA		NA		0.69		1.5		0.54		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
									mv		**mv**		**mv**			
Oxidation Reduction Potential	NA		NA		NA		NA		278.7		313.6		323.7		NA	
	s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	5.46		5.37		5.3		5.42		6.63		5.5		5.58		6.84	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2,4,6-Trichlorophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2,4-Dichlorophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2,4-Dimethylphenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2,4-Dinitrophenol	200	U	210	U	220	U	205	U	205	UJ	255	UJ	205	U	200	UJ
2,4-Dinitrotoluene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2,6-Dinitrotoluene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2-Chloronaphthalene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2-Chlorophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2-Methylnaphthalene	2	U	2.1	U	2.2	U	2.05	U	2.05	U	2.55	U	2.05	U	33	
2-Methylphenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2-Nitroaniline	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
2-Nitrophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
3&4-Methylphenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
3,3'-Dichlorobenzidine	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB16-0304-03-D**		**12SB17-0.502-02**		**12SB17-000.5-01**		**12SB17-0304-03**		**12SB18-0.502-02**		**12SB18-000.5-01**		**12SB18-0304-03**		**12SB19-0.502-02**	
Sample Date:	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**	
Duplicate:	**12SB16-0304-03**															
3-Nitroaniline	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
4,6-Dinitro-2-methylphenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
4-Bromophenyl Phenyl Ether	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
4-Chloro-3-methylphenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
4-Chloroaniline	200	UL	210	UL	220	UL	205	UL	205	UL	255	UL	205	UL	200	UL
4-Chlorophenyl Phenyl Ether	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
4-Nitrophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Acenaphthene	2	U	2.1	U	2.2	U	2.05	U	3.7	J	5.6		2.05	U	120	
Acenaphthylene	2	U	2.1	U	2.2	U	2.05	U	4.5		5.6		2.05	U	110	
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	2	U	2.1	U	2.2	U	2.05	U	19		9.7		2.05	U	1000	
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	2.4	J	2.1	U	4	J	2.05	U	84		46		2.5	J	2600	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	2	J	2.1	U	4.9		2.05	U	77		56		2.05	U	2400	
Benzo(b)fluoranthene	3.2	J	2.1	U	8		2.05	U	110		90		2.05	U	3200	
Benzo(g,h,i)perylene	2	U	2.1	U	5.8		2.05	U	48		35		2.05	U	1300	
Benzo(k)fluoranthene	2	U	2.1	U	3.1	J	2.05	U	37		33		2.05	U	1100	
Bis(2-chloroethoxy)methane	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Bis(2-chloroethyl)ether	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Bis(2-ethylhexyl)phthalate	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Butylbenzylphthalate	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	200	U	210	U	220	U	205	U	205	U	255	U	205	U	190	J
Chrysene	2	J	2.1	U	6.7		2.05	U	93		76		2.1	J	2600	
Di-n-butylphthalate	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Di-n-octylphthalate	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Dibenz(a,h)anthracene	2	U	2.1	U	2.2	U	2.05	U	4.1		2.55	U	2.05	U	140	
Dibenzofuran	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Diethylphthalate	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Dimethylphthalate	260	J	210	U	220	U	205	U	280	J	255	U	205	U	200	U
Fluoranthene	5.7		2.1	U	14		2.05	U	230		220		5.8		6800	
Fluorene	2	U	2.1	U	2.2	U	2.05	U	6.2		11		2.05	U	220	
Hexachlorobenzene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Hexachlorobutadiene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Hexachlorocyclopentadiene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Hexachloroethane	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Indeno(1,2,3-cd)pyrene	2	U	2.1	U	4.9		2.05	U	49		37		2.05	U	1000	
Isophorone	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
N-Nitroso-di-n-propylamine	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
N-Nitrosodiphenylamine (1)	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Naphthalene	2	U	2.1	U	2.2	U	2.05	U	2.05	U	3.6	J	2.05	U	39	
Nitrobenzene	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB16-0304-03-D**		**12SB17-0.502-02**		**12SB17-000.5-01**		**12SB17-0304-03**		**12SB18-0.502-02**		**12SB18-000.5-01**		**12SB18-0304-03**		**12SB19-0.502-02**	
Sample Date:	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**	
Duplicate:	**12SB16-0304-03**															
Pentachlorophenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Phenanthrene	4.1		2.1	U	10		2.05	U	96		150		4.1		3400	
Phenol	200	U	210	U	220	U	205	U	205	U	255	U	205	U	200	U
Pyrene	4.1		2.1	U	11		2.05	U	170		150		4.1		4900	
Total Pahs	23.5			U	72.4			U	1031.5		928.5		18.6		30962	
Total Pahs Halfnd	33.5		17.85		80.1		17.425		1033.55		931.05		30.9		30962	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,1,2,2-Tetrachloroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,1,2-Trichloroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,1,2-Trichlorotrifluoroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,1-Dichloroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,1-Dichloroethene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2,3-Trichlorobenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2,4-Trichlorobenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dibromo-3-chloropropane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dibromoethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dichlorobenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dichloroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dichloroethene (cis)	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dichloroethene (trans)	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,2-Dichloropropane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,3-Dichlorobenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB16-0304-03-D**		**12SB17-0.502-02**		**12SB17-000.5-01**		**12SB17-0304-03**		**12SB18-0.502-02**		**12SB18-000.5-01**		**12SB18-0304-03**		**12SB19-0.502-02**	
Sample Date:	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**	
Duplicate:	**12SB16-0304-03**															
1,4-Dichlorobenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	12.5	U	14	U	15	U	13.5	U	12	U	18	U	14	U	12.5	U
2-Hexanone	12.5	U	14	U	15	U	13.5	U	12	U	18	U	14	U	12.5	U
4-Methyl-2-pentanone	12.5	U	14	U	15	U	13.5	U	12	U	18	U	14	U	12.5	U
Acetone	15	J	14	U	73		13.5	U	38		18	U	81		20	J
Benzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Bromoform	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Bromomethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Carbon Disulfide	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Carbon Tetrachloride	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Chlorobenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Chloroethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Chloroform	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Chloromethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
cis-1,3-Dichloropropene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Dichlorodifluoromethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Ethylbenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Isopropylbenzene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	2.9	J	2.85	U	2.45	U
M+p-xylenes	5	U	5.5	U	6	U	5.5	U	4.9	U	7.5	U	5.5	U	4.95	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Methylene Chloride	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
O-xylene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Styrene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Tetrachloroethene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Toluene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
trans-1,3-Dichloropropene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Trichloroethene	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Trichlorofluoromethane	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Vinyl Chloride	2.5	U	2.85	U	3	U	2.65	U	2.45	U	3.65	U	2.85	U	2.45	U
Xylene (Total)	7.5	U	8.5	U	9	U	8	U	7.5	U	11	U	8.5	U	7.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
4,4'-DDE	1.05	U	1.05	U	3.4		1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
4,4'-DDT	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Aldrin	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Alpha-BHC	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Alpha-Chlordane	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB16-0304-03-D**		**12SB17-0.502-02**		**12SB17-000.5-01**		**12SB17-0304-03**		**12SB18-0.502-02**		**12SB18-000.5-01**		**12SB18-0304-03**		**12SB19-0.502-02**	
Sample Date:	**12/15/2011**		**12/28/2011**		**12/28/2011**		**12/28/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**	
Duplicate:	**12SB16-0304-03**															
Aroclor-1016	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Aroclor-1221	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Aroclor-1232	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Aroclor-1242	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Aroclor-1248	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Aroclor-1254	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Aroclor-1260	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U
Beta-BHC	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Delta-BHC	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Dieldrin	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Endosulfan I	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Endosulfan II	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Endosulfan Sulfate	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Endrin	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Endrin Aldehyde	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Endrin Ketone	1.05	U	1.05	UJ	1.15	UJ	1.05	UJ	1.05	UJ	1.3	UJ	1.05	UJ	1.05	UJ
Gamma-BHC (Lindane)	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Gamma-Chlordane	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Heptachlor	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Heptachlor Epoxide	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Methoxychlor	1.05	U	1.05	U	1.15	U	1.05	U	1.05	U	1.3	U	1.05	U	1.05	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	36.75		36.75		40.25		36.75		36.75		45.5		36.75		36.75	
Total Ddt		U		U	3.4			U		U		U		U		U
Total Ddt Halfnd	1.575		1.575		4.55		1.575		1.575		1.95		1.575		1.575	
Toxaphene	10.5	U	10.5	U	11.5	U	10.5	U	10.5	U	13	U	10.5	U	10.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB19-000.5-01**		**12SB19-0304-03**		**12SB20-0.502-02**		**12SB20-000.5-01**		**12SB20-000.5-01-D**		**12SB20-0304-03**		**12SB20-0304-03-D**		**12SB21-0.502-02**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:									**12SB20-000.5-01**				**12SB20-0304-03**			
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	5850	J	7260	J	10700	J	5830	J	6630	J	9080		9720		13600	
Antimony	0.45	B	0.35	B	0.49	J	0.91	J	0.65	J	2	J	5.9	J	0.23	B
Arsenic	2.7	J	3.9	J	4	J	2.5	J	2.7	J	3.1	J	3.9	J	5.1	J
Barium	76.5	J	73.4	J	68.2	J	66.2	J	70	J	123	J	804	J	83.5	J
Beryllium	0.58	J	0.67	J	0.64	J	0.45	J	0.52	J	0.75	J	0.75	J	0.75	J
Cadmium	0.31		0.11	K	0.26		0.73		0.86		1.9	J	4	J	0.08	B
Calcium	1180	J	10500	J	447	J	1180	J	1190	J	404	J	464	J	478	J
Chromium	11.5	J	12.7	J	17	J	13.7	J	13.8	J	22.8	J	22.6	J	19.7	J
Cobalt	5	J	5.2	J	5.4	J	4.3	J	4.8	J	5.5	J	7.9	J	5.9	J
Copper	8.6	J	7.5	J	10.8	J	10.2	J	11.9	J	22.9	J	99.2	J	7.9	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB19-000.5-01**		**12SB19-0304-03**		**12SB20-0.502-02**		**12SB20-000.5-01**		**12SB20-000.5-01-D**		**12SB20-0304-03**		**12SB20-0304-03-D**		**12SB21-0.502-02**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:									**12SB20-000.5-01**				**12SB20-0304-03**			
Iron	11900	J	13000	J	21300	J	12200	J	13600	J	23800	J	29300	J	20700	J
Lead	27.3	J	17.4	J	15.6	J	36.8	J	39.8	J	64.1	J	261	J	10.6	J
Magnesium	1130	J	1960	J	1790	J	1270	J	1410	J	1240	J	1380	J	1640	J
Manganese	390	J	770	J	238	J	256	J	282	J	384	J	783	J	201	J
Mercury	0.043		0.011	J	0.04		0.057		0.05		0.046		0.055		0.017	
Nickel	7.5	J	6.6	J	9.3	J	8.8	J	10.5	J	13.1	J	14.6	J	9.9	J
Potassium	812	J	389	J	568	J	708	J	766	J	461	J	526	J	507	J
Selenium	0.2	J	0.19	J	0.22	U	0.12	J	0.086	J	0.2	UJ	0.215	UJ	0.16	J
Silver	0.07	B	0.049	B	0.078	J	0.13		0.13		0.25	J	1.4	J	0.055	B
Sodium	62.9	J	62.5	J	59	J	54.9	J	116	J	45.5	B	49.3	B	40.2	B
Thallium	0.15	B	0.11	B	0.14	B	0.11	B	0.12	B	0.51	B	0.27	B	0.17	B
Vanadium	17.1	J	18.7	J	26.4	J	20.1	J	22.8	J	23.8	J	24.8	J	29	J
Zinc	39.7	J	26.3	J	34.3	J	61.6	J	65.5	J	139	J	292	J	32.5	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.124	J	0.1565	U	0.1495	U	0.12	J	0.124	J	0.1525	U	0.1515	U	0.1575	U
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		NA		2.6	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
															mv	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		NA		382.4	
	s.u.		**s.u.**		**s.u.**		**s.u.**				**s.u.**		**s.u.**		**s.u.**	
Ph	6.3		7.14		4.88		5.43		NA		4.89		4.94		5.1	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2,4,6-Trichlorophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2,4-Dichlorophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2,4-Dimethylphenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2,4-Dinitrophenol	230	UJ	205	UJ	195	U	230	U	230	U	200	U	200	U	210	U
2,4-Dinitrotoluene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2,6-Dinitrotoluene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2-Chloronaphthalene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2-Chlorophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2-Methylnaphthalene	5.6		20		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
2-Methylphenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2-Nitroaniline	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
2-Nitrophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
3&4-Methylphenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
3,3'-Dichlorobenzidine	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB19-000.5-01		12SB19-0304-03		12SB20-0.502-02		12SB20-000.5-01		12SB20-000.5-01-D		12SB20-0304-03		12SB20-0304-03-D		12SB21-0.502-02	
Sample Date:	12/14/2011		12/14/2011		12/14/2011		12/14/2011		12/14/2011		12/22/2011		12/22/2011		12/22/2011	
Duplicate:									12SB20-000.5-01				12SB20-0304-03			
3-Nitroaniline	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
4,6-Dinitro-2-methylphenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
4-Bromophenyl Phenyl Ether	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
4-Chloro-3-methylphenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
4-Chloroaniline	230	UL	205	UL	195	UL	230	UL	230	UL	200	UJ	200	UJ	210	UJ
4-Chlorophenyl Phenyl Ether	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
4-Nitrophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Acenaphthene	10		57		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
Acenaphthylene	14		42		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	47		250		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	250		360		1.95	U	8.3		5.6		2	U	2	U	2.1	U
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	250		330		1.95	U	11		7		2	U	2	U	2.1	U
Benzo(b)fluoranthene	350		440		1.95	U	19		12		2	U	2	U	2.1	U
Benzo(g,h,i)perylene	130		160		1.95	U	8.3		5.6		2	U	2	U	2.1	U
Benzo(k)fluoranthene	120		160		1.95	U	6.9		4.7		2	U	2	U	2.1	U
Bis(2-chloroethoxy)methane	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Bis(2-chloroethyl)ether	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Bis(2-ethylhexyl)phthalate	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Butylbenzylphthalate	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Chrysene	280		370		1.95	U	16		9.8		2	U	2	U	2.1	U
Di-n-butylphthalate	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Di-n-octylphthalate	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Dibenz(a,h)anthracene	14		15		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
Dibenzofuran	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Diethylphthalate	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Dimethylphthalate	230	J	190	J	200	J	420	J	230	U	200	U	200	U	210	U
Fluoranthene	700		1100		1.95	U	38	J	22	J	2	U	2	U	2.1	U
Fluorene	20		130		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
Hexachlorobenzene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Hexachlorobutadiene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Hexachlorocyclopentadiene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Hexachloroethane	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Indeno(1,2,3-cd)pyrene	130		150		1.95	U	7.4		5.6		2	U	2	U	2.1	U
Isophorone	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
N-Nitroso-di-n-propylamine	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
N-Nitrosodiphenylamine (1)	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Naphthalene	6.6		25		1.95	U	2.3	U	2.3	U	2	U	2	U	2.1	U
Nitrobenzene	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB19-000.5-01**		**12SB19-0304-03**		**12SB20-0.502-02**		**12SB20-000.5-01**		**12SB20-000.5-01-D**		**12SB20-0304-03**		**12SB20-0304-03-D**		**12SB21-0.502-02**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:									**12SB20-000.5-01**				**12SB20-0304-03**			
Pentachlorophenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Phenanthrene	290		860		1.95	U	23		17		2	U	2	U	2.1	U
Phenol	230	U	205	U	195	U	230	U	230	U	200	U	200	U	210	U
Pyrene	520		750		1.95	U	26		18		2	U	2	J	2.1	U
Total Pahs	3137.2		5219			U	163.9		107.3			U	2			U
Total Pahs Halfnd	3137.2		5219		16.575		171.95		115.35		17		18		17.85	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,1,2,2-Tetrachloroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,1,2-Trichloroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,1,2-Trichlorotrifluoroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,1-Dichloroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,1-Dichloroethene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2,3-Trichlorobenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2,4-Trichlorobenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dibromo-3-chloropropane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dibromoethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dichlorobenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dichloroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dichloroethene (cis)	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dichloroethene (trans)	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,2-Dichloropropane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,3-Dichlorobenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB19-000.5-01**		**12SB19-0304-03**		**12SB20-0.502-02**		**12SB20-000.5-01**		**12SB20-000.5-01-D**		**12SB20-0304-03**		**12SB20-0304-03-D**		**12SB21-0.502-02**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:									**12SB20-000.5-01**				**12SB20-0304-03**			
1,4-Dichlorobenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	15	U	14	U	5.5	J	17	U	17.5	U	13	U	13	U	14.5	U
2-Hexanone	15	U	14	U	13	U	17	U	17.5	U	13	U	13	U	14.5	U
4-Methyl-2-pentanone	15	U	14	U	13	U	17	U	17.5	U	13	U	13	U	14.5	U
Acetone	15	U	110		75		17	U	17.5	U	54	J	22	J	49	J
Benzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Bromoform	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Bromomethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Carbon Disulfide	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Carbon Tetrachloride	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Chlorobenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Chloroethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Chloroform	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Chloromethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
cis-1,3-Dichloropropene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Dichlorodifluoromethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Ethylbenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Isopropylbenzene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
M+p-xylenes	6	U	5.5	U	5	U	7	U	7	U	5	U	5.5	U	5.5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Methylene Chloride	3.05	U	2.4	J	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
O-xylene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Styrene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Tetrachloroethene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Toluene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
trans-1,3-Dichloropropene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Trichloroethene	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Trichlorofluoromethane	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Vinyl Chloride	3.05	U	2.85	U	2.55	U	3.4	U	3.45	U	2.55	U	2.65	U	2.85	U
Xylene (Total)	9	U	8.5	U	7.5	U	10	U	10.5	U	7.5	U	8	U	8.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
4,4'-DDE	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
4,4'-DDT	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Aldrin	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Alpha-BHC	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Alpha-Chlordane	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB19-000.5-01**		**12SB19-0304-03**		**12SB20-0.502-02**		**12SB20-000.5-01**		**12SB20-000.5-01-D**		**12SB20-0304-03**		**12SB20-0304-03-D**		**12SB21-0.502-02**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:									**12SB20-000.5-01**				**12SB20-0304-03**			
Aroclor-1016	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U
Aroclor-1221	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U
Aroclor-1232	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U
Aroclor-1242	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U
Aroclor-1248	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U
Aroclor-1254	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U
Aroclor-1260	12	U	10.5	U	10	U	12	U	12	U	10.5	UJ	350	J	10.5	U
Beta-BHC	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Delta-BHC	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Dieldrin	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Endosulfan I	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Endosulfan II	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Endosulfan Sulfate	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Endrin	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Endrin Aldehyde	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Endrin Ketone	1.2	UJ	1.05	UJ	1	UJ	1.2	UJ	1.2	UJ	1.05	U	1.05	U	1.05	U
Gamma-BHC (Lindane)	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Gamma-Chlordane	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Heptachlor	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Heptachlor Epoxide	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Methoxychlor	1.2	U	1.05	U	1	U	1.2	U	1.2	U	1.05	U	1.05	U	1.05	U
Total Aroclor		U		U		U		U		U		U	350			U
Total Aroclor Halfnd	42		36.75		35		42		42		36.75		381.5		36.75	
Total Ddt		U		U		U		U		U		U		U		U
Total Ddt Halfnd	1.8		1.575		1.5		1.8		1.8		1.575		1.575		1.575	
Toxaphene	12	U	10.5	U	10	U	12	U	12	U	10.5	U	10.5	U	10.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB21-000.5-01		12SB21-0304-03		12SB22-0.502-02		12SB22-000.5-01		12SB22-0304-03		12SB23-0.502-02		12SB23-000.5-01		12SB23-0304-03	
Sample Date:	**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	11500		11900		7740	J	8680	J	7950	J	16700		11000		14000	
Antimony	0.76	B	0.23	B	0.3	B	0.64	J	0.16	B	0.33	B	0.82	B	0.33	B
Arsenic	7.5	J	7.1	J	4.3	J	5.7	J	3	J	5.2	J	4.8	J	3.4	J
Barium	91.8	J	44.9	J	74.2	J	75	J	36.5	J	61.7	J	78.3	J	50.5	J
Beryllium	0.9	J	0.58	J	0.71	J	0.75	J	0.41	J	0.7	J	0.92	J	0.85	J
Cadmium	0.57	J	0.09	B	0.14		0.29		0.073	J	0.14	J	0.45	J	0.12	J
Calcium	1000	J	474	J	314	J	762	J	414	J	607	J	3120	J	591	J
Chromium	18.3	J	17.1	J	11.2	J	12.9	J	12	J	23.7	J	18.4	J	20.4	J
Cobalt	7.6	J	7.4	J	3.6	J	4.1	J	9.3	J	5.7	J	6.4	J	6.5	J
Copper	18.1	J	9.7	J	5	J	7.3	J	5.9	J	9.6	J	14.5	J	8.4	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB21-000.5-01**		**12SB21-0304-03**		**12SB22-0.502-02**		**12SB22-000.5-01**		**12SB22-0304-03**		**12SB23-0.502-02**		**12SB23-000.5-01**		**12SB23-0304-03**	
Sample Date:	**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:																
Iron	18400	J	37500	J	10300	J	11800	J	14000	J	37000	J	16200	J	33200	J
Lead	47.2	J	12	J	12.1	J	37.9	J	8.1	J	12	J	37.2	J	13.5	J
Magnesium	1600	J	1650	J	1090	J	1270	J	1410	J	1840	J	2820	J	2590	J
Manganese	803	J	191	J	299	J	368	J	204	J	106	J	397	J	146	J
Mercury	0.082		0.03		0.089		0.214		0.017	L	0.02		0.111		0.018	
Nickel	10.7	J	8.4	J	6.1	J	7.4	J	6.4	J	10.8	J	11	J	10.5	J
Potassium	637	J	674	J	319	J	422	J	562	J	766	J	1020	J	1180	J
Selenium	0.36	J	0.057	J	0.31	J	0.47	J	0.22	U	0.17	J	0.27	J	0.255	UJ
Silver	0.22	J	0.047	B	0.049	B	0.12	J	0.019	B	0.065	B	0.44	J	0.05	B
Sodium	41.7	B	36.5	B	112	J	100	J	88	J	40.3	B	65.9	B	52.2	B
Thallium	0.21	B	0.18	B	0.18	B	0.2	B	0.13	B	0.22	B	0.23	B	0.2	B
Vanadium	28.7	J	27.5	J	15.5	J	19.4	J	18.6	J	34.4	J	27.3	J	30.2	J
Zinc	61.1	J	33	J	26.9	J	46.4	J	20.3	J	31.8	J	66.6	J	29.5	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.113	J	0.1585	U	0.068	J	0.127	J	0.15	U	0.159	U	0.166	U	0.156	U
Hexavalent Chromium	7.4		4.7		1.1		2.2		0.63		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
	mv		**mv**		**mv**		**mv**		**mv**							
Oxidation Reduction Potential	330.9		381.9		329.2		299.4		333.1		NA		NA		NA	
	s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	5.82		5.1		4.69		4.83		5.03		4.87		7.19		5.01	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2,4,6-Trichlorophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2,4-Dichlorophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2,4-Dimethylphenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2,4-Dinitrophenol	235	U	210	U	210	U	235	UJ	200	U	210	U	1100	U	205	U
2,4-Dinitrotoluene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2,6-Dinitrotoluene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2-Chloronaphthalene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2-Chlorophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2-Methylnaphthalene	34		2.1	U	2.1	U	2.4	J	2	U	2.1	U	18	J	2.05	U
2-Methylphenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2-Nitroaniline	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
2-Nitrophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
3&4-Methylphenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
3,3'-Dichlorobenzidine	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB21-000.5-01		12SB21-0304-03		12SB22-0.502-02		12SB22-000.5-01		12SB22-0304-03		12SB23-0.502-02		12SB23-000.5-01		12SB23-0304-03	
Sample Date:	12/22/2011		12/22/2011		12/14/2011		12/14/2011		12/14/2011		12/22/2011		12/22/2011		12/22/2011	
Duplicate:																
3-Nitroaniline	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
4,6-Dinitro-2-methylphenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
4-Bromophenyl Phenyl Ether	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
4-Chloro-3-methylphenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
4-Chloroaniline	235	UJ	210	UJ	210	UL	235	UL	200	UL	210	UJ	1100	UJ	205	UJ
4-Chlorophenyl Phenyl Ether	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
4-Nitrophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Acenaphthene	2.35	U	2.1	U	2.1	U	2.35	U	2	U	2.1	U	11	U	2.05	U
Acenaphthylene	2.35	U	2.1	U	2.1	U	2.35	U	2	U	2.1	U	11	U	2.05	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	4.3	J	2.1	U	2.1	U	3.3	J	2	U	2.1	U	13	J	2.05	U
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	7.1	J	2.1	U	2.1	U	20		2	U	2.1	U	11	U	2.05	U
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	23		2.1	U	2.1	U	31		2	U	2.1	U	64		2.05	U
Benzo(b)fluoranthene	35		2.1	U	2.1	U	58		2	U	2.1	U	91		2.05	U
Benzo(g,h,i)perylene	2.35	U	2.1	U	2.1	U	24		2	U	2.1	U	11	U	2.05	U
Benzo(k)fluoranthene	12		2.1	U	2.1	U	20		2	U	2.1	U	33		2.05	U
Bis(2-chloroethoxy)methane	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Bis(2-chloroethyl)ether	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Bis(2-ethylhexyl)phthalate	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Butylbenzylphthalate	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Chrysene	35		2.1	U	2.1	U	47		2	U	2.1	U	82		2.05	U
Di-n-butylphthalate	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Di-n-octylphthalate	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Dibenz(a,h)anthracene	5.7		2.1	U	2.1	U	2.35	U	2	U	2.1	U	18	J	2.05	U
Dibenzofuran	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Diethylphthalate	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Dimethylphthalate	235	U	210	U	250	J	330	J	200	J	210	U	1100	U	205	U
Fluoranthene	52	J	2.1	U	2.1	U	130		2	U	2.5	J	53	J	2.05	U
Fluorene	4.3	J	2.1	U	2.1	U	3.8	J	2	U	2.1	U	11	U	2.05	U
Hexachlorobenzene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Hexachlorobutadiene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Hexachlorocyclopentadiene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Hexachloroethane	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Indeno(1,2,3-cd)pyrene	2.35	U	2.1	U	2.1	U	23		2	U	2.1	U	11	U	2.05	U
Isophorone	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
N-Nitroso-di-n-propylamine	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
N-Nitrosodiphenylamine (1)	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Naphthalene	2.35	U	2.1	U	2.1	U	2.9	J	2	U	2.1	U	11	U	2.05	U
Nitrobenzene	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB21-000.5-01**		**12SB21-0304-03**		**12SB22-0.502-02**		**12SB22-000.5-01**		**12SB22-0304-03**		**12SB23-0.502-02**		**12SB23-000.5-01**		**12SB23-0304-03**	
Sample Date:	**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:																
Pentachlorophenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Phenanthrene	57	J	2.1	U	2.1	U	90		2	U	2.5	J	11	U	2.05	U
Phenol	235	U	210	U	210	U	235	U	200	U	210	U	1100	U	205	U
Pyrene	49		2.1	U	2.1	U	87		2	U	2.1	J	120		2.05	U
Total Pahs	318.4			U		U	542.4			U	7.1		492			U
Total Pahs Halfnd	324.275		17.85		17.85		545.925		17		21.8		536		17.425	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,1,2,2-Tetrachloroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,1,2-Trichloroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,1,2-Trichlorotrifluoroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,1-Dichloroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,1-Dichloroethene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2,3-Trichlorobenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2,4-Trichlorobenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dibromo-3-chloropropane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dibromoethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dichlorobenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dichloroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dichloroethene (cis)	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dichloroethene (trans)	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,2-Dichloropropane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,3-Dichlorobenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB21-000.5-01**		**12SB21-0304-03**		**12SB22-0.502-02**		**12SB22-000.5-01**		**12SB22-0304-03**		**12SB23-0.502-02**		**12SB23-000.5-01**		**12SB23-0304-03**	
Sample Date:	**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:																
1,4-Dichlorobenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	17	U	14	U	14	U	20	J	12.5	U	14.5	U	15.5	U	13	U
2-Hexanone	17	U	14	U	14	U	17	U	12.5	U	14.5	U	15.5	U	13	U
4-Methyl-2-pentanone	17	U	14	U	14	U	17	U	12.5	U	14.5	U	15.5	U	13	U
Acetone	17	U	14	U	14	U	450		12.5	U	150	J	15.5	U	13	U
Benzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Bromoform	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Bromomethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Carbon Disulfide	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Carbon Tetrachloride	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Chlorobenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Chloroethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Chloroform	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Chloromethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
cis-1,3-Dichloropropene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Dichlorodifluoromethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Ethylbenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Isopropylbenzene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
M+p-xylenes	7	U	5.5	U	5.5	U	7	U	4.95	U	6	U	6	U	5.5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Methylene Chloride	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
O-xylene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Styrene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Tetrachloroethene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Toluene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
trans-1,3-Dichloropropene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Trichloroethene	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Trichlorofluoromethane	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Vinyl Chloride	3.45	U	2.75	U	2.8	U	3.45	U	2.45	U	2.95	U	3.1	U	2.65	U
Xylene (Total)	10.5	U	8.5	U	8.5	U	10.5	U	7.5	U	9	U	9.5	U	8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
4,4'-DDE	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
4,4'-DDT	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Aldrin	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Alpha-BHC	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Alpha-Chlordane	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB21-000.5-01**		**12SB21-0304-03**		**12SB22-0.502-02**		**12SB22-000.5-01**		**12SB22-0304-03**		**12SB23-0.502-02**		**12SB23-000.5-01**		**12SB23-0304-03**	
Sample Date:	**12/22/2011**		**12/22/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**	
Duplicate:																
Aroclor-1016	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Aroclor-1221	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Aroclor-1232	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Aroclor-1242	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Aroclor-1248	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Aroclor-1254	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Aroclor-1260	12	U	10.5	U	10.5	U	12	U	10	U	10.5	U	11.5	U	10.5	U
Beta-BHC	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Delta-BHC	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Dieldrin	2.7	J	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Endosulfan I	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Endosulfan II	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Endosulfan Sulfate	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Endrin	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Endrin Aldehyde	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Endrin Ketone	1.2	U	1.1	U	1.05	UJ	1.2	UJ	1	UJ	1.1	U	1.1	U	1.05	U
Gamma-BHC (Lindane)	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Gamma-Chlordane	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Heptachlor	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Heptachlor Epoxide	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Methoxychlor	1.2	U	1.1	U	1.05	U	1.2	U	1	U	1.1	U	1.1	U	1.05	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	42		36.75		36.75		42		35		36.75		40.25		36.75	
Total Ddt		U		U		U		U		U		U		U		U
Total Ddt Halfnd	1.8		1.65		1.575		1.8		1.5		1.65		1.65		1.575	
Toxaphene	12	U	11	U	10.5	U	12	U	10	U	11	U	11	U	10.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB24-0.502-02		12SB24-000.5-01		12SB24-0304-03		12SB25-0.502-02		12SB25-000.5-01		12SB25-0304-03		12SB26-0.502-02		12SB26-000.5-01	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	10700	J	9050	J	4930	J	5420		5000		3470		4620		3770	
Antimony	0.34	B	1.5	J	0.1	B	1.7	J	0.7	J	0.065	B	0.14	B	0.34	B
Arsenic	3.3	J	4.8	J	1.2	J	3	L	4.7	L	1.6	L	1.8	L	2.5	L
Barium	62.9	J	84.8	J	19.5	J	68	L	64.9	L	30.3		32.3		54.6	
Beryllium	0.56	J	0.75	J	0.26	J	0.53	L	0.66	L	0.35	L	0.36	L	0.52	L
Cadmium	0.12	K	0.51		0.025	J	0.68	L	1.2	L	0.042	J	0.066	J	0.64	
Calcium	429	J	1160	J	267	J	735		1030		391		396		870	
Chromium	14.7	J	12.6	J	9.7	J	9.2	J	10.1	J	5.8	J	6.8	J	8.3	J
Cobalt	4.2	J	4.7	J	2.6	J	4.3	L	4.6	L	2.7	L	3.2	L	4.3	L
Copper	5.4	J	11.3	J	2.6	J	9.9	L	11.8	L	4.4	L	7	L	9.8	L
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB24-0.502-02**		**12SB24-000.5-01**		**12SB24-0304-03**		**12SB25-0.502-02**		**12SB25-000.5-01**		**12SB25-0304-03**		**12SB26-0.502-02**		**12SB26-000.5-01**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:																
Iron	13800	J	10900	J	9270	J	10500	L	9310	L	7250		7980		8850	
Lead	9.9	J	44.6	J	3.7	J	32.9	L	74.4	L	5.5	L	5.4	L	30.8	L
Magnesium	1190	J	1150	J	580	J	1050		948		632		758		914	
Manganese	251	J	412	J	85.3	J	212	L	372	L	131		205		321	
Mercury	0.017	L	0.115		0.002	J	0.023		0.059		0.016		0.035		0.039	
Nickel	6.7	J	7.3	J	3.4	J	5.9	L	6.5	L	3.4	L	4.2	L	5.6	L
Potassium	345	J	439	J	217	J	298	L	426	L	130	L	247	L	451	L
Selenium	0.26	J	0.37	J	0.255	U	0.063	J	0.21	J	0.2	U	0.091	J	0.1	J
Silver	0.033	B	0.31		0.0094	B	0.14	L	0.14	L	0.015	B	0.028	B	0.079	B
Sodium	117	J	152	J	126	J	43.8	J	41.3	B	41.6	J	30	B	36.4	B
Thallium	0.23	J	0.17	B	0.11	B	0.095	B	0.16	B	0.052	B	0.059	B	0.091	B
Vanadium	20.3	J	17.9	J	12.9	J	13.2	L	13.1	L	9.7	L	10.4	L	11.9	L
Zinc	26.2	J	54.2	J	12.1	J	65.5	L	81.7	L	16.4		45.7		39.4	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.152	U	0.185	J	0.1385	U	0.043	J	0.141	J	0.1455	U	0.054	J	0.138	J
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		0.26	J	0.73	J
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
													mv		**mv**	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		252.2		255.6	
	s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	4.51		5.3		5.01		6.8		5.62		6.79		6.27		5.78	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2,4,6-Trichlorophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2,4-Dichlorophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2,4-Dimethylphenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2,4-Dinitrophenol	200	U	235	UJ	185	U	190	U	230	U	190	U	190	U	220	U
2,4-Dinitrotoluene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2,6-Dinitrotoluene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2-Chloronaphthalene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2-Chlorophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2-Methylnaphthalene	2	U	2.35	U	1.85	U	33		15		1.9	U	1.9	U	5.3	
2-Methylphenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2-Nitroaniline	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
2-Nitrophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
3&4-Methylphenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
3,3'-Dichlorobenzidine	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB24-0.502-02		12SB24-000.5-01		12SB24-0304-03		12SB25-0.502-02		12SB25-000.5-01		12SB25-0304-03		12SB26-0.502-02		12SB26-000.5-01	
Sample Date:	12/14/2011		12/14/2011		12/14/2011		12/16/2011		12/16/2011		12/16/2011		12/16/2011		12/16/2011	
Duplicate:																
3-Nitroaniline	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
4,6-Dinitro-2-methylphenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
4-Bromophenyl Phenyl Ether	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
4-Chloro-3-methylphenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
4-Chloroaniline	200	UL	235	UL	185	UL	190	U	230	U	190	U	190	U	220	U
4-Chlorophenyl Phenyl Ether	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
4-Nitrophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Acenaphthene	2	U	2.35	U	1.85	U	3.4	J	22		1.9	U	1.9	U	31	J
Acenaphthylene	2	U	2.35	U	1.85	U	6.9		21		1.9	U	1.9	U	23	
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	2	U	2.9	J	1.85	U	23		67		1.9	U	1.9	U	260	J
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	2	U	15		1.85	U	110		260		1.9	U	4.6		770	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	2	U	18		1.85	U	100		280		1.9	U	6.2		710	
Benzo(b)fluoranthene	2	U	29		1.85	U	140		450		1.9	U	10		1100	
Benzo(g,h,i)perylene	2	U	14		1.85	U	52		130		1.9	U	4.3		350	
Benzo(k)fluoranthene	2	U	10		1.85	U	57		140		1.9	U	3.9		390	
Bis(2-chloroethoxy)methane	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Bis(2-chloroethyl)ether	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Bis(2-ethylhexyl)phthalate	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Butylbenzylphthalate	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Chrysene	2	U	24		1.85	U	110		330		1.9	U	8.5		750	
Di-n-butylphthalate	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Di-n-octylphthalate	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Dibenz(a,h)anthracene	2	U	3.8	J	1.85	U	14		13		1.9	U	1.9	U	39	
Dibenzofuran	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Diethylphthalate	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Dimethylphthalate	270	J	330	J	250	J	250	J	240	J	230	J	220	J	220	J
Fluoranthene	2.8	J	51		1.85	U	260		970		1.9	U	20		2100	
Fluorene	2	U	2.35	U	1.85	U	5.7		50		1.9	U	1.9	U	59	J
Hexachlorobenzene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Hexachlorobutadiene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Hexachlorocyclopentadiene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Hexachloroethane	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Indeno(1,2,3-cd)pyrene	2	U	16	K	1.85	U	51		140		1.9	U	4.3		290	
Isophorone	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
N-Nitroso-di-n-propylamine	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
N-Nitrosodiphenylamine (1)	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Naphthalene	2	U	2.35	U	1.85	U	29		17		1.9	U	1.9	U	9.3	
Nitrobenzene	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB24-0.502-02**		**12SB24-000.5-01**		**12SB24-0304-03**		**12SB25-0.502-02**		**12SB25-000.5-01**		**12SB25-0304-03**		**12SB26-0.502-02**		**12SB26-000.5-01**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:																
Pentachlorophenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Phenanthrene	2	U	37		1.85	U	110		580		1.9	U	11		850	J
Phenol	200	U	235	U	185	U	190	U	230	U	190	U	190	U	220	U
Pyrene	2.4	J	44		1.85	U	180		630		1.9	U	15		1500	
Total Pahs	5.2		264.7			U	1285		4115			U	87.8		9236.6	
Total Pahs Halfnd	20.2		270.575		15.725		1285		4115		16.15		94.45		9236.6	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,1,2,2-Tetrachloroethane	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,1,2-Trichloroethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,1,2-Trichlorotrifluoroethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,1-Dichloroethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,1-Dichloroethene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2,3-Trichlorobenzene	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2,4-Trichlorobenzene	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dibromo-3-chloropropane	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dibromoethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dichlorobenzene	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dichloroethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dichloroethene (cis)	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dichloroethene (trans)	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,2-Dichloropropane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,3-Dichlorobenzene	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB24-0.502-02		12SB24-000.5-01		12SB24-0304-03		12SB25-0.502-02		12SB25-000.5-01		12SB25-0304-03		12SB26-0.502-02		12SB26-000.5-01	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:																
1,4-Dichlorobenzene	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	13	U	18	U	11	U	12.5	U	48	J	12.5	U	19	J	31	J
2-Hexanone	13	U	18	U	11	U	12.5	U	17	U	12.5	U	13	U	14	U
4-Methyl-2-pentanone	13	U	18	U	11	U	12.5	U	17	U	12.5	U	13	U	14	U
Acetone	150		18	U	11	U	12.5	U	5.6	J	11	J	100	J	350	J
Benzene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Bromoform	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Bromomethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Carbon Disulfide	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Carbon Tetrachloride	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Chlorobenzene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Chloroethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Chloroform	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Chloromethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
cis-1,3-Dichloropropene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Dichlorodifluoromethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Ethylbenzene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Isopropylbenzene	2.55	U	3.65	UJ	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
M+p-xylenes	5	U	7.5	U	4.4	U	5	U	7	U	4.95	U	5	U	5.5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Methylene Chloride	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
O-xylene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Styrene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Tetrachloroethene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Toluene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
trans-1,3-Dichloropropene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Trichloroethene	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Trichlorofluoromethane	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Vinyl Chloride	2.55	U	3.65	U	2.2	U	2.5	U	3.4	U	2.5	U	2.55	U	2.8	U
Xylene (Total)	7.5	U	11	U	6.5	U	7.5	U	10.5	U	7.5	U	7.5	U	8.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
4,4'-DDE	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
4,4'-DDT	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Aldrin	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Alpha-BHC	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Alpha-Chlordane	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB24-0.502-02**		**12SB24-000.5-01**		**12SB24-0304-03**		**12SB25-0.502-02**		**12SB25-000.5-01**		**12SB25-0304-03**		**12SB26-0.502-02**		**12SB26-000.5-01**	
Sample Date:	**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:																
Aroclor-1016	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Aroclor-1221	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Aroclor-1232	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Aroclor-1242	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Aroclor-1248	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Aroclor-1254	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Aroclor-1260	10.5	U	12	U	9.5	U	10	U	12	UJ	10	UJ	10	U	11.5	UJ
Beta-BHC	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Delta-BHC	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Dieldrin	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	28	L
Endosulfan I	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Endosulfan II	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Endosulfan Sulfate	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Endrin	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Endrin Aldehyde	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Endrin Ketone	1.05	UJ	1.2	UJ	0.95	UJ	1	U	1.2	UJ	1	U	1	U	1.15	UL
Gamma-BHC (Lindane)	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Gamma-Chlordane	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Heptachlor	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Heptachlor Epoxide	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Methoxychlor	1.05	U	1.2	U	0.95	U	1	U	1.2	UJ	1	U	1	U	1.15	UL
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	36.75		42		33.25		35		42		35		35		40.25	
Total Ddt		U		U		U		U		U		U		U		U
Total Ddt Halfnd	1.575		1.8		1.425		1.5		1.8		1.5		1.5		1.725	
Toxaphene	10.5	U	12	U	9.5	U	10	U	12	UJ	10	U	10	U	11.5	UL

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB26-000.5-01-D		12SB26-0304-03		12SB27-0.502-02		12SB27-000.5-01		12SB28-0.502-02		12SB28-000.5-01		12SB28-0304-03		12SB29-0.502-02	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:	**12SB26-000.5-01**															
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	5400		5730		10100	J	11000	J	5730		10800		4050		5390	
Antimony	0.45	B	0.17	B	1.3	L	1.5	L	0.11	B	0.7	L	0.073	B	0.11	B
Arsenic	3.6	L	3.5	L	7.2	J	14.4	J	3.6	L	5	J	1.1	L	2.8	L
Barium	71.6		33		83.8	K	80.1	K	33.1	L	84.5		15	L	28.7	J
Beryllium	0.62	L	0.32	J	0.7	J	0.79	J	0.27	J	0.8	L	0.2	L	0.29	J
Cadmium	0.58		0.048	J	0.51		0.43		0.05	J	0.29	J	0.027	J	0.04	J
Calcium	1290		379		2720	J	687	J	410		1390	J	473		376	
Chromium	14.7	J	11.1	J	13.8	J	16.7	J	10.4	J	15.6	J	7	J	10.1	J
Cobalt	5.4	L	3.2	L	5.1	J	6.4	J	3.2	L	6.3	J	2	L	3.5	L
Copper	12	L	6.2	J	31.2	J	15.1	J	5.1	J	12.2	J	2.8	L	5.7	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB26-000.5-01-D**		**12SB26-0304-03**		**12SB27-0.502-02**		**12SB27-000.5-01**		**12SB28-0.502-02**		**12SB28-000.5-01**		**12SB28-0304-03**		**12SB29-0.502-02**	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:	**12SB26-000.5-01**															
Iron	11800		13200		15100	J	26300	J	11500	L	17100	J	6230	L	11100	
Lead	37.7	L	7.3	L	73.7		39.2		8.7	L	33.5		4.5	L	8.3	L
Magnesium	1330		970		1830	J	1220	J	977		1450	J	540		1290	
Manganese	353		94.2		446	J	465	J	130	L	499	J	43.7	L	113	
Mercury	0.039		0.033		0.056		0.052		0.069		0.093		0.009	J	0.019	
Nickel	6.6	J	4.9	J	7.8	J	9.4	J	4.7	J	8.9	J	2.4	L	5.5	J
Potassium	486	L	249	L	368	J	433	J	231	L	449	J	169	L	341	L
Selenium	0.25	J	0.23	U	0.35	B	0.62	L	0.084	J	0.39	J	0.22	U	0.24	U
Silver	0.096		0.026	B	0.15		0.09	J	0.022	B	0.084	J	0.009	B	0.015	B
Sodium	39.7	B	17.4	B	48.8	J	38.8	J	31.4	B	34.5	J	46	J	34	B
Thallium	0.11	B	0.13	B	0.14		0.23		0.093	B	0.14		0.34		0.091	B
Vanadium	17.2	L	18.2	L	17.4	J	23.5	J	16.6	L	22.5	J	11.7	L	16.7	L
Zinc	46.8		41.1		119	J	56.2	J	23.6	L	44	J	10	L	22.7	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.105	J	0.149	U	0.087	J	0.127	J	0.08	J	0.182	J	0.046	J	0.156	U
Hexavalent Chromium	0.15	UJ	1.1	J	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
			mv													
Oxidation Reduction Potential	NA		277.7		NA		NA		NA		NA		NA		NA	
			s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**		**s.u.**	
Ph	NA		6.12		6.61		5.76		5.97		6.32		5.2		5.38	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,4,6-Trichlorophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,4-Dichlorophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,4-Dimethylphenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,4-Dinitrophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,4-Dinitrotoluene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2,6-Dinitrotoluene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2-Chloronaphthalene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2-Chlorophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2-Methylnaphthalene	5		1.95	U	9.7		18		2.05	U	3.1	J	1.9	U	2.05	U
2-Methylphenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2-Nitroaniline	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
2-Nitrophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
3&4-Methylphenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
3,3'-Dichlorobenzidine	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB26-000.5-01-D		12SB26-0304-03		12SB27-0.502-02		12SB27-000.5-01		12SB28-0.502-02		12SB28-000.5-01		12SB28-0304-03		12SB29-0.502-02	
Sample Date:	12/16/2011		12/16/2011		12/28/2011		12/28/2011		12/16/2011		12/29/2011		12/16/2011		12/16/2011	
Duplicate:	12SB26-000.5-01															
3-Nitroaniline	225	U	195	U	200	U	220	U	205	U	215	UL	190	U	205	U
4,6-Dinitro-2-methylphenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
4-Bromophenyl Phenyl Ether	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
4-Chloro-3-methylphenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
4-Chloroaniline	225	U	195	U	200	UL	220	UL	205	U	215	UR	190	U	205	U
4-Chlorophenyl Phenyl Ether	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
4-Nitrophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Acenaphthene	16	J	1.95	U	11		5.8		2.05	U	16		1.9	U	2.05	U
Acenaphthylene	24		1.95	U	12		7.2		2.05	U	52		1.9	U	2.05	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	120	J	1.95	U	35		16		2.05	U	160		1.9	U	2.05	U
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	490		1.95	U	200		88		2.05	U	670		1.9	U	2.05	U
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	490		1.95	U	230		98		2.05	U	580		1.9	U	2.05	U
Benzo(b)fluoranthene	750		1.95	U	340		150		2.05	U	820		1.9	U	2.05	U
Benzo(g,h,i)perylene	230		1.95	U	140		58		2.05	U	340		1.9	U	2.05	U
Benzo(k)fluoranthene	250		1.95	U	120		52		2.05	U	260		1.9	U	2.05	U
Bis(2-chloroethoxy)methane	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Bis(2-chloroethyl)ether	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Bis(2-ethylhexyl)phthalate	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Butylbenzylphthalate	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Chrysene	500		1.95	U	260		120		2.05	U	660		1.9	U	2.05	U
Di-n-butylphthalate	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Di-n-octylphthalate	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Dibenz(a,h)anthracene	26		1.95	U	41		16		2.05	U	110		1.9	U	2.05	U
Dibenzofuran	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Diethylphthalate	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Dimethylphthalate	330	J	260	J	200	U	220	U	170	J	215	U	260	J	210	J
Fluoranthene	1500		1.95	U	540		280		3.3	J	1500		1.9	U	2.05	U
Fluorene	32	J	1.95	U	24		12		2.05	U	31		1.9	U	2.05	U
Hexachlorobenzene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Hexachlorobutadiene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Hexachlorocyclopentadiene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Hexachloroethane	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Indeno(1,2,3-cd)pyrene	200		1.95	U	140		64		2.05	U	310		1.9	U	2.05	U
Isophorone	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
N-Nitroso-di-n-propylamine	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
N-Nitrosodiphenylamine (1)	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Naphthalene	6.3		1.95	U	8.5		13		2.05	U	4.4		1.9	U	2.05	U
Nitrobenzene	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB26-000.5-01-D**		**12SB26-0304-03**		**12SB27-0.502-02**		**12SB27-000.5-01**		**12SB28-0.502-02**		**12SB28-000.5-01**		**12SB28-0304-03**		**12SB29-0.502-02**	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:	**12SB26-000.5-01**															
Pentachlorophenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Phenanthrene	490	J	1.95	U	340		180		2.1	J	600		1.9	U	2.05	U
Phenol	225	U	195	U	200	U	220	U	205	U	215	U	190	U	205	U
Pyrene	860		1.95	U	430		210		2.5	J	1300		1.9	U	2.05	U
Total Pahs	5989.3			U	2881.2		1388		7.9		7416.5			U		U
Total Pahs Halfnd	5989.3		16.575		2881.2		1388		22.25		7416.5		16.15		17.425	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,1,2,2-Tetrachloroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,1,2-Trichloroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,1,2-Trichlorotrifluoroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,1-Dichloroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,1-Dichloroethene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2,3-Trichlorobenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2,4-Trichlorobenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dibromo-3-chloropropane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dibromoethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dichlorobenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dichloroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dichloroethene (cis)	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dichloroethene (trans)	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,2-Dichloropropane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,3-Dichlorobenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB26-000.5-01-D**		**12SB26-0304-03**		**12SB27-0.502-02**		**12SB27-000.5-01**		**12SB28-0.502-02**		**12SB28-000.5-01**		**12SB28-0304-03**		**12SB29-0.502-02**	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:	**12SB26-000.5-01**															
1,4-Dichlorobenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	14	UJ	12.5	U	13.5	U	17.5	U	13	U	15	U	12	U	13	U
2-Hexanone	14	U	12.5	U	13.5	U	17.5	U	13	U	15	U	12	U	13	U
4-Methyl-2-pentanone	14	U	12.5	U	13.5	U	17.5	U	13	U	15	U	12	U	13	U
Acetone	14	UJ	12.5	U	36		17.5	U	13	U	15	U	12	U	22	J
Benzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Bromoform	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Bromomethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Carbon Disulfide	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Carbon Tetrachloride	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Chlorobenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Chloroethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Chloroform	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Chloromethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
cis-1,3-Dichloropropene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Dichlorodifluoromethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Ethylbenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Isopropylbenzene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
M+p-xylenes	5.5	U	5	U	5.5	U	7	U	5.5	U	6	U	4.8	U	5.5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Methylene Chloride	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
O-xylene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Styrene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Tetrachloroethene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Toluene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
trans-1,3-Dichloropropene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Trichloroethene	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Trichlorofluoromethane	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Vinyl Chloride	2.8	U	2.5	U	2.65	U	3.55	U	2.65	U	3	U	2.4	U	2.65	U
Xylene (Total)	8.5	U	7.5	U	8	U	10.5	U	8	U	9	U	7	U	8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
4,4'-DDE	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
4,4'-DDT	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Aldrin	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Alpha-BHC	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Alpha-Chlordane	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB26-000.5-01-D**		**12SB26-0304-03**		**12SB27-0.502-02**		**12SB27-000.5-01**		**12SB28-0.502-02**		**12SB28-000.5-01**		**12SB28-0304-03**		**12SB29-0.502-02**	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/28/2011**		**12/28/2011**		**12/16/2011**		**12/29/2011**		**12/16/2011**		**12/16/2011**	
Duplicate:	**12SB26-000.5-01**															
Aroclor-1016	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Aroclor-1221	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Aroclor-1232	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Aroclor-1242	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Aroclor-1248	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Aroclor-1254	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Aroclor-1260	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	UJ
Beta-BHC	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Delta-BHC	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Dieldrin	28	J	1	U	8.6		25		1.05	U	1.1	U	1	U	1.05	U
Endosulfan I	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Endosulfan II	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Endosulfan Sulfate	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Endrin	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Endrin Aldehyde	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Endrin Ketone	1.15	UJ	1	U	1.05	UJ	1.15	UJ	1.05	U	1.1	U	1	U	1.05	U
Gamma-BHC (Lindane)	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Gamma-Chlordane	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Heptachlor	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Heptachlor Epoxide	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Methoxychlor	1.15	UJ	1	U	1.05	U	1.15	U	1.05	U	1.1	U	1	U	1.05	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	40.25		35		36.75		40.25		36.75		38.5		35		36.75	
Total Ddt		U		U		U		U		U		U		U		U
Total Ddt Halfnd	1.725		1.5		1.575		1.725		1.575		1.65		1.5		1.575	
Toxaphene	11.5	UJ	10	U	10.5	U	11.5	U	10.5	U	11	U	10	U	10.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB29-000.5-01		12SB29-0304-03		12SB30-0.502-02		12SB30-000.5-01		12SB30-0304-03		12SB31-0.502-02		12SB31-0.502-02-D		12SB32-0.502-02	
Sample Date:	12/16/2011		12/16/2011		12/22/2011		12/22/2011		12/22/2011		1/4/2012		1/4/2012		1/4/2012	
Duplicate:													12SB31-0.502-02			
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**							
Aluminum	5810		5300		11700		10800		8770		NA		NA		NA	
Antimony	0.28	B	0.094	B	0.17	B	0.35	B	0.14	B	NA		NA		NA	
Arsenic	3.2	L	2.4	L	3.5	J	4.9	J	2.6	J	NA		NA		NA	
Barium	55.1		37.1		45.3	J	74.5	J	57.9	J	NA		NA		NA	
Beryllium	0.5	L	0.44	L	0.47	J	0.76	J	0.76	J	NA		NA		NA	
Cadmium	0.21		0.045	J	0.082	B	0.21	J	0.097	B	NA		NA		NA	
Calcium	792		376		668	J	5570	J	479	J	NA		NA		NA	
Chromium	9.9	J	11.4	J	19.4	J	17.4	J	17.5	J	NA		NA		NA	
Cobalt	4.2	L	5.7	L	3.5	J	6	J	5.7	J	NA		NA		NA	
Copper	8	J	6.3	L	6.9	J	13.6	J	7.2	J	NA		NA		NA	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB29-000.5-01**		**12SB29-0304-03**		**12SB30-0.502-02**		**12SB30-000.5-01**		**12SB30-0304-03**		**12SB31-0.502-02**	**12SB31-0.502-02-D**	**12SB32-0.502-02**
Sample Date:	**12/16/2011**		**12/16/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**		**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:												**12SB31-0.502-02**	
Iron	10200		11400		17100	J	16400	J	14800	J	NA	NA	NA
Lead	27	L	8	L	8.5	J	35.3	J	7.7	J	NA	NA	NA
Magnesium	1010		1280		1730	J	4490	J	1630	J	NA	NA	NA
Manganese	232		182		106	J	360	J	165	J	NA	NA	NA
Mercury	0.05		0.012		0.013		0.044		0.004	J	NA	NA	NA
Nickel	5.5	J	5.4	L	8	J	10.7	J	8.1	J	NA	NA	NA
Potassium	435	L	340	L	549	J	816	J	573	J	NA	NA	NA
Selenium	0.3	J	0.295	U	0.24	UJ	0.21	J	0.24	UJ	NA	NA	NA
Silver	0.059	B	0.015	B	0.048	B	0.093	J	0.0475	B	NA	NA	NA
Sodium	29.5	B	37.7	B	50.4	B	57.6	B	53.8	B	NA	NA	NA
Thallium	0.13	B	0.084	B	0.16	B	0.24	B	0.13	B	NA	NA	NA
Vanadium	14.9	L	19.1	L	28.2	J	25.6	J	24.6	J	NA	NA	NA
Zinc	63.5		21.7		22	J	47.9	J	20.9	J	NA	NA	NA
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**				
Cyanide	0.089	J	0.049	J	0.153	U	0.157	U	0.148	U	NA	NA	NA
Hexavalent Chromium	NA		NA		3		0.76		1.1		NA	NA	NA
Total Organic Carbon	NA		NA		NA		NA		NA		NA	NA	NA
					mv		**mv**		**mv**				
Oxidation Reduction Potential	NA		NA		289.2		270.9		369.6		NA	NA	NA
	s.u.		**s.u.**		**s.u.**		**s.u.**		**s.u.**				
Ph	5.58		5.45		6.34		7.15		5.35		NA	NA	NA
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				
1,1-Biphenyl	NA		NA		NA		NA		NA		NA	NA	NA
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA	NA	NA
2,2'-Oxybis(1-chloropropane)	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA	NA	NA
2,4,5-Trichlorophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,4,6-Trichlorophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,4-Dichlorophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,4-Dimethylphenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,4-Dinitrophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,4-Dinitrotoluene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2,6-Dinitrotoluene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2-Chloronaphthalene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2-Chlorophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2-Methylnaphthalene	2.3	U	1.95	U	2	U	4.6		1.95	U	NA	NA	NA
2-Methylphenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2-Nitroaniline	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
2-Nitrophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
3&4-Methylphenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
3,3'-Dichlorobenzidine	230	U	195	U	200	U	205	U	195	U	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB29-000.5-01		12SB29-0304-03		12SB30-0.502-02		12SB30-000.5-01		12SB30-0304-03		12SB31-0.502-02	12SB31-0.502-02-D	12SB32-0.502-02
Sample Date:	**12/16/2011**		**12/16/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**		**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:												**12SB31-0.502-02**	
3-Nitroaniline	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
4,6-Dinitro-2-methylphenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
4-Bromophenyl Phenyl Ether	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
4-Chloro-3-methylphenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
4-Chloroaniline	230	U	195	U	200	UJ	205	UJ	195	UJ	NA	NA	NA
4-Chlorophenyl Phenyl Ether	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
4-Methylphenol	NA		NA		NA		NA		NA		NA	NA	NA
4-Nitroaniline	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
4-Nitrophenol	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Acenaphthene	2.3	U	1.95	U	2	U	2.05	U	1.95	U	NA	NA	NA
Acenaphthylene	2.3	U	1.95	U	2	U	22	J	1.95	U	NA	NA	NA
Acetophenone	NA		NA		NA		NA		NA		NA	NA	NA
Anthracene	2.3	U	1.95	U	2	U	30		1.95	U	NA	NA	NA
Atrazine	NA		NA		NA		NA		NA		NA	NA	NA
Benz(a)anthracene	12		1.95	U	2	U	250	J	1.95	U	NA	NA	NA
Benzaldehyde	NA		NA		NA		NA		NA		NA	NA	NA
Benzo(a)pyrene	12		1.95	U	2	U	220		5.1		NA	NA	NA
Benzo(b)fluoranthene	17		1.95	U	2	U	290		4.3		NA	NA	NA
Benzo(g,h,i)perylene	7		1.95	U	2	U	150	J	1.95	U	NA	NA	NA
Benzo(k)fluoranthene	7		1.95	U	2	U	110		3.5	J	NA	NA	NA
Bis(2-chloroethoxy)methane	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Bis(2-chloroethyl)ether	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Bis(2-ethylhexyl)phthalate	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Butylbenzylphthalate	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Caprolactam	NA		NA		NA		NA		NA		NA	NA	NA
Carbazole	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Chrysene	14		1.95	U	2	U	250		1.95	U	NA	NA	NA
Di-n-butylphthalate	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Di-n-octylphthalate	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Dibenz(a,h)anthracene	2.3	U	1.95	U	2	U	40		7.4		NA	NA	NA
Dibenzofuran	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Diethylphthalate	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Dimethylphthalate	230	J	170	J	200	U	205	U	195	U	NA	NA	NA
Fluoranthene	30		1.95	U	2	U	530	J	1.95	U	NA	NA	NA
Fluorene	2.3	U	1.95	U	2	U	7.9		1.95	U	NA	NA	NA
Hexachlorobenzene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Hexachlorobutadiene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Hexachlorocyclopentadiene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Hexachloroethane	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	8.4		1.95	U	2	U	130	J	1.95	U	NA	NA	NA
Isophorone	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
N-Nitroso-di-n-propylamine	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
N-Nitrosodiphenylamine (1)	230	U	195	U	200	U	205	U	195	U	NA	NA	NA
Naphthalene	2.3	U	1.95	U	2	U	2.05	U	1.95	U	NA	NA	NA
Nitrobenzene	230	U	195	U	200	U	205	U	195	U	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB29-000.5-01**		**12SB29-0304-03**		**12SB30-0.502-02**		**12SB30-000.5-01**		**12SB30-0304-03**		**12SB31-0.502-02**		**12SB31-0.502-02-D**		**12SB32-0.502-02**	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**		**1/4/2012**		**1/4/2012**		**1/4/2012**	
Duplicate:													**12SB31-0.502-02**			
Pentachlorophenol	230	U	195	U	200	U	205	U	195	U	NA		NA		NA	
Phenanthrene	13		1.95	U	2	U	190	J	1.95	U	NA		NA		NA	
Phenol	230	U	195	U	200	U	205	U	195	U	NA		NA		NA	
Pyrene	23		1.95	U	2	U	390		1.95	U	NA		NA		NA	
Total Pahs	143.4			U		U	2614.5		20.3		NA		NA		NA	
Total Pahs Halfnd	151.45		16.575		17		2616.55		32.975		NA		NA		NA	
PAHS											**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	NA		NA		NA		NA		NA		34		23		2.05	U
Acenaphthene	NA		NA		NA		NA		NA		190		120		5	
Acenaphthylene	NA		NA		NA		NA		NA		83		67		8.7	
Anthracene	NA		NA		NA		NA		NA		270		200		13	
Benz(a)anthracene	NA		NA		NA		NA		NA		1500		920		55	
Benzo(a)pyrene	NA		NA		NA		NA		NA		1800		1300		61	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		2800		2100		91	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		1100		870		41	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		990	J	830		30	
Chrysene	NA		NA		NA		NA		NA		2400		1800		75	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		350	J	270		11	
Fluoranthene	NA		NA		NA		NA		NA		6500		4900		180	
Fluorene	NA		NA		NA		NA		NA		400		260		11	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		1300		800		44	J
Naphthalene	NA		NA		NA		NA		NA		40		28		2.9	J
Phenanthrene	NA		NA		NA		NA		NA		5600		4100		130	
Pyrene	NA		NA		NA		NA		NA		4600		3400		140	
Total Pahs	NA		NA		NA		NA		NA		29957		21988		898.6	
Total Pahs Halfnd	NA		NA		NA		NA		NA		29957		21988		899.625	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**							
1,1,1-Trichloroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,1,2,2-Tetrachloroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,1,2-Trichloroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,1,2-Trichlorotrifluoroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,1-Dichloroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,1-Dichloroethene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2,3-Trichlorobenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2,4-Trichlorobenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dibromo-3-chloropropane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dibromoethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dichlorobenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dichloroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dichloroethene (cis)	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dichloroethene (trans)	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,2-Dichloropropane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	
1,3-Dichlorobenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA		NA		NA	

Sample ID:	12SB29-000.5-01		12SB29-0304-03		12SB30-0.502-02		12SB30-000.5-01		12SB30-0304-03		12SB31-0.502-02	12SB31-0.502-02-D	12SB32-0.502-02
Sample Date:	**12/16/2011**		**12/16/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**		**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:												**12SB31-0.502-02**	
1,4-Dichlorobenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
1,4-Dioxane	NA		NA		NA		NA		NA		NA	NA	NA
2-Butanone	16.5	U	12	U	13	U	14.5	U	12.5	U	NA	NA	NA
2-Hexanone	16.5	U	12	U	13	U	14.5	U	12.5	U	NA	NA	NA
4-Methyl-2-pentanone	16.5	U	12	U	13	U	14.5	U	12.5	U	NA	NA	NA
Acetone	16.5	U	12	U	13	U	55	J	12.5	U	NA	NA	NA
Benzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Bromochloromethane	NA		NA		NA		NA		NA		NA	NA	NA
Bromodichloromethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Bromoform	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Bromomethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Carbon Disulfide	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Carbon Tetrachloride	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Chlorobenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Chloroethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Chloroform	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Chloromethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
cis-1,3-Dichloropropene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Cyclohexane	NA		NA		NA		NA		NA		NA	NA	NA
Dibromochloromethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Dichlorodifluoromethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Ethylbenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Isopropylbenzene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
M+p-xylenes	6.5	U	4.85	U	5	U	5.5	U	5	U	NA	NA	NA
Methyl Acetate	NA		NA		NA		NA		NA		NA	NA	NA
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA	NA	NA
Methyl Tert-butyl Ether	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Methylene Chloride	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
O-xylene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Styrene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Tetrachloroethene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Toluene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
trans-1,3-Dichloropropene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Trichloroethene	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Trichlorofluoromethane	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Vinyl Chloride	3.3	U	2.4	U	2.55	U	2.85	U	2.5	U	NA	NA	NA
Xylene (Total)	10	U	7.5	U	7.5	U	8.5	U	7.5	U	NA	NA	NA
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				
4,4'-DDD	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA	NA	NA
4,4'-DDE	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA	NA	NA
4,4'-DDT	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA	NA	NA
Aldrin	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA	NA	NA
Alpha-BHC	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA	NA	NA
Alpha-Chlordane	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB29-000.5-01		12SB29-0304-03		12SB30-0.502-02		12SB30-000.5-01		12SB30-0304-03		12SB31-0.502-02		12SB31-0.502-02-D		12SB32-0.502-02	
Sample Date:	**12/16/2011**		**12/16/2011**		**12/22/2011**		**12/22/2011**		**12/22/2011**		**1/4/2012**		**1/4/2012**		**1/4/2012**	
Duplicate:													**12SB31-0.502-02**			
Aroclor-1016	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Aroclor-1221	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Aroclor-1232	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Aroclor-1242	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Aroclor-1248	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Aroclor-1254	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Aroclor-1260	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	
Beta-BHC	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Delta-BHC	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Dieldrin	1.2	UJ	1	U	1.05	U	11		1	U	NA		NA		NA	
Endosulfan I	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Endosulfan II	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Endosulfan Sulfate	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Endrin	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Endrin Aldehyde	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Endrin Ketone	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Gamma-BHC (Lindane)	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Gamma-Chlordane	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Heptachlor	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Heptachlor Epoxide	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Methoxychlor	1.2	UJ	1	U	1.05	U	1.05	U	1	U	NA		NA		NA	
Total Aroclor		U		U		U		U		U	NA		NA		NA	
Total Aroclor Halfnd	42		35		36.75		36.75		35		NA		NA		NA	
Total Ddt		U		U		U		U		U	NA		NA		NA	
Total Ddt Halfnd	1.8		1.5		1.575		1.575		1.5		NA		NA		NA	
Toxaphene	12	UJ	10	U	10.5	U	10.5	U	10	U	NA		NA		NA	

Sample ID:	12SB33-0.502-02	12SB34-0.502-02	12SB35-000.5-01	12SB35-000.5-01-D	12SB36-000.5-01	12SB37-000.5-01	12SB38-000.5-01	12SB39-000.5-01	12SB40-000.5-01
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:				**12SB35-000.5-01**					
DIOXIN/FURAN									
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Bird	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Bird Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Fish	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Fish Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS			**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**		
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB33-0.502-02	12SB34-0.502-02	12SB35-000.5-01	12SB35-000.5-01-D	12SB36-000.5-01	12SB37-000.5-01	12SB38-000.5-01	12SB39-000.5-01	12SB40-000.5-01
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:				**12SB35-000.5-01**					
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	138	107	295	51.5	67.9	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS									
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxidation Reduction Potential	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES									
1,1-Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane)	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID:	12SB33-0.502-02	12SB34-0.502-02	12SB35-000.5-01	12SB35-000.5-01-D	12SB36-000.5-01	12SB37-000.5-01	12SB38-000.5-01	12SB39-000.5-01	12SB40-000.5-01
Sample Date:	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012	1/4/2012
Duplicate:				12SB35-000.5-01					
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID:	12SB33-0.502-02		12SB34-0.502-02		12SB35-000.5-01		12SB35-000.5-01-D		12SB36-000.5-01		12SB37-000.5-01		12SB38-000.5-01		12SB39-000.5-01		12SB40-000.5-01	
Sample Date:	1/4/2012		1/4/2012		1/4/2012		1/4/2012		1/4/2012		1/4/2012		1/4/2012		1/4/2012		1/4/2012	
Duplicate:							12SB35-000.5-01											
Pentachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA		NA	
PAHS	ug/kg		ug/kg												ug/kg		ug/kg	
2-Methylnaphthalene	3.2	J	2	U	NA		NA		NA		NA		NA		4.1	J	3.6	J
Acenaphthene	13		3.2	J	NA		NA		NA		NA		NA		24		35	
Acenaphthylene	9.3		2.8	J	NA		NA		NA		NA		NA		32		20	
Anthracene	28		4.4		NA		NA		NA		NA		NA		150		160	
Benz(a)anthracene	140		22		NA		NA		NA		NA		NA		840		510	
Benzo(a)pyrene	160		22		NA		NA		NA		NA		NA		800		470	
Benzo(b)fluoranthene	260		47		NA		NA		NA		NA		NA		1100		670	
Benzo(g,h,i)perylene	100		19		NA		NA		NA		NA		NA		490		260	
Benzo(k)fluoranthene	82		15		NA		NA		NA		NA		NA		370		250	
Chrysene	220		40		NA		NA		NA		NA		NA		830		550	
Dibenz(a,h)anthracene	27		5.2		NA		NA		NA		NA		NA		140		79	
Fluoranthene	550		100		NA		NA		NA		NA		NA		1800		1300	
Fluorene	27		6		NA		NA		NA		NA		NA		28		52	
Indeno(1,2,3-cd)pyrene	120	J	24	J	NA		NA		NA		NA		NA		410	J	250	J
Naphthalene	4.9		2	U	NA		NA		NA		NA		NA		7.3		4.6	
Phenanthrene	400		82		NA		NA		NA		NA		NA		570		710	
Pyrene	400		74		NA		NA		NA		NA		NA		1500		990	
Total Pahs	2544.4		466.6		NA		NA		NA		NA		NA		9095.4		6314.2	
Total Pahs Halfnd	2544.4		468.6		NA		NA		NA		NA		NA		9095.4		6314.2	
VOLATILES																		
1,1,1-Trichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2,2-Tetrachloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2-Trichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2-Trichlorotrifluoroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1-Dichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1-Dichloroethene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3-Trichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethene (cis)	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethene (trans)	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloropropane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB33-0.502-02**	**12SB34-0.502-02**	**12SB35-000.5-01**	**12SB35-000.5-01-D**	**12SB36-000.5-01**	**12SB37-000.5-01**	**12SB38-000.5-01**	**12SB39-000.5-01**	**12SB40-000.5-01**
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:				**12SB35-000.5-01**					
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
M+p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Tert-butyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
O-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS									
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB33-0.502-02**	**12SB34-0.502-02**	**12SB35-000.5-01**	**12SB35-000.5-01-D**	**12SB36-000.5-01**	**12SB37-000.5-01**	**12SB38-000.5-01**	**12SB39-000.5-01**	**12SB40-000.5-01**
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**
Duplicate:				**12SB35-000.5-01**					
Aroclor-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Ddt Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB41-000.5-01	12SB42-0.502-02	12SB43-0.502-02	12SB44-0.502-02	12SB45-0.502-02	12SB45-0.502-02-D	12SB46-0.502-02	12SB47-0.502-02	12SB48-0.502-02
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Duplicate:						**12SB45-0.502-02**			
DIOXIN/FURAN									
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Bird	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Bird Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Fish	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Fish Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teq Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS					**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	0.17 J	1.1 J	0.8 J	0.31 J	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	4.9 J	13.2 J	18.9 J	12.7 J	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB41-000.5-01**	**12SB42-0.502-02**	**12SB43-0.502-02**	**12SB44-0.502-02**	**12SB45-0.502-02**	**12SB45-0.502-02-D**	**12SB46-0.502-02**	**12SB47-0.502-02**	**12SB48-0.502-02**	
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	
Duplicate:						**12SB45-0.502-02**				
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	
MISCELLANEOUS PARAMETERS										
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oxidation Reduction Potential	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SEMIVOLATILES									**ug/kg**	
1,1-Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,2'-Oxybis(1-chloropropane)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	UJ
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Sample ID:	12SB41-000.5-01	12SB42-0.502-02	12SB43-0.502-02	12SB44-0.502-02	12SB45-0.502-02	12SB45-0.502-02-D	12SB46-0.502-02	12SB47-0.502-02	12SB48-0.502-02	
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	
Duplicate:						**12SB45-0.502-02**				
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Bromophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Chlorophenyl Phenyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	U
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	U
Atrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	2.5	J
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	UJ
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	2.9	J
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	UJ
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	U
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Caprolactam	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	2.5	J
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	U
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Diethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dimethylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	5.3	J
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	U
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	UJ
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA	
N-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	2.05	UJ
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB41-000.5-01		12SB42-0.502-02		12SB43-0.502-02		12SB44-0.502-02		12SB45-0.502-02		12SB45-0.502-02-D		12SB46-0.502-02		12SB47-0.502-02		12SB48-0.502-02	
Sample Date:	**1/4/2012**		**1/4/2012**		**1/4/2012**		**1/4/2012**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**	
Duplicate:											**12SB45-0.502-02**							
Pentachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA		3.3	J
Phenol	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA		4.1	J
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA		20.6	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA		31.875	
PAHS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**											
2-Methylnaphthalene	2.7	J	2.1	J	68		7.9		NA		NA		NA		NA		NA	
Acenaphthene	12		2.05	U	120		20		NA		NA		NA		NA		NA	
Acenaphthylene	16		2.05	U	55		24		NA		NA		NA		NA		NA	
Anthracene	66		5.3		400		130		NA		NA		NA		NA		NA	
Benz(a)anthracene	350		42		910		410		NA		NA		NA		NA		NA	
Benzo(a)pyrene	330		39		840		380		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	460		57		1100		500		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	190		26		590		230		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	170		19		400		190		NA		NA		NA		NA		NA	
Chrysene	350		44		930		390		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	54		7		170		62		NA		NA		NA		NA		NA	
Fluoranthene	700		86		2100		820		NA		NA		NA		NA		NA	
Fluorene	16		2.05	U	210		35		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	180	J	29		450		210		NA		NA		NA		NA		NA	
Naphthalene	4.1	J	2.05	U	70		9.1		NA		NA		NA		NA		NA	
Phenanthrene	270		27		1600		420		NA		NA		NA		NA		NA	
Pyrene	570		71		1800		670		NA		NA		NA		NA		NA	
Total Pahs	3740.8		454.4		11813		4508		NA		NA		NA		NA		NA	
Total Pahs Halfnd	3740.8		458.5		11813		4508		NA		NA		NA		NA		NA	
VOLATILES																		
1,1,1-Trichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2,2-Tetrachloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2-Trichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2-Trichlorotrifluoroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1-Dichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,1-Dichloroethene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3-Trichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethene (cis)	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethene (trans)	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloropropane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB41-000.5-01	12SB42-0.502-02	12SB43-0.502-02	12SB44-0.502-02	12SB45-0.502-02	12SB45-0.502-02-D	12SB46-0.502-02	12SB47-0.502-02	12SB48-0.502-02
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Duplicate:						**12SB45-0.502-02**			
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
M+p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Tert-butyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
O-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS									
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB41-000.5-01**	**12SB42-0.502-02**	**12SB43-0.502-02**	**12SB44-0.502-02**	**12SB45-0.502-02**	**12SB45-0.502-02-D**	**12SB46-0.502-02**	**12SB47-0.502-02**	**12SB48-0.502-02**
Sample Date:	**1/4/2012**	**1/4/2012**	**1/4/2012**	**1/4/2012**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Duplicate:						**12SB45-0.502-02**			
Aroclor-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Ddt Halfnd	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID:	**12SB48-0.502-02-D**
Sample Date:	**12/29/2011**
Duplicate:	**12SB48-0.502-02**
DIOXIN/FURAN	
1,2,3,4,6,7,8,9-OCDD	NA
1,2,3,4,6,7,8,9-OCDF	NA
1,2,3,4,6,7,8-HpCDD	NA
1,2,3,4,6,7,8-HpCDF	NA
1,2,3,4,7,8,9-HpCDF	NA
1,2,3,4,7,8-HxCDD	NA
1,2,3,4,7,8-HxCDF	NA
1,2,3,6,7,8-HxCDD	NA
1,2,3,6,7,8-HxCDF	NA
1,2,3,7,8,9-HxCDD	NA
1,2,3,7,8,9-HxCDF	NA
1,2,3,7,8-PeCDD	NA
1,2,3,7,8-PeCDF	NA
2,3,4,6,7,8-HxCDF	NA
2,3,4,7,8-PeCDF	NA
2,3,7,8-TCDD	NA
2,3,7,8-TCDF	NA
Teq	NA
Teq Bird	NA
Teq Bird Halfnd	NA
Teq Fish	NA
Teq Fish Halfnd	NA
Teq Halfnd	NA
Total HpCDD	NA
Total HpCDF	NA
Total HxCDD	NA
Total HxCDF	NA
Total PeCDD	NA
Total PeCDF	NA
Total TCDD	NA
Total TCDF	NA
INORGANICS	
Aluminum	NA
Antimony	NA
Arsenic	NA
Barium	NA
Beryllium	NA
Cadmium	NA
Calcium	NA
Chromium	NA
Cobalt	NA
Copper	NA
Cyanide	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB48-0.502-02-D**	
Sample Date:	**12/29/2011**	
Duplicate:	**12SB48-0.502-02**	
Iron	NA	
Lead	NA	
Magnesium	NA	
Manganese	NA	
Mercury	NA	
Nickel	NA	
Potassium	NA	
Selenium	NA	
Silver	NA	
Sodium	NA	
Thallium	NA	
Vanadium	NA	
Zinc	NA	
MISCELLANEOUS PARAMETERS		
Cyanide	NA	
Hexavalent Chromium	NA	
Total Organic Carbon	NA	
Oxidation Reduction Potential	NA	
Ph	NA	
SEMIVOLATILES	**ug/kg**	
1,1-Biphenyl	NA	
1,2,4,5-Tetrachlorobenzene	NA	
2,2'-Oxybis(1-chloropropane)	NA	
2,3,4,6-Tetrachlorophenol	NA	
2,4,5-Trichlorophenol	NA	
2,4,6-Trichlorophenol	NA	
2,4-Dichlorophenol	NA	
2,4-Dimethylphenol	NA	
2,4-Dinitrophenol	NA	
2,4-Dinitrotoluene	NA	
2,6-Dinitrotoluene	NA	
2-Chloronaphthalene	NA	
2-Chlorophenol	NA	
2-Methylnaphthalene	35	J
2-Methylphenol	NA	
2-Nitroaniline	NA	
2-Nitrophenol	NA	
3&4-Methylphenol	NA	
3,3'-Dichlorobenzidine	NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB48-0.502-02-D**	
Sample Date:	**12/29/2011**	
Duplicate:	**12SB48-0.502-02**	
3-Nitroaniline	NA	
4,6-Dinitro-2-methylphenol	NA	
4-Bromophenyl Phenyl Ether	NA	
4-Chloro-3-methylphenol	NA	
4-Chloroaniline	NA	
4-Chlorophenyl Phenyl Ether	NA	
4-Methylphenol	NA	
4-Nitroaniline	NA	
4-Nitrophenol	NA	
Acenaphthene	2.3	U
Acenaphthylene	2.8	J
Acetophenone	NA	
Anthracene	3.3	J
Atrazine	NA	
Benz(a)anthracene	13	J
Benzaldehyde	NA	
Benzo(a)pyrene	15	J
Benzo(b)fluoranthene	27	J
Benzo(g,h,i)perylene	12	J
Benzo(k)fluoranthene	7.5	
Bis(2-chloroethoxy)methane	NA	
Bis(2-chloroethyl)ether	NA	
Bis(2-ethylhexyl)phthalate	NA	
Butylbenzylphthalate	NA	
Caprolactam	NA	
Carbazole	NA	
Chrysene	25	J
Di-n-butylphthalate	NA	
Di-n-octylphthalate	NA	
Dibenz(a,h)anthracene	3.3	J
Dibenzofuran	NA	
Diethylphthalate	NA	
Dimethylphthalate	NA	
Fluoranthene	40	J
Fluorene	2.3	U
Hexachlorobenzene	NA	
Hexachlorobutadiene	NA	
Hexachlorocyclopentadiene	NA	
Hexachloroethane	NA	
Indeno(1,2,3-cd)pyrene	13	J
Isophorone	NA	
N-Nitroso-di-n-propylamine	NA	
N-Nitrosodiphenylamine (1)	NA	
Naphthalene	22	J
Nitrobenzene	NA	

Sample ID:	**12SB48-0.502-02-D**	
Sample Date:	**12/29/2011**	
Duplicate:	**12SB48-0.502-02**	
Pentachlorophenol	NA	
Phenanthrene	36	J
Phenol	NA	
Pyrene	33	J
Total Pahs	287.9	
Total Pahs Halfnd	290.2	
PAHS		
2-Methylnaphthalene	NA	
Acenaphthene	NA	
Acenaphthylene	NA	
Anthracene	NA	
Benz(a)anthracene	NA	
Benzo(a)pyrene	NA	
Benzo(b)fluoranthene	NA	
Benzo(g,h,i)perylene	NA	
Benzo(k)fluoranthene	NA	
Chrysene	NA	
Dibenz(a,h)anthracene	NA	
Fluoranthene	NA	
Fluorene	NA	
Indeno(1,2,3-cd)pyrene	NA	
Naphthalene	NA	
Phenanthrene	NA	
Pyrene	NA	
Total Pahs	NA	
Total Pahs Halfnd	NA	
VOLATILES		
1,1,1-Trichloroethane	NA	
1,1,2,2-Tetrachloroethane	NA	
1,1,2-Trichloroethane	NA	
1,1,2-Trichlorotrifluoroethane	NA	
1,1-Dichloroethane	NA	
1,1-Dichloroethene	NA	
1,2,3-Trichlorobenzene	NA	
1,2,4-Trichlorobenzene	NA	
1,2-Dibromo-3-chloropropane	NA	
1,2-Dibromoethane	NA	
1,2-Dichlorobenzene	NA	
1,2-Dichloroethane	NA	
1,2-Dichloroethene (cis)	NA	
1,2-Dichloroethene (trans)	NA	
1,2-Dichloropropane	NA	
1,3-Dichlorobenzene	NA	

Sample ID:	**12SB48-0.502-02-D**
Sample Date:	**12/29/2011**
Duplicate:	**12SB48-0.502-02**
1,4-Dichlorobenzene	NA
1,4-Dioxane	NA
2-Butanone	NA
2-Hexanone	NA
4-Methyl-2-pentanone	NA
Acetone	NA
Benzene	NA
Bromochloromethane	NA
Bromodichloromethane	NA
Bromoform	NA
Bromomethane	NA
Carbon Disulfide	NA
Carbon Tetrachloride	NA
Chlorobenzene	NA
Chloroethane	NA
Chloroform	NA
Chloromethane	NA
cis-1,3-Dichloropropene	NA
Cyclohexane	NA
Dibromochloromethane	NA
Dichlorodifluoromethane	NA
Ethylbenzene	NA
Isopropylbenzene	NA
M+p-xylenes	NA
Methyl Acetate	NA
Methyl Cyclohexane	NA
Methyl Tert-butyl Ether	NA
Methylene Chloride	NA
O-xylene	NA
Styrene	NA
Tetrachloroethene	NA
Toluene	NA
trans-1,3-Dichloropropene	NA
Trichloroethene	NA
Trichlorofluoromethane	NA
Vinyl Chloride	NA
Xylene (Total)	NA
PESTICIDES/PCBS	
4,4'-DDD	NA
4,4'-DDE	NA
4,4'-DDT	NA
Aldrin	NA
Alpha-BHC	NA
Alpha-Chlordane	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB48-0.502-02-D**
Sample Date:	**12/29/2011**
Duplicate:	**12SB48-0.502-02**
Aroclor-1016	NA
Aroclor-1221	NA
Aroclor-1232	NA
Aroclor-1242	NA
Aroclor-1248	NA
Aroclor-1254	NA
Aroclor-1260	NA
Beta-BHC	NA
Delta-BHC	NA
Dieldrin	NA
Endosulfan I	NA
Endosulfan II	NA
Endosulfan Sulfate	NA
Endrin	NA
Endrin Aldehyde	NA
Endrin Ketone	NA
Gamma-BHC (Lindane)	NA
Gamma-Chlordane	NA
Heptachlor	NA
Heptachlor Epoxide	NA
Methoxychlor	NA
Total Aroclor	NA
Total Aroclor Halfnd	NA
Total Ddt	NA
Total Ddt Halfnd	NA
Toxaphene	NA

Data Qualifiers:

B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.

J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).

K -- Positive result is considered biased high due to exceedance of technical quality control criteria.

L -- Positive result is considered biased low due to exceedance of technical quality control criteria.

R -- Positive result is considered unusable due to exceedance of technical quality control criteria.

U -- Value is a non-detected result as reported by the laboratory.

UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.

UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.

NA -- No result is available/applicable for this parameter in this sample.

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB49-0.502-02**	**12SB50-0.502-02**	**12SB51-0.502-02**	**12SB52-0.502-02**	**12SB53-0.502-02**	**12SB54-0.502-02**	**12SB55-0.502-02**	**12SB56-0.502-02**
Sample Date:	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Duplicate:								
DIOXIN/FURAN								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
Teq	NA	NA	NA	NA	NA	NA	NA	NA
Teq Bird	NA	NA	NA	NA	NA	NA	NA	NA
Teq Bird Halfnd	NA	NA	NA	NA	NA	NA	NA	NA
Teq Fish	NA	NA	NA	NA	NA	NA	NA	NA
Teq Fish Halfnd	NA	NA	NA	NA	NA	NA	NA	NA
Teq Halfnd	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDD	NA	NA	NA	NA	NA	NA	NA	NA
Total HpCDF	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDD	NA	NA	NA	NA	NA	NA	NA	NA
Total HxCDF	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDD	NA	NA	NA	NA	NA	NA	NA	NA
Total PeCDF	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDD	NA	NA	NA	NA	NA	NA	NA	NA
Total TCDF	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**			
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID:	**12SB49-0.502-02**		**12SB50-0.502-02**		**12SB51-0.502-02**		**12SB52-0.502-02**		**12SB53-0.502-02**		**12SB54-0.502-02**		**12SB55-0.502-02**		**12SB56-0.502-02**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**	
Duplicate:																
Iron	NA		NA		NA		NA		NA		NA		NA		NA	
Lead	9.7		9.5		31.8		1410		470		NA		NA		NA	
Magnesium	NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	NA		NA		NA		NA		NA		NA		NA		NA	
Mercury	NA		NA		NA		NA		NA		NA		NA		NA	
Nickel	NA		NA		NA		NA		NA		NA		NA		NA	
Potassium	NA		NA		NA		NA		NA		NA		NA		NA	
Selenium	NA		NA		NA		NA		NA		NA		NA		NA	
Silver	NA		NA		NA		NA		NA		NA		NA		NA	
Sodium	NA		NA		NA		NA		NA		NA		NA		NA	
Thallium	NA		NA		NA		NA		NA		NA		NA		NA	
Vanadium	NA		NA		NA		NA		NA		NA		NA		NA	
Zinc	NA		NA		NA		NA		NA		NA		NA		NA	
MISCELLANEOUS PARAMETERS																
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		NA		NA	
Ph	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,6-Trichlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4-Dichlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4-Dimethylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4-Dinitrophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4-Dinitrotoluene	NA		NA		NA		NA		NA		NA		NA		NA	
2,6-Dinitrotoluene	NA		NA		NA		NA		NA		NA		NA		NA	
2-Chloronaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
2-Chlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2-Methylnaphthalene	2.05	U	2.1	U	2	J	5.7		4.2		46		1.95	U	2.05	U
2-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
2-Nitroaniline	NA		NA		NA		NA		NA		NA		NA		NA	
2-Nitrophenol	NA		NA		NA		NA		NA		NA		NA		NA	
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB49-0.502-02		12SB50-0.502-02		12SB51-0.502-02		12SB52-0.502-02		12SB53-0.502-02		12SB54-0.502-02		12SB55-0.502-02		12SB56-0.502-02	
Sample Date:	12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011	
Duplicate:																
3-Nitroaniline	NA		NA		NA		NA		NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Bromophenyl Phenyl Ether	NA		NA		NA		NA		NA		NA		NA		NA	
4-Chloro-3-methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Chloroaniline	NA		NA		NA		NA		NA		NA		NA		NA	
4-Chlorophenyl Phenyl Ether	NA		NA		NA		NA		NA		NA		NA		NA	
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	2.05	U	2.1	U	1.95	U	15		11		440		1.95	U	2.05	U
Acenaphthylene	2.05	U	2.1	U	4.7		9.3		8.7		160		3.5	J	2.05	U
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	2.05	U	2.1	U	15		82		39		2200		6.3		2.05	U
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	2.05	U	2.1	U	42		290		120		6300		31		2.5	J
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	2.05	U	2.1	U	47		290		110		4900		29		2.05	U
Benzo(b)fluoranthene	2.05	U	2.1	U	68		370		150		6400		41		2.5	J
Benzo(g,h,i)perylene	2.05	U	2.1	U	31		160		63		3300		18		2.05	U
Benzo(k)fluoranthene	2.05	U	2.1	U	24		140		56		2800		14		2.05	U
Bis(2-chloroethoxy)methane	NA		NA		NA		NA		NA		NA		NA		NA	
Bis(2-chloroethyl)ether	NA		NA		NA		NA		NA		NA		NA		NA	
Bis(2-ethylhexyl)phthalate	NA		NA		NA		NA		NA		NA		NA		NA	
Butylbenzylphthalate	NA		NA		NA		NA		NA		NA		NA		NA	
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	2.05	U	2.1	U	53		300		130		6200		34		2.5	J
Di-n-butylphthalate	NA		NA		NA		NA		NA		NA		NA		NA	
Di-n-octylphthalate	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	2.05	U	2.1	U	8.6		47		18		1000		5.5		2.05	U
Dibenzofuran	NA		NA		NA		NA		NA		NA		NA		NA	
Diethylphthalate	NA		NA		NA		NA		NA		NA		NA		NA	
Dimethylphthalate	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	2.05	U	2.1	U	120		660		300		15000		63		4.6	
Fluorene	2.05	U	2.1	U	3.9		21		13		680		2.3	J	2.05	U
Hexachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
Hexachlorobutadiene	NA		NA		NA		NA		NA		NA		NA		NA	
Hexachlorocyclopentadiene	NA		NA		NA		NA		NA		NA		NA		NA	
Hexachloroethane	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	2.05	U	2.1	U	36		170		67		2700		20		2.05	U
Isophorone	NA		NA		NA		NA		NA		NA		NA		NA	
N-Nitroso-di-n-propylamine	NA		NA		NA		NA		NA		NA		NA		NA	
N-Nitrosodiphenylamine (1)	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	2.05	U	2.1	U	1.95	U	6.9		3.7	J	48		1.95	U	2.05	U
Nitrobenzene	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB49-0.502-02**		**12SB50-0.502-02**		**12SB51-0.502-02**		**12SB52-0.502-02**		**12SB53-0.502-02**		**12SB54-0.502-02**		**12SB55-0.502-02**		**12SB56-0.502-02**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**	
Duplicate:																
Pentachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	2.05	U	2.1	U	54		320		180		8500		27		2.5	J
Phenol	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	2.05	U	2.1	U	90		530		240		12000		56		3.7	J
Total Pahs		U		U	599.2		3416.9		1513.6		72674		350.6		18.3	
Total Pahs Halfnd	17.425		17.85		601.15		3416.9		1513.6		72674		353.525		29.575	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																
1,1,1-Trichloroethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2,2-Tetrachloroethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2-Trichloroethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,1,2-Trichlorotrifluoroethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,1-Dichloroethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,1-Dichloroethene	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3-Trichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dibromoethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethane	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethene (cis)	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethene (trans)	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloropropane	NA		NA		NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB49-0.502-02**	**12SB50-0.502-02**	**12SB51-0.502-02**	**12SB52-0.502-02**	**12SB53-0.502-02**	**12SB54-0.502-02**	**12SB55-0.502-02**	**12SB56-0.502-02**
Sample Date:	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Duplicate:								
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA
M+p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Tert-butyl Ether	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA
O-xylene	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (Total)	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB49-0.502-02**	**12SB50-0.502-02**	**12SB51-0.502-02**	**12SB52-0.502-02**	**12SB53-0.502-02**	**12SB54-0.502-02**	**12SB55-0.502-02**	**12SB56-0.502-02**
Sample Date:	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**	**12/29/2011**
Duplicate:								
Aroclor-1016	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor Halfnd	NA	NA	NA	NA	NA	NA	NA	NA
Total Ddt	NA	NA	NA	NA	NA	NA	NA	NA
Total Ddt Halfnd	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB57-000.5-01**		**12SB57-000.5-01-D**		**12SB58-000.5-01**		**12SB59-000.5-01**		**12TP01-0.502-02**		**12TP01-000.5-01**		**12TP01-0506-03**		**12TP01-0708-04**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**1/13/2010**		**1/13/2010**		**1/4/2010**		**1/4/2010**	
Duplicate:			**12SB57-000.5-01**													
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS									**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	NA		NA		NA		NA		12800		13600		18500		26000	
Antimony	NA		NA		NA		NA		0.5	B	0.47	B	1.1	R	0.38	R
Arsenic	NA		NA		NA		NA		3.9		4.6		5.3	L	2.5	L
Barium	NA		NA		NA		NA		71.6		97.1		85.1		147	
Beryllium	NA		NA		NA		NA		0.72	K	0.81	K	0.63	K	0.77	K
Cadmium	NA		NA		NA		NA		0.35	B	0.38	B	1.4	K	0.29	R
Calcium	NA		NA		NA		NA		6840		1750		964		801	
Chromium	NA		NA		NA		NA		14.5		15.8		22.8	L	16.5	L
Cobalt	NA		NA		NA		NA		8.4		7		10		16.9	
Copper	NA		NA		NA		NA		18.4		13.6		39.1		6.2	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB57-000.5-01**		**12SB57-000.5-01-D**		**12SB58-000.5-01**		**12SB59-000.5-01**		**12TP01-0.502-02**		**12TP01-000.5-01**		**12TP01-0506-03**		**12TP01-0708-04**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**1/13/2010**		**1/13/2010**		**1/4/2010**		**1/4/2010**	
Duplicate:			**12SB57-000.5-01**													
Iron	NA		NA		NA		NA		16600	L	13800	L	33800		17100	
Lead	NA		NA		NA		NA		12.4	J	28.7	J	38.2	J	5.8	J
Magnesium	NA		NA		NA		NA		5240	J	1820	J	1910	J	1200	J
Manganese	NA		NA		NA		NA		615		575		959		3740	
Mercury	NA		NA		NA		NA		0.02	U	0.059		0.11		0.021	U
Nickel	NA		NA		NA		NA		10.9		11.3		16.8		14.1	
Potassium	NA		NA		NA		NA		804	J	870	J	873	L	552	J
Selenium	NA		NA		NA		NA		0.42	UR	0.52	UR	4.6	L	1.6	L
Silver	NA		NA		NA		NA		0.11	U	0.17		0.24	J	0.12	UJ
Sodium	NA		NA		NA		NA		170	B	159	B	190	R	167	R
Thallium	NA		NA		NA		NA		0.62	U	0.77	U	0.66	UJ	3.2	
Vanadium	NA		NA		NA		NA		25.2		25.3		32.5		23.4	
Zinc	NA		NA		NA		NA		30.9		50.3		84.3	J	15.6	J
MISCELLANEOUS PARAMETERS									**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	NA		NA		NA		NA		0.18	U	0.21	U	0.52	B	0.13	U
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		NA		NA	
Ph	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		200	U	250	U	6300	UJ	210	U
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		200	U	250	U	2800	UJ	210	U
2,2'-Oxybis(1-chloropropane)	NA		NA		NA		NA		200	U	250	U	1900	UJ	210	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		390	U	250	U	4800	UJ	210	U
2,4,5-Trichlorophenol	NA		NA		NA		NA		390	U	250	U	4800	UJ	210	U
2,4,6-Trichlorophenol	NA		NA		NA		NA		390	U	250	U	3800	UJ	210	U
2,4-Dichlorophenol	NA		NA		NA		NA		390	U	250	U	1900	UJ	210	U
2,4-Dimethylphenol	NA		NA		NA		NA		390	U	250	U	1400	UJ	210	U
2,4-Dinitrophenol	NA		NA		NA		NA		390	U	480	U	38000	UJ	400	U
2,4-Dinitrotoluene	NA		NA		NA		NA		200	U	250	U	1400	UJ	210	U
2,6-Dinitrotoluene	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
2-Chloronaphthalene	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
2-Chlorophenol	NA		NA		NA		NA		390	U	250	U	2400	UJ	210	U
2-Methylnaphthalene	37	J	2.1	UJ	2.4	U	130		200	U	250	U	35000	J	210	U
2-Methylphenol	NA		NA		NA		NA		390	U	250	U	2400	UJ	210	U
2-Nitroaniline	NA		NA		NA		NA		200	U	480	U	7600	UJ	400	U
2-Nitrophenol	NA		NA		NA		NA		390	U	250	U	1400	UJ	210	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SB57-000.5-01		12SB57-000.5-01-D		12SB58-000.5-01		12SB59-000.5-01		12TP01-0.502-02		12TP01-000.5-01		12TP01-0506-03		12TP01-0708-04	
Sample Date:	12/29/2011		12/29/2011		12/29/2011		12/29/2011		1/13/2010		1/13/2010		1/4/2010		1/4/2010	
Duplicate:			12SB57-000.5-01													
3-Nitroaniline	NA		NA		NA		NA		200	U	480	U	7600	UJ	400	U
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA		390	U	480	U	12000	UJ	400	U
4-Bromophenyl Phenyl Ether	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
4-Chloro-3-methylphenol	NA		NA		NA		NA		390	U	250	U	1900	UJ	210	U
4-Chloroaniline	NA		NA		NA		NA		200	U	250	U	1400	UJ	210	U
4-Chlorophenyl Phenyl Ether	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
4-Methylphenol	NA		NA		NA		NA		290	U	480	U	1900	UJ	400	U
4-Nitroaniline	NA		NA		NA		NA		200	U	480	U	6300	UJ	400	U
4-Nitrophenol	NA		NA		NA		NA		390	U	480	U	13000	UJ	400	U
Acenaphthene	2.3	U	2.1	U	2.4	U	660		68	J	250	U	3800	UJ	210	U
Acenaphthylene	2.8	J	2.1	U	2.9	J	90		100	J	250	U	1400	UJ	210	U
Acetophenone	NA		NA		NA		NA		28	B	480	U	13000	UJ	400	U
Anthracene	3.7	J	2.1	U	3.4	J	2200		360		67	J	1900	UJ	210	U
Atrazine	NA		NA		NA		NA		200	U	250	UJ	6300	UJ	210	UJ
Benz(a)anthracene	16	J	2.9	J	28		7600		1000		240	J	1900	UJ	210	U
Benzaldehyde	NA		NA		NA		NA		200	U	37	J	6300	UJ	210	U
Benzo(a)pyrene	18	J	2.5	J	33		6400		840		270		1900	UJ	210	U
Benzo(b)fluoranthene	29	J	4.2	J	47		8800		840		260		1900	UJ	210	U
Benzo(g,h,i)perylene	13	J	2.1	UJ	21		4600	J	420		160	J	1400	UJ	210	U
Benzo(k)fluoranthene	11	J	2.1	UJ	18		3100	J	760		200	J	1900	UJ	210	U
Bis(2-chloroethoxy)methane	NA		NA		NA		NA		200	U	250	U	1900	UJ	210	U
Bis(2-chloroethyl)ether	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Bis(2-ethylhexyl)phthalate	NA		NA		NA		NA		200	U	250	U	2400	UJ	110	B
Butylbenzylphthalate	NA		NA		NA		NA		200	U	250	U	1900	UJ	210	U
Caprolactam	NA		NA		NA		NA		200	U	250	U	6300	UJ	210	U
Carbazole	NA		NA		NA		NA		100	J	54	J	6300	UJ	400	U
Chrysene	29	J	3.8	J	39		7800		1100		350		1900	UJ	210	U
Di-n-butylphthalate	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Di-n-octylphthalate	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Dibenz(a,h)anthracene	5.1		2.1	U	5.3		1400	J	200		80	J	1900	UJ	210	U
Dibenzofuran	NA		NA		NA		NA		40	J	250	U	1900	UJ	210	U
Diethylphthalate	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Dimethylphthalate	NA		NA		NA		NA		200	U	250	U	1900	UJ	210	U
Fluoranthene	48	J	8.4	J	61		17000		2500		710		1900	UJ	210	U
Fluorene	3.2	J	2.1	U	2.4	U	620		90	J	250	U	1900	UJ	210	U
Hexachlorobenzene	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Hexachlorobutadiene	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Hexachlorocyclopentadiene	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Hexachloroethane	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
Indeno(1,2,3-cd)pyrene	14	J	2.1	UJ	23		3500		500		190	J	2400	UJ	210	U
Isophorone	NA		NA		NA		NA		200	U	250	U	1900	UJ	210	U
N-Nitroso-di-n-propylamine	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U
N-Nitrosodiphenylamine (1)	NA		NA		NA		NA		200	U	250	U	1600	UJ	210	U
Naphthalene	23	J	2.1	UJ	2.4	U	74		200	U	250	U	13000	J	210	U
Nitrobenzene	NA		NA		NA		NA		200	U	250	U	2400	UJ	210	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB57-000.5-01**		**12SB57-000.5-01-D**		**12SB58-000.5-01**		**12SB59-000.5-01**		**12TP01-0.502-02**		**12TP01-000.5-01**		**12TP01-0506-03**		**12TP01-0708-04**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**1/13/2010**		**1/13/2010**		**1/4/2010**		**1/4/2010**	
Duplicate:			**12SB57-000.5-01**													
Pentachlorophenol	NA		NA		NA		NA		390	U	480	U	8600	UJ	400	U
Phenanthrene	42	J	6.3	J	37		8200		1500		450		1400	UJ	210	U
Phenol	NA		NA		NA		NA		390	U	250	U	1900	UJ	210	U
Pyrene	38	J	6.3	J	53		15000		2100		640		1900	UJ	210	U
Total Pahs	332.8		34.4		371.6		87174		12382.9		3692.1		48000		16.89	
Total Pahs Halfnd	333.95		44.9		376.4		87174		12482.9		3817.1		62700		356.89	
PAHS									**ug/kg**		**ug/kg**				**ug/kg**	
2-Methylnaphthalene	NA		NA		NA		NA		4.9	J	3.6	J	NA		10	U
Acenaphthene	NA		NA		NA		NA		17		7.5	J	NA		10	U
Acenaphthylene	NA		NA		NA		NA		53		30		NA		10	U
Anthracene	NA		NA		NA		NA		110		42		NA		0.82	J
Benz(a)anthracene	NA		NA		NA		NA		890	J	210		NA		1.8	J
Benzo(a)pyrene	NA		NA		NA		NA		590	J	200		NA		1.7	J
Benzo(b)fluoranthene	NA		NA		NA		NA		750	J	280	J	NA		1.8	J
Benzo(g,h,i)perylene	NA		NA		NA		NA		240	J	91		NA		0.87	J
Benzo(k)fluoranthene	NA		NA		NA		NA		410	J	160		NA		1.5	B
Chrysene	NA		NA		NA		NA		550	J	190		NA		2.1	J
Dibenz(a,h)anthracene	NA		NA		NA		NA		98	J	27		NA		10	U
Fluoranthene	NA		NA		NA		NA		1300	J	490	J	NA		3.9	J
Fluorene	NA		NA		NA		NA		26		14		NA		10	U
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		390	J	150		NA		1.2	J
Naphthalene	NA		NA		NA		NA		3.5	B	3.4	B	NA		0.89	B
Phenanthrene	NA		NA		NA		NA		430	J	240		NA		2.7	J
Pyrene	NA		NA		NA		NA		1100	J	360	J	NA		3.3	B
Total Pahs	NA		NA		NA		NA		6958.9		2495.1		NA		16.89	
Total Pahs Halfnd	NA		NA		NA		NA		6960.65		2496.8		NA		44.735	
VOLATILES									**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,1,2,2-Tetrachloroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,1,2-Trichloroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,1,2-Trichlorotrifluoroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,1-Dichloroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,1-Dichloroethene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2,3-Trichlorobenzene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2,4-Trichlorobenzene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2-Dibromo-3-chloropropane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2-Dibromoethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2-Dichlorobenzene	NA		NA		NA		NA		6	U	7.7	U	190		5.8	U
1,2-Dichloroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2-Dichloroethene (cis)	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2-Dichloroethene (trans)	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,2-Dichloropropane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
1,3-Dichlorobenzene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB57-000.5-01**		**12SB57-000.5-01-D**		**12SB58-000.5-01**		**12SB59-000.5-01**		**12TP01-0.502-02**		**12TP01-000.5-01**		**12TP01-0506-03**		**12TP01-0708-04**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**1/13/2010**		**1/13/2010**		**1/4/2010**		**1/4/2010**	
Duplicate:			**12SB57-000.5-01**													
1,4-Dichlorobenzene	NA		NA		NA		NA		6	U	7.7	U	21		5.8	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	NA		NA		NA		NA		17		27		16		9.8	J
2-Hexanone	NA		NA		NA		NA		15	U	19	U	13	U	14	U
4-Methyl-2-pentanone	NA		NA		NA		NA		15	U	19	U	13	U	14	U
Acetone	NA		NA		NA		NA		140		290		160		69	
Benzene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Bromoform	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Bromomethane	NA		NA		NA		NA		8.7	U	11	U	7.5	U	8.4	U
Carbon Disulfide	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Carbon Tetrachloride	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Chlorobenzene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Chloroethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Chloroform	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Chloromethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
cis-1,3-Dichloropropene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Cyclohexane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Dibromochloromethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Dichlorodifluoromethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Ethylbenzene	NA		NA		NA		NA		6	U	7.7	U	26		5.8	U
Isopropylbenzene	NA		NA		NA		NA		6	U	7.7	U	33		5.8	U
M+p-xylenes	NA		NA		NA		NA		12	U	15	U	180		12	U
Methyl Acetate	NA		NA		NA		NA		6	U	230		5.1	U	20	
Methyl Cyclohexane	NA		NA		NA		NA		6	U	7.7	U	2.8	J	5.8	U
Methyl Tert-butyl Ether	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Methylene Chloride	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
O-xylene	NA		NA		NA		NA		6	U	7.7	U	110		5.8	U
Styrene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Tetrachloroethene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Toluene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
trans-1,3-Dichloropropene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Trichloroethene	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Trichlorofluoromethane	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Vinyl Chloride	NA		NA		NA		NA		6	U	7.7	U	5.1	U	5.8	U
Xylene (Total)	NA		NA		NA		NA		6	U	7.7	U	300		5.8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	1.2	UR	1.05	U	1.25	U	1.15	U	1.9	J	4.9	U	4.2	U	4	U
4,4'-DDE	7.8	J	1.05	UJ	2.1	J	1.15	U	8.5	J	1.1	J	4.2	U	4	U
4,4'-DDT	7.2	J	1.05	UJ	1.6	J	2.1	J	2.8	R	4.9	U	4.2	U	4	U
Aldrin	1.2	UR	1.05	U	1.25	U	1.15	U	2	U	2.5	U	2.2	U	2.1	U
Alpha-BHC	1.2	UR	1.05	U	1.25	U	1.15	U	2	U	2.5	U	1.7	R	2.1	U
Alpha-Chlordane	1.2	UR	1.05	U	1.25	U	1.15	U	1.4	J	1.7	J	2.2	U	2.1	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SB57-000.5-01**		**12SB57-000.5-01-D**		**12SB58-000.5-01**		**12SB59-000.5-01**		**12TP01-0.502-02**		**12TP01-000.5-01**		**12TP01-0506-03**		**12TP01-0708-04**	
Sample Date:	**12/29/2011**		**12/29/2011**		**12/29/2011**		**12/29/2011**		**1/13/2010**		**1/13/2010**		**1/4/2010**		**1/4/2010**	
Duplicate:			**12SB57-000.5-01**													
Aroclor-1016	NA		NA		NA		NA		28	U	35	U	30	U	29	U
Aroclor-1221	NA		NA		NA		NA		40	U	50	U	43	U	41	U
Aroclor-1232	NA		NA		NA		NA		20	U	25	U	22	U	21	U
Aroclor-1242	NA		NA		NA		NA		20	U	25	U	22	U	21	U
Aroclor-1248	NA		NA		NA		NA		20	U	25	U	22	U	21	U
Aroclor-1254	NA		NA		NA		NA		20	U	25	U	22	U	21	U
Aroclor-1260	NA		NA		NA		NA		20	U	25	U	22	U	21	U
Beta-BHC	1.2	UR	1.05	U	1.25	U	1.15	U	5	U	1.3	U	1.1	U	1	U
Delta-BHC	1.2	UR	1.05	U	1.25	U	1.15	U	2	U	2.5	U	0.38	J	2.1	U
Dieldrin	8	J	1.05	UJ	1.25	U	33		26	R	9.6	R	4.2	U	4	U
Endosulfan I	1.2	UR	1.05	U	1.25	U	1.15	U	1.1	J	0.53	J	2.2	U	2.1	U
Endosulfan II	1.2	UR	1.05	U	1.25	U	1.15	U	3.9	U	2.1	J	4.2	U	4	U
Endosulfan Sulfate	1.2	UR	1.05	U	1.25	U	1.15	U	3.9	U	4.9	U	4.2	U	4	U
Endrin	1.2	UR	1.05	U	1.25	U	1.15	U	3.9	U	4.9	U	4.2	U	4	U
Endrin Aldehyde	1.2	UR	1.05	U	1.25	U	1.15	U	5.7	J	0.58	J	1.4	B	4	U
Endrin Ketone	1.2	UR	1.05	UJ	1.25	UJ	1.15	UJ	5.1	J	4.9	U	2.7	B	4.7	B
Gamma-BHC (Lindane)	1.2	UR	1.05	U	1.25	U	1.15	U	2	U	2.5	U	2.2	U	2.1	U
Gamma-Chlordane	1.2	UR	1.05	U	1.25	U	1.15	U	0.68	B	2.5	U	1.6	R	2.1	U
Heptachlor	1.2	UR	1.05	U	1.25	U	1.15	U	2	U	0.42	J	2.2	U	2.1	U
Heptachlor Epoxide	1.2	UR	1.05	U	1.25	U	1.15	U	2.8	J	1.3	J	0.36	J	2.1	U
Methoxychlor	1.2	UR	1.05	UJ	1.25	UJ	1.15	UJ	20	U	25	U	22	U	21	U
Total Aroclor	NA		NA		NA		NA			U		U		U		U
Total Aroclor Halfnd	NA		NA		NA		NA		84		105		91.5		87.5	
Total Ddt	15			U	3.7		2.1		10.4		1.1			U		U
Total Ddt Halfnd	15		1.575		4.325		3.25		10.4		6		6.3		6	
Toxaphene	12	UR	10.5	U	12.5	U	11.5	U	98	U	120	U	110	U	100	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP02-0.502-02		12TP02-000.5-01		12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0.502-02		12TP03-0.502-02-D	
Sample Date:	**1/4/2010**		**1/4/2010**		**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:									**12TP02-0405-CS**						**12TP03-0.502-02**	
DIOXIN/FURAN					**ng/kg**											
1,2,3,4,6,7,8,9-OCDD	NA		NA		15900	J	NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		1090	J	NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		5640	J	NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		818	J	NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		48	J	NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		277	J	NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		442	J	NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		293	J	NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		172	J	NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		964	J	NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		5.04	J	NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		147	J	NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		143	J	NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		267	J	NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		304	J	NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		34.4	J	NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		140	J	NA		NA		NA		NA		NA	
Teq	NA		NA		603.051		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		857.483		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		857.483		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		603.223		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		603.223		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		603.051		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		19700		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		1960		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		8520		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		2240		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		3410		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		3890		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		1650		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		7130		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	14700		17800		22600		NA		NA		14600		14700		14800	
Antimony	0.32	UL	0.57	R	13.1	J	NA		NA		0.34	UL	0.51	R	0.4	R
Arsenic	2.2	L	3.3	L	13.1	L	NA		NA		1.8	L	1.6	L	1.9	L
Barium	149		136		1030		NA		NA		118		120		121	
Beryllium	1	K	0.91	K	1.7	K	NA		NA		0.59	K	0.97	K	0.89	K
Cadmium	0.44	R	0.5	R	41.8		NA		NA		0.3	R	0.4	R	0.42	R
Calcium	1160		6020		49800		NA		NA		13300		4260	J	2090	J
Chromium	18.6	L	30	L	182	L	13		12		11.2	L	18.4	L	16.3	L
Cobalt	12		9.2		23.1		NA		NA		8.8		10.1		10.4	
Copper	25.1		19.9		1980		NA		NA		18.7		36.8	J	21.1	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP02-0.502-02**		**12TP02-000.5-01**		**12TP02-0405-03**		**12TP02-0405-CS**		**12TP02-0405-CS-D**		**12TP02-0910-04**		**12TP03-0.502-02**		**12TP03-0.502-02-D**	
Sample Date:	**1/4/2010**		**1/4/2010**		**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:									**12TP02-0405-CS**						**12TP03-0.502-02**	
Iron	20200		20300		59300		NA		NA		13100		21300		17700	
Lead	10.6	J	28.6	J	3500	J	NA		NA		18.4	J	9.7	J	8.2	J
Magnesium	2000	J	3600	J	18200	J	NA		NA		8310	J	3740	J	2340	J
Manganese	876		420		1370		NA		NA		1130		604		655	
Mercury	0.021	U	0.038		0.24		NA		NA		0.032		0.021	U	0.02	U
Nickel	13.6		15.5		66.1		NA		NA		10.4		13.1		12.8	
Potassium	1460		1130	L	2290		NA		NA		440	J	1490		1060	L
Selenium	2	L	2.3	L	7.7	L	NA		NA		1.5	L	2.6	L	0.42	UR
Silver	0.11	UJ	0.12	UJ	4	J	NA		NA		0.11	UJ	0.11	UJ	0.11	UJ
Sodium	188	R	239	K	1050	K	NA		NA		180	K	183	R	200	K
Thallium	0.59	J	0.85	J	3		NA		NA		0.62	UJ	0.6	UJ	0.62	UJ
Vanadium	26.3		37.4		28.5		NA		NA		16.4		26.7		24.2	
Zinc	23.3	J	39.6	J	4240	J	NA		NA		21.3	J	20.3	J	20.2	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.13	U	0.15	U	0.32	B	NA		NA		0.13	U	0.13	U	0.26	B
Hexavalent Chromium	NA		NA		NA		0.38		0.5		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
							mv									
Oxidation Reduction Potential	NA		NA		NA		226.5		NA		NA		NA		NA	
							s.u.									
Ph	NA		NA		NA		7.1		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**						**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
1,2,4,5-Tetrachlorobenzene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,2'-Oxybis(1-chloropropane)	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,3,4,6-Tetrachlorophenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,4,5-Trichlorophenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,4,6-Trichlorophenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,4-Dichlorophenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,4-Dimethylphenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,4-Dinitrophenol	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
2,4-Dinitrotoluene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2,6-Dinitrotoluene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2-Chloronaphthalene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2-Chlorophenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2-Methylnaphthalene	200	U	230	U	40	J	NA		NA		210	U	400	U	200	U
2-Methylphenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
2-Nitroaniline	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
2-Nitrophenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP02-0.502-02		12TP02-000.5-01		12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0.502-02		12TP03-0.502-02-D	
Sample Date:	**1/4/2010**		**1/4/2010**		**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:									**12TP02-0405-CS**						**12TP03-0.502-02**	
3-Nitroaniline	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
4,6-Dinitro-2-methylphenol	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
4-Bromophenyl Phenyl Ether	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
4-Chloro-3-methylphenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
4-Chloroaniline	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
4-Chlorophenyl Phenyl Ether	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
4-Methylphenol	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
4-Nitroaniline	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
4-Nitrophenol	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
Acenaphthene	200	U	42	J	57	J	NA		NA		210	U	130	J	95	J
Acenaphthylene	200	U	120	J	240	U	NA		NA		210	U	130	J	240	
Acetophenone	140	B	440	U	470	U	NA		NA		190	B	300	B	390	U
Anthracene	200	U	250		56	J	NA		NA		210	U	740		890	
Atrazine	200	U	230	UJ	240	UJ	NA		NA		210	U	400	U	200	UJ
Benz(a)anthracene	100	J	1200		260		NA		NA		30	J	2000		2400	
Benzaldehyde	200	U	230	U	68	J	NA		NA		210	U	400	U	200	U
Benzo(a)pyrene	95	J	1200		230	J	NA		NA		25	J	1700		2100	
Benzo(b)fluoranthene	81	J	1200		370		NA		NA		24	J	1700		2200	
Benzo(g,h,i)perylene	53	J	550		110	J	NA		NA		210	U	620		530	
Benzo(k)fluoranthene	200	U	1300		84	J	NA		NA		210	U	1900		2700	
Bis(2-chloroethoxy)methane	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Bis(2-chloroethyl)ether	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Bis(2-ethylhexyl)phthalate	200	U	230	U	490	B	NA		NA		210	U	400	U	46	B
Butylbenzylphthalate	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Caprolactam	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Carbazole	390	U	440	U	470	U	NA		NA		410	U	780	U	110	J
Chrysene	110	J	1300		260		NA		NA		37	J	1900		2300	
Di-n-butylphthalate	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Di-n-octylphthalate	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Dibenz(a,h)anthracene	200	U	200	J	240	U	NA		NA		210	U	250	J	240	
Dibenzofuran	200	U	230	U	49	J	NA		NA		210	U	96	J	71	J
Diethylphthalate	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Dimethylphthalate	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Fluoranthene	180	J	2400		480		NA		NA		88	J	4100		4800	
Fluorene	200	U	230	U	44	J	NA		NA		210	U	210	J	160	J
Hexachlorobenzene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Hexachlorobutadiene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Hexachlorocyclopentadiene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Hexachloroethane	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Indeno(1,2,3-cd)pyrene	200	U	700		130	J	NA		NA		210	U	830		740	
Isophorone	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
N-Nitroso-di-n-propylamine	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
N-Nitrosodiphenylamine (1)	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Naphthalene	200	U	230	U	68	J	NA		NA		210	U	400	U	200	U
Nitrobenzene	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U

Sample ID:	12TP02-0.502-02		12TP02-000.5-01		12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0.502-02		12TP03-0.502-02-D	
Sample Date:	**1/4/2010**		**1/4/2010**		**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:									**12TP02-0405-CS**						**12TP03-0.502-02**	
Pentachlorophenol	390	U	440	U	470	U	NA		NA		410	U	780	U	390	U
Phenanthrene	42	J	930		240	J	NA		NA		50	J	2200		2000	
Phenol	200	U	230	U	240	U	NA		NA		210	U	400	U	200	U
Pyrene	160	J	2000		510		NA		NA		68	J	3900		5200	
Total Pahs	2938		13392		2939		NA		NA		1390.7		22310		26595	
Total Pahs Halfnd	3338		13737		3179		NA		NA		1495.7		22710		26795	
PAHS	**ug/kg**										**ug/kg**					
2-Methylnaphthalene	200	U	NA		NA		NA		NA		2.4	J	NA		NA	
Acenaphthene	200	U	NA		NA		NA		NA		8.9	J	NA		NA	
Acenaphthylene	200	U	NA		NA		NA		NA		1.3	J	NA		NA	
Anthracene	55	J	NA		NA		NA		NA		50		NA		NA	
Benz(a)anthracene	270		NA		NA		NA		NA		59		NA		NA	
Benzo(a)pyrene	230		NA		NA		NA		NA		33		NA		NA	
Benzo(b)fluoranthene	250		NA		NA		NA		NA		34		NA		NA	
Benzo(g,h,i)perylene	140	J	NA		NA		NA		NA		15		NA		NA	
Benzo(k)fluoranthene	220		NA		NA		NA		NA		37		NA		NA	
Chrysene	270		NA		NA		NA		NA		59		NA		NA	
Dibenz(a,h)anthracene	31	J	NA		NA		NA		NA		3.1	J	NA		NA	
Fluoranthene	610		NA		NA		NA		NA		430		NA		NA	
Fluorene	12	J	NA		NA		NA		NA		19		NA		NA	
Indeno(1,2,3-cd)pyrene	160	J	NA		NA		NA		NA		19		NA		NA	
Naphthalene	200	U	NA		NA		NA		NA		3.4	B	NA		NA	
Phenanthrene	220		NA		NA		NA		NA		320		NA		NA	
Pyrene	470		NA		NA		NA		NA		300		NA		NA	
Total Pahs	2938		NA		NA		NA		NA		1390.7		NA		NA	
Total Pahs Halfnd	3338		NA		NA		NA		NA		1392.4		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**						**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,1,2,2-Tetrachloroethane	4.6	U	6	U	11	UJ	NA		NA		5.4	U	6.6	U	5.8	U
1,1,2-Trichloroethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,1,2-Trichlorotrifluoroethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,1-Dichloroethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,1-Dichloroethene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,2,3-Trichlorobenzene	4.6	U	6	U	3.8	J	NA		NA		5.4	U	6.6	U	5.8	U
1,2,4-Trichlorobenzene	4.6	U	6	U	2.7	J	NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dibromo-3-chloropropane	4.6	U	6	U	11	UJ	NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dibromoethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dichlorobenzene	4.6	U	6	U	11	UJ	NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dichloroethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dichloroethene (cis)	4.6	U	6	U	14		NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dichloroethene (trans)	4.6	U	6	U	6.6	J	NA		NA		5.4	U	6.6	U	5.8	U
1,2-Dichloropropane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
1,3-Dichlorobenzene	4.6	U	6	U	11	UJ	NA		NA		5.4	U	6.6	U	5.8	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP02-0.502-02		12TP02-000.5-01		12TP02-0405-03		12TP02-0405-CS		12TP02-0405-CS-D		12TP02-0910-04		12TP03-0.502-02		12TP03-0.502-02-D	
Sample Date:	**1/4/2010**		**1/4/2010**		**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:									**12TP02-0405-CS**						**12TP03-0.502-02**	
1,4-Dichlorobenzene	4.6	U	6	U	11	UJ	NA		NA		5.4	U	6.6	U	5.8	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	8.2	J	14	J	27	U	NA		NA		14	U	14	J	16	
2-Hexanone	12	U	15	U	27	U	NA		NA		14	U	16	U	14	U
4-Methyl-2-pentanone	12	U	15	U	27	U	NA		NA		14	U	16	U	14	U
Acetone	80		120		27	B	NA		NA		19	B	100		120	
Benzene	4.6	U	6	U	11		NA		NA		1.3	J	6.6	U	5.8	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Bromoform	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Bromomethane	6.8	U	8.8	U	16	U	NA		NA		7.9	U	9.6	U	8.4	U
Carbon Disulfide	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Carbon Tetrachloride	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Chlorobenzene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Chloroethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Chloroform	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Chloromethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
cis-1,3-Dichloropropene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Cyclohexane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Dibromochloromethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Dichlorodifluoromethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Ethylbenzene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Isopropylbenzene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
M+p-xylenes	9.3	U	12	U	22	U	NA		NA		11	U	13	U	12	U
Methyl Acetate	4.6	U	3	J	11	U	NA		NA		5.4	U	6.6	U	21	
Methyl Cyclohexane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Methyl Tert-butyl Ether	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Methylene Chloride	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
O-xylene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Styrene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Tetrachloroethene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Toluene	4.6	U	6	U	11	U	NA		NA		1.8	J	6.6	U	5.8	U
trans-1,3-Dichloropropene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Trichloroethene	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Trichlorofluoromethane	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
Vinyl Chloride	4.6	U	6	U	19		NA		NA		5.4	U	6.6	U	5.8	U
Xylene (Total)	4.6	U	6	U	11	U	NA		NA		5.4	U	6.6	U	5.8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**						**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	3.9	UL	4.5	U	4.4	R	NA		NA		4.1	U	1.8	R	4.7	R
4,4'-DDE	3.9	UL	4.8	R	3.8	R	NA		NA		4.1	U	9.8	J	21	R
4,4'-DDT	3.9	UL	3	J	2.9	J	NA		NA		4.1	U	4.8	J	3.2	J
Aldrin	2	UL	2.3	U	2.4	UL	NA		NA		2.1	U	2	U	2	U
Alpha-BHC	2	UL	2.3	U	1.2	R	NA		NA		2.1	U	2	U	2	U
Alpha-Chlordane	0.77	R	2.3	U	0.6	J	NA		NA		2.1	U	7.1	R	2	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP02-0.502-02**		**12TP02-000.5-01**		**12TP02-0405-03**		**12TP02-0405-CS**		**12TP02-0405-CS-D**		**12TP02-0910-04**		**12TP03-0.502-02**		**12TP03-0.502-02-D**	
Sample Date:	**1/4/2010**		**1/4/2010**		**1/4/2010**		**12/19/2011**		**12/19/2011**		**1/4/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:									**12TP02-0405-CS**						**12TP03-0.502-02**	
Aroclor-1016	28	UL	32	U	34	UL	NA		NA		30	U	29	U	29	U
Aroclor-1221	40	UL	46	U	49	UL	NA		NA		42	U	40	U	40	U
Aroclor-1232	20	UL	23	U	24	UL	NA		NA		21	U	20	U	20	U
Aroclor-1242	20	UL	23	U	24	UL	NA		NA		21	U	20	U	20	U
Aroclor-1248	20	UL	23	U	24	UL	NA		NA		21	U	20	U	20	U
Aroclor-1254	20	UL	23	U	24	UL	NA		NA		21	U	20	U	20	U
Aroclor-1260	20	UL	23	U	24	UL	NA		NA		21	U	20	U	20	U
Beta-BHC	2.8	B	15	R	1.2	UL	NA		NA		1.1	U	32	R	120	R
Delta-BHC	2	UL	0.66	J	2.4	UL	NA		NA		2.1	U	1.9	R	2.1	R
Dieldrin	3.9	UL	4.5	U	4.7	UL	NA		NA		4.1	U	20	R	24	R
Endosulfan I	2	UL	2.3	U	1.7	J	NA		NA		2.1	U	2.6	R	2.6	R
Endosulfan II	3.9	UL	4.5	U	4.7	UL	NA		NA		4.1	U	3.9	U	8.9	R
Endosulfan Sulfate	3.9	UL	4.5	U	1.1	J	NA		NA		4.1	U	3.9	U	3.9	U
Endrin	3.9	UL	4.5	U	4.7	UL	NA		NA		4.1	U	8.4	R	12	J
Endrin Aldehyde	3.9	UL	2.6	J	1.3	B	NA		NA		4.1	U	3.9	U	11	J
Endrin Ketone	3.9	UL	4.5	U	4.7	UL	NA		NA		4.1	U	8.8	B	20	B
Gamma-BHC (Lindane)	2	UL	2.3	U	2.4	UL	NA		NA		2.1	U	2	U	2	U
Gamma-Chlordane	0.64	B	2.3	U	6.9	R	NA		NA		4.7	R	15	R	11	J
Heptachlor	2	UL	2.3	U	1.1	J	NA		NA		2.1	U	1.1	J	2.3	R
Heptachlor Epoxide	0.37	J	0.95	R	1.4	R	NA		NA		2.1	U	3.9	R	6	R
Methoxychlor	20	UL	23	U	24	UL	NA		NA		21	U	110	R	250	B
Total Aroclor		U		U		U	NA		NA			U		U		U
Total Aroclor Halfnd	84		96.5		101.5		NA		NA		88.5		84.5		84.5	
Total Ddt		U	3		2.9		NA		NA			U	14.6		3.2	
Total Ddt Halfnd	5.85		5.25		2.9		NA		NA		6.15		14.6		3.2	
Toxaphene	98	UL	110	U	120	UL	NA		NA		100	U	99	U	99	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP03-000.5-01		12TP03-0506-04		12TP03-0506-CS		12TP03-0607-03		12TP03-0809-05		12TP04-0.502-02		12TP04-000.5-01		12TP04-0405-03	
Sample Date:	**1/5/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:																
DIOXIN/FURAN			**ng/kg**													
1,2,3,4,6,7,8,9-OCDD	NA		757	J	NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		64	J	NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		178		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		102		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		13.9		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		8.07		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		61		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		21.7		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		23.8		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		28.7		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		1.29	J	NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		7.78		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		12.4	J	NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		36.3	J	NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		24.8	J	NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		2.83		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		7		NA		NA		NA		NA		NA		NA	
Teq	NA		40.3933		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		60.7986		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		60.7986		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		42.1771		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		42.1771		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		40.3933		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		364		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		116		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		268		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		228		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		151		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		164		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		73.2		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		235		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12600		12500		NA		13500		11900		17800		17700		23800	
Antimony	0.46	R	3.4	J	NA		0.52	R	0.33	UL	0.53	R	0.49	R	0.61	R
Arsenic	2.6	L	108	L	NA		5.1	L	2.2	L	5.1	L	8.1	L	3.5	L
Barium	104		1110		NA		92.6		151		82.4		99.5		62.8	
Beryllium	0.85	K	0.95	K	NA		0.55	K	0.78	K	0.82	K	1	K	0.68	K
Cadmium	0.39	R	7.8	K	NA		1.4	K	0.28	R	0.48	R	0.43	K	0.65	R
Calcium	1660		15100		NA		3260		350		612		493		677	
Chromium	19.3	L	192	L	19		17.4	L	13.4	L	22.2	L	20.2	L	25.7	L
Cobalt	9.2		8.4		NA		8.7		12.6		8		7.3		16.3	
Copper	18.6		639		NA		50.6		9		11.5		14.7		8.5	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP03-000.5-01**		**12TP03-0506-04**		**12TP03-0506-CS**		**12TP03-0607-03**		**12TP03-0809-05**		**12TP04-0.502-02**		**12TP04-000.5-01**		**12TP04-0405-03**	
Sample Date:	**1/5/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:																
Iron	18700		33800		NA		18000		15700		20300		15600		28700	
Lead	20.7	J	5540	J	NA		79.4	J	5.9	J	14.9	J	28.9	J	10.9	J
Magnesium	2010	J	2630	J	NA		2390	J	1300	J	1990	J	1730	J	2000	J
Manganese	442		411		NA		426		1690		445		679		320	
Mercury	0.035		0.28		NA		0.074		0.02	U	0.055		0.12		0.037	
Nickel	13.3		27.1		NA		12.1		13.3		12		12.7		14.2	
Potassium	1310		1220	L	NA		757	L	618	L	1110	L	742	L	1320	
Selenium	2.2	L	5.5	L	NA		2.4	L	1	L	0.4	UR	0.48	UR	0.43	UR
Silver	0.12	UJ	2.1	J	NA		0.1	UJ	0.11	UJ	0.11	UJ	0.13	UJ	0.11	UJ
Sodium	173	R	603	K	NA		274	K	172	K	139	R	147	R	181	R
Thallium	0.64	UJ	2.7		NA		0.58	UJ	1.2	J	0.6	UJ	0.71	J	0.63	UJ
Vanadium	27.4		34.8		NA		58.8		22.4		33.3		30.5		39.4	
Zinc	35.4	J	938	J	NA		42.1	J	20.7	J	31.9	J	47.6	J	21.1	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.14	U	0.13	U	NA		0.12	U	0.14	U	0.27	B	0.17	B	0.13	U
Hexavalent Chromium	NA		NA		0.12	UJ	NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
					mv											
Oxidation Reduction Potential	NA		NA		181.3		NA		NA		NA		NA		NA	
					s.u.											
Ph	NA		NA		7.03		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
1,2,4,5-Tetrachlorobenzene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,2'-Oxybis(1-chloropropane)	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,3,4,6-Tetrachlorophenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,4,5-Trichlorophenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,4,6-Trichlorophenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,4-Dichlorophenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,4-Dimethylphenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,4-Dinitrophenol	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
2,4-Dinitrotoluene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2,6-Dinitrotoluene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2-Chloronaphthalene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2-Chlorophenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2-Methylnaphthalene	220	U	29	J	NA		480	J	210	U	210	U	220	U	400	
2-Methylphenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
2-Nitroaniline	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
2-Nitrophenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP03-000.5-01		12TP03-0506-04		12TP03-0506-CS		12TP03-0607-03		12TP03-0809-05		12TP04-0.502-02		12TP04-000.5-01		12TP04-0405-03	
Sample Date:	**1/5/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:																
3-Nitroaniline	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
4,6-Dinitro-2-methylphenol	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
4-Bromophenyl Phenyl Ether	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
4-Chloro-3-methylphenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
4-Chloroaniline	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
4-Chlorophenyl Phenyl Ether	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
4-Methylphenol	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
4-Nitroaniline	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
4-Nitrophenol	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
Acenaphthene	49	J	32	J	NA		460	J	210	U	210	U	220	U	200	U
Acenaphthylene	97	J	220	U	NA		220	J	210	U	210	U	220	U	200	U
Acetophenone	420	U	160	B	NA		1200	U	410	U	400	U	430	U	390	U
Anthracene	300		39	J	NA		890		45	J	210	U	29	J	200	U
Atrazine	220	U	220	U	NA		590	UJ	210	UJ	210	UJ	220	UJ	200	UJ
Benz(a)anthracene	1600		1300		NA		1900		160	J	210	U	94	J	200	U
Benzaldehyde	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Benzo(a)pyrene	1400		2200		NA		2200		140	J	210	U	120	J	200	U
Benzo(b)fluoranthene	1700		2800		NA		2800		120	J	210	U	140	J	200	U
Benzo(g,h,i)perylene	540		670		NA		1000		81	J	210	U	50	J	200	U
Benzo(k)fluoranthene	1400		1800		NA		3000		210	U	210	U	220	U	200	U
Bis(2-chloroethoxy)methane	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Bis(2-chloroethyl)ether	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Bis(2-ethylhexyl)phthalate	74	B	160	B	NA		550	B	210	U	210	U	60	B	200	U
Butylbenzylphthalate	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Caprolactam	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Carbazole	420	U	420	U	NA		500	J	410	U	400	U	430	U	390	U
Chrysene	1600		1600		NA		2600		170	J	210	U	170	J	200	U
Di-n-butylphthalate	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Di-n-octylphthalate	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Dibenz(a,h)anthracene	260		330		NA		530	J	27	J	210	U	220	U	200	U
Dibenzofuran	220	U	220	U	NA		290	J	210	U	210	U	220	U	200	U
Diethylphthalate	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Dimethylphthalate	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Fluoranthene	2800		750		NA		4900		340		37	J	390		200	U
Fluorene	61	J	33	J	NA		620		210	U	210	U	220	U	200	U
Hexachlorobenzene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Hexachlorobutadiene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Hexachlorocyclopentadiene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Hexachloroethane	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Indeno(1,2,3-cd)pyrene	700		900		NA		1200		93	J	210	U	220	U	200	U
Isophorone	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
N-Nitroso-di-n-propylamine	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
N-Nitrosodiphenylamine (1)	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Naphthalene	220	U	52	J	NA		280	J	210	U	210	U	220	U	170	J
Nitrobenzene	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP03-000.5-01**		**12TP03-0506-04**		**12TP03-0506-CS**		**12TP03-0607-03**		**12TP03-0809-05**		**12TP04-0.502-02**		**12TP04-000.5-01**		**12TP04-0405-03**	
Sample Date:	**1/5/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:																
Pentachlorophenol	420	U	420	U	NA		1200	U	410	U	400	U	430	U	390	U
Phenanthrene	920		140	J	NA		3900		140	J	26	J	280		200	U
Phenol	220	U	220	U	NA		590	U	210	U	210	U	220	U	200	U
Pyrene	2700		1100		NA		5400		280		27	J	290		200	U
Total Pahs	16127		13775		NA		32380		12756		189.26		3754		585.3	
Total Pahs Halfnd	16347		13885		NA		32380		13056		304.26		3919		1098.8	
PAHS									**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	NA		NA		NA		NA		200	U	10	U	110	U	200	
Acenaphthene	NA		NA		NA		NA		53	J	10	U	25	J	9	J
Acenaphthylene	NA		NA		NA		NA		200	U	0.86	J	15	J	79	U
Anthracene	NA		NA		NA		NA		670		2	J	120		79	U
Benz(a)anthracene	NA		NA		NA		NA		1100		8.2	J	210		79	U
Benzo(a)pyrene	NA		NA		NA		NA		850		13		270		79	U
Benzo(b)fluoranthene	NA		NA		NA		NA		870		18		360		79	U
Benzo(g,h,i)perylene	NA		NA		NA		NA		450		7.7	J	110	J	79	U
Benzo(k)fluoranthene	NA		NA		NA		NA		800		13		240		79	U
Chrysene	NA		NA		NA		NA		1000		14		280		79	U
Dibenz(a,h)anthracene	NA		NA		NA		NA		110	J	1.5	J	110	U	79	U
Fluoranthene	NA		NA		NA		NA		2700		43		810		79	U
Fluorene	NA		NA		NA		NA		93	J	2	J	34	J	6.3	J
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		560		10	J	160		79	U
Naphthalene	NA		NA		NA		NA		200	U	1.3	B	110	U	95	
Phenanthrene	NA		NA		NA		NA		1600		27		530		79	U
Pyrene	NA		NA		NA		NA		1900		29		590		79	U
Total Pahs	NA		NA		NA		NA		12756		189.26		3754		310.3	
Total Pahs Halfnd	NA		NA		NA		NA		13056		199.91		3919		823.8	
VOLATILES	**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,1,2,2-Tetrachloroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,1,2-Trichloroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,1,2-Trichlorotrifluoroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,1-Dichloroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,1-Dichloroethene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2,3-Trichlorobenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	82	J
1,2,4-Trichlorobenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	48	J
1,2-Dibromo-3-chloropropane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2-Dibromoethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2-Dichlorobenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2-Dichloroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2-Dichloroethene (cis)	6.5	U	7.6	J	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2-Dichloroethene (trans)	6.5	U	7.3	J	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,2-Dichloropropane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,3-Dichlorobenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP03-000.5-01**		**12TP03-0506-04**		**12TP03-0506-CS**		**12TP03-0607-03**		**12TP03-0809-05**		**12TP04-0.502-02**		**12TP04-000.5-01**		**12TP04-0405-03**	
Sample Date:	**1/5/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:																
1,4-Dichlorobenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	15	J	27	U	NA		14	J	12	J	18		33		650	U
2-Hexanone	16	U	27	U	NA		15	UJ	14	U	15	U	17	U	650	U
4-Methyl-2-pentanone	16	U	27	U	NA		15	UJ	14	U	15	U	17	U	650	U
Acetone	180		41	B	NA		64	J	95		190		370		650	U
Benzene	6.5	U	3.1	J	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Bromoform	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Bromomethane	9.5	U	16	U	NA		9	UJ	7.9	U	8.6	U	10	U	260	U
Carbon Disulfide	10		4.8	J	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Carbon Tetrachloride	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Chlorobenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Chloroethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Chloroform	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Chloromethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
cis-1,3-Dichloropropene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Cyclohexane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Dibromochloromethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Dichlorodifluoromethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Ethylbenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	280	
Isopropylbenzene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	540	
M+p-xylenes	13	U	22	U	NA		12	UJ	11	U	12	U	14	U	970	
Methyl Acetate	35		11	U	NA		6.2	UJ	5.4	U	5.9	U	5.9	J	260	U
Methyl Cyclohexane	6.5	U	11	U	NA		2.9	J	5.4	U	5.9	U	7	U	880	
Methyl Tert-butyl Ether	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Methylene Chloride	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
O-xylene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Styrene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Tetrachloroethene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Toluene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
trans-1,3-Dichloropropene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Trichloroethene	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Trichlorofluoromethane	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Vinyl Chloride	6.5	U	19		NA		6.2	UJ	5.4	U	5.9	U	7	U	260	U
Xylene (Total)	6.5	U	11	U	NA		6.2	UJ	5.4	U	5.9	U	7	U	970	
PESTICIDES/PCBS	**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	3.6	R	5.8	R	NA		19	R	4.1	UJ	4	U	4.3	U	3.9	U
4,4'-DDE	4.2	U	5.1	R	NA		22	J	4.1	UJ	4	U	4.3	U	3.9	U
4,4'-DDT	3.1	J	4.2	U	NA		15	J	4.1	UJ	4	U	4.3	U	3.9	U
Aldrin	2.2	U	2.2	U	NA		2	UJ	2.1	UJ	2.1	U	2.2	U	2	U
Alpha-BHC	2.2	U	1.1	J	NA		2	UJ	2.1	UJ	2.1	U	2.2	U	2	U
Alpha-Chlordane	2.4		2.2	U	NA		2	UJ	2.1	UJ	2.1	U	2.2	U	2	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP03-000.5-01**		**12TP03-0506-04**		**12TP03-0506-CS**		**12TP03-0607-03**		**12TP03-0809-05**		**12TP04-0.502-02**		**12TP04-000.5-01**		**12TP04-0405-03**	
Sample Date:	**1/5/2010**		**1/5/2010**		**12/19/2011**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**		**1/5/2010**	
Duplicate:																
Aroclor-1016	31	U	30	U	NA		28	UJ	30	UJ	29	U	32	U	29	U
Aroclor-1221	44	U	43	U	NA		40	UJ	42	UJ	41	U	45	U	40	U
Aroclor-1232	22	U	22	U	NA		20	UJ	21	UJ	21	U	22	U	20	U
Aroclor-1242	22	U	22	U	NA		20	UJ	21	UJ	21	U	22	U	20	U
Aroclor-1248	22	U	22	U	NA		20	UJ	21	UJ	21	U	22	U	20	U
Aroclor-1254	22	U	22	U	NA		20	UJ	21	UJ	21	U	22	U	20	U
Aroclor-1260	22	U	22	U	NA		20	UJ	21	UJ	21	U	22	U	20	U
Beta-BHC	1.1	U	1.1	U	NA		73	R	1.1	UJ	1	U	14	R	0.56	B
Delta-BHC	2.2	U	2.2	U	NA		2	UJ	2.1	UJ	2.1	U	2.2	U	2	U
Dieldrin	4.2	U	2.5	J	NA		38	U	4.1	UJ	4.3	R	4.3	U	3.9	U
Endosulfan I	2.2	U	0.99	J	NA		11	J	2.1	UJ	2.1	U	2.2	U	2	U
Endosulfan II	4.2	U	1.2	J	NA		14	J	4.1	UJ	4	U	5	R	3.9	U
Endosulfan Sulfate	4.2	U	4.2	U	NA		3.8	UJ	4.1	UJ	4	U	4.3	U	3.9	U
Endrin	4.2	U	6.8	J	NA		3.8	UJ	4.1	UJ	4	U	4.3	U	3.9	U
Endrin Aldehyde	4.2	U	6.2	J	NA		17	J	4.1	UJ	4	U	2.9	J	3.9	U
Endrin Ketone	9.1	B	11	B	NA		290	B	110	B	9.7	B	4.3	U	3.9	U
Gamma-BHC (Lindane)	2.2	U	2.2	U	NA		2	UJ	2.1	UJ	2.1	U	2.2	U	2	U
Gamma-Chlordane	0.65	B	5.5	J	NA		100	R	2.1	UJ	3.8	R	2.2	U	0.59	B
Heptachlor	2.2	U	1.3	J	NA		3	R	2.1	UJ	0.49	J	2.2	U	0.72	J
Heptachlor Epoxide	0.84	J	1.7	J	NA		7.8	J	2.1	UJ	2.1	U	4.7	R	2	U
Methoxychlor	22	U	61		NA		120	J	84	R	21	U	22	U	20	U
Total Aroclor		U		U	NA			U		U		U		U		U
Total Aroclor Halfnd	92.5		91.5		NA		84		88.5		87.5		93.5		84.5	
Total Ddt	3.1			U	NA		37			U		U		U		U
Total Ddt Halfnd	5.2		2.1		NA		37		6.15		6		6.45		5.85	
Toxaphene	110	U	110	U	NA		97	UJ	100	UJ	100	U	110	U	99	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP04-0607-04		12TP05-0.502-02		12TP05-000.5-01		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0.502-02		12TP06-000.5-01	
Sample Date:	**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Duplicate:									**12TP05-0204-03**							
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	14400		16500		14000		17800		16200		17200		17200		17300	
Antimony	0.46	R	1	J	0.92	J	0.62	R	0.58	R	0.59	R	0.62	R	0.55	R
Arsenic	2.1	L	5.1	K	6.5	K	4.4	K	3.5	K	0.58	R	3.5	L	7.2	L
Barium	90.3		89.9		87.4		56.4		51.8		116		95.1		101	
Beryllium	0.95	K	0.61	J	0.65	K	0.41	K	0.32	J	1.4		0.77	K	1	K
Cadmium	0.31	R	8.7	K	2.6	K	0.38	R	0.28	R	0.3	R	0.35	R	0.76	K
Calcium	685		1450	J	2820	J	806	J	766	J	1480	J	2060		1020	
Chromium	16.2	L	27.5		20.7		21.2		20.2		18		18.3	L	20.1	L
Cobalt	14.2		6.4	J	7.3	J	13.8	J	6.4	J	10.3	J	7.1		7.4	
Copper	4.3		107	J	28.7	K	12.8	K	11.8	J	5.7	K	23.5		33.2	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP04-0607-04**		**12TP05-0.502-02**		**12TP05-000.5-01**		**12TP05-0204-03**		**12TP05-0204-03-D**		**12TP05-0910-04**		**12TP06-0.502-02**		**12TP06-000.5-01**	
Sample Date:	**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Duplicate:									**12TP05-0204-03**							
Iron	18200		18800		18400		22500		19300		18200		18100		16800	
Lead	4.9	J	81.6	J	99.7	J	9.6	J	8.6	J	14.2	J	9.1	J	34.1	J
Magnesium	838	J	1710	J	1750	J	2710	J	2750	J	3460	J	2500	J	1790	J
Manganese	958		357		469		390		236		40.9		428		764	
Mercury	0.021	U	0.12		0.16		0.02	U	0.13		0.02	U	0.02	U	0.097	
Nickel	11.7		13	J	13.1	J	12.7	J	12.4	J	21.7	J	11.5		12.4	
Potassium	413	J	639		873		1110		1070		3500		873	L	876	L
Selenium	0.44	UR	0.43	UR	0.46	UR	0.43	UR	0.41	UR	0.44	UR	0.39	UR	0.43	UR
Silver	0.12	UJ	0.13		0.32		0.11	U	0.11	U	0.12	U	0.11	UJ	0.11	UJ
Sodium	188	K	151	B	146	B	152	B	140	B	185	B	171	R	148	R
Thallium	0.65	UJ	0.63	U	0.67	U	0.89		1		0.65	U	0.58	UJ	0.93	J
Vanadium	23.2		30.3		29.7		39.4		35.4		18.4		27.5		32.2	
Zinc	16.8	J	195		114		28.9		27.8		37.1		24.5	J	49.6	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.26	B	0.17	U	0.2	U	0.18	U	0.18	U	0.17	U	0.13	U	0.21	B
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		NA		NA	
Ph	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
1,2,4,5-Tetrachlorobenzene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,2'-Oxybis(1-chloropropane)	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,3,4,6-Tetrachlorophenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,4,5-Trichlorophenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,4,6-Trichlorophenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,4-Dichlorophenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,4-Dimethylphenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,4-Dinitrophenol	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
2,4-Dinitrotoluene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2,6-Dinitrotoluene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2-Chloronaphthalene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2-Chlorophenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2-Methylnaphthalene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2-Methylphenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
2-Nitroaniline	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
2-Nitrophenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP04-0607-04		12TP05-0.502-02		12TP05-000.5-01		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0.502-02		12TP06-000.5-01	
Sample Date:	1/5/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010		1/6/2010	
Duplicate:									12TP05-0204-03							
3-Nitroaniline	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
4,6-Dinitro-2-methylphenol	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
4-Bromophenyl Phenyl Ether	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
4-Chloro-3-methylphenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
4-Chloroaniline	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
4-Chlorophenyl Phenyl Ether	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
4-Methylphenol	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
4-Nitroaniline	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
4-Nitrophenol	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
Acenaphthene	220	U	28	J	220	U	210	U	210	U	210	U	200	U	220	U
Acenaphthylene	220	U	46	J	120	J	210	U	210	U	210	U	200	U	51	J
Acetophenone	420	U	160	B	120	B	53	B	410	U	410	U	390	U	420	U
Anthracene	220	U	140	J	190	J	210	U	210	U	210	U	200	U	66	J
Atrazine	220	UJ	210	UJ	220	UJ	210	UJ	210	UJ	210	UJ	200	U	220	U
Benz(a)anthracene	220	U	410		1100		210	U	210	U	210	U	62	J	230	
Benzaldehyde	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Benzo(a)pyrene	220	U	500		1300		210	U	210	U	210	U	68	J	300	
Benzo(b)fluoranthene	220	U	460		1500		210	U	210	U	210	U	55	J	280	
Benzo(g,h,i)perylene	220	U	160	J	390		210	U	210	U	210	U	49	J	200	J
Benzo(k)fluoranthene	220	U	740	J	1700	J	210	U	210	U	210	U	200	U	300	
Bis(2-chloroethoxy)methane	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Bis(2-chloroethyl)ether	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Bis(2-ethylhexyl)phthalate	220	U	530	B	230	B	210	U	210	U	210	U	55	B	59	B
Butylbenzylphthalate	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Caprolactam	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Carbazole	420	U	110	J	95	J	400	U	410	U	410	U	390	U	420	U
Chrysene	220	U	600		1200		210	U	210	U	210	U	81	J	390	
Di-n-butylphthalate	220	U	29	J	35	J	210	U	210	U	210	U	200	U	220	U
Di-n-octylphthalate	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Dibenz(a,h)anthracene	220	U	88	J	220	J	210	U	210	U	210	U	200	U	56	J
Dibenzofuran	220	U	32	J	220	U	210	U	210	U	210	U	200	U	220	U
Diethylphthalate	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Dimethylphthalate	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Fluoranthene	220	U	1300		2200		210	U	210	U	210	U	150	J	970	
Fluorene	220	U	50	J	32	J	210	U	210	U	210	U	200	U	48	J
Hexachlorobenzene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Hexachlorobutadiene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Hexachlorocyclopentadiene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Hexachloroethane	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Indeno(1,2,3-cd)pyrene	220	U	220		520		210	U	210	U	210	U	200	U	240	
Isophorone	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
N-Nitroso-di-n-propylamine	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
N-Nitrosodiphenylamine (1)	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Naphthalene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Nitrobenzene	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP04-0607-04**		**12TP05-0.502-02**		**12TP05-000.5-01**		**12TP05-0204-03**		**12TP05-0204-03-D**		**12TP05-0910-04**		**12TP06-0.502-02**		**12TP06-000.5-01**	
Sample Date:	**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Duplicate:									**12TP05-0204-03**							
Pentachlorophenol	420	U	410	U	430	U	400	U	410	U	410	U	390	U	420	U
Phenanthrene	220	U	820		600		210	U	210	U	210	U	69	J	690	
Phenol	220	U	210	U	220	U	210	U	210	U	210	U	200	U	220	U
Pyrene	220	U	990		2000		210	U	210	U	210	U	130	J	690	
Total Pahs	23.68		6588.4		14687		15.36			U		U	844.8		4620.7	
Total Pahs Halfnd	271.18		6588.4		14687		260.36		1785		85		944.8		4620.7	
PAHS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**	
2-Methylnaphthalene	11	U	8.2	J	12		10	U	NA		10	U	1.7	J	7.1	J
Acenaphthene	11	U	18		26		10	U	NA		10	U	1.8	J	14	
Acenaphthylene	11	U	24		160		10	U	NA		10	U	17		47	
Anthracene	0.74	J	45		210		10	U	NA		10	U	13		60	
Benz(a)anthracene	1.3	J	210	J	1200	J	1.3	J	NA		10	U	68		190	
Benzo(a)pyrene	1.6	J	260	J	1300	J	0.79	B	NA		10	U	68		250	J
Benzo(b)fluoranthene	2	J	330	J	1700	J	1.4	J	NA		10	U	73		360	J
Benzo(g,h,i)perylene	0.94	J	180		770	J	0.66	J	NA		10	U	47		180	
Benzo(k)fluoranthene	1.9	B	280	J	1100	J	1.2	J	NA		10	U	59		250	J
Chrysene	2	J	300	J	1200	J	1.5	J	NA		10	U	79		320	J
Dibenz(a,h)anthracene	11	U	47		210		10	U	NA		10	U	10		42	
Fluoranthene	6.9	J	760	J	2600	J	3.6	J	NA		10	U	140		870	J
Fluorene	0.9	J	32		38		10	U	NA		10	U	3.3	J	32	
Indeno(1,2,3-cd)pyrene	1.2	J	210	J	930	J	0.69	B	NA		10	U	51		210	J
Naphthalene	11	U	8.2	J	11		10	U	NA		10	U	1.9	B	8.6	J
Phenanthrene	6.1	J	450	J	610	J	2.9	J	NA		10	U	61		590	J
Pyrene	4.6	B	540	J	2000	J	2.8	J	NA		10	U	130		610	J
Total Pahs	23.68		3702.4		14077		15.36		NA			U	822.8		4040.7	
Total Pahs Halfnd	54.43		3702.4		14077		51.1		NA		85		823.75		4040.7	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,1,2,2-Tetrachloroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,1,2-Trichloroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,1,2-Trichlorotrifluoroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,1-Dichloroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,1-Dichloroethene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2,3-Trichlorobenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2,4-Trichlorobenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dibromo-3-chloropropane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dibromoethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dichlorobenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dichloroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dichloroethene (cis)	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dichloroethene (trans)	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,2-Dichloropropane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,3-Dichlorobenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP04-0607-04		12TP05-0.502-02		12TP05-000.5-01		12TP05-0204-03		12TP05-0204-03-D		12TP05-0910-04		12TP06-0.502-02		12TP06-000.5-01	
Sample Date:	**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Duplicate:									**12TP05-0204-03**							
1,4-Dichlorobenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	22		31		28		13	U	14	U	13	U	20		17	
2-Hexanone	13	U	14	U	17	U	13	U	14	U	13	U	13	U	16	U
4-Methyl-2-pentanone	13	U	14	U	17	U	13	U	14	U	13	U	13	U	16	U
Acetone	150		240		330		36	B	35	B	21	U	140		250	
Benzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Bromoform	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Bromomethane	7.8	U	8	U	9.9	U	7.5	U	8.5	U	7.4	U	7.5	U	9.6	U
Carbon Disulfide	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Carbon Tetrachloride	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Chlorobenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Chloroethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Chloroform	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Chloromethane	5.4	U	2.3	J	2.1	J	5.1	U	5.8	U	5	U	5.1	U	6.6	U
cis-1,3-Dichloropropene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Cyclohexane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Dibromochloromethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Dichlorodifluoromethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Ethylbenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Isopropylbenzene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
M+p-xylenes	11	U	11	U	14	U	10	U	12	U	10	U	10	U	13	U
Methyl Acetate	5.4	U	5.5	U	140		5.1	U	5.8	U	5	U	4	J	29	J
Methyl Cyclohexane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Methyl Tert-butyl Ether	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Methylene Chloride	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
O-xylene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Styrene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Tetrachloroethene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Toluene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
trans-1,3-Dichloropropene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Trichloroethene	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Trichlorofluoromethane	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Vinyl Chloride	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
Xylene (Total)	5.4	U	5.5	U	6.8	U	5.1	U	5.8	U	5	U	5.1	U	6.6	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.2	U	2.6	R	2.5	J	4	U	4.1	U	4.1	U	3.9	U	4.2	U
4,4'-DDE	4.2	U	15	J	3.1	J	4	U	4.1	U	4.1	U	3.9	U	4.6	R
4,4'-DDT	4.2	U	41	J	8	J	4	U	4.1	U	0.97	J	3.9	U	1.7	J
Aldrin	2.2	U	2.1	U	2.2	U	2.1	U	2.1	U	2.1	U	2	U	2.2	U
Alpha-BHC	2.2	U	2.1	U	2.2	U	2.1	U	2.1	U	2.1	U	2	U	2.2	U
Alpha-Chlordane	2.2	U	13	J	2.7	J	2.1	U	2.1	U	2.1	U	0.33	J	2.9	J

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP04-0607-04**		**12TP05-0.502-02**		**12TP05-000.5-01**		**12TP05-0204-03**		**12TP05-0204-03-D**		**12TP05-0910-04**		**12TP06-0.502-02**		**12TP06-000.5-01**	
Sample Date:	**1/5/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/6/2010**	
Duplicate:									**12TP05-0204-03**							
Aroclor-1016	30	U	30	U	32	U	29	U	30	U	30	U	29	U	31	U
Aroclor-1221	43	U	42	U	45	U	41	U	42	U	42	U	40	U	44	U
Aroclor-1232	22	U	21	U	22	U	21	U	21	U	21	U	20	U	22	U
Aroclor-1242	22	U	21	U	22	U	21	U	21	U	21	U	20	U	22	U
Aroclor-1248	22	U	21	U	22	U	21	U	21	U	21	U	20	U	22	U
Aroclor-1254	22	U	21	U	22	U	21	U	21	U	21	U	20	U	22	U
Aroclor-1260	22	U	21	U	22	U	21	U	21	U	21	U	20	U	22	U
Beta-BHC	1.1	U	5.5	U	1.1	U	1	U	1.1	U	1.1	U	4	B	1.1	U
Delta-BHC	2.2	U	0.39	J	2.2	U	2.1	U	2.1	U	2.1	U	2	U	2.2	U
Dieldrin	4.2	U	20	J	2.9	J	4	U	4.1	U	4.1	U	3.9	U	4.2	U
Endosulfan I	2.2	U	0.54	J	0.99	R	2.1	U	2.1	U	2.1	U	2	U	1.2	R
Endosulfan II	5.5	R	1.8	B	4.3	U	4	U	4.1	U	4.1	U	3.9	U	4.2	U
Endosulfan Sulfate	4.2	U	4.1	U	4.3	U	4	U	4.1	U	4.1	U	3.9	U	4.2	U
Endrin	4.2	U	2.5	J	4.3	U	4	U	4.1	U	4.1	U	3.9	U	4.2	U
Endrin Aldehyde	4.2	U	6.9	J	5	J	4	U	4.1	U	4.1	U	3.9	U	4.2	U
Endrin Ketone	4.2	U	4.1	U	9.1	R	4	U	4.1	U	4.1	U	3.9	U	4.2	U
Gamma-BHC (Lindane)	2.2	U	2.1	U	2.2	U	2.1	U	2.1	U	2.1	U	2	U	2.2	U
Gamma-Chlordane	2.2	U	4.7	J	5	R	0.73	J	2.1	U	0.49	J	0.68	B	3	B
Heptachlor	2.2	U	0.66	J	2.2	U	2.1	U	2.1	U	0.43	J	2	U	1.2	J
Heptachlor Epoxide	2.2	U	2.4	R	2	J	2.1	U	2.1	U	2.1	U	2	U	1.8	J
Methoxychlor	22	U	21	U	12	R	21	U	21	U	21	U	20	U	22	U
Total Aroclor		U		U		U		U		U		U		U		U
Total Aroclor Halfnd	91.5		88.5		93.5		87.5		88.5		88.5		84.5		92.5	
Total Ddt		U	56		13.6			U		U	0.97			U	1.7	
Total Ddt Halfnd	6.3		56		13.6		6		6.15		5.07		5.85		3.8	
Toxaphene	110	U	100	U	110	U	100	U	100	U	100	U	99	U	110	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP06-0506-03		12TP06-0506-03-D		12TP06-0910-04		12TP07-0.502-02		12TP07-000.5-01		12TP07-0607-03		12TP08-0.502-02		12TP08-000.5-01	
Sample Date:	**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**	
Duplicate:			**12TP06-0506-03**													
DIOXIN/FURAN	**ng/kg**		**ng/kg**													
1,2,3,4,6,7,8,9-OCDD	1260	J	1580	J	NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	8.28		5.88	B	NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	50.2		35.7		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	7.26		4.41		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	0.401	J	0.303	J	NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	2.24	J	0.758	J	NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	4.46		3.35		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	3.1		1.58	J	NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	1.71	J	1.52	J	NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	6.46		2.01	J	NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	0.161	U	0.108	U	NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	2.12	J	0.991	J	NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	1.94	J	2.34	J	NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	2.39	J	2	J	NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	3.46		4.37		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	0.768	J	0.389	J	NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	2.76		3.17		NA		NA		NA		NA		NA		NA	
Teq	7.255294		5.07813		NA		NA		NA		NA		NA		NA	
Teq Bird	11.200638		10.33653		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	11.208688		10.342224		NA		NA		NA		NA		NA		NA	
Teq Fish	7.178238		5.18323		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	7.186288		5.188924		NA		NA		NA		NA		NA		NA	
Teq Halfnd	7.263344		5.084412		NA		NA		NA		NA		NA		NA	
Total HpCDD	152	J	90.5	J	NA		NA		NA		NA		NA		NA	
Total HpCDF	17.8		11.4		NA		NA		NA		NA		NA		NA	
Total HxCDD	81.7	J	34.2	J	NA		NA		NA		NA		NA		NA	
Total HxCDF	26.2		20.8		NA		NA		NA		NA		NA		NA	
Total PeCDD	46.1		29.2		NA		NA		NA		NA		NA		NA	
Total PeCDF	57.2		69.7		NA		NA		NA		NA		NA		NA	
Total TCDD	33.8		44.7		NA		NA		NA		NA		NA		NA	
Total TCDF	138		190		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**				**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	20200		NA		16100		15000		18500		13400		13900		8960	
Antimony	0.87	J	NA		0.67	R	0.73	K	1.1	J	0.45	R	0.92	J	2	K
Arsenic	6.5	L	NA		1.4	L	5.8	K	6.4	K	1.7	K	9.6		29.8	
Barium	99.6		NA		98.2		111		78.1		68		242		140	
Beryllium	0.65	K	NA		0.76	K	0.79	K	0.54	K	0.43	K	0.51	K	0.46	K
Cadmium	0.6	R	NA		0.56	R	0.42	R	0.78	K	0.18	R	4.2	K	2.3	K
Calcium	1570		NA		908		905	J	1250	J	712	J	11300	J	3000	J
Chromium	26.7	L	NA		23.1	L	22.5		26.3		17.2		18.6		12	
Cobalt	9.2		NA		9.1		7.1	J	7.8	J	5.2	J	5.6	J	4.3	J
Copper	15.3		NA		4.5		32.9	K	22.5	K	8.2	K	98.8	K	31	K
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP06-0506-03**		**12TP06-0506-03-D**	**12TP06-0910-04**		**12TP07-0.502-02**		**12TP07-000.5-01**		**12TP07-0607-03**		**12TP08-0.502-02**		**12TP08-000.5-01**	
Sample Date:	**1/6/2010**		**1/6/2010**	**1/6/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**	
Duplicate:			**12TP06-0506-03**												
Iron	23900		NA	26900		18100		26500		12900		19200		37100	
Lead	20.1	J	NA	10.8	J	53	J	52.6	J	5.7	J	88.6	J	88.3	J
Magnesium	2420	J	NA	1640	J	1580	J	2060	J	1540	J	3660	J	1250	J
Manganese	605		NA	168		455		326		275		399		237	
Mercury	0.079		NA	0.023		0.066		0.077		0.019	U	0.079		0.26	
Nickel	14		NA	10.9		10.9	J	13.5	J	9.1	J	14.4	J	8.8	J
Potassium	1230	L	NA	1380		535		998		792		845		914	
Selenium	2.9	L	NA	0.42	UR	0.41	UR	0.43	UR	0.4	UR	0.43	UR	0.46	UR
Silver	0.61	J	NA	0.11	UJ	0.11	U	0.12	U	0.11	U	7.7		3	
Sodium	202	R	NA	168	R	122	B	127	B	139	B	248	B	187	B
Thallium	0.68	UJ	NA	0.62	UJ	0.69		0.64	U	0.59	U	0.63	U	0.68	U
Vanadium	40.6		NA	28		26.4		41.3		20.1		19.5		26.3	
Zinc	40.5	J	NA	13.2	J	77.2		73.4		18.3		213		172	
MISCELLANEOUS PARAMETERS	**mg/kg**			**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.14	U	NA	0.13	U	0.17	U	0.19	U	0.17	U	0.18	U	0.19	U
Hexavalent Chromium	NA		NA	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	NA		NA	NA		NA		NA		NA		NA		NA	
Oxidation Reduction Potential	NA		NA	NA		NA		NA		NA		NA		NA	
Ph	NA		NA	NA		NA		NA		NA		NA		NA	
SEMIVOLATILES	**ug/kg**			**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
1,2,4,5-Tetrachlorobenzene	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,2'-Oxybis(1-chloropropane)	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,3,4,6-Tetrachlorophenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,4,5-Trichlorophenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,4,6-Trichlorophenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,4-Dichlorophenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,4-Dimethylphenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,4-Dinitrophenol	420	U	NA	410	U	410	U	420	U	390	U	3900	U	2700	U
2,4-Dinitrotoluene	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2,6-Dinitrotoluene	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2-Chloronaphthalene	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2-Chlorophenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2-Methylnaphthalene	130	J	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2-Methylphenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
2-Nitroaniline	420	U	NA	410	U	410	U	420	U	390	U	3900	U	2700	U
2-Nitrophenol	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U
3&4-Methylphenol	NA		NA	NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	220	U	NA	210	U	210	U	220	U	200	U	2000	U	1400	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP06-0506-03		12TP06-0506-03-D		12TP06-0910-04		12TP07-0.502-02		12TP07-000.5-01		12TP07-0607-03		12TP08-0.502-02		12TP08-000.5-01	
Sample Date:	**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**	
Duplicate:			**12TP06-0506-03**													
3-Nitroaniline	420	U	NA		410	U	410	U	420	U	390	U	3900	U	2700	U
4,6-Dinitro-2-methylphenol	420	U	NA		410	U	410	U	420	U	390	U	3900	U	2700	U
4-Bromophenyl Phenyl Ether	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
4-Chloro-3-methylphenol	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
4-Chloroaniline	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
4-Chlorophenyl Phenyl Ether	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
4-Methylphenol	420	U	NA		410	U	410	U	420	U	390	U	3900	U	2700	U
4-Nitroaniline	420	U	NA		410	U	410	U	420	U	390	U	3900	U	2700	U
4-Nitrophenol	420	U	NA		410	U	410	U	420	U	390	U	3900	U	2700	U
Acenaphthene	410		NA		210	U	210	U	220	U	200	U	330	J	510	J
Acenaphthylene	160	J	NA		210	U	210	U	220	U	200	U	670	J	520	J
Acetophenone	52	B	NA		410	U	86	B	140	B	76	B	700	B	730	B
Anthracene	1100		NA		210	U	210	U	220	U	200	U	2700		2200	
Atrazine	220	UJ	NA		210	U	210	UJ	220	UJ	200	UJ	2000	UJ	1400	UJ
Benz(a)anthracene	2500		NA		210	U	210	U	99	J	200	U	7600		5800	
Benzaldehyde	41	J	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Benzo(a)pyrene	2100		NA		210	U	210	U	110	J	200	U	6800		5200	
Benzo(b)fluoranthene	2800		NA		210	U	22	J	100	J	200	U	5600		4900	
Benzo(g,h,i)perylene	700		NA		210	U	210	U	42	J	200	U	1800	J	1400	
Benzo(k)fluoranthene	2200		NA		210	U	210	U	220	U	200	U	8600	J	6000	J
Bis(2-chloroethoxy)methane	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Bis(2-chloroethyl)ether	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Bis(2-ethylhexyl)phthalate	52	B	NA		60	B	210	U	220	U	200	U	2000	U	1400	U
Butylbenzylphthalate	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Caprolactam	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Carbazole	390	J	NA		410	U	410	U	420	U	390	U	3900	U	660	J
Chrysene	2400		NA		210	U	210	U	130	J	200	U	8000		6100	
Di-n-butylphthalate	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Di-n-octylphthalate	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Dibenz(a,h)anthracene	340		NA		210	U	210	U	220	U	200	U	1300	J	950	J
Dibenzofuran	220		NA		210	U	210	U	220	U	200	U	2000	U	340	J
Diethylphthalate	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Dimethylphthalate	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Fluoranthene	6300	J	NA		210	U	61	J	290		200	U	17000		13000	
Fluorene	560		NA		210	U	210	U	220	U	200	U	520	J	630	J
Hexachlorobenzene	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Hexachlorobutadiene	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Hexachlorocyclopentadiene	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Hexachloroethane	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Indeno(1,2,3-cd)pyrene	880		NA		210	U	210	U	220	U	200	U	2700		2000	
Isophorone	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
N-Nitroso-di-n-propylamine	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
N-Nitrosodiphenylamine (1)	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Naphthalene	190	J	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Nitrobenzene	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U

Sample ID:	**12TP06-0506-03**		**12TP06-0506-03-D**		**12TP06-0910-04**		**12TP07-0.502-02**		**12TP07-000.5-01**		**12TP07-0607-03**		**12TP08-0.502-02**		**12TP08-000.5-01**	
Sample Date:	**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**	
Duplicate:			**12TP06-0506-03**													
Pentachlorophenol	420	U	NA		410	U	410	U	420	U	390	U	3900	U	2700	U
Phenanthrene	4700		NA		210	U	37	J	160	J	200	U	8100		7900	
Phenol	220	U	NA		210	U	210	U	220	U	200	U	2000	U	1400	U
Pyrene	5200		NA		210	U	45	J	210	J	200	U	14000		10000	
Total Pahs	32670		NA		6.08		568.8		1242.1		0.95		85720		67110	
Total Pahs Halfnd	32670		NA		171.08		778.8		1462.1		80.15		87720		68510	
PAHS					**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**					
2-Methylnaphthalene	NA		NA		10	U	1.9	J	2.1	J	0.95	J	NA		NA	
Acenaphthene	NA		NA		10	U	1.7	J	1.6	J	9.9	U	NA		NA	
Acenaphthylene	NA		NA		10	U	4.2	B	3.3	B	9.9	U	NA		NA	
Anthracene	NA		NA		10	U	5.6	J	6.9	J	9.9	U	NA		NA	
Benz(a)anthracene	NA		NA		0.77	J	39		32		9.9	U	NA		NA	
Benzo(a)pyrene	NA		NA		10	U	53		37		9.9	U	NA		NA	
Benzo(b)fluoranthene	NA		NA		10	U	53		40		9.9	U	NA		NA	
Benzo(g,h,i)perylene	NA		NA		10	U	39		27		9.9	U	NA		NA	
Benzo(k)fluoranthene	NA		NA		10	U	68		52		9.9	U	NA		NA	
Chrysene	NA		NA		0.91	J	55		46		9.9	U	NA		NA	
Dibenz(a,h)anthracene	NA		NA		10	U	9.6	J	5.4	J	9.9	U	NA		NA	
Fluoranthene	NA		NA		2.3	J	85		100		9.9	U	NA		NA	
Fluorene	NA		NA		10	U	3	J	2.1	J	9.9	U	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		10	U	45		31		9.9	U	NA		NA	
Naphthalene	NA		NA		10	U	2.1	B	2	B	9.9	U	NA		NA	
Phenanthrene	NA		NA		2.1	J	44		58		9.9	U	NA		NA	
Pyrene	NA		NA		2.1	B	66		77		9.9	U	NA		NA	
Total Pahs	NA		NA		6.08		568.8		518.1		0.95		NA		NA	
Total Pahs Halfnd	NA		NA		67.13		571.95		520.75		80.15		NA		NA	
VOLATILES	**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,1,2,2-Tetrachloroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,1,2-Trichloroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,1,2-Trichlorotrifluoroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,1-Dichloroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,1-Dichloroethene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2,3-Trichlorobenzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2,4-Trichlorobenzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dibromo-3-chloropropane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dibromoethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dichlorobenzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dichloroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dichloroethene (cis)	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dichloroethene (trans)	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,2-Dichloropropane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,3-Dichlorobenzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP06-0506-03**		**12TP06-0506-03-D**		**12TP06-0910-04**		**12TP07-0.502-02**		**12TP07-000.5-01**		**12TP07-0607-03**		**12TP08-0.502-02**		**12TP08-000.5-01**	
Sample Date:	**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**	
Duplicate:			**12TP06-0506-03**													
1,4-Dichlorobenzene	2.8	J	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	13	U	NA		15	U	19		10	J	14	U	13	U	12	J
2-Hexanone	13	U	NA		15	U	14	U	14	U	14	U	13	U	16	U
4-Methyl-2-pentanone	13	U	NA		15	U	14	U	14	U	14	U	13	U	16	U
Acetone	21	B	NA		57		220		140		40	B	48	B	140	
Benzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Bromoform	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Bromomethane	7.7	U	NA		8.6	U	8.4	U	8.2	U	7.9	U	7.6	U	9.4	U
Carbon Disulfide	2.4	J	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.7		3.2	J
Carbon Tetrachloride	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Chlorobenzene	4	J	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Chloroethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Chloroform	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Chloromethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
cis-1,3-Dichloropropene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Cyclohexane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Dibromochloromethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Dichlorodifluoromethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Ethylbenzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Isopropylbenzene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
M+p-xylenes	11	U	NA		12	U	12	U	11	U	11	U	10	U	13	U
Methyl Acetate	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	12	
Methyl Cyclohexane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Methyl Tert-butyl Ether	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Methylene Chloride	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
O-xylene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Styrene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Tetrachloroethene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Toluene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
trans-1,3-Dichloropropene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Trichloroethene	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Trichlorofluoromethane	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Vinyl Chloride	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
Xylene (Total)	5.3	U	NA		5.9	U	5.8	U	5.6	U	5.4	U	5.2	U	6.5	U
PESTICIDES/PCBS	**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	5.5		NA		4.1	U	4.1	U	4.2	U	3.9	U	8.8	R	6.2	J
4,4'-DDE	4.2	U	NA		4.1	U	4.1	U	4.2	U	3.9	U	3.9	U	18	J
4,4'-DDT	2.7	J	NA		4.1	U	4.1	U	1.8	J	3.9	U	18	J	18	J
Aldrin	2.2	U	NA		2.1	U	2.1	U	2.2	U	2	U	2	U	2.3	U
Alpha-BHC	2.2	U	NA		2.1	U	2.1	U	2.2	U	2	U	2	U	1.9	J
Alpha-Chlordane	2.2	U	NA		2.1	U	2.1	U	2.2	U	2	U	2	U	2.3	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP06-0506-03**		**12TP06-0506-03-D**		**12TP06-0910-04**		**12TP07-0.502-02**		**12TP07-000.5-01**		**12TP07-0607-03**		**12TP08-0.502-02**		**12TP08-000.5-01**	
Sample Date:	**1/6/2010**		**1/6/2010**		**1/6/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**		**1/7/2010**	
Duplicate:			**12TP06-0506-03**													
Aroclor-1016	31	U	NA		30	U	30	U	31	U	29	U	29	U	33	U
Aroclor-1221	44	U	NA		42	U	42	U	44	U	40	U	40	U	47	U
Aroclor-1232	22	U	NA		21	U	21	U	22	U	20	U	20	U	23	U
Aroclor-1242	22	U	NA		21	U	21	U	22	U	20	U	20	U	23	U
Aroclor-1248	22	U	NA		21	U	21	U	22	U	20	U	20	U	23	U
Aroclor-1254	22	U	NA		21	U	21	U	22	U	20	U	20	U	23	U
Aroclor-1260	22	U	NA		21	U	21	U	22	U	20	U	20	U	23	U
Beta-BHC	5.5	U	NA		1.1	U	1.9	J	3.9	R	1	U	160	R	5.8	U
Delta-BHC	1.3	J	NA		2.1	U	2.1	U	2.2	U	2	U	2.6	R	2.8	J
Dieldrin	4.2	U	NA		4.1	U	4.1	U	4.2	U	3.9	U	37	R	31	R
Endosulfan I	2.2	U	NA		2.1	U	2.1	U	2.2	U	2	U	2.2	J	4.4	R
Endosulfan II	4.2	U	NA		4.1	U	4.1	U	4.2	U	3.9	U	17	R	11	R
Endosulfan Sulfate	4.2	U	NA		4.1	U	4.1	U	4.2	U	3.9	U	3.9	U	4.5	U
Endrin	4.2	U	NA		4.1	U	4.1	U	4.2	U	3.9	U	22	R	14	R
Endrin Aldehyde	1.8	J	NA		4.1	U	4.1	U	4.2	U	3.9	U	20	J	12	J
Endrin Ketone	4.2	U	NA		4.1	U	4.1	U	4.2	U	3.9	U	240	R	93	R
Gamma-BHC (Lindane)	2.2	U	NA		2.1	U	2.1	U	2.2	U	2	U	2	U	2.3	U
Gamma-Chlordane	4.1	R	NA		2.1	U	0.87	J	2.2	U	2	U	20	U	12	U
Heptachlor	2.7	R	NA		2.1	U	0.31	J	0.39	J	2	U	1.8	R	1.2	J
Heptachlor Epoxide	2.1	J	NA		2.1	U	2.1	U	2.2	U	2	U	4.1	J	5.4	R
Methoxychlor	9.3	B	NA		21	U	21	U	22	U	20	U	200	U	33	J
Total Aroclor		U	NA			U		U		U		U		U		U
Total Aroclor Halfnd	92.5		NA		88.5		88.5		92.5		84.5		84.5		97.5	
Total Ddt	8.2		NA			U		U	1.8			U	18		42.2	
Total Ddt Halfnd	10.3		NA		6.15		6.15		6		5.85		19.95		42.2	
Toxaphene	110	U	NA		100	U	100	U	110	U	99	U	99	U	110	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP08-0304-03		12TP08-0304-CS		12TP09-0.502-02		12TP09-000.5-01		12TP09-0304-03		12TP09-0304-03-D		12TP09-0304-CS		12TP09-0506-04	
Sample Date:	**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/6/2010**		**12/19/2011**		**1/8/2010**	
Duplicate:											**12TP09-0304-03**					
DIOXIN/FURAN	**ng/kg**															
1,2,3,4,6,7,8,9-OCDD	2080	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	34.6	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	298	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	50.5	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	4.58	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	5.06	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	36.3	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	12.2	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	13.1	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	17.5	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	0.633	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	4.66	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	10.1		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	17.2	J	NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	17.6		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	1.53		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	8.92	J	NA		NA		NA		NA		NA		NA		NA	
Teq	27.02948		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	43.62856		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	43.62856		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	26.55156		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	26.55156		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	27.02948		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	552		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	83.7		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	184		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	144		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	109		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	227		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	92		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	368		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	21100		NA		20700		13000		28300		23700		NA		16700	
Antimony	5.2	R	NA		2.1	J	0.88	J	12.8	J	12.1	J	NA		0.52	R
Arsenic	24	K	NA		3.8	K	3.7	K	16.6	K	12.9	K	NA		1.7	K
Barium	305		NA		153		81.9		335		333		NA		44.4	
Beryllium	0.72	K	NA		0.44	K	0.49	K	0.64	K	1		NA		0.49	K
Cadmium	105		NA		1.4	K	0.69	K	40.2		46.8	K	NA		0.24	R
Calcium	67600	J	NA		55800	J	2220	J	19200	J	33100	J	NA		1190	J
Chromium	55		25		35.6		16.1		58.1		75.5		65		17.3	
Cobalt	13.9	J	NA		7.8	J	7.2	J	10.6	J	9.1	J	NA		5.3	J
Copper	412	K	NA		30.5	K	16.6	K	1110	K	1170	K	NA		5	K
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP08-0304-03**		**12TP08-0304-CS**		**12TP09-0.502-02**		**12TP09-000.5-01**		**12TP09-0304-03**		**12TP09-0304-03-D**		**12TP09-0304-CS**		**12TP09-0506-04**	
Sample Date:	**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/6/2010**		**12/19/2011**		**1/8/2010**	
Duplicate:											**12TP09-0304-03**					
Iron	81600		NA		18400		14200		55600		50900		NA		18000	
Lead	435	J	NA		33.4	J	57.1	J	872	J	378	J	NA		6.9	J
Magnesium	4350	J	NA		5140	J	1490	J	3050	J	5310	J	NA		1330	J
Manganese	946		NA		401		401		795		910		NA		107	
Mercury	0.25		NA		0.096		0.099		0.22		0.3		NA		0.018	U
Nickel	54.4	J	NA		27.4	J	10.5	J	98.1	J	117	J	NA		7.1	J
Potassium	1670		NA		2480		879		1210		1330		NA		798	
Selenium	0.48	UR	NA		0.45	UR	0.42	UR	0.43	UR	0.45	UR	NA		0.4	UR
Silver	10.5		NA		0.24		0.78		3.2		4.3		NA		0.11	U
Sodium	791	R	NA		241	B	195	B	785	K	540	B	NA		142	B
Thallium	0.71	U	NA		0.66	U	0.62	U	1.9		1.3		NA		0.58	U
Vanadium	30.1		NA		31.7		23.6		32.1		34		NA		25.6	
Zinc	2680		NA		144		77.4		4560	J	1200	J	NA		14	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.41	B	NA		0.18	U	0.17	U	0.51	B	0.4	B	NA		0.17	U
Hexavalent Chromium	NA		1.5		NA		NA		NA		NA		2.2		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
			mv										**mv**			
Oxidation Reduction Potential	NA		255.3		NA		NA		NA		NA		162.6		NA	
			s.u.										**s.u.**			
Ph	NA		7.02		NA		NA		NA		NA		6.93		NA	
SEMIVOLATILES	**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
1,1-Biphenyl	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
1,2,4,5-Tetrachlorobenzene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,2'-Oxybis(1-chloropropane)	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,3,4,6-Tetrachlorophenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,4,5-Trichlorophenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,4,6-Trichlorophenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,4-Dichlorophenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,4-Dimethylphenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,4-Dinitrophenol	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
2,4-Dinitrotoluene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2,6-Dinitrotoluene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2-Chloronaphthalene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2-Chlorophenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2-Methylnaphthalene	240	U	NA		220	U	210	U	2200	J	890	U	NA		200	U
2-Methylphenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
2-Nitroaniline	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
2-Nitrophenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP08-0304-03		12TP08-0304-CS		12TP09-0.502-02		12TP09-000.5-01		12TP09-0304-03		12TP09-0304-03-D		12TP09-0304-CS		12TP09-0506-04	
Sample Date:	**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/6/2010**		**12/19/2011**		**1/8/2010**	
Duplicate:											**12TP09-0304-03**					
3-Nitroaniline	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
4,6-Dinitro-2-methylphenol	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
4-Bromophenyl Phenyl Ether	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
4-Chloro-3-methylphenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
4-Chloroaniline	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
4-Chlorophenyl Phenyl Ether	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
4-Methylphenol	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
4-Nitroaniline	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
4-Nitrophenol	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
Acenaphthene	62	J	NA		79	J	210	U	5100		140	J	NA		200	U
Acenaphthylene	170	J	NA		220	U	33	J	4400	U	890	U	NA		200	U
Acetophenone	460	U	NA		36	B	52	B	660	B	1700	U	NA		400	U
Anthracene	550		NA		340		67	J	13000	J	1200	J	NA		200	U
Atrazine	240	UJ	NA		220	UJ	210	UJ	4400	UJ	890	UJ	NA		200	UJ
Benz(a)anthracene	1700		NA		1000		310		22000	J	7900	J	NA		200	U
Benzaldehyde	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Benzo(a)pyrene	1400		NA		900		340		16000	J	6800	J	NA		200	U
Benzo(b)fluoranthene	1400		NA		740		300		15000		7100		NA		200	U
Benzo(g,h,i)perylene	390		NA		420		220		8800		4500		NA		200	U
Benzo(k)fluoranthene	1800	J	NA		1000	J	330	J	18000	J	8100	J	NA		200	U
Bis(2-chloroethoxy)methane	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Bis(2-chloroethyl)ether	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Bis(2-ethylhexyl)phthalate	66	B	NA		220	U	210	U	4400	U	890	U	NA		200	U
Butylbenzylphthalate	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Caprolactam	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Carbazole	62	J	NA		160	J	44	J	8400	J	770	J	NA		400	U
Chrysene	1900		NA		1000		380		24000	J	8700	J	NA		200	U
Di-n-butylphthalate	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Di-n-octylphthalate	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Dibenz(a,h)anthracene	250		NA		180	J	66	J	4100	J	1900		NA		200	U
Dibenzofuran	49	J	NA		41	J	210	U	4600		160	J	NA		200	U
Diethylphthalate	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Dimethylphthalate	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Fluoranthene	3600		NA		2000		650		48000	J	10000	J	NA		30	J
Fluorene	120	J	NA		88	J	210	U	6900		150	J	NA		200	U
Hexachlorobenzene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Hexachlorobutadiene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Hexachlorocyclopentadiene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Hexachloroethane	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Indeno(1,2,3-cd)pyrene	540		NA		510		250		10000		5000		NA		200	U
Isophorone	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
N-Nitroso-di-n-propylamine	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
N-Nitrosodiphenylamine (1)	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Naphthalene	240	U	NA		220	U	27	J	5800		890	U	NA		200	U
Nitrobenzene	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP08-0304-03		12TP08-0304-CS		12TP09-0.502-02		12TP09-000.5-01		12TP09-0304-03		12TP09-0304-03-D		12TP09-0304-CS		12TP09-0506-04	
Sample Date:	**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/6/2010**		**12/19/2011**		**1/8/2010**	
Duplicate:											**12TP09-0304-03**					
Pentachlorophenol	460	U	NA		420	U	410	U	8600	U	1700	U	NA		400	U
Phenanthrene	1700		NA		1100		290		48000	J	4200	J	NA		24	J
Phenol	240	U	NA		220	U	210	U	4400	U	890	U	NA		200	U
Pyrene	3200		NA		1600		510		36000	J	8500	J	NA		200	U
Total Pahs	18782		NA		10957		3773		282900		74190		NA		54.94	
Total Pahs Halfnd	19022		NA		11287		4088		285100		75525		NA		124.94	
PAHS											**ug/kg**				**ug/kg**	
2-Methylnaphthalene	NA		NA		NA		NA		NA		10	U	NA		0.94	J
Acenaphthene	NA		NA		NA		NA		NA		10	U	NA		10	U
Acenaphthylene	NA		NA		NA		NA		NA		10	U	NA		10	U
Anthracene	NA		NA		NA		NA		NA		10	U	NA		10	U
Benz(a)anthracene	NA		NA		NA		NA		NA		10	U	NA		10	U
Benzo(a)pyrene	NA		NA		NA		NA		NA		10	U	NA		10	U
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		10	U	NA		10	U
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		10	U	NA		10	U
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		10	U	NA		10	U
Chrysene	NA		NA		NA		NA		NA		10	U	NA		10	U
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		10	U	NA		10	U
Fluoranthene	NA		NA		NA		NA		NA		10	U	NA		10	U
Fluorene	NA		NA		NA		NA		NA		10	U	NA		10	U
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		10	U	NA		10	U
Naphthalene	NA		NA		NA		NA		NA		10	U	NA		10	U
Phenanthrene	NA		NA		NA		NA		NA		10	U	NA		10	U
Pyrene	NA		NA		NA		NA		NA		10	U	NA		10	U
Total Pahs	NA		NA		NA		NA		NA			U	NA		0.94	
Total Pahs Halfnd	NA		NA		NA		NA		NA		85		NA		80.94	
VOLATILES	**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
1,1,1-Trichloroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,1,2,2-Tetrachloroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,1,2-Trichloroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,1,2-Trichlorotrifluoroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,1-Dichloroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,1-Dichloroethene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2,3-Trichlorobenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2,4-Trichlorobenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dibromo-3-chloropropane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dibromoethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dichlorobenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dichloroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dichloroethene (cis)	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dichloroethene (trans)	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,2-Dichloropropane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,3-Dichlorobenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP08-0304-03		12TP08-0304-CS		12TP09-0.502-02		12TP09-000.5-01		12TP09-0304-03		12TP09-0304-03-D		12TP09-0304-CS		12TP09-0506-04	
Sample Date:	**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/6/2010**		**12/19/2011**		**1/8/2010**	
Duplicate:											**12TP09-0304-03**					
1,4-Dichlorobenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	15	J	NA		21	U	35		7	B	26	U	NA		24	U
2-Hexanone	27	UJ	NA		21	U	17	U	13	U	26	U	NA		24	U
4-Methyl-2-pentanone	27	UJ	NA		21	U	17	U	13	U	26	U	NA		24	U
Acetone	180	J	NA		70		310		25	B	190		NA		37	B
Benzene	17	J	NA		8.3	U	6.7	U	11		44		NA		9.6	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Bromoform	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Bromomethane	16	UJ	NA		12	U	9.9	U	7.9	J	78	J	NA		14	U
Carbon Disulfide	11	UJ	NA		8.3	U	6.7	U	1.1	J	5.3	J	NA		9.6	U
Carbon Tetrachloride	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Chlorobenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Chloroethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Chloroform	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Chloromethane	24	J	NA		8.3	U	6.7	U	16		130		NA		9.6	U
cis-1,3-Dichloropropene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Cyclohexane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Dibromochloromethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Dichlorodifluoromethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Ethylbenzene	11	UJ	NA		8.3	U	6.7	U	1.3	J	10	U	NA		9.6	U
Isopropylbenzene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
M+p-xylenes	21	UJ	NA		17	U	13	U	11	U	21	U	NA		19	U
Methyl Acetate	11	UJ	NA		8.3	U	150		5.3	U	10	U	NA		9.6	U
Methyl Cyclohexane	11	UJ	NA		8.3	U	6.7	U	5.3	U	3.8	J	NA		9.6	U
Methyl Tert-butyl Ether	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Methylene Chloride	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
O-xylene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Styrene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Tetrachloroethene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Toluene	6.6	J	NA		8.3	U	1.6	J	8.6		13		NA		9.6	U
trans-1,3-Dichloropropene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Trichloroethene	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Trichlorofluoromethane	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Vinyl Chloride	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
Xylene (Total)	11	UJ	NA		8.3	U	6.7	U	5.3	U	10	U	NA		9.6	U
PESTICIDES/PCBS	**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
4,4'-DDD	6.4	R	NA		4.2	UJ	4.1	U	4.6	R	4.3	U	NA		4	U
4,4'-DDE	22	R	NA		1.7	J	0.86	J	5.6	R	6.1	J	NA		4	U
4,4'-DDT	13	J	NA		5.7	J	3.1	J	11		14		NA		4	U
Aldrin	2.4	U	NA		2.2	UJ	2.1	U	2.2	U	2.2	U	NA		2	U
Alpha-BHC	3	J	NA		2.2	UJ	2.1	U	2.2	U	2.2	U	NA		2	U
Alpha-Chlordane	24	U	NA		3.1	R	2.1	U	7.1	J	6.6	J	NA		2	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP08-0304-03**		**12TP08-0304-CS**		**12TP09-0.502-02**		**12TP09-000.5-01**		**12TP09-0304-03**		**12TP09-0304-03-D**		**12TP09-0304-CS**		**12TP09-0506-04**	
Sample Date:	**1/7/2010**		**12/19/2011**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/6/2010**		**12/19/2011**		**1/8/2010**	
Duplicate:											**12TP09-0304-03**					
Aroclor-1016	33	U	NA		31	UJ	30	U	31	U	32	U	NA		29	U
Aroclor-1221	47	U	NA		44	UJ	43	U	44	U	45	U	NA		41	U
Aroclor-1232	24	U	NA		22	UJ	21	U	22	U	22	U	NA		20	U
Aroclor-1242	24	U	NA		22	UJ	21	U	22	U	22	U	NA		20	U
Aroclor-1248	24	U	NA		22	UJ	21	U	22	U	22	U	NA		20	U
Aroclor-1254	24	U	NA		22	UJ	21	U	22	U	22	U	NA		20	U
Aroclor-1260	24	U	NA		22	UJ	21	U	22	U	22	U	NA		20	U
Beta-BHC	120	R	NA		6.8	R	11	R	11	U	74	R	NA		1	U
Delta-BHC	4.1	R	NA		2.2	UJ	0.83	J	0.75	R	0.99	J	NA		2	U
Dieldrin	20	R	NA		4	J	11		32	R	6	J	NA		4	U
Endosulfan I	2	J	NA		2.2	UJ	2.1	U	2.2	U	3.3	R	NA		2	U
Endosulfan II	9.8	R	NA		4.2	UJ	0.58	B	5	R	3.7	R	NA		4	U
Endosulfan Sulfate	4.6	U	NA		4.2	UJ	4.1	U	4.3	U	4.3	U	NA		4	U
Endrin	13	J	NA		4.2	UJ	4.1	U	4.3	U	4.3	U	NA		4	U
Endrin Aldehyde	4.6	U	NA		4.7	J	2	J	8.5	R	6.2	R	NA		4	U
Endrin Ketone	180	R	NA		18	R	4.1	U	15		12	J	NA		4	U
Gamma-BHC (Lindane)	2.4	U	NA		2.2	UJ	2.1	U	2.2	U	2.2	U	NA		2	U
Gamma-Chlordane	24	U	NA		8.3	R	1.1	J	8.9	J	3.6	J	NA		2	U
Heptachlor	1.3	J	NA		0.57	J	2.1	U	3	R	3.6	R	NA		2	U
Heptachlor Epoxide	3.6	J	NA		2.2	UJ	1.1	J	4.1	R	3	J	NA		3.6	R
Methoxychlor	240	U	NA		22	UJ	21	U	22	U	22	U	NA		20	U
Total Aroclor		U	NA			U		U		U		U	NA			U
Total Aroclor Halfnd	100		NA		92.5		89		92.5		93.5		NA		85	
Total Ddt	13		NA		7.4		3.96		11		20.1		NA			U
Total Ddt Halfnd	13		NA		9.5		6.01		11		22.25		NA		6	
Toxaphene	120	U	NA		110	UJ	100	U	110	U	110	U	NA		100	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP09-0506-05		12TP10-0.502-02		12TP10-000.5-01		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0.502-02		12TP11-000.5-01	
Sample Date:	**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**12/19/2011**		**1/8/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:																
DIOXIN/FURAN	**ng/kg**															
1,2,3,4,6,7,8,9-OCDD	1080		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	111		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	540		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	652		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	44.9		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	35.5		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	451	J	NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	72.5		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	214		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	52.8		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	8.89		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	28.4		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	108	J	NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	320	J	NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	243		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	5.69	J	NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	86.4		NA		NA		NA		NA		NA		NA		NA	
Teq	247.0653		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	489.0871		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	489.0871		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	291.3301		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	291.3301		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	247.0653		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	1370		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	771		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	2800		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	2010		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	1470		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	2720		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	928		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	4270		NA		NA		NA		NA		NA		NA		NA	
INORGANICS			**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	NA		20300		15800		17400		NA		11100		17800		12900	
Antimony	NA		0.62	R	0.66	R	24.4	J	NA		0.35	UL	2.3	J	1.1	J
Arsenic	NA		8.1	K	5.2	K	12.6	K	NA		0.77	J	5.8	J	5.5	J
Barium	NA		83.7		59.2		300		NA		121	J	225	L	109	L
Beryllium	NA		0.55	K	0.43	K	0.44	R	NA		0.71	J	1.3	L	0.83	J
Cadmium	NA		0.7	R	0.41	R	18.4	K	NA		0.09	R	2.8	J	1.2	J
Calcium	NA		749	J	656	J	6240	J	NA		1040	J	28100	J	2020	J
Chromium	NA		27.7		21.2		46.6		54		7.1		25.5		18.5	
Cobalt	NA		9.7	J	7	J	17.7	J	NA		8.9	J	6.9	J	9.9	J
Copper	NA		17.7	K	14.4	K	561	K	NA		8.2		94.6		35.5	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP09-0506-05**		**12TP10-0.502-02**		**12TP10-000.5-01**		**12TP10-0405-03**		**12TP10-0405-CS**		**12TP10-0809-04**		**12TP11-0.502-02**		**12TP11-000.5-01**	
Sample Date:	**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**12/19/2011**		**1/8/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:																
Iron	NA		28100		20900		93000		NA		9870	J	15500	J	17100	J
Lead	NA		44.7	J	17.1	J	2180	J	NA		3.2	J	157	J	96.1	J
Magnesium	NA		2330	J	1970	J	2500	J	NA		464	J	11000	J	1690	J
Manganese	NA		283		293		1050		NA		1030	J	1020	J	746	J
Mercury	NA		0.043		0.053		0.068		NA		0.018	U	0.07	K	0.1	K
Nickel	NA		13.3	J	11.3	J	60.8	J	NA		8.5	J	13.5	J	12.9	J
Potassium	NA		948		1020		948		NA		238	L	1100	L	846	L
Selenium	NA		0.43	UR	0.43	UR	0.45	UR	NA		0.44	UR	0.44	UR	0.43	UR
Silver	NA		0.12	U	0.11	U	8.6		NA		0.12	U	0.85	K	0.11	U
Sodium	NA		151	B	129	B	416	B	NA		152	B	370	B	142	B
Thallium	NA		0.78		0.63	U	1.7		NA		0.65	U	1.1	K	0.63	U
Vanadium	NA		44.9		35.1		26		NA		13.1		25.1		26.7	
Zinc	NA		46.2		35.7		2330		NA		16.5		448		132	
MISCELLANEOUS PARAMETERS			**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	NA		0.18	U	0.19	U	0.18	U	NA		0.18	U	0.28	B	0.41	B
Hexavalent Chromium	NA		NA		NA		NA		2.2		NA		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
									mv							
Oxidation Reduction Potential	NA		NA		NA		NA		233.8		NA		NA		NA	
									s.u.							
Ph	NA		NA		NA		NA		7.31		NA		NA		NA	
SEMIVOLATILES			**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
1,2,4,5-Tetrachlorobenzene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,2'-Oxybis(1-chloropropane)	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,3,4,6-Tetrachlorophenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,4,5-Trichlorophenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,4,6-Trichlorophenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,4-Dichlorophenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,4-Dimethylphenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,4-Dinitrophenol	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
2,4-Dinitrotoluene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2,6-Dinitrotoluene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2-Chloronaphthalene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2-Chlorophenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2-Methylnaphthalene	NA		210	U	220	U	1300	U	NA		210	U	570	J	2200	U
2-Methylphenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
2-Nitroaniline	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
2-Nitrophenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U

Sample ID:	12TP09-0506-05		12TP10-0.502-02		12TP10-000.5-01		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0.502-02		12TP11-000.5-01	
Sample Date:	**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**12/19/2011**		**1/8/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:																
3-Nitroaniline	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
4,6-Dinitro-2-methylphenol	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
4-Bromophenyl Phenyl Ether	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
4-Chloro-3-methylphenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
4-Chloroaniline	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
4-Chlorophenyl Phenyl Ether	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
4-Methylphenol	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
4-Nitroaniline	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
4-Nitrophenol	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
Acenaphthene	NA		210	U	220	U	1100	J	NA		210	U	3200		2200	U
Acenaphthylene	NA		210	U	220	U	1300	U	NA		210	U	660	J	2200	U
Acetophenone	NA		410	U	430	U	160	B	NA		400	U	4200	U	4200	U
Anthracene	NA		210	U	220	U	3300		NA		210	U	16000		1600	J
Atrazine	NA		210	UJ	220	UJ	1300	UJ	NA		210	UJ	2200	UJ	2200	UJ
Benz(a)anthracene	NA		210	U	34	J	5100		NA		210	U	21000	J	7300	
Benzaldehyde	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Benzo(a)pyrene	NA		210	U	36	J	3600		NA		210	U	21000	J	7000	
Benzo(b)fluoranthene	NA		210	U	30	J	3000		NA		210	U	19000	J	6300	
Benzo(g,h,i)perylene	NA		210	U	31	J	2200		NA		210	U	25000		4300	
Benzo(k)fluoranthene	NA		210	U	220	U	3900	J	NA		210	U	30000		10000	
Bis(2-chloroethoxy)methane	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Bis(2-chloroethyl)ether	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Bis(2-ethylhexyl)phthalate	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Butylbenzylphthalate	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Caprolactam	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Carbazole	NA		410	U	430	U	1100	J	NA		400	U	8200		4200	U
Chrysene	NA		210	U	48	J	5000		NA		210	U	22000	J	8400	
Di-n-butylphthalate	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Di-n-octylphthalate	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Dibenz(a,h)anthracene	NA		210	U	220	U	700	J	NA		210	U	12000		2200	
Dibenzofuran	NA		210	U	220	U	940	J	NA		210	U	3700		2200	U
Diethylphthalate	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Dimethylphthalate	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Fluoranthene	NA		33	J	92	J	14000		NA		210	U	44000	J	16000	
Fluorene	NA		210	U	220	U	880	J	NA		210	U	6900		2200	U
Hexachlorobenzene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Hexachlorobutadiene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Hexachlorocyclopentadiene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Hexachloroethane	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Indeno(1,2,3-cd)pyrene	NA		210	U	220	U	2700		NA		210	U	30000		5100	
Isophorone	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
N-Nitroso-di-n-propylamine	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
N-Nitrosodiphenylamine (1)	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Naphthalene	NA		210	U	220	U	170	J	NA		210	U	660	J	2200	U
Nitrobenzene	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP09-0506-05		12TP10-0.502-02		12TP10-000.5-01		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0.502-02		12TP11-000.5-01	
Sample Date:	**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**12/19/2011**		**1/8/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:																
Pentachlorophenol	NA		410	U	430	U	2500	U	NA		400	U	4200	U	4200	U
Phenanthrene	NA		210	U	42	J	12000		NA		210	U	14000	J	6200	
Phenol	NA		210	U	220	U	1300	U	NA		210	U	2200	U	2200	U
Pyrene	NA		210	U	69	J	9800		NA		210	U	35000	J	16000	
Total Pahs	NA		222.7		407.01		67450		NA		168.56		300990		90400	
Total Pahs Halfnd	NA		235.72		638.01		68750		NA		293.56		300990		95900	
PAHS			**ug/kg**		**ug/kg**						**ug/kg**					
2-Methylnaphthalene	NA		1.4	J	1.2	J	NA		NA		10	U	NA		NA	
Acenaphthene	NA		10	U	11	U	NA		NA		10	U	NA		NA	
Acenaphthylene	NA		1.1	B	1.5	B	NA		NA		10	U	NA		NA	
Anthracene	NA		3.4	J	2.4	J	NA		NA		2.6	J	NA		NA	
Benz(a)anthracene	NA		16		13		NA		NA		14		NA		NA	
Benzo(a)pyrene	NA		18		17		NA		NA		14		NA		NA	
Benzo(b)fluoranthene	NA		23		22		NA		NA		17		NA		NA	
Benzo(g,h,i)perylene	NA		12		12		NA		NA		9.1	J	NA		NA	
Benzo(k)fluoranthene	NA		21		18		NA		NA		16		NA		NA	
Chrysene	NA		22		21		NA		NA		18		NA		NA	
Dibenz(a,h)anthracene	NA		2.7	J	2.5	J	NA		NA		2.2	J	NA		NA	
Fluoranthene	NA		45		45		NA		NA		34		NA		NA	
Fluorene	NA		1.2	J	0.91	J	NA		NA		0.66	J	NA		NA	
Indeno(1,2,3-cd)pyrene	NA		14	B	14	B	NA		NA		10	B	NA		NA	
Naphthalene	NA		0.94	B	11	U	NA		NA		10	U	NA		NA	
Phenanthrene	NA		23		20		NA		NA		12		NA		NA	
Pyrene	NA		34		36		NA		NA		29		NA		NA	
Total Pahs	NA		222.7		211.01		NA		NA		168.56		NA		NA	
Total Pahs Halfnd	NA		235.72		229.76		NA		NA		193.56		NA		NA	
VOLATILES			**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,1,2,2-Tetrachloroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,1,2-Trichloroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,1,2-Trichlorotrifluoroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,1-Dichloroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,1-Dichloroethene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2,3-Trichlorobenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2,4-Trichlorobenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dibromo-3-chloropropane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dibromoethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dichlorobenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dichloroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dichloroethene (cis)	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dichloroethene (trans)	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,2-Dichloropropane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,3-Dichlorobenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U

Sample ID:	12TP09-0506-05		12TP10-0.502-02		12TP10-000.5-01		12TP10-0405-03		12TP10-0405-CS		12TP10-0809-04		12TP11-0.502-02		12TP11-000.5-01	
Sample Date:	**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**12/19/2011**		**1/8/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:																
1,4-Dichlorobenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	NA		14	U	16		8.1	B	NA		14	U	15	J	18	J
2-Hexanone	NA		14	U	15	U	17	UJ	NA		14	U	21	U	20	U
4-Methyl-2-pentanone	NA		14	U	15	U	17	UJ	NA		14	U	21	U	20	U
Acetone	NA		100		250		100	J	NA		74		180	J	230	
Benzene	NA		5.5	U	6.1	U	14	J	NA		5.5	U	8.2	U	8.2	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Bromoform	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Bromomethane	NA		8	U	9	U	6.3	J	NA		8	U	12	U	12	U
Carbon Disulfide	NA		5.5	U	6.1	U	6.1	J	NA		5.5	U	2.9	J	8.2	U
Carbon Tetrachloride	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Chlorobenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Chloroethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Chloroform	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Chloromethane	NA		5.5	U	6.1	U	11	J	NA		5.5	U	8.2	U	8.2	U
cis-1,3-Dichloropropene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Cyclohexane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Dibromochloromethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Dichlorodifluoromethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Ethylbenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Isopropylbenzene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
M+p-xylenes	NA		11	U	12	U	14	UJ	NA		11	U	16	U	16	U
Methyl Acetate	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	UJ	8.2	U
Methyl Cyclohexane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Methyl Tert-butyl Ether	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Methylene Chloride	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
O-xylene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Styrene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Tetrachloroethene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Toluene	NA		5.5	U	6.1	U	3.4	J	NA		5.5	U	8.2	U	8.2	U
trans-1,3-Dichloropropene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Trichloroethene	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Trichlorofluoromethane	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Vinyl Chloride	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
Xylene (Total)	NA		5.5	U	6.1	U	6.8	UJ	NA		5.5	U	8.2	U	8.2	U
PESTICIDES/PCBS			**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	NA		4.1	U	4.3	U	2.5	J	NA		4	U	13	J	66	U
4,4'-DDE	NA		0.96	J	4.3	U	3.3	R	NA		4	U	7.4	J	16	J
4,4'-DDT	NA		4.1	U	4.3	U	8.3	J	NA		4	U	18	R	7.5	
Aldrin	NA		2.1	U	2.2	U	2.2	U	NA		2.1	U	44	U	2.4	
Alpha-BHC	NA		2.1	U	2.2	U	2.2	U	NA		2.1	U	2.2	U	3.2	
Alpha-Chlordane	NA		2.1	U	3		2.1	J	NA		2.8	J	2.2	U	4.3	J

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP09-0506-05**		**12TP10-0.502-02**		**12TP10-000.5-01**		**12TP10-0405-03**		**12TP10-0405-CS**		**12TP10-0809-04**		**12TP11-0.502-02**		**12TP11-000.5-01**	
Sample Date:	**1/8/2010**		**1/8/2010**		**1/8/2010**		**1/8/2010**		**12/19/2011**		**1/8/2010**		**1/11/2010**		**1/11/2010**	
Duplicate:																
Aroclor-1016	NA		30	U	31	U	30	U	NA		29	U	31	U	30	U
Aroclor-1221	NA		43	U	44	U	43	U	NA		41	U	44	U	43	U
Aroclor-1232	NA		21	U	22	U	22	U	NA		21	U	22	U	22	U
Aroclor-1242	NA		21	U	22	U	22	U	NA		21	U	22	U	22	U
Aroclor-1248	NA		21	U	22	U	22	U	NA		21	U	22	U	22	U
Aroclor-1254	NA		21	U	22	U	22	U	NA		21	U	22	U	22	U
Aroclor-1260	NA		21	U	22	U	22	U	NA		21	U	22	U	22	U
Beta-BHC	NA		1.1	U	8	R	36	R	NA		1.5	J	270	R	17	U
Delta-BHC	NA		2.1	U	2.2	U	1.1	R	NA		2.1	U	1.9	J	1.8	R
Dieldrin	NA		5.1	J	4.3	U	2.4	R	NA		4	U	84	J	480	
Endosulfan I	NA		2.1	U	0.34	J	1.1	R	NA		2.1	U	2.8	J	1.3	R
Endosulfan II	NA		4.1	U	4.3	U	4.2	U	NA		4	U	5.4	R	2.2	R
Endosulfan Sulfate	NA		4.1	U	4.3	U	4.2	U	NA		4	U	19	R	4.2	U
Endrin	NA		4.1	U	4.3	U	4.2	U	NA		4	U	19	J	7.5	
Endrin Aldehyde	NA		4.1	U	4.3	U	4.8	J	NA		4	U	25	J	5.8	J
Endrin Ketone	NA		4.1	U	4.3	U	8.8	J	NA		4	U	34	J	6.7	
Gamma-BHC (Lindane)	NA		2.1	U	2.2	U	2.2	U	NA		2.1	U	2.2	U	2.2	U
Gamma-Chlordane	NA		1	J	0.74	R	1.5	J	NA		8.8	R	28	J	7.3	
Heptachlor	NA		2.1	U	0.52	J	1.4	R	NA		2.1	U	2.8	R	2.2	U
Heptachlor Epoxide	NA		2.1	U	2.2	U	1.5	J	NA		2	J	12	J	4.5	R
Methoxychlor	NA		21	U	22	U	64	R	NA		21	U	440	U	150	R
Total Aroclor	NA			U		U		U	NA			U		U		U
Total Aroclor Halfnd	NA		89		92.5		91.5		NA		87.5		92.5		91.5	
Total Ddt	NA		0.96			U	10.8		NA			U	20.4		23.5	
Total Ddt Halfnd	NA		5.06		6.45		10.8		NA		6		20.4		56.5	
Toxaphene	NA		100	U	110	U	110	U	NA		100	U	110	U	110	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP11-0304-03		12TP11-0506-04		12TP12-0.502-02		12TP12-000.5-01		12TP12-0203-03		12TP12-0203-CS		12TP12-0506-04		12TP13-0.502-02	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**12/20/2011**		**1/11/2010**		**1/11/2010**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	16600		11900		15800		16400		12100		NA		15600		8780	
Antimony	2.1	J	0.33	UL	3.9	J	3.2	J	15.4	J	NA		0.64	R	1.4	J
Arsenic	8.9		1	J	6.6	J	6.6	J	92.2	J	NA		3.2	J	3.7	J
Barium	134		30.7	L	164	L	119	L	729	L	NA		41.5	L	109	L
Beryllium	0.69	K	0.41	J	0.52	J	0.69	J	0.74	J	NA		2.2	J	0.81	J
Cadmium	3.1	K	0.13	R	2.7	J	2.7	J	28.7	J	NA		0.49	R	0.66	J
Calcium	4780	J	960	J	1630	J	1160	J	6610	J	NA		1760	J	2000	J
Chromium	23.6		14.3		27		23.5		65.4		28		14.8		13.2	
Cobalt	8.1	J	2.5	J	9.9	J	8.3	J	9.7	J	NA		11.3	J	6.9	J
Copper	125	K	6.1		69.2		458		661		NA		12.4		22	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP11-0304-03**		**12TP11-0506-04**		**12TP12-0.502-02**		**12TP12-000.5-01**		**12TP12-0203-03**		**12TP12-0203-CS**		**12TP12-0506-04**		**12TP13-0.502-02**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**12/20/2011**		**1/11/2010**		**1/11/2010**	
Duplicate:																
Iron	20900		10700	J	32400	J	29700	J	57600	J	NA		33600	J	17400	J
Lead	195	J	7.9	J	154	J	139	J	1400	J	NA		8.5	J	21.1	J
Magnesium	2520	J	665	J	1810	J	1480	J	2960	J	NA		1020	J	1370	J
Manganese	499		29.4	J	412	J	491	J	727	J	NA		491	J	276	J
Mercury	0.029		0.018	U	0.069	K	0.047	K	0.054	K	NA		0.019	U	0.02	U
Nickel	15	J	4.9	J	18.1	J	21.1	J	64.3	J	NA		7.4	J	12.4	J
Potassium	1010		498	L	874	L	1040	L	1500		NA		698	L	892	L
Selenium	0.47	UR	0.41	UR	0.41	UR	0.41	UR	16.4	L	NA		0.41	UR	0.43	UR
Silver	0.2		0.11	U	0.5	K	0.6	K	19.5	K	NA		0.11	U	0.11	U
Sodium	176	B	129	B	192	B	146	B	571	R	NA		148	B	172	B
Thallium	0.8		0.6	U	0.6	U	0.9	K	2.2	K	NA		0.61	U	0.63	U
Vanadium	30.6		26.1		32.9		23		23.2		NA		28.6		18.9	
Zinc	317		11.5		483		156		2950		NA		16.3		32.5	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.22	B	0.18	U	0.17	U	0.17	U	0.19	U	NA		0.17	U	0.17	U
Hexavalent Chromium	NA		NA		NA		NA		NA		2.8		NA		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
											mv					
Oxidation Reduction Potential	NA		NA		NA		NA		NA		236		NA		NA	
											s.u.					
Ph	NA		NA		NA		NA		NA		6.36		NA		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**	
1,1-Biphenyl	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
1,2,4,5-Tetrachlorobenzene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,2'-Oxybis(1-chloropropane)	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,3,4,6-Tetrachlorophenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,4,5-Trichlorophenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,4,6-Trichlorophenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,4-Dichlorophenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,4-Dimethylphenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,4-Dinitrophenol	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
2,4-Dinitrotoluene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2,6-Dinitrotoluene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2-Chloronaphthalene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2-Chlorophenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2-Methylnaphthalene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2-Methylphenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
2-Nitroaniline	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
2-Nitrophenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP11-0304-03		12TP11-0506-04		12TP12-0.502-02		12TP12-000.5-01		12TP12-0203-03		12TP12-0203-CS		12TP12-0506-04		12TP13-0.502-02	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**12/20/2011**		**1/11/2010**		**1/11/2010**	
Duplicate:																
3-Nitroaniline	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
4,6-Dinitro-2-methylphenol	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
4-Bromophenyl Phenyl Ether	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
4-Chloro-3-methylphenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
4-Chloroaniline	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
4-Chlorophenyl Phenyl Ether	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
4-Methylphenol	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
4-Nitroaniline	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
4-Nitrophenol	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
Acenaphthene	220	U	200	U	200	U	200	U	30	J	NA		200	U	210	J
Acenaphthylene	110	J	200	U	77	J	40	J	220	U	NA		200	U	1000	U
Acetophenone	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
Anthracene	170	J	200	U	110	J	150	J	120	J	NA		200	U	1500	
Atrazine	220	UJ	200	UJ	200	UJ	200	UJ	220	UJ	NA		200	UJ	1000	UJ
Benz(a)anthracene	520		200	U	660		490		700		NA		200	U	3400	
Benzaldehyde	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Benzo(a)pyrene	820		200	U	640		500		800		NA		200	U	2600	
Benzo(b)fluoranthene	1200		200	U	650		510		880		NA		200	U	2100	
Benzo(g,h,i)perylene	290		200	U	220	J	130	J	550		NA		200	U	1200	
Benzo(k)fluoranthene	840		200	U	700	J	590	J	1000		NA		200	U	2900	
Bis(2-chloroethoxy)methane	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Bis(2-chloroethyl)ether	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Bis(2-ethylhexyl)phthalate	1500		70	J	46	J	200	U	220	U	NA		200	U	1000	U
Butylbenzylphthalate	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Caprolactam	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Carbazole	76	J	390	U	400	U	50	J	96	J	NA		390	U	240	J
Chrysene	810		30	J	670		560		960		NA		200	U	3400	
Di-n-butylphthalate	220	U	200	U	28	J	97	J	23	J	NA		200	U	1000	U
Di-n-octylphthalate	220	U	200	U	48	J	200	U	220	U	NA		200	U	1000	U
Dibenz(a,h)anthracene	140	J	200	U	130	J	87	J	250		NA		200	U	730	J
Dibenzofuran	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Diethylphthalate	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Dimethylphthalate	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Fluoranthene	1000		63	J	1400		1100		1700		NA		200	U	8300	
Fluorene	220	U	200	U	200	U	200	U	37	J	NA		200	U	270	J
Hexachlorobenzene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Hexachlorobutadiene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Hexachlorocyclopentadiene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Hexachloroethane	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Indeno(1,2,3-cd)pyrene	430		200	U	310		190	J	600		NA		200	U	1600	
Isophorone	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
N-Nitroso-di-n-propylamine	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
N-Nitrosodiphenylamine (1)	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Naphthalene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Nitrobenzene	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP11-0304-03**		**12TP11-0506-04**		**12TP12-0.502-02**		**12TP12-000.5-01**		**12TP12-0203-03**		**12TP12-0203-CS**		**12TP12-0506-04**		**12TP13-0.502-02**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**12/20/2011**		**1/11/2010**		**1/11/2010**	
Duplicate:																
Pentachlorophenol	430	U	390	U	400	U	390	U	420	U	NA		390	U	2000	U
Phenanthrene	350		27	J	270		460		800		NA		200	U	4800	
Phenol	220	U	200	U	200	U	200	U	220	U	NA		200	U	1000	U
Pyrene	760		54	J	1100		910		2000		NA		200	U	8000	
Total Pahs	7440		205.63		6937		5717		10427		NA		21.26		41010	
Total Pahs Halfnd	7880		420.48		7337		6117		10757		NA		151.26		42510	
PAHS			**ug/kg**										**ug/kg**			
2-Methylnaphthalene	NA		9.9	U	NA		NA		NA		NA		9.8	U	NA	
Acenaphthene	NA		9.9	U	NA		NA		NA		NA		9.8	U	NA	
Acenaphthylene	NA		0.66	B	NA		NA		NA		NA		9.8	U	NA	
Anthracene	NA		0.93	J	NA		NA		NA		NA		0.86	J	NA	
Benz(a)anthracene	NA		5.3	J	NA		NA		NA		NA		1.9	J	NA	
Benzo(a)pyrene	NA		5.8	J	NA		NA		NA		NA		1.6	B	NA	
Benzo(b)fluoranthene	NA		6.7	J	NA		NA		NA		NA		1.7	J	NA	
Benzo(g,h,i)perylene	NA		4.9	J	NA		NA		NA		NA		1.2	J	NA	
Benzo(k)fluoranthene	NA		6.9	J	NA		NA		NA		NA		1.7	J	NA	
Chrysene	NA		6.5	J	NA		NA		NA		NA		2.3	J	NA	
Dibenz(a,h)anthracene	NA		1.1	J	NA		NA		NA		NA		9.8	U	NA	
Fluoranthene	NA		10		NA		NA		NA		NA		4	J	NA	
Fluorene	NA		9.9	U	NA		NA		NA		NA		9.8	U	NA	
Indeno(1,2,3-cd)pyrene	NA		5.6	B	NA		NA		NA		NA		1.2	B	NA	
Naphthalene	NA		9.9	U	NA		NA		NA		NA		9.8	U	NA	
Phenanthrene	NA		3.3	J	NA		NA		NA		NA		3.8	J	NA	
Pyrene	NA		8.4	J	NA		NA		NA		NA		3.8	J	NA	
Total Pahs	NA		59.83		NA		NA		NA		NA		21.26		NA	
Total Pahs Halfnd	NA		82.76		NA		NA		NA		NA		52.06		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,1,2,2-Tetrachloroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,1,2-Trichloroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,1,2-Trichlorotrifluoroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,1-Dichloroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,1-Dichloroethene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2,3-Trichlorobenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2,4-Trichlorobenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dibromo-3-chloropropane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dibromoethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dichlorobenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dichloroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dichloroethene (cis)	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dichloroethene (trans)	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,2-Dichloropropane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,3-Dichlorobenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP11-0304-03		12TP11-0506-04		12TP12-0.502-02		12TP12-000.5-01		12TP12-0203-03		12TP12-0203-CS		12TP12-0506-04		12TP13-0.502-02	
Sample Date:	1/11/2010		1/11/2010		1/11/2010		1/11/2010		1/11/2010		12/20/2011		1/11/2010		1/11/2010	
Duplicate:																
1,4-Dichlorobenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	10	J	12	U	9	J	13	J	16	U	NA		15	U	5	B
2-Hexanone	16	U	12	U	16	U	17	U	16	U	NA		15	U	15	U
4-Methyl-2-pentanone	16	U	12	U	16	U	17	U	16	U	NA		15	U	15	U
Acetone	110		21	U	160	J	180	J	94	J	NA		72	J	69	J
Benzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Bromoform	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Bromomethane	9.2	U	7.1	U	9.5	U	10	U	9.2	U	NA		9	U	8.5	U
Carbon Disulfide	3.4	J	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Carbon Tetrachloride	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Chlorobenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Chloroethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Chloroform	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Chloromethane	6.3	U	4.8	U	2.1	J	2.3	J	2.6	J	NA		6.2	U	5.8	U
cis-1,3-Dichloropropene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Cyclohexane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Dibromochloromethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Dichlorodifluoromethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Ethylbenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Isopropylbenzene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
M+p-xylenes	13	U	9.7	U	13	U	14	U	13	U	NA		12	U	12	U
Methyl Acetate	6.3	U	4.8	U	6.5	UJ	6.9	UJ	6.3	UJ	NA		6.2	UJ	5.8	UJ
Methyl Cyclohexane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Methyl Tert-butyl Ether	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Methylene Chloride	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
O-xylene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Styrene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Tetrachloroethene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Toluene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
trans-1,3-Dichloropropene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Trichloroethene	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Trichlorofluoromethane	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Vinyl Chloride	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
Xylene (Total)	6.3	U	4.8	U	6.5	U	6.9	U	6.3	U	NA		6.2	U	5.8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**	
4,4'-DDD	26	R	3.9	U	2.2	R	0.94	J	4.2	UJ	NA		3.9	U	2.1	R
4,4'-DDE	4	R	3.9	U	3	J	3.2	J	6.7	R	NA		3.9	U	2.2	R
4,4'-DDT	4.3	U	3.9	U	5.7	J	1.2	J	4.8	J	NA		3.9	U	2.2	J
Aldrin	2.2	U	2	U	2	U	2	U	12	R	NA		2	U	2	U
Alpha-BHC	2.2	U	2	U	1.6	J	0.43	J	2.2	UJ	NA		2	U	0.7	J
Alpha-Chlordane	2.2	U	2	U	1.1	R	0.91	J	2.2	UJ	NA		2	U	1.9	J

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP11-0304-03**		**12TP11-0506-04**		**12TP12-0.502-02**		**12TP12-000.5-01**		**12TP12-0203-03**		**12TP12-0203-CS**		**12TP12-0506-04**		**12TP13-0.502-02**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/11/2010**		**12/20/2011**		**1/11/2010**		**1/11/2010**	
Duplicate:																
Aroclor-1016	31	U	28	U	29	U	29	U	31	UJ	NA		28	U	29	U
Aroclor-1221	44	U	40	U	41	U	40	U	44	UJ	NA		40	U	41	U
Aroclor-1232	22	U	20	U	20	U	20	U	22	UJ	NA		20	U	20	U
Aroclor-1242	22	U	20	U	20	U	20	U	22	UJ	NA		20	U	20	U
Aroclor-1248	22	U	20	U	20	U	20	U	22	UJ	NA		20	U	20	U
Aroclor-1254	22	U	20	U	20	U	20	U	22	UJ	NA		20	U	20	U
Aroclor-1260	22	U	20	U	20	U	20	U	22	UJ	NA		20	U	20	U
Beta-BHC	1.1	U	1	U	5.7	R	1	U	15	R	NA		1	U	16	R
Delta-BHC	1.6	J	2	U	2	U	2	U	2.2	UJ	NA		2	U	0.91	J
Dieldrin	44		23	R	13	R	5.5	J	16	R	NA		3.9	U	18	R
Endosulfan I	2.2	U	2	U	2	U	2	U	0.46	J	NA		2	U	1.1	R
Endosulfan II	4.3	U	3.9	U	1.7	J	6.1	R	1.9	J	NA		3.9	U	4	U
Endosulfan Sulfate	4.3	U	9.7	J	4	U	3.9	U	1.1	J	NA		3.9	U	4	U
Endrin	4.3	U	3.9	U	4	U	3.9	U	4.2	UJ	NA		3.9	U	4	U
Endrin Aldehyde	2.7	J	5.3	J	1	J	3.9	U	2.3	J	NA		3.9	U	4.4	
Endrin Ketone	5.8		20	R	4	U	0.74	J	4.6	J	NA		5.8	R	6.9	J
Gamma-BHC (Lindane)	2.2	U	2	U	2	U	2	U	2.2	UJ	NA		2	U	2	U
Gamma-Chlordane	2.2	U	2	U	1.6	R	2	R	1.4	J	NA		2	U	3.5	
Heptachlor	2	R	2	U	0.82	J	2	U	1.3	R	NA		2	U	1.4	R
Heptachlor Epoxide	1.1	J	2	U	0.78	J	2.1	J	2.2	UJ	NA		2	U	1.4	J
Methoxychlor	22	U	20	U	35	R	20	U	37	R	NA		20	U	20	U
Total Aroclor		U		U		U		U		U	NA			U		U
Total Aroclor Halfnd	92.5		84		85		84.5		92.5		NA		84		85	
Total Ddt		U		U	8.7		5.34		4.8		NA			U	2.2	
Total Ddt Halfnd	2.15		5.85		8.7		5.34		6.9		NA		5.85		2.2	
Toxaphene	110	U	98	U	100	U	99	U	110	UJ	NA		98	U	100	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP13-000.5-01		12TP13-0506-03		12TP13-0809-04		12TP14-0.502-02		12TP14-000.5-01		12TP14-0405-03		12TP14-0405-CS		12TP14-0607-04	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	12700		16400		11000		6870		9670		18400		NA		13800	
Antimony	0.59	J	0.56	R	0.56	R	0.66	B	0.62	B	0.7	B	NA		0.52	B
Arsenic	4.4	J	4.2	J	1.6	J	7.4		5.2		6.2		NA		1.1	L
Barium	100	L	85.8	L	66.2	L	53.7		69.3		101		NA		92.1	
Beryllium	0.83	J	0.45	J	0.78	J	0.56	K	0.47	K	0.68	K	NA		0.51	K
Cadmium	0.55	J	0.31	R	0.32	R	0.81	K	0.42	B	0.39	B	NA		0.05	B
Calcium	1590	J	958	J	560	J	18600		4970		3420		NA		816	
Chromium	18.2		23		17.3		17.8		14.9		70.1		39		9	
Cobalt	6.7	J	6.2	J	6	J	4.9		5.7		7.4		NA		16.6	
Copper	16.8		8.5		5.7		21		15.8		258		NA		6.1	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP13-000.5-01**		**12TP13-0506-03**		**12TP13-0809-04**		**12TP14-0.502-02**		**12TP14-000.5-01**		**12TP14-0405-03**		**12TP14-0405-CS**		**12TP14-0607-04**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**	
Duplicate:																
Iron	15500	J	18700	J	20600	J	15200	L	12100	L	18400	L	NA		11000	L
Lead	30.9	J	10	J	11.8	J	55.2	J	31.5	J	131	J	NA		4.1	J
Magnesium	1710	J	1920	J	1670	J	2520	J	2060	J	2140	J	NA		857	J
Manganese	431	J	590	J	152	J	180		316		466		NA		921	
Mercury	0.072	K	0.029	K	0.019	U	0.2		0.1		0.088		NA		0.019	U
Nickel	11.7	J	10.5	J	9.5	J	11.6		11.3		13.2		NA		9.5	
Potassium	896	L	579	L	1900		775	J	910	J	935	J	NA		516	J
Selenium	0.46	UR	0.43	UR	0.42	UR	0.38	UR	0.44	UR	0.42	UR	NA		0.41	UR
Silver	0.12	U	0.11	U	0.11	U	2.5		0.31		0.11	U	NA		0.11	U
Sodium	143	B	153	B	176	B	167	B	162	B	154	B	NA		136	B
Thallium	0.68	U	0.72	K	0.62	U	0.56	U	0.65	U	0.64	K	NA		0.61	U
Vanadium	27.1		35.3		22.4		19.8		21.1		33.2		NA		15.8	
Zinc	51.7		27.8		16.6		79.1		58.4		117		NA		14.1	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.3	B	0.21	B	0.17	U	0.47	B	0.19	B	0.18	U	NA		0.17	U
Hexavalent Chromium	NA		NA		NA		NA		NA		NA		1.1		NA	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
													mv			
Oxidation Reduction Potential	NA		NA		NA		NA		NA		NA		206.8		NA	
													s.u.			
Ph	NA		NA		NA		NA		NA		NA		7.15		NA	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
1,1-Biphenyl	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
1,2,4,5-Tetrachlorobenzene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
2,2'-Oxybis(1-chloropropane)	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
2,3,4,6-Tetrachlorophenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2,4,5-Trichlorophenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2,4,6-Trichlorophenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2,4-Dichlorophenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2,4-Dimethylphenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2,4-Dinitrophenol	430	U	410	U	390	U	370	U	410	U	420	U	NA		380	U
2,4-Dinitrotoluene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
2,6-Dinitrotoluene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
2-Chloronaphthalene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
2-Chlorophenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2-Methylnaphthalene	220	U	210	U	200	U	77	J	210	U	220	U	NA		200	U
2-Methylphenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
2-Nitroaniline	430	U	410	U	390	U	190	U	210	U	420	U	NA		380	U
2-Nitrophenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
3&4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
3,3'-Dichlorobenzidine	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP13-000.5-01		12TP13-0506-03		12TP13-0809-04		12TP14-0.502-02		12TP14-000.5-01		12TP14-0405-03		12TP14-0405-CS		12TP14-0607-04	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**	
Duplicate:																
3-Nitroaniline	430	U	410	U	390	U	190	U	210	U	420	U	NA		380	U
4,6-Dinitro-2-methylphenol	430	U	410	U	390	U	370	U	410	U	420	U	NA		380	U
4-Bromophenyl Phenyl Ether	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
4-Chloro-3-methylphenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
4-Chloroaniline	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
4-Chlorophenyl Phenyl Ether	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
4-Methylphenol	430	U	410	U	390	U	280	U	310	U	420	U	NA		380	U
4-Nitroaniline	430	U	410	U	390	U	190	U	210	U	420	U	NA		380	U
4-Nitrophenol	430	U	410	U	390	U	370	U	410	U	420	U	NA		380	U
Acenaphthene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Acenaphthylene	220	U	210	U	200	U	190	U	36	J	220	U	NA		200	U
Acetophenone	430	U	410	U	390	U	46	B	210	U	420	U	NA		380	U
Anthracene	97	J	210	U	200	U	29	J	76	J	77	J	NA		200	U
Atrazine	220	UJ	210	UJ	200	UJ	190	U	210	U	220	UJ	NA		200	UJ
Benz(a)anthracene	580		210	U	200	U	81	J	390		370		NA		200	U
Benzaldehyde	220	U	210	U	200	U	40	J	26	J	220	U	NA		200	U
Benzo(a)pyrene	620		210	U	200	U	90	J	440		400		NA		200	U
Benzo(b)fluoranthene	640		210	U	200	U	130	J	470		400		NA		200	U
Benzo(g,h,i)perylene	300		210	U	200	U	47	J	170	J	290		NA		200	U
Benzo(k)fluoranthene	820		210	U	200	U	130	J	470		430	J	NA		200	U
Bis(2-chloroethoxy)methane	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Bis(2-chloroethyl)ether	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Bis(2-ethylhexyl)phthalate	50	J	210	U	200	U	140	J	75	J	220	U	NA		260	
Butylbenzylphthalate	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Caprolactam	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Carbazole	54	J	410	U	390	U	190	U	210	U	73	J	NA		380	U
Chrysene	710		210	U	200	U	150	J	440		480		NA		200	U
Di-n-butylphthalate	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Di-n-octylphthalate	220	U	210	U	200	U	150	J	210	U	220	U	NA		200	U
Dibenz(a,h)anthracene	160	J	210	U	200	U	24	J	89	J	120	J	NA		200	U
Dibenzofuran	220	U	210	U	200	U	29	J	210	U	220	U	NA		200	U
Diethylphthalate	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Dimethylphthalate	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Fluoranthene	1400		210	U	200	U	200		770		1100		NA		200	U
Fluorene	220	U	210	U	200	U	190	U	210	U	32	J	NA		200	U
Hexachlorobenzene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Hexachlorobutadiene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Hexachlorocyclopentadiene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Hexachloroethane	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Indeno(1,2,3-cd)pyrene	370		210	U	200	U	190	U	220		350		NA		200	U
Isophorone	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
N-Nitroso-di-n-propylamine	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
N-Nitrosodiphenylamine (1)	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U
Naphthalene	220	U	210	U	200	U	36	J	210	U	220	U	NA		200	U
Nitrobenzene	220	U	210	U	200	U	190	U	210	U	220	U	NA		200	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP13-000.5-01**		**12TP13-0506-03**		**12TP13-0809-04**		**12TP14-0.502-02**		**12TP14-000.5-01**		**12TP14-0405-03**		**12TP14-0405-CS**		**12TP14-0607-04**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**	
Duplicate:																
Pentachlorophenol	430	U	410	U	390	U	370	U	410	U	420	U	NA		380	U
Phenanthrene	570		210	U	200	U	230		260		580		NA		200	U
Phenol	220	U	210	U	200	U	370	U	410	U	220	U	NA		200	U
Pyrene	1400		210	U	200	U	180	J	730		830		NA		200	U
Total Pahs	7667		4.94			U	1498		5350		5645		NA			U
Total Pahs Halfnd	8217		359.94		83.3		1498		5350		5645		NA		82.45	
PAHS			**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
2-Methylnaphthalene	NA		1.1	J	9.8	U	51		19		10	J	NA		9.7	U
Acenaphthene	NA		10	U	9.8	U	3.2	J	13		15		NA		9.7	U
Acenaphthylene	NA		10	U	9.8	U	15		35		30		NA		9.7	U
Anthracene	NA		10	U	9.8	U	23		76		85		NA		9.7	U
Benz(a)anthracene	NA		0.77	J	9.8	U	86		530	J	360	J	NA		9.7	U
Benzo(a)pyrene	NA		0.6	B	9.8	U	65		450	J	400	J	NA		9.7	U
Benzo(b)fluoranthene	NA		0.75	J	9.8	U	140		650	J	450	J	NA		9.7	U
Benzo(g,h,i)perylene	NA		0.63	J	9.8	U	35	J	150	J	280	J	NA		9.7	U
Benzo(k)fluoranthene	NA		0.8	J	9.8	U	61		400	J	400	J	NA		9.7	U
Chrysene	NA		0.89	J	9.8	U	89		400	J	450	J	NA		9.7	U
Dibenz(a,h)anthracene	NA		10	U	9.8	U	16	J	82	J	71		NA		9.7	U
Fluoranthene	NA		10	U	9.8	U	180		980	J	1100	J	NA		9.7	U
Fluorene	NA		10	U	9.8	U	4.8	J	17		41		NA		9.7	U
Indeno(1,2,3-cd)pyrene	NA		0.6	B	9.8	U	56		260	J	330	J	NA		9.7	U
Naphthalene	NA		10	U	9.8	U	21		10	J	15		NA		9.7	U
Phenanthrene	NA		10	U	9.8	U	120		360	J	660	J	NA		9.7	U
Pyrene	NA		0.94	B	9.8	U	130		800	J	840	J	NA		9.7	U
Total Pahs	NA		4.94			U	1096		5232		5537		NA			U
Total Pahs Halfnd	NA		46.01		83.3		1096		5232		5537		NA		82.45	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
1,1,1-Trichloroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,1,2,2-Tetrachloroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,1,2-Trichloroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,1,2-Trichlorotrifluoroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,1-Dichloroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,1-Dichloroethene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2,3-Trichlorobenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2,4-Trichlorobenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dibromo-3-chloropropane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dibromoethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dichlorobenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dichloroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dichloroethene (cis)	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dichloroethene (trans)	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,2-Dichloropropane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,3-Dichlorobenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP13-000.5-01**		**12TP13-0506-03**		**12TP13-0809-04**		**12TP14-0.502-02**		**12TP14-000.5-01**		**12TP14-0405-03**		**12TP14-0405-CS**		**12TP14-0607-04**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**	
Duplicate:																
1,4-Dichlorobenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	13	J	14	U	16	U	16	J	26		21		NA		9.2	J
2-Hexanone	16	U	14	U	16	U	17	U	22	U	12	U	NA		12	UJ
4-Methyl-2-pentanone	16	U	14	U	16	U	17	U	22	U	12	U	NA		12	UJ
Acetone	210	J	30	B	26	U	92		270		140		NA		63	J
Benzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	2.1	J	NA		4.9	UJ
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Bromoform	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Bromomethane	9.4	U	8	U	9.1	U	10	U	13	U	7.3	U	NA		7.2	UJ
Carbon Disulfide	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	1.7	J	NA		4.9	UJ
Carbon Tetrachloride	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Chlorobenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Chloroethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Chloroform	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Chloromethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
cis-1,3-Dichloropropene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Cyclohexane	6.4	U	36		6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Dibromochloromethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Dichlorodifluoromethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Ethylbenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Isopropylbenzene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
M+p-xylenes	13	U	11	U	12	U	14	U	18	U	9.9	U	NA		9.8	UJ
Methyl Acetate	6.4	UJ	5.5	UJ	6.2	UJ	6.9	U	4.1	J	1.8	J	NA		1.9	J
Methyl Cyclohexane	6.4	U	18		6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Methyl Tert-butyl Ether	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Methylene Chloride	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
O-xylene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Styrene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Tetrachloroethene	6.4	U	5.5	U	6.2	U	3.6	J	8.8	U	3.7	J	NA		4.9	UJ
Toluene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
trans-1,3-Dichloropropene	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Trichloroethene	6.4	U	5.5	U	6.2	U	3.9	J	8.8	U	3.2	J	NA		4.9	UJ
Trichlorofluoromethane	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Vinyl Chloride	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
Xylene (Total)	6.4	U	5.5	U	6.2	U	6.9	U	8.8	U	5	U	NA		4.9	UJ
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**	
4,4'-DDD	26	R	4.1	U	3.9	U	1.3	J	9.5	R	0.59	J	NA		3.8	U
4,4'-DDE	5	J	4.1	U	3.9	U	1.6	J	4.1	U	3	J	NA		3.8	U
4,4'-DDT	3.1	J	4.1	U	3.9	U	3.7	J	2.5	J	1.2	J	NA		3.8	U
Aldrin	2.2	U	2.1	U	2	U	1.9	U	2.1	U	2.2	U	NA		2	U
Alpha-BHC	2.2	U	2.1	U	2	U	1.9	U	2.1	U	2.2	U	NA		2	U
Alpha-Chlordane	2.2	U	2.1	U	2	U	1.7	J	2.1	U	2.2	U	NA		2	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP13-000.5-01**		**12TP13-0506-03**		**12TP13-0809-04**		**12TP14-0.502-02**		**12TP14-000.5-01**		**12TP14-0405-03**		**12TP14-0405-CS**		**12TP14-0607-04**	
Sample Date:	**1/11/2010**		**1/11/2010**		**1/11/2010**		**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**	
Duplicate:																
Aroclor-1016	32	U	30	U	28	U	27	U	30	U	30	U	NA		28	U
Aroclor-1221	45	U	42	U	40	U	38	U	42	U	43	U	NA		40	U
Aroclor-1232	22	U	21	U	20	U	19	U	21	U	22	U	NA		20	U
Aroclor-1242	22	U	21	U	20	U	19	U	21	U	22	U	NA		20	U
Aroclor-1248	22	U	21	U	20	U	19	U	21	U	22	U	NA		20	U
Aroclor-1254	22	U	21	U	20	U	19	U	21	U	22	U	NA		20	U
Aroclor-1260	22	U	21	U	20	U	19	U	21	U	22	U	NA		20	U
Beta-BHC	5.6	U	1.1	U	1	U	0.96	U	1.1	U	1.1	U	NA		0.99	U
Delta-BHC	1.1	R	2.1	U	2	U	1.9	U	2.1	U	2.2	U	NA		2	U
Dieldrin	7.2		4.1	U	5.8	R	5.1	J	2.1	J	4.2	U	NA		3.8	U
Endosulfan I	2.2	U	2.1	U	2	U	1.9	U	2.1	U	2.2	U	NA		2	U
Endosulfan II	2.4	R	4.1	U	3.9	U	3.7	U	4.1	U	4.2	U	NA		3.8	U
Endosulfan Sulfate	4.3	U	4.1	U	3.9	U	3.7	U	4.1	U	4.2	U	NA		3.8	U
Endrin	4.3	U	4.1	U	3.9	U	0.9	J	4.1	U	4.2	U	NA		3.8	U
Endrin Aldehyde	2.3	J	4.1	U	3.9	U	3.4	J	0.88	J	1.2	J	NA		3.8	U
Endrin Ketone	3.8	R	4.1	U	0.94	J	3.7	U	4.1	U	4.2	U	NA		3.8	U
Gamma-BHC (Lindane)	2.2	U	2.1	U	2	U	1.9	U	2.1	U	2.2	U	NA		2	U
Gamma-Chlordane	0.46	J	2.1	U	2	U	1.4	B	1.1	B	1.2	B	NA		2	U
Heptachlor	0.66	J	2.1	U	2	U	1.9	U	1.7	J	2.2	U	NA		0.72	J
Heptachlor Epoxide	2.3	R	2.1	U	2	U	1	J	1.1	J	1.2	J	NA		2	U
Methoxychlor	22	U	21	U	20	U	19	U	21	U	22	U	NA		20	U
Total Aroclor		U		U		U		U		U		U	NA			U
Total Aroclor Halfnd	93.5		88.5		84		80		88.5		91.5		NA		84	
Total Ddt	8.1			U		U	6.6		2.5		4.79		NA			U
Total Ddt Halfnd	8.1		6.15		5.85		6.6		4.55		4.79		NA		5.7	
Toxaphene	110	U	100	U	98	U	93	U	100	U	110	U	NA		97	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP15-0.502-02		12TP15-000.5-01		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0.502-02		12TP16-0.520-02		12TP16-000.5-01	
Sample Date:	**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**		**12/19/2011**		**12/19/2011**		**12/19/2011**	
Duplicate:																
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**				**mg/kg**	
Aluminum	12700		14000		29400		NA		18000		10900	J	NA		13400	J
Antimony	0.76	J	0.72	J	22.7	L	NA		0.66	R	0.29	B	NA		0.33	B
Arsenic	5.4	J	5.6	J	24.3	J	NA		5.1	J	3.6		NA		4.9	
Barium	121	L	138	L	489	L	NA		47.7	L	104		NA		72	
Beryllium	1	J	1.1	J	3.1	L	NA		0.3	J	0.95	J	NA		0.89	J
Cadmium	0.67	J	0.76	J	40.1	J	NA		0.46	R	0.13	J	NA		0.27	J
Calcium	30200	J	38100	J	43900	J	NA		651	J	657	J	NA		764	J
Chromium	13.4		15.2		56.7		12	J	22.5		18.5	J	NA		21.8	J
Cobalt	6	J	7.3	J	9.3	J	NA		11.8	J	7.7	J	NA		6.1	J
Copper	20.8		22.8		463		NA		15.1		6.9	J	NA		13.2	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP15-0.502-02**		**12TP15-000.5-01**		**12TP15-0304-03**		**12TP15-0304-CS**		**12TP15-0405-04**		**12TP16-0.502-02**		**12TP16-0.520-02**		**12TP16-000.5-01**	
Sample Date:	**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**		**12/19/2011**		**12/19/2011**		**12/19/2011**	
Duplicate:																
Iron	15500	J	17100	J	21100	J	NA		25700	J	17900	J	NA		22400	J
Lead	52.6	J	56.6	J	7900	J	NA		10.2	J	15.8		NA		17.3	
Magnesium	17300	J	20600	J	9320	J	NA		3200	J	1430	J	NA		1850	J
Manganese	663	J	774	J	1090	J	NA		739	J	681	J	NA		254	J
Mercury	0.24	K	0.2	K	0.044	K	NA		0.02	U	0.031		NA		0.032	
Nickel	10.7	J	12.3	J	34.5	J	NA		13.9	J	10.4	J	NA		10.3	J
Potassium	863	L	929	L	2650		NA		1340		565	J	NA		706	J
Selenium	0.42	UR	0.46	UR	0.49	UR	NA		0.45	UR	0.23	UL	NA		0.11	J
Silver	4.2	K	4.5	K	4.6	K	NA		0.12	U	0.032	B	NA		0.047	B
Sodium	153	B	231	B	1300	K	NA		147	B	54.5	J	NA		79.7	J
Thallium	0.61	U	0.68	U	4.2		NA		1.2	K	0.81		NA		0.16	B
Vanadium	22.3		23.6		35.3		NA		43.8		24.7	J	NA		31.4	J
Zinc	74.9		77.8		5400		NA		32.3		29.9	J	NA		36.3	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.34	B	0.19	U	0.2	U	NA		0.18	U	0.055	J	NA		0.1	J
Hexavalent Chromium	NA		NA		NA		1.1		NA		NA		0.71		1.2	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
							mv				**mv**				**mv**	
Oxidation Reduction Potential	NA		NA		NA		175.6		NA		328.9		NA		318.5	
							s.u.				**s.u.**				**s.u.**	
Ph	NA		NA		NA		7.48		NA		4.71		NA		4.41	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**				**ug/kg**	
1,1-Biphenyl	200	U	870	U	230	U	NA		220	U	NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	200	U	870	U	230	U	NA		220	U	NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2,3,4,6-Tetrachlorophenol	200	U	870	U	230	U	NA		220	U	NA		NA		NA	
2,4,5-Trichlorophenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2,4,6-Trichlorophenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2,4-Dichlorophenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2,4-Dimethylphenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2,4-Dinitrophenol	390	U	1700	U	440	U	NA		420	U	200	U	NA		205	U
2,4-Dinitrotoluene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2,6-Dinitrotoluene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2-Chloronaphthalene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2-Chlorophenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2-Methylnaphthalene	72	J	870	U	230	U	NA		220	U	2.4	J	NA		2.05	U
2-Methylphenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
2-Nitroaniline	390	U	1700	U	440	U	NA		420	U	200	U	NA		205	U
2-Nitrophenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
3&4-Methylphenol	NA		NA		NA		NA		NA		200	U	NA		205	U
3,3'-Dichlorobenzidine	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP15-0.502-02		12TP15-000.5-01		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0.502-02		12TP16-0.520-02		12TP16-000.5-01	
Sample Date:	**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**		**12/19/2011**		**12/19/2011**		**12/19/2011**	
Duplicate:																
3-Nitroaniline	390	U	1700	U	440	U	NA		420	U	200	UL	NA		205	UL
4,6-Dinitro-2-methylphenol	390	U	1700	U	440	U	NA		420	U	200	U	NA		205	U
4-Bromophenyl Phenyl Ether	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
4-Chloro-3-methylphenol	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
4-Chloroaniline	200	U	870	U	230	U	NA		220	U	200	UR	NA		205	UR
4-Chlorophenyl Phenyl Ether	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
4-Methylphenol	390	U	1700	U	440	U	NA		420	U	NA		NA		NA	
4-Nitroaniline	390	U	1700	U	440	U	NA		420	U	200	U	NA		205	U
4-Nitrophenol	390	U	1700	U	440	U	NA		420	U	200	U	NA		205	U
Acenaphthene	84	J	870	U	230	U	NA		220	U	6.5		NA		2.05	U
Acenaphthylene	34	J	210	J	230	U	NA		220	U	6.1		NA		2.05	U
Acetophenone	390	U	1700	U	440	U	NA		420	U	NA		NA		NA	
Anthracene	330		580	J	230	U	NA		220	U	11		NA		2.5	J
Atrazine	200	UJ	870	UJ	230	UJ	NA		220	UJ	NA		NA		NA	
Benz(a)anthracene	1200		3400		170	J	NA		220	U	49		NA		20	
Benzaldehyde	200	U	870	U	230	U	NA		220	U	NA		NA		NA	
Benzo(a)pyrene	1100		3800		230		NA		220	U	62		NA		22	
Benzo(b)fluoranthene	1500		3700		600		NA		220	U	94		NA		35	
Benzo(g,h,i)perylene	390	J	1500	J	360		NA		220	U	33	J	NA		12	
Benzo(k)fluoranthene	1100	J	5400	J	350	J	NA		220	U	37		NA		10	
Bis(2-chloroethoxy)methane	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Bis(2-chloroethyl)ether	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Bis(2-ethylhexyl)phthalate	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Butylbenzylphthalate	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Caprolactam	200	U	870	U	230	U	NA		220	U	NA		NA		NA	
Carbazole	82	J	1700	U	440	U	NA		420	U	200	U	NA		205	U
Chrysene	1300		3900		320		NA		220	U	82		NA		29	
Di-n-butylphthalate	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Di-n-octylphthalate	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Dibenz(a,h)anthracene	230		950		140	J	NA		220	U	2.4	J	NA		2.05	U
Dibenzofuran	55	J	870	U	230	U	NA		220	U	200	U	NA		205	U
Diethylphthalate	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Dimethylphthalate	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Fluoranthene	2400		6300		210	J	NA		220	U	250		NA		69	K
Fluorene	88	J	870	U	230	U	NA		220	U	15		NA		2.5	J
Hexachlorobenzene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Hexachlorobutadiene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Hexachlorocyclopentadiene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Hexachloroethane	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Indeno(1,2,3-cd)pyrene	540		2000		330		NA		220	U	36		NA		12	
Isophorone	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
N-Nitroso-di-n-propylamine	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
N-Nitrosodiphenylamine (1)	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U
Naphthalene	39	J	870	U	230	U	NA		220	U	4.9		NA		2.05	U
Nitrobenzene	200	U	870	U	230	U	NA		220	U	200	U	NA		205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP15-0.502-02**		**12TP15-000.5-01**		**12TP15-0304-03**		**12TP15-0304-CS**	**12TP15-0405-04**		**12TP16-0.502-02**		**12TP16-0.520-02**	**12TP16-000.5-01**	
Sample Date:	**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**	**1/12/2010**		**12/19/2011**		**12/19/2011**	**12/19/2011**	
Duplicate:														
Pentachlorophenol	390	U	1700	U	440	U	NA	420	U	200	U	NA	205	U
Phenanthrene	1200		1800		130	J	NA	220	U	190		NA	36	
Phenol	200	U	870	U	230	U	NA	220	U	200	U	NA	205	U
Pyrene	2200		5600		220	J	NA	220	U	160		NA	49	
Total Pahs	13807		39140		3089.7		NA		U	1041.3		NA	299	
Total Pahs Halfnd	13807		40880		3210.2		NA	93.5		1041.3		NA	304.125	
PAHS					**ug/kg**			**ug/kg**						
2-Methylnaphthalene	NA		NA		6.7	J	NA	11	U	NA		NA	NA	
Acenaphthene	NA		NA		11	U	NA	11	U	NA		NA	NA	
Acenaphthylene	NA		NA		0.86	B	NA	11	U	NA		NA	NA	
Anthracene	NA		NA		11	J	NA	11	U	NA		NA	NA	
Benz(a)anthracene	NA		NA		110		NA	11	U	NA		NA	NA	
Benzo(a)pyrene	NA		NA		150		NA	11	U	NA		NA	NA	
Benzo(b)fluoranthene	NA		NA		400	J	NA	11	U	NA		NA	NA	
Benzo(g,h,i)perylene	NA		NA		260	J	NA	11	U	NA		NA	NA	
Benzo(k)fluoranthene	NA		NA		180		NA	11	U	NA		NA	NA	
Chrysene	NA		NA		150		NA	11	U	NA		NA	NA	
Dibenz(a,h)anthracene	NA		NA		74		NA	11	U	NA		NA	NA	
Fluoranthene	NA		NA		140		NA	11	U	NA		NA	NA	
Fluorene	NA		NA		1	J	NA	11	U	NA		NA	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		300	J	NA	11	U	NA		NA	NA	
Naphthalene	NA		NA		11	J	NA	11	U	NA		NA	NA	
Phenanthrene	NA		NA		82		NA	11	U	NA		NA	NA	
Pyrene	NA		NA		94		NA	11	U	NA		NA	NA	
Total Pahs	NA		NA		1969.7		NA		U	NA		NA	NA	
Total Pahs Halfnd	NA		NA		1975.63		NA	93.5		NA		NA	NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**			**ug/kg**		**ug/kg**			**ug/kg**	
1,1,1-Trichloroethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,1,2,2-Tetrachloroethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,1,2-Trichloroethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,1,2-Trichlorotrifluoroethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,1-Dichloroethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,1-Dichloroethene	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2,3-Trichlorobenzene	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2,4-Trichlorobenzene	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dibromo-3-chloropropane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dibromoethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dichlorobenzene	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dichloroethane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dichloroethene (cis)	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dichloroethene (trans)	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,2-Dichloropropane	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U
1,3-Dichlorobenzene	6.6	U	9.8	U	9.9	U	NA	5.3	U	2.7	U	NA	3.45	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP15-0.502-02		12TP15-000.5-01		12TP15-0304-03		12TP15-0304-CS		12TP15-0405-04		12TP16-0.502-02		12TP16-0.520-02		12TP16-000.5-01	
Sample Date:	1/12/2010		1/12/2010		1/12/2010		12/19/2011		1/12/2010		12/19/2011		12/19/2011		12/19/2011	
Duplicate:																
1,4-Dichlorobenzene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	16	U	23	J	15	J	NA		13	U	13.5	U	NA		17	U
2-Hexanone	16	U	25	U	25	U	NA		13	U	13.5	U	NA		17	U
4-Methyl-2-pentanone	16	U	25	U	25	U	NA		13	U	13.5	U	NA		17	U
Acetone	73		440	J	56	B	NA		34	B	13.5	U	NA		17	U
Benzene	6.6	U	9.8	U	8.6	J	NA		5.3	U	2.7	U	NA		3.45	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Bromoform	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Bromomethane	9.6	U	14	U	14	U	NA		7.7	U	2.7	U	NA		3.45	U
Carbon Disulfide	6.6	U	3.7	J	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Carbon Tetrachloride	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Chlorobenzene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Chloroethane	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Chloroform	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Chloromethane	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
cis-1,3-Dichloropropene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Cyclohexane	6.6	U	9.8	U	9.9	U	NA		5.3	U	NA		NA		NA	
Dibromochloromethane	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Dichlorodifluoromethane	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Ethylbenzene	6.6	U	9.8	U	2.4	J	NA		5.3	U	2.7	U	NA		3.45	U
Isopropylbenzene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
M+p-xylenes	13	U	20	U	20	U	NA		11	U	5.5	U	NA		7	U
Methyl Acetate	6.6	U	9.8	UJ	9.9	UJ	NA		5.3	U	NA		NA		NA	
Methyl Cyclohexane	6.6	U	9.8	U	9.9	U	NA		5.3	U	NA		NA		NA	
Methyl Tert-butyl Ether	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Methylene Chloride	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
O-xylene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Styrene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Tetrachloroethene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Toluene	6.6	U	9.8	U	11		NA		5.3	U	2.7	U	NA		3.45	U
trans-1,3-Dichloropropene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Trichloroethene	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Trichlorofluoromethane	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Vinyl Chloride	6.6	U	9.8	U	9.9	U	NA		5.3	U	2.7	U	NA		3.45	U
Xylene (Total)	6.6	U	9.8	U	9.9	U	NA		5.3	U	8	U	NA		10.5	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**		**ug/kg**				**ug/kg**	
4,4'-DDD	28	R	5.2	J	4.5	U	NA		4.2	U	1.05	U	NA		1.05	U
4,4'-DDE	26	J	82		3.3	J	NA		4.2	U	1.05	U	NA		1.05	U
4,4'-DDT	27	J	170		4.5	U	NA		4.2	U	1.05	U	NA		1.05	U
Aldrin	2	UJ	2.2	U	2.3	U	NA		2.2	U	1.05	U	NA		1.05	U
Alpha-BHC	0.77	J	2.7	R	2.3	U	NA		2.2	U	1.05	U	NA		1.05	U
Alpha-Chlordane	2	UJ	2.4	R	1.5	J	NA		2.2	U	1.05	U	NA		1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP15-0.502-02**		**12TP15-000.5-01**		**12TP15-0304-03**		**12TP15-0304-CS**		**12TP15-0405-04**		**12TP16-0.502-02**		**12TP16-0.520-02**		**12TP16-000.5-01**	
Sample Date:	**1/12/2010**		**1/12/2010**		**1/12/2010**		**12/19/2011**		**1/12/2010**		**12/19/2011**		**12/19/2011**		**12/19/2011**	
Duplicate:																
Aroclor-1016	29	UJ	31	U	32	U	NA		30	U	10.5	UJ	NA		10.5	U
Aroclor-1221	40	UJ	44	U	46	U	NA		43	U	10.5	UJ	NA		10.5	U
Aroclor-1232	20	UJ	22	U	23	U	NA		22	U	10.5	UJ	NA		10.5	U
Aroclor-1242	20	UJ	22	U	23	U	NA		22	U	10.5	UJ	NA		10.5	U
Aroclor-1248	20	UJ	22	U	23	U	NA		22	U	10.5	UJ	NA		10.5	U
Aroclor-1254	20	UJ	22	U	23	U	NA		22	U	10.5	UJ	NA		10.5	U
Aroclor-1260	20	UJ	22	U	23	U	NA		22	U	10.5	UJ	NA		10.5	U
Beta-BHC	14	R	5.5	U	1.2	U	NA		1.1	U	1.05	U	NA		1.05	U
Delta-BHC	1.7	R	5.2	R	2.3	U	NA		2.2	U	1.05	U	NA		1.05	U
Dieldrin	3.9	UJ	11		2.5	J	NA		3.2	R	1.05	U	NA		1.05	U
Endosulfan I	0.85	J	2.1	J	0.97	J	NA		2.2	U	1.05	U	NA		1.05	U
Endosulfan II	3.9	UJ	4.2	U	4.5	U	NA		1.2	J	1.05	U	NA		1.05	U
Endosulfan Sulfate	3.9	UJ	5.5	J	5.5	R	NA		4.2	U	1.05	U	NA		1.05	U
Endrin	3.9	UJ	4.2	U	4.5	U	NA		4.2	U	1.05	U	NA		1.05	U
Endrin Aldehyde	3.1	J	9.9	R	4.5	U	NA		4.2	U	1.05	U	NA		1.05	U
Endrin Ketone	3.2	J	11		14	R	NA		4.2	U	1.05	U	NA		1.05	U
Gamma-BHC (Lindane)	2	UJ	2.2	U	2.3	U	NA		2.2	U	1.05	U	NA		1.05	U
Gamma-Chlordane	2	UJ	5	R	0.93	J	NA		2.2	U	1.05	U	NA		1.05	U
Heptachlor	2	UJ	2.1	J	1.1	J	NA		2.2	U	1.05	U	NA		1.05	U
Heptachlor Epoxide	2	UJ	3	R	2.3	U	NA		2.2	U	1.05	U	NA		1.05	U
Methoxychlor	35	R	120	R	11	J	NA		22	U	1.05	U	NA		1.05	U
Total Aroclor		U		U		U	NA			U		U	NA			U
Total Aroclor Halfnd	84.5		92.5		96.5		NA		91.5		36.75		NA		36.75	
Total Ddt	53		257.2		3.3		NA			U		U	NA			U
Total Ddt Halfnd	53		257.2		7.8		NA		6.3		1.575		NA		1.575	
Toxaphene	99	UJ	110	U	110	U	NA		110	U	10.5	U	NA		10.5	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP16-0608-03		12TP16-0608-03-D		12TP16-0910-04		12TP16-0910-4		12TP17-0.5-02-02		12TP17-0.52.0-02		12TP17-000.5-01		12TP18-0506-01	
Sample Date:	**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**	
Duplicate:			**12TP16-0608-03**													
DIOXIN/FURAN																
1,2,3,4,6,7,8,9-OCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8,9-OCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,6,7,8-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8,9-HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,4,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8,9-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,3,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,6,7,8-HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,4,7,8-PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
2,3,7,8-TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Teq	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Bird Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Fish Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Teq Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HpCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total HxCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total PeCDF	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDD	NA		NA		NA		NA		NA		NA		NA		NA	
Total TCDF	NA		NA		NA		NA		NA		NA		NA		NA	
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**				**mg/kg**				**mg/kg**		**mg/kg**	
Aluminum	6210	J	5300	J	15500	J	NA		12200	J	NA		15300	J	9490	J
Antimony	35.4	J	8.9	J	0.22	B	NA		0.26	B	NA		0.44	B	5.8	L
Arsenic	7		5.7		2.5		NA		2.3	L	NA		5.2	L	16.8	J
Barium	92.9		108		87.4		NA		106	L	NA		67.7	L	113	L
Beryllium	0.43	J	0.35	J	0.84	J	NA		1.1		NA		0.84		0.54	
Cadmium	34.9	J	12.4	J	0.12	J	NA		0.16	J	NA		0.44	L	1.4	L
Calcium	4450	J	3180	J	367	J	NA		618	J	NA		761	J	34500	J
Chromium	24.5	J	25.2	J	17.5	J	NA		22.2	J	NA		20.8	J	31.3	J
Cobalt	5.3	J	5.3	J	9.5	J	NA		7.7	J	NA		5.6	J	7.9	J
Copper	47.6	J	68.8	J	26	J	NA		19.9	J	NA		15.1	J	144	J
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP16-0608-03**		**12TP16-0608-03-D**		**12TP16-0910-04**		**12TP16-0910-4**		**12TP17-0.5-02-02**		**12TP17-0.52.0-02**		**12TP17-000.5-01**		**12TP18-0506-01**	
Sample Date:	**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**	
Duplicate:			**12TP16-0608-03**													
Iron	23100	J	19300	J	18900	J	NA		29600	J	NA		18900	J	53400	J
Lead	1940		1490		7.1	K	NA		9.9	L	NA		21.8		379	
Magnesium	2930	J	2650	J	1170	J	NA		1860		NA		1710		3200	
Manganese	597	J	507	J	1730	J	NA		377	J	NA		219	J	671	J
Mercury	0.055		0.033		0.0055	U	NA		0.007	J	NA		0.049		0.027	
Nickel	14	J	17.2	J	11.2	J	NA		12.3	J	NA		10	J	15.2	J
Potassium	664	J	516	J	330	J	NA		900	J	NA		638	J	652	J
Selenium	0.12	J	0.088	J	0.305	UL	NA		0.26	UL	NA		0.13	J	0.25	UL
Silver	1.1		1.4		0.046	B	NA		0.028	B	NA		0.043	B	0.35	L
Sodium	185	J	138	J	62.1	J	NA		69.7		NA		48.6	J	146	
Thallium	0.28		0.15	B	0.19	B	NA		0.67	L	NA		0.19	K	0.3	
Vanadium	16.9	J	14	J	22.7	J	NA		27.9	J	NA		29.8	J	18.7	J
Zinc	231	J	188	J	21.6	J	NA		24.9	J	NA		40.4	J	390	J
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Cyanide	0.048	J	0.064	J	0.061	J	NA		0.1465	U	NA		0.046	J	0.149	U
Hexavalent Chromium	5.9	J	1.9	J	NA		0.56		NA		0.3		1.8		1.1	
Total Organic Carbon	NA		NA		NA		NA		NA		NA		NA		NA	
	mv		**mv**		**mv**				**mv**				**mv**		**mv**	
Oxidation Reduction Potential	243.7		228.1		352.1		NA		373.9		NA		338.4		188.5	
	s.u.		**s.u.**		**s.u.**				**s.u.**				**s.u.**		**s.u.**	
Ph	5.26		7.13		4.45		NA		4.52		NA		4.62		6.47	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**				**ug/kg**		**ug/kg**	
1,1-Biphenyl	NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2,2'-Oxybis(1-chloropropane)	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,3,4,6-Tetrachlorophenol	NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-Trichlorophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,4,6-Trichlorophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,4-Dichlorophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,4-Dimethylphenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,4-Dinitrophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,4-Dinitrotoluene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2,6-Dinitrotoluene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2-Chloronaphthalene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2-Chlorophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2-Methylnaphthalene	590		400		2	U	NA		1.95	U	NA		2.25	U	4	
2-Methylphenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2-Nitroaniline	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
2-Nitrophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
3&4-Methylphenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
3,3'-Dichlorobenzidine	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12TP16-0608-03		12TP16-0608-03-D		12TP16-0910-04		12TP16-0910-4		12TP17-0.5-02-02		12TP17-0.52.0-02		12TP17-000.5-01		12TP18-0506-01	
Sample Date:	**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**	
Duplicate:			**12TP16-0608-03**													
3-Nitroaniline	2850	UL	2800	UL	200	UL	NA		195	U	NA		225	U	195	U
4,6-Dinitro-2-methylphenol	2850	U	2800	U	200	U	NA		195	U	NA		225	UL	195	U
4-Bromophenyl Phenyl Ether	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
4-Chloro-3-methylphenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
4-Chloroaniline	2850	UR	2800	UR	200	UR	NA		195	UR	NA		225	UR	195	UR
4-Chlorophenyl Phenyl Ether	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
4-Methylphenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitroaniline	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
4-Nitrophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Acenaphthene	28.5	U	28	U	2	U	NA		1.95	U	NA		2.25	U	3.6	J
Acenaphthylene	28.5	U	28	U	2	U	NA		1.95	U	NA		2.25	U	2.4	J
Acetophenone	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	180		140		2	U	NA		1.95	U	NA		2.25	U	7.5	
Atrazine	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	550		450		2	U	NA		1.95	U	NA		11		55	
Benzaldehyde	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	490		440		2	U	NA		1.95	U	NA		12		120	
Benzo(b)fluoranthene	1300		1100		2.4	J	NA		1.95	U	NA		18		150	
Benzo(g,h,i)perylene	530	J	420	J	2	U	NA		1.95	U	NA		6.3	J	95	J
Benzo(k)fluoranthene	380		280		2	U	NA		1.95	U	NA		6.3		49	
Bis(2-chloroethoxy)methane	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Bis(2-chloroethyl)ether	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Bis(2-ethylhexyl)phthalate	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Butylbenzylphthalate	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Caprolactam	NA		NA		NA		NA		NA		NA		NA		NA	
Carbazole	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Chrysene	1100		810		2	U	NA		1.95	U	NA		15		81	
Di-n-butylphthalate	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Di-n-octylphthalate	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Dibenz(a,h)anthracene	28.5	U	28	U	2	U	NA		1.95	U	NA		2.25	U	5.5	
Dibenzofuran	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Diethylphthalate	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Dimethylphthalate	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Fluoranthene	2500		1900		4.4		NA		3.9		NA		37		94	
Fluorene	28.5	U	28	U	2	U	NA		1.95	U	NA		2.25	U	4.3	
Hexachlorobenzene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Hexachlorobutadiene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Hexachlorocyclopentadiene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Hexachloroethane	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Indeno(1,2,3-cd)pyrene	340		320		2	U	NA		1.95	U	NA		6.8		70	
Isophorone	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
N-Nitroso-di-n-propylamine	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
N-Nitrosodiphenylamine (1)	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Naphthalene	28.5	U	28	U	2	U	NA		1.95	U	NA		2.25	U	4.7	
Nitrobenzene	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP16-0608-03**		**12TP16-0608-03-D**		**12TP16-0910-04**		**12TP16-0910-4**		**12TP17-0.5-02-02**		**12TP17-0.52.0-02**		**12TP17-000.5-01**		**12TP18-0506-01**	
Sample Date:	**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**	
Duplicate:			**12TP16-0608-03**													
Pentachlorophenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Phenanthrene	700		560		2.4	J	NA		2.3	J	NA		23		40	
Phenol	2850	U	2800	U	200	U	NA		195	U	NA		225	U	195	U
Pyrene	2100		1600		3.2	J	NA		2.7	J	NA		27		83	
Total Pahs	10760		8420		12.4		NA		8.9		NA		162.4		869	
Total Pahs Halfnd	10831.25		8490		25.4		NA		22.55		NA		170.275		869	
PAHS																
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthene	NA		NA		NA		NA		NA		NA		NA		NA	
Acenaphthylene	NA		NA		NA		NA		NA		NA		NA		NA	
Anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benz(a)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(a)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		NA		NA		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Chrysene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	NA		NA		NA		NA		NA		NA		NA		NA	
Fluorene	NA		NA		NA		NA		NA		NA		NA		NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	NA		NA		NA		NA		NA		NA		NA		NA	
Phenanthrene	NA		NA		NA		NA		NA		NA		NA		NA	
Pyrene	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**				**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,1,2,2-Tetrachloroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,1,2-Trichloroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,1,2-Trichlorotrifluoroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,1-Dichloroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,1-Dichloroethene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2,3-Trichlorobenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2,4-Trichlorobenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dibromo-3-chloropropane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dibromoethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dichlorobenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dichloroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dichloroethene (cis)	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dichloroethene (trans)	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,2-Dichloropropane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,3-Dichlorobenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP16-0608-03**		**12TP16-0608-03-D**		**12TP16-0910-04**		**12TP16-0910-4**		**12TP17-0.5-02-02**		**12TP17-0.52.0-02**		**12TP17-000.5-01**		**12TP18-0506-01**	
Sample Date:	**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**	
Duplicate:			**12TP16-0608-03**													
1,4-Dichlorobenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
1,4-Dioxane	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	38	J	28	J	12.5	U	NA		12.5	U	NA		15	U	7.2	J
2-Hexanone	15	UJ	14	UJ	12.5	U	NA		12.5	U	NA		15	U	13.5	U
4-Methyl-2-pentanone	15	UJ	14	UJ	12.5	U	NA		12.5	U	NA		15	U	13.5	U
Acetone	160	J	110	J	12.5	U	NA		12.5	U	NA		28	J	56	
Benzene	4	J	3.4	J	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Bromodichloromethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Bromoform	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Bromomethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Carbon Disulfide	8.1	J	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Carbon Tetrachloride	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Chlorobenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Chloroethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Chloroform	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Chloromethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
cis-1,3-Dichloropropene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Dibromochloromethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Dichlorodifluoromethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Ethylbenzene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Isopropylbenzene	11	J	9.2	J	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
M+p-xylenes	3.6	J	2.5	J	5	U	NA		5	U	NA		6	U	5.5	U
Methyl Acetate	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Cyclohexane	NA		NA		NA		NA		NA		NA		NA		NA	
Methyl Tert-butyl Ether	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Methylene Chloride	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
O-xylene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Styrene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Tetrachloroethene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Toluene	4.6	J	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
trans-1,3-Dichloropropene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Trichloroethene	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Trichlorofluoromethane	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Vinyl Chloride	3	UJ	2.8	UJ	2.55	U	NA		2.5	U	NA		2.95	U	2.7	U
Xylene (Total)	3.6	J	2.5	J	7.5	U	NA		7.5	U	NA		9	U	8	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**				**ug/kg**				**ug/kg**		**ug/kg**	
4,4'-DDD	2.9	UJ	2.9	UJ	1.05	U	NA		1.9	J	NA		1.4	J	1.1	J
4,4'-DDE	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
4,4'-DDT	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	2.2	
Aldrin	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Alpha-BHC	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Alpha-Chlordane	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP16-0608-03**		**12TP16-0608-03-D**		**12TP16-0910-04**		**12TP16-0910-4**		**12TP17-0.5-02-02**		**12TP17-0.52.0-02**		**12TP17-000.5-01**		**12TP18-0506-01**	
Sample Date:	**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/19/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**		**12/20/2011**	
Duplicate:			**12TP16-0608-03**													
Aroclor-1016	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Aroclor-1221	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Aroclor-1232	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Aroclor-1242	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Aroclor-1248	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Aroclor-1254	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Aroclor-1260	29	U	29	U	10.5	U	NA		10	U	NA		11.5	U	10	U
Beta-BHC	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Delta-BHC	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Dieldrin	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Endosulfan I	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Endosulfan II	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Endosulfan Sulfate	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Endrin	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Endrin Aldehyde	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Endrin Ketone	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Gamma-BHC (Lindane)	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Gamma-Chlordane	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Heptachlor	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Heptachlor Epoxide	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Methoxychlor	2.9	UJ	2.9	UJ	1.05	U	NA		1	U	NA		1.15	U	1	U
Total Aroclor		U		U		U	NA			U	NA			U		U
Total Aroclor Halfnd	101.5		101.5		36.75		NA		35		NA		40.25		35	
Total Ddt		U		U		U	NA		1.9		NA		1.4		3.3	
Total Ddt Halfnd	4.35		4.35		1.575		NA		2.9		NA		2.55		3.8	
Toxaphene	29	UJ	29	UJ	10.5	U	NA		10	U	NA		11.5	U	10	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP18-0607-02**	
Sample Date:	**12/20/2011**	
Duplicate:		
DIOXIN/FURAN		
1,2,3,4,6,7,8,9-OCDD	NA	
1,2,3,4,6,7,8,9-OCDF	NA	
1,2,3,4,6,7,8-HpCDD	NA	
1,2,3,4,6,7,8-HpCDF	NA	
1,2,3,4,7,8,9-HpCDF	NA	
1,2,3,4,7,8-HxCDD	NA	
1,2,3,4,7,8-HxCDF	NA	
1,2,3,6,7,8-HxCDD	NA	
1,2,3,6,7,8-HxCDF	NA	
1,2,3,7,8,9-HxCDD	NA	
1,2,3,7,8,9-HxCDF	NA	
1,2,3,7,8-PeCDD	NA	
1,2,3,7,8-PeCDF	NA	
2,3,4,6,7,8-HxCDF	NA	
2,3,4,7,8-PeCDF	NA	
2,3,7,8-TCDD	NA	
2,3,7,8-TCDF	NA	
Teq	NA	
Teq Bird	NA	
Teq Bird Halfnd	NA	
Teq Fish	NA	
Teq Fish Halfnd	NA	
Teq Halfnd	NA	
Total HpCDD	NA	
Total HpCDF	NA	
Total HxCDD	NA	
Total HxCDF	NA	
Total PeCDD	NA	
Total PeCDF	NA	
Total TCDD	NA	
Total TCDF	NA	
INORGANICS	**mg/kg**	
Aluminum	16100	J
Antimony	0.24	B
Arsenic	6	L
Barium	45.3	L
Beryllium	0.59	
Cadmium	0.13	J
Calcium	613	J
Chromium	23.3	J
Cobalt	7.3	J
Copper	12.1	J
Cyanide	NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP18-0607-02**	
Sample Date:	**12/20/2011**	
Duplicate:		
Iron	33200	J
Lead	11.6	L
Magnesium	2380	
Manganese	265	J
Mercury	0.036	
Nickel	11.7	J
Potassium	828	J
Selenium	0.275	UL
Silver	0.026	B
Sodium	70.4	
Thallium	0.32	L
Vanadium	36.3	J
Zinc	31.3	J
MISCELLANEOUS PARAMETERS	**mg/kg**	
Cyanide	0.1535	U
Hexavalent Chromium	1	
Total Organic Carbon	NA	
	mv	
Oxidation Reduction Potential	277.7	
	s.u.	
Ph	6.3	
SEMIVOLATILES	**ug/kg**	
1,1-Biphenyl	NA	
1,2,4,5-Tetrachlorobenzene	NA	
2,2'-Oxybis(1-chloropropane)	205	U
2,3,4,6-Tetrachlorophenol	NA	
2,4,5-Trichlorophenol	205	U
2,4,6-Trichlorophenol	205	U
2,4-Dichlorophenol	205	U
2,4-Dimethylphenol	205	U
2,4-Dinitrophenol	205	U
2,4-Dinitrotoluene	205	U
2,6-Dinitrotoluene	205	U
2-Chloronaphthalene	205	U
2-Chlorophenol	205	U
2-Methylnaphthalene	2.05	U
2-Methylphenol	205	U
2-Nitroaniline	205	U
2-Nitrophenol	205	U
3&4-Methylphenol	205	U
3,3'-Dichlorobenzidine	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP18-0607-02**	
Sample Date:	**12/20/2011**	
Duplicate:		
3-Nitroaniline	205	U
4,6-Dinitro-2-methylphenol	205	U
4-Bromophenyl Phenyl Ether	205	U
4-Chloro-3-methylphenol	205	U
4-Chloroaniline	205	UR
4-Chlorophenyl Phenyl Ether	205	U
4-Methylphenol	NA	
4-Nitroaniline	205	U
4-Nitrophenol	205	U
Acenaphthene	2.05	U
Acenaphthylene	2.05	U
Acetophenone	NA	
Anthracene	2.05	U
Atrazine	NA	
Benz(a)anthracene	5.8	
Benzaldehyde	NA	
Benzo(a)pyrene	6.6	
Benzo(b)fluoranthene	8.6	
Benzo(g,h,i)perylene	4.5	J
Benzo(k)fluoranthene	2.9	J
Bis(2-chloroethoxy)methane	205	U
Bis(2-chloroethyl)ether	205	U
Bis(2-ethylhexyl)phthalate	205	U
Butylbenzylphthalate	205	U
Caprolactam	NA	
Carbazole	205	U
Chrysene	7.4	
Di-n-butylphthalate	205	U
Di-n-octylphthalate	205	U
Dibenz(a,h)anthracene	2.05	U
Dibenzofuran	205	U
Diethylphthalate	205	U
Dimethylphthalate	205	U
Fluoranthene	8.6	
Fluorene	2.05	U
Hexachlorobenzene	205	U
Hexachlorobutadiene	205	U
Hexachlorocyclopentadiene	205	U
Hexachloroethane	205	U
Indeno(1,2,3-cd)pyrene	4.1	
Isophorone	205	U
N-Nitroso-di-n-propylamine	205	U
N-Nitrosodiphenylamine (1)	205	U
Naphthalene	2.05	U
Nitrobenzene	205	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP18-0607-02**	
Sample Date:	**12/20/2011**	
Duplicate:		
Pentachlorophenol	205	U
Phenanthrene	3.7	J
Phenol	205	U
Pyrene	8.6	
Total Pahs	60.8	
Total Pahs Halfnd	67.975	
PAHS		
2-Methylnaphthalene	NA	
Acenaphthene	NA	
Acenaphthylene	NA	
Anthracene	NA	
Benz(a)anthracene	NA	
Benzo(a)pyrene	NA	
Benzo(b)fluoranthene	NA	
Benzo(g,h,i)perylene	NA	
Benzo(k)fluoranthene	NA	
Chrysene	NA	
Dibenz(a,h)anthracene	NA	
Fluoranthene	NA	
Fluorene	NA	
Indeno(1,2,3-cd)pyrene	NA	
Naphthalene	NA	
Phenanthrene	NA	
Pyrene	NA	
Total Pahs	NA	
Total Pahs Halfnd	NA	
VOLATILES	**ug/kg**	
1,1,1-Trichloroethane	2.6	U
1,1,2,2-Tetrachloroethane	2.6	U
1,1,2-Trichloroethane	2.6	U
1,1,2-Trichlorotrifluoroethane	2.6	U
1,1-Dichloroethane	2.6	U
1,1-Dichloroethene	2.6	U
1,2,3-Trichlorobenzene	2.6	U
1,2,4-Trichlorobenzene	2.6	U
1,2-Dibromo-3-chloropropane	2.6	U
1,2-Dibromoethane	2.6	U
1,2-Dichlorobenzene	2.6	U
1,2-Dichloroethane	2.6	U
1,2-Dichloroethene (cis)	2.6	U
1,2-Dichloroethene (trans)	2.6	U
1,2-Dichloropropane	2.6	U
1,3-Dichlorobenzene	2.6	U

Sample ID:	**12TP18-0607-02**	
Sample Date:	**12/20/2011**	
Duplicate:		
1,4-Dichlorobenzene	2.6	U
1,4-Dioxane	NA	
2-Butanone	13	U
2-Hexanone	13	U
4-Methyl-2-pentanone	13	U
Acetone	13	U
Benzene	2.6	U
Bromochloromethane	NA	
Bromodichloromethane	2.6	U
Bromoform	2.6	U
Bromomethane	2.6	U
Carbon Disulfide	2.6	U
Carbon Tetrachloride	2.6	U
Chlorobenzene	2.6	U
Chloroethane	2.6	U
Chloroform	2.6	U
Chloromethane	2.6	U
cis-1,3-Dichloropropene	2.6	U
Cyclohexane	NA	
Dibromochloromethane	2.6	U
Dichlorodifluoromethane	2.6	U
Ethylbenzene	2.6	U
Isopropylbenzene	2.6	U
M+p-xylenes	5	U
Methyl Acetate	NA	
Methyl Cyclohexane	NA	
Methyl Tert-butyl Ether	2.6	U
Methylene Chloride	2.6	U
O-xylene	2.6	U
Styrene	2.6	U
Tetrachloroethene	2.6	U
Toluene	2.6	U
trans-1,3-Dichloropropene	2.6	U
Trichloroethene	2.6	U
Trichlorofluoromethane	2.6	U
Vinyl Chloride	2.6	U
Xylene (Total)	8	U
PESTICIDES/PCBS	**ug/kg**	
4,4'-DDD	1.05	U
4,4'-DDE	1.05	U
4,4'-DDT	1.05	U
Aldrin	1.05	U
Alpha-BHC	1.05	U
Alpha-Chlordane	1.05	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12TP18-0607-02**	
Sample Date:	**12/20/2011**	
Duplicate:		
Aroclor-1016	10.5	U
Aroclor-1221	10.5	U
Aroclor-1232	10.5	U
Aroclor-1242	10.5	U
Aroclor-1248	10.5	U
Aroclor-1254	10.5	U
Aroclor-1260	10.5	U
Beta-BHC	1.05	U
Delta-BHC	1.05	U
Dieldrin	1.05	U
Endosulfan I	1.05	U
Endosulfan II	1.05	U
Endosulfan Sulfate	1.05	U
Endrin	1.05	U
Endrin Aldehyde	1.05	U
Endrin Ketone	1.05	U
Gamma-BHC (Lindane)	1.05	U
Gamma-Chlordane	1.05	U
Heptachlor	1.05	U
Heptachlor Epoxide	1.05	U
Methoxychlor	1.05	U
Total Aroclor		U
Total Aroclor Halfnd	36.75	
Total Ddt		U
Total Ddt Halfnd	1.575	
Toxaphene	10.5	U

Data Qualifiers:

B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.

J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).

K -- Positive result is considered biased high due to exceedance of technical quality control criteria.

L -- Positive result is considered biased low due to exceedance of technical quality control criteria.

R -- Positive result is considered unusable due to exceedance of technical quality control criteria.

U -- Value is a non-detected result as reported by the laboratory.

UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.

UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.

NA -- No result is available/applicable for this parameter in this sample.

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SW01**		**12SW02**		**12SW02-D**		**12SW03**		**12SW04**		**12SW05**		**12SW07**		**12SW07-F**		**12SW08**		**12SW08-F**		**12SW08-F-D**	
Sample Date:	**1/14/2010**		**1/18/2010**		**1/18/2010**		**1/20/2010**		**1/20/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**	
Duplicate:					**12SW02**																**12SW08-F**	
TOTAL INORGANICS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**					
Aluminum	34.2	U	187	B	187	B	35.6	B	82.1	B	168	B	31800		NA		2700		NA		NA	
Antimony	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	4.7		NA		2.9	U	NA		NA	
Arsenic	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	10.6		NA		2.9	U	NA		NA	
Barium	193	J	115	J	117	J	173	J	68	J	84.9	J	434	J	NA		49.9	J	NA		NA	
Beryllium	0.23	U	0.32	B	0.31	B	0.27	B	0.23	U	0.23	U	3.1		NA		0.52	B	NA		NA	
Cadmium	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	1.1		NA		0.34	U	NA		NA	
Calcium	28500		26600		26300		27000		28400		31900		39900		NA		12800		NA		NA	
Chromium	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	37.8		NA		1.9		NA		NA	
Cobalt	2.7	B	1.2	B	1.2	B	2.3	B	0.75	U	0.75	U	32.6		NA		1.3	B	NA		NA	
Copper	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	57.4		NA		6.6		NA		NA	
Cyanide	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Iron	565		656		665		889		120	K	190	K	44700		NA		2760		NA		NA	
Lead	1.8	U	2.3		2.5		1.8	U	1.8	U	3.6		88		NA		10.6		NA		NA	
Magnesium	11900		8730		8630		10800		11400		12700		13100		NA		2040		NA		NA	
Manganese	2100	J	990	J	1010	J	1660	J	16.4	J	16.7	J	1990	J	NA		114	J	NA		NA	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.2		NA		0.1	U	NA		NA	
Nickel	0.96	U	0.96	U	0.97		0.96	U	0.96	U	0.96	U	31.8		NA		1.2		NA		NA	
Potassium	1140	J	1970	J	1960	J	1450	J	981	J	905	J	4460	J	NA		2280	J	NA		NA	
Selenium	3.6	UL	3.6	UL	3.6	UL	3.6	UL	3.6	UL	3.6	UL	3.6	UL	NA		3.6	UL	NA		NA	
Silver	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	NA		0.96	U	NA		NA	
Sodium	11600		37300		37900		11800		8720		8090		4200		NA		1490	B	NA		NA	
Thallium	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	NA		5.3	U	NA		NA	
Vanadium	0.68	U	1	B	1.4	B	0.75	B	0.68	U	0.68	U	88.8		NA		6.5		NA		NA	
Zinc	1.7	L	2	L	1.9	L	1	L	4.6	L	2.9	L	253	L	NA		38.1	L	NA		NA	
Cyanide	3.6	L	48.8	J	3	UJ	6.8	L	3	UL	6	L	3	UL	NA		3.2	L	NA		NA	
DISSOLVED INORGANICS															**ug/L**				**ug/L**		**ug/L**	
Aluminum	NA		NA		NA		NA		NA		NA		NA		270		NA		69.2	B	80.3	B
Antimony	NA		NA		NA		NA		NA		NA		NA		2.9	U	NA		2.9	U	2.9	U
Arsenic	NA		NA		NA		NA		NA		NA		NA		4.8	B	NA		3	B	2.9	U
Barium	NA		NA		NA		NA		NA		NA		NA		51.2		NA		20.5		20.9	
Beryllium	NA		NA		NA		NA		NA		NA		NA		0.3	B	NA		0.3	B	0.23	U
Cadmium	NA		NA		NA		NA		NA		NA		NA		0.34	U	NA		0.34	U	0.34	U
Calcium	NA		NA		NA		NA		NA		NA		NA		25600		NA		10200		10500	
Chromium	NA		NA		NA		NA		NA		NA		NA		0.95	U	NA		0.95	U	0.95	U
Cobalt	NA		NA		NA		NA		NA		NA		NA		2.6		NA		0.75	U	0.75	U
Copper	NA		NA		NA		NA		NA		NA		NA		1.5	U	NA		1.9		2.4	
Iron	NA		NA		NA		NA		NA		NA		NA		370		NA		105		77.8	
Lead	NA		NA		NA		NA		NA		NA		NA		1.8	U	NA		1.8	U	1.8	U
Magnesium	NA		NA		NA		NA		NA		NA		NA		7760		NA		1700		1740	
Manganese	NA		NA		NA		NA		NA		NA		NA		845		NA		19		19.3	
Mercury	NA		NA		NA		NA		NA		NA		NA		0.1	U	NA		0.1	U	0.1	U
Nickel	NA		NA		NA		NA		NA		NA		NA		0.96	U	NA		0.96	U	0.96	U
Potassium	NA		NA		NA		NA		NA		NA		NA		2120	J	NA		2160	J	2220	J

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SW01**		**12SW02**		**12SW02-D**		**12SW03**		**12SW04**		**12SW05**		**12SW07**		**12SW07-F**		**12SW08**		**12SW08-F**		**12SW08-F-D**	
Sample Date:	**1/14/2010**		**1/18/2010**		**1/18/2010**		**1/20/2010**		**1/20/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**	
Duplicate:					**12SW02**																**12SW08-F**	
Selenium	NA		NA		NA		NA		NA		NA		NA		4.5	J	NA		3.6	UL	3.6	UL
Silver	NA		NA		NA		NA		NA		NA		NA		0.96	U	NA		0.96	U	0.96	U
Sodium	NA		NA		NA		NA		NA		NA		NA		3640		NA		1220		1210	
Thallium	NA		NA		NA		NA		NA		NA		NA		5.3	U	NA		5.3	U	5.3	U
Vanadium	NA		NA		NA		NA		NA		NA		NA		1.4	B	NA		0.68	U	0.68	U
Zinc	NA		NA		NA		NA		NA		NA		NA		2.2		NA		2.7	J	8.2	J
SEMIVOLATILES	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**					
1,1-Biphenyl	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
1,2,4,5-Tetrachlorobenzene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,2'-Oxybis(1-chloropropane)	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,3,4,6-Tetrachlorophenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,4,5-Trichlorophenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,4,6-Trichlorophenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,4-Dichlorophenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,4-Dimethylphenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,4-Dinitrophenol	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
2,4-Dinitrotoluene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2,6-Dinitrotoluene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2-Chloronaphthalene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2-Chlorophenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2-Methylnaphthalene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2-Methylphenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
2-Nitroaniline	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
2-Nitrophenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
3,3'-Dichlorobenzidine	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
3-Nitroaniline	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
4,6-Dinitro-2-methylphenol	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
4-Bromophenyl Phenyl Ether	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
4-Chloro-3-methylphenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
4-Chloroaniline	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
4-Chlorophenyl Phenyl Ether	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
4-Methylphenol	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
4-Nitroaniline	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
4-Nitrophenol	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
Acenaphthene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
Acenaphthylene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
Acetophenone	6.3	B	2.3	B	3.7	B	11	U	11	U	10	U	10	U	NA		10	U	NA		NA	
Anthracene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	1.2	J	NA		5	U	NA		NA	
Atrazine	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA	
Benz(a)anthracene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	6.3		NA		5	U	NA		NA	
Benzaldehyde	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	1.5	J	NA		5	U	NA		NA	
Benzo(a)pyrene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	7.1		NA		5	U	NA		NA	
Benzo(b)fluoranthene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	6.5		NA		5	U	NA		NA	
Benzo(g,h,i)perylene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	4.4	J	NA		5	U	NA		NA	

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SW01		12SW02		12SW02-D		12SW03		12SW04		12SW05		12SW07		12SW07-F		12SW08		12SW08-F		12SW08-F-D
Sample Date:	1/14/2010		1/18/2010		1/18/2010		1/20/2010		1/20/2010		1/21/2010		1/21/2010		1/21/2010		1/21/2010		1/21/2010		1/21/2010
Duplicate:					12SW02																12SW08-F
Benzo(k)fluoranthene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	4.8	J	NA		5	U	NA		NA
Bis(2-chloroethoxy)methane	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Bis(2-chloroethyl)ether	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Bis(2-ethylhexyl)phthalate	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Butylbenzylphthalate	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Caprolactam	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Carbazole	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA
Chrysene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	7.6		NA		5	U	NA		NA
Di-n-butylphthalate	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Di-n-octylphthalate	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Dibenz(a,h)anthracene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Dibenzofuran	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Diethylphthalate	1.1	B	0.65	B	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Dimethylphthalate	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Fluoranthene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	13		NA		5	U	NA		NA
Fluorene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Hexachlorobenzene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Hexachlorobutadiene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Hexachlorocyclopentadiene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Hexachloroethane	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Indeno(1,2,3-cd)pyrene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5	J	NA		5	U	NA		NA
Isophorone	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
N-Nitroso-di-n-propylamine	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
N-Nitrosodiphenylamine (1)	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Naphthalene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Nitrobenzene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Pentachlorophenol	11	U	11	U	11	U	11	U	11	U	10	U	10	U	NA		10	U	NA		NA
Phenanthrene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	4.8	J	NA		5	U	NA		NA
Phenol	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	5.3	U	NA		5	U	NA		NA
Pyrene	5.4	U	5.4	U	5.4	U	5.6	U	5.6	U	5	U	12		NA		5	U	NA		NA
PAHS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**				
2-Methylnaphthalene	0.22	U	0.21	U	0.22	U	0.21	U	0.22	U	0.22	U	0.029	J	NA		0.2	U	NA		NA
Acenaphthene	0.22	U	0.21	U	0.22	UJ	0.21	U	0.22	U	0.22	U	0.21	U	NA		0.2	U	NA		NA
Acenaphthylene	0.22	U	0.035	J	0.037	J	0.21	U	0.22	U	0.22	U	0.15	J	NA		0.2	U	NA		NA
Anthracene	0.22	U	0.045	J	0.041	J	0.21	U	0.22	U	0.22	U	0.22		NA		0.2	U	NA		NA
Benz(a)anthracene	0.22	U	0.043	J	0.047	J	0.21	U	0.22	U	0.22	U	1.3		NA		0.045	J	NA		NA
Benzo(a)pyrene	0.22	U	0.12	J	0.12	J	0.21	U	0.22	U	0.22	U	1.5		NA		0.049	J	NA		NA
Benzo(b)fluoranthene	0.22	U	0.12	J	0.11	J	0.21	U	0.22	U	0.22	U	1.5		NA		0.053	J	NA		NA
Benzo(g,h,i)perylene	0.22	U	0.17	J	0.19	J	0.21	U	0.22	U	0.22	U	1		NA		0.033	J	NA		NA
Benzo(k)fluoranthene	0.22	U	0.11	J	0.12	J	0.21	U	0.22	U	0.22	U	1.4		NA		0.047	J	NA		NA
Chrysene	0.22	U	0.066	J	0.064	J	0.21	U	0.22	U	0.22	U	1.5		NA		0.05	J	NA		NA
Dibenz(a,h)anthracene	0.22	U	0.02	J	0.022	J	0.21	U	0.22	U	0.22	U	0.21	J	NA		0.2	U	NA		NA
Fluoranthene	0.22	U	0.078	J	0.084	J	0.21	U	0.22	U	0.22	U	2.9		NA		0.1	J	NA		NA
Fluorene	0.22	U	0.21	U	0.22	UJ	0.21	U	0.22	U	0.22	U	0.21	U	NA		0.2	U	NA		NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SW01**		**12SW02**		**12SW02-D**		**12SW03**		**12SW04**		**12SW05**		**12SW07**		**12SW07-F**		**12SW08**		**12SW08-F**		**12SW08-F-D**
Sample Date:	**1/14/2010**		**1/18/2010**		**1/18/2010**		**1/20/2010**		**1/20/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**
Duplicate:					**12SW02**																**12SW08-F**
Indeno(1,2,3-cd)pyrene	0.22	U	0.13	J	0.17	J	0.21	U	0.22	U	0.22	U	1.2		NA		0.038	J	NA		NA
Naphthalene	0.22	U	0.21	U	0.22	U	0.21	U	0.22	U	0.22	U	0.21	U	NA		0.2	U	NA		NA
Phenanthrene	0.22	U	0.21	U	0.22	U	0.21	U	0.22	U	0.22	U	0.78		NA		0.04	J	NA		NA
Pyrene	0.22	U	0.098	J	0.11	J	0.21	U	0.22	U	0.22	U	2.3		NA		0.079	J	NA		NA
VOLATILES	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**				
1,1,1-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,1,2-Trichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,1,2-Trichlorotrifluoroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,1-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2,3-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2,4-Trichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dibromoethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dichloroethene (cis)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dichloroethene (trans)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,2-Dichloropropane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,3-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
1,4-Dichlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
2-Butanone	2.5	UR	2.5	UR	2.5	UR	2.5	UR	2.5	UR	2.5	UR	2.5	UR	NA		2.5	UR	NA		NA
2-Hexanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	NA		2.5	U	NA		NA
4-Methyl-2-pentanone	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	NA		2.5	U	NA		NA
Acetone	2.5	B	3.8	B	3	B	2.8	B	3.2	B	2.3	B	2.2	B	NA		2.3	B	NA		NA
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Bromoform	0.17	J	0.22	J	0.19	J	0.18	J	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Bromomethane	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	NA		1.4	U	NA		NA
Carbon Disulfide	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Carbon Tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Chlorobenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Chloroethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Chloroform	0.5	U	0.14	J	0.12	J	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Chloromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Cyclohexane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Dibromochloromethane	0.5	U	0.24	J	0.2	J	0.14	J	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Dichlorodifluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Isopropylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
M+p-xylenes	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	NA		NA
Methyl Acetate	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SW01**		**12SW02**		**12SW02-D**		**12SW03**		**12SW04**		**12SW05**		**12SW07**		**12SW07-F**		**12SW08**		**12SW08-F**		**12SW08-F-D**
Sample Date:	**1/14/2010**		**1/18/2010**		**1/18/2010**		**1/20/2010**		**1/20/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**		**1/21/2010**
Duplicate:					**12SW02**																**12SW08-F**
Methyl Cyclohexane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Methyl Tert-butyl Ether	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Methylene Chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
O-xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Styrene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Trichlorofluoromethane	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Vinyl Chloride	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
Xylene (Total)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	NA		NA
PESTICIDES/PCBS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**				**ug/L**				
4,4'-DDD	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.015	J	NA		0.1	U	NA		NA
4,4'-DDE	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.021	J	NA		0.1	U	NA		NA
4,4'-DDT	0.11	U	0.11	U	0.11	U	0.1	UJ	0.1	UJ	0.1	UJ	0.019	J	NA		0.1	UJ	NA		NA
Aldrin	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.015	J	NA		0.05	U	NA		NA
Alpha-BHC	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.037	R	NA		0.05	U	NA		NA
Alpha-Chlordane	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.058	J	NA		0.05	U	NA		NA
Aroclor-1016	1	U	1	U	0.98	U	0.93	U	0.93	U	0.93	U	0.93	U	NA		0.93	U	NA		NA
Aroclor-1221	1.4	U	1.4	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	NA		1.3	U	NA		NA
Aroclor-1232	1	U	1	U	0.98	U	0.93	U	0.93	U	0.93	U	0.93	U	NA		0.93	U	NA		NA
Aroclor-1242	0.68	U	0.69	U	0.66	U	0.63	U	0.63	U	0.63	U	0.63	U	NA		0.63	U	NA		NA
Aroclor-1248	0.68	U	0.69	U	0.66	U	0.63	U	0.63	U	0.63	U	0.63	U	NA		0.63	U	NA		NA
Aroclor-1254	0.68	U	0.69	U	0.66	U	0.63	U	0.63	U	0.63	U	0.63	U	NA		0.63	U	NA		NA
Aroclor-1260	1	U	1	U	0.98	U	0.93	U	0.93	U	0.93	U	0.93	U	NA		0.93	U	NA		NA
Beta-BHC	0.054	U	0.007	J	0.0089	J	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U	NA		NA
Delta-BHC	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.28	R	NA		0.05	U	NA		NA
Dieldrin	0.0072	J	0.0057	J	0.0066	J	0.0029	J	0.1	U	0.1	U	1.6		NA		0.029	J	NA		NA
Endosulfan I	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.063	J	NA		0.05	U	NA		NA
Endosulfan II	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	NA		NA
Endosulfan Sulfate	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.56	U	NA		0.1	U	NA		NA
Endrin	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	NA		NA
Endrin Aldehyde	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.037	J	NA		0.1	U	NA		NA
Endrin Ketone	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.1	U	0.026	R	NA		0.1	U	NA		NA
Gamma-BHC (Lindane)	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U	NA		NA
Gamma-Chlordane	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U	NA		NA
Heptachlor	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.05	U	NA		0.05	U	NA		NA
Heptachlor Epoxide	0.054	U	0.056	U	0.053	U	0.05	U	0.05	U	0.05	U	0.056	U	NA		0.0079	J	NA		NA
Methoxychlor	0.54	U	0.56	U	0.53	U	0.5	U	0.5	U	0.5	U	0.28	J	NA		0.5	U	NA		NA
Toxaphene	2.7	U	2.8	U	2.6	U	2.5	U	2.5	U	2.5	U	2.5	U	NA		2.5	U	NA		NA

Data Qualifiers:

B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.

J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).

K -- Positive result is considered biased high due to exceedance of technical quality control criteria.

L -- Positive result is considered biased low due to exceedance of technical quality control criteria.

R -- Positive result is considered unusable due to exceedance of technical quality control criteria.

U -- Value is a non-detected result as reported by the laboratory.

UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.

UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.

NA -- No result is available/applicable for this parameter in this sample.

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SD01**		**12SD02**		**12SD03**		**12SD03-D**		**12SD04**		**12SD05**		**12SD06**		**12SD07**		**12SD08**	
Sample Date:	**1/14/2010**		**1/15/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**	
Duplicate:							**12SD03**											
TOTAL INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	5400		7780		6880		7170		7580		8810		16700		12300		12800	
Antimony	0.73	J	1.1	J	0.47	J	0.55	R	0.71	L	0.8	J	0.84	J	1.3	J	2.2	J
Arsenic	3.5		6.2		3.4		3.3		3		4.6		7.2		3.3		2.8	
Barium	186		838		95.5		92.5		58.2		78.1		96.6		85.2		111	
Beryllium	0.52	K	1.2	K	0.77	K	0.94	K	0.43		0.51	K	0.91	K	0.69	K	0.89	K
Cadmium	0.58	K	2.1		0.47	R	0.76	K	0.07		0.39	K	0.37	K	0.29	K	0.56	K
Calcium	2030		3680		5970		3790		717		933		2020		2480		5360	
Chromium	11		18.7		14.8		15.4		11.7		14.1		22.3		16.6		18.1	
Cobalt	7.9		37.1		8.6		9.2		3.4		4.7		7.6		7.3		6.1	
Copper	15.8		44.7		9.7		12.6		7.2		8.8		16.8		16.4		19	
Cyanide	0.2	U	0.83	B	0.18	U	0.18	U	0.19	U	0.36	B	0.24	U	0.27	U	0.3	U
Iron	15200	L	24000	L	18000	L	20200	L	10800	L	15800	L	18400	L	15500	L	15800	L
Lead	52.8		45.8		14.9		17		90		72		54.7		24.5		40.3	
Magnesium	1360		2390		2740		2390		930		1150		2020		1680		1950	
Manganese	2690	L	17400	L	942	L	947	L	129	L	228	L	463	L	281	L	184	L
Mercury	0.034		0.03		0.023		0.02	U	0.026		0.019	U	0.087		0.066		0.11	
Nickel	9.1		28.4		9.3		9.5		5.5		6.1		13.4		10.3		12.6	
Potassium	441	L	1060	L	1180	L	1240	L	356	L	409	L	887	L	898	L	1490	L
Selenium	0.47	UL	5.5	UL	0.43	UL	0.43	UL	0.45	UL	0.46	UL	0.56	UL	0.64	UL	0.82	UL
Silver	0.13	U	0.47		0.12	U	0.11	U	0.12	U	0.12	U	0.15	U	0.17	U	0.19	U
Sodium	211	B	216	B	197	B	199	B	132	B	149	B	157	B	182	B	211	B
Thallium	1.7	L	13.3		1	L	1.2	L	0.66	U	0.68	U	0.82	U	0.95	U	1	U
Vanadium	17		26.3		23.2		23.7		21.4		26.4		36.5		27.3		27.2	
Zinc	71.9		269		45		69.7		25		26.1		80.2		61.4		108	
MISCELLANEOUS PARAMETERS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Total Organic Carbon	12240		14570		8796		7092		8997		13190		32800		57130		86860	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1-Biphenyl	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
1,2,4,5-Tetrachlorobenzene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2,2'-Oxybis(1-chloropropane)	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2,3,4,6-Tetrachlorophenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2,4,5-Trichlorophenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2,4,6-Trichlorophenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2,4-Dichlorophenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2,4-Dimethylphenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2,4-Dinitrophenol	1800	U	2300	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2,4-Dinitrotoluene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2,6-Dinitrotoluene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2-Chloronaphthalene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2-Chlorophenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
2-Methylnaphthalene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2-Methylphenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	12SD01		12SD02		12SD03		12SD03-D		12SD04		12SD05		12SD06		12SD07		12SD08	
Sample Date:	**1/14/2010**		**1/15/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**	
Duplicate:							**12SD03**											
2-Nitroaniline	1800	U	2300	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
2-Nitrophenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
3,3'-Dichlorobenzidine	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
3-Nitroaniline	1800	U	2300	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
4,6-Dinitro-2-methylphenol	1800	U	2300	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
4-Bromophenyl Phenyl Ether	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
4-Chloro-3-methylphenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
4-Chloroaniline	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
4-Chlorophenyl Phenyl Ether	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
4-Methylphenol	1800	U	2300	U	620	U	630	U	320	U	320	U	410	UL	450	UL	500	U
4-Nitroaniline	1800	U	2300	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
4-Nitrophenol	1800	U	2300	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
Acenaphthene	930	U	1200	U	85	J	200	J	220	U	220	U	280	UL	300	UL	340	U
Acenaphthylene	930	U	1200	U	63	J	150	J	220	U	220	U	280	UL	44	J	81	J
Acetophenone	1800	U	2300	U	52	B	100	B	220	U	220	U	280	UL	300	UL	340	U
Anthracene	570	J	460	J	360	J	900		220	U	220	U	280	UL	79	J	210	J
Atrazine	930	UJ	1200	UJ	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Benz(a)anthracene	2100		2500		1700	J	3500	J	41	J	220	U	140	J	370	L	960	
Benzaldehyde	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Benzo(a)pyrene	2200		3000		1900	J	3500	J	45	J	220	U	200	J	410	L	990	
Benzo(b)fluoranthene	2100		3000		2100	J	4800	J	52	J	220	U	230	J	440	L	1100	
Benzo(g,h,i)perylene	990	J	1300	J	1000		1400		26	J	220	U	120	J	170	J	350	
Benzo(k)fluoranthene	2800	J	3500	J	2100		3200		52	J	220	U	220	J	480	L	1100	
Bis(2-chloroethoxy)methane	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Bis(2-chloroethyl)ether	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Bis(2-ethylhexyl)phthalate	230	J	460	J	110	J	160	J	220	U	220	U	280	UL	79	J	110	J
Butylbenzylphthalate	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Caprolactam	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Carbazole	360	J	440	J	140	J	240	J	220	U	220	U	280	UL	300	UL	120	J
Chrysene	2800		3600		2200	J	4200	J	52	J	220	U	210	J	440	L	1000	
Di-n-butylphthalate	930	U	340	J	130	J	82	J	220	U	220	U	280	UL	300	UL	340	U
Di-n-octylphthalate	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Dibenz(a,h)anthracene	540	J	700	J	450		750		220	U	220	U	54	J	91	J	190	J
Dibenzofuran	930	U	1200	U	82	J	210	J	220	U	220	U	280	UL	300	UL	340	U
Diethylphthalate	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Dimethylphthalate	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Fluoranthene	7000		8100		5000	J	10000	J	90	J	33	J	390		870	L	2400	
Fluorene	170	J	1200	U	160	J	340	J	220	U	220	U	280	UL	300	UL	47	J
Hexachlorobenzene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Hexachlorobutadiene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Hexachlorocyclopentadiene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Hexachloroethane	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Indeno(1,2,3-cd)pyrene	1300		1700		1200		1900		220	U	220	U	140	J	230	J	480	
Isophorone	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
N-Nitroso-di-n-propylamine	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SD01**		**12SD02**		**12SD03**		**12SD03-D**		**12SD04**		**12SD05**		**12SD06**		**12SD07**		**12SD08**	
Sample Date:	**1/14/2010**		**1/15/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**	
Duplicate:							**12SD03**											
N-Nitrosodiphenylamine (1)	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Naphthalene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Nitrobenzene	930	U	1200	U	420	U	430	U	220	U	220	U	280	UL	300	UL	340	U
Pentachlorophenol	1800	U	2300	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
Phenanthrene	3300		3700		2800	J	5800	J	44	J	220	U	160	J	340	L	720	
Phenol	930	U	1200	U	810	U	840	U	430	U	420	U	540	UL	590	UL	660	U
Pyrene	5000		6300		4100	J	8600	J	86	J	29	J	340	L	780	L	2000	
PAHS									**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**			
2-Methylnaphthalene	NA		NA		NA		NA		11		2.7	J	9.2	J	4.4	J	NA	
Acenaphthene	NA		NA		NA		NA		1.1	J	11	U	3.4	J	6	J	NA	
Acenaphthylene	NA		NA		NA		NA		4.6	J	2.7	J	13	J	23		NA	
Anthracene	NA		NA		NA		NA		4.8	J	2.2	J	21		37		NA	
Benz(a)anthracene	NA		NA		NA		NA		27		10	J	130		260		NA	
Benzo(a)pyrene	NA		NA		NA		NA		30		13		160		250		NA	
Benzo(b)fluoranthene	NA		NA		NA		NA		37		14		200		280		NA	
Benzo(g,h,i)perylene	NA		NA		NA		NA		19		10	J	93		130		NA	
Benzo(k)fluoranthene	NA		NA		NA		NA		26	J	15		150	J	210	J	NA	
Chrysene	NA		NA		NA		NA		29		15		140		220		NA	
Dibenz(a,h)anthracene	NA		NA		NA		NA		4.9	J	2.4	J	25		38		NA	
Fluoranthene	NA		NA		NA		NA		57		25		320	J	530	J	NA	
Fluorene	NA		NA		NA		NA		1.8	J	0.87	J	7	J	9.4	J	NA	
Indeno(1,2,3-cd)pyrene	NA		NA		NA		NA		28		11		140		200		NA	
Naphthalene	NA		NA		NA		NA		4.4	J	2	J	5.4	J	3.3	J	NA	
Phenanthrene	NA		NA		NA		NA		26		11		110		150		NA	
Pyrene	NA		NA		NA		NA		48		21		250		400	J	NA	
Total Pahs	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total Pahs Halfnd	NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,1,1-Trichloroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,1,2,2-Tetrachloroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,1,2-Trichloroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,1,2-Trichlorotrifluoroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,1-Dichloroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,1-Dichloroethene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2,3-Trichlorobenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2,4-Trichlorobenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dibromo-3-chloropropane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dibromoethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dichlorobenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dichloroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dichloroethene (cis)	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dichloroethene (trans)	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,2-Dichloropropane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SD01**		**12SD02**		**12SD03**		**12SD03-D**		**12SD04**		**12SD05**		**12SD06**		**12SD07**		**12SD08**	
Sample Date:	**1/14/2010**		**1/15/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**	
Duplicate:							**12SD03**											
1,3-Dichlorobenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
1,4-Dichlorobenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
2-Butanone	51	J	800	U	7.9	J	6.2	J	12	J	1400	U	20	J	1500	U	17	J
2-Hexanone	35	UJ	800	U	14	UJ	16	U	18	UJ	1400	U	23	U	1500	U	34	U
4-Methyl-2-pentanone	35	UJ	800	U	14	UJ	16	U	18	UJ	1400	U	23	U	1500	U	34	U
Acetone	380	J	800	U	72	J	59	J	150	J	1400	U	270	J	1500	U	260	J
Benzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Bromodichloromethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Bromoform	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Bromomethane	20	UJ	320	U	8.1	UJ	9.1	U	10	UJ	570	U	13	U	590	U	20	U
Carbon Disulfide	5.4	J	320	U	28	J	1.9	J	7.1	UJ	570	U	9.1	U	590	U	14	U
Carbon Tetrachloride	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Chlorobenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Chloroethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Chloroform	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Chloromethane	6.6	J	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
cis-1,3-Dichloropropene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Cyclohexane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Dibromochloromethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Dichlorodifluoromethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Ethylbenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Isopropylbenzene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
M+p-xylenes	28	UJ	640	U	11	UJ	12	U	14	UJ	1100	U	18	U	1200	U	27	U
Methyl Acetate	2300	J	330		5.6	UJ	6.2	U	54	J	670		130		1500		12	J
Methyl Cyclohexane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Methyl Tert-butyl Ether	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Methylene Chloride	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
O-xylene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Styrene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Tetrachloroethene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Toluene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
trans-1,3-Dichloropropene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Trichloroethene	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Trichlorofluoromethane	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Vinyl Chloride	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
Xylene (Total)	14	UJ	320	U	5.6	UJ	6.2	U	7.1	UJ	570	U	9.1	U	590	U	14	U
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4	J	7.1	R	1.7	R	4.2	UJ	4.3	U	4.2	U	5.4	U	5.9	UJ	6.6	U
4,4'-DDE	4.5	UJ	5.7	R	8.8	R	6.1	L	4.3	U	4.2	U	5.2	J	5.9	UJ	6.5	J
4,4'-DDT	3.2	J	2.6	J	1.9	J	1.4	J	4.3	U	4.2	U	5.2	J	1.6	J	4.1	J
Aldrin	0.43	J	2.3	U	2.1	UJ	2.2	UJ	2.2	U	2.2	U	2.8	U	0.43	J	3.4	U
Alpha-BHC	1.8	R	2.9	R	0.68	J	2.2	UJ	2.2	U	2.2	U	0.63	J	3	UJ	0.68	J
Alpha-Chlordane	8.4	J	12	J	4.8	J	6.4	J	2.2	U	2.2	U	4.9	R	3	UJ	3.4	U
Aroclor-1016	33	UJ	33	U	30	UJ	30	UJ	32	U	31	U	39	U	43	UJ	48	U

DATA SUMMARY OF ANALYTICAL RESULTS
SITE 12 - SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**12SD01**		**12SD02**		**12SD03**		**12SD03-D**		**12SD04**		**12SD05**		**12SD06**		**12SD07**		**12SD08**	
Sample Date:	**1/14/2010**		**1/15/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**		**1/20/2010**	
Duplicate:							**12SD03**											
Aroclor-1221	47	UJ	47	U	42	UJ	43	UJ	45	U	44	U	56	U	61	UJ	68	U
Aroclor-1232	23	UJ	23	U	21	UJ	22	UJ	22	U	22	U	28	U	30	UJ	34	U
Aroclor-1242	23	UJ	23	U	21	UJ	22	UJ	22	U	22	U	28	U	30	UJ	34	U
Aroclor-1248	23	UJ	23	U	21	UJ	22	UJ	22	U	22	U	28	U	30	UJ	34	U
Aroclor-1254	23	UJ	23	U	21	UJ	22	UJ	22	U	22	U	28	U	30	UJ	34	U
Aroclor-1260	23	UJ	23	U	21	UJ	22	UJ	22	U	22	U	28	U	30	UJ	34	U
Beta-BHC	12	U	23	U	15	R	16	J	1.1	U	1.1	U	1.4	U	1.5	UJ	1.7	U
Delta-BHC	0.49	J	2.3	U	1.8	R	2.2	UJ	2.2	U	2.2	U	2.8	U	3	UJ	2.3	R
Dieldrin	23	J	83	R	5.2	J	8.4	L	0.77	J	4.2	U	17		55		39	
Endosulfan I	1.7	J	5	R	1.9	R	2.7	R	2.4	R	2.2	U	2.8	U	3	UJ	3.4	U
Endosulfan II	4.5	UJ	4.5	R	4.1	UJ	4.2	UJ	4.3	U	4.2	U	2.6	R	5.9	UJ	3.4	R
Endosulfan Sulfate	4.5	UJ	4.5	U	4.1	UJ	4.2	UJ	4.3	U	4.2	U	5.4	U	1.5	J	6.6	U
Endrin	4.5	UJ	4.5	U	4.1	UJ	4.2	UJ	4.3	U	4.2	U	5.4	U	5.9	UJ	6.6	U
Endrin Aldehyde	7.8	R	7.5	J	2.3	J	1.8	J	4.3	U	4.2	U	1.5	J	5.9	UJ	1.9	J
Endrin Ketone	14	J	17	J	4.4	R	5.9	R	4.3	U	4.2	U	5.4	U	2.4	J	6.6	U
Gamma-BHC (Lindane)	2.3	UJ	2.3	U	2.1	UJ	4.6	R	2.2	U	2.2	U	2.8	U	3	UJ	3.4	U
Gamma-Chlordane	7.9	J	16	J	5.6	J	3.7	J	2.2	U	2.2	U	1.4	B	1	B	3	B
Heptachlor	2.3	UJ	2.1	R	2.1	UJ	2.2	UJ	2.2	U	0.45	J	2.8	U	1	J	3.4	U
Heptachlor Epoxide	4.5	J	6	R	2.3	R	2.2	UJ	2.2	U	2.2	U	0.72	J	1.3	J	1.3	J
Methoxychlor	91	R	23	U	21	UJ	53	R	22	U	22	U	28	U	30	UJ	34	U
Toxaphene	110	UJ	110	U	100	UJ	110	UJ	110	U	110	U	140	U	150	UJ	170	U

Data Qualifiers:

B -- Positive result is considered to be an artifact of blank contamination, and should not be considered present.

J -- Value is considered estimated due to exceedance of technical quality control criteria or because result is less than the Contract Required Quantitation Limit (CRQL).

K -- Positive result is considered biased high due to exceedance of technical quality control criteria.

L -- Positive result is considered biased low due to exceedance of technical quality control criteria.

R -- Positive result is considered unusable due to exceedance of technical quality control criteria.

U -- Value is a non-detected result as reported by the laboratory.

UJ -- Non-detected result is considered estimated due to exceedance of technical quality control criteria.

UL -- Non-detected result is considered biased low due to exceedance of technical quality control criteria.

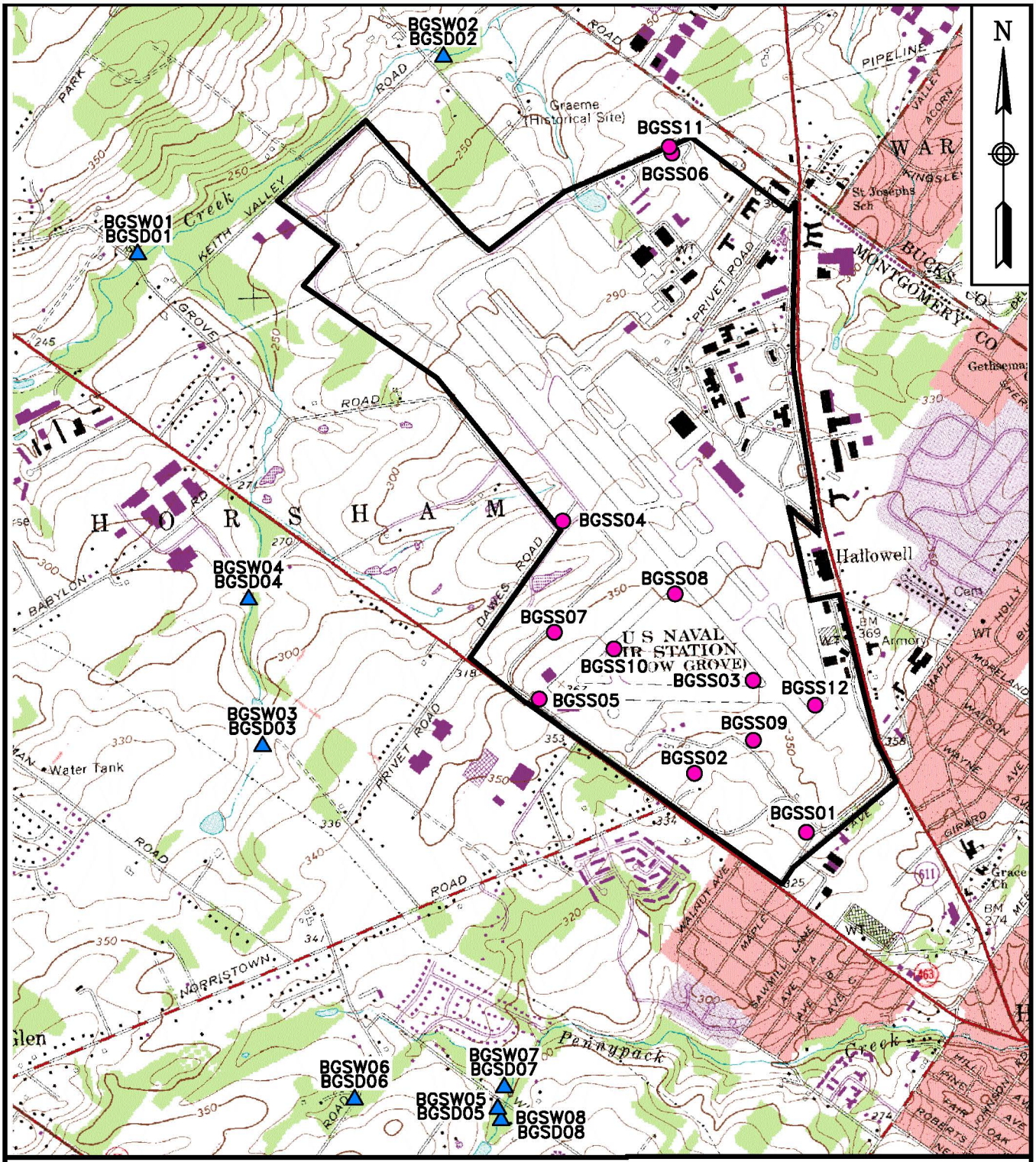
UR -- Non-detected result is considered unusable due to exceedance of technical quality control criteria.

NA -- No result is available/applicable for this parameter in this sample.

PART 2

BACKGROUND INVESTIGATION

2192 WillowGrove\1704\2192CM02.DWG 06/06/13 MKB



LEGEND

- BACKGROUND SOIL SAMPLE
- BACKGROUND SURFACE WATER/SEDIMENT SAMPLE

0 2,000 4,000

SCALE IN FEET

BASE MAP IS A PORTION OF THE AMBLER, PA U.S.G.S. 7.5 MINUTE QUADRANGLE MAP, DATED 1963, PHOTOREVISED IN 1983.

TETRA TECH

BACKGROUND SAMPLE LOCATIONS
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	2192CM04.DWG
REV	0
DATE	06/06/13
FIGURE NUMBER	FIGURE 2-1

DATA SUMMARY OF ANALYTICAL RESULTS
BACKGROUND TOTAL SOIL DATA
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS01 04/07/97**		**BGSS01-DUP 04/07/97**		**BGSS02 04/07/97**		**BGSS03 04/07/97**		**BGSS04 04/07/97**		**BGSS05 04/07/97**		**BGSS06 04/07/97**	
Sample Date:	**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**	
Duplicate:	**BGSS01-DUP 04/07/97**		**BGSS01 04/07/97**											
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	10500		8570		9090		12300		12800		9240		15000	
Antimony	5.6	UJ	5.2	UJ	8.4	R	5.8	UJ	7.5	R	7.6	R	9.6	R
Arsenic	6.1	J	7		3.7	K	10.6		4.4	K	5.6		5.6	J
Barium	95.7		89.9		77.8		108		111		79.5		111	
Beryllium	0.89		0.86		0.75		1.2		1.2		0.79		1.2	
Cadmium	1.4	U	1.3	U	1.3	U	1.4	U	1.3	U	1.4	U	1.3	U
Calcium	766		690		1530		914		685		939		1500	
Chromium	16.3		14		20.8		15.7		15.9		13.2		17.9	
Cobalt	8.1		8.2		9.3		6.8		7.8		8.3		8.3	
Copper	11.3		10.2		11.9		11.7		8		9.8		10.7	
Cyanide	0.69	U	0.65	U	0.64	U	0.7	U	0.66	U	0.67	U	0.64	U
Iron	13200		11500		15700		13200		14100		13900		17600	
Lead	37.2		29.8		22.9		29.9		64.7		25.2		19.5	
Magnesium	1430		1210		1670		1450		1370		1480		1940	
Manganese	621		644		514		527		1190		538		684	
Mercury	0.14	U	0.13	U	0.13	U	0.14	U	0.13	U	0.14	U	0.13	U
Nickel	9		9.2		9.8		10.3		11.2		9.3		10.4	
Potassium	418	U	392	U	627		433	U	402	U	771		750	
Selenium	0.28	UL	1.3	UL	1.3	UL	1.4	UL	0.27	UL	1.4	UL	1.3	UL
Silver	1.4	U	1.3	U	1.3	U	1.4	U	1.3	U	1.4	U	1.3	U
Sodium	112	U	104	U	103	U	115	U	107	U	109	U	103	U
Thallium	0.28	U	0.26	U	0.26	U	0.3		0.27	U	0.27	U	0.28	
Vanadium	25.4		22.1		28.2		24.4		24.9		23.8		28.2	
Zinc	53.1		42.9		49.4		54.2		597		38.7		47.2	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,2,4-Trichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
1,2-Dichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
1,3-Dichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
1,4-Dichlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2,2'-Oxybis(1-chloropropane)	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2,4,5-Trichlorophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
2,4,6-Trichlorophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2,4-Dichlorophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2,4-Dimethylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2,4-Dinitrophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
2,4-Dinitrotoluene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2,6-Dinitrotoluene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2-Chloronaphthalene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2-Chlorophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2-Methylnaphthalene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2-Methylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
2-Nitroaniline	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
2-Nitrophenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
BACKGROUND TOTAL SOIL DATA
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS01 04/07/97**		**BGSS01-DUP 04/07/97**		**BGSS02 04/07/97**		**BGSS03 04/07/97**		**BGSS04 04/07/97**		**BGSS05 04/07/97**		**BGSS06 04/07/97**	
Sample Date:	**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**	
Duplicate:	**BGSS01-DUP 04/07/97**		**BGSS01 04/07/97**											
3,3'-Dichlorobenzidine	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
3-Nitroaniline	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
4,6-Dinitro-2-methylphenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
4-Bromophenyl Phenyl Ether	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
4-Chloro-3-methylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
4-Chloroaniline	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
4-Chlorophenyl Phenyl Ether	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
4-Methylphenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
4-Nitroaniline	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
4-Nitrophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
Acenaphthene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Acenaphthylene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Anthracene	460	U	430	U	420	U	46	J	440	U	68	J	420	UJ
Benz(a)anthracene	460	U	430	U	96	J	220	J	100	J	310	J	33	J
Benzo(a)pyrene	460	U	430	U	110	J	350	J	110	J	400	J	420	UJ
Benzo(b)fluoranthene	460	U	430	U	160	J	540		160	J	550		420	UJ
Benzo(g,h,i)perylene	460	U	430	U	52	J	180	J	440	U	180	J	420	UJ
Benzo(k)fluoranthene	460	U	430	U	420	U	310	J	98	J	310	J	420	UJ
Bis(2-chloroethoxy)methane	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Bis(2-chloroethyl)ether	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Bis(2-ethylhexyl)phthalate	67	B	130	B	100	B	480	B	60	B	130	B	160	B
Butylbenzylphthalate	460	U	430	U	280	J	480	U	180	J	83	J	420	UJ
Carbazole	460	U	430	U	420	U	140	J	440	U	80	J	420	UJ
Chrysene	460	U	430	U	130	J	470	J	130	J	460		43	J
Di-n-butylphthalate	820	B	790	B	400	B	840	B	1100	B	1100	B	420	UJ
Di-n-octylphthalate	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Dibenz(a,h)anthracene	460	U	430	U	420	U	52	J	440	U	52	J	420	UJ
Dibenzofuran	460	U	430	U	420	U	51	J	440	U	450	U	420	UJ
Diethylphthalate	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Dimethylphthalate	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Fluoranthene	62	J	51	J	270	J	1200		270	J	1000		49	J
Fluorene	460	U	430	U	420	U	59	J	440	U	450	U	420	UJ
Hexachlorobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Hexachlorobutadiene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Hexachlorocyclopentadiene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Hexachloroethane	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Indeno(1,2,3-cd)pyrene	460	U	430	U	62	J	240	J	49	J	220	J	420	UJ
Isophorone	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
N-Nitroso-di-n-propylamine	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
N-Nitrosodiphenylamine (1)	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Naphthalene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Nitrobenzene	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ
Pentachlorophenol	1200	U	1100	U	1100	U	1200	U	1100	U	1100	U	1100	UJ
Phenanthrene	460	U	430	U	120	J	990		110	J	650		420	UJ
Phenol	460	U	430	U	420	U	480	U	440	U	450	U	420	UJ

DATA SUMMARY OF ANALYTICAL RESULTS
BACKGROUND TOTAL SOIL DATA
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS01 04/07/97**		**BGSS01-DUP 04/07/97**		**BGSS02 04/07/97**		**BGSS03 04/07/97**		**BGSS04 04/07/97**		**BGSS05 04/07/97**		**BGSS06 04/07/97**	
Sample Date:	**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**	
Duplicate:	**BGSS01-DUP 04/07/97**		**BGSS01 04/07/97**											
Pyrene	51	J	46	J	220	J	870		250	J	810		56	J
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
4,4'-DDE	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
4,4'-DDT	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
Aldrin	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Alpha-BHC	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Alpha-Chlordane	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Aroclor-1016	46	U	43	U	42	U	48	U	44	U	45	U	42	U
Aroclor-1221	93	U	88	U	86	U	97	U	89	U	91	U	86	U
Aroclor-1232	46	U	43	U	42	U	48	U	44	U	45	U	42	U
Aroclor-1242	46	U	43	U	42	U	48	U	44	U	45	U	42	U
Aroclor-1248	46	U	43	U	42	U	48	U	44	U	45	U	42	U
Aroclor-1254	46	U	43	U	42	U	48	U	44	U	45	U	42	U
Aroclor-1260	46	U	43	U	42	U	48	U	44	U	45	U	42	U
Beta-BHC	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Delta-BHC	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Dieldrin	13		14		4.2	U	760		13	J	220		14	
Endosulfan I	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Endosulfan II	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
Endosulfan Sulfate	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
Endrin	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
Endrin Aldehyde	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
Endrin Ketone	4.6	U	4.3	U	4.2	U	4.8	U	4.4	U	4.5	U	4.2	U
Gamma-BHC (Lindane)	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Gamma-Chlordane	2.4	U	2.2	U	2.2	U	10	J	2.3	U	2.3	U	2.2	U
Heptachlor	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Heptachlor Epoxide	2.4	U	2.2	U	2.2	U	2.5	U	2.3	U	2.3	U	2.2	U
Methoxychlor	24	U	22	U	22	U	25	U	23	U	23	U	22	U
Toxaphene	240	U	220	U	220	U	250	U	230	U	230	U	220	U

DATA SUMMARY OF ANALYTICAL RESULTS
BACKGROUND TOTAL SOIL DATA
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSS07 04/07/97		BGSS08 04/07/97		BGSS09 04/07/97		BGSS10 04/07/97		BGSS11 04/07/97		BGSS12 04/07/97	
Sample Date:	**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**	
Duplicate:												
INORGANICS	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
Aluminum	11900		10500		12000		10700		11900		10300	
Antimony	8.2	R	5.6	R	8.7	R	6.4	R	8.1	R	8.8	R
Arsenic	7.5		8		6.1	J	7.4		8		6.3	
Barium	97.9		96.4		89.7		90		111		83.7	
Beryllium	0.84		0.98		0.79		1		1.3		0.92	
Cadmium	1.3	U	1.3	U	1.2	U	1.3	U	1.3	U	1.3	U
Calcium	763		1010		614		762		1160		1600	
Chromium	14.5		13.5		12.4		13.8		15.3		16	
Cobalt	8.5		7.1		8.2		6.9		8.5		7	
Copper	10.7		10.1		13.4		9.3		9.3		12.7	
Cyanide	0.66	U	0.64	U	3.8		0.7		0.64	U	0.66	U
Iron	16900		12800		15700		13300		16700		15500	
Lead	18.1		56.7		16.3		29	K	20.5		31.4	
Magnesium	1500		1410		1530		1300		1480		1550	
Manganese	538		667		429		667		844		477	
Mercury	0.13	U	0.13	U	0.12	U	0.13	U	0.13	U	0.13	U
Nickel	10.4		9.5		10.4		7.4		9.6		10.1	
Potassium	436		618		460		531		388	U	396	U
Selenium	1.3	UL	1.3	UL	1.2	UL	1.3	UL	1.3	UL	1.3	UL
Silver	1.3	U	1.3	U	1.2	U	1.3	U	1.3	U	1.3	U
Sodium	105	U	106	U	120		106	U	103	U	112	
Thallium	0.34		0.27	U	0.25		0.3		0.29		0.28	
Vanadium	25.3		23		20.9		23.7		26.2		26.5	
Zinc	31.7		53		21.7		44.6		49.4		45.8	
SEMIVOLATILES	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
1,2,4-Trichlorobenzene	430	UJ	440	U	390	U	440	U	430	U	440	U
1,2-Dichlorobenzene	430	UJ	440	U	390	U	440	U	430	U	440	U
1,3-Dichlorobenzene	430	UJ	440	U	390	U	440	U	430	U	440	U
1,4-Dichlorobenzene	430	UJ	440	U	390	U	440	U	430	U	440	U
2,2'-Oxybis(1-chloropropane)	430	UJ	440	U	390	U	440	U	430	U	440	U
2,4,5-Trichlorophenol	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
2,4,6-Trichlorophenol	430	UJ	440	U	390	U	440	U	430	U	440	U
2,4-Dichlorophenol	430	UJ	440	U	390	U	440	U	430	U	440	U
2,4-Dimethylphenol	430	UJ	440	U	390	U	440	U	430	U	440	U
2,4-Dinitrophenol	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
2,4-Dinitrotoluene	430	UJ	440	U	390	U	440	U	430	U	440	U
2,6-Dinitrotoluene	430	UJ	440	U	390	U	440	U	430	U	440	U
2-Chloronaphthalene	430	UJ	440	U	390	U	440	U	430	U	440	U
2-Chlorophenol	430	UJ	440	U	390	U	440	U	430	U	440	U
2-Methylnaphthalene	430	UJ	440	U	390	U	440	U	430	U	440	U
2-Methylphenol	430	UJ	440	U	390	U	440	U	430	U	440	U
2-Nitroaniline	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
2-Nitrophenol	430	UJ	440	U	390	U	440	U	430	U	440	U

DATA SUMMARY OF ANALYTICAL RESULTS
BACKGROUND TOTAL SOIL DATA
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	BGSS07 04/07/97		BGSS08 04/07/97		BGSS09 04/07/97		BGSS10 04/07/97		BGSS11 04/07/97		BGSS12 04/07/97	
Sample Date:	**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**	
Duplicate:												
3,3'-Dichlorobenzidine	430	UJ	440	U	390	U	440	U	430	U	440	U
3-Nitroaniline	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
4,6-Dinitro-2-methylphenol	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
4-Bromophenyl Phenyl Ether	430	UJ	440	U	390	U	440	U	430	U	440	U
4-Chloro-3-methylphenol	430	UJ	440	U	390	U	440	U	430	U	440	U
4-Chloroaniline	430	UJ	440	U	390	U	440	U	430	U	440	U
4-Chlorophenyl Phenyl Ether	430	UJ	440	U	390	U	440	U	430	U	440	U
4-Methylphenol	430	UJ	440	U	390	U	440	U	430	U	440	U
4-Nitroaniline	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
4-Nitrophenol	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
Acenaphthene	430	UJ	61	J	390	U	64	J	430	U	55	J
Acenaphthylene	430	UJ	57	J	390	U	54	J	430	U	62	J
Anthracene	65	J	110	J	390	U	130	J	430	U	160	J
Benz(a)anthracene	270	J	480		390	U	590		430	U	940	
Benzo(a)pyrene	270	J	720		390	U	830		430	U	1100	
Benzo(b)fluoranthene	340	J	990		390	U	1000		430	U	1500	
Benzo(g,h,i)perylene	110	J	300	J	390	U	320	J	430	U	490	
Benzo(k)fluoranthene	270	J	660		390	U	820		430	U	920	
Bis(2-chloroethoxy)methane	430	UJ	440	U	390	U	440	U	430	U	440	U
Bis(2-chloroethyl)ether	430	UJ	440	U	390	U	440	U	430	U	440	U
Bis(2-ethylhexyl)phthalate	150	B	240	B	92	B	110	B	110	B	130	B
Butylbenzylphthalate	430	UJ	440	U	390	U	440	U	430	U	440	U
Carbazole	430	UJ	270	J	390	U	310	J	430	U	260	J
Chrysene	320	J	790		390	U	860		430	U	1200	
Di-n-butylphthalate	430	UJ	81	B	460	B	1000	B	740	B	660	B
Di-n-octylphthalate	430	UJ	440	U	390	U	440	U	430	U	440	U
Dibenz(a,h)anthracene	430	UJ	83	J	390	U	96	J	430	U	160	J
Dibenzofuran	430	UJ	120	J	390	U	120	J	430	U	61	J
Diethylphthalate	430	UJ	440	U	390	U	440	U	430	U	440	U
Dimethylphthalate	430	UJ	440	U	390	U	440	U	430	U	440	U
Fluoranthene	670	J	2000		390	U	2300		430	U	2600	
Fluorene	430	UJ	160	J	390	U	160	J	430	U	120	J
Hexachlorobenzene	430	UJ	440	U	390	U	440	U	430	U	440	U
Hexachlorobutadiene	430	UJ	440	U	390	U	440	U	430	U	440	U
Hexachlorocyclopentadiene	430	UJ	440	U	390	U	440	U	430	U	440	U
Hexachloroethane	430	UJ	440	U	390	U	440	U	430	U	440	U
Indeno(1,2,3-cd)pyrene	140	J	400	J	390	U	420	J	430	U	640	
Isophorone	430	UJ	440	U	390	U	440	U	430	U	440	U
N-Nitroso-di-n-propylamine	430	UJ	440	U	390	U	440	U	430	U	440	U
N-Nitrosodiphenylamine (1)	430	UJ	440	U	390	U	440	U	430	U	440	U
Naphthalene	430	UJ	440	U	390	U	440	U	430	U	440	U
Nitrobenzene	430	UJ	440	U	390	U	440	U	430	U	440	U
Pentachlorophenol	1100	UJ	1100	U	990	U	1100	U	1100	U	1100	U
Phenanthrene	490	J	1500		390	U	1600		430	U	1700	
Phenol	430	UJ	440	U	390	U	440	U	430	U	440	U

DATA SUMMARY OF ANALYTICAL RESULTS
BACKGROUND TOTAL SOIL DATA
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	**BGSS07 04/07/97**		**BGSS08 04/07/97**		**BGSS09 04/07/97**		**BGSS10 04/07/97**		**BGSS11 04/07/97**		**BGSS12 04/07/97**	
Sample Date:	**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**		**4/7/1997**	
Duplicate:												
Pyrene	610	J	1600		390	U	1700		430	U	2100	
PESTICIDES/PCBS	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
4,4'-DDD	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
4,4'-DDE	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
4,4'-DDT	4.3	U	6.2	J	3.9	U	8.3	J	4.3	U	4.3	U
Aldrin	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Alpha-BHC	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Alpha-Chlordane	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Aroclor-1016	43	U	44	U	39	U	43	U	43	U	43	U
Aroclor-1221	88	U	89	U	80	U	88	U	87	U	88	U
Aroclor-1232	43	U	44	U	39	U	43	U	43	U	43	U
Aroclor-1242	43	U	44	U	39	U	43	U	43	U	43	U
Aroclor-1248	43	U	44	U	39	U	43	U	43	U	43	U
Aroclor-1254	43	U	44	U	39	U	43	U	43	U	43	U
Aroclor-1260	43	U	44	U	39	U	43	U	43	U	43	U
Beta-BHC	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Delta-BHC	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Dieldrin	86		420		3.9	U	550		4.3	U	63	J
Endosulfan I	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Endosulfan II	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
Endosulfan Sulfate	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
Endrin	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
Endrin Aldehyde	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
Endrin Ketone	4.3	U	4.4	U	3.9	U	4.3	U	4.3	U	4.3	U
Gamma-BHC (Lindane)	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Gamma-Chlordane	2.2	U	34		2	U	48	J	2.2	U	3.2	
Heptachlor	2.2	U	2.3	U	2	U	2.2	U	2.2	U	2.2	U
Heptachlor Epoxide	2.2	U	33		2	U	47		2.2	U	3.4	J
Methoxychlor	22	U	23	U	20	U	22	U	22	U	22	U
Toxaphene	220	U	230	U	200	U	220	U	220	U	220	U

PART 3

DATA VALIDATION REPORTS

Tetra Tech, Inc. **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 8, 2012**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – CHROMIUM/HEXAVALENT CHROMIUM**
NAS JRB (JOINT RESERVE BASE) WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG): 180-7105-1

SAMPLES: 20/Soil/Chromium/Hexavalent Chromium

03SB-DUP-01	03SB-DUP-02	03SB27-1.52.5-01
03SB29-0:22.5-01	03SB30-0304-01	03SB31-0506-01
03SB32-0405-01	03SB33-0304-01	03SB34-0405-01
03TP31-0708-01	03TP32-0809-01	03TP33-0607-01
03TP34-0405-01	03TP35-0304-01	03TP37-0304-01
03TP38-0304-01	03TP39-0607-01	03TP40-0304-01
03TP41-0304-01	03TP42-0506-01	

Overview

The sample set for NAS JRB Willow Grove, SDG 180-7105-1 consisted of twenty (20) soil environmental samples. All twenty (20) soil samples were analyzed for chromium and hexavalent chromium. Two field duplicate sample pairs were included in the sample delivery group (SDG): 03SB-DUP-01/03SB33-0304-01 and 03SB-DUP-02/03SB27-1.52.5-01.

The samples were collected by Tetra Tech, Inc. December 21, 2011 and analyzed by Test America - Pittsburgh. All analyses were conducted in accordance with SW-846 Methods 3050B/6020 and 3060A/6800 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, calibration data, ICP/MS tune, laboratory method/calibration blanks, interference check sample results, internal standard recoveries, matrix spike/matrix spike duplicate results, blank spike results, laboratory duplicate results, ICP serial dilution results, field duplicate precision, detection limits, and analyte quantitation. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The hexavalent chromium 168 hour holding time between extraction and analysis for samples 03SB-DUP-01, 03SB-DUP-02, 03SB27-1.52.5-01, 03SB29-0:22.5-01, 03SB31-0506-01, 03SB32-0405-01, 03SB33-0304-01, 03SB34-0405-01, 03TP35-0304-01, 03TP39-0607-01, and 03TP42-0506-01. The positive results reported for hexavalent chromium in the aforementioned samples were qualified as estimated, (J), due to conflicting directional bias.

- The Percent Recovery (%R) for the internal standard, scandium was below the 70% quality control limit in sample 03TP33-0607-01. The positive result reported the associated analyte, chromium, was qualified as estimated, (J).

- The Relative Percent Difference (RPD) for hexavalent chromium in the laboratory duplicate analysis of sample 03SB32-0405-01 exceeded the 35% quality control limit. All samples were affected. The positive results reported for hexavalent chromium in all the samples were qualified as estimated, (J).

- The RPD for hexavalent chromium was greater than the 50% quality control limit in the field duplicate pair 03SB-DUP-02/03SB27-1.52.5-01. The positive results reported for hexavalent chromium in the field duplicate pair were qualified as estimated, (J), due to field duplicate imprecision.

Executive Summary

Laboratory Performance: The hexavalent chromium extraction to analysis holding time was exceeded for several samples. The hexavalent chromium laboratory duplicate analysis had a high RPD.

Other Factors Affecting Data Quality: One sample had a low internal standard %R affecting the positive chromium result. Field duplicate imprecision was noted in one field duplicate pair.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation" (April 1993), SW 846 Methods 6020 and 6800, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories"(April 2009).

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	03SB27-1.52.5-01			03SB29-0:22.5-01			03SB30-0304-01			03SB31-0506-01		
SDG: 180-7105-1	LAB_ID	180-7105-18			180-7105-14			180-7105-3			180-7105-13		
FRACTION: M	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.9			85.1			82.3			82.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		23			23			18			22		

PROJ_NO: 02014	NSAMPLE	03SB32-0405-01			03SB33-0304-01			03SB34-0405-01			03SB-DUP-01		
SDG: 180-7105-1	LAB_ID	180-7105-15			180-7105-16			180-7105-17			180-7105-19		
FRACTION: M	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.6			83.4			81.3			83.7		
	DUP_OF										03SB33-0304-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		19			22			20			21		

PROJ_NO: 02014	NSAMPLE	03SB-DUP-02			03TP31-0708-01			03TP32-0809-01			03TP33-0607-01		
SDG: 180-7105-1	LAB_ID	180-7105-20			180-7105-5			180-7105-6			180-7105-7		
FRACTION: M	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.7			76.4			80.0			76.0		
	DUP_OF	03SB27-1.52.5-01											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		23			87			33			100	J	N

PROJ_NO: 02014	NSAMPLE	03TP34-0405-01			03TP35-0304-01			03TP37-0304-01			03TP38-0304-01		
SDG: 180-7105-1	LAB_ID	180-7105-4			180-7105-12			180-7105-8			180-7105-9		
FRACTION: M	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	69.6			80.0			80.9			79.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		160			42			17			36		

PROJ_NO: 02014	NSAMPLE	03TP39-0607-01			03TP40-0304-01			03TP41-0304-01			03TP42-0506-01		
SDG: 180-7105-1	LAB_ID	180-7105-10			180-7105-1			180-7105-2			180-7105-11		
FRACTION: M	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	78.7			82.1			77.4			68.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		31			19			90			130		

PROJ_NO: 02014	NSAMPLE	03SB27-1.52.5-01			03SB29-0:22.5-01			03SB30-0304-01			03SB31-0506-01		
SDG: 180-7105-1	LAB_ID	180-7105-18			180-7105-14			180-7105-3			180-7105-13		
FRACTION: MISC	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.9			85.1			82.3			82.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		1	J	FGH	0.46	J	FH	0.94	J	F	1.1	J	FH

PROJ_NO: 02014	NSAMPLE	03SB32-0405-01			03SB33-0304-01			03SB34-0405-01			03SB-DUP-01		
SDG: 180-7105-1	LAB_ID	180-7105-15			180-7105-16			180-7105-17			180-7105-19		
FRACTION: MISC	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.6			83.4			81.3			83.7		
	DUP_OF										03SB33-0304-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.61	J	FH	1.5	J	FH	2.3	J	FH	2	J	FH

PROJ_NO: 02014	NSAMPLE	03SB-DUP-02			03TP31-0708-01			03TP32-0809-01			03TP33-0607-01		
SDG: 180-7105-1	LAB_ID	180-7105-20			180-7105-5			180-7105-6			180-7105-7		
FRACTION: MISC	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.7			76.4			80.0			76.0		
	DUP_OF	03SB27-1.52.5-01											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		3.8	J	FGH	4.6	J	F	1.2	J	F	6	J	F

PROJ_NO: 02014	NSAMPLE	03TP34-0405-01			03TP35-0304-01			03TP37-0304-01			03TP38-0304-01		
SDG: 180-7105-1	LAB_ID	180-7105-4			180-7105-12			180-7105-8			180-7105-9		
FRACTION: MISC	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	69.6			80.0			80.9			79.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		7.9	J	F	2.6	J	FH	0.96	J	F	2	J	F

PROJ_NO: 02014	NSAMPLE	03TP39-0607-01			03TP40-0304-01			03TP41-0304-01			03TP42-0506-01		
SDG: 180-7105-1	LAB_ID	180-7105-10			180-7105-1			180-7105-2			180-7105-11		
FRACTION: MISC	SAMP_DATE	12/21/2011			12/21/2011			12/21/2011			12/21/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	78.7			82.1			77.4			68.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		1.3	J	FH	0.76	J	F	38	J	F	11	J	FH

Appendix B

Results as Reported by the Laboratory

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB27-1.52.5-01**

Lab Sample ID: 180-7105-18
Client Matrix: Solid
% Moisture: 19.1

Date Sampled: 12/21/2011 1645
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.04 g
Analysis Date:	01/06/2012 1622			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		23		0.24

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		1.0	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB29-0:22.5-01**

Lab Sample ID: 180-7105-14
Client Matrix: Solid

% Moisture: 14.9

Date Sampled: 12/21/2011 1515
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.04 g
Analysis Date:	01/06/2012 1557			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		23		0.23

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.46	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB30-0304-01**

Lab Sample ID: 180-7105-3
Client Matrix: Solid

% Moisture: 17.7

Date Sampled: 12/21/2011 0950
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.07 g
Analysis Date:	01/06/2012 1441			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		18		0.23

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.94		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB31-0506-01**

Lab Sample ID: 180-7105-13
Client Matrix: Solid

% Moisture: 17.1

Date Sampled: 12/21/2011 1500
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.13 g
Analysis Date:	01/06/2012 1538			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		22		0.21

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		1.1	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB32-0405-01**

Lab Sample ID: 180-7105-15
Client Matrix: Solid

% Moisture: 18.4

Date Sampled: 12/21/2011 1530
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.04 g
Analysis Date:	01/06/2012 1601			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		19		0.24

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.61	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB33-0304-01**

Lab Sample ID: 180-7105-16
Client Matrix: Solid
% Moisture: 16.6
Date Sampled: 12/21/2011 1550
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.04 g
Analysis Date:	01/06/2012 1614			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		22		0.23

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		1.5	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB34-0405-01**

Lab Sample ID: 180-7105-17
Client Matrix: Solid

% Moisture: 18.7

Date Sampled: 12/21/2011 1615
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.06 g
Analysis Date:	01/06/2012 1618			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		20		0.23

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		2.3	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB-DUP-01**

Lab Sample ID: 180-7105-19
Client Matrix: Solid

% Moisture: 16.3

Date Sampled: 12/21/2011 1200
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.09 g
Analysis Date:	01/06/2012 1627			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		21		0.22

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		2.0	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03SB-DUP-02**

Lab Sample ID: 180-7105-20
Client Matrix: Solid
% Moisture: 18.3

Date Sampled: 12/21/2011 1300
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.03 g
Analysis Date:	01/06/2012 1631			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		23		0.24

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		3.8	H	0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP31-0708-01**

Lab Sample ID: 180-7105-5
Client Matrix: Solid

% Moisture: 23.6

Date Sampled: 12/21/2011 1125
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.02 g
Analysis Date:	01/06/2012 1504			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		87		0.26

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		4.6		0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP32-0809-01**

Lab Sample ID: 180-7105-6
Client Matrix: Solid

% Moisture: 20.0

Date Sampled: 12/21/2011 1135
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.09 g
Analysis Date:	01/06/2012 1508			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		33		0.23

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		1.2		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP33-0607-01**

Lab Sample ID: 180-7105-7
Client Matrix: Solid
% Moisture: 24.0

Date Sampled: 12/21/2011 1155
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.03 g
Analysis Date:	01/06/2012 1513			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		100		0.26

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		6.0		0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP34-0405-01**

Lab Sample ID: 180-7105-4
Client Matrix: Solid

% Moisture: 30.4

Date Sampled: 12/21/2011 1015
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.06 g
Analysis Date:	01/06/2012 1500			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		160		0.27

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		7.9		0.14

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP35-0304-01**

Lab Sample ID: 180-7105-12
Client Matrix: Solid
% Moisture: 20.0

Date Sampled: 12/21/2011 1430
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.15 g
Analysis Date:	01/06/2012 1534			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		42		0.22

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		2.6	H	0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP37-0304-01**

Lab Sample ID: 180-7105-8
Client Matrix: Solid
% Moisture: 19.1
Date Sampled: 12/21/2011 1225
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.10 g
Analysis Date:	01/06/2012 1517			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		17		0.22

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.96		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP38-0304-01**

Lab Sample ID: 180-7105-9
Client Matrix: Solid

% Moisture: 20.1

Date Sampled: 12/21/2011 1240
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.11 g
Analysis Date:	01/06/2012 1521			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		36		0.23

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		2.0		0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP39-0607-01**

Lab Sample ID: 180-7105-10
Client Matrix: Solid

% Moisture: 21.3

Date Sampled: 12/21/2011 1325
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.06 g
Analysis Date:	01/06/2012 1525			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		31		0.24

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		1.3	H	0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP40-0304-01**

Lab Sample ID: 180-7105-1
Client Matrix: Solid
% Moisture: 17.9
Date Sampled: 12/21/2011 0855
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.02 g
Analysis Date:	01/06/2012 1420			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		19		0.24

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.76		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP41-0304-01**

Lab Sample ID: 180-7105-2
Client Matrix: Solid
% Moisture: 22.6

Date Sampled: 12/21/2011 0920
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.03 g
Analysis Date:	01/06/2012 1437			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		90		0.25

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/20/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		38		0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Client Sample ID: **03TP42-0506-01**

Lab Sample ID: 180-7105-11
Client Matrix: Solid
% Moisture: 31.7
Date Sampled: 12/21/2011 1400
Date Received: 12/23/2011 1030

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24826	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.11 g
Analysis Date:	01/06/2012 1529			Final Weight/Volume:	100 mL
Prep Date:	12/29/2011 1033				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		130		0.26

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27119	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26188	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/28/2012 1753			Final Weight/Volume:	1.0 mL
Prep Date:	01/18/2012 0710				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		11	H	0.15

General Chemistry

Client Sample ID: **03SB-DUP-01**

Lab Sample ID: 180-7105-19
Client Matrix: Solid

Date Sampled: 12/21/2011 1200
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	16		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	84		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB-DUP-02**

Lab Sample ID: 180-7105-20
Client Matrix: Solid

Date Sampled: 12/21/2011 1300
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	18		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	82		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB27-1.52.5-01**

Lab Sample ID: 180-7105-18
Client Matrix: Solid

Date Sampled: 12/21/2011 1645
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	19		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	81		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB29-0:22.5-01**

Lab Sample ID: 180-7105-14
Client Matrix: Solid

Date Sampled: 12/21/2011 1515
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	15		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	85		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB30-0304-01**

Lab Sample ID: 180-7105-3
Client Matrix: Solid

Date Sampled: 12/21/2011 0950
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	18		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	82		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB31-0506-01**

Lab Sample ID: 180-7105-13
Client Matrix: Solid

Date Sampled: 12/21/2011 1500
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	17		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	83		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB32-0405-01**

Lab Sample ID: 180-7105-15
Client Matrix: Solid

Date Sampled: 12/21/2011 1530
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	18		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	82		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB33-0304-01**

Lab Sample ID: 180-7105-16
Client Matrix: Solid

Date Sampled: 12/21/2011 1550
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	17		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	83		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03SB34-0405-01**

Lab Sample ID: 180-7105-17
Client Matrix: Solid

Date Sampled: 12/21/2011 1615
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	19		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	81		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP31-0708-01**

Lab Sample ID: 180-7105-5
Client Matrix: Solid

Date Sampled: 12/21/2011 1125
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	24		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	76		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP32-0809-01**

Lab Sample ID: 180-7105-6
Client Matrix: Solid

Date Sampled: 12/21/2011 1135
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	20		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	80		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP33-0607-01**

Lab Sample ID: 180-7105-7
Client Matrix: Solid

Date Sampled: 12/21/2011 1155
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	24		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	76		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP34-0405-01**

Lab Sample ID: 180-7105-4
Client Matrix: Solid

Date Sampled: 12/21/2011 1015
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	30		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	70		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP35-0304-01**

Lab Sample ID: 180-7105-12
Client Matrix: Solid

Date Sampled: 12/21/2011 1430
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	20		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	80		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP37-0304-01**

Lab Sample ID: 180-7105-8
Client Matrix: Solid

Date Sampled: 12/21/2011 1225
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	19		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	81		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP38-0304-01**

Lab Sample ID: 180-7105-9
Client Matrix: Solid

Date Sampled: 12/21/2011 1240
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	20		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	80		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP39-0607-01**

Lab Sample ID: 180-7105-10
Client Matrix: Solid

Date Sampled: 12/21/2011 1325
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	21		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	79		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP40-0304-01**

Lab Sample ID: 180-7105-1
Client Matrix: Solid

Date Sampled: 12/21/2011 0855
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	18		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	82		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP41-0304-01**

Lab Sample ID: 180-7105-2
Client Matrix: Solid

Date Sampled: 12/21/2011 0920
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	23		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N
Percent Solids	77		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24541		Analysis Date: 12/23/2011 1633				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP42-0506-01**

Lab Sample ID: 180-7105-11
Client Matrix: Solid

Date Sampled: 12/21/2011 1400
Date Received: 12/23/2011 1030

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	32		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N
Percent Solids	68		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24541	Analysis Date: 12/23/2011 1633						DryWt Corrected: N

Appendix C

Support Documentation

NASJRB WILLOW GROVE
SOIL DATA
180-7105-1

FRACTION	CHEMICAL	03SB27-1.52.5-01	UNITS	03SB-DUP-02	RPD	D
M	CHROMIUM	23	MG/KG	23	0.00	0.00
MISC	HEXAVALENT CHROMIUM	1 J	MG/KG	3.8 J	116.67	2.80
MISC	OXIDATION REDUCTION POTENTIAL	213.6	MV	ND	200.00	213.60
MISC	PH	7.29	S.U.	ND	200.00	7.29

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
180-7105-1

FRACTION	CHEMICAL	03SB33-0304-01	UNITS	03SB-DUP-01	RPD	D
M	CHROMIUM	22	MG/KG	21	4.65	1.00
MISC	HEXAVALENT CHROMIUM	1.5 J	MG/KG	2 J	28.57	0.50
MISC	OXIDATION REDUCTION POTENTIAL	291.1	MV	ND	200.00	291.10
MISC	PH	6.68	S.U.	ND	200.00	6.68

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

180-7105-A-4-A 1/6/2012 3:00:27 PM 03TP34-0405-1

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	11B	13C	23Na	25Mg	26Mg
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	90.022%	4.536	435.600	433.900	0.000	22970.000	105300.000	107300.000
2	15:01:50	91.903%	4.381	438.900	431.700	0.000	22630.000	104600.000	106800.000
3	15:02:31	92.854%	4.507	431.100	429.600	0.000	22470.000	103500.000	106200.000
x		91.593%	4.475	435.200	431.700	0.000	22690.000	104500.000	106800.000
σ		1.441%	0.082	3.913	2.182	0.000	253.200	928.500	571.500
%RSD		1.574	1.836	0.899	0.505	0.000	1.116	0.889	0.535

Run	Time	27Al	28Si	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	233600.000	15400.000	0.000	21080.000	416500.000	384600.000	82.689%	6986.000
2	15:01:50	232100.000	15340.000	0.000	20790.000	414400.000	379800.000	83.364%	7153.000
3	15:02:31	229800.000	15260.000	0.000	20670.000	411400.000	383200.000	82.879%	7225.000
x		231800.000	15330.000	0.000	20840.000	414100.000	382500.000	82.978%	7121.000
σ		1915.000	71.310	0.000	209.000	2540.000	2478.000	0.348%	122.800
%RSD		0.826	0.465	0.000	1.003	0.613	0.648	0.420	1.724

Run	Time	51V	52Cr	55Mn	56Fe	57Fe	59Co	60Ni	63Cu
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	353.100	1164.000	12690.000	243200.000	246200.000	159.300	1685.000	3262.000
2	15:01:50	340.300	1145.000	12580.000	239600.000	241300.000	156.600	1665.000	3259.000
3	15:02:31	356.800	1159.000	12620.000	243400.000	245200.000	157.800	1678.000	3302.000
x		350.000	1156.000	12630.000	242100.000	244300.000	157.900	1676.000	3274.000
σ		8.625	9.872	53.140	2147.000	2599.000	1.371	10.050	24.260
%RSD		2.464	0.854	0.421	0.887	1.064	0.868	0.600	0.741

Run	Time	65Cu	66Zn	68Zn	75As	78Se	82Se	83Kr	88Sr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	3298.000	34850.000	34080.000	56.940	4.047	10.080	0.000	1507.000
2	15:01:50	3282.000	34650.000	33990.000	53.400	3.072	10.300	0.000	1499.000
3	15:02:31	3347.000	35020.000	34450.000	54.410	3.388	9.926	0.000	1503.000
x		3309.000	34840.000	34170.000	54.910	3.503	10.100	0.000	1503.000
σ		33.530	187.300	245.300	1.822	0.497	0.190	0.000	4.099
%RSD		1.013	0.537	0.718	3.318	14.190	1.883	0.000	0.273

Run	Time	89Y	95Mo	98Mo	103Rh	107Ag	109Ag	111Cd	114Cd
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	111.569%	56.480	63.930	63.804%	158.000	154.100	453.100	440.900
2	15:01:50	113.211%	55.240	62.930	65.443%	155.100	153.100	443.300	440.800
3	15:02:31	113.427%	56.930	62.940	64.946%	156.600	153.400	447.500	441.100
x		112.736%	56.220	63.270	64.731%	156.600	153.500	448.000	440.900
σ		1.016%	0.874	0.574	0.840%	1.467	0.527	4.952	0.169
%RSD		0.902	1.555	0.907	1.298	0.937	0.344	1.105	0.038

Run	Time	115In	118Sn	121Sb	123Sb	135Ba	137Ba	159Tb	165Ho
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	70.060%	1173.000	249.100	247.800	15030.000	14880.000	72.338%	69.775%
2	15:01:50	70.464%	1169.000	248.300	247.200	14880.000	14670.000	73.643%	69.848%
3	15:02:31	70.443%	1175.000	250.000	249.700	14810.000	14680.000	74.223%	71.071%
x		70.322%	1172.000	249.100	248.200	14910.000	14740.000	73.401%	70.231%
σ		0.228%	2.570	0.857	1.325	109.300	120.200	0.965%	0.728%
%RSD		0.324	0.219	0.344	0.534	0.733	0.815	1.315	1.037

Run	Time	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:01:08	2.465	2.594	29900.000	29930.000	30100.000	53.616%
2	15:01:50	2.415	2.587	29730.000	29770.000	29880.000	54.255%
3	15:02:31	2.793	2.558	29570.000	29670.000	29820.000	54.651%
x		2.558	2.580	29730.000	29790.000	29930.000	54.174%
σ		0.205	0.019	164.600	131.300	145.400	0.522%
%RSD		8.032	0.742	0.554	0.441	0.486	0.964

Extract: 1.06 g/100ml

% solid : 69.6

$$Cr = 1156\,mg/L \times \frac{0.1\,L}{1.06\,g} \times \frac{1}{69.6} \times \frac{1000\,g}{1\,kg} \times \frac{1\,mg}{1000\,\mu g} = 156.7\ mg/kg$$

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

5 #2 1105

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.3
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 3 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
03TP40-0304-01	12/21/11	0855	G	Solid	N	N	1	1				
03TP41-0304-01	12/21/11	0920	G	Solid	N	N	1	1				
03SB30-0304-01	12/21/11	0950	G	Solid	N	N	1	1				
03TP34-0405-01	12/21/11	1015	G	Solid	N	N	1	1				
03TP31-0708-01	12/21/11	1125	G	Solid	N	N	1	1				
03TP32-0809-01	12/21/11	1135	G	Solid	N	N	1	1				
03TP33-0607-01	12/21/11	1155	G	Solid	N	N	1	1				
03TP37-0304-01	12/21/11	1225	G	Solid	N	N	1	1				
03TP38-0304-01	12/21/11	1240	G	Solid	N	N	1	1				
03TP39-0607-01	12/21/11	1325	G	Solid	N	N	1	1				
03TP42-0506-01	12/21/11	1400	G	Solid	N	N	1	1				

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		12/22/11 10:10			12/22/11 10:10	TA
2		12/22/11 1600	TA		12/23/11 1030	TA
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.7
Client Contact: Ms. Tobrena Sedlmyer	Phone: 1610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 7 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:	Analysis Requested		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			Other:
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
03TP35-0304-01	12/21/11	1430	G	Solid	N	N	1	1				
035B31-0506-01	12/21/11	1500	G	Solid	N	N	1	1				
035B29-0:2.5'-01	12/21/11	1515	G	Solid	N	N	1	1				
035B32-0405-01	12/21/11	1530	G	Solid	N	Y	2	2				DO MS/MSD
035B33-0304-01	12/21/11	1550	G	Solid	N	N	1	1				
035B34-0405-01	12/21/11	1615	G	Solid	N	N	1	1				
035B27-1.5'2.5'-01	12/21/11	1645	G	Solid	N	N	1	1				
035B-DUP-01	12/21/11	1200	G	Solid	N	N	1	1				
035B-DUP-02	12/21/11	1300	G	Solid	N	N	1	1				
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/22/11 10:10			12/22/11 10:10	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/22/11 1600	TA		12/23/11 1080	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

PREP # 216188

STL - Pittsburgh **Alkaline Digestate Log for Hexavalent Chromium by 6800** **Logbook ID: MT1558**

Method: 3060A	Date: 1/18/2012	Hot Plate/Block Temp: 92.5°C (Target Temp Range 90-95 C)	Lot Number(s): 180-7105	Reagent IDs: Phosphate Buffer ID: 102004; Cr6 Digestion Solution: 230196; MS Solution ID: —; MgCl2 Standard ID: 303633; Cr+6 Spike ID: CR1008262004A; Cr+6 Spike Conc: ~10 ug/g; Cr+3 Spike ID: CR1017200BA; Cr+3 Spike Conc: ~10 ug/g
Matrix: SOLID	Pipet #: J11027644	Thermometer ID: WET-6 (0.0°C)		
Filter Paper Lot/Mfg:		Balance #: 37110039		
Analyst: Ken Kile, Laura				

Sample ID	Initial Weight	Cr+6 Spike Amt	Cr+3 Spike Amt	Start Time	End Time	Final Volume (mL)	Comments
1. PBS	1.0223	0.0958	0.1017	0710	0810	100 mL	RLF 1/18/12
2. LCSS	0.1016	0.9602 *	0.1010				* ~50 ug/g Lot#: CR1017200BA
3. 7105-1	0.9833	0.1113	0.1026				
4. 2	0.9826	0.1390	0.1024				
5. 3	1.0007	0.1218	0.1028				
6. 4	0.9929	0.2505	0.1018				
7. 5	1.0405	0.1030	0.1024				
8. 6	0.9855	0.1204	0.0992				
9. 7	1.0426	0.1303	0.1000				
10. 8	0.9574	0.1197	0.0987				
11. 9	1.0042	0.1283	0.0987				
12. 10	0.9814	0.1118	0.0993				
13. 11	1.0202	0.1188	0.0980				
14. 12	1.0985	0.1101	0.0993				
15. 13	0.9917	0.1205	0.1034				
16. 14	1.0178	0.1286	0.1014				
17. 15	1.0168	0.1301	0.0916				
18. 15X	0.9664	0.1304	0.1043				
19. 16	0.9645	0.1286	0.1008				
20. 17	0.9938	0.1000	0.1005				
21. 18	1.0798	0.0962	0.1005				
22. 19	1.0390	0.1139	0.0994				
23. 20	0.9655	0.1080	0.1000				
24.							

Digestate(s) (record line # from above)	Digestate(s) Received: Date / Time / Analyst / Location	Digestate(s) Relinquished: Date / Time / Analyst / Location

Reviewed by: Date: Batch Number:

01/31/2012

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printed on: 06-Jun-06 10:24:32 AM

v1 05/05/2006

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-7105-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/23/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.5 C.

METALS
Several samples and associated MS/MSD were analyzed outside of method specific holding time.

Cr (VI) exceeded the RPD limit for the duplicate of sample 03SB32-0405-01DU (180-7105-15). Refer to the QC report for details.

GENERAL CHEMISTRY
No difficulties were encountered during the analyses.

SAMPLE SUMMARY

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-7105-1	03TP40-0304-01	Solid	12/21/2011 0855	12/23/2011 1030
180-7105-2	03TP41-0304-01	Solid	12/21/2011 0920	12/23/2011 1030
180-7105-3	03SB30-0304-01	Solid	12/21/2011 0950	12/23/2011 1030
180-7105-4	03TP34-0405-01	Solid	12/21/2011 1015	12/23/2011 1030
180-7105-5	03TP31-0708-01	Solid	12/21/2011 1125	12/23/2011 1030
180-7105-6	03TP32-0809-01	Solid	12/21/2011 1135	12/23/2011 1030
180-7105-7	03TP33-0607-01	Solid	12/21/2011 1155	12/23/2011 1030
180-7105-8	03TP37-0304-01	Solid	12/21/2011 1225	12/23/2011 1030
180-7105-9	03TP38-0304-01	Solid	12/21/2011 1240	12/23/2011 1030
180-7105-10	03TP39-0607-01	Solid	12/21/2011 1325	12/23/2011 1030
180-7105-11	03TP42-0506-01	Solid	12/21/2011 1400	12/23/2011 1030
180-7105-12	03TP35-0304-01	Solid	12/21/2011 1430	12/23/2011 1030
180-7105-13	03SB31-0506-01	Solid	12/21/2011 1500	12/23/2011 1030
180-7105-14	03SB29-0:22.5-01	Solid	12/21/2011 1515	12/23/2011 1030
180-7105-15	03SB32-0405-01	Solid	12/21/2011 1530	12/23/2011 1030
180-7105-15DU	03SB32-0405-01	Solid	12/21/2011 1530	12/23/2011 1030
180-7105-16	03SB33-0304-01	Solid	12/21/2011 1550	12/23/2011 1030
180-7105-17	03SB34-0405-01	Solid	12/21/2011 1615	12/23/2011 1030
180-7105-18	03SB27-1.52.5-01	Solid	12/21/2011 1645	12/23/2011 1030
180-7105-19	03SB-DUP-01	Solid	12/21/2011 1200	12/23/2011 1030
180-7105-20	03SB-DUP-02	Solid	12/21/2011 1300	12/23/2011 1030

METHOD SUMMARY

Client: Tetra Tech, Inc formerly Tetra Tech NUS | Job Number: 180-7105-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
Metals (ICP/MS)	TAL PIT	SW846 6020	
Preparation, Metals			SW846 3050B
Hexavalent Chromium (SIDMS)	TAL PIT	SW846 6800	
Alkaline Digestion (Chromium, Hexavalent)			SW846 3060A
Percent Moisture	TAL PIT	EPA Moisture	

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

DATA REPORTING QUALIFIERS

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

Lab Section	Qualifier	Description
Metals		
	F	Duplicate RPD exceeds the control limit
	^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
	H	Sample was prepped or analyzed beyond the specified holding time

Allen, Michelle

From: Bortot, Veronica <Veronica.Bortot@testamericainc.com>
Sent: Tuesday, February 28, 2012 12:31 PM
To: Allen, Michelle
Subject: FW: Data Validation Issue; 6800 Chromium

Hi Michelle,
I was able to get into my older emails....see below

From: Ruyechan, Roseann
Sent: Wed 2/22/2012 1:08 PM
To: Bortot, Veronica
Cc: DeRubeis, Nasreen
Subject: RE: Data Validation Issue; 6800 Chromium

The holding time issue was due to the samples giving false positive results with the 53:52 chrom6 ratio being outside the .1-10 limit.

The runlog is before the instrument printout of the raw data. There is no "form 14"

From: Bortot, Veronica
Sent: Wednesday, February 22, 2012 2:03 PM
To: Ruyechan, Roseann
Cc: DeRubeis, Nasreen
Subject: Data Validation Issue; 6800 Chromium

Validator: Michelle Allen Tetratech 412-920-8610

Michelle wanted to know if there was a specific pH thats needed for the prep. If so, is there a log sheet? If not can we provide one?

Some of the samples were analzyed outside of the recommeded holding time as noted in the case narrative; Can we elaborate on why?

Is there a run log that can be provided?

Client realizes this is a new method, so some of the tradional forms may not be in place; but she was expecting to see the basic log sheets, run logs etc.

Job numbers:
180-6874; 6900; 6909; 6991; 7042; 7105; 7112; 7178.

Veronica Bortot

Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

301 Alpha Drive

Pittsburgh, PA 15238

Tel 412.963.2435 I Fax 412.963.2468

www.testamericainc.com

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 180-24826					
LCS 180-24826/2-A	Lab Control Sample	T	Solid	3050B	
MB 180-24826/1-A	Method Blank	T	Solid	3050B	
180-7105-1	03TP40-0304-01	T	Solid	3050B	
180-7105-1MS	Matrix Spike	T	Solid	3050B	
180-7105-1MSD	Matrix Spike Duplicate	T	Solid	3050B	
180-7105-2	03TP41-0304-01	T	Solid	3050B	
180-7105-3	03SB30-0304-01	T	Solid	3050B	
180-7105-4	03TP34-0405-01	T	Solid	3050B	
180-7105-5	03TP31-0708-01	T	Solid	3050B	
180-7105-6	03TP32-0809-01	T	Solid	3050B	
180-7105-7	03TP33-0607-01	T	Solid	3050B	
180-7105-8	03TP37-0304-01	T	Solid	3050B	
180-7105-9	03TP38-0304-01	T	Solid	3050B	
180-7105-10	03TP39-0607-01	T	Solid	3050B	
180-7105-11	03TP42-0506-01	T	Solid	3050B	
180-7105-12	03TP35-0304-01	T	Solid	3050B	
180-7105-13	03SB31-0506-01	T	Solid	3050B	
180-7105-14	03SB29-0:22.5-01	T	Solid	3050B	
180-7105-15	03SB32-0405-01	T	Solid	3050B	
180-7105-15DU	Duplicate	T	Solid	3050B	
180-7105-16	03SB33-0304-01	T	Solid	3050B	
180-7105-17	03SB34-0405-01	T	Solid	3050B	
180-7105-18	03SB27-1.52.5-01	T	Solid	3050B	
180-7105-19	03SB-DUP-01	T	Solid	3050B	
180-7105-20	03SB-DUP-02	T	Solid	3050B	

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:180-25480					
LCS 180-24826/2-A	Lab Control Sample	T	Solid	6020	180-24826
MB 180-24826/1-A	Method Blank	T	Solid	6020	180-24826
180-7105-1	03TP40-0304-01	T	Solid	6020	180-24826
180-7105-1MS	Matrix Spike	T	Solid	6020	180-24826
180-7105-1MSD	Matrix Spike Duplicate	T	Solid	6020	180-24826
180-7105-2	03TP41-0304-01	T	Solid	6020	180-24826
180-7105-3	03SB30-0304-01	T	Solid	6020	180-24826
180-7105-4	03TP34-0405-01	T	Solid	6020	180-24826
180-7105-5	03TP31-0708-01	T	Solid	6020	180-24826
180-7105-6	03TP32-0809-01	T	Solid	6020	180-24826
180-7105-7	03TP33-0607-01	T	Solid	6020	180-24826
180-7105-8	03TP37-0304-01	T	Solid	6020	180-24826
180-7105-9	03TP38-0304-01	T	Solid	6020	180-24826
180-7105-10	03TP39-0607-01	T	Solid	6020	180-24826
180-7105-11	03TP42-0506-01	T	Solid	6020	180-24826
180-7105-12	03TP35-0304-01	T	Solid	6020	180-24826
180-7105-13	03SB31-0506-01	T	Solid	6020	180-24826
180-7105-14	03SB29-0:22.5-01	T	Solid	6020	180-24826
180-7105-15	03SB32-0405-01	T	Solid	6020	180-24826
180-7105-15DU	Duplicate	T	Solid	6020	180-24826
180-7105-16	03SB33-0304-01	T	Solid	6020	180-24826
180-7105-17	03SB34-0405-01	T	Solid	6020	180-24826
180-7105-18	03SB27-1.52.5-01	T	Solid	6020	180-24826
180-7105-19	03SB-DUP-01	T	Solid	6020	180-24826
180-7105-20	03SB-DUP-02	T	Solid	6020	180-24826

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 180-26188					
LCS 180-26188/2-A	Lab Control Sample	T	Solid	3060A	
MB 180-26188/1-A	Method Blank	T	Solid	3060A	
180-7105-1	03TP40-0304-01	T	Solid	3060A	
180-7105-2	03TP41-0304-01	T	Solid	3060A	
180-7105-3	03SB30-0304-01	T	Solid	3060A	
180-7105-4	03TP34-0405-01	T	Solid	3060A	
180-7105-5	03TP31-0708-01	T	Solid	3060A	
180-7105-6	03TP32-0809-01	T	Solid	3060A	
180-7105-7	03TP33-0607-01	T	Solid	3060A	
180-7105-8	03TP37-0304-01	T	Solid	3060A	
180-7105-9	03TP38-0304-01	T	Solid	3060A	
180-7105-10	03TP39-0607-01	T	Solid	3060A	
180-7105-11	03TP42-0506-01	T	Solid	3060A	
180-7105-12	03TP35-0304-01	T	Solid	3060A	
180-7105-13	03SB31-0506-01	T	Solid	3060A	
180-7105-14	03SB29-0:22.5-01	T	Solid	3060A	
180-7105-15	03SB32-0405-01	T	Solid	3060A	
180-7105-15DU	Duplicate	T	Solid	3060A	
180-7105-16	03SB33-0304-01	T	Solid	3060A	
180-7105-17	03SB34-0405-01	T	Solid	3060A	
180-7105-18	03SB27-1.52.5-01	T	Solid	3060A	
180-7105-19	03SB-DUP-01	T	Solid	3060A	
180-7105-20	03SB-DUP-02	T	Solid	3060A	

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:180-27119					
LCS 180-26188/2-A	Lab Control Sample	T	Solid	6800	180-26188
MB 180-26188/1-A	Method Blank	T	Solid	6800	180-26188
180-7105-1	03TP40-0304-01	T	Solid	6800	180-26188
180-7105-2	03TP41-0304-01	T	Solid	6800	180-26188
180-7105-3	03SB30-0304-01	T	Solid	6800	180-26188
180-7105-4	03TP34-0405-01	T	Solid	6800	180-26188
180-7105-5	03TP31-0708-01	T	Solid	6800	180-26188
180-7105-6	03TP32-0809-01	T	Solid	6800	180-26188
180-7105-7	03TP33-0607-01	T	Solid	6800	180-26188
180-7105-8	03TP37-0304-01	T	Solid	6800	180-26188
180-7105-9	03TP38-0304-01	T	Solid	6800	180-26188
180-7105-10	03TP39-0607-01	T	Solid	6800	180-26188
180-7105-11	03TP42-0506-01	T	Solid	6800	180-26188
180-7105-12	03TP35-0304-01	T	Solid	6800	180-26188
180-7105-13	03SB31-0506-01	T	Solid	6800	180-26188
180-7105-14	03SB29-0:22.5-01	T	Solid	6800	180-26188
180-7105-15	03SB32-0405-01	T	Solid	6800	180-26188
180-7105-15DU	Duplicate	T	Solid	6800	180-26188
180-7105-16	03SB33-0304-01	T	Solid	6800	180-26188
180-7105-17	03SB34-0405-01	T	Solid	6800	180-26188
180-7105-18	03SB27-1.52.5-01	T	Solid	6800	180-26188
180-7105-19	03SB-DUP-01	T	Solid	6800	180-26188
180-7105-20	03SB-DUP-02	T	Solid	6800	180-26188

Report Basis
T = Total

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7105-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:180-24541					
180-7105-1	03TP40-0304-01	T	Solid	Moisture	
180-7105-2	03TP41-0304-01	T	Solid	Moisture	
180-7105-3	03SB30-0304-01	T	Solid	Moisture	
180-7105-4	03TP34-0405-01	T	Solid	Moisture	
180-7105-5	03TP31-0708-01	T	Solid	Moisture	
180-7105-6	03TP32-0809-01	T	Solid	Moisture	
180-7105-7	03TP33-0607-01	T	Solid	Moisture	
180-7105-8	03TP37-0304-01	T	Solid	Moisture	
180-7105-9	03TP38-0304-01	T	Solid	Moisture	
180-7105-10	03TP39-0607-01	T	Solid	Moisture	
180-7105-11	03TP42-0506-01	T	Solid	Moisture	
180-7105-12	03TP35-0304-01	T	Solid	Moisture	
180-7105-13	03SB31-0506-01	T	Solid	Moisture	
180-7105-14	03SB29-0:22.5-01	T	Solid	Moisture	
180-7105-15	03SB32-0405-01	T	Solid	Moisture	
180-7105-15DU	Duplicate	T	Solid	Moisture	
180-7105-16	03SB33-0304-01	T	Solid	Moisture	
180-7105-17	03SB34-0405-01	T	Solid	Moisture	
180-7105-18	03SB27-1.52.5-01	T	Solid	Moisture	
180-7105-19	03SB-DUP-01	T	Solid	Moisture	
180-7105-20	03SB-DUP-02	T	Solid	Moisture	

Report Basis
T = Total

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7105-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 RL Date: 01/23/2010 19:04

Prep Method: 3050B

Analyte	Wavelength/ Mass	RL (mg/Kg)	
Chromium	52	0.2	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7105-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 XMDL Date: 01/23/2010 19:04

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Chromium	52	2	0.5433

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7105-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7105-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica Pittsburgh Job No: 180-7105-1

SDG No.:

Instrument ID: X Date: 03/14/2011 22:35

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Chromium		13500	6020

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For: Element Li-6	Q	Element Sc	Q	Element Y-89	Q	Element Rh	Q	Element In	Q
STD1 180-25480/2 IC	11:10	100		100		100		100		100	
STD2 180-25480/3 IC	11:15	84		90		90		83		84	
STD3 180-25480/4 IC	11:19	97		106		102		102		101	
ICV 180-25480/5	11:23	93		104		100		95		95	
ICB 180-25480/6	11:31	104		115		109		110		109	
CRI 180-25480/7	11:35	101		112		106		107		107	
ICSA 180-25480/8	11:39	75		76		73		71		74	
ICSAB 180-25480/9	11:44	74		79		75		72		75	
CCV 180-25480/10	11:51	86		97		91		87		88	
CCB1 180-25480/11	11:58	98		110		101		105		104	
CCV 180-25480/34	13:48	103		104		93		93		90	
CCB3 180-25480/35	13:55	117		115		103		109		104	
MB 180-24826/1-A	14:11	115		112		101		107		101	
LCS 180-24826/2-A	14:16	121		92		85		78		81	
180-7105-1	14:20	119		119		0		88		90	
180-7105-1 SD	14:24	129		112		0		100		97	
180-7105-1 MS	14:28	111		103		0		74		79	
180-7105-1 MSD	14:32	96		98		0		73		76	
180-7105-2	14:37	75		72		0		59		62	
180-7105-3	14:41	106		106		0		85		86	
CCV 180-25480/46	14:49	105		105		94		95		92	
CCB4 180-25480/47	14:56	114		115		104		110		104	
180-7105-4	15:00	92		83		113		65		70	
180-7105-5	15:04	80		75		104		61		65	
180-7105-6	15:08	82		81		120		65		67	
180-7105-7 63TP33-0607-1	15:13	64		57		79		49		52	
180-7105-8	15:17	92		98		0		78		79	
180-7105-9	15:21	83		85		0		70		72	
180-7105-10	15:25	85		86		0		72		74	
180-7105-11	15:29	73		68		0		58		62	
180-7105-12	15:34	80		79		0		66		68	
180-7105-13	15:38	93		96		0		81		81	
CCV 180-25480/58	15:46	106		106		98		98		96	
CCB5 180-25480/59	15:53	118		115		106		112		107	
180-7105-14	15:57	98		103		0		83		84	
180-7105-15	16:01	112		111		0		93		93	
180-7105-15 SD	16:05	110		117		0		108		104	
180-7105-15 DU	16:10	113		114		0		92		93	
180-7105-16	16:14	104		101		0		87		87	
180-7105-17	16:18	105		101		0		88		88	
180-7105-18	16:22	97		97		0		83		84	
180-7105-19	16:27	98		99		0		85		86	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For: Element Li-6	Q	Element Sc	Q	Element Y-89	Q	Element Rh	Q	Element In	Q
180-7105-20	16:31	95		98		0		82		83	
CCV 180-25480/70	16:46	110		109		100		100		98	
CCB6 180-25480/71	16:53	110		116		110		116		111	

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For: Element Tb	Q	Element Bi	Q	Element	Q	Element	Q	Element	Q
STD1 180-25480/2 IC	11:10	100		100							
STD2 180-25480/3 IC	11:15	86		89							
STD3 180-25480/4 IC	11:19	102		105							
ICV 180-25480/5	11:23	97		96							
ICB 180-25480/6	11:31	106		109							
CRI 180-25480/7	11:35	105		107							
ICSA 180-25480/8	11:39	78		73							
ICSAB 180-25480/9	11:44	77		77							
CCV 180-25480/10	11:51	93		91							
CCB1 180-25480/11	11:58	104		107							
CCV 180-25480/34	13:48	93		90							
CCB3 180-25480/35	13:55	103		101							
MB 180-24826/1-A	14:11	105		104							
LCS 180-24826/2-A	14:16	98		85							
180-7105-1	14:20	99		74							
180-7105-1 SD	14:24	107		93							
180-7105-1 MS	14:28	89		65							
180-7105-1 MSD	14:32	79		57							
180-7105-2	14:37	62		45							
180-7105-3	14:41	84		62							
CCV 180-25480/46	14:49	95		94							
CCB4 180-25480/47	14:56	102		100							
180-7105-4	15:00	73		54							
180-7105-5	15:04	62		46							
180-7105-6	15:08	68		49							
180-7105-7	15:13	50		39							
180-7105-8	15:17	82		58							
180-7105-9	15:21	74		53							
180-7105-10	15:25	75		55							
180-7105-11	15:29	62		44							
180-7105-12	15:34	72		51							
180-7105-13	15:38	86		60							
CCV 180-25480/58	15:46	95		93							
CCB5 180-25480/59	15:53	104		104							
180-7105-14	15:57	85		63							
180-7105-15	16:01	91		69							
180-7105-15 SD	16:05	108		96							
180-7105-15 DU	16:10	89		66							
180-7105-16	16:14	94		68							
180-7105-17	16:18	101		68							
180-7105-18	16:22	90		65							
180-7105-19	16:27	92		64							

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Tb	Q	Element Bi	Q	Element	Q	Element	Q	Element	Q
180-7105-20	16:31	89		62							
CCV 180-25480/70	16:46	99		101							
CCB6 180-25480/71	16:53	107		105							

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-24826/1-A	12/29/2011 10:33	24826	1		100
LCS 180-24826/2-A	12/29/2011 10:33	24826	1		100
180-7105-1	12/29/2011 10:33	24826	00001.02		100
180-7105-1 MS	12/29/2011 10:33	24826	00001.09		100
180-7105-1 MSD	12/29/2011 10:33	24826	00001.06		100
180-7105-2	12/29/2011 10:33	24826	00001.03		100
180-7105-3	12/29/2011 10:33	24826	00001.07		100
180-7105-4	12/29/2011 10:33	24826	00001.06		100
180-7105-5	12/29/2011 10:33	24826	00001.02		100
180-7105-6	12/29/2011 10:33	24826	00001.09		100
180-7105-7	12/29/2011 10:33	24826	00001.03		100
180-7105-8	12/29/2011 10:33	24826	00001.10		100
180-7105-9	12/29/2011 10:33	24826	00001.11		100
180-7105-10	12/29/2011 10:33	24826	00001.06		100
180-7105-11	12/29/2011 10:33	24826	00001.11		100
180-7105-12	12/29/2011 10:33	24826	00001.15		100
180-7105-13	12/29/2011 10:33	24826	00001.13		100
180-7105-14	12/29/2011 10:33	24826	00001.04		100
180-7105-15	12/29/2011 10:33	24826	00001.04		100
180-7105-15 DU	12/29/2011 10:33	24826	00001.08		100
180-7105-16	12/29/2011 10:33	24826	00001.04		100
180-7105-17	12/29/2011 10:33	24826	00001.06		100
180-7105-18	12/29/2011 10:33	24826	00001.04		100
180-7105-19	12/29/2011 10:33	24826	00001.09		100
180-7105-20	12/29/2011 10:33	24826	00001.03		100

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-24826/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

Sample Matrix: Solid LCS Source: MTAPITTICPMS_00005

Solid(mg/Kg)

Analyte	True	Found	C	%R	Limits		Q	Method
Chromium	20.0	18.5		92	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: 03TP40-0304-01 MS Lab ID: 180-7105-1 MS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 82.1

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Chromium	43.3		19		22.3	108	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS

Client ID: 03TP40-0304-01 MSD | Lab ID: 180-7105-1 MSD

Lab Name: TestAmerica Pittsburgh | Job No.: 180-7105-1

SDG No.:

Matrix: Solid | Concentration Units: mg/Kg

% Solids: 82.1

Analyte	(SDR) C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Chromium	47.3	23.0	123	75-125	9	20		6020

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VD - IN

6-IN
DUPLICATES
METALS

Client ID: 03SB32-0405-01 DU | Lab ID: 180-7105-15 DU

Lab Name: TestAmerica Pittsburgh | Job No.: 180-7105-1

SDG No.:

% Solids for Sample: 82.3 | % Solids for Duplicate: 82.3

Matrix: Solid | Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Chromium	0.23	19	18.1	7		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 180-7105-1

SDG No:

Lab Name: TestAmerica Pittsburgh Job No: 180-7105-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Chromium	19		18.8		1.2		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 180-7105-15

SDG No:

Lab Name: TestAmerica Pittsburgh Job No: 180-7105-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Chromium	19		18.1		7.0		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D/F	Type	Time	Analytes: Cr
ITUNE 180-25480/1			10:38	
STD1 180-25480/2 IC	1		11:10	X
STD2 180-25480/3 IC	1		11:15	X
STD3 180-25480/4 IC	1		11:19	X
ICV 180-25480/5	1		11:23	X
ICB 180-25480/6	1		11:31	X
CRI 180-25480/7	1		11:35	X
ICSA 180-25480/8	1		11:39	X
ICSAB 180-25480/9	1		11:44	X
CCV 180-25480/10	1		11:51	X
CCB1 180-25480/11	1		11:58	X
ZZZZZZ			12:06	
ZZZZZZ			12:10	
ZZZZZZ			12:14	
ZZZZZZ			12:18	
ZZZZZZ			12:22	
ZZZZZZ			12:26	
ZZZZZZ			12:31	
ZZZZZZ			12:35	
ZZZZZZ			12:39	
ZZZZZZ			12:43	
CCV 180-25480/22			12:51	
CCB2 180-25480/23			12:58	
ZZZZZZ			13:02	
ZZZZZZ			13:07	
ZZZZZZ			13:11	
ZZZZZZ			13:15	
ZZZZZZ			13:19	
ZZZZZZ			13:23	
ZZZZZZ			13:28	
ZZZZZZ			13:32	
ZZZZZZ			13:36	
ZZZZZZ			13:40	
CCV 180-25480/34	1		13:48	X
CCB3 180-25480/35	1		13:55	X
ZZZZZZ			13:59	
ZZZZZZ			14:04	
MB 180-24826/1-A	1	T	14:11	X
LCS 180-24826/2-A	1	T	14:16	X
180-7105-1	1	T	14:20	X
180-7105-1 SD	5	T	14:24	X
180-7105-1 MS	1	T	14:28	X

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D/F	Type	Time	Analytes: Cr
180-7105-1 MSD	1	T	14:32	X
180-7105-2	1	T	14:37	X
180-7105-3	1	T	14:41	X
CCV 180-25480/46	1		14:49	X
CCB4 180-25480/47	1		14:56	X
180-7105-4	1	T	15:00	X
180-7105-5	1	T	15:04	X
180-7105-6	1	T	15:08	X
180-7105-7	1	T	15:13	X
180-7105-8	1	T	15:17	X
180-7105-9	1	T	15:21	X
180-7105-10	1	T	15:25	X
180-7105-11	1	T	15:29	X
180-7105-12	1	T	15:34	X
180-7105-13	1	T	15:38	X
CCV 180-25480/58	1		15:46	X
CCB5 180-25480/59	1		15:53	X
180-7105-14	1	T	15:57	X
180-7105-15	1	T	16:01	X
180-7105-15 SD	5	T	16:05	X
180-7105-15 DU	1	T	16:10	X
180-7105-16	1	T	16:14	X
180-7105-17	1	T	16:18	X
180-7105-18	1	T	16:22	X
180-7105-19	1	T	16:27	X
180-7105-20	1	T	16:31	X
ZZZZZZ			16:39	
CCV 180-25480/70	1		16:46	X
CCB6 180-25480/71	1		16:53	X
ZZZZZZ			16:57	
ZZZZZZ			17:01	
ZZZZZZ			17:06	
ZZZZZZ			17:10	
ZZZZZZ			17:14	
ZZZZZZ			17:18	
ZZZZZZ			17:22	
ZZZZZZ			17:27	
ZZZZZZ			17:31	
ZZZZZZ			17:35	
CCV 180-25480/82			17:43	
CCB7 180-25480/83			17:50	
ZZZZZZ			17:54	

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes: Cr
ZZZZZZ			17:59	
ZZZZZZ			18:03	
ZZZZZZ			18:07	
ZZZZZZ			18:11	
ZZZZZZ			18:15	
ZZZZZZ			18:20	
ZZZZZZ			18:24	
ZZZZZZ			18:28	
ZZZZZZ			18:32	
CCV 180-25480/94			18:40	
CCB8 180-25480/95			18:47	
ZZZZZZ			18:52	
ZZZZZZ			18:59	
ZZZZZZ			19:04	
ZZZZZZ			19:08	
ZZZZZZ			19:19	
ZZZZZZ			19:23	
ZZZZZZ			19:28	
ZZZZZZ			19:32	
CCV 180-25480/104			19:40	
CCB9 180-25480/105			19:47	
ZZZZZZ			19:51	
ZZZZZZ			19:55	
ZZZZZZ			20:00	
ZZZZZZ			20:04	
ZZZZZZ			20:08	
ZZZZZZ			20:12	
ZZZZZZ			20:17	
ZZZZZZ			20:21	
ZZZZZZ			20:25	
CCV 180-25480/115			20:33	
CCB10 180-25480/116			20:40	

Prep Types
T = Total/NA

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

	ICV 180-25480/5 01/06/2012 11:23				CCV 180-25480/10 01/06/2012 11:51				CCV 180-25480/34 01/06/2012 13:48			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	78.4		80.0	98	95.0		100	95	91.7		100	92

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

	CCV 180-25480/46 01/06/2012 14:49				CCV 180-25480/58 01/06/2012 15:46				CCV 180-25480/70 01/06/2012 16:46			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	92.3		100	92	91.5		100	92	90.2		100	90

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Method: 6020 Instrument ID: X

Lab Sample ID: CRI 180-25480/7 Concentration Units: ug/L

CRQL Check Standard Source: MCRIX_00009

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Chromium	2.00	ND		95	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

CRI 263835 1/6/2012 11:35:34 AM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	11B	13C	23Na	25Mg	26Mg
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	101.114%	1.067	5.001	4.820	0.000	133.300	103.200	102.700
2	11:36:56	101.683%	0.936	5.085	4.934	0.000	128.000	102.600	103.400
3	11:37:38	101.159%	1.020	5.081	4.890	0.000	126.700	101.700	102.300
x		101.319%	100.749%	101.110%	97.622%	0.000	161.648%	102.505%	102.800%
σ		0.316%	n/a	n/a	n/a	0.000	n/a	n/a	n/a
%RSD		0.312	6.599	0.943	1.183	0.000	2.705	0.704	0.528
Run	**Time**	**27Al**	**28Si**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	29.770	608.400	0.000	105.500	102.000	126.600	113.514%	5.244
2	11:36:56	29.100	610.900	0.000	105.400	111.300	124.400	111.337%	5.214
3	11:37:38	28.590	604.300	0.000	105.000	113.300	122.100	111.849%	5.296
x		97.172%	121.577%	0.000	105.293%	108.868%	124.384%	112.234%	105.028%
σ		n/a	n/a	0.000	n/a	n/a	n/a	1.138%	n/a
%RSD		2.025	0.555	0.000	0.277	5.526	1.807	1.014	0.795
Run	**Time**	**51V**	**52Cr**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**	**63Cu**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	0.932	1.892	4.805	59.760	59.680	0.510	0.721	2.418
2	11:36:56	0.899	1.876	4.888	58.250	54.890	0.532	0.752	2.349
3	11:37:38	0.959	1.922	4.781	56.100	53.060	0.548	0.712	2.216
x		92.993%	94.836%	96.495%	116.070%	111.754%	105.988%	72.816%	116.383%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		3.183	1.239	1.164	3.174	6.117	3.625	2.878	4.400
Run	**Time**	**65Cu**	**66Zn**	**68Zn**	**75As**	**78Se**	**82Se**	**83Kr**	**88Sr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	2.311	5.612	5.584	1.040	5.342	5.162	0.000	4.893
2	11:36:56	2.336	5.375	5.465	1.015	5.741	5.155	0.000	4.797
3	11:37:38	2.261	5.396	5.458	0.998	5.707	4.972	0.000	4.793
x		115.123%	109.226%	110.041%	101.768%	111.933%	101.926%	0.000	96.551%
σ		n/a	n/a	n/a	n/a	n/a	n/a	0.000	n/a
%RSD		1.667	2.402	1.284	2.069	3.946	2.115	0.000	1.179
Run	**Time**	**89Y**	**95Mo**	**98Mo**	**103Rh**	**107Ag**	**109Ag**	**111Cd**	**114Cd**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	105.495%	5.100	4.891	107.076%	1.125	1.167	-1.292	-0.633
2	11:36:56	106.207%	5.060	4.960	107.140%	1.149	1.141	-1.299	-0.522
3	11:37:38	105.486%	5.015	5.105	106.173%	1.135	1.179	-1.130	-0.551
x		105.729%	101.169%	99.705%	106.796%	113.611%	116.247%	-124.026%	-56.856%
σ		0.414%	n/a	n/a	0.541%	n/a	n/a	n/a	n/a
%RSD		0.391	0.834	2.196	0.506	1.076	1.668	7.724	10.090
Run	**Time**	**115In**	**118Sn**	**121Sb**	**123Sb**	**135Ba**	**137Ba**	**159Tb**	**165Ho**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	106.783%	7.030	2.119	2.288	9.636	10.050	104.535%	103.315%
2	11:36:56	106.389%	6.657	2.190	2.226	9.735	9.986	105.370%	103.333%
3	11:37:38	106.792%	7.113	2.153	2.243	9.246	9.576	106.088%	104.796%
x		106.655%	138.667%	107.702%	112.634%	95.391%	98.705%	105.331%	103.815%
σ		0.230%	n/a	n/a	n/a	n/a	n/a	0.777%	0.850%
%RSD		0.216	3.503	1.640	1.428	2.711	2.600	0.738	0.818
Run	**Time**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**		
		ppb	ppb	ppb	ppb	ppb	ppb		
1	11:36:15	1.095	1.013	1.083	1.056	1.069	106.638%		
2	11:36:56	1.062	1.042	1.132	1.105	1.085	106.260%		
3	11:37:38	1.084	1.067	1.016	1.125	1.040	106.701%		
x		108.029%	104.053%	107.716%	109.534%	106.473%	106.533%		
σ		n/a	n/a	n/a	n/a	n/a	0.238%		
%RSD		1.565	2.581	5.406	3.236	2.153	0.224		

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 180-25480/6 01/06/2012 11:31		CCB1 180-25480/11 01/06/2012 11:58		CCB3 180-25480/35 01/06/2012 13:55		CCB4 180-25480/47 01/06/2012 14:56	
		Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB5 180-25480/59 01/06/2012 15:53 Found	C	CCB6 180-25480/71 01/06/2012 16:53 Found	C	Found	C	Found	C
Chromium	2.0	ND		ND					

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 180-24826/1-A

Instrument Code: X Batch No.: 25480

CAS No.	Analyte	Concentration	C	Q	Method
7440-47-3	Chromium	ND			6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Lab Sample ID: ICSA 180-25480/8 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSAX_00009

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Chromium		**-0.285**	
Aluminum	*100000*	*101100*	*101*
Antimony		*0.316*	
Arsenic		*0.461*	
Barium		*0.202*	
Beryllium		*0.0210*	
Boron		*0.661*	
Cadmium		*-1.71*	
Calcium	*100000*	*105600*	*106*
Cobalt		*0.302*	
Copper		*2.92*	
Iron	*100000*	*105600*	*106*
Lead		*0.187*	
Magnesium	*100000*	*105800*	*106*
Manganese		*0.707*	
Molybdenum	*2000*	*2410*	*121*
Nickel		*0.967*	
Potassium	*100000*	*104300*	*104*
Selenium		*0.410*	
Silicon		*30.4*	
Silver		*0.755*	
Sodium	*100000*	*102200*	*102*
Strontium		*0.386*	
Thallium		*0.0450*	
Tin		*2.87*	
Titanium	*2000*	*2468*	*123*
Vanadium		*-0.462*	
Zinc		*5.85*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Lab Sample ID: ICSAB 180-25480/9 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSABX_00013

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Chromium	**20.0**	**19.9**	**99**
Aluminum	*100000*	*103033*	*103*
Antimony	*20.0*	*21.5*	*107*
Arsenic	*20.0*	*21.4*	*107*
Barium	*20.0*	*20.9*	*104*
Beryllium	*20.0*	*20.8*	*104*
Boron	*50.0*	*49.3*	*99*
Cadmium	*20.0*	*19.0*	*95*
Calcium	*100000*	*105133*	*105*
Cobalt	*20.0*	*20.2*	*101*
Copper	*20.0*	*23.3*	*117*
Iron	*100000*	*105067*	*105*
Lead	*20.0*	*21.9*	*109*
Magnesium	*100000*	*107867*	*108*
Manganese	*22.5*	*20.4*	*91*
Molybdenum	*2000*	*2408*	*120*
Nickel	*20.0*	*21.5*	*108*
Potassium	*100000*	*104733*	*105*
Selenium	*50.0*	*56.7*	*113*
Silicon	*500*	*648*	*130*
Silver	*20.0*	*21.9*	*109*
Sodium	*100000*	*105033*	*105*
Strontium	*20.0*	*20.6*	*103*
Thallium	*20.0*	*20.8*	*104*
Tin	*100*	*104*	*104*
Titanium	*2000*	*2572*	*129*
Vanadium	*20.0*	*19.5*	*98*
Zinc	*25.0*	*27.5*	*110*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-26188/1-A	01/18/2012 07:10	26188	1.0		1.0
LCS 180-26188/2-A	01/18/2012 07:10	26188	1.0		1.0
180-7105-1	01/18/2012 07:10	26188	1.0		1.0
180-7105-2	01/18/2012 07:10	26188	1.0		1.0
180-7105-3	01/18/2012 07:10	26188	1.0		1.0
180-7105-4	01/18/2012 07:10	26188	1.0		1.0
180-7105-5	01/18/2012 07:10	26188	1.0		1.0
180-7105-6	01/18/2012 07:10	26188	1.0		1.0
180-7105-7	01/18/2012 07:10	26188	1.0		1.0
180-7105-8	01/18/2012 07:10	26188	1.0		1.0
180-7105-9	01/18/2012 07:10	26188	1.0		1.0
180-7105-10	01/18/2012 07:10	26188	1.0		1.0
180-7105-11	01/18/2012 07:10	26188	1.0		1.0
180-7105-12	01/18/2012 07:10	26188	1.0		1.0
180-7105-13	01/18/2012 07:10	26188	1.0		1.0
180-7105-14	01/18/2012 07:10	26188	1.0		1.0
180-7105-15	01/18/2012 07:10	26188	1.0		1.0
180-7105-15 DU	01/18/2012 07:10	26188	1.0		1.0
180-7105-16	01/18/2012 07:10	26188	1.0		1.0
180-7105-17	01/18/2012 07:10	26188	1.0		1.0
180-7105-18	01/18/2012 07:10	26188	1.0		1.0
180-7105-19	01/18/2012 07:10	26188	1.0		1.0
180-7105-20	01/18/2012 07:10	26188	1.0		1.0

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-26188/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)						
	True	Found	C	%R	Limits	Q	Method
Cr (VI)	280	273		98			6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

6-IN
DUPLICATES
METALS

Client ID: 03SB32-0405-01 DU | Lab ID: 180-7105-15 DU

Lab Name: TestAmerica Pittsburgh | Job No.: 180-7105-1

SDG No.:

% Solids for Sample: 82.3 | % Solids for Duplicate: 82.3

Matrix: Solid | Concentration Units: ug/g

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Cr (VI)	0.12	0.61	1.45	81	H F	6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/20/2012 17:53 End Date: 01/28/2012 17:53

Lab Sample ID	D/F	Type	Time	Analytes: Cr6
MB 180-26188/1-A	1	T	17:53	X
LCS 180-26188/2-A	1	T	17:53	X
180-7105-1	1	T	17:53	X
180-7105-2	1	T	17:53	X
180-7105-3	1	T	17:53	X
180-7105-4	1	T	17:53	X
180-7105-5	1	T	17:53	X
180-7105-6	1	T	17:53	X
180-7105-7	1	T	17:53	X
180-7105-8	1	T	17:53	X
180-7105-9	1	T	17:53	X
180-7105-10	1	T	17:53	X
180-7105-11	1	T	17:53	X
180-7105-12	1	T	17:53	X
180-7105-13	1	T	17:53	X
180-7105-14	1	T	17:53	X
180-7105-15	1	T	17:53	X
180-7105-15 DU	1	T	17:53	X
180-7105-16	1	T	17:53	X
180-7105-17	1	T	17:53	X
180-7105-18	1	T	17:53	X
180-7105-19	1	T	17:53	X
180-7105-20	1	T	17:53	X

01/20/12

01/26/12

Prep Types

T = Total/NA

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7105-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: MB 180-26188/1-A

Instrument Code: X Batch No.: 27119

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

7105 6000

Sample List

No	Label	Type	Weight
1	MBSTD1 256520	Unknown	1.000
2	MBSTD2	Unknown	1.000
3	MBSTD3	Unknown	1.000
4	MBSTD4	Unknown	1.000
5	CCV 50	Unknown	1.000
6	BKRD BLK	Unknown	1.000
7	7042-001X R1	Unknown	1.000
8	7042-001X R2	Unknown	1.000
9	7042-001X R3	Unknown	1.000
10	7042-001X R4	Unknown	1.000
11	PBS R1	Unknown	1.000
12	PBS R2	Unknown	1.000
13	PBS R3	Unknown	1.000
14	PBS R4	Unknown	1.000
15	LCSS R1	Unknown	1.000
16	LCSS R2	Unknown	1.000
17	LCSS R3	Unknown	1.000
18	LCSS R4	Unknown	1.000
19	7105-001 R1	Unknown	1.000
20	7105-001 R2	Unknown	1.000
21	7105-001 R3	Unknown	1.000
22	7105-001 R4	Unknown	1.000
23	7105-002 R1	Unknown	1.000
24	7105-002 R2	Unknown	1.000
25	7105-002 R3	Unknown	1.000
26	7105-002 R4	Unknown	1.000
27	7105-003 R1	Unknown	1.000
28	7105-003 R2	Unknown	1.000
29	7105-003 R3	Unknown	1.000
30	7105-003 R4	Unknown	1.000
31	7105-004 R1	Unknown	1.000
32	7105-004 R2	Unknown	1.000
33	7105-004 R3	Unknown	1.000
34	7105-004 R4	Unknown	1.000
35	7105-005 R1	Unknown	1.000
36	7105-005 R2	Unknown	1.000
37	7105-005 R3	Unknown	1.000
38	7105-005 R4	Unknown	1.000
39	7105-006 R1	Unknown	1.000
40	7105-006 R2	Unknown	1.000
41	7105-006 R3	Unknown	1.000
42	7105-006 R4	Unknown	1.000
43	7105-007 R1	Unknown	1.000
44	7105-007 R2	Unknown	1.000
45	7105-007 R3	Unknown	1.000
46	7105-007 R4	Unknown	1.000
47	7105-008 R1	Unknown	1.000
48	7105-008 R2	Unknown	1.000
49	7105-008 R3	Unknown	1.000
50	7105-008 R4	Unknown	1.000
51	7105-009 R1	Unknown	1.000
52	7105-009 R2	Unknown	1.000
53	7105-009 R3	Unknown	1.000
54	7105-009 R4	Unknown	1.000
55	7105-005 R1	Unknown	1.000
56	7105-005 R2	Unknown	1.000
57	7105-005 R3	Unknown	1.000
58	7105-005 R4	Unknown	1.000
59	MBSTD5	Unknown	1.000
60	MBSTD6	Unknown	1.000
61	MBSTD7	Unknown	1.000
62	MBSTD8	Unknown	1.000

Sample List

No	Label	Type	Weight
1	MBSTD1 256520	Unknown	1.000
2	MBSTD2	Unknown	1.000
3	MBSTD3	Unknown	1.000
4	MBSTD4	Unknown	1.000
5	CCV 50	Unknown	1.000
6	BKRD BLK	Unknown	1.000
7	7105-010 R1	Unknown	1.000
8	7105-010 R2	Unknown	1.000
9	7105-010 R3	Unknown	1.000
10	7105-010 R4	Unknown	1.000
11	7105-011 R1	Unknown	1.000
12	7105-011 R2	Unknown	1.000
13	7105-011 R3	Unknown	1.000
14	7105-011 R4	Unknown	1.000
15	7105-012 R1	Unknown	1.000
16	7105-012 R2	Unknown	1.000
17	7105-012 R3	Unknown	1.000
18	7105-012 R4	Unknown	1.000
19	7105-013 R1	Unknown	1.000
20	7105-013 R2	Unknown	1.000
21	7105-013 R3	Unknown	1.000
22	7105-013 R4	Unknown	1.000
23	7105-014 R1	Unknown	1.000
24	7105-014 R2	Unknown	1.000
25	7105-014 R3	Unknown	1.000
26	7105-014 R4	Unknown	1.000
27	7105-015 R1	Unknown	1.000
28	7105-015 R2	Unknown	1.000
29	7105-015 R3	Unknown	1.000
30	7105-015 R4	Unknown	1.000
31	7105-015X R1	Unknown	1.000
32	7105-015X R2	Unknown	1.000
33	7105-015X R3	Unknown	1.000
34	7105-015X R4	Unknown	1.000
35	MBSTD5	Unknown	1.000
36	MBSTD6	Unknown	1.000
37	MBSTD7	Unknown	1.000
38	MBSTD8	Unknown	1.000
39	7105-016 R1	Unknown	1.000
40	7105-016 R2	Unknown	1.000
41	7105-016 R3	Unknown	1.000
42	7105-016 R4	Unknown	1.000
43	7105-017 R1	Unknown	1.000
44	7105-017 R2	Unknown	1.000
45	7105-017 R3	Unknown	1.000
46	7105-017 R4	Unknown	1.000
47	7105-018 R1	Unknown	1.000
48	7105-018 R2	Unknown	1.000
49	7105-018 R3	Unknown	1.000
50	7105-018 R4	Unknown	1.000
51	7105-019 R1	Unknown	1.000
52	7105-019 R2	Unknown	1.000
53	7105-019 R3	Unknown	1.000
54	7105-019 R4	Unknown	1.000
55	7105-020 R1	Unknown	1.000
56	7105-020 R2	Unknown	1.000
57	7105-020 R3	Unknown	1.000
58	7105-020 R4	Unknown	1.000
59	MBSTD9	Unknown	1.000
60	MBSTD10	Unknown	1.000
61	MBSTD11	Unknown	1.000
62	MBSTD12	Unknown	1.000

PREP = 216188

STL - Pittsburgh ***Alkaline Digestate Log for Hexavalent Chromium by 6800*** **Logbook ID: MT1558**

Method: 3060A	Date 1/18/2012	Hot Plate/Block Temp: 92.5°C (Target Temp Range 90-95 C)	Lot Number(s): 180-7105	Reagent IDs: Phosphate Buffer ID: lw2004	Cr+6 Spike ID: CR1008316300HA
Matrix SOLID	Pipet #: J110276HU	Thermometer ID: WET-6 (0.0°C)		Cr6 Digestion Solution: 230196	Cr+6 Spike Conc: ~10 mg/L
Filter Paper Lot/Mfg:		Balance #: 37110039		MS Solution ID: —	Cr+3 Spike ID: CR1017200BA
Analyst: Ken Fike + Baum				MgCl2 Standard ID: 306633	Cr+3 Spike Conc: ~10 mg/L

	Sample ID	Initial Weight	Cr+6 Spike Amt	Cr+3 Spike Amt	Start Time	End Time	Final Volume (mL)	Comments
1.	PBS	1.0223	0.0958	0.1017	0710	0810	100 mL	RLC 1/18/12
2.	LCSS	0.1076	0.9602 *	0.1010				* ~50 mg/L Lot#: CR1017200BA
3.	7105-1	0.9833	0.1113	0.1026				
4.	2	0.9826	0.1390	0.1024				
5.	3	1.0007	0.1218	0.1028				
6.	4	0.9929	0.2505	0.1018				
7.	5	1.0405	0.1030	0.1024				
8.	6	0.9855	0.1204	0.0992				
9.	7	1.0426	0.1303	0.1000				
10.	8	0.9574	0.1197	0.0987				
11.	9	1.0042	0.1283	0.0987				
12.	10	0.9814	0.1118	0.0993				
13.	11	1.0202	0.1188	0.0980				
14.	12	1.0985	0.1101	0.0993				
15.	13	0.9917	0.1205	0.1034				
16.	14	1.0178	0.1286	0.1014				
17.	15	1.0168	0.1301	0.0916				
18.	15X	0.9664	0.1304	0.1043				
19.	16	0.9645	0.1286	0.1008				
20.	17	0.9938	0.1000	0.1005				
21.	18	1.0798	0.0962	0.1005				
22.	19	1.0390	0.1139	0.0994				
23.	20	0.9655	0.1080	0.1000				
24.								

Digestate(s) (record line # from above)	Digestate(s) Received: Date	Time	Analyst	Location	Digestate(s) Relinquished: Date	Time	Analyst	Location

Reviewed by: Date: Batch Number:

01/31/2012

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HOLDTIME

SDG 180-7105-1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	03SB30-0304-01	180-7105-3	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP42-0506-01	180-7105-11	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB27-1.52.5-01	180-7105-18	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB29-0:22.5-01	180-7105-14	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB31-0506-01	180-7105-13	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB32-0405-01	180-7105-15	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB33-0304-01	180-7105-16	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB34-0405-01	180-7105-17	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB-DUP-01	180-7105-19	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB-DUP-02	180-7105-20	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP31-0708-01	180-7105-5	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP39-0607-01	180-7105-10	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP41-0304-01	180-7105-2	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03SB28-1.5-2.5-01	180-7112-2	NM	12/22/2011	12/28/2011	1/6/2012	6	9	15
M	MG/KG	03TP32-0809-01	180-7105-6	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	03TP40-0304-01	180-7105-1	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP38-0304-01	180-7105-9	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP37-0304-01	180-7105-8	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP36-0708-01	180-7112-1	NM	12/22/2011	12/28/2011	1/6/2012	6	9	15
M	MG/KG	03TP35-0304-01	180-7105-12	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP34-0405-01	180-7105-4	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
M	MG/KG	03TP33-0607-01	180-7105-7	NM	12/21/2011	12/29/2011	1/6/2012	8	8	16
CR6	MG/KG	03TP36-0708-01	180-7112-1	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	03SB30-0304-01	180-7105-3	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03SB-DUP-02	180-7105-20	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03TP34-0405-01	180-7105-4	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03TP33-0607-01	180-7105-7	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03TP32-0809-01	180-7105-6	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03TP31-0708-01	180-7105-5	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03TP35-0304-01	180-7105-12	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03SB-DUP-01	180-7105-19	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03SB34-0405-01	180-7105-17	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03SB33-0304-01	180-7105-16	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CR6	MG/KG	03SB31-0506-01	180-7105-13	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03SB29-0:22.5-01	180-7105-14	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03SB28-1.5-2.5-01	180-7112-2	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	03TP37-0304-01	180-7105-8	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	12SB21-00.5-01	180-7112-6	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	03SB32-0405-01	180-7105-15	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	12SB12-0.502-02	180-7178-2	NM	12/28/2011	1/20/2012	1/23/2012	23	3	26
CR6	MG/KG	12SB-DUP-08	180-7178-7	NM	12/28/2011	1/20/2012	1/23/2012	23	3	26
CR6	MG/KG	12SB30-0304-03	180-7112-5	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	12SB30-000.5-01	180-7112-3	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	12SB30-0.502-02	180-7112-4	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	12SB21-0304-03	180-7112-8	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	12SB21-0.502-02	180-7112-7	NM	12/22/2011	1/20/2012	1/22/2012	29	2	31
CR6	MG/KG	12SB12-0304-03	180-7178-3	NM	12/28/2011	1/20/2012	1/23/2012	23	3	26
CR6	MG/KG	12SB12-000.5-01	180-7178-1	NM	12/28/2011	1/20/2012	1/29/2012	23	9	32
CR6	MG/KG	03TP38-0304-01	180-7105-9	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	12SB06-0304-03	180-7178-6	NM	12/28/2011	1/20/2012	1/23/2012	23	3	26
CR6	MG/KG	12SB06-000.5-01	180-7178-4	NM	12/28/2011	1/20/2012	1/23/2012	23	3	26

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CR6	MG/KG	12SB06-0.502-02	180-7178-5	NM	12/28/2011	1/20/2012	1/23/2012	23	3	26
CR6	MG/KG	03TP42-0506-01	180-7105-11	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03TP41-0304-01	180-7105-2	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03TP40-0304-01	180-7105-1	NM	12/21/2011	1/18/2012	1/20/2012	28	2	30
CR6	MG/KG	03TP39-0607-01	180-7105-10	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38
CR6	MG/KG	03SB27-1.52.5-01	180-7105-18	NM	12/21/2011	1/18/2012	1/28/2012	28	10	38

Tetra Tech, Inc. **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 8, 2012**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – CHROMIUM/HEXAVALENT CHROMIUM**
NAS JRB (JOINT RESERVE BASE) WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG): 180-7112-1

SAMPLES: 8/Soil/Hexavalent Chromium

03SB28-1.5-2.5-01	03TP36-0708-01	12SB21-0.502-02
12SB21-00.5-01	12SB21-0304-03	12SB30-0.502-02
12SB30-000.5-01	12SB30-0304-03	

2/Soil/Chromium

03SB28-1.5-2.5-01	03TP36-0708-01

Overview

The sample set for NAS JRB Willow Grove, SDG 180-7112-1 consisted of eight (8) soil environmental samples. All eight (8) soil samples were analyzed for hexavalent chromium. Two samples were additionally analyzed for chromium. No field duplicate sample pair was included in the sample delivery group (SDG).

The samples were collected by Tetra Tech, Inc. December 22, 2011 and analyzed by Test America - Pittsburgh. All analyses were conducted in accordance with SW-846 Methods 3050B/6020 and 3060A/6800 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, calibration data, ICP/MS tune, laboratory method/calibration blanks, interference check sample results, internal standard recoveries, blank spike results, laboratory duplicate results, ICP serial dilution results, detection limits, and analyte quantitation. Areas of concern are listed below.

Major

No major issues were identified.

Minor

No minor issues were identified.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation" (April 1993), SW 846 Methods 6020 and 6800, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories"(April 2009).

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	03SB28-1.5-2.5-01			03TP36-0708-01			12SB21-0.502-02			12SB21-00.5-01		
SDG: 180-7112-1	LAB_ID	180-7112-2			180-7112-1			180-7112-7			180-7112-6		
FRACTION: MISC	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.8			83.9			81.8			70.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.68			0.78			2.6			7.4		

PROJ_NO: 02014	NSAMPLE	12SB21-0304-03			12SB30-0.502-02			12SB30-000.5-01			12SB30-0304-03		
SDG: 180-7112-1	LAB_ID	180-7112-8			180-7112-4			180-7112-3			180-7112-5		
FRACTION: MISC	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.6			79.2			79.1			83.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		4.7			3			0.76			1.1		

PROJ_NO: 02014	NSAMPLE	03SB28-1.5-2.5-01			03TP36-0708-01		
SDG: 180-7112-1	LAB_ID	180-7112-2			180-7112-1		
FRACTION: M	SAMP_DATE	12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	83.8			83.9		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		18			23		

Appendix B

Results as Reported by the Laboratory

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **03SB28-1.5-2.5-01**

Lab Sample ID: 180-7112-2
Client Matrix: Solid
% Moisture: 16.2

Date Sampled: 12/22/2011 0925
Date Received: 12/24/2011 0900

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24699	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.09 g
Analysis Date:	01/06/2012 1340			Final Weight/Volume:	100 mL
Prep Date:	12/28/2011 1036				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		18		0.22

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.68		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **03TP36-0708-01**

Lab Sample ID: 180-7112-1
Client Matrix: Solid
% Moisture: 16.1
Date Sampled: 12/22/2011 0900
Date Received: 12/24/2011 0900

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	180-25480	Instrument ID:	X
Prep Method:	3050B	Prep Batch:	180-24699	Lab File ID:	X20106A.xml
Dilution:	1.0			Initial Weight/Volume:	00001.10 g
Analysis Date:	01/06/2012 1336			Final Weight/Volume:	100 mL
Prep Date:	12/28/2011 1036				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Chromium		23		0.22

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.78		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **12SB21-0.502-02**

Lab Sample ID: 180-7112-7
Client Matrix: Solid
% Moisture: 18.2

Date Sampled: 12/22/2011 1505
Date Received: 12/24/2011 0900

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		2.6		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **12SB21-00.5-01**

Lab Sample ID: 180-7112-6
Client Matrix: Solid
% Moisture: 29.5

Date Sampled: 12/22/2011 1450
Date Received: 12/24/2011 0900

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		7.4		0.14

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **12SB21-0304-03**

Lab Sample ID: 180-7112-8
Client Matrix: Solid
% Moisture: 19.4

Date Sampled: 12/22/2011 1520
Date Received: 12/24/2011 0900

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		4.7		0.12

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **12SB30-0.502-02**

Lab Sample ID: 180-7112-4
Client Matrix: Solid
% Moisture: 20.8

Date Sampled: 12/22/2011 1130
Date Received: 12/24/2011 0900

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		3.0		0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **12SB30-000.5-01**

Lab Sample ID: 180-7112-3
Client Matrix: Solid
% Moisture: 20.9

Date Sampled: 12/22/2011 1110
Date Received: 12/24/2011 0900

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		0.76		0.13

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Client Sample ID: **12SB30-0304-03**

Lab Sample ID: 180-7112-5
Client Matrix: Solid

% Moisture: 16.1

Date Sampled: 12/22/2011 1150
Date Received: 12/24/2011 0900

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/22/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		1.1		0.12

General Chemistry

Client Sample ID: **03SB28-1.5-2.5-01**

Lab Sample ID: 180-7112-2 Date Sampled: 12/22/2011 0925

Client Matrix: Solid Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	16		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N
Percent Solids	84		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N

General Chemistry

Client Sample ID: **03TP36-0708-01**

Lab Sample ID: 180-7112-1 Date Sampled: 12/22/2011 0900
Client Matrix: Solid Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	16		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N
Percent Solids	84		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N

General Chemistry

Client Sample ID: **12SB21-0.502-02**

Lab Sample ID: 180-7112-7
Client Matrix: Solid

Date Sampled: 12/22/2011 1505
Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	18		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N
Percent Solids	82		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N

General Chemistry

Client Sample ID: **12SB21-00.5-01**

Lab Sample ID: 180-7112-6
Client Matrix: Solid

Date Sampled: 12/22/2011 1450
Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	29		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N
Percent Solids	71		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N

General Chemistry

Client Sample ID: **12SB21-0304-03**

Lab Sample ID: 180-7112-8 Date Sampled: 12/22/2011 1520

Client Matrix: Solid Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	19		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N
Percent Solids	81		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-24616		Analysis Date: 12/27/2011 1157				DryWt Corrected: N

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

General Chemistry

Client Sample ID: **12SB30-0.502-02**

Lab Sample ID: 180-7112-4
Client Matrix: Solid

Date Sampled: 12/22/2011 1130
Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	21		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N
Percent Solids	79		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N

General Chemistry

Client Sample ID: **12SB30-000.5-01**

Lab Sample ID: 180-7112-3 Date Sampled: 12/22/2011 1110

Client Matrix: Solid Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	21		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N
Percent Solids	79		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N

General Chemistry

Client Sample ID: **12SB30-0304-03**

Lab Sample ID: 180-7112-5
Client Matrix: Solid

Date Sampled: 12/22/2011 1150
Date Received: 12/24/2011 0900

Analyte	Result	Qual	Units		RL	Dil	Method
Percent Moisture	16		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N
Percent Solids	84		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-24616	Analysis Date: 12/27/2011 1157						DryWt Corrected: N

Appendix C

Support Documentation

180-7112-A-1-A 1/6/2012 1:36:28 PM 03TP36-0709-1

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	11B	13C	23Na	25Mg	26Mg
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	108.150%	6.680	38.830	37.870	0.000	1028.000	14580.000	14900.000
2	13:37:51	106.665%	6.455	37.410	37.580	0.000	1026.000	14720.000	14850.000
3	13:38:33	105.794%	6.467	36.710	36.380	0.000	1024.000	14480.000	14840.000
x		106.870%	6.534	37.650	37.280	0.000	1026.000	14590.000	14860.000
σ		1.191%	0.126	1.079	0.788	0.000	2.189	122.800	31.450
%RSD		1.114	1.932	2.865	2.113	0.000	0.213	0.842	0.212

Run	Time	27Al	28Si	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	171500.000	8133.000	0.000	6762.000	20120.000	20670.000	106.036%	2813.000
2	13:37:51	171800.000	8104.000	0.000	6692.000	20010.000	20780.000	105.226%	2833.000
3	13:38:33	171000.000	8032.000	0.000	6674.000	19920.000	20460.000	104.937%	2816.000
x		171400.000	8089.000	0.000	6709.000	20020.000	20630.000	105.400%	2821.000
σ		416.200	52.260	0.000	46.480	100.800	164.800	0.570%	10.550
%RSD		0.243	0.646	0.000	0.693	0.504	0.799	0.541	0.374

Run	Time	51V	52Cr	55Mn	56Fe	57Fe	59Co	60Ni	63Cu
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	306.300	212.400	7380.000	210100.000	210700.000	75.460	225.200	1086.000
2	13:37:51	303.900	212.200	7350.000	209300.000	208300.000	75.400	221.600	1062.000
3	13:38:33	302.000	212.700	7329.000	211700.000	211700.000	75.960	224.900	1080.000
x		304.100	212.400	7353.000	210400.000	210200.000	75.610	223.900	1076.000
σ		2.129	0.276	25.710	1267.000	1741.000	0.309	2.020	12.660
%RSD		0.700	0.130	0.350	0.602	0.828	0.409	0.902	1.176

Run	Time	65Cu	66Zn	68Zn	75As	78Se	82Se	83Kr	88Sr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	1059.000	3233.000	3252.000	37.660	2.779	6.023	0.000	164.400
2	13:37:51	1046.000	3167.000	3162.000	36.390	2.822	5.579	0.000	158.400
3	13:38:33	1060.000	3201.000	3211.000	38.010	3.203	6.017	0.000	163.400
x		1055.000	3201.000	3209.000	37.350	2.935	5.873	0.000	162.100
σ		7.804	32.800	44.930	0.855	0.233	0.255	0.000	3.191
%RSD		0.740	1.025	1.400	2.289	7.946	4.338	0.000	1.969

Run	Time	89Y	95Mo	98Mo	103Rh	107Ag	109Ag	111Cd	114Cd
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	0.000	25.740	24.870	82.445%	50.140	50.110	257.700	258.600
2	13:37:51	0.000	24.180	24.000	86.473%	48.050	47.640	251.000	254.100
3	13:38:33	0.000	25.380	25.170	81.658%	49.590	49.460	259.300	257.100
x		0.000	25.100	24.680	83.525%	49.260	49.070	256.000	256.600
σ		0.000	0.819	0.611	2.583%	1.080	1.283	4.399	2.272
%RSD		0.000	3.262	2.476	3.092	2.193	2.614	1.719	0.886

Run	Time	115In	118Sn	121Sb	123Sb	135Ba	137Ba	159Tb	165Ho
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	85.116%	329.300	24.400	24.070	1752.000	1785.000	92.198%	88.394%
2	13:37:51	85.892%	327.600	24.090	24.010	1741.000	1788.000	90.242%	87.610%
3	13:38:33	83.631%	329.900	24.500	24.140	1744.000	1786.000	90.604%	86.951%
x		84.880%	328.900	24.330	24.070	1746.000	1786.000	91.014%	87.652%
σ		1.149%	1.186	0.213	0.065	5.643	1.625	1.041%	0.723%
%RSD		1.354	0.361	0.875	0.271	0.323	0.091	1.143	0.825

Run	Time	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:10	1.251	1.198	1642.000	1628.000	1687.000	67.900%
2	13:37:51	1.217	1.235	1643.000	1636.000	1693.000	66.813%
3	13:38:33	1.282	1.185	1635.000	1618.000	1676.000	66.817%
x		1.250	1.206	1640.000	1628.000	1685.000	67.177%
σ		0.033	0.026	4.458	8.986	8.597	0.627%
%RSD		2.634	2.139	0.272	0.552	0.510	0.933

Extraction: 1.10g/100ml ✓

% solids 83.9%

$$Cr = \frac{212.4\,\mu g}{L} \times \frac{0.1\,L}{1.1\,g} \times \frac{1}{.839} \times \frac{1000\,g}{1\,Kg} \times \frac{1\,mg}{1000\,\mu g} = 23\ mg/Kg$$

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

180-7112

Chain of Custody Record

,2 #3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles McGee	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.9
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 409 2952	E-Mail: veronica.bortot@testamericainc.com		Page: Page 9 of 11
Company: Tetra Tech NUS Inc		Analysis Requested		Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 908-822-7889(Tel) 908-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			Other:
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	8020 - Chromium	8020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
03TP36-0708-01	12/22/11	0900	G	Solid	N	N	1	1				
03SB28-1.5-2.5-01	12/22/11	0925	G	Solid	N	N	1	1				DO MS/MSD
125B30-0001.5-01	12/22/11	1110	G	Solid	N	N	1					
125B30-0.5-02	12/22/11	1130	G	Solid	N	N	1					
125B30-0304-03	12/22/11	1150	G	Solid	N	N	1					
125B31-0001.5-01	12/22/11	1450	G	Solid	N	N	1					
125B21-0.5-02	12/22/11	1505	G	Solid	N	N	1					
125B21-0304-03	12/22/11	1520	G	Solid	N	N	1					
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		12/23/11 0925			12/23/11 9:25	TA
2		12/23/11 1600	TA		12/24/11 900	TA P.TT
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

01/31/2012

#26418 (PREP)

STL - Pittsburgh — *Alkaline Digestate Log for Hexavalent Chromium by 6800* — Logbook ID: MT1558

01/31/2012

Method: 3060A	Date 1/20/2012	Hot Plate/Block Temp: 92.5 (Target Temp Range 90-95 C)	Lot Number(s): 180-7112, 180-7178
Matrix: SOLID	Pipet #: J11027644	Thermometer ID: WET-6 (0.0°C)	Reagent IDs: Phosphate Buffer ID: 162004; Cr6 Digestion Solution: 230196; MS Solution ID: —; MgCl2 Standard ID: 303633
Filter Paper Lot/Mfg: WHATMAN 4637121		Balance #: 37110039	Cr+6 Spike ID: CR6082620APA; Cr+6 Spike Conc: ~10 ug/g; Cr+3 Spike ID: CR197200BA; Cr+3 Spike Conc: ~10 ug/g
Analyst: Ron Rosebaum			

	Sample ID	Initial Weight	Cr+6 Spike Amt	Cr+3 Spike Amt	Start Time	End Time	Final Volume (mL)	Comments
1.	PB	0.98960	0.0918	0.0900	0720	0820	100 mL	RJR 1/20/12
2.	LCSS	0.1029	0.8625 *	0.0982				*50 ug/g Lot#: CR197200A
3.	7112-1	1.0254	0.1170	0.1005				
4.	2	0.9360	0.1192	0.0999				
5.	2X	1.0350	0.1106	0.0989				
6.	3	1.1051	0.1128	0.0998				
7.	4	0.9713	0.1166	0.0971				
8.	5	0.9930	0.1193	0.0985				
9.	6	1.0303	0.1112	0.1006				
10.	7	1.0370	0.1083	0.0999				
11.	8	1.0248	0.1089	0.0991				RJR 1/20/12
12.	7178-1	1.0176	0.1104	0.1002				
13.	1X	0.9493	0.1250	0.0980				
14.	2	0.9204	0.1252	0.1016				
15.	3	1.0996	0.1256	0.0973				
16.	4	1.0365	0.1288	0.0988				
17.	5	1.0142	0.1003	0.0976				
18.	6	1.0783	0.1108	0.0980				
19.	7	1.0120	0.1067	0.0972				
20.								
21.								
22.					RJR 1/20/12			
23.								
24.								

Digestate(s) (record line # from above)	Digestate(s) Received: Date	Time	Analyst	Location	Digestate(s) Relinquished: Date	Time	Analyst	Location

Reviewed by: | Date: | Batch Number:

SAMPLE SUMMARY

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-7112-1	03TP36-0708-01	Solid	12/22/2011 0900	12/24/2011 0900
180-7112-2	03SB28-1.5-2.5-01	Solid	12/22/2011 0925	12/24/2011 0900
180-7112-2DU	03SB28-1.5-2.5-01	Solid	12/22/2011 0925	12/24/2011 0900
180-7112-3	12SB30-000.5-01	Solid	12/22/2011 1110	12/24/2011 0900
180-7112-4	12SB30-0.502-02	Solid	12/22/2011 1130	12/24/2011 0900
180-7112-5	12SB30-0304-03	Solid	12/22/2011 1150	12/24/2011 0900
180-7112-6	12SB21-00.5-01	Solid	12/22/2011 1450	12/24/2011 0900
180-7112-7	12SB21-0.502-02	Solid	12/22/2011 1505	12/24/2011 0900
180-7112-8	12SB21-0304-03	Solid	12/22/2011 1520	12/24/2011 0900

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-7112-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/24/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.2 C.

METALS
No difficulties were encountered during the analyses.

GENERAL CHEMISTRY
No difficulties were encountered during the analyses.

METHOD SUMMARY

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
Metals (ICP/MS)	TAL PIT	SW846 6020	
Preparation, Metals			SW846 3050B
Hexavalent Chromium (SIDMS)	TAL PIT	SW846 6800	
Alkaline Digestion (Chromium, Hexavalent)			SW846 3060A
Percent Moisture	TAL PIT	EPA Moisture	

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

DATA REPORTING QUALIFIERS

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7112-1

Lab Section	Qualifier	Description
Metals		
	^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7112-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 RL Date: 01/23/2010 19:04

Prep Method: 3050B

Analyte	Wavelength/ Mass	RL (mg/Kg)	
Chromium	52	0.2	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7112-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 XMDL Date: 01/23/2010 19:04

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Chromium	52	2	0.5433

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7112-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7112-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica Pittsburgh Job No: 180-7112-1

SDG No.:

Instrument ID: X Date: 03/14/2011 22:35

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Chromium		13500	6020

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc	Q	Element Y-89	Q	Element Rh	Q	Element In	Q
STD1 180-25480/2 IC	11:10	100		100		100		100		100	
STD2 180-25480/3 IC	11:15	84		90		90		83		84	
STD3 180-25480/4 IC	11:19	97		106		102		102		101	
ICV 180-25480/5	11:23	93		104		100		95		95	
ICB 180-25480/6	11:31	104		115		109		110		109	
CRI 180-25480/7	11:35	101		112		106		107		107	
ICSA 180-25480/8	11:39	75		76		73		71		74	
ICSAB 180-25480/9	11:44	74		79		75		72		75	
CCV 180-25480/10	11:51	86		97		91		87		88	
CCB1 180-25480/11	11:58	98		110		101		105		104	
MB 180-24699/1-A	12:06	103		109		100		103		102	
LCS 180-24699/2-A	12:10	115		76		77		69		73	
CCV 180-25480/22	12:51	96		96		88		87		86	
CCB2 180-25480/23	12:58	109		114		101		106		102	
180-7112-1	13:36	107		105		0		84		85	
180-7112-2	13:40	109		114		0		85		87	
CCV 180-25480/34	13:48	103		104		93		93		90	
CCB3 180-25480/35	13:55	117		115		103		109		104	
180-7112-2 SD	13:59	122		119		0		105		101	
180-7112-2 DU	14:04	119		111		0		87		89	
CCV 180-25480/46	14:49	105		105		94		95		92	
CCB4 180-25480/47	14:56	114		115		104		110		104	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Tb	Q	Element Bi	Q	Element	Q	Element	Q	Element	Q
STD1 180-25480/2 IC	11:10	100		100							
STD2 180-25480/3 IC	11:15	86		89							
STD3 180-25480/4 IC	11:19	102		105							
ICV 180-25480/5	11:23	97		96							
ICB 180-25480/6	11:31	106		109							
CRI 180-25480/7	11:35	105		107							
ICSA 180-25480/8	11:39	78		73							
ICSAB 180-25480/9	11:44	77		77							
CCV 180-25480/10	11:51	93		91							
CCB1 180-25480/11	11:58	104		107							
MB 180-24699/1-A	12:06	104		123							
LCS 180-24699/2-A	12:10	91		82							
CCV 180-25480/22	12:51	92		85							
CCB2 180-25480/23	12:58	103		101							
180-7112-1	13:36	91		67							
180-7112-2	13:40	94		70							
CCV 180-25480/34	13:48	93		90							
CCB3 180-25480/35	13:55	103		101							
180-7112-2 SD	13:59	106		105							
180-7112-2 DU	14:04	100		76							
CCV 180-25480/46	14:49	95		94							
CCB4 180-25480/47	14:56	102		100							

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-24699/1-A	12/28/2011 10:36	24699	1		100
LCS 180-24699/2-A	12/28/2011 10:36	24699	1		100
180-7112-1	12/28/2011 10:36	24699	00001.10		100
180-7112-2	12/28/2011 10:36	24699	00001.09		100
180-7112-2 DU	12/28/2011 10:36	24699	00001.04		100

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-24699/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

Sample Matrix: Solid LCS Source: MTAPITTICPMS_00005

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Chromium	20.0	17.9		89	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

6-IN
DUPLICATES
METALS

Client ID: 03SB28-1.5-2.5-01 DU | Lab ID: 180-7112-2 DU

Lab Name: TestAmerica Pittsburgh | Job No.: 180-7112-1

SDG No.:

% Solids for Sample: 82.1 | % Solids for Duplicate: 82.1

Matrix: Solid | Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Chromium	0.23	18	16.6	9		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 180-7112-2

SDG No:

Lab Name: TestAmerica Pittsburgh Job No: 180-7112-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Chromium	18		18.2		0.09		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes: Cr
ITUNE 180-25480/1			10:38	
STD1 180-25480/2 IC	1		11:10	X
STD2 180-25480/3 IC	1		11:15	X
STD3 180-25480/4 IC	1		11:19	X
ICV 180-25480/5	1		11:23	X
ICB 180-25480/6	1		11:31	X
CRI 180-25480/7	1		11:35	X
ICSA 180-25480/8	1		11:39	X
ICSAB 180-25480/9	1		11:44	X
CCV 180-25480/10	1		11:51	X
CCB1 180-25480/11	1		11:58	X
MB 180-24699/1-A	1	T	12:06	X
LCS 180-24699/2-A	1	T	12:10	X
ZZZZZZ			12:14	
ZZZZZZ			12:18	
ZZZZZZ			12:22	
ZZZZZZ			12:26	
ZZZZZZ			12:31	
ZZZZZZ			12:35	
ZZZZZZ			12:39	
ZZZZZZ			12:43	
CCV 180-25480/22	1		12:51	X
CCB2 180-25480/23	1		12:58	X
ZZZZZZ			13:02	
ZZZZZZ			13:07	
ZZZZZZ			13:11	
ZZZZZZ			13:15	
ZZZZZZ			13:19	
ZZZZZZ			13:23	
ZZZZZZ			13:28	
ZZZZZZ			13:32	
180-7112-1	1	T	13:36	X
180-7112-2	1	T	13:40	X
CCV 180-25480/34	1		13:48	X
CCB3 180-25480/35	1		13:55	X
180-7112-2 SD	5	T	13:59	X
180-7112-2 DU	1	T	14:04	X
ZZZZZZ			14:11	
ZZZZZZ			14:16	
ZZZZZZ			14:20	
ZZZZZZ			14:24	
ZZZZZZ			14:28	

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes: Cr
ZZZZZZ			14:32	
ZZZZZZ			14:37	
ZZZZZZ			14:41	
CCV 180-25480/46	1		14:49	X
CCB4 180-25480/47	1		14:56	X
ZZZZZZ			15:00	
ZZZZZZ			15:04	
ZZZZZZ			15:08	
ZZZZZZ			15:13	
ZZZZZZ			15:17	
ZZZZZZ			15:21	
ZZZZZZ			15:25	
ZZZZZZ			15:29	
ZZZZZZ			15:34	
ZZZZZZ			15:38	
CCV 180-25480/58			15:46	
CCB5 180-25480/59			15:53	
ZZZZZZ			15:57	
ZZZZZZ			16:01	
ZZZZZZ			16:05	
ZZZZZZ			16:10	
ZZZZZZ			16:14	
ZZZZZZ			16:18	
ZZZZZZ			16:22	
ZZZZZZ			16:27	
ZZZZZZ			16:31	
ZZZZZZ			16:39	
CCV 180-25480/70			16:46	
CCB6 180-25480/71			16:53	
ZZZZZZ			16:57	
ZZZZZZ			17:01	
ZZZZZZ			17:06	
ZZZZZZ			17:10	
ZZZZZZ			17:14	
ZZZZZZ			17:18	
ZZZZZZ			17:22	
ZZZZZZ			17:27	
ZZZZZZ			17:31	
ZZZZZZ			17:35	
CCV 180-25480/82			17:43	
CCB7 180-25480/83			17:50	
ZZZZZZ			17:54	

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes: Cr
ZZZZZZ			17:59	
ZZZZZZ			18:03	
ZZZZZZ			18:07	
ZZZZZZ			18:11	
ZZZZZZ			18:15	
ZZZZZZ			18:20	
ZZZZZZ			18:24	
ZZZZZZ			18:28	
ZZZZZZ			18:32	
CCV 180-25480/94			18:40	
CCB8 180-25480/95			18:47	
ZZZZZZ			18:52	
ZZZZZZ			18:59	
ZZZZZZ			19:04	
ZZZZZZ			19:08	
ZZZZZZ			19:19	
ZZZZZZ			19:23	
ZZZZZZ			19:28	
ZZZZZZ			19:32	
CCV 180-25480/104			19:40	
CCB9 180-25480/105			19:47	
ZZZZZZ			19:51	
ZZZZZZ			19:55	
ZZZZZZ			20:00	
ZZZZZZ			20:04	
ZZZZZZ			20:08	
ZZZZZZ			20:12	
ZZZZZZ			20:17	
ZZZZZZ			20:21	
ZZZZZZ			20:25	
CCV 180-25480/115			20:33	
CCB10 180-25480/116			20:40	

Prep Types

T = Total/NA

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

Analyte	ICV 180-25480/5 01/06/2012 11:23				CCV 180-25480/10 01/06/2012 11:51				CCV 180-25480/22 01/06/2012 12:51			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	78.4		80.0	98	95.0		100	95	93.2		100	93

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

Analyte	CCV 180-25480/34 01/06/2012 13:48				CCV 180-25480/46 01/06/2012 14:49							
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	91.7		100	92	92.3		100	92				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Method: 6020 Instrument ID: X

Lab Sample ID: CRI 180-25480/7 Concentration Units: ug/L

CRQL Check Standard Source: MCRIX_00009

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Chromium	2.00	ND		95	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

CRI 263835 1/6/2012 11:35:34 AM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	11B	13C	23Na	25Mg	26Mg
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	101.114%	1.067	5.001	4.820	0.000	133.300	103.200	102.700
2	11:36:56	101.683%	0.936	5.085	4.934	0.000	128.000	102.600	103.400
3	11:37:38	101.159%	1.020	5.081	4.890	0.000	126.700	101.700	102.300
x		101.319%	100.749%	101.110%	97.622%	0.000	161.648%	102.505%	102.800%
σ		0.316%	n/a	n/a	n/a	0.000	n/a	n/a	n/a
%RSD		0.312	6.599	0.943	1.183	0.000	2.705	0.704	0.528
Run	**Time**	**27Al**	**28Si**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	29.770	608.400	0.000	105.500	102.000	126.600	113.514%	5.244
2	11:36:56	29.100	610.900	0.000	105.400	111.300	124.400	111.337%	5.214
3	11:37:38	28.590	604.300	0.000	105.000	113.300	122.100	111.849%	5.296
x		97.172%	121.577%	0.000	105.293%	108.868%	124.384%	112.234%	105.028%
σ		n/a	n/a	0.000	n/a	n/a	n/a	1.138%	n/a
%RSD		2.025	0.555	0.000	0.277	5.526	1.807	1.014	0.795
Run	**Time**	**51V**	**52Cr**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**	**63Cu**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	0.932	1.892	4.805	59.760	59.680	0.510	0.721	2.418
2	11:36:56	0.899	1.876	4.888	58.250	54.890	0.532	0.752	2.349
3	11:37:38	0.959	1.922	4.781	56.100	53.060	0.548	0.712	2.216
x		92.993%	94.836%	96.495%	116.070%	111.754%	105.988%	72.816%	116.383%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		3.183	1.239	1.164	3.174	6.117	3.625	2.878	4.400
Run	**Time**	**65Cu**	**66Zn**	**68Zn**	**75As**	**78Se**	**82Se**	**83Kr**	**88Sr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	2.311	5.612	5.584	1.040	5.342	5.162	0.000	4.893
2	11:36:56	2.336	5.375	5.465	1.015	5.741	5.155	0.000	4.797
3	11:37:38	2.261	5.396	5.458	0.998	5.707	4.972	0.000	4.793
x		115.123%	109.226%	110.041%	101.768%	111.933%	101.926%	0.000	96.551%
σ		n/a	n/a	n/a	n/a	n/a	n/a	0.000	n/a
%RSD		1.667	2.402	1.284	2.069	3.946	2.115	0.000	1.179
Run	**Time**	**89Y**	**95Mo**	**98Mo**	**103Rh**	**107Ag**	**109Ag**	**111Cd**	**114Cd**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	105.495%	5.100	4.891	107.076%	1.125	1.167	-1.292	-0.633
2	11:36:56	106.207%	5.060	4.960	107.140%	1.149	1.141	-1.299	-0.522
3	11:37:38	105.486%	5.015	5.105	106.173%	1.135	1.179	-1.130	-0.551
x		105.729%	101.169%	99.705%	106.796%	113.611%	116.247%	-124.026%	-56.856%
σ		0.414%	n/a	n/a	0.541%	n/a	n/a	n/a	n/a
%RSD		0.391	0.834	2.196	0.506	1.076	1.668	7.724	10.090
Run	**Time**	**115In**	**118Sn**	**121Sb**	**123Sb**	**135Ba**	**137Ba**	**159Tb**	**165Ho**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:15	106.783%	7.030	2.119	2.288	9.636	10.050	104.535%	103.315%
2	11:36:56	106.389%	6.657	2.190	2.226	9.735	9.986	105.370%	103.333%
3	11:37:38	106.792%	7.113	2.153	2.243	9.246	9.576	106.088%	104.796%
x		106.655%	138.667%	107.702%	112.634%	95.391%	98.705%	105.331%	103.815%
σ		0.230%	n/a	n/a	n/a	n/a	n/a	0.777%	0.850%
%RSD		0.216	3.503	1.640	1.428	2.711	2.600	0.738	0.818
Run	**Time**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**		
		ppb	ppb	ppb	ppb	ppb	ppb		
1	11:36:15	1.095	1.013	1.083	1.056	1.069	106.638%		
2	11:36:56	1.062	1.042	1.132	1.105	1.085	106.260%		
3	11:37:38	1.084	1.067	1.016	1.125	1.040	106.701%		
x		108.029%	104.053%	107.716%	109.534%	106.473%	106.533%		
σ		n/a	n/a	n/a	n/a	n/a	0.238%		
%RSD		1.565	2.581	5.406	3.236	2.153	0.224		

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 180-25480/6 01/06/2012 11:31		CCB1 180-25480/11 01/06/2012 11:58		CCB2 180-25480/23 01/06/2012 12:58		CCB3 180-25480/35 01/06/2012 13:55	
		Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB4 180-25480/47 01/06/2012 14:56 Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND							

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 180-24699/1-A

Instrument Code: X Batch No.: 25480

CAS No.	Analyte	Concentration	C	Q	Method
7440-47-3	Chromium	ND			6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Lab Sample ID: ICSA 180-25480/8 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSAX_00009

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Chromium		**-0.285**	
Aluminum	*100000*	*101100*	*101*
Antimony		*0.316*	
Arsenic		*0.461*	
Barium		*0.202*	
Beryllium		*0.0210*	
Boron		*0.661*	
Cadmium		*-1.71*	
Calcium	*100000*	*105600*	*106*
Cobalt		*0.302*	
Copper		*2.92*	
Iron	*100000*	*105600*	*106*
Lead		*0.187*	
Magnesium	*100000*	*105800*	*106*
Manganese		*0.707*	
Molybdenum	*2000*	*2410*	*121*
Nickel		*0.967*	
Potassium	*100000*	*104300*	*104*
Selenium		*0.410*	
Silicon		*30.4*	
Silver		*0.755*	
Sodium	*100000*	*102200*	*102*
Strontium		*0.386*	
Thallium		*0.0450*	
Tin		*2.87*	
Titanium	*2000*	*2468*	*123*
Vanadium		*-0.462*	
Zinc		*5.85*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Lab Sample ID: ICSAB 180-25480/9 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSABX_00013

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Chromium	**20.0**	**19.9**	**99**
Aluminum	*100000*	*103033*	*103*
Antimony	*20.0*	*21.5*	*107*
Arsenic	*20.0*	*21.4*	*107*
Barium	*20.0*	*20.9*	*104*
Beryllium	*20.0*	*20.8*	*104*
Boron	*50.0*	*49.3*	*99*
Cadmium	*20.0*	*19.0*	*95*
Calcium	*100000*	*105133*	*105*
Cobalt	*20.0*	*20.2*	*101*
Copper	*20.0*	*23.3*	*117*
Iron	*100000*	*105067*	*105*
Lead	*20.0*	*21.9*	*109*
Magnesium	*100000*	*107867*	*108*
Manganese	*22.5*	*20.4*	*91*
Molybdenum	*2000*	*2408*	*120*
Nickel	*20.0*	*21.5*	*108*
Potassium	*100000*	*104733*	*105*
Selenium	*50.0*	*56.7*	*113*
Silicon	*500*	*648*	*130*
Silver	*20.0*	*21.9*	*109*
Sodium	*100000*	*105033*	*105*
Strontium	*20.0*	*20.6*	*103*
Thallium	*20.0*	*20.8*	*104*
Tin	*100*	*104*	*104*
Titanium	*2000*	*2572*	*129*
Vanadium	*20.0*	*19.5*	*98*
Zinc	*25.0*	*27.5*	*110*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-26418/1-A	01/20/2012 07:20	26418	1.0		1.0
LCS 180-26418/2-A	01/20/2012 07:20	26418	1.0		1.0
180-7112-1	01/20/2012 07:20	26418	1.0		1.0
180-7112-2	01/20/2012 07:20	26418	1.0		1.0
180-7112-2 DU	01/20/2012 07:20	26418	1.0		1.0
180-7112-3	01/20/2012 07:20	26418	1.0		1.0
180-7112-4	01/20/2012 07:20	26418	1.0		1.0
180-7112-5	01/20/2012 07:20	26418	1.0		1.0
180-7112-6	01/20/2012 07:20	26418	1.0		1.0
180-7112-7	01/20/2012 07:20	26418	1.0		1.0
180-7112-8	01/20/2012 07:20	26418	1.0		1.0

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-26418/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)						
	True	Found	C	%R	Limits	Q	Method
Cr (VI)	280	252		90			6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

6-IN
DUPLICATES
METALS

Client ID: 03SB28-1.5-2.5-01 DU Lab ID: 180-7112-2 DU

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

% Solids for Sample: 82.1 % Solids for Duplicate: 82.1

Matrix: Solid Concentration Units: ug/g

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Cr (VI)	0.12	0.68	0.579	17		6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/22/2012 18:11 End Date: 01/29/2012 18:11

Lab Sample ID	D/F	Type	Time	Analytes: Cr6																						
MB 180-26418/1-A	1	T	18:11	X																						
LCS 180-26418/2-A	1	T	18:11	X																						
180-7112-1	1	T	18:11	X																						
180-7112-2	1	T	18:11	X																						
180-7112-2 DU	1	T	18:11	X																						
180-7112-3	1	T	18:11	X																						
180-7112-4	1	T	18:11	X																						
180-7112-5	1	T	18:11	X																						
180-7112-6	1	T	18:11	X																						
180-7112-7	1	T	18:11	X																						
180-7112-8	1	T	18:11	X																						

Prep Types
T = Total/NA

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7112-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: MB 180-26418/1-A

Instrument Code: X Batch No.: 27120

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 14, 2012**

FROM: **A. COGNETTI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOC/SVOC/PAH/PEST/PCB**
NASJRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG)- C5005

SAMPLES: 15/Soil/VOC/SVOC/PAH/PEST/PCB

12SB-DUP-01	12SB18-0.502-02	12SB18-000.5-01
12SB18-0304-03	12SB19-0.502-02	12SB19-000.5-01
12SB19-0304-03	12SB20-0.502-02	12SB20-000.5-01
12SB22-0.502-02	12SB22-000.5-01	12SB22-0304-03
12SB24-0.502-02	12SB24-000.5-01	12SB24-0304-03

1/Aqueous/VOC

12TB-20111214

Overview

The sample set for NASJRB Willow Grove, SDG C5005 consists of fifteen (15) soil environmental samples and one (1) trip blank. Samples were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides (PEST) and polychlorinated biphenyls (PCBs). The trip blank was analyzed for VOCs. One field duplicate pair was included in this SDG: 12SB20-000.5-01 and 12SB-DUP-01.

The samples were collected on December 14, 2011 and analyzed by Chemtech Laboratories. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A and 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, field duplicate results, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Minor

- The internal standard area of 1,4-dichlorobenzene-d4 was less than the lower quality control limit in sample 12SB24-000.5-01. The sample was re-analyzed with similar results. The original sample results were used for validation and reporting purposes. The target compounds quantified using 1,4-dichlorobenzene-d4 were qualified as estimated (J) and (UJ), respectively in sample 12SB24-000.5-01.

- The laboratory control sample (LCS) %R of 4-chloroaniline was less than the lower quality control limit in batch PB5996BS. The nondetected 4-chloroaniline results were qualified as biased low (UL) in the affected samples.

- The continuing calibration percent difference (%D) for 2,4-dinitrophenol exceeded 50% on December 28, 2011 @ 1:43 on instrument BNA_F. The nondetected 2,4-dinitrophenol results were qualified as estimated (UJ) in the affected samples.

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- The PAH matrix spike duplicate (MSD) %R of indeno(1,2,3-cd)pyrene and relative percent difference (RPD) exceeded quality control limits in sample 12SB24-000.5-01. The positive indeno(1,2,3-cd)pyrene result in sample 12SB24-000.5-01 was qualified as biased high (K). In addition, the RPDs for all PAHs, except pyrene exceeded quality control limits. The matrix spike (MS)/MSD %Rs were within quality control limits. No action was taken. (The data reviewer noted that the internal standard areas in the MS/MSD were outside quality control limits.)

- The continuing calibration verification (CCV) percent differences (%Ds) for endrin ketone exceeded the 15% quality control limit on both columns on December 29, 2011 @ 1:47, 4:43 and 7:24. The nondetected endrin ketone results were qualified as estimated (UJ) in the affected samples.

- Field duplicate imprecision was noted in the field duplicate pair 12SB20-000.5-01 and 12SB-DUP01 for fluoranthene. The RPD was greater than the 50% quality control limit and the variance was greater than 2X the reporting limit for fluoranthene. The positive fluoranthene results were qualified as estimated (J) in the field duplicate pair 12SB20-000.5-01 and 12SB-DUP-01.

- Positive results less than the reporting limit (RL) were qualified as estimated, (J), due to uncertainty near the detection limit.

Notes

The continuing calibration percent differences (%Ds) for several compounds were greater than the 15% quality control limit and less than 50% on December 17, 2011 @ 6:02 on instrument MSVOAG. The compounds were vinyl chloride, bromomethane, chloroethane, methyl acetate, tetrachloroethene and 1,2-dibromo-3-chloropropane. No action was taken on the nondetected results of the aforementioned compounds in the affected trip blank.

The continuing calibration %D for 4-methyl-2-pentanone were greater than the 15% quality control limit and less than 50% on December 20, 2011 @ 1:12 on instrument MSVOAT. No action was taken on the nondetected 4-methyl-2-pentanone results in the affected samples.

The VOC LCS associated with batch BSG1216W3 had %Rs of chloromethane and acetone greater than the upper quality control limit. No action was taken on the nondetected chloromethane and acetone results in the affected trip blank.

The VOC LCS associated with batch BST1219S2 had %Rs of cis-1,2-dichloroethene and chloroform greater than the upper quality control limit. No action was taken on the nondetected cis-1,2-dichloroethene and chloroform results in the affected samples.

The SVOC continuing calibration %D for 4,6-dinitro-2-methylphenol was greater than the 20% quality control limit and less than 50% on December 28, 2011 @ 1:43 on instrument BNA_F. No action was taken on the nondetected 4,6-dinitro-2-methylphenol results in the affected samples.

The relative percent differences (RPDs) were greater than the quality control limit for 4-chloroaniline and 3,3-dichlorobenzidine in the MS/MSD of sample 12SB24-0.502-02. The MS/MSD %Rs were within quality control limit. No action was taken on the 4-chloroaniline and 3,3-dichlrobenzidine results.

The CCV %Ds for several pesticides exceeded quality control limits on column ZB-MR2 on December 29, 2011 @ 1:47. The compounds were alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, aldrin, 4,4'-DDE,

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endrin and endosulfan sulfate. No action was taken on the nondetected alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, aldrin, 4,4'-DDE, endrin and endosulfan sulfate results in the affected samples.

The CCV %Ds for several pesticides exceeded quality control limits on column ZB-MR2 on December 29, 2011 @ 4:43. The compounds were alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, aldrin, endosulfan I, 4,4'-DDE, endrin, endosulfan II, 4,4'-DDD and endosulfan sulfate. No action was taken on the nondetected results of the aforementioned pesticides in the affected samples.

The CCV %D for heptachlor epoxide exceeded quality control limits on column ZB-MR1 on December 29, 2011 @ 4:43. No action was taken on the nondetected heptachlor epoxide results in the affected samples.

The CCV %Ds for all pesticides except 4,4'-DDT and methoxychlor exceeded quality control limits on December 29, 2011 @ 7:24 on column ZB-MR2. No action was taken on the nondetected pesticide results in the affected samples.

The %R of PEST surrogate decachlorobiphenyl was less than the lower quality control limit on column 2 in sample 12SB22-0.502-02. No action was taken on the nondetected PEST results in sample 12SB22-0.502-02.

The %R of PCB surrogate decachlorobiphenyl was less than the lower quality control limit on column 2 in samples 12SB24-000.5-01 and 12SB22-0.502-02. No action was taken on the nondetected results in samples 12SB24-000.5-01 and 12SB22-0.502-02.

Several target compounds nondetected results in several fractions were greater than the project screening level as specified in the SAP for Phase II RI at Site 12 - South Landfill (October 2011). The compounds were 1,1,2,2-tetachloroethane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichloroethane, bromodichloromethane, chloroform, dibromochloromethane, tetrachloroethene, vinyl chloride, 2,2'-Oxybis(1-chloropropane), 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 3,3'-Dichlorobenzidine, 4,6-Dinitro-2-methylphenol, 4-Chloroanaline, 4-Nitroaniline, Bis(2-chloroethyl)ether, Di-n-butyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Nitrobenzene, N-Nitrosodi-n-propylamine, Pentachlorophenol and all PCBs. No action was taken.

The data reviewer identified five additional VOCs and 7 SVOCs analyzed by the laboratory that were not included in Worksheet 15 of the project specific SAP. The project manager was notified of these additional analytes. The VOC analytes were 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate and methyl cyclohexane. The SVOC compounds were 1,1-biphenyl, 1,2,4,5-tetrachlorobenzene, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde and caprolactam. The aforementioned compound results were deleted from the EDD. The results are reported on the form 1s.

Nondetected results were reported to the limit of detection (LOD).

Executive Summary

Laboratory Performance: The internal standard area of 1,4-dichlorobenzene-d4 was less than the lower quality control limit in sample 12SB24-000.5-01. The laboratory control sample (LCS) %R of 4-chloroaniline was less than the lower quality control limit in batch PB5996BS. The continuing calibration percent difference (%D) for 2,4-dinitrophenol exceeded 50% resulting in the qualification of data. The CCV %Ds for endrin ketone exceeded the 15% quality control limit on both columns resulting in the qualification of nondetected results.

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Other Factors Affecting Data Quality: The PAH MSD %R of indeno(1,2,3-cd)pyrene and RPD exceeded quality control limits in sample 12SB24-000.5-01. Field duplicate imprecision was noted in the field duplicate pair 12SB20-000.5-01 and 12SB-DUP01 for fluoranthene.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional guidelines for Organic Data Review" (September 1994), and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Ann Cognetti
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-000.5-01			12SB18-0304-03			12SB19-0.502-02		
SDG: C5005	LAB_ID	C5005-14			C5005-13			C5005-15			C5005-11		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			65.0			81.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,1,2,2-TETRACHLOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,1,2-TRICHLOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,1-DICHLOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,1-DICHLOROETHENE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2,3-TRICHLOROBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2,4-TRICHLOROBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2-DIBROMOETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2-DICHLOROBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2-DICHLOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,2-DICHLOROPROPANE		2.45	U		3.65	U		2.85	U		2.45	U	
1,3-DICHLOROBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
1,4-DICHLOROBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
2-BUTANONE		12	U		18	U		14	U		12.5	U	
2-HEXANONE		12	U		18	U		14	U		12.5	U	
4-METHYL-2-PENTANONE		12	U		18	U		14	U		12.5	U	
ACETONE		38			18	U		81			20	J	P
BENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
BROMODICHLOROMETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
BROMOFORM		2.45	U		3.65	U		2.85	U		2.45	U	
BROMOMETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
CARBON DISULFIDE		2.45	U		3.65	U		2.85	U		2.45	U	
CARBON TETRACHLORIDE		2.45	U		3.65	U		2.85	U		2.45	U	
CHLOROBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
CHLORODIBROMOMETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
CHLOROETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
CHLOROFORM		2.45	U		3.65	U		2.85	U		2.45	U	
CHLOROMETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
CIS-1,2-DICHLOROETHENE		2.45	U		3.65	U		2.85	U		2.45	U	
CIS-1,3-DICHLOROPROPENE		2.45	U		3.65	U		2.85	U		2.45	U	
DICHLORODIFLUOROMETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
ETHYLBENZENE		2.45	U		3.65	U		2.85	U		2.45	U	
ISOPROPYLBENZENE		2.45	U		2.9	J	P	2.85	U		2.45	U	

PROJ_NO: 02014	NSAMPLE	12SB19-000.5-01			12SB19-0304-03			12SB20-0.502-02			12SB20-000.5-01		
SDG: C5005	LAB_ID	C5005-10			C5005-12			C5005-08			C5005-07		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			80.0			84.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,1,2,2-TETRACHLOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,1,2-TRICHLOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,1-DICHLOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,1-DICHLOROETHENE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2,3-TRICHLOROBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2,4-TRICHLOROBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2-DIBROMO-3-CHLOROPROPANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2-DIBROMOETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2-DICHLOROBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2-DICHLOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,2-DICHLOROPROPANE		3.05	U		2.85	U		2.55	U		3.4	U	
1,3-DICHLOROBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
1,4-DICHLOROBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
2-BUTANONE		15	U		14	U		5.5	J	P	17	U	
2-HEXANONE		15	U		14	U		13	U		17	U	
4-METHYL-2-PENTANONE		15	U		14	U		13	U		17	U	
ACETONE		15	U		110			75			17	U	
BENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
BROMODICHLOROMETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
BROMOFORM		3.05	U		2.85	U		2.55	U		3.4	U	
BROMOMETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
CARBON DISULFIDE		3.05	U		2.85	U		2.55	U		3.4	U	
CARBON TETRACHLORIDE		3.05	U		2.85	U		2.55	U		3.4	U	
CHLOROBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
CHLORODIBROMOMETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
CHLOROETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
CHLOROFORM		3.05	U		2.85	U		2.55	U		3.4	U	
CHLOROMETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
CIS-1,2-DICHLOROETHENE		3.05	U		2.85	U		2.55	U		3.4	U	
CIS-1,3-DICHLOROPROPENE		3.05	U		2.85	U		2.55	U		3.4	U	
DICHLORODIFLUOROMETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
ETHYLBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	
ISOPROPYLBENZENE		3.05	U		2.85	U		2.55	U		3.4	U	

PROJ_NO: 02014	NSAMPLE	12SB22-0.502-02			12SB22-000.5-01			12SB22-0304-03			12SB24-0.502-02		
SDG: C5005	LAB_ID	C5005-05			C5005-04			C5005-06			C5005-02		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			70.0			83.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,1,2,2-TETRACHLOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,1,2-TRICHLOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,1-DICHLOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,1-DICHLOROETHENE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2,3-TRICHLOROBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2,4-TRICHLOROBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2-DIBROMOETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2-DICHLOROBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2-DICHLOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,2-DICHLOROPROPANE		2.8	U		3.45	U		2.45	U		2.55	U	
1,3-DICHLOROBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
1,4-DICHLOROBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
2-BUTANONE		14	U		20	J	P	12.5	U		13	U	
2-HEXANONE		14	U		17	U		12.5	U		13	U	
4-METHYL-2-PENTANONE		14	U		17	U		12.5	U		13	U	
ACETONE		14	U		450			12.5	U		150		
BENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
BROMODICHLOROMETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
BROMOFORM		2.8	U		3.45	U		2.45	U		2.55	U	
BROMOMETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
CARBON DISULFIDE		2.8	U		3.45	U		2.45	U		2.55	U	
CARBON TETRACHLORIDE		2.8	U		3.45	U		2.45	U		2.55	U	
CHLOROBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
CHLORODIBROMOMETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
CHLOROETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
CHLOROFORM		2.8	U		3.45	U		2.45	U		2.55	U	
CHLOROMETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
CIS-1,2-DICHLOROETHENE		2.8	U		3.45	U		2.45	U		2.55	U	
CIS-1,3-DICHLOROPROPENE		2.8	U		3.45	U		2.45	U		2.55	U	
DICHLORODIFLUOROMETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
ETHYLBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	
ISOPROPYLBENZENE		2.8	U		3.45	U		2.45	U		2.55	U	

PROJ_NO: 02014	NSAMPLE	12SB24-000.5-01			12SB24-0304-03			12SB-DUP-01		
SDG: C5005	LAB_ID	C5005-01			C5005-03			C5005-09		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			90.0			71.0		
	DUP_OF							12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		3.65	U		2.2	U		3.45	U	
1,1,2,2-TETRACHLOROETHANE		3.65	UJ	N	2.2	U		3.45	U	
1,1,2-TRICHLOROETHANE		3.65	U		2.2	U		3.45	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		3.65	U		2.2	U		3.45	U	
1,1-DICHLOROETHANE		3.65	U		2.2	U		3.45	U	
1,1-DICHLOROETHENE		3.65	U		2.2	U		3.45	U	
1,2,3-TRICHLOROBENZENE		3.65	UJ	N	2.2	U		3.45	U	
1,2,4-TRICHLOROBENZENE		3.65	UJ	N	2.2	U		3.45	U	
1,2-DIBROMO-3-CHLOROPROPANE		3.65	UJ	N	2.2	U		3.45	U	
1,2-DIBROMOETHANE		3.65	U		2.2	U		3.45	U	
1,2-DICHLOROBENZENE		3.65	UJ	N	2.2	U		3.45	U	
1,2-DICHLOROETHANE		3.65	U		2.2	U		3.45	U	
1,2-DICHLOROPROPANE		3.65	U		2.2	U		3.45	U	
1,3-DICHLOROBENZENE		3.65	UJ	N	2.2	U		3.45	U	
1,4-DICHLOROBENZENE		3.65	UJ	N	2.2	U		3.45	U	
2-BUTANONE		18	U		11	U		17.5	U	
2-HEXANONE		18	U		11	U		17.5	U	
4-METHYL-2-PENTANONE		18	U		11	U		17.5	U	
ACETONE		18	U		11	U		17.5	U	
BENZENE		3.65	U		2.2	U		3.45	U	
BROMODICHLOROMETHANE		3.65	U		2.2	U		3.45	U	
BROMOFORM		3.65	U		2.2	U		3.45	U	
BROMOMETHANE		3.65	U		2.2	U		3.45	U	
CARBON DISULFIDE		3.65	U		2.2	U		3.45	U	
CARBON TETRACHLORIDE		3.65	U		2.2	U		3.45	U	
CHLOROBENZENE		3.65	U		2.2	U		3.45	U	
CHLORODIBROMOMETHANE		3.65	U		2.2	U		3.45	U	
CHLOROETHANE		3.65	U		2.2	U		3.45	U	
CHLOROFORM		3.65	U		2.2	U		3.45	U	
CHLOROMETHANE		3.65	U		2.2	U		3.45	U	
CIS-1,2-DICHLOROETHENE		3.65	U		2.2	U		3.45	U	
CIS-1,3-DICHLOROPROPENE		3.65	U		2.2	U		3.45	U	
DICHLORODIFLUOROMETHANE		3.65	U		2.2	U		3.45	U	
ETHYLBENZENE		3.65	U		2.2	U		3.45	U	
ISOPROPYLBENZENE		3.65	UJ	N	2.2	U		3.45	U	

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-000.5-01			12SB18-0304-03			12SB19-0.502-02		
SDG: C5005	LAB_ID	C5005-14			C5005-13			C5005-15			C5005-11		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			65.0			81.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		4.9	U		7.5	U		5.5	U		4.95	U	
METHYL TERT-BUTYL ETHER		2.45	U		3.65	U		2.85	U		2.45	U	
METHYLENE CHLORIDE		2.45	U		3.65	U		2.85	U		2.45	U	
O-XYLENE		2.45	U		3.65	U		2.85	U		2.45	U	
STYRENE		2.45	U		3.65	U		2.85	U		2.45	U	
TETRACHLOROETHENE		2.45	U		3.65	U		2.85	U		2.45	U	
TOLUENE		2.45	U		3.65	U		2.85	U		2.45	U	
TOTAL XYLENES		7.5	U		11	U		8.5	U		7.5	U	
TRANS-1,2-DICHLOROETHENE		2.45	U		3.65	U		2.85	U		2.45	U	
TRANS-1,3-DICHLOROPROPENE		2.45	U		3.65	U		2.85	U		2.45	U	
TRICHLOROETHENE		2.45	U		3.65	U		2.85	U		2.45	U	
TRICHLOROFLUOROMETHANE		2.45	U		3.65	U		2.85	U		2.45	U	
VINYL CHLORIDE		2.45	U		3.65	U		2.85	U		2.45	U	

PROJ_NO: 02014	NSAMPLE	12SB19-000.5-01			12SB19-0304-03			12SB20-0.502-02			12SB20-000.5-01		
SDG: C5005	LAB_ID	C5005-10			C5005-12			C5005-08			C5005-07		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			80.0			84.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		6	U		5.5	U		5	U		7	U	
METHYL TERT-BUTYL ETHER		3.05	U		2.85	U		2.55	U		3.4	U	
METHYLENE CHLORIDE		3.05	U		2.4	J	P	2.55	U		3.4	U	
O-XYLENE		3.05	U		2.85	U		2.55	U		3.4	U	
STYRENE		3.05	U		2.85	U		2.55	U		3.4	U	
TETRACHLOROETHENE		3.05	U		2.85	U		2.55	U		3.4	U	
TOLUENE		3.05	U		2.85	U		2.55	U		3.4	U	
TOTAL XYLENES		9	U		8.5	U		7.5	U		10	U	
TRANS-1,2-DICHLOROETHENE		3.05	U		2.85	U		2.55	U		3.4	U	
TRANS-1,3-DICHLOROPROPENE		3.05	U		2.85	U		2.55	U		3.4	U	
TRICHLOROETHENE		3.05	U		2.85	U		2.55	U		3.4	U	
TRICHLOROFLUOROMETHANE		3.05	U		2.85	U		2.55	U		3.4	U	
VINYL CHLORIDE		3.05	U		2.85	U		2.55	U		3.4	U	

PROJ_NO: 02014	NSAMPLE	12SB22-0.502-02			12SB22-000.5-01			12SB22-0304-03			12SB24-0.502-02		
SDG: C5005	LAB_ID	C5005-05			C5005-04			C5005-06			C5005-02		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			70.0			83.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5.5	U		7	U		4.95	U		5	U	
METHYL TERT-BUTYL ETHER		2.8	U		3.45	U		2.45	U		2.55	U	
METHYLENE CHLORIDE		2.8	U		3.45	U		2.45	U		2.55	U	
O-XYLENE		2.8	U		3.45	U		2.45	U		2.55	U	
STYRENE		2.8	U		3.45	U		2.45	U		2.55	U	
TETRACHLOROETHENE		2.8	U		3.45	U		2.45	U		2.55	U	
TOLUENE		2.8	U		3.45	U		2.45	U		2.55	U	
TOTAL XYLENES		8.5	U		10.5	U		7.5	U		7.5	U	
TRANS-1,2-DICHLOROETHENE		2.8	U		3.45	U		2.45	U		2.55	U	
TRANS-1,3-DICHLOROPROPENE		2.8	U		3.45	U		2.45	U		2.55	U	
TRICHLOROETHENE		2.8	U		3.45	U		2.45	U		2.55	U	
TRICHLOROFLUOROMETHANE		2.8	U		3.45	U		2.45	U		2.55	U	
VINYL CHLORIDE		2.8	U		3.45	U		2.45	U		2.55	U	

PROJ_NO: 02014	NSAMPLE	12SB24-000.5-01			12SB24-0304-03			12SB-DUP-01		
SDG: C5005	LAB_ID	C5005-01			C5005-03			C5005-09		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			90.0			71.0		
	DUP_OF							12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		7.5	U		4.4	U		7	U	
METHYL TERT-BUTYL ETHER		3.65	U		2.2	U		3.45	U	
METHYLENE CHLORIDE		3.65	U		2.2	U		3.45	U	
O-XYLENE		3.65	U		2.2	U		3.45	U	
STYRENE		3.65	U		2.2	U		3.45	U	
TETRACHLOROETHENE		3.65	U		2.2	U		3.45	U	
TOLUENE		3.65	U		2.2	U		3.45	U	
TOTAL XYLENES		11	U		6.5	U		10.5	U	
TRANS-1,2-DICHLOROETHENE		3.65	U		2.2	U		3.45	U	
TRANS-1,3-DICHLOROPROPENE		3.65	U		2.2	U		3.45	U	
TRICHLOROETHENE		3.65	U		2.2	U		3.45	U	
TRICHLOROFLUOROMETHANE		3.65	U		2.2	U		3.45	U	
VINYL CHLORIDE		3.65	U		2.2	U		3.45	U	

PROJ_NO: 02014	NSAMPLE	12TB-20111214		
SDG: C5005	LAB_ID	C5005-16		
FRACTION: OV	SAMP_DATE	12/14/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	100.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	U	
1,1,2-TRICHLOROETHANE		2.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.5	U	
1,1-DICHLOROETHANE		2.5	U	
1,1-DICHLOROETHENE		2.5	U	
1,2,3-TRICHLOROBENZENE		2.5	U	
1,2,4-TRICHLOROBENZENE		2.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.5	U	
1,2-DIBROMOETHANE		2.5	U	
1,2-DICHLOROBENZENE		2.5	U	
1,2-DICHLOROETHANE		2.5	U	
1,2-DICHLOROPROPANE		2.5	U	
1,3-DICHLOROBENZENE		2.5	U	
1,4-DICHLOROBENZENE		2.5	U	
2-BUTANONE		12.5	U	
2-HEXANONE		12.5	U	
4-METHYL-2-PENTANONE		12.5	U	
ACETONE		12.5	U	
BENZENE		2.5	U	
BROMODICHLOROMETHANE		2.5	U	
BROMOFORM		2.5	U	
BROMOMETHANE		2.5	U	
CARBON DISULFIDE		2.5	U	
CARBON TETRACHLORIDE		2.5	U	
CHLOROBENZENE		2.5	U	
CHLORODIBROMOMETHANE		2.5	U	
CHLOROETHANE		2.5	U	
CHLOROFORM		2.5	U	
CHLOROMETHANE		2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U	
CIS-1,3-DICHLOROPROPENE		2.5	U	
DICHLORODIFLUOROMETHANE		2.5	U	
ETHYLBENZENE		2.5	U	
ISOPROPYLBENZENE		2.5	U	

PROJ_NO: 02014	NSAMPLE	12TB-20111214
SDG: C5005	LAB_ID	C5005-16
FRACTION: OV	SAMP_DATE	12/14/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	100.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
M+P-XYLENES	5	U	
METHYL TERT-BUTYL ETHER	2.5	U	
METHYLENE CHLORIDE	2.5	U	
O-XYLENE	2.5	U	
STYRENE	2.5	U	
TETRACHLOROETHENE	2.5	U	
TOLUENE	2.5	U	
TOTAL XYLENES	7.5	U	
TRANS-1,2-DICHLOROETHENE	2.5	U	
TRANS-1,3-DICHLOROPROPENE	2.5	U	
TRICHLOROETHENE	2.5	U	
TRICHLOROFLUOROMETHANE	2.5	U	
VINYL CHLORIDE	2.5	U	

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-0.502-02-GR2			12SB18-000.5-01			12SB18-000.5-01-GR2		
SDG: C5005	LAB_ID	C5005-14			C5005-14			C5005-13			C5005-13		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			65.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					255	U				
2,4,5-TRICHLOROPHENOL		205	U					255	U				
2,4,6-TRICHLOROPHENOL		205	U					255	U				
2,4-DICHLOROPHENOL		205	U					255	U				
2,4-DIMETHYLPHENOL		205	U					255	U				
2,4-DINITROPHENOL		205	UJ	C				255	UJ	C			
2,4-DINITROTOLUENE		205	U					255	U				
2,6-DINITROTOLUENE		205	U					255	U				
2-CHLORONAPHTHALENE		205	U					255	U				
2-CHLOROPHENOL		205	U					255	U				
2-METHYLNAPHTHALENE		2.05	U					2.55	U				
2-METHYLPHENOL		205	U					255	U				
2-NITROANILINE		205	U					255	U				
2-NITROPHENOL		205	U					255	U				
3&4-METHYLPHENOL		205	U					255	U				
3,3'-DICHLOROBENZIDINE		205	U					255	U				
3-NITROANILINE		205	U					255	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					255	U				
4-BROMOPHENYL PHENYL ETHER		205	U					255	U				
4-CHLORO-3-METHYLPHENOL		205	U					255	U				
4-CHLOROANILINE		205	UL	E				255	UL	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					255	U				
4-NITROANILINE		205	U					255	U				
4-NITROPHENOL		205	U					255	U				
ACENAPHTHENE					3.7	J	P				5.6		
ACENAPHTHYLENE					4.5						5.6		
ANTHRACENE		19						9.7					
BENZO(A)ANTHRACENE		84						46					
BENZO(A)PYRENE		77						56					
BENZO(B)FLUORANTHENE		110						90					
BENZO(G,H,I)PERYLENE		48						35					
BENZO(K)FLUORANTHENE		37						33					
BIS(2-CHLOROETHOXY)METHANE		205	U					255	U				
BIS(2-CHLOROETHYL)ETHER		205	U					255	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					255	U				

PROJ_NO: 02014	NSAMPLE	12SB18-0304-03			12SB18-0304-03-GR2			12SB19-0.502-02			12SB19-0.502-02DL		
SDG: C5005	LAB_ID	C5005-15			C5005-15			C5005-11			C5005-11DL		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					200	U				
2,4,5-TRICHLOROPHENOL		205	U					200	U				
2,4,6-TRICHLOROPHENOL		205	U					200	U				
2,4-DICHLOROPHENOL		205	U					200	U				
2,4-DIMETHYLPHENOL		205	U					200	U				
2,4-DINITROPHENOL		205	U					200	UJ	C			
2,4-DINITROTOLUENE		205	U					200	U				
2,6-DINITROTOLUENE		205	U					200	U				
2-CHLORONAPHTHALENE		205	U					200	U				
2-CHLOROPHENOL		205	U					200	U				
2-METHYLNAPHTHALENE		2.05	U					33					
2-METHYLPHENOL		205	U					200	U				
2-NITROANILINE		205	U					200	U				
2-NITROPHENOL		205	U					200	U				
3&4-METHYLPHENOL		205	U					200	U				
3,3'-DICHLOROBENZIDINE		205	U					200	U				
3-NITROANILINE		205	U					200	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					200	U				
4-BROMOPHENYL PHENYL ETHER		205	U					200	U				
4-CHLORO-3-METHYLPHENOL		205	U					200	U				
4-CHLOROANILINE		205	UL	E				200	UL	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					200	U				
4-NITROANILINE		205	U					200	U				
4-NITROPHENOL		205	U					200	U				
ACENAPHTHENE					2.05	U							
ACENAPHTHYLENE					2.05	U							
ANTHRACENE		2.05	U					1000					
BENZO(A)ANTHRACENE		2.5	J	P							2600		
BENZO(A)PYRENE		2.05	U								2400		
BENZO(B)FLUORANTHENE		2.05	U								3200		
BENZO(G,H,I)PERYLENE		2.05	U					1300					
BENZO(K)FLUORANTHENE		2.05	U					1100					
BIS(2-CHLOROETHOXY)METHANE		205	U					200	U				
BIS(2-CHLOROETHYL)ETHER		205	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					200	U				

PROJ_NO: 02014	NSAMPLE	12SB19-0.502-02-GR2			12SB19-000.5-01			12SB19-000.5-01-GR2			12SB19-0304-03		
SDG: C5005	LAB_ID	C5005-11			C5005-10			C5005-10			C5005-12		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			71.0			71.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					230	U					205	U	
2,4,5-TRICHLOROPHENOL					230	U					205	U	
2,4,6-TRICHLOROPHENOL					230	U					205	U	
2,4-DICHLOROPHENOL					230	U					205	U	
2,4-DIMETHYLPHENOL					230	U					205	U	
2,4-DINITROPHENOL					230	UJ	C				205	UJ	C
2,4-DINITROTOLUENE					230	U					205	U	
2,6-DINITROTOLUENE					230	U					205	U	
2-CHLORONAPHTHALENE					230	U					205	U	
2-CHLOROPHENOL					230	U					205	U	
2-METHYLNAPHTHALENE					5.6						20		
2-METHYLPHENOL					230	U					205	U	
2-NITROANILINE					230	U					205	U	
2-NITROPHENOL					230	U					205	U	
3&4-METHYLPHENOL					230	U					205	U	
3,3'-DICHLOROBENZIDINE					230	U					205	U	
3-NITROANILINE					230	U					205	U	
4,6-DINITRO-2-METHYLPHENOL					230	U					205	U	
4-BROMOPHENYL PHENYL ETHER					230	U					205	U	
4-CHLORO-3-METHYLPHENOL					230	U					205	U	
4-CHLOROANILINE					230	UL	E				205	UL	E
4-CHLOROPHENYL PHENYL ETHER					230	U					205	U	
4-NITROANILINE					230	U					205	U	
4-NITROPHENOL					230	U					205	U	
ACENAPHTHENE		120						10					
ACENAPHTHYLENE		110						14					
ANTHRACENE					47						250		
BENZO(A)ANTHRACENE					250						360		
BENZO(A)PYRENE					250						330		
BENZO(B)FLUORANTHENE					350						440		
BENZO(G,H,I)PERYLENE					130						160		
BENZO(K)FLUORANTHENE					120						160		
BIS(2-CHLOROETHOXY)METHANE					230	U					205	U	
BIS(2-CHLOROETHYL)ETHER					230	U					205	U	
BIS(2-ETHYLHEXYL)PHTHALATE					230	U					205	U	

PROJ_NO: 02014	NSAMPLE	12SB19-0304-03-GR2			12SB20-0.502-02			12SB20-0.502-02-GR2			12SB20-000.5-01		
SDG: C5005	LAB_ID	C5005-12			C5005-08			C5005-08			C5005-07		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			84.0			84.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					195	U					230	U	
2,4,5-TRICHLOROPHENOL					195	U					230	U	
2,4,6-TRICHLOROPHENOL					195	U					230	U	
2,4-DICHLOROPHENOL					195	U					230	U	
2,4-DIMETHYLPHENOL					195	U					230	U	
2,4-DINITROPHENOL					195	U					230	U	
2,4-DINITROTOLUENE					195	U					230	U	
2,6-DINITROTOLUENE					195	U					230	U	
2-CHLORONAPHTHALENE					195	U					230	U	
2-CHLOROPHENOL					195	U					230	U	
2-METHYLNAPHTHALENE					1.95	U					2.3	U	
2-METHYLPHENOL					195	U					230	U	
2-NITROANILINE					195	U					230	U	
2-NITROPHENOL					195	U					230	U	
3&4-METHYLPHENOL					195	U					230	U	
3,3'-DICHLOROBENZIDINE					195	U					230	U	
3-NITROANILINE					195	U					230	U	
4,6-DINITRO-2-METHYLPHENOL					195	U					230	U	
4-BROMOPHENYL PHENYL ETHER					195	U					230	U	
4-CHLORO-3-METHYLPHENOL					195	U					230	U	
4-CHLOROANILINE					195	UL	E				230	UL	E
4-CHLOROPHENYL PHENYL ETHER					195	U					230	U	
4-NITROANILINE					195	U					230	U	
4-NITROPHENOL					195	U					230	U	
ACENAPHTHENE		57						1.95	U				
ACENAPHTHYLENE		42						1.95	U				
ANTHRACENE					1.95	U					2.3	U	
BENZO(A)ANTHRACENE					1.95	U					8.3		
BENZO(A)PYRENE					1.95	U					11		
BENZO(B)FLUORANTHENE					1.95	U					19		
BENZO(G,H,I)PERYLENE					1.95	U					8.3		
BENZO(K)FLUORANTHENE					1.95	U					6.9		
BIS(2-CHLOROETHOXY)METHANE					195	U					230	U	
BIS(2-CHLOROETHYL)ETHER					195	U					230	U	
BIS(2-ETHYLHEXYL)PHTHALATE					195	U					230	U	

PROJ_NO: 02014	NSAMPLE	12SB20-000.5-01-GR2			12SB22-0.502-02			12SB22-0.502-02-GR2			12SB22-000.5-01		
SDG: C5005	LAB_ID	C5005-07			C5005-05			C5005-05			C5005-04		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	72.0			79.0			79.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					210	U					235	U	
2,4,5-TRICHLOROPHENOL					210	U					235	U	
2,4,6-TRICHLOROPHENOL					210	U					235	U	
2,4-DICHLOROPHENOL					210	U					235	U	
2,4-DIMETHYLPHENOL					210	U					235	U	
2,4-DINITROPHENOL					210	U					235	UJ	C
2,4-DINITROTOLUENE					210	U					235	U	
2,6-DINITROTOLUENE					210	U					235	U	
2-CHLORONAPHTHALENE					210	U					235	U	
2-CHLOROPHENOL					210	U					235	U	
2-METHYLNAPHTHALENE					2.1	U					2.4	J	P
2-METHYLPHENOL					210	U					235	U	
2-NITROANILINE					210	U					235	U	
2-NITROPHENOL					210	U					235	U	
3&4-METHYLPHENOL					210	U					235	U	
3,3'-DICHLOROBENZIDINE					210	U					235	U	
3-NITROANILINE					210	U					235	U	
4,6-DINITRO-2-METHYLPHENOL					210	U					235	U	
4-BROMOPHENYL PHENYL ETHER					210	U					235	U	
4-CHLORO-3-METHYLPHENOL					210	U					235	U	
4-CHLOROANILINE					210	UL	E				235	UL	E
4-CHLOROPHENYL PHENYL ETHER					210	U					235	U	
4-NITROANILINE					210	U					235	U	
4-NITROPHENOL					210	U					235	U	
ACENAPHTHENE		2.3	U					2.1	U				
ACENAPHTHYLENE		2.3	U					2.1	U				
ANTHRACENE					2.1	U					3.3	J	P
BENZO(A)ANTHRACENE					2.1	U					20		
BENZO(A)PYRENE					2.1	U					31		
BENZO(B)FLUORANTHENE					2.1	U					58		
BENZO(G,H,I)PERYLENE					2.1	U					24		
BENZO(K)FLUORANTHENE					2.1	U					20		
BIS(2-CHLOROETHOXY)METHANE					210	U					235	U	
BIS(2-CHLOROETHYL)ETHER					210	U					235	U	
BIS(2-ETHYLHEXYL)PHTHALATE					210	U					235	U	

PROJ_NO: 02014	NSAMPLE	12SB22-000.5-01-GR2			12SB22-0304-03			12SB22-0304-03-GR2			12SB24-0.502-02		
SDG: C5005	LAB_ID	C5005-04			C5005-06			C5005-06			C5005-02		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			83.0			83.0			82.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)				200	U					200	U	
2,4,5-TRICHLOROPHENOL				200	U					200	U	
2,4,6-TRICHLOROPHENOL				200	U					200	U	
2,4-DICHLOROPHENOL				200	U					200	U	
2,4-DIMETHYLPHENOL				200	U					200	U	
2,4-DINITROPHENOL				200	U					200	U	
2,4-DINITROTOLUENE				200	U					200	U	
2,6-DINITROTOLUENE				200	U					200	U	
2-CHLORONAPHTHALENE				200	U					200	U	
2-CHLOROPHENOL				200	U					200	U	
2-METHYLNAPHTHALENE				2	U					2	U	
2-METHYLPHENOL				200	U					200	U	
2-NITROANILINE				200	U					200	U	
2-NITROPHENOL				200	U					200	U	
3&4-METHYLPHENOL				200	U					200	U	
3,3'-DICHLOROBENZIDINE				200	U					200	U	
3-NITROANILINE				200	U					200	U	
4,6-DINITRO-2-METHYLPHENOL				200	U					200	U	
4-BROMOPHENYL PHENYL ETHER				200	U					200	U	
4-CHLORO-3-METHYLPHENOL				200	U					200	U	
4-CHLOROANILINE				200	UL	E				200	UL	E
4-CHLOROPHENYL PHENYL ETHER				200	U					200	U	
4-NITROANILINE				200	U					200	U	
4-NITROPHENOL				200	U					200	U	
ACENAPHTHENE	2.35	U					2	U				
ACENAPHTHYLENE	2.35	U					2	U				
ANTHRACENE				2	U					2	U	
BENZO(A)ANTHRACENE				2	U					2	U	
BENZO(A)PYRENE				2	U					2	U	
BENZO(B)FLUORANTHENE				2	U					2	U	
BENZO(G,H,I)PERYLENE				2	U					2	U	
BENZO(K)FLUORANTHENE				2	U					2	U	
BIS(2-CHLOROETHOXY)METHANE				200	U					200	U	
BIS(2-CHLOROETHYL)ETHER				200	U					200	U	
BIS(2-ETHYLHEXYL)PHTHALATE				200	U					200	U	

PROJ_NO: 02014	NSAMPLE	12SB24-0.502-02-GR2			12SB24-000.5-01			12SB24-000.5-01-GR2			12SB24-0304-03		
SDG: C5005	LAB_ID	C5005-02			C5005-01			C5005-01			C5005-03		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			70.0			70.0			90.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)				235	U					185	U	
2,4,5-TRICHLOROPHENOL				235	U					185	U	
2,4,6-TRICHLOROPHENOL				235	U					185	U	
2,4-DICHLOROPHENOL				235	U					185	U	
2,4-DIMETHYLPHENOL				235	U					185	U	
2,4-DINITROPHENOL				235	UJ	C				185	U	
2,4-DINITROTOLUENE				235	U					185	U	
2,6-DINITROTOLUENE				235	U					185	U	
2-CHLORONAPHTHALENE				235	U					185	U	
2-CHLOROPHENOL				235	U					185	U	
2-METHYLNAPHTHALENE				2.35	U					1.85	U	
2-METHYLPHENOL				235	U					185	U	
2-NITROANILINE				235	U					185	U	
2-NITROPHENOL				235	U					185	U	
3&4-METHYLPHENOL				235	U					185	U	
3,3'-DICHLOROBENZIDINE				235	U					185	U	
3-NITROANILINE				235	U					185	U	
4,6-DINITRO-2-METHYLPHENOL				235	U					185	U	
4-BROMOPHENYL PHENYL ETHER				235	U					185	U	
4-CHLORO-3-METHYLPHENOL				235	U					185	U	
4-CHLOROANILINE				235	UL	E				185	UL	E
4-CHLOROPHENYL PHENYL ETHER				235	U					185	U	
4-NITROANILINE				235	U					185	U	
4-NITROPHENOL				235	U					185	U	
ACENAPHTHENE	2	U					2.35	U				
ACENAPHTHYLENE	2	U					2.35	U				
ANTHRACENE				2.9	J	P				1.85	U	
BENZO(A)ANTHRACENE				15						1.85	U	
BENZO(A)PYRENE				18						1.85	U	
BENZO(B)FLUORANTHENE				29						1.85	U	
BENZO(G,H,I)PERYLENE				14						1.85	U	
BENZO(K)FLUORANTHENE				10						1.85	U	
BIS(2-CHLOROETHOXY)METHANE				235	U					185	U	
BIS(2-CHLOROETHYL)ETHER				235	U					185	U	
BIS(2-ETHYLHEXYL)PHTHALATE				235	U					185	U	

PROJ_NO: 02014	NSAMPLE	12SB24-0304-03-GR2			12SB-DUP-01			12SB-DUP-01-GR2		
SDG: C5005	LAB_ID	C5005-03			C5005-09			C5005-09		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.0			71.0			71.0		
	DUP_OF				12SB20-000.5-01			12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					230	U				
2,4,5-TRICHLOROPHENOL					230	U				
2,4,6-TRICHLOROPHENOL					230	U				
2,4-DICHLOROPHENOL					230	U				
2,4-DIMETHYLPHENOL					230	U				
2,4-DINITROPHENOL					230	U				
2,4-DINITROTOLUENE					230	U				
2,6-DINITROTOLUENE					230	U				
2-CHLORONAPHTHALENE					230	U				
2-CHLOROPHENOL					230	U				
2-METHYLNAPHTHALENE					2.3	U				
2-METHYLPHENOL					230	U				
2-NITROANILINE					230	U				
2-NITROPHENOL					230	U				
3&4-METHYLPHENOL					230	U				
3,3'-DICHLOROBENZIDINE					230	U				
3-NITROANILINE					230	U				
4,6-DINITRO-2-METHYLPHENOL					230	U				
4-BROMOPHENYL PHENYL ETHER					230	U				
4-CHLORO-3-METHYLPHENOL					230	U				
4-CHLOROANILINE					230	UL	E			
4-CHLOROPHENYL PHENYL ETHER					230	U				
4-NITROANILINE					230	U				
4-NITROPHENOL					230	U				
ACENAPHTHENE		1.85	U					2.3	U	
ACENAPHTHYLENE		1.85	U					2.3	U	
ANTHRACENE					2.3	U				
BENZO(A)ANTHRACENE					5.6					
BENZO(A)PYRENE					7					
BENZO(B)FLUORANTHENE					12					
BENZO(G,H,I)PERYLENE					5.6					
BENZO(K)FLUORANTHENE					4.7					
BIS(2-CHLOROETHOXY)METHANE					230	U				
BIS(2-CHLOROETHYL)ETHER					230	U				
BIS(2-ETHYLHEXYL)PHTHALATE					230	U				

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-0.502-02-GR2			12SB18-000.5-01			12SB18-000.5-01-GR2		
SDG: C5005	LAB_ID	C5005-14			C5005-14			C5005-13			C5005-13		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			65.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					255	U				
CARBAZOLE		205	U					255	U				
CHRYSENE		93						76					
DIBENZO(A,H)ANTHRACENE		4.1						2.55	U				
DIBENZOFURAN		205	U					255	U				
DIETHYL PHTHALATE		205	U					255	U				
DIMETHYL PHTHALATE		280	J	P				255	U				
DI-N-BUTYL PHTHALATE		205	U					255	U				
DI-N-OCTYL PHTHALATE		205	U					255	U				
FLUORANTHENE		230						220					
FLUORENE		6.2						11					
HEXACHLOROBENZENE		205	U					255	U				
HEXACHLOROBUTADIENE		205	U					255	U				
HEXACHLOROCYCLOPENTADIENE		205	U					255	U				
HEXACHLOROETHANE		205	U					255	U				
INDENO(1,2,3-CD)PYRENE		49						37					
ISOPHORONE		205	U					255	U				
NAPHTHALENE		2.05	U					3.6	J	P			
NITROBENZENE		205	U					255	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					255	U				
N-NITROSODIPHENYLAMINE		205	U					255	U				
PENTACHLOROPHENOL		205	U					255	U				
PHENANTHRENE					96						150		
PHENOL		205	U					255	U				
PYRENE		170						150					

PROJ_NO: 02014	NSAMPLE	12SB18-0304-03			12SB18-0304-03-GR2			12SB19-0.502-02			12SB19-0.502-02DL		
SDG: C5005	LAB_ID	C5005-15			C5005-15			C5005-11			C5005-11DL		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					200	U				
CARBAZOLE		205	U					190	J	P			
CHRYSENE		2.1	J	P							2600		
DIBENZO(A,H)ANTHRACENE		2.05	U					140					
DIBENZOFURAN		205	U					200	U				
DIETHYL PHTHALATE		205	U					200	U				
DIMETHYL PHTHALATE		205	U					200	U				
DI-N-BUTYL PHTHALATE		205	U					200	U				
DI-N-OCTYL PHTHALATE		205	U					200	U				
FLUORANTHENE		5.8									6800		
FLUORENE		2.05	U					220					
HEXACHLOROBENZENE		205	U					200	U				
HEXACHLOROBUTADIENE		205	U					200	U				
HEXACHLOROCYCLOPENTADIENE		205	U					200	U				
HEXACHLOROETHANE		205	U					200	U				
INDENO(1,2,3-CD)PYRENE		2.05	U					1000					
ISOPHORONE		205	U					200	U				
NAPHTHALENE		2.05	U					39					
NITROBENZENE		205	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					200	U				
N-NITROSODIPHENYLAMINE		205	U					200	U				
PENTACHLOROPHENOL		205	U					200	U				
PHENANTHRENE					4.1						3400		
PHENOL		205	U					200	U				
PYRENE		4.1									4900		

PROJ_NO: 02014	NSAMPLE	12SB19-0.502-02-GR2			12SB19-000.5-01			12SB19-000.5-01-GR2			12SB19-0304-03		
SDG: C5005	LAB_ID	C5005-11			C5005-10			C5005-10			C5005-12		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			71.0			71.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					230	U					205	U	
CARBAZOLE					230	U					205	U	
CHRYSENE					280						370		
DIBENZO(A,H)ANTHRACENE					14						15		
DIBENZOFURAN					230	U					205	U	
DIETHYL PHTHALATE					230	U					205	U	
DIMETHYL PHTHALATE					230	J	P				190	J	P
DI-N-BUTYL PHTHALATE					230	U					205	U	
DI-N-OCTYL PHTHALATE					230	U					205	U	
FLUORANTHENE					700						1100		
FLUORENE					20						130		
HEXACHLOROBENZENE					230	U					205	U	
HEXACHLOROBUTADIENE					230	U					205	U	
HEXACHLOROCYCLOPENTADIENE					230	U					205	U	
HEXACHLOROETHANE					230	U					205	U	
INDENO(1,2,3-CD)PYRENE					130						150		
ISOPHORONE					230	U					205	U	
NAPHTHALENE					6.6						25		
NITROBENZENE					230	U					205	U	
N-NITROSO-DI-N-PROPYLAMINE					230	U					205	U	
N-NITROSODIPHENYLAMINE					230	U					205	U	
PENTACHLOROPHENOL					230	U					205	U	
PHENANTHRENE								290					
PHENOL					230	U					205	U	
PYRENE					520						750		

PROJ_NO: 02014	NSAMPLE	12SB19-0304-03-GR2			12SB20-0.502-02			12SB20-0.502-02-GR2			12SB20-000.5-01		
SDG: C5005	LAB_ID	C5005-12			C5005-08			C5005-08			C5005-07		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			84.0			84.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					195	U					230	U	
CARBAZOLE					195	U					230	U	
CHRYSENE					1.95	U					16		
DIBENZO(A,H)ANTHRACENE					1.95	U					2.3	U	
DIBENZOFURAN					195	U					230	U	
DIETHYL PHTHALATE					195	U					230	U	
DIMETHYL PHTHALATE					200	J	P				420	J	P
DI-N-BUTYL PHTHALATE					195	U					230	U	
DI-N-OCTYL PHTHALATE					195	U					230	U	
FLUORANTHENE					1.95	U					38	J	G
FLUORENE					1.95	U					2.3	U	
HEXACHLOROBENZENE					195	U					230	U	
HEXACHLOROBUTADIENE					195	U					230	U	
HEXACHLOROCYCLOPENTADIENE					195	U					230	U	
HEXACHLOROETHANE					195	U					230	U	
INDENO(1,2,3-CD)PYRENE					1.95	U					7.4		
ISOPHORONE					195	U					230	U	
NAPHTHALENE					1.95	U					2.3	U	
NITROBENZENE					195	U					230	U	
N-NITROSO-DI-N-PROPYLAMINE					195	U					230	U	
N-NITROSODIPHENYLAMINE					195	U					230	U	
PENTACHLOROPHENOL					195	U					230	U	
PHENANTHRENE		860						1.95	U				
PHENOL					195	U					230	U	
PYRENE					1.95	U					26		

PROJ_NO: 02014	NSAMPLE	12SB20-000.5-01-GR2			12SB22-0.502-02			12SB22-0.502-02-GR2			12SB22-000.5-01		
SDG: C5005	LAB_ID	C5005-07			C5005-05			C5005-05			C5005-04		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	72.0			79.0			79.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					210	U					235	U	
CARBAZOLE					210	U					235	U	
CHRYSENE					2.1	U					47		
DIBENZO(A,H)ANTHRACENE					2.1	U					2.35	U	
DIBENZOFURAN					210	U					235	U	
DIETHYL PHTHALATE					210	U					235	U	
DIMETHYL PHTHALATE					250	J	P				330	J	P
DI-N-BUTYL PHTHALATE					210	U					235	U	
DI-N-OCTYL PHTHALATE					210	U					235	U	
FLUORANTHENE					2.1	U					130		
FLUORENE					2.1	U					3.8	J	P
HEXACHLOROBENZENE					210	U					235	U	
HEXACHLOROBUTADIENE					210	U					235	U	
HEXACHLOROCYCLOPENTADIENE					210	U					235	U	
HEXACHLOROETHANE					210	U					235	U	
INDENO(1,2,3-CD)PYRENE					2.1	U					23		
ISOPHORONE					210	U					235	U	
NAPHTHALENE					2.1	U					2.9	J	P
NITROBENZENE					210	U					235	U	
N-NITROSO-DI-N-PROPYLAMINE					210	U					235	U	
N-NITROSODIPHENYLAMINE					210	U					235	U	
PENTACHLOROPHENOL					210	U					235	U	
PHENANTHRENE		23						2.1	U				
PHENOL					210	U					235	U	
PYRENE					2.1	U					87		

PROJ_NO: 02014	NSAMPLE	12SB22-000.5-01-GR2			12SB22-0304-03			12SB22-0304-03-GR2			12SB24-0.502-02		
SDG: C5005	LAB_ID	C5005-04			C5005-06			C5005-06			C5005-02		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			83.0			83.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					200	U					200	U	
CARBAZOLE					200	U					200	U	
CHRYSENE					2	U					2	U	
DIBENZO(A,H)ANTHRACENE					2	U					2	U	
DIBENZOFURAN					200	U					200	U	
DIETHYL PHTHALATE					200	U					200	U	
DIMETHYL PHTHALATE					200	J	P				270	J	P
DI-N-BUTYL PHTHALATE					200	U					200	U	
DI-N-OCTYL PHTHALATE					200	U					200	U	
FLUORANTHENE					2	U					2.8	J	P
FLUORENE					2	U					2	U	
HEXACHLOROBENZENE					200	U					200	U	
HEXACHLOROBUTADIENE					200	U					200	U	
HEXACHLOROCYCLOPENTADIENE					200	U					200	U	
HEXACHLOROETHANE					200	U					200	U	
INDENO(1,2,3-CD)PYRENE					2	U					2	U	
ISOPHORONE					200	U					200	U	
NAPHTHALENE					2	U					2	U	
NITROBENZENE					200	U					200	U	
N-NITROSO-DI-N-PROPYLAMINE					200	U					200	U	
N-NITROSODIPHENYLAMINE					200	U					200	U	
PENTACHLOROPHENOL					200	U					200	U	
PHENANTHRENE		90						2	U				
PHENOL					200	U					200	U	
PYRENE					2	U					2.4	J	P

PROJ_NO: 02014	NSAMPLE	12SB24-0.502-02-GR2			12SB24-000.5-01			12SB24-000.5-01-GR2			12SB24-0304-03		
SDG: C5005	LAB_ID	C5005-02			C5005-01			C5005-01			C5005-03		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			70.0			70.0			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					235	U					185	U	
CARBAZOLE					235	U					185	U	
CHRYSENE					24						1.85	U	
DIBENZO(A,H)ANTHRACENE					3.8	J	P				1.85	U	
DIBENZOFURAN					235	U					185	U	
DIETHYL PHTHALATE					235	U					185	U	
DIMETHYL PHTHALATE					330	J	P				250	J	P
DI-N-BUTYL PHTHALATE					235	U					185	U	
DI-N-OCTYL PHTHALATE					235	U					185	U	
FLUORANTHENE					51						1.85	U	
FLUORENE					2.35	U					1.85	U	
HEXACHLOROBENZENE					235	U					185	U	
HEXACHLOROBUTADIENE					235	U					185	U	
HEXACHLOROCYCLOPENTADIENE					235	U					185	U	
HEXACHLOROETHANE					235	U					185	U	
INDENO(1,2,3-CD)PYRENE					16	K	D				1.85	U	
ISOPHORONE					235	U					185	U	
NAPHTHALENE					2.35	U					1.85	U	
NITROBENZENE					235	U					185	U	
N-NITROSO-DI-N-PROPYLAMINE					235	U					185	U	
N-NITROSODIPHENYLAMINE					235	U					185	U	
PENTACHLOROPHENOL					235	U					185	U	
PHENANTHRENE		2	U					37					
PHENOL					235	U					185	U	
PYRENE					44						1.85	U	

PROJ_NO: 02014	NSAMPLE	12SB24-0304-03-GR2			12SB-DUP-01			12SB-DUP-01-GR2		
SDG: C5005	LAB_ID	C5005-03			C5005-09			C5005-09		
FRACTION: OS	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.0			71.0			71.0		
	DUP_OF				12SB20-000.5-01			12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					230	U				
CARBAZOLE					230	U				
CHRYSENE					9.8					
DIBENZO(A,H)ANTHRACENE					2.3	U				
DIBENZOFURAN					230	U				
DIETHYL PHTHALATE					230	U				
DIMETHYL PHTHALATE					230	U				
DI-N-BUTYL PHTHALATE					230	U				
DI-N-OCTYL PHTHALATE					230	U				
FLUORANTHENE					22	J	G			
FLUORENE					2.3	U				
HEXACHLOROBENZENE					230	U				
HEXACHLOROBUTADIENE					230	U				
HEXACHLOROCYCLOPENTADIENE					230	U				
HEXACHLOROETHANE					230	U				
INDENO(1,2,3-CD)PYRENE					5.6					
ISOPHORONE					230	U				
NAPHTHALENE					2.3	U				
NITROBENZENE					230	U				
N-NITROSO-DI-N-PROPYLAMINE					230	U				
N-NITROSODIPHENYLAMINE					230	U				
PENTACHLOROPHENOL					230	U				
PHENANTHRENE		1.85	U					17		
PHENOL					230	U				
PYRENE					18					

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-000.5-01			12SB18-0304-03			12SB19-0.502-02		
SDG: C5005	LAB_ID	C5005-14			C5005-13			C5005-15			C5005-11		
FRACTION: PEST	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.3			65.2			80.9			82.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.3	U		1.05	U		1.05	U	
4,4'-DDE		1.05	U		1.3	U		1.05	U		1.05	U	
4,4'-DDT		1.05	U		1.3	U		1.05	U		1.05	U	
ALDRIN		1.05	U		1.3	U		1.05	U		1.05	U	
ALPHA-BHC		1.05	U		1.3	U		1.05	U		1.05	U	
ALPHA-CHLORDANE		1.05	U		1.3	U		1.05	U		1.05	U	
BETA-BHC		1.05	U		1.3	U		1.05	U		1.05	U	
DELTA-BHC		1.05	U		1.3	U		1.05	U		1.05	U	
DIELDRIN		1.05	U		1.3	U		1.05	U		1.05	U	
ENDOSULFAN I		1.05	U		1.3	U		1.05	U		1.05	U	
ENDOSULFAN II		1.05	U		1.3	U		1.05	U		1.05	U	
ENDOSULFAN SULFATE		1.05	U		1.3	U		1.05	U		1.05	U	
ENDRIN		1.05	U		1.3	U		1.05	U		1.05	U	
ENDRIN ALDEHYDE		1.05	U		1.3	U		1.05	U		1.05	U	
ENDRIN KETONE		1.05	UJ	C	1.3	UJ	C	1.05	UJ	C	1.05	UJ	C
GAMMA-BHC (LINDANE)		1.05	U		1.3	U		1.05	U		1.05	U	
GAMMA-CHLORDANE		1.05	U		1.3	U		1.05	U		1.05	U	
HEPTACHLOR		1.05	U		1.3	U		1.05	U		1.05	U	
HEPTACHLOR EPOXIDE		1.05	U		1.3	U		1.05	U		1.05	U	
METHOXYCHLOR		1.05	U		1.3	U		1.05	U		1.05	U	
TOXAPHENE		10.5	U		13	U		10.5	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB19-000.5-01			12SB19-0304-03			12SB20-0.502-02			12SB20-000.5-01		
SDG: C5005	LAB_ID	C5005-10			C5005-12			C5005-08			C5005-07		
FRACTION: PEST	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.8			79.8			83.5			71.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.2	U		1.05	U		1	U		1.2	U	
4,4'-DDE		1.2	U		1.05	U		1	U		1.2	U	
4,4'-DDT		1.2	U		1.05	U		1	U		1.2	U	
ALDRIN		1.2	U		1.05	U		1	U		1.2	U	
ALPHA-BHC		1.2	U		1.05	U		1	U		1.2	U	
ALPHA-CHLORDANE		1.2	U		1.05	U		1	U		1.2	U	
BETA-BHC		1.2	U		1.05	U		1	U		1.2	U	
DELTA-BHC		1.2	U		1.05	U		1	U		1.2	U	
DIELDRIN		1.2	U		1.05	U		1	U		1.2	U	
ENDOSULFAN I		1.2	U		1.05	U		1	U		1.2	U	
ENDOSULFAN II		1.2	U		1.05	U		1	U		1.2	U	
ENDOSULFAN SULFATE		1.2	U		1.05	U		1	U		1.2	U	
ENDRIN		1.2	U		1.05	U		1	U		1.2	U	
ENDRIN ALDEHYDE		1.2	U		1.05	U		1	U		1.2	U	
ENDRIN KETONE		1.2	UJ	C	1.05	UJ	C	1	UJ	C	1.2	UJ	C
GAMMA-BHC (LINDANE)		1.2	U		1.05	U		1	U		1.2	U	
GAMMA-CHLORDANE		1.2	U		1.05	U		1	U		1.2	U	
HEPTACHLOR		1.2	U		1.05	U		1	U		1.2	U	
HEPTACHLOR EPOXIDE		1.2	U		1.05	U		1	U		1.2	U	
METHOXYCHLOR		1.2	U		1.05	U		1	U		1.2	U	
TOXAPHENE		12	U		10.5	U		10	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB22-0.502-02			12SB22-000.5-01			12SB22-0304-03			12SB24-0.502-02		
SDG: C5005	LAB_ID	C5005-05			C5005-04			C5005-06			C5005-02		
FRACTION: PEST	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.2			70.4			83.1			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.2	U		1	U		1.05	U	
4,4'-DDE		1.05	U		1.2	U		1	U		1.05	U	
4,4'-DDT		1.05	U		1.2	U		1	U		1.05	U	
ALDRIN		1.05	U		1.2	U		1	U		1.05	U	
ALPHA-BHC		1.05	U		1.2	U		1	U		1.05	U	
ALPHA-CHLORDANE		1.05	U		1.2	U		1	U		1.05	U	
BETA-BHC		1.05	U		1.2	U		1	U		1.05	U	
DELTA-BHC		1.05	U		1.2	U		1	U		1.05	U	
DIELDRIN		1.05	U		1.2	U		1	U		1.05	U	
ENDOSULFAN I		1.05	U		1.2	U		1	U		1.05	U	
ENDOSULFAN II		1.05	U		1.2	U		1	U		1.05	U	
ENDOSULFAN SULFATE		1.05	U		1.2	U		1	U		1.05	U	
ENDRIN		1.05	U		1.2	U		1	U		1.05	U	
ENDRIN ALDEHYDE		1.05	U		1.2	U		1	U		1.05	U	
ENDRIN KETONE		1.05	UJ	C	1.2	UJ	C	1	UJ	C	1.05	UJ	C
GAMMA-BHC (LINDANE)		1.05	U		1.2	U		1	U		1.05	U	
GAMMA-CHLORDANE		1.05	U		1.2	U		1	U		1.05	U	
HEPTACHLOR		1.05	U		1.2	U		1	U		1.05	U	
HEPTACHLOR EPOXIDE		1.05	U		1.2	U		1	U		1.05	U	
METHOXYCHLOR		1.05	U		1.2	U		1	U		1.05	U	
TOXAPHENE		10.5	U		12	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB24-000.5-01			12SB24-0304-03			12SB-DUP-01		
SDG: C5005	LAB_ID	C5005-01			C5005-03			C5005-09		
FRACTION: PEST	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.3			90.1			70.6		
	DUP_OF							12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.2	U		0.95	U		1.2	U	
4,4'-DDE		1.2	U		0.95	U		1.2	U	
4,4'-DDT		1.2	U		0.95	U		1.2	U	
ALDRIN		1.2	U		0.95	U		1.2	U	
ALPHA-BHC		1.2	U		0.95	U		1.2	U	
ALPHA-CHLORDANE		1.2	U		0.95	U		1.2	U	
BETA-BHC		1.2	U		0.95	U		1.2	U	
DELTA-BHC		1.2	U		0.95	U		1.2	U	
DIELDRIN		1.2	U		0.95	U		1.2	U	
ENDOSULFAN I		1.2	U		0.95	U		1.2	U	
ENDOSULFAN II		1.2	U		0.95	U		1.2	U	
ENDOSULFAN SULFATE		1.2	U		0.95	U		1.2	U	
ENDRIN		1.2	U		0.95	U		1.2	U	
ENDRIN ALDEHYDE		1.2	U		0.95	U		1.2	U	
ENDRIN KETONE		1.2	UJ	C	0.95	UJ	C	1.2	UJ	C
GAMMA-BHC (LINDANE)		1.2	U		0.95	U		1.2	U	
GAMMA-CHLORDANE		1.2	U		0.95	U		1.2	U	
HEPTACHLOR		1.2	U		0.95	U		1.2	U	
HEPTACHLOR EPOXIDE		1.2	U		0.95	U		1.2	U	
METHOXYCHLOR		1.2	U		0.95	U		1.2	U	
TOXAPHENE		12	U		9.5	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-000.5-01			12SB18-0304-03			12SB19-0.502-02		
SDG: C5005	LAB_ID	C5005-14			C5005-13			C5005-15			C5005-11		
FRACTION: PCB	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			65.0			81.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		13	U		10.5	U		10.5	U	
AROCLOR-1221		10.5	U		13	U		10.5	U		10.5	U	
AROCLOR-1232		10.5	U		13	U		10.5	U		10.5	U	
AROCLOR-1242		10.5	U		13	U		10.5	U		10.5	U	
AROCLOR-1248		10.5	U		13	U		10.5	U		10.5	U	
AROCLOR-1254		10.5	U		13	U		10.5	U		10.5	U	
AROCLOR-1260		10.5	U		13	U		10.5	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB19-000.5-01			12SB19-0304-03			12SB20-0.502-02			12SB20-000.5-01		
SDG: C5005	LAB_ID	C5005-10			C5005-12			C5005-08			C5005-07		
FRACTION: PCB	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			80.0			83.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		12	U		10.5	U		10	U		12	U	
AROCLOR-1221		12	U		10.5	U		10	U		12	U	
AROCLOR-1232		12	U		10.5	U		10	U		12	U	
AROCLOR-1242		12	U		10.5	U		10	U		12	U	
AROCLOR-1248		12	U		10.5	U		10	U		12	U	
AROCLOR-1254		12	U		10.5	U		10	U		12	U	
AROCLOR-1260		12	U		10.5	U		10	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB22-0.502-02			12SB22-000.5-01			12SB22-0304-03			12SB24-0.502-02		
SDG: C5005	LAB_ID	C5005-05			C5005-04			C5005-06			C5005-02		
FRACTION: PCB	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			70.0			83.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		12	U		10	U		10.5	U	
AROCLOR-1221		10.5	U		12	U		10	U		10.5	U	
AROCLOR-1232		10.5	U		12	U		10	U		10.5	U	
AROCLOR-1242		10.5	U		12	U		10	U		10.5	U	
AROCLOR-1248		10.5	U		12	U		10	U		10.5	U	
AROCLOR-1254		10.5	U		12	U		10	U		10.5	U	
AROCLOR-1260		10.5	U		12	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB24-000.5-01			12SB24-0304-03			12SB-DUP-01		
SDG: C5005	LAB_ID	C5005-01			C5005-03			C5005-09		
FRACTION: PCB	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			90.0			71.0		
	DUP_OF							12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		12	U		9.5	U		12	U	
AROCLOR-1221		12	U		9.5	U		12	U	
AROCLOR-1232		12	U		9.5	U		12	U	
AROCLOR-1242		12	U		9.5	U		12	U	
AROCLOR-1248		12	U		9.5	U		12	U	
AROCLOR-1254		12	U		9.5	U		12	U	
AROCLOR-1260		12	U		9.5	U		12	U	

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001935.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.45	U	0.9	6.9	ug/Kg
74-87-3	Chloromethane	3.45	U	1.2	6.9	ug/Kg
75-01-4	Vinyl Chloride	3.45	U	1.7	6.9	ug/Kg
74-83-9	Bromomethane	3.45	U	3.4	6.9	ug/Kg
75-00-3	Chloroethane	3.45	U	1.9	6.9	ug/Kg
75-69-4	Trichlorofluoromethane	3.45	U	1.8	6.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.45	U	1.8	6.9	ug/Kg
75-35-4	1,1-Dichloroethene	3.45	U	2	6.9	ug/Kg
67-64-1	Acetone	17.5	U	4.2	35	ug/Kg
75-15-0	Carbon Disulfide	3.45	U	1.5	6.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.45	U	1.3	6.9	ug/Kg
79-20-9	Methyl Acetate	3.45	U	2.1	6.9	ug/Kg
75-09-2	Methylene Chloride	3.45	U	2	6.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.45	U	0.95	6.9	ug/Kg
75-34-3	1,1-Dichloroethane	3.45	U	1.3	6.9	ug/Kg
110-82-7	Cyclohexane	3.45	U	1.4	6.9	ug/Kg
78-93-3	2-Butanone	17.5	U	4.3	35	ug/Kg
56-23-5	Carbon Tetrachloride	3.45	U	1.4	6.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.45	U	1.2	6.9	ug/Kg
74-97-5	Bromochloromethane	3.45	U	1.1	6.9	ug/Kg
67-66-3	Chloroform	3.45	U	1	6.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
108-87-2	Methylcyclohexane	3.45	U	1.5	6.9	ug/Kg
71-43-2	Benzene	3.45	U	0.53	6.9	ug/Kg
107-06-2	1,2-Dichloroethane	3.45	U	0.89	6.9	ug/Kg
79-01-6	Trichloroethene	3.45	U	1.2	6.9	ug/Kg
78-87-5	1,2-Dichloropropane	3.45	U	0.36	6.9	ug/Kg
75-27-4	Bromodichloromethane	3.45	U	0.86	6.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17.5	U	4	35	ug/Kg
108-88-3	Toluene	3.45	U	0.89	6.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.45	U	1.1	6.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001935.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.45	U	1	6.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
591-78-6	2-Hexanone	17.5	U	5.4	35	ug/Kg
124-48-1	Dibromochloromethane	3.45	U	0.75	6.9	ug/Kg
106-93-4	1,2-Dibromoethane	3.45	U	0.89	6.9	ug/Kg
127-18-4	Tetrachloroethene	3.45	U	1.4	6.9	ug/Kg
108-90-7	Chlorobenzene	3.45	U	0.69	6.9	ug/Kg
100-41-4	Ethyl Benzene	3.45	U	0.86	6.9	ug/Kg
179601-23-1	m/p-Xylenes	7	U	1	14	ug/Kg
95-47-6	o-Xylene	3.45	U	0.94	6.9	ug/Kg
100-42-5	Styrene	3.45	U	0.62	6.9	ug/Kg
75-25-2	Bromoform	3.45	U	1	6.9	ug/Kg
98-82-8	Isopropylbenzene	3.45	U	0.66	6.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.45	U	0.64	6.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.45	U	0.51	6.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.45	U	0.57	6.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.45	U	0.86	6.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.45	U	1.2	6.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.45	U	0.97	6.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.45	U	0.69	6.9	ug/Kg
1330-20-7	Total Xylenes	10.5	U	1.9	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.9		56 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	50.4		57 - 135	101%	SPK: 50
2037-26-5	Toluene-d8	53.6		67 - 123	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.3		33 - 141	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	541909	8.04			
540-36-3	1,4-Difluorobenzene	989326	8.95			
3114-55-4	Chlorobenzene-d5	651031	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	317061	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	6.31 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001940.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.45	U	0.64	4.9	ug/Kg
74-87-3	Chloromethane	2.45	U	0.84	4.9	ug/Kg
75-01-4	Vinyl Chloride	2.45	U	1.2	4.9	ug/Kg
74-83-9	Bromomethane	2.45	U	2.4	4.9	ug/Kg
75-00-3	Chloroethane	2.45	U	1.4	4.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.45	U	1.3	4.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.45	U	1.3	4.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.45	U	1.4	4.9	ug/Kg
67-64-1	Acetone	38		3	24	ug/Kg
75-15-0	Carbon Disulfide	2.45	U	1	4.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.45	U	0.94	4.9	ug/Kg
79-20-9	Methyl Acetate	2.45	U	1.5	4.9	ug/Kg
75-09-2	Methylene Chloride	2.45	U	1.4	4.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.45	U	0.68	4.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.45	U	0.92	4.9	ug/Kg
110-82-7	Cyclohexane	2.45	U	0.99	4.9	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.45	U	0.97	4.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.45	U	0.87	4.9	ug/Kg
74-97-5	Bromochloromethane	2.45	U	0.77	4.9	ug/Kg
67-66-3	Chloroform	2.45	U	0.72	4.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.45	U	0.86	4.9	ug/Kg
108-87-2	Methylcyclohexane	2.45	U	1	4.9	ug/Kg
71-43-2	Benzene	2.45	U	0.37	4.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.45	U	0.63	4.9	ug/Kg
79-01-6	Trichloroethene	2.45	U	0.84	4.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.45	U	0.25	4.9	ug/Kg
75-27-4	Bromodichloromethane	2.45	U	0.61	4.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.9	24	ug/Kg
108-88-3	Toluene	2.45	U	0.63	4.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.45	U	0.77	4.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	6.31 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001940.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.45	U	0.7	4.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.45	U	0.88	4.9	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.45	U	0.53	4.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.45	U	0.63	4.9	ug/Kg
127-18-4	Tetrachloroethene	2.45	U	0.99	4.9	ug/Kg
108-90-7	Chlorobenzene	2.45	U	0.49	4.9	ug/Kg
100-41-4	Ethyl Benzene	2.45	U	0.61	4.9	ug/Kg
179601-23-1	m/p-Xylenes	4.9	U	0.7	9.8	ug/Kg
95-47-6	o-Xylene	2.45	U	0.67	4.9	ug/Kg
100-42-5	Styrene	2.45	U	0.44	4.9	ug/Kg
75-25-2	Bromoform	2.45	U	0.72	4.9	ug/Kg
98-82-8	Isopropylbenzene	2.45	U	0.47	4.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.45	U	0.45	4.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.45	U	0.36	4.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.45	U	0.4	4.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.45	U	0.61	4.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.45	U	0.85	4.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.45	U	0.68	4.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.45	U	0.49	4.9	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49	U	98	98	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.2		56 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	49.8		57 - 135	100%	SPK: 50
2037-26-5	Toluene-d8	54.3		67 - 123	109%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.1		33 - 141	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	540938	8.05			
540-36-3	1,4-Difluorobenzene	1005170	8.95			
3114-55-4	Chlorobenzene-d5	689290	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	336594	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	35
Sample Wt/Vol:	5.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001939.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.65	U	0.95	7.3	ug/Kg
74-87-3	Chloromethane	3.65	U	1.3	7.3	ug/Kg
75-01-4	Vinyl Chloride	3.65	U	1.8	7.3	ug/Kg
74-83-9	Bromomethane	3.65	U	3.6	7.3	ug/Kg
75-00-3	Chloroethane	3.65	U	2	7.3	ug/Kg
75-69-4	Trichlorofluoromethane	3.65	U	1.9	7.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.65	U	1.9	7.3	ug/Kg
75-35-4	1,1-Dichloroethene	3.65	U	2.1	7.3	ug/Kg
67-64-1	Acetone	18	U	4.4	36	ug/Kg
75-15-0	Carbon Disulfide	3.65	U	1.5	7.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.65	U	1.4	7.3	ug/Kg
79-20-9	Methyl Acetate	3.65	U	2.2	7.3	ug/Kg
75-09-2	Methylene Chloride	3.65	U	2.1	7.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.65	U	1	7.3	ug/Kg
75-34-3	1,1-Dichloroethane	3.65	U	1.4	7.3	ug/Kg
110-82-7	Cyclohexane	3.65	U	1.5	7.3	ug/Kg
78-93-3	2-Butanone	18	U	4.5	36	ug/Kg
56-23-5	Carbon Tetrachloride	3.65	U	1.4	7.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.65	U	1.3	7.3	ug/Kg
74-97-5	Bromochloromethane	3.65	U	1.2	7.3	ug/Kg
67-66-3	Chloroform	3.65	U	1.1	7.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.65	U	1.3	7.3	ug/Kg
108-87-2	Methylcyclohexane	3.65	U	1.5	7.3	ug/Kg
71-43-2	Benzene	3.65	U	0.55	7.3	ug/Kg
107-06-2	1,2-Dichloroethane	3.65	U	0.93	7.3	ug/Kg
79-01-6	Trichloroethene	3.65	U	1.3	7.3	ug/Kg
78-87-5	1,2-Dichloropropane	3.65	U	0.38	7.3	ug/Kg
75-27-4	Bromodichloromethane	3.65	U	0.9	7.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	18	U	4.3	36	ug/Kg
108-88-3	Toluene	3.65	U	0.93	7.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.65	U	1.2	7.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	35
Sample Wt/Vol:	5.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001939.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.65	U	1.1	7.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.65	U	1.3	7.3	ug/Kg
591-78-6	2-Hexanone	18	U	5.7	36	ug/Kg
124-48-1	Dibromochloromethane	3.65	U	0.79	7.3	ug/Kg
106-93-4	1,2-Dibromoethane	3.65	U	0.93	7.3	ug/Kg
127-18-4	Tetrachloroethene	3.65	U	1.5	7.3	ug/Kg
108-90-7	Chlorobenzene	3.65	U	0.73	7.3	ug/Kg
100-41-4	Ethyl Benzene	3.65	U	0.9	7.3	ug/Kg
179601-23-1	m/p-Xylenes	7.5	U	1.1	15	ug/Kg
95-47-6	o-Xylene	3.65	U	0.99	7.3	ug/Kg
100-42-5	Styrene	3.65	U	0.66	7.3	ug/Kg
75-25-2	Bromoform	3.65	U	1.1	7.3	ug/Kg
98-82-8	Isopropylbenzene	2.9	J	0.7	7.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.65	U	0.67	7.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.65	U	0.54	7.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.65	U	0.6	7.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.65	U	0.9	7.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.65	U	1.3	7.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.65	U	1	7.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.65	U	0.73	7.3	ug/Kg
1330-20-7	Total Xylenes	11	U	2	22	ug/Kg
123-91-1	1,4-Dioxane	75	U	150	150	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	48.9		56 - 120	98%	SPK: 50
1868-53-7	Dibromofluoromethane	49.4		57 - 135	99%	SPK: 50
2037-26-5	Toluene-d8	53		67 - 123	106%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.2		33 - 141	82%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	491836	8.04			
540-36-3	1,4-Difluorobenzene	886848	8.95			
3114-55-4	Chlorobenzene-d5	552791	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	237348	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.42 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001941.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
74-87-3	Chloromethane	2.85	U	0.98	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
74-83-9	Bromomethane	2.85	U	2.8	5.7	ug/Kg
75-00-3	Chloroethane	2.85	U	1.6	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	81		3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.85	U	1.2	5.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.85	U	1.1	5.7	ug/Kg
79-20-9	Methyl Acetate	2.85	U	1.7	5.7	ug/Kg
75-09-2	Methylene Chloride	2.85	U	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.79	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
110-82-7	Cyclohexane	2.85	U	1.2	5.7	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.85	U	1.1	5.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
74-97-5	Bromochloromethane	2.85	U	0.9	5.7	ug/Kg
67-66-3	Chloroform	2.85	U	0.84	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
108-87-2	Methylcyclohexane	2.85	U	1.2	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.73	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.98	5.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.85	U	0.3	5.7	ug/Kg
75-27-4	Bromodichloromethane	2.85	U	0.71	5.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.85	U	0.73	5.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.85	U	0.9	5.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.42 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001941.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.85	U	0.82	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
591-78-6	2-Hexanone	14	U	4.5	28	ug/Kg
124-48-1	Dibromochloromethane	2.85	U	0.62	5.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.85	U	0.73	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.2	5.7	ug/Kg
108-90-7	Chlorobenzene	2.85	U	0.57	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.71	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.82	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.77	5.7	ug/Kg
100-42-5	Styrene	2.85	U	0.51	5.7	ug/Kg
75-25-2	Bromoform	2.85	U	0.84	5.7	ug/Kg
98-82-8	Isopropylbenzene	2.85	U	0.55	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.52	5.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.85	U	0.42	5.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.85	U	0.47	5.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.85	U	0.71	5.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.85	U	0.99	5.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.85	U	0.8	5.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.85	U	0.57	5.7	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.6		56 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	48.8		57 - 135	98%	SPK: 50
2037-26-5	Toluene-d8	54.2		67 - 123	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.6		33 - 141	93%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	512086	8.04			
540-36-3	1,4-Difluorobenzene	974894	8.95			
3114-55-4	Chlorobenzene-d5	655690	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	306345	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.18 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001937.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.45	U	0.64	4.9	ug/Kg
74-87-3	Chloromethane	2.45	U	0.85	4.9	ug/Kg
75-01-4	Vinyl Chloride	2.45	U	1.2	4.9	ug/Kg
74-83-9	Bromomethane	2.45	U	2.4	4.9	ug/Kg
75-00-3	Chloroethane	2.45	U	1.4	4.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.45	U	1.3	4.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.45	U	1.3	4.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.45	U	1.5	4.9	ug/Kg
67-64-1	Acetone	20	J	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.45	U	1	4.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.45	U	0.95	4.9	ug/Kg
79-20-9	Methyl Acetate	2.45	U	1.5	4.9	ug/Kg
75-09-2	Methylene Chloride	2.45	U	1.4	4.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.45	U	0.68	4.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.45	U	0.93	4.9	ug/Kg
110-82-7	Cyclohexane	2.45	U	1	4.9	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.45	U	0.98	4.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.45	U	0.88	4.9	ug/Kg
74-97-5	Bromochloromethane	2.45	U	0.78	4.9	ug/Kg
67-66-3	Chloroform	2.45	U	0.73	4.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.45	U	0.87	4.9	ug/Kg
108-87-2	Methylcyclohexane	2.45	U	1	4.9	ug/Kg
71-43-2	Benzene	2.45	U	0.37	4.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.45	U	0.63	4.9	ug/Kg
79-01-6	Trichloroethene	2.45	U	0.85	4.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.45	U	0.26	4.9	ug/Kg
75-27-4	Bromodichloromethane	2.45	U	0.61	4.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.45	U	0.63	4.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.45	U	0.78	4.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.18 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001937.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.45	U	0.71	4.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.45	U	0.89	4.9	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.45	U	0.53	4.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.45	U	0.63	4.9	ug/Kg
127-18-4	Tetrachloroethene	2.45	U	1	4.9	ug/Kg
108-90-7	Chlorobenzene	2.45	U	0.49	4.9	ug/Kg
100-41-4	Ethyl Benzene	2.45	U	0.61	4.9	ug/Kg
179601-23-1	m/p-Xylenes	4.95	U	0.71	9.9	ug/Kg
95-47-6	o-Xylene	2.45	U	0.67	4.9	ug/Kg
100-42-5	Styrene	2.45	U	0.44	4.9	ug/Kg
75-25-2	Bromoform	2.45	U	0.73	4.9	ug/Kg
98-82-8	Isopropylbenzene	2.45	U	0.47	4.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.45	U	0.45	4.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.45	U	0.37	4.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.45	U	0.4	4.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.45	U	0.61	4.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.45	U	0.86	4.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.45	U	0.69	4.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.45	U	0.49	4.9	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49.5	U	99	99	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.2		56 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	49		57 - 135	98%	SPK: 50
2037-26-5	Toluene-d8	54.2		67 - 123	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.5		33 - 141	97%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	493722	8.05			
540-36-3	1,4-Difluorobenzene	924844	8.95			
3114-55-4	Chlorobenzene-d5	635555	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	314906	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.8 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001936.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.05	U	0.79	6.1	ug/Kg
74-87-3	Chloromethane	3.05	U	1	6.1	ug/Kg
75-01-4	Vinyl Chloride	3.05	U	1.5	6.1	ug/Kg
74-83-9	Bromomethane	3.05	U	3	6.1	ug/Kg
75-00-3	Chloroethane	3.05	U	1.7	6.1	ug/Kg
75-69-4	Trichlorofluoromethane	3.05	U	1.6	6.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.05	U	1.6	6.1	ug/Kg
75-35-4	1,1-Dichloroethene	3.05	U	1.8	6.1	ug/Kg
67-64-1	Acetone	15	U	3.7	30	ug/Kg
75-15-0	Carbon Disulfide	3.05	U	1.3	6.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.05	U	1.2	6.1	ug/Kg
79-20-9	Methyl Acetate	3.05	U	1.8	6.1	ug/Kg
75-09-2	Methylene Chloride	3.05	U	1.7	6.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.05	U	0.84	6.1	ug/Kg
75-34-3	1,1-Dichloroethane	3.05	U	1.1	6.1	ug/Kg
110-82-7	Cyclohexane	3.05	U	1.2	6.1	ug/Kg
78-93-3	2-Butanone	15	U	3.8	30	ug/Kg
56-23-5	Carbon Tetrachloride	3.05	U	1.2	6.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.05	U	1.1	6.1	ug/Kg
74-97-5	Bromochloromethane	3.05	U	0.96	6.1	ug/Kg
67-66-3	Chloroform	3.05	U	0.9	6.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.05	U	1.1	6.1	ug/Kg
108-87-2	Methylcyclohexane	3.05	U	1.3	6.1	ug/Kg
71-43-2	Benzene	3.05	U	0.46	6.1	ug/Kg
107-06-2	1,2-Dichloroethane	3.05	U	0.78	6.1	ug/Kg
79-01-6	Trichloroethene	3.05	U	1	6.1	ug/Kg
78-87-5	1,2-Dichloropropane	3.05	U	0.32	6.1	ug/Kg
75-27-4	Bromodichloromethane	3.05	U	0.75	6.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.5	30	ug/Kg
108-88-3	Toluene	3.05	U	0.78	6.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.05	U	0.96	6.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.8 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001936.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.05	U	0.87	6.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.05	U	1.1	6.1	ug/Kg
591-78-6	2-Hexanone	15	U	4.8	30	ug/Kg
124-48-1	Dibromochloromethane	3.05	U	0.66	6.1	ug/Kg
106-93-4	1,2-Dibromoethane	3.05	U	0.78	6.1	ug/Kg
127-18-4	Tetrachloroethene	3.05	U	1.2	6.1	ug/Kg
108-90-7	Chlorobenzene	3.05	U	0.61	6.1	ug/Kg
100-41-4	Ethyl Benzene	3.05	U	0.75	6.1	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.87	12	ug/Kg
95-47-6	o-Xylene	3.05	U	0.83	6.1	ug/Kg
100-42-5	Styrene	3.05	U	0.55	6.1	ug/Kg
75-25-2	Bromoform	3.05	U	0.9	6.1	ug/Kg
98-82-8	Isopropylbenzene	3.05	U	0.58	6.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.05	U	0.56	6.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.05	U	0.45	6.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.05	U	0.5	6.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.05	U	0.75	6.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.05	U	1.1	6.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.05	U	0.85	6.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.05	U	0.61	6.1	ug/Kg
1330-20-7	Total Xylenes	9	U	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.3		56 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	49.6		57 - 135	99%	SPK: 50
2037-26-5	Toluene-d8	52.8		67 - 123	106%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.6		33 - 141	79%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	519788	8.05			
540-36-3	1,4-Difluorobenzene	950623	8.95			
3114-55-4	Chlorobenzene-d5	592084	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	228605	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.52 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001938.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
74-87-3	Chloromethane	2.85	U	0.97	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
74-83-9	Bromomethane	2.85	U	2.8	5.7	ug/Kg
75-00-3	Chloroethane	2.85	U	1.6	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	110		3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.85	U	1.2	5.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.85	U	1.1	5.7	ug/Kg
79-20-9	Methyl Acetate	2.85	U	1.7	5.7	ug/Kg
75-09-2	Methylene Chloride	2.4	J	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.78	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
110-82-7	Cyclohexane	2.85	U	1.1	5.7	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.85	U	1.1	5.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
74-97-5	Bromochloromethane	2.85	U	0.89	5.7	ug/Kg
67-66-3	Chloroform	2.85	U	0.84	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
108-87-2	Methylcyclohexane	2.85	U	1.2	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.72	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.97	5.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.85	U	0.29	5.7	ug/Kg
75-27-4	Bromodichloromethane	2.85	U	0.7	5.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.85	U	0.72	5.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.85	U	0.89	5.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.52 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001938.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.85	U	0.82	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
591-78-6	2-Hexanone	14	U	4.4	28	ug/Kg
124-48-1	Dibromochloromethane	2.85	U	0.61	5.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.85	U	0.72	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.1	5.7	ug/Kg
108-90-7	Chlorobenzene	2.85	U	0.57	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.7	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.82	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.77	5.7	ug/Kg
100-42-5	Styrene	2.85	U	0.51	5.7	ug/Kg
75-25-2	Bromoform	2.85	U	0.84	5.7	ug/Kg
98-82-8	Isopropylbenzene	2.85	U	0.54	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.52	5.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.85	U	0.42	5.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.85	U	0.46	5.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.85	U	0.7	5.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.85	U	0.99	5.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.85	U	0.79	5.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.85	U	0.57	5.7	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.5		56 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	48.7		57 - 135	97%	SPK: 50
2037-26-5	Toluene-d8	53.2		67 - 123	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.7		33 - 141	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	524682	8.05			
540-36-3	1,4-Difluorobenzene	984435	8.95			
3114-55-4	Chlorobenzene-d5	630999	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	254025	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.8 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001934.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	75		3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.99	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.96	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	5.5	J	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.91	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.66	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.64	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.66	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.8 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001934.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.74	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.92	5.1	ug/Kg
591-78-6	2-Hexanone	13	U	4	26	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.66	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.64	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.7	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.76	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.64	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.89	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.72	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.2		56 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		57 - 135	97%	SPK: 50
2037-26-5	Toluene-d8	53.4		67 - 123	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.7		33 - 141	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	540270	8.05			
540-36-3	1,4-Difluorobenzene	999028	8.95			
3114-55-4	Chlorobenzene-d5	654331	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	300524	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.14 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001933.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.4	U	0.88	6.8	ug/Kg
74-87-3	Chloromethane	3.4	U	1.2	6.8	ug/Kg
75-01-4	Vinyl Chloride	3.4	U	1.7	6.8	ug/Kg
74-83-9	Bromomethane	3.4	U	3.3	6.8	ug/Kg
75-00-3	Chloroethane	3.4	U	1.9	6.8	ug/Kg
75-69-4	Trichlorofluoromethane	3.4	U	1.8	6.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.4	U	1.8	6.8	ug/Kg
75-35-4	1,1-Dichloroethene	3.4	U	2	6.8	ug/Kg
67-64-1	Acetone	17	U	4.1	34	ug/Kg
75-15-0	Carbon Disulfide	3.4	U	1.4	6.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.4	U	1.3	6.8	ug/Kg
79-20-9	Methyl Acetate	3.4	U	2	6.8	ug/Kg
75-09-2	Methylene Chloride	3.4	U	1.9	6.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.4	U	0.93	6.8	ug/Kg
75-34-3	1,1-Dichloroethane	3.4	U	1.3	6.8	ug/Kg
110-82-7	Cyclohexane	3.4	U	1.4	6.8	ug/Kg
78-93-3	2-Butanone	17	U	4.2	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.4	U	1.3	6.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.4	U	1.2	6.8	ug/Kg
74-97-5	Bromochloromethane	3.4	U	1.1	6.8	ug/Kg
67-66-3	Chloroform	3.4	U	1	6.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.4	U	1.2	6.8	ug/Kg
108-87-2	Methylcyclohexane	3.4	U	1.4	6.8	ug/Kg
71-43-2	Benzene	3.4	U	0.51	6.8	ug/Kg
107-06-2	1,2-Dichloroethane	3.4	U	0.86	6.8	ug/Kg
79-01-6	Trichloroethene	3.4	U	1.2	6.8	ug/Kg
78-87-5	1,2-Dichloropropane	3.4	U	0.35	6.8	ug/Kg
75-27-4	Bromodichloromethane	3.4	U	0.84	6.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	3.9	34	ug/Kg
108-88-3	Toluene	3.4	U	0.86	6.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.4	U	1.1	6.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.14 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001933.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.4	U	0.97	6.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.4	U	1.2	6.8	ug/Kg
591-78-6	2-Hexanone	17	U	5.3	34	ug/Kg
124-48-1	Dibromochloromethane	3.4	U	0.73	6.8	ug/Kg
106-93-4	1,2-Dibromoethane	3.4	U	0.86	6.8	ug/Kg
127-18-4	Tetrachloroethene	3.4	U	1.4	6.8	ug/Kg
108-90-7	Chlorobenzene	3.4	U	0.68	6.8	ug/Kg
100-41-4	Ethyl Benzene	3.4	U	0.84	6.8	ug/Kg
179601-23-1	m/p-Xylenes	7	U	0.97	14	ug/Kg
95-47-6	o-Xylene	3.4	U	0.92	6.8	ug/Kg
100-42-5	Styrene	3.4	U	0.61	6.8	ug/Kg
75-25-2	Bromoform	3.4	U	1	6.8	ug/Kg
98-82-8	Isopropylbenzene	3.4	U	0.65	6.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.4	U	0.62	6.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.4	U	0.5	6.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.4	U	0.55	6.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.4	U	0.84	6.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.4	U	1.2	6.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.4	U	0.95	6.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.4	U	0.68	6.8	ug/Kg
1330-20-7	Total Xylenes	10	U	1.9	20	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.3		56 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	51.3		57 - 135	103%	SPK: 50
2037-26-5	Toluene-d8	53.2		67 - 123	106%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.4		33 - 141	81%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	476603	8.05			
540-36-3	1,4-Difluorobenzene	874851	8.95			
3114-55-4	Chlorobenzene-d5	549164	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	208697	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.68 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001931.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.8	U	0.72	5.6	ug/Kg
74-87-3	Chloromethane	2.8	U	0.96	5.6	ug/Kg
75-01-4	Vinyl Chloride	2.8	U	1.4	5.6	ug/Kg
74-83-9	Bromomethane	2.8	U	2.7	5.6	ug/Kg
75-00-3	Chloroethane	2.8	U	1.6	5.6	ug/Kg
75-69-4	Trichlorofluoromethane	2.8	U	1.5	5.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.8	U	1.5	5.6	ug/Kg
75-35-4	1,1-Dichloroethene	2.8	U	1.6	5.6	ug/Kg
67-64-1	Acetone	14	U	3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.8	U	1.2	5.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.8	U	1.1	5.6	ug/Kg
79-20-9	Methyl Acetate	2.8	U	1.7	5.6	ug/Kg
75-09-2	Methylene Chloride	2.8	U	1.6	5.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.8	U	0.77	5.6	ug/Kg
75-34-3	1,1-Dichloroethane	2.8	U	1	5.6	ug/Kg
110-82-7	Cyclohexane	2.8	U	1.1	5.6	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.8	U	1.1	5.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.8	U	0.99	5.6	ug/Kg
74-97-5	Bromochloromethane	2.8	U	0.88	5.6	ug/Kg
67-66-3	Chloroform	2.8	U	0.82	5.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.8	U	0.98	5.6	ug/Kg
108-87-2	Methylcyclohexane	2.8	U	1.2	5.6	ug/Kg
71-43-2	Benzene	2.8	U	0.42	5.6	ug/Kg
107-06-2	1,2-Dichloroethane	2.8	U	0.71	5.6	ug/Kg
79-01-6	Trichloroethene	2.8	U	0.96	5.6	ug/Kg
78-87-5	1,2-Dichloropropane	2.8	U	0.29	5.6	ug/Kg
75-27-4	Bromodichloromethane	2.8	U	0.69	5.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.8	U	0.71	5.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.8	U	0.88	5.6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.68 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001931.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.8	U	0.8	5.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.8	U	1	5.6	ug/Kg
591-78-6	2-Hexanone	14	U	4.4	28	ug/Kg
124-48-1	Dibromochloromethane	2.8	U	0.6	5.6	ug/Kg
106-93-4	1,2-Dibromoethane	2.8	U	0.71	5.6	ug/Kg
127-18-4	Tetrachloroethene	2.8	U	1.1	5.6	ug/Kg
108-90-7	Chlorobenzene	2.8	U	0.56	5.6	ug/Kg
100-41-4	Ethyl Benzene	2.8	U	0.69	5.6	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.8	11	ug/Kg
95-47-6	o-Xylene	2.8	U	0.76	5.6	ug/Kg
100-42-5	Styrene	2.8	U	0.5	5.6	ug/Kg
75-25-2	Bromoform	2.8	U	0.82	5.6	ug/Kg
98-82-8	Isopropylbenzene	2.8	U	0.53	5.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.8	U	0.51	5.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.8	U	0.41	5.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.8	U	0.46	5.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.8	U	0.69	5.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.8	U	0.97	5.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.8	U	0.78	5.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.8	U	0.56	5.6	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.6		56 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	49.2		57 - 135	98%	SPK: 50
2037-26-5	Toluene-d8	53.5		67 - 123	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.1		33 - 141	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	516346	8.05			
540-36-3	1,4-Difluorobenzene	960324	8.95			
3114-55-4	Chlorobenzene-d5	649350	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	310933	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001930.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.45	U	0.89	6.9	ug/Kg
74-87-3	Chloromethane	3.45	U	1.2	6.9	ug/Kg
75-01-4	Vinyl Chloride	3.45	U	1.7	6.9	ug/Kg
74-83-9	Bromomethane	3.45	U	3.4	6.9	ug/Kg
75-00-3	Chloroethane	3.45	U	1.9	6.9	ug/Kg
75-69-4	Trichlorofluoromethane	3.45	U	1.8	6.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.45	U	1.8	6.9	ug/Kg
75-35-4	1,1-Dichloroethene	3.45	U	2	6.9	ug/Kg
67-64-1	Acetone	450		4.2	34	ug/Kg
75-15-0	Carbon Disulfide	3.45	U	1.5	6.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.45	U	1.3	6.9	ug/Kg
79-20-9	Methyl Acetate	3.45	U	2.1	6.9	ug/Kg
75-09-2	Methylene Chloride	3.45	U	2	6.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.45	U	0.95	6.9	ug/Kg
75-34-3	1,1-Dichloroethane	3.45	U	1.3	6.9	ug/Kg
110-82-7	Cyclohexane	3.45	U	1.4	6.9	ug/Kg
78-93-3	2-Butanone	20	J	4.3	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.45	U	1.4	6.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.45	U	1.2	6.9	ug/Kg
74-97-5	Bromochloromethane	3.45	U	1.1	6.9	ug/Kg
67-66-3	Chloroform	3.45	U	1	6.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
108-87-2	Methylcyclohexane	3.45	U	1.5	6.9	ug/Kg
71-43-2	Benzene	3.45	U	0.52	6.9	ug/Kg
107-06-2	1,2-Dichloroethane	3.45	U	0.88	6.9	ug/Kg
79-01-6	Trichloroethene	3.45	U	1.2	6.9	ug/Kg
78-87-5	1,2-Dichloropropane	3.45	U	0.36	6.9	ug/Kg
75-27-4	Bromodichloromethane	3.45	U	0.85	6.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	4	34	ug/Kg
108-88-3	Toluene	3.45	U	0.88	6.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.45	U	1.1	6.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001930.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.45	U	0.99	6.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
591-78-6	2-Hexanone	17	U	5.4	34	ug/Kg
124-48-1	Dibromochloromethane	3.45	U	0.74	6.9	ug/Kg
106-93-4	1,2-Dibromoethane	3.45	U	0.88	6.9	ug/Kg
127-18-4	Tetrachloroethene	3.45	U	1.4	6.9	ug/Kg
108-90-7	Chlorobenzene	3.45	U	0.69	6.9	ug/Kg
100-41-4	Ethyl Benzene	3.45	U	0.85	6.9	ug/Kg
179601-23-1	m/p-Xylenes	7	U	0.99	14	ug/Kg
95-47-6	o-Xylene	3.45	U	0.94	6.9	ug/Kg
100-42-5	Styrene	3.45	U	0.62	6.9	ug/Kg
75-25-2	Bromoform	3.45	U	1	6.9	ug/Kg
98-82-8	Isopropylbenzene	3.45	U	0.66	6.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.45	U	0.63	6.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.45	U	0.51	6.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.45	U	0.56	6.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.45	U	0.85	6.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.45	U	1.2	6.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.45	U	0.96	6.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.45	U	0.69	6.9	ug/Kg
1330-20-7	Total Xylenes	10.5	U	1.9	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.8		56 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	50.7		57 - 135	101%	SPK: 50
2037-26-5	Toluene-d8	54		67 - 123	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.9		33 - 141	82%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	519412	8.04			
540-36-3	1,4-Difluorobenzene	964396	8.95			
3114-55-4	Chlorobenzene-d5	610420	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	237696	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	6.11 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001932.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.45	U	0.64	4.9	ug/Kg
74-87-3	Chloromethane	2.45	U	0.85	4.9	ug/Kg
75-01-4	Vinyl Chloride	2.45	U	1.2	4.9	ug/Kg
74-83-9	Bromomethane	2.45	U	2.4	4.9	ug/Kg
75-00-3	Chloroethane	2.45	U	1.4	4.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.45	U	1.3	4.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.45	U	1.3	4.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.45	U	1.4	4.9	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.45	U	1	4.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.45	U	0.95	4.9	ug/Kg
79-20-9	Methyl Acetate	2.45	U	1.5	4.9	ug/Kg
75-09-2	Methylene Chloride	2.45	U	1.4	4.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.45	U	0.68	4.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.45	U	0.93	4.9	ug/Kg
110-82-7	Cyclohexane	2.45	U	1	4.9	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.45	U	0.98	4.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.45	U	0.88	4.9	ug/Kg
74-97-5	Bromochloromethane	2.45	U	0.78	4.9	ug/Kg
67-66-3	Chloroform	2.45	U	0.73	4.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.45	U	0.87	4.9	ug/Kg
108-87-2	Methylcyclohexane	2.45	U	1	4.9	ug/Kg
71-43-2	Benzene	2.45	U	0.37	4.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.45	U	0.63	4.9	ug/Kg
79-01-6	Trichloroethene	2.45	U	0.85	4.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.45	U	0.26	4.9	ug/Kg
75-27-4	Bromodichloromethane	2.45	U	0.61	4.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.45	U	0.63	4.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.45	U	0.78	4.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	6.11 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001932.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.45	U	0.71	4.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.45	U	0.89	4.9	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.45	U	0.53	4.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.45	U	0.63	4.9	ug/Kg
127-18-4	Tetrachloroethene	2.45	U	1	4.9	ug/Kg
108-90-7	Chlorobenzene	2.45	U	0.49	4.9	ug/Kg
100-41-4	Ethyl Benzene	2.45	U	0.61	4.9	ug/Kg
179601-23-1	m/p-Xylenes	4.95	U	0.71	9.9	ug/Kg
95-47-6	o-Xylene	2.45	U	0.67	4.9	ug/Kg
100-42-5	Styrene	2.45	U	0.44	4.9	ug/Kg
75-25-2	Bromoform	2.45	U	0.73	4.9	ug/Kg
98-82-8	Isopropylbenzene	2.45	U	0.47	4.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.45	U	0.45	4.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.45	U	0.36	4.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.45	U	0.4	4.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.45	U	0.61	4.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.45	U	0.86	4.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.45	U	0.69	4.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.45	U	0.49	4.9	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49.5	U	99	99	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.8		56 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	49.3		57 - 135	99%	SPK: 50
2037-26-5	Toluene-d8	54.2		67 - 123	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.7		33 - 141	95%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	539945	8.04			
540-36-3	1,4-Difluorobenzene	992151	8.95			
3114-55-4	Chlorobenzene-d5	670592	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	331286	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001928.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	150		3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.99	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.6	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.97	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.92	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.66	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.64	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.66	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001928.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.74	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.93	5.1	ug/Kg
591-78-6	2-Hexanone	13	U	4	26	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.56	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.66	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.64	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.7	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.76	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.64	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.89	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.72	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		56 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		57 - 135	100%	SPK: 50
2037-26-5	Toluene-d8	53.8		67 - 123	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.7		33 - 141	93%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	497287	8.05			
540-36-3	1,4-Difluorobenzene	911056	8.95			
3114-55-4	Chlorobenzene-d5	617221	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	282899	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	4.91 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001927.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.65	U	0.95	7.3	ug/Kg
74-87-3	Chloromethane	3.65	U	1.3	7.3	ug/Kg
75-01-4	Vinyl Chloride	3.65	U	1.8	7.3	ug/Kg
74-83-9	Bromomethane	3.65	U	3.6	7.3	ug/Kg
75-00-3	Chloroethane	3.65	U	2	7.3	ug/Kg
75-69-4	Trichlorofluoromethane	3.65	U	1.9	7.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.65	U	1.9	7.3	ug/Kg
75-35-4	1,1-Dichloroethene	3.65	U	2.1	7.3	ug/Kg
67-64-1	Acetone	18	U	4.4	36	ug/Kg
75-15-0	Carbon Disulfide	3.65	U	1.5	7.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.65	U	1.4	7.3	ug/Kg
79-20-9	Methyl Acetate	3.65	U	2.2	7.3	ug/Kg
75-09-2	Methylene Chloride	3.65	U	2.1	7.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.65	U	1	7.3	ug/Kg
75-34-3	1,1-Dichloroethane	3.65	U	1.4	7.3	ug/Kg
110-82-7	Cyclohexane	3.65	U	1.5	7.3	ug/Kg
78-93-3	2-Butanone	18	U	4.5	36	ug/Kg
56-23-5	Carbon Tetrachloride	3.65	U	1.4	7.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.65	U	1.3	7.3	ug/Kg
74-97-5	Bromochloromethane	3.65	U	1.1	7.3	ug/Kg
67-66-3	Chloroform	3.65	U	1.1	7.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.65	U	1.3	7.3	ug/Kg
108-87-2	Methylcyclohexane	3.65	U	1.5	7.3	ug/Kg
71-43-2	Benzene	3.65	U	0.55	7.3	ug/Kg
107-06-2	1,2-Dichloroethane	3.65	U	0.93	7.3	ug/Kg
79-01-6	Trichloroethene	3.65	U	1.3	7.3	ug/Kg
78-87-5	1,2-Dichloropropane	3.65	U	0.38	7.3	ug/Kg
75-27-4	Bromodichloromethane	3.65	U	0.9	7.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	18	U	4.2	36	ug/Kg
108-88-3	Toluene	3.65	U	0.93	7.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.65	U	1.1	7.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	4.91 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001927.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.65	U	1	7.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.65	U	1.3	7.3	ug/Kg
591-78-6	2-Hexanone	18	U	5.7	36	ug/Kg
124-48-1	Dibromochloromethane	3.65	U	0.79	7.3	ug/Kg
106-93-4	1,2-Dibromoethane	3.65	U	0.93	7.3	ug/Kg
127-18-4	Tetrachloroethene	3.65	U	1.5	7.3	ug/Kg
108-90-7	Chlorobenzene	3.65	U	0.73	7.3	ug/Kg
100-41-4	Ethyl Benzene	3.65	U	0.9	7.3	ug/Kg
179601-23-1	m/p-Xylenes	7.5	U	1	15	ug/Kg
95-47-6	o-Xylene	3.65	U	0.99	7.3	ug/Kg
100-42-5	Styrene	3.65	U	0.65	7.3	ug/Kg
75-25-2	Bromoform	3.65	U	1.1	7.3	ug/Kg
98-82-8	Isopropylbenzene	3.65	U	0.7	7.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.65	U	0.67	7.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.65	U	0.54	7.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.65	U	0.6	7.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.65	U	0.9	7.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.65	U	1.3	7.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.65	U	1	7.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.65	U	0.73	7.3	ug/Kg
1330-20-7	Total Xylenes	11	U	2	22	ug/Kg
123-91-1	1,4-Dioxane	75	U	150	150	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.7		56 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	49.3		57 - 135	99%	SPK: 50
2037-26-5	Toluene-d8	52.2		67 - 123	104%	SPK: 50
460-00-4	4-Bromofluorobenzene	37.8		33 - 141	76%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	484547	8.05			
540-36-3	1,4-Difluorobenzene	877875	8.95			
3114-55-4	Chlorobenzene-d5	539156	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	194368	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01RE	SDG No.:	C5005
Lab Sample ID:	C5005-01RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	4.98 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001951.D	1		12/20/11	VT122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.6	U	0.93	7.2	ug/Kg
74-87-3	Chloromethane	3.6	U	1.2	7.2	ug/Kg
75-01-4	Vinyl Chloride	3.6	U	1.8	7.2	ug/Kg
74-83-9	Bromomethane	3.6	U	3.5	7.2	ug/Kg
75-00-3	Chloroethane	3.6	U	2	7.2	ug/Kg
75-69-4	Trichlorofluoromethane	3.6	U	1.9	7.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.6	U	1.9	7.2	ug/Kg
75-35-4	1,1-Dichloroethene	3.6	U	2.1	7.2	ug/Kg
67-64-1	Acetone	18	U	4.3	36	ug/Kg
75-15-0	Carbon Disulfide	3.6	U	1.5	7.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.6	U	1.4	7.2	ug/Kg
79-20-9	Methyl Acetate	3.6	U	2.2	7.2	ug/Kg
75-09-2	Methylene Chloride	3.6	U	2	7.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.6	U	0.99	7.2	ug/Kg
75-34-3	1,1-Dichloroethane	3.6	U	1.3	7.2	ug/Kg
110-82-7	Cyclohexane	3.6	U	1.4	7.2	ug/Kg
78-93-3	2-Butanone	18	U	4.5	36	ug/Kg
56-23-5	Carbon Tetrachloride	3.6	U	1.4	7.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.6	U	1.3	7.2	ug/Kg
74-97-5	Bromochloromethane	3.6	U	1.1	7.2	ug/Kg
67-66-3	Chloroform	3.6	U	1.1	7.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.6	U	1.3	7.2	ug/Kg
108-87-2	Methylcyclohexane	3.6	U	1.5	7.2	ug/Kg
71-43-2	Benzene	3.6	U	0.55	7.2	ug/Kg
107-06-2	1,2-Dichloroethane	3.6	U	0.92	7.2	ug/Kg
79-01-6	Trichloroethene	3.6	U	1.2	7.2	ug/Kg
78-87-5	1,2-Dichloropropane	3.6	U	0.37	7.2	ug/Kg
75-27-4	Bromodichloromethane	3.6	U	0.89	7.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	18	U	4.2	36	ug/Kg
108-88-3	Toluene	3.6	U	0.92	7.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.6	U	1.1	7.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01RE	SDG No.:	C5005
Lab Sample ID:	C5005-01RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	4.98 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001951.D	1		12/20/11	VT122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.6	U	1	7.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.6	U	1.3	7.2	ug/Kg
591-78-6	2-Hexanone	18	U	5.6	36	ug/Kg
124-48-1	Dibromochloromethane	3.6	U	0.77	7.2	ug/Kg
106-93-4	1,2-Dibromoethane	3.6	U	0.92	7.2	ug/Kg
127-18-4	Tetrachloroethene	3.6	U	1.4	7.2	ug/Kg
108-90-7	Chlorobenzene	3.6	U	0.72	7.2	ug/Kg
100-41-4	Ethyl Benzene	3.6	U	0.89	7.2	ug/Kg
179601-23-1	m/p-Xylenes	7	U	1	14	ug/Kg
95-47-6	o-Xylene	3.6	U	0.98	7.2	ug/Kg
100-42-5	Styrene	3.6	U	0.65	7.2	ug/Kg
75-25-2	Bromoform	3.6	U	1.1	7.2	ug/Kg
98-82-8	Isopropylbenzene	3.6	U	0.69	7.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.6	U	0.66	7.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.6	U	0.53	7.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.6	U	0.59	7.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.6	U	0.89	7.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.6	U	1.2	7.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.6	U	1	7.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.6	U	0.72	7.2	ug/Kg
1330-20-7	Total Xylenes	11	U	2	22	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		56 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	50		57 - 135	100%	SPK: 50
2037-26-5	Toluene-d8	52		67 - 123	104%	SPK: 50
460-00-4	4-Bromofluorobenzene	33.3		33 - 141	67%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	499931	8.05			
540-36-3	1,4-Difluorobenzene	926371	8.95			
3114-55-4	Chlorobenzene-d5	531514	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	181348	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	10
Sample Wt/Vol:	6.28 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001929.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.2	U	0.58	4.4	ug/Kg
74-87-3	Chloromethane	2.2	U	0.76	4.4	ug/Kg
75-01-4	Vinyl Chloride	2.2	U	1.1	4.4	ug/Kg
74-83-9	Bromomethane	2.2	U	2.2	4.4	ug/Kg
75-00-3	Chloroethane	2.2	U	1.2	4.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.2	U	1.2	4.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.2	U	1.2	4.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.2	U	1.3	4.4	ug/Kg
67-64-1	Acetone	11	U	2.7	22	ug/Kg
75-15-0	Carbon Disulfide	2.2	U	0.94	4.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.2	U	0.85	4.4	ug/Kg
79-20-9	Methyl Acetate	2.2	U	1.3	4.4	ug/Kg
75-09-2	Methylene Chloride	2.2	U	1.3	4.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.2	U	0.61	4.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.2	U	0.83	4.4	ug/Kg
110-82-7	Cyclohexane	2.2	U	0.89	4.4	ug/Kg
78-93-3	2-Butanone	11	U	2.8	22	ug/Kg
56-23-5	Carbon Tetrachloride	2.2	U	0.88	4.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.2	U	0.79	4.4	ug/Kg
74-97-5	Bromochloromethane	2.2	U	0.7	4.4	ug/Kg
67-66-3	Chloroform	2.2	U	0.65	4.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.2	U	0.78	4.4	ug/Kg
108-87-2	Methylcyclohexane	2.2	U	0.94	4.4	ug/Kg
71-43-2	Benzene	2.2	U	0.34	4.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.2	U	0.57	4.4	ug/Kg
79-01-6	Trichloroethene	2.2	U	0.76	4.4	ug/Kg
78-87-5	1,2-Dichloropropane	2.2	U	0.23	4.4	ug/Kg
75-27-4	Bromodichloromethane	2.2	U	0.55	4.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	11	U	2.6	22	ug/Kg
108-88-3	Toluene	2.2	U	0.57	4.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.2	U	0.7	4.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	10
Sample Wt/Vol:	6.28 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001929.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.2	U	0.64	4.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.2	U	0.8	4.4	ug/Kg
591-78-6	2-Hexanone	11	U	3.5	22	ug/Kg
124-48-1	Dibromochloromethane	2.2	U	0.48	4.4	ug/Kg
106-93-4	1,2-Dibromoethane	2.2	U	0.57	4.4	ug/Kg
127-18-4	Tetrachloroethene	2.2	U	0.89	4.4	ug/Kg
108-90-7	Chlorobenzene	2.2	U	0.44	4.4	ug/Kg
100-41-4	Ethyl Benzene	2.2	U	0.55	4.4	ug/Kg
179601-23-1	m/p-Xylenes	4.4	U	0.64	8.8	ug/Kg
95-47-6	o-Xylene	2.2	U	0.6	4.4	ug/Kg
100-42-5	Styrene	2.2	U	0.4	4.4	ug/Kg
75-25-2	Bromoform	2.2	U	0.65	4.4	ug/Kg
98-82-8	Isopropylbenzene	2.2	U	0.42	4.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.2	U	0.41	4.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.2	U	0.33	4.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.2	U	0.36	4.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.2	U	0.55	4.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.2	U	0.77	4.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.2	U	0.62	4.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.2	U	0.44	4.4	ug/Kg
1330-20-7	Total Xylenes	6.5	U	1.2	13	ug/Kg
123-91-1	1,4-Dioxane	44	U	88	88	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.1		56 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	49.8		57 - 135	100%	SPK: 50
2037-26-5	Toluene-d8	54.1		67 - 123	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.3		33 - 141	103%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	519982	8.05			
540-36-3	1,4-Difluorobenzene	964442	8.95			
3114-55-4	Chlorobenzene-d5	676397	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	341301	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12TB-20111214	SDG No.:	C5005
Lab Sample ID:	C5005-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039665.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
74-87-3	Chloromethane	2.5	U	0.54	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
74-83-9	Bromomethane	2.5	U	0.62	5	ug/L
75-00-3	Chloroethane	2.5	U	0.66	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	0.45	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-15-0	Carbon Disulfide	2.5	U	0.54	5	ug/L
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.35	5	ug/L
79-20-9	Methyl Acetate	2.5	U	0.83	5	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
110-82-7	Cyclohexane	2.5	U	0.55	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
56-23-5	Carbon Tetrachloride	2.5	U	0.62	5	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
74-97-5	Bromochloromethane	2.5	U	2.2	5	ug/L
67-66-3	Chloroform	2.5	U	0.34	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
108-87-2	Methylcyclohexane	2.5	U	0.68	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
78-87-5	1,2-Dichloropropane	2.5	U	0.46	5	ug/L
75-27-4	Bromodichloromethane	2.5	U	0.36	5	ug/L
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.1	25	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.29	5	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12TB-20111214	SDG No.:	C5005
Lab Sample ID:	C5005-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039665.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.31	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
591-78-6	2-Hexanone	12.5	U	1.9	25	ug/L
124-48-1	Dibromochloromethane	2.5	U	0.52	5	ug/L
106-93-4	1,2-Dibromoethane	2.5	U	0.41	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
108-90-7	Chlorobenzene	2.5	U	0.49	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
100-42-5	Styrene	2.5	U	0.36	5	ug/L
75-25-2	Bromoform	2.5	U	0.47	5	ug/L
98-82-8	Isopropylbenzene	2.5	U	0.45	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
541-73-1	1,3-Dichlorobenzene	2.5	U	0.43	5	ug/L
106-46-7	1,4-Dichlorobenzene	2.5	U	0.32	5	ug/L
95-50-1	1,2-Dichlorobenzene	2.5	U	0.45	5	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.46	5	ug/L
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.62	5	ug/L
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.65	5	ug/L
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/L
123-91-1	1,4-Dioxane	50	U	20	100	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.5		61 - 141	109%	SPK: 50
1868-53-7	Dibromofluoromethane	49		69 - 133	98%	SPK: 50
2037-26-5	Toluene-d8	49.2		65 - 126	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.8		58 - 135	106%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	458186	3.91			
540-36-3	1,4-Difluorobenzene	867408	4.71			
3114-55-4	Chlorobenzene-d5	481716	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	223239	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052066.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	25	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	24	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	18	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	23	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	27	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	22	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	33	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	18	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	230	U	13	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052066.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	48	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	87	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.3	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	61	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	27	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9.1	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	25	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	13	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	37	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	17	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	98.7		35 - 105	66%	SPK: 150
13127-88-3	Phenol-d5	99.7		40 - 100	66%	SPK: 150
4165-60-0	Nitrobenzene-d5	65.4		35 - 100	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	58.3		45 - 105	58%	SPK: 100
118-79-6	2,4,6-Tribromophenol	97.2		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	63.4		30 - 125	63%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	76420	4.27			
1146-65-2	Naphthalene-d8	298925	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052066.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	158019	7.06			
1517-22-2	Phenanthrene-d10	248541	8.65			
1719-03-5	Chrysene-d12	236936	11.77			
1520-96-3	Perylene-d12	216438	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052410.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	280	J	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052410.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	92.4		35 - 105	62%	SPK: 150
13127-88-3	Phenol-d5	102		40 - 100	68%	SPK: 150
4165-60-0	Nitrobenzene-d5	71.4		35 - 100	71%	SPK: 100
321-60-8	2-Fluorobiphenyl	59.9		45 - 105	60%	SPK: 100
118-79-6	2,4,6-Tribromophenol	98.6		35 - 125	66%	SPK: 150
1718-51-0	Terphenyl-d14	60.5		30 - 125	61%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	124561	4.12			
1146-65-2	Naphthalene-d8	467439	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052410.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	235686	6.91			
1517-22-2	Phenanthrene-d10	363443	8.48			
1719-03-5	Chrysene-d12	322465	11.59			
1520-96-3	Perylene-d12	301326	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052416.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	255	U	27	510	ug/Kg
108-95-2	Phenol	255	U	12	510	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	255	U	25	510	ug/Kg
95-57-8	2-Chlorophenol	255	U	27	510	ug/Kg
95-48-7	2-Methylphenol	255	U	28	510	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	255	U	21	510	ug/Kg
98-86-2	Acetophenone	255	U	16	510	ug/Kg
65794-96-9	3+4-Methylphenols	255	U	27	510	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	255	U	26	510	ug/Kg
67-72-1	Hexachloroethane	255	U	23	510	ug/Kg
98-95-3	Nitrobenzene	255	U	19	510	ug/Kg
78-59-1	Isophorone	255	U	17	510	ug/Kg
88-75-5	2-Nitrophenol	255	U	25	510	ug/Kg
105-67-9	2,4-Dimethylphenol	255	U	29	510	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	255	U	29	510	ug/Kg
120-83-2	2,4-Dichlorophenol	255	U	20	510	ug/Kg
106-47-8	4-Chloroaniline	255	U	36	510	ug/Kg
87-68-3	Hexachlorobutadiene	255	U	19	510	ug/Kg
105-60-2	Caprolactam	255	U	24	510	ug/Kg
59-50-7	4-Chloro-3-methylphenol	255	U	23	510	ug/Kg
77-47-4	Hexachlorocyclopentadiene	255	U	12	510	ug/Kg
88-06-2	2,4,6-Trichlorophenol	255	U	16	510	ug/Kg
95-95-4	2,4,5-Trichlorophenol	255	U	36	510	ug/Kg
92-52-4	1,1-Biphenyl	255	U	19	510	ug/Kg
91-58-7	2-Chloronaphthalene	255	U	12	510	ug/Kg
88-74-4	2-Nitroaniline	255	U	23	510	ug/Kg
131-11-3	Dimethylphthalate	255	U	14	510	ug/Kg
208-96-8	Acenaphthylene	255	U	13	510	ug/Kg
606-20-2	2,6-Dinitrotoluene	255	U	21	510	ug/Kg
99-09-2	3-Nitroaniline	255	U	33	510	ug/Kg
83-32-9	Acenaphthene	255	U	14	510	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052416.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	255	U	52	510	ug/Kg
100-02-7	4-Nitrophenol	255	U	95	510	ug/Kg
132-64-9	Dibenzofuran	255	U	20	510	ug/Kg
121-14-2	2,4-Dinitrotoluene	255	U	16	510	ug/Kg
84-66-2	Diethylphthalate	255	U	8	510	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	255	U	28	510	ug/Kg
100-01-6	4-Nitroaniline	255	U	67	510	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	255	U	29	510	ug/Kg
86-30-6	N-Nitrosodiphenylamine	255	U	12	510	ug/Kg
101-55-3	4-Bromophenyl-phenylether	255	U	10	510	ug/Kg
118-74-1	Hexachlorobenzene	255	U	21	510	ug/Kg
1912-24-9	Atrazine	255	U	27	510	ug/Kg
87-86-5	Pentachlorophenol	255	U	35	510	ug/Kg
85-01-8	Phenanthrene	255	U	14	510	ug/Kg
86-74-8	Carbazole	255	U	11	510	ug/Kg
84-74-2	Di-n-butylphthalate	255	U	40	510	ug/Kg
85-68-7	Butylbenzylphthalate	255	U	25	510	ug/Kg
91-94-1	3,3-Dichlorobenzidine	255	U	33	510	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	255	U	18	510	ug/Kg
117-84-0	Di-n-octyl phthalate	255	U	5.8	510	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	255	U	20	510	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	255	U	510	510	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	93		35 - 105	62%	SPK: 150
13127-88-3	Phenol-d5	104		40 - 100	69%	SPK: 150
4165-60-0	Nitrobenzene-d5	75.1		35 - 100	75%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.9		45 - 105	66%	SPK: 100
118-79-6	2,4,6-Tribromophenol	92.9		35 - 125	62%	SPK: 150
1718-51-0	Terphenyl-d14	61.9		30 - 125	62%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	125716	4.12			
1146-65-2	Naphthalene-d8	461093	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052416.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	228502	6.91			
1517-22-2	Phenanthrene-d10	359502	8.48			
1719-03-5	Chrysene-d12	352950	11.59			
1520-96-3	Perylene-d12	322311	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052067.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052067.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	94.6		35 - 105	63%	SPK: 150
13127-88-3	Phenol-d5	97.1		40 - 100	65%	SPK: 150
4165-60-0	Nitrobenzene-d5	63		35 - 100	63%	SPK: 100
321-60-8	2-Fluorobiphenyl	59.4		45 - 105	59%	SPK: 100
118-79-6	2,4,6-Tribromophenol	97.9		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	59.8		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	89930	4.27			
1146-65-2	Naphthalene-d8	351161	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052067.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	189013	7.06			
1517-22-2	Phenanthrene-d10	298292	8.65			
1719-03-5	Chrysene-d12	279582	11.77			
1520-96-3	Perylene-d12	259432	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052414.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052414.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	2500		11	400	ug/Kg
86-74-8	Carbazole	190	J	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	94.4		35 - 105	63%	SPK: 150
13127-88-3	Phenol-d5	104		40 - 100	70%	SPK: 150
4165-60-0	Nitrobenzene-d5	74.5		35 - 100	75%	SPK: 100
321-60-8	2-Fluorobiphenyl	60		45 - 105	60%	SPK: 100
118-79-6	2,4,6-Tribromophenol	105		35 - 125	70%	SPK: 150
1718-51-0	Terphenyl-d14	64.6		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	130540	4.12			
1146-65-2	Naphthalene-d8	465004	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052414.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	231607	6.92			
1517-22-2	Phenanthrene-d10	360430	8.48			
1719-03-5	Chrysene-d12	300317	11.6			
1520-96-3	Perylene-d12	316575	13.2			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052413.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	23	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	25	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	24	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	18	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	23	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	27	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	22	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	33	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	18	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	230	J	13	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052413.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	48	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	87	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.3	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	61	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	27	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9.1	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	25	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	340	J	13	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	37	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	23	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	17	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	87.4		35 - 105	58%	SPK: 150
13127-88-3	Phenol-d5	95.7		40 - 100	64%	SPK: 150
4165-60-0	Nitrobenzene-d5	66		35 - 100	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	52.6		45 - 105	53%	SPK: 100
118-79-6	2,4,6-Tribromophenol	92		35 - 125	61%	SPK: 150
1718-51-0	Terphenyl-d14	51.4		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	126757	4.12			
1146-65-2	Naphthalene-d8	477194	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052413.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	237032	6.91			
1517-22-2	Phenanthrene-d10	368298	8.48			
1719-03-5	Chrysene-d12	334003	11.59			
1520-96-3	Perylene-d12	315335	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052415.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	190	J	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052415.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	1000		11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	101		35 - 105	68%	SPK: 150
13127-88-3	Phenol-d5	112		40 - 100	75%	SPK: 150
4165-60-0	Nitrobenzene-d5	79.1		35 - 100	79%	SPK: 100
321-60-8	2-Fluorobiphenyl	68.1		45 - 105	68%	SPK: 100
118-79-6	2,4,6-Tribromophenol	118		35 - 125	79%	SPK: 150
1718-51-0	Terphenyl-d14	64.9		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	130991	4.12			
1146-65-2	Naphthalene-d8	472567	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052415.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	237336	6.92			
1517-22-2	Phenanthrene-d10	367275	8.48			
1719-03-5	Chrysene-d12	350259	11.59			
1520-96-3	Perylene-d12	338738	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052065.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.2	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	22	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	200	J	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052065.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	74	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	22	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	52	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	86.6		35 - 105	58%	SPK: 150
13127-88-3	Phenol-d5	90		40 - 100	60%	SPK: 150
4165-60-0	Nitrobenzene-d5	57.6		35 - 100	58%	SPK: 100
321-60-8	2-Fluorobiphenyl	54.4		45 - 105	54%	SPK: 100
118-79-6	2,4,6-Tribromophenol	90.7		35 - 125	60%	SPK: 150
1718-51-0	Terphenyl-d14	59.7		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	82554	4.27			
1146-65-2	Naphthalene-d8	316666	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052065.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	168642	7.06			
1517-22-2	Phenanthrene-d10	272178	8.65			
1719-03-5	Chrysene-d12	251663	11.77			
1520-96-3	Perylene-d12	228742	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052064.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	24	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	23	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	17	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	22	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	26	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	21	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	32	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	17	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	420	J	12	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052064.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	47	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	86	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.2	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	60	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	26	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	24	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	12	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	36	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	16	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	114		35 - 105	76%	SPK: 150
13127-88-3	Phenol-d5	117		40 - 100	78%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.5		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.8		45 - 105	70%	SPK: 100
118-79-6	2,4,6-Tribromophenol	116		35 - 125	77%	SPK: 150
1718-51-0	Terphenyl-d14	70.1		30 - 125	70%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	73681	4.27			
1146-65-2	Naphthalene-d8	286126	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052064.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	151439	7.06			
1517-22-2	Phenanthrene-d10	238826	8.65			
1719-03-5	Chrysene-d12	229101	11.77			
1520-96-3	Perylene-d12	204727	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052062.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	210	U	22	420	ug/Kg
108-95-2	Phenol	210	U	9.7	420	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	210	U	20	420	ug/Kg
95-57-8	2-Chlorophenol	210	U	22	420	ug/Kg
95-48-7	2-Methylphenol	210	U	23	420	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	210	U	17	420	ug/Kg
98-86-2	Acetophenone	210	U	13	420	ug/Kg
65794-96-9	3+4-Methylphenols	210	U	22	420	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	210	U	21	420	ug/Kg
67-72-1	Hexachloroethane	210	U	19	420	ug/Kg
98-95-3	Nitrobenzene	210	U	16	420	ug/Kg
78-59-1	Isophorone	210	U	14	420	ug/Kg
88-75-5	2-Nitrophenol	210	U	20	420	ug/Kg
105-67-9	2,4-Dimethylphenol	210	U	24	420	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	210	U	24	420	ug/Kg
120-83-2	2,4-Dichlorophenol	210	U	16	420	ug/Kg
106-47-8	4-Chloroaniline	210	U	30	420	ug/Kg
87-68-3	Hexachlorobutadiene	210	U	15	420	ug/Kg
105-60-2	Caprolactam	210	U	20	420	ug/Kg
59-50-7	4-Chloro-3-methylphenol	210	U	19	420	ug/Kg
77-47-4	Hexachlorocyclopentadiene	210	U	10	420	ug/Kg
88-06-2	2,4,6-Trichlorophenol	210	U	13	420	ug/Kg
95-95-4	2,4,5-Trichlorophenol	210	U	30	420	ug/Kg
92-52-4	1,1-Biphenyl	210	U	16	420	ug/Kg
91-58-7	2-Chloronaphthalene	210	U	9.6	420	ug/Kg
88-74-4	2-Nitroaniline	210	U	19	420	ug/Kg
131-11-3	Dimethylphthalate	250	J	11	420	ug/Kg
208-96-8	Acenaphthylene	210	U	11	420	ug/Kg
606-20-2	2,6-Dinitrotoluene	210	U	17	420	ug/Kg
99-09-2	3-Nitroaniline	210	U	27	420	ug/Kg
83-32-9	Acenaphthene	210	U	12	420	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052062.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	210	U	43	420	ug/Kg
100-02-7	4-Nitrophenol	210	U	78	420	ug/Kg
132-64-9	Dibenzofuran	210	U	16	420	ug/Kg
121-14-2	2,4-Dinitrotoluene	210	U	13	420	ug/Kg
84-66-2	Diethylphthalate	210	U	6.6	420	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	210	U	23	420	ug/Kg
100-01-6	4-Nitroaniline	210	U	55	420	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	210	U	24	420	ug/Kg
86-30-6	N-Nitrosodiphenylamine	210	U	10	420	ug/Kg
101-55-3	4-Bromophenyl-phenylether	210	U	8.2	420	ug/Kg
118-74-1	Hexachlorobenzene	210	U	17	420	ug/Kg
1912-24-9	Atrazine	210	U	22	420	ug/Kg
87-86-5	Pentachlorophenol	210	U	29	420	ug/Kg
85-01-8	Phenanthrene	210	U	11	420	ug/Kg
86-74-8	Carbazole	210	U	9.2	420	ug/Kg
84-74-2	Di-n-butylphthalate	210	U	33	420	ug/Kg
85-68-7	Butylbenzylphthalate	210	U	20	420	ug/Kg
91-94-1	3,3-Dichlorobenzidine	210	U	27	420	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	210	U	15	420	ug/Kg
117-84-0	Di-n-octyl phthalate	210	U	4.8	420	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U	17	420	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	210	U	420	420	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	107		35 - 105	72%	SPK: 150
13127-88-3	Phenol-d5	110		40 - 100	74%	SPK: 150
4165-60-0	Nitrobenzene-d5	72		35 - 100	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	66.9		45 - 105	67%	SPK: 100
118-79-6	2,4,6-Tribromophenol	108		35 - 125	73%	SPK: 150
1718-51-0	Terphenyl-d14	68.4		30 - 125	68%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	76560	4.27			
1146-65-2	Naphthalene-d8	294286	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052062.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	159499	7.06			
1517-22-2	Phenanthrene-d10	246665	8.65			
1719-03-5	Chrysene-d12	241480	11.77			
1520-96-3	Perylene-d12	220045	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052411.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	235	U	25	470	ug/Kg
108-95-2	Phenol	235	U	11	470	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	235	U	23	470	ug/Kg
95-57-8	2-Chlorophenol	235	U	25	470	ug/Kg
95-48-7	2-Methylphenol	235	U	26	470	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	235	U	20	470	ug/Kg
98-86-2	Acetophenone	235	U	15	470	ug/Kg
65794-96-9	3+4-Methylphenols	235	U	25	470	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	235	U	24	470	ug/Kg
67-72-1	Hexachloroethane	235	U	21	470	ug/Kg
98-95-3	Nitrobenzene	235	U	18	470	ug/Kg
78-59-1	Isophorone	235	U	16	470	ug/Kg
88-75-5	2-Nitrophenol	235	U	23	470	ug/Kg
105-67-9	2,4-Dimethylphenol	235	U	27	470	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	235	U	27	470	ug/Kg
120-83-2	2,4-Dichlorophenol	235	U	18	470	ug/Kg
106-47-8	4-Chloroaniline	235	U	34	470	ug/Kg
87-68-3	Hexachlorobutadiene	235	U	17	470	ug/Kg
105-60-2	Caprolactam	235	U	22	470	ug/Kg
59-50-7	4-Chloro-3-methylphenol	235	U	21	470	ug/Kg
77-47-4	Hexachlorocyclopentadiene	235	U	12	470	ug/Kg
88-06-2	2,4,6-Trichlorophenol	235	U	15	470	ug/Kg
95-95-4	2,4,5-Trichlorophenol	235	U	33	470	ug/Kg
92-52-4	1,1-Biphenyl	235	U	18	470	ug/Kg
91-58-7	2-Chloronaphthalene	235	U	11	470	ug/Kg
88-74-4	2-Nitroaniline	235	U	21	470	ug/Kg
131-11-3	Dimethylphthalate	330	J	13	470	ug/Kg
208-96-8	Acenaphthylene	235	U	12	470	ug/Kg
606-20-2	2,6-Dinitrotoluene	235	U	19	470	ug/Kg
99-09-2	3-Nitroaniline	235	U	31	470	ug/Kg
83-32-9	Acenaphthene	235	U	13	470	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052411.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	235	U	48	470	ug/Kg
100-02-7	4-Nitrophenol	235	U	88	470	ug/Kg
132-64-9	Dibenzofuran	235	U	19	470	ug/Kg
121-14-2	2,4-Dinitrotoluene	235	U	14	470	ug/Kg
84-66-2	Diethylphthalate	235	U	7.4	470	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	235	U	26	470	ug/Kg
100-01-6	4-Nitroaniline	235	U	62	470	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	235	U	27	470	ug/Kg
86-30-6	N-Nitrosodiphenylamine	235	U	11	470	ug/Kg
101-55-3	4-Bromophenyl-phenylether	235	U	9.3	470	ug/Kg
118-74-1	Hexachlorobenzene	235	U	19	470	ug/Kg
1912-24-9	Atrazine	235	U	25	470	ug/Kg
87-86-5	Pentachlorophenol	235	U	33	470	ug/Kg
85-01-8	Phenanthrene	235	U	13	470	ug/Kg
86-74-8	Carbazole	235	U	10	470	ug/Kg
84-74-2	Di-n-butylphthalate	235	U	37	470	ug/Kg
85-68-7	Butylbenzylphthalate	235	U	23	470	ug/Kg
91-94-1	3,3-Dichlorobenzidine	235	U	31	470	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	235	U	17	470	ug/Kg
117-84-0	Di-n-octyl phthalate	235	U	5.4	470	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	235	U	19	470	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	235	U	470	470	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	80		35 - 105	53%	SPK: 150
13127-88-3	Phenol-d5	86.8		40 - 100	58%	SPK: 150
4165-60-0	Nitrobenzene-d5	59.9		35 - 100	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.3		45 - 105	51%	SPK: 100
118-79-6	2,4,6-Tribromophenol	83		35 - 125	55%	SPK: 150
1718-51-0	Terphenyl-d14	50.5		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	116052	4.12			
1146-65-2	Naphthalene-d8	428614	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052411.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	216857	6.91			
1517-22-2	Phenanthrene-d10	332183	8.48			
1719-03-5	Chrysene-d12	302171	11.59			
1520-96-3	Perylene-d12	281856	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052063.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.3	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	19	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	28	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.7	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.1	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	16	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052063.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	74	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.2	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	52	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.6	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.8	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	16	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	27	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.8	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	31	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	106		35 - 105	71%	SPK: 150
13127-88-3	Phenol-d5	110		40 - 100	73%	SPK: 150
4165-60-0	Nitrobenzene-d5	72.3		35 - 100	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	63.1		45 - 105	63%	SPK: 100
118-79-6	2,4,6-Tribromophenol	106		35 - 125	71%	SPK: 150
1718-51-0	Terphenyl-d14	66.6		30 - 125	67%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80533	4.27			
1146-65-2	Naphthalene-d8	312764	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052063.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	169949	7.06			
1517-22-2	Phenanthrene-d10	266175	8.65			
1719-03-5	Chrysene-d12	252636	11.77			
1520-96-3	Perylene-d12	229749	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052058.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	270	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052058.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	105		35 - 105	70%	SPK: 150
13127-88-3	Phenol-d5	110		40 - 100	74%	SPK: 150
4165-60-0	Nitrobenzene-d5	70.1		35 - 100	70%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.7		45 - 105	70%	SPK: 100
118-79-6	2,4,6-Tribromophenol	113		35 - 125	76%	SPK: 150
1718-51-0	Terphenyl-d14	72.5		30 - 125	73%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	78632	4.27			
1146-65-2	Naphthalene-d8	312100	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052058.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	166293	7.06			
1517-22-2	Phenanthrene-d10	267109	8.65			
1719-03-5	Chrysene-d12	253045	11.77			
1520-96-3	Perylene-d12	224889	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052412.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	235	U	25	470	ug/Kg
108-95-2	Phenol	235	U	11	470	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	235	U	23	470	ug/Kg
95-57-8	2-Chlorophenol	235	U	25	470	ug/Kg
95-48-7	2-Methylphenol	235	U	26	470	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	235	U	20	470	ug/Kg
98-86-2	Acetophenone	235	U	15	470	ug/Kg
65794-96-9	3+4-Methylphenols	235	U	25	470	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	235	U	24	470	ug/Kg
67-72-1	Hexachloroethane	235	U	21	470	ug/Kg
98-95-3	Nitrobenzene	235	U	18	470	ug/Kg
78-59-1	Isophorone	235	U	16	470	ug/Kg
88-75-5	2-Nitrophenol	235	U	23	470	ug/Kg
105-67-9	2,4-Dimethylphenol	235	U	27	470	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	235	U	27	470	ug/Kg
120-83-2	2,4-Dichlorophenol	235	U	18	470	ug/Kg
106-47-8	4-Chloroaniline	235	U	34	470	ug/Kg
87-68-3	Hexachlorobutadiene	235	U	17	470	ug/Kg
105-60-2	Caprolactam	235	U	22	470	ug/Kg
59-50-7	4-Chloro-3-methylphenol	235	U	21	470	ug/Kg
77-47-4	Hexachlorocyclopentadiene	235	U	12	470	ug/Kg
88-06-2	2,4,6-Trichlorophenol	235	U	15	470	ug/Kg
95-95-4	2,4,5-Trichlorophenol	235	U	33	470	ug/Kg
92-52-4	1,1-Biphenyl	235	U	18	470	ug/Kg
91-58-7	2-Chloronaphthalene	235	U	11	470	ug/Kg
88-74-4	2-Nitroaniline	235	U	21	470	ug/Kg
131-11-3	Dimethylphthalate	330	J	13	470	ug/Kg
208-96-8	Acenaphthylene	235	U	12	470	ug/Kg
606-20-2	2,6-Dinitrotoluene	235	U	19	470	ug/Kg
99-09-2	3-Nitroaniline	235	U	31	470	ug/Kg
83-32-9	Acenaphthene	235	U	13	470	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052412.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	235	U	48	470	ug/Kg
100-02-7	4-Nitrophenol	235	U	88	470	ug/Kg
132-64-9	Dibenzofuran	235	U	19	470	ug/Kg
121-14-2	2,4-Dinitrotoluene	235	U	14	470	ug/Kg
84-66-2	Diethylphthalate	235	U	7.4	470	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	235	U	26	470	ug/Kg
100-01-6	4-Nitroaniline	235	U	62	470	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	235	U	27	470	ug/Kg
86-30-6	N-Nitrosodiphenylamine	235	U	11	470	ug/Kg
101-55-3	4-Bromophenyl-phenylether	235	U	9.3	470	ug/Kg
118-74-1	Hexachlorobenzene	235	U	19	470	ug/Kg
1912-24-9	Atrazine	235	U	25	470	ug/Kg
87-86-5	Pentachlorophenol	235	U	33	470	ug/Kg
85-01-8	Phenanthrene	235	U	13	470	ug/Kg
86-74-8	Carbazole	235	U	10	470	ug/Kg
84-74-2	Di-n-butylphthalate	235	U	37	470	ug/Kg
85-68-7	Butylbenzylphthalate	235	U	23	470	ug/Kg
91-94-1	3,3-Dichlorobenzidine	235	U	31	470	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	235	U	17	470	ug/Kg
117-84-0	Di-n-octyl phthalate	235	U	5.4	470	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	235	U	19	470	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	235	U	470	470	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	88.6		35 - 105	59%	SPK: 150
13127-88-3	Phenol-d5	96.6		40 - 100	64%	SPK: 150
4165-60-0	Nitrobenzene-d5	66.4		35 - 100	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	61.4		45 - 105	61%	SPK: 100
118-79-6	2,4,6-Tribromophenol	96.9		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	59		30 - 125	59%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	112035	4.12			
1146-65-2	Naphthalene-d8	413467	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052412.D	1	12/16/11	12/28/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	209712	6.91			
1517-22-2	Phenanthrene-d10	322272	8.48			
1719-03-5	Chrysene-d12	289042	11.59			
1520-96-3	Perylene-d12	268206	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	10
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052061.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	185	U	19	370	ug/Kg
108-95-2	Phenol	185	U	8.5	370	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	185	U	18	370	ug/Kg
95-57-8	2-Chlorophenol	185	U	20	370	ug/Kg
95-48-7	2-Methylphenol	185	U	20	370	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	185	U	15	370	ug/Kg
98-86-2	Acetophenone	185	U	11	370	ug/Kg
65794-96-9	3+4-Methylphenols	185	U	19	370	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	185	U	19	370	ug/Kg
67-72-1	Hexachloroethane	185	U	17	370	ug/Kg
98-95-3	Nitrobenzene	185	U	14	370	ug/Kg
78-59-1	Isophorone	185	U	12	370	ug/Kg
88-75-5	2-Nitrophenol	185	U	18	370	ug/Kg
105-67-9	2,4-Dimethylphenol	185	U	21	370	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	185	U	21	370	ug/Kg
120-83-2	2,4-Dichlorophenol	185	U	14	370	ug/Kg
106-47-8	4-Chloroaniline	185	U	26	370	ug/Kg
87-68-3	Hexachlorobutadiene	185	U	13	370	ug/Kg
105-60-2	Caprolactam	185	U	17	370	ug/Kg
59-50-7	4-Chloro-3-methylphenol	185	U	16	370	ug/Kg
77-47-4	Hexachlorocyclopentadiene	185	U	9	370	ug/Kg
88-06-2	2,4,6-Trichlorophenol	185	U	11	370	ug/Kg
95-95-4	2,4,5-Trichlorophenol	185	U	26	370	ug/Kg
92-52-4	1,1-Biphenyl	185	U	14	370	ug/Kg
91-58-7	2-Chloronaphthalene	185	U	8.4	370	ug/Kg
88-74-4	2-Nitroaniline	185	U	16	370	ug/Kg
131-11-3	Dimethylphthalate	250	J	10	370	ug/Kg
208-96-8	Acenaphthylene	185	U	9.3	370	ug/Kg
606-20-2	2,6-Dinitrotoluene	185	U	15	370	ug/Kg
99-09-2	3-Nitroaniline	185	U	24	370	ug/Kg
83-32-9	Acenaphthene	185	U	10	370	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	10
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052061.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	185	U	38	370	ug/Kg
100-02-7	4-Nitrophenol	185	U	69	370	ug/Kg
132-64-9	Dibenzofuran	185	U	14	370	ug/Kg
121-14-2	2,4-Dinitrotoluene	185	U	11	370	ug/Kg
84-66-2	Diethylphthalate	185	U	5.8	370	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	185	U	20	370	ug/Kg
100-01-6	4-Nitroaniline	185	U	48	370	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	185	U	21	370	ug/Kg
86-30-6	N-Nitrosodiphenylamine	185	U	8.9	370	ug/Kg
101-55-3	4-Bromophenyl-phenylether	185	U	7.2	370	ug/Kg
118-74-1	Hexachlorobenzene	185	U	15	370	ug/Kg
1912-24-9	Atrazine	185	U	20	370	ug/Kg
87-86-5	Pentachlorophenol	185	U	25	370	ug/Kg
85-01-8	Phenanthrene	185	U	10	370	ug/Kg
86-74-8	Carbazole	185	U	8.1	370	ug/Kg
84-74-2	Di-n-butylphthalate	185	U	29	370	ug/Kg
85-68-7	Butylbenzylphthalate	185	U	18	370	ug/Kg
91-94-1	3,3-Dichlorobenzidine	185	U	24	370	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	185	U	13	370	ug/Kg
117-84-0	Di-n-octyl phthalate	185	U	4.2	370	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	185	U	15	370	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	185	U	370	370	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	102		35 - 105	68%	SPK: 150
13127-88-3	Phenol-d5	104		40 - 100	70%	SPK: 150
4165-60-0	Nitrobenzene-d5	69.3		35 - 100	69%	SPK: 100
321-60-8	2-Fluorobiphenyl	71.8		45 - 105	72%	SPK: 100
118-79-6	2,4,6-Tribromophenol	114		35 - 125	76%	SPK: 150
1718-51-0	Terphenyl-d14	68.4		30 - 125	68%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80400	4.27			
1146-65-2	Naphthalene-d8	309923	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	10
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052061.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	165737	7.06			
1517-22-2	Phenanthrene-d10	268101	8.65			
1719-03-5	Chrysene-d12	262111	11.77			
1520-96-3	Perylene-d12	236513	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002271.D	1	12/16/11	12/17/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.3	U	0.56	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	2.3	U	0.56	4.6	ug/Kg
208-96-8	Acenaphthylene	2.3	U	0.56	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.56	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.56	4.6	ug/Kg
85-01-8	Phenanthrene	17		0.56	4.6	ug/Kg
120-12-7	Anthracene	2.3	U	0.56	4.6	ug/Kg
206-44-0	Fluoranthene	22		0.56	4.6	ug/Kg
129-00-0	Pyrene	18		0.56	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	5.6		0.56	4.6	ug/Kg
218-01-9	Chrysene	9.8		0.56	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	12		0.56	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	4.7		0.56	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	7		0.56	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	5.6		0.56	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.56	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	5.6		0.56	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	55.2		30 - 150	55%	SPK: 100
321-60-8	2-Fluorobiphenyl	42.3		19 - 182	42%	SPK: 100
1718-51-0	Terphenyl-d14	47.8		24 - 191	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	44943	8.15			
1146-65-2	Naphthalene-d8	153063	10.31			
15067-26-2	Acenaphthene-d10	85450	13.26			
1517-22-2	Phenanthrene-d10	136084	15.74			
1719-03-5	Chrysene-d12	114706	20.13			
1520-96-3	Perylene-d12	103404	23.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002326.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	4.5		0.49	4.1	ug/Kg
83-32-9	Acenaphthene	3.7	J	0.49	4.1	ug/Kg
86-73-7	Fluorene	6.2		0.49	4.1	ug/Kg
85-01-8	Phenanthrene	96		0.49	4.1	ug/Kg
120-12-7	Anthracene	19		0.49	4.1	ug/Kg
206-44-0	Fluoranthene	230		0.49	4.1	ug/Kg
129-00-0	Pyrene	170		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	84		0.49	4.1	ug/Kg
218-01-9	Chrysene	93		0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	110		0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	37		0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	77		0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	49		0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	4.1		0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	48		0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	66.1		30 - 150	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	49.7		19 - 182	50%	SPK: 100
1718-51-0	Terphenyl-d14	51		24 - 191	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	35453	8.04			
1146-65-2	Naphthalene-d8	128962	10.21			
15067-26-2	Acenaphthene-d10	83011	13.19			
1517-22-2	Phenanthrene-d10	150253	15.64			
1719-03-5	Chrysene-d12	158595	20.01			
1520-96-3	Perylene-d12	139719	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002325.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	3.6	J	0.61	5.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.55	U	0.61	5.1	ug/Kg
208-96-8	Acenaphthylene	5.6		0.61	5.1	ug/Kg
83-32-9	Acenaphthene	5.6		0.61	5.1	ug/Kg
86-73-7	Fluorene	11		0.61	5.1	ug/Kg
85-01-8	Phenanthrene	150		0.61	5.1	ug/Kg
120-12-7	Anthracene	9.7		0.61	5.1	ug/Kg
206-44-0	Fluoranthene	220		0.61	5.1	ug/Kg
129-00-0	Pyrene	150		0.61	5.1	ug/Kg
56-55-3	Benzo(a)anthracene	46		0.61	5.1	ug/Kg
218-01-9	Chrysene	76		0.61	5.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	90		0.61	5.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	33		0.61	5.1	ug/Kg
50-32-8	Benzo(a)pyrene	56		0.61	5.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	37		0.61	5.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.55	U	0.61	5.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	35		0.61	5.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	74.8		30 - 150	75%	SPK: 100
321-60-8	2-Fluorobiphenyl	60		19 - 182	60%	SPK: 100
1718-51-0	Terphenyl-d14	60.8		24 - 191	61%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	36161	8.03			
1146-65-2	Naphthalene-d8	130352	10.21			
15067-26-2	Acenaphthene-d10	83303	13.18			
1517-22-2	Phenanthrene-d10	151169	15.64			
1719-03-5	Chrysene-d12	157618	20.02			
1520-96-3	Perylene-d12	137986	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002314.D	1	12/16/11	12/22/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	4.1		0.49	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.49	4.1	ug/Kg
206-44-0	Fluoranthene	5.8		0.49	4.1	ug/Kg
129-00-0	Pyrene	4.1		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.5	J	0.49	4.1	ug/Kg
218-01-9	Chrysene	2.1	J	0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	67.1		30 - 150	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.3		19 - 182	51%	SPK: 100
1718-51-0	Terphenyl-d14	52.9		24 - 191	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	40627	8.03			
1146-65-2	Naphthalene-d8	145290	10.21			
15067-26-2	Acenaphthene-d10	96002	13.19			
1517-22-2	Phenanthrene-d10	175014	15.64			
1719-03-5	Chrysene-d12	177976	20.01			
1520-96-3	Perylene-d12	154809	23.16			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002330.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	39		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	33		0.49	4	ug/Kg
208-96-8	Acenaphthylene	110		0.49	4	ug/Kg
83-32-9	Acenaphthene	120		0.49	4	ug/Kg
86-73-7	Fluorene	220		0.49	4	ug/Kg
85-01-8	Phenanthrene	2800	E	0.49	4	ug/Kg
120-12-7	Anthracene	1000		0.49	4	ug/Kg
206-44-0	Fluoranthene	4700	E	0.49	4	ug/Kg
129-00-0	Pyrene	3900	E	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2500	E	0.49	4	ug/Kg
218-01-9	Chrysene	2300	E	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	3300	E	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	1100		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2300	E	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1000		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	140		0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1300		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	80.5		30 - 150	80%	SPK: 100
321-60-8	2-Fluorobiphenyl	58.9		19 - 182	59%	SPK: 100
1718-51-0	Terphenyl-d14	61.9		24 - 191	62%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	35792	8.04			
1146-65-2	Naphthalene-d8	129234	10.21			
15067-26-2	Acenaphthene-d10	81706	13.18			
1517-22-2	Phenanthrene-d10	138507	15.64			
1719-03-5	Chrysene-d12	132400	20.01			
1520-96-3	Perylene-d12	93150	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02DL	SDG No.:	C5005
Lab Sample ID:	C5005-11DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002331.D	5	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	41	D	2.4	20	ug/Kg
91-57-6	2-Methylnaphthalene	32	D	2.4	20	ug/Kg
208-96-8	Acenaphthylene	130	D	2.4	20	ug/Kg
83-32-9	Acenaphthene	120	D	2.4	20	ug/Kg
86-73-7	Fluorene	230	D	2.4	20	ug/Kg
85-01-8	Phenanthrene	3400	D	2.4	20	ug/Kg
120-12-7	Anthracene	1200	D	2.4	20	ug/Kg
206-44-0	Fluoranthene	6800	D	2.4	20	ug/Kg
129-00-0	Pyrene	4900	D	2.4	20	ug/Kg
56-55-3	Benzo(a)anthracene	2600	D	2.4	20	ug/Kg
218-01-9	Chrysene	2600	D	2.4	20	ug/Kg
205-99-2	Benzo(b)fluoranthene	3200	D	2.4	20	ug/Kg
207-08-9	Benzo(k)fluoranthene	1100	D	2.4	20	ug/Kg
50-32-8	Benzo(a)pyrene	2400	D	2.4	20	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1100	D	2.4	20	ug/Kg
53-70-3	Dibenz(a,h)anthracene	130	D	2.4	20	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1100	D	2.4	20	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	86.8		30 - 150	87%	SPK: 100
321-60-8	2-Fluorobiphenyl	67.6		19 - 182	68%	SPK: 100
1718-51-0	Terphenyl-d14	69.6		24 - 191	70%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	34567	8.03			
1146-65-2	Naphthalene-d8	129987	10.21			
15067-26-2	Acenaphthene-d10	82304	13.19			
1517-22-2	Phenanthrene-d10	144826	15.64			
1719-03-5	Chrysene-d12	152973	20.01			
1520-96-3	Perylene-d12	129422	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002328.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	6.6		0.56	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	5.6		0.56	4.6	ug/Kg
208-96-8	Acenaphthylene	14		0.56	4.6	ug/Kg
83-32-9	Acenaphthene	10		0.56	4.6	ug/Kg
86-73-7	Fluorene	20		0.56	4.6	ug/Kg
85-01-8	Phenanthrene	290		0.56	4.6	ug/Kg
120-12-7	Anthracene	47		0.56	4.6	ug/Kg
206-44-0	Fluoranthene	700		0.56	4.6	ug/Kg
129-00-0	Pyrene	520		0.56	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	250		0.56	4.6	ug/Kg
218-01-9	Chrysene	280		0.56	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	350		0.56	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	120		0.56	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	250		0.56	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	130		0.56	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	14		0.56	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	130		0.56	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.5		30 - 150	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	43.1		19 - 182	43%	SPK: 100
1718-51-0	Terphenyl-d14	43.8		24 - 191	44%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	43834	8.04			
1146-65-2	Naphthalene-d8	162938	10.21			
15067-26-2	Acenaphthene-d10	104017	13.18			
1517-22-2	Phenanthrene-d10	186483	15.64			
1719-03-5	Chrysene-d12	193293	20.01			
1520-96-3	Perylene-d12	168040	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002329.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	25		0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	20		0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	42		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	57		0.5	4.1	ug/Kg
86-73-7	Fluorene	130		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	860		0.5	4.1	ug/Kg
120-12-7	Anthracene	250		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	1100		0.5	4.1	ug/Kg
129-00-0	Pyrene	750		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	360		0.5	4.1	ug/Kg
218-01-9	Chrysene	370		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	440		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	160		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	330		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	150		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	15		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	160		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.1		30 - 150	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	54.7		19 - 182	55%	SPK: 100
1718-51-0	Terphenyl-d14	55.2		24 - 191	55%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	40670	8.04			
1146-65-2	Naphthalene-d8	147235	10.22			
15067-26-2	Acenaphthene-d10	93592	13.18			
1517-22-2	Phenanthrene-d10	168195	15.64			
1719-03-5	Chrysene-d12	173838	20.02			
1520-96-3	Perylene-d12	148626	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002313.D	1	12/16/11	12/22/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.48	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.48	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.48	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.48	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.48	3.9	ug/Kg
85-01-8	Phenanthrene	1.95	U	0.48	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.48	3.9	ug/Kg
206-44-0	Fluoranthene	1.95	U	0.48	3.9	ug/Kg
129-00-0	Pyrene	1.95	U	0.48	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	1.95	U	0.48	3.9	ug/Kg
218-01-9	Chrysene	1.95	U	0.48	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.95	U	0.48	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.95	U	0.48	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	1.95	U	0.48	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.48	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.48	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.48	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	62		30 - 150	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	48.1		19 - 182	48%	SPK: 100
1718-51-0	Terphenyl-d14	52.1		24 - 191	52%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	37135	8.04			
1146-65-2	Naphthalene-d8	135724	10.21			
15067-26-2	Acenaphthene-d10	89234	13.18			
1517-22-2	Phenanthrene-d10	162360	15.64			
1719-03-5	Chrysene-d12	164633	20.01			
1520-96-3	Perylene-d12	142557	23.16			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002324.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.3	U	0.55	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	2.3	U	0.55	4.6	ug/Kg
208-96-8	Acenaphthylene	2.3	U	0.55	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.55	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.55	4.6	ug/Kg
85-01-8	Phenanthrene	23		0.55	4.6	ug/Kg
120-12-7	Anthracene	2.3	U	0.55	4.6	ug/Kg
206-44-0	Fluoranthene	38		0.55	4.6	ug/Kg
129-00-0	Pyrene	26		0.55	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	8.3		0.55	4.6	ug/Kg
218-01-9	Chrysene	16		0.55	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	19		0.55	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	6.9		0.55	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	11		0.55	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	7.4		0.55	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.55	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	8.3		0.55	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	74		30 - 150	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	53.8		19 - 182	54%	SPK: 100
1718-51-0	Terphenyl-d14	57.1		24 - 191	57%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	31704	8.04			
1146-65-2	Naphthalene-d8	115205	10.22			
15067-26-2	Acenaphthene-d10	73435	13.19			
1517-22-2	Phenanthrene-d10	134170	15.64			
1719-03-5	Chrysene-d12	137695	20.01			
1520-96-3	Perylene-d12	119336	23.16			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002263.D	1	12/16/11	12/17/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.51	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.51	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.51	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.51	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.51	4.2	ug/Kg
85-01-8	Phenanthrene	2.1	U	0.51	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.51	4.2	ug/Kg
206-44-0	Fluoranthene	2.1	U	0.51	4.2	ug/Kg
129-00-0	Pyrene	2.1	U	0.51	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.51	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.51	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.51	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.51	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.51	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.51	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.51	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.51	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	51.7		30 - 150	52%	SPK: 100
321-60-8	2-Fluorobiphenyl	37.8		19 - 182	38%	SPK: 100
1718-51-0	Terphenyl-d14	39.6		24 - 191	40%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	65123	8.14			
1146-65-2	Naphthalene-d8	230529	10.31			
15067-26-2	Acenaphthene-d10	143190	13.26			
1517-22-2	Phenanthrene-d10	254052	15.74			
1719-03-5	Chrysene-d12	246967	20.13			
1520-96-3	Perylene-d12	232188	23.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002327.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.9	J	0.57	4.7	ug/Kg
91-57-6	2-Methylnaphthalene	2.4	J	0.57	4.7	ug/Kg
208-96-8	Acenaphthylene	2.35	U	0.57	4.7	ug/Kg
83-32-9	Acenaphthene	2.35	U	0.57	4.7	ug/Kg
86-73-7	Fluorene	3.8	J	0.57	4.7	ug/Kg
85-01-8	Phenanthrene	90		0.57	4.7	ug/Kg
120-12-7	Anthracene	3.3	J	0.57	4.7	ug/Kg
206-44-0	Fluoranthene	130		0.57	4.7	ug/Kg
129-00-0	Pyrene	87		0.57	4.7	ug/Kg
56-55-3	Benzo(a)anthracene	20		0.57	4.7	ug/Kg
218-01-9	Chrysene	47		0.57	4.7	ug/Kg
205-99-2	Benzo(b)fluoranthene	58		0.57	4.7	ug/Kg
207-08-9	Benzo(k)fluoranthene	20		0.57	4.7	ug/Kg
50-32-8	Benzo(a)pyrene	31		0.57	4.7	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	23		0.57	4.7	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.35	U	0.57	4.7	ug/Kg
191-24-2	Benzo(g,h,i)perylene	24		0.57	4.7	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	74.9		30 - 150	75%	SPK: 100
321-60-8	2-Fluorobiphenyl	56.8		19 - 182	57%	SPK: 100
1718-51-0	Terphenyl-d14	57.6		24 - 191	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	39268	8.04			
1146-65-2	Naphthalene-d8	140415	10.21			
15067-26-2	Acenaphthene-d10	90857	13.18			
1517-22-2	Phenanthrene-d10	162231	15.64			
1719-03-5	Chrysene-d12	166716	20.01			
1520-96-3	Perylene-d12	145396	23.17			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002264.D	1	12/16/11	12/17/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.48	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.48	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.48	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.48	4	ug/Kg
86-73-7	Fluorene	2	U	0.48	4	ug/Kg
85-01-8	Phenanthrene	2	U	0.48	4	ug/Kg
120-12-7	Anthracene	2	U	0.48	4	ug/Kg
206-44-0	Fluoranthene	2	U	0.48	4	ug/Kg
129-00-0	Pyrene	2	U	0.48	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.48	4	ug/Kg
218-01-9	Chrysene	2	U	0.48	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2	U	0.48	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.48	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.48	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.48	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.48	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.48	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	51.6		30 - 150	52%	SPK: 100
321-60-8	2-Fluorobiphenyl	37.7		19 - 182	38%	SPK: 100
1718-51-0	Terphenyl-d14	41.5		24 - 191	42%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	56283	8.14			
1146-65-2	Naphthalene-d8	197462	10.31			
15067-26-2	Acenaphthene-d10	117056	13.26			
1517-22-2	Phenanthrene-d10	198645	15.74			
1719-03-5	Chrysene-d12	178550	20.13			
1520-96-3	Perylene-d12	161729	23.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002312.D	1	12/16/11	12/22/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	2	U	0.49	4	ug/Kg
85-01-8	Phenanthrene	2	U	0.49	4	ug/Kg
120-12-7	Anthracene	2	U	0.49	4	ug/Kg
206-44-0	Fluoranthene	2.8	J	0.49	4	ug/Kg
129-00-0	Pyrene	2.4	J	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.49	4	ug/Kg
218-01-9	Chrysene	2	U	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2	U	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	74		30 - 150	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	57.5		19 - 182	58%	SPK: 100
1718-51-0	Terphenyl-d14	64.5		24 - 191	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	30260	8.04			
1146-65-2	Naphthalene-d8	109461	10.21			
15067-26-2	Acenaphthene-d10	71835	13.18			
1517-22-2	Phenanthrene-d10	131310	15.64			
1719-03-5	Chrysene-d12	133665	20.01			
1520-96-3	Perylene-d12	114171	23.16			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002276.D	1	12/16/11	12/17/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.35	U	0.57	4.7	ug/Kg
91-57-6	2-Methylnaphthalene	2.35	U	0.57	4.7	ug/Kg
208-96-8	Acenaphthylene	2.35	U	0.57	4.7	ug/Kg
83-32-9	Acenaphthene	2.35	U	0.57	4.7	ug/Kg
86-73-7	Fluorene	2.35	U	0.57	4.7	ug/Kg
85-01-8	Phenanthrene	37		0.57	4.7	ug/Kg
120-12-7	Anthracene	2.9	J	0.57	4.7	ug/Kg
206-44-0	Fluoranthene	51		0.57	4.7	ug/Kg
129-00-0	Pyrene	44		0.57	4.7	ug/Kg
56-55-3	Benzo(a)anthracene	15		0.57	4.7	ug/Kg
218-01-9	Chrysene	24		0.57	4.7	ug/Kg
205-99-2	Benzo(b)fluoranthene	29		0.57	4.7	ug/Kg
207-08-9	Benzo(k)fluoranthene	10		0.57	4.7	ug/Kg
50-32-8	Benzo(a)pyrene	18		0.57	4.7	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	16		0.57	4.7	ug/Kg
53-70-3	Dibenz(a,h)anthracene	3.8	J	0.57	4.7	ug/Kg
191-24-2	Benzo(g,h,i)perylene	14		0.57	4.7	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	59.8		30 - 150	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.1		19 - 182	51%	SPK: 100
1718-51-0	Terphenyl-d14	54.6		24 - 191	55%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	37631	8.14			
1146-65-2	Naphthalene-d8	125407	10.31			
15067-26-2	Acenaphthene-d10	67629	13.26			
1517-22-2	Phenanthrene-d10	104296	15.74			
1719-03-5	Chrysene-d12	85323	20.13			
1520-96-3	Perylene-d12	85807	23.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	10
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002322.D	1	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.85	U	0.44	3.7	ug/Kg
91-57-6	2-Methylnaphthalene	1.85	U	0.44	3.7	ug/Kg
208-96-8	Acenaphthylene	1.85	U	0.44	3.7	ug/Kg
83-32-9	Acenaphthene	1.85	U	0.44	3.7	ug/Kg
86-73-7	Fluorene	1.85	U	0.44	3.7	ug/Kg
85-01-8	Phenanthrene	1.85	U	0.44	3.7	ug/Kg
120-12-7	Anthracene	1.85	U	0.44	3.7	ug/Kg
206-44-0	Fluoranthene	1.85	U	0.44	3.7	ug/Kg
129-00-0	Pyrene	1.85	U	0.44	3.7	ug/Kg
56-55-3	Benzo(a)anthracene	1.85	U	0.44	3.7	ug/Kg
218-01-9	Chrysene	1.85	U	0.44	3.7	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.85	U	0.44	3.7	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.85	U	0.44	3.7	ug/Kg
50-32-8	Benzo(a)pyrene	1.85	U	0.44	3.7	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.85	U	0.44	3.7	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.85	U	0.44	3.7	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.85	U	0.44	3.7	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	85.3		30 - 150	85%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.4		19 - 182	69%	SPK: 100
1718-51-0	Terphenyl-d14	72		24 - 191	72%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	30694	8.04			
1146-65-2	Naphthalene-d8	109300	10.22			
15067-26-2	Acenaphthene-d10	70925	13.19			
1517-22-2	Phenanthrene-d10	129878	15.64			
1719-03-5	Chrysene-d12	132598	20.02			
1520-96-3	Perylene-d12	114385	23.16			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	29.4 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007099.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.5		55 - 130	73%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16		70 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	18.7 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007106.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.4		55 - 130	87%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.3		70 - 125	97%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	34.8 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007105.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.3	U	0.2	2.6	ug/Kg
319-85-7	beta-BHC	1.3	U	0.28	2.6	ug/Kg
319-86-8	delta-BHC	1.3	U	0.15	2.6	ug/Kg
58-89-9	gamma-BHC	1.3	U	0.23	2.6	ug/Kg
76-44-8	Heptachlor	1.3	U	0.21	2.6	ug/Kg
309-00-2	Aldrin	1.3	U	0.15	2.6	ug/Kg
1024-57-3	Heptachlor epoxide	1.3	U	0.24	2.6	ug/Kg
959-98-8	Endosulfan I	1.3	U	0.23	2.6	ug/Kg
60-57-1	Dieldrin	1.3	U	0.2	2.6	ug/Kg
72-55-9	4,4-DDE	1.3	U	0.31	2.6	ug/Kg
72-20-8	Endrin	1.3	U	0.28	2.6	ug/Kg
33213-65-9	Endosulfan II	1.3	U	0.21	2.6	ug/Kg
72-54-8	4,4-DDD	1.3	U	0.26	2.6	ug/Kg
1031-07-8	Endosulfan Sulfate	1.3	U	0.23	2.6	ug/Kg
50-29-3	4,4-DDT	1.3	U	0.21	2.6	ug/Kg
72-43-5	Methoxychlor	1.3	U	0.26	2.6	ug/Kg
53494-70-5	Endrin ketone	1.3	U	0.2	2.6	ug/Kg
7421-93-4	Endrin aldehyde	1.3	U	0.23	2.6	ug/Kg
5103-71-9	alpha-Chlordane	1.3	U	0.21	2.6	ug/Kg
5103-74-2	gamma-Chlordane	1.3	U	0.2	2.6	ug/Kg
8001-35-2	Toxaphene	13	U	15	26	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.6		55 - 130	73%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.7		70 - 125	93%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	19.1 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007107.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18		55 - 130	90%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20		70 - 125	100%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	17.8 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007103.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	15.4		55 - 130	77%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.2		70 - 125	101%	SPK: 20

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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	29.2 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007100.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.5		55 - 130	88%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.6		70 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	20.2 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007104.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.9		55 - 130	75%	SPK: 20
877-09-8	Tetrachloro-m-xylene	21.3		70 - 125	107%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.5 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007098.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.16	2	ug/Kg
319-85-7	beta-BHC	1	U	0.22	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.16	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.22	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.16	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.16	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.5		55 - 130	93%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.3		70 - 125	91%	SPK: 20

U = Not Detected
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	28.4 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007097.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.8		55 - 130	94%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19		70 - 125	95%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	20.8 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007095.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	12.7		55 - 130	64%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.9		70 - 125	85%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	29.6 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007094.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.26	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.26	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16		55 - 130	80%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.9		70 - 125	95%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.9 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007096.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.16	2	ug/Kg
319-85-7	beta-BHC	1	U	0.22	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.16	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.22	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.16	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.16	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.5		55 - 130	88%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.7		70 - 125	94%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007092.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18		55 - 130	90%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.5		70 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	29.7 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007091.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.26	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.26	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.2		55 - 130	81%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.2		70 - 125	81%	SPK: 20

U = Not Detected
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	9.9 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007093.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.95	U	0.14	1.9	ug/Kg
319-85-7	beta-BHC	0.95	U	0.2	1.9	ug/Kg
319-86-8	delta-BHC	0.95	U	0.11	1.9	ug/Kg
58-89-9	gamma-BHC	0.95	U	0.17	1.9	ug/Kg
76-44-8	Heptachlor	0.95	U	0.16	1.9	ug/Kg
309-00-2	Aldrin	0.95	U	0.11	1.9	ug/Kg
1024-57-3	Heptachlor epoxide	0.95	U	0.18	1.9	ug/Kg
959-98-8	Endosulfan I	0.95	U	0.17	1.9	ug/Kg
60-57-1	Dieldrin	0.95	U	0.14	1.9	ug/Kg
72-55-9	4,4-DDE	0.95	U	0.22	1.9	ug/Kg
72-20-8	Endrin	0.95	U	0.2	1.9	ug/Kg
33213-65-9	Endosulfan II	0.95	U	0.16	1.9	ug/Kg
72-54-8	4,4-DDD	0.95	U	0.19	1.9	ug/Kg
1031-07-8	Endosulfan Sulfate	0.95	U	0.17	1.9	ug/Kg
50-29-3	4,4-DDT	0.95	U	0.16	1.9	ug/Kg
72-43-5	Methoxychlor	0.95	U	0.19	1.9	ug/Kg
53494-70-5	Endrin ketone	0.95	U	0.14	1.9	ug/Kg
7421-93-4	Endrin aldehyde	0.95	U	0.17	1.9	ug/Kg
5103-71-9	alpha-Chlordane	0.95	U	0.16	1.9	ug/Kg
5103-74-2	gamma-Chlordane	0.95	U	0.14	1.9	ug/Kg
8001-35-2	Toxaphene	9.5	U	11	19	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.2		55 - 130	96%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.7		70 - 125	98%	SPK: 20

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LOQ = Limit of Quantitation
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LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000201.D	1	12/16/11	12/21/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.7		10 - 166	84%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.2		60 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	35 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000200.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	13	U	5.3	26	ug/Kg
11104-28-2	Aroclor-1221	13	U	5.2	26	ug/Kg
11141-16-5	Aroclor-1232	13	U	11	26	ug/Kg
53469-21-9	Aroclor-1242	13	U	5.2	26	ug/Kg
12672-29-6	Aroclor-1248	13	U	10	26	ug/Kg
11097-69-1	Aroclor-1254	13	U	2.3	26	ug/Kg
11096-82-5	Aroclor-1260	13	U	6.3	26	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	12.6		10 - 166	63%	SPK: 20
2051-24-3	Decachlorobiphenyl	14.8		60 - 125	74%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000202.D	1	12/16/11	12/21/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.6		10 - 166	83%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.2		60 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000198.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.4		10 - 166	82%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.7		60 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	29 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000197.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.3	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.2		10 - 166	86%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.2		60 - 125	86%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000199.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.2		10 - 166	86%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.4		60 - 125	97%	SPK: 20

U = Not Detected
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LOD = Limit of Detection
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J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	17 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000193.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.2	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4.1	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4.1	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.9	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.5		10 - 166	88%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.8		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000192.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.8	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.7	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.7	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.1	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.7	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.8		10 - 166	84%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.2		60 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	29 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000196.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.3	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.3		10 - 166	67%	SPK: 20
2051-24-3	Decachlorobiphenyl	13.3		60 - 125	66%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	21 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000203.D	1	12/16/11	12/21/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.4	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.3	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.4	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.3	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.3	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.2	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.4		10 - 166	72%	SPK: 20
2051-24-3	Decachlorobiphenyl	12.6		60 - 125	63%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	30 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000188.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	5	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.9	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	11	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.9	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.4	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.9	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.6		10 - 166	78%	SPK: 20
2051-24-3	Decachlorobiphenyl	14.1		60 - 125	71%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	17 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000191.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.2	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4.1	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4.1	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.9	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.5		10 - 166	93%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.9		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000186.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.1		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.9		60 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	30 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000185.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	11	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.4	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.9	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.1		10 - 166	71%	SPK: 20
2051-24-3	Decachlorobiphenyl	12.7		60 - 125	63%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	10 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000187.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9.5	U	3.8	19	ug/Kg
11104-28-2	Aroclor-1221	9.5	U	3.8	19	ug/Kg
11141-16-5	Aroclor-1232	9.5	U	8.3	19	ug/Kg
53469-21-9	Aroclor-1242	9.5	U	3.8	19	ug/Kg
12672-29-6	Aroclor-1248	9.5	U	7.3	19	ug/Kg
11097-69-1	Aroclor-1254	9.5	U	1.7	19	ug/Kg
11096-82-5	Aroclor-1260	9.5	U	4.6	19	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.7		10 - 166	89%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.7		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Appendix C

Support Documentation

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name : Ms Tobrena Skeen
Chemtech Project # C5005
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analyses for Low Volatile Organics were performed on instrument MSVOA_ T using GC column RTX-624 which is 30 meters, 0.25 mm id, 0.25 um df, Restek Cat. #872456. The Trap was supplied by OI Analytical, OI #10 Trap , OI 4560 Concentrator.
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

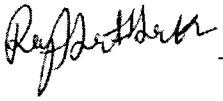
D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for BSG1216W3 [1,2-Dichloroethane-d4 - 123%, 4-Bromofluorobenzene - 126%] .this blank spike did not meet DOD limit but it did meet in house limits.
The Internal Standards Areas met the acceptable requirements except for 12SB24-000.5-01 and 12SB24-000.5-01RE.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike for {BSG1216W3} with File ID: VG039661.D met requirements for all samples except for Acetone[150%], Chloromethane[130%] .
The Blank Spike for {BST1219S2} with File ID: VT001923.D met requirements for all samples except for Chloroform[125%], cis-1,2-Dichloroethene[125%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .

The Continuous Calibration File ID VG039658.D met the requirements except for Vinyl Chloride,Bromomethane,Chloroethane,Methyl Acetate,Tetrachloroethene,1,2-Dibromo-3-Chloropropane, 1,4-Dioxane and Acetone .The Continuous Calibration File ID VT001921.D met the requirements except for Bromochloromethane and 4-Methyl-2-Pentanone but they were not detected in any samples.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____  ____

Kalpana Raythattha
I am approving this document
2012.01.11 10:14:01 -05'00'

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5005
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_F using GC Column RTX-5 SILMS which is 20 meters, 0.18 mm ID, 0.36 um df, Catalog # 42704.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5005-02MS} with File ID: BF052059.D recoveries met the requirements for all compounds except for Benzaldehyde[4%] .
The MSD {C5005-02MSD} with File ID: BF052060.D recoveries met the acceptable requirements except for Benzaldehyde[5%] .
The RPD for {C5005-02MSD} with File ID: BF052060.D recoveries met criteria except for 3,3-Dichlorobenzidine[42%], 4-Chloroaniline[21%] and Benzaldehyde[22%] .
The Blank Spike for {PB59966BS} with File ID: BF052069.D met requirements for all samples except for 4-Chloroaniline[18%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .
The Continuous Calibration File ID BF052408.D met the requirements except for 2,4-Dinitrophenol but it was not detected in any samples.
The Tuning criteria met requirements.

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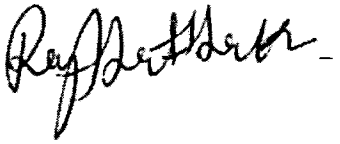
E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature 

Kalpana Raythattha
I am approving this document
2012.01.11 10:14:15 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5005
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

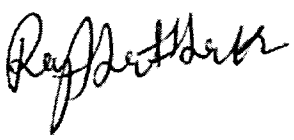
D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements except for 12SB24-000.5-01MS, 12SB24-000.5-01MSD.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD {C5005-01MSD} with File ID: BG002278.D recoveries met the acceptable requirements except for Indeno(1,2,3-cd)pyrene[372%] .
The RPD for {C5005-01MSD} with File ID: BG002278.D recoveries did not meet criteria except for Pyrene.
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .
The Continuous Calibration met the requirements .
The Tuning criteria met requirements.
Sample 12SB19-0.502-02 was diluted due to high concentration.

CHEMTECH

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____ 

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I am approving this document
2012.01.11 10:14:30 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5005
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11 . The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

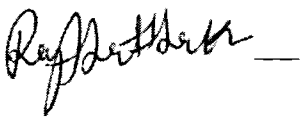
D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB22-0.502-02 [Decachlorobiphenyl(2) - 53%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PD007102.D met the requirements except for Endosulfan Sulfate, Endrin ketone are failing in first column but Endrin ketone is failing in second column.The Continuous Calibration File ID PD007114.D met the requirements except for alpha-BHC, delta-BHC , Endosulfan Sulfate are failing in first column but passing in second column and Endrin ketone is failing in both columns but it is not present in the sample.

CHEMTECH

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature 

Kalpana Raythattha
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2012.01.11 10:14:48 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
project manger name: Ms. Tobrena Skeen
Chemtech Project # C5005
Test Name: PCB

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_B. The front column is Rtx-CLPesticides which is 30 meters, 0.32 mm ID, 0.32 um df, Catalog # 11141. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB24-000.5-01 [Decachlorobiphenyl(2) - 55%], 12SB22-000.5-01MS [Decachlorobiphenyl(1) - 59%, Decachlorobiphenyl(2) - 54%] and 12SB22-0.502-02 [Decachlorobiphenyl(2) - 56%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PB000195.D met the requirements except for Aroclor-1260(Peak-01), Decachlorobiphenyl are failing in first column and Decachlorobiphenyl is failing in second column.

The AVG %D for all peaks for each compound in continuing Calibration was below 15%.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____ Kalpana Raythattha
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CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : c5005

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number	Test	Out of Hold
C5005-01	12SB24-000.5-01	pH	*
C5005-02	12SB24-0.502-02	pH	*
C5005-03	12SB24-0304-03	pH	*
C5005-04	12SB22-000.5-01	pH	*
C5005-05	12SB22-0.502-02	pH	*
C5005-06	12SB22-0304-03	pH	*
C5005-07	12SB20-000.5-01	pH	*
C5005-08	12SB20-0.502-02	pH	*
C5005-09	12SB-DUP-01		
C5005-10	12SB19-000.5-01	pH	*
C5005-11	12SB19-0.502-02	pH	*
C5005-12	12SB19-0304-03	PCB,pH	*
C5005-13	12SB18-000.5-01	pH	*
C5005-14	12SB18-0.502-02	pH	*
C5005-15	12SB18-0304-03	pH	*
C5005-16	12TB-20111214		

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

Kalpana Raythattha
I am approving this document
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NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C9005
QUOTE NO.
COC Number 021252

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTOWE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC
2 TCL SVOC/PAH SIM
3 Pest / PCB
4 metals/Hg/CN/PH
5 ORP
6 metals/Hg/CN
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES E 1	E 2	E 3	E 4	E 5	6	7	8	9	COMMENTS
1.	125B24-000.5-01	soil		X	12/14/11	1055	6	X	X	X	X						
2.	125B24-0502-02			X		1020	6	X	X	X	X						
3.	125B24-0304-03			X		1025	6	X	X	X	X						
4.	125B22-000.5-01			X		1130	7	X	X	X	X	X					
5.	125B22-0.502-02			X		1140	7	X	X	X	X	X					
6.	125B22-0304-03			X		1150	7	X	X	X	X	X					
7.	125B20-000.5-01			X		1310	6	X	X	X	X						
8.	125B20-0.502-02			X		1300	6	X	X	X	X						
9.	125B-DUP-01			X		1200	6	X	X	X			X				
10.	125B19-000.5-01	↓		X	↓	1410	6	X	X	X	X						

← Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Daniel Whalen	12/14/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY:
3. Fed Ex	12/15/11 9:15	3. Kay Kwon

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5005
QUOTE NO.
COC Number 021253

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd. Ste. 260
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: 610-382-1870 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO. GO WE05 LOCATION:
PROJECT MANAGER: Andy Frelowitz
e-mail: andy.frelowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	TCL Pest/PCB	TAL Metals/Hg/CN/PP	ORP	TCL VOC			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	A				← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	125B19-0.502-02	soil		X	12/14/11	1420	6	X	X	X	X						
2.	125B19-0304-03	↓		X	↓	1450	6	X	X	X	X						
3.	125B18-0005-01			X		1540	7	X	X	X	X	X					
4.	125B18-0.502-02			X		1550	7	X	X	X	X	X					
5.	125B18-0304-03	↓		X		1600	7	X	X	X	X	X					
6.	12TB-20111214	AQ		X	↓	0800	2						X				trip Blank
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY:
1. David Wheeler	12/14/11 1930	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. Fed Ex	12/15/11 9:15	3. Ken Rivera

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
ORP	MV	12SB22-0304-03	C5005-06	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
PH	S.U.	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB18-0304-03	C5005-15	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB24-0304-03	C5005-03	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB19-0304-03	C5005-12	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB22-0304-03	C5005-06	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
OS	UG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB19-0.502-02	C5005-11DL	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/16/2011	12/22/2011	2	6	8
OS	UG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/16/2011	12/22/2011	2	6	8
OS	UG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/16/2011	12/17/2011	2	1	3
OS	UG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/16/2011	12/22/2011	2	6	8
OS	UG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/16/2011	12/17/2011	2	1	3
OS	UG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/16/2011	12/17/2011	2	1	3
OS	UG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/16/2011	12/19/2011	2	3	5
OS	UG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9
OS	UG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/16/2011	12/17/2011	2	1	3
OV	UG/KG	12SB20-000.5-01	C5005-07RE	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB24-000.5-01	C5005-01RE	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB22-000.5-01	C5005-04RE	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB18-000.5-01	C5005-13RE	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB19-000.5-01	C5005-10RE	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB19-0304-03	C5005-12RE	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/20/2011	12/20/2011	6	0	6
OV	UG/L	12TB-20111214	C5005-16	NM	12/14/2011	12/17/2011	12/17/2011	3	0	3
PCB	UG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/16/2011	12/21/2011	2	5	7
PCB	UG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	UG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/16/2011	12/21/2011	2	5	7
PCB	UG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/16/2011	12/21/2011	2	5	7
PCB	UG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PCB	UG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
PEST	UG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15
PEST	UG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/16/2011	12/29/2011	2	13	15

NASJRB WILLOW GROVE
SOIL DATA
C5005

FRACTION	CHEMICAL	12SB20-000.5-01	UNITS	12SB-DUP-01	RPD	D
OS	BENZO(A)ANTHRACENE	8.3	UG/KG	5.6	38.85	2.70
OS	BENZO(A)PYRENE	11	UG/KG	7	44.44	4.00
OS	BENZO(B)FLUORANTHENE	19	UG/KG	12	45.16	7.00
OS	BENZO(G,H,I)PERYLENE	8.3	UG/KG	5.6	38.85	2.70
OS	BENZO(K)FLUORANTHENE	6.9	UG/KG	4.7	37.93	2.20
OS	CHRYSENE	16	UG/KG	9.8	48.06	6.20
OS	DIMETHYL PHTHALATE	420 J	UG/KG	ND	200.00	420.00
OS	FLUORANTHENE	38	UG/KG	22	53.33	16.00
OS	INDENO(1,2,3-CD)PYRENE	7.4	UG/KG	5.6	27.69	1.80
OS	PYRENE	26	UG/KG	18	36.36	8.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5005

FRACTION	CHEMICAL	12SB20-000.5-01-GR2	UNITS	12SB-DUP-01-GR2	RPD	D
OS	PHENANTHRENE	23	UG/KG	17	30.00	6.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VG039044.D BFB Injection Date: 11/22/2011

Instrument ID: MSVOAG BFB Injection Time: 18:52

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.9
75	30.0 - 60.0% of mass 95	51
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	92.5
175	5.0 - 9.0% of mass 174	7.8 (8.4) 1
176	95.0 - 101.0% of mass 174	88 (95.1) 1
177	5.0 - 9.0% of mass 176	5.7 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD001	1 PPB ICC	VG039045.D	11/22/2011	19:31
VSTD005	5 PPB ICC	VG039046.D	11/22/2011	20:00
VSTD020	20 PPB ICC	VG039047.D	11/22/2011	20:44
VSTD050	50 PPB ICC	VG039048.D	11/22/2011	21:13
VSTD100	100 PPB ICC	VG039049.D	11/22/2011	21:42
VSTD150	150 PPB ICC	VG039050.D	11/22/2011	22:11

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.322	0.285	0.403	0.410	0.419	0.387	0.371	14.7
Chloromethane	0.668	0.928	0.740	0.737	0.728	0.687	0.748	12.4
Vinyl Chloride	0.598	0.706	0.647	0.663	0.675	0.623	0.652	5.9
Bromomethane	0.622	0.542	0.519	0.552	0.567	0.571	0.562	6.1
Chloroethane	0.509	0.502	0.473	0.501	0.534	0.535	0.509	4.6
Trichlorofluoromethane	0.679	0.695	0.680	0.659	0.679	0.671	0.677	1.8
1,1,2-Trichlorotrifluor<	0.574	0.586	0.562	0.544	0.554	0.563	0.564	2.6
1,1-Dichloroethene	0.658	0.783	0.619	0.610	0.644	0.636	0.658	9.6
Acetone	0.245	0.369	0.198	0.187	0.176	0.170	0.224	33.8
Carbon Disulfide	1.852	2.032	1.980	1.896	1.955	1.879	1.932	3.5
Methyl tert-butyl Ether	1.485	1.562	1.427	1.405	1.387	1.383	1.441	4.8
Methyl Acetate	1.335	1.455	1.196	1.256	1.218	1.203	1.277	7.9
Methylene Chloride	0.756	1.248	0.698	0.671	0.689	0.698	0.793	28.3
trans-1,2-Dichloroethen<	0.600	0.792	0.606	0.614	0.611	0.611	0.639	11.8
1,1-Dichloroethane	1.265	1.505	1.231	1.207	1.204	1.180	1.266	9.5
Cyclohexane	1.028	1.231	1.017	0.995	0.991	0.980	1.04	9.1
2-Butanone	0.431	0.484	0.376	0.385	0.361	0.356	0.399	12.4
Carbon Tetrachloride	0.302	0.246	0.331	0.326	0.309	0.305	0.303	10
cis-1,2-Dichloroethene	0.819	0.979	0.785	0.786	0.766	0.774	0.818	9.9
Bromochloromethane	0.697	0.783	0.684	0.632	0.611	0.612	0.67	9.9
Chloroform	1.192	1.252	1.092	1.029	0.996	0.986	1.091	10.1
1,1,1-Trichloroethane	0.681	0.850	0.693	0.665	0.638	0.617	0.691	12
Methylcyclohexane	0.485	0.540	0.490	0.475	0.456	0.461	0.485	6.2
Benzene	1.349	1.605	1.311	1.253	1.203	1.218	1.323	11.2
1,2-Dichloroethane	0.460	0.570	0.468	0.440	0.413	0.412	0.461	12.7
Trichloroethene	0.390	0.480	0.389	0.375	0.355	0.371	0.393	11.3
1,2-Dichloropropane	0.391	0.457	0.365	0.365	0.353	0.354	0.381	10.4
Bromodichloromethane	0.362	0.385	0.407	0.397	0.387	0.394	0.389	3.9
4-Methyl-2-Pentanone	0.242	0.226	0.248	0.260	0.248	0.253	0.246	4.6

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
Toluene	0.450	0.523	0.484	0.475	0.477	0.485	0.482	4.9
t-1,3-Dichloropropene	0.238	0.175	0.287	0.300	0.307	0.327	0.272	20.6
cis-1,3-Dichloropropene	0.291	0.266	0.314	0.333	0.344	0.369	0.32	11.6
1,1,2-Trichloroethane	0.189	0.192	0.189	0.191	0.194	0.201	0.193	2.4
2-Hexanone	0.186	0.147	0.182	0.190	0.179	0.182	0.178	8.8
Dibromochloromethane	0.182	0.146	0.209	0.219	0.222	0.233	0.202	16
1,2-Dibromoethane	0.198	0.213	0.208	0.214	0.221	0.230	0.214	5.1
Tetrachloroethene	0.440	0.505	0.439	0.428	0.411	0.444	0.444	7.2
Chlorobenzene	1.097	1.157	1.030	1.015	1.001	0.984	1.047	6.3
Ethyl Benzene	1.643	1.572	1.563	1.584	1.492	1.453	1.551	4.4
m/p-Xylenes	0.618	0.562	0.656	0.664	0.652	0.648	0.633	6
o-Xylene	0.546	0.549	0.623	0.648	0.620	0.618	0.601	7.1
Styrene	0.925	0.744	1.005	1.017	0.984	0.995	0.945	11
Bromoform	0.172	0.082	0.209	0.243	0.243	0.240	0.198	32.1
Isopropylbenzene	3.639	3.515	3.915	3.584	3.644	3.647	3.657	3.7
1,1,2,2-Tetrachloroethar	1.106	1.136	0.950	0.917	0.925	0.955	0.998	9.7
1,3-Dichlorobenzene	1.699	1.519	1.643	1.597	1.576	1.615	1.608	3.8
1,4-Dichlorobenzene	1.609	1.732	1.566	1.511	1.509	1.516	1.574	5.5
1,2-Dichlorobenzene	1.411	1.490	1.493	1.407	1.354	1.335	1.415	4.7
1,2-Dibromo-3-Chloropro	0.112		0.116	0.126	0.125	0.127	0.121	5.6
1,2,4-Trichlorobenzene	0.950	0.859	0.906	0.902	0.870	0.922	0.901	3.7
1,2,3-Trichlorobenzene	0.797	0.776	0.824	0.807	0.788	0.844	0.806	3.1
1,2-Dichloroethane-d4	0.641	0.809	0.625	0.580	0.567	0.532	0.626	15.7
Dibromofluoromethane	0.390	0.458	0.400	0.380	0.356	0.358	0.39	9.6
Toluene-d8	0.626	0.773	0.669	0.669	0.632	0.639	0.668	8.2
4-Bromofluorobenzene	0.193	0.215	0.243	0.251	0.240	0.238	0.23	9.4
1,4-Dioxane	0.002	0.001	0.002	0.003	0.002	0.002	0.002	20.8

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Method Path : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\
Method File : 82G112211W.M
Title : SW846 8260
Last Update : Tue Nov 22 22:46:26 2011
Response Via : Initial Calibration

Calibration Files
1 =VG039045.D 5 =VG039046.D 20 =VG039047.D
50 =VG039048.D 100 =VG039049.D 150 =VG039050.D

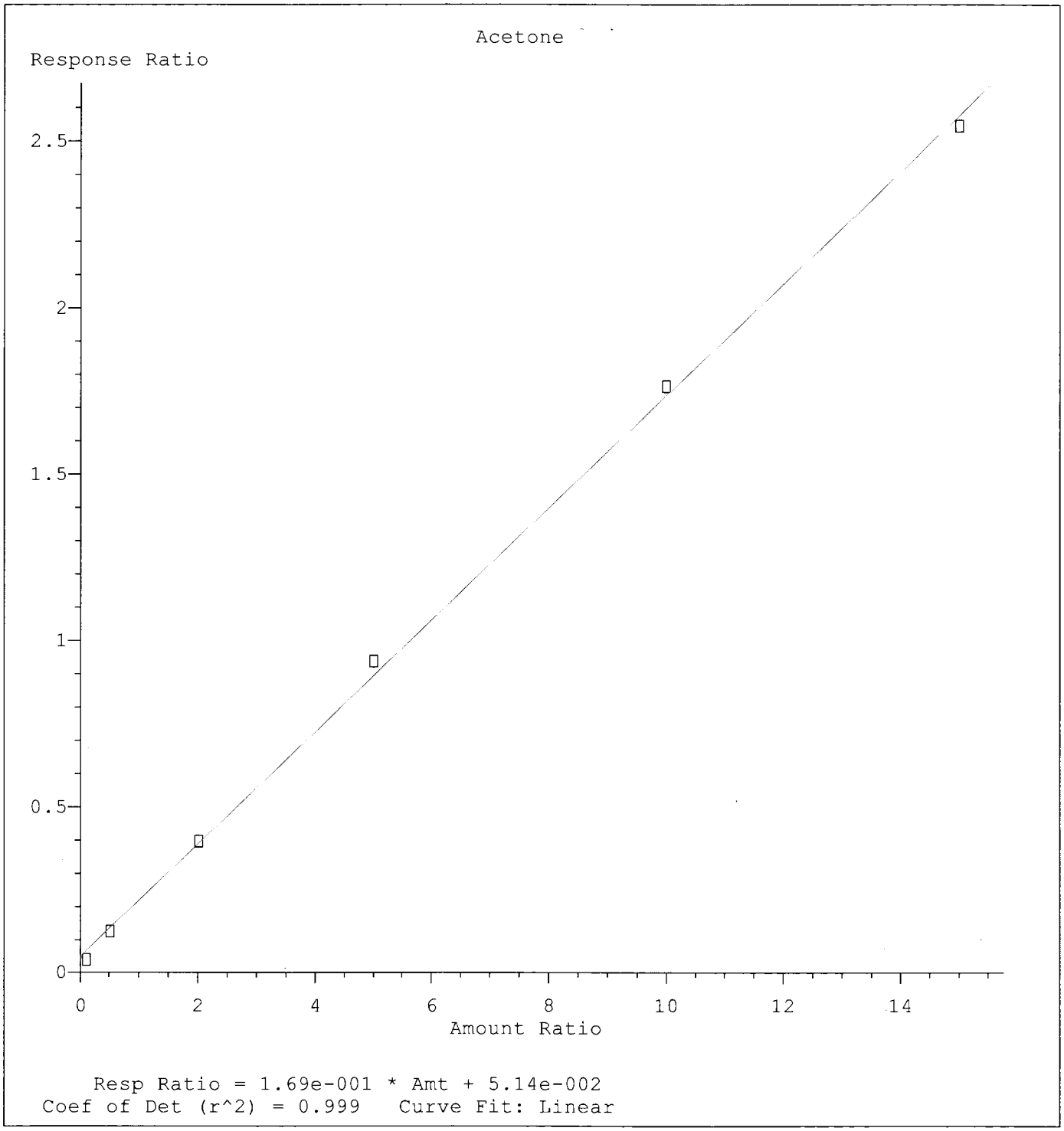
		Compound	1	5	20	50	100	150	Avg	%RSD
1)	I	Pentafluorobenzene	----------	ISTD	----------					
2)	T	Dichlorodifluorom	0.285	0.322	0.403	0.410	0.419	0.387	0.371	14.72
3)	P	Chloromethane	0.928	0.668	0.740	0.737	0.728	0.687	0.748	12.42
4)	C	Vinyl Chloride	0.706	0.598	0.647	0.663	0.675	0.623	0.652	5.91#
5)	T	Bromomethane	0.542	0.622	0.519	0.552	0.567	0.571	0.562	6.14
6)	T	Chloroethane	0.502	0.509	0.473	0.501	0.534	0.535	0.509	4.58
7)	T	Trichlorofluorome	0.695	0.679	0.680	0.659	0.679	0.671	0.677	1.79
8)	T	Diethyl Ether	0.383	0.391	0.379	0.408	0.420	0.451	0.405	6.72
9)	T	1,1,2-Trichlorotr	0.586	0.574	0.562	0.544	0.554	0.563	0.564	2.61
10)	T	Methyl Iodide	1.348	1.198	1.179	1.178	1.170	1.205	1.213	5.55
11)	T	Tert butyl alcoho	0.062	0.061	0.055	0.055	0.054	0.053	0.057	6.52
12)	CM	1,1-Dichloroethen	0.783	0.658	0.619	0.610	0.644	0.636	0.658	9.62#
13)	T	Acrolein	0.140	0.106	0.073	0.072	0.073	0.076	0.090	30.85
14)	T	Allyl chloride	1.100	1.370	1.311	1.252	1.220	1.182	1.239	7.69
15)	T	Acrylonitrile	0.247	0.243	0.221	0.234	0.228	0.234	0.235	4.02
16)	T	Acetone	0.369	0.245	0.198	0.187	0.176	0.170	0.224	33.74
17)	T	Carbon Disulfide	2.032	1.852	1.980	1.896	1.955	1.879	1.932	3.54
18)	T	Methyl Acetate	1.455	1.335	1.196	1.256	1.218	1.203	1.277	7.92
19)	T	Methyl tert-butyl	1.562	1.485	1.427	1.405	1.387	1.383	1.441	4.85
20)	T	Methylene Chlorid	1.248	0.756	0.698	0.671	0.689	0.698	0.793	28.29
21)	T	trans-1,2-Dichlor	0.792	0.600	0.606	0.614	0.611	0.611	0.639	11.78
22)	T	Acetonitrile							0.000	-1.00
23)	T	Diisopropyl ether	3.015	2.556	2.445	2.413	2.288	2.228	2.491	11.32
24)	T	Vinyl Acetate	1.141	1.048	0.976	0.946	0.861	0.762	0.956	14.02
25)	P	1,1-Dichloroethan	1.505	1.265	1.231	1.207	1.204	1.180	1.266	9.55
26)	T	2-Butanone	0.484	0.431	0.376	0.385	0.361	0.356	0.399	12.43
27)	T	2,2-Dichloropropa	0.643	0.553	0.532	0.509	0.490	0.456	0.530	12.21
28)	T	cis-1,2-Dichloroe	0.979	0.819	0.785	0.786	0.766	0.774	0.818	9.90
29)	T	Bromochloromethan	0.783	0.697	0.684	0.632	0.611	0.612	0.670	9.89
30)	C	Chloroform	1.252	1.192	1.092	1.029	0.996	0.986	1.091	10.05#
31)	T	Cyclohexane	1.231	1.028	1.017	0.995	0.991	0.980	1.040	9.14
32)	T	1,1,1-Trichloroet	0.850	0.681	0.693	0.665	0.638	0.617	0.691	12.02
33)	S	1,2-Dichloroethan	0.809	0.641	0.625	0.580	0.567	0.532	0.626	15.71
34)	I	1,4-Difluorobenzene	----------	ISTD	----------					
35)	S	Dibromofluorometh	0.458	0.390	0.400	0.380	0.356	0.358	0.390	9.57
36)	T	1,1-Dichloroprope	0.598	0.525	0.494	0.486	0.460	0.461	0.504	10.30
37)	T	Ethyl Acetate	0.734	0.537	0.511	0.504	0.466	0.482	0.539	18.28
38)	T	Carbon Tetrachlor	0.246	0.302	0.331	0.326	0.309	0.305	0.303	10.03
39)	T	Methylcyclohexane	0.540	0.485	0.490	0.475	0.456	0.461	0.485	6.24
40)	TM	Benzene	1.605	1.349	1.311	1.253	1.203	1.218	1.323	11.24
41)	T	Methacrylonitrile	0.360	0.245	0.241	0.246	0.239	0.243	0.263	18.18
42)	TM	1,2-Dichloroethan	0.570	0.460	0.468	0.440	0.413	0.412	0.461	12.71
43)	T	Isopropyl Acetate	0.996	0.789	0.690	0.704	0.648	0.682	0.752	17.09
44)	T	Isobutyl alcohol							0.000	-1.00
45)	TM	Trichloroethene	0.480	0.390	0.389	0.375	0.355	0.371	0.393	11.32
46)	C	1,2-Dichloropropa	0.457	0.391	0.365	0.365	0.353	0.354	0.381	10.41#
47)	T	Dibromomethane	0.244	0.258	0.223	0.229	0.217	0.222	0.232	6.71
48)	T	Bromodichlorometh	0.385	0.362	0.407	0.397	0.387	0.394	0.389	3.93
49)	T	Methyl methacryla	0.509	0.345	0.333	0.345	0.325	0.337	0.366	19.30
50)	T	1,4-Dioxane	0.001	0.002	0.002	0.003	0.002	0.002	0.002	17.74
51)	S	Toluene-d8	0.773	0.626	0.669	0.669	0.632	0.639	0.668	8.20
52)	T	4-Methyl-2-Pentan	0.226	0.242	0.248	0.260	0.248	0.253	0.246	4.63

Method Path : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\
Method File : 82G112211W.M
Title : SW846 8260
Last Update : Tue Nov 22 22:46:26 2011
Response Via : Initial Calibration

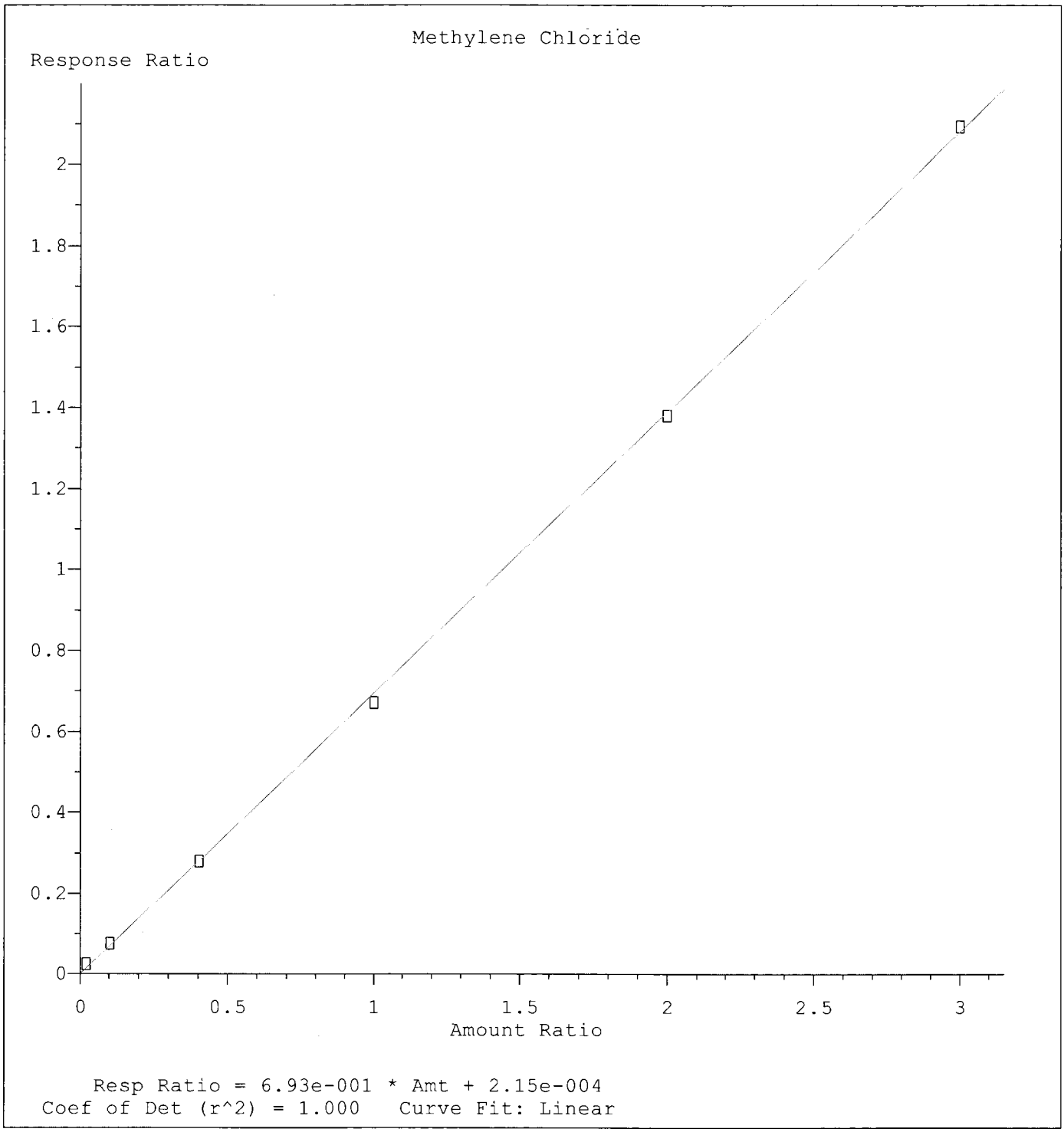
Calibration Files
1 =VG039045.D 5 =VG039046.D 20 =VG039047.D
50 =VG039048.D 100 =VG039049.D 150 =VG039050.D

		Compound	1	5	20	50	100	150	Avg	%RSD
53)	CM	Toluene	0.523	0.450	0.484	0.475	0.477	0.485	0.482	4.89#
54)	T	t-1,3-Dichloropro	0.175	0.238	0.287	0.300	0.307	0.327	0.272	20.63
55)	T	cis-1,3-Dichlorop	0.266	0.291	0.314	0.333	0.344	0.369	0.320	11.60
56)	T	1,1,2-Trichloroet	0.192	0.189	0.189	0.191	0.194	0.201	0.193	2.45
57)	T	Ethyl methacrylat	0.174	0.192	0.222	0.247	0.253	0.278	0.228	17.28
58)	T	1,3-Dichloropropa	0.323	0.331	0.326	0.330	0.333	0.351	0.332	2.95
59)	T	2-Chloroethyl Vin	0.113	0.126	0.126	0.135	0.137	0.143	0.130	8.26
60)	T	2-Hexanone	0.147	0.186	0.182	0.190	0.179	0.182	0.178	8.82
61)	T	Dibromochlorometh	0.146	0.182	0.209	0.219	0.222	0.233	0.202	15.97
62)	T	1,2-Dibromoethane	0.213	0.198	0.208	0.214	0.221	0.230	0.214	5.15
63)	S	4-Bromofluorobenz	0.215	0.193	0.243	0.251	0.240	0.238	0.230	9.38
64)	I	Chlorobenzene-d5	----------ISTD----------							
65)	T	Tetrachloroethene	0.505	0.440	0.439	0.428	0.411	0.444	0.444	7.22
66)	PM	Chlorobenzene	1.157	1.097	1.030	1.015	1.001	0.984	1.047	6.34
67)	T	1,1,1,2-Tetrachlo	0.336	0.362	0.359	0.358	0.355	0.345	0.353	2.82
68)	C	Ethyl Benzene	1.572	1.643	1.563	1.584	1.492	1.453	1.551	4.39#
69)	T	m/p-Xylenes	0.562	0.618	0.656	0.664	0.652	0.648	0.633	6.02
70)	T	o-Xylene	0.549	0.546	0.623	0.648	0.620	0.618	0.601	7.12
71)	T	Styrene	0.744	0.925	1.005	1.017	0.984	0.995	0.945	10.95
72)	P	Bromoform	0.082	0.172	0.209	0.243	0.243	0.240	0.198	32.04
73)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
74)	T	Isopropylbenzene	3.515	3.639	3.915	3.584	3.644	3.647	3.657	3.72
75)	T	N-amyl acetate	1.555	1.786	1.776	1.867	1.883	1.987	1.809	8.08
76)	P	1,1,2,2-Tetrachlo	1.136	1.106	0.950	0.917	0.925	0.955	0.998	9.68
77)	T	1,2,3-Trichloropr	0.803	0.881	0.767	0.726	0.732	0.746	0.776	7.57
78)	T	Bromobenzene	0.835	0.888	0.930	0.867	0.878	0.933	0.889	4.25
79)	T	n-propylbenzene	4.043	3.963	3.947	3.830	3.826	3.890	3.916	2.15
80)	T	2-Chlorotoluene	2.251	2.429	2.308	2.259	2.290	2.300	2.306	2.79
81)	T	1,3,5-Trimethylbe	2.373	2.513	2.696	2.508	2.515	2.539	2.524	4.07
82)	T	trans-1,4-Dichlor	0.112	0.195	0.197	0.235	0.272	0.305	0.220	30.88
83)	T	4-Chlorotoluene	2.364	2.586	2.346	2.318	2.269	2.322	2.367	4.72
84)	T	tert-Butylbenzene	2.414	2.561	2.805	2.624	2.662	2.556	2.604	4.99
85)	T	1,2,4-Trimethylbe	2.322	2.390	2.668	2.527	2.521	2.501	2.488	4.83
86)	T	sec-Butylbenzene	3.577	3.570	3.804	3.583	3.496	3.447	3.579	3.42
87)	T	p-Isopropyltoluen	2.470	2.838	3.013	2.842	2.853	2.804	2.803	6.38
88)	T	1,3-Dichlorobenze	1.519	1.699	1.643	1.597	1.576	1.615	1.608	3.79
89)	T	1,4-Dichlorobenze	1.732	1.609	1.566	1.511	1.509	1.516	1.574	5.53
90)	T	n-Butylbenzene	2.271	2.475	2.694	2.621	2.486	2.476	2.504	5.81
91)	T	Hexachloroethane	0.643	0.605	0.632	0.648	0.625	0.652	0.634	2.74
92)	T	1,2-Dichlorobenze	1.490	1.411	1.493	1.407	1.354	1.335	1.415	4.68
93)	T	1,2,4,5-Tetrameth							0.000	-1.00
94)	T	1,2-Dibromo-3-Chl		0.112	0.116	0.126	0.125	0.127	0.121	5.59
95)	T	1,2,4-Trichlorobe	0.859	0.950	0.906	0.902	0.870	0.922	0.901	3.71
96)	T	Hexachlorobutadie	0.299	0.253	0.337	0.396	0.371	0.394	0.342	16.70
97)	T	Naphthalene	1.493	1.692	1.840	1.940	1.884	2.042	1.815	10.77
98)	T	1,2,3-Trichlorobe	0.776	0.797	0.824	0.807	0.788	0.844	0.806	3.08
99)	T	p-ethyltoluene							0.000	-1.00
00)	T	p-diethylbenzene							0.000	-1.00

(#) = Out of Range



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



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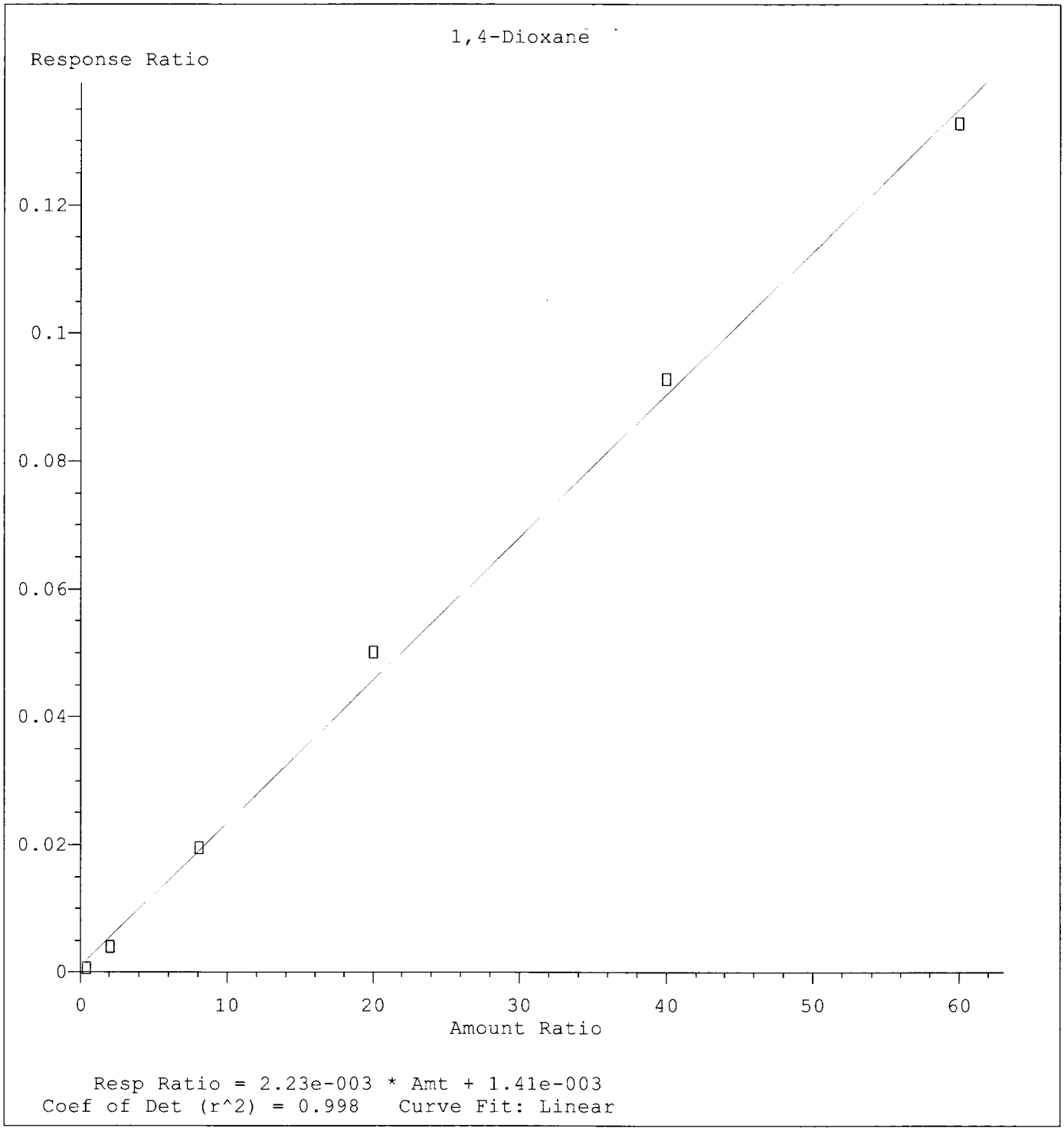
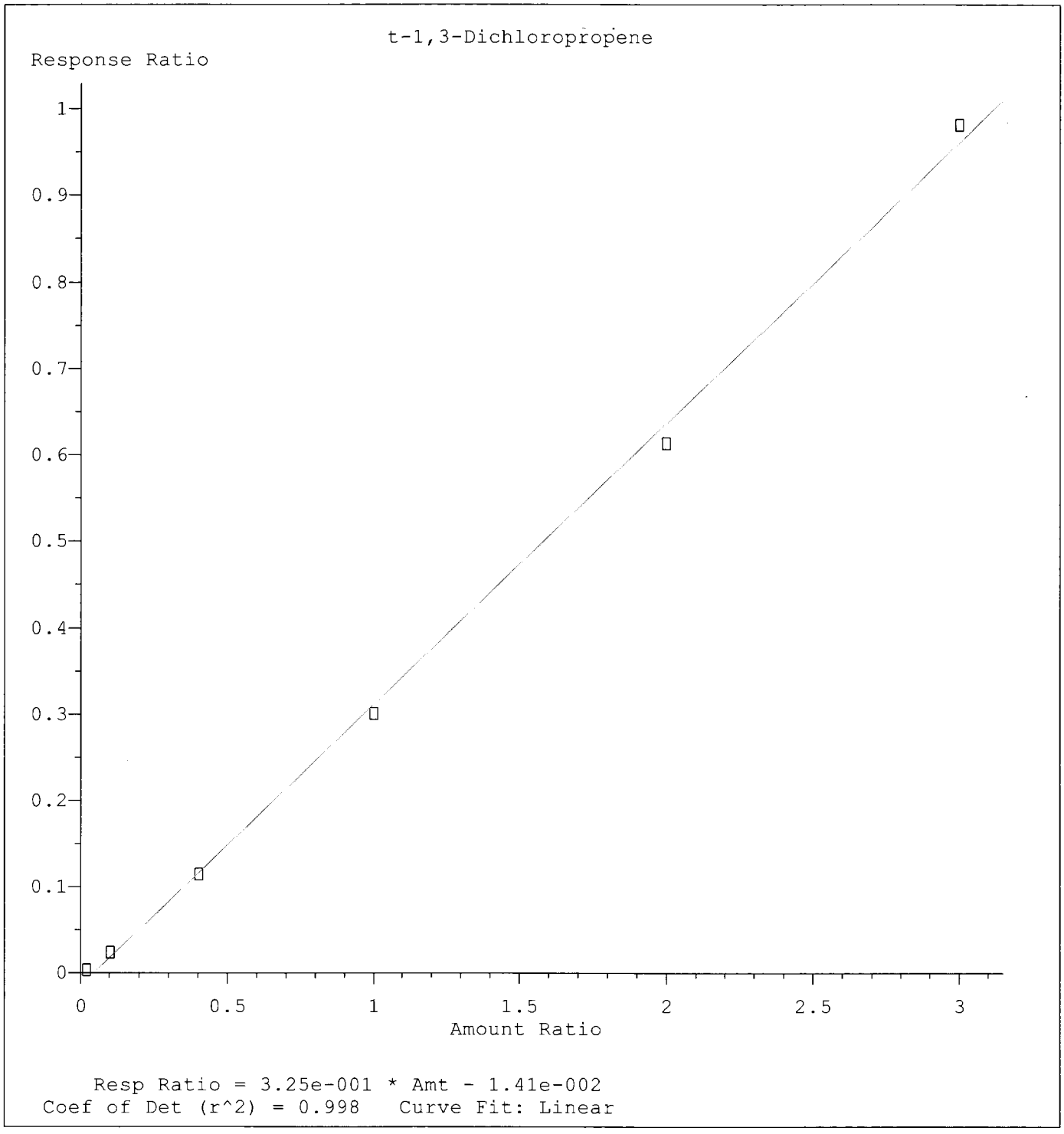
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



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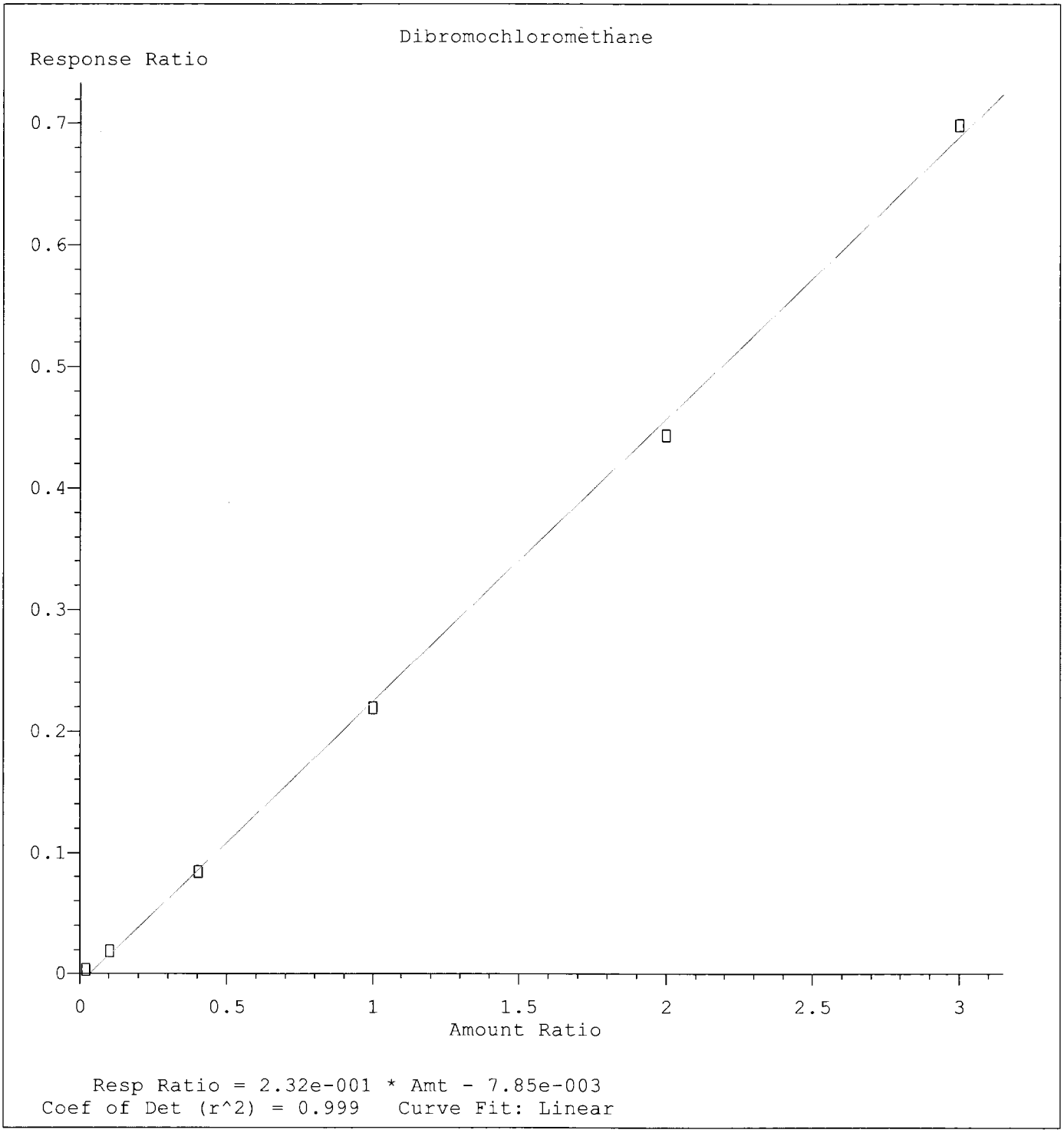
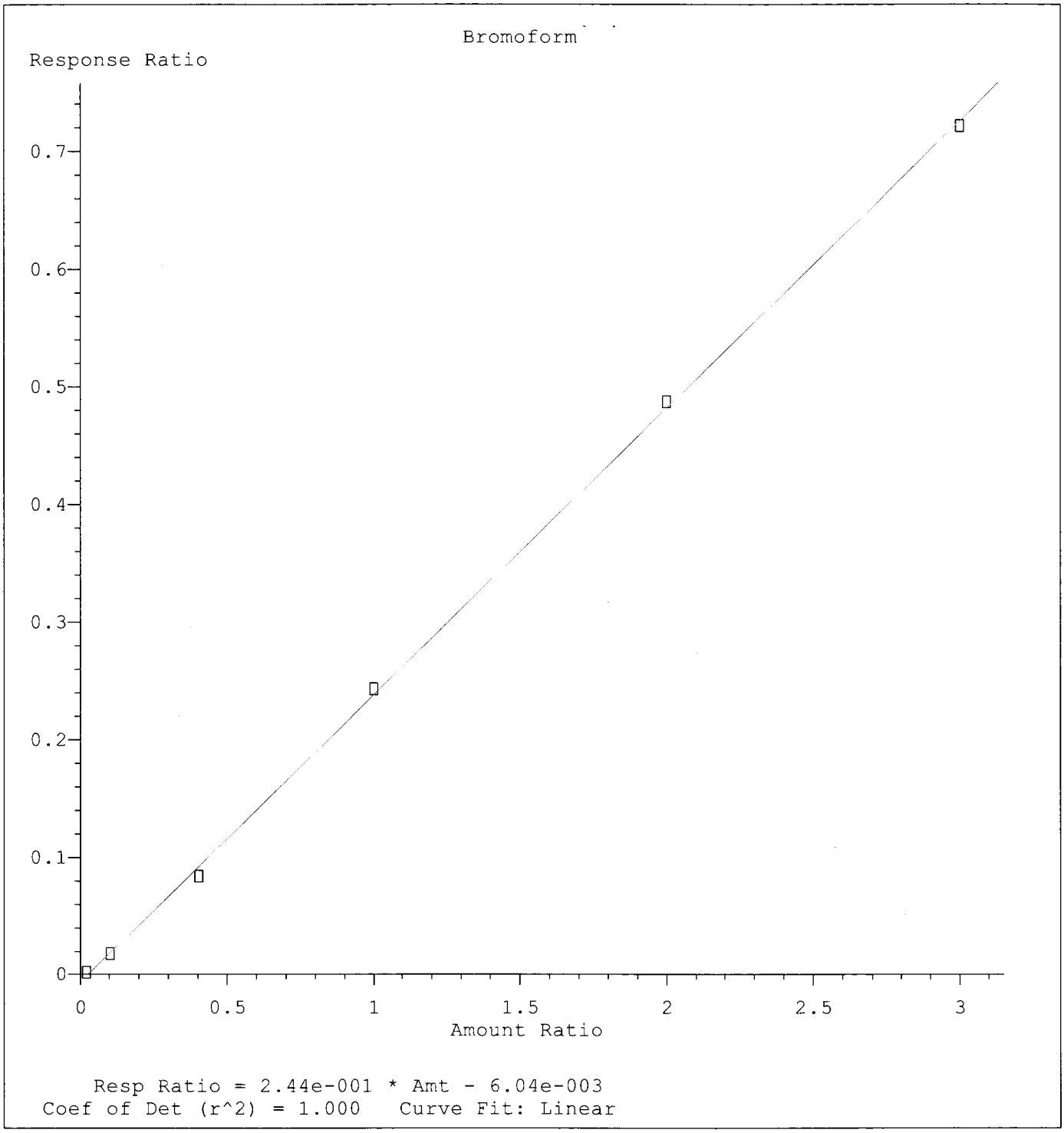
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VG039656.D BFB Injection Date: 12/17/2011

Instrument ID: MSVOAG BFB Injection Time: 05:05

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.8
75	30.0 - 60.0% of mass 95	50.2
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.1
173	Less than 2.0% of mass 174	0.7 (0.7) 1
174	50.0 - 100.0% of mass 95	98.3
175	5.0 - 9.0% of mass 174	7.7 (7.8) 1
176	95.0 - 101.0% of mass 174	97.7 (99.4) 1
177	5.0 - 9.0% of mass 176	6.8 (6.9) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VG039658.D	12/17/2011	06:02
VBG1216W2	VBG1216W2	VG039660.D	12/17/2011	07:00
BSG1216W3	BSG1216W3	VG039661.D	12/17/2011	07:29
12TB-20111214	C5005-16	VG039665.D	12/17/2011	09:24

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOAG Calibration Date/Time: 12/17/2011 06:02

Lab File ID: VG039658.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.371	0.399		7.55	
Chloromethane	0.748	0.867	0.1	15.91	
Vinyl Chloride	0.652	0.813		24.69	20
Bromomethane	0.562	0.733		30.43	
Chloroethane	0.509	0.618		21.41	
Trichlorofluoromethane	0.677	0.665		-1.77	
1,1,2-Trichlorotrifluoroethane	0.564	0.609		7.98	
1,1-Dichloroethene	0.658	0.671		1.98	20
Acetone	0.224	0.223		-0.45	
Carbon Disulfide	1.932	2.212		14.49	
Methyl tert-butyl Ether	1.441	1.393		-3.33	
Methyl Acetate	1.277	1.540		20.6	
Methylene Chloride	0.793	0.785		-1.01	
trans-1,2-Dichloroethene	0.639	0.660		3.29	
1,1-Dichloroethane	1.266	1.351	0.1	6.71	
Cyclohexane	1.04	1.187		14.13	
2-Butanone	0.399	0.427		7.02	
Carbon Tetrachloride	0.303	0.297		-1.98	
cis-1,2-Dichloroethene	0.818	0.855		4.52	
Bromochloromethane	0.67	0.773		15.37	
Chloroform	1.091	1.051		-3.67	20
1,1,1-Trichloroethane	0.691	0.652		-5.64	
Methylcyclohexane	0.485	0.515		6.19	
Benzene	1.323	1.353		2.27	
1,2-Dichloroethane	0.461	0.406		-11.93	
Trichloroethene	0.393	0.377		-4.07	
1,2-Dichloropropane	0.381	0.382		0.26	20
Bromodichloromethane	0.389	0.382		-1.8	
4-Methyl-2-Pentanone	0.246	0.264		7.32	
Toluene	0.482	0.484		0.41	20
t-1,3-Dichloropropene	0.272	0.271		-0.37	
cis-1,3-Dichloropropene	0.32	0.306		-4.38	
1,1,2-Trichloroethane	0.193	0.198		2.59	
2-Hexanone	0.178	0.188		5.62	
Dibromochloromethane	0.202	0.208		2.97	
1,2-Dibromoethane	0.214	0.222		3.74	
Tetrachloroethene	0.444	0.538		21.17	
Chlorobenzene	1.047	0.998	0.3	-4.68	
Ethyl Benzene	1.551	1.505		-2.97	20
m/p-Xylenes	0.633	0.637		0.63	
o-Xylene	0.601	0.613		2	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOAG Calibration Date/Time: 12/17/2011 06:02

Lab File ID: VG039658.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.026		8.57	
Bromoform	0.198	0.215	0.1	8.59	
Isopropylbenzene	3.657	3.116		-14.79	
1,1,2,2-Tetrachloroethane	0.998	0.805	0.3	-19.34	
1,3-Dichlorobenzene	1.608	1.518		-5.6	
1,4-Dichlorobenzene	1.574	1.467		-6.8	
1,2-Dichlorobenzene	1.415	1.313		-7.21	
1,2-Dibromo-3-Chloropropane	0.121	0.095		-21.49	
1,2,4-Trichlorobenzene	0.901	0.809		-10.21	
1,2,3-Trichlorobenzene	0.806	0.730		-9.43	
1,2-Dichloroethane-d4	0.626	0.520		-16.93	
Dibromofluoromethane	0.39	0.318		-18.46	
Toluene-d8	0.668	0.606		-9.28	
4-Bromofluorobenzene	0.23	0.238		3.48	
1,4-Dioxane	0.002	0.003		50	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG121611\
Data File : VG039658.D
Acq On : 17 Dec 2011 6:02
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 07:28:01 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	65	0.02
2	T	Dichlorodifluoromethane	0.371	0.399	-7.5	64	0.01
3	P	Chloromethane	0.748	0.867	-15.9	77	0.01
4	C	Vinyl Chloride	0.652	0.813	-24.7#	80	0.00
5	T	Bromomethane	0.562	0.733	-30.4#	87	0.00
6	T	Chloroethane	0.509	0.618	-21.4#	81	0.01
7	T	Trichlorofluoromethane	0.677	0.665	1.8	66	-0.02
8	T	Diethyl Ether	0.405	0.443	-9.4	71	0.01
9	T	1,1,2-Trichlorotrifluoroeth	0.564	0.609	-8.0	73	0.01
10	T	Methyl Iodide	1.213	1.261	-4.0	70	0.01
11	T	Tert butyl alcohol	0.057	0.058	-1.8	68	0.01
12	CM	1,1-Dichloroethene	0.658	0.671	-2.0#	72	0.00
13	T	Acrolein	0.090	0.055	38.9#	49#	0.02
14	T	Allyl chloride	1.239	1.463	-18.1	76	0.01
15	T	Acrylonitrile	0.235	0.273	-16.2	76	0.01
16	T	Acetone	0.224	0.223	0.4	78	0.01
17	T	Carbon Disulfide	1.932	2.212	-14.5	76	0.01
18	T	Methyl Acetate	1.277	1.540	-20.6#	80	0.01
19	T	Methyl tert-butyl Ether	1.441	1.393	3.3	65	0.02
20	T	Methylene Chloride	0.793	0.785	1.0	76	0.02
21	T	trans-1,2-Dichloroethene	0.639	0.660	-3.3	70	0.01
22	T	Acetonitrile	0.000	0.000	0.0	0#	-2.42#
23	T	Diisopropyl ether	2.491	2.860	-14.8	78	0.01
24	T	Vinyl Acetate	0.956	0.728	23.8#	50	0.01
25	P	1,1-Dichloroethane	1.266	1.351	-6.7	73	0.01
26	T	2-Butanone	0.399	0.427	-7.0	73	0.01
27	T	2,2-Dichloropropane	0.530	0.434	18.1	56	0.02
28	T	cis-1,2-Dichloroethene	0.818	0.855	-4.5	71	0.02
29	T	Bromochloromethane	0.670	0.773	-15.4	80	0.02
30	C	Chloroform	1.091	1.051	3.7#	67	0.02
31	T	Cyclohexane	1.040	1.187	-14.1	78	0.02
32	T	1,1,1-Trichloroethane	0.691	0.652	5.6	64	0.03
33	S	1,2-Dichloroethane-d4	0.626	0.520	16.9	59	0.02
34	I	1,4-Difluorobenzene	1.000	1.000	0.0	69	0.02
35	S	Dibromofluoromethane	0.390	0.318	18.5	58	0.03
36	T	1,1-Dichloropropene	0.504	0.483	4.2	68	0.02
37	T	Ethyl Acetate	0.539	0.514	4.6	70	0.00
38	T	Carbon Tetrachloride	0.303	0.297	2.0	62	0.02
39	T	Methylcyclohexane	0.485	0.515	-6.2	75	0.02
40	TM	Benzene	1.323	1.353	-2.3	74	0.02
41	T	Methacrylonitrile	0.263	0.269	-2.3	75	0.02
42	TM	1,2-Dichloroethane	0.461	0.406	11.9	63	0.02
43	T	Isopropyl Acetate	0.752	0.717	4.7	70	0.02
44	T	Isobutyl alcohol	0.000	0.000	0.0	0#	-4.22#
45	TM	Trichloroethene	0.393	0.377	4.1	69	0.02

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG121611\
Data File : VG039658.D
Acq On : 17 Dec 2011 6:02
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 07:28:01 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	C	1,2-Dichloropropane	0.381	0.382	-0.3#	72	0.03
47	T	Dibromomethane	0.232	0.230	0.9	69	0.02
48	T	Bromodichloromethane	0.389	0.382	1.8	66	0.02
49	T	Methyl methacrylate	0.366	0.334	8.7	67	0.00
50	T	1,4-Dioxane	0.002	0.003	-50.0#	77	0.00
51	S	Toluene-d8	0.668	0.606	9.3	62	0.02
52	T	4-Methyl-2-Pentanone	0.246	0.264	-7.3	70	0.00
53	CM	Toluene	0.482	0.484	-0.4#	70	0.02
54	T	t-1,3-Dichloropropene	0.272	0.271	0.4	62	0.02
55	T	cis-1,3-Dichloropropene	0.320	0.306	4.4	63	0.01
56	T	1,1,2-Trichloroethane	0.193	0.198	-2.6	72	0.00
57	T	Ethyl methacrylate	0.228	0.231	-1.3	64	0.01
58	T	1,3-Dichloropropane	0.332	0.330	0.6	69	0.00
59	T	2-Chloroethyl Vinyl ether	0.130	0.076	41.5#	39#	0.01
60	T	2-Hexanone	0.178	0.188	-5.6	68	0.00
61	T	Dibromochloromethane	0.202	0.208	-3.0	65	0.02
62	T	1,2-Dibromoethane	0.214	0.222	-3.7	71	0.02
63	S	4-Bromofluorobenzene	0.230	0.238	-3.5	65	0.00
64	I	Chlorobenzene-d5	1.000	1.000	0.0	76	0.00
65	T	Tetrachloroethene	0.444	0.538	-21.2#	95	0.02
66	PM	Chlorobenzene	1.047	0.998	4.7	74	0.02
67	T	1,1,1,2-Tetrachloroethane	0.353	0.328	7.1	69	0.00
68	C	Ethyl Benzene	1.551	1.505	3.0#	72	0.00
69	T	m/p-Xylenes	0.633	0.637	-0.6	72	0.00
70	T	o-Xylene	0.601	0.613	-2.0	71	0.00
71	T	Styrene	0.945	1.026	-8.6	76	0.00
72	P	Bromoform	0.198	0.215	-8.6	67	0.00
73	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	82	0.00
74	T	Isopropylbenzene	3.657	3.116	14.8	71	0.00
75	T	N-amyl acetate	1.809	1.664	8.0	73	0.01
76	P	1,1,2,2-Tetrachloroethane	0.998	0.805	19.3	72	0.00
77	T	1,2,3-Trichloropropane	0.776	0.658	15.2	74	0.00
78	T	Bromobenzene	0.889	0.797	10.3	75	0.01
79	T	n-propylbenzene	3.916	3.536	9.7	76	0.00
80	T	2-Chlorotoluene	2.306	2.073	10.1	75	0.00
81	T	1,3,5-Trimethylbenzene	2.524	2.284	9.5	75	0.00
82	T	trans-1,4-Dichloro-2-butene	0.220	0.145	34.1#	51	0.00
83	T	4-Chlorotoluene	2.367	2.091	11.7	74	0.00
84	T	tert-Butylbenzene	2.604	2.141	17.8	67	0.00
85	T	1,2,4-Trimethylbenzene	2.488	2.346	5.7	76	0.00
86	T	sec-Butylbenzene	3.579	3.395	5.1	78	0.00
87	T	p-Isopropyltoluene	2.803	2.653	5.4	77	0.00
88	T	1,3-Dichlorobenzene	1.608	1.518	5.6	78	0.00
89	T	1,4-Dichlorobenzene	1.574	1.467	6.8	80	0.00

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG121611\
Data File : VG039658.D
Acq On : 17 Dec 2011 6:02
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 07:28:01 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 T	n-Butylbenzene	2.504	2.516	-0.5	79	0.00
91 T	Hexachloroethane	0.634	0.575	9.3	73	0.00
92 T	1,2-Dichlorobenzene	1.415	1.313	7.2	77	0.00
93 T	1,2,4,5-Tetramethylbenzene	0.000	0.000	0.0	0#	-14.99#
94 T	1,2-Dibromo-3-Chloropropane	0.121	0.095	21.5#	62	0.00
95 T	1,2,4-Trichlorobenzene	0.901	0.809	10.2	74	0.01
96 T	Hexachlorobutadiene	0.342	0.308	9.9	64	0.00
97 T	Naphthalene	1.815	1.790	1.4	76	0.00
98 T	1,2,3-Trichlorobenzene	0.806	0.730	9.4	74	0.00
99 T	p-ethyltoluene	0.000	0.000	0.0	0#	-11.64#
00 T	p-diethylbenzene	0.000	0.000	0.0	0#	-13.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 6

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG121611\
Data File : VG039658.D
Acq On : 17 Dec 2011 6:02
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 07:28:01 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	65	0.02
2	T	Dichlorodifluoromethane	50.000	53.785	-7.6	64	0.01
3	P	Chloromethane	50.000	57.988	-16.0	77	0.01
4	C	Vinyl Chloride	50.000	62.363	-24.7#	80	0.00
5	T	Bromomethane	50.000	65.205	-30.4#	87	0.00
6	T	Chloroethane	50.000	60.692	-21.4#	81	0.01
7	T	Trichlorofluoromethane	50.000	49.106	1.8	66	-0.02
8	T	Diethyl Ether	50.000	54.686	-9.4	71	0.01
9	T	1,1,2-Trichlorotrifluoroeth	50.000	54.015	-8.0	73	0.01
10	T	Methyl Iodide	50.000	51.994	-4.0	70	0.01
11	T	Tert butyl alcohol	250.000	254.366	-1.7	68	0.01
12	CM	1,1-Dichloroethene	50.000	50.974	-1.9#	72	0.00
13	T	Acrolein	250.000	182.154	27.1#	49	0.02
14	T	Allyl chloride	50.000	59.032	-18.1	76	0.01
15	T	Acrylonitrile	250.000	290.401	-16.2	76	0.01
16	T	Acetone	250.000	314.842	-25.9#	78	0.01
17	T	Carbon Disulfide	50.000	57.226	-14.5	76	0.01
18	T	Methyl Acetate	50.000	60.295	-20.6#	80	0.01
19	T	Methyl tert-butyl Ether	50.000	48.332	3.3	65	0.02
20	T	Methylene Chloride	50.000	56.567	-13.1	76	0.02
21	T	trans-1,2-Dichloroethene	50.000	51.666	-3.3	70	0.01
22	T	Acetonitrile	50.000	0.000	100.0#	0	-2.42#
23	T	Diisopropyl ether	50.000	57.412	-14.8	78	0.01
24	T	Vinyl Acetate	250.000	190.534	23.8#	50	0.01
25	P	1,1-Dichloroethane	50.000	53.395	-6.8	73	0.01
26	T	2-Butanone	250.000	267.888	-7.2	73	0.01
27	T	2,2-Dichloropropane	50.000	40.927	18.1	56	0.02
28	T	cis-1,2-Dichloroethene	50.000	52.263	-4.5	71	0.02
29	T	Bromochloromethane	50.000	57.658	-15.3	80	0.02
30	C	Chloroform	50.000	48.153	3.7#	67	0.02
31	T	Cyclohexane	50.000	57.079	-14.2	78	0.02
32	T	1,1,1-Trichloroethane	50.000	47.229	5.5	64	0.03
33	S	1,2-Dichloroethane-d4	50.000	46.204	7.6	59	0.02
34	I	1,4-Difluorobenzene	50.000	50.000	0.0	69	0.02
35	S	Dibromofluoromethane	50.000	40.786	18.4	58	0.03
36	T	1,1-Dichloropropene	50.000	47.909	4.2	68	0.02
37	T	Ethyl Acetate	50.000	53.057	-6.1	70	0.00
38	T	Carbon Tetrachloride	50.000	48.887	2.2	62	0.02
39	T	Methylcyclohexane	50.000	53.156	-6.3	75	0.02
40	TM	Benzene	50.000	51.124	-2.2	74	0.02
41	T	Methacrylonitrile	50.000	55.316	-10.6	75	0.02
42	TM	1,2-Dichloroethane	50.000	44.059	11.9	63	0.02
43	T	Isopropyl Acetate	50.000	52.831	-5.7	70	0.02
44	T	Isobutyl alcohol	50.000	0.000	100.0#	0	-4.22#
45	TM	Trichloroethene	50.000	47.889	4.2	69	0.02

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG121611\
Data File : VG039658.D
Acq On : 17 Dec 2011 6:02
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 07:28:01 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	C	1,2-Dichloropropane	50.000	50.190	-0.4#	72	0.03
47	T	Dibromomethane	50.000	49.474	1.1	69	0.02
48	T	Bromodichloromethane	50.000	49.176	1.6	66	0.02
49	T	Methyl methacrylate	50.000	49.832	0.3	67	0.00
50	T	1,4-Dioxane	1000.000	1229.636	-23.0#	77	0.00
51	S	Toluene-d8	50.000	45.325	9.3	62	0.02
52	T	4-Methyl-2-Pentanone	250.000	267.988	-7.2	70	0.00
53	CM	Toluene	50.000	50.197	-0.4#	70	0.02
54	T	t-1,3-Dichloropropene	50.000	43.845	12.3	62	0.02
55	T	cis-1,3-Dichloropropene	50.000	47.880	4.2	63	0.01
56	T	1,1,2-Trichloroethane	50.000	51.452	-2.9	72	0.00
57	T	Ethyl methacrylate	50.000	44.869	10.3	64	0.01
58	T	1,3-Dichloropropane	50.000	49.666	0.7	69	0.00
59	T	2-Chloroethyl Vinyl ether	250.000	146.043	41.6#	39	0.01
60	T	2-Hexanone	250.000	265.004	-6.0	68	0.00
61	T	Dibromochloromethane	50.000	46.536	6.9	65	0.02
62	T	1,2-Dibromoethane	50.000	51.986	-4.0	71	0.02
63	S	4-Bromofluorobenzene	50.000	51.824	-3.6	65	0.00
64	I	Chlorobenzene-d5	50.000	50.000	0.0	76	0.00
65	T	Tetrachloroethene	50.000	60.540	-21.1#	95	0.02
66	PM	Chlorobenzene	50.000	47.633	4.7	74	0.02
67	T	1,1,1,2-Tetrachloroethane	50.000	46.564	6.9	69	0.00
68	C	Ethyl Benzene	50.000	48.509	3.0#	72	0.00
69	T	m/p-Xylenes	100.000	100.575	-0.6	72	0.00
70	T	o-Xylene	50.000	50.992	-2.0	71	0.00
71	T	Styrene	50.000	54.302	-8.6	76	0.00
72	P	Bromoform	50.000	45.380	9.2	67	0.00
73	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	82	0.00
74	T	Isopropylbenzene	50.000	42.605	14.8	71	0.00
75	T	N-amyl acetate	50.000	45.983	8.0	73	0.01
76	P	1,1,2,2-Tetrachloroethane	50.000	40.320	19.4	72	0.00
77	T	1,2,3-Trichloropropane	50.000	42.411	15.2	74	0.00
78	T	Bromobenzene	50.000	44.832	10.3	75	0.01
79	T	n-propylbenzene	50.000	45.138	9.7	76	0.00
80	T	2-Chlorotoluene	50.000	44.944	10.1	75	0.00
81	T	1,3,5-Trimethylbenzene	50.000	45.242	9.5	75	0.00
82	T	trans-1,4-Dichloro-2-butene	50.000	28.888	42.2#	51	0.00
83	T	4-Chlorotoluene	50.000	44.156	11.7	74	0.00
84	T	tert-Butylbenzene	50.000	41.105	17.8	67	0.00
85	T	1,2,4-Trimethylbenzene	50.000	47.132	5.7	76	0.00
86	T	sec-Butylbenzene	50.000	47.427	5.1	78	0.00
87	T	p-Isopropyltoluene	50.000	47.319	5.4	77	0.00
88	T	1,3-Dichlorobenzene	50.000	47.182	5.6	78	0.00
89	T	1,4-Dichlorobenzene	50.000	46.604	6.8	80	0.00

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG121611\
Data File : VG039658.D
Acq On : 17 Dec 2011 6:02
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 17 07:28:01 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	n-Butylbenzene	50.000	50.248	-0.5	79	0.00
)1	T	Hexachloroethane	50.000	45.347	9.3	73	0.00
)2	T	1,2-Dichlorobenzene	50.000	46.411	7.2	77	0.00
)3	T	1,2,4,5-Tetramethylbenzene	50.000	0.000	100.0#	0	-14.99#
)4	T	1,2-Dibromo-3-Chloropropane	50.000	38.981	22.0#	62	0.00
)5	T	1,2,4-Trichlorobenzene	50.000	44.902	10.2	74	0.01
)6	T	Hexachlorobutadiene	50.000	40.716	18.6	64	0.00
)7	T	Naphthalene	50.000	49.306	1.4	76	0.00
)8	T	1,2,3-Trichlorobenzene	50.000	45.312	9.4	74	0.00
)9	T	p-ethyltoluene	50.000	0.000	100.0#	0	-11.64#
)0	T	p-diethylbenzene	50.000	0.000	100.0#	0	-13.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG1216W2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VG039660.D Lab Sample ID: VBG1216W2

Date Analyzed: 12/17/2011 Time Analyzed: 07:00

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG1216W3	BSG1216W3	VG039661.D	12/17/2011
12TB-20111214	C5005-16	VG039665.D	12/17/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1216W2	SDG No.:	C5005
Lab Sample ID:	VBG1216W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039660.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1216W2	SDG No.:	C5005
Lab Sample ID:	VBG1216W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039660.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.3		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	46.5		85 - 115	93%	SPK: 50
2037-26-5	Toluene-d8	47.6		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.8		75 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	465108	3.91			
540-36-3	1,4-Difluorobenzene	883232	4.72			
3114-55-4	Chlorobenzene-d5	486263	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	218663	13.4			

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001897.D BFB Injection Date: 12/19/2011

Instrument ID: MSVOA_T BFB Injection Time: 12:08

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.9
75	30.0 - 60.0% of mass 95	57.9
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.5 (0.8) 1
174	50.0 - 100.0% of mass 95	62.2
175	5.0 - 9.0% of mass 174	4.9 (7.9) 1
176	95.0 - 101.0% of mass 174	59.2 (95.2) 1
177	5.0 - 9.0% of mass 176	4.8 (8.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD020	20 PPB ICC	VT001899.D	12/19/2011	13:48
VSTD010	10 PPB ICC	VT001900.D	12/19/2011	14:19
VSTD005	5 PPB ICC	VT001901.D	12/19/2011	14:49
VSTD050	50 PPB ICC	VT001902.D	12/19/2011	15:20
VSTD100	100 PPB ICC	VT001903.D	12/19/2011	15:51
VSTD200	200 PPB ICC	VT001904.D	12/19/2011	16:21

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Calibration Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT001901.D RRF020 = VT001899.D RRF050 = VT001902.D
RRF100 = VT001903.D RRF200 = VT001904.D RRF010 = VT001900.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.436	0.453	0.397	0.394	0.366	0.479	0.421	10.1
Chloromethane	0.684	0.661	0.610	0.572	0.533	0.707	0.628	10.8
Vinyl Chloride	0.554	0.581	0.525	0.496	0.459	0.598	0.535	9.9
Bromomethane	0.269	0.272	0.252	0.195		0.266	0.251	12.7
Chloroethane	0.361	0.368	0.340	0.308		0.385	0.352	8.4
Trichlorofluoromethane	0.837	0.837	0.745	0.688	0.631	0.876	0.769	12.6
1,1,2-Trichlorotrifluor<	0.423	0.410	0.379	0.365	0.355	0.440	0.395	8.6
1,1-Dichloroethene	0.550	0.585	0.528	0.499	0.485	0.584	0.538	7.8
Acetone	0.366	0.310	0.279	0.240	0.243	0.372	0.302	19.3
Carbon Disulfide	1.825	1.984	1.870	1.807	1.850	1.967	1.884	4
Methyl tert-butyl Ether	1.424	1.486	1.537	1.397	1.557	1.450	1.475	4.3
Methyl Acetate	1.171	1.221	1.223	1.157	1.246	1.197	1.202	2.8
Methylene Chloride	0.718	0.669	0.644	0.599	0.607	0.707	0.658	7.6
trans-1,2-Dichloroethen<	0.544	0.556	0.531	0.518	0.516	0.568	0.539	3.9
1,1-Dichloroethane	1.310	1.317	1.287	1.255	1.264	1.357	1.298	2.9
Cyclohexane	1.521	1.357	1.239	1.188	1.165	1.471	1.323	11.3
2-Butanone	0.429	0.377	0.369	0.330	0.338	0.431	0.379	11.5
Carbon Tetrachloride	0.382	0.417	0.406	0.410	0.419	0.417	0.408	3.4
cis-1,2-Dichloroethene	0.675	0.732	0.730	0.711	0.712	0.728	0.715	3
Bromochloromethane	0.627	0.608	0.676	0.631	0.637	0.693	0.645	5
Chloroform	1.161	1.190	1.176	1.128	1.117	1.201	1.162	2.9
1,1,1-Trichloroethane	0.851	0.901	0.870	0.846	0.836	0.895	0.867	3.1
Methylcyclohexane	0.592	0.637	0.612	0.614	0.623	0.648	0.621	3.2
Benzene	1.587	1.625	1.613	1.633	1.681	1.649	1.631	1.9
1,2-Dichloroethane	0.550	0.531	0.543	0.525	0.539	0.568	0.543	2.8
Trichloroethene	0.293	0.288	0.278	0.279	0.274	0.300	0.285	3.5
1,2-Dichloropropane	0.429	0.424	0.430	0.424	0.425	0.439	0.428	1.3
Bromodichloromethane	0.438	0.471	0.480	0.471	0.470	0.477	0.468	3.3
4-Methyl-2-Pentanone	0.353	0.366	0.389	0.358	0.366	0.367	0.366	3.4
Toluene	0.817	0.817	0.807	0.800	0.793	0.843	0.813	2.2
t-1,3-Dichloropropene	0.383	0.453	0.478	0.472	0.480	0.435	0.45	8.2

r^2 ok

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Calibration Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT001901.D RRF020 = VT001899.D RRF050 = VT001902.D
RRF100 = VT001903.D RRF200 = VT001904.D RRF010 = VT001900.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.507	0.558	0.583	0.579	0.577	0.548	0.559	5.2
1,1,2-Trichloroethane	0.250	0.249	0.253	0.233	0.230	0.255	0.245	4.5
2-Hexanone	0.284	0.269	0.275	0.246	0.264	0.305	0.274	7.3
Dibromochloromethane	0.192	0.206	0.210	0.200	0.203	0.198	0.202	3.2
1,2-Dibromoethane	0.194	0.198	0.209	0.195	0.200	0.204	0.2	2.8
Tetrachloroethene	0.374	0.340	0.343	0.347	0.353	0.369	0.354	4
Chlorobenzene	0.991	0.982	0.952	0.952	0.953	1.029	0.977	3.2
Ethyl Benzene	1.871	1.989	1.950	2.044	2.059	2.071	1.997	3.9
m/p-Xylenes	0.675	0.692	0.687	0.712	0.730	0.718	0.702	3
o-Xylene	0.611	0.665	0.667	0.696	0.733	0.671	0.674	6
Styrene	0.957	1.081	1.119	1.174	1.267	1.101	1.116	9.2
Bromoform	0.147	0.168	0.181	0.181	0.201	0.166	0.174	10.5
Isopropylbenzene	3.224	3.325	3.227	3.351	3.489	3.351	3.328	2.9
1,1,2,2-Tetrachloroethar	0.814	0.809	0.816	0.774	0.802	0.829	0.808	2.3
1,3-Dichlorobenzene	1.435	1.411	1.385	1.388	1.333	1.517	1.412	4.4
1,4-Dichlorobenzene	1.488	1.415	1.361	1.365	1.353	1.524	1.418	5.1
1,2-Dichlorobenzene	1.333	1.299	1.278	1.244	1.236	1.380	1.295	4.2
1,2-Dibromo-3-Chloropro	0.146	0.150	0.160	0.146	0.155	0.148	0.151	3.7
1,2,4-Trichlorobenzene	0.695	0.793	0.815	0.782	0.773	0.814	0.779	5.7
1,2,3-Trichlorobenzene	0.623	0.683	0.697	0.654	0.621	0.704	0.664	5.5
1,2-Dichloroethane-d4	1.261	0.983	0.815	0.718	0.720	1.078	0.929	23.4
Dibromofluoromethane	0.513	0.375	0.300	0.272	0.279	0.421	0.36	26.3
Toluene-d8	2.291	1.487	1.218	1.089	1.075	1.822	1.497	32.2
4-Bromofluorobenzene	0.620	0.424	0.375	0.344	0.382	0.504	0.442	23.5
1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	4

r2 ok

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Method Path : W:\HPCHEM1\MSVOA_T\METHODS\
Method File : 82T121911S.M
Title : SW846 8260
Last Update : Mon Dec 19 17:20:36 2011
Response Via : Initial Calibration

Calibration Files
5 =VT001901.D 20 =VT001899.D 50 =VT001902.D
100 =VT001903.D 200 =VT001904.D 10 =VT001900.D

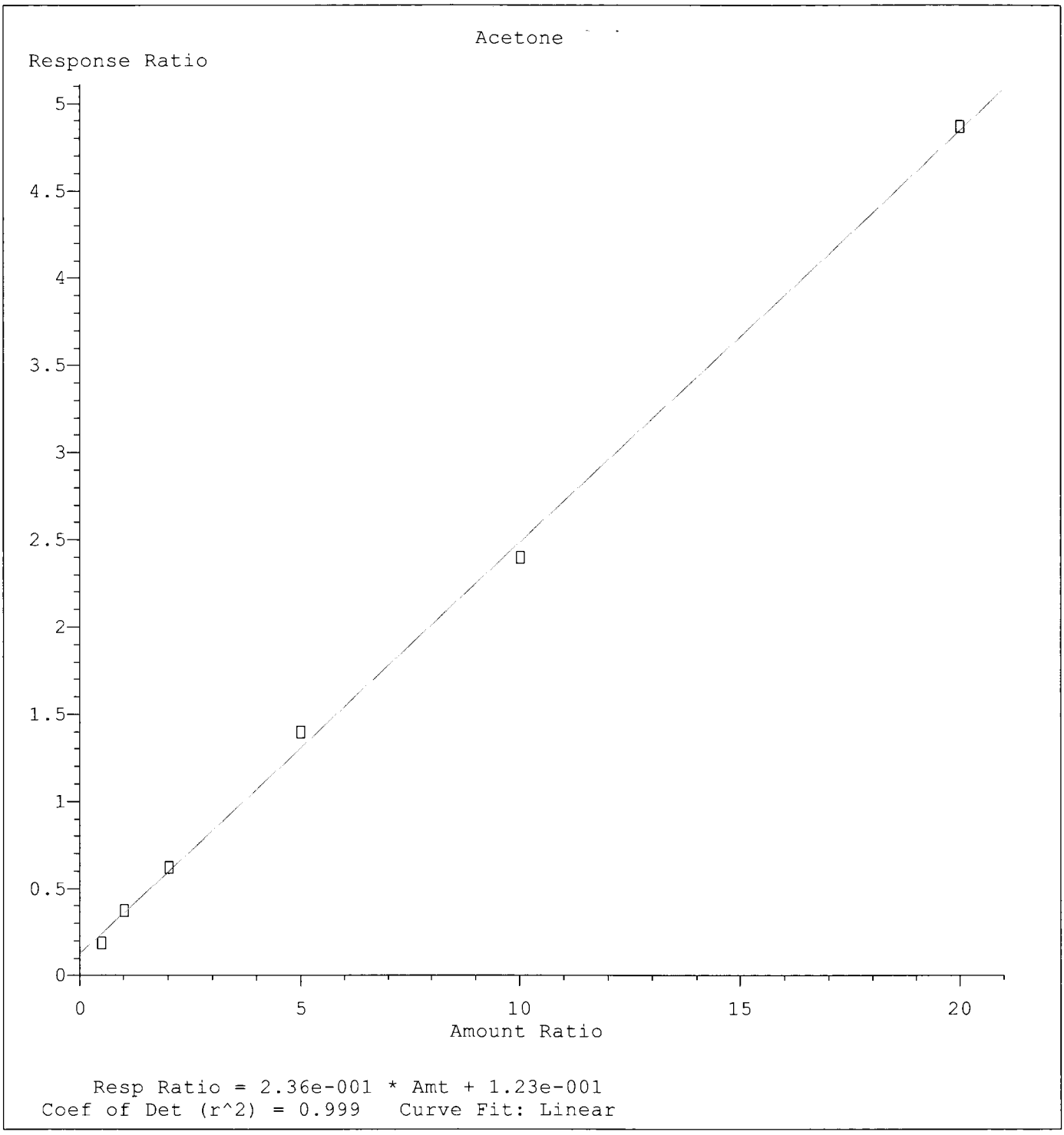
		Compound	5	20	50	100	200	10	Avg	%RSD
1)	I	Pentafluorobenzene	----------	ISTD	----------					
2)	T	Dichlorodifluorom	0.436	0.453	0.397	0.394	0.366	0.479	0.421	10.07
3)	P	Chloromethane	0.684	0.661	0.610	0.572	0.533	0.707	0.628	10.79
4)	C	Vinyl Chloride	0.554	0.581	0.525	0.496	0.459	0.598	0.535	9.87#
5)	T	Bromomethane	0.269	0.272	0.252	0.195		0.266	0.251	12.71
6)	T	Chloroethane	0.361	0.368	0.340	0.308		0.385	0.352	8.40
7)	T	Trichlorofluorome	0.837	0.837	0.745	0.688	0.631	0.876	0.769	12.63
8)	T	Diethyl Ether	0.482	0.461	0.451	0.428	0.406	0.488	0.453	7.00
9)	T	1,1,2-Trichlorotr	0.423	0.410	0.379	0.365	0.355	0.440	0.395	8.60
10)	T	Methyl Iodide	0.640	0.672	0.665	0.625	0.624	0.700	0.654	4.60
11)	T	Tert butyl alcoho	0.049	0.050	0.051	0.047	0.053	0.048	0.050	4.46
12)	CM	1,1-Dichloroethen	0.550	0.585	0.528	0.499	0.485	0.584	0.538	7.80#
13)	T	Acrolein	0.094	0.082	0.083	0.078	0.077	0.094	0.085	8.79
14)	T	Allyl chloride	1.095	1.234	1.242	1.234	1.259	1.197	1.210	4.96
15)	T	Acrylonitrile	0.216	0.230	0.240	0.220	0.230	0.220	0.226	4.02
16)	T	Acetone	0.366	0.310	0.279	0.240	0.243	0.372	0.302	19.31
17)	T	Carbon Disulfide	1.825	1.984	1.870	1.807	1.850	1.967	1.884	3.96
18)	T	Methyl Acetate	1.171	1.221	1.223	1.157	1.246	1.197	1.202	2.82
19)	T	Methyl tert-butyl	1.424	1.486	1.537	1.397	1.557	1.450	1.475	4.28
20)	T	Methylene Chlorid	0.718	0.669	0.644	0.599	0.607	0.707	0.658	7.57
21)	T	trans-1,2-Dichlor	0.544	0.556	0.531	0.518	0.516	0.568	0.539	3.91
22)	T	Diisopropyl ether	2.636	2.775	2.811	2.726	2.770	2.794	2.752	2.31
23)	T	Vinyl Acetate	0.942	1.090	1.057	1.034	1.021	1.043	1.031	4.82
24)	P	1,1-Dichloroethan	1.310	1.317	1.287	1.255	1.264	1.357	1.298	2.90
25)	T	2-Butanone	0.429	0.377	0.369	0.330	0.338	0.431	0.379	11.48
26)	T	2,2-Dichloropropa	0.657	0.735	0.687	0.649	0.639	0.686	0.676	5.21
27)	T	cis-1,2-Dichloroe	0.675	0.732	0.730	0.711	0.712	0.728	0.715	3.00
28)	T	Bromochloromethan	0.627	0.608	0.676	0.631	0.637	0.693	0.645	5.03
29)	C	Chloroform	1.161	1.190	1.176	1.128	1.117	1.201	1.162	2.90#
30)	T	Cyclohexane	1.521	1.357	1.239	1.188	1.165	1.471	1.323	11.34
31)	T	1,1,1-Trichloroet	0.851	0.901	0.870	0.846	0.836	0.895	0.867	3.09
32)	S	1,2-Dichloroethan	1.261	0.983	0.815	0.718	0.720	1.078	0.929	23.42
33)	I	1,4-Difluorobenzene	----------	ISTD	----------					
34)	S	Dibromofluorometh	0.513	0.375	0.300	0.272	0.279	0.421	0.360	26.34
35)	T	1,1-Dichloroprope	0.563	0.570	0.543	0.560	0.570	0.588	0.566	2.62
36)	T	Ethyl Acetate	0.376	0.400	0.422	0.403	0.427	0.418	0.408	4.64
37)	T	Carbon Tetrachlor	0.382	0.417	0.406	0.410	0.419	0.417	0.408	3.35
38)	T	Methylcyclohexane	0.592	0.637	0.612	0.614	0.623	0.648	0.621	3.20
39)	TM	Benzene	1.587	1.625	1.613	1.633	1.681	1.649	1.631	1.95
40)	T	Methacrylonitrile	0.201	0.213	0.229	0.209	0.234	0.194	0.213	7.30
41)	TM	1,2-Dichloroethan	0.550	0.531	0.543	0.525	0.539	0.568	0.543	2.82
42)	T	Isopropyl Acetate	0.637	0.690	0.748	0.733	0.790	0.661	0.710	8.09
43)	TM	Trichloroethene	0.293	0.288	0.278	0.279	0.274	0.300	0.285	3.47
44)	C	1,2-Dichloropropa	0.429	0.424	0.430	0.424	0.425	0.439	0.428	1.33#
45)	T	Dibromomethane	0.187	0.189	0.192	0.186	0.188	0.191	0.189	1.25
46)	T	Bromodichlorometh	0.438	0.471	0.480	0.471	0.470	0.477	0.468	3.26
47)	T	Methyl methacryla	0.338	0.354	0.376	0.358	0.363	0.352	0.357	3.52
48)	T	1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	2.24
49)	S	Toluene-d8	2.291	1.487	1.218	1.089	1.075	1.822	1.497	32.16
50)	T	4-Methyl-2-Pentan	0.353	0.366	0.389	0.358	0.366	0.367	0.366	3.39
51)	CM	Toluene	0.817	0.817	0.807	0.800	0.793	0.843	0.813	2.16#
52)	T	t-1,3-Dichloropro	0.383	0.453	0.478	0.472	0.480	0.435	0.450	8.22

Method Path : W:\HPCHEM1\MSVOA_T\METHODS\
Method File : 82T121911S.M
Title : SW846 8260
Last Update : Mon Dec 19 17:20:36 2011
Response Via : Initial Calibration

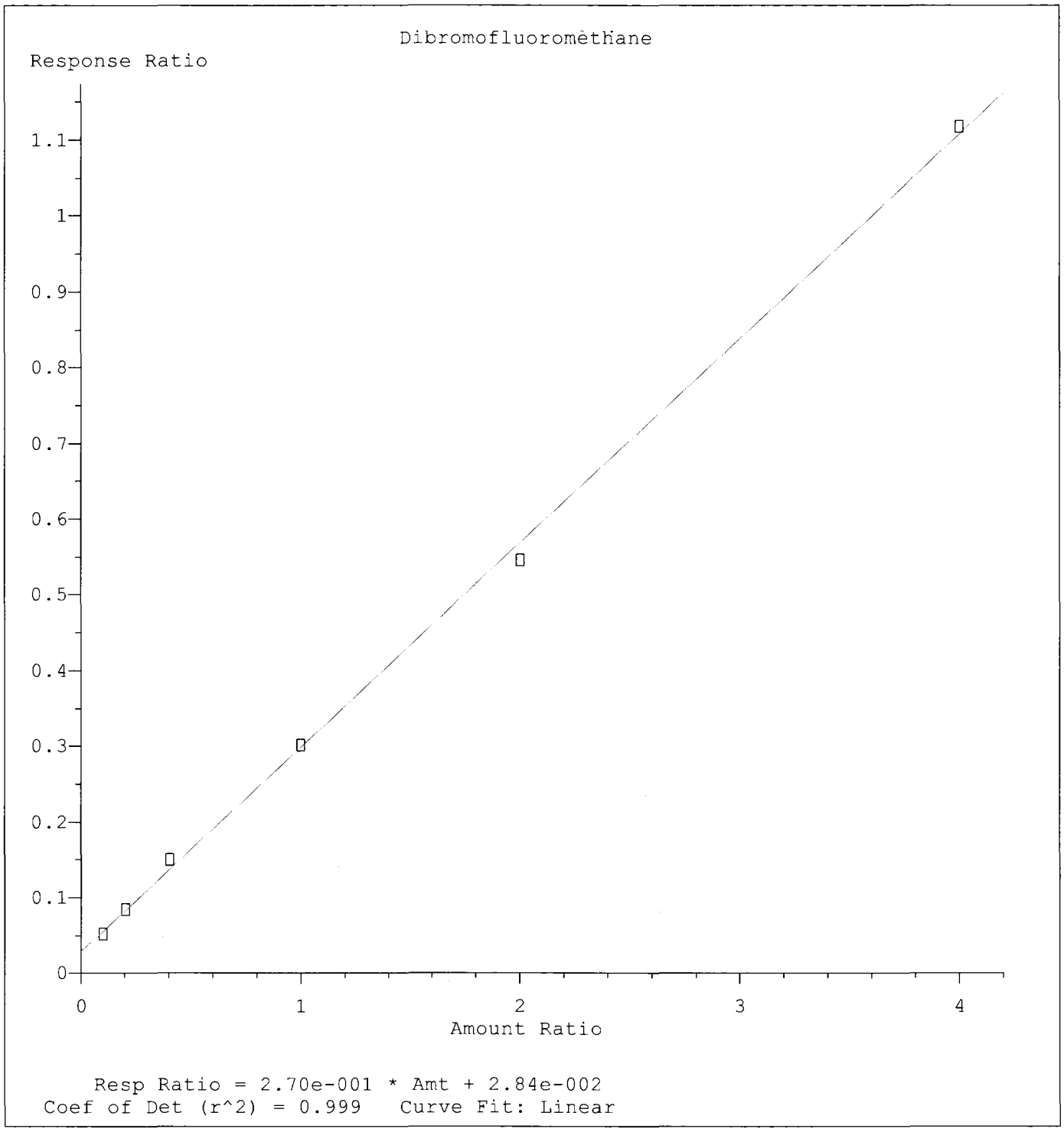
Calibration Files
5 =VT001901.D 20 =VT001899.D 50 =VT001902.D
100 =VT001903.D 200 =VT001904.D 10 =VT001900.D

		Compound	5	20	50	100	200	10	Avg	%RSD
53)	T	cis-1,3-Dichlorop	0.507	0.558	0.583	0.579	0.577	0.548	0.559	5.18
54)	T	1,1,2-Trichloroet	0.250	0.249	0.253	0.233	0.230	0.255	0.245	4.48
55)	T	Ethyl methacrylat	0.313	0.367	0.406	0.389	0.403	0.351	0.372	9.62
56)	T	1,3-Dichloropropa	0.470	0.482	0.493	0.466	0.464	0.487	0.477	2.54
57)	T	2-Chloroethyl Vin	0.189	0.185	0.207	0.212	0.214	0.206	0.202	6.06
58)	T	2-Hexanone	0.284	0.269	0.275	0.246	0.264	0.305	0.274	7.28
59)	T	Dibromochlorometh	0.192	0.206	0.210	0.200	0.203	0.198	0.202	3.20
60)	T	1,2-Dibromoethane	0.194	0.198	0.209	0.195	0.200	0.204	0.200	2.85
61)	S	4-Bromofluorobenz	0.620	0.424	0.375	0.344	0.382	0.504	0.442	23.47
62)	I	Chlorobenzene-d5	----------ISTD----------							
63)	T	Tetrachloroethene	0.374	0.340	0.343	0.347	0.353	0.369	0.354	3.97
64)	PM	Chlorobenzene	0.991	0.982	0.952	0.952	0.953	1.029	0.977	3.18
65)	T	1,1,1,2-Tetrachlo	0.278	0.306	0.299	0.297	0.292	0.299	0.295	3.30
66)	C	Ethyl Benzene	1.871	1.989	1.950	2.044	2.059	2.071	1.997	3.85#
67)	T	m/p-Xylenes	0.675	0.692	0.687	0.712	0.730	0.718	0.702	2.97
68)	T	o-Xylene	0.611	0.665	0.667	0.696	0.733	0.671	0.674	5.96
69)	T	Styrene	0.957	1.081	1.119	1.174	1.267	1.101	1.116	9.22
70)	P	Bromoform	0.147	0.168	0.181	0.181	0.201	0.166	0.174	10.53
71)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
72)	T	Isopropylbenzene	3.224	3.325	3.227	3.351	3.489	3.351	3.328	2.94
73)	T	N-amyl acetate	1.032	1.218	1.362	1.335	1.475	1.152	1.262	12.65
74)	P	1,1,2,2-Tetrachlo	0.814	0.809	0.816	0.774	0.802	0.829	0.808	2.31
75)	T	1,2,3-Trichloropr	1.034	1.113	1.155	1.114	1.191	1.110	1.119	4.70
76)	T	Bromobenzene	0.673	0.651	0.652	0.646	0.648	0.671	0.657	1.80
77)	T	n-propylbenzene	4.122	4.208	4.122	4.270	4.390	4.311	4.237	2.53
78)	T	2-Chlorotoluene	2.579	2.602	2.553	2.643	2.711	2.672	2.626	2.27
79)	T	1,3,5-Trimethylbe	2.727	2.918	2.896	2.999	3.053	2.993	2.931	3.93
80)	T	trans-1,4-Dichlor	0.208	0.248	0.272	0.271	0.296	0.229	0.254	12.63
81)	T	4-Chlorotoluene	2.713	2.721	2.687	2.731	2.814	2.862	2.755	2.47
82)	T	tert-Butylbenzene	2.278	2.363	2.387	2.443	2.447	2.420	2.390	2.66
83)	T	1,2,4-Trimethylbe	3.006	3.079	3.052	3.169	3.189	3.201	3.116	2.60
84)	T	sec-Butylbenzene	3.710	3.949	3.868	4.037	4.069	4.079	3.952	3.63
85)	T	p-Isopropyltoluen	2.947	3.173	3.092	3.208	3.162	3.270	3.142	3.56
86)	T	1,3-Dichlorobenze	1.435	1.411	1.385	1.388	1.333	1.517	1.412	4.36
87)	T	1,4-Dichlorobenze	1.488	1.415	1.361	1.365	1.353	1.524	1.418	5.12
88)	T	n-Butylbenzene	3.141	3.468	3.404	3.519	3.511	3.572	3.436	4.51
89)	T	Hexachloroethane	0.464	0.530	0.524	0.531	0.528	0.517	0.516	4.98
90)	T	1,2-Dichlorobenze	1.333	1.299	1.278	1.244	1.236	1.380	1.295	4.24
91)	T	1,2-Dibromo-3-Chl	0.146	0.150	0.160	0.146	0.155	0.148	0.151	3.67
92)	T	1,2,4-Trichlorobe	0.695	0.793	0.815	0.782	0.773	0.814	0.779	5.70
93)	T	Hexachlorobutadie	0.463	0.493	0.474	0.469	0.452	0.523	0.479	5.28
94)	T	Naphthalene	1.456	1.740	1.828	1.733	1.744	1.670	1.695	7.52
95)	T	1,2,3-Trichlorobe	0.623	0.683	0.697	0.654	0.621	0.704	0.664	5.47

(#) = Out of Range



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Calibration Table Last Updated: Mon Dec 19 17:16:55 2011



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Calibration Table Last Updated: Mon Dec 19 17:16:55 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001920.D BFB Injection Date: 12/20/2011

Instrument ID: MSVOA_T BFB Injection Time: 00:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.4
75	30.0 - 60.0% of mass 95	57.4
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.2 (0.4) 1
174	50.0 - 100.0% of mass 95	60.3
175	5.0 - 9.0% of mass 174	4.8 (7.9) 1
176	95.0 - 101.0% of mass 174	57.5 (95.3) 1
177	5.0 - 9.0% of mass 176	3.6 (6.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VT001921.D	12/20/2011	01:12
VBT1219S2	VBT1219S2	VT001922.D	12/20/2011	01:42
BST1219S2	BST1219S2	VT001923.D	12/20/2011	02:13
12SB24-000.5-01	C5005-01	VT001927.D	12/20/2011	04:16
12SB24-0.502-02	C5005-02	VT001928.D	12/20/2011	04:46
12SB24-0304-03	C5005-03	VT001929.D	12/20/2011	05:17
12SB22-000.5-01	C5005-04	VT001930.D	12/20/2011	05:48
12SB22-0.502-02	C5005-05	VT001931.D	12/20/2011	06:18
12SB22-0304-03	C5005-06	VT001932.D	12/20/2011	06:49
12SB20-000.5-01	C5005-07	VT001933.D	12/20/2011	07:20
12SB20-0.502-02	C5005-08	VT001934.D	12/20/2011	07:51
12SB-DUP-01	C5005-09	VT001935.D	12/20/2011	08:22
12SB19-000.5-01	C5005-10	VT001936.D	12/20/2011	08:52
12SB19-0.502-02	C5005-11	VT001937.D	12/20/2011	09:22
12SB19-0304-03	C5005-12	VT001938.D	12/20/2011	09:53
12SB18-000.5-01	C5005-13	VT001939.D	12/20/2011	10:24
12SB18-0.502-02	C5005-14	VT001940.D	12/20/2011	10:55
12SB18-0304-03	C5005-15	VT001941.D	12/20/2011	11:26

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date/Time: 12/20/2011 01:12

Lab File ID: VT001921.D Init. Calib. Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.421	0.390		-7.36	
Chloromethane	0.628	0.641	0.1	2.07	
Vinyl Chloride	0.535	0.548		2.43	20
Bromomethane	0.251	0.272		8.37	
Chloroethane	0.352	0.380		7.95	
Trichlorofluoromethane	0.769	0.779		1.3	
1,1,2-Trichlorotrifluoroethane	0.395	0.388		-1.77	
1,1-Dichloroethene	0.538	0.575		6.88	20
Acetone	0.302	0.265		-12.25	
Carbon Disulfide	1.884	1.981		5.15	
Methyl tert-butyl Ether	1.475	1.672		13.36	
Methyl Acetate	1.202	1.439		19.72	
Methylene Chloride	0.658	0.716		8.81	
trans-1,2-Dichloroethene	0.539	0.573		6.31	
1,1-Dichloroethane	1.298	1.423	0.1	9.63	
Cyclohexane	1.323	1.292		-2.34	
2-Butanone	0.379	0.390		2.9	
Carbon Tetrachloride	0.408	0.429		5.15	
cis-1,2-Dichloroethene	0.715	0.805		12.59	
Bromochloromethane	0.645	0.789		22.33	
Chloroform	1.162	1.294		11.36	20
1,1,1-Trichloroethane	0.867	0.933		7.61	
Methylcyclohexane	0.621	0.641		3.22	
Benzene	1.631	1.764		8.15	
1,2-Dichloroethane	0.543	0.605		11.42	
Trichloroethene	0.285	0.308		8.07	
1,2-Dichloropropane	0.428	0.475		10.98	20
Bromodichloromethane	0.468	0.529		13.03	
4-Methyl-2-Pentanone	0.366	0.440		20.22	
Toluene	0.813	0.881		8.36	20
t-1,3-Dichloropropene	0.45	0.516		14.67	
cis-1,3-Dichloropropene	0.559	0.628		12.34	
1,1,2-Trichloroethane	0.245	0.280		14.29	
2-Hexanone	0.274	0.284		3.65	
Dibromochloromethane	0.202	0.233		15.35	
1,2-Dibromoethane	0.2	0.228		14	
Tetrachloroethene	0.354	0.420		18.64	
Chlorobenzene	0.977	1.049	0.3	7.37	
Ethyl Benzene	1.997	2.113		5.81	20
m/p-Xylenes	0.702	0.742		5.7	
o-Xylene	0.674	0.725		7.57	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date/Time: 12/20/2011 01:12

Lab File ID: VT001921.D Init. Calib. Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF050	MIN RRF	%D	MAX%D
Styrene	1.116	1.220		9.32	
Bromoform	0.174	0.198	0.1	13.79	
Isopropylbenzene	3.328	3.410		2.46	
1,1,2,2-Tetrachloroethane	0.808	0.896	0.3	10.89	
1,3-Dichlorobenzene	1.412	1.495		5.88	
1,4-Dichlorobenzene	1.418	1.476		4.09	
1,2-Dichlorobenzene	1.295	1.402		8.26	
1,2-Dibromo-3-Chloropropane	0.151	0.179		18.54	
1,2,4-Trichlorobenzene	0.779	0.803		3.08	
1,2,3-Trichlorobenzene	0.664	0.718		8.13	
1,2-Dichloroethane-d4	0.929	0.904		-2.69	
Dibromofluoromethane	0.36	0.325		-9.72	
Toluene-d8	1.497	1.300		-13.16	
4-Bromofluorobenzene	0.442	0.391		-11.54	
1,4-Dioxane	0.003	0.003		0	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001921.D
Acq On : 20 Dec 2011 1:12
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 05:00:56 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	84	0.00
2	T	Dichlorodifluoromethane	0.421	0.390	7.4	83	0.00
3	P	Chloromethane	0.628	0.641	-2.1	88	0.00
4	C	Vinyl Chloride	0.535	0.548	-2.4#	88	0.00
5	T	Bromomethane	0.251	0.272	-8.4	91	0.00
6	T	Chloroethane	0.352	0.380	-8.0	94	0.00
7	T	Trichlorofluoromethane	0.769	0.779	-1.3	88	0.00
8	T	Diethyl Ether	0.453	0.516	-13.9	96	0.00
9	T	1,1,2-Trichlorotrifluoroeth	0.395	0.388	1.8	86	0.00
.0	T	Methyl Iodide	0.654	0.708	-8.3	90	0.00
.1	T	Tert butyl alcohol	0.050	0.053	-6.0	86	0.00
.2	CM	1,1-Dichloroethene	0.538	0.575	-6.9#	92	0.00
.3	T	Acrolein	0.085	0.092	-8.2	93	0.00
.4	T	Allyl chloride	1.210	1.344	-11.1	91	0.00
.5	T	Acrylonitrile	0.226	0.259	-14.6	91	0.00
.6	T	Acetone	0.302	0.265	12.3	80	0.00
.7	T	Carbon Disulfide	1.884	1.981	-5.1	89	0.00
.8	T	Methyl Acetate	1.202	1.439	-19.7	99	0.00
.9	T	Methyl tert-butyl Ether	1.475	1.672	-13.4	92	0.00
20	T	Methylene Chloride	0.658	0.716	-8.8	93	0.00
21	T	trans-1,2-Dichloroethene	0.539	0.573	-6.3	91	0.00
22	T	Diisopropyl ether	2.752	3.075	-11.7	92	0.00
23	T	Vinyl Acetate	1.031	1.062	-3.0	84	0.00
24	P	1,1-Dichloroethane	1.298	1.423	-9.6	93	0.00
25	T	2-Butanone	0.379	0.390	-2.9	89	0.00
26	T	2,2-Dichloropropane	0.676	0.698	-3.3	85	0.00
27	T	cis-1,2-Dichloroethene	0.715	0.805	-12.6	93	0.00
28	T	Bromochloromethane	0.645	0.789	-22.3#	98	0.00
29	C	Chloroform	1.162	1.294	-11.4#	93	0.00
30	T	Cyclohexane	1.323	1.292	2.3	88	0.00
31	T	1,1,1-Trichloroethane	0.867	0.933	-7.6	90	0.00
32	S	1,2-Dichloroethane-d4	0.929	0.904	2.7	93	0.00
33	I	1,4-Difluorobenzene	1.000	1.000	0.0	84	0.00
34	S	Dibromofluoromethane	0.360	0.325	9.7	91	0.00
35	T	1,1-Dichloropropene	0.566	0.582	-2.8	90	0.00
36	T	Ethyl Acetate	0.408	0.488	-19.6	97	0.00
37	T	Carbon Tetrachloride	0.408	0.429	-5.1	89	0.00
38	T	Methylcyclohexane	0.621	0.641	-3.2	88	0.00
39	TM	Benzene	1.631	1.764	-8.2	92	0.00
40	T	Methacrylonitrile	0.213	0.256	-20.2#	94	0.00
41	TM	1,2-Dichloroethane	0.543	0.605	-11.4	94	0.00
42	T	Isopropyl Acetate	0.710	0.846	-19.2	95	0.00

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001921.D
Acq On : 20 Dec 2011 1:12
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 05:00:56 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
43	TM	Trichloroethene	0.285	0.308	-8.1	93	0.00
44	C	1,2-Dichloropropane	0.428	0.475	-11.0#	93	0.00
45	T	Dibromomethane	0.189	0.216	-14.3	94	0.00
46	T	Bromodichloromethane	0.468	0.529	-13.0	93	0.00
47	T	Methyl methacrylate	0.357	0.425	-19.0	95	0.00
48	T	1,4-Dioxane	0.003	0.003	0.0	86	0.00
49	S	Toluene-d8	1.497	1.300	13.2	90	0.00
50	T	4-Methyl-2-Pentanone	0.366	0.440	-20.2#	95	0.00
51	CM	Toluene	0.813	0.881	-8.4#	92	0.00
52	T	t-1,3-Dichloropropene	0.450	0.516	-14.7	91	0.00
53	T	cis-1,3-Dichloropropene	0.559	0.628	-12.3	91	0.00
54	T	1,1,2-Trichloroethane	0.245	0.280	-14.3	93	0.00
55	T	Ethyl methacrylate	0.372	0.448	-20.4#	93	0.00
56	T	1,3-Dichloropropane	0.477	0.545	-14.3	93	0.00
57	T	2-Chloroethyl Vinyl ether	0.202	0.229	-13.4	93	0.00
58	T	2-Hexanone	0.274	0.284	-3.6	87	0.00
59	T	Dibromochloromethane	0.202	0.233	-15.3	93	0.00
60	T	1,2-Dibromoethane	0.200	0.228	-14.0	92	0.00
61	S	4-Bromofluorobenzene	0.442	0.391	11.5	88	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	82	0.00
63	T	Tetrachloroethene	0.354	0.420	-18.6	101	0.00
64	PM	Chlorobenzene	0.977	1.049	-7.4	91	0.00
65	T	1,1,1,2-Tetrachloroethane	0.295	0.330	-11.9	91	0.00
66	C	Ethyl Benzene	1.997	2.113	-5.8#	89	0.00
67	T	m/p-Xylenes	0.702	0.742	-5.7	89	0.00
68	T	o-Xylene	0.674	0.725	-7.6	90	0.00
69	T	Styrene	1.116	1.220	-9.3	90	0.00
70	P	Bromoform	0.174	0.198	-13.8	90	0.00
71	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	83	0.00
72	T	Isopropylbenzene	3.328	3.410	-2.5	88	0.00
73	T	N-amyl acetate	1.262	1.479	-17.2	90	0.00
74	P	1,1,2,2-Tetrachloroethane	0.808	0.896	-10.9	91	0.00
75	T	1,2,3-Trichloropropane	1.119	1.258	-12.4	90	0.00
76	T	Bromobenzene	0.657	0.693	-5.5	88	0.00
77	T	n-propylbenzene	4.237	4.299	-1.5	86	0.00
78	T	2-Chlorotoluene	2.626	2.729	-3.9	89	0.00
79	T	1,3,5-Trimethylbenzene	2.931	3.067	-4.6	88	0.00
80	T	trans-1,4-Dichloro-2-butene	0.254	0.279	-9.8	85	0.00
81	T	4-Chlorotoluene	2.755	2.849	-3.4	88	0.00
82	T	tert-Butylbenzene	2.390	2.502	-4.7	87	0.00
83	T	1,2,4-Trimethylbenzene	3.116	3.266	-4.8	89	0.00

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001921.D
Acq On : 20 Dec 2011 1:12
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 05:00:56 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
84 T	sec-Butylbenzene	3.952	4.099	-3.7	88	0.00
85 T	p-Isopropyltoluene	3.142	3.283	-4.5	88	0.00
86 T	1,3-Dichlorobenzene	1.412	1.495	-5.9	90	0.00
87 T	1,4-Dichlorobenzene	1.418	1.476	-4.1	90	0.00
88 T	n-Butylbenzene	3.436	3.594	-4.6	88	0.00
89 T	Hexachloroethane	0.516	0.575	-11.4	91	0.00
90 T	1,2-Dichlorobenzene	1.295	1.402	-8.3	91	0.00
91 T	1,2-Dibromo-3-Chloropropane	0.151	0.179	-18.5	93	0.00
92 T	1,2,4-Trichlorobenzene	0.779	0.803	-3.1	82	0.00
93 T	Hexachlorobutadiene	0.479	0.492	-2.7	86	0.00
94 T	Naphthalene	1.695	1.980	-16.8	90	0.00
95 T	1,2,3-Trichlorobenzene	0.664	0.718	-8.1	85	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001921.D
Acq On : 20 Dec 2011 1:12
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 05:00:56 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	84	0.00
2	T	Dichlorodifluoromethane	50.000	46.323	7.4	83	0.00
3	P	Chloromethane	50.000	51.072	-2.1	88	0.00
4	C	Vinyl Chloride	50.000	51.189	-2.4#	88	0.00
5	T	Bromomethane	50.000	54.219	-8.4	91	0.00
6	T	Chloroethane	50.000	53.944	-7.9	94	0.00
7	T	Trichlorofluoromethane	50.000	50.632	-1.3	88	0.00
8	T	Diethyl Ether	50.000	56.990	-14.0	96	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	49.159	1.7	86	0.00
10	T	Methyl Iodide	50.000	54.094	-8.2	90	0.00
11	T	Tert butyl alcohol	250.000	266.375	-6.6	86	0.00
12	CM	1,1-Dichloroethene	50.000	53.396	-6.8#	92	0.00
13	T	Acrolein	250.000	270.624	-8.2	93	0.00
14	T	Allyl chloride	50.000	55.562	-11.1	91	0.00
15	T	Acrylonitrile	250.000	286.207	-14.5	91	0.00
16	T	Acetone	250.000	254.587	-1.8	80	0.00
17	T	Carbon Disulfide	50.000	52.589	-5.2	89	0.00
18	T	Methyl Acetate	50.000	59.854	-19.7	99	0.00
19	T	Methyl tert-butyl Ether	50.000	56.679	-13.4	92	0.00
20	T	Methylene Chloride	50.000	54.428	-8.9	93	0.00
21	T	trans-1,2-Dichloroethene	50.000	53.180	-6.4	91	0.00
22	T	Diisopropyl ether	50.000	55.871	-11.7	92	0.00
23	T	Vinyl Acetate	250.000	257.406	-3.0	84	0.00
24	P	1,1-Dichloroethane	50.000	54.799	-9.6	93	0.00
25	T	2-Butanone	250.000	257.199	-2.9	89	0.00
26	T	2,2-Dichloropropane	50.000	51.696	-3.4	85	0.00
27	T	cis-1,2-Dichloroethene	50.000	56.315	-12.6	93	0.00
28	T	Bromochloromethane	50.000	61.108	-22.2#	98	0.00
29	C	Chloroform	50.000	55.685	-11.4#	93	0.00
30	T	Cyclohexane	50.000	48.811	2.4	88	0.00
31	T	1,1,1-Trichloroethane	50.000	53.857	-7.7	90	0.00
32	S	1,2-Dichloroethane-d4	50.000	58.878	-17.8	93	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	84	0.00
34	S	Dibromofluoromethane	50.000	54.880	-9.8	91	0.00
35	T	1,1-Dichloropropene	50.000	51.412	-2.8	90	0.00
36	T	Ethyl Acetate	50.000	59.927	-19.9	97	0.00
37	T	Carbon Tetrachloride	50.000	52.528	-5.1	89	0.00
38	T	Methylcyclohexane	50.000	51.593	-3.2	88	0.00
39	TM	Benzene	50.000	54.062	-8.1	92	0.00
40	T	Methacrylonitrile	50.000	59.945	-19.9	94	0.00
41	TM	1,2-Dichloroethane	50.000	55.721	-11.4	94	0.00
42	T	Isopropyl Acetate	50.000	59.593	-19.2	95	0.00

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001921.D
Acq On : 20 Dec 2011 1:12
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 05:00:56 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
43	TM	Trichloroethene	50.000	53.904	-7.8	93	0.00
44	C	1,2-Dichloropropane	50.000	55.494	-11.0#	93	0.00
45	T	Dibromomethane	50.000	57.074	-14.1	94	0.00
46	T	Bromodichloromethane	50.000	56.550	-13.1	93	0.00
47	T	Methyl methacrylate	50.000	59.541	-19.1	95	0.00
48	T	1,4-Dioxane	1000.000	1063.324	-6.3	86	0.00
49	S	Toluene-d8	50.000	55.424	-10.8	90	0.00
50	T	4-Methyl-2-Pentanone	250.000	300.216	-20.1#	95	0.00
51	CM	Toluene	50.000	54.215	-8.4#	92	0.00
52	T	t-1,3-Dichloropropene	50.000	57.387	-14.8	91	0.00
53	T	cis-1,3-Dichloropropene	50.000	56.200	-12.4	91	0.00
54	T	1,1,2-Trichloroethane	50.000	57.047	-14.1	93	0.00
55	T	Ethyl methacrylate	50.000	60.307	-20.6#	93	0.00
56	T	1,3-Dichloropropane	50.000	57.138	-14.3	93	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	282.892	-13.2	93	0.00
58	T	2-Hexanone	250.000	259.598	-3.8	87	0.00
59	T	Dibromochloromethane	50.000	57.789	-15.6	93	0.00
60	T	1,2-Dibromoethane	50.000	57.102	-14.2	92	0.00
61	S	4-Bromofluorobenzene	50.000	51.279	-2.6	88	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	82	0.00
63	T	Tetrachloroethene	50.000	59.333	-18.7	101	0.00
64	PM	Chlorobenzene	50.000	53.690	-7.4	91	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	55.871	-11.7	91	0.00
66	C	Ethyl Benzene	50.000	52.891	-5.8#	89	0.00
67	T	m/p-Xylenes	100.000	105.644	-5.6	89	0.00
68	T	o-Xylene	50.000	53.832	-7.7	90	0.00
69	T	Styrene	50.000	54.644	-9.3	90	0.00
70	P	Bromoform	50.000	56.931	-13.9	90	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	83	0.00
72	T	Isopropylbenzene	50.000	51.229	-2.5	88	0.00
73	T	N-amyl acetate	50.000	58.576	-17.2	90	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	55.480	-11.0	91	0.00
75	T	1,2,3-Trichloropropane	50.000	56.196	-12.4	90	0.00
76	T	Bromobenzene	50.000	52.755	-5.5	88	0.00
77	T	n-propylbenzene	50.000	50.730	-1.5	86	0.00
78	T	2-Chlorotoluene	50.000	51.963	-3.9	89	0.00
79	T	1,3,5-Trimethylbenzene	50.000	52.325	-4.7	88	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	54.964	-9.9	85	0.00
81	T	4-Chlorotoluene	50.000	51.710	-3.4	88	0.00
82	T	tert-Butylbenzene	50.000	52.346	-4.7	87	0.00
83	T	1,2,4-Trimethylbenzene	50.000	52.411	-4.8	89	0.00

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001921.D
Acq On : 20 Dec 2011 1:12
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 20 05:00:56 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
84	T	sec-Butylbenzene	50.000	51.856	-3.7	88	0.00
85	T	p-Isopropyltoluene	50.000	52.246	-4.5	88	0.00
86	T	1,3-Dichlorobenzene	50.000	52.962	-5.9	90	0.00
87	T	1,4-Dichlorobenzene	50.000	52.050	-4.1	90	0.00
88	T	n-Butylbenzene	50.000	52.302	-4.6	88	0.00
89	T	Hexachloroethane	50.000	55.726	-11.5	91	0.00
90	T	1,2-Dichlorobenzene	50.000	54.135	-8.3	91	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	59.412	-18.8	93	0.00
92	T	1,2,4-Trichlorobenzene	50.000	51.570	-3.1	82	0.00
93	T	Hexachlorobutadiene	50.000	51.332	-2.7	86	0.00
94	T	Naphthalene	50.000	58.396	-16.8	90	0.00
95	T	1,2,3-Trichlorobenzene	50.000	54.097	-8.2	85	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBT1219S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001922.D Lab Sample ID: VBT1219S2

Date Analyzed: 12/20/2011 Time Analyzed: 01:42

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_T

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BST1219S2	BST1219S2	VT001923.D	12/20/2011
12SB24-000.5-01	C5005-01	VT001927.D	12/20/2011
12SB24-0.502-02	C5005-02	VT001928.D	12/20/2011
12SB24-0304-03	C5005-03	VT001929.D	12/20/2011
12SB22-000.5-01	C5005-04	VT001930.D	12/20/2011
12SB22-0.502-02	C5005-05	VT001931.D	12/20/2011
12SB22-0304-03	C5005-06	VT001932.D	12/20/2011
12SB20-000.5-01	C5005-07	VT001933.D	12/20/2011
12SB20-0.502-02	C5005-08	VT001934.D	12/20/2011
12SB-DUP-01	C5005-09	VT001935.D	12/20/2011
12SB19-000.5-01	C5005-10	VT001936.D	12/20/2011
12SB19-0.502-02	C5005-11	VT001937.D	12/20/2011
12SB19-0304-03	C5005-12	VT001938.D	12/20/2011
12SB18-000.5-01	C5005-13	VT001939.D	12/20/2011
12SB18-0.502-02	C5005-14	VT001940.D	12/20/2011
12SB18-0304-03	C5005-15	VT001941.D	12/20/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1219S2	SDG No.:	C5005
Lab Sample ID:	VBT1219S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001922.D	1		12/20/11	vt121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1219S2	SDG No.:	C5005
Lab Sample ID:	VBT1219S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001922.D	1		12/20/11	vt121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	57.3		56 - 120	115%	SPK: 50
1868-53-7	Dibromofluoromethane	51.6		57 - 135	103%	SPK: 50
2037-26-5	Toluene-d8	51.3		67 - 123	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.7		33 - 141	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	686043	8.05			
540-36-3	1,4-Difluorobenzene	1242600	8.95			
3114-55-4	Chlorobenzene-d5	770614	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	368914	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1219S2	SDG No.:	C5005
Lab Sample ID:	VBT1219S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001922.D	1		12/20/11	vt121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001944.D BFB Injection Date: 12/20/2011

Instrument ID: MSVOA_T BFB Injection Time: 13:14

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25
75	30.0 - 60.0% of mass 95	58.3
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.3 (0.4) 1
174	50.0 - 100.0% of mass 95	61.3
175	5.0 - 9.0% of mass 174	4.7 (7.6) 1
176	95.0 - 101.0% of mass 174	60.6 (98.8) 1
177	5.0 - 9.0% of mass 176	4.1 (6.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VT001945.D	12/20/2011	14:05
VBT1220S2	VBT1220S2	VT001947.D	12/20/2011	15:32
BST1220S1	BST1220S1	VT001948.D	12/20/2011	16:11
12SB24-000.5-01RE	C5005-01RE	VT001951.D	12/20/2011	17:52
TLRB-5(2-3)MS	C5010-12MS	VT001963.D	12/21/2011	00:00
TLRB-5(2-3)MSD	C5010-13MSD	VT001964.D	12/21/2011	00:31

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date/Time: 12/20/2011 14:05

Lab File ID: VT001945.D Init. Calib. Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.421	0.367		-12.83	
Chloromethane	0.628	0.567	0.1	-9.71	
Vinyl Chloride	0.535	0.497		-7.1	20
Bromomethane	0.251	0.242		-3.59	
Chloroethane	0.352	0.337		-4.26	
Trichlorofluoromethane	0.769	0.771		0.26	
1,1,2-Trichlorotrifluoroethane	0.395	0.382		-3.29	
1,1-Dichloroethene	0.538	0.529		-1.67	20
Acetone	0.302	0.255		-15.56	
Carbon Disulfide	1.884	1.852		-1.7	
Methyl tert-butyl Ether	1.475	1.367		-7.32	
Methyl Acetate	1.202	1.164		-3.16	
Methylene Chloride	0.658	0.612		-6.99	
trans-1,2-Dichloroethene	0.539	0.527		-2.23	
1,1-Dichloroethane	1.298	1.237	0.1	-4.7	
Cyclohexane	1.323	1.277		-3.48	
2-Butanone	0.379	0.345		-8.97	
Carbon Tetrachloride	0.408	0.441		8.09	
cis-1,2-Dichloroethene	0.715	0.695		-2.8	
Bromochloromethane	0.645	0.657		1.86	
Chloroform	1.162	1.141		-1.81	20
1,1,1-Trichloroethane	0.867	0.860		-0.81	
Methylcyclohexane	0.621	0.684		10.14	
Benzene	1.631	1.703		4.41	
1,2-Dichloroethane	0.543	0.540		-0.55	
Trichloroethene	0.285	0.299		4.91	
1,2-Dichloropropane	0.428	0.446		4.21	20
Bromodichloromethane	0.468	0.484		3.42	
4-Methyl-2-Pentanone	0.366	0.400		9.29	
Toluene	0.813	0.864		6.27	20
t-1,3-Dichloropropene	0.45	0.479		6.44	
cis-1,3-Dichloropropene	0.559	0.583		4.29	
1,1,2-Trichloroethane	0.245	0.250		2.04	
2-Hexanone	0.274	0.266		-2.92	
Dibromochloromethane	0.202	0.212		4.95	
1,2-Dibromoethane	0.2	0.203		1.5	
Tetrachloroethene	0.354	0.351		-0.85	
Chlorobenzene	0.977	0.995	0.3	1.84	
Ethyl Benzene	1.997	2.112		5.76	20
m/p-Xylenes	0.702	0.733		4.42	
o-Xylene	0.674	0.689		2.23	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date/Time: 12/20/2011 14:05

Lab File ID: VT001945.D Init. Calib. Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.116	1.130		1.25	
Bromoform	0.174	0.173	0.1	-0.57	
Isopropylbenzene	3.328	3.350		0.66	
1,1,2,2-Tetrachloroethane	0.808	0.787	0.3	-2.6	
1,3-Dichlorobenzene	1.412	1.402		-0.71	
1,4-Dichlorobenzene	1.418	1.385		-2.33	
1,2-Dichlorobenzene	1.295	1.283		-0.93	
1,2-Dibromo-3-Chloropropane	0.151	0.152		0.66	
1,2,4-Trichlorobenzene	0.779	0.771		-1.03	
1,2,3-Trichlorobenzene	0.664	0.659		-0.75	
1,2-Dichloroethane-d4	0.929	0.740		-20.34	
Dibromofluoromethane	0.36	0.295		-18.06	
Toluene-d8	1.497	1.231		-17.77	
4-Bromofluorobenzene	0.442	0.349		-21.04	
1,4-Dioxane	0.003	0.003		0	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	96	0.00
2	T	Dichlorodifluoromethane	0.421	0.367	12.8	89	0.00
3	P	Chloromethane	0.628	0.567	9.7	89	0.00
4	C	Vinyl Chloride	0.535	0.497	7.1#	91	0.00
5	T	Bromomethane	0.251	0.242	3.6	92	0.00
6	T	Chloroethane	0.352	0.337	4.3	95	0.00
7	T	Trichlorofluoromethane	0.769	0.771	-0.3	99	0.00
8	T	Diethyl Ether	0.453	0.429	5.3	91	0.00
9	T	1,1,2-Trichlorotrifluoroeth	0.395	0.382	3.3	97	0.00
10	T	Methyl Iodide	0.654	0.600	8.3	87	0.00
11	T	Tert butyl alcohol	0.050	0.045	10.0	84	0.00
12	CM	1,1-Dichloroethene	0.538	0.529	1.7#	96	0.00
13	T	Acrolein	0.085	0.085	0.0	99	0.00
14	T	Allyl chloride	1.210	1.192	1.5	92	0.00
15	T	Acrylonitrile	0.226	0.224	0.9	90	0.00
16	T	Acetone	0.302	0.255	15.6	88	0.00
17	T	Carbon Disulfide	1.884	1.852	1.7	95	0.00
18	T	Methyl Acetate	1.202	1.164	3.2	91	0.00
19	T	Methyl tert-butyl Ether	1.475	1.367	7.3	86	0.00
20	T	Methylene Chloride	0.658	0.612	7.0	91	0.00
21	T	trans-1,2-Dichloroethene	0.539	0.527	2.2	95	0.00
22	T	Diisopropyl ether	2.752	2.647	3.8	91	0.00
23	T	Vinyl Acetate	1.031	1.079	-4.7	98	0.00
24	P	1,1-Dichloroethane	1.298	1.237	4.7	92	0.00
25	T	2-Butanone	0.379	0.345	9.0	90	0.00
26	T	2,2-Dichloropropane	0.676	0.659	2.5	92	0.00
27	T	cis-1,2-Dichloroethene	0.715	0.695	2.8	92	0.00
28	T	Bromochloromethane	0.645	0.657	-1.9	93	0.00
29	C	Chloroform	1.162	1.141	1.8#	93	0.00
30	T	Cyclohexane	1.323	1.277	3.5	99	0.00
31	T	1,1,1-Trichloroethane	0.867	0.860	0.8	95	0.00
32	S	1,2-Dichloroethane-d4	0.929	0.740	20.3#	87	0.00
33	I	1,4-Difluorobenzene	1.000	1.000	0.0	90	0.00
34	S	Dibromofluoromethane	0.360	0.295	18.1	89	0.00
35	T	1,1-Dichloropropene	0.566	0.616	-8.8	102	0.00
36	T	Ethyl Acetate	0.408	0.437	-7.1	94	0.00
37	T	Carbon Tetrachloride	0.408	0.441	-8.1	98	0.00
38	T	Methylcyclohexane	0.621	0.684	-10.1	101	0.00
39	TM	Benzene	1.631	1.703	-4.4	95	0.00
40	T	Methacrylonitrile	0.213	0.220	-3.3	87	0.00
41	TM	1,2-Dichloroethane	0.543	0.540	0.6	90	0.00
42	T	Isopropyl Acetate	0.710	0.742	-4.5	90	0.00
43	TM	Trichloroethene	0.285	0.299	-4.9	97	0.00
44	C	1,2-Dichloropropane	0.428	0.446	-4.2#	94	0.00
45	T	Dibromomethane	0.189	0.191	-1.1	90	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	0.468	0.484	-3.4	91	0.00
47	T	Methyl methacrylate	0.357	0.381	-6.7	91	0.00
48	T	1,4-Dioxane	0.003	0.003	0.0	94	0.00
49	S	Toluene-d8	1.497	1.231	17.8	91	0.00
50	T	4-Methyl-2-Pentanone	0.366	0.400	-9.3	93	0.00
51	CM	Toluene	0.813	0.864	-6.3#	97	0.00
52	T	t-1,3-Dichloropropene	0.450	0.479	-6.4	91	0.00
53	T	cis-1,3-Dichloropropene	0.559	0.583	-4.3	90	0.00
54	T	1,1,2-Trichloroethane	0.245	0.250	-2.0	89	0.00
55	T	Ethyl methacrylate	0.372	0.403	-8.3	90	0.00
56	T	1,3-Dichloropropane	0.477	0.497	-4.2	91	0.00
57	T	2-Chloroethyl Vinyl ether	0.202	0.219	-8.4	96	0.00
58	T	2-Hexanone	0.274	0.266	2.9	87	0.00
59	T	Dibromochloromethane	0.202	0.212	-5.0	91	0.00
60	T	1,2-Dibromoethane	0.200	0.203	-1.5	88	0.00
61	S	4-Bromofluorobenzene	0.442	0.349	21.0#	84	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	87	0.00
63	T	Tetrachloroethene	0.354	0.351	0.8	89	0.00
64	PM	Chlorobenzene	0.977	0.995	-1.8	91	0.00
65	T	1,1,1,2-Tetrachloroethane	0.295	0.304	-3.1	89	0.00
66	C	Ethyl Benzene	1.997	2.112	-5.8#	95	0.00
67	T	m/p-Xylenes	0.702	0.733	-4.4	93	0.00
68	T	o-Xylene	0.674	0.689	-2.2	90	0.00
69	T	Styrene	1.116	1.130	-1.3	88	0.00
70	P	Bromoform	0.174	0.173	0.6	83	0.00
71	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	0.00
72	T	Isopropylbenzene	3.328	3.350	-0.7	93	0.00
73	T	N-amyl acetate	1.262	1.263	-0.1	83	0.00
74	P	1,1,2,2-Tetrachloroethane	0.808	0.787	2.6	86	0.00
75	T	1,2,3-Trichloropropane	1.119	1.122	-0.3	87	0.00
76	T	Bromobenzene	0.657	0.615	6.4	84	0.00
77	T	n-propylbenzene	4.237	4.238	-0.0	92	0.00
78	T	2-Chlorotoluene	2.626	2.563	2.4	90	0.00
79	T	1,3,5-Trimethylbenzene	2.931	2.961	-1.0	91	0.00
80	T	trans-1,4-Dichloro-2-butene	0.254	0.262	-3.1	86	0.00
81	T	4-Chlorotoluene	2.755	2.679	2.8	89	0.00
82	T	tert-Butylbenzene	2.390	2.432	-1.8	91	0.00
83	T	1,2,4-Trimethylbenzene	3.116	3.128	-0.4	91	0.00
84	T	sec-Butylbenzene	3.952	4.107	-3.9	95	0.00
85	T	p-Isopropyltoluene	3.142	3.313	-5.4	96	0.00
86	T	1,3-Dichlorobenzene	1.412	1.402	0.7	90	0.00
87	T	1,4-Dichlorobenzene	1.418	1.385	2.3	91	0.00
88	T	n-Butylbenzene	3.436	3.715	-8.1	97	0.00
89	T	Hexachloroethane	0.516	0.554	-7.4	94	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
)0 T	1,2-Dichlorobenzene	1.295	1.283	0.9	90	0.00
)1 T	1,2-Dibromo-3-Chloropropane	0.151	0.152	-0.7	84	0.00
)2 T	1,2,4-Trichlorobenzene	0.779	0.771	1.0	84	0.00
)3 T	Hexachlorobutadiene	0.479	0.479	0.0	90	0.00
)4 T	Naphthalene	1.695	1.705	-0.6	83	0.00
)5 T	1,2,3-Trichlorobenzene	0.664	0.659	0.8	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	96	0.00
2	T	Dichlorodifluoromethane	50.000	43.607	12.8	89	0.00
3	P	Chloromethane	50.000	45.134	9.7	89	0.00
4	C	Vinyl Chloride	50.000	46.473	7.1#	91	0.00
5	T	Bromomethane	50.000	48.205	3.6	92	0.00
6	T	Chloroethane	50.000	47.838	4.3	95	0.00
7	T	Trichlorofluoromethane	50.000	50.129	-0.3	99	0.00
8	T	Diethyl Ether	50.000	47.368	5.3	91	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	48.294	3.4	97	0.00
10	T	Methyl Iodide	50.000	45.842	8.3	87	0.00
11	T	Tert butyl alcohol	250.000	225.942	9.6	84	0.00
12	CM	1,1-Dichloroethene	50.000	49.130	1.7#	96	0.00
13	T	Acrolein	250.000	252.636	-1.1	99	0.00
14	T	Allyl chloride	50.000	49.243	1.5	92	0.00
15	T	Acrylonitrile	250.000	247.848	0.9	90	0.00
16	T	Acetone	250.000	244.341	2.3	88	0.00
17	T	Carbon Disulfide	50.000	49.148	1.7	95	0.00
18	T	Methyl Acetate	50.000	48.393	3.2	91	0.00
19	T	Methyl tert-butyl Ether	50.000	46.333	7.3	86	0.00
20	T	Methylene Chloride	50.000	46.529	6.9	91	0.00
21	T	trans-1,2-Dichloroethene	50.000	48.938	2.1	95	0.00
22	T	Diisopropyl ether	50.000	48.101	3.8	91	0.00
23	T	Vinyl Acetate	250.000	261.630	-4.7	98	0.00
24	P	1,1-Dichloroethane	50.000	47.656	4.7	92	0.00
25	T	2-Butanone	250.000	227.510	9.0	90	0.00
26	T	2,2-Dichloropropane	50.000	48.807	2.4	92	0.00
27	T	cis-1,2-Dichloroethene	50.000	48.618	2.8	92	0.00
28	T	Bromochloromethane	50.000	50.877	-1.8	93	0.00
29	C	Chloroform	50.000	49.085	1.8#	93	0.00
30	T	Cyclohexane	50.000	48.245	3.5	99	0.00
31	T	1,1,1-Trichloroethane	50.000	49.618	0.8	95	0.00
32	S	1,2-Dichloroethane-d4	50.000	47.109	5.8	87	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	90	0.00
34	S	Dibromofluoromethane	50.000	49.408	1.2	89	0.00
35	T	1,1-Dichloropropene	50.000	54.452	-8.9	102	0.00
36	T	Ethyl Acetate	50.000	53.576	-7.2	94	0.00
37	T	Carbon Tetrachloride	50.000	53.931	-7.9	98	0.00
38	T	Methylcyclohexane	50.000	55.049	-10.1	101	0.00
39	TM	Benzene	50.000	52.191	-4.4	95	0.00
40	T	Methacrylonitrile	50.000	51.607	-3.2	87	0.00
41	TM	1,2-Dichloroethane	50.000	49.747	0.5	90	0.00
42	T	Isopropyl Acetate	50.000	52.232	-4.5	90	0.00
43	TM	Trichloroethene	50.000	52.339	-4.7	97	0.00
44	C	1,2-Dichloropropane	50.000	52.018	-4.0#	94	0.00
45	T	Dibromomethane	50.000	50.682	-1.4	90	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	51.760	-3.5	91	0.00
47	T	Methyl methacrylate	50.000	53.351	-6.7	91	0.00
48	T	1,4-Dioxane	1000.000	1074.775	-7.5	94	0.00
49	S	Toluene-d8	50.000	52.081	-4.2	91	0.00
50	T	4-Methyl-2-Pentanone	250.000	272.755	-9.1	93	0.00
51	CM	Toluene	50.000	53.158	-6.3#	97	0.00
52	T	t-1,3-Dichloropropene	50.000	53.266	-6.5	91	0.00
53	T	cis-1,3-Dichloropropene	50.000	52.200	-4.4	90	0.00
54	T	1,1,2-Trichloroethane	50.000	51.041	-2.1	89	0.00
55	T	Ethyl methacrylate	50.000	54.271	-8.5	90	0.00
56	T	1,3-Dichloropropane	50.000	52.103	-4.2	91	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	271.567	-8.6	96	0.00
58	T	2-Hexanone	250.000	242.528	3.0	87	0.00
59	T	Dibromochloromethane	50.000	52.568	-5.1	91	0.00
60	T	1,2-Dibromoethane	50.000	50.695	-1.4	88	0.00
61	S	4-Bromofluorobenzene	50.000	45.586	8.8	84	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	87	0.00
63	T	Tetrachloroethene	50.000	49.534	0.9	89	0.00
64	PM	Chlorobenzene	50.000	50.947	-1.9	91	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	51.408	-2.8	89	0.00
66	C	Ethyl Benzene	50.000	52.881	-5.8#	95	0.00
67	T	m/p-Xylenes	100.000	104.413	-4.4	93	0.00
68	T	o-Xylene	50.000	51.119	-2.2	90	0.00
69	T	Styrene	50.000	50.622	-1.2	88	0.00
70	P	Bromoform	50.000	49.827	0.3	83	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	89	0.00
72	T	Isopropylbenzene	50.000	50.324	-0.6	93	0.00
73	T	N-amyl acetate	50.000	50.034	-0.1	83	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	48.700	2.6	86	0.00
75	T	1,2,3-Trichloropropane	50.000	50.107	-0.2	87	0.00
76	T	Bromobenzene	50.000	46.812	6.4	84	0.00
77	T	n-propylbenzene	50.000	50.015	-0.0	92	0.00
78	T	2-Chlorotoluene	50.000	48.790	2.4	90	0.00
79	T	1,3,5-Trimethylbenzene	50.000	50.516	-1.0	91	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	51.498	-3.0	86	0.00
81	T	4-Chlorotoluene	50.000	48.624	2.8	89	0.00
82	T	tert-Butylbenzene	50.000	50.879	-1.8	91	0.00
83	T	1,2,4-Trimethylbenzene	50.000	50.192	-0.4	91	0.00
84	T	sec-Butylbenzene	50.000	51.961	-3.9	95	0.00
85	T	p-Isopropyltoluene	50.000	52.721	-5.4	96	0.00
86	T	1,3-Dichlorobenzene	50.000	49.666	0.7	90	0.00
87	T	1,4-Dichlorobenzene	50.000	48.846	2.3	91	0.00
88	T	n-Butylbenzene	50.000	54.070	-8.1	97	0.00
89	T	Hexachloroethane	50.000	53.684	-7.4	94	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	1,2-Dichlorobenzene	50.000	49.520	1.0	90	0.00
)1	T	1,2-Dibromo-3-Chloropropane	50.000	50.284	-0.6	84	0.00
)2	T	1,2,4-Trichlorobenzene	50.000	49.508	1.0	84	0.00
)3	T	Hexachlorobutadiene	50.000	50.014	-0.0	90	0.00
)4	T	Naphthalene	50.000	50.284	-0.6	83	0.00
)5	T	1,2,3-Trichlorobenzene	50.000	49.666	0.7	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBT1220S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001947.D Lab Sample ID: VBT1220S2

Date Analyzed: 12/20/2011 Time Analyzed: 15:32

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_T

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BST1220S1	BST1220S1	VT001948.D	12/20/2011
12SB24-000.5-01RE	C5005-01RE	VT001951.D	12/20/2011
TLRB-5(2-3)MS	C5010-12MS	VT001963.D	12/21/2011
TLRB-5(2-3)MSD	C5010-13MSD	VT001964.D	12/21/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1220S2	SDG No.:	C5005
Lab Sample ID:	VBT1220S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001947.D	1		12/20/11	VT122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1220S2	SDG No.:	C5005
Lab Sample ID:	VBT1220S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001947.D	1		12/20/11	VT122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52		56 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	49.8		57 - 135	100%	SPK: 50
2037-26-5	Toluene-d8	53.2		67 - 123	106%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.1		33 - 141	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	538647	8.04			
540-36-3	1,4-Difluorobenzene	985871	8.95			
3114-55-4	Chlorobenzene-d5	665670	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	331287	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1220S2	SDG No.:	C5005
Lab Sample ID:	VBT1220S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001947.D	1		12/20/11	VT122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSG1216W3	BSG1216W3	1,2-Dichloroethane-d4	50	61.45	123	*	70	120
		Dibromofluoromethane	50	52.47	105		85	115
		Toluene-d8	50	56.87	114		85	120
		4-Bromofluorobenzene	50	63.2	126	*	75	120
BST1219S2	BST1219S2	1,2-Dichloroethane-d4	50	58.05	116		56	120
		Dibromofluoromethane	50	53.11	106		57	135
		Toluene-d8	50	52.18	104		67	123
		4-Bromofluorobenzene	50	47.37	95		33	141
BST1220S1	BST1220S1	1,2-Dichloroethane-d4	50	48.9	98		56	120
		Dibromofluoromethane	50	47.43	95		57	135
		Toluene-d8	50	49.63	99		67	123
		4-Bromofluorobenzene	50	43.35	87		33	141
C5005-01	12SB24-000.5-01	1,2-Dichloroethane-d4	50	51.73	103		56	120
		Dibromofluoromethane	50	49.33	99		57	135
		Toluene-d8	50	52.21	104		67	123
		4-Bromofluorobenzene	50	37.76	76		33	141
C5005-01RE	12SB24-000.5-01RE	1,2-Dichloroethane-d4	50	54.04	108		56	120
		Dibromofluoromethane	50	49.98	100		57	135
		Toluene-d8	50	51.99	104		67	123
		4-Bromofluorobenzene	50	33.32	67		33	141
C5005-02	12SB24-0.502-02	1,2-Dichloroethane-d4	50	53.16	106		56	120
		Dibromofluoromethane	50	49.86	100		57	135
		Toluene-d8	50	53.85	108		67	123
		4-Bromofluorobenzene	50	46.67	93		33	141
C5005-03	12SB24-0304-03	1,2-Dichloroethane-d4	50	53.14	106		56	120
		Dibromofluoromethane	50	49.77	100		57	135
		Toluene-d8	50	54.06	108		67	123
		4-Bromofluorobenzene	50	51.29	103		33	141
C5005-04	12SB22-000.5-01	1,2-Dichloroethane-d4	50	51.85	104		56	120
		Dibromofluoromethane	50	50.73	101		57	135
		Toluene-d8	50	54.03	108		67	123
		4-Bromofluorobenzene	50	40.86	82		33	141
C5005-05	12SB22-0.502-02	1,2-Dichloroethane-d4	50	51.6	103		56	120
		Dibromofluoromethane	50	49.18	98		57	135
		Toluene-d8	50	53.51	107		67	123
		4-Bromofluorobenzene	50	48.09	96		33	141
C5005-06	12SB22-0304-03	1,2-Dichloroethane-d4	50	51.81	104		56	120
		Dibromofluoromethane	50	49.29	99		57	135
		Toluene-d8	50	54.23	108		67	123
		4-Bromofluorobenzene	50	47.66	95		33	141
C5005-07	12SB20-000.5-01	1,2-Dichloroethane-d4	50	52.28	105		56	120
		Dibromofluoromethane	50	51.26	103		57	135
		Toluene-d8	50	53.16	106		67	123
		4-Bromofluorobenzene	50	40.39	81		33	141
C5005-08	12SB20-0.502-02	1,2-Dichloroethane-d4	50	50.16	100		56	120
		Dibromofluoromethane	50	48.29	97		57	135
		Toluene-d8	50	53.39	107		67	123
		4-Bromofluorobenzene	50	43.66	87		33	141
C5005-09	12SB-DUP-01	1,2-Dichloroethane-d4	50	54.88	110		56	120
		Dibromofluoromethane	50	50.37	101		57	135
		Toluene-d8	50	53.62	107		67	123
		4-Bromofluorobenzene	50	45.26	91		33	141

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5005-10	12SB19-000.5-01	1,2-Dichloroethane-d4	50	50.34	101		56	120
		Dibromofluoromethane	50	49.56	99		57	135
		Toluene-d8	50	52.8	106		67	123
		4-Bromofluorobenzene	50	39.61	79		33	141
C5005-11	12SB19-0.502-02	1,2-Dichloroethane-d4	50	54.24	108		56	120
		Dibromofluoromethane	50	48.99	98		57	135
		Toluene-d8	50	54.2	108		67	123
		4-Bromofluorobenzene	50	48.51	97		33	141
C5005-12	12SB19-0304-03	1,2-Dichloroethane-d4	50	54.48	109		56	120
		Dibromofluoromethane	50	48.73	97		57	135
		Toluene-d8	50	53.25	107		67	123
		4-Bromofluorobenzene	50	41.73	83		33	141
C5005-13	12SB18-000.5-01	1,2-Dichloroethane-d4	50	48.93	98		56	120
		Dibromofluoromethane	50	49.45	99		57	135
		Toluene-d8	50	53.02	106		67	123
		4-Bromofluorobenzene	50	41.19	82		33	141
C5005-14	12SB18-0.502-02	1,2-Dichloroethane-d4	50	56.2	112		56	120
		Dibromofluoromethane	50	49.77	100		57	135
		Toluene-d8	50	54.32	109		67	123
		4-Bromofluorobenzene	50	47.13	94		33	141
C5005-15	12SB18-0304-03	1,2-Dichloroethane-d4	50	54.61	109		56	120
		Dibromofluoromethane	50	48.79	98		57	135
		Toluene-d8	50	54.16	108		67	123
		4-Bromofluorobenzene	50	46.64	93		33	141
C5005-16	12TB-20111214	1,2-Dichloroethane-d4	50	54.54	109		61	141
		Dibromofluoromethane	50	48.96	98		69	133
		Toluene-d8	50	49.15	98		65	126
		4-Bromofluorobenzene	50	52.8	106		58	135
C5010-12MS	TLRB-5(2-3)MS	1,2-Dichloroethane-d4	50	54.38	109		56	120
		Dibromofluoromethane	50	51.12	102		57	135
		Toluene-d8	50	52.43	105		67	123
		4-Bromofluorobenzene	50	42.49	85		33	141
C5010-13MSD	TLRB-5(2-3)MSD	1,2-Dichloroethane-d4	50	54.62	109		56	120
		Dibromofluoromethane	50	52.77	106		57	135
		Toluene-d8	50	52.63	105		67	123
		4-Bromofluorobenzene	50	44.63	89		33	141
VBG1216W2	VBG1216W2	1,2-Dichloroethane-d4	50	55.28	111		70	120
		Dibromofluoromethane	50	46.5	93		85	115
		Toluene-d8	50	47.59	95		85	120
		4-Bromofluorobenzene	50	46.79	94		75	120
VBT1219S2	VBT1219S2	1,2-Dichloroethane-d4	50	57.26	115		56	120
		Dibromofluoromethane	50	51.65	103		57	135
		Toluene-d8	50	51.29	103		67	123
		4-Bromofluorobenzene	50	42.73	85		33	141
VBT1220S2	VBT1220S2	1,2-Dichloroethane-d4	50	52.03	104		56	120
		Dibromofluoromethane	50	49.83	100		57	135
		Toluene-d8	50	53.2	106		67	123
		4-Bromofluorobenzene	50	47.07	94		33	141

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5005 **SAS No :** C5005 **SDG No:** C5005

Matrix Spike - EPA Sample No : C5010-12 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001963.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	55	0	51	93	(44-157)
Chloromethane	55	0	53	96	(51-144)
Vinyl Chloride	55	0	53	96	(56-145)
Bromomethane	55	0	56	102	(47-151)
Chloroethane	55	0	58	105	(55-158)
Trichlorofluoromethane	55	0	58	105	(63-145)
1,1,2-Trichlorotrifluoroethane	55	0	53	96	(63-141)
1,1-Dichloroethene	55	0	58	105	(64-140)
Acetone	275	0	270	98	(41-145)
Carbon Disulfide	55	0	56	102	(56-139)
Methyl tert-butyl Ether	55	0	56	102	(64-132)
Methyl Acetate	55	0	80	145	(21-221)
Methylene Chloride	55	0	59	107	(59-133)
trans-1,2-Dichloroethene	55	0	59	107	(64-135)
1,1-Dichloroethane	55	0	60	109	(66-135)
Cyclohexane	55	0	56	102	(59-140)
2-Butanone	275	0	260	95	(54-137)
Carbon Tetrachloride	55	0	59	107	(66-137)
cis-1,2-Dichloroethene	55	0	61	111	(65-132)
Bromochloromethane	55	0	64	116	(62-125)
Chloroform	55	0	61	111	(68-132)
1,1,1-Trichloroethane	55	0	61	111	(69-138)
Methylcyclohexane	55	0	54	98	(54-134)
Benzene	55	0	60	109	(68-130)
1,2-Dichloroethane	55	0	57	104	(68-130)
Trichloroethene	55	0	58	105	(54-149)
1,2-Dichloropropane	55	0	60	109	(65-136)
Bromodichloromethane	55	0	61	111	(68-132)
4-Methyl-2-Pentanone	275	0	290	105	(59-137)
Toluene	55	0	60	109	(65-133)
t-1,3-Dichloropropene	55	0	59	107	(64-129)
cis-1,3-Dichloropropene	55	0	60	109	(65-129)
1,1,2-Trichloroethane	55	0	59	107	(66-131)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5005 **SAS No :** C5005 **SDG No:** C5005

Matrix Spike - EPA Sample No : C5010-12 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001963.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	275	0	250	91	(58-133)
Dibromochloromethane	55	0	60	109	(67-131)
1,2-Dibromoethane	55	0	58	105	(65-130)
Tetrachloroethene	55	0	58	105	(37-161)
Chlorobenzene	55	0	58	105	(66-128)
Ethyl Benzene	55	0	58	105	(65-133)
m/p-Xylenes	110	0	110	100	(62-134)
o-Xylene	55	0	57	104	(65-133)
Styrene	55	0	56	102	(66-127)
Bromoform	55	0	55	100	(68-131)
Isopropylbenzene	55	0	58	105	(64-139)
1,1,2,2-Tetrachloroethane	55	0	60	109	(48-150)
1,3-Dichlorobenzene	55	0	55	100	(60-129)
1,4-Dichlorobenzene	55	0	54	98	(59-128)
1,2-Dichlorobenzene	55	0	57	104	(63-127)
1,2-Dibromo-3-Chloropropane	55	0	61	111	(65-137)
1,2,4-Trichlorobenzene	55	0	50	91	(38-131)
1,2,3-Trichlorobenzene	55	0	50	91	(26-131)
1,4-Dioxane	1099	0	1100	100	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5005 **SAS No :** C5005 **SDG No:** C5005

Matrix Spike - EPA Sample No : C5010-13 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001964.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	55	56	102	9	20	(44-157)
Chloromethane	55	58	105	9	20	(51-144)
Vinyl Chloride	55	59	107	11	20	(56-145)
Bromomethane	55	61	111	8	20	(47-151)
Chloroethane	55	59	107	2	20	(55-158)
Trichlorofluoromethane	55	60	109	4	20	(63-145)
1,1,2-Trichlorotrifluoroethane	55	54	98	2	20	(63-141)
1,1-Dichloroethene	55	60	109	4	20	(64-140)
Acetone	275	270	98	0	20	(41-145)
Carbon Disulfide	55	58	105	3	20	(56-139)
Methyl tert-butyl Ether	55	61	111	8	20	(64-132)
Methyl Acetate	55	78	142	2	20	(21-221)
Methylene Chloride	55	61	111	4	20	(59-133)
trans-1,2-Dichloroethene	55	59	107	0	20	(64-135)
1,1-Dichloroethane	55	61	111	2	20	(66-135)
Cyclohexane	55	56	102	0	20	(59-140)
2-Butanone	275	260	95	0	20	(54-137)
Carbon Tetrachloride	55	60	109	2	20	(66-137)
cis-1,2-Dichloroethene	55	62	113	2	20	(65-132)
Bromochloromethane	55	65	118	2	20	(62-125)
Chloroform	55	61	111	0	20	(68-132)
1,1,1-Trichloroethane	55	62	113	2	20	(69-138)
Methylcyclohexane	55	55	100	2	20	(54-134)
Benzene	55	60	109	0	20	(68-130)
1,2-Dichloroethane	55	58	105	1	20	(68-130)
Trichloroethene	55	58	105	0	20	(54-149)
1,2-Dichloropropane	55	60	109	0	20	(65-136)
Bromodichloromethane	55	60	109	2	20	(68-132)
4-Methyl-2-Pentanone	275	290	105	0	20	(59-137)
Toluene	55	59	107	2	20	(65-133)
t-1,3-Dichloropropene	55	59	107	0	20	(64-129)
cis-1,3-Dichloropropene	55	60	109	0	20	(65-129)
1,1,2-Trichloroethane	55	58	105	2	20	(66-131)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5005 **SAS No :** C5005 **SDG No:** C5005

Matrix Spike - EPA Sample No : C5010-13 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001964.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	%	QC LIMITS RPD	REC
2-Hexanone	275	260	95	4	20	(58-133)
Dibromochloromethane	55	59	107	2	20	(67-131)
1,2-Dibromoethane	55	57	104	1	20	(65-130)
Tetrachloroethene	55	60	109	4	20	(37-161)
Chlorobenzene	55	59	107	2	20	(66-128)
Ethyl Benzene	55	58	105	0	20	(65-133)
m/p-Xylenes	110	110	100	0	20	(62-134)
o-Xylene	55	58	105	1	20	(65-133)
Styrene	55	57	104	2	20	(66-127)
Bromoform	55	56	102	2	20	(68-131)
Isopropylbenzene	55	59	107	2	20	(64-139)
1,1,2,2-Tetrachloroethane	55	59	107	2	20	(48-150)
1,3-Dichlorobenzene	55	56	102	2	20	(60-129)
1,4-Dichlorobenzene	55	56	102	4	20	(59-128)
1,2-Dichlorobenzene	55	58	105	1	20	(63-127)
1,2-Dibromo-3-Chloropropane	55	58	105	6	20	(65-137)
1,2,4-Trichlorobenzene	55	52	95	4	20	(38-131)
1,2,3-Trichlorobenzene	55	55	100	9	20	(26-131)
1,4-Dioxane	1099	1100	100	0	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5005 SAS No : C5005 SDG No: C5005

Matrix Spike - EPA Sample No : BSG1216W3 Analytical Method: EPA SW846 8260 Datafile : VG039661.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		24	120	(35-124)
Chloromethane	20		26	130*	(40-125)
Vinyl Chloride	20		26	130	(50-144)
Bromomethane	20		29	145	(44-145)
Chloroethane	20		26	130	(60-135)
Trichlorofluoromethane	20		23	115	(60-137)
1,1,2-Trichlorotrifluoroethane	20		24	120	(52-142)
1,1-Dichloroethene	20		23	115	(70-130)
Acetone	100		150	150*	(50-140)
Carbon Disulfide	20		26	130	(36-155)
Methyl tert-butyl Ether	20		23	115	(65-125)
Methyl Acetate	20		29	145	(51-158)
Methylene Chloride	20		27	135	(61-138)
trans-1,2-Dichloroethene	20		23	115	(60-137)
1,1-Dichloroethane	20		25	125	(70-135)
Cyclohexane	20		27	135	(56-141)
2-Butanone	100		130	130	(56-150)
Carbon Tetrachloride	20		24	120	(65-138)
cis-1,2-Dichloroethene	20		25	125	(70-125)
Bromochloromethane	20		24	120	(65-130)
Chloroform	20		25	125	(67-135)
1,1,1-Trichloroethane	20		24	120	(65-130)
Methylcyclohexane	20		24	120	(56-137)
Benzene	20		24	120	(80-120)
1,2-Dichloroethane	20		21	105	(70-130)
Trichloroethene	20		23	115	(70-125)
1,2-Dichloropropane	20		23	115	(75-125)
Bromodichloromethane	20		23	115	(75-120)
4-Methyl-2-Pentanone	100		130	130	(63-135)
Toluene	20		23	115	(75-120)
t-1,3-Dichloropropene	20		19	95	(66-135)
cis-1,3-Dichloropropene	20		22	110	(70-130)
1,1,2-Trichloroethane	20		23	115	(75-125)
2-Hexanone	100		130	130	(56-130)
Dibromochloromethane	20		22	110	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5005 SAS No : C5005 SDG No: C5005

Matrix Spike - EPA Sample No : BSG1216W3 Analytical Method: EPA SW846 8260 Datafile : VG039661.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		23	115	(80-120)
Tetrachloroethene	20		28	140	(45-178)
Chlorobenzene	20		22	110	(80-120)
Ethyl Benzene	20		22	110	(75-125)
m/p-Xylenes	40		46	115	(75-130)
o-Xylene	20		23	115	(80-120)
Styrene	20		24	120	(65-135)
Bromoform	20		21	105	(70-130)
Isopropylbenzene	20		20	100	(75-125)
1,1,2,2-Tetrachloroethane	20		19	95	(65-130)
1,3-Dichlorobenzene	20		22	110	(75-125)
1,4-Dichlorobenzene	20		22	110	(75-125)
1,2-Dichlorobenzene	20		23	115	(70-120)
1,2-Dibromo-3-Chloropropane	20		17	85	(54-130)
1,2,4-Trichlorobenzene	20		20	100	(65-133)
1,2,3-Trichlorobenzene	20		20	100	(60-135)
1,4-Dioxane	400		520	130	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 2 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5005 SAS No : C5005 SDG No: C5005

Matrix Spike - EPA Sample No : BST1219S2 Analytical Method: EPA SW846 8260 Datafile : VT001923.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(50-142)
Chloromethane	20		23	115	(65-131)
Vinyl Chloride	20		22	110	(67-130)
Bromomethane	20		25	125	(64-136)
Chloroethane	20		24	120	(66-146)
Trichlorofluoromethane	20		22	110	(72-134)
1,1,2-Trichlorotrifluoroethane	20		21	105	(73-133)
1,1-Dichloroethene	20		23	115	(74-130)
Acetone	100		99	99	(57-135)
Carbon Disulfide	20		23	115	(71-130)
Methyl tert-butyl Ether	20		24	120	(76-123)
Methyl Acetate	20		26	130	(62-146)
Methylene Chloride	20		25	125	(73-134)
trans-1,2-Dichloroethene	20		23	115	(76-125)
1,1-Dichloroethane	20		24	120	(78-124)
Cyclohexane	20		21	105	(72-130)
2-Butanone	100		110	110	(68-132)
Carbon Tetrachloride	20		22	110	(76-127)
cis-1,2-Dichloroethene	20		25	125*	(78-122)
Bromochloromethane	20		25	125	(66-133)
Chloroform	20		25	125*	(79-122)
1,1,1-Trichloroethane	20		23	115	(76-126)
Methylcyclohexane	20		20	100	(75-127)
Benzene	20		23	115	(79-124)
1,2-Dichloroethane	20		23	115	(78-124)
Trichloroethene	20		23	115	(78-124)
1,2-Dichloropropane	20		23	115	(76-124)
Bromodichloromethane	20		24	120	(78-122)
4-Methyl-2-Pentanone	100		120	120	(73-135)
Toluene	20		22	110	(78-124)
t-1,3-Dichloropropene	20		22	110	(77-123)
cis-1,3-Dichloropropene	20		23	115	(79-120)
1,1,2-Trichloroethane	20		24	120	(78-123)
2-Hexanone	100		100	100	(71-134)
Dibromochloromethane	20		24	120	(77-121)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5005 SAS No : C5005 SDG No: C5005

Matrix Spike - EPA Sample No : BST1219S2 Analytical Method: EPA SW846 8260 Datafile : VT001923.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		23	115	(78-123)
Tetrachloroethene	20		26	130	(67-134)
Chlorobenzene	20		23	115	(80-121)
Ethyl Benzene	20		22	110	(80-123)
m/p-Xylenes	40		42	105	(79-126)
o-Xylene	20		22	110	(80-122)
Styrene	20		22	110	(81-121)
Bromoform	20		21	105	(73-124)
Isopropylbenzene	20		21	105	(79-123)
1,1,2,2-Tetrachloroethane	20		23	115	(79-124)
1,3-Dichlorobenzene	20		22	110	(82-120)
1,4-Dichlorobenzene	20		22	110	(81-120)
1,2-Dichlorobenzene	20		23	115	(82-118)
1,2-Dibromo-3-Chloropropane	20		23	115	(72-127)
1,2,4-Trichlorobenzene	20		20	100	(75-125)
1,2,3-Trichlorobenzene	20		21	105	(79-123)
1,4-Dioxane	400		440	110	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 2 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5005 SAS No : C5005 SDG No: C5005

Matrix Spike - EPA Sample No : BST1220S1 Analytical Method: EPA SW846 8260 Datafile : VT001948.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(50-142)
Chloromethane	20		20	100	(65-131)
Vinyl Chloride	20		20	100	(67-130)
Bromomethane	20		21	105	(64-136)
Chloroethane	20		20	100	(66-146)
Trichlorofluoromethane	20		20	100	(72-134)
1,1,2-Trichlorotrifluoroethane	20		20	100	(73-133)
1,1-Dichloroethene	20		20	100	(74-130)
Acetone	100		83	83	(57-135)
Carbon Disulfide	20		19	95	(71-130)
Methyl tert-butyl Ether	20		19	95	(76-123)
Methyl Acetate	20		20	100	(62-146)
Methylene Chloride	20		20	100	(73-134)
trans-1,2-Dichloroethene	20		19	95	(76-125)
1,1-Dichloroethane	20		19	95	(78-124)
Cyclohexane	20		20	100	(72-130)
2-Butanone	100		91	91	(68-132)
Carbon Tetrachloride	20		20	100	(76-127)
cis-1,2-Dichloroethene	20		20	100	(78-122)
Bromochloromethane	20		22	110	(66-133)
Chloroform	20		20	100	(79-122)
1,1,1-Trichloroethane	20		20	100	(76-126)
Methylcyclohexane	20		20	100	(75-127)
Benzene	20		20	100	(79-124)
1,2-Dichloroethane	20		20	100	(78-124)
Trichloroethene	20		20	100	(78-124)
1,2-Dichloropropane	20		20	100	(76-124)
Bromodichloromethane	20		20	100	(78-122)
4-Methyl-2-Pentanone	100		100	100	(73-135)
Toluene	20		20	100	(78-124)
t-1,3-Dichloropropene	20		19	95	(77-123)
cis-1,3-Dichloropropene	20		20	100	(79-120)
1,1,2-Trichloroethane	20		21	105	(78-123)
2-Hexanone	100		89	89	(71-134)
Dibromochloromethane	20		20	100	(77-121)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5005 SAS No : C5005 SDG No: C5005

Matrix Spike - EPA Sample No : BST1220S1 Analytical Method: EPA SW846 8260 Datafile : VT001948.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(78-123)
Tetrachloroethene	20		20	100	(67-134)
Chlorobenzene	20		20	100	(80-121)
Ethyl Benzene	20		19	95	(80-123)
m/p-Xylenes	40		39	98	(79-126)
o-Xylene	20		19	95	(80-122)
Styrene	20		18	90	(81-121)
Bromoform	20		18	90	(73-124)
Isopropylbenzene	20		19	95	(79-123)
1,1,2,2-Tetrachloroethane	20		20	100	(79-124)
1,3-Dichlorobenzene	20		19	95	(82-120)
1,4-Dichlorobenzene	20		19	95	(81-120)
1,2-Dichlorobenzene	20		20	100	(82-118)
1,2-Dibromo-3-Chloropropane	20		19	95	(72-127)
1,2,4-Trichlorobenzene	20		19	95	(75-125)
1,2,3-Trichlorobenzene	20		20	100	(79-123)
1,4-Dioxane	400		410	103	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VG039658.D Date Analyzed: 12/17/2011

Instrument ID: MSVOAG Time Analyzed: 06:02

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	547560	3.91	982001	4.71	589102	9.68
UPPER LIMIT	1095120	4.41	1964002	5.21	1178204	10.18
LOWER LIMIT	273780	3.41	491000.5	4.21	294551	9.18
EPA SAMPLE NO.						
BSG1216W3	482931	3.90	897818	4.71	533560	9.68
12TB-20111214	458186	3.91	867408	4.71	481716	9.68
VBG1216W2	465108	3.91	883232	4.72	486263	9.69

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VG039658.D Date Analyzed: 12/17/2011

Instrument ID: MSVOAG Time Analyzed: 06:02

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	304156	13.39				
UPPER LIMIT	608312	13.89				
LOWER LIMIT	152078	12.89				
EPA SAMPLE NO.						
BSG1216W3	270579	13.39				
12TB-20111214	223239	13.39				
VBG1216W2	218663	13.40				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001921.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_T Time Analyzed: 01:12

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	669628	8.04	1140481	8.95	758869	11.71
UPPER LIMIT	1339256	8.54	2280962	9.45	1517738	12.21
LOWER LIMIT	334814	7.54	570240.5	8.45	379434.5	11.21
EPA SAMPLE NO.						
BST1219S2	626148	8.05	1107893	8.95	730282	11.71
12SB24-000.5-01	484547	8.05	877875	8.95	539156	11.71
12SB24-0.502-02	497287	8.05	911056	8.95	617221	11.71
12SB24-0304-03	519982	8.05	964442	8.95	676397	11.71
12SB22-000.5-01	519412	8.04	964396	8.95	610420	11.71
12SB22-0.502-02	516346	8.05	960324	8.95	649350	11.71
12SB22-0304-03	539945	8.04	992151	8.95	670592	11.71
12SB20-000.5-01	476603	8.05	874851	8.95	549164	11.71
12SB20-0.502-02	540270	8.05	999028	8.95	654331	11.71
12SB-DUP-01	541909	8.04	989326	8.95	651031	11.71
12SB19-000.5-01	519788	8.05	950623	8.95	592084	11.71
12SB19-0.502-02	493722	8.05	924844	8.95	635555	11.71
12SB19-0304-03	524682	8.05	984435	8.95	630999	11.71
12SB18-000.5-01	491836	8.04	886848	8.95	552791	11.71
12SB18-0.502-02	540938	8.05	1005167	8.95	689290	11.71
12SB18-0304-03	512086	8.04	974894	8.95	655690	11.71
VBT1219S2	686043	8.05	1242601	8.95	770614	11.71

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001921.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_T Time Analyzed: 01:12

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	416313	13.62				
UPPER LIMIT	832626	14.12				
LOWER LIMIT	208156.5	13.12				
EPA SAMPLE NO.						
BST1219S2	387921	13.63				
12SB24-000.5-01	194368 *	13.62				
12SB24-0.502-02	282899	13.63				
12SB24-0304-03	341301	13.63				
12SB22-000.5-01	237696	13.63				
12SB22-0.502-02	310933	13.63				
12SB22-0304-03	331286	13.63				
12SB20-000.5-01	208697	13.63				
12SB20-0.502-02	300524	13.63				
12SB-DUP-01	317061	13.62				
12SB19-000.5-01	228605	13.63				
12SB19-0.502-02	314906	13.62				
12SB19-0304-03	254025	13.63				
12SB18-000.5-01	237348	13.62				
12SB18-0.502-02	336594	13.63				
12SB18-0304-03	306345	13.62				
VBT1219S2	368914	13.62				

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001921.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_T Time Analyzed: 01:12

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	416313	13.62				
UPPER LIMIT	832626	14.12				
LOWER LIMIT	208156.5	13.12				
EPA SAMPLE NO.						

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001945.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_T Time Analyzed: 14:05

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	765212	8.04	1225411	8.95	804715	11.71
UPPER LIMIT	1530424	8.54	2450822	9.45	1609430	12.21
LOWER LIMIT	382606	7.54	612705.5	8.45	402357.5	11.21
EPA SAMPLE NO.						
BST1220S1	688083	8.04	1159359	8.95	774340	11.71
12SB24-000.5-01RE	499931	8.05	926371	8.95	531514	11.71
TLRB-5(2-3)MS	624725	8.05	1096774	8.95	701403	11.71
TLRB-5(2-3)MSD	662674	8.05	1148483	8.95	733440	11.71
VBT1220S2	538647	8.04	985871	8.95	665670	11.71

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: VT001945.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_T Time Analyzed: 14:05

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #		RT #				
12 HOUR STD	447920		13.63				
UPPER LIMIT	895840		14.13				
LOWER LIMIT	223960		13.13				
EPA SAMPLE NO.							
BST1220S1	416801		13.62				
12SB24-000.5-01RE	181348	*	13.63				
TLRB-5(2-3)MS	357182		13.62				
TLRB-5(2-3)MSD	377004		13.62				
VBT1220S2	331287		13.62				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Internal Std Reference

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	51.760	-3.5	91	0.00
47	T	Methyl methacrylate	50.000	53.351	-6.7	91	0.00
48	T	1,4-Dioxane	1000.000	1074.775	-7.5	94	0.00
49	S	Toluene-d8	50.000	52.081	-4.2	91	0.00
50	T	4-Methyl-2-Pentanone	250.000	272.755	-9.1	93	0.00
51	CM	Toluene	50.000	53.158	-6.3#	97	0.00
52	T	t-1,3-Dichloropropene	50.000	53.266	-6.5	91	0.00
53	T	cis-1,3-Dichloropropene	50.000	52.200	-4.4	90	0.00
54	T	1,1,2-Trichloroethane	50.000	51.041	-2.1	89	0.00
55	T	Ethyl methacrylate	50.000	54.271	-8.5	90	0.00
56	T	1,3-Dichloropropane	50.000	52.103	-4.2	91	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	271.567	-8.6	96	0.00
58	T	2-Hexanone	250.000	242.528	3.0	87	0.00
59	T	Dibromochloromethane	50.000	52.568	-5.1	91	0.00
60	T	1,2-Dibromoethane	50.000	50.695	-1.4	88	0.00
61	S	4-Bromofluorobenzene	50.000	45.586	8.8	84	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	87	0.00
63	T	Tetrachloroethene	50.000	49.534	0.9	89	0.00
64	PM	Chlorobenzene	50.000	50.947	-1.9	91	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	51.408	-2.8	89	0.00
66	C	Ethyl Benzene	50.000	52.881	-5.8#	95	0.00
67	T	m/p-Xylenes	100.000	104.413	-4.4	93	0.00
68	T	o-Xylene	50.000	51.119	-2.2	90	0.00
69	T	Styrene	50.000	50.622	-1.2	88	0.00
70	P	Bromoform	50.000	49.827	0.3	83	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	89	0.00
72	T	Isopropylbenzene	50.000	50.324	-0.6	93	0.00
73	T	N-amyl acetate	50.000	50.034	-0.1	83	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	48.700	2.6	86	0.00
75	T	1,2,3-Trichloropropane	50.000	50.107	-0.2	87	0.00
76	T	Bromobenzene	50.000	46.812	6.4	84	0.00
77	T	n-propylbenzene	50.000	50.015	-0.0	92	0.00
78	T	2-Chlorotoluene	50.000	48.790	2.4	90	0.00
79	T	1,3,5-Trimethylbenzene	50.000	50.516	-1.0	91	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	51.498	-3.0	86	0.00
81	T	4-Chlorotoluene	50.000	48.624	2.8	89	0.00
82	T	tert-Butylbenzene	50.000	50.879	-1.8	91	0.00
83	T	1,2,4-Trimethylbenzene	50.000	50.192	-0.4	91	0.00
84	T	sec-Butylbenzene	50.000	51.961	-3.9	95	0.00
85	T	p-Isopropyltoluene	50.000	52.721	-5.4	96	0.00
86	T	1,3-Dichlorobenzene	50.000	49.666	0.7	90	0.00
87	T	1,4-Dichlorobenzene	50.000	48.846	2.3	91	0.00
88	T	n-Butylbenzene	50.000	54.070	-8.1	97	0.00
89	T	Hexachloroethane	50.000	53.684	-7.4	94	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122011\
Data File : VT001945.D
Acq On : 20 Dec 2011 14:05
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Internal Std Reference

Quant Time: Dec 20 14:33:26 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	1,2-Dichlorobenzene	50.000	49.520	1.0	90	0.00
)1	T	1,2-Dibromo-3-Chloropropane	50.000	50.284	-0.6	84	0.00
)2	T	1,2,4-Trichlorobenzene	50.000	49.508	1.0	84	0.00
)3	T	Hexachlorobutadiene	50.000	50.014	-0.0	90	0.00
)4	T	Naphthalene	50.000	50.284	-0.6	83	0.00
)5	T	1,2,3-Trichlorobenzene	50.000	49.666	0.7	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BF051710.D DFTPP Injection Date: 12/06/2011

Instrument ID: BNA_F DFTPP Injection Time: 17:49

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.1
68	Less than 2.0% of mass 69	0.7 (1.9) 1
69	Mass 69 relative abundance	38.9
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	53.4
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	19.6
365	Greater than 1% of mass 198	2.7
441	Present, but less than mass 443	10.5
442	Greater than 40% of mass 198	67.4
443	17.0 - 23.0% of mass 442	13.1 (19.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BF051712.D	12/06/2011	18:52
02	SSTD025	25 ng BNA ICC	BF051713.D	12/06/2011	19:18
03	SSTD040	40 ng BNA ICC	BF051714.D	12/06/2011	19:45
04	SSTD050	50 ng BNA ICC	BF051715.D	12/06/2011	20:12
05	SSTD060	60 ng BNA ICC	BF051716.D	12/06/2011	20:39
06	SSTD080	80 ng BNA ICC	BF051717.D	12/06/2011	21:06

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date(s): 12/06/2011 12/06/2011

Calibration Time(s): 18:52 21:06

LAB FILE ID: RRF010 = BF051712.D RRF025 = BF051713.D RRF040 = BF051714.D
RRF050 = BF051715.D RRF060 = BF051716.D RRF080 = BF051717.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.178	0.990	0.868	0.806	0.749	0.708	0.883	19.8
Phenol	2.154	1.981	1.886	1.822	1.695	1.632	1.862	10.3
bis(2-Chloroethyl)ether	1.586	1.465	1.436	1.417	1.360	1.357	1.437	5.9
2-Chlorophenol	1.597	1.466	1.418	1.391	1.317	1.306	1.416	7.6
2-Methylphenol	1.211	1.101	1.096	1.058	1.022	1.030	1.086	6.4
2,2-oxybis(1-Chloropropane)	2.147	1.906	1.872	1.813	1.725	1.704	1.861	8.6
Acetophenone	0.544	0.509	0.492	0.485	0.467	0.451	0.491	6.6
3+4-Methylphenols	1.609	1.435	1.411	1.357	1.292	1.265	1.395	8.9
n-Nitroso-di-n-propylamine	1.061	0.968	0.921	0.904	0.859	0.856	0.928	8.3
Hexachloroethane	0.611	0.596	0.584	0.570	0.537	0.548	0.574	4.9
Nitrobenzene	0.401	0.374	0.365	0.356	0.345	0.338	0.363	6.3
Isophorone	0.709	0.679	0.658	0.661	0.642	0.628	0.663	4.3
2-Nitrophenol	0.206	0.206	0.206	0.207	0.201	0.198	0.204	1.7
2,4-Dimethylphenol	0.354	0.336	0.327	0.327	0.320	0.307	0.328	4.9
bis(2-Chloroethoxy)methane	0.474	0.455	0.432	0.429	0.414	0.402	0.434	6.1
2,4-Dichlorophenol	0.308	0.306	0.295	0.298	0.281	0.273	0.294	4.7
4-Chloroaniline	0.483	0.453	0.441	0.435	0.414	0.400	0.438	6.7
Hexachlorobutadiene	0.173	0.169	0.157	0.158	0.156	0.150	0.160	5.3
Caprolactam	0.108	0.115	0.122	0.123	0.123	0.123	0.119	5.1
4-Chloro-3-methylphenol	0.327	0.317	0.315	0.318	0.306	0.299	0.314	3.2
Hexachlorocyclopentadiene	0.275	0.284	0.288	0.286	0.281	0.279	0.282	1.8
2,4,6-Trichlorophenol	0.382	0.371	0.366	0.358	0.346	0.342	0.361	4.2
2,4,5-Trichlorophenol	0.414	0.396	0.390	0.387	0.372	0.363	0.387	4.7
1,1-Biphenyl	1.601	1.479	1.407	1.327	1.276	1.219	1.385	10.2
2-Chloronaphthalene	1.236	1.156	1.098	1.028	1.007	0.953	1.079	9.7
2-Nitroaniline	0.375	0.384	0.376	0.369	0.365	0.358	0.371	2.5
Dimethylphthalate	1.375	1.290	1.256	1.215	1.188	1.153	1.246	6.4
Acenaphthylene	1.944	1.783	1.675	1.599	1.548	1.470	1.670	10.3
2,6-Dinitrotoluene	0.311	0.312	0.313	0.309	0.298	0.293	0.306	2.7
3-Nitroaniline	0.366	0.361	0.365	0.358	0.357	0.353	0.360	1.4
Acenaphthene	1.172	1.093	1.043	1.018	0.993	0.948	1.045	7.6
2,4-Dinitrophenol	0.044	0.076	0.113	0.129	0.140	0.152	0.109	38.1
4-Nitrophenol	0.257	0.279	0.296	0.297	0.298	0.298	0.288	5.7
Dibenzofuran	1.741	1.594	1.518	1.432	1.381	1.302	1.495	10.6

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date(s): 12/06/2011 12/06/2011

Calibration Time(s): 18:52 21:06

LAB FILE ID: RRF010 = BF051712.D RRF025 = BF051713.D RRF040 = BF051714.D
RRF050 = BF051715.D RRF060 = BF051716.D RRF080 = BF051717.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.386	0.378	0.377	0.362	0.353	0.341	0.366	4.7
Diethylphthalate	1.314	1.233	1.226	1.185	1.162	1.135	1.209	5.3
4-Chlorophenyl-phenylether	0.635	0.574	0.547	0.531	0.510	0.486	0.548	9.6
4-Nitroaniline	0.350	0.344	0.350	0.347	0.345	0.343	0.347	0.9
4,6-Dinitro-2-methylphenol	0.063	0.101	0.121	0.125	0.132	0.131	0.112	23.9
n-Nitrosodiphenylamine	0.742	0.723	0.682	0.649	0.639	0.609	0.674	7.6
4-Bromophenyl-phenylether	0.226	0.215	0.211	0.202	0.204	0.198	0.209	4.9
Hexachlorobenzene	0.250	0.237	0.224	0.213	0.215	0.210	0.225	7.0
Atrazine	0.198	0.199	0.192	0.179	0.173	0.162	0.184	8.2
Pentachlorophenol	0.105	0.121	0.138	0.137	0.143	0.140	0.131	11.4
Phenanthrene	1.205	1.136	1.073	1.016	1.008	0.949	1.065	8.8
Carbazole	1.169	1.121	1.076	1.037	1.021	0.968	1.065	6.8
Di-n-butylphthalate	1.253	1.277	1.230	1.193	1.176	1.116	1.207	4.8
Butylbenzylphthalate	0.512	0.557	0.579	0.584	0.586	0.591	0.568	5.3
3,3-Dichlorobenzidine	0.372	0.386	0.362	0.353	0.344	0.341	0.360	4.8
Bis(2-ethylhexyl)phthalate	0.696	0.737	0.763	0.761	0.757	0.750	0.744	3.4
Di-n-octyl phthalate	0.997	1.194	1.290	1.319	1.324	1.342	1.244	10.6
1,2,4,5-Tetrachlorobenzene	0.537	0.512	0.478	0.463	0.446	0.423	0.476	8.9
2,3,4,6-Tetrachlorophenol	0.311	0.303	0.311	0.299	0.299	0.300	0.304	1.9
2-Fluorophenol	1.484	1.385	1.384	1.358	1.283	1.283	1.363	5.5
Phenol-d5	1.892	1.741	1.703	1.665	1.604	1.576	1.697	6.7
Nitrobenzene-d5	0.419	0.399	0.370	0.370	0.354	0.339	0.375	7.8
2-Fluorobiphenyl	1.517	1.304	1.183	1.102	1.046	0.963	1.186	16.8
2,4,6-Tribromophenol	0.176	0.167	0.166	0.161	0.162	0.162	0.166	3.3
Terphenyl-d14	0.855	0.779	0.749	0.720	0.693	0.677	0.745	8.8

All other compounds must meet a minimum RRF of 0.010.

Method Path : Z:\HPCHEM1\BNA_F\METHOD\
Method File : 8270-BF120611.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Wed Dec 07 07:10:00 2011
Response Via : Initial Calibration

Calibration Files
40 =BF051714.D 10 =BF051712.D 25 =BF051713.D
50 =BF051715.D 60 =BF051716.D 80 =BF051717.D

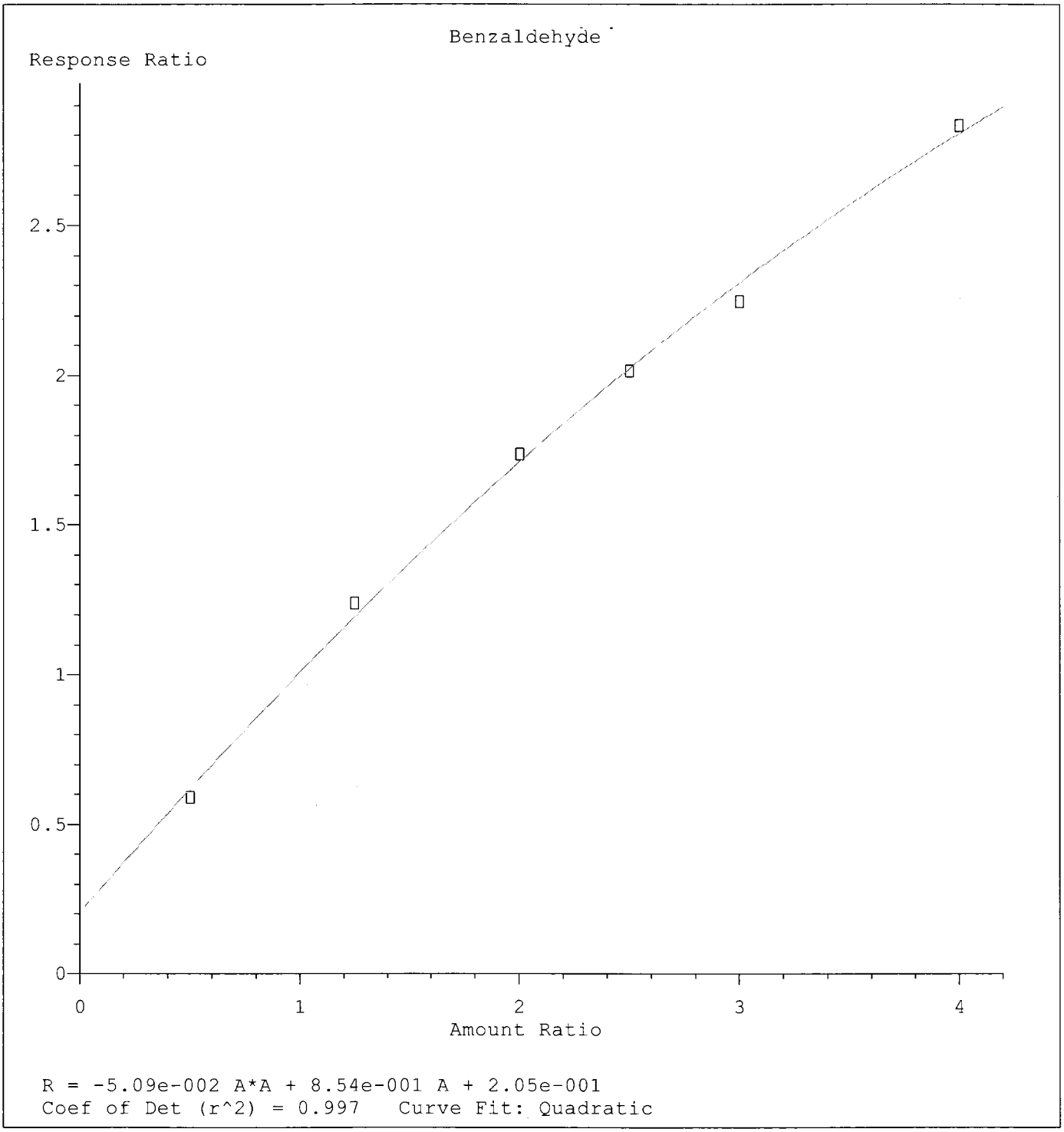
		Compound	40	10	25	50	60	80	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)		1,4-Dioxane	0.677	0.728	0.656	0.653	0.628	0.651	0.665	5.18
3)		Pyridine	1.747	1.683	1.698	1.768	1.651	1.626	1.695	3.22
4)		n-Nitrosodimethyl	0.657	0.657	0.663	0.652	0.629	0.647	0.651	1.87
5)	S	2-Fluorophenol	1.384	1.484	1.385	1.358	1.283	1.283	1.363	5.53
6)		Aniline	2.095	2.354	2.163	2.026	1.884	1.859	2.064	8.95
7)	S	Phenol-d5	1.703	1.892	1.741	1.665	1.604	1.576	1.697	6.68
8)		2-Chlorophenol	1.418	1.597	1.466	1.391	1.317	1.306	1.416	7.59
9)		Benzaldehyde	0.868	1.178	0.990	0.806	0.749	0.708	0.883	19.82
10)	C	Phenol	1.886	2.154	1.981	1.822	1.695	1.632	1.862	10.26
11)		bis(2-Chloroethyl	1.436	1.586	1.465	1.417	1.360	1.357	1.437	5.89
12)	S	2-Chlorophenol-d4	1.237	1.417	1.279	1.209	1.132	1.116	1.231	8.94
13)		1,3-Dichlorobenze	1.514	1.654	1.515	1.455	1.409	1.395	1.490	6.36
14)	C	1,4-Dichlorobenze	1.504	1.690	1.527	1.451	1.381	1.394	1.491	7.60
15)	s	1,2-Dichlorobenze	0.829	1.008	0.889	0.798	0.755	0.727	0.834	12.28
16)		1,2-Dichlorobenze	1.339	1.555	1.398	1.282	1.211	1.182	1.328	10.32
17)		Benzyl Alcohol	1.066	1.206	1.095	1.038	0.982	0.953	1.057	8.53
18)		2,2'-oxybis(1-Chl	1.872	2.147	1.906	1.813	1.725	1.704	1.861	8.64
19)		2-Methylphenol	1.096	1.211	1.101	1.058	1.022	1.030	1.086	6.39
20)		Hexachloroethane	0.584	0.611	0.596	0.570	0.537	0.548	0.574	4.92
21)	P	n-Nitroso-di-n-pr	0.921	1.061	0.968	0.904	0.859	0.856	0.928	8.32
22)		3+4-Methylphenols	1.411	1.609	1.435	1.357	1.292	1.265	1.395	8.88
23)	I	Naphthalene-d8	----------ISTD----------							
24)		Acetophenone	0.492	0.544	0.509	0.485	0.467	0.451	0.491	6.64
25)	S	Nitrobenzene-d5	0.370	0.419	0.399	0.370	0.354	0.339	0.375	7.78
26)		Nitrobenzene	0.365	0.401	0.374	0.356	0.345	0.338	0.363	6.27
27)		Isophorone	0.658	0.709	0.679	0.661	0.642	0.628	0.663	4.32
28)	C	2-Nitrophenol	0.206	0.206	0.206	0.207	0.201	0.198	0.204	1.69
29)		2,4-Dimethylpheno	0.327	0.354	0.336	0.327	0.320	0.307	0.328	4.85
30)		bis(2-Chloroethox	0.432	0.474	0.455	0.429	0.414	0.402	0.434	6.05
31)	C	2,4-Dichloropheno	0.295	0.308	0.306	0.298	0.281	0.273	0.294	4.69
32)		1,2,4-Trichlorobe	0.307	0.334	0.324	0.302	0.289	0.278	0.306	6.90
33)		Naphthalene	0.977	1.152	1.047	0.945	0.898	0.846	0.977	11.20
34)		Benzoic acid	0.128	0.103	0.106	0.154	0.164	0.185	0.140	23.64
35)		4-Chloroaniline	0.441	0.483	0.453	0.435	0.414	0.400	0.438	6.68
36)	C	Hexachlorobutadie	0.157	0.173	0.169	0.158	0.156	0.150	0.160	5.25
37)		Caprolactam	0.122	0.108	0.115	0.123	0.123	0.123	0.119	5.08
38)	C	4-Chloro-3-methyl	0.315	0.327	0.317	0.318	0.306	0.299	0.314	3.23
39)		2-Methylnaphthale	0.684	0.781	0.715	0.669	0.639	0.604	0.682	9.02
40)	I	Acenaphthene-d10	----------ISTD----------							
41)		1,2,4,5-Tetrachlo	0.478	0.537	0.512	0.463	0.446	0.423	0.476	8.86
42)	P	Hexachlorocyclope	0.288	0.275	0.284	0.286	0.281	0.279	0.282	1.76
43)	S	2,4,6-Tribromophe	0.166	0.176	0.167	0.161	0.162	0.162	0.166	3.33
44)	C	2,4,6-Trichloroph	0.366	0.382	0.371	0.358	0.346	0.342	0.361	4.18
45)		2,4,5-Trichloroph	0.390	0.414	0.396	0.387	0.372	0.363	0.387	4.65
46)	S	2-Fluorobiphenyl	1.183	1.517	1.304	1.102	1.046	0.963	1.186	16.84
47)		1,1'-Biphenyl	1.407	1.601	1.479	1.327	1.276	1.219	1.385	10.16
48)		2-Chloronaphthale	1.098	1.236	1.156	1.028	1.007	0.953	1.079	9.69
49)		2-Nitroaniline	0.376	0.375	0.384	0.369	0.365	0.358	0.371	2.47
50)		Acenaphthylene	1.675	1.944	1.783	1.599	1.548	1.470	1.670	10.30
51)		Dimethylphthalate	1.256	1.375	1.290	1.215	1.188	1.153	1.246	6.36

Method Path : Z:\HPCHEM1\BNA_F\METHOD\
Method File : 8270-BF120611.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Wed Dec 07 07:10:00 2011
Response Via : Initial Calibration

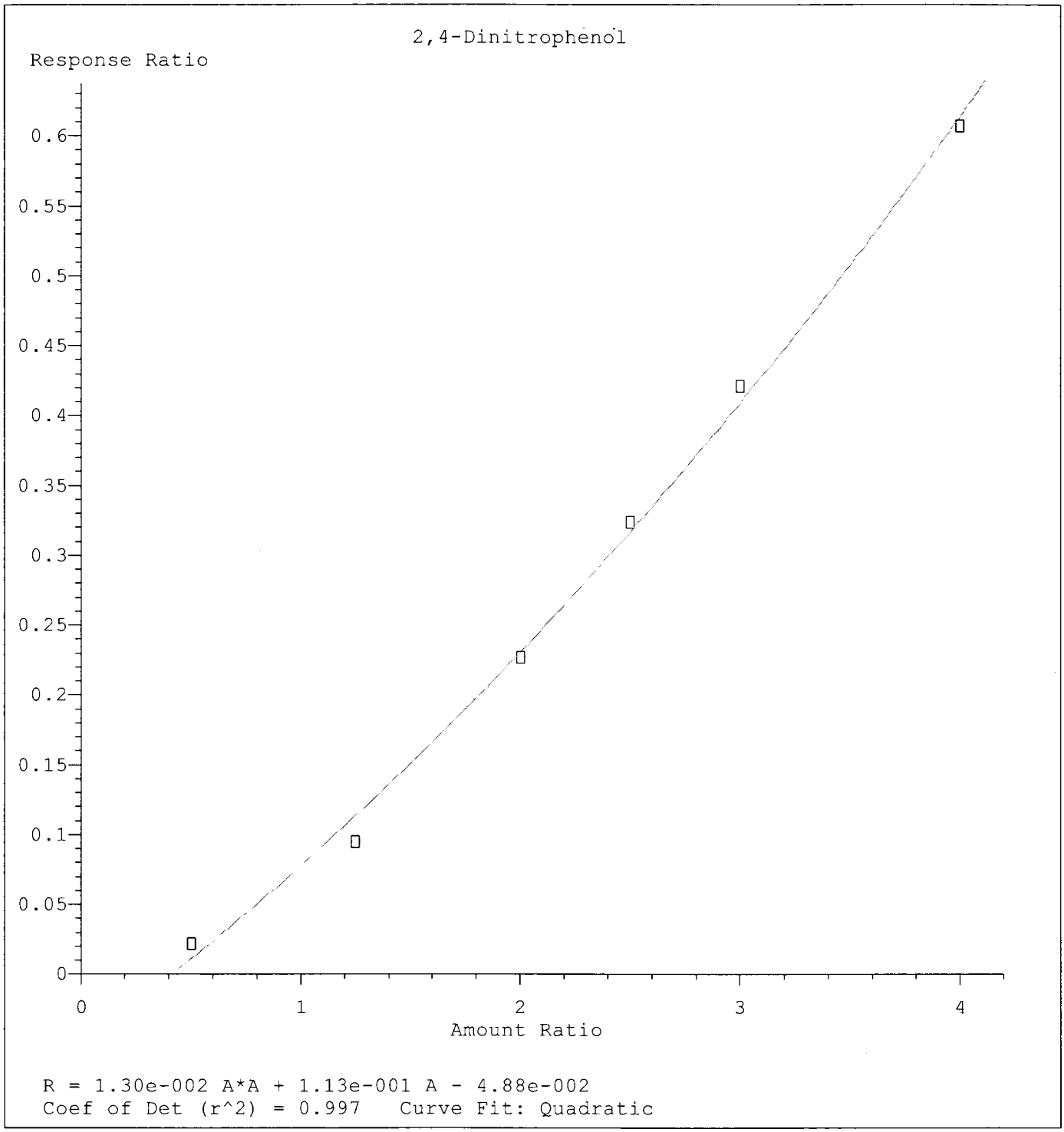
Calibration Files
40 =BF051714.D 10 =BF051712.D 25 =BF051713.D
50 =BF051715.D 60 =BF051716.D 80 =BF051717.D

		Compound	40	10	25	50	60	80	Avg	%RSD
52)		2,6-Dinitrotoluen	0.313	0.311	0.312	0.309	0.298	0.293	0.306	2.75
53)	C	Acenaphthene	1.043	1.172	1.093	1.018	0.993	0.948	1.045	7.56
54)		3-Nitroaniline	0.365	0.366	0.361	0.358	0.357	0.353	0.360	1.39
55)	P	2,4-Dinitrophenol	0.113	0.044	0.076	0.129	0.140	0.152	0.109	38.08
56)		Dibenzofuran	1.518	1.741	1.594	1.432	1.381	1.302	1.495	10.57
57)	P	4-Nitrophenol	0.296	0.257	0.279	0.297	0.298	0.298	0.288	5.72
58)		2,4-Dinitrotoluen	0.377	0.386	0.378	0.362	0.353	0.341	0.366	4.71
59)		Fluorene	1.281	1.471	1.333	1.227	1.175	1.114	1.267	9.97
60)		2,3,4,6-Tetrachlo	0.311	0.311	0.303	0.299	0.299	0.300	0.304	1.89
61)		Diethylphthalate	1.226	1.314	1.233	1.185	1.162	1.135	1.209	5.26
62)		4-Chlorophenyl-ph	0.547	0.635	0.574	0.531	0.510	0.486	0.548	9.60
63)		4-Nitroaniline	0.350	0.350	0.344	0.347	0.345	0.343	0.347	0.87
64)		Azobenzene	1.315	1.437	1.356	1.270	1.232	1.180	1.298	7.09
65)	I	Phenanthrene-d10	----------ISTD----------							
66)		4,6-Dinitro-2-met	0.121	0.063	0.101	0.125	0.132	0.131	0.112	23.92
67)	c	n-Nitrosodiphenyl	0.682	0.742	0.723	0.649	0.639	0.609	0.674	7.63
68)		4-Bromophenyl-phe	0.211	0.226	0.215	0.202	0.204	0.198	0.209	4.87
69)		Hexachlorobenzene	0.224	0.250	0.237	0.213	0.215	0.210	0.225	6.98
70)		Atrazine	0.192	0.198	0.199	0.179	0.173	0.162	0.184	8.17
71)	C	Pentachlorophenol	0.138	0.105	0.121	0.137	0.143	0.140	0.131	11.46
72)		Phenanthrene	1.073	1.205	1.136	1.016	1.008	0.949	1.065	8.78
73)		Anthracene	1.078	1.184	1.157	1.044	1.023	0.965	1.075	7.73
74)		Carbazole	1.076	1.169	1.121	1.037	1.021	0.968	1.065	6.81
75)		Di-n-butylphthala	1.230	1.253	1.277	1.193	1.176	1.116	1.207	4.84
76)	C	Fluoranthene	1.179	1.233	1.210	1.121	1.107	1.059	1.151	5.78
77)	I	Chrysene-d12	----------ISTD----------							
78)		Benzidine	0.533	0.516	0.531	0.518	0.518	0.488	0.517	3.12
79)		Pyrene	1.231	1.332	1.273	1.211	1.182	1.163	1.232	5.06
80)	S	Terphenyl-d14	0.749	0.855	0.779	0.720	0.693	0.677	0.745	8.75
81)		Butylbenzylphthal	0.579	0.512	0.557	0.584	0.586	0.591	0.568	5.26
82)		Benzo(a)anthracen	1.089	1.126	1.096	1.061	1.029	1.017	1.070	3.91
83)		3,3'-Dichlorobenz	0.362	0.372	0.386	0.353	0.344	0.341	0.360	4.79
84)		Chrysene	1.085	1.187	1.120	1.055	1.022	1.015	1.081	6.04
85)		Bis(2-ethylhexyl)	0.763	0.696	0.737	0.761	0.757	0.750	0.744	3.38
86)	c	Di-n-octyl phthal	1.290	0.997	1.194	1.319	1.324	1.342	1.244	10.62
87)		Indeno(1,2,3-cd)p	1.185	1.104	1.132	1.219	1.231	1.284	1.192	5.58
88)	I	Perylene-d12	----------ISTD----------							
89)		Benzo(b)fluoranth	1.092	1.125	1.128	1.139	1.127	1.029	1.107	3.72
90)		Benzo(k)fluoranth	1.206	1.307	1.248	1.106	1.113	1.070	1.175	7.93
91)	C	Benzo(a)pyrene	1.122	1.052	1.156	1.106	1.110	1.060	1.101	3.54
92)		Dibenzo(a,h)anthr	1.014	0.968	0.997	1.020	1.023	1.002	1.004	2.02
93)		Benzo(g,h,i)peryl	1.072	1.029	1.077	1.090	1.093	1.063	1.071	2.18

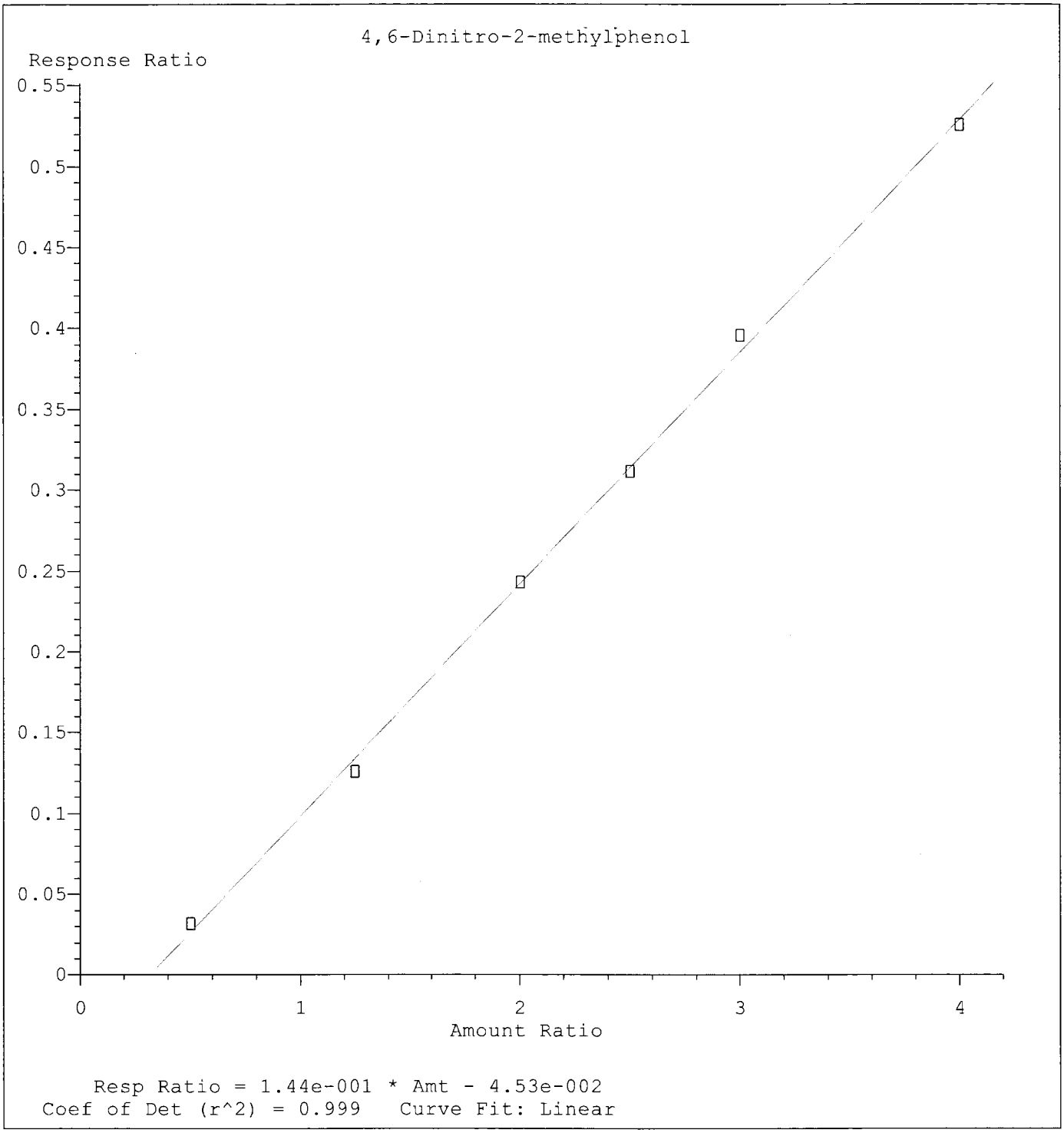
(#) = Out of Range



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF120611.M
Calibration Table Last Updated: Wed Dec 07 07:07:49 2011



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF120611.M
Calibration Table Last Updated: Wed Dec 07 07:09:26 2011



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF120611.M
Calibration Table Last Updated: Wed Dec 07 07:09:44 2011

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BF052053.D DFTPP Injection Date: 12/19/2011

Instrument ID: BNA_F DFTPP Injection Time: 14:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.1
68	Less than 2.0% of mass 69	0.4 (1.1) 1
69	Mass 69 relative abundance	37.5
70	Less than 2.0% of mass 69	0.3 (0.8) 1
127	40.0 - 60.0% of mass 198	54.2
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	22.3
365	Greater than 1% of mass 198	2.7
441	Present, but less than mass 443	12.5
442	Greater than 40% of mass 198	79
443	17.0 - 23.0% of mass 442	15.9 (20.1) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052054.D	12/19/2011	14:54
02	12SB24-0.502-02	C5005-02	BF052058.D	12/19/2011	16:44
03	12SB24-0.502-02MS	C5005-02MS	BF052059.D	12/19/2011	17:11
04	12SB24-0.502-02MSD	C5005-02MSD	BF052060.D	12/19/2011	17:37
05	12SB24-0304-03	C5005-03	BF052061.D	12/19/2011	18:04
06	12SB22-0.502-02	C5005-05	BF052062.D	12/19/2011	18:31
07	12SB22-0304-03	C5005-06	BF052063.D	12/19/2011	18:57
08	12SB20-000.5-01	C5005-07	BF052064.D	12/19/2011	19:24
09	12SB20-0.502-02	C5005-08	BF052065.D	12/19/2011	19:50
10	12SB-DUP-01	C5005-09	BF052066.D	12/19/2011	20:17
11	12SB18-0304-03	C5005-15	BF052067.D	12/19/2011	20:43
12	PB59966B	PB59966B	BF052068.D	12/19/2011	21:10
13	PB59966BS	PB59966BS	BF052069.D	12/19/2011	21:36

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date/Time: 12/19/2011 14:54

Lab File ID: BF052054.D Init. Calib. Date(s): 12/06/2011 12/06/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 18:52 21:06

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	$\overline{RRF}$	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.883	0.834		5.6	
Phenol	1.862	1.797		3.5	20.0
bis(2-Chloroethyl)ether	1.437	1.408		2.0	
2-Chlorophenol	1.416	1.412		0.3	
2-Methylphenol	1.086	1.062		2.2	
2,2-oxybis(1-Chloropropane)	1.861	1.684		9.5	
Acetophenone	0.491	0.487		0.8	
3+4-Methylphenols	1.395	1.371		1.7	
n-Nitroso-di-n-propylamine	0.928	0.922	0.050	0.6	
Hexachloroethane	0.574	0.566		1.3	
Nitrobenzene	0.363	0.350		3.5	
Isophorone	0.663	0.633		4.5	
2-Nitrophenol	0.204	0.201		1.4	20.0
2,4-Dimethylphenol	0.328	0.318		2.9	
bis(2-Chloroethoxy)methane	0.434	0.422		2.7	
2,4-Dichlorophenol	0.294	0.289		1.6	20.0
4-Chloroaniline	0.438	0.423		3.5	
Hexachlorobutadiene	0.160	0.155		2.9	20.0
Caprolactam	0.119	0.111		6.5	
4-Chloro-3-methylphenol	0.314	0.304		3.1	20.0
Hexachlorocyclopentadiene	0.282	0.280	0.050	0.6	
2,4,6-Trichlorophenol	0.361	0.365		1.1	20.0
2,4,5-Trichlorophenol	0.387	0.387		0.1	
1,1-Biphenyl	1.385	1.372		0.9	
2-Chloronaphthalene	1.079	1.067		1.1	
2-Nitroaniline	0.371	0.350		5.6	
Dimethylphthalate	1.246	1.212		2.7	
Acenaphthylene	1.670	1.645		1.5	
2,6-Dinitrotoluene	0.306	0.299		2.4	
3-Nitroaniline	0.360	0.346		3.8	
Acenaphthene	1.045	1.032		1.3	20.0
2,4-Dinitrophenol	0.109	0.103	0.050	5.6	
4-Nitrophenol	0.288	0.269	0.050	6.6	
Dibenzofuran	1.495	1.461		2.3	
2,4-Dinitrotoluene	0.366	0.359		1.8	
Diethylphthalate	1.209	1.173		3.0	
4-Chlorophenyl-phenylether	0.548	0.544		0.8	
4-Nitroaniline	0.347	0.332		4.3	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date/Time: 12/19/2011 14:54

Lab File ID: BF052054.D Init. Calib. Date(s): 12/06/2011 12/06/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 18:52 21:06

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.112	0.115		2.6	
n-Nitrosodiphenylamine	0.674	0.677		0.5	20.0
4-Bromophenyl-phenylether	0.209	0.214		2.2	
Hexachlorobenzene	0.225	0.228		1.2	
Atrazine	0.184	0.183		0.6	
Pentachlorophenol	0.131	0.141		7.5	20.0
Phenanthrene	1.065	1.042		2.2	
Carbazole	1.065	1.046		1.8	
Di-n-butylphthalate	1.207	1.202		0.4	
Butylbenzylphthalate	0.568	0.615		8.2	
3,3-Dichlorobenzidine	0.360	0.371		3.2	
Bis(2-ethylhexyl)phthalate	0.744	0.804		8.0	
Di-n-octyl phthalate	1.244	1.391		11.8	20.0
1,2,4,5-Tetrachlorobenzene	0.476	0.478		0.4	
2,3,4,6-Tetrachlorophenol	0.304	0.291		4.2	
2-Fluorophenol	1.363	1.354		0.7	
Phenol-d5	1.697	1.625		4.3	
Nitrobenzene-d5	0.375	0.365		2.7	
2-Fluorobiphenyl	1.186	1.164		1.9	
2,4,6-Tribromophenol	0.166	0.163		1.6	
Terphenyl-d14	0.745	0.774		3.8	

All other compounds must meet a minimum RRF of 0.010.

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA F\DATA\BF121911\
Data File : BF052054.D
Acq On : 19 Dec 2011 14:54
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 15:09:47 2011
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA F\METHOD\8270-BF120611.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 18:46:50 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00
2		1,4-Dioxane	0.665	0.657	1.2	99	0.02
3		Pyridine	1.695	1.547	8.7	90	0.01
4		n-Nitrosodimethylamine	0.651	0.620	4.8	96	0.01
5	S	2-Fluorophenol	1.363	1.354	0.7	99	0.00
6		Aniline	2.064	1.957	5.2	95	-0.01
7	S	Phenol-d5	1.697	1.625	4.2	97	0.00
8		2-Chlorophenol	1.416	1.412	0.3	101	0.00
9		Benzaldehyde	0.883	0.834	5.5	97	-0.01
10	C	Phenol	1.862	1.797	3.5	97	0.00
11		bis(2-Chloroethyl)ether	1.437	1.408	2.0	100	0.00
12	S	2-Chlorophenol-d4	1.231	1.212	1.5	99	0.00
13		1,3-Dichlorobenzene	1.490	1.495	-0.3	100	0.00
14	C	1,4-Dichlorobenzene	1.491	1.468	1.5	99	0.00
15	s	1,2-Dichlorobenzene-d4	0.834	0.829	0.6	101	0.00
16		1,2-Dichlorobenzene	1.328	1.314	1.1	100	0.00
17		Benzyl Alcohol	1.057	1.006	4.8	96	0.00
18		2,2'-oxybis(1-Chloropropane	1.861	1.684	9.5	91	0.01
19		2-Methylphenol	1.086	1.062	2.2	98	0.01
20		Hexachloroethane	0.574	0.566	1.4	98	0.00
21	P	n-Nitroso-di-n-propylamine	0.928	0.922	0.6	102	0.01
22		3+4-Methylphenols	1.395	1.371	1.7	99	0.02
23	I	Naphthalene-d8	1.000	1.000	0.0	101	0.01
24		Acetophenone	0.491	0.487	0.8	100	0.00
25	S	Nitrobenzene-d5	0.375	0.365	2.7	100	0.01
26		Nitrobenzene	0.363	0.350	3.6	97	0.00
27		Isophorone	0.663	0.633	4.5	97	0.02
28	C	2-Nitrophenol	0.204	0.201	1.5	98	0.02
29		2,4-Dimethylphenol	0.328	0.318	3.0	99	0.02
30		bis(2-Chloroethoxy)methane	0.434	0.422	2.8	99	0.02
31	C	2,4-Dichlorophenol	0.294	0.289	1.7	99	0.01
32		1,2,4-Trichlorobenzene	0.306	0.303	1.0	100	0.01
33		Naphthalene	0.977	0.944	3.4	98	0.01
34		Benzoic acid	0.140	0.077	45.0#	61	0.02
35		4-Chloroaniline	0.438	0.423	3.4	97	0.01
36	C	Hexachlorobutadiene	0.160	0.155	3.1	100	0.02
37		Caprolactam	0.119	0.111	6.7	93	0.02
38	C	4-Chloro-3-methylphenol	0.314	0.304	3.2	98	0.02
39		2-Methylnaphthalene	0.682	0.653	4.3	97	0.01
40	I	Acenaphthene-d10	1.000	1.000	0.0	98	-0.01
41		1,2,4,5-Tetrachlorobenzene	0.476	0.478	-0.4	98	0.01
42	P	Hexachlorocyclopentadiene	0.282	0.280	0.7	96	0.01
43	S	2,4,6-Tribromophenol	0.166	0.163	1.8	97	-0.02
44	C	2,4,6-Trichlorophenol	0.361	0.365	-1.1	98	0.00

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA F\DATA\BF121911\
Data File : BF052054.D
Acq On : 19 Dec 2011 14:54
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 15:09:47 2011
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA F\METHOD\8270-BF120611.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 18:46:50 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	0.387	0.387	0.0	97	0.00
46	S	2-Fluorobiphenyl	1.186	1.164	1.9	97	0.00
47		1,1'-Biphenyl	1.385	1.372	0.9	96	0.00
48		2-Chloronaphthalene	1.079	1.067	1.1	96	0.00
49		2-Nitroaniline	0.371	0.350	5.7	92	0.00
50		Acenaphthylene	1.670	1.645	1.5	97	-0.01
51		Dimethylphthalate	1.246	1.212	2.7	95	0.00
52		2,6-Dinitrotoluene	0.306	0.299	2.3	94	0.00
53	C	Acenaphthene	1.045	1.032	1.2	97	-0.01
54		3-Nitroaniline	0.360	0.346	3.9	93	0.00
55	P	2,4-Dinitrophenol	0.109	0.103	5.5	89	0.00
56		Dibenzofuran	1.495	1.461	2.3	95	-0.01
57	P	4-Nitrophenol	0.288	0.269	6.6	89	0.00
58		2,4-Dinitrotoluene	0.366	0.359	1.9	94	-0.01
59		Fluorene	1.267	1.248	1.5	96	-0.02
60		2,3,4,6-Tetrachlorophenol	0.304	0.291	4.3	92	-0.01
61		Diethylphthalate	1.209	1.173	3.0	94	0.00
62		4-Chlorophenyl-phenylether	0.548	0.544	0.7	98	-0.02
63		4-Nitroaniline	0.347	0.332	4.3	93	-0.02
64		Azobenzene	1.298	1.236	4.8	92	-0.02
65	I	Phenanthrene-d10	1.000	1.000	0.0	95	-0.04
66		4,6-Dinitro-2-methylphenol	0.112	0.115	-2.7	90	-0.01
67	c	n-Nitrosodiphenylamine	0.674	0.677	-0.4	94	-0.02
68		4-Bromophenyl-phenylether	0.209	0.214	-2.4	96	-0.02
69		Hexachlorobenzene	0.225	0.228	-1.3	96	-0.03
70		Atrazine	0.184	0.183	0.5	90	-0.02
71	C	Pentachlorophenol	0.131	0.141	-7.6	96	-0.02
72		Phenanthrene	1.065	1.042	2.2	92	-0.03
73		Anthracene	1.075	1.058	1.6	93	-0.03
74		Carbazole	1.065	1.046	1.8	92	-0.03
75		Di-n-butylphthalate	1.207	1.202	0.4	93	-0.02
76	C	Fluoranthene	1.151	1.118	2.9	90	-0.04
77	I	Chrysene-d12	1.000	1.000	0.0	87	-0.05
78		Benzidine	0.517	0.492	4.8	80	-0.04
79		Pyrene	1.232	1.286	-4.4	91	-0.04
80	S	Terphenyl-d14	0.745	0.774	-3.9	90	-0.04
81		Butylbenzylphthalate	0.568	0.615	-8.3	92	-0.04
82		Benzo(a)anthracene	1.070	1.101	-2.9	88	-0.05
83		3,3'-Dichlorobenzidine	0.360	0.371	-3.1	89	-0.04
84		Chrysene	1.081	1.096	-1.4	88	-0.05
85		Bis(2-ethylhexyl)phthalate	0.744	0.804	-8.1	92	-0.03
86	c	Di-n-octyl phthalate	1.244	1.391	-11.8	94	-0.03
87		Indeno(1,2,3-cd)pyrene	1.192	1.206	-1.2	88	-0.26

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA F\DATA\BF121911\
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Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 15:09:47 2011
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA F\METHOD\8270-BF120611.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 18:46:50 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
38	I	Perylene-d12	1.000	1.000	0.0	88	-0.11
39		Benzo(b)fluoranthene	1.107	1.139	-2.9	92	-0.06
40		Benzo(k)fluoranthene	1.175	1.106	5.9	81	-0.06
41	C	Benzo(a)pyrene	1.101	1.107	-0.5	87	-0.10
42		Dibenzo(a,h)anthracene	1.004	1.002	0.2	87	-0.26
43		Benzo(g,h,i)perylene	1.071	1.060	1.0	87	-0.31

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA F\DATA\BF121911\
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Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	101	0.00
2		1,4-Dioxane	40.000	39.510	1.2	99	0.02
3		Pyridine	40.000	36.503	8.7	90	0.01
4		n-Nitrosodimethylamine	40.000	38.110	4.7	96	0.01
5	S	2-Fluorophenol	80.000	79.458	0.7	99	0.00
6		Aniline	40.000	37.936	5.2	95	-0.01
7	S	Phenol-d5	80.000	76.597	4.3	97	0.00
8		2-Chlorophenol	40.000	39.884	0.3	101	0.00
9		Benzaldehyde	40.000	38.729	3.2	97	-0.01
10	C	Phenol	40.000	38.608	3.5	97	0.00
11		bis(2-Chloroethyl)ether	40.000	39.199	2.0	100	0.00
12	S	2-Chlorophenol-d4	80.000	78.724	1.6	99	0.00
13		1,3-Dichlorobenzene	40.000	40.125	-0.3	100	0.00
14	C	1,4-Dichlorobenzene	40.000	39.366	1.6	99	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	79.488	0.6	101	0.00
16		1,2-Dichlorobenzene	40.000	39.583	1.0	100	0.00
17		Benzyl Alcohol	40.000	38.092	4.8	96	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	36.184	9.5	91	0.01
19		2-Methylphenol	40.000	39.106	2.2	98	0.01
20		Hexachloroethane	40.000	39.433	1.4	98	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	39.753	0.6	102	0.01
22		3+4-Methylphenols	40.000	39.309	1.7	99	0.02
23	I	Naphthalene-d8	20.000	20.000	0.0	101	0.01
24		Acetophenone	40.000	39.671	0.8	100	0.00
25	S	Nitrobenzene-d5	80.000	77.828	2.7	100	0.01
26		Nitrobenzene	40.000	38.579	3.6	97	0.00
27		Isophorone	40.000	38.210	4.5	97	0.02
28	C	2-Nitrophenol	40.000	39.431	1.4	98	0.02
29		2,4-Dimethylphenol	40.000	38.767	3.1	99	0.02
30		bis(2-Chloroethoxy)methane	40.000	38.905	2.7	99	0.02
31	C	2,4-Dichlorophenol	40.000	39.412	1.5	99	0.01
32		1,2,4-Trichlorobenzene	40.000	39.607	1.0	100	0.01
33		Naphthalene	40.000	38.616	3.5	98	0.01
34		Benzoic acid	40.000	26.358	34.1#	61	0.02
35		4-Chloroaniline	40.000	38.620	3.5	97	0.01
36	C	Hexachlorobutadiene	40.000	38.763	3.1	100	0.02
37		Caprolactam	40.000	37.424	6.4	93	0.02
38	C	4-Chloro-3-methylphenol	40.000	38.827	2.9	98	0.02
39		2-Methylnaphthalene	40.000	38.321	4.2	97	0.01
40	I	Acenaphthene-d10	20.000	20.000	0.0	98	-0.01
41		1,2,4,5-Tetrachlorobenzene	40.000	40.136	-0.3	98	0.01
42	P	Hexachlorocyclopentadiene	40.000	39.741	0.6	96	0.01
43	S	2,4,6-Tribromophenol	80.000	78.802	1.5	97	-0.02
44	C	2,4,6-Trichlorophenol	40.000	40.421	-1.1	98	0.00

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA F\DATA\BF121911\
Data File : BF052054.D
Acq On : 19 Dec 2011 14:54
Operator : OM
Sample : 40 ng BNA CCC
Misc :
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Quant Time: Dec 20 15:09:47 2011
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA F\METHOD\8270-BF120611.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 18:46:50 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.975	0.1	97	0.00
46	S	2-Fluorobiphenyl	80.000	79.538	0.6	97	0.00
47		1,1'-Biphenyl	40.000	39.644	0.9	96	0.00
48		2-Chloronaphthalene	40.000	39.528	1.2	96	0.00
49		2-Nitroaniline	40.000	37.779	5.6	92	0.00
50		Acenaphthylene	40.000	39.402	1.5	97	-0.01
51		Dimethylphthalate	40.000	38.905	2.7	95	0.00
52		2,6-Dinitrotoluene	40.000	39.032	2.4	94	0.00
53	C	Acenaphthene	40.000	39.504	1.2	97	-0.01
54		3-Nitroaniline	40.000	38.473	3.8	93	0.00
55	P	2,4-Dinitrophenol	40.000	36.996	7.5	89	0.00
56		Dibenzofuran	40.000	39.092	2.3	95	-0.01
57	P	4-Nitrophenol	40.000	37.414	6.5	89	0.00
58		2,4-Dinitrotoluene	40.000	39.246	1.9	94	-0.01
59		Fluorene	40.000	39.404	1.5	96	-0.02
60		2,3,4,6-Tetrachlorophenol	40.000	38.355	4.1	92	-0.01
61		Diethylphthalate	40.000	38.799	3.0	94	0.00
62		4-Chlorophenyl-phenylether	40.000	39.706	0.7	98	-0.02
63		4-Nitroaniline	40.000	38.333	4.2	93	-0.02
64		Azobenzene	40.000	38.066	4.8	92	-0.02
65	I	Phenanthrene-d10	20.000	20.000	0.0	95	-0.04
66		4,6-Dinitro-2-methylphenol	40.000	38.290	4.3	90	-0.01
67	c	n-Nitrosodiphenylamine	40.000	40.203	-0.5	94	-0.02
68		4-Bromophenyl-phenylether	40.000	40.838	-2.1	96	-0.02
69		Hexachlorobenzene	40.000	40.449	-1.1	96	-0.03
70		Atrazine	40.000	39.800	0.5	90	-0.02
71	C	Pentachlorophenol	40.000	43.056	-7.6	96	-0.02
72		Phenanthrene	40.000	39.151	2.1	92	-0.03
73		Anthracene	40.000	39.373	1.6	93	-0.03
74		Carbazole	40.000	39.283	1.8	92	-0.03
75		Di-n-butylphthalate	40.000	39.813	0.5	93	-0.02
76	C	Fluoranthene	40.000	38.851	2.9	90	-0.04
77	I	Chrysene-d12	20.000	20.000	0.0	87	-0.05
78		Benzidine	40.000	38.034	4.9	80	-0.04
79		Pyrene	40.000	41.764	-4.4	91	-0.04
80	S	Terphenyl-d14	80.000	83.018	-3.8	90	-0.04
81		Butylbenzylphthalate	40.000	43.303	-8.3	92	-0.04
82		Benzo(a)anthracene	40.000	41.165	-2.9	88	-0.05
83		3,3'-Dichlorobenzidine	40.000	41.313	-3.3	89	-0.04
84		Chrysene	40.000	40.565	-1.4	88	-0.05
85		Bis(2-ethylhexyl)phthalate	40.000	43.225	-8.1	92	-0.03
86	c	Di-n-octyl phthalate	40.000	44.710	-11.8	94	-0.03
87		Indeno(1,2,3-cd)pyrene	40.000	40.451	-1.1	88	-0.26

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA F\DATA\BF121911\
Data File : BF052054.D
Acq On : 19 Dec 2011 14:54
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Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 15:09:47 2011
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Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	88	-0.11
39		Benzo(b)fluoranthene	40.000	41.161	-2.9	92	-0.06
40		Benzo(k)fluoranthene	40.000	37.632	5.9	81	-0.06
41	C	Benzo(a)pyrene	40.000	40.213	-0.5	87	-0.10
42		Dibenzo(a,h)anthracene	40.000	39.913	0.2	87	-0.26
43		Benzo(g,h,i)perylene	40.000	39.615	1.0	87	-0.31

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59966B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: BF052068.D Lab Sample ID: PB59966B

Instrument ID: BNA_F Date Extracted: 12/16/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/19/2011

Level: (low/med) LOW Time Analyzed: 21:10

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB18-000.5-01	C5005-13	BF052416.D	12/28/2011
12SB19-0304-03	C5005-12	BF052415.D	12/28/2011
12SB19-0.502-02	C5005-11	BF052414.D	12/28/2011
12SB19-000.5-01	C5005-10	BF052413.D	12/28/2011
12SB24-000.5-01	C5005-01	BF052412.D	12/28/2011
12SB22-000.5-01	C5005-04	BF052411.D	12/28/2011
12SB18-0.502-02	C5005-14	BF052410.D	12/28/2011
PB59966BS	PB59966BS	BF052069.D	12/19/2011
12SB18-0304-03	C5005-15	BF052067.D	12/19/2011
12SB-DUP-01	C5005-09	BF052066.D	12/19/2011
12SB20-0.502-02	C5005-08	BF052065.D	12/19/2011
12SB20-000.5-01	C5005-07	BF052064.D	12/19/2011
12SB22-0304-03	C5005-06	BF052063.D	12/19/2011
12SB22-0.502-02	C5005-05	BF052062.D	12/19/2011
12SB24-0304-03	C5005-03	BF052061.D	12/19/2011
12SB24-0.502-02MSD	C5005-02MSD	BF052060.D	12/19/2011
12SB24-0.502-02MS	C5005-02MS	BF052059.D	12/19/2011
12SB24-0.502-02	C5005-02	BF052058.D	12/19/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB59966B	SDG No.:	C5005
Lab Sample ID:	PB59966B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052068.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	23	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	15	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB59966B	SDG No.:	C5005
Lab Sample ID:	PB59966B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052068.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	165	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	103		35 - 105	69%	SPK: 150
13127-88-3	Phenol-d5	104		40 - 100	70%	SPK: 150
4165-60-0	Nitrobenzene-d5	67.2		35 - 100	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	68.2		45 - 105	68%	SPK: 100
118-79-6	2,4,6-Tribromophenol	102		35 - 125	68%	SPK: 150
1718-51-0	Terphenyl-d14	70.6		30 - 125	71%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	79784	4.27			
1146-65-2	Naphthalene-d8	314279	5.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB59966B	SDG No.:	C5005
Lab Sample ID:	PB59966B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052068.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	171590	7.06			
1517-22-2	Phenanthrene-d10	267347	8.65			
1719-03-5	Chrysene-d12	248534	11.77			
1520-96-3	Perylene-d12	225686	13.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BF052190.D DFTPP Injection Date: 12/22/2011

Instrument ID: BNA_F DFTPP Injection Time: 16:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.8
68	Less than 2.0% of mass 69	0.5 (1.2) 1
69	Mass 69 relative abundance	41.4
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.9
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	2.9
441	Present, but less than mass 443	10
442	Greater than 40% of mass 198	71.9
443	17.0 - 23.0% of mass 442	14.1 (19.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BF052191.D	12/22/2011	17:20
02	SSTD025	25 ng BNA ICC	BF052192.D	12/22/2011	17:46
03	SSTD040	40 ng BNA ICC	BF052193.D	12/22/2011	18:12
04	SSTD050	50 ng BNA ICC	BF052194.D	12/22/2011	18:39
05	SSTD060	60 ng BNA ICC	BF052195.D	12/22/2011	19:05
06	SSTD080	80 ng BNA ICC	BF052196.D	12/22/2011	19:31

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date(s): 12/22/2011 12/22/2011

Calibration Time(s): 17:20 19:31

LAB FILE ID: RRF010 = BF052191.D RRF025 = BF052192.D RRF040 = BF052193.D
RRF050 = BF052194.D RRF060 = BF052195.D RRF080 = BF052196.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.279	1.051	0.967	0.909	0.847	0.799	0.976	17.7
Phenol	2.296	2.077	1.961	1.910	1.811	1.760	1.969	9.9
bis(2-Chloroethyl)ether	1.713	1.612	1.550	1.527	1.450	1.409	1.543	7.1
2-Chlorophenol	1.600	1.479	1.418	1.388	1.331	1.272	1.415	8.2
2-Methylphenol	1.231	1.140	1.102	1.064	1.036	1.002	1.096	7.5
2,2-oxybis(1-Chloropropane)	2.373	2.150	2.018	1.944	1.841	1.722	2.008	11.5
Acetophenone	0.554	0.517	0.508	0.488	0.481	0.457	0.501	6.7
3+4-Methylphenols	1.631	1.506	1.431	1.391	1.333	1.276	1.428	8.9
n-Nitroso-di-n-propylamine	1.124	1.045	1.001	0.971	0.949	0.923	1.002	7.3
Hexachloroethane	0.613	0.606	0.573	0.562	0.545	0.527	0.571	5.9
Nitrobenzene	0.422	0.403	0.384	0.370	0.368	0.355	0.384	6.5
Isophorone	0.747	0.707	0.701	0.678	0.681	0.660	0.696	4.4
2-Nitrophenol	0.175	0.192	0.197	0.194	0.198	0.192	0.191	4.3
2,4-Dimethylphenol	0.349	0.344	0.333	0.330	0.331	0.312	0.333	3.9
bis(2-Chloroethoxy)methane	0.514	0.485	0.469	0.446	0.451	0.427	0.465	6.7
2,4-Dichlorophenol	0.300	0.296	0.290	0.282	0.279	0.264	0.285	4.6
4-Chloroaniline	0.476	0.454	0.431	0.423	0.416	0.388	0.431	7.1
Hexachlorobutadiene	0.170	0.170	0.165	0.160	0.156	0.150	0.162	5.1
Caprolactam	0.108	0.109	0.119	0.118	0.123	0.124	0.117	5.9
4-Chloro-3-methylphenol	0.314	0.309	0.300	0.296	0.302	0.288	0.301	3.1
Hexachlorocyclopentadiene	0.239	0.267	0.281	0.278	0.275	0.273	0.269	5.7
2,4,6-Trichlorophenol	0.355	0.359	0.350	0.345	0.346	0.326	0.347	3.4
2,4,5-Trichlorophenol	0.382	0.384	0.381	0.374	0.364	0.351	0.373	3.5
1,1-Biphenyl	1.747	1.561	1.452	1.421	1.342	1.228	1.458	12.3
2-Chloronaphthalene	1.265	1.144	1.063	1.021	0.999	0.922	1.069	11.3
2-Nitroaniline	0.373	0.381	0.376	0.384	0.385	0.368	0.378	1.8
Dimethylphthalate	1.324	1.262	1.218	1.190	1.150	1.124	1.211	6.1
Acenaphthylene	1.970	1.778	1.657	1.621	1.563	1.465	1.676	10.6
2,6-Dinitrotoluene	0.297	0.297	0.296	0.295	0.288	0.285	0.293	1.8
3-Nitroaniline	0.351	0.350	0.357	0.356	0.361	0.358	0.355	1.3
Acenaphthene	1.270	1.173	1.103	1.090	1.061	1.006	1.117	8.3
2,4-Dinitrophenol	0.017	0.052	0.085	0.102	0.121	0.139	0.086	52.6
4-Nitrophenol	0.227	0.260	0.278	0.276	0.289	0.306	0.272	9.9
Dibenzofuran	1.732	1.590	1.488	1.428	1.403	1.319	1.493	9.9
2,4-Dinitrotoluene	0.345	0.349	0.355	0.346	0.347	0.343	0.348	1.2
Diethylphthalate	1.266	1.189	1.173	1.167	1.137	1.106	1.173	4.6

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date(s): 12/22/2011 12/22/2011

Calibration Time(s): 17:20 19:31

LAB FILE ID: RRF010 = BF052191.D RRF025 = BF052192.D RRF040 = BF052193.D
RRF050 = BF052194.D RRF060 = BF052195.D RRF080 = BF052196.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.651	0.607	0.571	0.560	0.542	0.510	0.573	8.7
4-Nitroaniline	0.322	0.325	0.338	0.345	0.342	0.348	0.337	3.2
4,6-Dinitro-2-methylphenol	0.040	0.082	0.104	0.110	0.116	0.122	0.096	31.8
n-Nitrosodiphenylamine	0.729	0.690	0.643	0.616	0.596	0.561	0.639	9.7
4-Bromophenyl-phenylether	0.223	0.216	0.206	0.200	0.201	0.193	0.206	5.4
Hexachlorobenzene	0.222	0.211	0.205	0.195	0.191	0.184	0.201	6.9
Atrazine	0.189	0.193	0.177	0.149	0.136	0.107	0.158	21.5
Pentachlorophenol	0.103	0.114	0.129	0.127	0.130	0.130	0.122	9.2
Phenanthrene	1.225	1.130	1.066	1.014	0.985	0.924	1.057	10.2
Carbazole	1.108	1.057	1.024	0.989	0.947	0.906	1.005	7.3
Di-n-butylphthalate	1.213	1.195	1.172	1.117	1.107	1.036	1.140	5.8
Butylbenzylphthalate	0.511	0.554	0.581	0.580	0.595	0.596	0.569	5.7
3,3-Dichlorobenzidine	0.375	0.370	0.365	0.359	0.356	0.348	0.362	2.7
Bis(2-ethylhexyl)phthalate	0.701	0.757	0.782	0.773	0.783	0.766	0.760	4.0
Di-n-octyl phthalate	1.139	1.302	1.369	1.376	1.398	1.378	1.327	7.4
1,2,4,5-Tetrachlorobenzene	0.592	0.531	0.503	0.486	0.458	0.438	0.501	11.0
2,3,4,6-Tetrachlorophenol	0.302	0.298	0.303	0.297	0.292	0.292	0.297	1.5
2-Fluorophenol	1.529	1.462	1.390	1.370	1.302	1.232	1.381	7.7
Phenol-d5	2.033	1.859	1.740	1.692	1.597	1.532	1.742	10.5
Nitrobenzene-d5	0.437	0.409	0.391	0.379	0.376	0.355	0.391	7.3
2-Fluorobiphenyl	1.523	1.308	1.159	1.088	1.019	0.920	1.169	18.6
2,4,6-Tribromophenol	0.154	0.162	0.160	0.159	0.157	0.154	0.158	2.0
Terphenyl-d14	0.835	0.783	0.742	0.718	0.715	0.689	0.747	7.2

All other compounds must meet a minimum RRF of 0.010.

Method Path : Z:\HPCHEM1\BNA_F\METHOD\
Method File : 8270-BF122211.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Fri Dec 23 02:18:10 2011
Response Via : Initial Calibration

Calibration Files
40 =BF052193.D 10 =BF052191.D 25 =BF052192.D
50 =BF052194.D 60 =BF052195.D 80 =BF052196.D

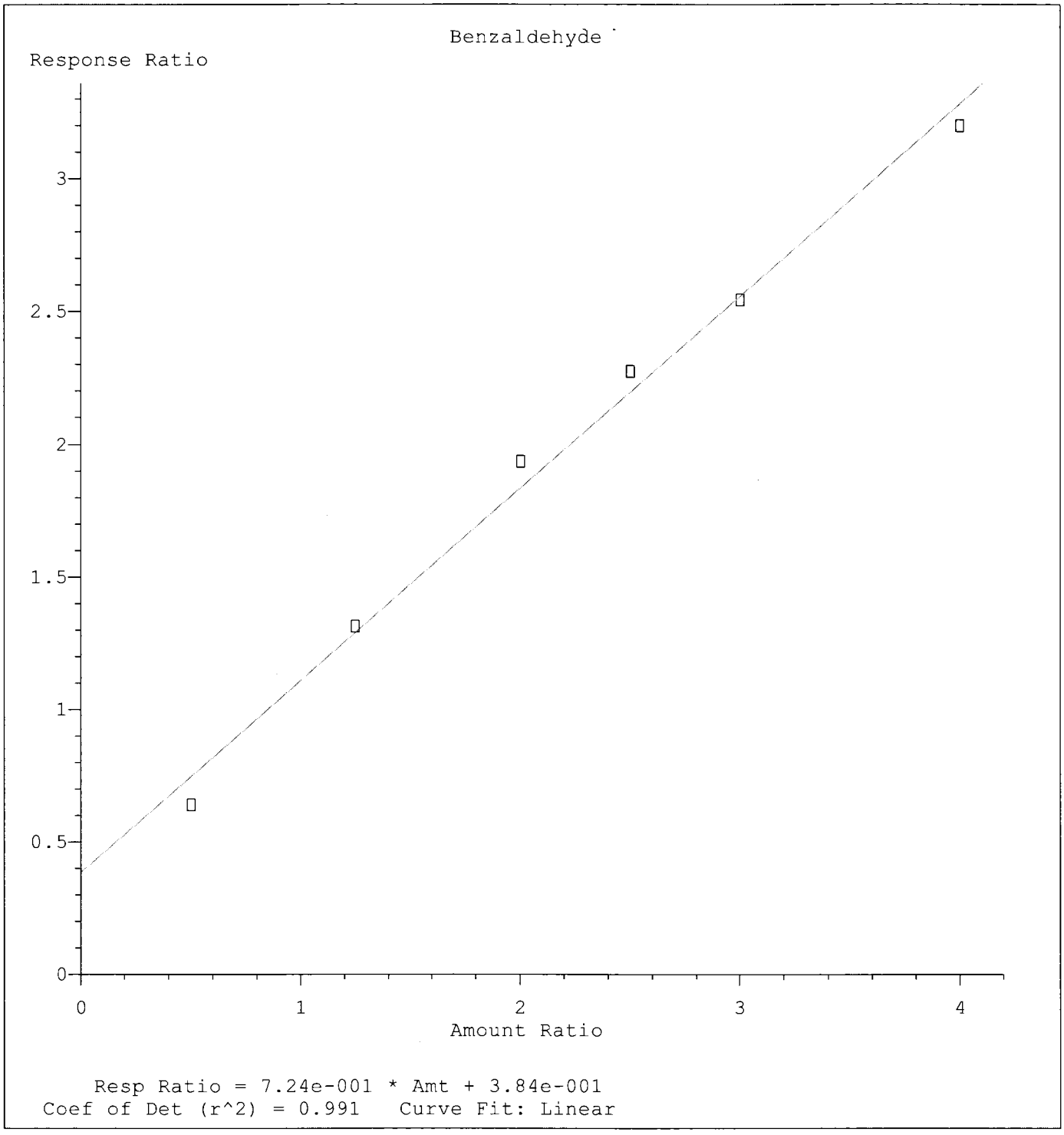
		Compound	40	10	25	50	60	80	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)		1,4-Dioxane	0.749	0.695	0.734	0.703	0.703	0.734	0.720	3.09
3)		Pyridine	1.836	1.991	1.841	1.843	1.810	1.811	1.855	3.67
4)		n-Nitrosodimethyl	0.729	0.788	0.757	0.740	0.718	0.724	0.743	3.51
5)	S	2-Fluorophenol	1.390	1.529	1.462	1.370	1.302	1.232	1.381	7.74
6)		Aniline	2.136	2.576	2.278	2.065	1.985	1.867	2.151	11.62
7)	S	Phenol-d5	1.740	2.033	1.859	1.692	1.597	1.532	1.742	10.47
8)		2-Chlorophenol	1.418	1.600	1.479	1.388	1.331	1.272	1.415	8.15
9)		Benzaldehyde	0.967	1.279	1.051	0.909	0.847	0.799	0.976	17.75
.0)	C	Phenol	1.961	2.296	2.077	1.910	1.811	1.760	1.969	9.91
.1)		bis(2-Chloroethyl	1.550	1.713	1.612	1.527	1.450	1.409	1.543	7.11
.2)	S	2-Chlorophenol-d4	1.212	1.422	1.305	1.179	1.119	1.069	1.218	10.59
.3)		1,3-Dichlorobenze	1.527	1.705	1.568	1.494	1.430	1.383	1.518	7.47
.4)	C	1,4-Dichlorobenze	1.470	1.678	1.558	1.478	1.420	1.356	1.493	7.53
.5)	s	1,2-Dichlorobenze	0.818	1.005	0.905	0.800	0.748	0.707	0.830	13.13
.6)		1,2-Dichlorobenze	1.277	1.569	1.397	1.261	1.193	1.096	1.299	12.74
.7)		Benzyl Alcohol	1.043	1.273	1.151	1.006	0.962	0.903	1.057	12.76
.8)		2,2'-oxybis(1-Chl	2.018	2.373	2.150	1.944	1.841	1.722	2.008	11.51
.9)		2-Methylphenol	1.102	1.231	1.140	1.064	1.036	1.002	1.096	7.50
20)		Hexachloroethane	0.573	0.613	0.606	0.562	0.545	0.527	0.571	5.95
21)	P	n-Nitroso-di-n-pr	1.001	1.124	1.045	0.971	0.949	0.923	1.002	7.28
22)		3+4-Methylphenols	1.431	1.631	1.506	1.391	1.333	1.276	1.428	8.91
23)	I	Naphthalene-d8	----------ISTD----------							
24)		Acetophenone	0.508	0.554	0.517	0.488	0.481	0.457	0.501	6.69
25)	S	Nitrobenzene-d5	0.391	0.437	0.409	0.379	0.376	0.355	0.391	7.33
26)		Nitrobenzene	0.384	0.422	0.403	0.370	0.368	0.355	0.384	6.53
27)		Isophorone	0.701	0.747	0.707	0.678	0.681	0.660	0.696	4.35
28)	C	2-Nitrophenol	0.197	0.175	0.192	0.194	0.198	0.192	0.191	4.32
29)		2,4-Dimethylpheno	0.333	0.349	0.344	0.330	0.331	0.312	0.333	3.93
30)		bis(2-Chloroethox	0.469	0.514	0.485	0.446	0.451	0.427	0.465	6.67
31)	C	2,4-Dichloropheno	0.290	0.300	0.296	0.282	0.279	0.264	0.285	4.62
32)		1,2,4-Trichlorobe	0.317	0.359	0.331	0.313	0.305	0.287	0.319	7.67
33)		Naphthalene	0.974	1.173	1.043	0.937	0.915	0.832	0.979	12.02
34)		Benzoic acid	0.097	0.015	0.057	0.121	0.152	0.177	0.103	58.01
35)		4-Chloroaniline	0.431	0.476	0.454	0.423	0.416	0.388	0.431	7.07
36)	C	Hexachlorobutadie	0.165	0.170	0.170	0.160	0.156	0.150	0.162	5.09
37)		Caprolactam	0.119	0.108	0.109	0.118	0.123	0.124	0.117	5.94
38)	C	4-Chloro-3-methyl	0.300	0.314	0.309	0.296	0.302	0.288	0.301	3.07
39)		2-Methylnaphthale	0.664	0.761	0.703	0.642	0.626	0.574	0.662	9.77
40)	I	Acenaphthene-d10	----------ISTD----------							
41)		1,2,4,5-Tetrachlo	0.503	0.592	0.531	0.486	0.458	0.438	0.501	11.00
42)	P	Hexachlorocyclope	0.281	0.239	0.267	0.278	0.275	0.273	0.269	5.66
43)	S	2,4,6-Tribromophe	0.160	0.154	0.162	0.159	0.157	0.154	0.158	1.96
44)	C	2,4,6-Trichloroph	0.350	0.355	0.359	0.345	0.346	0.326	0.347	3.37
45)		2,4,5-Trichloroph	0.381	0.382	0.384	0.374	0.364	0.351	0.373	3.47
46)	S	2-Fluorobiphenyl	1.159	1.523	1.308	1.088	1.019	0.920	1.169	18.56
47)		1,1'-Biphenyl	1.452	1.747	1.561	1.421	1.342	1.228	1.458	12.34
48)		2-Chloronaphthale	1.063	1.265	1.144	1.021	0.999	0.922	1.069	11.29
49)		2-Nitroaniline	0.376	0.373	0.381	0.384	0.385	0.368	0.378	1.78
50)		Acenaphthylene	1.657	1.970	1.778	1.621	1.563	1.465	1.676	10.60
51)		Dimethylphthalate	1.218	1.324	1.262	1.190	1.150	1.124	1.211	6.06

Method Path : Z:\HPCHEM1\BNA_F\METHOD\
Method File : 8270-BF122211.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Fri Dec 23 02:18:10 2011
Response Via : Initial Calibration

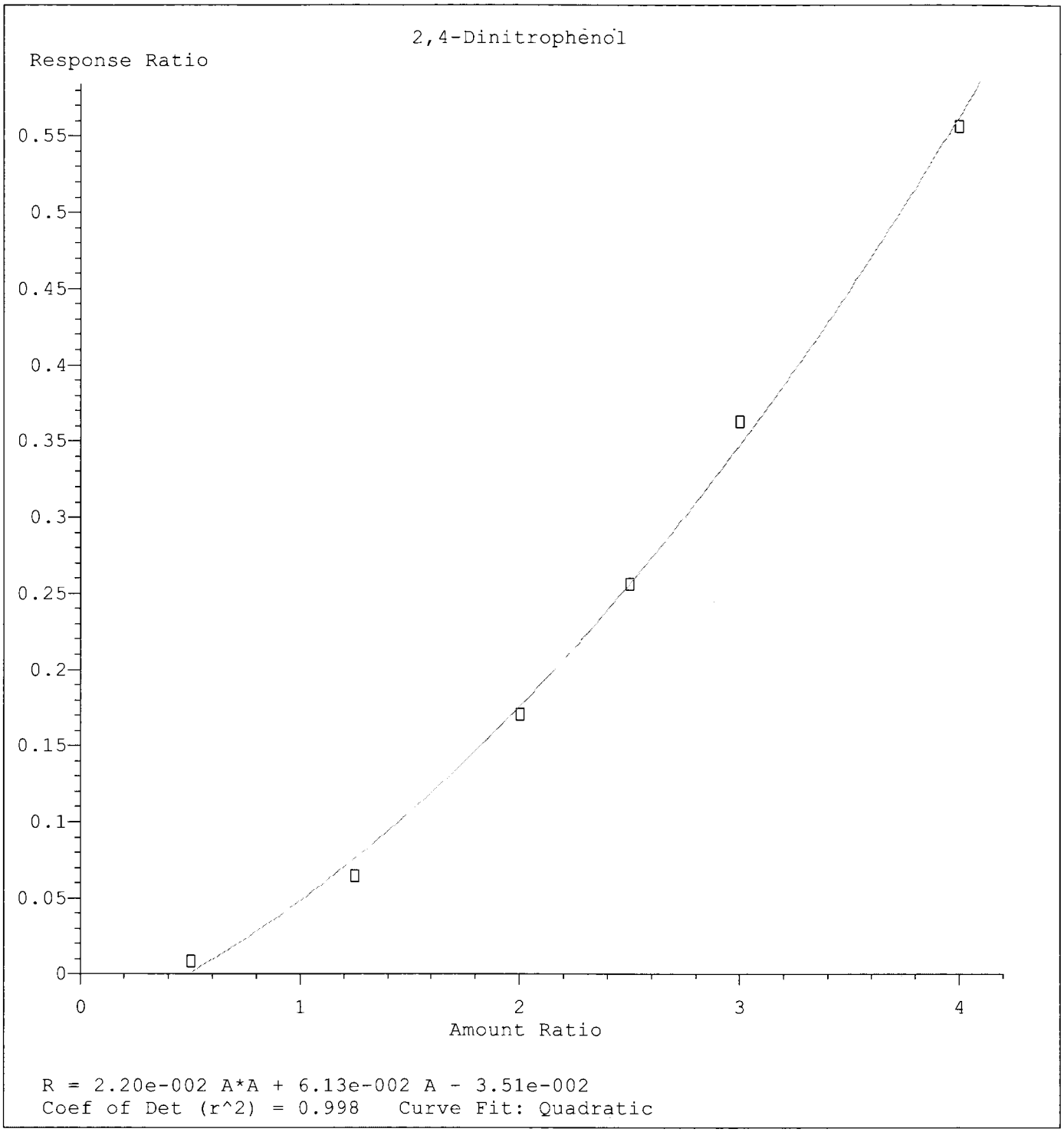
Calibration Files
40 =BF052193.D 10 =BF052191.D 25 =BF052192.D
50 =BF052194.D 60 =BF052195.D 80 =BF052196.D

		Compound	40	10	25	50	60	80	Avg	%RSD
52)		2,6-Dinitrotoluen	0.296	0.297	0.297	0.295	0.288	0.285	0.293	1.81
53)	C	Acenaphthene	1.103	1.270	1.173	1.090	1.061	1.006	1.117	8.29
54)		3-Nitroaniline	0.357	0.351	0.350	0.356	0.361	0.358	0.355	1.26
55)	P	2,4-Dinitrophenol	0.085	0.017	0.052	0.102	0.121	0.139	0.086	52.52
56)		Dibenzofuran	1.488	1.732	1.590	1.428	1.403	1.319	1.493	9.90
57)	P	4-Nitrophenol	0.278	0.227	0.260	0.276	0.289	0.306	0.272	9.91
58)		2,4-Dinitrotoluen	0.355	0.345	0.349	0.346	0.347	0.343	0.348	1.18
59)		Fluorene	1.276	1.467	1.360	1.230	1.207	1.117	1.276	9.63
60)		2,3,4,6-Tetrachlo	0.303	0.302	0.298	0.297	0.292	0.292	0.297	1.53
61)		Diethylphthalate	1.173	1.266	1.189	1.167	1.137	1.106	1.173	4.63
62)		4-Chlorophenyl-ph	0.571	0.651	0.607	0.560	0.542	0.510	0.573	8.65
63)		4-Nitroaniline	0.338	0.322	0.325	0.345	0.342	0.348	0.337	3.17
64)		Azobenzene	1.369	1.535	1.424	1.332	1.309	1.257	1.371	7.17
65)	I	Phenanthrene-d10	----------ISTD----------							
66)		4,6-Dinitro-2-met	0.104	0.040	0.082	0.110	0.116	0.122	0.096	31.91
67)	c	n-Nitrosodiphenyl	0.643	0.729	0.690	0.616	0.596	0.561	0.639	9.71
68)		4-Bromophenyl-phe	0.206	0.223	0.216	0.200	0.201	0.193	0.206	5.44
69)		Hexachlorobenzene	0.205	0.222	0.211	0.195	0.191	0.184	0.201	6.92
70)		Atrazine	0.177	0.189	0.193	0.149	0.136	0.107	0.158	21.41
71)	C	Pentachlorophenol	0.129	0.103	0.114	0.127	0.130	0.130	0.122	9.23
72)		Phenanthrene	1.066	1.225	1.130	1.014	0.985	0.924	1.057	10.20
73)		Anthracene	1.069	1.234	1.140	1.030	0.989	0.937	1.067	10.06
74)		Carbazole	1.024	1.108	1.057	0.989	0.947	0.906	1.005	7.32
75)		Di-n-butylphthala	1.172	1.213	1.195	1.117	1.107	1.036	1.140	5.80
76)	C	Fluoranthene	1.147	1.234	1.175	1.103	1.086	1.034	1.130	6.24
77)	I	Chrysene-d12	----------ISTD----------							
78)		Benzidine	0.543	0.505	0.508	0.515	0.513	0.486	0.512	3.62
79)		Pyrene	1.277	1.335	1.288	1.242	1.235	1.193	1.262	3.90
80)	S	Terphenyl-d14	0.742	0.835	0.783	0.718	0.715	0.689	0.747	7.16
81)		Butylbenzylphthal	0.581	0.511	0.554	0.580	0.595	0.596	0.569	5.73
82)		Benzo(a)anthracen	1.112	1.143	1.125	1.094	1.094	1.083	1.108	2.02
83)		3,3'-Dichlorobenz	0.365	0.375	0.370	0.359	0.356	0.348	0.362	2.68
84)		Chrysene	1.101	1.145	1.104	1.069	1.071	1.032	1.087	3.56
85)		Bis(2-ethylhexyl)	0.782	0.701	0.757	0.773	0.783	0.766	0.760	4.02
86)	c	Di-n-octyl phthal	1.369	1.139	1.302	1.376	1.398	1.378	1.327	7.38
87)		Indeno(1,2,3-cd)p	1.255	1.094	1.215	1.280	1.311	1.332	1.248	6.88
88)	I	Perylene-d12	----------ISTD----------							
89)		Benzo(b)fluoranth	1.067	1.210	1.138	1.042	1.093	1.012	1.094	6.54
90)		Benzo(k)fluoranth	1.160	1.225	1.185	1.151	1.029	1.006	1.126	7.85
91)	C	Benzo(a)pyrene	1.105	1.107	1.118	1.094	1.065	1.026	1.086	3.19
92)		Dibenzo(a,h)anthr	1.002	1.018	1.025	1.014	1.009	0.990	1.010	1.23
93)		Benzo(g,h,i)peryl	1.071	1.098	1.097	1.086	1.069	1.059	1.080	1.50

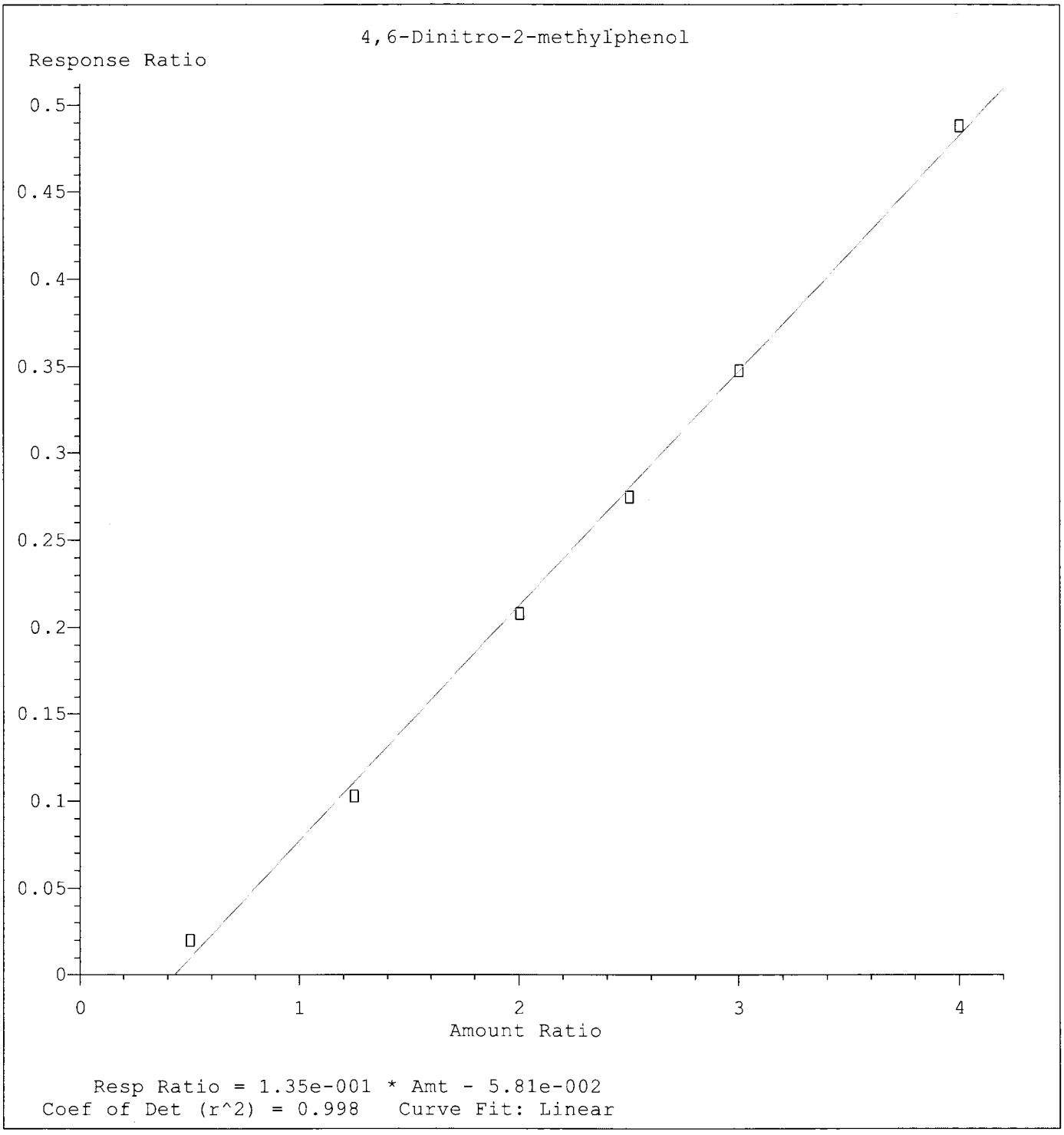
(#) = Out of Range



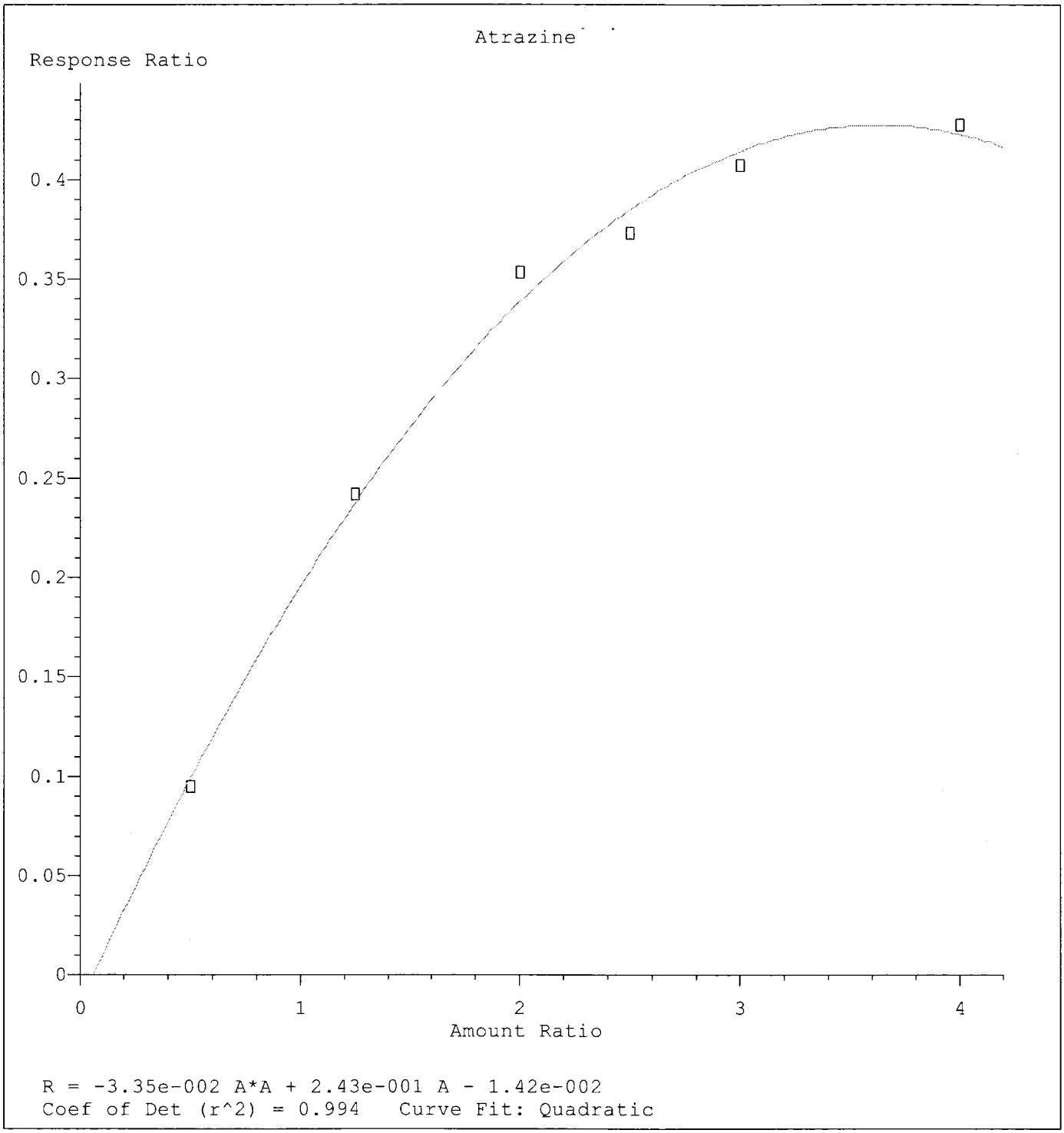
Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Calibration Table Last Updated: Fri Dec 23 02:11:01 2011



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Calibration Table Last Updated: Fri Dec 23 02:16:39 2011



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Calibration Table Last Updated: Fri Dec 23 02:17:47 2011



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Calibration Table Last Updated: Fri Dec 23 02:17:47 2011

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BF052407.D DFTPP Injection Date: 12/28/2011

Instrument ID: BNA_F DFTPP Injection Time: 01:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.1
68	Less than 2.0% of mass 69	0.7 (1.8) 1
69	Mass 69 relative abundance	40.2
70	Less than 2.0% of mass 69	0.2 (0.4) 1
127	40.0 - 60.0% of mass 198	50.4
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	21.9
365	Greater than 1% of mass 198	2.4
441	Present, but less than mass 443	11.6
442	Greater than 40% of mass 198	78.6
443	17.0 - 23.0% of mass 442	14.3 (18.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052408.D	12/28/2011	01:43
02	12SB18-0.502-02	C5005-14	BF052410.D	12/28/2011	02:34
03	12SB22-000.5-01	C5005-04	BF052411.D	12/28/2011	03:00
04	12SB24-000.5-01	C5005-01	BF052412.D	12/28/2011	03:26
05	12SB19-000.5-01	C5005-10	BF052413.D	12/28/2011	03:51
06	12SB19-0.502-02	C5005-11	BF052414.D	12/28/2011	04:17
07	12SB19-0304-03	C5005-12	BF052415.D	12/28/2011	04:43
08	12SB18-000.5-01	C5005-13	BF052416.D	12/28/2011	05:08

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date/Time: 12/28/2011 01:43

Lab File ID: BF052408.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.976	0.963		1.4	
Phenol	1.969	1.905		3.3	20.0
bis(2-Chloroethyl)ether	1.543	1.503		2.6	
2-Chlorophenol	1.415	1.387		2.0	
2-Methylphenol	1.096	1.077		1.7	
2,2-oxybis(1-Chloropropane)	2.008	1.920		4.4	
Acetophenone	0.501	0.498		0.7	
3+4-Methylphenols	1.428	1.414		0.9	
n-Nitroso-di-n-propylamine	1.002	1.007	0.050	0.5	
Hexachloroethane	0.571	0.570		0.1	
Nitrobenzene	0.384	0.384		0.0	
Isophorone	0.696	0.705		1.2	
2-Nitrophenol	0.191	0.210		9.8	20.0
2,4-Dimethylphenol	0.333	0.327		1.7	
bis(2-Chloroethoxy)methane	0.465	0.459		1.3	
2,4-Dichlorophenol	0.285	0.291		2.1	20.0
4-Chloroaniline	0.431	0.430		0.2	
Hexachlorobutadiene	0.162	0.164		1.0	20.0
Caprolactam	0.117	0.120		2.3	
4-Chloro-3-methylphenol	0.301	0.304		1.0	20.0
Hexachlorocyclopentadiene	0.269	0.288	0.050	6.9	
2,4,6-Trichlorophenol	0.347	0.360		3.6	20.0
2,4,5-Trichlorophenol	0.373	0.374		0.1	
1,1-Biphenyl	1.458	1.421		2.5	
2-Chloronaphthalene	1.069	1.049		1.9	
2-Nitroaniline	0.378	0.391		3.5	
Dimethylphthalate	1.211	1.222		0.9	
Acenaphthylene	1.676	1.677		0.1	
2,6-Dinitrotoluene	0.293	0.306		4.6	
3-Nitroaniline	0.355	0.361		1.7	
Acenaphthene	1.117	1.105		1.1	20.0
2,4-Dinitrophenol	0.086	0.135	0.050	57.1	
4-Nitrophenol	0.272	0.277	0.050	2.0	
Dibenzofuran	1.493	1.504		0.7	
2,4-Dinitrotoluene	0.348	0.367		5.4	
Diethylphthalate	1.173	1.200		2.3	
4-Chlorophenyl-phenylether	0.573	0.574		0.2	
4-Nitroaniline	0.337	0.337		0.1	
4,6-Dinitro-2-methylphenol	0.096	0.119		23.6	
n-Nitrosodiphenylamine	0.639	0.653		2.2	20.0
4-Bromophenyl-phenylether	0.206	0.209		1.7	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date/Time: 12/28/2011 01:43

Lab File ID: BF052408.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.201	0.203		0.8	
Atrazine	0.158	0.181		14.7	
Pentachlorophenol	0.122	0.138		13.0	20.0
Phenanthrene	1.057	1.050		0.7	
Carbazole	1.005	0.992		1.3	
Di-n-butylphthalate	1.140	1.168		2.4	
Butylbenzylphthalate	0.569	0.606		6.5	
3,3-Dichlorobenzidine	0.362	0.368		1.7	
Bis(2-ethylhexyl)phthalate	0.760	0.802		5.5	
Di-n-octyl phthalate	1.327	1.389		4.7	20.0
1,2,4,5-Tetrachlorobenzene	0.501	0.496		1.0	
2,3,4,6-Tetrachlorophenol	0.297	0.309		4.0	
2-Fluorophenol	1.381	1.343		2.7	
Phenol-d5	1.742	1.658		4.8	
Nitrobenzene-d5	0.391	0.391		0.1	
2-Fluorobiphenyl	1.169	1.127		3.6	
2,4,6-Tribromophenol	0.158	0.163		3.0	
Terphenyl-d14	0.747	0.748		0.2	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052408.D
Acq On : 28 Dec 2011 1:43
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 28 03:06:22 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	109	0.00
2		1,4-Dioxane	0.720	0.721	-0.1	105	0.02
3		Pyridine	1.855	1.719	7.3	102	0.00
4		n-Nitrosodimethylamine	0.743	0.705	5.1	105	0.01
5	S	2-Fluorophenol	1.381	1.343	2.8	105	0.00
6		Aniline	2.151	2.061	4.2	105	0.00
7	S	Phenol-d5	1.742	1.658	4.8	104	0.00
8		2-Chlorophenol	1.415	1.387	2.0	106	-0.01
9		Benzaldehyde	0.976	0.963	1.3	108	0.00
.0	C	Phenol	1.969	1.905	3.3	106	0.00
.1		bis(2-Chloroethyl)ether	1.543	1.503	2.6	105	0.00
.2	S	2-Chlorophenol-d4	1.218	1.171	3.9	105	0.00
.3		1,3-Dichlorobenzene	1.518	1.495	1.5	106	0.00
.4	C	1,4-Dichlorobenzene	1.493	1.466	1.8	108	0.00
.5	s	1,2-Dichlorobenzene-d4	0.830	0.797	4.0	106	0.00
.6		1,2-Dichlorobenzene	1.299	1.245	4.2	106	0.00
.7		Benzyl Alcohol	1.057	1.034	2.2	108	0.00
.8		2,2'-oxybis(1-Chloropropane	2.008	1.920	4.4	103	0.00
.9		2-Methylphenol	1.096	1.077	1.7	106	0.00
20		Hexachloroethane	0.571	0.570	0.2	108	0.00
21	P	n-Nitroso-di-n-propylamine	1.002	1.007	-0.5	109	0.00
22		3+4-Methylphenols	1.428	1.414	1.0	107	0.00
23	I	Naphthalene-d8	1.000	1.000	0.0	108	0.00
24		Acetophenone	0.501	0.498	0.6	106	0.00
25	S	Nitrobenzene-d5	0.391	0.391	0.0	108	0.00
26		Nitrobenzene	0.384	0.384	0.0	108	0.00
27		Isophorone	0.696	0.705	-1.3	109	0.00
28	C	2-Nitrophenol	0.191	0.210	-9.9	115	0.00
29		2,4-Dimethylphenol	0.333	0.327	1.8	106	0.01
30		bis(2-Chloroethoxy)methane	0.465	0.459	1.3	106	0.00
31	C	2,4-Dichlorophenol	0.285	0.291	-2.1	109	0.00
32		1,2,4-Trichlorobenzene	0.319	0.317	0.6	108	0.00
33		Naphthalene	0.979	0.960	1.9	107	0.00
34		Benzoic acid	0.103	0.203	-97.1#	226#	0.04
35		4-Chloroaniline	0.431	0.430	0.2	108	0.01
36	C	Hexachlorobutadiene	0.162	0.164	-1.2	107	0.00
37		Caprolactam	0.117	0.120	-2.6	109	0.01
38	C	4-Chloro-3-methylphenol	0.301	0.304	-1.0	110	0.01
39		2-Methylnaphthalene	0.662	0.650	1.8	106	0.00
40	I	Acenaphthene-d10	1.000	1.000	0.0	106	0.00
41		1,2,4,5-Tetrachlorobenzene	0.501	0.496	1.0	105	0.00
42	P	Hexachlorocyclopentadiene	0.269	0.288	-7.1	109	0.00
43	S	2,4,6-Tribromophenol	0.158	0.163	-3.2	108	-0.01
44	C	2,4,6-Trichlorophenol	0.347	0.360	-3.7	109	0.00

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052408.D
Acq On : 28 Dec 2011 1:43
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 28 03:06:22 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
15		2,4,5-Trichlorophenol	0.373	0.374	-0.3	104	0.00
16	S	2-Fluorobiphenyl	1.169	1.127	3.6	103	0.00
17		1,1'-Biphenyl	1.458	1.421	2.5	104	0.00
18		2-Chloronaphthalene	1.069	1.049	1.9	105	0.00
19		2-Nitroaniline	0.378	0.391	-3.4	111	0.00
50		Acenaphthylene	1.676	1.677	-0.1	107	0.00
51		Dimethylphthalate	1.211	1.222	-0.9	107	0.00
52		2,6-Dinitrotoluene	0.293	0.306	-4.4	110	0.00
53	C	Acenaphthene	1.117	1.105	1.1	106	0.00
54		3-Nitroaniline	0.355	0.361	-1.7	107	0.00
55	P	2,4-Dinitrophenol	0.086	0.135	-57.0#	168#	0.00
56		Dibenzofuran	1.493	1.504	-0.7	107	0.00
57	P	4-Nitrophenol	0.272	0.277	-1.8	106	0.00
58		2,4-Dinitrotoluene	0.348	0.367	-5.5	110	0.00
59		Fluorene	1.276	1.263	1.0	105	-0.01
60		2,3,4,6-Tetrachlorophenol	0.297	0.309	-4.0	108	-0.01
61		Diethylphthalate	1.173	1.200	-2.3	109	0.00
62		4-Chlorophenyl-phenylether	0.573	0.574	-0.2	107	0.00
63		4-Nitroaniline	0.337	0.337	0.0	106	0.00
64		Azobenzene	1.371	1.385	-1.0	107	-0.01
65	I	Phenanthrene-d10	1.000	1.000	0.0	105	-0.02
66		4,6-Dinitro-2-methylphenol	0.096	0.119	-24.0	120	0.00
67	c	n-Nitrosodiphenylamine	0.639	0.653	-2.2	107	-0.01
68		4-Bromophenyl-phenylether	0.206	0.209	-1.5	107	-0.01
69		Hexachlorobenzene	0.201	0.203	-1.0	104	-0.01
70		Atrazine	0.158	0.181	-14.6	108	0.00
71	C	Pentachlorophenol	0.122	0.138	-13.1	113	-0.01
72		Phenanthrene	1.057	1.050	0.7	104	-0.02
73		Anthracene	1.067	1.065	0.2	105	-0.01
74		Carbazole	1.005	0.992	1.3	102	-0.02
75		Di-n-butylphthalate	1.140	1.168	-2.5	105	-0.01
76	C	Fluoranthene	1.130	1.103	2.4	101	-0.02
77	I	Chrysene-d12	1.000	1.000	0.0	99	-0.02
78		Benzidine	0.512	0.572	-11.7	105	-0.01
79		Pyrene	1.262	1.291	-2.3	100	-0.02
80	S	Terphenyl-d14	0.747	0.748	-0.1	100	-0.02
81		Butylbenzylphthalate	0.569	0.606	-6.5	104	-0.02
82		Benzo(a)anthracene	1.108	1.102	0.5	98	-0.02
83		3,3'-Dichlorobenzidine	0.362	0.368	-1.7	100	-0.02
84		Chrysene	1.087	1.112	-2.3	100	-0.02
85		Bis(2-ethylhexyl)phthalate	0.760	0.802	-5.5	102	-0.01
86	c	Di-n-octyl phthalate	1.327	1.389	-4.7	101	-0.01
87		Indeno(1,2,3-cd)pyrene	1.248	1.247	0.1	99	-0.10

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052408.D
Acq On : 28 Dec 2011 1:43
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 28 03:06:22 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
88	I	Perylene-d12	1.000	1.000	0.0	101	-0.03
89		Benzo(b)fluoranthene	1.094	1.053	3.7	99	-0.02
90		Benzo(k)fluoranthene	1.126	1.195	-6.1	104	-0.02
91	C	Benzo(a)pyrene	1.086	1.114	-2.6	102	-0.03
92		Dibenzo(a,h)anthracene	1.010	0.949	6.0	95	-0.10
93		Benzo(g,h,i)perylene	1.080	1.062	1.7	100	-0.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052408.D
Acq On : 28 Dec 2011 1:43
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 28 03:06:22 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	109	0.00
2		1,4-Dioxane	40.000	40.085	-0.2	105	0.02
3		Pyridine	40.000	37.067	7.3	102	0.00
4		n-Nitrosodimethylamine	40.000	37.992	5.0	105	0.01
5	S	2-Fluorophenol	80.000	77.816	2.7	105	0.00
6		Aniline	40.000	38.329	4.2	105	0.00
7	S	Phenol-d5	80.000	76.147	4.8	104	0.00
8		2-Chlorophenol	40.000	39.222	1.9	106	-0.01
9		Benzaldehyde	40.000	42.563	-6.4	108	0.00
.0	C	Phenol	40.000	38.698	3.3	106	0.00
.1		bis(2-Chloroethyl)ether	40.000	38.946	2.6	105	0.00
.2	S	2-Chlorophenol-d4	80.000	76.961	3.8	105	0.00
.3		1,3-Dichlorobenzene	40.000	39.406	1.5	106	0.00
.4	C	1,4-Dichlorobenzene	40.000	39.258	1.9	108	0.00
.5	s	1,2-Dichlorobenzene-d4	80.000	76.762	4.0	106	0.00
.6		1,2-Dichlorobenzene	40.000	38.352	4.1	106	0.00
.7		Benzyl Alcohol	40.000	39.154	2.1	108	0.00
.8		2,2'-oxybis(1-Chloropropane	40.000	38.239	4.4	103	0.00
.9		2-Methylphenol	40.000	39.303	1.7	106	0.00
20		Hexachloroethane	40.000	39.954	0.1	108	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	40.178	-0.4	109	0.00
22		3+4-Methylphenols	40.000	39.618	1.0	107	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	108	0.00
24		Acetophenone	40.000	39.755	0.6	106	0.00
25	S	Nitrobenzene-d5	80.000	80.083	-0.1	108	0.00
26		Nitrobenzene	40.000	40.027	-0.1	108	0.00
27		Isophorone	40.000	40.502	-1.3	109	0.00
28	C	2-Nitrophenol	40.000	43.892	-9.7	115	0.00
29		2,4-Dimethylphenol	40.000	39.302	1.7	106	0.01
30		bis(2-Chloroethoxy)methane	40.000	39.445	1.4	106	0.00
31	C	2,4-Dichlorophenol	40.000	40.811	-2.0	109	0.00
32		1,2,4-Trichlorobenzene	40.000	39.772	0.6	108	0.00
33		Naphthalene	40.000	39.224	1.9	107	0.00
34		Benzoic acid	40.000	58.380	-46.0#	226	0.04
35		4-Chloroaniline	40.000	39.903	0.2	108	0.01
36	C	Hexachlorobutadiene	40.000	40.434	-1.1	107	0.00
37		Caprolactam	40.000	40.900	-2.2	109	0.01
38	C	4-Chloro-3-methylphenol	40.000	40.364	-0.9	110	0.01
39		2-Methylnaphthalene	40.000	39.292	1.8	106	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	106	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	39.558	1.1	105	0.00
42	P	Hexachlorocyclopentadiene	40.000	42.799	-7.0	109	0.00
43	S	2,4,6-Tribromophenol	80.000	82.640	-3.3	108	-0.01
44	C	2,4,6-Trichlorophenol	40.000	41.499	-3.7	109	0.00

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052408.D
Acq On : 28 Dec 2011 1:43
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 28 03:06:22 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	40.087	-0.2	104	0.00
46	S	2-Fluorobiphenyl	80.000	77.437	3.2	103	0.00
47		1,1'-Biphenyl	40.000	38.976	2.6	104	0.00
48		2-Chloronaphthalene	40.000	39.229	1.9	105	0.00
49		2-Nitroaniline	40.000	41.433	-3.6	111	0.00
50		Acenaphthylene	40.000	40.042	-0.1	107	0.00
51		Dimethylphthalate	40.000	40.344	-0.9	107	0.00
52		2,6-Dinitrotoluene	40.000	41.807	-4.5	110	0.00
53	C	Acenaphthene	40.000	39.571	1.1	106	0.00
54		3-Nitroaniline	40.000	40.633	-1.6	107	0.00
55	P	2,4-Dinitrophenol	40.000	51.639	-29.1#	168	0.00
56		Dibenzofuran	40.000	40.294	-0.7	107	0.00
57	P	4-Nitrophenol	40.000	40.726	-1.8	106	0.00
58		2,4-Dinitrotoluene	40.000	42.206	-5.5	110	0.00
59		Fluorene	40.000	39.564	1.1	105	-0.01
60		2,3,4,6-Tetrachlorophenol	40.000	41.538	-3.8	108	-0.01
61		Diethylphthalate	40.000	40.928	-2.3	109	0.00
62		4-Chlorophenyl-phenylether	40.000	40.082	-0.2	107	0.00
63		4-Nitroaniline	40.000	40.082	-0.2	106	0.00
64		Azobenzene	40.000	40.420	-1.1	107	-0.01
65	I	Phenanthrene-d10	20.000	20.000	0.0	105	-0.02
66		4,6-Dinitro-2-methylphenol	40.000	43.756	-9.4	120	0.00
67	c	n-Nitrosodiphenylamine	40.000	40.847	-2.1	107	-0.01
68		4-Bromophenyl-phenylether	40.000	40.634	-1.6	107	-0.01
69		Hexachlorobenzene	40.000	40.249	-0.6	104	-0.01
70		Atrazine	40.000	44.757	-11.9	108	0.00
71	C	Pentachlorophenol	40.000	45.180	-13.0	113	-0.01
72		Phenanthrene	40.000	39.711	0.7	104	-0.02
73		Anthracene	40.000	39.952	0.1	105	-0.01
74		Carbazole	40.000	39.481	1.3	102	-0.02
75		Di-n-butylphthalate	40.000	40.976	-2.4	105	-0.01
76	C	Fluoranthene	40.000	39.051	2.4	101	-0.02
77	I	Chrysene-d12	20.000	20.000	0.0	99	-0.02
78		Benzidine	40.000	44.699	-11.7	105	-0.01
79		Pyrene	40.000	40.924	-2.3	100	-0.02
80	S	Terphenyl-d14	80.000	80.144	-0.2	100	-0.02
81		Butylbenzylphthalate	40.000	42.584	-6.5	104	-0.02
82		Benzo(a)anthracene	40.000	39.769	0.6	98	-0.02
83		3,3'-Dichlorobenzidine	40.000	40.673	-1.7	100	-0.02
84		Chrysene	40.000	40.926	-2.3	100	-0.02
85		Bis(2-ethylhexyl)phthalate	40.000	42.201	-5.5	102	-0.01
86	c	Di-n-octyl phthalate	40.000	41.871	-4.7	101	-0.01
87		Indeno(1,2,3-cd)pyrene	40.000	39.977	0.1	99	-0.10

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052408.D
Acq On : 28 Dec 2011 1:43
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Dec 28 03:06:22 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	101	-0.03
89		Benzo(b)fluoranthene	40.000	38.494	3.8	99	-0.02
90		Benzo(k)fluoranthene	40.000	42.468	-6.2	104	-0.02
91	C	Benzo(a)pyrene	40.000	41.054	-2.6	102	-0.03
92		Dibenzo(a,h)anthracene	40.000	37.587	6.0	95	-0.10
93		Benzo(g,h,i)perylene	40.000	39.342	1.6	100	-0.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5005-01	12SB24-000.5-01	2-Fluorophenol	150	88.62	59		35	105
		Phenol-d5	150	96.64	64		40	100
		Nitrobenzene-d5	100	66.41	66		35	100
		2-Fluorobiphenyl	100	61.39	61		45	105
		2,4,6-Tribromophenol	150	96.90	65		35	125
		Terphenyl-d14	100	59.03	59		30	125
C5005-02	12SB24-0.502-02	2-Fluorophenol	150	105.26	70		35	105
		Phenol-d5	150	110.88	74		40	100
		Nitrobenzene-d5	100	70.14	70		35	100
		2-Fluorobiphenyl	100	69.70	70		45	105
		2,4,6-Tribromophenol	150	113.57	76		35	125
		Terphenyl-d14	100	72.54	73		30	125
C5005-02MS	12SB24-0.502-02MS	2-Fluorophenol	150	114.43	76		35	105
		Phenol-d5	150	116.53	78		40	100
		Nitrobenzene-d5	100	74.32	74		35	100
		2-Fluorobiphenyl	100	69.07	69		45	105
		2,4,6-Tribromophenol	150	117.36	78		35	125
		Terphenyl-d14	100	74.20	74		30	125
C5005-02MSD	12SB24-0.502-02MSD	2-Fluorophenol	150	122.86	82		35	105
		Phenol-d5	150	125.69	84		40	100
		Nitrobenzene-d5	100	82.24	82		35	100
		2-Fluorobiphenyl	100	75.32	75		45	105
		2,4,6-Tribromophenol	150	126.97	85		35	125
		Terphenyl-d14	100	80.23	80		30	125
C5005-03	12SB24-0304-03	2-Fluorophenol	150	102.61	68		35	105
		Phenol-d5	150	104.94	70		40	100
		Nitrobenzene-d5	100	69.34	69		35	100
		2-Fluorobiphenyl	100	71.79	72		45	105
		2,4,6-Tribromophenol	150	114.56	76		35	125
		Terphenyl-d14	100	68.45	68		30	125
C5005-04	12SB22-000.5-01	2-Fluorophenol	150	79.95	53		35	105
		Phenol-d5	150	86.77	58		40	100
		Nitrobenzene-d5	100	59.86	60		35	100
		2-Fluorobiphenyl	100	51.26	51		45	105
		2,4,6-Tribromophenol	150	83.02	55		35	125
		Terphenyl-d14	100	50.53	51		30	125
C5005-05	12SB22-0.502-02	2-Fluorophenol	150	107.46	72		35	105
		Phenol-d5	150	110.75	74		40	100
		Nitrobenzene-d5	100	72.05	72		35	100
		2-Fluorobiphenyl	100	66.89	67		45	105
		2,4,6-Tribromophenol	150	108.75	73		35	125
		Terphenyl-d14	100	68.42	68		30	125
C5005-06	12SB22-0304-03	2-Fluorophenol	150	106.56	71		35	105
		Phenol-d5	150	110.21	73		40	100
		Nitrobenzene-d5	100	72.27	72		35	100
		2-Fluorobiphenyl	100	63.09	63		45	105
		2,4,6-Tribromophenol	150	106.86	71		35	125
		Terphenyl-d14	100	66.55	67		30	125
C5005-07	12SB20-000.5-01	2-Fluorophenol	150	114.43	76		35	105
		Phenol-d5	150	117.41	78		40	100
		Nitrobenzene-d5	100	77.52	78		35	100
		2-Fluorobiphenyl	100	69.84	70		45	105

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5005-07	12SB20-000.5-01	2,4,6-Tribromophenol	150	116.22	77		35	125
		Terphenyl-d14	100	70.07	70		30	125
C5005-08	12SB20-0.502-02	2-Fluorophenol	150	86.63	58		35	105
		Phenol-d5	150	89.95	60		40	100
		Nitrobenzene-d5	100	57.61	58		35	100
		2-Fluorobiphenyl	100	54.37	54		45	105
		2,4,6-Tribromophenol	150	90.71	60		35	125
		Terphenyl-d14	100	59.69	60		30	125
C5005-09	12SB-DUP-01	2-Fluorophenol	150	98.68	66		35	105
		Phenol-d5	150	99.68	66		40	100
		Nitrobenzene-d5	100	65.44	65		35	100
		2-Fluorobiphenyl	100	58.28	58		45	105
		2,4,6-Tribromophenol	150	97.23	65		35	125
		Terphenyl-d14	100	63.39	63		30	125
C5005-10	12SB19-000.5-01	2-Fluorophenol	150	87.44	58		35	105
		Phenol-d5	150	95.69	64		40	100
		Nitrobenzene-d5	100	66.01	66		35	100
		2-Fluorobiphenyl	100	52.62	53		45	105
		2,4,6-Tribromophenol	150	91.96	61		35	125
		Terphenyl-d14	100	51.38	51		30	125
C5005-11	12SB19-0.502-02	2-Fluorophenol	150	94.45	63		35	105
		Phenol-d5	150	104.27	70		40	100
		Nitrobenzene-d5	100	74.51	75		35	100
		2-Fluorobiphenyl	100	59.96	60		45	105
		2,4,6-Tribromophenol	150	105.35	70		35	125
		Terphenyl-d14	100	64.55	65		30	125
C5005-12	12SB19-0304-03	2-Fluorophenol	150	101.61	68		35	105
		Phenol-d5	150	112.51	75		40	100
		Nitrobenzene-d5	100	79.08	79		35	100
		2-Fluorobiphenyl	100	68.07	68		45	105
		2,4,6-Tribromophenol	150	118.12	79		35	125
		Terphenyl-d14	100	64.91	65		30	125
C5005-13	12SB18-000.5-01	2-Fluorophenol	150	92.98	62		35	105
		Phenol-d5	150	104.21	69		40	100
		Nitrobenzene-d5	100	75.07	75		35	100
		2-Fluorobiphenyl	100	65.87	66		45	105
		2,4,6-Tribromophenol	150	92.94	62		35	125
		Terphenyl-d14	100	61.91	62		30	125
C5005-14	12SB18-0.502-02	2-Fluorophenol	150	92.44	62		35	105
		Phenol-d5	150	102.13	68		40	100
		Nitrobenzene-d5	100	71.42	71		35	100
		2-Fluorobiphenyl	100	59.89	60		45	105
		2,4,6-Tribromophenol	150	98.61	66		35	125
		Terphenyl-d14	100	60.52	61		30	125
C5005-15	12SB18-0304-03	2-Fluorophenol	150	94.63	63		35	105
		Phenol-d5	150	97.06	65		40	100
		Nitrobenzene-d5	100	63.01	63		35	100
		2-Fluorobiphenyl	100	59.41	59		45	105
		2,4,6-Tribromophenol	150	97.91	65		35	125
		Terphenyl-d14	100	59.85	60		30	125
PB59966B	PB59966B	2-Fluorophenol	150	103.07	69		35	105
		Phenol-d5	150	104.77	70		40	100

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
PB59966B	PB59966B	Nitrobenzene-d5	100	67.21	67		35	100
		2-Fluorobiphenyl	100	68.22	68		45	105
		2,4,6-Tribromophenol	150	102.45	68		35	125
		Terphenyl-d14	100	70.55	71		30	125
PB59966BS	PB59966BS	2-Fluorophenol	150	128.26	86		35	105
		Phenol-d5	150	132.08	88		40	100
		Nitrobenzene-d5	100	88.32	88		35	100
		2-Fluorobiphenyl	100	89.69	90		45	105
		2,4,6-Tribromophenol	150	143.76	96		35	125
		Terphenyl-d14	100	95.22	95		30	125

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5005-02MS	**Client Sample ID: 12SB24-0.502-02MS**									
Benzaldehyde	2000	0	77	4	*			10	161	
Phenol	2000	0	1500	75				43	100	
bis(2-Chloroethyl)ether	2000	0	1600	80				43	105	
2-Chlorophenol	2000	0	1500	75				45	105	
2-Methylphenol	2000	0	1600	80				44	105	
2,2-oxybis(1-Chloropropane)	2000	0	1500	75				36	115	
Acetophenone	2000	0	1600	80				48	131	
3+4-Methylphenols	2000	0	1600	80				44	105	
N-Nitroso-di-n-propylamine	2000	0	1600	80				41	115	
Hexachloroethane	2000	0	1500	75				35	110	
Nitrobenzene	2000	0	1600	80				40	115	
Isophorone	2000	0	1600	80				45	110	
2-Nitrophenol	2000	0	1500	75				40	110	
2,4-Dimethylphenol	2000	0	1500	75				35	105	
bis(2-Chloroethoxy)methane	2000	0	1600	80				45	110	
2,4-Dichlorophenol	2000	0	1500	75				45	110	
4-Chloroaniline	2000	0	330	17				10	160	
Hexachlorobutadiene	2000	0	1500	75				40	115	
Caprolactam	2000	0	1600	80				24	145	
4-Chloro-3-methylphenol	2000	0	1500	75				45	115	
Hexachlorocyclopentadiene	4100	0	3100	76				10	128	
2,4,6-Trichlorophenol	2000	0	1600	80				45	110	
2,4,5-Trichlorophenol	2000	0	1500	75				50	110	
1,1-Biphenyl	2000	0	1600	80				47	131	
2-Chloronaphthalene	2000	0	1500	75				45	105	
2-Nitroaniline	2000	0	1500	75				45	120	
Dimethylphthalate	2000	270	1900	82				51	110	
Acenaphthylene	2000	0	1600	80				45	105	
2,6-Dinitrotoluene	2000	0	1600	80				50	110	
3-Nitroaniline	2000	0	680	34				25	110	
Acenaphthene	2000	0	1500	75				45	110	
2,4-Dinitrophenol	4100	0	3200	78				15	130	
4-Nitrophenol	4100	0	3000	73				15	140	
Dibenzofuran	2000	0	1500	75				50	105	
2,4-Dinitrotoluene	2000	0	1600	80				50	115	
Diethylphthalate	2000	0	1600	80				50	115	
4-Chlorophenyl-phenylether	2000	0	1500	75				45	110	
4-Nitroaniline	2000	0	1400	70				35	115	
4,6-Dinitro-2-methylphenol	2000	0	1700	85				30	135	
N-Nitrosodiphenylamine	2000	0	1600	80				50	115	
4-Bromophenyl-phenylether	2000	0	1600	80				45	115	
Hexachlorobenzene	2000	0	1500	75				45	120	
Atrazine	2000	0	1700	85				38	135	
Pentachlorophenol	4100	0	3300	80				25	120	
Phenanthrene	2000	0	1600	80				50	110	
Carbazole	2000	0	1600	80				45	115	
Di-n-butylphthalate	2000	0	1600	80				55	110	
Butylbenzylphthalate	2000	0	1700	85				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2000	0	250	13				10	126	
bis(2-Ethylhexyl)phthalate	2000	0	1700	85				45	125	
Di-n-octyl phthalate	2000	0	1700	85				40	130	
1,2,4,5-Tetrachlorobenzene	2000	0	1500	75				70	130	
2,3,4,6-Tetrachlorophenol	2000	0	1600	80				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5005-02MSD	**Client Sample ID: 12SB24-0.502-02MSD**									
Benzaldehyde	2000	0	92	5	*	22	*	10	161	20
Phenol	2000	0	1600	80		6		43	100	20
bis(2-Chloroethyl)ether	2000	0	1700	85		6		43	105	20
2-Chlorophenol	2000	0	1600	80		6		45	105	20
2-Methylphenol	2000	0	1700	85		6		44	105	20
2,2-oxybis(1-Chloropropane)	2000	0	1600	80		6		36	115	20
Acetophenone	2000	0	1800	90		12		48	131	20
3+4-Methylphenols	2000	0	1700	85		6		44	105	20
N-Nitroso-di-n-propylamine	2000	0	1800	90		12		41	115	20
Hexachloroethane	2000	0	1600	80		6		35	110	20
Nitrobenzene	2000	0	1700	85		6		40	115	20
Isophorone	2000	0	1700	85		6		45	110	20
2-Nitrophenol	2000	0	1700	85		13		40	110	20
2,4-Dimethylphenol	2000	0	1700	85		13		35	105	20
bis(2-Chloroethoxy)methane	2000	0	1700	85		6		45	110	20
2,4-Dichlorophenol	2000	0	1700	85		13		45	110	20
4-Chloroaniline	2000	0	410	21		21	*	10	160	20
Hexachlorobutadiene	2000	0	1700	85		13		40	115	20
Caprolactam	2000	0	1700	85		6		24	145	20
4-Chloro-3-methylphenol	2000	0	1700	85		13		45	115	20
Hexachlorocyclopentadiene	4100	0	3400	83		9		10	128	20
2,4,6-Trichlorophenol	2000	0	1700	85		6		45	110	20
2,4,5-Trichlorophenol	2000	0	1700	85		13		50	110	20
1,1-Biphenyl	2000	0	1700	85		6		47	131	20
2-Chloronaphthalene	2000	0	1700	85		13		45	105	20
2-Nitroaniline	2000	0	1700	85		13		45	120	20
Dimethylphthalate	2000	270	2000	87		6		51	110	20
Acenaphthylene	2000	0	1700	85		6		45	105	20
2,6-Dinitrotoluene	2000	0	1700	85		6		50	110	20
3-Nitroaniline	2000	0	810	41		19		25	110	20
Acenaphthene	2000	0	1700	85		13		45	110	20
2,4-Dinitrophenol	4100	0	3500	85		9		15	130	20
4-Nitrophenol	4100	0	3200	78		7		15	140	20
Dibenzofuran	2000	0	1600	80		6		50	105	20
2,4-Dinitrotoluene	2000	0	1700	85		6		50	115	20
Diethylphthalate	2000	0	1700	85		6		50	115	20
4-Chlorophenyl-phenylether	2000	0	1700	85		13		45	110	20
4-Nitroaniline	2000	0	1600	80		13		35	115	20
4,6-Dinitro-2-methylphenol	2000	0	2000	100		16		30	135	20
N-Nitrosodiphenylamine	2000	0	1700	85		6		50	115	20
4-Bromophenyl-phenylether	2000	0	1800	90		12		45	115	20
Hexachlorobenzene	2000	0	1700	85		13		45	120	20
Atrazine	2000	0	2000	100		16		38	135	20
Pentachlorophenol	4100	0	3600	88		10		25	120	20
Phenanthrene	2000	0	1700	85		6		50	110	20
Carbazole	2000	0	1700	85		6		45	115	20
Di-n-butylphthalate	2000	0	1800	90		12		55	110	20
Butylbenzylphthalate	2000	0	1900	95		11		50	125	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2000	0	390	20		42	*	10	126	20
bis(2-Ethylhexyl)phthalate	2000	0	1800	90		6		45	125	20
Di-n-octyl phthalate	2000	0	1900	95		11		40	130	20
1,2,4,5-Tetrachlorobenzene	2000	0	1600	80		6		70	130	20
2,3,4,6-Tetrachlorophenol	2000	0	1700	85		6		70	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59966BS	Benzaldehyde	1700	2000	118				10	161	
	Phenol	1700	1400	82				51	100	
	bis(2-Chloroethyl)ether	1700	1500	88				48	105	
	2-Chlorophenol	1700	1500	88				53	105	
	2-Methylphenol	1700	1500	88				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1400	82				45	115	
	Acetophenone	1700	1500	88				51	114	
	3+4-Methylphenols	1700	1600	94				54	105	
	N-Nitroso-di-n-propylamine	1700	1600	94				51	114	
	Hexachloroethane	1700	1500	88				44	110	
	Nitrobenzene	1700	1600	94				49	114	
	Isophorone	1700	1600	94				52	110	
	2-Nitrophenol	1700	1600	94				51	110	
	2,4-Dimethylphenol	1700	1500	88				46	105	
	bis(2-Chloroethoxy)methane	1700	1600	94				52	110	
	2,4-Dichlorophenol	1700	1500	88				53	110	
	4-Chloroaniline	1700	310	18		*		25	115	
	Hexachlorobutadiene	1700	1600	94				47	115	
	Caprolactam	1700	1600	94				45	115	
	4-Chloro-3-methylphenol	1700	1600	94				56	111	
	Hexachlorocyclopentadiene	3300	3100	94				43	112	
	2,4,6-Trichlorophenol	1700	1600	94				53	110	
	2,4,5-Trichlorophenol	1700	1600	94				53	110	
	1,1-Biphenyl	1700	1500	88				55	109	
	2-Chloronaphthalene	1700	1600	94				55	105	
	2-Nitroaniline	1700	1600	94				53	118	
	Dimethylphthalate	1700	1600	94				57	110	
	Acenaphthylene	1700	1600	94				54	105	
	2,6-Dinitrotoluene	1700	1600	94				55	110	
	3-Nitroaniline	1700	730	43				25	110	
	Acenaphthene	1700	1600	94				54	110	
	2,4-Dinitrophenol	3300	2500	76				15	130	
	4-Nitrophenol	3300	3000	91				44	115	
	Dibenzofuran	1700	1500	88				59	105	
	2,4-Dinitrotoluene	1700	1600	94				55	115	
	Diethylphthalate	1700	1600	94				56	111	
	4-Chlorophenyl-phenylether	1700	1600	94				56	110	
	4-Nitroaniline	1700	1500	88				46	113	
	4,6-Dinitro-2-methylphenol	1700	1500	88				39	126	
	N-Nitrosodiphenylamine	1700	1500	88				54	115	
	4-Bromophenyl-phenylether	1700	1400	82				51	115	
	Hexachlorobenzene	1700	1400	82				52	117	
	Atrazine	1700	1800	106				40	127	
	Pentachlorophenol	3300	3000	91				47	116	
	Phenanthrene	1700	1500	88				56	110	
	Carbazole	1700	1500	88				54	117	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59966BS	Di-n-butylphthalate	1700	1600	94				58	110	
	Butylbenzylphthalate	1700	1700	100				57	122	
	3,3-Dichlorobenzidine	1700	260	15				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1700	100				60	119	
	Di-n-octyl phthalate	1700	1700	100				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	1400	82				70	130	
	2,3,4,6-Tetrachlorophenol	1700	1600	94				70	130	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD040 Date Analyzed: 12/19/2011

Lab File ID: BF052054.D Time Analyzed: 14:54

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	87042	4.27	320717	5.46	164741	7.06
	UPPER LIMIT	174084	4.77	641434	5.96	329482	7.56
	LOWER LIMIT	43521	3.77	160358.5	4.96	82370.5	6.56
	EPA SAMPLE NO.						
01	12SB24-0.502-02	78632	4.27	312100	5.46	166293	7.06
02	12SB24-0.502-02MS	73303	4.27	275558	5.46	146331	7.06
03	12SB24-0.502-02MSD	75442	4.27	281068	5.46	150107	7.06
04	12SB24-0304-03	80400	4.27	309923	5.46	165737	7.06
05	12SB22-0.502-02	76560	4.27	294286	5.46	159499	7.06
06	12SB22-0304-03	80533	4.27	312764	5.46	169949	7.06
07	12SB20-000.5-01	73681	4.27	286126	5.46	151439	7.06
08	12SB20-0.502-02	82554	4.27	316666	5.46	168642	7.06
09	12SB-DUP-01	76420	4.27	298925	5.46	158019	7.06
10	12SB18-0304-03	89930	4.27	351161	5.46	189013	7.06
11	PB59966B	79784	4.27	314279	5.46	171590	7.06
12	PB59966BS	80364	4.27	297431	5.46	158298	7.06

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD040 Date Analyzed: 12/28/2011

Lab File ID: BF052408.D Time Analyzed: 01:43

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	108736	4.12	387943	5.33	190521	6.92
	UPPER LIMIT	217472	4.62	775886	5.83	381042	7.42
	LOWER LIMIT	54368	3.62	193971.5	4.83	95260.5	6.42
	EPA SAMPLE NO.						
01	12SB18-0.502-02	124561	4.12	467439	5.33	235686	6.91
02	12SB22-000.5-01	116052	4.12	428614	5.33	216857	6.91
03	12SB24-000.5-01	112035	4.12	413467	5.33	209712	6.91
04	12SB19-000.5-01	126757	4.12	477194	5.33	237032	6.91
05	12SB19-0.502-02	130540	4.12	465004	5.33	231607	6.92
06	12SB19-0304-03	130991	4.12	472567	5.33	237336	6.92
07	12SB18-000.5-01	125716	4.12	461093	5.33	228502	6.91

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD040 Date Analyzed: 12/19/2011

Lab File ID: BF052054.D Time Analyzed: 14:54

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	258546	8.65	226107	11.78	217142	13.4
	UPPER LIMIT	517092	9.15	452214	12.28	434284	13.9
	LOWER LIMIT	129273	8.15	113053.5	11.28	108571	12.9
	EPA SAMPLE NO.						
01	12SB24-0.502-02	267109	8.65	253045	11.77	224889	13.40
02	12SB24-0.502-02MS	234641	8.65	215838	11.78	205100	13.40
03	12SB24-0.502-02MSD	237025	8.65	218911	11.78	209023	13.40
04	12SB24-0304-03	268101	8.65	262111	11.77	236513	13.40
05	12SB22-0.502-02	246665	8.65	241480	11.77	220045	13.40
06	12SB22-0304-03	266175	8.65	252636	11.77	229749	13.40
07	12SB20-000.5-01	238826	8.65	229101	11.77	204727	13.40
08	12SB20-0.502-02	272178	8.65	251663	11.77	228742	13.40
09	12SB-DUP-01	248541	8.65	236936	11.77	216438	13.40
10	12SB18-0304-03	298292	8.65	279582	11.77	259432	13.40
11	PB59966B	267347	8.65	248534	11.77	225686	13.40
12	PB59966BS	259714	8.65	221417	11.78	203503	13.40

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD040 Date Analyzed: 12/28/2011

Lab File ID: BF052408.D Time Analyzed: 01:43

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	313444	8.48	270099	11.59	270296	13.19
	UPPER LIMIT	626888	8.98	540198	12.09	540592	13.69
	LOWER LIMIT	156722	7.98	135049.5	11.09	135148	12.69
	EPA SAMPLE NO.						
01	12SB18-0.502-02	363443	8.48	322465	11.59	301326	13.19
02	12SB22-000.5-01	332183	8.48	302171	11.59	281856	13.19
03	12SB24-000.5-01	322272	8.48	289042	11.59	268206	13.19
04	12SB19-000.5-01	368298	8.48	334003	11.59	315335	13.19
05	12SB19-0.502-02	360430	8.48	300317	11.60	316575	13.20
06	12SB19-0304-03	367275	8.48	350259	11.59	338738	13.19
07	12SB18-000.5-01	359502	8.48	352950	11.59	322311	13.19

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BG002138.D DFTPP Injection Date: 12/12/2011

Instrument ID: BNA_G DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	40.0 - 60.0% of mass 198	44.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	25.2
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	12.8
442	Greater than 40% of mass 198	87.2
443	17.0 - 23.0% of mass 442	16.5 (19) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD025	25 PPM BNA ICC	BG002140.D	12/12/2011	21:33
02	SSTD010	10 PPM BNA ICC	BG002141.D	12/12/2011	22:11
03	SSTD2.5	2.5 PPM BNA ICC	BG002142.D	12/12/2011	22:50
04	SSTD0.5	0.5 PPM BNA ICC	BG002143.D	12/12/2011	23:28
05	SSTD0.1	0.1 PPM BNA ICC	BG002144.D	12/13/2011	00:07

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF02.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF02.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

All other compounds must meet a minimum RRF of 0.010.

Method Path : Z:\HPCHEM1\BNA_G\METHOD\
Method File : SIMPAH-BG121211.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Tue Dec 13 04:09:38 2011
Response Via : Initial Calibration

Calibration Files
0.1 =BG002144.D 0.5 =BG002143.D 2.5 =BG002142.D
10 =BG002141.D 25 =BG002140.D

		Compound	0.1	0.5	2.5	10	25	Avg		%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	I	Naphthalene-d8	----------ISTD----------							
3)	S	Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401	0.405		5.45
4)		Naphthalene	4.181	4.422	4.053	3.787	3.565	4.001		8.37
5)		2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591	2.867		7.66
6)		1-Methylnapthalene	2.766	3.012	2.777	2.630	2.455	2.728		7.53
7)	I	Acenaphthene-d10	----------ISTD----------							
8)	S	2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340	1.475		7.12
9)		Acenaphthylene	7.173	7.472	7.109	6.648	6.292	6.939		6.72
.0)		Acenaphthene	1.305	1.184	1.104	1.045	1.041	1.136		9.77
.1)		Fluorene	1.385	1.461	1.302	1.222	1.185	1.311		8.68
.2)	I	Phenanthrene-d10	----------ISTD----------							
.3)		Phenanthrene	4.645	4.636	4.284	4.008	3.803	4.275		8.76
.4)		Anthracene	4.352	4.539	4.337	4.134	3.927	4.258		5.49
.5)		Fluoranthene	4.656	4.812	3.997	4.338	4.146	4.390		7.77
.6)	I	Chrysene-d12	----------ISTD----------							
.7)		Pyrene	4.833	4.992	5.279	4.426	4.307	4.768		8.42
.8)	S	Terphenyl-d14	0.812	0.813	0.845	0.723	0.703	0.779		7.98
.9)		Bis(2-ethylhexyl)ph	0.745	0.708	0.646	0.662	0.682	0.689		5.72
:0)		Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232	4.640		9.22
:1)		Chrysene	4.619	4.752	4.374	4.192	4.142	4.416		6.01
:2)		Indeno(1,2,3-cd)pyr	3.543	3.844	4.268	4.133	4.530	4.064		9.40
:3)	I	Perylene-d12	----------ISTD----------							
:4)		Benzo(b)fluoranthen	1.117	1.145	1.041	1.031	1.032	1.073	E1	5.00
:5)		Benzo(k)fluoranthen	1.081	1.134	1.036	1.056	1.034	1.068	E1	3.85
:6)		Benzo(a)pyrene	1.023	1.044	0.989	0.985	0.995	1.007	E1	2.51
:7)		Dibenzo(a,h)anthrac	0.795	0.903	0.995	0.951	1.001	0.929		9.10
:8)		Benzo(g,h,i)perylen	3.766	3.923	4.165	3.859	4.033	3.949		3.92

(#) = Out of Range

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BG002251.D DFTPP Injection Date: 12/16/2011

Instrument ID: BNA_G DFTPP Injection Time: 16:00

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	34.1
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.2 (0.6) 1
127	40.0 - 60.0% of mass 198	43.8
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	27.1
365	Greater than 1% of mass 198	3.6
441	Present, but less than mass 443	15
442	Greater than 40% of mass 198	100
443	17.0 - 23.0% of mass 442	20.1 (20.1) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002253.D	12/16/2011	17:19
02	12SB22-0.502-02	C5005-05	BG002263.D	12/17/2011	00:00
03	12SB22-0304-03	C5005-06	BG002264.D	12/17/2011	00:39
04	PB59967BS	PB59967BS	BG002267.D	12/17/2011	02:35

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_G Calibration Date/Time: 12/16/2011 17:19

Lab File ID: BG002253.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF02.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.013		0.3	20.0
2-Methylnapthalene	2.867	2.924		2.0	20.0
Acenaphthylene	6.939	6.763		2.5	20.0
Acenaphthene	1.136	1.115		1.8	20.0
Fluorene	1.311	1.355		3.3	20.0
Phenanthrene	4.275	4.281		0.1	20.0
Anthracene	4.258	4.386		3.0	20.0
Fluoranthene	4.390	4.658		6.1	20.0
Pyrene	4.768	4.608		3.4	20.0
Benzo(a)anthracene	4.640	4.531		2.4	20.0
Chrysene	4.416	4.396		0.4	20.0
Benzo(b)fluoranthene	10.733	10.859		1.2	20.0
Benzo(k)fluoranthene	10.683	10.459		2.1	20.0
Benzo(a)pyrene	10.071	9.929		1.4	20.0
Indeno(1,2,3-cd)pyrene	4.064	4.479		10.2	20.0
Dibenzo(a,h)anthracene	0.929	0.997		7.3	20.0
Benzo(g,h,i)perylene	3.949	3.966		0.4	20.0
Nitrobenzene-d5	0.405	0.399		1.6	20.0
2-Fluorobiphenyl	1.475	1.476		0.0	20.0
Terphenyl-d14	0.779	0.812		4.2	20.0

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG121611\
Data File : BG002253.D
Acq On : 16 Dec 2011 17:19
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 17 02:52:22 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 04:09:38 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	104	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	106	-0.02
3	S	Nitrobenzene-d5	0.405	0.399	1.5	102	-0.02
4		Naphthalene	4.001	4.013	-0.3	105	-0.02
5		2-Methylnapthalene	2.867	2.924	-2.0	106	-0.03
6		1-Methylnapthalene	2.728	2.821	-3.4	108	-0.03
7	I	Acenaphthene-d10	1.000	1.000	0.0	112	-0.03
8	S	2-Fluorobiphenyl	1.475	1.476	-0.1	108	-0.03
9		Acenaphthylene	6.939	6.763	2.5	107	-0.03
10		Acenaphthene	1.136	1.115	1.8	113	-0.02
11		Fluorene	1.311	1.355	-3.4	117	-0.03
12	I	Phenanthrene-d10	1.000	1.000	0.0	127	-0.03
13		Phenanthrene	4.275	4.281	-0.1	127	-0.03
14		Anthracene	4.258	4.386	-3.0	128	-0.03
15		Fluoranthene	4.390	4.658	-6.1	148	-0.02
16	I	Chrysene-d12	1.000	1.000	0.0	170#	-0.02
17		Pyrene	4.768	4.608	3.4	148	-0.02
18	S	Terphenyl-d14	0.779	0.812	-4.2	163#	-0.02
19		Bis(2-ethylhexyl)phthalate	0.689	0.841	-22.1#	221#	-0.02
20		Benzo(a)anthracene	4.640	4.531	2.3	171#	-0.02
21		Chrysene	4.416	4.396	0.5	171#	-0.02
22		Indeno(1,2,3-cd)pyrene	4.064	4.479	-10.2	178#	-0.05
23	I	Perylene-d12	1.000	1.000	0.0	181#	-0.02
24		Benzo(b)fluoranthene	10.733	10.859	-1.2	188#	-0.02
25		Benzo(k)fluoranthene	10.683	10.459	2.1	182#	-0.02
26		Benzo(a)pyrene	10.071	9.929	1.4	181#	-0.03
27		Dibenzo(a,h)anthracene	0.929	0.997	-7.3	181#	-0.05
28		Benzo(g,h,i)perylene	3.949	3.966	-0.4	172#	-0.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG121611\
Data File : BG002253.D
Acq On : 16 Dec 2011 17:19
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 17 02:52:22 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 04:09:38 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	104	0.00
2	I	Naphthalene-d8	5.000	5.000	0.0	106	-0.02
3	S	Nitrobenzene-d5	2.500	2.458	1.7	102	-0.02
4		Naphthalene	2.500	2.507	-0.3	105	-0.02
5		2-Methylnapthalene	2.500	2.549	-2.0	106	-0.03
6		1-Methylnapthalene	2.500	2.585	-3.4	108	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	112	-0.03
8	S	2-Fluorobiphenyl	2.500	2.502	-0.1	108	-0.03
9		Acenaphthylene	2.500	2.437	2.5	107	-0.03
10		Acenaphthene	2.500	2.455	1.8	113	-0.02
11		Fluorene	2.500	2.583	-3.3	117	-0.03
12	I	Phenanthrene-d10	5.000	5.000	0.0	127	-0.03
13		Phenanthrene	2.500	2.503	-0.1	127	-0.03
14		Anthracene	2.500	2.575	-3.0	128	-0.03
15		Fluoranthene	2.500	2.653	-6.1	148	-0.02
16	I	Chrysene-d12	5.000	5.000	0.0	170	-0.02
17		Pyrene	2.500	2.416	3.4	148	-0.02
18	S	Terphenyl-d14	2.500	2.603	-4.1	163	-0.02
19		Bis(2-ethylhexyl)phthalate	2.500	3.052	-22.1#	221	-0.02
20		Benzo(a)anthracene	2.500	2.441	2.4	171	-0.02
21		Chrysene	2.500	2.489	0.4	171	-0.02
22		Indeno(1,2,3-cd)pyrene	2.500	2.755	-10.2	178	-0.05
23	I	Perylene-d12	5.000	5.000	0.0	181	-0.02
24		Benzo(b)fluoranthene	2.500	2.529	-1.2	188	-0.02
25		Benzo(k)fluoranthene	2.500	2.448	2.1	182	-0.02
26		Benzo(a)pyrene	2.500	2.465	1.4	181	-0.03
27		Dibenzo(a,h)anthracene	2.500	2.683	-7.3	181	-0.05
28		Benzo(g,h,i)perylene	2.500	2.511	-0.4	172	-0.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59967B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab File ID: BG002315.D Lab Sample ID: PB59967B

Instrument ID: BNA_G Date Extracted: 12/16/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/22/2011

Level: (low/med) LOW Time Analyzed: 21:16

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB24-000.5-01MSD	C5005-01MSD	BG002278.D	12/17/2011
12SB24-000.5-01MS	C5005-01MS	BG002277.D	12/17/2011
12SB24-000.5-01	C5005-01	BG002276.D	12/17/2011
12SB19-0.502-02	C5005-11	BG002330.D	12/23/2011
12SB19-0304-03	C5005-12	BG002329.D	12/23/2011
12SB19-000.5-01	C5005-10	BG002328.D	12/23/2011
12SB22-000.5-01	C5005-04	BG002327.D	12/23/2011
12SB18-0.502-02	C5005-14	BG002326.D	12/23/2011
12SB18-000.5-01	C5005-13	BG002325.D	12/23/2011
12SB-DUP-01	C5005-09	BG002271.D	12/17/2011
12SB20-000.5-01	C5005-07	BG002324.D	12/23/2011
12SB24-0304-03	C5005-03	BG002322.D	12/23/2011
PB59967BS	PB59967BS	BG002267.D	12/17/2011
12SB22-0304-03	C5005-06	BG002264.D	12/17/2011
12SB22-0.502-02	C5005-05	BG002263.D	12/17/2011
12SB18-0304-03	C5005-15	BG002314.D	12/22/2011
12SB20-0.502-02	C5005-08	BG002313.D	12/22/2011
12SB24-0.502-02	C5005-02	BG002312.D	12/22/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB59967B	SDG No.:	C5005
Lab Sample ID:	PB59967B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002315.D	1	12/16/11	12/22/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	9.62		30 - 150	96%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.83		19 - 182	88%	SPK: 10
1718-51-0	Terphenyl-d14	9.74		24 - 191	97%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	31531	8.04			
1146-65-2	Naphthalene-d8	117542	10.21			
15067-26-2	Acenaphthene-d10	80318	13.18			
1517-22-2	Phenanthrene-d10	149993	15.64			
1719-03-5	Chrysene-d12	152397	20.01			
1520-96-3	Perylene-d12	128973	23.16			

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BG002268.D DFTPP Injection Date: 12/17/2011

Instrument ID: BNA_G DFTPP Injection Time: 03:14

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.3
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	43.3
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	45.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	26.2
365	Greater than 1% of mass 198	3
441	Present, but less than mass 443	13.8
442	Greater than 40% of mass 198	96.2
443	17.0 - 23.0% of mass 442	18.7 (19.5) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002269.D	12/17/2011	03:53
02	12SB-DUP-01	C5005-09	BG002271.D	12/17/2011	05:10
03	12SB24-000.5-01	C5005-01	BG002276.D	12/17/2011	08:23
04	12SB24-000.5-01MS	C5005-01MS	BG002277.D	12/17/2011	09:02
05	12SB24-000.5-01MSD	C5005-01MSD	BG002278.D	12/17/2011	09:40

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_G Calibration Date/Time: 12/17/2011 03:53

Lab File ID: BG002269.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF02.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	3.961		1.0	20.0
2-Methylnapthalene	2.867	2.790		2.7	20.0
Acenaphthylene	6.939	6.932		0.1	20.0
Acenaphthene	1.136	1.127		0.8	20.0
Fluorene	1.311	1.298		1.0	20.0
Phenanthrene	4.275	4.233		1.0	20.0
Anthracene	4.258	4.379		2.9	20.0
Fluoranthene	4.390	4.369		0.5	20.0
Pyrene	4.768	4.795		0.6	20.0
Benzo(a)anthracene	4.640	4.487		3.3	20.0
Chrysene	4.416	4.366		1.1	20.0
Benzo(b)fluoranthene	10.733	10.588		1.3	20.0
Benzo(k)fluoranthene	10.683	10.668		0.1	20.0
Benzo(a)pyrene	10.071	9.806		2.6	20.0
Indeno(1,2,3-cd)pyrene	4.064	4.208		3.5	20.0
Dibenzo(a,h)anthracene	0.929	0.965		3.8	20.0
Benzo(g,h,i)perylene	3.949	3.840		2.7	20.0
Nitrobenzene-d5	0.405	0.407		0.4	20.0
2-Fluorobiphenyl	1.475	1.533		3.9	20.0
Terphenyl-d14	0.779	0.822		5.5	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG121611\
Data File : BG002269.D
Acq On : 17 Dec 2011 3:53
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 17 06:38:50 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 04:09:38 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	80	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	79	-0.03
3	S	Nitrobenzene-d5	0.405	0.407	-0.5	78	-0.02
4		Naphthalene	4.001	3.961	1.0	78	-0.02
5		2-Methylnapthalene	2.867	2.790	2.7	76	-0.03
6		1-Methylnapthalene	2.728	2.660	2.5	76	-0.03
7	I	Acenaphthene-d10	1.000	1.000	0.0	76	-0.03
8	S	2-Fluorobiphenyl	1.475	1.533	-3.9	76	-0.03
9		Acenaphthylene	6.939	6.932	0.1	74	-0.03
.0		Acenaphthene	1.136	1.127	0.8	78	-0.01
.1		Fluorene	1.311	1.298	1.0	76	-0.03
.2	I	Phenanthrene-d10	1.000	1.000	0.0	79	-0.03
.3		Phenanthrene	4.275	4.233	1.0	79	-0.03
.4		Anthracene	4.258	4.379	-2.8	80	-0.03
.5		Fluoranthene	4.390	4.369	0.5	87	-0.02
.6	I	Chrysene-d12	1.000	1.000	0.0	96	-0.02
.7		Pyrene	4.768	4.795	-0.6	87	-0.02
.8	S	Terphenyl-d14	0.779	0.822	-5.5	93	-0.02
.9		Bis(2-ethylhexyl)phthalate	0.689	0.821	-19.2	122	-0.02
20		Benzo(a)anthracene	4.640	4.487	3.3	96	-0.02
21		Chrysene	4.416	4.366	1.1	96	-0.02
22		Indeno(1,2,3-cd)pyrene	4.064	4.208	-3.5	94	-0.03
23	I	Perylene-d12	1.000	1.000	0.0	99	-0.02
24		Benzo(b)fluoranthene	10.733	10.588	1.4	100	-0.02
25		Benzo(k)fluoranthene	10.683	10.669	0.1	102	-0.02
26		Benzo(a)pyrene	10.071	9.806	2.6	98	-0.02
27		Dibenzo(a,h)anthracene	0.929	0.965	-3.9	96	-0.03
28		Benzo(g,h,i)perylene	3.949	3.840	2.8	91	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : Z:\HPCHEM1\BNA G\Data\BG121611\
Data File : BG002269.D
Acq On : 17 Dec 2011 3:53
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 17 06:38:50 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 04:09:38 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	80	0.00
2	I	Naphthalene-d8	5.000	5.000	0.0	79	-0.03
3	S	Nitrobenzene-d5	2.500	2.508	-0.3	78	-0.02
4		Naphthalene	2.500	2.475	1.0	78	-0.02
5		2-Methylnapthalene	2.500	2.433	2.7	76	-0.03
6		1-Methylnapthalene	2.500	2.438	2.5	76	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	76	-0.03
8	S	2-Fluorobiphenyl	2.500	2.598	-3.9	76	-0.03
9		Acenaphthylene	2.500	2.497	0.1	74	-0.03
10		Acenaphthene	2.500	2.480	0.8	78	-0.01
11		Fluorene	2.500	2.475	1.0	76	-0.03
12	I	Phenanthrene-d10	5.000	5.000	0.0	79	-0.03
13		Phenanthrene	2.500	2.475	1.0	79	-0.03
14		Anthracene	2.500	2.571	-2.8	80	-0.03
15		Fluoranthene	2.500	2.488	0.5	87	-0.02
16	I	Chrysene-d12	5.000	5.000	0.0	96	-0.02
17		Pyrene	2.500	2.514	-0.6	87	-0.02
18	S	Terphenyl-d14	2.500	2.636	-5.4	93	-0.02
19		Bis(2-ethylhexyl)phthalate	2.500	2.981	-19.2	122	-0.02
20		Benzo(a)anthracene	2.500	2.418	3.3	96	-0.02
21		Chrysene	2.500	2.472	1.1	96	-0.02
22		Indeno(1,2,3-cd)pyrene	2.500	2.589	-3.6	94	-0.03
23	I	Perylene-d12	5.000	5.000	0.0	99	-0.02
24		Benzo(b)fluoranthene	2.500	2.466	1.4	100	-0.02
25		Benzo(k)fluoranthene	2.500	2.497	0.1	102	-0.02
26		Benzo(a)pyrene	2.500	2.434	2.6	98	-0.02
27		Dibenzo(a,h)anthracene	2.500	2.596	-3.8	96	-0.03
28		Benzo(g,h,i)perylene	2.500	2.431	2.8	91	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BG002304.D DFTPP Injection Date: 12/22/2011

Instrument ID: BNA_G DFTPP Injection Time: 13:44

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.2
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	38
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	42.8
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	23.3
365	Greater than 1% of mass 198	2
441	Present, but less than mass 443	12.3
442	Greater than 40% of mass 198	75.9
443	17.0 - 23.0% of mass 442	14 (18.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002307.D	12/22/2011	15:53
02	12SB24-0.502-02	C5005-02	BG002312.D	12/22/2011	19:15
03	12SB20-0.502-02	C5005-08	BG002313.D	12/22/2011	19:55
04	12SB18-0304-03	C5005-15	BG002314.D	12/22/2011	20:35
05	PB59967B	PB59967B	BG002315.D	12/22/2011	21:16

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_G Calibration Date/Time: 12/22/2011 15:53

Lab File ID: BG002307.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF02.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.125		3.1	20.0
2-Methylnapthalene	2.867	2.914		1.7	20.0
Acenaphthylene	6.939	6.503		6.3	20.0
Acenaphthene	1.136	1.048		7.8	20.0
Fluorene	1.311	1.387		5.8	20.0
Phenanthrene	4.275	4.390		2.7	20.0
Anthracene	4.258	4.371		2.7	20.0
Fluoranthene	4.390	4.955		12.9	20.0
Pyrene	4.768	4.682		1.8	20.0
Benzo(a)anthracene	4.640	4.400		5.2	20.0
Chrysene	4.416	4.409		0.2	20.0
Benzo(b)fluoranthene	10.733	10.578		1.4	20.0
Benzo(k)fluoranthene	10.683	10.677		0.1	20.0
Benzo(a)pyrene	10.071	9.858		2.1	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.930		3.3	20.0
Dibenzo(a,h)anthracene	0.929	0.968		4.2	20.0
Benzo(g,h,i)perylene	3.949	3.999		1.3	20.0
Nitrobenzene-d5	0.405	0.421		3.9	20.0
2-Fluorobiphenyl	1.475	1.384		6.1	20.0
Terphenyl-d14	0.779	0.728		6.6	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG122211\
Data File : BG002307.D
Acq On : 22 Dec 2011 15:53
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 23 01:45:30 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 15:47:51 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	71	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	76	0.00
3	S	Nitrobenzene-d5	0.405	0.421	-4.0	77	0.00
4		Naphthalene	4.001	4.125	-3.1	78	0.00
5		2-Methylnapthalene	2.867	2.914	-1.6	76	0.00
6		1-Methylnapthalene	2.728	2.821	-3.4	78	0.00
7	I	Acenaphthene-d10	1.000	1.000	0.0	89	0.00
8	S	2-Fluorobiphenyl	1.475	1.384	6.2	81	0.00
9		Acenaphthylene	6.939	6.503	6.3	82	0.00
.0		Acenaphthene	1.136	1.048	7.7	85	0.00
.1		Fluorene	1.311	1.387	-5.8	95	0.00
.2	I	Phenanthrene-d10	1.000	1.000	0.0	108	-0.01
.3		Phenanthrene	4.275	4.390	-2.7	111	-0.01
.4		Anthracene	4.258	4.371	-2.7	109	-0.01
.5		Fluoranthene	4.390	4.955	-12.9	134	0.00
.6	I	Chrysene-d12	1.000	1.000	0.0	156#	-0.02
.7		Pyrene	4.768	4.682	1.8	138	0.00
.8	S	Terphenyl-d14	0.779	0.728	6.5	134	0.00
.9		Bis(2-ethylhexyl)phthalate	0.689	0.607	11.9	147	-0.01
20		Benzo(a)anthracene	4.640	4.400	5.2	153#	-0.02
21		Chrysene	4.416	4.409	0.2	157#	-0.02
22		Indeno(1,2,3-cd)pyrene	4.064	3.930	3.3	143	-0.27
23	I	Perylene-d12	1.000	1.000	0.0	148	-0.13
24		Benzo(b)fluoranthene	10.733	10.578	1.4	151#	-0.09
25		Benzo(k)fluoranthene	10.683	10.677	0.1	153#	-0.10
26		Benzo(a)pyrene	10.071	9.858	2.1	148	-0.13
27		Dibenzo(a,h)anthracene	0.929	0.968	-4.2	144	-0.28
28		Benzo(g,h,i)perylene	3.949	3.999	-1.3	142	-0.33

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : Z:\HPCHEM1\BNA G\Data\BG122211\
Data File : BG002307.D
Acq On : 22 Dec 2011 15:53
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 23 01:45:30 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 15:47:51 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	71	0.00
2	I	Naphthalene-d8	5.000	5.000	0.0	76	0.00
3	S	Nitrobenzene-d5	2.500	2.596	-3.8	77	0.00
4		Naphthalene	2.500	2.577	-3.1	78	0.00
5		2-Methylnapthalene	2.500	2.541	-1.6	76	0.00
6		1-Methylnapthalene	2.500	2.586	-3.4	78	0.00
7	I	Acenaphthene-d10	5.000	5.000	0.0	89	0.00
8	S	2-Fluorobiphenyl	2.500	2.347	6.1	81	0.00
9		Acenaphthylene	2.500	2.343	6.3	82	0.00
.0		Acenaphthene	2.500	2.306	7.8	85	0.00
.1		Fluorene	2.500	2.645	-5.8	95	0.00
.2	I	Phenanthrene-d10	5.000	5.000	0.0	108	-0.01
.3		Phenanthrene	2.500	2.567	-2.7	111	-0.01
.4		Anthracene	2.500	2.566	-2.6	109	-0.01
.5		Fluoranthene	2.500	2.822	-12.9	134	0.00
.6	I	Chrysene-d12	5.000	5.000	0.0	156	-0.02
.7		Pyrene	2.500	2.455	1.8	138	0.00
.8	S	Terphenyl-d14	2.500	2.334	6.6	134	0.00
.9		Bis(2-ethylhexyl)phthalate	2.500	2.205	11.8	147	-0.01
20		Benzo(a)anthracene	2.500	2.371	5.2	153	-0.02
21		Chrysene	2.500	2.496	0.2	157	-0.02
22		Indeno(1,2,3-cd)pyrene	2.500	2.418	3.3	143	-0.27
23	I	Perylene-d12	5.000	5.000	0.0	148	-0.13
24		Benzo(b)fluoranthene	2.500	2.464	1.4	151	-0.09
25		Benzo(k)fluoranthene	2.500	2.499	0.0	153	-0.10
26		Benzo(a)pyrene	2.500	2.447	2.1	148	-0.13
27		Dibenzo(a,h)anthracene	2.500	2.605	-4.2	144	-0.28
28		Benzo(g,h,i)perylene	2.500	2.531	-1.2	142	-0.33

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5005 SDG NO.: C5005

Lab File ID: BG002320.D DFTPP Injection Date: 12/23/2011

Instrument ID: BNA_G DFTPP Injection Time: 00:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.4
68	Less than 2.0% of mass 69	0.6 (1.6) 1
69	Mass 69 relative abundance	37.5
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	44.8
197	Less than 1.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	24.5
365	Greater than 1% of mass 198	2.4
441	Present, but less than mass 443	12.5
442	Greater than 40% of mass 198	86
443	17.0 - 23.0% of mass 442	15.1 (17.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002321.D	12/23/2011	01:16
02	12SB24-0304-03	C5005-03	BG002322.D	12/23/2011	01:56
03	12SB20-000.5-01	C5005-07	BG002324.D	12/23/2011	03:16
04	12SB18-000.5-01	C5005-13	BG002325.D	12/23/2011	03:55
05	12SB18-0.502-02	C5005-14	BG002326.D	12/23/2011	04:35
06	12SB22-000.5-01	C5005-04	BG002327.D	12/23/2011	05:15
07	12SB19-000.5-01	C5005-10	BG002328.D	12/23/2011	05:55
08	12SB19-0304-03	C5005-12	BG002329.D	12/23/2011	06:35
09	12SB19-0.502-02	C5005-11	BG002330.D	12/23/2011	07:14
10	12SB19-0.502-02DL	C5005-11DL	BG002331.D	12/23/2011	07:54

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_G Calibration Date/Time: 12/23/2011 01:16

Lab File ID: BG002321.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF02.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.134		3.3	20.0
2-Methylnapthalene	2.867	2.911		1.5	20.0
Acenaphthylene	6.939	6.515		6.1	20.0
Acenaphthene	1.136	1.058		6.9	20.0
Fluorene	1.311	1.400		6.8	20.0
Phenanthrene	4.275	4.375		2.3	20.0
Anthracene	4.258	4.301		1.0	20.0
Fluoranthene	4.390	4.917		12.0	20.0
Pyrene	4.768	4.741		0.6	20.0
Benzo(a)anthracene	4.640	4.443		4.2	20.0
Chrysene	4.416	4.460		1.0	20.0
Benzo(b)fluoranthene	10.733	10.249		4.5	20.0
Benzo(k)fluoranthene	10.683	10.812		1.2	20.0
Benzo(a)pyrene	10.071	9.685		3.8	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.836		5.6	20.0
Dibenzo(a,h)anthracene	0.929	0.949		2.1	20.0
Benzo(g,h,i)perylene	3.949	3.973		0.6	20.0
Nitrobenzene-d5	0.405	0.422		4.2	20.0
2-Fluorobiphenyl	1.475	1.388		5.9	20.0
Terphenyl-d14	0.779	0.738		5.3	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
Client ID :	**12SB18-0.502-02**							
C5005-14	12SB18-0.502-02	SOIL	Acenaphthylene	4.500		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Acenaphthene	3.700	J	4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Fluorene	6.200		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Phenanthrene	96.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Anthracene	19.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Fluoranthene	230.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Pyrene	170.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Benzo(a)anthracene	84.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Chrysene	93.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Benzo(b)fluoranthene	110.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Benzo(k)fluoranthene	37.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Benzo(a)pyrene	77.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	49.000		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Dibenz(a,h)anthracene	4.100		4.1	0.49	ug/Kg
C5005-14	12SB18-0.502-02	SOIL	Benzo(g,h,i)perylene	48.000		4.1	0.49	ug/Kg
			Total Svoc :	**1,031.50**				
			Total Concentration:	**1,031.50**				
Client ID :	**12SB18-000.5-01**							
C5005-13	12SB18-000.5-01	SOIL	Naphthalene	3.600	J	5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Acenaphthylene	5.600		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Acenaphthene	5.600		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Fluorene	11.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Phenanthrene	150.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Anthracene	9.700		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Fluoranthene	220.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Pyrene	150.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Benzo(a)anthracene	46.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Chrysene	76.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Benzo(b)fluoranthene	90.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Benzo(k)fluoranthene	33.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Benzo(a)pyrene	56.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	37.000		5.1	0.61	ug/Kg
C5005-13	12SB18-000.5-01	SOIL	Benzo(g,h,i)perylene	35.000		5.1	0.61	ug/Kg
			Total Svoc :	**928.50**				
			Total Concentration:	**928.50**				
Client ID :	**12SB18-0304-03**							
C5005-15	12SB18-0304-03	SOIL	Phenanthrene	4.100		4.1	0.49	ug/Kg
C5005-15	12SB18-0304-03	SOIL	Fluoranthene	5.800		4.1	0.49	ug/Kg
C5005-15	12SB18-0304-03	SOIL	Pyrene	4.100		4.1	0.49	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5005-15	12SB18-0304-03	SOIL	Benzo(a)anthracene	2.500	J	4.1	0.49	ug/Kg
C5005-15	12SB18-0304-03	SOIL	Chrysene	2.100	J	4.1	0.49	ug/Kg
			Total Svoc :	**18.60**				
			Total Concentration:	**18.60**				
Client ID :	**12SB19-0.502-02**							
C5005-11	12SB19-0.502-02	SOIL	Naphthalene	39.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	2-Methylnaphthalene	33.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Acenaphthylene	110.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Acenaphthene	120.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Fluorene	220.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Phenanthrene	2,800.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Anthracene	1,000.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Fluoranthene	4,700.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Pyrene	3,900.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Benzo(a)anthracene	2,500.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Chrysene	2,300.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Benzo(b)fluoranthene	3,300.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Benzo(k)fluoranthene	1,100.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Benzo(a)pyrene	2,300.000	E	4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	1,000.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Dibenz(a,h)anthracene	140.000		4.0	0.49	ug/Kg
C5005-11	12SB19-0.502-02	SOIL	Benzo(g,h,i)perylene	1,300.000		4.0	0.49	ug/Kg
			Total Svoc :	**26,862.00**				
			Total Concentration:	**26,862.00**				
Client ID :	**12SB19-0.502-02DL**							
C5005-11DL	12SB19-0.502-02DL	SOIL	Naphthalene	41.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	2-Methylnaphthalene	32.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Acenaphthylene	130.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Acenaphthene	120.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Fluorene	230.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Phenanthrene	3,400.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Anthracene	1,200.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Fluoranthene	6,800.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Pyrene	4,900.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Benzo(a)anthracene	2,600.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Chrysene	2,600.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Benzo(b)fluoranthene	3,200.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Benzo(k)fluoranthene	1,100.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Benzo(a)pyrene	2,400.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Indeno(1,2,3-cd)pyrene	1,100.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Dibenz(a,h)anthracene	130.000	D	20	2.4	ug/Kg
C5005-11DL	12SB19-0.502-02DL	SOIL	Benzo(g,h,i)perylene	1,100.000	D	20	2.4	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
			Total Svoc :	**31,083.00**				
			Total Concentration:	**31,083.00**				
Client ID :	**12SB19-000.5-01**							
C5005-10	12SB19-000.5-01	SOIL	Naphthalene	6.600		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	2-Methylnaphthalene	5.600		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Acenaphthylene	14.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Acenaphthene	10.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Fluorene	20.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Phenanthrene	290.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Anthracene	47.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Fluoranthene	700.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Pyrene	520.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Benzo(a)anthracene	250.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Chrysene	280.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Benzo(b)fluoranthene	350.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Benzo(k)fluoranthene	120.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Benzo(a)pyrene	250.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	130.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Dibenz(a,h)anthracene	14.000		4.6	0.56	ug/Kg
C5005-10	12SB19-000.5-01	SOIL	Benzo(g,h,i)perylene	130.000		4.6	0.56	ug/Kg
			Total Svoc :	**3,137.20**				
			Total Concentration:	**3,137.20**				
Client ID :	**12SB19-0304-03**							
C5005-12	12SB19-0304-03	SOIL	Naphthalene	25.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	2-Methylnaphthalene	20.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Acenaphthylene	42.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Acenaphthene	57.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Fluorene	130.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Phenanthrene	860.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Anthracene	250.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Fluoranthene	1,100.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Pyrene	750.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Benzo(a)anthracene	360.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Chrysene	370.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Benzo(b)fluoranthene	440.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Benzo(k)fluoranthene	160.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Benzo(a)pyrene	330.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Indeno(1,2,3-cd)pyrene	150.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Dibenz(a,h)anthracene	15.000		4.1	0.50	ug/Kg
C5005-12	12SB19-0304-03	SOIL	Benzo(g,h,i)perylene	160.000		4.1	0.50	ug/Kg
			Total Svoc :	**5,219.00**				

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
			Total Concentration:	**5,219.00**				
Client ID :	**12SB20-000.5-01**							
C5005-07	12SB20-000.5-01	SOIL	Phenanthrene	23.000		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Fluoranthene	38.000		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Pyrene	26.000		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Benzo(a)anthracene	8.300		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Chrysene	16.000		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Benzo(b)fluoranthene	19.000		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Benzo(k)fluoranthene	6.900		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Benzo(a)pyrene	11.000		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	7.400		4.6	0.55	ug/Kg
C5005-07	12SB20-000.5-01	SOIL	Benzo(g,h,i)perylene	8.300		4.6	0.55	ug/Kg
			Total Svoc :	**163.90**				
			Total Concentration:	**163.90**				
Client ID :	**12SB22-000.5-01**							
C5005-04	12SB22-000.5-01	SOIL	Naphthalene	2.900	J	4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	2-Methylnaphthalene	2.400	J	4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Fluorene	3.800	J	4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Phenanthrene	90.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Anthracene	3.300	J	4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Fluoranthene	130.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Pyrene	87.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Benzo(a)anthracene	20.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Chrysene	47.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Benzo(b)fluoranthene	58.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Benzo(k)fluoranthene	20.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Benzo(a)pyrene	31.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	23.000		4.7	0.57	ug/Kg
C5005-04	12SB22-000.5-01	SOIL	Benzo(g,h,i)perylene	24.000		4.7	0.57	ug/Kg
			Total Svoc :	**542.40**				
			Total Concentration:	**542.40**				
Client ID :	**12SB24-0.502-02**							
C5005-02	12SB24-0.502-02	SOIL	Fluoranthene	2.800	J	4.0	0.49	ug/Kg
C5005-02	12SB24-0.502-02	SOIL	Pyrene	2.400	J	4.0	0.49	ug/Kg
			Total Svoc :	**5.20**				
			Total Concentration:	**5.20**				
Client ID :	**12SB24-000.5-01**							
C5005-01	12SB24-000.5-01	SOIL	Phenanthrene	37.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Anthracene	2.900	J	4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Fluoranthene	51.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Pyrene	44.000		4.7	0.57	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5005-01	12SB24-000.5-01	SOIL	Benzo(a)anthracene	15.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Chrysene	24.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Benzo(b)fluoranthene	29.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Benzo(k)fluoranthene	10.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Benzo(a)pyrene	18.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	16.000		4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Dibenz(a,h)anthracene	3.800	J	4.7	0.57	ug/Kg
C5005-01	12SB24-000.5-01	SOIL	Benzo(g,h,i)perylene	14.000		4.7	0.57	ug/Kg
			Total Svoc :	**264.70**				
			Total Concentration:	**264.70**				
Client ID :	**12SB-DUP-01**							
C5005-09	12SB-DUP-01	SOIL	Phenanthrene	17.000		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Fluoranthene	22.000		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Pyrene	18.000		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Benzo(a)anthracene	5.600		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Chrysene	9.800		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Benzo(b)fluoranthene	12.000		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Benzo(k)fluoranthene	4.700		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Benzo(a)pyrene	7.000		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Indeno(1,2,3-cd)pyrene	5.600		4.6	0.56	ug/Kg
C5005-09	12SB-DUP-01	SOIL	Benzo(g,h,i)perylene	5.600		4.6	0.56	ug/Kg
			Total Svoc :	**107.30**				
			Total Concentration:	**107.30**				

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
C5005-01	12SB24-000.5-01	Nitrobenzene-d5	100	59.84	60		30	150
		2-Fluorobiphenyl	100	51.12	51		19	182
		Terphenyl-d14	100	54.61	55		24	191
C5005-01MS	12SB24-000.5-01MS	Nitrobenzene-d5	10	6.18	62		30	150
		2-Fluorobiphenyl	10	6.68	67		19	182
		Terphenyl-d14	10	5.91	59		24	191
C5005-01MSD	12SB24-000.5-01MSD	Nitrobenzene-d5	10	8.93	89		30	150
		2-Fluorobiphenyl	10	11.04	110		19	182
		Terphenyl-d14	10	5.03	50		24	191
C5005-02	12SB24-0.502-02	Nitrobenzene-d5	100	73.98	74		30	150
		2-Fluorobiphenyl	100	57.52	58		19	182
		Terphenyl-d14	100	64.49	64		24	191
C5005-03	12SB24-0304-03	Nitrobenzene-d5	100	85.33	85		30	150
		2-Fluorobiphenyl	100	69.35	69		19	182
		Terphenyl-d14	100	72.04	72		24	191
C5005-04	12SB22-000.5-01	Nitrobenzene-d5	100	74.88	75		30	150
		2-Fluorobiphenyl	100	56.80	57		19	182
		Terphenyl-d14	100	57.56	58		24	191
C5005-05	12SB22-0.502-02	Nitrobenzene-d5	100	51.73	52		30	150
		2-Fluorobiphenyl	100	37.76	38		19	182
		Terphenyl-d14	100	39.65	40		24	191
C5005-06	12SB22-0304-03	Nitrobenzene-d5	100	51.65	52		30	150
		2-Fluorobiphenyl	100	37.66	38		19	182
		Terphenyl-d14	100	41.51	42		24	191
C5005-07	12SB20-000.5-01	Nitrobenzene-d5	100	74.02	74		30	150
		2-Fluorobiphenyl	100	53.84	54		19	182
		Terphenyl-d14	100	57.09	57		24	191
C5005-08	12SB20-0.502-02	Nitrobenzene-d5	100	61.97	62		30	150
		2-Fluorobiphenyl	100	48.08	48		19	182
		Terphenyl-d14	100	52.08	52		24	191
C5005-09	12SB-DUP-01	Nitrobenzene-d5	100	55.20	55		30	150
		2-Fluorobiphenyl	100	42.31	42		19	182
		Terphenyl-d14	100	47.76	48		24	191
C5005-10	12SB19-000.5-01	Nitrobenzene-d5	100	60.46	60		30	150
		2-Fluorobiphenyl	100	43.10	43		19	182
		Terphenyl-d14	100	43.81	44		24	191
C5005-11	12SB19-0.502-02	Nitrobenzene-d5	100	80.49	80		30	150
		2-Fluorobiphenyl	100	58.86	59		19	182
		Terphenyl-d14	100	61.91	62		24	191
C5005-11DL	12SB19-0.502-02DL	Nitrobenzene-d5	100	86.80	87		30	150
		2-Fluorobiphenyl	100	67.60	68		19	182
		Terphenyl-d14	100	69.65	70		24	191
C5005-12	12SB19-0304-03	Nitrobenzene-d5	100	72.06	72		30	150
		2-Fluorobiphenyl	100	54.68	55		19	182
		Terphenyl-d14	100	55.25	55		24	191
C5005-13	12SB18-000.5-01	Nitrobenzene-d5	100	74.80	75		30	150
		2-Fluorobiphenyl	100	59.95	60		19	182
		Terphenyl-d14	100	60.81	61		24	191
C5005-14	12SB18-0.502-02	Nitrobenzene-d5	100	66.14	66		30	150
		2-Fluorobiphenyl	100	49.74	50		19	182
		Terphenyl-d14	100	51.02	51		24	191
C5005-15	12SB18-0304-03	Nitrobenzene-d5	100	67.09	67		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5005-15	12SB18-0304-03	2-Fluorobiphenyl	100	51.26	51		19	182
		Terphenyl-d14	100	52.87	53		24	191
PB59967B	PB59967B	Nitrobenzene-d5	10	9.62	96		30	150
		2-Fluorobiphenyl	10	8.83	88		19	182
		Terphenyl-d14	10	9.74	97		24	191
PB59967BS	PB59967BS	Nitrobenzene-d5	10	8.56	86		30	150
		2-Fluorobiphenyl	10	9.04	90		19	182
		Terphenyl-d14	10	9.69	97		24	191

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5005-01MS	**Client Sample ID: 12SB24-000.5-01MS**									
Naphthalene	480	0	280	58				23	160	
2-Methylnaphthalene	480	0	250	52				37	139	
Acenaphthylene	480	0	290	60				28	155	
Acenaphthene	480	0	290	60				32	146	
Fluorene	480	0	260	54				17	166	
Phenanthrene	480	37	330	61				30	149	
Anthracene	480	2.9	300	62				27	158	
Fluoranthene	480	51	310	54				26	155	
Pyrene	480	44	330	60				22	173	
Benzo(a)anthracene	480	15	310	61				27	159	
Chrysene	480	24	320	62				23	166	
Benzo(b)fluoranthene	480	29	310	59				21	171	
Benzo(k)fluoranthene	480	10	290	58				26	165	
Benzo(a)pyrene	480	18	320	63				26	157	
Indeno(1,2,3-cd)pyrene	480	16	650	132				10	188	
Dibenz(a,h)anthracene	480	3.8	400	83				18	147	
Benzo(g,h,i)perylene	480	14	410	83				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5005-01MSD	**Client Sample ID: 12SB24-000.5-01MSD**									
Naphthalene	480	0	400	83		35	*	23	160	20
2-Methylnaphthalene	480	0	360	75		36	*	37	139	20
Acenaphthylene	480	0	470	98		48	*	28	155	20
Acenaphthene	480	0	450	94		44	*	32	146	20
Fluorene	480	0	390	81		40	*	17	166	20
Phenanthrene	480	37	510	99		48	*	30	149	20
Anthracene	480	2.9	470	97		44	*	27	158	20
Fluoranthene	480	51	450	83		42	*	26	155	20
Pyrene	480	44	290	51		16		22	173	20
Benzo(a)anthracene	480	15	480	97		46	*	27	159	20
Chrysene	480	24	520	103		50	*	23	166	20
Benzo(b)fluoranthene	480	29	450	88		39	*	21	171	20
Benzo(k)fluoranthene	480	10	430	88		41	*	26	165	20
Benzo(a)pyrene	480	18	500	100		45	*	26	157	20
Indeno(1,2,3-cd)pyrene	480	16	1800	372	*	95	*	10	188	20
Dibenz(a,h)anthracene	480	3.8	710	147		56	*	18	147	20
Benzo(g,h,i)perylene	480	14	750	153		59	*	10	177	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59967BS	Naphthalene	330	270	82				51	114	
	2-Methylnaphthalene	330	280	85				54	111	
	Acenaphthylene	330	290	88				54	113	
	Acenaphthene	330	300	91				54	113	
	Fluorene	330	300	91				56	113	
	Phenanthrene	330	290	88				56	113	
	Anthracene	330	290	88				56	113	
	Fluoranthene	330	290	88				54	117	
	Pyrene	330	300	91				58	117	
	Benzo(a)anthracene	330	280	85				57	112	
	Chrysene	330	290	88				59	114	
	Benzo(b)fluoranthene	330	300	91				53	120	
	Benzo(k)fluoranthene	330	300	91				56	117	
	Benzo(a)pyrene	330	300	91				56	117	
	Indeno(1,2,3-cd)pyrene	330	330	100				49	120	
	Dibenz(a,h)anthracene	330	330	100				52	119	
	Benzo(g,h,i)perylene	330	300	91				53	119	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/16/2011

Lab File ID: BG002253.D Time Analyzed: 17:19

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	67876	8.14	243454	10.32	150892	13.26
	UPPER LIMIT	135752	8.64	486908	10.82	301784	13.76
	LOWER LIMIT	33938	7.64	121727	9.82	75446	12.76
	EPA SAMPLE NO.						
01	12SB22-0.502-02	65123	8.14	230529	10.31	143190	13.26
02	12SB22-0304-03	56283	8.14	197462	10.31	117056	13.26
03	PB59967BS	43877	8.14	155627	10.32	90250	13.26

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/16/2011

Lab File ID: BG002253.D Time Analyzed: 17:19

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	263576	15.74	266381	20.13	249249	23.39
	UPPER LIMIT	527152	16.24	532762	20.63	498498	23.89
	LOWER LIMIT	131788	15.24	133190.5	19.63	124624.5	22.89
	EPA SAMPLE NO.						
01	12SB22-0.502-02	254052	15.74	246967	20.13	232188	23.40
02	12SB22-0304-03	198645	15.74	178550	20.13	161729	23.39
03	PB59967BS	154344	15.74	144678	20.13	132578	23.40

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/17/2011

Lab File ID: BG002269.D Time Analyzed: 03:53

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	52271	8.14	182080	10.31	102467	13.26
	UPPER LIMIT	104542	8.64	364160	10.81	204934	13.76
	LOWER LIMIT	26135.5	7.64	91040	9.81	51233.5	12.76
	EPA SAMPLE NO.						
01	12SB-DUP-01	44943	8.15	153063	10.31	85450	13.26
02	12SB24-000.5-01	37631	8.14	125407	10.31	67629	13.26
03	12SB24-000.5-01MS	26583	8.14	79454 *	10.31	36540 *	13.26
04	12SB24-000.5-01MSD	14377 *	8.15	39814 *	10.31	15555 *	13.26

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/17/2011

Lab File ID: BG002269.D Time Analyzed: 03:53

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #		RT #	IS5 (CRY) AREA #		RT #	IS6 (PRY) AREA #		RT #
	12 HOUR STD	164946		15.74	150047		20.13	136239		23.4
	UPPER LIMIT	329892		16.24	300094		20.63	272478		23.9
	LOWER LIMIT	82473		15.24	75023.5		19.63	68119.5		22.9
	EPA SAMPLE NO.									
01	12SB-DUP-01	136084		15.74	114706		20.13	103404		23.39
02	12SB24-000.5-01	104296		15.74	85323		20.13	85807		23.38
03	12SB24-000.5-01MS	48267	*	15.74	40450	*	20.13	56656	*	23.39
04	12SB24-000.5-01MSD	17365	*	15.74	24618	*	20.13	52616	*	23.39

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/22/2011

Lab File ID: BG002307.D Time Analyzed: 15:53

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	46566	8.04	175408	10.21	120227	13.18
	UPPER LIMIT	93132	8.54	350816	10.71	240454	13.68
	LOWER LIMIT	23283	7.54	87704	9.71	60113.5	12.68
	EPA SAMPLE NO.						
01	12SB20-0.502-02	37135	8.04	135724	10.21	89234	13.18
02	12SB18-0304-03	40627	8.03	145290	10.21	96002	13.19
03	PB59967B	31531	8.04	117542	10.21	80318	13.18
04	12SB24-0.502-02	30260	8.04	109461	10.21	71835	13.18

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/22/2011

Lab File ID: BG002307.D Time Analyzed: 15:53

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	224209	15.64	244148	20.01	204677	23.16
	UPPER LIMIT	448418	16.14	488296	20.51	409354	23.66
	LOWER LIMIT	112104.5	15.14	122074	19.51	102338.5	22.66
	EPA SAMPLE NO.						
01	12SB20-0.502-02	162360	15.64	164633	20.01	142557	23.16
02	12SB18-0304-03	175014	15.64	177976	20.01	154809	23.16
03	PB59967B	149993	15.64	152397	20.01	128973	23.16
04	12SB24-0.502-02	131310	15.64	133665	20.01	114171	23.16

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/23/2011

Lab File ID: BG002321.D Time Analyzed: 01:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	41542	8.04	155289	10.21	107060	13.19
	UPPER LIMIT	83084	8.54	310578	10.71	214120	13.69
	LOWER LIMIT	20771	7.54	77644.5	9.71	53530	12.69
	EPA SAMPLE NO.						
01	12SB24-0304-03	30694	8.04	109300	10.22	70925	13.19
02	12SB20-000.5-01	31704	8.04	115205	10.22	73435	13.19
03	12SB18-000.5-01	36161	8.03	130352	10.21	83303	13.18
04	12SB18-0.502-02	35453	8.04	128962	10.21	83011	13.19
05	12SB22-000.5-01	39268	8.04	140415	10.21	90857	13.18
06	12SB19-000.5-01	43834	8.04	162938	10.21	104017	13.18
07	12SB19-0304-03	40670	8.04	147235	10.22	93592	13.18
08	12SB19-0.502-02	35792	8.04	129234	10.21	81706	13.18
09	12SB19-0.502-02DL	34567	8.03	129987	10.21	82304	13.19

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

EPA Sample No.: SSTD2.5 Date Analyzed: 12/23/2011

Lab File ID: BG002321.D Time Analyzed: 01:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	199035	15.64	211254	20.01	177341	23.16
	UPPER LIMIT	398070	16.14	422508	20.51	354682	23.66
	LOWER LIMIT	99517.5	15.14	105627	19.51	88670.5	22.66
	EPA SAMPLE NO.						
01	12SB24-0304-03	129878	15.64	132598	20.02	114385	23.16
02	12SB20-000.5-01	134170	15.64	137695	20.01	119336	23.16
03	12SB18-000.5-01	151169	15.64	157618	20.02	137986	23.17
04	12SB18-0.502-02	150253	15.64	158595	20.01	139719	23.17
05	12SB22-000.5-01	162231	15.64	166716	20.01	145396	23.17
06	12SB19-000.5-01	186483	15.64	193293	20.01	168040	23.17
07	12SB19-0304-03	168195	15.64	173838	20.02	148626	23.17
08	12SB19-0.502-02	138507	15.64	132400	20.01	93150	23.17
09	12SB19-0.502-02DL	144826	15.64	152973	20.01	129422	23.17

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5005

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 12/28/2011 12/28/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/28/2011	17:01	PD007051.D	8.07	3.34
PEM01	PEM01	12/28/2011	17:15	PD007052.D	8.07	3.34
RESC01	RESCHK	12/28/2011	17:28	PD007053.D	8.07	3.34
100 PPB PEST STD	100 PPB PEST STD	12/28/2011	17:42	PD007054.D	8.07	3.34
75 PPB PEST STD	75 PPB PEST STD	12/28/2011	17:55	PD007055.D	8.07	3.34
50 PPB PEST STD	50 PPB PEST STD	12/28/2011	18:09	PD007056.D	8.07	3.34
25 PPB PEST STD	25 PPB PEST STD	12/28/2011	18:22	PD007057.D	8.07	3.34
5 PPB PEST STD	5 PPB PEST STD	12/28/2011	18:36	PD007058.D	8.07	3.34
TOX 500	TOX	12/28/2011	19:03	PD007060.D	8.07	3.34
CHLOR 500	CHLOR 500	12/28/2011	19:16	PD007061.D	8.07	3.34
PIBLK02	I.BLK02	12/29/2011	01:34	PD007088.D	8.06	3.34
CCAL01	STD 25	12/29/2011	01:47	PD007089.D	8.06	3.34
PEM02	PEM02	12/29/2011	02:01	PD007090.D	8.06	3.34
12SB24-000.5-01	C5005-01	12/29/2011	02:14	PD007091.D	8.06	3.33
12SB24-0.502-02	C5005-02	12/29/2011	02:28	PD007092.D	8.06	3.33
12SB24-0304-03	C5005-03	12/29/2011	02:41	PD007093.D	8.06	3.33
12SB22-000.5-01	C5005-04	12/29/2011	02:55	PD007094.D	8.06	3.33
12SB22-0.502-02	C5005-05	12/29/2011	03:08	PD007095.D	8.06	3.33
12SB22-0304-03	C5005-06	12/29/2011	03:22	PD007096.D	8.06	3.33
12SB20-000.5-01	C5005-07	12/29/2011	03:35	PD007097.D	8.06	3.33
12SB20-0.502-02	C5005-08	12/29/2011	03:48	PD007098.D	8.06	3.34
12SB-DUP-01	C5005-09	12/29/2011	04:02	PD007099.D	8.06	3.33
12SB19-000.5-01	C5005-10	12/29/2011	04:16	PD007100.D	8.06	3.33
PIBLK03	I.BLK03	12/29/2011	04:29	PD007101.D	8.07	3.34
CCAL02	STD 25	12/29/2011	04:43	PD007102.D	8.06	3.34
12SB19-0.502-02	C5005-11	12/29/2011	04:56	PD007103.D	8.06	3.34
12SB19-0304-03	C5005-12	12/29/2011	05:10	PD007104.D	8.06	3.34
12SB18-000.5-01	C5005-13	12/29/2011	05:23	PD007105.D	8.06	3.34
12SB18-0.502-02	C5005-14	12/29/2011	05:36	PD007106.D	8.06	3.33
12SB18-0304-03	C5005-15	12/29/2011	05:50	PD007107.D	8.06	3.33
12SB24-0304-03MS	C5005-03MS	12/29/2011	06:03	PD007108.D	8.06	3.34
12SB24-0304-03MSD	C5005-03MSD	12/29/2011	06:17	PD007109.D	8.06	3.34
PIBLK04	I.BLK04	12/29/2011	07:11	PD007113.D	8.06	3.34
CCAL03	STD 25	12/29/2011	07:24	PD007114.D	8.06	3.34

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/28/2011 12/28/2011

Calibration Times: 17:42 18:36

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD007058.D RT 025 = PD007057.D

RT 050 = PD007056.D RT 075 = PD007055.D RT 100 = PD007054.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	8.07	8.07	8.07	8.07	8.07	8.07	7.97	8.17
Tetrachloro-m-xylene	3.34	3.34	3.34	3.34	3.34	3.34	3.24	3.44
alpha-BHC	3.77	3.77	3.77	3.77	3.77	3.77	3.72	3.82
beta-BHC	4.30	4.30	4.30	4.30	4.30	4.30	4.25	4.35
delta-BHC	4.50	4.50	4.50	4.50	4.50	4.50	4.45	4.55
gamma-BHC (Lindane)	4.05	4.05	4.05	4.05	4.05	4.05	4.00	4.10
Heptachlor	4.34	4.34	4.34	4.34	4.34	4.34	4.29	4.39
Aldrin	4.59	4.59	4.58	4.59	4.59	4.59	4.54	4.64
Heptachlor epoxide	5.03	5.03	5.03	5.03	5.03	5.03	4.96	5.10
Endosulfan I	5.36	5.36	5.37	5.36	5.36	5.36	5.29	5.43
Dieldrin	5.61	5.61	5.61	5.61	5.61	5.61	5.54	5.68
4,4-DDE	5.48	5.48	5.49	5.48	5.48	5.48	5.41	5.55
Endrin	5.86	5.87	5.87	5.87	5.86	5.86	5.79	5.93
Endosulfan II	6.14	6.14	6.14	6.14	6.14	6.14	6.07	6.21
4,4-DDD	6.00	6.00	6.00	6.00	6.00	6.00	5.93	6.07
Endosulfan sulfate	6.52	6.52	6.52	6.52	6.52	6.52	6.45	6.59
4,4-DDT	6.24	6.24	6.24	6.24	6.24	6.24	6.17	6.31
Methoxychlor	6.79	6.79	6.79	6.79	6.79	6.79	6.72	6.86
Endrin ketone	7.01	7.01	7.01	7.01	7.01	7.01	6.94	7.08
Endrin aldehyde	6.31	6.31	6.31	6.31	6.31	6.31	6.24	6.38
alpha-Chlordane	5.31	5.31	5.31	5.31	5.31	5.31	5.24	5.38
gamma-Chlordane	5.25	5.25	5.25	5.25	5.25	5.25	5.18	5.32

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/28/2011 12/28/2011

Calibration Times: 17:42 18:36

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007058.D CF 025 = PD007057.D

CF 050 = PD007056.D CF 075 = PD007055.D CF 100 = PD007054.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	17938285320	14843417900	14437889508	13602712965	13817360869	14927933312	12
Tetrachloro-m-xylene	18871497620	16918857816	16660338478	16301686939	14257838991	16602043969	10
alpha-BHC	312158886200	293997185160	230287522620	251524732187	281232872010	273840239635	12
beta-BHC	125187207000	118467107760	113001236000	107740708840	113561151270	115591482174	6
delta-BHC	302106377400	274303412480	207356875460	235417175627	272268591250	258290486443	14
gamma-BHC (Lindane)	341954634400	270696215720	226635530520	249152093627	243790341330	266445763119	17
Heptachlor	289871569000	265129162720	254871544680	241486884947	250918452580	260455522785	7
Aldrin	298874173800	257128644240	186752445060	243869355800	255163660310	248357655842	16
Heptachlor epoxide	277661013400	254412595600	239929415080	226993917827	239103494930	247620087367	8
Endosulfan I	281449883000	230633828120	232627143120	208353208067	219009004510	234414613363	12
Dieldrin	311846230800	270776163480	268633059620	249947129467	267625807120	273765678097	8
4,4-DDE	313355819000	260106196720	191477573720	249322738853	267265688230	256305603305	17
Endrin	265462958600	231894519760	220097244900	206210322040	212449336090	227222876278	10
Endosulfan II	267865981600	227254991640	225156953620	197849178360	207947499890	225214921022	12
4,4-DDD	253366619800	214970865920	213558455700	193447951147	202051451080	215479068729	11
Endosulfan sulfate	218542553000	186550914440	181727164660	171600845947	174681064450	186620508499	10
4,4-DDT	284036986800	237199618440	229086731600	212769842920	219267409520	236472117856	12
Methoxychlor	136245400800	112059866200	107435223940	92609914013	90766716790	107823424349	17
Endrin ketone	240209252600	194519456040	184544059060	172025394640	172202524890	192700137446	15
Endrin aldehyde	235437288000	194210318840	192155653700	173147296067	173667155050	193723542331	13
alpha-Chlordane	306370592600	265653377960	256115443860	246626263333	267183200540	268389775659	8
gamma-Chlordane	321184883600	279587230240	272273975960	265157546307	280225306600	283685788541	8

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Date(s) Analyzed:** 12/28/2011 12/28/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	6283785000
		2	5.84	5.79	5.89	6623940000
		3	6.42	6.37	6.47	4551720000
		4	6.90	6.85	6.95	2362390000
		5	7.21	7.16	7.26	8907264000

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD122911\
Data File : PD007053.D
Acq On : 28 Dec 2011 17:28
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD122911.M
Title : GC Extractables
Last Update : Thu Dec 29 02:32:47 2011
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.336	5.254	100.00%
5.254	5.366	100.00%
5.366	5.482	100.00%
5.482	5.609	100.00%
5.609	6.521	100.00%
6.521	6.789	100.00%
6.789	7.012	100.00%
7.012	8.066	100.00%

ignal #2

3.921	6.030	100.00%
6.030	6.150	100.00%
6.150	6.267	100.00%
6.267	6.408	100.00%
6.408	7.184	100.00%
7.184	7.531	100.00%
7.531	7.654	99.90%
7.654	9.015	100.00%

)122911.M Thu Dec 29 03:39:31 2011 GC/MS

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD123011\
Data File : PD007131.D
Acq On : 29 Dec 2011 14:21
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD123011.M
Title : GC Extractables
Last Update : Fri Dec 30 04:35:25 2011
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.335	5.251	100.00%
5.251	5.364	99.81%
5.364	5.480	100.00%
5.480	5.606	100.00%
5.606	6.518	100.00%
6.518	6.787	100.00%
6.787	7.010	100.00%
7.010	8.063	100.00%

Signal #2

3.920	6.027	100.00%
6.027	6.148	100.00%
6.148	6.264	100.00%
6.264	6.406	100.00%
6.406	7.183	100.00%
7.183	7.527	100.00%
7.527	7.652	100.00%
7.652	9.010	100.00%

D123011.M Fri Dec 30 05:51:17 2011 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/28/2011 12/28/2011

Client Sample No. (PEM): PEM01 Date Analyzed: 12/28/2011

Lab Sample No.(PEM): PEM Time Analyzed: 17:15

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.066	7.970	8.170	0.023	0.020	15.0
Tetrachloro-m-xylene	3.336	3.240	3.440	0.024	0.020	20.0
alpha-BHC	3.772	3.720	3.820	0.013	0.010	30.0
beta-BHC	4.300	4.250	4.350	0.013	0.010	30.0
gamma-BHC (Lindane)	4.051	4.000	4.100	0.014	0.010	40.0
Endrin	5.866	5.790	5.930	0.056	0.050	12.0
4,4-DDT	6.237	6.170	6.310	0.091	0.100	9.0
Methoxychlor	6.790	6.720	6.860	0.149	0.250	40.4

Client Sample No. (PEM): PEM01 Date Analyzed: 12/28/2011

Lab Sample No.(PEM): PEM Time Analyzed: 17:15

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.014	8.910	9.110	0.022	0.020	10.0
Tetrachloro-m-xylene	3.921	3.820	4.020	0.022	0.020	10.0
alpha-BHC	4.303	4.250	4.350	0.010	0.010	0.0
beta-BHC	4.754	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.587	4.540	4.640	0.011	0.010	10.0
Endrin	6.625	6.550	6.690	0.049	0.050	2.0
4,4-DDT	7.061	6.990	7.130	0.104	0.100	4.0
Methoxychlor	7.529	7.460	7.600	0.234	0.250	6.4

Sample: PEM
Data File: PD007052.D **Date Acquired** 12/28/2011 17:15
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	5.87	1.26867E+010	1.36980452E+010	1011348153	**7.38**
Endrin aldehyde	6.31	246297294.1			
Endrin ketone	7.01	765050858.4			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2452632007	2607473379	154841372	**5.94**
Endrin aldehyde #2	6.96	34848813.36			
Endrin ketone #2	7.65	119992558.7			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.24	2.142476E+010	2.19259363E+010	501179987	**2.29**
4,4'-DDE	5.48	303195431.5			
4,4'-DDD	6.00	197984555			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	5148839135	5198803130	49963995.3	**0.96**
4,4'-DDE #2	6.27	41496555.47			
4,4'-DDD #2	6.76	8467439.781			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/28/2011 12/28/2011

Client Sample No. (PEM): PEM02 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 02:01

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.064	7.970	8.170	0.024	0.020	20.0
Tetrachloro-m-xylene	3.335	3.240	3.440	0.022	0.020	10.0
alpha-BHC	3.771	3.720	3.820	0.012	0.010	20.0
beta-BHC	4.299	4.250	4.350	0.013	0.010	30.0
gamma-BHC (Lindane)	4.051	4.000	4.100	0.014	0.010	40.0
Endrin	5.864	5.790	5.930	0.053	0.050	6.0
4,4-DDT	6.235	6.170	6.310	0.068	0.100	32.0
Methoxychlor	6.788	6.720	6.860	0.141	0.250	43.6

Client Sample No. (PEM): PEM02 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 02:01

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.010	8.910	9.110	0.022	0.020	10.0
Tetrachloro-m-xylene	3.921	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.304	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.752	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.586	4.540	4.640	0.011	0.010	10.0
Endrin	6.623	6.550	6.690	0.053	0.050	6.0
4,4-DDT	7.059	6.990	7.130	0.099	0.100	1.0
Methoxychlor	7.527	7.460	7.600	0.227	0.250	9.2

Sample: PEM
Data File: PD007090.D **Date Acquired** 12/29/2011 2:01
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	1.196829E+010	1.29827505E+010	1014460392	**7.81**
Endrin aldehyde	6.31	230014170.7			
Endrin ketone	7.01	784446221.4			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2643834817	2810452015	166617198	**5.93**
Endrin aldehyde #2	6.95	33408936.55			
Endrin ketone #2	7.65	133208261.2			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.597022E+010	1.62694249E+010	299201110	**1.84**
4,4'-DDE	5.48	198261644.2			
4,4'-DDD	6.00	100939465.9			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4898962091	4936777362	37815271.3	**0.77**
4,4'-DDE #2	6.26	25366468.82			
4,4'-DDD #2	6.75	12448802.43			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/28/2011 12/28/2011

Continuing Calib Time: 01:47 **Initial Calibration Time(s):** 17:42 18:36

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.07	7.97	8.17	0.01
Tetrachloro-m-xylene	3.34	3.34	3.24	3.44	0.00
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.59	4.54	4.64	0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.24	6.17	6.31	0.01
Methoxychlor	6.79	6.79	6.72	6.86	0.00
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/28/2011 12/28/2011

Continuing Calib Time: 04:43 **Initial Calibration Time(s):** 17:42 18:36

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.07	7.97	8.17	0.01
Tetrachloro-m-xylene	3.34	3.34	3.24	3.44	0.00
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.58	4.59	4.54	4.64	0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.00
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.24	6.17	6.31	0.01
Methoxychlor	6.79	6.79	6.72	6.86	0.00
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/28/2011 12/28/2011

Continuing Calib Time: 07:24 **Initial Calibration Time(s):** 17:42 18:36

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.07	7.97	8.17	0.01
Tetrachloro-m-xylene	3.34	3.34	3.24	3.44	0.00
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.58	4.59	4.54	4.64	0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.24	6.17	6.31	0.01
Methoxychlor	6.79	6.79	6.72	6.86	0.00
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/28/2011 12/28/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007089.D **Time Analyzed:** 01:47

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.029	0.025	16.0
beta-BHC	4.299	4.250	4.350	0.029	0.025	16.0
delta-BHC	4.500	4.450	4.550	0.030	0.025	20.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.028	0.025	12.0
Heptachlor	4.341	4.290	4.390	0.026	0.025	4.0
Aldrin	4.585	4.540	4.640	0.029	0.025	16.0
Heptachlor epoxide	5.029	4.960	5.100	0.027	0.025	8.0
Endosulfan I	5.364	5.290	5.430	0.028	0.025	12.0
Dieldrin	5.608	5.540	5.680	0.027	0.025	8.0
4,4-DDE	5.481	5.410	5.550	0.029	0.025	16.0
Endrin	5.864	5.790	5.930	0.029	0.025	16.0
Endosulfan II	6.136	6.070	6.210	0.028	0.025	12.0
4,4-DDD	5.995	5.930	6.070	0.027	0.025	8.0
Endosulfan sulfate	6.518	6.450	6.590	0.030	0.025	20.0
4,4-DDT	6.233	6.170	6.310	0.026	0.025	4.0
Methoxychlor	6.787	6.720	6.860	0.028	0.025	12.0
Endrin ketone	7.009	6.940	7.080	0.030	0.025	20.0
Endrin aldehyde	6.307	6.240	6.380	0.028	0.025	12.0
alpha-Chlordane	5.312	5.240	5.380	0.027	0.025	8.0
gamma-Chlordane	5.253	5.180	5.320	0.027	0.025	8.0
Decachlorobiphenyl	8.064	7.970	8.170	0.028	0.025	12.0
Tetrachloro-m-xylene	3.335	3.240	3.440	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/28/2011 12/28/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007102.D **Time Analyzed:** 04:43

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.030	0.025	20.0
beta-BHC	4.299	4.250	4.350	0.029	0.025	16.0
delta-BHC	4.499	4.450	4.550	0.030	0.025	20.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.029	0.025	16.0
Heptachlor	4.341	4.290	4.390	0.027	0.025	8.0
Aldrin	4.584	4.540	4.640	0.029	0.025	16.0
Heptachlor epoxide	5.027	4.960	5.100	0.028	0.025	12.0
Endosulfan I	5.364	5.290	5.430	0.029	0.025	16.0
Dieldrin	5.607	5.540	5.680	0.028	0.025	12.0
4,4-DDE	5.481	5.410	5.550	0.029	0.025	16.0
Endrin	5.863	5.790	5.930	0.029	0.025	16.0
Endosulfan II	6.137	6.070	6.210	0.029	0.025	16.0
4,4-DDD	5.996	5.930	6.070	0.029	0.025	16.0
Endosulfan sulfate	6.518	6.450	6.590	0.031	0.025	24.0
4,4-DDT	6.234	6.170	6.310	0.027	0.025	8.0
Methoxychlor	6.787	6.720	6.860	0.028	0.025	12.0
Endrin ketone	7.009	6.940	7.080	0.031	0.025	24.0
Endrin aldehyde	6.307	6.240	6.380	0.028	0.025	12.0
alpha-Chlordane	5.311	5.240	5.380	0.027	0.025	8.0
gamma-Chlordane	5.253	5.180	5.320	0.028	0.025	12.0
Decachlorobiphenyl	8.064	7.970	8.170	0.028	0.025	12.0
Tetrachloro-m-xylene	3.335	3.240	3.440	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/28/2011 12/28/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007114.D **Time Analyzed:** 07:24

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.770	3.720	3.820	0.031	0.025	24.0
beta-BHC	4.298	4.250	4.350	0.029	0.025	16.0
delta-BHC	4.499	4.450	4.550	0.032	0.025	28.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.030	0.025	20.0
Heptachlor	4.342	4.290	4.390	0.030	0.025	20.0
Aldrin	4.584	4.540	4.640	0.030	0.025	20.0
Heptachlor epoxide	5.028	4.960	5.100	0.029	0.025	16.0
Endosulfan I	5.363	5.290	5.430	0.029	0.025	16.0
Dieldrin	5.607	5.540	5.680	0.029	0.025	16.0
4,4-DDE	5.481	5.410	5.550	0.030	0.025	20.0
Endrin	5.864	5.790	5.930	0.029	0.025	16.0
Endosulfan II	6.137	6.070	6.210	0.030	0.025	20.0
4,4-DDD	5.995	5.930	6.070	0.029	0.025	16.0
Endosulfan sulfate	6.518	6.450	6.590	0.032	0.025	28.0
4,4-DDT	6.234	6.170	6.310	0.028	0.025	12.0
Methoxychlor	6.787	6.720	6.860	0.028	0.025	12.0
Endrin ketone	7.009	6.940	7.080	0.031	0.025	24.0
Endrin aldehyde	6.307	6.240	6.380	0.029	0.025	16.0
alpha-Chlordane	5.311	5.240	5.380	0.029	0.025	16.0
gamma-Chlordane	5.253	5.180	5.320	0.029	0.025	16.0
Decachlorobiphenyl	8.063	7.970	8.170	0.029	0.025	16.0
Tetrachloro-m-xylene	3.335	3.240	3.440	0.029	0.025	16.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5005

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/28/2011 12/28/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/28/2011	17:01	PD007051.D	9.01	3.92
PEM01	PEM01	12/28/2011	17:15	PD007052.D	9.01	3.92
RESC01	RESCHK	12/28/2011	17:28	PD007053.D	9.02	3.92
100 PPB PEST STD	100 PPB PEST STD	12/28/2011	17:42	PD007054.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	12/28/2011	17:55	PD007055.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	12/28/2011	18:09	PD007056.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	12/28/2011	18:22	PD007057.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	12/28/2011	18:36	PD007058.D	9.01	3.92
TOX 500	TOX	12/28/2011	19:03	PD007060.D	9.01	3.92
CHLOR 500	CHLOR 500	12/28/2011	19:16	PD007061.D	9.01	3.92
PIBLK02	I.BLK02	12/29/2011	01:34	PD007088.D	9.01	3.92
CCAL01	STD 25	12/29/2011	01:47	PD007089.D	9.01	3.92
PEM02	PEM02	12/29/2011	02:01	PD007090.D	9.01	3.92
12SB24-000.5-01	C5005-01	12/29/2011	02:14	PD007091.D	9.01	3.92
12SB24-0.502-02	C5005-02	12/29/2011	02:28	PD007092.D	9.01	3.92
12SB24-0304-03	C5005-03	12/29/2011	02:41	PD007093.D	9.01	3.92
12SB22-000.5-01	C5005-04	12/29/2011	02:55	PD007094.D	9.01	3.92
12SB22-0.502-02	C5005-05	12/29/2011	03:08	PD007095.D	9.01	3.92
12SB22-0304-03	C5005-06	12/29/2011	03:22	PD007096.D	9.01	3.92
12SB20-000.5-01	C5005-07	12/29/2011	03:35	PD007097.D	9.01	3.92
12SB20-0.502-02	C5005-08	12/29/2011	03:48	PD007098.D	9.01	3.92
12SB-DUP-01	C5005-09	12/29/2011	04:02	PD007099.D	9.01	3.92
12SB19-000.5-01	C5005-10	12/29/2011	04:16	PD007100.D	9.01	3.92
PIBLK03	I.BLK03	12/29/2011	04:29	PD007101.D	9.01	3.92
CCAL02	STD 25	12/29/2011	04:43	PD007102.D	9.01	3.92
12SB19-0.502-02	C5005-11	12/29/2011	04:56	PD007103.D	9.01	3.92
12SB19-0304-03	C5005-12	12/29/2011	05:10	PD007104.D	9.01	3.92
12SB18-000.5-01	C5005-13	12/29/2011	05:23	PD007105.D	9.01	3.92
12SB18-0.502-02	C5005-14	12/29/2011	05:36	PD007106.D	9.01	3.92
12SB18-0304-03	C5005-15	12/29/2011	05:50	PD007107.D	9.01	3.92
12SB24-0304-03MS	C5005-03MS	12/29/2011	06:03	PD007108.D	9.01	3.92
12SB24-0304-03MSD	C5005-03MSD	12/29/2011	06:17	PD007109.D	9.01	3.92
PIBLK04	I.BLK04	12/29/2011	07:11	PD007113.D	9.01	3.92
CCAL03	STD 25	12/29/2011	07:24	PD007114.D	9.01	3.92

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/28/2011 12/28/2011

Calibration Times: 17:42 18:36

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD007058.D RT 025 = PD007057.D

RT 050 = PD007056.D RT 075 = PD007055.D RT 100 = PD007054.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	9.01	9.01	9.01	9.01	9.01	9.01	8.91	9.11
Tetrachloro-m-xylene	3.92	3.92	3.92	3.92	3.92	3.92	3.82	4.02
alpha-BHC	4.30	4.30	4.31	4.31	4.30	4.30	4.25	4.35
beta-BHC	4.75	4.75	4.75	4.75	4.75	4.75	4.70	4.80
delta-BHC	4.97	4.97	4.97	4.97	4.97	4.97	4.92	5.02
gamma-BHC (Lindane)	4.59	4.59	4.59	4.59	4.59	4.59	4.54	4.64
Heptachlor	5.10	5.10	5.10	5.10	5.10	5.10	5.05	5.15
Aldrin	5.41	5.41	5.41	5.41	5.41	5.41	5.36	5.46
Heptachlor epoxide	5.79	5.79	5.79	5.79	5.79	5.79	5.72	5.86
Endosulfan I	6.15	6.15	6.15	6.15	6.15	6.15	6.08	6.22
Dieldrin	6.41	6.41	6.41	6.41	6.41	6.41	6.34	6.48
4,4-DDE	6.27	6.27	6.27	6.27	6.27	6.27	6.20	6.34
Endrin	6.62	6.62	6.63	6.62	6.63	6.62	6.55	6.69
Endosulfan II	6.83	6.83	6.83	6.83	6.83	6.83	6.76	6.90
4,4-DDD	6.76	6.76	6.76	6.76	6.76	6.76	6.69	6.83
Endosulfan sulfate	7.18	7.18	7.18	7.18	7.18	7.18	7.11	7.25
4,4-DDT	7.06	7.06	7.06	7.06	7.06	7.06	6.99	7.13
Methoxychlor	7.53	7.53	7.53	7.53	7.53	7.53	7.46	7.60
Endrin ketone	7.65	7.65	7.65	7.65	7.65	7.65	7.58	7.72
Endrin aldehyde	6.96	6.96	6.96	6.96	6.96	6.96	6.89	7.03
alpha-Chlordane	6.10	6.10	6.10	6.10	6.10	6.10	6.03	6.17
gamma-Chlordane	6.03	6.03	6.03	6.03	6.03	6.03	5.96	6.10

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/28/2011 12/28/2011

Calibration Times: 17:42 18:36

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007058.D CF 025 = PD007057.D

CF 050 = PD007056.D CF 075 = PD007055.D CF 100 = PD007054.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	2960468340	2668908380	2648372678	2544976571	2556355466	2675816287	6
Tetrachloro-m-xylene	5504397680	5068446960	5104769164	4971683748	5132184241	5156296359	4
alpha-BHC	90542037800	80360350360	81477970840	80415426000	83929108530	83344978706	5
beta-BHC	33461788200	30240537240	30107877120	29126704840	29917653800	30570912240	5
delta-BHC	78298232000	70933207200	71955008340	70868736573	73886972460	73188431315	4
gamma-BHC (Lindane)	77881363000	74285001760	75565863320	74734423587	77856146590	76064559651	2
Heptachlor	76703306400	70590135120	71376135840	68661950907	70562204340	71578746521	4
Aldrin	72254927000	66980220440	66911393720	64771220080	66879260730	67559404394	4
Heptachlor epoxide	78866783800	60089767080	57910638360	56079821947	57121693060	62013740849	15
Endosulfan I	61003949800	55010286320	55552058000	53473974747	54898781750	55987810123	5
Dieldrin	65768956400	59173297120	60129250020	57649326560	59249062780	60393978576	5
4,4-DDE	66239576600	60332698680	60386592020	58540419773	60732583610	61246374137	5
Endrin	54583931200	49357355680	49736852860	48724238867	49190523000	50318580321	5
Endosulfan II	53529332800	45571487600	45195619360	45366619547	45305328920	46993677645	8
4,4-DDD	53317769600	48424822520	48045186520	47096232160	47883622620	48953526684	5
Endosulfan sulfate	44424859400	39952360400	40455721000	38963150880	40205292460	40800276828	5
4,4-DDT	53707614000	48421617080	48767689660	47693280480	49277677660	49573575776	5
Methoxychlor	23479508000	21582250720	21149021760	20134845600	20183269780	21305779172	6
Endrin ketone	38375110600	35744636960	35728138960	34648499773	35324658810	35964209021	4
Endrin aldehyde	43417868000	39437597440	38989089580	38136962600	38518519090	39700007342	5
alpha-Chlordane	63950849400	58295360640	58240776500	56392485667	58433132920	59062521025	5
gamma-Chlordane	66268736600	60008717320	59939613600	58144992653	59928921240	60858196283	5

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Date(s) Analyzed:** 12/28/2011 12/28/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	615505100
		2	6.85	6.80	6.90	1829972000
		3	7.09	7.04	7.14	3321362000
		4	7.58	7.53	7.63	3245556000
		5	7.94	7.89	7.99	991947000

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/28/2011 12/28/2011

Continuing Calib Time: 01:47 **Initial Calibration Time(s):** 17:42 18:36

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.00
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.41	5.36	5.46	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.27	6.27	6.20	6.34	0.01
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.00
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.00
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/28/2011 12/28/2011

Continuing Calib Time: 04:43 **Initial Calibration Time(s):** 17:42 18:36

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.00
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.41	5.36	5.46	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.27	6.27	6.20	6.34	0.01
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.00
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.00
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/28/2011 12/28/2011

Continuing Calib Time: 07:24 **Initial Calibration Time(s):** 17:42 18:36

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.41	5.36	5.46	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.27	6.27	6.20	6.34	0.01
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.00
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.00
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/28/2011 12/28/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007089.D **Time Analyzed:** 01:47

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.304	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.753	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.968	4.920	5.020	0.026	0.025	4.0
gamma-BHC (Lindane)	4.586	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.101	5.050	5.150	0.025	0.025	0.0
Aldrin	5.406	5.360	5.460	0.025	0.025	0.0
Heptachlor epoxide	5.791	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.148	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.407	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.265	6.200	6.340	0.025	0.025	0.0
Endrin	6.624	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.833	6.760	6.900	0.022	0.025	12.0
4,4-DDD	6.756	6.690	6.830	0.026	0.025	4.0
Endosulfan sulfate	7.183	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.060	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.527	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.653	7.580	7.720	0.029	0.025	16.0
Endrin aldehyde	6.957	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.102	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.028	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.011	8.910	9.110	0.025	0.025	0.0
Tetrachloro-m-xylene	3.921	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/28/2011 12/28/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007102.D **Time Analyzed:** 04:43

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.304	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.753	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.968	4.920	5.020	0.027	0.025	8.0
gamma-BHC (Lindane)	4.586	4.540	4.640	0.026	0.025	4.0
Heptachlor	5.101	5.050	5.150	0.026	0.025	4.0
Aldrin	5.406	5.360	5.460	0.026	0.025	4.0
Heptachlor epoxide	5.792	5.720	5.860	0.029	0.025	16.0
Endosulfan I	6.149	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.407	6.340	6.480	0.026	0.025	4.0
4,4-DDE	6.265	6.200	6.340	0.025	0.025	0.0
Endrin	6.624	6.550	6.690	0.027	0.025	8.0
Endosulfan II	6.833	6.760	6.900	0.025	0.025	0.0
4,4-DDD	6.757	6.690	6.830	0.026	0.025	4.0
Endosulfan sulfate	7.184	7.110	7.250	0.026	0.025	4.0
4,4-DDT	7.060	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.529	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.653	7.580	7.720	0.032	0.025	28.0
Endrin aldehyde	6.958	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.102	6.030	6.170	0.026	0.025	4.0
gamma-Chlordane	6.028	5.960	6.100	0.026	0.025	4.0
Decachlorobiphenyl	9.011	8.910	9.110	0.027	0.025	8.0
Tetrachloro-m-xylene	3.921	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/28/2011 12/28/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007114.D **Time Analyzed:** 07:24

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.752	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.968	4.920	5.020	0.027	0.025	8.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.026	0.025	4.0
Heptachlor	5.100	5.050	5.150	0.026	0.025	4.0
Aldrin	5.405	5.360	5.460	0.026	0.025	4.0
Heptachlor epoxide	5.791	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.148	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.406	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.265	6.200	6.340	0.025	0.025	0.0
Endrin	6.623	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.832	6.760	6.900	0.025	0.025	0.0
4,4-DDD	6.756	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.183	7.110	7.250	0.026	0.025	4.0
4,4-DDT	7.059	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.528	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.651	7.580	7.720	0.031	0.025	24.0
Endrin aldehyde	6.956	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.101	6.030	6.170	0.026	0.025	4.0
gamma-Chlordane	6.028	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.012	8.910	9.110	0.027	0.025	8.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.025	0.025	0.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5005

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK05	I.BLK05	12/29/2011	13:55	PD007129.D	8.06	3.34
PEM03	PEM03	12/29/2011	14:08	PD007130.D	8.06	3.33
RESC01	RESCHK	12/29/2011	14:21	PD007131.D	8.06	3.34
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	14:35	PD007132.D	8.06	3.34
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	14:48	PD007133.D	8.06	3.34
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	15:02	PD007134.D	8.06	3.34
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	15:15	PD007135.D	8.06	3.34
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	15:29	PD007136.D	8.06	3.34
TOX 500	TOX	12/29/2011	15:56	PD007138.D	8.06	3.34
CHLOR 500	CHLOR 500	12/29/2011	16:09	PD007139.D	8.06	3.34
PIBLK06	I.BLK06	12/29/2011	16:50	PD007142.D	8.06	3.34
CCAL04	STD 25	12/29/2011	17:03	PD007143.D	8.06	3.34
PB59965BL	PB59965BL	12/29/2011	17:57	PD007147.D	8.06	3.34
PB59965BS	PB59965BS	12/29/2011	18:11	PD007148.D	8.06	3.33
PIBLK07	I.BLK07	12/29/2011	19:31	PD007154.D	8.06	3.34
CCAL05	STD 25	12/29/2011	19:45	PD007155.D	8.06	3.33

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD007136.D RT 025 = PD007135.D

RT 050 = PD007134.D RT 075 = PD007133.D RT 100 = PD007132.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	8.06	8.06	8.06	8.06	8.06	8.06	7.96	8.16
Tetrachloro-m-xylene	3.34	3.34	3.34	3.34	3.34	3.33	3.23	3.43
alpha-BHC	3.77	3.77	3.77	3.77	3.77	3.77	3.72	3.82
beta-BHC	4.30	4.30	4.30	4.30	4.30	4.30	4.25	4.35
delta-BHC	4.50	4.50	4.50	4.50	4.50	4.50	4.45	4.55
gamma-BHC (Lindane)	4.05	4.05	4.05	4.05	4.05	4.05	4.00	4.10
Heptachlor	4.34	4.34	4.34	4.34	4.34	4.34	4.29	4.39
Aldrin	4.58	4.59	4.58	4.59	4.59	4.58	4.53	4.63
Heptachlor epoxide	5.03	5.03	5.03	5.03	5.03	5.03	4.96	5.10
Endosulfan I	5.36	5.36	5.36	5.36	5.36	5.36	5.29	5.43
Dieldrin	5.61	5.61	5.61	5.61	5.61	5.61	5.54	5.68
4,4-DDE	5.48	5.48	5.48	5.48	5.48	5.48	5.41	5.55
Endrin	5.86	5.86	5.86	5.86	5.86	5.86	5.79	5.93
Endosulfan II	6.14	6.14	6.14	6.14	6.14	6.14	6.07	6.21
4,4-DDD	6.00	6.00	6.00	6.00	6.00	6.00	5.93	6.07
Endosulfan sulfate	6.52	6.52	6.52	6.52	6.52	6.52	6.45	6.59
4,4-DDT	6.23	6.23	6.23	6.23	6.23	6.23	6.16	6.30
Methoxychlor	6.79	6.79	6.79	6.79	6.79	6.79	6.72	6.86
Endrin ketone	7.01	7.01	7.01	7.01	7.01	7.01	6.94	7.08
Endrin aldehyde	6.31	6.31	6.31	6.31	6.31	6.31	6.24	6.38
alpha-Chlordane	5.31	5.31	5.31	5.31	5.31	5.31	5.24	5.38
gamma-Chlordane	5.25	5.25	5.25	5.25	5.25	5.25	5.18	5.32

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007136.D CF 025 = PD007135.D

CF 050 = PD007134.D CF 075 = PD007133.D CF 100 = PD007132.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	18179417820	15194947796	14135404650	13590500057	13618967345	14943847534	13
Tetrachloro-m-xylene	20394322940	18257858588	17838857876	17076299929	19014005771	18516269021	7
alpha-BHC	348690445400	327207932840	268570974720	316396179400	298371411540	311847388780	10
beta-BHC	149560382600	130098167920	122732780180	117830452373	123459905230	128736337661	10
delta-BHC	350767916200	314652339560	317578071520	267536243347	290345512390	308176016603	10
gamma-BHC (Lindane)	379680953000	339605512280	321477736420	308843730853	293221439580	328565874427	10
Heptachlor	305210699000	273008714960	259697950540	245713832133	256144856400	267955210607	9
Aldrin	325170495400	291415544520	271099204680	255850825667	264458591560	281598932365	10
Heptachlor epoxide	306294969200	308047133080	253318588660	238798735907	235104180040	268312721377	13
Endosulfan I	313812178800	263074982520	240949262620	224883145947	223563945910	253256703159	15
Dieldrin	343535852600	290505026600	274957161920	261853114880	267770709870	287724373174	11
4,4-DDE	322768782600	293297436520	264272919200	251996479027	259908500720	278448823613	11
Endrin	288726386800	239909025000	222394335180	209149893680	208292576440	233694443420	14
Endosulfan II	301418073200	243140959280	221769729280	205934254520	205664899480	235585583152	17
4,4-DDD	288388685400	234331789360	215628987840	200124881133	197630394420	227220947631	16
Endosulfan sulfate	286123685800	228083958600	211101033360	200118295200	197027425890	224490879770	16
4,4-DDT	252534064800	219993734960	204992621300	195100386480	193981877550	213320537018	11
Methoxychlor	127604340000	106285058160	94928729460	87918470053	83920035450	100131326625	18
Endrin ketone	262418290000	227760199840	209044903160	196712933080	192071840660	217601633348	13
Endrin aldehyde	245079304000	198892099960	180633205300	170226334973	162702133670	191506615581	17
alpha-Chlordane	339321852200	286858306840	269600600000	256666749093	271844087470	284858319121	11
gamma-Chlordane	352416859600	312538160200	294031078080	281244573627	290156038480	306077341997	9

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	6212066000
		2	5.84	5.79	5.89	6359210000
		3	6.42	6.37	6.47	2018680000
		4	6.90	6.85	6.95	8587220000
		5	7.20	7.15	7.25	6033186000

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM03 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 14:08

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.063	7.960	8.160	0.022	0.020	10.0
Tetrachloro-m-xylene	3.334	3.230	3.430	0.023	0.020	15.0
alpha-BHC	3.770	3.720	3.820	0.013	0.010	30.0
beta-BHC	4.298	4.250	4.350	0.014	0.010	40.0
gamma-BHC (Lindane)	4.049	4.000	4.100	0.013	0.010	30.0
Endrin	5.863	5.790	5.930	0.055	0.050	10.0
4,4-DDT	6.234	6.160	6.300	0.077	0.100	23.0
Methoxychlor	6.777	6.720	6.860	0.155	0.250	38.0

Client Sample No. (PEM): PEM03 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 14:08

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.011	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.022	0.020	10.0
alpha-BHC	4.303	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.752	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.011	0.010	10.0
Endrin	6.622	6.550	6.690	0.050	0.050	0.0
4,4-DDT	7.059	6.990	7.130	0.104	0.100	4.0
Methoxychlor	7.527	7.460	7.600	0.237	0.250	5.2

Sample: PEM
Data File: PD007130.D **Date Acquired** 12/29/2011 14:08
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	1.294258E+010	1.39800018E+010	1037426503	**7.42**
Endrin aldehyde	6.31	217459860.1			
Endrin ketone	7.01	819966643.2			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2301303483	2436650115	135346633	**5.55**
Endrin aldehyde #2	6.96	26430248.3			
Endrin ketone #2	7.65	108916384.5			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.644099E+010	1.69593478E+010	518359588	**3.06**
4,4'-DDE	5.48	186431473.3			
4,4'-DDD	6.00	331928114.3			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4333734184	4371014680	37280495.9	**0.85**
4,4'-DDE #2	6.26	18659211.13			
4,4'-DDD #2	6.75	18621284.8			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 17:03 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 19:45 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.33	3.33	3.23	3.43	0.00
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	5.99	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.01
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007143.D **Time Analyzed:** 17:03

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.025	0.025	0.0
beta-BHC	4.299	4.250	4.350	0.025	0.025	0.0
delta-BHC	4.500	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.051	4.000	4.100	0.025	0.025	0.0
Heptachlor	4.342	4.290	4.390	0.025	0.025	0.0
Aldrin	4.585	4.530	4.630	0.026	0.025	4.0
Heptachlor epoxide	5.028	4.960	5.100	0.025	0.025	0.0
Endosulfan I	5.364	5.290	5.430	0.026	0.025	4.0
Dieldrin	5.606	5.540	5.680	0.025	0.025	0.0
4,4-DDE	5.480	5.410	5.550	0.025	0.025	0.0
Endrin	5.863	5.790	5.930	0.025	0.025	0.0
Endosulfan II	6.137	6.070	6.210	0.026	0.025	4.0
4,4-DDD	5.995	5.930	6.070	0.026	0.025	4.0
Endosulfan sulfate	6.518	6.450	6.590	0.026	0.025	4.0
4,4-DDT	6.233	6.160	6.300	0.026	0.025	4.0
Methoxychlor	6.784	6.720	6.860	0.026	0.025	4.0
Endrin ketone	7.009	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.306	6.240	6.380	0.027	0.025	8.0
alpha-Chlordane	5.311	5.240	5.380	0.025	0.025	0.0
gamma-Chlordane	5.252	5.180	5.320	0.024	0.025	4.0
Decachlorobiphenyl	8.062	7.960	8.160	0.027	0.025	8.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007155.D **Time Analyzed:** 19:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.770	3.720	3.820	0.024	0.025	4.0
beta-BHC	4.298	4.250	4.350	0.024	0.025	4.0
delta-BHC	4.499	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.024	0.025	4.0
Heptachlor	4.341	4.290	4.390	0.025	0.025	0.0
Aldrin	4.585	4.530	4.630	0.025	0.025	0.0
Heptachlor epoxide	5.028	4.960	5.100	0.023	0.025	8.0
Endosulfan I	5.362	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.606	5.540	5.680	0.024	0.025	4.0
4,4-DDE	5.479	5.410	5.550	0.024	0.025	4.0
Endrin	5.862	5.790	5.930	0.025	0.025	0.0
Endosulfan II	6.135	6.070	6.210	0.025	0.025	0.0
4,4-DDD	5.993	5.930	6.070	0.024	0.025	4.0
Endosulfan sulfate	6.518	6.450	6.590	0.025	0.025	0.0
4,4-DDT	6.231	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.784	6.720	6.860	0.026	0.025	4.0
Endrin ketone	7.009	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.305	6.240	6.380	0.025	0.025	0.0
alpha-Chlordane	5.310	5.240	5.380	0.024	0.025	4.0
gamma-Chlordane	5.251	5.180	5.320	0.023	0.025	8.0
Decachlorobiphenyl	8.063	7.960	8.160	0.026	0.025	4.0
Tetrachloro-m-xylene	3.334	3.230	3.430	0.024	0.025	4.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5005

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK05	I.BLK05	12/29/2011	13:55	PD007129.D	9.01	3.92
PEM03	PEM03	12/29/2011	14:08	PD007130.D	9.01	3.92
RESC01	RESCHK	12/29/2011	14:21	PD007131.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	14:35	PD007132.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	14:48	PD007133.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	15:02	PD007134.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	15:15	PD007135.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	15:29	PD007136.D	9.01	3.92
TOX 500	TOX	12/29/2011	15:56	PD007138.D	9.01	3.92
CHLOR 500	CHLOR 500	12/29/2011	16:09	PD007139.D	9.01	3.92
PIBLK06	I.BLK06	12/29/2011	16:50	PD007142.D	9.01	3.92
CCAL04	STD 25	12/29/2011	17:03	PD007143.D	9.01	3.92
PB59965BL	PB59965BL	12/29/2011	17:57	PD007147.D	9.01	3.92
PB59965BS	PB59965BS	12/29/2011	18:11	PD007148.D	9.01	3.92
PIBLK07	I.BLK07	12/29/2011	19:31	PD007154.D	9.01	3.92
CCAL05	STD 25	12/29/2011	19:45	PD007155.D	9.01	3.92

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD007136.D RT 025 = PD007135.D

RT 050 = PD007134.D RT 075 = PD007133.D RT 100 = PD007132.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	9.01	9.01	9.01	9.01	9.01	9.01	8.91	9.11
Tetrachloro-m-xylene	3.92	3.92	3.92	3.92	3.92	3.92	3.82	4.02
alpha-BHC	4.30	4.30	4.30	4.30	4.30	4.30	4.25	4.35
beta-BHC	4.75	4.75	4.75	4.75	4.75	4.75	4.70	4.80
delta-BHC	4.97	4.97	4.97	4.97	4.97	4.97	4.92	5.02
gamma-BHC (Lindane)	4.59	4.59	4.59	4.59	4.59	4.59	4.54	4.64
Heptachlor	5.10	5.10	5.10	5.10	5.10	5.10	5.05	5.15
Aldrin	5.41	5.41	5.41	5.40	5.41	5.40	5.35	5.45
Heptachlor epoxide	5.79	5.79	5.79	5.79	5.79	5.79	5.72	5.86
Endosulfan I	6.15	6.15	6.15	6.15	6.15	6.15	6.08	6.22
Dieldrin	6.41	6.41	6.41	6.41	6.41	6.41	6.34	6.48
4,4-DDE	6.26	6.26	6.26	6.26	6.27	6.26	6.19	6.33
Endrin	6.62	6.62	6.62	6.62	6.62	6.62	6.55	6.69
Endosulfan II	6.83	6.83	6.83	6.83	6.83	6.83	6.76	6.90
4,4-DDD	6.75	6.76	6.76	6.76	6.76	6.76	6.69	6.83
Endosulfan sulfate	7.18	7.18	7.18	7.18	7.18	7.18	7.11	7.25
4,4-DDT	7.06	7.06	7.06	7.06	7.06	7.06	6.99	7.13
Methoxychlor	7.53	7.53	7.53	7.53	7.53	7.53	7.46	7.60
Endrin ketone	7.65	7.65	7.65	7.65	7.65	7.65	7.58	7.72
Endrin aldehyde	6.96	6.96	6.96	6.96	6.96	6.96	6.89	7.03
alpha-Chlordane	6.10	6.10	6.10	6.10	6.10	6.10	6.03	6.17
gamma-Chlordane	6.03	6.03	6.03	6.03	6.03	6.03	5.96	6.10

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007136.D CF 025 = PD007135.D

CF 050 = PD007134.D CF 075 = PD007133.D CF 100 = PD007132.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	2830559580	2576868092	2476147302	2382805400	2426775204	2538631116	7
Tetrachloro-m-xylene	5175091560	4948301884	4892105406	4733555568	4832289344	4916268752	3
alpha-BHC	85712462000	80174255160	80436772960	78720909373	81345919460	81278063791	3
beta-BHC	32321218200	30104854440	29454427900	28500597507	28552057800	29786631169	5
delta-BHC	81028752600	73476843520	73190917320	71928928627	73884555650	74701999543	5
gamma-BHC (Lindane)	79084411600	74697166320	74824075740	73702709067	75840530810	75629778707	3
Heptachlor	74446579200	69453087200	68254067700	66012098080	66602560680	68953678572	5
Aldrin	70513195600	65564881440	64241148760	62505547400	63055775850	65176109810	5
Heptachlor epoxide	64867990200	61312820760	56354767700	54481105507	54480316780	58299400189	8
Endosulfan I	60852500400	53789938840	51942826580	50309198987	50441814360	53467255833	8
Dieldrin	62037717600	56116553080	55104273300	53738726013	53990280910	56197510181	6
4,4-DDE	64508380800	56204410640	54759614080	53662990427	54304155100	56687910209	8
Endrin	47589985600	48953718120	46938833020	44013557987	43994933240	46298205593	5
Endosulfan II	46889749400	43769668480	44942819760	41781347747	41800865880	43836890253	5
4,4-DDD	48998178400	49048419840	46046604760	42944700733	42924709430	45992522633	7
Endosulfan sulfate	44201752600	38819636160	37578081720	36887686133	37077304790	38912892281	8
4,4-DDT	44786656400	41180858080	40611194320	40365005347	40635061760	41515755181	4
Methoxychlor	20889640800	18804165760	17983039380	17647999893	17642962790	18593561725	7
Endrin ketone	44883229200	41144744840	40173444160	39072625347	39341088510	40923026411	6
Endrin aldehyde	41268976600	36644526400	35179480220	34582126600	34769392230	36488900410	8
alpha-Chlordane	61091529200	55778358880	54500811940	53340908587	53709796430	55684281007	6
gamma-Chlordane	64015185200	57531846840	56137126620	54950543600	55640523260	57655045104	6

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_D **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	752569400
		2	6.85	6.80	6.90	1658150000
		3	7.09	7.04	7.14	2775068000
		4	7.58	7.53	7.63	2626631000
		5	7.94	7.89	7.99	828090200

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 17:03 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.40	5.35	5.45	-0.01
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 19:45 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.40	5.40	5.35	5.45	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007143.D **Time Analyzed:** 17:03

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.967	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.100	5.050	5.150	0.025	0.025	0.0
Aldrin	5.405	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.791	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.405	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.264	6.190	6.330	0.025	0.025	0.0
Endrin	6.622	6.550	6.690	0.025	0.025	0.0
Endosulfan II	6.831	6.760	6.900	0.025	0.025	0.0
4,4-DDD	6.755	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.182	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.058	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.527	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.651	7.580	7.720	0.026	0.025	4.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.010	8.910	9.110	0.026	0.025	4.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007155.D **Time Analyzed:** 19:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.024	0.025	4.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.967	4.920	5.020	0.024	0.025	4.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.024	0.025	4.0
Heptachlor	5.099	5.050	5.150	0.025	0.025	0.0
Aldrin	5.404	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.790	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.405	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.264	6.190	6.330	0.024	0.025	4.0
Endrin	6.622	6.550	6.690	0.025	0.025	0.0
Endosulfan II	6.831	6.760	6.900	0.023	0.025	8.0
4,4-DDD	6.755	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.182	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.059	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.526	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.651	7.580	7.720	0.026	0.025	4.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.100	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.024	0.025	4.0
Decachlorobiphenyl	9.009	8.910	9.110	0.026	0.025	4.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.025	0.025	0.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5005

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_B

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 12/15/2011 12/15/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/15/2011	12:03	PB000123.D	1.86	8.94
1660 1000 PPB	1660 1000 PPB	12/15/2011	12:19	PB000124.D	1.85	8.94
1660 750 PPB	1660 750 PPB	12/15/2011	12:35	PB000125.D	1.85	8.93
1660 500 PPB	1660 500 PPB	12/15/2011	12:51	PB000126.D	1.85	8.93
1660 250 PPB	1660 250 PPB	12/15/2011	13:07	PB000127.D	1.85	8.94
1660 50 PPB	1660 50 PPB	12/15/2011	13:24	PB000128.D	1.85	8.93
AR122101	AR1221 500 PPB	12/15/2011	13:40	PB000129.D	1.85	8.93
AR123201	AR1232 500 PPB	12/15/2011	13:56	PB000130.D	1.85	8.94
AR124201	AR1242 500 PPB	12/15/2011	14:12	PB000131.D	1.85	8.93
AR124801	AR1248 500 PPB	12/15/2011	14:28	PB000132.D	1.85	8.93
AR125401	AR1254 500 PPB	12/15/2011	14:44	PB000133.D	1.85	8.93
PIBLK02	I.BLK02	12/20/2011	12:58	PB000181.D	1.86	8.94
CCAL01	1660 250	12/20/2011	13:14	PB000182.D	1.85	8.93
PB59964BL	PB59964BL	12/20/2011	19:15	PB000183.D	1.86	8.94
PB59964BS	PB59964BS	12/20/2011	19:31	PB000184.D	1.85	8.93
12SB24-000.5-01	C5005-01	12/20/2011	19:47	PB000185.D	1.86	8.93
12SB24-0.502-02	C5005-02	12/20/2011	20:03	PB000186.D	1.85	8.93
12SB24-0304-03	C5005-03	12/20/2011	20:19	PB000187.D	1.86	8.93
12SB22-000.5-01	C5005-04	12/20/2011	20:35	PB000188.D	1.85	8.93
12SB22-000.5-01MS	C5005-04MS	12/20/2011	20:51	PB000189.D	1.85	8.93
12SB22-000.5-01MSD	C5005-04MSD	12/20/2011	21:07	PB000190.D	1.85	8.93
12SB22-0304-03	C5005-06	12/20/2011	21:24	PB000191.D	1.86	8.93
12SB20-000.5-01	C5005-07	12/20/2011	21:40	PB000192.D	1.85	8.93
12SB20-0.502-02	C5005-08	12/20/2011	21:56	PB000193.D	1.85	8.93
PIBLK03	I.BLK03	12/20/2011	22:12	PB000194.D	1.85	8.93
CCAL02	1660 250	12/20/2011	22:28	PB000195.D	1.85	8.93
12SB-DUP-01	C5005-09	12/20/2011	22:44	PB000196.D	1.85	8.93
12SB19-000.5-01	C5005-10	12/20/2011	23:00	PB000197.D	1.85	8.93
12SB19-0.502-02	C5005-11	12/20/2011	23:16	PB000198.D	1.86	8.93
12SB19-0304-03	C5005-12	12/20/2011	23:32	PB000199.D	1.86	8.93
12SB18-000.5-01	C5005-13	12/20/2011	23:48	PB000200.D	1.85	8.93
12SB18-0.502-02	C5005-14	12/21/2011	00:05	PB000201.D	1.86	8.93
12SB18-0304-03	C5005-15	12/21/2011	00:21	PB000202.D	1.86	8.93
12SB22-0.502-02	C5005-05	12/21/2011	00:37	PB000203.D	1.86	8.93
PIBLK04	I.BLK04	12/21/2011	01:25	PB000206.D	1.85	8.93
CCAL03	1660 250	12/21/2011	01:41	PB000207.D	1.85	8.93

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_B **Calibration Date(s):** 12/15/2011 12/15/2011

Calibration Times: 12:19 13:24

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: **RT 50 =** PB000128.D **RT 250 =** PB000127.D

RT 500 = PB000126.D **RT 750 =** PB000125.D **RT 1000 =** PB000124.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.85	1.85	1.85	1.85	1.85	1.85	1.80	1.90
Decachlorobiphenyl		8.93	8.94	8.93	8.93	8.94	8.93	8.83	9.03
AR1016	(1)	2.60	2.60	2.60	2.60	2.59	2.60	2.55	2.65
AR1016	(2)	2.81	2.81	2.81	2.81	2.81	2.81	2.76	2.86
AR1016	(3)	3.11	3.12	3.12	3.11	3.11	3.11	3.06	3.16
AR1016	(4)	3.28	3.28	3.28	3.28	3.28	3.28	3.23	3.33
AR1016	(5)	3.78	3.78	3.78	3.78	3.78	3.78	3.73	3.83
AR1260	(1)	5.36	5.36	5.36	5.36	5.36	5.36	5.31	5.41
AR1260	(2)	5.74	5.74	5.74	5.74	5.74	5.74	5.69	5.79
AR1260	(3)	6.11	6.11	6.11	6.11	6.11	6.11	6.06	6.16
AR1260	(4)	7.03	7.03	7.03	7.03	7.03	7.03	6.98	7.08
AR1260	(5)	7.41	7.41	7.41	7.41	7.41	7.41	7.36	7.46

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_B **Calibration Date(s):** 12/15/2011 12/15/2011

Calibration Times: 12:19 13:24

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: CF 50 = PB000128.D CF 250 = PB000127.D

CF 500 = PB000126.D CF 750 = PB000125.D CF 1000 = PB000124.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	2414160	2136988	2198608	2255212	2321484	2265290	5
Decachlorobiphenyl	2695500	2324808	2260310	2139161	2132294	2310415	10
AR1016 (1)	117150	102949	96264	90067	88492	98984	12
AR1016 (2)	68114	69884	66860	65866	65892	67323	3
AR1016 (3)	176584	168752	162976	158003	157084	164680	5
AR1016 (4)	66848	69527	65929	64019	63678	66000	4
AR1016 (5)	80696	72322	69660	70525	70767	72794	6
AR1260 (1)	127236	102696	95830	88669	106696	104225	14
AR1260 (2)	218342	200426	188787	173738	177242	191707	9
AR1260 (3)	175906	169307	165832	154400	155668	164222	6
AR1260 (4)	237828	218090	216641	206465	216948	219194	5
AR1260 (5)	96724	83224	80635	76313	78163	83012	10

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_B **Date(s) Analyzed:** 12/15/2011 12/15/2011

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.03	1.98	2.08	27483
		2	2.21	2.16	2.26	83989
		3	1.42	1.37	1.47	25199
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.22	2.17	2.27	80887
		2	2.60	2.55	2.65	50516
		3	3.12	3.07	3.17	80560
		4	3.28	3.23	3.33	32669
		5	3.35	3.30	3.40	25012
AR1242	0.5000	1	2.60	2.55	2.65	89703
		2	3.12	3.07	3.17	155243
		3	3.28	3.23	3.33	63554
		4	3.78	3.73	3.83	71847
		5	4.34	4.29	4.39	105632
AR1248	0.5000	1	3.11	3.06	3.16	104514
		2	3.78	3.73	3.83	106292
		3	4.33	4.28	4.38	177784
		4	5.12	5.07	5.17	51415
		5	5.49	5.44	5.54	36039
AR1254	0.5000	1	4.26	4.21	4.31	116596
		2	5.11	5.06	5.16	233185
		3	5.48	5.43	5.53	169959
		4	5.74	5.69	5.79	151818
		5	6.11	6.06	6.16	201589

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/20/2011 **Initial Calibration Date(s):** 12/15/2011 12/15/2011

Continuing Calib Time: 13:14 **Initial Calibration Time(s):** 12:19 13:24

GC Column: RTX-CLPest **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.85	1.85	1.80	1.90	0.00
Decachlorobiphenyl	8.93	8.93	8.83	9.03	0.00
AR1016 (1)	2.59	2.60	2.55	2.65	0.01
AR1016 (2)	2.81	2.81	2.76	2.86	0.00
AR1016 (3)	3.11	3.11	3.06	3.16	0.00
AR1016 (4)	3.28	3.28	3.23	3.33	0.00
AR1016 (5)	3.78	3.78	3.73	3.83	0.00
AR1260 (1)	5.36	5.36	5.31	5.41	0.00
AR1260 (2)	5.74	5.74	5.69	5.79	0.00
AR1260 (3)	6.11	6.11	6.06	6.16	0.00
AR1260 (4)	7.03	7.03	6.98	7.08	0.00
AR1260 (5)	7.41	7.41	7.36	7.46	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/20/2011 **Initial Calibration Date(s):** 12/15/2011 12/15/2011

Continuing Calib Time: 22:28 **Initial Calibration Time(s):** 12:19 13:24

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.85	1.85	1.80	1.90	0.00
Decachlorobiphenyl	8.93	8.93	8.83	9.03	0.00
AR1016 (1)	2.59	2.60	2.55	2.65	0.01
AR1016 (2)	2.81	2.81	2.76	2.86	0.00
AR1016 (3)	3.11	3.11	3.06	3.16	0.00
AR1016 (4)	3.27	3.28	3.23	3.33	0.01
AR1016 (5)	3.78	3.78	3.73	3.83	0.00
AR1260 (1)	5.36	5.36	5.31	5.41	0.00
AR1260 (2)	5.74	5.74	5.69	5.79	0.00
AR1260 (3)	6.11	6.11	6.06	6.16	0.00
AR1260 (4)	7.03	7.03	6.98	7.08	0.00
AR1260 (5)	7.40	7.41	7.36	7.46	0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/21/2011 **Initial Calibration Date(s):** 12/15/2011 12/15/2011

Continuing Calib Time: 01:41 **Initial Calibration Time(s):** 12:19 13:24

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.85	1.85	1.80	1.90	0.00
Decachlorobiphenyl	8.93	8.93	8.83	9.03	0.00
AR1016 (1)	2.60	2.60	2.55	2.65	0.00
AR1016 (2)	2.81	2.81	2.76	2.86	0.00
AR1016 (3)	3.11	3.11	3.06	3.16	0.00
AR1016 (4)	3.28	3.28	3.23	3.33	0.00
AR1016 (5)	3.78	3.78	3.73	3.83	0.00
AR1260 (1)	5.36	5.36	5.31	5.41	0.00
AR1260 (2)	5.74	5.74	5.69	5.79	0.00
AR1260 (3)	6.11	6.11	6.06	6.16	0.00
AR1260 (4)	7.03	7.03	6.98	7.08	0.00
AR1260 (5)	7.41	7.41	7.36	7.46	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/20/2011

Lab Sample No.: 1660 250 **Data File :** PB000182.D **Time Analyzed:** 13:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.594	2.550	2.650	0.266	0.250	6.4
AR1016 (2)	2.811	2.760	2.860	0.274	0.250	9.6
AR1016 (3)	3.112	3.060	3.160	0.251	0.250	0.4
AR1016 (4)	3.276	3.230	3.330	0.267	0.250	6.8
AR1016 (5)	3.781	3.730	3.830	0.276	0.250	10.4
AR1260 (1)	5.363	5.310	5.410	0.257	0.250	2.8
AR1260 (2)	5.739	5.690	5.790	0.263	0.250	5.2
AR1260 (3)	6.109	6.060	6.160	0.262	0.250	4.8
AR1260 (4)	7.031	6.980	7.080	0.258	0.250	3.2
AR1260 (5)	7.408	7.360	7.460	0.265	0.250	6.0
Tetrachloro-m-xylene	1.852	1.800	1.900	0.025	0.025	0.0
Decachlorobiphenyl	8.932	8.830	9.030	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/20/2011

Lab Sample No.: 1660 250 **Data File :** PB000195.D **Time Analyzed:** 22:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.593	2.550	2.650	0.277	0.250	10.8
AR1016 (2)	2.810	2.760	2.860	0.247	0.250	1.2
AR1016 (3)	3.112	3.060	3.160	0.259	0.250	3.6
AR1016 (4)	3.274	3.230	3.330	0.266	0.250	6.4
AR1016 (5)	3.778	3.730	3.830	0.300	0.250	20.0
AR1260 (1)	5.362	5.310	5.410	0.305	0.250	22.0
AR1260 (2)	5.736	5.690	5.790	0.259	0.250	3.6
AR1260 (3)	6.106	6.060	6.160	0.250	0.250	0.0
AR1260 (4)	7.029	6.980	7.080	0.294	0.250	17.6
AR1260 (5)	7.404	7.360	7.460	0.299	0.250	19.6
Tetrachloro-m-xylene	1.853	1.800	1.900	0.030	0.025	20.0
Decachlorobiphenyl	8.931	8.830	9.030	0.031	0.025	24.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/21/2011

Lab Sample No.: 1660 250 **Data File :** PB000207.D **Time Analyzed:** 01:41

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.595	2.550	2.650	0.279	0.250	11.6
AR1016 (2)	2.812	2.760	2.860	0.288	0.250	15.2
AR1016 (3)	3.113	3.060	3.160	0.271	0.250	8.4
AR1016 (4)	3.276	3.230	3.330	0.286	0.250	14.4
AR1016 (5)	3.781	3.730	3.830	0.290	0.250	16.0
AR1260 (1)	5.362	5.310	5.410	0.272	0.250	8.8
AR1260 (2)	5.739	5.690	5.790	0.281	0.250	12.4
AR1260 (3)	6.108	6.060	6.160	0.274	0.250	9.6
AR1260 (4)	7.031	6.980	7.080	0.279	0.250	11.6
AR1260 (5)	7.407	7.360	7.460	0.284	0.250	13.6
Tetrachloro-m-xylene	1.854	1.800	1.900	0.026	0.025	4.0
Decachlorobiphenyl	8.932	8.830	9.030	0.028	0.025	12.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_B

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/15/2011 12/15/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/15/2011	12:03	PB000123.D	2.07	9.98
1660 1000 PPB	1660 1000 PPB	12/15/2011	12:19	PB000124.D	2.06	9.98
1660 750 PPB	1660 750 PPB	12/15/2011	12:35	PB000125.D	2.06	9.98
1660 500 PPB	1660 500 PPB	12/15/2011	12:51	PB000126.D	2.06	9.98
1660 250 PPB	1660 250 PPB	12/15/2011	13:07	PB000127.D	2.06	9.98
1660 50 PPB	1660 50 PPB	12/15/2011	13:24	PB000128.D	2.06	9.98
AR122101	AR1221 500 PPB	12/15/2011	13:40	PB000129.D	2.06	9.98
AR123201	AR1232 500 PPB	12/15/2011	13:56	PB000130.D	2.07	9.98
AR124201	AR1242 500 PPB	12/15/2011	14:12	PB000131.D	2.06	9.98
AR124801	AR1248 500 PPB	12/15/2011	14:28	PB000132.D	2.06	9.98
AR125401	AR1254 500 PPB	12/15/2011	14:44	PB000133.D	2.06	9.98
PIBLK02	I.BLK02	12/20/2011	12:58	PB000181.D	2.06	9.97
CCAL01	1660 250	12/20/2011	13:14	PB000182.D	2.06	9.97
PB59964BL	PB59964BL	12/20/2011	19:15	PB000183.D	2.06	9.97
PB59964BS	PB59964BS	12/20/2011	19:31	PB000184.D	2.06	9.97
12SB24-000.5-01	C5005-01	12/20/2011	19:47	PB000185.D	2.06	9.97
12SB24-0.502-02	C5005-02	12/20/2011	20:03	PB000186.D	2.06	9.97
12SB24-0304-03	C5005-03	12/20/2011	20:19	PB000187.D	2.06	9.97
12SB22-000.5-01	C5005-04	12/20/2011	20:35	PB000188.D	2.06	9.97
12SB22-000.5-01MS	C5005-04MS	12/20/2011	20:51	PB000189.D	2.06	9.97
12SB22-000.5-01MSD	C5005-04MSD	12/20/2011	21:07	PB000190.D	2.06	9.97
12SB22-0304-03	C5005-06	12/20/2011	21:24	PB000191.D	2.06	9.97
12SB20-000.5-01	C5005-07	12/20/2011	21:40	PB000192.D	2.06	9.97
12SB20-0.502-02	C5005-08	12/20/2011	21:56	PB000193.D	2.06	9.97
PIBLK03	I.BLK03	12/20/2011	22:12	PB000194.D	2.06	9.97
CCAL02	1660 250	12/20/2011	22:28	PB000195.D	2.06	9.97
12SB-DUP-01	C5005-09	12/20/2011	22:44	PB000196.D	2.06	9.97
12SB19-000.5-01	C5005-10	12/20/2011	23:00	PB000197.D	2.06	9.97
12SB19-0.502-02	C5005-11	12/20/2011	23:16	PB000198.D	2.06	9.97
12SB19-0304-03	C5005-12	12/20/2011	23:32	PB000199.D	2.06	9.97
12SB18-000.5-01	C5005-13	12/20/2011	23:48	PB000200.D	2.06	9.97
12SB18-0.502-02	C5005-14	12/21/2011	00:05	PB000201.D	2.06	9.97
12SB18-0304-03	C5005-15	12/21/2011	00:21	PB000202.D	2.06	9.97
12SB22-0.502-02	C5005-05	12/21/2011	00:37	PB000203.D	2.06	9.97
PIBLK04	I.BLK04	12/21/2011	01:25	PB000206.D	2.06	9.97
CCAL03	1660 250	12/21/2011	01:41	PB000207.D	2.06	9.97

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_B **Calibration Date(s):** 12/15/2011 12/15/2011

Calibration Times: 12:19 13:24

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: **RT 50 =** PB000128.D **RT 250 =** PB000127.D

RT 500 = PB000126.D **RT 750 =** PB000125.D **RT 1000 =** PB000124.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		2.06	2.06	2.06	2.06	2.06	2.06	2.01	2.11
Decachlorobiphenyl		9.98	9.98	9.98	9.98	9.98	9.98	9.88	10.08
AR1016	(1)	3.12	3.12	3.12	3.12	3.12	3.12	3.07	3.17
AR1016	(2)	3.68	3.68	3.68	3.68	3.68	3.68	3.63	3.73
AR1016	(3)	3.86	3.86	3.86	3.86	3.86	3.86	3.81	3.91
AR1016	(4)	3.99	3.99	3.99	3.99	3.99	3.99	3.94	4.04
AR1016	(5)	4.64	4.64	4.64	4.64	4.64	4.64	4.59	4.69
AR1260	(1)	6.19	6.19	6.19	6.19	6.19	6.19	6.14	6.24
AR1260	(2)	6.49	6.49	6.49	6.49	6.49	6.49	6.44	6.54
AR1260	(3)	6.97	6.97	6.97	6.97	6.97	6.97	6.92	7.02
AR1260	(4)	7.51	7.51	7.51	7.51	7.51	7.51	7.46	7.56
AR1260	(5)	7.87	7.87	7.86	7.86	7.86	7.86	7.81	7.91

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_B **Calibration Date(s):** 12/15/2011 12/15/2011

Calibration Times: 12:19 13:24

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PB000128.D **CF 250 =** PB000127.D

CF 500 = PB000126.D **CF 750 =** PB000125.D **CF 1000 =** PB000124.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	858140	802244	893246	919989	977328	890189	7
Decachlorobiphenyl	1187560	1117532	1120296	1082957	1080856	1117840	4
AR1016 (1)	62214	55956	54820	53327	53158	55895	7
AR1016 (2)	95544	81728	83410	82673	84088	85489	7
AR1016 (3)	42214	37710	37477	36740	37014	38231	6
AR1016 (4)	23386	24362	24688	24568	25125	24426	3
AR1016 (5)	33518	28372	28964	31481	32047	30876	7
AR1260 (1)	64044	57788	58466	55925	57883	58821	5
AR1260 (2)	65518	58282	65644	63385	64958	63557	5
AR1260 (3)	82828	73919	76590	75448	83544	78466	6
AR1260 (4)	45350	47580	48210	46978	47591	47142	2
AR1260 (5)	110176	99788	103420	101833	103545	103752	4

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Instrument ID: ECD_B **Date(s) Analyzed:** 12/15/2011 12/15/2011

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.40	2.35	2.45	12284
		2	2.56	2.51	2.61	6863
		3	2.63	2.58	2.68	36533
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.63	2.58	2.68	32632
		2	3.68	3.63	3.73	37576
		3	3.86	3.81	3.91	16246
		4	3.99	3.94	4.04	9268
		5	4.64	4.59	4.69	15015
AR1242	0.5000	1	3.12	3.07	3.17	51086
		2	3.68	3.63	3.73	73500
		3	3.86	3.81	3.91	30870
		4	4.99	4.94	5.04	21948
		5	5.04	4.99	5.09	38616
AR1248	0.5000	1	3.68	3.63	3.73	44547
		2	4.64	4.59	4.69	47500
		3	4.99	4.94	5.04	39671
		4	5.04	4.99	5.09	64112
		5	5.92	5.87	5.97	32076
AR1254	0.5000	1	5.30	5.25	5.35	83353
		2	5.92	5.87	5.97	130097
		3	6.49	6.44	6.54	57477
		4	6.71	6.66	6.76	90583
		5	6.97	6.92	7.02	119671

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/20/2011 **Initial Calibration Date(s):** 12/15/2011 12/15/2011

Continuing Calib Time: 13:14 **Initial Calibration Time(s):** 12:19 13:24

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	2.06	2.06	2.01	2.11	0.00
Decachlorobiphenyl	9.97	9.98	9.88	10.08	0.01
AR1016 (1)	3.11	3.12	3.07	3.17	0.01
AR1016 (2)	3.67	3.68	3.63	3.73	0.01
AR1016 (3)	3.85	3.86	3.81	3.91	0.01
AR1016 (4)	3.98	3.99	3.94	4.04	0.01
AR1016 (5)	4.63	4.64	4.59	4.69	0.01
AR1260 (1)	6.18	6.19	6.14	6.24	0.01
AR1260 (2)	6.48	6.49	6.44	6.54	0.01
AR1260 (3)	6.96	6.97	6.92	7.02	0.01
AR1260 (4)	7.50	7.51	7.46	7.56	0.01
AR1260 (5)	7.85	7.86	7.81	7.91	0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/20/2011 **Initial Calibration Date(s):** 12/15/2011 12/15/2011

Continuing Calib Time: 22:28 **Initial Calibration Time(s):** 12:19 13:24

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	2.06	2.06	2.01	2.11	0.00
Decachlorobiphenyl	9.97	9.98	9.88	10.08	0.01
AR1016 (1)	3.11	3.12	3.07	3.17	0.01
AR1016 (2)	3.67	3.68	3.63	3.73	0.01
AR1016 (3)	3.85	3.86	3.81	3.91	0.01
AR1016 (4)	3.98	3.99	3.94	4.04	0.01
AR1016 (5)	4.63	4.64	4.59	4.69	0.01
AR1260 (1)	6.18	6.19	6.14	6.24	0.01
AR1260 (2)	6.48	6.49	6.44	6.54	0.01
AR1260 (3)	6.96	6.97	6.92	7.02	0.01
AR1260 (4)	7.50	7.51	7.46	7.56	0.01
AR1260 (5)	7.85	7.86	7.81	7.91	0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

Continuing Calib Date: 12/21/2011 **Initial Calibration Date(s):** 12/15/2011 12/15/2011

Continuing Calib Time: 01:41 **Initial Calibration Time(s):** 12:19 13:24

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	2.06	2.06	2.01	2.11	0.00
Decachlorobiphenyl	9.97	9.98	9.88	10.08	0.01
AR1016 (1)	3.12	3.12	3.07	3.17	0.00
AR1016 (2)	3.67	3.68	3.63	3.73	0.01
AR1016 (3)	3.85	3.86	3.81	3.91	0.01
AR1016 (4)	3.98	3.99	3.94	4.04	0.01
AR1016 (5)	4.63	4.64	4.59	4.69	0.01
AR1260 (1)	6.18	6.19	6.14	6.24	0.01
AR1260 (2)	6.48	6.49	6.44	6.54	0.01
AR1260 (3)	6.96	6.97	6.92	7.02	0.01
AR1260 (4)	7.50	7.51	7.46	7.56	0.01
AR1260 (5)	7.86	7.86	7.81	7.91	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/20/2011

Lab Sample No.: 1660 250 **Data File :** PB000182.D **Time Analyzed:** 13:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.114	3.070	3.170	0.258	0.250	3.2
AR1016 (2)	3.674	3.630	3.730	0.228	0.250	8.8
AR1016 (3)	3.849	3.810	3.910	0.224	0.250	10.4
AR1016 (4)	3.980	3.940	4.040	0.206	0.250	17.6
AR1016 (5)	4.626	4.590	4.690	0.236	0.250	5.6
AR1260 (1)	6.183	6.140	6.240	0.268	0.250	7.2
AR1260 (2)	6.478	6.440	6.540	0.271	0.250	8.4
AR1260 (3)	6.961	6.920	7.020	0.277	0.250	10.8
AR1260 (4)	7.497	7.460	7.560	0.265	0.250	6.0
AR1260 (5)	7.854	7.810	7.910	0.232	0.250	7.2
Tetrachloro-m-xylene	2.059	2.010	2.110	0.024	0.025	4.0
Decachlorobiphenyl	9.968	9.880	10.080	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/20/2011

Lab Sample No.: 1660 250 **Data File :** PB000195.D **Time Analyzed:** 22:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.113	3.070	3.170	0.251	0.250	0.4
AR1016 (2)	3.674	3.630	3.730	0.288	0.250	15.2
AR1016 (3)	3.851	3.810	3.910	0.279	0.250	11.6
AR1016 (4)	3.982	3.940	4.040	0.250	0.250	0.0
AR1016 (5)	4.626	4.590	4.690	0.263	0.250	5.2
AR1260 (1)	6.182	6.140	6.240	0.300	0.250	20.0
AR1260 (2)	6.477	6.440	6.540	0.292	0.250	16.8
AR1260 (3)	6.960	6.920	7.020	0.286	0.250	14.4
AR1260 (4)	7.496	7.460	7.560	0.254	0.250	1.6
AR1260 (5)	7.853	7.810	7.910	0.292	0.250	16.8
Tetrachloro-m-xylene	2.061	2.010	2.110	0.030	0.025	20.0
Decachlorobiphenyl	9.970	9.880	10.080	0.031	0.025	24.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG NO.:** C5005

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/21/2011

Lab Sample No.: 1660 250 **Data File :** PB000207.D **Time Analyzed:** 01:41

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.115	3.070	3.170	0.277	0.250	10.8
AR1016 (2)	3.674	3.630	3.730	0.249	0.250	0.4
AR1016 (3)	3.850	3.810	3.910	0.257	0.250	2.8
AR1016 (4)	3.982	3.940	4.040	0.219	0.250	12.4
AR1016 (5)	4.627	4.590	4.690	0.250	0.250	0.0
AR1260 (1)	6.182	6.140	6.240	0.289	0.250	15.6
AR1260 (2)	6.477	6.440	6.540	0.290	0.250	16.0
AR1260 (3)	6.960	6.920	7.020	0.269	0.250	7.6
AR1260 (4)	7.498	7.460	7.560	0.287	0.250	14.8
AR1260 (5)	7.856	7.810	7.910	0.261	0.250	4.4
Tetrachloro-m-xylene	2.061	2.010	2.110	0.026	0.025	4.0
Decachlorobiphenyl	9.970	9.880	10.080	0.027	0.025	8.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59964BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab Sample ID: PB59964BL Lab File ID: PB000183.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/16/2011

Date Analyzed (1): 12/20/2011 Date Analyzed (2): 12/20/2011

Time Analyzed (1): 19:15 Time Analyzed (2): 19:15

Instrument ID (1): ECD_B Instrument ID (2): ECD_B

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB59964BS	PB59964BS	PB000184.D	12/20/2011	12/20/2011
12SB24-000.5-01	C5005-01	PB000185.D	12/20/2011	12/20/2011
12SB24-0.502-02	C5005-02	PB000186.D	12/20/2011	12/20/2011
12SB24-0304-03	C5005-03	PB000187.D	12/20/2011	12/20/2011
12SB22-000.5-01	C5005-04	PB000188.D	12/20/2011	12/20/2011
12SB22-000.5-01MS	C5005-04MS	PB000189.D	12/20/2011	12/20/2011
12SB22-000.5-01MSD	C5005-04MSD	PB000190.D	12/20/2011	12/20/2011
12SB22-0304-03	C5005-06	PB000191.D	12/20/2011	12/20/2011
12SB20-000.5-01	C5005-07	PB000192.D	12/20/2011	12/20/2011
12SB20-0.502-02	C5005-08	PB000193.D	12/20/2011	12/20/2011
12SB-DUP-01	C5005-09	PB000196.D	12/20/2011	12/20/2011
12SB19-000.5-01	C5005-10	PB000197.D	12/20/2011	12/20/2011
12SB19-0.502-02	C5005-11	PB000198.D	12/20/2011	12/20/2011
12SB19-0304-03	C5005-12	PB000199.D	12/20/2011	12/20/2011
12SB18-000.5-01	C5005-13	PB000200.D	12/20/2011	12/20/2011
12SB18-0.502-02	C5005-14	PB000201.D	12/21/2011	12/21/2011
12SB18-0304-03	C5005-15	PB000202.D	12/21/2011	12/21/2011
12SB22-0.502-02	C5005-05	PB000203.D	12/21/2011	12/21/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB59964BL	SDG No.:	C5005
Lab Sample ID:	PB59964BL	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000183.D	1	12/16/11	12/20/11	PB59964

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.5		10 - 166	97%	SPK: 20
2051-24-3	Decachlorobiphenyl	20.5		60 - 125	102%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Surrogate Summary

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PB000123.D	PIBLK-PB000123.D	Tetrachloro-m-xylene	1	20	18.46	92		35	137
		Decachlorobiphenyl	1	20	17.99	90		40	135
		Tetrachloro-m-xylene	2	20	17.78	89		35	137
		Decachlorobiphenyl	2	20	15.89	79		40	135
I.BLK-PB000181.D	PIBLK-PB000181.D	Tetrachloro-m-xylene	1	20	20.5	103		35	137
		Decachlorobiphenyl	1	20	21.37	107		40	135
		Tetrachloro-m-xylene	2	20	18.75	94		35	137
		Decachlorobiphenyl	2	20	16.44	82		40	135
PB59964BL	PB59964BL	Tetrachloro-m-xylene	1	20	19.48	97		10	166
		Decachlorobiphenyl	1	20	20.48	102		60	125
		Tetrachloro-m-xylene	2	20	17.74	89		10	166
		Decachlorobiphenyl	2	20	16.29	81		60	125
PB59964BS	PB59964BS	Tetrachloro-m-xylene	1	20	17.68	88		10	166
		Decachlorobiphenyl	1	20	19.8	99		60	125
		Tetrachloro-m-xylene	2	20	16.18	81		10	166
		Decachlorobiphenyl	2	20	16.73	84		60	125
C5005-01	12SB24-000.5-01	Tetrachloro-m-xylene	1	20	14.12	71		10	166
		Decachlorobiphenyl	1	20	12.69	63		60	125
		Tetrachloro-m-xylene	2	20	13.32	67		10	166
		Decachlorobiphenyl	2	20	10.9	55	*	60	125
C5005-02	12SB24-0.502-02	Tetrachloro-m-xylene	1	20	16.14	81		10	166
		Decachlorobiphenyl	1	20	15.91	80		60	125
		Tetrachloro-m-xylene	2	20	15.51	78		10	166
		Decachlorobiphenyl	2	20	13.87	69		60	125
C5005-03	12SB24-0304-03	Tetrachloro-m-xylene	1	20	17.74	89		10	166
		Decachlorobiphenyl	1	20	17.74	89		60	125
		Tetrachloro-m-xylene	2	20	17.11	86		10	166
		Decachlorobiphenyl	2	20	15.78	79		60	125
C5005-04	12SB22-000.5-01	Tetrachloro-m-xylene	1	20	15.55	78		10	166
		Decachlorobiphenyl	1	20	14.12	71		60	125
		Tetrachloro-m-xylene	2	20	14.77	74		10	166
		Decachlorobiphenyl	2	20	12.77	64		60	125
C5005-04MS	12SB22-000.5-01MS	Tetrachloro-m-xylene	1	20	14.37	72		10	166
		Decachlorobiphenyl	1	20	11.77	59	*	60	125
		Tetrachloro-m-xylene	2	20	13.75	69		10	166
		Decachlorobiphenyl	2	20	10.8	54	*	60	125
C5005-04MSD	12SB22-000.5-01MSD	Tetrachloro-m-xylene	1	20	15.02	75		10	166
		Decachlorobiphenyl	1	20	13.7	69		60	125
		Tetrachloro-m-xylene	2	20	14.49	72		10	166
		Decachlorobiphenyl	2	20	12.66	63		60	125
C5005-06	12SB22-0304-03	Tetrachloro-m-xylene	1	20	18.5	93		10	166
		Decachlorobiphenyl	1	20	17.88	89		60	125
		Tetrachloro-m-xylene	2	20	17.76	89		10	166
		Decachlorobiphenyl	2	20	16.4	82		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5005-07	12SB20-000.5-01	Tetrachloro-m-xylene	1	20	16.83	84		10	166
		Decachlorobiphenyl	1	20	18.21	91		60	125
		Tetrachloro-m-xylene	2	20	16.49	82		10	166
		Decachlorobiphenyl	2	20	17.18	86		60	125
C5005-08	12SB20-0.502-02	Tetrachloro-m-xylene	1	20	17.5	88		10	166
		Decachlorobiphenyl	1	20	17.79	89		60	125
		Tetrachloro-m-xylene	2	20	16.8	84		10	166
		Decachlorobiphenyl	2	20	16.72	84		60	125
I.BLK-PB000194.D	PIBLK-PB000194.D	Tetrachloro-m-xylene	1	20	24.45	122		35	137
		Decachlorobiphenyl	1	20	25.2	126		40	135
		Tetrachloro-m-xylene	2	20	23.12	116		35	137
		Decachlorobiphenyl	2	20	24.24	121		40	135
C5005-09	12SB-DUP-01	Tetrachloro-m-xylene	1	20	13.31	67		10	166
		Decachlorobiphenyl	1	20	13.26	66		60	125
		Tetrachloro-m-xylene	2	20	12.72	64		10	166
		Decachlorobiphenyl	2	20	12.6	63		60	125
C5005-10	12SB19-000.5-01	Tetrachloro-m-xylene	1	20	17.25	86		10	166
		Decachlorobiphenyl	1	20	17.22	86		60	125
		Tetrachloro-m-xylene	2	20	16.63	83		10	166
		Decachlorobiphenyl	2	20	17.51	88		60	125
C5005-11	12SB19-0.502-02	Tetrachloro-m-xylene	1	20	16.4	82		10	166
		Decachlorobiphenyl	1	20	18.74	94		60	125
		Tetrachloro-m-xylene	2	20	16.52	83		10	166
		Decachlorobiphenyl	2	20	19.58	98		60	125
C5005-12	12SB19-0304-03	Tetrachloro-m-xylene	1	20	17.19	86		10	166
		Decachlorobiphenyl	1	20	19.37	97		60	125
		Tetrachloro-m-xylene	2	20	16.34	82		10	166
		Decachlorobiphenyl	2	20	20.04	100		60	125
C5005-13	12SB18-000.5-01	Tetrachloro-m-xylene	1	20	12.61	63		10	166
		Decachlorobiphenyl	1	20	14.85	74		60	125
		Tetrachloro-m-xylene	2	20	12.18	61		10	166
		Decachlorobiphenyl	2	20	14.5	73		60	125
C5005-14	12SB18-0.502-02	Tetrachloro-m-xylene	1	20	16.72	84		10	166
		Decachlorobiphenyl	1	20	19.17	96		60	125
		Tetrachloro-m-xylene	2	20	16.43	82		10	166
		Decachlorobiphenyl	2	20	18.17	91		60	125
C5005-15	12SB18-0304-03	Tetrachloro-m-xylene	1	20	16.6	83		10	166
		Decachlorobiphenyl	1	20	19.23	96		60	125
		Tetrachloro-m-xylene	2	20	16.49	82		10	166
		Decachlorobiphenyl	2	20	18.33	92		60	125
C5005-05	12SB22-0.502-02	Tetrachloro-m-xylene	1	20	14.43	72		10	166
		Decachlorobiphenyl	1	20	12.59	63		60	125
		Tetrachloro-m-xylene	2	20	14.04	70		10	166
		Decachlorobiphenyl	2	20	11.23	56	*	60	125

CHEMTECH

Surrogate Summary

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PB000206.D	PIBLK-PB000206.D	Tetrachloro-m-xylene	1	20	22.2	111		35	137
		Decachlorobiphenyl	1	20	23.33	117		40	135
		Tetrachloro-m-xylene	2	20	20.76	104		35	137
		Decachlorobiphenyl	2	20	22.83	114		40	135

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12SB22-000.5-01MS**										
C5005-04MS	AR1016	95.0	0	95	100				40	140	
	AR1260	95.0	0	95	100				60	130	
Client Sample ID:	**12SB22-000.5-01MSD**										
C5005-04MSD	AR1016	95.1	0	97	102		2		40	140	20
	AR1260	95.1	0	99	104		4		60	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59964BS	AR1016	66.7	74	111				53	140	
	AR1260	66.7	77	115				65	130	

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59965BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG NO.: C5005

Lab Sample ID: PB59965BL Lab File ID: PD007147.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/16/2011

Date Analyzed (1): 12/29/2011 Date Analyzed (2): 12/29/2011

Time Analyzed (1): 17:57 Time Analyzed (2): 17:57

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column (1): ZB-MR2 ID: 0.32 (mm) GC Column (2): ZB-MR1 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
12SB24-000.5-01	C5005-01	PD007091.D	12/29/2011	12/29/2011
12SB24-0.502-02	C5005-02	PD007092.D	12/29/2011	12/29/2011
12SB24-0304-03	C5005-03	PD007093.D	12/29/2011	12/29/2011
12SB22-000.5-01	C5005-04	PD007094.D	12/29/2011	12/29/2011
12SB22-0.502-02	C5005-05	PD007095.D	12/29/2011	12/29/2011
12SB22-0304-03	C5005-06	PD007096.D	12/29/2011	12/29/2011
12SB20-000.5-01	C5005-07	PD007097.D	12/29/2011	12/29/2011
12SB20-0.502-02	C5005-08	PD007098.D	12/29/2011	12/29/2011
12SB-DUP-01	C5005-09	PD007099.D	12/29/2011	12/29/2011
12SB19-000.5-01	C5005-10	PD007100.D	12/29/2011	12/29/2011
12SB19-0.502-02	C5005-11	PD007103.D	12/29/2011	12/29/2011
12SB19-0304-03	C5005-12	PD007104.D	12/29/2011	12/29/2011
12SB18-000.5-01	C5005-13	PD007105.D	12/29/2011	12/29/2011
12SB18-0.502-02	C5005-14	PD007106.D	12/29/2011	12/29/2011
12SB18-0304-03	C5005-15	PD007107.D	12/29/2011	12/29/2011
12SB24-0304-03MS	C5005-03MS	PD007108.D	12/29/2011	12/29/2011
12SB24-0304-03MSD	C5005-03MSD	PD007109.D	12/29/2011	12/29/2011
PB59965BS	PB59965BS	PD007148.D	12/29/2011	12/29/2011

COMMENTS:

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB59965BL	SDG No.:	C5005
Lab Sample ID:	PB59965BL	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007147.D	1	12/16/11	12/29/11	PB59965

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	22		55 - 130	110%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.7		70 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Surrogate Summary

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD007051.D	PIBLK-PD007051.D	Decachlorobiphenyl	1	20	22.52	113		10	192
		Tetrachloro-m-xylene	1	20	25.66	128		10	172
		Decachlorobiphenyl	2	20	20.06	100		10	192
		Tetrachloro-m-xylene	2	20	19.98	100		10	172
I.BLK-PD007088.D	PIBLK-PD007088.D	Decachlorobiphenyl	1	20	22.45	112		10	192
		Tetrachloro-m-xylene	1	20	21.73	109		10	172
		Decachlorobiphenyl	2	20	20.03	100		10	192
		Tetrachloro-m-xylene	2	20	19.18	96		10	172
C5005-01	12SB24-000.5-01	Decachlorobiphenyl	1	20	16.22	81		55	130
		Tetrachloro-m-xylene	1	20	16.17	81		70	125
		Decachlorobiphenyl	2	20	12.04	60		55	130
		Tetrachloro-m-xylene	2	20	14.06	70		70	125
C5005-02	12SB24-0.502-02	Decachlorobiphenyl	1	20	17.97	90		55	130
		Tetrachloro-m-xylene	1	20	18.52	93		70	125
		Decachlorobiphenyl	2	20	15.26	76		55	130
		Tetrachloro-m-xylene	2	20	16.27	81		70	125
C5005-03	12SB24-0304-03	Decachlorobiphenyl	1	20	19.22	96		55	130
		Tetrachloro-m-xylene	1	20	19.66	98		70	125
		Decachlorobiphenyl	2	20	16.69	83		55	130
		Tetrachloro-m-xylene	2	20	17.31	87		70	125
C5005-04	12SB22-000.5-01	Decachlorobiphenyl	1	20	16	80		55	130
		Tetrachloro-m-xylene	1	20	18.92	95		70	125
		Decachlorobiphenyl	2	20	14.17	71		55	130
		Tetrachloro-m-xylene	2	20	19.52	98		70	125
C5005-05	12SB22-0.502-02	Decachlorobiphenyl	1	20	12.71	64		55	130
		Tetrachloro-m-xylene	1	20	16.91	85		70	125
		Decachlorobiphenyl	2	20	10.55	53	*	55	130
		Tetrachloro-m-xylene	2	20	15.06	75		70	125
C5005-06	12SB22-0304-03	Decachlorobiphenyl	1	20	17.5	88		55	130
		Tetrachloro-m-xylene	1	20	18.74	94		70	125
		Decachlorobiphenyl	2	20	15.71	79		55	130
		Tetrachloro-m-xylene	2	20	18.44	92		70	125
C5005-07	12SB20-000.5-01	Decachlorobiphenyl	1	20	18.76	94		55	130
		Tetrachloro-m-xylene	1	20	19.02	95		70	125
		Decachlorobiphenyl	2	20	17.01	85		55	130
		Tetrachloro-m-xylene	2	20	18.59	93		70	125
C5005-08	12SB20-0.502-02	Decachlorobiphenyl	1	20	18.5	93		55	130
		Tetrachloro-m-xylene	1	20	18.26	91		70	125
		Decachlorobiphenyl	2	20	15.87	79		55	130
		Tetrachloro-m-xylene	2	20	16.32	82		70	125
C5005-09	12SB-DUP-01	Decachlorobiphenyl	1	20	14.51	73		55	130
		Tetrachloro-m-xylene	1	20	15.95	80		70	125
		Decachlorobiphenyl	2	20	13.29	66		55	130
		Tetrachloro-m-xylene	2	20	15.84	79		70	125

CHEMTECH

Surrogate Summary

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5005-10	12SB19-000.5-01	Decachlorobiphenyl	1	20	17.5	88		55	130
		Tetrachloro-m-xylene	1	20	19.62	98		70	125
		Decachlorobiphenyl	2	20	16.42	82		55	130
		Tetrachloro-m-xylene	2	20	22.45	112		70	125
I.BLK-PD007101.D	PIBLK-PD007101.D	Decachlorobiphenyl	1	20	21.84	109		10	192
		Tetrachloro-m-xylene	1	20	21.34	107		10	172
		Decachlorobiphenyl	2	20	19.74	99		10	192
		Tetrachloro-m-xylene	2	20	18.79	94		10	172
C5005-11	12SB19-0.502-02	Decachlorobiphenyl	1	20	15.41	77		55	130
		Tetrachloro-m-xylene	1	20	20.25	101		70	125
		Decachlorobiphenyl	2	20	20.5	103		55	130
		Tetrachloro-m-xylene	2	20	20.83	104		70	125
C5005-12	12SB19-0304-03	Decachlorobiphenyl	1	20	14.94	75		55	130
		Tetrachloro-m-xylene	1	20	21.3	107		70	125
		Decachlorobiphenyl	2	20	19.33	97		55	130
		Tetrachloro-m-xylene	2	20	23.02	115		70	125
C5005-13	12SB18-000.5-01	Decachlorobiphenyl	1	20	14.56	73		55	130
		Tetrachloro-m-xylene	1	20	18.69	93		70	125
		Decachlorobiphenyl	2	20	18.5	93		55	130
		Tetrachloro-m-xylene	2	20	19.35	97		70	125
C5005-14	12SB18-0.502-02	Decachlorobiphenyl	1	20	17.41	87		55	130
		Tetrachloro-m-xylene	1	20	19.3	97		70	125
		Decachlorobiphenyl	2	20	18.2	91		55	130
		Tetrachloro-m-xylene	2	20	19.17	96		70	125
C5005-15	12SB18-0304-03	Decachlorobiphenyl	1	20	18	90		55	130
		Tetrachloro-m-xylene	1	20	20.02	100		70	125
		Decachlorobiphenyl	2	20	19.24	96		55	130
		Tetrachloro-m-xylene	2	20	17.71	89		70	125
C5005-03MS	12SB24-0304-03MS	Decachlorobiphenyl	1	20	16.69	83		55	130
		Tetrachloro-m-xylene	1	20	19.18	96		70	125
		Decachlorobiphenyl	2	20	15.31	77		55	130
		Tetrachloro-m-xylene	2	20	17.18	86		70	125
C5005-03MSD	12SB24-0304-03MSD	Decachlorobiphenyl	1	20	19.81	99		55	130
		Tetrachloro-m-xylene	1	20	22.53	113		70	125
		Decachlorobiphenyl	2	20	16.45	82		55	130
		Tetrachloro-m-xylene	2	20	20.6	103		70	125
I.BLK-PD007113.D	PIBLK-PD007113.D	Decachlorobiphenyl	1	20	21.51	108		10	192
		Tetrachloro-m-xylene	1	20	22.2	111		10	172
		Decachlorobiphenyl	2	20	19.67	98		10	192
		Tetrachloro-m-xylene	2	20	18.61	93		10	172
I.BLK-PD007129.D	PIBLK-PD007129.D	Decachlorobiphenyl	1	20	22.6	113		10	192
		Tetrachloro-m-xylene	1	20	26.36	132		10	172
		Decachlorobiphenyl	2	20	20.04	100		10	192
		Tetrachloro-m-xylene	2	20	19.88	99		10	172

CHEMTECH

Surrogate Summary

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD007142.D	PIBLK-PD007142.D	Decachlorobiphenyl	1	20	21.55	108		10	192
		Tetrachloro-m-xylene	1	20	19.47	97		10	172
		Decachlorobiphenyl	2	20	20.86	104		10	192
		Tetrachloro-m-xylene	2	20	19.66	98		10	172
PB59965BL	PB59965BL	Decachlorobiphenyl	1	20	22.04	110		55	130
		Tetrachloro-m-xylene	1	20	19.68	98		70	125
		Decachlorobiphenyl	2	20	20.91	105		55	130
		Tetrachloro-m-xylene	2	20	19.8	99		70	125
PB59965BS	PB59965BS	Decachlorobiphenyl	1	20	22.47	112		55	130
		Tetrachloro-m-xylene	1	20	20.08	100		70	125
		Decachlorobiphenyl	2	20	21.49	107		55	130
		Tetrachloro-m-xylene	2	20	20.81	104		70	125
I.BLK-PD007154.D	PIBLK-PD007154.D	Decachlorobiphenyl	1	20	21	105		10	192
		Tetrachloro-m-xylene	1	20	18.55	93		10	172
		Decachlorobiphenyl	2	20	20.68	103		10	192
		Tetrachloro-m-xylene	2	20	19.58	98		10	172

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12SB24-0304-03MS**										
C5005-03MS	alpha-BHC	18.5	0	16	86				60	125	
	beta-BHC	18.5	0	14	76				60	125	
	delta-BHC	18.5	0	15	81				55	130	
	gamma-BHC (Lindane)	18.5	0	16	86				60	125	
	Heptachlor	18.5	0	15	81				50	140	
	Aldrin	18.5	0	16	86				45	140	
	Heptachlor epoxide	18.5	0	15	81				65	130	
	Endosulfan I	18.5	0	14	76				15	135	
	Dieldrin	18.5	0	15	81				65	125	
	4,4-DDE	18.5	0	14	76				70	125	
	Endrin	18.5	0	15	81				60	135	
	Endosulfan II	18.5	0	15	81				35	140	
	4,4-DDD	18.5	0	15	81				30	135	
	Endosulfan sulfate	18.5	0	15	81				60	135	
	4,4-DDT	18.5	0	14	76				45	140	
	Methoxychlor	18.5	0	13	70				55	145	
	Endrin ketone	18.5	0	16	86				65	135	
	Endrin aldehyde	18.5	0	12	65				35	145	
	alpha-Chlordane	18.5	0	14	76				65	120	
	gamma-Chlordane	18.5	0	14	76				65	125	
Client Sample ID:	**12SB24-0304-03MSD**										
C5005-03MSD	alpha-BHC	18.4	0	18	98		13		60	125	20
	beta-BHC	18.4	0	16	87		13		60	125	20
	delta-BHC	18.4	0	17	92		13		55	130	20
	gamma-BHC (Lindane)	18.4	0	16	87		1		60	125	20
	Heptachlor	18.4	0	17	92		13		50	140	20
	Aldrin	18.4	0	17	92		7		45	140	20
	Heptachlor epoxide	18.4	0	17	92		13		65	130	20
	Endosulfan I	18.4	0	16	87		13		15	135	20
	Dieldrin	18.4	0	16	87		7		65	125	20
	4,4-DDE	18.4	0	16	87		13		70	125	20
	Endrin	18.4	0	17	92		13		60	135	20
	Endosulfan II	18.4	0	17	92		13		35	140	20
	4,4-DDD	18.4	0	15	82		1		30	135	20
	Endosulfan sulfate	18.4	0	16	87		7		60	135	20
	4,4-DDT	18.4	0	14	76		0		45	140	20
	Methoxychlor	18.4	0	15	82		16		55	145	20
	Endrin ketone	18.4	0	17	92		7		65	135	20
	Endrin aldehyde	18.4	0	13	71		9		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
C5005-03MSD	alpha-Chlordane	18.4	0	16	87		13		65	120	20
	gamma-Chlordane	18.4	0	16	87		13		65	125	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5005

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59965BS	alpha-BHC	16.7	18	108				84	123	
	beta-BHC	16.7	17	102				82	123	
	delta-BHC	16.7	17	102				83	126	
	gamma-BHC (Lindane)	16.7	17	102				83	125	
	Heptachlor	16.7	17	102				83	122	
	Aldrin	16.7	17	102				82	124	
	Heptachlor epoxide	16.7	17	102				83	120	
	Endosulfan I	16.7	17	102				81	124	
	Dieldrin	16.7	17	102				85	121	
	4,4-DDE	16.7	17	102				81	123	
	Endrin	16.7	17	102				76	130	
	Endosulfan II	16.7	16	96				80	125	
	4,4-DDD	16.7	17	102				80	131	
	Endosulfan sulfate	16.7	17	102				81	122	
	4,4-DDT	16.7	17	102				70	129	
	Methoxychlor	16.7	17	102				78	129	
	Endrin ketone	16.7	17	102				77	132	
	Endrin aldehyde	16.7	16	96				79	124	
	alpha-Chlordane	16.7	17	102				84	120	
	gamma-Chlordane	16.7	17	102				83	122	

TETRA TECH **CALCULATION WORKSHEET** PAGE _____ OF _____

CLIENT	JOB NUMBER		
NAS JRB Willow Grove	SDG C5005		
SUBJECT			
Sample Calculations			
BASED ON	DRAWING NUMBER		
BY	CHECKED BY	APPROVED BY	DATE
Ann Cognetti			March 1, 2012

I. VOC Sample 125B24-0.502-02; acetone

$$\frac{415056}{497287} * \frac{5000\,uL}{5.93\,g} * \frac{50\,ug/L}{0.302} * \frac{1}{0.82} = 142.1\,ug/kg$$

II. SVOC Sample 125B24-0.502-02; dimethylphthalate

$$\frac{69147}{166293} * \frac{1000\,uL}{30.06\,g} * \frac{20\,ng}{1.246} * \frac{1}{0.82} = 270.8\,ug/kg$$

III. PAH; Sample 125B19-0.502-02; benzo(a)pyrene

$$\frac{3048049}{129422} * 5 * \frac{5\,ng}{10.071} * \frac{1}{0.82} * \frac{1000\,uL}{30.07} = 2371.0\,ug/kg$$

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001928.D	1		12/20/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	150		3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.99	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.6	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.97	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.92	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.66	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.64	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.66	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

Sample Calculation

Data Path : W:\HPCHEM1\MSVOA_T\DATA\VT121911\
Data File : VT001928.D
Acq On : 20 Dec 2011 4:46
Operator : MS
Sample : C5005-02 125B24-0.502-02
Misc : 5.93g/ 5mL,MSVOA_T
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 20 05:44:18 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Pentafluorobenzene	8.05	168	497287	50.00	ug/l		0.00
33) 1,4-Difluorobenzene	8.95	114	911056	50.00	ug/l		0.00
62) Chlorobenzene-d5	11.71	117	617221	50.00	ug/l		0.00
71) 1,4-Dichlorobenzene-d4	13.63	152	282899	50.00	ug/l		0.00
System Monitoring Compounds							
32) 1,2-Dichloroethane-d4	8.38	65	409753	53.16	ug/l		0.00
Spiked Amount 50.000			Recovery =	106.32%			
34) Dibromofluoromethane	7.95	113	271002	49.86	ug/l		0.00
Spiked Amount 50.000			Recovery =	99.72%			
49) Toluene-d8	10.42	98	1154910	53.85	ug/l		0.00
Spiked Amount 50.000			Recovery =	107.70%			
61) 4-Bromofluorobenzene	12.69	95	325488	46.67	ug/l		0.00
Spiked Amount 50.000			Recovery =	93.34%			
Target Compounds							Qvalue
16) Acetone	3.95	43	415056	150.60	ug/l		98
25) 2-Butanone	7.19	43	14149	3.75	ug/l		95
35) 1,1-Dichloropropene	8.05	75	56376	5.47	ug/l	#	53
37) Carbon Tetrachloride	8.05	117	55022	7.39	ug/l	#	17
48) 1,4-Dioxane	9.57	88	145	2.58	ug/l	#	16
75) 1,2,3-Trichloropropane	12.69	75	193562	30.56	ug/l	#	38
80) trans-1,4-Dichloro-2-buten	12.69	75	193562	134.62	ug/l	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: MSVOA_T Calibration Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Calibration Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT001901.D RRF020 = VT001899.D RRF050 = VT001902.D
RRF100 = VT001903.D RRF200 = VT001904.D RRF010 = VT001900.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.436	0.453	0.397	0.394	0.366	0.479	0.421	10.1
Chloromethane	0.684	0.661	0.610	0.572	0.533	0.707	0.628	10.8
Vinyl Chloride	0.554	0.581	0.525	0.496	0.459	0.598	0.535	9.9
Bromomethane	0.269	0.272	0.252	0.195		0.266	0.251	12.7
Chloroethane	0.361	0.368	0.340	0.308		0.385	0.352	8.4
Trichlorofluoromethane	0.837	0.837	0.745	0.688	0.631	0.876	0.769	12.6
1,1,2-Trichlorotrifluor<	0.423	0.410	0.379	0.365	0.355	0.440	0.395	8.6
1,1-Dichloroethene	0.550	0.585	0.528	0.499	0.485	0.584	0.538	7.8
Acetone	0.366	0.310	0.279	0.240	0.243	0.372	0.302	19.3
Carbon Disulfide	1.825	1.984	1.870	1.807	1.850	1.967	1.884	4
Methyl tert-butyl Ether	1.424	1.486	1.537	1.397	1.557	1.450	1.475	4.3
Methyl Acetate	1.171	1.221	1.223	1.157	1.246	1.197	1.202	2.8
Methylene Chloride	0.718	0.669	0.644	0.599	0.607	0.707	0.658	7.6
trans-1,2-Dichloroethen<	0.544	0.556	0.531	0.518	0.516	0.568	0.539	3.9
1,1-Dichloroethane	1.310	1.317	1.287	1.255	1.264	1.357	1.298	2.9
Cyclohexane	1.521	1.357	1.239	1.188	1.165	1.471	1.323	11.3
2-Butanone	0.429	0.377	0.369	0.330	0.338	0.431	0.379	11.5
Carbon Tetrachloride	0.382	0.417	0.406	0.410	0.419	0.417	0.408	3.4
cis-1,2-Dichloroethene	0.675	0.732	0.730	0.711	0.712	0.728	0.715	3
Bromochloromethane	0.627	0.608	0.676	0.631	0.637	0.693	0.645	5
Chloroform	1.161	1.190	1.176	1.128	1.117	1.201	1.162	2.9
1,1,1-Trichloroethane	0.851	0.901	0.870	0.846	0.836	0.895	0.867	3.1
Methylcyclohexane	0.592	0.637	0.612	0.614	0.623	0.648	0.621	3.2
Benzene	1.587	1.625	1.613	1.633	1.681	1.649	1.631	1.9
1,2-Dichloroethane	0.550	0.531	0.543	0.525	0.539	0.568	0.543	2.8
Trichloroethene	0.293	0.288	0.278	0.279	0.274	0.300	0.285	3.5
1,2-Dichloropropane	0.429	0.424	0.430	0.424	0.425	0.439	0.428	1.3
Bromodichloromethane	0.438	0.471	0.480	0.471	0.470	0.477	0.468	3.3
4-Methyl-2-Pentanone	0.353	0.366	0.389	0.358	0.366	0.367	0.366	3.4
Toluene	0.817	0.817	0.807	0.800	0.793	0.843	0.813	2.2
t-1,3-Dichloropropene	0.383	0.453	0.478	0.472	0.480	0.435	0.45	8.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052058.D	1	12/16/11	12/19/11	PB59966

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	270	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

Sample Calculation

Data Path : Z:\HPCHEM1\BNA_F\Data\BF121911\
Data File : BF052058.D
Acq On : 19 Dec 2011 16:44
Operator : QM
Sample : C5005-02 125B24-0.502-02
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 20 00:42:53 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF120611.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 13 18:46:50 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.422	152	235132	20.00	ng	0.07
23) Naphthalene-d8	5.457	136	312100	20.00	ng	-0.08
40) Acenaphthene-d10	7.063	164	166293	20.00	ng	-0.09
65) Phenanthrene-d10	8.645	188	267109	20.00	ng	-0.12
77) Chrysene-d12	11.774	240	253045	20.00	ng	-0.14
88) Perylene-d12	13.404	264	224889	20.00	ng	-0.19
System Monitoring Compounds						
5) 2-Fluorophenol	3.004	112	564046	35.20	ng	-0.08
7) Phenol-d5	3.934	99	739738	37.08	ng	-0.08
12) 2-Chlorophenol-d4	4.046	132	541605	37.41	ng	-0.09
15) 1,2-Dichlorobenzene-d4	4.422	152	235132	23.97	ng	-0.08
25) Nitrobenzene-d5	4.810	82	410642	70.14	ng	-0.08
43) 2,4,6-Tribromophenol	7.886	330	156566	113.57	ng	-0.11
46) 2-Fluorobiphenyl	6.428	172	697383	69.70	ng	-0.08
80) Terphenyl-d14	10.557	244	684172	72.54	ng	-0.12
Target Compounds						Qvalue
9) Benzaldehyde	3.934	77	1052	Below Cal		# 1
21) n-Nitroso-di-n-propyla...	4.810	70	53717	4.92	ng	# 72
27) Isophorone	4.810	82	410642	39.69	ng	# 60
51) Dimethylphthalate	6.816	163	69147	6.67	ng	99
55) 2,4-Dinitrophenol	7.228	184	16	8.23	ng	94
58) 2,4-Dinitrotoluene	7.057	165	21214	6.97	ng	# 19
66) 4,6-Dinitro-2-methylph...	7.792	198	18	6.32	ng	# 1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_F Calibration Date(s): 12/06/2011 12/06/2011

Calibration Time(s): 18:52 21:06

LAB FILE ID: RRF010 = BF051712.D RRF025 = BF051713.D RRF040 = BF051714.D
RRF050 = BF051715.D RRF060 = BF051716.D RRF080 = BF051717.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.178	0.990	0.868	0.806	0.749	0.708	0.883	19.8
Phenol	2.154	1.981	1.886	1.822	1.695	1.632	1.862	10.3
bis(2-Chloroethyl)ether	1.586	1.465	1.436	1.417	1.360	1.357	1.437	5.9
2-Chlorophenol	1.597	1.466	1.418	1.391	1.317	1.306	1.416	7.6
2-Methylphenol	1.211	1.101	1.096	1.058	1.022	1.030	1.086	6.4
2,2-oxybis(1-Chloropropane)	2.147	1.906	1.872	1.813	1.725	1.704	1.861	8.6
Acetophenone	0.544	0.509	0.492	0.485	0.467	0.451	0.491	6.6
3+4-Methylphenols	1.609	1.435	1.411	1.357	1.292	1.265	1.395	8.9
n-Nitroso-di-n-propylamine	1.061	0.968	0.921	0.904	0.859	0.856	0.928	8.3
Hexachloroethane	0.611	0.596	0.584	0.570	0.537	0.548	0.574	4.9
Nitrobenzene	0.401	0.374	0.365	0.356	0.345	0.338	0.363	6.3
Isophorone	0.709	0.679	0.658	0.661	0.642	0.628	0.663	4.3
2-Nitrophenol	0.206	0.206	0.206	0.207	0.201	0.198	0.204	1.7
2,4-Dimethylphenol	0.354	0.336	0.327	0.327	0.320	0.307	0.328	4.9
bis(2-Chloroethoxy)methane	0.474	0.455	0.432	0.429	0.414	0.402	0.434	6.1
2,4-Dichlorophenol	0.308	0.306	0.295	0.298	0.281	0.273	0.294	4.7
4-Chloroaniline	0.483	0.453	0.441	0.435	0.414	0.400	0.438	6.7
Hexachlorobutadiene	0.173	0.169	0.157	0.158	0.156	0.150	0.160	5.3
Caprolactam	0.108	0.115	0.122	0.123	0.123	0.123	0.119	5.1
4-Chloro-3-methylphenol	0.327	0.317	0.315	0.318	0.306	0.299	0.314	3.2
Hexachlorocyclopentadiene	0.275	0.284	0.288	0.286	0.281	0.279	0.282	1.8
2,4,6-Trichlorophenol	0.382	0.371	0.366	0.358	0.346	0.342	0.361	4.2
2,4,5-Trichlorophenol	0.414	0.396	0.390	0.387	0.372	0.363	0.387	4.7
1,1-Biphenyl	1.601	1.479	1.407	1.327	1.276	1.219	1.385	10.2
2-Chloronaphthalene	1.236	1.156	1.098	1.028	1.007	0.953	1.079	9.7
2-Nitroaniline	0.375	0.384	0.376	0.369	0.365	0.358	0.371	2.5
Dimethylphthalate	1.375	1.290	1.256	1.215	1.188	1.153	1.246	6.4
Acenaphthylene	1.944	1.783	1.675	1.599	1.548	1.470	1.670	10.3
2,6-Dinitrotoluene	0.311	0.312	0.313	0.309	0.298	0.293	0.306	2.7
3-Nitroaniline	0.366	0.361	0.365	0.358	0.357	0.353	0.360	1.4
Acenaphthene	1.172	1.093	1.043	1.018	0.993	0.948	1.045	7.6
2,4-Dinitrophenol	0.044	0.076	0.113	0.129	0.140	0.152	0.109	38.1
4-Nitrophenol	0.257	0.279	0.296	0.297	0.298	0.298	0.288	5.7
Dibenzofuran	1.741	1.594	1.518	1.432	1.381	1.302	1.495	10.6

All other compounds must meet a minimum RRF of 0.010.

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02DL	SDG No.:	C5005
Lab Sample ID:	C5005-11DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002331.D	5	12/16/11	12/23/11	PB59967

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	41	D	2.4	20	ug/Kg
91-57-6	2-Methylnaphthalene	32	D	2.4	20	ug/Kg
208-96-8	Acenaphthylene	130	D	2.4	20	ug/Kg
83-32-9	Acenaphthene	120	D	2.4	20	ug/Kg
86-73-7	Fluorene	230	D	2.4	20	ug/Kg
85-01-8	Phenanthrene	3400	D	2.4	20	ug/Kg
120-12-7	Anthracene	1200	D	2.4	20	ug/Kg
206-44-0	Fluoranthene	6800	D	2.4	20	ug/Kg
129-00-0	Pyrene	4900	D	2.4	20	ug/Kg
56-55-3	Benzo(a)anthracene	2600	D	2.4	20	ug/Kg
218-01-9	Chrysene	2600	D	2.4	20	ug/Kg
205-99-2	Benzo(b)fluoranthene	3200	D	2.4	20	ug/Kg
207-08-9	Benzo(k)fluoranthene	1100	D	2.4	20	ug/Kg
50-32-8	Benzo(a)pyrene	2400	D	2.4	20	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1100	D	2.4	20	ug/Kg
53-70-3	Dibenz(a,h)anthracene	130	D	2.4	20	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1100	D	2.4	20	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	86.8		30 - 150	87%	SPK: 100
321-60-8	2-Fluorobiphenyl	67.6		19 - 182	68%	SPK: 100
1718-51-0	Terphenyl-d14	69.6		24 - 191	70%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	34567	8.03			
1146-65-2	Naphthalene-d8	129987	10.21			
15067-26-2	Acenaphthene-d10	82304	13.19			
1517-22-2	Phenanthrene-d10	144826	15.64			
1719-03-5	Chrysene-d12	152973	20.01			
1520-96-3	Perylene-d12	129422	23.17			

Data Path : Z:\HPCHEM1\BNA_G\Data\BG122211\
Data File : BG002331.D
Acq On : 23 Dec 2011 7:54
Operator : HNP
Sample : C5005-11DL 5X 125819-0.502-02
Misc : PAH
ALS Vial : 28 Sample Multiplier: 1

Sample Calculation

Quant Time: Dec 23 08:31:05 2011
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 15:47:51 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) 1,4-Dichlorobenzene-d4	8.029	152	34567	5.00	ng		0.00
2) Naphthalene-d8	10.212	136	129987	5.00	ng		0.00
7) Acenaphthene-d10	13.185	164	82304	5.00	ng		0.00
12) Phenanthrene-d10	15.642	188	144826	5.00	ng		0.00
16) Chrysene-d12	20.014	240	152973	5.00	ng		-0.01
23) Perylene-d12	23.171	264	129422	5.00	ng		-0.13
System Monitoring Compounds							
3) Nitrobenzene-d5	8.962	82	182987	17.36	ng		0.00
8) 2-Fluorobiphenyl	12.048	172	328315	13.52	ng		0.00
18) Terphenyl-d14	18.266	244	332134	13.93	ng		0.00
Target Compounds							Qvalue
4) Naphthalene	10.251	128	20490	0.20	ng		99
5) 2-Methylnapthalene	11.427	142	12093	0.16	ng		97
6) 1-Methylnapthalene	11.427	142	12027	0.17	ng		99
9) Acenaphthylene	12.943	152	71210	0.62	ng		99
10) Acenaphthene	13.231	154	11456	0.61	ng		91
11) Fluorene	14.095	166	24637	1.14	ng		95
13) Phenanthrene	15.674	178	2094607	16.91	ng		99
14) Anthracene	15.764	178	711010	5.77	ng		98
15) Fluoranthene	17.647	202	4292682	33.76	ng		99
17) Pyrene	18.025	202	3503831	24.02	ng	#	92
19) Bis(2-ethylhexyl)phtha...	19.988	149	2182	0.10	ng	#	71
20) Benzo(a)anthracene	19.988	228	1825993	12.86	ng		96
21) Chrysene	20.057	228	1656244	12.26	ng		95
22) Indeno(1,2,3-cd)pyrene	27.318	276	23325	0.19	ng	#	14
24) Benzo(b)fluoranthene	22.169	252	4390683	15.80	ng	#	96
25) Benzo(k)fluoranthene	22.169	252	4390683	15.88	ng	#	97
26) Benzo(a)pyrene	23.013	252	3048049	11.69	ng		97
27) Dibenzo(a,h)anthracene	26.901	278	37576	1.56	ng		96
28) Benzo(g,h,i)perylene	27.964	276	540932	5.29	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5005 SAS No.: C5005 SDG No.: C5005

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF02.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF02.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

C5005 semivolatiles

All other compounds must meet a minimum RRF of 0.010.

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **March 15, 2012**

FROM: **MEGAN CARSON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, CYANIDE, ORP, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5005

SAMPLES: 15/Soil/

12SB-DUP-01	12SB18-0.502-02	12SB18-000.5-01
12SB18-0304-03	12SB19-0.502-02	12SB19-000.5-01
12SB19-0304-03	12SB20-0.502-02	12SB20-000.5-01
12SB22-0.502-02	12SB22-000.5-01	12SB22-0304-03
12SB24-0.502-02	12SB24-000.5-01	12SB24-0304-03

Overview

The sample set for NASJRB Willow Grove, SDG C5005, consists of fifteen (15) soil environmental samples. This SDG contained one field duplicate pair: 12SB-DUP-01/12SB20-000.5-01.

All samples were analyzed for target analyte list (TAL) metals, cyanide, and pH (except 12SB-DUP-01). Samples 12SB18-0.502-02, 12SB18-000.5-01, 12SB18-0304-03, 12SB22-0.502-02, 12SB22-000.5-01, and 12SB22-0304-03 were analyzed for oxygen reduction potential (ORP). The samples were collected by Tetra Tech on December 14th, 2011 and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7471A. Cyanide analyses were conducted using method 9012B. pH analyses were conducted using standard method 9045C. ORP analyses were conducted using method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The following contaminants were detected in calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Vanadium [1]	0.016 mg/kg	0.08 mg/kg
Aluminum [2]	6.99 ug/L	3.49 mg/kg
Antimony [2]	0.98 ug/L	0.49 mg/kg
Barium [2]	0.66 ug/L	0.33 mg/kg
Beryllium [2]	0.15 ug/L	0.075 mg/kg
Chromium [2]	0.15 ug/L	0.075 mg/kg
Cobalt [2]	0.12 ug/L	0.06 mg/kg
Copper [2]	0.30 ug/L	0.15 mg/kg
Lead [2]	0.18 ug/L	0.09 mg/kg
Magnesium [2]	12.5 ug/L	6.25 mg/kg
Manganese [2]	0.55 ug/L	0.27 mg/kg
Potassium [2]	45.7 ug/L	22.8 mg/kg
Silver [2]	0.16 ug/L	0.08 mg/kg
Sodium [2]	58.2 ug/L	29.1 mg/kg
Thallium [2]	0.43 ug/L	0.21 mg/kg
Zinc [2]	0.39 ug/L	0.19 mg/kg

[1] Maximum concentration found in a preparation blank affecting all samples.
[2] Maximum concentration found in a calibration blank affecting all samples.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. All samples in the SDG were affected. Positive results less than the blank action level were qualified "B" as a result of blank contamination.

- The continuing calibrations analyzed on 12/23/11 all had a percent recovery > 110% for sodium. All samples were affected. Positive results were qualified as estimated (J) due to conflicting directional bias.

- The CRDL standard analyzed on 12/20/11 had a percent recovery <80% for mercury. All samples were affected. Positive results < 2X LOQ were qualified as biased low (L) or estimated (J) due to conflicting directional bias.

- The matrix spike and matrix spike duplicate had percent recoveries < 80% for antimony, arsenic, barium (MS), beryllium, chromium, cobalt, copper, nickel, potassium, sodium, and vanadium and a percent recovery > 110% for barium (MSD). The post digestion spike was within acceptable quality control limits. All samples were affected. Positive results were qualified as estimated (J) due to conflicting directional bias.

- The lab duplicate had a relative percent difference > 35% for sodium. All samples were affected. Positive results were qualified as estimated (J).

- The serial dilution had a percent difference > 10% for aluminum, antimony, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, thallium, vanadium, and zinc. All samples were affected. Positive results were qualified as estimated (J).

- The interfering analyte iron was present in samples 12SB-DUP-01, 12SB18-0304-03, 12SB19-0.502-02, 12SB19-000.5-01, 12SB19-0304-03, 12SB20-0.502-02, 12SB20-000.5-01, 12SB22-0304-03, and 12SB24-0.502-02 at concentrations comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, cadmium, copper, and nickel in the affected sample. Positive antimony results for samples 12SB-DUP-01, 12SB20-000.5-01, and 12SB20-0.502-02 were qualified as estimated (J) due to conflicting directional bias. Positive cadmium results for samples 12SB18-0304-03, 12SB19-0304-03, 12SB22-0304-03, and 12SB24-0.502-02 were qualified as biased high (K) or estimated (J) due to conflicting directional bias. Positive copper results for samples 12SB18-0304-03, 12SB19-000.5-01, 12SB19-0304-03, 12SB22-0304-03, and 12SB24-0.502-02 were qualified as estimated (J). Positive nickel results for samples12SB18-0304-03, 12SB19-0304-03, 12SB22-0304-03, and 12SB24-0.502-02 several antimony, silver, and thallium results were not qualified as they were previously qualified for blank contamination.

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

Sample 12SB19-0304-03 was analyzed at a 2X dilution for manganese.

Sample 12SB20-0.502-02 was analyzed at a 2X dilution for iron.

The CRDL standard analyzed on 12/22/11 had a percent recovery >110% for copper and zinc. All samples were affected. No validation action was warranted as sample results were > 2X LOQ.

Executive Summary

Laboratory Performance: Calibration and preparation blank contamination resulted in the qualification of sample results. Continuing calibration/CRDL standard non-compliances resulted in the qualification of sample results. Lab duplicate non-compliances resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike non-compliances resulted in the qualification of sample results. Serial dilution non-compliances resulted in the qualification of sample results.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
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Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-000.5-01			12SB18-0304-03			12SB19-0.502-02		
SDG: C5005	LAB_ID	C5005-14			C5005-13			C5005-15			C5005-11		
FRACTION: M	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.3			65.2			80.9			82.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7040	J	I	9000	J	I	7390	J	I	7270	J	I
ANTIMONY		0.32	B	A	0.64	B	A	0.18	B	A	2	B	A
ARSENIC		3.5	J	DI	5.4	J	DI	2.7	J	DI	4.2	J	DI
BARIUM		59.7	J	DI	76	J	DI	36.1	J	DI	135	J	DI
BERYLLIUM		0.56	J	DI	0.77	J	DI	0.45	J	DIK	0.85	J	DI
CADMIUM		0.24			0.67			0.062	J	KP	0.33		
CALCIUM		588	J	I	1150	J	I	436	J	I	2080	J	I
CHROMIUM		10.8	J	DI	15.1	J	DI	12.1	J	DI	15.9	J	DI
COBALT		4.2	J	DI	5.5	J	DI	7.5	J	DI	5.8	J	DI
COPPER		7.4	J	DI	11	J	DI	6.8	J	DIK	11.1	J	DI
IRON		10100	J	I	12800	J	I	15000	J	I	13200	J	I
LEAD		19.1	J	I	36.1	J	I	9.4	J	I	20.1	J	I
MAGNESIUM		1070	J	I	1340	J	I	1450	J	I	2060	J	I
MANGANESE		330	J	I	490	J	I	226	J	I	544	J	I
MERCURY		0.062			0.097			0.033			0.043		
NICKEL		6.6	J	DI	8.7	J	DI	7	J	DIK	8.1	J	DI
POTASSIUM		334	J	DI	549	J	DI	622	J	DI	499	J	DI
SELENIUM		0.2	J	P	0.38	J	P	0.26	U		0.19	J	P
SILVER		0.055	B	A	0.12	J	P	0.016	B	A	0.041	B	A
SODIUM		58.9	J	CDFI	145	J	CDFI	101	J	CDFI	96.8	J	CDFI
THALLIUM		0.11	B	A	0.15	B	A	0.11	B	A	0.1	B	A
VANADIUM		15.8	J	DI	21.4	J	DI	20.3	J	DI	18.4	J	DI
ZINC		31.1	J	I	48	J	I	23.6	J	I	93.9	J	I

PROJ_NO: 02014	NSAMPLE	12SB19-000.5-01			12SB19-0304-03			12SB19-0304-03DL			12SB20-0.502-02		
SDG: C5005	LAB_ID	C5005-10			C5005-12			C5005-12DL			C5005-08		
FRACTION: M	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	70.8			79.8			79.8			83.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		5850	J	I	7260	J	I				10700	J	I
ANTIMONY		0.45	B	A	0.35	B	A				0.49	J	DIK
ARSENIC		2.7	J	DI	3.9	J	DI				4	J	DI
BARIUM		76.5	J	DI	73.4	J	DI				68.2	J	DI
BERYLLIUM		0.58	J	DI	0.67	J	DI				0.64	J	DI
CADMIUM		0.31			0.11	K	K				0.26		
CALCIUM		1180	J	I	10500	J	I				447	J	I
CHROMIUM		11.5	J	DI	12.7	J	DI				17	J	DI
COBALT		5	J	DI	5.2	J	DI				5.4	J	DI
COPPER		8.6	J	DIK	7.5	J	DIK				10.8	J	DI
IRON		11900	J	I	13000	J	I						
LEAD		27.3	J	I	17.4	J	I				15.6	J	I
MAGNESIUM		1130	J	I	1960	J	I				1790	J	I
MANGANESE		390	J	I				770	J	I	238	J	I
MERCURY		0.043			0.011	J	CP				0.04		
NICKEL		7.5	J	DI	6.6	J	DIK				9.3	J	DI
POTASSIUM		812	J	DI	389	J	DI				568	J	DI
SELENIUM		0.2	J	P	0.19	J	P				0.22	U	
SILVER		0.07	B	A	0.049	B	A				0.078	J	P
SODIUM		62.9	J	CDFI	62.5	J	CDFI				59	J	CDFI
THALLIUM		0.15	B	A	0.11	B	A				0.14	B	A
VANADIUM		17.1	J	DI	18.7	J	DI				26.4	J	DI
ZINC		39.7	J	I	26.3	J	I				34.3	J	I

PROJ_NO: 02014	NSAMPLE	12SB20-0.502-02DL			12SB20-000.5-01			12SB22-0.502-02			12SB22-000.5-01		
SDG: C5005	LAB_ID	C5005-08DL			C5005-07			C5005-05			C5005-04		
FRACTION: M	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.5			71.6			79.2			70.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					5830	J	I	7740	J	I	8680	J	I
ANTIMONY					0.91	J	DIK	0.3	B	A	0.64	J	DI
ARSENIC					2.5	J	DI	4.3	J	DI	5.7	J	DI
BARIUM					66.2	J	DI	74.2	J	DI	75	J	DI
BERYLLIUM					0.45	J	DI	0.71	J	DI	0.75	J	DI
CADMIUM					0.73			0.14			0.29		
CALCIUM					1180	J	I	314	J	I	762	J	I
CHROMIUM					13.7	J	DI	11.2	J	DI	12.9	J	DI
COBALT					4.3	J	DI	3.6	J	DI	4.1	J	DI
COPPER					10.2	J	DI	5	J	DI	7.3	J	DI
IRON		21300	J	I	12200	J	I	10300	J	I	11800	J	I
LEAD					36.8	J	I	12.1	J	I	37.9	J	I
MAGNESIUM					1270	J	I	1090	J	I	1270	J	I
MANGANESE					256	J	I	299	J	I	368	J	I
MERCURY					0.057			0.089			0.214		
NICKEL					8.8	J	DI	6.1	J	DI	7.4	J	DI
POTASSIUM					708	J	DI	319	J	DI	422	J	DI
SELENIUM					0.12	J	P	0.31	J	P	0.47	J	P
SILVER					0.13			0.049	B	A	0.12	J	P
SODIUM					54.9	J	CDFI	112	J	CDFI	100	J	CDFI
THALLIUM					0.11	B	A	0.18	B	A	0.2	B	A
VANADIUM					20.1	J	DI	15.5	J	DI	19.4	J	DI
ZINC					61.6	J	I	26.9	J	I	46.4	J	I

PROJ_NO: 02014	NSAMPLE	12SB22-0304-03			12SB24-0.502-02			12SB24-000.5-01			12SB24-0304-03		
SDG: C5005	LAB_ID	C5005-06			C5005-02			C5005-01			C5005-03		
FRACTION: M	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.1			82.0			70.3			90.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7950	J	I	10700	J	I	9050	J	I	4930	J	I
ANTIMONY		0.16	B	A	0.34	B	A	1.5	J	DI	0.1	B	A
ARSENIC		3	J	DI	3.3	J	DI	4.8	J	DI	1.2	J	DI
BARIUM		36.5	J	DI	62.9	J	DI	84.8	J	DI	19.5	J	DI
BERYLLIUM		0.41	J	DIK	0.56	J	DI	0.75	J	DI	0.26	J	DI
CADMIUM		0.073	J	KP	0.12	K	K	0.51			0.025	J	P
CALCIUM		414	J	I	429	J	I	1160	J	I	267	J	I
CHROMIUM		12	J	DI	14.7	J	DI	12.6	J	DI	9.7	J	DI
COBALT		9.3	J	DI	4.2	J	DI	4.7	J	DI	2.6	J	DI
COPPER		5.9	J	DIK	5.4	J	DIK	11.3	J	DI	2.6	J	DI
IRON		14000	J	I	13800	J	I	10900	J	I	9270	J	I
LEAD		8.1	J	I	9.9	J	I	44.6	J	I	3.7	J	I
MAGNESIUM		1410	J	I	1190	J	I	1150	J	I	580	J	I
MANGANESE		204	J	I	251	J	I	412	J	I	85.3	J	I
MERCURY		0.017	L	C	0.017	L	C	0.115			0.002	J	CP
NICKEL		6.4	J	DIK	6.7	J	DIK	7.3	J	DI	3.4	J	DI
POTASSIUM		562	J	DI	345	J	DI	439	J	DI	217	J	DI
SELENIUM		0.22	U		0.26	J	P	0.37	J	P	0.255	U	
SILVER		0.019	B	A	0.033	B	A	0.31			0.0094	B	A
SODIUM		88	J	CDFI	117	J	CDFI	152	J	CDFI	126	J	CDFI
THALLIUM		0.13	B	A	0.23	J	I	0.17	B	A	0.11	B	A
VANADIUM		18.6	J	DI	20.3	J	DI	17.9	J	DI	12.9	J	DI
ZINC		20.3	J	I	26.2	J	I	54.2	J	I	12.1	J	I

PROJ_NO: 02014	NSAMPLE	12SB-DUP-01		
SDG: C5005	LAB_ID	C5005-09		
FRACTION: M	SAMP_DATE	12/14/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	70.6		
	DUP_OF	12SB20-000.5-01		
PARAMETER		RESULT	VQL	QLCD
ALUMINUM		6630	J	I
ANTIMONY		0.65	J	DIK
ARSENIC		2.7	J	DI
BARIUM		70	J	DI
BERYLLIUM		0.52	J	DI
CADMIUM		0.86		
CALCIUM		1190	J	I
CHROMIUM		13.8	J	DI
COBALT		4.8	J	DI
COPPER		11.9	J	DI
IRON		13600	J	I
LEAD		39.8	J	I
MAGNESIUM		1410	J	I
MANGANESE		282	J	I
MERCURY		0.05		
NICKEL		10.5	J	DI
POTASSIUM		766	J	DI
SELENIUM		0.086	J	P
SILVER		0.13		
SODIUM		116	J	CDFI
THALLIUM		0.12	B	A
VANADIUM		22.8	J	DI
ZINC		65.5	J	I

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02									12SB18-000.5-01		
SDG: C5005	LAB_ID	C5005-14									C5005-13		
FRACTION: MISC	SAMP_DATE	12/14/2011									12/14/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	81.3			81.3			100.0			65.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.097	J	P							0.164	J	P
OXIDATION REDUCTION POTENTIAL					278.7								
PH								6.63					

PROJ_NO: 02014	NSAMPLE	12SB18-000.5-01						12SB18-0304-03					
SDG: C5005	LAB_ID	C5005-13						C5005-15					
FRACTION: MISC	SAMP_DATE	12/14/2011						12/14/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	65.2			100.0			80.9			80.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.044	J	P			
OXIDATION REDUCTION POTENTIAL		313.6									323.7		
PH					5.5								

PROJ_NO: 02014	NSAMPLE	12SB18-0304-03			12SB19-0.502-02						12SB19-000.5-01		
SDG: C5005	LAB_ID	C5005-15			C5005-11						C5005-10		
FRACTION: MISC	SAMP_DATE	12/14/2011			12/14/2011						12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			82.2			100.0			70.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.067	J	P				0.124	J	P
OXIDATION REDUCTION POTENTIAL													
PH		5.58						6.84					

PROJ_NO: 02014	NSAMPLE	12SB19-000.5-01			12SB19-0304-03						12SB20-0.502-02		
SDG: C5005	LAB_ID	C5005-10			C5005-12						C5005-08		
FRACTION: MISC	SAMP_DATE	12/14/2011			12/14/2011						12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			79.8			100.0			83.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.1565	U					0.1495	U	
OXIDATION REDUCTION POTENTIAL													
PH		6.3						7.14					

PROJ_NO: 02014	NSAMPLE	12SB20-0.502-02			12SB20-000.5-01						12SB22-0.502-02		
SDG: C5005	LAB_ID	C5005-08			C5005-07						C5005-05		
FRACTION: MISC	SAMP_DATE	12/14/2011			12/14/2011						12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			71.6			100.0			79.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.12	J	P				0.068	J	P
OXIDATION REDUCTION POTENTIAL													
PH		4.88						5.43					

PROJ_NO: 02014	NSAMPLE	12SB22-0.502-02						12SB22-000.5-01					
SDG: C5005	LAB_ID	C5005-05						C5005-04					
FRACTION: MISC	SAMP_DATE	12/14/2011						12/14/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	79.2			100.0			70.4			70.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.127	J	P			
OXIDATION REDUCTION POTENTIAL		329.2									299.4		
PH					4.69								

PROJ_NO: 02014	NSAMPLE	12SB22-000.5-01			12SB22-0304-03								
SDG: C5005	LAB_ID	C5005-04			C5005-06								
FRACTION: MISC	SAMP_DATE	12/14/2011			12/14/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	100.0			83.1			83.1			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.15	U							
OXIDATION REDUCTION POTENTIAL								333.1					
PH		4.83									5.03		

PROJ_NO: 02014	NSAMPLE	12SB24-0.502-02						12SB24-000.5-01					
SDG: C5005	LAB_ID	C5005-02						C5005-01					
FRACTION: MISC	SAMP_DATE	12/14/2011						12/14/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	82.0			100.0			70.3			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.152	U					0.185	J	P			
OXIDATION REDUCTION POTENTIAL													
PH					4.51						5.3		

PROJ_NO: 02014	NSAMPLE	12SB24-0304-03						12SB-DUP-01		
SDG: C5005	LAB_ID	C5005-03						C5005-09		
FRACTION: MISC	SAMP_DATE	12/14/2011						12/14/2011		
MEDIA: SOIL	QC_TYPE	NM						NM		
	UNITS	MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	90.1			100.0			70.6		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.1385	U					0.124	J	P
OXIDATION REDUCTION POTENTIAL										
PH					5.01					

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	6630		1	0.85	2.5	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.65	N*	1	0.033	0.25	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	2.7	N	1	0.028	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	70	N	1	0.01	1.3	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.52	N	1	0.009	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.86		1	0.011	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	1190	*	1	0.8	62.7	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	13.8	N	1	0.014	0.25	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	4.8	N	1	0.008	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	11.9	N	1	0.008	0.25	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	13600		1	1.2	25.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	39.8		1	0.005	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1410		1	0.87	62.7	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	282		1	0.008	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.05		1	0.003	0.014	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	10.5	N	1	0.011	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	766	N	1	1.1	62.7	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.086	J	1	0.07	0.63	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.13		1	0.009	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	116	N*	1	1.5	62.7	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.12	J*	1	0.006	0.13	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	22.8	N	1	0.016	0.63	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	65.5		1	0.014	0.25	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7040		1	0.73	2.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.32	N*	1	0.028	0.22	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	3.5	N	1	0.024	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	59.7	N	1	0.009	1.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.56	N	1	0.008	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.24		1	0.01	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	588	*	1	0.69	53.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	10.8	N	1	0.012	0.22	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	4.2	N	1	0.006	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	7.4	N	1	0.006	0.22	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	10100		1	1	21.6	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	19.1		1	0.004	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1070		1	0.75	53.9	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	330		1	0.006	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.062		1	0.002	0.012	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	6.6	N	1	0.01	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	334	N	1	0.97	53.9	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.2	J	1	0.06	0.54	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.055	J	1	0.008	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	58.9	N*	1	1.3	53.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.11	*	1	0.005	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	15.8	N	1	0.014	0.54	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	31.1		1	0.012	0.22	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
Level (low/med):	low	% Solid:	65.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9000		1	0.96	2.8	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.64	N*	1	0.037	0.28	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	5.4	N	1	0.031	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	76	N	1	0.011	1.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.77	N	1	0.01	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.67		1	0.013	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	1150	*	1	0.9	71	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	15.1	N	1	0.016	0.28	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	5.5	N	1	0.008	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	11	N	1	0.008	0.28	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	12800		1	1.3	28.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	36.1		1	0.006	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1340		1	0.98	71	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	490		1	0.008	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.097		1	0.003	0.014	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	8.7	N	1	0.013	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	549	N	1	1.3	71	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.38	J	1	0.08	0.71	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.12	J	1	0.01	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	145	N*	1	1.7	71	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.15	*	1	0.007	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	21.4	N	1	0.018	0.71	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	48		1	0.016	0.28	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7390		1	0.71	2.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.18	JN*	1	0.027	0.21	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	2.7	N	1	0.023	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	36.1	N	1	0.008	1	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.45	N	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.062	J	1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	436	*	1	0.67	52.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	12.1	N	1	0.011	0.21	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	7.5	N	1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	6.8	N	1	0.006	0.21	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	15000		1	0.97	21	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	9.4		1	0.004	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1450		1	0.73	52.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	226		1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.033		1	0.002	0.012	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	7	N	1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	622	N	1	0.94	52.4	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.26	U	1	0.059	0.52	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.016	J	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	101	N*	1	1.3	52.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.11	*	1	0.005	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	20.3	N	1	0.014	0.52	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	23.6		1	0.011	0.21	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7270		1	0.75	2.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	2	N*	1	0.029	0.22	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	4.2	N	1	0.024	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	135	N	1	0.009	1.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.85	N	1	0.008	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.33		1	0.01	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	2080	*	1	0.7	55.3	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	15.9	N	1	0.012	0.22	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	5.8	N	1	0.007	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	11.1	N	1	0.007	0.22	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	13200		1	1	22.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	20.1		1	0.004	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	2060		1	0.77	55.3	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	544		1	0.007	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.043		1	0.002	0.011	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	8.1	N	1	0.01	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	499	N	1	1	55.3	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.19	J	1	0.062	0.55	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.041	J	1	0.008	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	96.8	N*	1	1.4	55.3	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.1	J*	1	0.006	0.11	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	18.4	N	1	0.014	0.55	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	93.9		1	0.012	0.22	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5850		1	0.8	2.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.45	N*	1	0.031	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	2.7	N	1	0.026	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	76.5	N	1	0.009	1.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.58	N	1	0.008	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.31		1	0.011	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	1180	*	1	0.75	58.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	11.5	N	1	0.013	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	5	N	1	0.007	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	8.6	N	1	0.007	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	11900		1	1.1	23.5	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	27.3		1	0.005	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1130		1	0.82	58.9	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	390		1	0.007	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.043		1	0.003	0.014	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	7.5	N	1	0.011	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	812	N	1	1.1	58.9	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.2	J	1	0.066	0.59	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.07	J	1	0.008	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	62.9	N*	1	1.4	58.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.15	*	1	0.006	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	17.1	N	1	0.015	0.59	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	39.7		1	0.013	0.24	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7260		1	0.69	2	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.35	N*	1	0.026	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	3.9	N	1	0.022	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	73.4	N	1	0.008	1	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.67	N	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.11		1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	10500	*	1	0.65	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	12.7	N	1	0.011	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	5.2	N	1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	7.5	N	1	0.006	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	13000		1	0.94	20.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	17.4		1	0.004	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1960		1	0.71	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	598.3	OR	1	0.006	0.101	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.011	J	1	0.002	0.012	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	6.6	N	1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	389	N	1	0.92	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.19	J	1	0.057	0.51	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.049	J	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	62.5	N*	1	1.2	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.11	*	1	0.005	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	18.7	N	1	0.013	0.51	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	26.3		1	0.011	0.2	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03DL	SDG No.:	C5005
Lab Sample ID:	C5005-12DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-96-5	Manganese	770	D	2	0.012	0.2	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10700		1	0.6	1.8	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.49	N*	1	0.023	0.18	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	4	N	1	0.019	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	68.2	N	1	0.007	0.89	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.64	N	1	0.006	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.26		1	0.008	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	447	*	1	0.56	44.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	17	N	1	0.01	0.18	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	5.4	N	1	0.005	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	10.8	N	1	0.005	0.18	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	18200	OR	1	0.821	17.74	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	15.6		1	0.004	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1790		1	0.61	44.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	238		1	0.005	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.04		1	0.002	0.011	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	9.3	N	1	0.008	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	568	N	1	0.8	44.4	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.22	U	1	0.05	0.44	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.078	J	1	0.006	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	59	N*	1	1.1	44.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.14	*	1	0.004	0.089	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	26.4	N	1	0.011	0.44	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	34.3		1	0.01	0.18	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02DL	SDG No.:	C5005
Lab Sample ID:	C5005-08DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	21300	D	2	1.6	35.5	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	71.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5830		1	0.65	1.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.91	N*	1	0.025	0.19	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	2.5	N	1	0.021	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	66.2	N	1	0.008	0.96	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.45	N	1	0.007	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.73		1	0.009	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	1180	*	1	0.61	48.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	13.7	N	1	0.011	0.19	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	4.3	N	1	0.006	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	10.2	N	1	0.006	0.19	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	12200		1	0.89	19.3	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	36.8		1	0.004	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1270		1	0.67	48.2	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	256		1	0.006	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.057		1	0.003	0.013	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	8.8	N	1	0.009	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	708	N	1	0.87	48.2	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.12	J	1	0.054	0.48	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.13		1	0.007	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	54.9	N*	1	1.2	48.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.11	*	1	0.005	0.096	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	20.1	N	1	0.013	0.48	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	61.6		1	0.011	0.19	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7740		1	0.82	2.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.3	N*	1	0.032	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	4.3	N	1	0.027	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	74.2	N	1	0.01	1.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.71	N	1	0.008	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.14		1	0.011	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	314	*	1	0.77	60.7	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	11.2	N	1	0.013	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	3.6	N	1	0.007	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	5	N	1	0.007	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	10300		1	1.1	24.3	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	12.1		1	0.005	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1090		1	0.84	60.7	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	299		1	0.007	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.089		1	0.002	0.011	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	6.1	N	1	0.011	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	319	N	1	1.1	60.7	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.31	J	1	0.068	0.61	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.049	J	1	0.008	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	112	N*	1	1.5	60.7	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.18	*	1	0.006	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	15.5	N	1	0.016	0.61	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	26.9		1	0.013	0.24	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8680		1	0.81	2.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.64	N*	1	0.031	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	5.7	N	1	0.026	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	75	N	1	0.01	1.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.75	N	1	0.008	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.29		1	0.011	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	762	*	1	0.76	59.7	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	12.9	N	1	0.013	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	4.1	N	1	0.007	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	7.3	N	1	0.007	0.24	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	11800		1	1.1	23.9	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	37.9		1	0.005	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1270		1	0.83	59.7	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	368		1	0.007	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.214		1	0.003	0.014	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	7.4	N	1	0.011	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	422	N	1	1.1	59.7	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.47	J	1	0.067	0.6	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.12	J	1	0.008	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	100	N*	1	1.5	59.7	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.2	*	1	0.006	0.12	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	19.4	N	1	0.015	0.6	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	46.4		1	0.013	0.24	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7950		1	0.59	1.8	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.16	JN*	1	0.023	0.18	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	3	N	1	0.019	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	36.5	N	1	0.007	0.88	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.41	N	1	0.006	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.073	J	1	0.008	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	414	*	1	0.56	43.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	12	N	1	0.01	0.18	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	9.3	N	1	0.005	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	5.9	N	1	0.005	0.18	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	14000		1	0.81	17.6	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	8.1		1	0.004	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1410		1	0.61	43.9	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	204		1	0.005	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.017		1	0.002	0.011	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	6.4	N	1	0.008	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	562	N	1	0.79	43.9	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.22	U	1	0.049	0.44	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.019	J	1	0.006	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	88	N*	1	1.1	43.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.13	*	1	0.004	0.088	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	18.6	N	1	0.011	0.44	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	20.3		1	0.01	0.18	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	82

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10700		1	0.68	2	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.34	N*	1	0.026	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	3.3	N	1	0.022	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	62.9	N	1	0.008	1	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.56	N	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.12		1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	429	*	1	0.64	50.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	14.7	N	1	0.011	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	4.2	N	1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	5.4	N	1	0.006	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	13800		1	0.93	20.2	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	9.9		1	0.004	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1190		1	0.7	50.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	251		1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.017		1	0.002	0.011	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	6.7	N	1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	345	N	1	0.91	50.4	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.26	J	1	0.056	0.5	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.033	J	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	117	N*	1	1.2	50.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.23	*	1	0.005	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	20.3	N	1	0.013	0.5	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	26.2		1	0.011	0.2	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9050		1	0.96	2.8	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	1.5	N*	1	0.037	0.28	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	4.8	N	1	0.031	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	84.8	N	1	0.011	1.4	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.75	N	1	0.01	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.51		1	0.013	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	1160	*	1	0.9	71.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	12.6	N	1	0.016	0.28	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	4.7	N	1	0.008	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	11.3	N	1	0.008	0.28	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	10900		1	1.3	28.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	44.6		1	0.006	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	1150		1	0.99	71.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	412		1	0.008	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.115		1	0.003	0.014	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	7.3	N	1	0.013	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	439	N	1	1.3	71.1	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.37	J	1	0.08	0.71	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.31		1	0.01	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	152	N*	1	1.7	71.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.17	*	1	0.007	0.14	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	17.9	N	1	0.018	0.71	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	54.2		1	0.016	0.28	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	90.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4930		1	0.69	2	mg/Kg	12/19/11	12/23/11	SW6020
7440-36-0	Antimony	0.1	JN*	1	0.026	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-38-2	Arsenic	1.2	N	1	0.022	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-39-3	Barium	19.5	N	1	0.008	1	mg/Kg	12/19/11	12/23/11	SW6020
7440-41-7	Beryllium	0.26	N	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-43-9	Cadmium	0.025	J	1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-70-2	Calcium	267	*	1	0.65	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-47-3	Chromium	9.7	N	1	0.011	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7440-48-4	Cobalt	2.6	N	1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-50-8	Copper	2.6	N	1	0.006	0.2	mg/Kg	12/19/11	12/23/11	SW6020
7439-89-6	Iron	9270		1	0.94	20.4	mg/Kg	12/19/11	12/23/11	SW6020
7439-92-1	Lead	3.7		1	0.004	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-95-4	Magnesium	580		1	0.71	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7439-96-5	Manganese	85.3		1	0.006	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7439-97-6	Mercury	0.002	J	1	0.002	0.011	mg/Kg	12/19/11	12/20/11	SW7471A
7440-02-0	Nickel	3.4	N	1	0.009	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-09-7	Potassium	217	N	1	0.92	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7782-49-2	Selenium	0.255	U	1	0.057	0.51	mg/Kg	12/19/11	12/23/11	SW6020
7440-22-4	Silver	0.009	J	1	0.007	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-23-5	Sodium	126	N*	1	1.2	50.9	mg/Kg	12/19/11	12/23/11	SW6020
7440-28-0	Thallium	0.11	*	1	0.005	0.1	mg/Kg	12/19/11	12/23/11	SW6020
7440-62-2	Vanadium	12.9	N	1	0.013	0.51	mg/Kg	12/19/11	12/23/11	SW6020
7440-66-6	Zinc	12.1		1	0.011	0.2	mg/Kg	12/19/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB-DUP-01	SDG No.:	C5005
Lab Sample ID:	C5005-09	Matrix:	SOIL
		% Solid:	70.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.124	J	1	0.047	0.354	mg/Kg	12/19/11	12/20/11	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-14	Matrix:	SOIL
		% Solid:	81.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.097	J	1	0.041	0.307	mg/Kg	12/19/11	12/20/11	9012B
pH	6.63		1	0	0	pH	12/15/11	12/15/11	9045C
Redox Potential	278.7		1	0.123	0.123	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

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E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-13	Matrix:	SOIL
		% Solid:	65.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.164	J	1	0.051	0.383	mg/Kg	12/19/11	12/20/11	9012B
pH	5.5		1	0	0	pH	12/15/11	12/15/11	9045C
Redox Potential	313.6		1	0.153	0.153	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB18-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-15	Matrix:	SOIL
		% Solid:	80.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.044	J	1	0.041	0.308	mg/Kg	12/19/11	12/20/11	9012B
pH	5.58		1	0	0	pH	12/15/11	12/15/11	9045C
Redox Potential	323.7		1	0.124	0.124	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-11	Matrix:	SOIL
		% Solid:	82.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.067	J	1	0.04	0.304	mg/Kg	12/19/11	12/20/11	9012B
pH	6.84		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-10	Matrix:	SOIL
		% Solid:	70.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.124	J	1	0.047	0.353	mg/Kg	12/19/11	12/20/11	9012B
pH	6.3		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

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E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB19-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-12	Matrix:	SOIL
		% Solid:	79.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.157	U	1	0.041	0.313	mg/Kg	12/19/11	12/20/11	9012B
pH	7.14		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-08	Matrix:	SOIL
		% Solid:	83.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.15	U	1	0.039	0.299	mg/Kg	12/19/11	12/20/11	9012B
pH	4.88		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB20-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-07	Matrix:	SOIL
		% Solid:	71.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.12	J	1	0.046	0.349	mg/Kg	12/19/11	12/20/11	9012B
pH	5.43		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-05	Matrix:	SOIL
		% Solid:	79.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.068	J	1	0.042	0.315	mg/Kg	12/19/11	12/20/11	9012B
pH	4.69		1	0	0	pH	12/15/11	12/15/11	9045C
Redox Potential	329.2		1	0.126	0.126	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-04	Matrix:	SOIL
		% Solid:	70.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.127	J	1	0.047	0.354	mg/Kg	12/19/11	12/20/11	9012B
pH	4.83		1	0	0	pH	12/15/11	12/15/11	9045C
Redox Potential	299.4		1	0.142	0.142	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB22-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-06	Matrix:	SOIL
		% Solid:	83.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.15	U	1	0.04	0.3	mg/Kg	12/19/11	12/20/11	9012B
pH	5.03		1	0	0	pH	12/15/11	12/15/11	9045C
Redox Potential	333.1		1	0.12	0.12	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0.502-02	SDG No.:	C5005
Lab Sample ID:	C5005-02	Matrix:	SOIL
		% Solid:	82

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.152	U	1	0.04	0.304	mg/Kg	12/19/11	12/20/11	9012B
pH	4.51		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-000.5-01	SDG No.:	C5005
Lab Sample ID:	C5005-01	Matrix:	SOIL
		% Solid:	70.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.185	J	1	0.047	0.355	mg/Kg	12/19/11	12/20/11	9012B
pH	5.3		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/15/11
Client Sample ID:	12SB24-0304-03	SDG No.:	C5005
Lab Sample ID:	C5005-03	Matrix:	SOIL
		% Solid:	90.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.139	U	1	0.037	0.277	mg/Kg	12/19/11	12/20/11	9012B
pH	5.01		1	0	0	pH	12/15/11	12/15/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C9005
QUOTE NO.
COC Number 021252

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	Pest / PCB	metals/Hg/CN/PH	OP	metals/Hg/CN			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	125B24-000.5-01	soil		X	12/1/11	1055	6	X	X	X	X						
2.	125B24-0.502-02	↓		X	↓	1020	6	X	X	X	X						
3.	125B24-0304-03			X		1025	6	X	X	X	X						
4.	125B22-000.5-01			X		1130	7	X	X	X	X	X					
5.	125B22-0.502-02			X		1140	7	X	X	X	X	X					
6.	125B22-0304-03			X		1150	7	X	X	X	X	X					
7.	125B20-000.5-01			X		1310	6	X	X	X	X						
8.	125B20-0.502-02			X		1300	6	X	X	X	X						
9.	125B-DUP-01			X		1200	6	X	X	X			X				
10.	125B19-000.5-01	↓		X	↓	1410	6	X	X	X	X						

PRESERVATIVES: E 1 E 2 E 3 E 4 E 5

COMMENTS: ← Specify Preservatives
A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Daniel Whalen	12/14/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY:
3. Fed Ex C5005 METALS	12/15/11 9:15	3. Kay Kwon

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO 636

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5005
QUOTE NO.
COC Number 021253

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd. Ste. 260
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO. GTO WE05 LOCATION:
PROJECT MANAGER: Andy Frelowitz
e-mail: andy.frelowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	TCL Pest/PCB	TAL Metals/Hg/CN/PH	ORP	TCL VOC			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	A				← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	125B19-0.502-02	soil		X	12/14/11	1420	6	X	X	X	X						
2.	125B19-0304-03			X		1450	6	X	X	X	X						
3.	125B18-0005-01			X		1540	7	X	X	X	X	X					
4.	125B18-0.502-02			X		1550	7	X	X	X	X	X					
5.	125B18-0304-03	↓		X		1600	7	X	X	X	X	X					
6.	12TB-20111214	AQ		X	↓	0800	2						X				trip Blank
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Donald Wheeler	12/14/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex C5005 METALS	12/15/11 9:15	3. Ken Rivera

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: YES

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

2637

Revision 8/2007

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CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5005
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Sample 12SB20-0.502-02 was diluted due to high concentration for Iron.Sample 12SB19-0304-03 was diluted due to high concentration for Manganese.
The Blank Spike met requirements for all samples.
The Duplicate (12SB24-000.5-01D)analysis met criteria for all samples except for Antimony, Calcium, Sodium and Thallium.
The Duplicate (12SB24-000.5-01SD)analysis met criteria for all samples except for Calcium.
The Matrix Spike (12SB24-000.5-01S) analysis met criteria for all samples except for Antimony, Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Nickel, Potassium, Sodium and Vanadium.
The Matrix Spike Duplicate (12SB24-000.5-01SD) analysis met criteria for all samples except for Antimony, Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Nickel, Sodium and Vanadium.
The Blank analysis did not indicate the presence of lab contamination.
The CCV 06 ,ccv07,ccv08,ccv09,ccv10,ccv11,ccv12,ccv13,ccv14,ccv15 were marginally failing for Sodium outside limits in run number LB58535 but all recoveries are lower than 115% .
The Serial Dilution(12SB24-000.5-01L)met criteria for all samples except for Aluminum, Arsenic, Barium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Vanadium and Zinc.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project manger name: Ms. Tobrena Skeen
Chemtech Project # C5005
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
15 Solid samples were received on 12/15/2011.
1 Water sample was received on 12/15/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide,pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, The analysis of Cyanide was based on method 9012B and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were met for all analysis except for all samples for pH.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature

Kalpana Raythattha
I am approving this document
2012.01.10 14:48:14 -05'00'

SDG C5005

Soil

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12SB-DUP-01	0.65		Fe	100000	1.6	13600	0.22	J	na
As		2.7			100000	0.28	13600	0.04	na	na
Ba		70			100000	1.5	13600	0.20	na	na
Be		0.52			100000	0.35	13600	0.05	na	na
Cd		0.86			100000	0.19	13600	0.03	na	na
Co		4.8			100000	1.2	13600	0.16	na	na
Cu		11.9			100000	8.2	13600	1.12	na	na
Pb		39.8			100000	4.4	13600	0.60	na	na
Mn		282			100000	8.1	13600	1.10	na	na
Ni		10.5			100000	6	13600	0.82	na	na
Ag		0.13			100000	0.051	13600	0.01	na	na
Tl		0.12			100000	0.082	13600	0.01	na	na
V		22.8			100000	-0.23	13600	-0.03	na	na
Zn		65.5			100000	12.4	13600	1.69	na	na

Sb	12SB18-0304-03	0.18		Fe	100000	1.6	15000	0.24	J BC	na
As		2.7			100000	0.28	15000	0.04	na	na
Ba		36.1			100000	1.5	15000	0.23	na	na
Be		0.45			100000	0.35	15000	0.05	J	na
Cd		0.062			100000	0.19	15000	0.03	J	na
Co		7.5			100000	1.2	15000	0.18	na	na
Cu		6.8			100000	8.2	15000	1.23	J	na
Pb		9.4			100000	4.4	15000	0.66	na	na
Mn		226			100000	8.1	15000	1.22	na	na
Ni		7			100000	6	15000	0.90	J	na
Ag		0.016			100000	0.051	15000	0.01	J BC	na
Tl		0.11			100000	0.082	15000	0.01	J BC	na
V		20.3			100000	-0.23	15000	-0.03	na	na

Zn		23.6			100000	12.4	15000	1.86	na	na

Sb	12SB19-0.502-02	2		Fe	100000	1.6	13200	0.21	+BC	na
As		4.2			100000	0.28	13200	0.04	na	na
Ba		135			100000	1.5	13200	0.20	na	na
Be		0.85			100000	0.35	13200	0.05	na	na
Cd		0.33			100000	0.19	13200	0.03	na	na
Co		5.8			100000	1.2	13200	0.16	na	na
Cu		11.1			100000	8.2	13200	1.08	na	na
Pb		20.1			100000	4.4	13200	0.58	na	na
Mn		544			100000	8.1	13200	1.07	na	na
Ni		8.1			100000	6	13200	0.79	na	na
Ag		0.041			100000	0.051	13200	0.01	+BC	na
Tl		0.1			100000	0.082	13200	0.01	+BC	na
V		18.4			100000	-0.23	13200	-0.03	na	na
Zn		93.9			100000	12.4	13200	1.64	na	na

Sb	12SB19-000.5-01	0.45		Fe	100000	1.6	11900	0.19	+BC	na
As		2.7			100000	0.28	11900	0.03	na	na
Ba		76.5			100000	1.5	11900	0.18	na	na
Be		0.58			100000	0.35	11900	0.04	na	na
Cd		0.31			100000	0.19	11900	0.02	na	na
Co		5			100000	1.2	11900	0.14	na	na
Cu		8.6			100000	8.2	11900	0.98	J	na
Pb		27.3			100000	4.4	11900	0.52	na	na
Mn		390			100000	8.1	11900	0.96	na	na
Ni		7.5			100000	6	11900	0.71	na	na
Ag		0.07			100000	0.051	11900	0.01	na	na
Tl		0.15			100000	0.082	11900	0.01	na	na
V		17.1			100000	-0.23	11900	-0.03	na	na
Zn		39.7			100000	12.4	11900	1.48	na	na

done twice

Sb	12SB19-0304-03	0.35		Ca	100000	1.6	10500	0.17	BC	na
As		3.9			100000	0.28	10500	0.03	na	na
Ba		73.4			100000	1.5	10500	0.16	na	na
Be		0.67			100000	0.35	10500	0.04	na	na
Cd		0.11			100000	0.19	10500	0.02	K	na
Co		5.2			100000	1.2	10500	0.13	na	na
Cu		7.5			100000	8.2	10500	0.86	J	na
Pb		17.4			100000	4.4	10500	0.46	na	na
Mn		770			100000	8.1	10500	0.85	na	na
Ni		6.6			100000	6	10500	0.63	na	na
Ag		0.049			100000	0.051	10500	0.01	BC	na
Tl		0.11			100000	0.082	10500	0.01	na	na
V		18.7			100000	-0.23	10500	-0.02	na	na
Zn		26.3			100000	12.4	10500	1.30	na	na

Cd, Cu

Sb	12SB19-0304-03	0.35		Fe	100000	1.6	13000	0.21	BC	na
As		3.9			100000	0.28	13000	0.04	na	na
Ba		73.4			100000	1.5	13000	0.20	na	na
Be		0.67			100000	0.35	13000	0.05	na	na
Cd		0.11			100000	0.19	13000	0.02	K	na
Co		5.2			100000	1.2	13000	0.16	na	na
Cu		7.5			100000	8.2	13000	1.07	J	na
Pb		17.4			100000	4.4	13000	0.57	na	na
Mn		770			100000	8.1	13000	1.05	na	na
Ni		6.6			100000	6	13000	0.78	J	na
Ag		0.049			100000	0.051	13000	0.01	BC	na
Tl		0.11			100000	0.082	13000	0.01	na	na
V		18.7			100000	-0.23	13000	-0.03	na	na
Zn		26.3			100000	12.4	13000	1.61	na	na

Cd, Cu, Ni

Sb	12SB20-0.502-02	0.49		Al	100000	1.6	10700	0.17	J	na
As		4			100000	0.28	10700	0.03	na	na
Ba		68.2			100000	1.5	10700	0.16	na	na

Sb

Be		0.64			100000	0.35	10700	0.04	na	na
Cd		0.26			100000	0.19	10700	0.02	na	na
Co		5.4			100000	1.2	10700	0.13	na	na
Cu		10.8			100000	8.2	10700	0.88	na	na
Pb		15.6			100000	4.4	10700	0.47	na	na
Mn		238			100000	8.1	10700	0.87	na	na
Ni		9.3			100000	6	10700	0.64	na	na
Ag		0.078			100000	0.051	10700	0.01	na	na
Tl		0.14			100000	0.082	10700	0.01	na	na
V		26.4			100000	-0.23	10700	-0.02	na	na
Zn		34.3			100000	12.4	10700	1.33	na	na

Sb	12SB20-000.5-01	0.91		Fe	100000	1.6	12200	0.20	(J)	na
As		2.5			100000	0.28	12200	0.03	na	na
Ba		66.2			100000	1.5	12200	0.18	na	na
Be		0.45			100000	0.35	12200	0.04	na	na
Cd		0.73			100000	0.19	12200	0.02	na	na
Co		4.3			100000	1.2	12200	0.15	na	na
Cu		10.2			100000	8.2	12200	1.00	na	na
Pb		36.8			100000	4.4	12200	0.54	na	na
Mn		256			100000	8.1	12200	0.99	na	na
Ni		8.8			100000	6	12200	0.73	na	na
Ag		0.13			100000	0.051	12200	0.01	na	na
Tl		0.11			100000	0.082	12200	0.01	na	na
V		20.1			100000	-0.23	12200	-0.03	na	na
Zn		61.6			100000	12.4	12200	1.51	na	na

Sb

Sb	12SB22-0304-03	0.16		Fe	100000	1.6	14000	0.22	RBC	na
As		3			100000	0.28	14000	0.04	na	na
Ba		36.5			100000	1.5	14000	0.21	na	na
Be		0.41			100000	0.35	14000	0.05	(J)	na
Cd		0.073			100000	0.19	14000	0.03	(J)	na
Co		9.3			100000	1.2	14000	0.17	na	na

Be, Cd, Cu, Ni

Cu		5.9			100000	8.2	14000	1.15	J	na
Pb		8.1			100000	4.4	14000	0.62	na	na
Mn		204			100000	8.1	14000	1.13	na	na
Ni		6.4			100000	6	14000	0.84	J	na
Ag		0.019			100000	0.051	14000	0.01	UBC	na
Tl		0.13			100000	0.082	14000	0.01	na	na
V		18.6			100000	-0.23	14000	-0.03	na	na
Zn		20.3			100000	12.4	14000	1.74	na	na

Sb	12SB24-0.502-02	0.34		Fe	100000	1.6	13800	0.22	UBC	na
As		3.3			100000	0.28	13800	0.04	na	na
Ba		62.9			100000	1.5	13800	0.21	na	na
Be		0.56			100000	0.35	13800	0.05	na	na
Cd		0.12			100000	0.19	13800	0.03	UB	na
Co		4.2			100000	1.2	13800	0.17	na	na
Cu		5.4			100000	8.2	13800	1.13	J	na
Pb		9.9			100000	4.4	13800	0.61	na	na
Mn		251			100000	8.1	13800	1.12	na	na
Ni		6.7			100000	6	13800	0.83	J	na
Ag		0.033			100000	0.051	13800	0.01	UBC	na
Tl		0.23			100000	0.082	13800	0.01	na	na
V		20.3			100000	-0.23	13800	-0.03	na	na
Zn		26.2			100000	12.4	13800	1.71	na	na

Cu, Ni

125B20-0.502-02

C5005-08X2 12/23/2011 04:53:49 AM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	86%	4.128	12.610	0.000	383.700	11280.000	10360.000	10020.000	69130.000
2	04:56:05	86%	3.542	13.630	0.000	383.000	11350.000	10430.000	9992.000	68650.000
3	04:57:13	86%	3.759	16.680	0.000	385.100	11420.000	10500.000	10140.000	69710.000
x		86%	3.809	14.310	0.000	383.900	11350.000	10430.000	10050.000	69160.000
σ		0%	0.297	2.118	0.000	1.074	72.050	72.840	77.020	527.900
%RSD		0	7.783	14.800	0.000	0.280	0.635	0.699	0.767	0.763

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	2977.000	1509.000	0.000	0.000	3798.000	3082.000	3080.000	91%	2392.000
2	04:56:05	2953.000	1491.000	0.000	0.000	3796.000	3165.000	3043.000	92%	2390.000
3	04:57:13	2990.000	1513.000	0.000	0.000	3837.000	3122.000	3035.000	91%	2394.000
x		2973.000	1504.000	0.000	0.000	3811.000	3123.000	3053.000	91%	2392.000
σ		18.850	11.670	0.000	0.000	23.260	41.650	24.100	1%	2.228
%RSD		0.634	0.776	0.000	0.000	0.610	1.334	0.790	1	0.093

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	177.600	114.000	372.800	122900.000	1572.000	124200.000	120100.000	35.380	62.070
2	04:56:05	172.500	113.700	390.500	122800.000	1569.000	123700.000	119400.000	34.950	61.220
3	04:57:13	174.400	114.600	397.400	123800.000	1584.000	124700.000	120900.000	35.910	61.960
x		174.800	114.100	386.900	123200.000	1575.000	124200.000	120100.000	35.410	61.750
σ		2.581	0.474	12.710	570.800	7.685	497.100	739.200	0.481	0.464
%RSD		1.476	0.415	3.286	0.463	0.488	0.400	0.616	1.357	0.752

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	70.950	72.210	222.700	25.430	0.133	3.691	1.152	0.136	13.720
2	04:56:05	70.720	71.830	220.800	24.780	0.461	4.024	0.782	0.469	12.520
3	04:57:13	70.800	72.760	223.900	23.810	0.064	4.122	0.377	0.067	13.920
x		70.820	72.270	222.400	24.670	0.219	3.946	0.770	0.224	13.390
σ		0.115	0.467	1.563	0.814	0.212	0.226	0.388	0.215	0.757
%RSD		0.163	0.647	0.703	3.299	96.590	5.733	50.320	95.960	5.653

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	32.890	3.767	6.585	3.801	3.863	-0.004	74%	6.101	0.471
2	04:56:05	33.620	4.037	6.516	3.873	3.882	-0.001	75%	5.096	0.428
3	04:57:13	33.820	3.824	6.380	3.712	3.876	0.011	75%	4.727	0.430
x		33.440	3.876	6.494	3.796	3.874	0.002	75%	5.308	0.443
σ		0.487	0.142	0.104	0.081	0.010	0.008	1%	0.711	0.024
%RSD		1.455	3.668	1.603	2.122	0.252	380.100	1	13.400	5.437

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	-1.650	6.061	0.455	1.329	6.496	2.833	400.000	397.900	83%
2	04:56:05	-1.051	5.056	0.416	1.346	6.372	2.826	397.200	397.800	84%
3	04:57:13	-1.216	4.693	0.426	1.169	6.277	3.018	403.300	394.500	84%
x		-1.306	5.270	0.432	1.281	6.382	2.892	400.200	396.700	84%
σ		0.310	0.709	0.020	0.097	0.110	0.109	3.058	1.917	1%
%RSD		23.710	13.450	4.700	7.599	1.718	3.779	0.764	0.483	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	04:54:57	84%	0.764	0.779	95.020	85.530	90.020	82%	8.461
2	04:56:05	84%	0.726	0.776	94.270	85.460	89.460	83%	8.401
3	04:57:13	84%	0.773	0.771	94.280	85.550	89.640	84%	8.442
x		84%	0.754	0.775	94.520	85.510	89.710	83%	8.435
σ		0%	0.025	0.004	0.433	0.045	0.284	1%	0.031
%RSD		1	3.262	0.518	0.458	0.052	0.317	1	0.362

$$120100\ \frac{\mu g}{L} \times \frac{0.1\ L}{1.35\ g} \times \frac{1000\ g}{1\ Kg} \times \frac{1\ mg}{1000\ \mu g} \times \frac{1}{0.0035\%\ S} \times 2DF = 21308.4\ \frac{mg}{Kg}$$

reported as 21300 mg/Kg

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C5005 METALS

LB58535 tee

NASJRB WILLOW GROVE
SOIL DATA
C5005

FRACTION	CHEMICAL	12SB-DUP-01	UNITS	12SB20-000.5-01	RPD	D
M	ALUMINUM	6630	MG/KG	5830	12.84	800.00
M	ANTIMONY	0.65	MG/KG	0.91	33.33	0.26
M	ARSENIC	2.7	MG/KG	2.5	7.69	0.20
M	BARIUM	70	MG/KG	66.2	5.58	3.80
M	BERYLLIUM	0.52	MG/KG	0.45	14.43	0.07
M	CADMIUM	0.86	MG/KG	0.73	16.35	0.13
M	CALCIUM	1190	MG/KG	1180	0.84	10.00
M	CHROMIUM	13.8	MG/KG	13.7	0.73	0.10
M	COBALT	4.8	MG/KG	4.3	10.99	0.50
M	COPPER	11.9	MG/KG	10.2	15.38	1.70
M	IRON	13600	MG/KG	12200	10.85	1400.00
M	LEAD	39.8	MG/KG	36.8	7.83	3.00
M	MAGNESIUM	1410	MG/KG	1270	10.45	140.00
M	MANGANESE	282	MG/KG	256	9.67	26.00
M	MERCURY	0.05	MG/KG	0.057	13.08	0.01
M	NICKEL	10.5	MG/KG	8.8	17.62	1.70
M	POTASSIUM	766	MG/KG	708	7.87	58.00
M	SELENIUM	0.086 J	MG/KG	0.12 J	33.01	0.03
M	SILVER	0.13	MG/KG	0.13	0.00	0.00
M	SODIUM	116	MG/KG	54.9	71.50	OK 61.10
M	THALLIUM	0.12 J	MG/KG	0.11	8.70	0.01
M	VANADIUM	22.8	MG/KG	20.1	12.59	2.70
M	ZINC	65.5	MG/KG	61.6	6.14	3.90

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5005

FRACTION	CHEMICAL	12SB-DUP-01	UNITS	12SB20-000.5-01	RPD	D
MISC	CYANIDE	0.124 J	MG/KG	0.12 J	3.28	0.00
~~MISC~~	~~PH~~	~~ND~~	~~S.U.~~	~~5.43~~	~~200.00~~	~~5.43~~

↳ FD was not analyzed for pH-

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

HOLDTIME

SDG C5005

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6
HG	MG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/19/2011	12/20/2011	5	1	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB20-0.502-02	C5005-08DL	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB19-0304-03	C5005-12DL	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
M	MG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/19/2011	12/23/2011	5	4	9
CN	MG/KG	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB18-0304-03	C5005-15	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB19-0304-03	C5005-12	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB22-0304-03	C5005-06	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB24-0304-03	C5005-03	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB-DUP-01	C5005-09	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
CN	MG/KG	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/16/2011	12/20/2011	2	4	6
ORP	MV	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
ORP	MV	12SB22-0304-03	C5005-06	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
ORP	MV	12SB18-0304-03	C5005-15	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
ORP	MV	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
ORP	MV	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/23/2011	12/23/2011	9	0	9
PH	S.U.	12SB19-0.502-02	C5005-11	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB22-0.502-02	C5005-05	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB24-000.5-01	C5005-01	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB24-0.502-02	C5005-02	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB22-0304-03	C5005-06	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB22-000.5-01	C5005-04	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB20-000.5-01	C5005-07	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB20-0.502-02	C5005-08	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB19-0304-03	C5005-12	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB19-000.5-01	C5005-10	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB24-0304-03	C5005-03	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
PH	S.U.	12SB18-0304-03	C5005-15	NM	12/14/2011	12/15/2011	12/15/2011	1	0	1
OS	UG/KG	12SB18-0.502-02	C5005-14	NM	12/14/2011	12/16/2011	12/28/2011	2	12	14
OS	UG/KG	12SB18-000.5-01	C5005-13	NM	12/14/2011	12/16/2011	12/23/2011	2	7	9

CHEMTECH

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Instrument ID: CV2 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date:	01/15/2009
Mercury	253.70	0.0915	0.2000		

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date:	01/15/2009
Mercury	253.70	0.0020	0.01		

Analyte	Mass	MDL ug/L	CRQL ug/L	Date:	02/14/2009
Aluminum	27	4.97	20		
Antimony	121	0.14	2		
Arsenic	75	0.18	1		
Barium	137	0.10	10		
Beryllium	9	0.09	1		
Cadmium	111	0.13	1		
Calcium	44	9.06	500		
Chromium	52	0.04	2		
Cobalt	59	0.05	1		
Copper	63	0.04	2		
Iron	57	10.28	200		
Lead	208	0.04	1		
Magnesium	24	4.95	500		
Manganese	55	0.05	1		
Nickel	60	0.06	1		
Potassium	39	12.22	500		
Selenium	82	0.70	5		
Silver	107	0.03	1		
Sodium	23	5.32	500		
Thallium	205	0.02	1		
Vanadium	51	0.15	5		
Zinc	66	0.09	2		

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date:	02/14/2009
Aluminum	27	0.6770	2.00		
Antimony	121	0.0260	0.20		
Arsenic	75	0.0220	0.10		
Barium	137	0.0080	1.00		
Beryllium	9	0.0070	0.10		
Cadmium	111	0.0090	0.10		
Calcium	44	0.6350	50.00		
Chromium	52	0.0110	0.20		
Cobalt	59	0.0060	0.10		
Copper	63	0.0060	0.20		
Iron	57	0.9260	20.00		
Lead	208	0.0040	0.10		

CHEMTECH

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

CHEMTECH

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5005 **SAS No.:** C5005

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB59988**						
C5005-01	12SB24-000.5-01	SAM	SOIL	12/19/2011	1.00	100.0	70.30
C5005-01D	12SB24-000.5-01D	DUP	SOIL	12/19/2011	1.00	100.0	70.30
C5005-01S	12SB24-000.5-01S	MS	SOIL	12/19/2011	1.00	100.0	70.30
C5005-01SD	12SB24-000.5-01SD	MSD	SOIL	12/19/2011	1.00	100.0	70.30
C5005-02	12SB24-0.502-02	SAM	SOIL	12/19/2011	1.21	100.0	82.00
C5005-03	12SB24-0304-03	SAM	SOIL	12/19/2011	1.09	100.0	90.10
C5005-04	12SB22-000.5-01	SAM	SOIL	12/19/2011	1.19	100.0	70.40
C5005-05	12SB22-0.502-02	SAM	SOIL	12/19/2011	1.04	100.0	79.20
C5005-06	12SB22-0304-03	SAM	SOIL	12/19/2011	1.37	100.0	83.10
C5005-07	12SB20-000.5-01	SAM	SOIL	12/19/2011	1.45	100.0	71.60
C5005-08	12SB20-0.502-02	SAM	SOIL	12/19/2011	1.35	100.0	83.50
C5005-08DL	12SB20-0.502-02DL	SAM	SOIL	12/19/2011	1.35	100.0	83.50
C5005-09	12SB-DUP-01	SAM	SOIL	12/19/2011	1.13	100.0	70.60
C5005-10	12SB19-000.5-01	SAM	SOIL	12/19/2011	1.20	100.0	70.80
C5005-11	12SB19-0.502-02	SAM	SOIL	12/19/2011	1.10	100.0	82.20
C5005-12	12SB19-0304-03	SAM	SOIL	12/19/2011	1.23	100.0	79.80
C5005-12DL	12SB19-0304-03DL	SAM	SOIL	12/19/2011	1.23	100.0	79.80
C5005-13	12SB18-000.5-01	SAM	SOIL	12/19/2011	1.08	100.0	65.20
C5005-14	12SB18-0.502-02	SAM	SOIL	12/19/2011	1.14	100.0	81.30
C5005-15	12SB18-0304-03	SAM	SOIL	12/19/2011	1.18	100.0	80.90
PB59988BL	PB59988BL	MB	SOIL	12/19/2011	1.00	100.0	100.00
PB59988BS	PB59988BS	LCS	SOIL	12/19/2011	1.00	100.0	100.00

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5005 **SAS No.:** C5005

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60015**						
C5005-01	12SB24-000.5-01	SAM	SOIL	12/19/2011	0.60	30.0	70.30
C5005-01D	12SB24-000.5-01D	DUP	SOIL	12/19/2011	0.60	30.0	70.30
C5005-01S	12SB24-000.5-01S	MS	SOIL	12/19/2011	0.60	30.0	70.30
C5005-01SD	12SB24-000.5-01SD	MSD	SOIL	12/19/2011	0.60	30.0	70.30
C5005-02	12SB24-0.502-02	SAM	SOIL	12/19/2011	0.64	30.0	82.00
C5005-03	12SB24-0304-03	SAM	SOIL	12/19/2011	0.63	30.0	90.10
C5005-04	12SB22-000.5-01	SAM	SOIL	12/19/2011	0.62	30.0	70.40
C5005-05	12SB22-0.502-02	SAM	SOIL	12/19/2011	0.70	30.0	79.20
C5005-06	12SB22-0304-03	SAM	SOIL	12/19/2011	0.65	30.0	83.10
C5005-07	12SB20-000.5-01	SAM	SOIL	12/19/2011	0.64	30.0	71.60
C5005-08	12SB20-0.502-02	SAM	SOIL	12/19/2011	0.68	30.0	83.50
C5005-09	12SB-DUP-01	SAM	SOIL	12/19/2011	0.61	30.0	70.60
C5005-10	12SB19-000.5-01	SAM	SOIL	12/19/2011	0.62	30.0	70.80
C5005-11	12SB19-0.502-02	SAM	SOIL	12/19/2011	0.67	30.0	82.20
C5005-12	12SB19-0304-03	SAM	SOIL	12/19/2011	0.62	30.0	79.80
C5005-13	12SB18-000.5-01	SAM	SOIL	12/19/2011	0.67	30.0	65.20
C5005-14	12SB18-0.502-02	SAM	SOIL	12/19/2011	0.64	30.0	81.30
C5005-15	12SB18-0304-03	SAM	SOIL	12/19/2011	0.64	30.0	80.90
PB60015BL	PB60015BL	MB	SOIL	12/19/2011	0.60	30.0	100.00
PB60015BS	PB60015BS	LCS	SOIL	12/19/2011	0.60	30.0	100.00

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Instrument: CV2

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60015BL		**SOIL**		**Batch Number:**		**PB60015**		**Prep Date:**	**12/19/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	12/20/2011	15:17	lb58463
PB59988BL		**SOIL**		**Batch Number:**		**PB59988**		**Prep Date:**	**12/19/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	12/22/2011	20:11	LB58535
	Antimony	0.026	<0.200	U	0.026	0.200	MS	12/22/2011	20:11	LB58535
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	12/22/2011	20:11	LB58535
	Barium	0.008	<1.000	U	0.008	1.000	MS	12/22/2011	20:11	LB58535
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	12/22/2011	20:11	LB58535
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	12/22/2011	20:11	LB58535
	Calcium	0.635	<50.000	U	0.635	50.000	MS	12/22/2011	20:11	LB58535
	Chromium	0.011	<0.200	U	0.011	0.200	MS	12/22/2011	20:11	LB58535
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	12/22/2011	20:11	LB58535
	Copper	0.029	<0.200	J	0.006	0.200	MS	12/22/2011	20:11	LB58535
	Iron	0.926	<20.000	U	0.926	20.000	MS	12/22/2011	20:11	LB58535
	Lead	0.004	<0.100	U	0.004	0.100	MS	12/22/2011	20:11	LB58535
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	12/22/2011	20:11	LB58535
	Manganese	0.008	<0.100	J	0.006	0.100	MS	12/22/2011	20:11	LB58535
	Nickel	0.009	<0.100	U	0.009	0.100	MS	12/22/2011	20:11	LB58535
	Potassium	3.405	<50.000	J	0.901	50.000	MS	12/22/2011	20:11	LB58535
	Selenium	0.056	<0.500	U	0.056	0.500	MS	12/22/2011	20:11	LB58535
	Silver	0.007	<0.100	U	0.007	0.100	MS	12/22/2011	20:11	LB58535
	Sodium	1.225	<50.000	U	1.225	50.000	MS	12/22/2011	20:11	LB58535
	Thallium	0.005	<0.100	U	0.005	0.100	MS	12/22/2011	20:11	LB58535
	Vanadium	0.016	<0.500	J	0.013	0.500	MS	12/22/2011	20:11	LB58535
	Zinc	0.014	<0.200	J	0.011	0.200	MS	12/22/2011	20:11	LB58535

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Matrix: SOIL **Sample ID:** C5005-01 **Client ID:** 12SB24-000.5-01S

Percent Solids for Sample: 70.3 **Spiked ID:** C5005-01S **Percent Solids for Spike Sample:** 70.3

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	10004.2700		9051.2100		284.50	335.0		MS
Antimony	mg/Kg	80 - 120	83.6842		1.5164		113.80	72.2	N	MS
Arsenic	mg/Kg	80 - 120	91.3514		4.8435		113.80	76.0	N	MS
Barium	mg/Kg	80 - 120	103.7838		84.7653		28.45	66.8	N	MS
Beryllium	mg/Kg	80 - 120	19.8009		0.7516		28.45	67.0	N	MS
Cadmium	mg/Kg	80 - 120	25.4339		0.5083		28.45	87.6		MS
Calcium	mg/Kg	80 - 120	1056.1880		1157.0410		142.25	-70.9		MS
Chromium	mg/Kg	80 - 120	52.4609		12.6060		56.90	70.0	N	MS
Cobalt	mg/Kg	80 - 120	25.1067		4.6501		28.45	71.9	N	MS
Copper	mg/Kg	80 - 120	42.5462		11.3314		42.67	73.2	N	MS
Iron	mg/Kg	80 - 120	10850.6400		10862.0200		426.74	-2.7		MS
Lead	mg/Kg	80 - 120	170.2703		44.5661		142.25	88.4		MS
Magnesium	mg/Kg	80 - 120	1322.9020		1147.9380		284.50	61.5		MS
Manganese	mg/Kg	80 - 120	424.4666		412.0911		28.45	43.5		MS
Nickel	mg/Kg	80 - 120	58.4922		7.2646		71.12	72.0	N	MS
Mercury	mg/Kg	34 - 153	0.4196		0.1145		0.28	109.0		CV
Potassium	mg/Kg	80 - 120	1570.4120		438.9758		1422.48	79.5	N	MS
Silver	mg/Kg	80 - 120	10.8080		0.3060		10.67	98.4		MS
Sodium	mg/Kg	80 - 120	428.3073		151.9203		426.74	64.8	N	MS
Thallium	mg/Kg	80 - 120	260.8820		0.1748		284.50	91.6		MS
Vanadium	mg/Kg	80 - 120	47.2546		17.8521		42.67	68.9	N	MS
Zinc	mg/Kg	80 - 120	78.4637		54.1679		28.45	85.4		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Matrix: SOIL **Sample ID:** C5005-01 **Client ID:** 12SB24-000.5-01SD

Percent Solids for Sample: 70.3 **Spiked ID:** C5005-01SD **Percent Solids for Spike Sample:** 70.3

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	11035.5600		9051.2100		284.50	697.5		MS
Antimony	mg/Kg	80 - 120	89.7013		1.5164		113.80	77.5	N	MS
Arsenic	mg/Kg	80 - 120	95.3912		4.8435		113.80	79.6	N	MS
Barium	mg/Kg	80 - 120	119.6871		84.7653		28.45	122.7	N	MS
Beryllium	mg/Kg	80 - 120	21.4083		0.7516		28.45	72.6	N	MS
Cadmium	mg/Kg	80 - 120	26.5576		0.5083		28.45	91.6		MS
Calcium	mg/Kg	80 - 120	1467.9940		1157.0410		142.25	218.6		MS
Chromium	mg/Kg	80 - 120	56.3442		12.6060		56.90	76.9	N	MS
Cobalt	mg/Kg	80 - 120	27.0555		4.6501		28.45	78.8	N	MS
Copper	mg/Kg	80 - 120	45.3770		11.3314		42.67	79.8	N	MS
Iron	mg/Kg	80 - 120	11789.4700		10862.0200		426.74	217.3		MS
Lead	mg/Kg	80 - 120	175.8179		44.5661		142.25	92.3		MS
Magnesium	mg/Kg	80 - 120	1446.6570		1147.9380		284.50	105.0		MS
Manganese	mg/Kg	80 - 120	480.2276		412.0911		28.45	239.5		MS
Nickel	mg/Kg	80 - 120	62.9161		7.2646		71.12	78.3	N	MS
Mercury	mg/Kg	34 - 153	0.4296		0.1145		0.28	112.5		CV
Potassium	mg/Kg	80 - 120	1657.1830		438.9758		1422.48	85.6		MS
Silver	mg/Kg	80 - 120	10.7639		0.3060		10.67	98.0		MS
Sodium	mg/Kg	80 - 120	452.0626		151.9203		426.74	70.3	N	MS
Thallium	mg/Kg	80 - 120	266.8563		0.1748		284.50	93.7		MS
Vanadium	mg/Kg	80 - 120	50.9531		17.8521		42.67	77.6	N	MS
Zinc	mg/Kg	80 - 120	84.6657		54.1679		28.45	107.2		MS

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Matrix: WATER **Level:** LOW **Client ID:** 12SB24-000.5-01A

Sample ID: C5005-01 **Spiked ID:** C5005-01A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	788.40		10.66		80.0 (800)	972.2 (97%)		MS
Arsenic	ug/L	80 - 120	765.30		4.8		800	91.4		MS
Barium	ug/L	80 - 120	826.70		595.90		20.0 (200)	1154.0 (115%)		MS
Beryllium	ug/L	80 - 120	178.20		5.28		200.0	86.5		MS
Chromium	ug/L	80 - 120	458.60		88.62		40.0 (400)	925.0 (92%)		MS
Cobalt	ug/L	80 - 120	218.60		32.69		20.0 (200)	929.6 (92%)		MS
Copper	ug/L	80 - 120	364.70		79.66		30.0 (300)	950.1 (95%)		MS
Nickel	ug/L	80 - 120	511.60		51.07		50.0 (500)	921.1 (92%)		MS
Potassium	ug/L	80 - 120	12610.00		439		1000 (10000)	952.4 (121%)		MS
Sodium	ug/L	80 - 120	4070.00		1068.00		300.0 (3000)	1000.7 (100%)		MS
Vanadium	ug/L	80 - 120	401.50		125.50		30.0 (300)	920.0 (92%)		MS

(> previous analysis

CHEMTECH

MS/MSD

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Matrix: SOIL **Sample ID:** C5005-01 **Client ID:** 12SB24-000.5-01SD

Percent Solids for Sample: 70.3 **Duplicate ID** C5005-01SD **Percent Solids for Spike Sample:** 70.3

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	10004.2700		11035.5600		9.8		MS
Antimony	mg/Kg	20	83.6842		89.7013		6.9		MS
Arsenic	mg/Kg	20	91.3514		95.3912		4.3		MS
Barium	mg/Kg	20	103.7838		119.6871		14.2		MS
Beryllium	mg/Kg	20	19.8009		21.4083		7.8		MS
Cadmium	mg/Kg	20	25.4339		26.5576		4.3		MS
Calcium	mg/Kg	20	1056.1880		1467.9940		32.6	*	MS
Chromium	mg/Kg	20	52.4609		56.3442		7.1		MS
Cobalt	mg/Kg	20	25.1067		27.0555		7.5		MS
Copper	mg/Kg	20	42.5462		45.3770		6.4		MS
Iron	mg/Kg	20	10850.6400		11789.4700		8.3		MS
Lead	mg/Kg	20	170.2703		175.8179		3.2		MS
Magnesium	mg/Kg	20	1322.9020		1446.6570		8.9		MS
Manganese	mg/Kg	20	424.4666		480.2276		12.3		MS
Nickel	mg/Kg	20	58.4922		62.9161		7.3		MS
Mercury	mg/Kg	20	0.4196		0.4296		2.4		CV
Potassium	mg/Kg	20	1570.4120		1657.1830		5.4		MS
Silver	mg/Kg	20	10.8080		10.7639		0.4		MS
Sodium	mg/Kg	20	428.3073		452.0626		5.4		MS
Thallium	mg/Kg	20	260.8820		266.8563		2.3		MS
Vanadium	mg/Kg	20	47.2546		50.9531		7.5		MS
Zinc	mg/Kg	20	78.4637		84.6657		7.6		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Matrix: SOIL **Sample ID:** C5005-01 **Client ID:** 12SB24-000.5-01D

Percent Solids for Sample: 70.3 **Duplicate ID** C5005-01D **Percent Solids for Spike Sample:** 70.3

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	9051.2100		7695.5910		16.2		MS
Antimony	mg/Kg	20	1.5164		1.2395		20.1	*	MS
Arsenic	mg/Kg	20	4.8435		4.2930		12.1		MS
Barium	mg/Kg	20	84.7653		80.2418		5.5		MS
Beryllium	mg/Kg	20	0.7516		0.6236		18.6		MS
Cadmium	mg/Kg	20	0.5083		0.4999		1.7		MS
Calcium	mg/Kg	20	1157.0410		1487.9090		25.0	*	MS
Chromium	mg/Kg	20	12.6060		10.8421		15.0		MS
Cobalt	mg/Kg	20	4.6501		4.0612		13.5		MS
Copper	mg/Kg	20	11.3314		10.3841		8.7		MS
Iron	mg/Kg	20	10862.0200		9322.9020		15.3		MS
Lead	mg/Kg	20	44.5661		39.6159		11.8		MS
Magnesium	mg/Kg	20	1147.9380		1081.0810		6.0		MS
Manganese	mg/Kg	20	412.0911		364.8649		12.2		MS
Nickel	mg/Kg	20	7.2646		6.4595		11.7		MS
Mercury	mg/Kg	20	0.1145		0.1181		3.1		CV
Potassium	mg/Kg	20	438.9758		432.2902		1.5		MS
Selenium	mg/Kg	20	0.3717		0.3296	J	12.0		MS
Silver	mg/Kg	20	0.3060		0.2711		12.1		MS
Sodium	mg/Kg	20	151.9203		70.3414	J	73.4	*	MS
Thallium	mg/Kg	20	0.1748		0.1333	J	26.9	*	MS
Vanadium	mg/Kg	20	17.8521		15.7895		12.3		MS
Zinc	mg/Kg	20	54.1679		50.9673		6.1		MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB59988BS							
Aluminum	mg/Kg	200	189.9		95.0	80 - 120	MS
Antimony	mg/Kg	80	84.2		105.2	80 - 120	MS
Arsenic	mg/Kg	80	81.4		101.8	80 - 120	MS
Barium	mg/Kg	20	21.0		105.0	80 - 120	MS
Beryllium	mg/Kg	20	18.6		93.0	80 - 120	MS
Cadmium	mg/Kg	20	20.9		104.5	80 - 120	MS
Calcium	mg/Kg	100	107.0		107.0	80 - 120	MS
Chromium	mg/Kg	40	40.9		102.2	80 - 120	MS
Cobalt	mg/Kg	20	20.6		103.0	80 - 120	MS
Copper	mg/Kg	30	32.0		106.7	80 - 120	MS
Iron	mg/Kg	300	308.7		102.9	80 - 120	MS
Lead	mg/Kg	100	102.6		102.6	80 - 120	MS
Magnesium	mg/Kg	200	197.8		98.9	80 - 120	MS
Manganese	mg/Kg	20	21.2		106.0	80 - 120	MS
Nickel	mg/Kg	50	51.8		103.6	80 - 120	MS
Potassium	mg/Kg	1000	1063.0		106.3	80 - 120	MS
Selenium	mg/Kg	200	200.1		100.0	80 - 120	MS
Silver	mg/Kg	7.5	7.8		104.0	80 - 120	MS
Sodium	mg/Kg	300	320.7		106.9	80 - 120	MS
Thallium	mg/Kg	200	204.9		102.4	80 - 120	MS
Vanadium	mg/Kg	30	30.0		100.0	80 - 120	MS
Zinc	mg/Kg	20	22.0		110.0	80 - 120	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60015BS							
Mercury	mg/Kg	0.200	0.190		95.0	73 - 121	CV

CHEMTECH

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB24-000.5-01L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG No.:** C5005

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	63630.00		91100.00		43.2		MS
Antimony	10.66		13.67		28.2		MS
Arsenic	34.05		43.47		27.7		MS
Barium	595.90		759.00		27.4		MS
Beryllium	5.28		7.57		43.4		MS
Cadmium	3.57		4.19	J	17.4	OK	MS
Calcium	8134.00		10855.00		33.5		MS
Chromium	88.62		120.15		35.6		MS
Cobalt	32.69		45.42		38.9		MS
Copper	79.66		110.70		39.0		MS
Iron	76360.00		107400.00		40.6		MS
Lead	313.30		362.30		15.6		MS
Magnesium	8070.00		10340.00		28.1		MS
Manganese	2897.00		3826.00		32.1		MS
Nickel	51.07		71.90		40.8		MS
Mercury	1.61		0.96	J	40.4	OK	CV
Potassium	3086.00		3637.50		17.9		MS
Selenium	2.61	J	6.24	J	139.1	OK	MS
Silver	2.15		2.37	J	10.2		MS
Sodium	1068.00		1229.50	J	15.1		MS
Thallium	1.23		1.41	J	14.6		MS
Vanadium	125.50		179.55		43.7		MS
Zinc	380.80		488.90		28.4		MS

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG No.:** C5005

Instrument ID Number: CV2 **Method:** CV **Run Number:** lb58463

Start Date: 12/20/2011 **End Date:** 12/20/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1409																X									
Std02Rep1	1	1411																X									
Std03Rep1	1	1414																X									
Std04Rep1	1	1417																X									
Std05Rep1	1	1420																X									
Std06Rep1	1	1422																X									
ICV01	1	1429																X									
ICB01	1	1431																X									
CCV01	1	1433																X									
CCB01	1	1435																X									
CRI01	1	1437																X									
CCV02	1	1457																X									
CCB02	1	1503																X									
PB60015BL	1	1517																X									
PB60015BS	1	1520																X									
CCV03	1	1525																X									
CCB03	1	1527																X									
CCV04	1	1547																X									
CCB04	1	1549																X									
CCV05	1	1613																X									
CCB05	1	1615																X									
CCV06	1	1636																X									
CCB06	1	1645																X									
CCV07	1	1705																X									
CCB07	1	1709																X									
CCV08	1	1729																X									
CCB08	1	1731																X									
12SB24-000.5-01	1	1740																X									
12SB24-000.5-01D	1	1742																X									
12SB24-000.5-01L	5	1745																X									
12SB24-000.5-01S	1	1747																X									
12SB24-000.5-01SD	1	1749																X									
CCV09	1	1751																X									
CCB09	1	1753																X									
12SB24-000.5-01A	1	1755																									
12SB24-0.502-02	1	1757																X									
12SB24-0304-03	1	1800																X									
12SB22-000.5-01	1	1802																X									
12SB22-0.502-02	1	1804																X									
12SB22-0304-03	1	1806																X									
12SB20-000.5-01	1	1808																X									

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG No.:** C5005

Instrument ID Number: CV2 **Method:** CV **Run Number:** lb58463

Start Date: 12/20/2011 **End Date:** 12/20/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB20-0.502-02	1	1810																X									
CCV10	1	1812																X									
CCB10	1	1814																X									
12SB-DUP-01	1	1816																X									
12SB19-000.5-01	1	1819																X									
12SB19-0.502-02	1	1821																X									
12SB19-0304-03	1	1823																X									
12SB18-000.5-01	1	1826																X									
12SB18-0.502-02	1	1828																X									
12SB18-0304-03	1	1831																X									
CCV11	1	1835																X									
CCB11	1	1838																X									
CCV12	1	1901																X									
CCB12	1	1910																X									
CCV13	1	1929																X									
CCB13	1	1931																X									
CCV14	1	1953																X									
CCB14	1	1957																X									

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG No.:** C5005

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58535

Start Date: 12/22/2011 **End Date:** 12/23/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1630		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1638		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1646		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1654		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1702		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1709		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1717		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1725		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1733		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1741		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1805		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1813		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1939		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1947		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB59988BL	1	2011		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB59988BS	1	2042		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	2114		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	2122		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2249		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2257		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	0024		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	0032		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB24-000.5-01	1	0055		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB24-000.5-01D	1	0103		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB24-000.5-01S	1	0111		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	
12SB24-000.5-01SD	1	0119		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	
12SB24-000.5-01A	1	0127			X	X	X	X			X	X	X						X	X			X		X		
CCV06	1	0159		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	0207		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB24-0.502-02	1	0246		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB24-0304-03	1	0254		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB22-000.5-01	1	0302		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV07	1	0334		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0342		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB22-0.502-02	1	0350		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB22-0304-03	1	0358		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB20-000.5-01	1	0406		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB20-0.502-02	1	0413		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	
12SB-DUP-01	1	0422		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB20-0.502-02D	2	0453												X													

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5005 **SAS No.:** C5005 **SDG No.:** C5005

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58535

Start Date: 12/22/2011 **End Date:** 12/23/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV08	1	0509		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB08	1	0517		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB19-000.5-01	1	0525		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB19-0.502-02	1	0533		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB19-0304-03	1	0541		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	
12SB18-000.5-01	1	0549		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB18-0.502-02	1	0557		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB18-0304-03	1	0605		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB19-0304-03DL	2	0628															X										
CCV09	1	0644		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB09	1	0652		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV10	1	0820		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB10	1	0828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV11	1	0955		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB11	1	1003		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV12	1	1130		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB12	1	1138		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV13	1	1306		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB13	1	1314		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV14	1	1418		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB14	1	1426		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV15	1	1537		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB15	1	1545		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	4.04	4.0	101.0	90 - 110	CV	12/20/2011	14:29	lb58463
CCV01	Mercury	5.07	5.0	101.4	90 - 110	CV	12/20/2011	14:33	lb58463
CCV02	Mercury	4.96	5.0	99.2	90 - 110	CV	12/20/2011	14:57	lb58463
CCV03	Mercury	5.06	5.0	101.2	90 - 110	CV	12/20/2011	15:25	lb58463
CCV04	Mercury	5.28	5.0	105.6	90 - 110	CV	12/20/2011	15:47	lb58463
CCV05	Mercury	5.10	5.0	102.0	90 - 110	CV	12/20/2011	16:13	lb58463
CCV06	Mercury	4.99	5.0	99.8	90 - 110	CV	12/20/2011	16:36	lb58463
CCV07	Mercury	5.18	5.0	103.6	90 - 110	CV	12/20/2011	17:05	lb58463
CCV08	Mercury	5.22	5.0	104.4	90 - 110	CV	12/20/2011	17:29	lb58463
CCV09	Mercury	5.02	5.0	100.4	90 - 110	CV	12/20/2011	17:51	lb58463
CCV10	Mercury	4.89	5.0	97.8	90 - 110	CV	12/20/2011	18:12	lb58463
CCV11	Mercury	5.00	5.0	100.0	90 - 110	CV	12/20/2011	18:35	lb58463
CCV12	Mercury	4.98	5.0	99.6	90 - 110	CV	12/20/2011	19:01	lb58463
CCV13	Mercury	4.95	5.0	99.0	90 - 110	CV	12/20/2011	19:29	lb58463
CCV14	Mercury	5.11	5.0	102.2	90 - 110	CV	12/20/2011	19:53	lb58463

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	531.80	504	105.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Antimony	192.50	199	96.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Arsenic	197.00	200	98.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Barium	102.30	99	103.3	90 - 110	MS	12/22/2011	17:17	LB58535
	Beryllium	99.01	99	100.0	90 - 110	MS	12/22/2011	17:17	LB58535
	Cadmium	99.88	99	100.9	90 - 110	MS	12/22/2011	17:17	LB58535
	Calcium	1988.00	2005	99.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Chromium	99.14	98	101.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Cobalt	101.60	100	101.6	90 - 110	MS	12/22/2011	17:17	LB58535
	Copper	105.20	98	107.3	90 - 110	MS	12/22/2011	17:17	LB58535
	Iron	1023.00	1016	100.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Lead	198.40	200	99.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Magnesium	1233.00	1215	101.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Manganese	102.70	100	102.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Nickel	102.50	101	101.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Potassium	2036.00	2004	101.6	90 - 110	MS	12/22/2011	17:17	LB58535
	Selenium	196.50	206	95.4	90 - 110	MS	12/22/2011	17:17	LB58535
	Silver	100.50	100	100.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Sodium	2065.00	2019	102.3	90 - 110	MS	12/22/2011	17:17	LB58535
	Thallium	199.30	206	96.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Vanadium	98.24	100	98.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Zinc	206.40	205	100.7	90 - 110	MS	12/22/2011	17:17	LB58535
CCV01	Aluminum	9957.00	10000	99.6	90 - 110	MS	12/22/2011	18:05	LB58535
X	Antimony	496.60	500	99.3	90 - 110	MS	12/22/2011	18:05	LB58535
	Arsenic	497.40	500	99.5	90 - 110	MS	12/22/2011	18:05	LB58535
	Barium	2494.00	2500	99.8	90 - 110	MS	12/22/2011	18:05	LB58535
	Beryllium	504.30	500	100.9	90 - 110	MS	12/22/2011	18:05	LB58535
	Cadmium	499.50	500	99.9	90 - 110	MS	12/22/2011	18:05	LB58535
	Calcium	49250.00	50000	98.5	90 - 110	MS	12/22/2011	18:05	LB58535
	Chromium	496.80	500	99.4	90 - 110	MS	12/22/2011	18:05	LB58535
	Cobalt	498.10	500	99.6	90 - 110	MS	12/22/2011	18:05	LB58535
	Copper	1001.00	1000	100.1	90 - 110	MS	12/22/2011	18:05	LB58535
	Iron	24780.00	25000	99.1	90 - 110	MS	12/22/2011	18:05	LB58535
	Lead	498.50	500	99.7	90 - 110	MS	12/22/2011	18:05	LB58535
	Magnesium	51030.00	50000	102.1	90 - 110	MS	12/22/2011	18:05	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	496.40	500	99.3	90 - 110	MS	12/22/2011	22:49	LB58535
X	Sodium	55060.00	50000	110.1	90 - 110	MS	12/22/2011	22:49	LB58535
	Thallium	486.20	500	97.2	90 - 110	MS	12/22/2011	22:49	LB58535
	Vanadium	484.60	500	96.9	90 - 110	MS	12/22/2011	22:49	LB58535
	Zinc	1027.00	1000	102.7	90 - 110	MS	12/22/2011	22:49	LB58535
CCV05	Aluminum	9338.00	10000	93.4	90 - 110	MS	12/23/2011	00:24	LB58535
	Antimony	510.20	500	102.0	90 - 110	MS	12/23/2011	00:24	LB58535
	Arsenic	492.10	500	98.4	90 - 110	MS	12/23/2011	00:24	LB58535
	Barium	2488.00	2500	99.5	90 - 110	MS	12/23/2011	00:24	LB58535
	Beryllium	484.20	500	96.8	90 - 110	MS	12/23/2011	00:24	LB58535
	Cadmium	515.30	500	103.1	90 - 110	MS	12/23/2011	00:24	LB58535
	Calcium	49450.00	50000	98.9	90 - 110	MS	12/23/2011	00:24	LB58535
	Chromium	489.90	500	98.0	90 - 110	MS	12/23/2011	00:24	LB58535
	Cobalt	491.80	500	98.4	90 - 110	MS	12/23/2011	00:24	LB58535
	Copper	978.20	1000	97.8	90 - 110	MS	12/23/2011	00:24	LB58535
	Iron	24930.00	25000	99.7	90 - 110	MS	12/23/2011	00:24	LB58535
	Lead	496.00	500	99.2	90 - 110	MS	12/23/2011	00:24	LB58535
	Magnesium	51460.00	50000	102.9	90 - 110	MS	12/23/2011	00:24	LB58535
	Manganese	1012.00	1000	101.2	90 - 110	MS	12/23/2011	00:24	LB58535
	Nickel	486.10	500	97.2	90 - 110	MS	12/23/2011	00:24	LB58535
	Potassium	26620.00	25000	106.5	90 - 110	MS	12/23/2011	00:24	LB58535
	Selenium	488.30	500	97.7	90 - 110	MS	12/23/2011	00:24	LB58535
	Silver	499.80	500	100.0	90 - 110	MS	12/23/2011	00:24	LB58535
	Sodium	54950.00	50000	109.9	90 - 110	MS	12/23/2011	00:24	LB58535
	Thallium	489.80	500	98.0	90 - 110	MS	12/23/2011	00:24	LB58535
	Vanadium	485.80	500	97.2	90 - 110	MS	12/23/2011	00:24	LB58535
	Zinc	1035.00	1000	103.5	90 - 110	MS	12/23/2011	00:24	LB58535
CCV06	Aluminum	9347.00	10000	93.5	90 - 110	MS	12/23/2011	01:59	LB58535
	Antimony	512.70	500	102.5	90 - 110	MS	12/23/2011	01:59	LB58535
	Arsenic	492.20	500	98.4	90 - 110	MS	12/23/2011	01:59	LB58535
	Barium	2479.00	2500	99.2	90 - 110	MS	12/23/2011	01:59	LB58535
	Beryllium	495.50	500	99.1	90 - 110	MS	12/23/2011	01:59	LB58535
	Cadmium	512.10	500	102.4	90 - 110	MS	12/23/2011	01:59	LB58535
	Calcium	49760.00	50000	99.5	90 - 110	MS	12/23/2011	01:59	LB58535
	Chromium	494.20	500	98.8	90 - 110	MS	12/23/2011	01:59	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	497.10	500	99.4	90 - 110	MS	12/23/2011	01:59	LB58535
	Copper	984.20	1000	98.4	90 - 110	MS	12/23/2011	01:59	LB58535
	Iron	25090.00	25000	100.4	90 - 110	MS	12/23/2011	01:59	LB58535
	Lead	497.80	500	99.6	90 - 110	MS	12/23/2011	01:59	LB58535
	Magnesium	51870.00	50000	103.7	90 - 110	MS	12/23/2011	01:59	LB58535
	Manganese	1020.00	1000	102.0	90 - 110	MS	12/23/2011	01:59	LB58535
	Nickel	489.30	500	97.9	90 - 110	MS	12/23/2011	01:59	LB58535
	Potassium	26970.00	25000	107.9	90 - 110	MS	12/23/2011	01:59	LB58535
	Selenium	487.90	500	97.6	90 - 110	MS	12/23/2011	01:59	LB58535
	Silver	501.00	500	100.2	90 - 110	MS	12/23/2011	01:59	LB58535
	Sodium	56090.00	50000	112.2	90 - 110	MS	12/23/2011	01:59	LB58535
	Thallium	491.20	500	98.2	90 - 110	MS	12/23/2011	01:59	LB58535
	Vanadium	491.10	500	98.2	90 - 110	MS	12/23/2011	01:59	LB58535
	Zinc	1042.00	1000	104.2	90 - 110	MS	12/23/2011	01:59	LB58535
CCV07	Aluminum	9204.00	10000	92.0	90 - 110	MS	12/23/2011	03:34	LB58535
	Antimony	505.10	500	101.0	90 - 110	MS	12/23/2011	03:34	LB58535
	Arsenic	491.00	500	98.2	90 - 110	MS	12/23/2011	03:34	LB58535
	Barium	2479.00	2500	99.2	90 - 110	MS	12/23/2011	03:34	LB58535
	Beryllium	491.20	500	98.2	90 - 110	MS	12/23/2011	03:34	LB58535
	Cadmium	507.50	500	101.5	90 - 110	MS	12/23/2011	03:34	LB58535
	Calcium	49370.00	50000	98.7	90 - 110	MS	12/23/2011	03:34	LB58535
	Chromium	489.10	500	97.8	90 - 110	MS	12/23/2011	03:34	LB58535
	Cobalt	493.30	500	98.7	90 - 110	MS	12/23/2011	03:34	LB58535
	Copper	975.90	1000	97.6	90 - 110	MS	12/23/2011	03:34	LB58535
	Iron	24850.00	25000	99.4	90 - 110	MS	12/23/2011	03:34	LB58535
	Lead	497.40	500	99.5	90 - 110	MS	12/23/2011	03:34	LB58535
	Magnesium	51140.00	50000	102.3	90 - 110	MS	12/23/2011	03:34	LB58535
	Manganese	1009.00	1000	100.9	90 - 110	MS	12/23/2011	03:34	LB58535
	Nickel	485.70	500	97.1	90 - 110	MS	12/23/2011	03:34	LB58535
	Potassium	26810.00	25000	107.2	90 - 110	MS	12/23/2011	03:34	LB58535
	Selenium	486.80	500	97.4	90 - 110	MS	12/23/2011	03:34	LB58535
	Silver	496.00	500	99.2	90 - 110	MS	12/23/2011	03:34	LB58535
	Sodium	55850.00	50000	111.7	90 - 110	MS	12/23/2011	03:34	LB58535
	Thallium	490.90	500	98.2	90 - 110	MS	12/23/2011	03:34	LB58535
	Vanadium	485.90	500	97.2	90 - 110	MS	12/23/2011	03:34	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1040.00	1000	104.0	90 - 110	MS	12/23/2011	03:34	LB58535
CCV08	Aluminum	9168.00	10000	91.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Antimony	502.40	500	100.5	90 - 110	MS	12/23/2011	05:09	LB58535
	Arsenic	488.50	500	97.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Barium	2453.00	2500	98.1	90 - 110	MS	12/23/2011	05:09	LB58535
	Beryllium	488.50	500	97.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Cadmium	507.80	500	101.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Calcium	49080.00	50000	98.2	90 - 110	MS	12/23/2011	05:09	LB58535
	Chromium	488.00	500	97.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Cobalt	492.20	500	98.4	90 - 110	MS	12/23/2011	05:09	LB58535
	Copper	978.20	1000	97.8	90 - 110	MS	12/23/2011	05:09	LB58535
	Iron	24890.00	25000	99.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Lead	496.00	500	99.2	90 - 110	MS	12/23/2011	05:09	LB58535
	Magnesium	50900.00	50000	101.8	90 - 110	MS	12/23/2011	05:09	LB58535
	Manganese	1010.00	1000	101.0	90 - 110	MS	12/23/2011	05:09	LB58535
	Nickel	483.50	500	96.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Potassium	26670.00	25000	106.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Selenium	481.60	500	96.3	90 - 110	MS	12/23/2011	05:09	LB58535
	Silver	494.30	500	98.9	90 - 110	MS	12/23/2011	05:09	LB58535
	Sodium	55680.00	50000	111.4	90 - 110	MS	12/23/2011	05:09	LB58535
	Thallium	490.30	500	98.1	90 - 110	MS	12/23/2011	05:09	LB58535
	Vanadium	488.00	500	97.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Zinc	1039.00	1000	103.9	90 - 110	MS	12/23/2011	05:09	LB58535
CCV09	Aluminum	9296.00	10000	93.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Antimony	507.60	500	101.5	90 - 110	MS	12/23/2011	06:44	LB58535
	Arsenic	490.40	500	98.1	90 - 110	MS	12/23/2011	06:44	LB58535
	Barium	2477.00	2500	99.1	90 - 110	MS	12/23/2011	06:44	LB58535
	Beryllium	495.20	500	99.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Cadmium	507.40	500	101.5	90 - 110	MS	12/23/2011	06:44	LB58535
	Calcium	49520.00	50000	99.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Chromium	494.50	500	98.9	90 - 110	MS	12/23/2011	06:44	LB58535
	Cobalt	498.20	500	99.6	90 - 110	MS	12/23/2011	06:44	LB58535
	Copper	986.40	1000	98.6	90 - 110	MS	12/23/2011	06:44	LB58535
	Iron	25170.00	25000	100.7	90 - 110	MS	12/23/2011	06:44	LB58535
	Lead	497.60	500	99.5	90 - 110	MS	12/23/2011	06:44	LB58535

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Magnesium	51330.00	50000	102.7	90 - 110	MS	12/23/2011	06:44	LB58535
	Manganese	1023.00	1000	102.3	90 - 110	MS	12/23/2011	06:44	LB58535
	Nickel	491.10	500	98.2	90 - 110	MS	12/23/2011	06:44	LB58535
	Potassium	27060.00	25000	108.2	90 - 110	MS	12/23/2011	06:44	LB58535
	Selenium	485.80	500	97.2	90 - 110	MS	12/23/2011	06:44	LB58535
	Silver	500.20	500	100.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Sodium	56240.00	50000	112.5	90 - 110	MS	12/23/2011	06:44	LB58535
	Thallium	490.30	500	98.1	90 - 110	MS	12/23/2011	06:44	LB58535
	Vanadium	489.60	500	97.9	90 - 110	MS	12/23/2011	06:44	LB58535
	Zinc	1046.00	1000	104.6	90 - 110	MS	12/23/2011	06:44	LB58535
CCV10	Aluminum	9283.00	10000	92.8	90 - 110	MS	12/23/2011	08:20	LB58535
X	Antimony	514.90	500	103.0	90 - 110	MS	12/23/2011	08:20	LB58535
	Arsenic	494.70	500	98.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Barium	2505.00	2500	100.2	90 - 110	MS	12/23/2011	08:20	LB58535
	Beryllium	494.40	500	98.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Cadmium	519.20	500	103.8	90 - 110	MS	12/23/2011	08:20	LB58535
	Calcium	49950.00	50000	99.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Chromium	498.40	500	99.7	90 - 110	MS	12/23/2011	08:20	LB58535
	Cobalt	500.50	500	100.1	90 - 110	MS	12/23/2011	08:20	LB58535
	Copper	988.70	1000	98.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Iron	25440.00	25000	101.8	90 - 110	MS	12/23/2011	08:20	LB58535
	Lead	503.60	500	100.7	90 - 110	MS	12/23/2011	08:20	LB58535
	Magnesium	51280.00	50000	102.6	90 - 110	MS	12/23/2011	08:20	LB58535
	Manganese	1035.00	1000	103.5	90 - 110	MS	12/23/2011	08:20	LB58535
	Nickel	490.40	500	98.1	90 - 110	MS	12/23/2011	08:20	LB58535
	Potassium	27090.00	25000	108.4	90 - 110	MS	12/23/2011	08:20	LB58535
	Selenium	488.00	500	97.6	90 - 110	MS	12/23/2011	08:20	LB58535
	Silver	505.50	500	101.1	90 - 110	MS	12/23/2011	08:20	LB58535
	Sodium	56750.00	50000	113.5	90 - 110	MS	12/23/2011	08:20	LB58535
	Thallium	496.70	500	99.3	90 - 110	MS	12/23/2011	08:20	LB58535
	Vanadium	493.00	500	98.6	90 - 110	MS	12/23/2011	08:20	LB58535
	Zinc	1056.00	1000	105.6	90 - 110	MS	12/23/2011	08:20	LB58535
CCV11	Aluminum	9279.00	10000	92.8	90 - 110	MS	12/23/2011	09:55	LB58535
X	Antimony	514.80	500	103.0	90 - 110	MS	12/23/2011	09:55	LB58535
	Arsenic	494.40	500	98.9	90 - 110	MS	12/23/2011	09:55	LB58535

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.15	0.2	75.0	0 - 200	CV	12/20/2011	14:37	lb58463
CRI01	Aluminum	22.47	20	112.4	50 - 150	MS	12/22/2011	18:28	LB58535
	Antimony	2.12	2	106.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Arsenic	1.07	1	107.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Barium	9.97	10	99.7	70 - 130	MS	12/22/2011	18:28	LB58535
	Beryllium	1.02	1	102.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Cadmium	0.94	1	94.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Calcium	498.40	500	99.7	50 - 150	MS	12/22/2011	18:28	LB58535
	Chromium	2.11	2	105.5	70 - 130	MS	12/22/2011	18:28	LB58535
	Cobalt	1.01	1	101.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Copper	2.54	2	127.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Iron	211.40	200	105.7	50 - 150	MS	12/22/2011	18:28	LB58535
	Lead	1.06	1	106.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Magnesium	516.70	500	103.3	50 - 150	MS	12/22/2011	18:28	LB58535
	Manganese	1.07	1	107.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Nickel	1.05	1	105.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Potassium	538.20	500	107.6	50 - 150	MS	12/22/2011	18:28	LB58535
	Selenium	4.97	5	99.4	70 - 130	MS	12/22/2011	18:28	LB58535
	Silver	1.04	1	104.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Sodium	543.10	500	108.6	50 - 150	MS	12/22/2011	18:28	LB58535
	Thallium	1.04	1	104.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Vanadium	4.76	5	95.2	70 - 130	MS	12/22/2011	18:28	LB58535
	Zinc	2.34	2	117.0	50 - 150	MS	12/22/2011	18:28	LB58535
CRI01	Aluminum	21.32	20.0	106.6	50 - 150	MS	12/28/2011	17:06	LB58630
	Antimony	2.13	2.0	106.5	50 - 150	MS	12/28/2011	17:06	LB58630
	Arsenic	0.92	1.0	92.0	70 - 130	MS	12/28/2011	17:06	LB58630
	Barium	10.02	10.0	100.2	70 - 130	MS	12/28/2011	17:06	LB58630
	Beryllium	1.06	1.0	106.0	70 - 130	MS	12/28/2011	17:06	LB58630
	Cadmium	0.89	1.0	89.0	70 - 130	MS	12/28/2011	17:06	LB58630
	Calcium	502.70	500.0	100.5	50 - 150	MS	12/28/2011	17:06	LB58630
	Chromium	2.01	2.0	100.5	70 - 130	MS	12/28/2011	17:06	LB58630
	Cobalt	1.00	1.0	100.0	50 - 150	MS	12/28/2011	17:06	LB58630
	Copper	2.20	2.0	110.0	70 - 130	MS	12/28/2011	17:06	LB58630
	Iron	212.50	200.0	106.2	50 - 150	MS	12/28/2011	17:06	LB58630
	Lead	1.01	1.0	101.0	50 - 150	MS	12/28/2011	17:06	LB58630
	Magnesium	500.20	500.0	100.0	50 - 150	MS	12/28/2011	17:06	LB58630
	Manganese	1.06	1.0	106.0	50 - 150	MS	12/28/2011	17:06	LB58630
	Nickel	1.14	1.0	114.0	70 - 130	MS	12/28/2011	17:06	LB58630

No Samples

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	14:31	lb58463
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	14:35	lb58463
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	15:03	lb58463
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	15:27	lb58463
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	15:49	lb58463
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	16:15	lb58463
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	16:45	lb58463
CCB07	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	17:09	lb58463
CCB08	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	17:31	lb58463
CCB09	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	17:53	lb58463
CCB10	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	18:14	lb58463
CCB11	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	18:38	lb58463
CCB12	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	19:10	lb58463
CCB13	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	19:31	lb58463
CCB14	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/20/2011	19:57	lb58463
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/22/2011	17:25	LB58535
	Antimony	0.982	+/-2.000	J	0.140	2.000	MS	12/22/2011	17:25	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/22/2011	17:25	LB58535
	Barium	0.319	+/-10.000	J	0.100	10.000	MS	12/22/2011	17:25	LB58535
	Beryllium	0.159	+/-1.000	J	0.090	1.000	MS	12/22/2011	17:25	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/22/2011	17:25	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/22/2011	17:25	LB58535
	Chromium	0.112	+/-2.000	J	0.040	2.000	MS	12/22/2011	17:25	LB58535
	Cobalt	0.103	+/-1.000	J	0.050	1.000	MS	12/22/2011	17:25	LB58535
	Copper	0.301	+/-2.000	J	0.040	2.000	MS	12/22/2011	17:25	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/22/2011	17:25	LB58535
	Lead	0.161	+/-1.000	J	0.040	1.000	MS	12/22/2011	17:25	LB58535
	Magnesium	6.405	+/-500.000	J	4.950	500.000	MS	12/22/2011	17:25	LB58535
	Manganese	0.158	+/-1.000	J	0.050	1.000	MS	12/22/2011	17:25	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/22/2011	17:25	LB58535
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	12/22/2011	17:25	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/22/2011	17:25	LB58535
	Silver	0.104	+/-1.000	J	0.030	1.000	MS	12/22/2011	17:25	LB58535
	Sodium	12.610	+/-500.000	J	5.320	500.000	MS	12/22/2011	17:25	LB58535
	Thallium	0.162	+/-1.000	J	0.020	1.000	MS	12/22/2011	17:25	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	17:25	LB58535
	Zinc	0.267	+/-2.000	J	0.090	2.000	MS	12/22/2011	17:25	LB58535

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04 X	Sodium	30.910	+/-500.000	J	5.320	500.000	MS	12/22/2011	22:57	LB58535
	Thallium	0.264	+/-1.000	J	0.020	1.000	MS	12/22/2011	22:57	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	22:57	LB58535
	Zinc	0.230	+/-2.000	J	0.090	2.000	MS	12/22/2011	22:57	LB58535
CCB05	Aluminum	5.812	+/-20.000	J	4.970	20.000	MS	12/23/2011	00:32	LB58535
	Antimony	0.798	+/-2.000	J	0.140	2.000	MS	12/23/2011	00:32	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	00:32	LB58535
	Barium	0.397	+/-10.000	J	0.100	10.000	MS	12/23/2011	00:32	LB58535
	Beryllium	0.128	+/-1.000	J	0.090	1.000	MS	12/23/2011	00:32	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	00:32	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	00:32	LB58535
	Chromium	0.073	+/-2.000	J	0.040	2.000	MS	12/23/2011	00:32	LB58535
	Cobalt	0.101	+/-1.000	J	0.050	1.000	MS	12/23/2011	00:32	LB58535
	Copper	0.228	+/-2.000	J	0.040	2.000	MS	12/23/2011	00:32	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	00:32	LB58535
	Lead	0.130	+/-1.000	J	0.040	1.000	MS	12/23/2011	00:32	LB58535
	Magnesium	9.625	+/-500.000	J	4.950	500.000	MS	12/23/2011	00:32	LB58535
	Manganese	0.231	+/-1.000	J	0.050	1.000	MS	12/23/2011	00:32	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	00:32	LB58535
	Potassium	41.910	+/-500.000	J	12.220	500.000	MS	12/23/2011	00:32	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	00:32	LB58535
	Silver	0.095	+/-1.000	J	0.030	1.000	MS	12/23/2011	00:32	LB58535
	Sodium	38.350	+/-500.000	J	5.320	500.000	MS	12/23/2011	00:32	LB58535
	Thallium	0.334	+/-1.000	J	0.020	1.000	MS	12/23/2011	00:32	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	00:32	LB58535
	Zinc	0.341	+/-2.000	J	0.090	2.000	MS	12/23/2011	00:32	LB58535
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/23/2011	02:07	LB58535
	Antimony	0.801	+/-2.000	J	0.140	2.000	MS	12/23/2011	02:07	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	02:07	LB58535
	Barium	0.124	+/-10.000	J	0.100	10.000	MS	12/23/2011	02:07	LB58535
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/23/2011	02:07	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	02:07	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	02:07	LB58535
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/23/2011	02:07	LB58535
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/23/2011	02:07	LB58535
	Copper	0.048	+/-2.000	J	0.040	2.000	MS	12/23/2011	02:07	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	02:07	LB58535
	Lead	0.071	+/-1.000	J	0.040	1.000	MS	12/23/2011	02:07	LB58535
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/23/2011	02:07	LB58535
	Manganese	0.169	+/-1.000	J	0.050	1.000	MS	12/23/2011	02:07	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	02:07	LB58535
	Potassium	36.800	+/-500.000	J	12.220	500.000	MS	12/23/2011	02:07	LB58535

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	02:07	LB58535
	Silver	0.052	+/-1.000	J	0.030	1.000	MS	12/23/2011	02:07	LB58535
	Sodium	35.600	+/-500.000	J	5.320	500.000	MS	12/23/2011	02:07	LB58535
	Thallium	0.430	+/-1.000	J	0.020	1.000	MS	12/23/2011	02:07	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	02:07	LB58535
	Zinc	0.166	+/-2.000	J	0.090	2.000	MS	12/23/2011	02:07	LB58535
CCB07	Aluminum	6.992	+/-20.000	J	4.970	20.000	MS	12/23/2011	03:42	LB58535
	Antimony	0.949	+/-2.000	J	0.140	2.000	MS	12/23/2011	03:42	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	03:42	LB58535
	Barium	0.664	+/-10.000	J	0.100	10.000	MS	12/23/2011	03:42	LB58535
	Beryllium	0.159	+/-1.000	J	0.090	1.000	MS	12/23/2011	03:42	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	03:42	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	03:42	LB58535
	Chromium	0.153	+/-2.000	J	0.040	2.000	MS	12/23/2011	03:42	LB58535
	Cobalt	0.127	+/-1.000	J	0.050	1.000	MS	12/23/2011	03:42	LB58535
	Copper	0.251	+/-2.000	J	0.040	2.000	MS	12/23/2011	03:42	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	03:42	LB58535
	Lead	0.181	+/-1.000	J	0.040	1.000	MS	12/23/2011	03:42	LB58535
	Magnesium	12.560	+/-500.000	J	4.950	500.000	MS	12/23/2011	03:42	LB58535
	Manganese	0.556	+/-1.000	J	0.050	1.000	MS	12/23/2011	03:42	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	03:42	LB58535
	Potassium	45.780	+/-500.000	J	12.220	500.000	MS	12/23/2011	03:42	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	03:42	LB58535
	Silver	0.169	+/-1.000	J	0.030	1.000	MS	12/23/2011	03:42	LB58535
	Sodium	56.700	+/-500.000	J	5.320	500.000	MS	12/23/2011	03:42	LB58535
	Thallium	0.361	+/-1.000	J	0.020	1.000	MS	12/23/2011	03:42	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	03:42	LB58535
	Zinc	0.394	+/-2.000	J	0.090	2.000	MS	12/23/2011	03:42	LB58535
CCB08	Aluminum	5.437	+/-20.000	J	4.970	20.000	MS	12/23/2011	05:17	LB58535
	Antimony	0.869	+/-2.000	J	0.140	2.000	MS	12/23/2011	05:17	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	05:17	LB58535
	Barium	0.375	+/-10.000	J	0.100	10.000	MS	12/23/2011	05:17	LB58535
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/23/2011	05:17	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	05:17	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	05:17	LB58535
	Chromium	0.052	+/-2.000	J	0.040	2.000	MS	12/23/2011	05:17	LB58535
	Cobalt	0.083	+/-1.000	J	0.050	1.000	MS	12/23/2011	05:17	LB58535
	Copper	0.115	+/-2.000	J	0.040	2.000	MS	12/23/2011	05:17	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	05:17	LB58535
	Lead	0.114	+/-1.000	J	0.040	1.000	MS	12/23/2011	05:17	LB58535
	Magnesium	7.325	+/-500.000	J	4.950	500.000	MS	12/23/2011	05:17	LB58535
	Manganese	0.375	+/-1.000	J	0.050	1.000	MS	12/23/2011	05:17	LB58535

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB08	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	05:17	LB58535
	Potassium	31.240	+/-500.000	J	12.220	500.000	MS	12/23/2011	05:17	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	05:17	LB58535
	Silver	0.094	+/-1.000	J	0.030	1.000	MS	12/23/2011	05:17	LB58535
	Sodium	54.550	+/-500.000	J	5.320	500.000	MS	12/23/2011	05:17	LB58535
	Thallium	0.203	+/-1.000	J	0.020	1.000	MS	12/23/2011	05:17	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	05:17	LB58535
	Zinc	0.286	+/-2.000	J	0.090	2.000	MS	12/23/2011	05:17	LB58535
CCB09	Aluminum	5.658	+/-20.000	J	4.970	20.000	MS	12/23/2011	06:52	LB58535
	Antimony	0.835	+/-2.000	J	0.140	2.000	MS	12/23/2011	06:52	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	06:52	LB58535
	Barium	0.316	+/-10.000	J	0.100	10.000	MS	12/23/2011	06:52	LB58535
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/23/2011	06:52	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	06:52	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	06:52	LB58535
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/23/2011	06:52	LB58535
	Cobalt	0.076	+/-1.000	J	0.050	1.000	MS	12/23/2011	06:52	LB58535
	Copper	0.090	+/-2.000	J	0.040	2.000	MS	12/23/2011	06:52	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	06:52	LB58535
	Lead	0.111	+/-1.000	J	0.040	1.000	MS	12/23/2011	06:52	LB58535
	Magnesium	5.992	+/-500.000	J	4.950	500.000	MS	12/23/2011	06:52	LB58535
	Manganese	0.557	+/-1.000	J	0.050	1.000	MS	12/23/2011	06:52	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	06:52	LB58535
	Potassium	28.810	+/-500.000	J	12.220	500.000	MS	12/23/2011	06:52	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	06:52	LB58535
	Silver	0.084	+/-1.000	J	0.030	1.000	MS	12/23/2011	06:52	LB58535
	Sodium	58.270	+/-500.000	J	5.320	500.000	MS	12/23/2011	06:52	LB58535
	Thallium	0.187	+/-1.000	J	0.020	1.000	MS	12/23/2011	06:52	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	06:52	LB58535
	Zinc	0.286	+/-2.000	J	0.090	2.000	MS	12/23/2011	06:52	LB58535
CCB10	Aluminum	7.468	+/-20.000	J	4.970	20.000	MS	12/23/2011	08:28	LB58535
X	Antimony	0.871	+/-2.000	J	0.140	2.000	MS	12/23/2011	08:28	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	08:28	LB58535
	Barium	0.595	+/-10.000	J	0.100	10.000	MS	12/23/2011	08:28	LB58535
	Beryllium	0.136	+/-1.000	J	0.090	1.000	MS	12/23/2011	08:28	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	08:28	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	08:28	LB58535
	Chromium	0.103	+/-2.000	J	0.040	2.000	MS	12/23/2011	08:28	LB58535
	Cobalt	0.100	+/-1.000	J	0.050	1.000	MS	12/23/2011	08:28	LB58535
	Copper	0.222	+/-2.000	J	0.040	2.000	MS	12/23/2011	08:28	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	08:28	LB58535
	Lead	0.170	+/-1.000	J	0.040	1.000	MS	12/23/2011	08:28	LB58535

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5005 **SAS No.:** C5005

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	98900	100000	98.9	80 - 120%	12/22/2011	17:33	LB58535
	Antimony	1.6				12/22/2011	17:33	LB58535
	Arsenic	0.28				12/22/2011	17:33	LB58535
	Barium	1.5				12/22/2011	17:33	LB58535
	Beryllium	0.35				12/22/2011	17:33	LB58535
	Cadmium	0.19				12/22/2011	17:33	LB58535
	Calcium	99700	100000	99.7	80 - 120%	12/22/2011	17:33	LB58535
	Chromium	20.1	21	95.7	80 - 120%	12/22/2011	17:33	LB58535
	Cobalt	1.2				12/22/2011	17:33	LB58535
	Copper	8.2				12/22/2011	17:33	LB58535
	Iron	93900	100000	93.9	80 - 120%	12/22/2011	17:33	LB58535
	Lead	4.4	4	110.0	80 - 120%	12/22/2011	17:33	LB58535
	Magnesium	100000	100000	100.0	80 - 120%	12/22/2011	17:33	LB58535
	Manganese	8.1				12/22/2011	17:33	LB58535
	Nickel	6.0				12/22/2011	17:33	LB58535
	Potassium	99200	100000	99.2	80 - 120%	12/22/2011	17:33	LB58535
	Selenium	-0.22				12/22/2011	17:33	LB58535
	Silver	0.051				12/22/2011	17:33	LB58535
	Sodium	102000	100000	102.0	80 - 120%	12/22/2011	17:33	LB58535
	Thallium	0.082				12/22/2011	17:33	LB58535
	Vanadium	-0.23				12/22/2011	17:33	LB58535
	Zinc	12.4				12/22/2011	17:33	LB58535
ICSAB01	Aluminum	97600	100000	97.6	80 - 120%	12/22/2011	17:41	LB58535
	Antimony	21.4	22	97.3	80 - 120%	12/22/2011	17:41	LB58535
	Arsenic	20.3	19	106.8	80 - 120%	12/22/2011	17:41	LB58535
	Barium	22.1	22	100.5	80 - 120%	12/22/2011	17:41	LB58535
	Beryllium	20.9	20	104.5	80 - 120%	12/22/2011	17:41	LB58535
	Cadmium	20.9	20	104.5	80 - 120%	12/22/2011	17:41	LB58535
	Calcium	99500	100000	99.5	80 - 120%	12/22/2011	17:41	LB58535
	Chromium	40.0	40	100.0	80 - 120%	12/22/2011	17:41	LB58535
	Cobalt	21.3	20	106.5	80 - 120%	12/22/2011	17:41	LB58535
	Copper	28.4	25	113.6	80 - 120%	12/22/2011	17:41	LB58535
	Iron	93300	100000	93.3	80 - 120%	12/22/2011	17:41	LB58535
	Lead	24.5	25	98.0	80 - 120%	12/22/2011	17:41	LB58535
	Magnesium	100000	100000	100.0	80 - 120%	12/22/2011	17:41	LB58535
	Manganese	28.0	27	103.7	80 - 120%	12/22/2011	17:41	LB58535
	Nickel	26.3	24	109.6	80 - 120%	12/22/2011	17:41	LB58535
	Potassium	99400	100000	99.4	80 - 120%	12/22/2011	17:41	LB58535
	Selenium	19.7	19	103.7	80 - 120%	12/22/2011	17:41	LB58535
	Silver	19.6	18	108.9	80 - 120%	12/22/2011	17:41	LB58535
	Sodium	102000	100000	102.0	80 - 120%	12/22/2011	17:41	LB58535
	Thallium	20.4	21	97.1	80 - 120%	12/22/2011	17:41	LB58535
	Vanadium	19.6	19	103.2	80 - 120%	12/22/2011	17:41	LB58535
	Zinc	32.5	29	112.1	80 - 120%	12/22/2011	17:41	LB58535
ICSA01	Aluminum	93800	100000	93.8	80 - 120%	12/28/2011	16:11	LB58630
	Antimony	1.4				12/28/2011	16:11	LB58630

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: **LB58457BLS**						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/20/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5005-01
Client ID:	12SB24-000.5-01S	**Percent Solids for Spike Sample:**	**70.3**

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.910		0.185	J	2.84	1	96		12/20/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5005-01
Client ID:	12SB24-000.5-01SD	**Percent Solids for Spike Sample:**	**70.3**

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.940		0.185	J	2.84	1	97		12/20/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5005-01
Client ID:	12SB24-000.5-01D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	5.300		5.310		1	0.2		12/15/2011
Cyanide	mg/Kg	+/-20	0.185	J	0.185	J	1	0		12/20/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5005-01
Client ID:	12SB24-000.5-01SD	**Percent Solids for Spike Sample:**	70.3

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.910	2.940		1	1.0		12/20/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5005-04
Client ID:	12SB22-000.5-01D	**Percent Solids for Spike Sample:**	70.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Redox Potential	**mV**	**+/-20**	**299.4**		**299.8**		**1**	**0.13**		**12/23/2011**

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5005

Project: CTO WE05 NAS JRB Willow Grove

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	LB58457BSS								
Cyanide		mg/Kg	10.00	9.61		96	1	80-110	12/20/2011

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58595
Instrument: ~~Titroline Alpha Titrator~~ pH Meter gn 12-21-11

Time In:	10:35 AM	Temp In (C):	20.3
Time Out:	11:10 AM	Temp Out (C):	20.3

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ~~ppm/ppb~~ mV	Dil	Analytical Date
1	CAL	CAL	CAL	210.0		12-23-11
2	C5005-04	12SB22-000.5-01	SAM	299.4		
3	C5005-04D	12SB22-000.5-01D	DUP	299.8		
4	C5005-05	12SB22-0.502-02	SAM	329.2		
5	C5005-06	12SB22-0304-03	SAM	333.1		
6	C5005-13	12SB18-000.5-01	SAM	313.6		
7	C5005-14	12SB18-0.502-02	SAM	278.7		
8	C5005-15	12SB18-0304-03	SAM	323.7		
9	C5017-10	12SB09-000.5-01	SAM	280.4		
10	C5017-11	12SB09-0.502-02	SAM	275.8		
11	C5017-12	12SB09-0304-03	SAM	356.7		
12	C5039-02	12SB13-000.5-01	SAM	270.2		
13	C5039-03	12SB13-0.502-02	SAM	232.4		
14	C5039-04	12SB13-0304-03	SAM	101.7		
15	C5039-08	12SB26-000.5-01	SAM	255.6		
16	C5039-09	12SB26-0.502-02	SAM	252.2		
17	C5039-10	12SB26-0304-03	SAM	272.7		

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Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: lb58595
Instrument: ~~Titroline Alpha Titrator~~ pH Meter JM 12-28-11

JM

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ppm/ppb	Dil	Analytical Date
1	CAL	CAL	CAL	210.000	1	12/23/11
2	C5005-04	12SB22-000.5-01	SAM	299.400	1	12/23/11
3	C5005-04D	12SB22-000.5-01D	DUP	299.800	1	12/23/11
4	C5005-05	12SB22-0.502-02	SAM	329.200	1	12/23/11
5	C5005-06	12SB22-0304-03	SAM	333.100	1	12/23/11
6	C5005-13	12SB18-000.5-01	SAM	313.600	1	12/23/11
7	C5005-14	12SB18-0.502-02	SAM	278.700	1	12/23/11
8	C5005-15	12SB18-0304-03	SAM	323.700	1	12/23/11
9	C5017-10	12SB09-000.5-01	SAM	280.400	1	12/23/11
10	C5017-11	12SB09-0.502-02	SAM	275.800	1	12/23/11
11	C5017-12	12SB09-0304-03	SAM	356.700	1	12/23/11
12	C5039-02	12SB13-000.5-01	SAM	270.200	1	12/23/11
13	C5039-03	12SB13-0.502-02	SAM	232.400	1	12/23/11
14	C5039-04	12SB13-0304-03	SAM	101.700	1	12/23/11
15	C5039-08	12SB26-000.5-01	SAM	255.600	1	12/23/11
16	C5039-09	12SB26-0.502-02	SAM	252.200	1	12/23/11
17	C5039-10	12SB26-0304-03	SAM	277.700	1	12/23/11

CHEMTECH Cynide Distillation Log PrepBatch ID : PB60022

Lab Sample ID	Client Sample ID	Matrix	Weight / Volume mL	PH	Sulfide	Oxidizing	Comments
C5005-01	12SB24-000.5-01	SOIL	1.0007	N/A	N/A	N/A	
C5005-01DUP	12SB24-000.5-01DUP	SOIL	1.0013	N/A	N/A	N/A	
C5005-01MS	12SB24-000.5-01MS	SOIL	1.0018	N/A	N/A	N/A	TV=40PPB
C5005-01MSD	12SB24-000.5-01MSD	SOIL	1.0012	N/A	N/A	N/A	TV=40PPB
C5005-02	12SB24-0.502-02	SOIL	1.0022	N/A	N/A	N/A	
C5005-03	12SB24-0304-03	SOIL	1.0002	N/A	N/A	N/A	
C5005-04	12SB22-000.5-01	SOIL	1.0021	N/A	N/A	N/A	
C5005-05	12SB22-0.502-02	SOIL	1.0007	N/A	N/A	N/A	
C5005-06	12SB22-0304-03	SOIL	1.0013	N/A	N/A	N/A	
C5005-07	12SB20-000.5-01	SOIL	1.0014	N/A	N/A	N/A	
C5005-08	12SB20-0.502-02	SOIL	1.0026	N/A	N/A	N/A	
C5005-09	12SB-DUP-01	SOIL	1.0007	N/A	N/A	N/A	
C5005-10	12SB19-000.5-01	SOIL	1.0013	N/A	N/A	N/A	
C5005-11	12SB19-0.502-02	SOIL	1.0017	N/A	N/A	N/A	
C5005-12	12SB19-0304-03	SOIL	1.0010	N/A	N/A	N/A	
C5005-13	12SB18-000.5-01	SOIL	1.0022	N/A	N/A	N/A	
C5005-14	12SB18-0.502-02	SOIL	1.0014	N/A	N/A	N/A	
C5005-15	12SB18-0304-03	SOIL	1.0019	N/A	N/A	N/A	
PB60022BL	PBS01	SOIL	1.0004	N/A	N/A	N/A	
PB60022BS	LCS01	SOIL	1.0003	N/A	N/A	N/A	

* BL=Blank BS=Blank Spike TB=TCLP Blank

CHEMTECH **Cynide Distillation Log** **PrepBatch ID : PB60022**

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume mL	PH	Sulfide	Oxidizing	Comments
C5005-01	12SB24-000.5-01	SOIL	1.0007	N/A	N/A	N/A	
C5005-01DUP	12SB24-000.5-01DUP	SOIL	1.0013	N/A	N/A	N/A	
C5005-01MS	12SB24-000.5-01MS	SOIL	1.0018	N/A	N/A	N/A	TV=40PPB
C5005-01MSD	12SB24-000.5-01MSD	SOIL	1.0012	N/A	N/A	N/A	TV=40PPB
C5005-02	12SB24-0.502-02	SOIL	1.0022	N/A	N/A	N/A	
C5005-03	12SB24-0304-03	SOIL	1.0002	N/A	N/A	N/A	
C5005-04	12SB22-000.5-01	SOIL	1.0021	N/A	N/A	N/A	
C5005-05	12SB22-0.502-02	SOIL	1.0007	N/A	N/A	N/A	
C5005-06	12SB22-0304-03	SOIL	1.0013	N/A	N/A	N/A	
C5005-07	12SB20-000.5-01	SOIL	1.0014	N/A	N/A	N/A	
C5005-08	12SB20-0.502-02	SOIL	1.0025	N/A	N/A	N/A	
C5005-09	12SB-DUP-01	SOIL	1.0007	N/A	N/A	N/A	
C5005-10	12SB19-000.5-01	SOIL	1.0013	N/A	N/A	N/A	
C5005-11	12SB19-0.502-02	SOIL	1.0017	N/A	N/A	N/A	
C5005-12	12SB19-0304-03	SOIL	1.0010	N/A	N/A	N/A	
C5005-13	12SB18-000.5-01	SOIL	1.0022	N/A	N/A	N/A	
C5005-14	12SB18-0.502-02	SOIL	1.0014	N/A	N/A	N/A	
C5005-15	12SB18-0304-03	SOIL	1.0019	N/A	N/A	N/A	
PB60022BL	PBS01	SOIL	1.0004	N/A	N/A	N/A	
PB60022BS	LCS01	SOIL	1.0023	N/A	N/A	N/A	

* BL=Blank BS=Blank Spike TB=TCLP Blank

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Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: LB58416
Instrument: pH Meter

REVIEWED BY: JM

TEMP. = 20.2 °C
SLOPE = 96.4

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL	CAL	4.02	1	1140 AM	WATER	12/15/2011
2	CAL	CAL	7.01	1	1144	WATER	12/15/2011
3	CAL	CAL	10.04	1	1148	WATER	12/15/2011
4	ICV	ICV	7.02	1	1152	WATER	12/15/2011
5	CCV	CCV	2.03	1	1156	WATER	12/15/2011
6	C5005-01	SAM	5.30	1	1200 PM	SOIL	12/15/2011
7	C5005-01D	DUP	5.31	1	1204	SOIL	12/15/2011
8	C5005-02	SAM	4.51	1	1208	SOIL	12/15/2011
9	C5005-03	SAM	5.01	1	1212	SOIL	12/15/2011
10	C5005-04	SAM	4.83	1	1216	SOIL	12/15/2011
11	C5005-05	SAM	4.69	1	1220	SOIL	12/15/2011
12	C5005-06	SAM	5.03	1	1224	SOIL	12/15/2011
13	CCV	CCV	2.02	1	1227	WATER	12/15/2011
14	C5005-07	SAM	5.43	1	1231	SOIL	12/15/2011
15	C5005-08	SAM	4.88	1	1235	SOIL	12/15/2011
16	C5005-10	SAM	6.30	1	1239	SOIL	12/15/2011
17	C5005-11	SAM	6.84	1	1243	SOIL	12/15/2011
18	C5005-12	SAM	7.14	1	1247	SOIL	12/15/2011
19	C5005-13	SAM	5.60	1	1251	SOIL	12/15/2011
20	C5005-14	SAM	6.63	1	1255	SOIL	12/15/2011
21	C5005-15	SAM	5.58	1	1259	SOIL	12/15/2011
22	CCV	CCV	12.04	1	1:03	WATER	12/15/2011

Calibration Standards	Chemtech Log #
pH 4.00	W1572
pH 7.00	W1498
pH 10.00	W1468
(ICV) pH 7.00	W1286
(CCV) pH 2.00	W1384
(CCV) pH 12.00	W1493

True Value of ICV = 7.0. Control Limits [+/- 0.1].

True Value of CCV = 2.12. Control Limits [+/- 0.1].

% Recovery Percentage Difference = _____.

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax:

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: LB58416
Instrument: pH Meter

REVIEW:
REVIEWED BY:

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL	CAL	4.02	1		WATER	12/15/11
2	CAL	CAL	7.01	1		WATER	12/15/11
3	CAL	CAL	10.04	1		WATER	12/15/11
4	ICV	ICV	7.02	1		WATER	12/15/11
5	CCV	CCV	2.03	1		WATER	12/15/11
6	C5005-01	SAM	5.30	1		SOIL	12/15/11
7	C5005-01D	DUP	5.31	1		SOIL	12/15/11
8	C5005-02	SAM	4.51	1		SOIL	12/15/11
9	C5005-03	SAM	5.01	1		SOIL	12/15/11
10	C5005-04	SAM	4.83	1		SOIL	12/15/11
11	C5005-05	SAM	4.69	1		SOIL	12/15/11
12	C5005-06	SAM	5.03	1		SOIL	12/15/11
13	CCV	CCV	2.02	1		WATER	12/15/11
14	C5005-07	SAM	5.43	1		SOIL	12/15/11
15	C5005-08	SAM	4.88	1		SOIL	12/15/11
16	C5005-10	SAM	6.30	1		SOIL	12/15/11
17	C5005-11	SAM	6.84	1		SOIL	12/15/11
18	C5005-12	SAM	7.14	1		SOIL	12/15/11
19	C5005-13	SAM	5.50	1		SOIL	12/15/11
20	C5005-14	SAM	6.63	1		SOIL	12/15/11
21	C5005-15	SAM	5.58	1		SOIL	12/15/11
22	CCV	CCV	12.04	1		WATER	12/15/11

12-19-11

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58416

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.02	7.00	100	90-110	12/15/2011
Sample ID:	CCV1						
pH		pH	2.03	2.00	102	90-110	12/15/2011
Sample ID:	CCV2						
pH		pH	2.02	2.00	101	90-110	12/15/2011
Sample ID:	CCV3						
pH		pH	12.04	12.00	100	90-110	12/15/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58457

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60022						
Cyanide		mg/L	0.10	0.10	100	85-115	12/20/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	12/20/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.24	0.25	96	90-110	12/20/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.25	0.25	100	90-110	12/20/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5005
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58457

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/20/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/20/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/20/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/20/2011

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 13, 2012**

FROM: **A. COGNETTI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOC/SVOC/PAH/PEST/PCB**
NASJRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) - C5017

SAMPLES: 19/Soil/VOC/SVOC/PAH/PEST/PCB

12SB-DUP-04	12SB-DUP02	12SB09-0.502-02
12SB09-000.5-01	12SB09-0304-03	12SB10-0.502-02
12SB10-000.5-01	12SB10-0304-03	12SB11-0.501-02
12SB11-000.5-01	12SB11-0304-03	12SB14-0.502-02
12SB14-0304-03	12SB15-0.502-02	12SB15-000.5-01
12SB15-0304-03	12SB16-0.502-02	12SB16-000.5-01
12SB16-0304-03		

1/Aqueous/VOC

12TB-20111215

Overview

The sample set for NASJRB Willow Grove, SDG C5017 consists of nineteen (19) soil environmental samples and one (1) trip blank. Samples were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides (PEST) and polychlorinated biphenyls (PCBs). The trip blank was analyzed for VOCs. Two field duplicate pairs were included in this SDG: 12SB15-000.5-01/ 12SB-DUP-04 and 12SB16-0304-03/ 12SB-DUP02.

The samples were collected on December 15, 2011 and analyzed by Chemtech Laboratories. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A and 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, field duplicate results, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Minor

- The VOC percent recovery (%R) of surrogate 4-bromofluorobenzene was less than the lower quality control limit in sample 12SB11-000.5-01. The nondetected results were qualified as estimated (UJ) in sample 12SB11-000.5-01.

- The SVOC %Rs of several surrogates were outside quality control limits for several samples. The following table outlines the surrogate noncompliances, laboratory action and the resulting qualification of data.

TO: A. Frebowitz
FROM: A. Cognetti
SDG: C5017
DATE: March 13, 2012

Sample	Surrogate	%Recovery	Fraction Affected	Sample Re-analyzed	Qualification
12SB10-0.502-02	Phenol-d5	>UL	Acid	Yes, diluted	K, base/neutral compounds
	Nitrobenzene-d5	>UL	Base/neutral		
	2-fluorobiphenyl	>UL	Base/neutral		
12SB10-0.502-02DL	2-fluorophenol	>UL	Acid	No	K, all positive results
	Phenol-d5	>UL	Acid		
	Nitrobenzene-d5	>UL	Base/neutral		
	2-fluorobiphenyl	>UL	Base/neutral		
	Terphenyl-d14	>UL	Base/neutral		
12SB10-0304-03	2-fluorophenol	>UL	Acid	Yes, with similar results	K or J, all positive results in original sample
	Phenol-d5	>UL	Acid		
	Nitrobenzene-d5	>UL	Base/neutral		
	2-fluorobiphenyl	>UL	Base/neutral		
12SB14-0.502-02DL	Phenol-d5	>UL	Acid	No	K, base/neutral compounds
	Nitrobenzene-d5	>UL	Base/neutral		
	2-fluorobiphenyl	>UL	Base/neutral		

- The laboratory control sample (LCS) %R of 4-chloroaniline was less than the lower quality control limit in batch PB599946BS. The nondetected 4-chloroaniline results were qualified as biased low (UL) in the affected samples.

- The continuing calibration percent difference (%D) for benzo(g,h,i)perylene was greater than the 20% quality control limit on December 31, 2011 @ 23:16 on instrument BNA_G. The positive benzo(g,h,i)perylene results were qualified as estimated (J) in the affected samples.

- The PAH matrix spike/matrix spike duplicate (MS/MSD) %Rs of several compounds were outside quality control limits in sample 12SB11-000.5-01. The relative percent differences (RPDs) for all PAHs exceeded quality control limits except for benzo(k)fluoranthene. The following table outlines the MS/MSD %Rs noncompliances and the resulting qualification of data in sample 12SB11-000.5-01.

Compound	MS %R	MSD %R	RPD	Qualification
Phenanthrene	>UL	>UL	>UL	No action
Anthracene	>UL	Ok	>UL	K
Fluoranthene	>UL	>UL	>UL	K
Pyrene	>UL	>UL	>UL	K
Benzo(a)anthracene	>UL	>UL	>UL	K
Chrysene	>UL	>UL	>UL	K
Benzo(b)fluoranthene	>UL	>UL	>UL	K
Benzo(k)fluoranthene	>UL	Ok	Ok	No action
Benzo(a)pyrene	>UL	>UL	>UL	K
Benzo(g,h,i)perylene	>UL	Ok	>UL	K

- The PEST %Rs of several surrogates were less than the lower quality control limit but greater than 10% in several samples. The following table outlines the surrogate noncompliances, laboratory action and the resulting qualification of data.

TO: A. Frebowitz
FROM: A. Cognetti
SDG: C5017
DATE: March 13, 2012

Sample	Surrogate	%R Column 1	%R Column 2	Sample Re-analyzed	Qualification
12SB16-0.502-02	Tetrachloro-m-xylene	<LL	<LL	Yes, with same results	UJ in original sample
12SB16-0304-03	Tetrachloro-m-xylene	<LL	<LL	Yes, with same results	UJ in original sample
12SB09-0304-03	Tetrachloro-m-xylene	<LL	<LL	Yes, with same results	UJ in original sample
12SB10-0.502-02	Both surrogates	<LL	<LL	Yes, with similar results	UJ in original sample
12SB10-0304-03	Tetrachloro-m-xylene	Ok	<LL	No	No action

- Field duplicate imprecision was noted in the field duplicate pair 12SB15-000.5-01 and 12SB-DUP-04 for 2-butanone and acetone. The RPDs were greater than the 50% quality control limit and the variances were greater than 2X the reporting limit for 2-butanone and acetone. The positive and nondetected 2-butanone and acetone results were qualified as estimated (J) and (UJ), respectively in the field duplicate pair 12SB15-000.5-01 and 12SB-DUP-04.

- Positive results less than the reporting limit (RL) were qualified as estimated, (J), due to uncertainty near the detection limit.

Notes

The initial calibration relative standard deviation (%RSD) for chloroethane was greater than the 15% quality control limit and less than 50% on December 21, 2011 on instrument MSVOA_F. No action was taken on the nondetected chloroethane results in the affected samples.

The continuing calibration %D for trichlorofluoromethane was greater than the 20% quality control limit and less than 50% on December 20, 2011 @ 22:09 on instrument MSVOA_F. No action was taken on the nondetected trichlorofluoromethane results in the affected samples.

The continuing calibration %Ds for bromomethane and bromoform were greater than the 20% quality control limit and less than 50% on December 21, 2011 @ 2:19 on instrument MSVOA_G. No action was taken on the nondetected bromomethane and bromoform results in the affected trip blank.

The continuing calibration %Ds for acetone, carbon tetrachloride and tetrachloroethene were greater than the 20% quality control limit and less than 50% on December 22, 2011 @ 15:53 on instrument MSVOA_T. No action was taken on the nondetected acetone, carbon tetrachloride and tetrachloroethene results in the affected sample 12SB09-0.502-02.

The SVOC continuing calibration %D for 2,4-dinitrophenol was greater than the 20% quality control limit and less than 50% on January 1, 2012 @ 6:25 on instrument BNA_F. No action was taken on the nondetected 2,4-dinitrophenol results in the affected samples.

The SVOC continuing calibration %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were greater than the 20% quality control limit and less than 50% on January 3, 2012 @ 20:50 on instrument BNA_F. No action was taken on the nondetected 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol results in the affected

TO: A. Frebowitz
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SDG: C5017
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samples.

The SVOC MS/MSD RPDs for several target compounds were greater than the upper quality control limit in sample 12SB11-000.5-01. The analytes were phenol, 2,4-dimethylphenol, 4-chloroaniline, dimethylphthalate, 4-nitrophenol, 4-nitroaniline, pentachlorophenol, 3,3-dichlorobenzidine and bis(2-ethylhexyl)phthalate. The MS and MSD %Rs of these compounds were within quality control limits. No action was taken.

The PCB %R of surrogate decachlorobiphenyl was greater than the upper quality control limit on column 1 in sample 12SB10-0304-03. No action was taken on the nondetected results in sample 12SB10-0304-03.

Several target compounds nondetected results in several fractions were greater than the project screening level as specified in the SAP for Phase II RI at Site 12 - South Landfill (October 2011). The compounds were 1,1,2,2-tetachloroethane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichloroethane, bromodichloromethane, chloroform, dibromochloromethane, tetrachloroethene, vinyl chloride, 2,2'-Oxybis(1-chloropropane), 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 3,3'-Dichlorobenzidine, 4,6-Dinitro-2-methylphenol, 4-Chloroanaline, 4-Nitroaniline, Bis(2-chloroethyl)ether, Di-n-butyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Nitrobenzene, N-Nitrosodi-n-propylamine, Pentachlorophenol and all PCBs. No action was taken.

The data reviewer identified five additional VOCs and 7 SVOCs analyzed by the laboratory that were not included in Worksheet 15 of the project specific SAP. The project manager was notified of these additional analytes. The VOC analytes were 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate and methyl cyclohexane. The SVOC compounds were 1,1-biphenyl, 1,2,4,5-tetrachlorobenzene, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde and caprolactam. The aforementioned compound results were deleted from the EDD. The results are reported on the form 1s.

Several PAHs results exceeded the instrument calibration range in several samples. The samples were diluted and re-analyzed. Only the analytes exceeding instrument calibration were taken from the diluted sample and used for validation and reporting purposes. According to the project specific SAP, low level PAHs were to be analyzed using 8270C SIM. The following samples had positive phenanthrene results which exceeded instrument calibration range in both the full scan and SIM modes; 12SB10-0.502-02 and 12SB14-0.502-02. The data validator choose to use the full scan diluted analyses results of these sample for validation and reporting purposes since the phenanthrene were high. The data validator also chose to use the phenanthrene result in the full scan for sample 12SB10-0304-03. The phenanthrene result via SIM mode exceeded instrument calibration.

Nondetected results were reported to the limit of detection (LOD).

Executive Summary

Laboratory Performance: The VOC %R of surrogate 4-bromofluorobenzene was less than the lower quality control limit in sample 12SB11-000.5-01. The SVOC %Rs of several surrogates were outside quality control limits for several samples. The LCS %R of 4-chloroaniline was less than the lower quality control limit in batch PB599946BS. The continuing calibration %D for benzo(g,h,i)perylene was greater than the 20% quality control limit on December 31, 2011 @ 23:16 on instrument BNA_G. The PEST %Rs of several surrogates were less than the lower quality control limit but greater than 10% in several samples.

TO: A. Frebowitz
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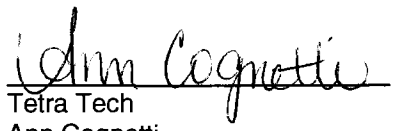
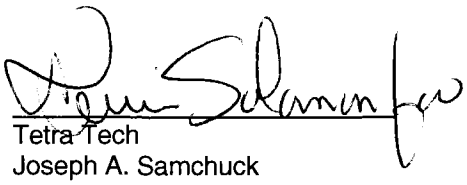
DATE: March 13, 2012

Other Factors Affecting Data Quality: The PAH MS/MSD %Rs of several compounds were outside quality control limits in sample 12SB11-000.5-01. The RPDs for all PAHs exceeded quality control limits except for benzo(k)fluoranthene. Field duplicate imprecision was noted in the field duplicate pair 12SB15-000.5-01 and 12SB-DUP-04 for 2-butanone and acetone.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional guidelines for Organic Data Review" (September 1994), and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Ann Cognetti
Chemist/Data Validator



Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-000.5-01			12SB09-0304-03			12SB10-0.502-02		
SDG: C5017	LAB_ID	C5017-11			C5017-10			C5017-12			C5017-14		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			67.0			84.0			88.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,1,2,2-TETRACHLOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,1,2-TRICHLOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,1-DICHLOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,1-DICHLOROETHENE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2,3-TRICHLOROBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2,4-TRICHLOROBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2-DIBROMOETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2-DICHLOROBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2-DICHLOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,2-DICHLOROPROPANE		2.55	U		3.3	U		2.55	U		2.35	U	
1,3-DICHLOROBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
1,4-DICHLOROBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
2-BUTANONE		13	U		16.5	U		5.1	J	P	11.5	U	
2-HEXANONE		13	U		16.5	U		12.5	U		11.5	U	
4-METHYL-2-PENTANONE		13	U		16.5	U		12.5	U		11.5	U	
ACETONE		13	U		14	J	P	12	J	P	11.5	U	
BENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
BROMODICHLOROMETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
BROMOFORM		2.55	U		3.3	U		2.55	U		2.35	U	
BROMOMETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
CARBON DISULFIDE		2.55	U		3.3	U		2.55	U		2.35	U	
CARBON TETRACHLORIDE		2.55	U		3.3	U		2.55	U		2.35	U	
CHLOROBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
CHLORODIBROMOMETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
CHLOROETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
CHLOROFORM		2.55	U		3.3	U		2.55	U		2.35	U	
CHLOROMETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
CIS-1,2-DICHLOROETHENE		2.55	U		3.3	U		2.55	U		2.35	U	
CIS-1,3-DICHLOROPROPENE		2.55	U		3.3	U		2.55	U		2.35	U	
DICHLORODIFLUOROMETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
ETHYLBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	
ISOPROPYLBENZENE		2.55	U		3.3	U		2.55	U		2.35	U	

PROJ_NO: 02014	NSAMPLE	12SB10-000.5-01			12SB10-0304-03			12SB11-0.501-02			12SB11-000.5-01		
SDG: C5017	LAB_ID	C5017-13			C5017-15			C5017-07			C5017-04		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			87.0			84.0			70.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,1,2,2-TETRACHLOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,1,2-TRICHLOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,1,2-TRICHLOROTRIFLUOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,1-DICHLOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,1-DICHLOROETHENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2,3-TRICHLOROBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2,4-TRICHLOROBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2-DIBROMOETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2-DICHLOROBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2-DICHLOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,2-DICHLOROPROPANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,3-DICHLOROBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
1,4-DICHLOROBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
2-BUTANONE	14.5	U		12	U		12	U		17	UJ	R
2-HEXANONE	14.5	U		12	U		12	U		17	UJ	R
4-METHYL-2-PENTANONE	14.5	U		12	U		12	U		17	UJ	R
ACETONE	14.5	U		12	U		12	U		17	UJ	R
BENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
BROMODICHLOROMETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
BROMOFORM	2.9	U		2.4	U		2.45	U		3.4	UJ	R
BROMOMETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CARBON DISULFIDE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CARBON TETRACHLORIDE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CHLOROBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CHLORODIBROMOMETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CHLOROETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CHLOROFORM	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CHLOROMETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CIS-1,2-DICHLOROETHENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
CIS-1,3-DICHLOROPROPENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
DICHLORODIFLUOROMETHANE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
ETHYLBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R
ISOPROPYLBENZENE	2.9	U		2.4	U		2.45	U		3.4	UJ	R

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03			12SB14-0.502-02			12SB14-0304-03			12SB15-0.502-02		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-21			C5017-17		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			86.0			86.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,1,2,2-TETRACHLOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,1,2-TRICHLOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,1-DICHLOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,1-DICHLOROETHENE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2,3-TRICHLOROBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2,4-TRICHLOROBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2-DIBROMOETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2-DICHLOROBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2-DICHLOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,2-DICHLOROPROPANE		2.5	U		2.55	U		2.5	U		2.45	U	
1,3-DICHLOROBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
1,4-DICHLOROBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
2-BUTANONE		12.5	U		12.5	U		12.5	U		12	U	
2-HEXANONE		12.5	U		12.5	U		12.5	U		12	U	
4-METHYL-2-PENTANONE		12.5	U		12.5	U		12.5	U		12	U	
ACETONE		12.5	U		12.5	U		12.5	U		12	U	
BENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
BROMODICHLOROMETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
BROMOFORM		2.5	U		2.55	U		2.5	U		2.45	U	
BROMOMETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
CARBON DISULFIDE		2.5	U		2.55	U		2.5	U		2.45	U	
CARBON TETRACHLORIDE		2.5	U		2.55	U		2.5	U		2.45	U	
CHLOROBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
CHLORODIBROMOMETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
CHLOROETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
CHLOROFORM		2.5	U		2.55	U		2.5	U		2.45	U	
CHLOROMETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
CIS-1,2-DICHLOROETHENE		2.5	U		2.55	U		2.5	U		2.45	U	
CIS-1,3-DICHLOROPROPENE		2.5	U		2.55	U		2.5	U		2.45	U	
DICHLORODIFLUOROMETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
ETHYLBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	
ISOPROPYLBENZENE		2.5	U		2.55	U		2.5	U		2.45	U	

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-0304-03			12SB16-0.502-02			12SB16-000.5-01		
SDG: C5017	LAB_ID	C5017-16			C5017-18			C5017-02			C5017-01		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	67.0			82.0			84.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,1,2,2-TETRACHLOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,1,2-TRICHLOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,1-DICHLOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,1-DICHLOROETHENE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2,3-TRICHLOROBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2,4-TRICHLOROBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2-DIBROMO-3-CHLOROPROPANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2-DIBROMOETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2-DICHLOROBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2-DICHLOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,2-DICHLOROPROPANE		3.2	U		2.5	U		2.45	U		3.35	U	
1,3-DICHLOROBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
1,4-DICHLOROBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
2-BUTANONE		200	J	G	12.5	U		12	U		15	J	P
2-HEXANONE		14	J	P	12.5	U		12	U		17	U	
4-METHYL-2-PENTANONE		16	U		12.5	U		12	U		17	U	
ACETONE		340	J	G	12.5	U		12	U		120		
BENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
BROMODICHLOROMETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
BROMOFORM		3.2	U		2.5	U		2.45	U		3.35	U	
BROMOMETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
CARBON DISULFIDE		3.2	U		2.5	U		2.45	U		3.35	U	
CARBON TETRACHLORIDE		3.2	U		2.5	U		2.45	U		3.35	U	
CHLOROBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
CHLORODIBROMOMETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
CHLOROETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
CHLOROFORM		3.2	U		2.5	U		2.45	U		3.35	U	
CHLOROMETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
CIS-1,2-DICHLOROETHENE		3.2	U		2.5	U		2.45	U		3.35	U	
CIS-1,3-DICHLOROPROPENE		3.2	U		2.5	U		2.45	U		3.35	U	
DICHLORODIFLUOROMETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
ETHYLBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	
ISOPROPYLBENZENE		3.2	U		2.5	U		2.45	U		3.35	U	

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB-DUP02			12SB-DUP-04		
SDG: C5017	LAB_ID	C5017-03			C5017-09			C5017-19		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			82.0			67.0		
	DUP_OF				12SB16-0304-03			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.6	U		2.5	U		3	U	
1,1,2,2-TETRACHLOROETHANE		2.6	U		2.5	U		3	U	
1,1,2-TRICHLOROETHANE		2.6	U		2.5	U		3	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.6	U		2.5	U		3	U	
1,1-DICHLOROETHANE		2.6	U		2.5	U		3	U	
1,1-DICHLOROETHENE		2.6	U		2.5	U		3	U	
1,2,3-TRICHLOROBENZENE		2.6	U		2.5	U		3	U	
1,2,4-TRICHLOROBENZENE		2.6	U		2.5	U		3	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.6	U		2.5	U		3	U	
1,2-DIBROMOETHANE		2.6	U		2.5	U		3	U	
1,2-DICHLOROBENZENE		2.6	U		2.5	U		3	U	
1,2-DICHLOROETHANE		2.6	U		2.5	U		3	U	
1,2-DICHLOROPROPANE		2.6	U		2.5	U		3	U	
1,3-DICHLOROBENZENE		2.6	U		2.5	U		3	U	
1,4-DICHLOROBENZENE		2.6	U		2.5	U		3	U	
2-BUTANONE		13	U		12.5	U		15	UJ	G
2-HEXANONE		13	U		12.5	U		15	U	
4-METHYL-2-PENTANONE		13	U		12.5	U		15	U	
ACETONE		13	U		15	J	P	14	J	GP
BENZENE		2.6	U		2.5	U		3	U	
BROMODICHLOROMETHANE		2.6	U		2.5	U		3	U	
BROMOFORM		2.6	U		2.5	U		3	U	
BROMOMETHANE		2.6	U		2.5	U		3	U	
CARBON DISULFIDE		2.6	U		2.5	U		3	U	
CARBON TETRACHLORIDE		2.6	U		2.5	U		3	U	
CHLOROBENZENE		2.6	U		2.5	U		3	U	
CHLORODIBROMOMETHANE		2.6	U		2.5	U		3	U	
CHLOROETHANE		2.6	U		2.5	U		3	U	
CHLOROFORM		2.6	U		2.5	U		3	U	
CHLOROMETHANE		2.6	U		2.5	U		3	U	
CIS-1,2-DICHLOROETHENE		2.6	U		2.5	U		3	U	
CIS-1,3-DICHLOROPROPENE		2.6	U		2.5	U		3	U	
DICHLORODIFLUOROMETHANE		2.6	U		2.5	U		3	U	
ETHYLBENZENE		2.6	U		2.5	U		3	U	
ISOPROPYLBENZENE		2.6	U		2.5	U		3	U	

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-000.5-01			12SB09-0304-03			12SB10-0.502-02		
SDG: C5017	LAB_ID	C5017-11			C5017-10			C5017-12			C5017-14		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			67.0			84.0			88.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5	U		6.5	U		5	U		4.7	U	
METHYL TERT-BUTYL ETHER		2.55	U		3.3	U		2.55	U		2.35	U	
METHYLENE CHLORIDE		2.55	U		3.3	U		2.55	U		2.35	U	
O-XYLENE		2.55	U		3.3	U		2.55	U		2.35	U	
STYRENE		2.55	U		3.3	U		2.55	U		2.35	U	
TETRACHLOROETHENE		2.55	U		3.3	U		2.55	U		2.35	U	
TOLUENE		2.55	U		3.3	U		2.55	U		2.35	U	
TOTAL XYLENES		7.5	U		10	U		7.5	U		7	U	
TRANS-1,2-DICHLOROETHENE		2.55	U		3.3	U		2.55	U		2.35	U	
TRANS-1,3-DICHLOROPROPENE		2.55	U		3.3	U		2.55	U		2.35	U	
TRICHLOROETHENE		2.55	U		3.3	U		2.55	U		2.35	U	
TRICHLOROFLUOROMETHANE		2.55	U		3.3	U		2.55	U		2.35	U	
VINYL CHLORIDE		2.55	U		3.3	U		2.55	U		2.35	U	

PROJ_NO: 02014	NSAMPLE	12SB10-000.5-01			12SB10-0304-03			12SB11-0.501-02			12SB11-000.5-01		
SDG: C5017	LAB_ID	C5017-13			C5017-15			C5017-07			C5017-04		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			87.0			84.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		6	U		4.8	U		4.9	U		7	UJ	R
METHYL TERT-BUTYL ETHER		2.9	U		2.4	U		2.45	U		3.4	UJ	R
METHYLENE CHLORIDE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
O-XYLENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
STYRENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
TETRACHLOROETHENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
TOLUENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
TOTAL XYLENES		8.5	U		7	U		7.5	U		10	UJ	R
TRANS-1,2-DICHLOROETHENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
TRANS-1,3-DICHLOROPROPENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
TRICHLOROETHENE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
TRICHLOROFLUOROMETHANE		2.9	U		2.4	U		2.45	U		3.4	UJ	R
VINYL CHLORIDE		2.9	U		2.4	U		2.45	U		3.4	UJ	R

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03			12SB14-0.502-02			12SB14-0304-03			12SB15-0.502-02		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-21			C5017-17		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			86.0			86.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		4.95	U		5	U		4.95	U		4.85	U	
METHYL TERT-BUTYL ETHER		2.5	U		2.55	U		2.5	U		2.45	U	
METHYLENE CHLORIDE		2.5	U		2.55	U		2.5	U		2.45	U	
O-XYLENE		2.5	U		2.55	U		2.5	U		2.45	U	
STYRENE		2.5	U		2.55	U		2.5	U		2.45	U	
TETRACHLOROETHENE		2.5	U		2.55	U		2.5	U		2.45	U	
TOLUENE		2.5	U		2.55	U		2.5	U		2.45	U	
TOTAL XYLENES		7.5	U		7.5	U		7.5	U		7.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.55	U		2.5	U		2.45	U	
TRANS-1,3-DICHLOROPROPENE		2.5	U		2.55	U		2.5	U		2.45	U	
TRICHLOROETHENE		2.5	U		2.55	U		2.5	U		2.45	U	
TRICHLOROFLUOROMETHANE		2.5	U		2.55	U		2.5	U		2.45	U	
VINYL CHLORIDE		2.5	U		2.55	U		2.5	U		2.45	U	

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-0304-03			12SB16-0.502-02			12SB16-000.5-01		
SDG: C5017	LAB_ID	C5017-16			C5017-18			C5017-02			C5017-01		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	67.0			82.0			84.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		6.5	U		5	U		4.85	U		6.5	U	
METHYL TERT-BUTYL ETHER		3.2	U		2.5	U		2.45	U		3.35	U	
METHYLENE CHLORIDE		3.2	U		2.5	U		2.45	U		3.35	U	
O-XYLENE		3.2	U		2.5	U		2.45	U		3.35	U	
STYRENE		3.2	U		2.5	U		2.45	U		3.35	U	
TETRACHLOROETHENE		3.2	U		2.5	U		2.45	U		3.35	U	
TOLUENE		3.2	U		2.5	U		2.45	U		3.35	U	
TOTAL XYLENES		9.5	U		7.5	U		7.5	U		10	U	
TRANS-1,2-DICHLOROETHENE		3.2	U		2.5	U		2.45	U		3.35	U	
TRANS-1,3-DICHLOROPROPENE		3.2	U		2.5	U		2.45	U		3.35	U	
TRICHLOROETHENE		3.2	U		2.5	U		2.45	U		3.35	U	
TRICHLOROFLUOROMETHANE		3.2	U		2.5	U		2.45	U		3.35	U	
VINYL CHLORIDE		3.2	U		2.5	U		2.45	U		3.35	U	

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB-DUP02			12SB-DUP-04		
SDG: C5017	LAB_ID	C5017-03			C5017-09			C5017-19		
FRACTION: OV	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			82.0			67.0		
	DUP_OF				12SB16-0304-03			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5	U		5	U		6	U	
METHYL TERT-BUTYL ETHER		2.6	U		2.5	U		3	U	
METHYLENE CHLORIDE		2.6	U		2.5	U		3	U	
O-XYLENE		2.6	U		2.5	U		3	U	
STYRENE		2.6	U		2.5	U		3	U	
TETRACHLOROETHENE		2.6	U		2.5	U		3	U	
TOLUENE		2.6	U		2.5	U		3	U	
TOTAL XYLENES		8	U		7.5	U		9	U	
TRANS-1,2-DICHLOROETHENE		2.6	U		2.5	U		3	U	
TRANS-1,3-DICHLOROPROPENE		2.6	U		2.5	U		3	U	
TRICHLOROETHENE		2.6	U		2.5	U		3	U	
TRICHLOROFLUOROMETHANE		2.6	U		2.5	U		3	U	
VINYL CHLORIDE		2.6	U		2.5	U		3	U	

PROJ_NO: 02014	NSAMPLE	12TB-20111215		
SDG: C5017	LAB_ID	C5017-22		
FRACTION: OV	SAMP_DATE	12/15/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U	
1,1-DICHLOROETHANE		0.5	U	
1,1-DICHLOROETHENE		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U	
1,2-DIBROMOETHANE		0.5	U	
1,2-DICHLOROBENZENE		0.5	U	
1,2-DICHLOROETHANE		0.5	U	
1,2-DICHLOROPROPANE		0.5	U	
1,3-DICHLOROBENZENE		0.5	U	
1,4-DICHLOROBENZENE		0.5	U	
2-BUTANONE		2.5	U	
2-HEXANONE		2.5	U	
4-METHYL-2-PENTANONE		2.5	U	
ACETONE		2.5	U	
BENZENE		0.5	U	
BROMODICHLOROMETHANE		0.5	U	
BROMOFORM		0.5	U	
BROMOMETHANE		0.5	U	
CARBON DISULFIDE		0.5	U	
CARBON TETRACHLORIDE		0.5	U	
CHLOROBENZENE		0.5	U	
CHLORODIBROMOMETHANE		0.5	U	
CHLOROETHANE		0.5	U	
CHLOROFORM		0.5	U	
CHLOROMETHANE		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U	
ETHYLBENZENE		0.5	U	
ISOPROPYLBENZENE		0.5	U	

PROJ_NO: 02014	NSAMPLE	12TB-20111215		
SDG: C5017	LAB_ID	C5017-22		
FRACTION: OV	SAMP_DATE	12/15/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
M+P-XYLENES		1	U	
METHYL TERT-BUTYL ETHER		0.5	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
STYRENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TOTAL XYLENES		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-0.502-02GR2			12SB09-000.5-01			12SB09-000.5-01GR2		
SDG: C5017	LAB_ID	C5017-11			C5017-11			C5017-10			C5017-10		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			67.0			67.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					245	U				
2,4,5-TRICHLOROPHENOL		205	U					245	U				
2,4,6-TRICHLOROPHENOL		205	U					245	U				
2,4-DICHLOROPHENOL		205	U					245	U				
2,4-DIMETHYLPHENOL		205	U					245	U				
2,4-DINITROPHENOL		205	U					245	U				
2,4-DINITROTOLUENE		205	U					245	U				
2,6-DINITROTOLUENE		205	U					245	U				
2-CHLORONAPHTHALENE		205	U					245	U				
2-CHLOROPHENOL		205	U					245	U				
2-METHYLNAPHTHALENE		2.05	U					2.45	U				
2-METHYLPHENOL		205	U					245	U				
2-NITROANILINE		205	U					245	U				
2-NITROPHENOL		205	U					245	U				
3&4-METHYLPHENOL		205	U					245	U				
3,3'-DICHLOROBENZIDINE		205	U					245	U				
3-NITROANILINE		205	U					245	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					245	U				
4-BROMOPHENYL PHENYL ETHER		205	U					245	U				
4-CHLORO-3-METHYLPHENOL		205	U					245	U				
4-CHLOROANILINE		205	UL	E				245	UL	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					245	U				
4-NITROANILINE		205	U					245	U				
4-NITROPHENOL		205	U					245	U				
ACENAPHTHENE					9						2.45	U	
ACENAPHTHYLENE					9						2.45	U	
ANTHRACENE		31						3	J	P			
BENZO(A)ANTHRACENE		110						16					
BENZO(A)PYRENE		120						14					
BENZO(B)FLUORANTHENE		170						19					
BENZO(G,H,I)PERYLENE		79						8.5					
BENZO(K)FLUORANTHENE		63						8					
BIS(2-CHLOROETHOXY)METHANE		205	U					245	U				
BIS(2-CHLOROETHYL)ETHER		205	U					245	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					245	U				

PROJ_NO: 02014	NSAMPLE	12SB09-0304-03			12SB09-0304-03GR2			12SB10-0.502-02			12SB10-0.502-02DL		
SDG: C5017	LAB_ID	C5017-12			C5017-12			C5017-14			C5017-14DL		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			84.0			88.0			88.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)	195	U					950	U				
2,4,5-TRICHLOROPHENOL	195	U					950	U				
2,4,6-TRICHLOROPHENOL	195	U					950	U				
2,4-DICHLOROPHENOL	195	U					950	U				
2,4-DIMETHYLPHENOL	195	U					950	U				
2,4-DINITROPHENOL	195	U					950	U				
2,4-DINITROTOLUENE	195	U					950	U				
2,6-DINITROTOLUENE	195	U					950	U				
2-CHLORONAPHTHALENE	195	U					950	U				
2-CHLOROPHENOL	195	U					950	U				
2-METHYLNAPHTHALENE	1.95	U					990	K	R			
2-METHYLPHENOL	195	U					950	U				
2-NITROANILINE	195	U					950	U				
2-NITROPHENOL	195	U					950	U				
3&4-METHYLPHENOL	195	U					950	U				
3,3'-DICHLOROBENZIDINE	195	U					950	U				
3-NITROANILINE	195	U					950	U				
4,6-DINITRO-2-METHYLPHENOL	195	U					950	U				
4-BROMOPHENYL PHENYL ETHER	195	U					950	U				
4-CHLORO-3-METHYLPHENOL	195	U					950	U				
4-CHLOROANILINE	195	UL	E				950	UL	E			
4-CHLOROPHENYL PHENYL ETHER	195	U					950	U				
4-NITROANILINE	195	U					950	U				
4-NITROPHENOL	195	U					950	U				
ACENAPHTHENE				3.6	J	P						
ACENAPHTHYLENE				1.95	U							
ANTHRACENE	6.7									5500	K	R
BENZO(A)ANTHRACENE	33									6000	K	R
BENZO(A)PYRENE	36						4600	K	R			
BENZO(B)FLUORANTHENE	54									6000	K	R
BENZO(G,H,I)PERYLENE	24						1900	K	R			
BENZO(K)FLUORANTHENE	21						2200	K	R			
BIS(2-CHLOROETHOXY)METHANE	195	U					950	U				
BIS(2-CHLOROETHYL)ETHER	195	U					950	U				
BIS(2-ETHYLHEXYL)PHTHALATE	195	U					950	U				

PROJ_NO: 02014	NSAMPLE	12SB10-0.502-02GR2			12SB10-000.5-01			12SB10-000.5-01DL			12SB10-000.5-01GR2		
SDG: C5017	LAB_ID	C5017-14			C5017-13			C5017-13DL			C5017-13		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			70.0			70.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					235	U							
2,4,5-TRICHLOROPHENOL					235	U							
2,4,6-TRICHLOROPHENOL					235	U							
2,4-DICHLOROPHENOL					235	U							
2,4-DIMETHYLPHENOL					235	U							
2,4-DINITROPHENOL					235	U							
2,4-DINITROTOLUENE					235	U							
2,6-DINITROTOLUENE					235	U							
2-CHLORONAPHTHALENE					235	U							
2-CHLOROPHENOL					235	U							
2-METHYLNAPHTHALENE					2.35	U							
2-METHYLPHENOL					235	U							
2-NITROANILINE					235	U							
2-NITROPHENOL					235	U							
3&4-METHYLPHENOL					235	U							
3,3'-DICHLOROBENZIDINE					235	U							
3-NITROANILINE					235	U							
4,6-DINITRO-2-METHYLPHENOL					235	U							
4-BROMOPHENYL PHENYL ETHER					235	U							
4-CHLORO-3-METHYLPHENOL					235	U							
4-CHLOROANILINE					235	UL	E						
4-CHLOROPHENYL PHENYL ETHER					235	U							
4-NITROANILINE					235	U							
4-NITROPHENOL					235	U							
ACENAPHTHENE		1900									40		
ACENAPHTHYLENE		260									9.5		
ANTHRACENE					220								
BENZO(A)ANTHRACENE					530								
BENZO(A)PYRENE					440								
BENZO(B)FLUORANTHENE					570								
BENZO(G,H,I)PERYLENE					200								
BENZO(K)FLUORANTHENE					230								
BIS(2-CHLOROETHOXY)METHANE					235	U							
BIS(2-CHLOROETHYL)ETHER					235	U							
BIS(2-ETHYLHEXYL)PHTHALATE					235	U							

PROJ_NO: 02014	NSAMPLE	12SB10-0304-03			12SB10-0304-03DL			12SB10-0304-03GR2			12SB11-0.501-02		
SDG: C5017	LAB_ID	C5017-15			C5017-15DL			C5017-15			C5017-07		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			87.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		1900	U								195	U	
2,4,5-TRICHLOROPHENOL		1900	U								195	U	
2,4,6-TRICHLOROPHENOL		1900	U								195	U	
2,4-DICHLOROPHENOL		1900	U								195	U	
2,4-DIMETHYLPHENOL		1900	U								195	U	
2,4-DINITROPHENOL		1900	U								195	U	
2,4-DINITROTOLUENE		1900	U								195	U	
2,6-DINITROTOLUENE		1900	U								195	U	
2-CHLORONAPHTHALENE		1900	U								195	U	
2-CHLOROPHENOL		1900	U								195	U	
2-METHYLNAPHTHALENE		290	K	R							1.95	U	
2-METHYLPHENOL		1900	U								195	U	
2-NITROANILINE		1900	U								195	U	
2-NITROPHENOL		1900	U								195	U	
3&4-METHYLPHENOL		1900	U								195	U	
3,3'-DICHLOROBENZIDINE		1900	U								195	U	
3-NITROANILINE		1900	U								195	U	
4,6-DINITRO-2-METHYLPHENOL		1900	U								195	U	
4-BROMOPHENYL PHENYL ETHER		1900	U								195	U	
4-CHLORO-3-METHYLPHENOL		1900	U								195	U	
4-CHLOROANILINE		1900	UL	E							195	UL	E
4-CHLOROPHENYL PHENYL ETHER		1900	U								195	U	
4-NITROANILINE		1900	U								195	U	
4-NITROPHENOL		1900	U								195	U	
ACENAPHTHENE								870					
ACENAPHTHYLENE								63					
ANTHRACENE								1600			1.95	U	
BENZO(A)ANTHRACENE		1800	K	R							4.8		
BENZO(A)PYRENE		1400	K	R							5.9		
BENZO(B)FLUORANTHENE		1900	K	R							7.9		
BENZO(G,H,I)PERYLENE		610	K	R							3.6	J	P
BENZO(K)FLUORANTHENE		600	K	R							4		
BIS(2-CHLOROETHOXY)METHANE		1900	U								195	U	
BIS(2-CHLOROETHYL)ETHER		1900	U								195	U	
BIS(2-ETHYLHEXYL)PHTHALATE		1900	U								195	U	

PROJ_NO: 02014	NSAMPLE	12SB11-0.501-02GR2			12SB11-000.5-01			12SB11-000.5-01GR2			12SB11-0304-03		
SDG: C5017	LAB_ID	C5017-07			C5017-04			C5017-04			C5017-08		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			70.0			70.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					235	U					195	U	
2,4,5-TRICHLOROPHENOL					235	U					195	U	
2,4,6-TRICHLOROPHENOL					235	U					195	U	
2,4-DICHLOROPHENOL					235	U					195	U	
2,4-DIMETHYLPHENOL					235	U					195	U	
2,4-DINITROPHENOL					235	U					195	U	
2,4-DINITROTOLUENE					235	U					195	U	
2,6-DINITROTOLUENE					235	U					195	U	
2-CHLORONAPHTHALENE					235	U					195	U	
2-CHLOROPHENOL					235	U					195	U	
2-METHYLNAPHTHALENE					2.35	U					7.9		
2-METHYLPHENOL					235	U					195	U	
2-NITROANILINE					235	U					195	U	
2-NITROPHENOL					235	U					195	U	
3&4-METHYLPHENOL					235	U					195	U	
3,3'-DICHLOROBENZIDINE					235	U					195	U	
3-NITROANILINE					235	U					195	U	
4,6-DINITRO-2-METHYLPHENOL					235	U					195	U	
4-BROMOPHENYL PHENYL ETHER					235	U					195	U	
4-CHLORO-3-METHYLPHENOL					235	U					195	U	
4-CHLOROANILINE					235	UL	E				195	UL	E
4-CHLOROPHENYL PHENYL ETHER					235	U					195	U	
4-NITROANILINE					235	U					195	U	
4-NITROPHENOL					235	U					195	U	
ACENAPHTHENE		1.95	U					3.8	J	P			
ACENAPHTHYLENE		1.95	U					3.3	J	P			
ANTHRACENE					13	K	D				5.6		
BENZO(A)ANTHRACENE					77	K	D				35		
BENZO(A)PYRENE					76	K	D				34		
BENZO(B)FLUORANTHENE					110	K	D				49		
BENZO(G,H,I)PERYLENE					35	K	D				19	J	C
BENZO(K)FLUORANTHENE					44						16		
BIS(2-CHLOROETHOXY)METHANE					235	U					195	U	
BIS(2-CHLOROETHYL)ETHER					235	U					195	U	
BIS(2-ETHYLHEXYL)PHTHALATE					235	U					195	U	

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03GR2			12SB14-0.502-02			12SB14-0.502-02DL			12SB14-0.502-02GR2		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-20DL			C5017-20		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			86.0			86.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					190	U							
2,4,5-TRICHLOROPHENOL					190	U							
2,4,6-TRICHLOROPHENOL					190	U							
2,4-DICHLOROPHENOL					190	U							
2,4-DIMETHYLPHENOL					190	U							
2,4-DINITROPHENOL					190	U							
2,4-DINITROTOLUENE					190	U							
2,6-DINITROTOLUENE					190	U							
2-CHLORONAPHTHALENE					190	U							
2-CHLOROPHENOL					190	U							
2-METHYLNAPHTHALENE					48								
2-METHYLPHENOL					190	U							
2-NITROANILINE					190	U							
2-NITROPHENOL					190	U							
3&4-METHYLPHENOL					190	U							
3,3'-DICHLOROBENZIDINE					190	U							
3-NITROANILINE					190	U							
4,6-DINITRO-2-METHYLPHENOL					190	U							
4-BROMOPHENYL PHENYL ETHER					190	U							
4-CHLORO-3-METHYLPHENOL					190	U							
4-CHLOROANILINE					190	UL	E						
4-CHLOROPHENYL PHENYL ETHER					190	U							
4-NITROANILINE					190	U							
4-NITROPHENOL					190	U							
ACENAPHTHENE		1.95	U								260		
ACENAPHTHYLENE		2.4	J	P							41		
ANTHRACENE								1800	K	R			
BENZO(A)ANTHRACENE								3100	K	R			
BENZO(A)PYRENE								2600	K	R			
BENZO(B)FLUORANTHENE								3600	K	R			
BENZO(G,H,I)PERYLENE								1400	K	R			
BENZO(K)FLUORANTHENE								1100	K	R			
BIS(2-CHLOROETHOXY)METHANE					190	U							
BIS(2-CHLOROETHYL)ETHER					190	U							
BIS(2-ETHYLHEXYL)PHTHALATE					190	U							

PROJ_NO: 02014	NSAMPLE	12SB14-0304-03			12SB14-0304-03GR2			12SB15-0.502-02			12SB15-0.502-02GR2		
SDG: C5017	LAB_ID	C5017-21			C5017-21			C5017-17			C5017-17		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			86.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		190	U					200	U				
2,4,5-TRICHLOROPHENOL		190	U					200	U				
2,4,6-TRICHLOROPHENOL		190	U					200	U				
2,4-DICHLOROPHENOL		190	U					200	U				
2,4-DIMETHYLPHENOL		190	U					200	U				
2,4-DINITROPHENOL		190	U					200	U				
2,4-DINITROTOLUENE		190	U					200	U				
2,6-DINITROTOLUENE		190	U					200	U				
2-CHLORONAPHTHALENE		190	U					200	U				
2-CHLOROPHENOL		190	U					200	U				
2-METHYLNAPHTHALENE		1.9	U					2	U				
2-METHYLPHENOL		190	U					200	U				
2-NITROANILINE		190	U					200	U				
2-NITROPHENOL		190	U					200	U				
3&4-METHYLPHENOL		190	U					200	U				
3,3'-DICHLOROBENZIDINE		190	U					200	U				
3-NITROANILINE		190	U					200	U				
4,6-DINITRO-2-METHYLPHENOL		190	U					200	U				
4-BROMOPHENYL PHENYL ETHER		190	U					200	U				
4-CHLORO-3-METHYLPHENOL		190	U					200	U				
4-CHLOROANILINE		190	UL	E				200	UL	E			
4-CHLOROPHENYL PHENYL ETHER		190	U					200	U				
4-NITROANILINE		190	U					200	U				
4-NITROPHENOL		190	U					200	U				
ACENAPHTHENE					1.9	U					2	U	
ACENAPHTHYLENE					1.9	U					2	U	
ANTHRACENE		1.9	U					4.9					
BENZO(A)ANTHRACENE		2.3	J	P				26					
BENZO(A)PYRENE		1.9	U					30					
BENZO(B)FLUORANTHENE		1.9	J	P				46					
BENZO(G,H,I)PERYLENE		1.9	U					22					
BENZO(K)FLUORANTHENE		1.9	U					17					
BIS(2-CHLOROETHOXY)METHANE		190	U					200	U				
BIS(2-CHLOROETHYL)ETHER		190	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		190	U					200	U				

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-000.5-01GR2			12SB15-0304-03			12SB15-0304-03GR2		
SDG: C5017	LAB_ID	C5017-16			C5017-16			C5017-18			C5017-18		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	67.0			67.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		245	U					200	U				
2,4,5-TRICHLOROPHENOL		245	U					200	U				
2,4,6-TRICHLOROPHENOL		245	U					200	U				
2,4-DICHLOROPHENOL		245	U					200	U				
2,4-DIMETHYLPHENOL		245	U					200	U				
2,4-DINITROPHENOL		245	U					200	U				
2,4-DINITROTOLUENE		245	U					200	U				
2,6-DINITROTOLUENE		245	U					200	U				
2-CHLORONAPHTHALENE		245	U					200	U				
2-CHLOROPHENOL		245	U					200	U				
2-METHYLNAPHTHALENE		2.45	U					2	U				
2-METHYLPHENOL		245	U					200	U				
2-NITROANILINE		245	U					200	U				
2-NITROPHENOL		245	U					200	U				
3&4-METHYLPHENOL		245	U					200	U				
3,3'-DICHLOROBENZIDINE		245	U					200	U				
3-NITROANILINE		245	U					200	U				
4,6-DINITRO-2-METHYLPHENOL		245	U					200	U				
4-BROMOPHENYL PHENYL ETHER		245	U					200	U				
4-CHLORO-3-METHYLPHENOL		245	U					200	U				
4-CHLOROANILINE		245	UL	E				200	UL	E			
4-CHLOROPHENYL PHENYL ETHER		245	U					200	U				
4-NITROANILINE		245	U					200	U				
4-NITROPHENOL		245	U					200	U				
ACENAPHTHENE					5						2	U	
ACENAPHTHYLENE					2.5	J	P				2	U	
ANTHRACENE		22						2	U				
BENZO(A)ANTHRACENE		97						2	U				
BENZO(A)PYRENE		81						2	U				
BENZO(B)FLUORANTHENE		110						2	U				
BENZO(G,H,I)PERYLENE		50						2	U				
BENZO(K)FLUORANTHENE		44						2	U				
BIS(2-CHLOROETHOXY)METHANE		245	U					200	U				
BIS(2-CHLOROETHYL)ETHER		245	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		245	U					200	U				

PROJ_NO: 02014	NSAMPLE	12SB16-0.502-02			12SB16-0.502-02GR2			12SB16-000.5-01			12SB16-000.5-01GR2		
SDG: C5017	LAB_ID	C5017-02			C5017-02			C5017-01			C5017-01		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			84.0			65.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		195	U					255	U				
2,4,5-TRICHLOROPHENOL		195	U					255	U				
2,4,6-TRICHLOROPHENOL		195	U					255	U				
2,4-DICHLOROPHENOL		195	U					255	U				
2,4-DIMETHYLPHENOL		195	U					255	U				
2,4-DINITROPHENOL		195	U					255	U				
2,4-DINITROTOLUENE		195	U					255	U				
2,6-DINITROTOLUENE		195	U					255	U				
2-CHLORONAPHTHALENE		195	U					255	U				
2-CHLOROPHENOL		195	U					255	U				
2-METHYLNAPHTHALENE		1.95	U					2.55	U				
2-METHYLPHENOL		195	U					255	U				
2-NITROANILINE		195	U					255	U				
2-NITROPHENOL		195	U					255	U				
3&4-METHYLPHENOL		195	U					255	U				
3,3'-DICHLOROBENZIDINE		195	U					255	U				
3-NITROANILINE		195	U					255	U				
4,6-DINITRO-2-METHYLPHENOL		195	U					255	U				
4-BROMOPHENYL PHENYL ETHER		195	U					255	U				
4-CHLORO-3-METHYLPHENOL		195	U					255	U				
4-CHLOROANILINE		195	UL	E				255	UL	E			
4-CHLOROPHENYL PHENYL ETHER		195	U					255	U				
4-NITROANILINE		195	U					255	U				
4-NITROPHENOL		195	U					255	U				
ACENAPHTHENE					1.95	U					4.1	J	P
ACENAPHTHYLENE					1.95	U					6.1		
ANTHRACENE		1.95	U					9.7					
BENZO(A)ANTHRACENE		3.2	J	P				51					
BENZO(A)PYRENE		3.2	J	P				62					
BENZO(B)FLUORANTHENE		4.7						94					
BENZO(G,H,I)PERYLENE		1.95	U					34					
BENZO(K)FLUORANTHENE		2.4	J	P				37					
BIS(2-CHLOROETHOXY)METHANE		195	U					255	U				
BIS(2-CHLOROETHYL)ETHER		195	U					255	U				
BIS(2-ETHYLHEXYL)PHTHALATE		195	U					255	U				

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB16-0304-03GR2			12SB-DUP02			12SB-DUP02GR2		
SDG: C5017	LAB_ID	C5017-03			C5017-03			C5017-09			C5017-09		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			82.0			82.0		
	DUP_OF							12SB16-0304-03			12SB16-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					200	U				
2,4,5-TRICHLOROPHENOL		205	U					200	U				
2,4,6-TRICHLOROPHENOL		205	U					200	U				
2,4-DICHLOROPHENOL		205	U					200	U				
2,4-DIMETHYLPHENOL		205	U					200	U				
2,4-DINITROPHENOL		205	U					200	U				
2,4-DINITROTOLUENE		205	U					200	U				
2,6-DINITROTOLUENE		205	U					200	U				
2-CHLORONAPHTHALENE		205	U					200	U				
2-CHLOROPHENOL		205	U					200	U				
2-METHYLNAPHTHALENE		2.05	U					2	U				
2-METHYLPHENOL		205	U					200	U				
2-NITROANILINE		205	U					200	U				
2-NITROPHENOL		205	U					200	U				
3&4-METHYLPHENOL		205	U					200	U				
3,3'-DICHLOROBENZIDINE		205	U					200	U				
3-NITROANILINE		205	U					200	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					200	U				
4-BROMOPHENYL PHENYL ETHER		205	U					200	U				
4-CHLORO-3-METHYLPHENOL		205	U					200	U				
4-CHLOROANILINE		205	UL	E				200	UL	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					200	U				
4-NITROANILINE		205	U					200	U				
4-NITROPHENOL		205	U					200	U				
ACENAPHTHENE					2.05	U					2	U	
ACENAPHTHYLENE					2.05	U					2	U	
ANTHRACENE		2.05	U					2	U				
BENZO(A)ANTHRACENE		4.5						2.4	J	P			
BENZO(A)PYRENE		3.7	J	P				2	J	P			
BENZO(B)FLUORANTHENE		4.9						3.2	J	P			
BENZO(G,H,I)PERYLENE		2.05	U					2	U				
BENZO(K)FLUORANTHENE		2.1	J	P				2	U				
BIS(2-CHLOROETHOXY)METHANE		205	U					200	U				
BIS(2-CHLOROETHYL)ETHER		205	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					200	U				

PROJ_NO: 02014	NSAMPLE	12SB-DUP-04			12SB-DUP-04GR2		
SDG: C5017	LAB_ID	C5017-19			C5017-19		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	67.0			67.0		
	DUP_OF	12SB15-000.5-01			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		245	U				
2,4,5-TRICHLOROPHENOL		245	U				
2,4,6-TRICHLOROPHENOL		245	U				
2,4-DICHLOROPHENOL		245	U				
2,4-DIMETHYLPHENOL		245	U				
2,4-DINITROPHENOL		245	U				
2,4-DINITROTOLUENE		245	U				
2,6-DINITROTOLUENE		245	U				
2-CHLORONAPHTHALENE		245	U				
2-CHLOROPHENOL		245	U				
2-METHYLNAPHTHALENE		2.45	U				
2-METHYLPHENOL		245	U				
2-NITROANILINE		245	U				
2-NITROPHENOL		245	U				
3&4-METHYLPHENOL		245	U				
3,3'-DICHLOROBENZIDINE		245	U				
3-NITROANILINE		245	U				
4,6-DINITRO-2-METHYLPHENOL		245	U				
4-BROMOPHENYL PHENYL ETHER		245	U				
4-CHLORO-3-METHYLPHENOL		245	U				
4-CHLOROANILINE		245	UL	E			
4-CHLOROPHENYL PHENYL ETHER		245	U				
4-NITROANILINE		245	U				
4-NITROPHENOL		245	U				
ACENAPHTHENE					5.5		
ACENAPHTHYLENE					3.5	J	P
ANTHRACENE		18					
BENZO(A)ANTHRACENE		72					
BENZO(A)PYRENE		59					
BENZO(B)FLUORANTHENE		83					
BENZO(G,H,I)PERYLENE		26	J	C			
BENZO(K)FLUORANTHENE		31					
BIS(2-CHLOROETHOXY)METHANE		245	U				
BIS(2-CHLOROETHYL)ETHER		245	U				
BIS(2-ETHYLHEXYL)PHTHALATE		245	U				

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-0.502-02GR2			12SB09-000.5-01			12SB09-000.5-01GR2		
SDG: C5017	LAB_ID	C5017-11			C5017-11			C5017-10			C5017-10		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			67.0			67.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					245	U				
CARBAZOLE		205	U					245	U				
CHRYSENE		150						16					
DIBENZO(A,H)ANTHRACENE		6.6						2.45	U				
DIBENZOFURAN		205	U					245	U				
DIETHYL PHTHALATE		205	U					245	U				
DIMETHYL PHTHALATE		420						460	J	P			
DI-N-BUTYL PHTHALATE		205	U					245	U				
DI-N-OCTYL PHTHALATE		205	U					245	U				
FLUORANTHENE		440						42					
FLUORENE		23						2.45	U				
HEXACHLOROBENZENE		205	U					245	U				
HEXACHLOROBUTADIENE		205	U					245	U				
HEXACHLOROCYCLOPENTADIENE		205	U					245	U				
HEXACHLOROETHANE		205	U					245	U				
INDENO(1,2,3-CD)PYRENE		95						9.4					
ISOPHORONE		205	U					245	U				
NAPHTHALENE		2.5	J	P				2.45	U				
NITROBENZENE		205	U					245	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					245	U				
N-NITROSODIPHENYLAMINE		205	U					245	U				
PENTACHLOROPHENOL		205	U					245	U				
PHENANTHRENE					290						19		
PHENOL		205	U					245	U				
PYRENE		300						32					

PROJ_NO: 02014	NSAMPLE	12SB09-0304-03			12SB09-0304-03GR2			12SB10-0.502-02			12SB10-0.502-02DL		
SDG: C5017	LAB_ID	C5017-12			C5017-12			C5017-14			C5017-14DL		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			84.0			88.0			88.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		195	U					950	U				
CARBAZOLE		195	U					2200	K	R			
CHRYSENE		48									5900	K	R
DIBENZO(A,H)ANTHRACENE		1.95	U					220	K	R			
DIBENZOFURAN		195	U					3300	K	R			
DIETHYL PHTHALATE		195	U					950	U				
DIMETHYL PHTHALATE		350	J	P				950	U				
DI-N-BUTYL PHTHALATE		195	U					950	U				
DI-N-OCTYL PHTHALATE		195	U					950	U				
FLUORANTHENE		140									18000	K	R
FLUORENE		7.9						3300	K	R			
HEXACHLOROBENZENE		195	U					950	U				
HEXACHLOROBUTADIENE		195	U					950	U				
HEXACHLOROCYCLOPENTADIENE		195	U					950	U				
HEXACHLOROETHANE		195	U					950	U				
INDENO(1,2,3-CD)PYRENE		24						2000	K	R			
ISOPHORONE		195	U					950	U				
NAPHTHALENE		1.95	U					620	K	R			
NITROBENZENE		195	U					950	U				
N-NITROSO-DI-N-PROPYLAMINE		195	U					950	U				
N-NITROSODIPHENYLAMINE		195	U					950	U				
PENTACHLOROPHENOL		195	U					950	U				
PHENANTHRENE					95						39000	K	R
PHENOL		195	U					950	U				
PYRENE		95									13000	K	R

PROJ_NO: 02014	NSAMPLE	12SB10-0.502-02GR2			12SB10-000.5-01			12SB10-000.5-01DL			12SB10-000.5-01GR2		
SDG: C5017	LAB_ID	C5017-14			C5017-13			C5017-13DL			C5017-13		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.0			70.0			70.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					235	U							
CARBAZOLE					235	U							
CHRYSENE					470								
DIBENZO(A,H)ANTHRACENE					25								
DIBENZOFURAN					235	U							
DIETHYL PHTHALATE					235	U							
DIMETHYL PHTHALATE					310	J	P						
DI-N-BUTYL PHTHALATE					235	U							
DI-N-OCTYL PHTHALATE					235	U							
FLUORANTHENE								1500					
FLUORENE					52								
HEXACHLOROBENZENE					235	U							
HEXACHLOROBUTADIENE					235	U							
HEXACHLOROCYCLOPENTADIENE					235	U							
HEXACHLOROETHANE					235	U							
INDENO(1,2,3-CD)PYRENE					220								
ISOPHORONE					235	U							
NAPHTHALENE					2.35	U							
NITROBENZENE					235	U							
N-NITROSO-DI-N-PROPYLAMINE					235	U							
N-NITROSODIPHENYLAMINE					235	U							
PENTACHLOROPHENOL					235	U							
PHENANTHRENE											700		
PHENOL					235	U							
PYRENE					960								

PROJ_NO: 02014	NSAMPLE	12SB10-0304-03			12SB10-0304-03DL			12SB10-0304-03GR2			12SB11-0.501-02		
SDG: C5017	LAB_ID	C5017-15			C5017-15DL			C5017-15			C5017-07		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			87.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		1900	U								195	U	
CARBAZOLE		1900	U								195	U	
CHRYSENE		1600	K	R							7.1		
DIBENZO(A,H)ANTHRACENE		71	K	R							1.95	U	
DIBENZOFURAN		1600	J	PR							195	U	
DIETHYL PHTHALATE		1900	U								195	U	
DIMETHYL PHTHALATE		1900	U								300	J	P
DI-N-BUTYL PHTHALATE		1900	U								195	U	
DI-N-OCTYL PHTHALATE		1900	U								195	U	
FLUORANTHENE					6600						19		
FLUORENE		1200	K	R							1.95	U	
HEXACHLOROBENZENE		1900	U								195	U	
HEXACHLOROBUTADIENE		1900	U								195	U	
HEXACHLOROCYCLOPENTADIENE		1900	U								195	U	
HEXACHLOROETHANE		1900	U								195	U	
INDENO(1,2,3-CD)PYRENE		640	K	R							3.6	J	P
ISOPHORONE		1900	U								195	U	
NAPHTHALENE		450	K	R							1.95	U	
NITROBENZENE		1900	U								195	U	
N-NITROSO-DI-N-PROPYLAMINE		1900	U								195	U	
N-NITROSODIPHENYLAMINE		1900	U								195	U	
PENTACHLOROPHENOL		1900	U								195	U	
PHENANTHRENE		12000	K	R									
PHENOL		1900	U								195	U	
PYRENE		4100	K	R							13		

PROJ_NO: 02014	NSAMPLE	12SB11-0.501-02GR2			12SB11-000.5-01			12SB11-000.5-01GR2			12SB11-0304-03		
SDG: C5017	LAB_ID	C5017-07			C5017-04			C5017-04			C5017-08		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			70.0			70.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					235	U					195	U	
CARBAZOLE					235	U					195	U	
CHRYSENE					91	K	D				43		
DIBENZO(A,H)ANTHRACENE					3.3	J	P				1.95	U	
DIBENZOFURAN					235	U					195	U	
DIETHYL PHTHALATE					235	U					195	U	
DIMETHYL PHTHALATE					400	J	P				270	J	P
DI-N-BUTYL PHTHALATE					235	U					195	U	
DI-N-OCTYL PHTHALATE					235	U					195	U	
FLUORANTHENE					220	K	D				88		
FLUORENE					5.7						2.8	J	P
HEXACHLOROBENZENE					235	U					195	U	
HEXACHLOROBUTADIENE					235	U					195	U	
HEXACHLOROCYCLOPENTADIENE					235	U					195	U	
HEXACHLOROETHANE					235	U					195	U	
INDENO(1,2,3-CD)PYRENE					37						18		
ISOPHORONE					235	U					195	U	
NAPHTHALENE					2.35	U					6.7		
NITROBENZENE					235	U					195	U	
N-NITROSO-DI-N-PROPYLAMINE					235	U					195	U	
N-NITROSODIPHENYLAMINE					235	U					195	U	
PENTACHLOROPHENOL					235	U					195	U	
PHENANTHRENE		14						93	K	D			
PHENOL					235	U					195	U	
PYRENE					160	K	D				67		

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03GR2			12SB14-0.502-02			12SB14-0.502-02DL			12SB14-0.502-02GR2		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-20DL			C5017-20		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			86.0			86.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					190	U							
CARBAZOLE					430								
CHRYSENE								2900	K	R			
DIBENZO(A,H)ANTHRACENE					140								
DIBENZOFURAN					310	J	P						
DIETHYL PHTHALATE					190	U							
DIMETHYL PHTHALATE					390								
DI-N-BUTYL PHTHALATE					190	U							
DI-N-OCTYL PHTHALATE					190	U							
FLUORANTHENE								8500	K	R			
FLUORENE					520								
HEXACHLOROBENZENE					190	U							
HEXACHLOROBUTADIENE					190	U							
HEXACHLOROCYCLOPENTADIENE					190	U							
HEXACHLOROETHANE					190	U							
INDENO(1,2,3-CD)PYRENE								1700	K	R			
ISOPHORONE					190	U							
NAPHTHALENE					38								
NITROBENZENE					190	U							
N-NITROSO-DI-N-PROPYLAMINE					190	U							
N-NITROSODIPHENYLAMINE					190	U							
PENTACHLOROPHENOL					190	U							
PHENANTHRENE		36						7100	K	R			
PHENOL					190	U							
PYRENE								5900	K	R			

PROJ_NO: 02014	NSAMPLE	12SB14-0304-03			12SB14-0304-03GR2			12SB15-0.502-02			12SB15-0.502-02GR2		
SDG: C5017	LAB_ID	C5017-21			C5017-21			C5017-17			C5017-17		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			86.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		190	U					200	U				
CARBAZOLE		190	U					200	U				
CHRYSENE		1.9	J	P				37					
DIBENZO(A,H)ANTHRACENE		1.9	U					2	U				
DIBENZOFURAN		190	U					200	U				
DIETHYL PHTHALATE		190	U					200	U				
DIMETHYL PHTHALATE		190	U					540					
DI-N-BUTYL PHTHALATE		190	U					200	U				
DI-N-OCTYL PHTHALATE		190	U					200	U				
FLUORANTHENE		3.9						91					
FLUORENE		1.9	U					3.3	J	P			
HEXACHLOROBENZENE		190	U					200	U				
HEXACHLOROBUTADIENE		190	U					200	U				
HEXACHLOROCYCLOPENTADIENE		190	U					200	U				
HEXACHLOROETHANE		190	U					200	U				
INDENO(1,2,3-CD)PYRENE		1.9	U					21					
ISOPHORONE		190	U					200	U				
NAPHTHALENE		1.9	U					2	U				
NITROBENZENE		190	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		190	U					200	U				
N-NITROSODIPHENYLAMINE		190	U					200	U				
PENTACHLOROPHENOL		190	U					200	U				
PHENANTHRENE					3.1	J	P				46		
PHENOL		190	U					200	U				
PYRENE		3.1	J	P				62					

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-000.5-01GR2			12SB15-0304-03			12SB15-0304-03GR2		
SDG: C5017	LAB_ID	C5017-16			C5017-16			C5017-18			C5017-18		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	67.0			67.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		245	U					200	U				
CARBAZOLE		245	U					200	U				
CHRYSENE		99						2	U				
DIBENZO(A,H)ANTHRACENE		5						2	U				
DIBENZOFURAN		245	U					200	U				
DIETHYL PHTHALATE		245	U					200	U				
DIMETHYL PHTHALATE		270	J	P				280	J	P			
DI-N-BUTYL PHTHALATE		245	U					200	U				
DI-N-OCTYL PHTHALATE		245	U					200	U				
FLUORANTHENE		270						2	U				
FLUORENE		6						2	U				
HEXACHLOROBENZENE		245	U					200	U				
HEXACHLOROBUTADIENE		245	U					200	U				
HEXACHLOROCYCLOPENTADIENE		245	U					200	U				
HEXACHLOROETHANE		245	U					200	U				
INDENO(1,2,3-CD)PYRENE		49						2	U				
ISOPHORONE		245	U					200	U				
NAPHTHALENE		2.45	U					2	U				
NITROBENZENE		245	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		245	U					200	U				
N-NITROSODIPHENYLAMINE		245	U					200	U				
PENTACHLOROPHENOL		245	U					200	U				
PHENANTHRENE					120						2	U	
PHENOL		245	U					200	U				
PYRENE		190						2	U				

PROJ_NO: 02014	NSAMPLE	12SB16-0.502-02			12SB16-0.502-02GR2			12SB16-000.5-01			12SB16-000.5-01GR2		
SDG: C5017	LAB_ID	C5017-02			C5017-02			C5017-01			C5017-01		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			84.0			65.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		195	U					255	U				
CARBAZOLE		195	U					255	U				
CHRYSENE		4						76					
DIBENZO(A,H)ANTHRACENE		1.95	U					2.6	J	P			
DIBENZOFURAN		195	U					255	U				
DIETHYL PHTHALATE		195	U					255	U				
DIMETHYL PHTHALATE		390						450	J	P			
DI-N-BUTYL PHTHALATE		195	U					255	U				
DI-N-OCTYL PHTHALATE		195	U					255	U				
FLUORANTHENE		9.5						200					
FLUORENE		1.95	U					7.2					
HEXACHLOROBENZENE		195	U					255	U				
HEXACHLOROBUTADIENE		195	U					255	U				
HEXACHLOROCYCLOPENTADIENE		195	U					255	U				
HEXACHLOROETHANE		195	U					255	U				
INDENO(1,2,3-CD)PYRENE		1.95	U					31					
ISOPHORONE		195	U					255	U				
NAPHTHALENE		1.95	U					3.1	J	P			
NITROBENZENE		195	U					255	U				
N-NITROSO-DI-N-PROPYLAMINE		195	U					255	U				
N-NITROSODIPHENYLAMINE		195	U					255	U				
PENTACHLOROPHENOL		195	U					255	U				
PHENANTHRENE					6.7						110		
PHENOL		195	U					255	U				
PYRENE		6.7						130					

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB16-0304-03GR2			12SB-DUP02			12SB-DUP02GR2		
SDG: C5017	LAB_ID	C5017-03			C5017-03			C5017-09			C5017-09		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			82.0			82.0		
	DUP_OF							12SB16-0304-03			12SB16-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					200	U				
CARBAZOLE		205	U					200	U				
CHRYSENE		4.9						2	J	P			
DIBENZO(A,H)ANTHRACENE		2.05	U					2	U				
DIBENZOFURAN		205	U					200	U				
DIETHYL PHTHALATE		205	U					200	U				
DIMETHYL PHTHALATE		340	J	P				260	J	P			
DI-N-BUTYL PHTHALATE		205	U					200	U				
DI-N-OCTYL PHTHALATE		205	U					200	U				
FLUORANTHENE		12						5.7					
FLUORENE		2.05	U					2	U				
HEXACHLOROBENZENE		205	U					200	U				
HEXACHLOROBUTADIENE		205	U					200	U				
HEXACHLOROCYCLOPENTADIENE		205	U					200	U				
HEXACHLOROETHANE		205	U					200	U				
INDENO(1,2,3-CD)PYRENE		2.5	J	P				2	U				
ISOPHORONE		205	U					200	U				
NAPHTHALENE		2.05	U					2	U				
NITROBENZENE		205	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					200	U				
N-NITROSODIPHENYLAMINE		205	U					200	U				
PENTACHLOROPHENOL		205	U					200	U				
PHENANTHRENE					8.6						4.1		
PHENOL		205	U					200	U				
PYRENE		8.6						4.1					

PROJ_NO: 02014	NSAMPLE	12SB-DUP-04			12SB-DUP-04GR2		
SDG: C5017	LAB_ID	C5017-19			C5017-19		
FRACTION: OS	SAMP_DATE	12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	67.0			67.0		
	DUP_OF	12SB15-000.5-01			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		245	U				
CARBAZOLE		245	U				
CHRYSENE		79					
DIBENZO(A,H)ANTHRACENE		3	J	P			
DIBENZOFURAN		245	U				
DIETHYL PHTHALATE		245	U				
DIMETHYL PHTHALATE		480	J	P			
DI-N-BUTYL PHTHALATE		245	U				
DI-N-OCTYL PHTHALATE		245	U				
FLUORANTHENE		200					
FLUORENE		7.5					
HEXACHLOROBENZENE		245	U				
HEXACHLOROBUTADIENE		245	U				
HEXACHLOROCYCLOPENTADIENE		245	U				
HEXACHLOROETHANE		245	U				
INDENO(1,2,3-CD)PYRENE		29					
ISOPHORONE		245	U				
NAPHTHALENE		2.45	U				
NITROBENZENE		245	U				
N-NITROSO-DI-N-PROPYLAMINE		245	U				
N-NITROSODIPHENYLAMINE		245	U				
PENTACHLOROPHENOL		245	U				
PHENANTHRENE					100		
PHENOL		245	U				
PYRENE		140					

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-000.5-01			12SB09-0304-03			12SB10-0.502-02		
SDG: C5017	LAB_ID	C5017-11			C5017-10			C5017-12			C5017-14		
FRACTION: PEST	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.1			66.8			83.5			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
4,4'-DDE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
4,4'-DDT		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ALDRIN		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ALPHA-BHC		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ALPHA-CHLORDANE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
BETA-BHC		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
DELTA-BHC		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
DIELDRIN		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ENDOSULFAN I		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ENDOSULFAN II		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ENDOSULFAN SULFATE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ENDRIN		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ENDRIN ALDEHYDE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
ENDRIN KETONE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
GAMMA-BHC (LINDANE)		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
GAMMA-CHLORDANE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
HEPTACHLOR		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
HEPTACHLOR EPOXIDE		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
METHOXYCHLOR		1.05	U		1.25	U		1	UJ	R	0.95	UJ	R
TOXAPHENE		10.5	U		12.5	U		10	UJ	R	9.5	UJ	R

PROJ_NO: 02014	NSAMPLE	12SB10-000.5-01			12SB10-0304-03			12SB11-0.501-02			12SB11-000.5-01		
SDG: C5017	LAB_ID	C5017-13			C5017-15			C5017-07			C5017-04		
FRACTION: PEST	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.3			86.7			84.1			69.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.2	U		1	U		1	U		1.2	U	
4,4'-DDE		1.2	U		1	U		1	U		1.2	U	
4,4'-DDT		1.2	U		1	U		1	U		1.2	U	
ALDRIN		1.2	U		1	U		1	U		1.2	U	
ALPHA-BHC		1.2	U		1	U		1	U		1.2	U	
ALPHA-CHLORDANE		1.2	U		1	U		1	U		1.2	U	
BETA-BHC		1.2	U		1	U		1	U		1.2	U	
DELTA-BHC		1.2	U		1	U		1	U		1.2	U	
DIELDRIN		1.2	U		1	U		1	U		1.2	U	
ENDOSULFAN I		1.2	U		1	U		1	U		1.2	U	
ENDOSULFAN II		1.2	U		1	U		1	U		1.2	U	
ENDOSULFAN SULFATE		1.2	U		1	U		1	U		1.2	U	
ENDRIN		1.2	U		1	U		1	U		1.2	U	
ENDRIN ALDEHYDE		1.2	U		1	U		1	U		1.2	U	
ENDRIN KETONE		1.2	U		1	U		1	U		1.2	U	
GAMMA-BHC (LINDANE)		1.2	U		1	U		1	U		1.2	U	
GAMMA-CHLORDANE		1.2	U		1	U		1	U		1.2	U	
HEPTACHLOR		1.2	U		1	U		1	U		1.2	U	
HEPTACHLOR EPOXIDE		1.2	U		1	U		1	U		1.2	U	
METHOXYCHLOR		1.2	U		1	U		1	U		1.2	U	
TOXAPHENE		12	U		10	U		10	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03			12SB14-0.502-02			12SB14-0304-03			12SB15-0.502-02		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-21			C5017-17		
FRACTION: PEST	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.5			85.8			85.9			82.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1	U		1	U		1	U		1.05	U	
4,4'-DDE		1	U		1	U		1	U		1.05	U	
4,4'-DDT		1	U		1	U		1	U		1.05	U	
ALDRIN		1	U		1	U		1	U		1.05	U	
ALPHA-BHC		1	U		1	U		1	U		1.05	U	
ALPHA-CHLORDANE		1	U		1	U		1	U		1.05	U	
BETA-BHC		1	U		1	U		1	U		1.05	U	
DELTA-BHC		1	U		1	U		1	U		1.05	U	
DIELDRIN		1	U		1	U		1	U		1.05	U	
ENDOSULFAN I		1	U		1	U		1	U		1.05	U	
ENDOSULFAN II		1	U		1	U		1	U		1.05	U	
ENDOSULFAN SULFATE		1	U		1	U		1	U		1.05	U	
ENDRIN		1	U		1	U		1	U		1.05	U	
ENDRIN ALDEHYDE		1	U		1	U		1	U		1.05	U	
ENDRIN KETONE		1	U		1	U		1	U		1.05	U	
GAMMA-BHC (LINDANE)		1	U		1	U		1	U		1.05	U	
GAMMA-CHLORDANE		1	U		1	U		1	U		1.05	U	
HEPTACHLOR		1	U		1	U		1	U		1.05	U	
HEPTACHLOR EPOXIDE		1	U		1	U		1	U		1.05	U	
METHOXYCHLOR		1	U		1	U		1	U		1.05	U	
TOXAPHENE		10	U		10	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-0304-03			12SB16-0.502-02			12SB16-000.5-01		
SDG: C5017	LAB_ID	C5017-16			C5017-18			C5017-02			C5017-01		
FRACTION: PEST	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	67.1			81.8			83.9			65.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.25	U		1.05	U		1	UJ	R	1.3	U	
4,4'-DDE		1.25	U		1.05	U		1	UJ	R	1.3	U	
4,4'-DDT		1.25	U		1.05	U		1	UJ	R	1.3	U	
ALDRIN		1.25	U		1.05	U		1	UJ	R	1.3	U	
ALPHA-BHC		1.25	U		1.05	U		1	UJ	R	1.3	U	
ALPHA-CHLORDANE		1.25	U		1.05	U		1	UJ	R	1.3	U	
BETA-BHC		1.25	U		1.05	U		1	UJ	R	1.3	U	
DELTA-BHC		1.25	U		1.05	U		1	UJ	R	1.3	U	
DIELDRIN		1.25	U		1.05	U		1	UJ	R	1.3	U	
ENDOSULFAN I		1.25	U		1.05	U		1	UJ	R	1.3	U	
ENDOSULFAN II		1.25	U		1.05	U		1	UJ	R	1.3	U	
ENDOSULFAN SULFATE		1.25	U		1.05	U		1	UJ	R	1.3	U	
ENDRIN		1.25	U		1.05	U		1	UJ	R	1.3	U	
ENDRIN ALDEHYDE		1.25	U		1.05	U		1	UJ	R	1.3	U	
ENDRIN KETONE		1.25	U		1.05	U		1	UJ	R	1.3	U	
GAMMA-BHC (LINDANE)		1.25	U		1.05	U		1	UJ	R	1.3	U	
GAMMA-CHLORDANE		1.25	U		1.05	U		1	UJ	R	1.3	U	
HEPTACHLOR		1.25	U		1.05	U		1	UJ	R	1.3	U	
HEPTACHLOR EPOXIDE		1.25	U		1.05	U		1	UJ	R	1.3	U	
METHOXYCHLOR		1.25	U		1.05	U		1	UJ	R	1.3	U	
TOXAPHENE		12.5	U		10.5	U		10	UJ	R	13	U	

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB-DUP02			12SB-DUP-04		
SDG: C5017	LAB_ID	C5017-03			C5017-09			C5017-19		
FRACTION: PEST	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.9			82.0			67.3		
	DUP_OF				12SB16-0304-03			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	UJ	R	1.05	U		1.25	U	
4,4'-DDE		1.05	UJ	R	1.05	U		1.25	U	
4,4'-DDT		1.05	UJ	R	1.05	U		1.25	U	
ALDRIN		1.05	UJ	R	1.05	U		1.25	U	
ALPHA-BHC		1.05	UJ	R	1.05	U		1.25	U	
ALPHA-CHLORDANE		1.05	UJ	R	1.05	U		1.25	U	
BETA-BHC		1.05	UJ	R	1.05	U		1.25	U	
DELTA-BHC		1.05	UJ	R	1.05	U		1.25	U	
DIELDRIN		1.05	UJ	R	1.05	U		1.25	U	
ENDOSULFAN I		1.05	UJ	R	1.05	U		1.25	U	
ENDOSULFAN II		1.05	UJ	R	1.05	U		1.25	U	
ENDOSULFAN SULFATE		1.05	UJ	R	1.05	U		1.25	U	
ENDRIN		1.05	UJ	R	1.05	U		1.25	U	
ENDRIN ALDEHYDE		1.05	UJ	R	1.05	U		1.25	U	
ENDRIN KETONE		1.05	UJ	R	1.05	U		1.25	U	
GAMMA-BHC (LINDANE)		1.05	UJ	R	1.05	U		1.25	U	
GAMMA-CHLORDANE		1.05	UJ	R	1.05	U		1.25	U	
HEPTACHLOR		1.05	UJ	R	1.05	U		1.25	U	
HEPTACHLOR EPOXIDE		1.05	UJ	R	1.05	U		1.25	U	
METHOXYCHLOR		1.05	UJ	R	1.05	U		1.25	U	
TOXAPHENE		10.5	UJ	R	10.5	U		12.5	U	

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-000.5-01			12SB09-0304-03			12SB10-0.502-02		
SDG: C5017	LAB_ID	C5017-11			C5017-10			C5017-12			C5017-14		
FRACTION: PCB	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			67.0			83.0			87.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		12.5	U		10	U		10	U	
AROCLOR-1221		10.5	U		12.5	U		10	U		10	U	
AROCLOR-1232		10.5	U		12.5	U		10	U		10	U	
AROCLOR-1242		10.5	U		12.5	U		10	U		10	U	
AROCLOR-1248		10.5	U		12.5	U		10	U		10	U	
AROCLOR-1254		10.5	U		12.5	U		10	U		10	U	
AROCLOR-1260		10.5	U		12.5	U		10	U		10	U	

PROJ_NO: 02014	NSAMPLE	12SB10-000.5-01			12SB10-0304-03			12SB11-0.501-02			12SB11-000.5-01		
SDG: C5017	LAB_ID	C5017-13			C5017-15			C5017-07			C5017-04		
FRACTION: PCB	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			87.0			84.0			70.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		12	U		10	U		10	U		12	U	
AROCLOR-1221		12	U		10	U		10	U		12	U	
AROCLOR-1232		12	U		10	U		10	U		12	U	
AROCLOR-1242		12	U		10	U		10	U		12	U	
AROCLOR-1248		12	U		10	U		10	U		12	U	
AROCLOR-1254		12	U		10	U		10	U		12	U	
AROCLOR-1260		12	U		10	U		10	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03			12SB14-0.502-02			12SB14-0304-03			12SB15-0.502-02		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-21			C5017-17		
FRACTION: PCB	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.0			86.0			86.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10	U		10	U		10	U		10.5	U	
AROCLOR-1221		10	U		10	U		10	U		10.5	U	
AROCLOR-1232		10	U		10	U		10	U		10.5	U	
AROCLOR-1242		10	U		10	U		10	U		10.5	U	
AROCLOR-1248		10	U		10	U		10	U		10.5	U	
AROCLOR-1254		10	U		10	U		10	U		10.5	U	
AROCLOR-1260		10	U		10	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-0304-03			12SB16-0.502-02			12SB16-000.5-01		
SDG: C5017	LAB_ID	C5017-16			C5017-18			C5017-02			C5017-01		
FRACTION: PCB	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	67.0			82.0			84.0			65.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		12.5	U		10.5	U		10	U		13	U	
AROCLOR-1221		12.5	U		10.5	U		10	U		13	U	
AROCLOR-1232		12.5	U		10.5	U		10	U		13	U	
AROCLOR-1242		12.5	U		10.5	U		10	U		13	U	
AROCLOR-1248		12.5	U		10.5	U		10	U		13	U	
AROCLOR-1254		12.5	U		10.5	U		10	U		13	U	
AROCLOR-1260		12.5	U		10.5	U		10	U		13	U	

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB-DUP02			12SB-DUP-04		
SDG: C5017	LAB_ID	C5017-03			C5017-09			C5017-19		
FRACTION: PCB	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			82.0			67.0		
	DUP_OF				12SB16-0304-03			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		10.5	U		12.5	U	
AROCLOR-1221		10.5	U		10.5	U		12.5	U	
AROCLOR-1232		10.5	U		10.5	U		12.5	U	
AROCLOR-1242		10.5	U		10.5	U		12.5	U	
AROCLOR-1248		10.5	U		10.5	U		12.5	U	
AROCLOR-1254		10.5	U		10.5	U		12.5	U	
AROCLOR-1260		10.5	U		10.5	U		12.5	U	

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	6.18 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030263.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3	U	0.78	6	ug/Kg
74-87-3	Chloromethane	3	U	1	6	ug/Kg
75-01-4	Vinyl Chloride	3	U	1.5	6	ug/Kg
74-83-9	Bromomethane	3	U	3	6	ug/Kg
75-00-3	Chloroethane	3	U	1.7	6	ug/Kg
75-69-4	Trichlorofluoromethane	3	U	1.6	6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3	U	1.6	6	ug/Kg
75-35-4	1,1-Dichloroethene	3	U	1.8	6	ug/Kg
67-64-1	Acetone	14	J	3.6	30	ug/Kg
75-15-0	Carbon Disulfide	3	U	1.3	6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3	U	1.2	6	ug/Kg
79-20-9	Methyl Acetate	3	U	1.8	6	ug/Kg
75-09-2	Methylene Chloride	3	U	1.7	6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3	U	0.83	6	ug/Kg
75-34-3	1,1-Dichloroethane	3	U	1.1	6	ug/Kg
110-82-7	Cyclohexane	3	U	1.2	6	ug/Kg
78-93-3	2-Butanone	15	U	3.8	30	ug/Kg
56-23-5	Carbon Tetrachloride	3	U	1.2	6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3	U	1.1	6	ug/Kg
74-97-5	Bromochloromethane	3	U	0.95	6	ug/Kg
67-66-3	Chloroform	3	U	0.89	6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3	U	1.1	6	ug/Kg
108-87-2	Methylcyclohexane	3	U	1.3	6	ug/Kg
71-43-2	Benzene	3	U	0.46	6	ug/Kg
107-06-2	1,2-Dichloroethane	3	U	0.77	6	ug/Kg
79-01-6	Trichloroethene	3	U	1	6	ug/Kg
78-87-5	1,2-Dichloropropane	3	U	0.31	6	ug/Kg
75-27-4	Bromodichloromethane	3	U	0.75	6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.5	30	ug/Kg
108-88-3	Toluene	3	U	0.77	6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3	U	0.95	6	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	6.18 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030263.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3	U	0.87	6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3	U	1.1	6	ug/Kg
591-78-6	2-Hexanone	15	U	4.7	30	ug/Kg
124-48-1	Dibromochloromethane	3	U	0.65	6	ug/Kg
106-93-4	1,2-Dibromoethane	3	U	0.77	6	ug/Kg
127-18-4	Tetrachloroethene	3	U	1.2	6	ug/Kg
108-90-7	Chlorobenzene	3	U	0.6	6	ug/Kg
100-41-4	Ethyl Benzene	3	U	0.75	6	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.87	12	ug/Kg
95-47-6	o-Xylene	3	U	0.82	6	ug/Kg
100-42-5	Styrene	3	U	0.54	6	ug/Kg
75-25-2	Bromoform	3	U	0.89	6	ug/Kg
98-82-8	Isopropylbenzene	3	U	0.58	6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3	U	0.56	6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3	U	0.45	6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3	U	0.5	6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3	U	0.75	6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3	U	1.1	6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3	U	0.85	6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3	U	0.6	6	ug/Kg
1330-20-7	Total Xylenes	9	U	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.5		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.4		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.8		85 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	110724	4.37			
540-36-3	1,4-Difluorobenzene	197216	5.11			
3114-55-4	Chlorobenzene-d5	204866	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	111110	12.23			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	6.18 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030263.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030217.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.5	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	15	J	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030217.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	20	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.6		55 - 158	87%	SPK: 50
1868-53-7	Dibromofluoromethane	46.5		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	48.6		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.2		85 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	112762	4.39			
540-36-3	1,4-Difluorobenzene	205350	5.13			
3114-55-4	Chlorobenzene-d5	205823	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	106510	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030217.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	6.05 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002035.D	1		12/23/11	VT122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.98	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.4	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.7	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.96	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.91	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	6.05 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002035.D	1		12/23/11	VT122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.73	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.92	5.1	ug/Kg
591-78-6	2-Hexanone	13	U	4	26	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.76	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.89	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.71	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	20	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.4		55 - 158	107%	SPK: 50
1868-53-7	Dibromofluoromethane	51		53 - 156	102%	SPK: 50
2037-26-5	Toluene-d8	54		85 - 115	108%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.3		85 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	630597	8.05			
540-36-3	1,4-Difluorobenzene	1143620	8.95			
3114-55-4	Chlorobenzene-d5	736663	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	334957	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	6.05 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002035.D	1		12/23/11	VT122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030218.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.3	U	0.85	6.6	ug/Kg
74-87-3	Chloromethane	3.3	U	1.1	6.6	ug/Kg
75-01-4	Vinyl Chloride	3.3	U	1.6	6.6	ug/Kg
74-83-9	Bromomethane	3.3	U	3.2	6.6	ug/Kg
75-00-3	Chloroethane	3.3	U	1.8	6.6	ug/Kg
75-69-4	Trichlorofluoromethane	3.3	U	1.7	6.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.3	U	1.7	6.6	ug/Kg
75-35-4	1,1-Dichloroethene	3.3	U	1.9	6.6	ug/Kg
67-64-1	Acetone	14	J	4	33	ug/Kg
75-15-0	Carbon Disulfide	3.3	U	1.4	6.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.3	U	1.3	6.6	ug/Kg
79-20-9	Methyl Acetate	3.3	U	2	6.6	ug/Kg
75-09-2	Methylene Chloride	3.3	U	1.9	6.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.3	U	0.9	6.6	ug/Kg
75-34-3	1,1-Dichloroethane	3.3	U	1.2	6.6	ug/Kg
110-82-7	Cyclohexane	3.3	U	1.3	6.6	ug/Kg
78-93-3	2-Butanone	16.5	U	4.1	33	ug/Kg
56-23-5	Carbon Tetrachloride	3.3	U	1.3	6.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.3	U	1.2	6.6	ug/Kg
74-97-5	Bromochloromethane	3.3	U	1	6.6	ug/Kg
67-66-3	Chloroform	3.3	U	0.97	6.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.3	U	1.2	6.6	ug/Kg
108-87-2	Methylcyclohexane	3.3	U	1.4	6.6	ug/Kg
71-43-2	Benzene	3.3	U	0.5	6.6	ug/Kg
107-06-2	1,2-Dichloroethane	3.3	U	0.84	6.6	ug/Kg
79-01-6	Trichloroethene	3.3	U	1.1	6.6	ug/Kg
78-87-5	1,2-Dichloropropane	3.3	U	0.34	6.6	ug/Kg
75-27-4	Bromodichloromethane	3.3	U	0.81	6.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16.5	U	3.8	33	ug/Kg
108-88-3	Toluene	3.3	U	0.84	6.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.3	U	1	6.6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030218.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.3	U	0.94	6.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.3	U	1.2	6.6	ug/Kg
591-78-6	2-Hexanone	16.5	U	5.1	33	ug/Kg
124-48-1	Dibromochloromethane	3.3	U	0.71	6.6	ug/Kg
106-93-4	1,2-Dibromoethane	3.3	U	0.84	6.6	ug/Kg
127-18-4	Tetrachloroethene	3.3	U	1.3	6.6	ug/Kg
108-90-7	Chlorobenzene	3.3	U	0.66	6.6	ug/Kg
100-41-4	Ethyl Benzene	3.3	U	0.81	6.6	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.94	13	ug/Kg
95-47-6	o-Xylene	3.3	U	0.89	6.6	ug/Kg
100-42-5	Styrene	3.3	U	0.59	6.6	ug/Kg
75-25-2	Bromoform	3.3	U	0.97	6.6	ug/Kg
98-82-8	Isopropylbenzene	3.3	U	0.63	6.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.3	U	0.6	6.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.3	U	0.49	6.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.3	U	0.54	6.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.3	U	0.81	6.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.3	U	1.1	6.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.3	U	0.92	6.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.3	U	0.66	6.6	ug/Kg
1330-20-7	Total Xylenes	10	U	1.8	20	ug/Kg
123-91-1	1,4-Dioxane	65	U	26	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.8		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	47.8		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	48.1		85 - 115	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.5		85 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	113167	4.39			
540-36-3	1,4-Difluorobenzene	198551	5.13			
3114-55-4	Chlorobenzene-d5	204451	9.34			
3855-82-1	1,4-Dichlorobenzene-d4	102973	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030218.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.87 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030256.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.87	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.2	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.3	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	12	J	3.1	25	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.97	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.4	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.7	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.95	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	5.1	J	3.2	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.9	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.8	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.75	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.89	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.87	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.26	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	3	25	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.8	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.87 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030256.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.73	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.91	5.1	ug/Kg
591-78-6	2-Hexanone	12.5	U	4	25	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.75	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.88	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.71	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.1		55 - 158	82%	SPK: 50
1868-53-7	Dibromofluoromethane	47		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	51.6		85 - 115	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.5		85 - 120	101%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	128499	4.36			
540-36-3	1,4-Difluorobenzene	226883	5.11			
3114-55-4	Chlorobenzene-d5	230916	9.3			
3855-82-1	1,4-Dichlorobenzene-d4	114786	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.87 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030256.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	6.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030307.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.35	U	0.61	4.7	ug/Kg
74-87-3	Chloromethane	2.35	U	0.81	4.7	ug/Kg
75-01-4	Vinyl Chloride	2.35	U	1.2	4.7	ug/Kg
74-83-9	Bromomethane	2.35	U	2.3	4.7	ug/Kg
75-00-3	Chloroethane	2.35	U	1.3	4.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.35	U	1.2	4.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.35	U	1.2	4.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.35	U	1.4	4.7	ug/Kg
67-64-1	Acetone	11.5	U	2.8	23	ug/Kg
75-15-0	Carbon Disulfide	2.35	U	0.99	4.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.35	U	0.9	4.7	ug/Kg
79-20-9	Methyl Acetate	2.35	U	1.4	4.7	ug/Kg
75-09-2	Methylene Chloride	2.35	U	1.3	4.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.35	U	0.65	4.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.35	U	0.88	4.7	ug/Kg
110-82-7	Cyclohexane	2.35	U	0.95	4.7	ug/Kg
78-93-3	2-Butanone	11.5	U	2.9	23	ug/Kg
56-23-5	Carbon Tetrachloride	2.35	U	0.93	4.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.35	U	0.83	4.7	ug/Kg
74-97-5	Bromochloromethane	2.35	U	0.74	4.7	ug/Kg
67-66-3	Chloroform	2.35	U	0.69	4.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.35	U	0.82	4.7	ug/Kg
108-87-2	Methylcyclohexane	2.35	U	0.99	4.7	ug/Kg
71-43-2	Benzene	2.35	U	0.36	4.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.35	U	0.6	4.7	ug/Kg
79-01-6	Trichloroethene	2.35	U	0.81	4.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.35	U	0.24	4.7	ug/Kg
75-27-4	Bromodichloromethane	2.35	U	0.58	4.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	11.5	U	2.7	23	ug/Kg
108-88-3	Toluene	2.35	U	0.6	4.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.35	U	0.74	4.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	6.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030307.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.35	U	0.67	4.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.35	U	0.84	4.7	ug/Kg
591-78-6	2-Hexanone	11.5	U	3.7	23	ug/Kg
124-48-1	Dibromochloromethane	2.35	U	0.51	4.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.35	U	0.6	4.7	ug/Kg
127-18-4	Tetrachloroethene	2.35	U	0.95	4.7	ug/Kg
108-90-7	Chlorobenzene	2.35	U	0.47	4.7	ug/Kg
100-41-4	Ethyl Benzene	2.35	U	0.58	4.7	ug/Kg
179601-23-1	m/p-Xylenes	4.7	U	0.67	9.4	ug/Kg
95-47-6	o-Xylene	2.35	U	0.64	4.7	ug/Kg
100-42-5	Styrene	2.35	U	0.42	4.7	ug/Kg
75-25-2	Bromoform	2.35	U	0.69	4.7	ug/Kg
98-82-8	Isopropylbenzene	2.35	U	0.45	4.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.35	U	0.43	4.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.35	U	0.35	4.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.35	U	0.38	4.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.35	U	0.58	4.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.35	U	0.81	4.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.35	U	0.66	4.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.35	U	0.47	4.7	ug/Kg
1330-20-7	Total Xylenes	7	U	1.3	14	ug/Kg
123-91-1	1,4-Dioxane	47	U	94	94	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.8		55 - 158	90%	SPK: 50
1868-53-7	Dibromofluoromethane	47.4		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	51.4		85 - 115	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.6		85 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	111830	4.37			
540-36-3	1,4-Difluorobenzene	201825	5.11			
3114-55-4	Chlorobenzene-d5	210395	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	117946	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	6.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030307.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-00.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	6.16 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030306.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.9	U	0.75	5.8	ug/Kg
74-87-3	Chloromethane	2.9	U	1	5.8	ug/Kg
75-01-4	Vinyl Chloride	2.9	U	1.4	5.8	ug/Kg
74-83-9	Bromomethane	2.9	U	2.8	5.8	ug/Kg
75-00-3	Chloroethane	2.9	U	1.6	5.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.9	U	1.5	5.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.9	U	1.5	5.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.9	U	1.7	5.8	ug/Kg
67-64-1	Acetone	14.5	U	3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.9	U	1.2	5.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.9	U	1.1	5.8	ug/Kg
79-20-9	Methyl Acetate	2.9	U	1.8	5.8	ug/Kg
75-09-2	Methylene Chloride	2.9	U	1.6	5.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.9	U	0.8	5.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.9	U	1.1	5.8	ug/Kg
110-82-7	Cyclohexane	2.9	U	1.2	5.8	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.9	U	1.1	5.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.9	U	1	5.8	ug/Kg
74-97-5	Bromochloromethane	2.9	U	0.92	5.8	ug/Kg
67-66-3	Chloroform	2.9	U	0.86	5.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.9	U	1	5.8	ug/Kg
108-87-2	Methylcyclohexane	2.9	U	1.2	5.8	ug/Kg
71-43-2	Benzene	2.9	U	0.44	5.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.9	U	0.74	5.8	ug/Kg
79-01-6	Trichloroethene	2.9	U	1	5.8	ug/Kg
78-87-5	1,2-Dichloropropane	2.9	U	0.3	5.8	ug/Kg
75-27-4	Bromodichloromethane	2.9	U	0.72	5.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.4	29	ug/Kg
108-88-3	Toluene	2.9	U	0.74	5.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.9	U	0.92	5.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-00.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	6.16 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030306.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.9	U	0.83	5.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.9	U	1	5.8	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.5	29	ug/Kg
124-48-1	Dibromochloromethane	2.9	U	0.63	5.8	ug/Kg
106-93-4	1,2-Dibromoethane	2.9	U	0.74	5.8	ug/Kg
127-18-4	Tetrachloroethene	2.9	U	1.2	5.8	ug/Kg
108-90-7	Chlorobenzene	2.9	U	0.58	5.8	ug/Kg
100-41-4	Ethyl Benzene	2.9	U	0.72	5.8	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.83	12	ug/Kg
95-47-6	o-Xylene	2.9	U	0.79	5.8	ug/Kg
100-42-5	Styrene	2.9	U	0.52	5.8	ug/Kg
75-25-2	Bromoform	2.9	U	0.86	5.8	ug/Kg
98-82-8	Isopropylbenzene	2.9	U	0.56	5.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.9	U	0.53	5.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.9	U	0.43	5.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.9	U	0.48	5.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.9	U	0.72	5.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.9	U	1	5.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.9	U	0.81	5.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.9	U	0.58	5.8	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.2		55 - 158	86%	SPK: 50
1868-53-7	Dibromofluoromethane	48.6		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.9		85 - 115	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.9		85 - 120	108%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	117434	4.37			
540-36-3	1,4-Difluorobenzene	204235	5.12			
3114-55-4	Chlorobenzene-d5	217087	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	116542	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-00.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	6.16 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030306.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	6 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030259.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.4	U	0.62	4.8	ug/Kg
74-87-3	Chloromethane	2.4	U	0.82	4.8	ug/Kg
75-01-4	Vinyl Chloride	2.4	U	1.2	4.8	ug/Kg
74-83-9	Bromomethane	2.4	U	2.3	4.8	ug/Kg
75-00-3	Chloroethane	2.4	U	1.3	4.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.4	U	1.3	4.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.4	U	1.3	4.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.4	U	1.4	4.8	ug/Kg
67-64-1	Acetone	12	U	2.9	24	ug/Kg
75-15-0	Carbon Disulfide	2.4	U	1	4.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.4	U	0.92	4.8	ug/Kg
79-20-9	Methyl Acetate	2.4	U	1.4	4.8	ug/Kg
75-09-2	Methylene Chloride	2.4	U	1.4	4.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.4	U	0.66	4.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.4	U	0.9	4.8	ug/Kg
110-82-7	Cyclohexane	2.4	U	0.97	4.8	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.4	U	0.95	4.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.4	U	0.85	4.8	ug/Kg
74-97-5	Bromochloromethane	2.4	U	0.76	4.8	ug/Kg
67-66-3	Chloroform	2.4	U	0.71	4.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.4	U	0.84	4.8	ug/Kg
108-87-2	Methylcyclohexane	2.4	U	1	4.8	ug/Kg
71-43-2	Benzene	2.4	U	0.36	4.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.4	U	0.61	4.8	ug/Kg
79-01-6	Trichloroethene	2.4	U	0.82	4.8	ug/Kg
78-87-5	1,2-Dichloropropane	2.4	U	0.25	4.8	ug/Kg
75-27-4	Bromodichloromethane	2.4	U	0.59	4.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.8	24	ug/Kg
108-88-3	Toluene	2.4	U	0.61	4.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.4	U	0.76	4.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	6 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030259.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.4	U	0.69	4.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.4	U	0.86	4.8	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.4	U	0.52	4.8	ug/Kg
106-93-4	1,2-Dibromoethane	2.4	U	0.61	4.8	ug/Kg
127-18-4	Tetrachloroethene	2.4	U	0.97	4.8	ug/Kg
108-90-7	Chlorobenzene	2.4	U	0.48	4.8	ug/Kg
100-41-4	Ethyl Benzene	2.4	U	0.59	4.8	ug/Kg
179601-23-1	m/p-Xylenes	4.8	U	0.69	9.6	ug/Kg
95-47-6	o-Xylene	2.4	U	0.65	4.8	ug/Kg
100-42-5	Styrene	2.4	U	0.43	4.8	ug/Kg
75-25-2	Bromoform	2.4	U	0.71	4.8	ug/Kg
98-82-8	Isopropylbenzene	2.4	U	0.46	4.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.4	U	0.44	4.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.4	U	0.35	4.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.4	U	0.39	4.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.4	U	0.59	4.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.4	U	0.83	4.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.4	U	0.67	4.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.4	U	0.48	4.8	ug/Kg
1330-20-7	Total Xylenes	7	U	1.3	14	ug/Kg
123-91-1	1,4-Dioxane	48	U	96	96	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.8		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	47.8		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	50.8		85 - 115	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.3		85 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	114013	4.37			
540-36-3	1,4-Difluorobenzene	199271	5.11			
3114-55-4	Chlorobenzene-d5	211729	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	117461	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	6 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030259.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	6.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030215.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.45	U	0.64	4.9	ug/Kg
74-87-3	Chloromethane	2.45	U	0.84	4.9	ug/Kg
75-01-4	Vinyl Chloride	2.45	U	1.2	4.9	ug/Kg
74-83-9	Bromomethane	2.45	U	2.4	4.9	ug/Kg
75-00-3	Chloroethane	2.45	U	1.4	4.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.45	U	1.3	4.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.45	U	1.3	4.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.45	U	1.4	4.9	ug/Kg
67-64-1	Acetone	12	U	3	24	ug/Kg
75-15-0	Carbon Disulfide	2.45	U	1	4.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.45	U	0.94	4.9	ug/Kg
79-20-9	Methyl Acetate	2.45	U	1.5	4.9	ug/Kg
75-09-2	Methylene Chloride	2.45	U	1.4	4.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.45	U	0.67	4.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.45	U	0.92	4.9	ug/Kg
110-82-7	Cyclohexane	2.45	U	0.99	4.9	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.45	U	0.97	4.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.45	U	0.87	4.9	ug/Kg
74-97-5	Bromochloromethane	2.45	U	0.77	4.9	ug/Kg
67-66-3	Chloroform	2.45	U	0.72	4.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.45	U	0.86	4.9	ug/Kg
108-87-2	Methylcyclohexane	2.45	U	1	4.9	ug/Kg
71-43-2	Benzene	2.45	U	0.37	4.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.45	U	0.63	4.9	ug/Kg
79-01-6	Trichloroethene	2.45	U	0.84	4.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.45	U	0.25	4.9	ug/Kg
75-27-4	Bromodichloromethane	2.45	U	0.61	4.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.9	24	ug/Kg
108-88-3	Toluene	2.45	U	0.63	4.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.45	U	0.77	4.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	6.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030215.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.45	U	0.7	4.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.45	U	0.88	4.9	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.45	U	0.53	4.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.45	U	0.63	4.9	ug/Kg
127-18-4	Tetrachloroethene	2.45	U	0.99	4.9	ug/Kg
108-90-7	Chlorobenzene	2.45	U	0.49	4.9	ug/Kg
100-41-4	Ethyl Benzene	2.45	U	0.61	4.9	ug/Kg
179601-23-1	m/p-Xylenes	4.9	U	0.7	9.8	ug/Kg
95-47-6	o-Xylene	2.45	U	0.66	4.9	ug/Kg
100-42-5	Styrene	2.45	U	0.44	4.9	ug/Kg
75-25-2	Bromoform	2.45	U	0.72	4.9	ug/Kg
98-82-8	Isopropylbenzene	2.45	U	0.47	4.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.45	U	0.45	4.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.45	U	0.36	4.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.45	U	0.4	4.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.45	U	0.61	4.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.45	U	0.85	4.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.45	U	0.68	4.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.45	U	0.49	4.9	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49	U	20	98	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46.9		55 - 158	94%	SPK: 50
1868-53-7	Dibromofluoromethane	47.7		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	48.2		85 - 115	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.4		85 - 120	95%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	113529	4.39			
540-36-3	1,4-Difluorobenzene	206692	5.13			
3114-55-4	Chlorobenzene-d5	209496	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	111868	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	6.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030215.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001915.D	1		12/19/11	vt121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.4	U	0.88	6.8	ug/Kg
74-87-3	Chloromethane	3.4	U	1.2	6.8	ug/Kg
75-01-4	Vinyl Chloride	3.4	U	1.7	6.8	ug/Kg
74-83-9	Bromomethane	3.4	U	3.3	6.8	ug/Kg
75-00-3	Chloroethane	3.4	U	1.9	6.8	ug/Kg
75-69-4	Trichlorofluoromethane	3.4	U	1.8	6.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.4	U	1.8	6.8	ug/Kg
75-35-4	1,1-Dichloroethene	3.4	U	2	6.8	ug/Kg
67-64-1	Acetone	17	U	4.1	34	ug/Kg
75-15-0	Carbon Disulfide	3.4	U	1.4	6.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.4	U	1.3	6.8	ug/Kg
79-20-9	Methyl Acetate	3.4	U	2	6.8	ug/Kg
75-09-2	Methylene Chloride	3.4	U	1.9	6.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.4	U	0.94	6.8	ug/Kg
75-34-3	1,1-Dichloroethane	3.4	U	1.3	6.8	ug/Kg
110-82-7	Cyclohexane	3.4	U	1.4	6.8	ug/Kg
78-93-3	2-Butanone	17	U	4.2	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.4	U	1.3	6.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.4	U	1.2	6.8	ug/Kg
74-97-5	Bromochloromethane	3.4	U	1.1	6.8	ug/Kg
67-66-3	Chloroform	3.4	U	1	6.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.4	U	1.2	6.8	ug/Kg
108-87-2	Methylcyclohexane	3.4	U	1.4	6.8	ug/Kg
71-43-2	Benzene	3.4	U	0.52	6.8	ug/Kg
107-06-2	1,2-Dichloroethane	3.4	U	0.87	6.8	ug/Kg
79-01-6	Trichloroethene	3.4	U	1.2	6.8	ug/Kg
78-87-5	1,2-Dichloropropane	3.4	U	0.35	6.8	ug/Kg
75-27-4	Bromodichloromethane	3.4	U	0.84	6.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	4	34	ug/Kg
108-88-3	Toluene	3.4	U	0.87	6.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.4	U	1.1	6.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001915.D	1		12/19/11	vt121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.4	U	0.98	6.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.4	U	1.2	6.8	ug/Kg
591-78-6	2-Hexanone	17	U	5.3	34	ug/Kg
124-48-1	Dibromochloromethane	3.4	U	0.73	6.8	ug/Kg
106-93-4	1,2-Dibromoethane	3.4	U	0.87	6.8	ug/Kg
127-18-4	Tetrachloroethene	3.4	U	1.4	6.8	ug/Kg
108-90-7	Chlorobenzene	3.4	U	0.68	6.8	ug/Kg
100-41-4	Ethyl Benzene	3.4	U	0.84	6.8	ug/Kg
179601-23-1	m/p-Xylenes	7	U	0.98	14	ug/Kg
95-47-6	o-Xylene	3.4	U	0.92	6.8	ug/Kg
100-42-5	Styrene	3.4	U	0.61	6.8	ug/Kg
75-25-2	Bromoform	3.4	U	1	6.8	ug/Kg
98-82-8	Isopropylbenzene	3.4	U	0.65	6.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.4	U	0.62	6.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.4	U	0.5	6.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.4	U	0.56	6.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.4	U	0.84	6.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.4	U	1.2	6.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.4	U	0.95	6.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.4	U	0.68	6.8	ug/Kg
1330-20-7	Total Xylenes	10	U	1.9	20	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.6		55 - 158	101%	SPK: 50
1868-53-7	Dibromofluoromethane	49.6		53 - 156	99%	SPK: 50
2037-26-5	Toluene-d8	53.7		85 - 115	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.1	*	85 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	585521	8.04			
540-36-3	1,4-Difluorobenzene	1068620	8.95			
3114-55-4	Chlorobenzene-d5	675876	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	297825	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001915.D	1		12/19/11	vt121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.99 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030216.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.85	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.95	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.93	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.98	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.88	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.87	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.85	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.99 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030216.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.89	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	4.95	U	0.72	9.9	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.86	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49.5	U	20	99	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	45.2		55 - 158	90%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	48.8		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	48		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	113002	4.38			
540-36-3	1,4-Difluorobenzene	203636	5.13			
3114-55-4	Chlorobenzene-d5	206362	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	115715	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.99 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030216.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.75 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030308.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.87	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.2	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.3	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	12.5	U	3.1	25	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.97	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.4	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.7	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.95	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.9	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.8	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.75	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.89	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.38	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.87	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.26	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	3	25	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.8	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.75 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030308.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.73	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.91	5.1	ug/Kg
591-78-6	2-Hexanone	12.5	U	4	25	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.75	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.37	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.41	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.88	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.71	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46.6		55 - 158	93%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.3		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.6		85 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	108151	4.37			
540-36-3	1,4-Difluorobenzene	200009	5.11			
3114-55-4	Chlorobenzene-d5	209330	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	116407	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.75 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030308.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.87 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030309.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.64	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.85	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.95	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.68	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.93	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.98	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.88	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.78	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.73	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.87	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.63	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.85	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.61	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.63	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.78	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.87 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030309.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.71	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.89	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.53	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.63	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.61	5	ug/Kg
179601-23-1	m/p-Xylenes	4.95	U	0.71	9.9	ug/Kg
95-47-6	o-Xylene	2.5	U	0.67	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.73	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.61	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.86	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.69	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49.5	U	99	99	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.6		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	50		53 - 156	100%	SPK: 50
2037-26-5	Toluene-d8	51.3		85 - 115	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.5		85 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	107403	4.37			
540-36-3	1,4-Difluorobenzene	193310	5.11			
3114-55-4	Chlorobenzene-d5	206402	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	114400	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.87 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030309.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030261.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.45	U	0.63	4.9	ug/Kg
74-87-3	Chloromethane	2.45	U	0.84	4.9	ug/Kg
75-01-4	Vinyl Chloride	2.45	U	1.2	4.9	ug/Kg
74-83-9	Bromomethane	2.45	U	2.4	4.9	ug/Kg
75-00-3	Chloroethane	2.45	U	1.4	4.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.45	U	1.3	4.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.45	U	1.3	4.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.45	U	1.4	4.9	ug/Kg
67-64-1	Acetone	12	U	2.9	24	ug/Kg
75-15-0	Carbon Disulfide	2.45	U	1	4.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.45	U	0.93	4.9	ug/Kg
79-20-9	Methyl Acetate	2.45	U	1.5	4.9	ug/Kg
75-09-2	Methylene Chloride	2.45	U	1.4	4.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.45	U	0.67	4.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.45	U	0.91	4.9	ug/Kg
110-82-7	Cyclohexane	2.45	U	0.98	4.9	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.45	U	0.96	4.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.45	U	0.87	4.9	ug/Kg
74-97-5	Bromochloromethane	2.45	U	0.77	4.9	ug/Kg
67-66-3	Chloroform	2.45	U	0.72	4.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.45	U	0.86	4.9	ug/Kg
108-87-2	Methylcyclohexane	2.45	U	1	4.9	ug/Kg
71-43-2	Benzene	2.45	U	0.37	4.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.45	U	0.62	4.9	ug/Kg
79-01-6	Trichloroethene	2.45	U	0.84	4.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.45	U	0.25	4.9	ug/Kg
75-27-4	Bromodichloromethane	2.45	U	0.6	4.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.8	24	ug/Kg
108-88-3	Toluene	2.45	U	0.62	4.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.45	U	0.77	4.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030261.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.45	U	0.7	4.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.45	U	0.88	4.9	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.45	U	0.53	4.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.45	U	0.62	4.9	ug/Kg
127-18-4	Tetrachloroethene	2.45	U	0.98	4.9	ug/Kg
108-90-7	Chlorobenzene	2.45	U	0.49	4.9	ug/Kg
100-41-4	Ethyl Benzene	2.45	U	0.6	4.9	ug/Kg
179601-23-1	m/p-Xylenes	4.85	U	0.7	9.7	ug/Kg
95-47-6	o-Xylene	2.45	U	0.66	4.9	ug/Kg
100-42-5	Styrene	2.45	U	0.44	4.9	ug/Kg
75-25-2	Bromoform	2.45	U	0.72	4.9	ug/Kg
98-82-8	Isopropylbenzene	2.45	U	0.47	4.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.45	U	0.45	4.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.45	U	0.36	4.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.45	U	0.4	4.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.45	U	0.6	4.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.45	U	0.85	4.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.45	U	0.68	4.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.45	U	0.49	4.9	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	48.5	U	97	97	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.6		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	51.1		85 - 115	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.1		85 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	117583	4.37			
540-36-3	1,4-Difluorobenzene	203420	5.11			
3114-55-4	Chlorobenzene-d5	215716	9.3			
3855-82-1	1,4-Dichlorobenzene-d4	121149	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.27 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030261.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	5.81 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030260.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.2	U	0.83	6.4	ug/Kg
74-87-3	Chloromethane	3.2	U	1.1	6.4	ug/Kg
75-01-4	Vinyl Chloride	3.2	U	1.6	6.4	ug/Kg
74-83-9	Bromomethane	3.2	U	3.1	6.4	ug/Kg
75-00-3	Chloroethane	3.2	U	1.8	6.4	ug/Kg
75-69-4	Trichlorofluoromethane	3.2	U	1.7	6.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.2	U	1.7	6.4	ug/Kg
75-35-4	1,1-Dichloroethene	3.2	U	1.9	6.4	ug/Kg
67-64-1	Acetone	340		3.9	32	ug/Kg
75-15-0	Carbon Disulfide	3.2	U	1.4	6.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.2	U	1.2	6.4	ug/Kg
79-20-9	Methyl Acetate	3.2	U	1.9	6.4	ug/Kg
75-09-2	Methylene Chloride	3.2	U	1.8	6.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.2	U	0.89	6.4	ug/Kg
75-34-3	1,1-Dichloroethane	3.2	U	1.2	6.4	ug/Kg
110-82-7	Cyclohexane	3.2	U	1.3	6.4	ug/Kg
78-93-3	2-Butanone	200		4	32	ug/Kg
56-23-5	Carbon Tetrachloride	3.2	U	1.3	6.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.2	U	1.1	6.4	ug/Kg
74-97-5	Bromochloromethane	3.2	U	1	6.4	ug/Kg
67-66-3	Chloroform	3.2	U	0.95	6.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.2	U	1.1	6.4	ug/Kg
108-87-2	Methylcyclohexane	3.2	U	1.4	6.4	ug/Kg
71-43-2	Benzene	3.2	U	0.49	6.4	ug/Kg
107-06-2	1,2-Dichloroethane	3.2	U	0.82	6.4	ug/Kg
79-01-6	Trichloroethene	3.2	U	1.1	6.4	ug/Kg
78-87-5	1,2-Dichloropropane	3.2	U	0.33	6.4	ug/Kg
75-27-4	Bromodichloromethane	3.2	U	0.8	6.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16	U	3.8	32	ug/Kg
108-88-3	Toluene	3.2	U	0.82	6.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.2	U	1	6.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	5.81 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030260.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.2	U	0.92	6.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.2	U	1.2	6.4	ug/Kg
591-78-6	2-Hexanone	14	J	5	32	ug/Kg
124-48-1	Dibromochloromethane	3.2	U	0.69	6.4	ug/Kg
106-93-4	1,2-Dibromoethane	3.2	U	0.82	6.4	ug/Kg
127-18-4	Tetrachloroethene	3.2	U	1.3	6.4	ug/Kg
108-90-7	Chlorobenzene	3.2	U	0.64	6.4	ug/Kg
100-41-4	Ethyl Benzene	3.2	U	0.8	6.4	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.92	13	ug/Kg
95-47-6	o-Xylene	3.2	U	0.87	6.4	ug/Kg
100-42-5	Styrene	3.2	U	0.58	6.4	ug/Kg
75-25-2	Bromoform	3.2	U	0.95	6.4	ug/Kg
98-82-8	Isopropylbenzene	3.2	U	0.62	6.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.2	U	0.59	6.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.2	U	0.48	6.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.2	U	0.53	6.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.2	U	0.8	6.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.2	U	1.1	6.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.2	U	0.9	6.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.2	U	0.64	6.4	ug/Kg
1330-20-7	Total Xylenes	9.5	U	1.8	19	ug/Kg
123-91-1	1,4-Dioxane	65	U	130	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.1		55 - 158	86%	SPK: 50
1868-53-7	Dibromofluoromethane	46.8		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	51.6		85 - 115	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.5		85 - 120	103%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	111535	4.37			
540-36-3	1,4-Difluorobenzene	198200	5.11			
3114-55-4	Chlorobenzene-d5	205622	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	104515	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	33
Sample Wt/Vol:	5.81 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030260.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.05 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030262.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.66	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.87	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.5	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.97	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.7	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.95	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	1	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.9	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.8	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.75	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.89	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.65	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.87	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.65	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.8	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.05 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030262.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.73	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.91	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	4	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.65	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.69	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.75	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.88	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.71	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.6		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	46.7		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	50.8		85 - 115	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.4		85 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	117176	4.37			
540-36-3	1,4-Difluorobenzene	203973	5.11			
3114-55-4	Chlorobenzene-d5	216895	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	121946	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	6.05 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030262.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	6.13 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030213.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.45	U	0.63	4.9	ug/Kg
74-87-3	Chloromethane	2.45	U	0.84	4.9	ug/Kg
75-01-4	Vinyl Chloride	2.45	U	1.2	4.9	ug/Kg
74-83-9	Bromomethane	2.45	U	2.4	4.9	ug/Kg
75-00-3	Chloroethane	2.45	U	1.4	4.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.45	U	1.3	4.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.45	U	1.3	4.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.45	U	1.4	4.9	ug/Kg
67-64-1	Acetone	12	U	2.9	24	ug/Kg
75-15-0	Carbon Disulfide	2.45	U	1	4.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.45	U	0.93	4.9	ug/Kg
79-20-9	Methyl Acetate	2.45	U	1.5	4.9	ug/Kg
75-09-2	Methylene Chloride	2.45	U	1.4	4.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.45	U	0.67	4.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.45	U	0.91	4.9	ug/Kg
110-82-7	Cyclohexane	2.45	U	0.98	4.9	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.45	U	0.96	4.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.45	U	0.86	4.9	ug/Kg
74-97-5	Bromochloromethane	2.45	U	0.77	4.9	ug/Kg
67-66-3	Chloroform	2.45	U	0.72	4.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.45	U	0.85	4.9	ug/Kg
108-87-2	Methylcyclohexane	2.45	U	1	4.9	ug/Kg
71-43-2	Benzene	2.45	U	0.37	4.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.45	U	0.62	4.9	ug/Kg
79-01-6	Trichloroethene	2.45	U	0.84	4.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.45	U	0.25	4.9	ug/Kg
75-27-4	Bromodichloromethane	2.45	U	0.6	4.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.8	24	ug/Kg
108-88-3	Toluene	2.45	U	0.62	4.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.45	U	0.77	4.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	6.13 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030213.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.45	U	0.7	4.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.45	U	0.87	4.9	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.45	U	0.52	4.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.45	U	0.62	4.9	ug/Kg
127-18-4	Tetrachloroethene	2.45	U	0.98	4.9	ug/Kg
108-90-7	Chlorobenzene	2.45	U	0.49	4.9	ug/Kg
100-41-4	Ethyl Benzene	2.45	U	0.6	4.9	ug/Kg
179601-23-1	m/p-Xylenes	4.85	U	0.7	9.7	ug/Kg
95-47-6	o-Xylene	2.45	U	0.66	4.9	ug/Kg
100-42-5	Styrene	2.45	U	0.44	4.9	ug/Kg
75-25-2	Bromoform	2.45	U	0.72	4.9	ug/Kg
98-82-8	Isopropylbenzene	2.45	U	0.47	4.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.45	U	0.45	4.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.45	U	0.36	4.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.45	U	0.4	4.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.45	U	0.6	4.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.45	U	0.84	4.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.45	U	0.68	4.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.45	U	0.49	4.9	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	48.5	U	19	97	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.1		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	45.7		53 - 156	91%	SPK: 50
2037-26-5	Toluene-d8	48.6		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.8		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	123597	4.39			
540-36-3	1,4-Difluorobenzene	222423	5.13			
3114-55-4	Chlorobenzene-d5	222667	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	113487	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	6.13 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030213.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	35
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030212.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.35	U	0.87	6.7	ug/Kg
74-87-3	Chloromethane	3.35	U	1.2	6.7	ug/Kg
75-01-4	Vinyl Chloride	3.35	U	1.7	6.7	ug/Kg
74-83-9	Bromomethane	3.35	U	3.3	6.7	ug/Kg
75-00-3	Chloroethane	3.35	U	1.9	6.7	ug/Kg
75-69-4	Trichlorofluoromethane	3.35	U	1.8	6.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.35	U	1.8	6.7	ug/Kg
75-35-4	1,1-Dichloroethene	3.35	U	2	6.7	ug/Kg
67-64-1	Acetone	120		4.1	34	ug/Kg
75-15-0	Carbon Disulfide	3.35	U	1.4	6.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.35	U	1.3	6.7	ug/Kg
79-20-9	Methyl Acetate	3.35	U	2	6.7	ug/Kg
75-09-2	Methylene Chloride	3.35	U	1.9	6.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.35	U	0.93	6.7	ug/Kg
75-34-3	1,1-Dichloroethane	3.35	U	1.3	6.7	ug/Kg
110-82-7	Cyclohexane	3.35	U	1.4	6.7	ug/Kg
78-93-3	2-Butanone	15	J	4.2	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.35	U	1.3	6.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.35	U	1.2	6.7	ug/Kg
74-97-5	Bromochloromethane	3.35	U	1.1	6.7	ug/Kg
67-66-3	Chloroform	3.35	U	1	6.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.35	U	1.2	6.7	ug/Kg
108-87-2	Methylcyclohexane	3.35	U	1.4	6.7	ug/Kg
71-43-2	Benzene	3.35	U	0.51	6.7	ug/Kg
107-06-2	1,2-Dichloroethane	3.35	U	0.86	6.7	ug/Kg
79-01-6	Trichloroethene	3.35	U	1.2	6.7	ug/Kg
78-87-5	1,2-Dichloropropane	3.35	U	0.35	6.7	ug/Kg
75-27-4	Bromodichloromethane	3.35	U	0.83	6.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	3.9	34	ug/Kg
108-88-3	Toluene	3.35	U	0.86	6.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.35	U	1.1	6.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	35
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030212.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.35	U	0.97	6.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.35	U	1.2	6.7	ug/Kg
591-78-6	2-Hexanone	17	U	5.3	34	ug/Kg
124-48-1	Dibromochloromethane	3.35	U	0.73	6.7	ug/Kg
106-93-4	1,2-Dibromoethane	3.35	U	0.86	6.7	ug/Kg
127-18-4	Tetrachloroethene	3.35	U	1.4	6.7	ug/Kg
108-90-7	Chlorobenzene	3.35	U	0.67	6.7	ug/Kg
100-41-4	Ethyl Benzene	3.35	U	0.83	6.7	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.97	13	ug/Kg
95-47-6	o-Xylene	3.35	U	0.91	6.7	ug/Kg
100-42-5	Styrene	3.35	U	0.61	6.7	ug/Kg
75-25-2	Bromoform	3.35	U	1	6.7	ug/Kg
98-82-8	Isopropylbenzene	3.35	U	0.65	6.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.35	U	0.62	6.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.35	U	0.5	6.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.35	U	0.55	6.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.35	U	0.83	6.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.35	U	1.2	6.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.35	U	0.94	6.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.35	U	0.67	6.7	ug/Kg
1330-20-7	Total Xylenes	10	U	1.9	20	ug/Kg
123-91-1	1,4-Dioxane	65	U	27	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.8		55 - 158	86%	SPK: 50
1868-53-7	Dibromofluoromethane	45.8		53 - 156	92%	SPK: 50
2037-26-5	Toluene-d8	48.8		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.5		85 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	127263	4.39			
540-36-3	1,4-Difluorobenzene	226786	5.13			
3114-55-4	Chlorobenzene-d5	228286	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	112080	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	35
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030212.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.89 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030214.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.68	5.2	ug/Kg
74-87-3	Chloromethane	2.6	U	0.9	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
74-83-9	Bromomethane	2.6	U	2.6	5.2	ug/Kg
75-00-3	Chloroethane	2.6	U	1.5	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.6	U	1.1	5.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.6	U	1	5.2	ug/Kg
79-20-9	Methyl Acetate	2.6	U	1.6	5.2	ug/Kg
75-09-2	Methylene Chloride	2.6	U	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.72	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.99	5.2	ug/Kg
110-82-7	Cyclohexane	2.6	U	1.1	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.6	U	1	5.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.93	5.2	ug/Kg
74-97-5	Bromochloromethane	2.6	U	0.83	5.2	ug/Kg
67-66-3	Chloroform	2.6	U	0.78	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.92	5.2	ug/Kg
108-87-2	Methylcyclohexane	2.6	U	1.1	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.4	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.67	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.9	5.2	ug/Kg
78-87-5	1,2-Dichloropropane	2.6	U	0.27	5.2	ug/Kg
75-27-4	Bromodichloromethane	2.6	U	0.65	5.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.6	U	0.67	5.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.6	U	0.83	5.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.89 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030214.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.6	U	0.75	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.94	5.2	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.6	U	0.57	5.2	ug/Kg
106-93-4	1,2-Dibromoethane	2.6	U	0.67	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1.1	5.2	ug/Kg
108-90-7	Chlorobenzene	2.6	U	0.52	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.65	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.75	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.71	5.2	ug/Kg
100-42-5	Styrene	2.6	U	0.47	5.2	ug/Kg
75-25-2	Bromoform	2.6	U	0.78	5.2	ug/Kg
98-82-8	Isopropylbenzene	2.6	U	0.5	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.6	U	0.39	5.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.6	U	0.43	5.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.6	U	0.65	5.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.6	U	0.91	5.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.6	U	0.73	5.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.6	U	0.52	5.2	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	50	U	21	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.3		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	45.2		53 - 156	90%	SPK: 50
2037-26-5	Toluene-d8	48.4		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.6		85 - 120	95%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	119725	4.39			
540-36-3	1,4-Difluorobenzene	214382	5.13			
3114-55-4	Chlorobenzene-d5	216750	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	116268	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.89 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030214.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12TB-20111215	SDG No.:	C5017
Lab Sample ID:	C5017-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039739.D	1		12/21/11	VG122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12TB-20111215	SDG No.:	C5017
Lab Sample ID:	C5017-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039739.D	1		12/21/11	VG122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	59.6		70 - 120	119%	SPK: 50
1868-53-7	Dibromofluoromethane	47.7		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	50.3		85 - 120	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	58.5		75 - 120	117%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	553033	3.92			
540-36-3	1,4-Difluorobenzene	1037680	4.72			
3114-55-4	Chlorobenzene-d5	609492	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	292994	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12TB-20111215	SDG No.:	C5017
Lab Sample ID:	C5017-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039739.D	1		12/21/11	VG122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052606.D	1	12/19/11	01/02/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	245	U	26	490	ug/Kg
108-95-2	Phenol	245	U	11	490	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	245	U	24	490	ug/Kg
95-57-8	2-Chlorophenol	245	U	26	490	ug/Kg
95-48-7	2-Methylphenol	245	U	27	490	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	245	U	21	490	ug/Kg
98-86-2	Acetophenone	245	U	15	490	ug/Kg
65794-96-9	3+4-Methylphenols	245	U	26	490	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	245	U	25	490	ug/Kg
67-72-1	Hexachloroethane	245	U	22	490	ug/Kg
98-95-3	Nitrobenzene	245	U	19	490	ug/Kg
78-59-1	Isophorone	245	U	16	490	ug/Kg
88-75-5	2-Nitrophenol	245	U	24	490	ug/Kg
105-67-9	2,4-Dimethylphenol	245	U	28	490	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	245	U	29	490	ug/Kg
120-83-2	2,4-Dichlorophenol	245	U	19	490	ug/Kg
106-47-8	4-Chloroaniline	245	U	35	490	ug/Kg
87-68-3	Hexachlorobutadiene	245	U	18	490	ug/Kg
105-60-2	Caprolactam	245	U	23	490	ug/Kg
59-50-7	4-Chloro-3-methylphenol	245	U	22	490	ug/Kg
77-47-4	Hexachlorocyclopentadiene	245	U	12	490	ug/Kg
88-06-2	2,4,6-Trichlorophenol	245	U	15	490	ug/Kg
95-95-4	2,4,5-Trichlorophenol	245	U	35	490	ug/Kg
92-52-4	1,1-Biphenyl	245	U	19	490	ug/Kg
91-58-7	2-Chloronaphthalene	245	U	11	490	ug/Kg
88-74-4	2-Nitroaniline	245	U	22	490	ug/Kg
131-11-3	Dimethylphthalate	480	J	13	490	ug/Kg
208-96-8	Acenaphthylene	245	U	13	490	ug/Kg
606-20-2	2,6-Dinitrotoluene	245	U	20	490	ug/Kg
99-09-2	3-Nitroaniline	245	U	32	490	ug/Kg
83-32-9	Acenaphthene	245	U	14	490	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052606.D	1	12/19/11	01/02/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	245	U	51	490	ug/Kg
100-02-7	4-Nitrophenol	245	U	92	490	ug/Kg
132-64-9	Dibenzofuran	245	U	19	490	ug/Kg
121-14-2	2,4-Dinitrotoluene	245	U	15	490	ug/Kg
84-66-2	Diethylphthalate	245	U	7.8	490	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	245	U	27	490	ug/Kg
100-01-6	4-Nitroaniline	245	U	65	490	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	245	U	28	490	ug/Kg
86-30-6	N-Nitrosodiphenylamine	245	U	12	490	ug/Kg
101-55-3	4-Bromophenyl-phenylether	245	U	9.7	490	ug/Kg
118-74-1	Hexachlorobenzene	245	U	20	490	ug/Kg
1912-24-9	Atrazine	245	U	26	490	ug/Kg
87-86-5	Pentachlorophenol	245	U	34	490	ug/Kg
85-01-8	Phenanthrene	245	U	13	490	ug/Kg
86-74-8	Carbazole	245	U	11	490	ug/Kg
84-74-2	Di-n-butylphthalate	245	U	39	490	ug/Kg
85-68-7	Butylbenzylphthalate	245	U	24	490	ug/Kg
91-94-1	3,3-Dichlorobenzidine	245	U	32	490	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	245	U	18	490	ug/Kg
117-84-0	Di-n-octyl phthalate	245	U	5.7	490	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	245	U	20	490	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	245	U	490	490	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	116		35 - 105	78%	SPK: 150
13127-88-3	Phenol-d5	128		40 - 100	86%	SPK: 150
4165-60-0	Nitrobenzene-d5	87		35 - 100	87%	SPK: 100
321-60-8	2-Fluorobiphenyl	85.6		45 - 105	86%	SPK: 100
118-79-6	2,4,6-Tribromophenol	130		35 - 125	87%	SPK: 150
1718-51-0	Terphenyl-d14	75.4		30 - 125	75%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	97264	4.03			
1146-65-2	Naphthalene-d8	371670	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052606.D	1	12/19/11	01/02/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	186671	8.11			
1517-22-2	Phenanthrene-d10	306126	10.17			
1719-03-5	Chrysene-d12	301704	13.45			
1520-96-3	Perylene-d12	273502	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052580.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.8	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	260	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052580.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	104		35 - 105	70%	SPK: 150
13127-88-3	Phenol-d5	117		40 - 100	78%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.7		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	73.7		45 - 105	74%	SPK: 100
118-79-6	2,4,6-Tribromophenol	114		35 - 125	76%	SPK: 150
1718-51-0	Terphenyl-d14	69.3		30 - 125	69%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	103285	4.03			
1146-65-2	Naphthalene-d8	400491	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052580.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	199399	8.11			
1517-22-2	Phenanthrene-d10	319223	10.16			
1719-03-5	Chrysene-d12	296632	13.44			
1520-96-3	Perylene-d12	280712	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052599.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	420		11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052599.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	53	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	450		11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	122		35 - 105	81%	SPK: 150
13127-88-3	Phenol-d5	138		40 - 100	92%	SPK: 150
4165-60-0	Nitrobenzene-d5	90.8		35 - 100	91%	SPK: 100
321-60-8	2-Fluorobiphenyl	80.7		45 - 105	81%	SPK: 100
118-79-6	2,4,6-Tribromophenol	126		35 - 125	85%	SPK: 150
1718-51-0	Terphenyl-d14	76.9		30 - 125	77%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	92655	4.03			
1146-65-2	Naphthalene-d8	359968	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052599.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	182478	8.11			
1517-22-2	Phenanthrene-d10	295591	10.16			
1719-03-5	Chrysene-d12	272244	13.44			
1520-96-3	Perylene-d12	253393	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052598.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	245	U	26	490	ug/Kg
108-95-2	Phenol	245	U	11	490	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	245	U	24	490	ug/Kg
95-57-8	2-Chlorophenol	245	U	26	490	ug/Kg
95-48-7	2-Methylphenol	245	U	27	490	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	245	U	21	490	ug/Kg
98-86-2	Acetophenone	245	U	15	490	ug/Kg
65794-96-9	3+4-Methylphenols	245	U	26	490	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	245	U	25	490	ug/Kg
67-72-1	Hexachloroethane	245	U	22	490	ug/Kg
98-95-3	Nitrobenzene	245	U	19	490	ug/Kg
78-59-1	Isophorone	245	U	16	490	ug/Kg
88-75-5	2-Nitrophenol	245	U	24	490	ug/Kg
105-67-9	2,4-Dimethylphenol	245	U	28	490	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	245	U	29	490	ug/Kg
120-83-2	2,4-Dichlorophenol	245	U	19	490	ug/Kg
106-47-8	4-Chloroaniline	245	U	35	490	ug/Kg
87-68-3	Hexachlorobutadiene	245	U	18	490	ug/Kg
105-60-2	Caprolactam	245	U	23	490	ug/Kg
59-50-7	4-Chloro-3-methylphenol	245	U	22	490	ug/Kg
77-47-4	Hexachlorocyclopentadiene	245	U	12	490	ug/Kg
88-06-2	2,4,6-Trichlorophenol	245	U	15	490	ug/Kg
95-95-4	2,4,5-Trichlorophenol	245	U	35	490	ug/Kg
92-52-4	1,1-Biphenyl	245	U	19	490	ug/Kg
91-58-7	2-Chloronaphthalene	245	U	11	490	ug/Kg
88-74-4	2-Nitroaniline	245	U	22	490	ug/Kg
131-11-3	Dimethylphthalate	460	J	13	490	ug/Kg
208-96-8	Acenaphthylene	245	U	13	490	ug/Kg
606-20-2	2,6-Dinitrotoluene	245	U	20	490	ug/Kg
99-09-2	3-Nitroaniline	245	U	32	490	ug/Kg
83-32-9	Acenaphthene	245	U	14	490	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052598.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	245	U	51	490	ug/Kg
100-02-7	4-Nitrophenol	245	U	92	490	ug/Kg
132-64-9	Dibenzofuran	245	U	19	490	ug/Kg
121-14-2	2,4-Dinitrotoluene	245	U	15	490	ug/Kg
84-66-2	Diethylphthalate	245	U	7.8	490	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	245	U	27	490	ug/Kg
100-01-6	4-Nitroaniline	245	U	65	490	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	245	U	28	490	ug/Kg
86-30-6	N-Nitrosodiphenylamine	245	U	12	490	ug/Kg
101-55-3	4-Bromophenyl-phenylether	245	U	9.7	490	ug/Kg
118-74-1	Hexachlorobenzene	245	U	20	490	ug/Kg
1912-24-9	Atrazine	245	U	26	490	ug/Kg
87-86-5	Pentachlorophenol	245	U	34	490	ug/Kg
85-01-8	Phenanthrene	245	U	13	490	ug/Kg
86-74-8	Carbazole	245	U	11	490	ug/Kg
84-74-2	Di-n-butylphthalate	245	U	39	490	ug/Kg
85-68-7	Butylbenzylphthalate	245	U	24	490	ug/Kg
91-94-1	3,3-Dichlorobenzidine	245	U	32	490	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	245	U	18	490	ug/Kg
117-84-0	Di-n-octyl phthalate	245	U	5.7	490	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	245	U	20	490	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	245	U	490	490	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	116		35 - 105	78%	SPK: 150
13127-88-3	Phenol-d5	131		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	87.4		35 - 100	87%	SPK: 100
321-60-8	2-Fluorobiphenyl	81.1		45 - 105	81%	SPK: 100
118-79-6	2,4,6-Tribromophenol	126		35 - 125	85%	SPK: 150
1718-51-0	Terphenyl-d14	75.4		30 - 125	75%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	95614	4.03			
1146-65-2	Naphthalene-d8	366202	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052598.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	184903	8.11			
1517-22-2	Phenanthrene-d10	297925	10.16			
1719-03-5	Chrysene-d12	280266	13.44			
1520-96-3	Perylene-d12	258612	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052600.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.2	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	22	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	350	J	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052600.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	74	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	22	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	52	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	97.7		35 - 105	65%	SPK: 150
13127-88-3	Phenol-d5	111		40 - 100	74%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.4		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	75.2		45 - 105	75%	SPK: 100
118-79-6	2,4,6-Tribromophenol	109		35 - 125	73%	SPK: 150
1718-51-0	Terphenyl-d14	70.8		30 - 125	71%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	94075	4.03			
1146-65-2	Naphthalene-d8	357495	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052600.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	182314	8.11			
1517-22-2	Phenanthrene-d10	304838	10.16			
1719-03-5	Chrysene-d12	282475	13.44			
1520-96-3	Perylene-d12	257488	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052602.D	5	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	950	U	99	1900	ug/Kg
108-95-2	Phenol	950	U	44	1900	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	950	U	91	1900	ug/Kg
95-57-8	2-Chlorophenol	950	U	100	1900	ug/Kg
95-48-7	2-Methylphenol	950	U	100	1900	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	950	U	78	1900	ug/Kg
98-86-2	Acetophenone	950	U	58	1900	ug/Kg
65794-96-9	3+4-Methylphenols	950	U	98	1900	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	950	U	95	1900	ug/Kg
67-72-1	Hexachloroethane	950	U	84	1900	ug/Kg
98-95-3	Nitrobenzene	950	U	71	1900	ug/Kg
78-59-1	Isophorone	950	U	62	1900	ug/Kg
88-75-5	2-Nitrophenol	950	U	91	1900	ug/Kg
105-67-9	2,4-Dimethylphenol	950	U	110	1900	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	950	U	110	1900	ug/Kg
120-83-2	2,4-Dichlorophenol	950	U	72	1900	ug/Kg
106-47-8	4-Chloroaniline	950	U	130	1900	ug/Kg
87-68-3	Hexachlorobutadiene	950	U	69	1900	ug/Kg
105-60-2	Caprolactam	950	U	88	1900	ug/Kg
59-50-7	4-Chloro-3-methylphenol	950	U	84	1900	ug/Kg
77-47-4	Hexachlorocyclopentadiene	950	U	46	1900	ug/Kg
88-06-2	2,4,6-Trichlorophenol	950	U	58	1900	ug/Kg
95-95-4	2,4,5-Trichlorophenol	950	U	130	1900	ug/Kg
92-52-4	1,1-Biphenyl	950	U	71	1900	ug/Kg
91-58-7	2-Chloronaphthalene	950	U	43	1900	ug/Kg
88-74-4	2-Nitroaniline	950	U	84	1900	ug/Kg
131-11-3	Dimethylphthalate	950	U	51	1900	ug/Kg
208-96-8	Acenaphthylene	950	U	48	1900	ug/Kg
606-20-2	2,6-Dinitrotoluene	950	U	77	1900	ug/Kg
99-09-2	3-Nitroaniline	950	U	120	1900	ug/Kg
83-32-9	Acenaphthene	3500		53	1900	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052602.D	5	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	950	U	190	1900	ug/Kg
100-02-7	4-Nitrophenol	950	U	350	1900	ug/Kg
132-64-9	Dibenzofuran	3300		74	1900	ug/Kg
121-14-2	2,4-Dinitrotoluene	950	U	57	1900	ug/Kg
84-66-2	Diethylphthalate	950	U	29	1900	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	950	U	100	1900	ug/Kg
100-01-6	4-Nitroaniline	950	U	250	1900	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	950	U	110	1900	ug/Kg
86-30-6	N-Nitrosodiphenylamine	950	U	45	1900	ug/Kg
101-55-3	4-Bromophenyl-phenylether	950	U	37	1900	ug/Kg
118-74-1	Hexachlorobenzene	950	U	77	1900	ug/Kg
1912-24-9	Atrazine	950	U	100	1900	ug/Kg
87-86-5	Pentachlorophenol	950	U	130	1900	ug/Kg
85-01-8	Phenanthrene	20000	E	51	1900	ug/Kg
86-74-8	Carbazole	2200		41	1900	ug/Kg
84-74-2	Di-n-butylphthalate	950	U	150	1900	ug/Kg
85-68-7	Butylbenzylphthalate	950	U	91	1900	ug/Kg
91-94-1	3,3-Dichlorobenzidine	950	U	120	1900	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	950	U	67	1900	ug/Kg
117-84-0	Di-n-octyl phthalate	950	U	22	1900	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	950	U	74	1900	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	950	U	1900	1900	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	141		35 - 105	94%	SPK: 150
13127-88-3	Phenol-d5	165	*	40 - 100	110%	SPK: 150
4165-60-0	Nitrobenzene-d5	105	*	35 - 100	105%	SPK: 100
321-60-8	2-Fluorobiphenyl	110	*	45 - 105	110%	SPK: 100
118-79-6	2,4,6-Tribromophenol	134		35 - 125	90%	SPK: 150
1718-51-0	Terphenyl-d14	108		30 - 125	108%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	106401	4.03			
1146-65-2	Naphthalene-d8	415684	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052602.D	5	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	212648	8.11			
1517-22-2	Phenanthrene-d10	342845	10.17			
1719-03-5	Chrysene-d12	289458	13.46			
1520-96-3	Perylene-d12	289226	15.05			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-14DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052639.D	25	12/19/11	01/04/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	4700	UD	490	9400	ug/Kg
108-95-2	Phenol	4700	UD	220	9400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	4700	UD	450	9400	ug/Kg
95-57-8	2-Chlorophenol	4700	UD	500	9400	ug/Kg
95-48-7	2-Methylphenol	4700	UD	510	9400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	4700	UD	390	9400	ug/Kg
98-86-2	Acetophenone	4700	UD	290	9400	ug/Kg
65794-96-9	3+4-Methylphenols	4700	UD	490	9400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	4700	UD	480	9400	ug/Kg
67-72-1	Hexachloroethane	4700	UD	420	9400	ug/Kg
98-95-3	Nitrobenzene	4700	UD	360	9400	ug/Kg
78-59-1	Isophorone	4700	UD	310	9400	ug/Kg
88-75-5	2-Nitrophenol	4700	UD	460	9400	ug/Kg
105-67-9	2,4-Dimethylphenol	4700	UD	540	9400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	4700	UD	540	9400	ug/Kg
120-83-2	2,4-Dichlorophenol	4700	UD	360	9400	ug/Kg
106-47-8	4-Chloroaniline	4700	UD	670	9400	ug/Kg
87-68-3	Hexachlorobutadiene	4700	UD	340	9400	ug/Kg
105-60-2	Caprolactam	4700	UD	440	9400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	4700	UD	420	9400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	4700	UD	230	9400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	4700	UD	290	9400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	4700	UD	660	9400	ug/Kg
92-52-4	1,1-Biphenyl	4700	UD	360	9400	ug/Kg
91-58-7	2-Chloronaphthalene	4700	UD	220	9400	ug/Kg
88-74-4	2-Nitroaniline	4700	UD	420	9400	ug/Kg
131-11-3	Dimethylphthalate	4700	UD	260	9400	ug/Kg
208-96-8	Acenaphthylene	4700	UD	240	9400	ug/Kg
606-20-2	2,6-Dinitrotoluene	4700	UD	390	9400	ug/Kg
99-09-2	3-Nitroaniline	4700	UD	610	9400	ug/Kg
83-32-9	Acenaphthene	5000	JD	270	9400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-14DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052639.D	25	12/19/11	01/04/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	4700	UD	960	9400	ug/Kg
100-02-7	4-Nitrophenol	4700	UD	1800	9400	ug/Kg
132-64-9	Dibenzofuran	4800	JD	370	9400	ug/Kg
121-14-2	2,4-Dinitrotoluene	4700	UD	290	9400	ug/Kg
84-66-2	Diethylphthalate	4700	UD	150	9400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	4700	UD	510	9400	ug/Kg
100-01-6	4-Nitroaniline	4700	UD	1200	9400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	4700	UD	540	9400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	4700	UD	230	9400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	4700	UD	180	9400	ug/Kg
118-74-1	Hexachlorobenzene	4700	UD	390	9400	ug/Kg
1912-24-9	Atrazine	4700	UD	500	9400	ug/Kg
87-86-5	Pentachlorophenol	4700	UD	650	9400	ug/Kg
85-01-8	Phenanthrene	39000	D	260	9400	ug/Kg
86-74-8	Carbazole	4700	UD	210	9400	ug/Kg
84-74-2	Di-n-butylphthalate	4700	UD	740	9400	ug/Kg
85-68-7	Butylbenzylphthalate	4700	UD	450	9400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	4700	UD	610	9400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	4700	UD	330	9400	ug/Kg
117-84-0	Di-n-octyl phthalate	4700	UD	110	9400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	4700	UD	370	9400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	4700	UD	9400	9400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	187	*	35 - 105	125%	SPK: 150
13127-88-3	Phenol-d5	227	*	40 - 100	152%	SPK: 150
4165-60-0	Nitrobenzene-d5	146	*	35 - 100	147%	SPK: 100
321-60-8	2-Fluorobiphenyl	159	*	45 - 105	160%	SPK: 100
118-79-6	2,4,6-Tribromophenol	155		35 - 125	103%	SPK: 150
1718-51-0	Terphenyl-d14	144	*	30 - 125	145%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	109802	4.01			
1146-65-2	Naphthalene-d8	405584	5.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-14DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052639.D	25	12/19/11	01/04/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	200791	8.09			
1517-22-2	Phenanthrene-d10	313894	10.15			
1719-03-5	Chrysene-d12	283536	13.43			
1520-96-3	Perylene-d12	262973	15.03			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052601.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	235	U	25	470	ug/Kg
108-95-2	Phenol	235	U	11	470	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	235	U	23	470	ug/Kg
95-57-8	2-Chlorophenol	235	U	25	470	ug/Kg
95-48-7	2-Methylphenol	235	U	26	470	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	235	U	20	470	ug/Kg
98-86-2	Acetophenone	235	U	15	470	ug/Kg
65794-96-9	3+4-Methylphenols	235	U	25	470	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	235	U	24	470	ug/Kg
67-72-1	Hexachloroethane	235	U	21	470	ug/Kg
98-95-3	Nitrobenzene	235	U	18	470	ug/Kg
78-59-1	Isophorone	235	U	16	470	ug/Kg
88-75-5	2-Nitrophenol	235	U	23	470	ug/Kg
105-67-9	2,4-Dimethylphenol	235	U	27	470	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	235	U	27	470	ug/Kg
120-83-2	2,4-Dichlorophenol	235	U	18	470	ug/Kg
106-47-8	4-Chloroaniline	235	U	33	470	ug/Kg
87-68-3	Hexachlorobutadiene	235	U	17	470	ug/Kg
105-60-2	Caprolactam	235	U	22	470	ug/Kg
59-50-7	4-Chloro-3-methylphenol	235	U	21	470	ug/Kg
77-47-4	Hexachlorocyclopentadiene	235	U	12	470	ug/Kg
88-06-2	2,4,6-Trichlorophenol	235	U	15	470	ug/Kg
95-95-4	2,4,5-Trichlorophenol	235	U	33	470	ug/Kg
92-52-4	1,1-Biphenyl	235	U	18	470	ug/Kg
91-58-7	2-Chloronaphthalene	235	U	11	470	ug/Kg
88-74-4	2-Nitroaniline	235	U	21	470	ug/Kg
131-11-3	Dimethylphthalate	310	J	13	470	ug/Kg
208-96-8	Acenaphthylene	235	U	12	470	ug/Kg
606-20-2	2,6-Dinitrotoluene	235	U	19	470	ug/Kg
99-09-2	3-Nitroaniline	235	U	30	470	ug/Kg
83-32-9	Acenaphthene	235	U	13	470	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052601.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	235	U	48	470	ug/Kg
100-02-7	4-Nitrophenol	235	U	88	470	ug/Kg
132-64-9	Dibenzofuran	235	U	19	470	ug/Kg
121-14-2	2,4-Dinitrotoluene	235	U	14	470	ug/Kg
84-66-2	Diethylphthalate	235	U	7.4	470	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	235	U	26	470	ug/Kg
100-01-6	4-Nitroaniline	235	U	62	470	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	235	U	27	470	ug/Kg
86-30-6	N-Nitrosodiphenylamine	235	U	11	470	ug/Kg
101-55-3	4-Bromophenyl-phenylether	235	U	9.3	470	ug/Kg
118-74-1	Hexachlorobenzene	235	U	19	470	ug/Kg
1912-24-9	Atrazine	235	U	25	470	ug/Kg
87-86-5	Pentachlorophenol	235	U	32	470	ug/Kg
85-01-8	Phenanthrene	1100		13	470	ug/Kg
86-74-8	Carbazole	235	U	10	470	ug/Kg
84-74-2	Di-n-butylphthalate	235	U	37	470	ug/Kg
85-68-7	Butylbenzylphthalate	235	U	23	470	ug/Kg
91-94-1	3,3-Dichlorobenzidine	235	U	30	470	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	235	U	17	470	ug/Kg
117-84-0	Di-n-octyl phthalate	235	U	5.4	470	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	235	U	19	470	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	235	U	470	470	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	121		35 - 105	81%	SPK: 150
13127-88-3	Phenol-d5	134		40 - 100	90%	SPK: 150
4165-60-0	Nitrobenzene-d5	85.3		35 - 100	85%	SPK: 100
321-60-8	2-Fluorobiphenyl	83.6		45 - 105	84%	SPK: 100
118-79-6	2,4,6-Tribromophenol	134		35 - 125	90%	SPK: 150
1718-51-0	Terphenyl-d14	78.2		30 - 125	78%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	82946	4.03			
1146-65-2	Naphthalene-d8	331076	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052601.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	169626	8.11			
1517-22-2	Phenanthrene-d10	277409	10.16			
1719-03-5	Chrysene-d12	257885	13.45			
1520-96-3	Perylene-d12	255878	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052603.D	10	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	1900	U	200	3800	ug/Kg
108-95-2	Phenol	1900	U	88	3800	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	1900	U	180	3800	ug/Kg
95-57-8	2-Chlorophenol	1900	U	200	3800	ug/Kg
95-48-7	2-Methylphenol	1900	U	210	3800	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	1900	U	160	3800	ug/Kg
98-86-2	Acetophenone	1900	U	120	3800	ug/Kg
65794-96-9	3+4-Methylphenols	1900	U	200	3800	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	1900	U	190	3800	ug/Kg
67-72-1	Hexachloroethane	1900	U	170	3800	ug/Kg
98-95-3	Nitrobenzene	1900	U	140	3800	ug/Kg
78-59-1	Isophorone	1900	U	130	3800	ug/Kg
88-75-5	2-Nitrophenol	1900	U	180	3800	ug/Kg
105-67-9	2,4-Dimethylphenol	1900	U	220	3800	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	1900	U	220	3800	ug/Kg
120-83-2	2,4-Dichlorophenol	1900	U	150	3800	ug/Kg
106-47-8	4-Chloroaniline	1900	U	270	3800	ug/Kg
87-68-3	Hexachlorobutadiene	1900	U	140	3800	ug/Kg
105-60-2	Caprolactam	1900	U	180	3800	ug/Kg
59-50-7	4-Chloro-3-methylphenol	1900	U	170	3800	ug/Kg
77-47-4	Hexachlorocyclopentadiene	1900	U	93	3800	ug/Kg
88-06-2	2,4,6-Trichlorophenol	1900	U	120	3800	ug/Kg
95-95-4	2,4,5-Trichlorophenol	1900	U	270	3800	ug/Kg
92-52-4	1,1-Biphenyl	1900	U	140	3800	ug/Kg
91-58-7	2-Chloronaphthalene	1900	U	87	3800	ug/Kg
88-74-4	2-Nitroaniline	1900	U	170	3800	ug/Kg
131-11-3	Dimethylphthalate	1900	U	100	3800	ug/Kg
208-96-8	Acenaphthylene	1900	U	96	3800	ug/Kg
606-20-2	2,6-Dinitrotoluene	1900	U	160	3800	ug/Kg
99-09-2	3-Nitroaniline	1900	U	250	3800	ug/Kg
83-32-9	Acenaphthene	1800	J	110	3800	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052603.D	10	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	1900	U	390	3800	ug/Kg
100-02-7	4-Nitrophenol	1900	U	710	3800	ug/Kg
132-64-9	Dibenzofuran	1600	J	150	3800	ug/Kg
121-14-2	2,4-Dinitrotoluene	1900	U	120	3800	ug/Kg
84-66-2	Diethylphthalate	1900	U	60	3800	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	1900	U	210	3800	ug/Kg
100-01-6	4-Nitroaniline	1900	U	500	3800	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	1900	U	220	3800	ug/Kg
86-30-6	N-Nitrosodiphenylamine	1900	U	92	3800	ug/Kg
101-55-3	4-Bromophenyl-phenylether	1900	U	75	3800	ug/Kg
118-74-1	Hexachlorobenzene	1900	U	160	3800	ug/Kg
1912-24-9	Atrazine	1900	U	200	3800	ug/Kg
87-86-5	Pentachlorophenol	1900	U	260	3800	ug/Kg
85-01-8	Phenanthrene	12000		100	3800	ug/Kg
86-74-8	Carbazole	1900	U	84	3800	ug/Kg
84-74-2	Di-n-butylphthalate	1900	U	300	3800	ug/Kg
85-68-7	Butylbenzylphthalate	1900	U	180	3800	ug/Kg
91-94-1	3,3-Dichlorobenzidine	1900	U	250	3800	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	1900	U	140	3800	ug/Kg
117-84-0	Di-n-octyl phthalate	1900	U	44	3800	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	1900	U	150	3800	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	1900	U	3800	3800	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	169	*	35 - 105	113%	SPK: 150
13127-88-3	Phenol-d5	190	*	40 - 100	127%	SPK: 150
4165-60-0	Nitrobenzene-d5	115	*	35 - 100	115%	SPK: 100
321-60-8	2-Fluorobiphenyl	123	*	45 - 105	123%	SPK: 100
118-79-6	2,4,6-Tribromophenol	167		35 - 125	112%	SPK: 150
1718-51-0	Terphenyl-d14	115		30 - 125	116%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	106694	4.03			
1146-65-2	Naphthalene-d8	407095	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052603.D	10	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	209289	8.11			
1517-22-2	Phenanthrene-d10	343776	10.17			
1719-03-5	Chrysene-d12	311995	13.45			
1520-96-3	Perylene-d12	296056	15.05			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03RE	SDG No.:	C5017
Lab Sample ID:	C5017-15RE	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052638.D	10	12/19/11	01/03/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	1900	U	200	3800	ug/Kg
108-95-2	Phenol	1900	U	88	3800	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	1900	U	180	3800	ug/Kg
95-57-8	2-Chlorophenol	1900	U	200	3800	ug/Kg
95-48-7	2-Methylphenol	1900	U	210	3800	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	1900	U	160	3800	ug/Kg
98-86-2	Acetophenone	1900	U	120	3800	ug/Kg
65794-96-9	3+4-Methylphenols	1900	U	200	3800	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	1900	U	190	3800	ug/Kg
67-72-1	Hexachloroethane	1900	U	170	3800	ug/Kg
98-95-3	Nitrobenzene	1900	U	140	3800	ug/Kg
78-59-1	Isophorone	1900	U	130	3800	ug/Kg
88-75-5	2-Nitrophenol	1900	U	180	3800	ug/Kg
105-67-9	2,4-Dimethylphenol	1900	U	220	3800	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	1900	U	220	3800	ug/Kg
120-83-2	2,4-Dichlorophenol	1900	U	150	3800	ug/Kg
106-47-8	4-Chloroaniline	1900	U	270	3800	ug/Kg
87-68-3	Hexachlorobutadiene	1900	U	140	3800	ug/Kg
105-60-2	Caprolactam	1900	U	180	3800	ug/Kg
59-50-7	4-Chloro-3-methylphenol	1900	U	170	3800	ug/Kg
77-47-4	Hexachlorocyclopentadiene	1900	U	93	3800	ug/Kg
88-06-2	2,4,6-Trichlorophenol	1900	U	120	3800	ug/Kg
95-95-4	2,4,5-Trichlorophenol	1900	U	270	3800	ug/Kg
92-52-4	1,1-Biphenyl	1900	U	140	3800	ug/Kg
91-58-7	2-Chloronaphthalene	1900	U	87	3800	ug/Kg
88-74-4	2-Nitroaniline	1900	U	170	3800	ug/Kg
131-11-3	Dimethylphthalate	1900	U	100	3800	ug/Kg
208-96-8	Acenaphthylene	1900	U	96	3800	ug/Kg
606-20-2	2,6-Dinitrotoluene	1900	U	160	3800	ug/Kg
99-09-2	3-Nitroaniline	1900	U	250	3800	ug/Kg
83-32-9	Acenaphthene	1800	J	110	3800	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03RE	SDG No.:	C5017
Lab Sample ID:	C5017-15RE	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052638.D	10	12/19/11	01/03/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	1900	U	390	3800	ug/Kg
100-02-7	4-Nitrophenol	1900	U	710	3800	ug/Kg
132-64-9	Dibenzofuran	1500	J	150	3800	ug/Kg
121-14-2	2,4-Dinitrotoluene	1900	U	120	3800	ug/Kg
84-66-2	Diethylphthalate	1900	U	60	3800	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	1900	U	210	3800	ug/Kg
100-01-6	4-Nitroaniline	1900	U	500	3800	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	1900	U	220	3800	ug/Kg
86-30-6	N-Nitrosodiphenylamine	1900	U	92	3800	ug/Kg
101-55-3	4-Bromophenyl-phenylether	1900	U	75	3800	ug/Kg
118-74-1	Hexachlorobenzene	1900	U	160	3800	ug/Kg
1912-24-9	Atrazine	1900	U	200	3800	ug/Kg
87-86-5	Pentachlorophenol	1900	U	260	3800	ug/Kg
85-01-8	Phenanthrene	12000		100	3800	ug/Kg
86-74-8	Carbazole	1900	U	84	3800	ug/Kg
84-74-2	Di-n-butylphthalate	1900	U	300	3800	ug/Kg
85-68-7	Butylbenzylphthalate	1900	U	180	3800	ug/Kg
91-94-1	3,3-Dichlorobenzidine	1900	U	250	3800	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	1900	U	140	3800	ug/Kg
117-84-0	Di-n-octyl phthalate	1900	U	44	3800	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	1900	U	150	3800	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	1900	U	3800	3800	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	169	*	35 - 105	113%	SPK: 150
13127-88-3	Phenol-d5	188	*	40 - 100	126%	SPK: 150
4165-60-0	Nitrobenzene-d5	117	*	35 - 100	117%	SPK: 100
321-60-8	2-Fluorobiphenyl	124	*	45 - 105	124%	SPK: 100
118-79-6	2,4,6-Tribromophenol	144		35 - 125	96%	SPK: 150
1718-51-0	Terphenyl-d14	113		30 - 125	113%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	114942	4.01			
1146-65-2	Naphthalene-d8	432054	5.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03RE	SDG No.:	C5017
Lab Sample ID:	C5017-15RE	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052638.D	10	12/19/11	01/03/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	210699	8.09			
1517-22-2	Phenanthrene-d10	330845	10.14			
1719-03-5	Chrysene-d12	297442	13.43			
1520-96-3	Perylene-d12	278956	15.03			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052581.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.1	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	300	J	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052581.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	74	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	52	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	111		35 - 105	74%	SPK: 150
13127-88-3	Phenol-d5	123		40 - 100	82%	SPK: 150
4165-60-0	Nitrobenzene-d5	83.4		35 - 100	83%	SPK: 100
321-60-8	2-Fluorobiphenyl	79.7		45 - 105	80%	SPK: 100
118-79-6	2,4,6-Tribromophenol	119		35 - 125	80%	SPK: 150
1718-51-0	Terphenyl-d14	74		30 - 125	74%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	95171	4.03			
1146-65-2	Naphthalene-d8	365022	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052581.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	184360	8.11			
1517-22-2	Phenanthrene-d10	293259	10.16			
1719-03-5	Chrysene-d12	274603	13.44			
1520-96-3	Perylene-d12	252522	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052594.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	235	U	25	470	ug/Kg
108-95-2	Phenol	235	U	11	470	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	235	U	23	470	ug/Kg
95-57-8	2-Chlorophenol	235	U	25	470	ug/Kg
95-48-7	2-Methylphenol	235	U	26	470	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	235	U	20	470	ug/Kg
98-86-2	Acetophenone	235	U	15	470	ug/Kg
65794-96-9	3+4-Methylphenols	235	U	25	470	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	235	U	24	470	ug/Kg
67-72-1	Hexachloroethane	235	U	21	470	ug/Kg
98-95-3	Nitrobenzene	235	U	18	470	ug/Kg
78-59-1	Isophorone	235	U	16	470	ug/Kg
88-75-5	2-Nitrophenol	235	U	23	470	ug/Kg
105-67-9	2,4-Dimethylphenol	235	U	27	470	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	235	U	27	470	ug/Kg
120-83-2	2,4-Dichlorophenol	235	U	18	470	ug/Kg
106-47-8	4-Chloroaniline	235	U	33	470	ug/Kg
87-68-3	Hexachlorobutadiene	235	U	17	470	ug/Kg
105-60-2	Caprolactam	235	U	22	470	ug/Kg
59-50-7	4-Chloro-3-methylphenol	235	U	21	470	ug/Kg
77-47-4	Hexachlorocyclopentadiene	235	U	12	470	ug/Kg
88-06-2	2,4,6-Trichlorophenol	235	U	15	470	ug/Kg
95-95-4	2,4,5-Trichlorophenol	235	U	33	470	ug/Kg
92-52-4	1,1-Biphenyl	235	U	18	470	ug/Kg
91-58-7	2-Chloronaphthalene	235	U	11	470	ug/Kg
88-74-4	2-Nitroaniline	235	U	21	470	ug/Kg
131-11-3	Dimethylphthalate	400	J	13	470	ug/Kg
208-96-8	Acenaphthylene	235	U	12	470	ug/Kg
606-20-2	2,6-Dinitrotoluene	235	U	19	470	ug/Kg
99-09-2	3-Nitroaniline	235	U	30	470	ug/Kg
83-32-9	Acenaphthene	235	U	13	470	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052594.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	235	U	48	470	ug/Kg
100-02-7	4-Nitrophenol	235	U	88	470	ug/Kg
132-64-9	Dibenzofuran	235	U	19	470	ug/Kg
121-14-2	2,4-Dinitrotoluene	235	U	14	470	ug/Kg
84-66-2	Diethylphthalate	235	U	7.4	470	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	235	U	26	470	ug/Kg
100-01-6	4-Nitroaniline	235	U	62	470	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	235	U	27	470	ug/Kg
86-30-6	N-Nitrosodiphenylamine	235	U	11	470	ug/Kg
101-55-3	4-Bromophenyl-phenylether	235	U	9.3	470	ug/Kg
118-74-1	Hexachlorobenzene	235	U	19	470	ug/Kg
1912-24-9	Atrazine	235	U	25	470	ug/Kg
87-86-5	Pentachlorophenol	235	U	32	470	ug/Kg
85-01-8	Phenanthrene	235	U	13	470	ug/Kg
86-74-8	Carbazole	235	U	10	470	ug/Kg
84-74-2	Di-n-butylphthalate	235	U	37	470	ug/Kg
85-68-7	Butylbenzylphthalate	235	U	23	470	ug/Kg
91-94-1	3,3-Dichlorobenzidine	235	U	30	470	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	235	U	17	470	ug/Kg
117-84-0	Di-n-octyl phthalate	235	U	5.4	470	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	235	U	19	470	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	235	U	470	470	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	105		35 - 105	70%	SPK: 150
13127-88-3	Phenol-d5	115		40 - 100	77%	SPK: 150
4165-60-0	Nitrobenzene-d5	78		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	68.8		45 - 105	69%	SPK: 100
118-79-6	2,4,6-Tribromophenol	108		35 - 125	72%	SPK: 150
1718-51-0	Terphenyl-d14	65.7		30 - 125	66%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	96457	4.03			
1146-65-2	Naphthalene-d8	358788	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052594.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	180593	8.11			
1517-22-2	Phenanthrene-d10	291445	10.16			
1719-03-5	Chrysene-d12	271370	13.45			
1520-96-3	Perylene-d12	245447	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052597.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.2	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	22	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	270	J	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052597.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	74	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	22	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	52	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	97.2		35 - 105	65%	SPK: 150
13127-88-3	Phenol-d5	108		40 - 100	72%	SPK: 150
4165-60-0	Nitrobenzene-d5	72		35 - 100	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.6		45 - 105	70%	SPK: 100
118-79-6	2,4,6-Tribromophenol	103		35 - 125	69%	SPK: 150
1718-51-0	Terphenyl-d14	64.1		30 - 125	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	96284	4.03			
1146-65-2	Naphthalene-d8	375199	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052597.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	191343	8.11			
1517-22-2	Phenanthrene-d10	308355	10.16			
1719-03-5	Chrysene-d12	291288	13.44			
1520-96-3	Perylene-d12	268619	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052607.D	1	12/19/11	01/02/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	190	U	20	380	ug/Kg
108-95-2	Phenol	190	U	8.9	380	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	190	U	19	380	ug/Kg
95-57-8	2-Chlorophenol	190	U	20	380	ug/Kg
95-48-7	2-Methylphenol	190	U	21	380	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	190	U	16	380	ug/Kg
98-86-2	Acetophenone	190	U	12	380	ug/Kg
65794-96-9	3+4-Methylphenols	190	U	20	380	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	190	U	19	380	ug/Kg
67-72-1	Hexachloroethane	190	U	17	380	ug/Kg
98-95-3	Nitrobenzene	190	U	15	380	ug/Kg
78-59-1	Isophorone	190	U	13	380	ug/Kg
88-75-5	2-Nitrophenol	190	U	19	380	ug/Kg
105-67-9	2,4-Dimethylphenol	190	U	22	380	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	190	U	22	380	ug/Kg
120-83-2	2,4-Dichlorophenol	190	U	15	380	ug/Kg
106-47-8	4-Chloroaniline	190	U	27	380	ug/Kg
87-68-3	Hexachlorobutadiene	190	U	14	380	ug/Kg
105-60-2	Caprolactam	190	U	18	380	ug/Kg
59-50-7	4-Chloro-3-methylphenol	190	U	17	380	ug/Kg
77-47-4	Hexachlorocyclopentadiene	190	U	9.4	380	ug/Kg
88-06-2	2,4,6-Trichlorophenol	190	U	12	380	ug/Kg
95-95-4	2,4,5-Trichlorophenol	190	U	27	380	ug/Kg
92-52-4	1,1-Biphenyl	190	U	15	380	ug/Kg
91-58-7	2-Chloronaphthalene	190	U	8.8	380	ug/Kg
88-74-4	2-Nitroaniline	190	U	17	380	ug/Kg
131-11-3	Dimethylphthalate	390		10	380	ug/Kg
208-96-8	Acenaphthylene	190	U	9.7	380	ug/Kg
606-20-2	2,6-Dinitrotoluene	190	U	16	380	ug/Kg
99-09-2	3-Nitroaniline	190	U	25	380	ug/Kg
83-32-9	Acenaphthene	310	J	11	380	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052607.D	1	12/19/11	01/02/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	190	U	39	380	ug/Kg
100-02-7	4-Nitrophenol	190	U	72	380	ug/Kg
132-64-9	Dibenzofuran	310	J	15	380	ug/Kg
121-14-2	2,4-Dinitrotoluene	190	U	12	380	ug/Kg
84-66-2	Diethylphthalate	190	U	6	380	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	190	U	21	380	ug/Kg
100-01-6	4-Nitroaniline	190	U	50	380	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	190	U	22	380	ug/Kg
86-30-6	N-Nitrosodiphenylamine	190	U	9.3	380	ug/Kg
101-55-3	4-Bromophenyl-phenylether	190	U	7.5	380	ug/Kg
118-74-1	Hexachlorobenzene	190	U	16	380	ug/Kg
1912-24-9	Atrazine	190	U	20	380	ug/Kg
87-86-5	Pentachlorophenol	190	U	26	380	ug/Kg
85-01-8	Phenanthrene	3900	E	10	380	ug/Kg
86-74-8	Carbazole	430		8.5	380	ug/Kg
84-74-2	Di-n-butylphthalate	190	U	30	380	ug/Kg
85-68-7	Butylbenzylphthalate	190	U	19	380	ug/Kg
91-94-1	3,3-Dichlorobenzidine	190	U	25	380	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	190	U	14	380	ug/Kg
117-84-0	Di-n-octyl phthalate	190	U	4.4	380	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U	15	380	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	190	U	380	380	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	95.9		35 - 105	64%	SPK: 150
13127-88-3	Phenol-d5	108		40 - 100	72%	SPK: 150
4165-60-0	Nitrobenzene-d5	73.2		35 - 100	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	72.2		45 - 105	72%	SPK: 100
118-79-6	2,4,6-Tribromophenol	104		35 - 125	69%	SPK: 150
1718-51-0	Terphenyl-d14	72.8		30 - 125	73%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	104110	4.03			
1146-65-2	Naphthalene-d8	398843	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052607.D	1	12/19/11	01/02/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	201652	8.11			
1517-22-2	Phenanthrene-d10	328744	10.17			
1719-03-5	Chrysene-d12	267555	13.46			
1520-96-3	Perylene-d12	290459	15.06			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-20DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052640.D	5	12/19/11	01/04/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	950	UD	100	1900	ug/Kg
108-95-2	Phenol	950	UD	45	1900	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	950	UD	93	1900	ug/Kg
95-57-8	2-Chlorophenol	950	UD	100	1900	ug/Kg
95-48-7	2-Methylphenol	950	UD	110	1900	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	950	UD	80	1900	ug/Kg
98-86-2	Acetophenone	950	UD	59	1900	ug/Kg
65794-96-9	3+4-Methylphenols	950	UD	100	1900	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	950	UD	97	1900	ug/Kg
67-72-1	Hexachloroethane	950	UD	86	1900	ug/Kg
98-95-3	Nitrobenzene	950	UD	73	1900	ug/Kg
78-59-1	Isophorone	950	UD	64	1900	ug/Kg
88-75-5	2-Nitrophenol	950	UD	93	1900	ug/Kg
105-67-9	2,4-Dimethylphenol	950	UD	110	1900	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	950	UD	110	1900	ug/Kg
120-83-2	2,4-Dichlorophenol	950	UD	74	1900	ug/Kg
106-47-8	4-Chloroaniline	950	UD	140	1900	ug/Kg
87-68-3	Hexachlorobutadiene	950	UD	70	1900	ug/Kg
105-60-2	Caprolactam	950	UD	90	1900	ug/Kg
59-50-7	4-Chloro-3-methylphenol	950	UD	86	1900	ug/Kg
77-47-4	Hexachlorocyclopentadiene	950	UD	47	1900	ug/Kg
88-06-2	2,4,6-Trichlorophenol	950	UD	59	1900	ug/Kg
95-95-4	2,4,5-Trichlorophenol	950	UD	140	1900	ug/Kg
92-52-4	1,1-Biphenyl	950	UD	73	1900	ug/Kg
91-58-7	2-Chloronaphthalene	950	UD	44	1900	ug/Kg
88-74-4	2-Nitroaniline	950	UD	86	1900	ug/Kg
131-11-3	Dimethylphthalate	950	UD	52	1900	ug/Kg
208-96-8	Acenaphthylene	950	UD	49	1900	ug/Kg
606-20-2	2,6-Dinitrotoluene	950	UD	79	1900	ug/Kg
99-09-2	3-Nitroaniline	950	UD	120	1900	ug/Kg
83-32-9	Acenaphthene	950	UD	55	1900	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-20DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052640.D	5	12/19/11	01/04/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	950	UD	200	1900	ug/Kg
100-02-7	4-Nitrophenol	950	UD	360	1900	ug/Kg
132-64-9	Dibenzofuran	950	UD	75	1900	ug/Kg
121-14-2	2,4-Dinitrotoluene	950	UD	59	1900	ug/Kg
84-66-2	Diethylphthalate	950	UD	30	1900	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	950	UD	110	1900	ug/Kg
100-01-6	4-Nitroaniline	950	UD	250	1900	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	950	UD	110	1900	ug/Kg
86-30-6	N-Nitrosodiphenylamine	950	UD	46	1900	ug/Kg
101-55-3	4-Bromophenyl-phenylether	950	UD	38	1900	ug/Kg
118-74-1	Hexachlorobenzene	950	UD	79	1900	ug/Kg
1912-24-9	Atrazine	950	UD	100	1900	ug/Kg
87-86-5	Pentachlorophenol	950	UD	130	1900	ug/Kg
85-01-8	Phenanthrene	7100	D	52	1900	ug/Kg
86-74-8	Carbazole	950	UD	42	1900	ug/Kg
84-74-2	Di-n-butylphthalate	950	UD	150	1900	ug/Kg
85-68-7	Butylbenzylphthalate	950	UD	93	1900	ug/Kg
91-94-1	3,3-Dichlorobenzidine	950	UD	120	1900	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	950	UD	68	1900	ug/Kg
117-84-0	Di-n-octyl phthalate	950	UD	22	1900	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	950	UD	76	1900	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	950	UD	1900	1900	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	139		35 - 105	93%	SPK: 150
13127-88-3	Phenol-d5	162	*	40 - 100	109%	SPK: 150
4165-60-0	Nitrobenzene-d5	106	*	35 - 100	107%	SPK: 100
321-60-8	2-Fluorobiphenyl	111	*	45 - 105	112%	SPK: 100
118-79-6	2,4,6-Tribromophenol	128		35 - 125	86%	SPK: 150
1718-51-0	Terphenyl-d14	104		30 - 125	104%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	106086	4.01			
1146-65-2	Naphthalene-d8	391979	5.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-20DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052640.D	5	12/19/11	01/04/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	191719	8.09			
1517-22-2	Phenanthrene-d10	298599	10.14			
1719-03-5	Chrysene-d12	264423	13.43			
1520-96-3	Perylene-d12	252538	15.03			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052582.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	190	U	20	380	ug/Kg
108-95-2	Phenol	190	U	8.9	380	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	190	U	19	380	ug/Kg
95-57-8	2-Chlorophenol	190	U	20	380	ug/Kg
95-48-7	2-Methylphenol	190	U	21	380	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	190	U	16	380	ug/Kg
98-86-2	Acetophenone	190	U	12	380	ug/Kg
65794-96-9	3+4-Methylphenols	190	U	20	380	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	190	U	20	380	ug/Kg
67-72-1	Hexachloroethane	190	U	17	380	ug/Kg
98-95-3	Nitrobenzene	190	U	15	380	ug/Kg
78-59-1	Isophorone	190	U	13	380	ug/Kg
88-75-5	2-Nitrophenol	190	U	19	380	ug/Kg
105-67-9	2,4-Dimethylphenol	190	U	22	380	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	190	U	22	380	ug/Kg
120-83-2	2,4-Dichlorophenol	190	U	15	380	ug/Kg
106-47-8	4-Chloroaniline	190	U	27	380	ug/Kg
87-68-3	Hexachlorobutadiene	190	U	14	380	ug/Kg
105-60-2	Caprolactam	190	U	18	380	ug/Kg
59-50-7	4-Chloro-3-methylphenol	190	U	17	380	ug/Kg
77-47-4	Hexachlorocyclopentadiene	190	U	9.4	380	ug/Kg
88-06-2	2,4,6-Trichlorophenol	190	U	12	380	ug/Kg
95-95-4	2,4,5-Trichlorophenol	190	U	27	380	ug/Kg
92-52-4	1,1-Biphenyl	190	U	15	380	ug/Kg
91-58-7	2-Chloronaphthalene	190	U	8.8	380	ug/Kg
88-74-4	2-Nitroaniline	190	U	17	380	ug/Kg
131-11-3	Dimethylphthalate	190	U	10	380	ug/Kg
208-96-8	Acenaphthylene	190	U	9.8	380	ug/Kg
606-20-2	2,6-Dinitrotoluene	190	U	16	380	ug/Kg
99-09-2	3-Nitroaniline	190	U	25	380	ug/Kg
83-32-9	Acenaphthene	190	U	11	380	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052582.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	190	U	39	380	ug/Kg
100-02-7	4-Nitrophenol	190	U	72	380	ug/Kg
132-64-9	Dibenzofuran	190	U	15	380	ug/Kg
121-14-2	2,4-Dinitrotoluene	190	U	12	380	ug/Kg
84-66-2	Diethylphthalate	190	U	6	380	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	190	U	21	380	ug/Kg
100-01-6	4-Nitroaniline	190	U	50	380	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	190	U	22	380	ug/Kg
86-30-6	N-Nitrosodiphenylamine	190	U	9.3	380	ug/Kg
101-55-3	4-Bromophenyl-phenylether	190	U	7.6	380	ug/Kg
118-74-1	Hexachlorobenzene	190	U	16	380	ug/Kg
1912-24-9	Atrazine	190	U	20	380	ug/Kg
87-86-5	Pentachlorophenol	190	U	26	380	ug/Kg
85-01-8	Phenanthrene	190	U	10	380	ug/Kg
86-74-8	Carbazole	190	U	8.5	380	ug/Kg
84-74-2	Di-n-butylphthalate	190	U	30	380	ug/Kg
85-68-7	Butylbenzylphthalate	190	U	19	380	ug/Kg
91-94-1	3,3-Dichlorobenzidine	190	U	25	380	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	190	U	14	380	ug/Kg
117-84-0	Di-n-octyl phthalate	190	U	4.4	380	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U	15	380	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	190	U	380	380	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	117		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	133		40 - 100	89%	SPK: 150
4165-60-0	Nitrobenzene-d5	87		35 - 100	87%	SPK: 100
321-60-8	2-Fluorobiphenyl	85.2		45 - 105	85%	SPK: 100
118-79-6	2,4,6-Tribromophenol	113		35 - 125	76%	SPK: 150
1718-51-0	Terphenyl-d14	79.4		30 - 125	79%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	91200	4.03			
1146-65-2	Naphthalene-d8	356697	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052582.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	178971	8.11			
1517-22-2	Phenanthrene-d10	285771	10.16			
1719-03-5	Chrysene-d12	263309	13.44			
1520-96-3	Perylene-d12	235411	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052605.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	20	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	29	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.3	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	540		11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052605.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.8	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	20	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	134		35 - 105	90%	SPK: 150
13127-88-3	Phenol-d5	149		40 - 100	100%	SPK: 150
4165-60-0	Nitrobenzene-d5	99.5		35 - 100	99%	SPK: 100
321-60-8	2-Fluorobiphenyl	96.6		45 - 105	97%	SPK: 100
118-79-6	2,4,6-Tribromophenol	150		35 - 125	100%	SPK: 150
1718-51-0	Terphenyl-d14	86.4		30 - 125	86%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	84109	4.03			
1146-65-2	Naphthalene-d8	324005	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052605.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	164060	8.11			
1517-22-2	Phenanthrene-d10	272513	10.16			
1719-03-5	Chrysene-d12	262381	13.44			
1520-96-3	Perylene-d12	236336	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052604.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	245	U	26	490	ug/Kg
108-95-2	Phenol	245	U	11	490	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	245	U	24	490	ug/Kg
95-57-8	2-Chlorophenol	245	U	26	490	ug/Kg
95-48-7	2-Methylphenol	245	U	27	490	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	245	U	21	490	ug/Kg
98-86-2	Acetophenone	245	U	15	490	ug/Kg
65794-96-9	3+4-Methylphenols	245	U	26	490	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	245	U	25	490	ug/Kg
67-72-1	Hexachloroethane	245	U	22	490	ug/Kg
98-95-3	Nitrobenzene	245	U	19	490	ug/Kg
78-59-1	Isophorone	245	U	16	490	ug/Kg
88-75-5	2-Nitrophenol	245	U	24	490	ug/Kg
105-67-9	2,4-Dimethylphenol	245	U	28	490	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	245	U	29	490	ug/Kg
120-83-2	2,4-Dichlorophenol	245	U	19	490	ug/Kg
106-47-8	4-Chloroaniline	245	U	35	490	ug/Kg
87-68-3	Hexachlorobutadiene	245	U	18	490	ug/Kg
105-60-2	Caprolactam	245	U	23	490	ug/Kg
59-50-7	4-Chloro-3-methylphenol	245	U	22	490	ug/Kg
77-47-4	Hexachlorocyclopentadiene	245	U	12	490	ug/Kg
88-06-2	2,4,6-Trichlorophenol	245	U	15	490	ug/Kg
95-95-4	2,4,5-Trichlorophenol	245	U	35	490	ug/Kg
92-52-4	1,1-Biphenyl	245	U	19	490	ug/Kg
91-58-7	2-Chloronaphthalene	245	U	11	490	ug/Kg
88-74-4	2-Nitroaniline	245	U	22	490	ug/Kg
131-11-3	Dimethylphthalate	270	J	13	490	ug/Kg
208-96-8	Acenaphthylene	245	U	13	490	ug/Kg
606-20-2	2,6-Dinitrotoluene	245	U	20	490	ug/Kg
99-09-2	3-Nitroaniline	245	U	32	490	ug/Kg
83-32-9	Acenaphthene	245	U	14	490	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052604.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	245	U	51	490	ug/Kg
100-02-7	4-Nitrophenol	245	U	92	490	ug/Kg
132-64-9	Dibenzofuran	245	U	19	490	ug/Kg
121-14-2	2,4-Dinitrotoluene	245	U	15	490	ug/Kg
84-66-2	Diethylphthalate	245	U	7.7	490	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	245	U	27	490	ug/Kg
100-01-6	4-Nitroaniline	245	U	65	490	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	245	U	28	490	ug/Kg
86-30-6	N-Nitrosodiphenylamine	245	U	12	490	ug/Kg
101-55-3	4-Bromophenyl-phenylether	245	U	9.7	490	ug/Kg
118-74-1	Hexachlorobenzene	245	U	20	490	ug/Kg
1912-24-9	Atrazine	245	U	26	490	ug/Kg
87-86-5	Pentachlorophenol	245	U	34	490	ug/Kg
85-01-8	Phenanthrene	245	U	13	490	ug/Kg
86-74-8	Carbazole	245	U	11	490	ug/Kg
84-74-2	Di-n-butylphthalate	245	U	39	490	ug/Kg
85-68-7	Butylbenzylphthalate	245	U	24	490	ug/Kg
91-94-1	3,3-Dichlorobenzidine	245	U	32	490	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	245	U	18	490	ug/Kg
117-84-0	Di-n-octyl phthalate	245	U	5.7	490	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	245	U	20	490	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	245	U	490	490	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	93.7		35 - 105	62%	SPK: 150
13127-88-3	Phenol-d5	102		40 - 100	68%	SPK: 150
4165-60-0	Nitrobenzene-d5	68		35 - 100	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.5		45 - 105	66%	SPK: 100
118-79-6	2,4,6-Tribromophenol	95.2		35 - 125	64%	SPK: 150
1718-51-0	Terphenyl-d14	60.3		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	106115	4.03			
1146-65-2	Naphthalene-d8	407011	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052604.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	208833	8.11			
1517-22-2	Phenanthrene-d10	338370	10.16			
1719-03-5	Chrysene-d12	316264	13.45			
1520-96-3	Perylene-d12	283594	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052583.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.3	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	280	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052583.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	93.6		35 - 105	62%	SPK: 150
13127-88-3	Phenol-d5	102		40 - 100	68%	SPK: 150
4165-60-0	Nitrobenzene-d5	68.3		35 - 100	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.4		45 - 105	69%	SPK: 100
118-79-6	2,4,6-Tribromophenol	97.3		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	64.5		30 - 125	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	102547	4.03			
1146-65-2	Naphthalene-d8	394590	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052583.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	195168	8.11			
1517-22-2	Phenanthrene-d10	317527	10.16			
1719-03-5	Chrysene-d12	286348	13.44			
1520-96-3	Perylene-d12	267298	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052578.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.1	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	390		11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052578.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	73	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	52	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	106		35 - 105	71%	SPK: 150
13127-88-3	Phenol-d5	117		40 - 100	78%	SPK: 150
4165-60-0	Nitrobenzene-d5	79.5		35 - 100	80%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.6		45 - 105	75%	SPK: 100
118-79-6	2,4,6-Tribromophenol	109		35 - 125	73%	SPK: 150
1718-51-0	Terphenyl-d14	72		30 - 125	72%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	97613	4.03			
1146-65-2	Naphthalene-d8	379794	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052578.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	189964	8.11			
1517-22-2	Phenanthrene-d10	298365	10.16			
1719-03-5	Chrysene-d12	277417	13.44			
1520-96-3	Perylene-d12	249724	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052593.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	255	U	27	510	ug/Kg
108-95-2	Phenol	255	U	12	510	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	255	U	25	510	ug/Kg
95-57-8	2-Chlorophenol	255	U	27	510	ug/Kg
95-48-7	2-Methylphenol	255	U	28	510	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	255	U	21	510	ug/Kg
98-86-2	Acetophenone	255	U	16	510	ug/Kg
65794-96-9	3+4-Methylphenols	255	U	27	510	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	255	U	26	510	ug/Kg
67-72-1	Hexachloroethane	255	U	23	510	ug/Kg
98-95-3	Nitrobenzene	255	U	19	510	ug/Kg
78-59-1	Isophorone	255	U	17	510	ug/Kg
88-75-5	2-Nitrophenol	255	U	25	510	ug/Kg
105-67-9	2,4-Dimethylphenol	255	U	29	510	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	255	U	29	510	ug/Kg
120-83-2	2,4-Dichlorophenol	255	U	20	510	ug/Kg
106-47-8	4-Chloroaniline	255	U	36	510	ug/Kg
87-68-3	Hexachlorobutadiene	255	U	19	510	ug/Kg
105-60-2	Caprolactam	255	U	24	510	ug/Kg
59-50-7	4-Chloro-3-methylphenol	255	U	23	510	ug/Kg
77-47-4	Hexachlorocyclopentadiene	255	U	12	510	ug/Kg
88-06-2	2,4,6-Trichlorophenol	255	U	16	510	ug/Kg
95-95-4	2,4,5-Trichlorophenol	255	U	36	510	ug/Kg
92-52-4	1,1-Biphenyl	255	U	19	510	ug/Kg
91-58-7	2-Chloronaphthalene	255	U	12	510	ug/Kg
88-74-4	2-Nitroaniline	255	U	23	510	ug/Kg
131-11-3	Dimethylphthalate	450	J	14	510	ug/Kg
208-96-8	Acenaphthylene	255	U	13	510	ug/Kg
606-20-2	2,6-Dinitrotoluene	255	U	21	510	ug/Kg
99-09-2	3-Nitroaniline	255	U	33	510	ug/Kg
83-32-9	Acenaphthene	255	U	14	510	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052593.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	255	U	52	510	ug/Kg
100-02-7	4-Nitrophenol	255	U	95	510	ug/Kg
132-64-9	Dibenzofuran	255	U	20	510	ug/Kg
121-14-2	2,4-Dinitrotoluene	255	U	16	510	ug/Kg
84-66-2	Diethylphthalate	255	U	8	510	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	255	U	28	510	ug/Kg
100-01-6	4-Nitroaniline	255	U	67	510	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	255	U	29	510	ug/Kg
86-30-6	N-Nitrosodiphenylamine	255	U	12	510	ug/Kg
101-55-3	4-Bromophenyl-phenylether	255	U	10	510	ug/Kg
118-74-1	Hexachlorobenzene	255	U	21	510	ug/Kg
1912-24-9	Atrazine	255	U	27	510	ug/Kg
87-86-5	Pentachlorophenol	255	U	35	510	ug/Kg
85-01-8	Phenanthrene	255	U	14	510	ug/Kg
86-74-8	Carbazole	255	U	11	510	ug/Kg
84-74-2	Di-n-butylphthalate	255	U	40	510	ug/Kg
85-68-7	Butylbenzylphthalate	255	U	25	510	ug/Kg
91-94-1	3,3-Dichlorobenzidine	255	U	33	510	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	255	U	18	510	ug/Kg
117-84-0	Di-n-octyl phthalate	255	U	5.8	510	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	255	U	20	510	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	255	U	510	510	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	101		35 - 105	68%	SPK: 150
13127-88-3	Phenol-d5	111		40 - 100	74%	SPK: 150
4165-60-0	Nitrobenzene-d5	76.6		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	64.8		45 - 105	65%	SPK: 100
118-79-6	2,4,6-Tribromophenol	105		35 - 125	70%	SPK: 150
1718-51-0	Terphenyl-d14	58.2		30 - 125	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	92207	4.03			
1146-65-2	Naphthalene-d8	353294	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052593.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	179578	8.11			
1517-22-2	Phenanthrene-d10	290590	10.16			
1719-03-5	Chrysene-d12	277418	13.44			
1520-96-3	Perylene-d12	247997	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052579.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	340	J	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052579.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	106		35 - 105	71%	SPK: 150
13127-88-3	Phenol-d5	117		40 - 100	78%	SPK: 150
4165-60-0	Nitrobenzene-d5	77		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	72.2		45 - 105	72%	SPK: 100
118-79-6	2,4,6-Tribromophenol	109		35 - 125	73%	SPK: 150
1718-51-0	Terphenyl-d14	70.2		30 - 125	70%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	97090	4.03			
1146-65-2	Naphthalene-d8	375262	5.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052579.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	187786	8.11			
1517-22-2	Phenanthrene-d10	303294	10.16			
1719-03-5	Chrysene-d12	283194	13.44			
1520-96-3	Perylene-d12	258828	15.04			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002581.D	1	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.45	U	0.6	4.9	ug/Kg
91-57-6	2-Methylnaphthalene	2.45	U	0.6	4.9	ug/Kg
208-96-8	Acenaphthylene	3.5	J	0.6	4.9	ug/Kg
83-32-9	Acenaphthene	5.5		0.6	4.9	ug/Kg
86-73-7	Fluorene	7.5		0.6	4.9	ug/Kg
85-01-8	Phenanthrene	100		0.6	4.9	ug/Kg
120-12-7	Anthracene	18		0.6	4.9	ug/Kg
206-44-0	Fluoranthene	200		0.6	4.9	ug/Kg
129-00-0	Pyrene	140		0.6	4.9	ug/Kg
56-55-3	Benzo(a)anthracene	72		0.6	4.9	ug/Kg
218-01-9	Chrysene	79		0.6	4.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	83		0.6	4.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	31		0.6	4.9	ug/Kg
50-32-8	Benzo(a)pyrene	59		0.6	4.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	29		0.6	4.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	3	J	0.6	4.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	26		0.6	4.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	69.9		30 - 150	70%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.6		45 - 105	56%	SPK: 100
1718-51-0	Terphenyl-d14	53.2		30 - 125	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	61409	7.92			
1146-65-2	Naphthalene-d8	215224	10.1			
15067-26-2	Acenaphthene-d10	131481	13.08			
1517-22-2	Phenanthrene-d10	220123	15.53			
1719-03-5	Chrysene-d12	234563	19.9			
1520-96-3	Perylene-d12	215782	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002581.D	1	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002467.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	2	U	0.49	4	ug/Kg
85-01-8	Phenanthrene	4.1		0.49	4	ug/Kg
120-12-7	Anthracene	2	U	0.49	4	ug/Kg
206-44-0	Fluoranthene	5.7		0.49	4	ug/Kg
129-00-0	Pyrene	4.1		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2.4	J	0.49	4	ug/Kg
218-01-9	Chrysene	2	J	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	3.2	J	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	J	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	71.1		30 - 150	71%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.9		45 - 105	52%	SPK: 100
1718-51-0	Terphenyl-d14	54.3		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	58674	7.99			
1146-65-2	Naphthalene-d8	210117	10.16			
15067-26-2	Acenaphthene-d10	134395	13.14			
1517-22-2	Phenanthrene-d10	227020	15.59			
1719-03-5	Chrysene-d12	225528	19.96			
1520-96-3	Perylene-d12	208903	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002467.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002501.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.5	J	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	9		0.49	4.1	ug/Kg
83-32-9	Acenaphthene	9		0.49	4.1	ug/Kg
86-73-7	Fluorene	23		0.49	4.1	ug/Kg
85-01-8	Phenanthrene	290		0.49	4.1	ug/Kg
120-12-7	Anthracene	31		0.49	4.1	ug/Kg
206-44-0	Fluoranthene	440		0.49	4.1	ug/Kg
129-00-0	Pyrene	300		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	110		0.49	4.1	ug/Kg
218-01-9	Chrysene	150		0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	170		0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	63		0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	120		0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	95		0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	6.6		0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	79		0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	64.5		30 - 150	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	45.6		45 - 105	46%	SPK: 100
1718-51-0	Terphenyl-d14	50		30 - 125	50%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	75075	7.97			
1146-65-2	Naphthalene-d8	271257	10.15			
15067-26-2	Acenaphthene-d10	173071	13.12			
1517-22-2	Phenanthrene-d10	307799	15.57			
1719-03-5	Chrysene-d12	305065	19.95			
1520-96-3	Perylene-d12	278360	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002501.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002500.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.45	U	0.6	4.9	ug/Kg
91-57-6	2-Methylnaphthalene	2.45	U	0.6	4.9	ug/Kg
208-96-8	Acenaphthylene	2.45	U	0.6	4.9	ug/Kg
83-32-9	Acenaphthene	2.45	U	0.6	4.9	ug/Kg
86-73-7	Fluorene	2.45	U	0.6	4.9	ug/Kg
85-01-8	Phenanthrene	19		0.6	4.9	ug/Kg
120-12-7	Anthracene	3	J	0.6	4.9	ug/Kg
206-44-0	Fluoranthene	42		0.6	4.9	ug/Kg
129-00-0	Pyrene	32		0.6	4.9	ug/Kg
56-55-3	Benzo(a)anthracene	16		0.6	4.9	ug/Kg
218-01-9	Chrysene	16		0.6	4.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	19		0.6	4.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	8		0.6	4.9	ug/Kg
50-32-8	Benzo(a)pyrene	14		0.6	4.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	9.4		0.6	4.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.45	U	0.6	4.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	8.5		0.6	4.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	64		30 - 150	64%	SPK: 100
321-60-8	2-Fluorobiphenyl	47.8		45 - 105	48%	SPK: 100
1718-51-0	Terphenyl-d14	51.2		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	65210	7.97			
1146-65-2	Naphthalene-d8	245039	10.15			
15067-26-2	Acenaphthene-d10	157027	13.12			
1517-22-2	Phenanthrene-d10	276139	15.57			
1719-03-5	Chrysene-d12	268643	19.95			
1520-96-3	Perylene-d12	247179	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002500.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002498.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.48	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.48	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.48	3.9	ug/Kg
83-32-9	Acenaphthene	3.6	J	0.48	3.9	ug/Kg
86-73-7	Fluorene	7.9		0.48	3.9	ug/Kg
85-01-8	Phenanthrene	95		0.48	3.9	ug/Kg
120-12-7	Anthracene	6.7		0.48	3.9	ug/Kg
206-44-0	Fluoranthene	140		0.48	3.9	ug/Kg
129-00-0	Pyrene	95		0.48	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	33		0.48	3.9	ug/Kg
218-01-9	Chrysene	48		0.48	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	54		0.48	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	21		0.48	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	36		0.48	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	24		0.48	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.48	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	24		0.48	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	62.3		30 - 150	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	47.2		45 - 105	47%	SPK: 100
1718-51-0	Terphenyl-d14	50.7		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	69064	7.97			
1146-65-2	Naphthalene-d8	248855	10.15			
15067-26-2	Acenaphthene-d10	155244	13.12			
1517-22-2	Phenanthrene-d10	277026	15.57			
1719-03-5	Chrysene-d12	284618	19.95			
1520-96-3	Perylene-d12	252870	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002498.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002502.D	5	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	620		2.3	19	ug/Kg
91-57-6	2-Methylnaphthalene	990		2.3	19	ug/Kg
208-96-8	Acenaphthylene	260		2.3	19	ug/Kg
83-32-9	Acenaphthene	1900		2.3	19	ug/Kg
86-73-7	Fluorene	3300		2.3	19	ug/Kg
85-01-8	Phenanthrene	13000	E	2.3	19	ug/Kg
120-12-7	Anthracene	5000	E	2.3	19	ug/Kg
206-44-0	Fluoranthene	12000	E	2.3	19	ug/Kg
129-00-0	Pyrene	9500	E	2.3	19	ug/Kg
56-55-3	Benzo(a)anthracene	5400	E	2.3	19	ug/Kg
218-01-9	Chrysene	5000	E	2.3	19	ug/Kg
205-99-2	Benzo(b)fluoranthene	5700	E	2.3	19	ug/Kg
207-08-9	Benzo(k)fluoranthene	2200		2.3	19	ug/Kg
50-32-8	Benzo(a)pyrene	4600		2.3	19	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2000		2.3	19	ug/Kg
53-70-3	Dibenz(a,h)anthracene	220		2.3	19	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1900		2.3	19	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	66.3		30 - 150	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	58.7		45 - 105	59%	SPK: 100
1718-51-0	Terphenyl-d14	55.5		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	71537	7.97			
1146-65-2	Naphthalene-d8	267769	10.15			
15067-26-2	Acenaphthene-d10	170456	13.12			
1517-22-2	Phenanthrene-d10	286771	15.58			
1719-03-5	Chrysene-d12	296631	19.95			
1520-96-3	Perylene-d12	265400	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002502.D	5	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-14DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002583.D	50	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	640	D	23	190	ug/Kg
91-57-6	2-Methylnaphthalene	1000	D	23	190	ug/Kg
208-96-8	Acenaphthylene	250	D	23	190	ug/Kg
83-32-9	Acenaphthene	2100	D	23	190	ug/Kg
86-73-7	Fluorene	3600	D	23	190	ug/Kg
85-01-8	Phenanthrene	21000	D	23	190	ug/Kg
120-12-7	Anthracene	5500	D	23	190	ug/Kg
206-44-0	Fluoranthene	18000	D	23	190	ug/Kg
129-00-0	Pyrene	13000	D	23	190	ug/Kg
56-55-3	Benzo(a)anthracene	6000	D	23	190	ug/Kg
218-01-9	Chrysene	5900	D	23	190	ug/Kg
205-99-2	Benzo(b)fluoranthene	6000	D	23	190	ug/Kg
207-08-9	Benzo(k)fluoranthene	2500	D	23	190	ug/Kg
50-32-8	Benzo(a)pyrene	4900	D	23	190	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2400	D	23	190	ug/Kg
53-70-3	Dibenz(a,h)anthracene	230	D	23	190	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2200	D	23	190	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	67		30 - 150	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	63.5		45 - 105	64%	SPK: 100
1718-51-0	Terphenyl-d14	59		30 - 125	59%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	55605	7.92			
1146-65-2	Naphthalene-d8	203735	10.1			
15067-26-2	Acenaphthene-d10	127670	13.08			
1517-22-2	Phenanthrene-d10	219002	15.53			
1719-03-5	Chrysene-d12	222394	19.9			
1520-96-3	Perylene-d12	204275	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-14DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002583.D	50	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002497.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.35	U	0.57	4.7	ug/Kg
91-57-6	2-Methylnaphthalene	2.35	U	0.57	4.7	ug/Kg
208-96-8	Acenaphthylene	9.5		0.57	4.7	ug/Kg
83-32-9	Acenaphthene	40		0.57	4.7	ug/Kg
86-73-7	Fluorene	52		0.57	4.7	ug/Kg
85-01-8	Phenanthrene	700		0.57	4.7	ug/Kg
120-12-7	Anthracene	220		0.57	4.7	ug/Kg
206-44-0	Fluoranthene	1300	E	0.57	4.7	ug/Kg
129-00-0	Pyrene	960		0.57	4.7	ug/Kg
56-55-3	Benzo(a)anthracene	530		0.57	4.7	ug/Kg
218-01-9	Chrysene	470		0.57	4.7	ug/Kg
205-99-2	Benzo(b)fluoranthene	570		0.57	4.7	ug/Kg
207-08-9	Benzo(k)fluoranthene	230		0.57	4.7	ug/Kg
50-32-8	Benzo(a)pyrene	440		0.57	4.7	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	220		0.57	4.7	ug/Kg
53-70-3	Dibenz(a,h)anthracene	25		0.57	4.7	ug/Kg
191-24-2	Benzo(g,h,i)perylene	200		0.57	4.7	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.7		30 - 150	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	46.1		45 - 105	46%	SPK: 100
1718-51-0	Terphenyl-d14	46.8		30 - 125	47%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	78123	7.97			
1146-65-2	Naphthalene-d8	278681	10.15			
15067-26-2	Acenaphthene-d10	174278	13.13			
1517-22-2	Phenanthrene-d10	308063	15.57			
1719-03-5	Chrysene-d12	313965	19.95			
1520-96-3	Perylene-d12	278933	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002497.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01DL	SDG No.:	C5017
Lab Sample ID:	C5017-13DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002505.D	2	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.7	UD	1.1	9.4	ug/Kg
91-57-6	2-Methylnaphthalene	4.7	UD	1.1	9.4	ug/Kg
208-96-8	Acenaphthylene	16	D	1.1	9.4	ug/Kg
83-32-9	Acenaphthene	44	D	1.1	9.4	ug/Kg
86-73-7	Fluorene	58	D	1.1	9.4	ug/Kg
85-01-8	Phenanthrene	760	D	1.1	9.4	ug/Kg
120-12-7	Anthracene	230	D	1.1	9.4	ug/Kg
206-44-0	Fluoranthene	1500	D	1.1	9.4	ug/Kg
129-00-0	Pyrene	1000	D	1.1	9.4	ug/Kg
56-55-3	Benzo(a)anthracene	560	D	1.1	9.4	ug/Kg
218-01-9	Chrysene	500	D	1.1	9.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	590	D	1.1	9.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	240	D	1.1	9.4	ug/Kg
50-32-8	Benzo(a)pyrene	460	D	1.1	9.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	300	D	1.1	9.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	29	D	1.1	9.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	250	D	1.1	9.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	67.2		30 - 150	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	54.4		45 - 105	54%	SPK: 100
1718-51-0	Terphenyl-d14	55.2		30 - 125	55%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	71251	7.97			
1146-65-2	Naphthalene-d8	260399	10.15			
15067-26-2	Acenaphthene-d10	164267	13.12			
1517-22-2	Phenanthrene-d10	281252	15.57			
1719-03-5	Chrysene-d12	285580	19.95			
1520-96-3	Perylene-d12	257938	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01DL	SDG No.:	C5017
Lab Sample ID:	C5017-13DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002505.D	2	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002503.D	5	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	450		2.3	19	ug/Kg
91-57-6	2-Methylnaphthalene	290		2.3	19	ug/Kg
208-96-8	Acenaphthylene	63		2.3	19	ug/Kg
83-32-9	Acenaphthene	870		2.3	19	ug/Kg
86-73-7	Fluorene	1200		2.3	19	ug/Kg
85-01-8	Phenanthrene	6400	E	2.3	19	ug/Kg
120-12-7	Anthracene	1600		2.3	19	ug/Kg
206-44-0	Fluoranthene	5800	E	2.3	19	ug/Kg
129-00-0	Pyrene	4100		2.3	19	ug/Kg
56-55-3	Benzo(a)anthracene	1800		2.3	19	ug/Kg
218-01-9	Chrysene	1600		2.3	19	ug/Kg
205-99-2	Benzo(b)fluoranthene	1900		2.3	19	ug/Kg
207-08-9	Benzo(k)fluoranthene	600		2.3	19	ug/Kg
50-32-8	Benzo(a)pyrene	1400		2.3	19	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	640		2.3	19	ug/Kg
53-70-3	Dibenz(a,h)anthracene	71		2.3	19	ug/Kg
191-24-2	Benzo(g,h,i)perylene	610		2.3	19	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	62.6		30 - 150	63%	SPK: 100
321-60-8	2-Fluorobiphenyl	57		45 - 105	57%	SPK: 100
1718-51-0	Terphenyl-d14	53.2		30 - 125	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	75399	7.97			
1146-65-2	Naphthalene-d8	280796	10.15			
15067-26-2	Acenaphthene-d10	173169	13.12			
1517-22-2	Phenanthrene-d10	298106	15.57			
1719-03-5	Chrysene-d12	303906	19.95			
1520-96-3	Perylene-d12	268857	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002503.D	5	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03DL	SDG No.:	C5017
Lab Sample ID:	C5017-15DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002584.D	25	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	470	D	11	95	ug/Kg
91-57-6	2-Methylnaphthalene	300	D	11	95	ug/Kg
208-96-8	Acenaphthylene	57	JD	11	95	ug/Kg
83-32-9	Acenaphthene	920	D	11	95	ug/Kg
86-73-7	Fluorene	1300	D	11	95	ug/Kg
85-01-8	Phenanthrene	7600	D	11	95	ug/Kg
120-12-7	Anthracene	1700	D	11	95	ug/Kg
206-44-0	Fluoranthene	6600	D	11	95	ug/Kg
129-00-0	Pyrene	4400	D	11	95	ug/Kg
56-55-3	Benzo(a)anthracene	1900	D	11	95	ug/Kg
218-01-9	Chrysene	1800	D	11	95	ug/Kg
205-99-2	Benzo(b)fluoranthene	1900	D	11	95	ug/Kg
207-08-9	Benzo(k)fluoranthene	740	D	11	95	ug/Kg
50-32-8	Benzo(a)pyrene	1400	D	11	95	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	670	D	11	95	ug/Kg
53-70-3	Dibenz(a,h)anthracene	67	JD	11	95	ug/Kg
191-24-2	Benzo(g,h,i)perylene	620	D	11	95	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	66		30 - 150	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	60.5		45 - 105	61%	SPK: 100
1718-51-0	Terphenyl-d14	55.8		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	58985	7.92			
1146-65-2	Naphthalene-d8	216493	10.1			
15067-26-2	Acenaphthene-d10	131520	13.08			
1517-22-2	Phenanthrene-d10	225758	15.53			
1719-03-5	Chrysene-d12	232083	19.9			
1520-96-3	Perylene-d12	209655	22.96			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03DL	SDG No.:	C5017
Lab Sample ID:	C5017-15DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002584.D	25	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002449.D	1	12/19/11	12/27/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.48	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.48	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.48	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.48	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.48	3.9	ug/Kg
85-01-8	Phenanthrene	14		0.48	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.48	3.9	ug/Kg
206-44-0	Fluoranthene	19		0.48	3.9	ug/Kg
129-00-0	Pyrene	13		0.48	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	4.8		0.48	3.9	ug/Kg
218-01-9	Chrysene	7.1		0.48	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	7.9		0.48	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	4		0.48	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	5.9		0.48	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	3.6	J	0.48	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.48	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	3.6	J	0.48	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.3		30 - 150	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	54.2		45 - 105	54%	SPK: 100
1718-51-0	Terphenyl-d14	56.7		30 - 125	57%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	51248	7.99			
1146-65-2	Naphthalene-d8	177124	10.16			
15067-26-2	Acenaphthene-d10	113670	13.14			
1517-22-2	Phenanthrene-d10	205015	15.59			
1719-03-5	Chrysene-d12	203318	19.96			
1520-96-3	Perylene-d12	186184	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002449.D	1	12/19/11	12/27/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002468.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.35	U	0.57	4.7	ug/Kg
91-57-6	2-Methylnaphthalene	2.35	U	0.57	4.7	ug/Kg
208-96-8	Acenaphthylene	3.3	J	0.57	4.7	ug/Kg
83-32-9	Acenaphthene	3.8	J	0.57	4.7	ug/Kg
86-73-7	Fluorene	5.7		0.57	4.7	ug/Kg
85-01-8	Phenanthrene	93		0.57	4.7	ug/Kg
120-12-7	Anthracene	13		0.57	4.7	ug/Kg
206-44-0	Fluoranthene	220		0.57	4.7	ug/Kg
129-00-0	Pyrene	160		0.57	4.7	ug/Kg
56-55-3	Benzo(a)anthracene	77		0.57	4.7	ug/Kg
218-01-9	Chrysene	91		0.57	4.7	ug/Kg
205-99-2	Benzo(b)fluoranthene	110		0.57	4.7	ug/Kg
207-08-9	Benzo(k)fluoranthene	44		0.57	4.7	ug/Kg
50-32-8	Benzo(a)pyrene	76		0.57	4.7	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	37		0.57	4.7	ug/Kg
53-70-3	Dibenz(a,h)anthracene	3.3	J	0.57	4.7	ug/Kg
191-24-2	Benzo(g,h,i)perylene	35		0.57	4.7	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	78.7		30 - 150	79%	SPK: 100
321-60-8	2-Fluorobiphenyl	54.6		45 - 105	55%	SPK: 100
1718-51-0	Terphenyl-d14	55.6		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	44869	7.99			
1146-65-2	Naphthalene-d8	161740	10.16			
15067-26-2	Acenaphthene-d10	102414	13.14			
1517-22-2	Phenanthrene-d10	174920	15.59			
1719-03-5	Chrysene-d12	176821	19.96			
1520-96-3	Perylene-d12	157639	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002468.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002582.D	1	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	6.7		0.48	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	7.9		0.48	3.9	ug/Kg
208-96-8	Acenaphthylene	2.4	J	0.48	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.48	3.9	ug/Kg
86-73-7	Fluorene	2.8	J	0.48	3.9	ug/Kg
85-01-8	Phenanthrene	36		0.48	3.9	ug/Kg
120-12-7	Anthracene	5.6		0.48	3.9	ug/Kg
206-44-0	Fluoranthene	88		0.48	3.9	ug/Kg
129-00-0	Pyrene	67		0.48	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	35		0.48	3.9	ug/Kg
218-01-9	Chrysene	43		0.48	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	49		0.48	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	16		0.48	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	34		0.48	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	18		0.48	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.48	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	19		0.48	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	67.5		30 - 150	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.9		45 - 105	52%	SPK: 100
1718-51-0	Terphenyl-d14	50.3		30 - 125	50%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	61104	7.92			
1146-65-2	Naphthalene-d8	215418	10.1			
15067-26-2	Acenaphthene-d10	131580	13.08			
1517-22-2	Phenanthrene-d10	221004	15.53			
1719-03-5	Chrysene-d12	229975	19.9			
1520-96-3	Perylene-d12	212463	22.96			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002582.D	1	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002504.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	38		0.46	3.8	ug/Kg
91-57-6	2-Methylnaphthalene	48		0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	41		0.46	3.8	ug/Kg
83-32-9	Acenaphthene	260		0.46	3.8	ug/Kg
86-73-7	Fluorene	520		0.46	3.8	ug/Kg
85-01-8	Phenanthrene	3200	E	0.46	3.8	ug/Kg
120-12-7	Anthracene	1300	E	0.46	3.8	ug/Kg
206-44-0	Fluoranthene	3700	E	0.46	3.8	ug/Kg
129-00-0	Pyrene	3300	E	0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	2300	E	0.46	3.8	ug/Kg
218-01-9	Chrysene	2100	E	0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	3100	E	0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	1300	E	0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	2300	E	0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	990	E	0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	140		0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1200	E	0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	74.1		30 - 150	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.4		45 - 105	55%	SPK: 100
1718-51-0	Terphenyl-d14	58.2		30 - 125	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80946	7.97			
1146-65-2	Naphthalene-d8	284309	10.15			
15067-26-2	Acenaphthene-d10	178552	13.12			
1517-22-2	Phenanthrene-d10	297777	15.58			
1719-03-5	Chrysene-d12	278523	19.95			
1520-96-3	Perylene-d12	201058	23.06			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002504.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-20DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002506.D	10	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	43	D	4.6	38	ug/Kg
91-57-6	2-Methylnaphthalene	54	D	4.6	38	ug/Kg
208-96-8	Acenaphthylene	62	D	4.6	38	ug/Kg
83-32-9	Acenaphthene	310	D	4.6	38	ug/Kg
86-73-7	Fluorene	620	D	4.6	38	ug/Kg
85-01-8	Phenanthrene	6200	D	4.6	38	ug/Kg
120-12-7	Anthracene	1800	D	4.6	38	ug/Kg
206-44-0	Fluoranthene	8500	D	4.6	38	ug/Kg
129-00-0	Pyrene	5900	D	4.6	38	ug/Kg
56-55-3	Benzo(a)anthracene	3100	D	4.6	38	ug/Kg
218-01-9	Chrysene	2900	D	4.6	38	ug/Kg
205-99-2	Benzo(b)fluoranthene	3600	D	4.6	38	ug/Kg
207-08-9	Benzo(k)fluoranthene	1100	D	4.6	38	ug/Kg
50-32-8	Benzo(a)pyrene	2600	D	4.6	38	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1700	D	4.6	38	ug/Kg
53-70-3	Dibenz(a,h)anthracene	170	D	4.6	38	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1400	D	4.6	38	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	92.1		30 - 150	92%	SPK: 100
321-60-8	2-Fluorobiphenyl	82.2		45 - 105	82%	SPK: 100
1718-51-0	Terphenyl-d14	78.4		30 - 125	78%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	66028	7.97			
1146-65-2	Naphthalene-d8	243674	10.15			
15067-26-2	Acenaphthene-d10	152624	13.13			
1517-22-2	Phenanthrene-d10	261064	15.57			
1719-03-5	Chrysene-d12	270664	19.95			
1520-96-3	Perylene-d12	241050	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-20DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002506.D	10	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002568.D	1	12/19/11	12/31/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.9	U	0.46	3.8	ug/Kg
91-57-6	2-Methylnaphthalene	1.9	U	0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	1.9	U	0.46	3.8	ug/Kg
83-32-9	Acenaphthene	1.9	U	0.46	3.8	ug/Kg
86-73-7	Fluorene	1.9	U	0.46	3.8	ug/Kg
85-01-8	Phenanthrene	3.1	J	0.46	3.8	ug/Kg
120-12-7	Anthracene	1.9	U	0.46	3.8	ug/Kg
206-44-0	Fluoranthene	3.9		0.46	3.8	ug/Kg
129-00-0	Pyrene	3.1	J	0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	2.3	J	0.46	3.8	ug/Kg
218-01-9	Chrysene	1.9	J	0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.9	J	0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.9	U	0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	1.9	U	0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.9	U	0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.9	U	0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.9	U	0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	83		30 - 150	83%	SPK: 100
321-60-8	2-Fluorobiphenyl	63.7		45 - 105	64%	SPK: 100
1718-51-0	Terphenyl-d14	65.1		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	54615	7.92			
1146-65-2	Naphthalene-d8	196540	10.11			
15067-26-2	Acenaphthene-d10	123107	13.08			
1517-22-2	Phenanthrene-d10	205547	15.53			
1719-03-5	Chrysene-d12	206650	19.9			
1520-96-3	Perylene-d12	194209	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002568.D	1	12/19/11	12/31/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002495.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	3.3	J	0.49	4	ug/Kg
85-01-8	Phenanthrene	46		0.49	4	ug/Kg
120-12-7	Anthracene	4.9		0.49	4	ug/Kg
206-44-0	Fluoranthene	91		0.49	4	ug/Kg
129-00-0	Pyrene	62		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	26		0.49	4	ug/Kg
218-01-9	Chrysene	37		0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	46		0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	17		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	30		0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	21		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	22		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	66.7		30 - 150	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.4		45 - 105	51%	SPK: 100
1718-51-0	Terphenyl-d14	53.4		30 - 125	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	66580	7.97			
1146-65-2	Naphthalene-d8	235467	10.15			
15067-26-2	Acenaphthene-d10	149583	13.12			
1517-22-2	Phenanthrene-d10	269512	15.57			
1719-03-5	Chrysene-d12	275825	19.95			
1520-96-3	Perylene-d12	242746	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002495.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002496.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.45	U	0.6	4.9	ug/Kg
91-57-6	2-Methylnaphthalene	2.45	U	0.6	4.9	ug/Kg
208-96-8	Acenaphthylene	2.5	J	0.6	4.9	ug/Kg
83-32-9	Acenaphthene	5		0.6	4.9	ug/Kg
86-73-7	Fluorene	6		0.6	4.9	ug/Kg
85-01-8	Phenanthrene	120		0.6	4.9	ug/Kg
120-12-7	Anthracene	22		0.6	4.9	ug/Kg
206-44-0	Fluoranthene	270		0.6	4.9	ug/Kg
129-00-0	Pyrene	190		0.6	4.9	ug/Kg
56-55-3	Benzo(a)anthracene	97		0.6	4.9	ug/Kg
218-01-9	Chrysene	99		0.6	4.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	110		0.6	4.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	44		0.6	4.9	ug/Kg
50-32-8	Benzo(a)pyrene	81		0.6	4.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	49		0.6	4.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5		0.6	4.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	50		0.6	4.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	69.9		30 - 150	70%	SPK: 100
321-60-8	2-Fluorobiphenyl	52.9		45 - 105	53%	SPK: 100
1718-51-0	Terphenyl-d14	54.4		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	66502	7.97			
1146-65-2	Naphthalene-d8	237674	10.15			
15067-26-2	Acenaphthene-d10	150033	13.12			
1517-22-2	Phenanthrene-d10	266399	15.57			
1719-03-5	Chrysene-d12	276718	19.95			
1520-96-3	Perylene-d12	243956	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	33
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002496.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002494.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	2	U	0.49	4	ug/Kg
85-01-8	Phenanthrene	2	U	0.49	4	ug/Kg
120-12-7	Anthracene	2	U	0.49	4	ug/Kg
206-44-0	Fluoranthene	2	U	0.49	4	ug/Kg
129-00-0	Pyrene	2	U	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.49	4	ug/Kg
218-01-9	Chrysene	2	U	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2	U	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	62		30 - 150	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	47.5		45 - 105	48%	SPK: 100
1718-51-0	Terphenyl-d14	49.3		30 - 125	49%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	74058	7.97			
1146-65-2	Naphthalene-d8	264761	10.15			
15067-26-2	Acenaphthene-d10	167889	13.12			
1517-22-2	Phenanthrene-d10	299120	15.57			
1719-03-5	Chrysene-d12	306741	19.95			
1520-96-3	Perylene-d12	270476	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002494.D	1	12/19/11	12/29/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002569.D	1	12/19/11	12/31/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.47	3.9	ug/Kg
85-01-8	Phenanthrene	6.7		0.47	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.47	3.9	ug/Kg
206-44-0	Fluoranthene	9.5		0.47	3.9	ug/Kg
129-00-0	Pyrene	6.7		0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	3.2	J	0.47	3.9	ug/Kg
218-01-9	Chrysene	4		0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	4.7		0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.4	J	0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	3.2	J	0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	68.5		30 - 150	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	50.6		45 - 105	51%	SPK: 100
1718-51-0	Terphenyl-d14	51		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	67286	7.92			
1146-65-2	Naphthalene-d8	237039	10.1			
15067-26-2	Acenaphthene-d10	146507	13.08			
1517-22-2	Phenanthrene-d10	242678	15.53			
1719-03-5	Chrysene-d12	257743	19.9			
1520-96-3	Perylene-d12	239071	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002569.D	1	12/19/11	12/31/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002465.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	3.1	J	0.61	5.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.55	U	0.61	5.1	ug/Kg
208-96-8	Acenaphthylene	6.1		0.61	5.1	ug/Kg
83-32-9	Acenaphthene	4.1	J	0.61	5.1	ug/Kg
86-73-7	Fluorene	7.2		0.61	5.1	ug/Kg
85-01-8	Phenanthrene	110		0.61	5.1	ug/Kg
120-12-7	Anthracene	9.7		0.61	5.1	ug/Kg
206-44-0	Fluoranthene	200		0.61	5.1	ug/Kg
129-00-0	Pyrene	130		0.61	5.1	ug/Kg
56-55-3	Benzo(a)anthracene	51		0.61	5.1	ug/Kg
218-01-9	Chrysene	76		0.61	5.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	94		0.61	5.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	37		0.61	5.1	ug/Kg
50-32-8	Benzo(a)pyrene	62		0.61	5.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	31		0.61	5.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.6	J	0.61	5.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	34		0.61	5.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	74.9		30 - 150	75%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.9		45 - 105	52%	SPK: 100
1718-51-0	Terphenyl-d14	46.5		30 - 125	47%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	54580	7.99			
1146-65-2	Naphthalene-d8	186908	10.16			
15067-26-2	Acenaphthene-d10	109722	13.14			
1517-22-2	Phenanthrene-d10	179022	15.59			
1719-03-5	Chrysene-d12	205492	19.96			
1520-96-3	Perylene-d12	176881	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	35
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002465.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002466.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	8.6		0.49	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.49	4.1	ug/Kg
206-44-0	Fluoranthene	12		0.49	4.1	ug/Kg
129-00-0	Pyrene	8.6		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	4.5		0.49	4.1	ug/Kg
218-01-9	Chrysene	4.9		0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	4.9		0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	J	0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	3.7	J	0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.5	J	0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	89.9		30 - 150	90%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.1		45 - 105	65%	SPK: 100
1718-51-0	Terphenyl-d14	70.6		30 - 125	71%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	41843	7.99			
1146-65-2	Naphthalene-d8	149844	10.16			
15067-26-2	Acenaphthene-d10	97070	13.14			
1517-22-2	Phenanthrene-d10	165332	15.59			
1719-03-5	Chrysene-d12	164799	19.96			
1520-96-3	Perylene-d12	151527	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002466.D	1	12/19/11	12/28/11	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	32.7 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007190.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.25	U	0.19	2.5	ug/Kg
319-85-7	beta-BHC	1.25	U	0.27	2.5	ug/Kg
319-86-8	delta-BHC	1.25	U	0.15	2.5	ug/Kg
58-89-9	gamma-BHC	1.25	U	0.22	2.5	ug/Kg
76-44-8	Heptachlor	1.25	U	0.21	2.5	ug/Kg
309-00-2	Aldrin	1.25	U	0.15	2.5	ug/Kg
1024-57-3	Heptachlor epoxide	1.25	U	0.24	2.5	ug/Kg
959-98-8	Endosulfan I	1.25	U	0.22	2.5	ug/Kg
60-57-1	Dieldrin	1.25	U	0.19	2.5	ug/Kg
72-55-9	4,4-DDE	1.25	U	0.3	2.5	ug/Kg
72-20-8	Endrin	1.25	U	0.27	2.5	ug/Kg
33213-65-9	Endosulfan II	1.25	U	0.21	2.5	ug/Kg
72-54-8	4,4-DDD	1.25	U	0.25	2.5	ug/Kg
1031-07-8	Endosulfan Sulfate	1.25	U	0.22	2.5	ug/Kg
50-29-3	4,4-DDT	1.25	U	0.21	2.5	ug/Kg
72-43-5	Methoxychlor	1.25	U	0.25	2.5	ug/Kg
53494-70-5	Endrin ketone	1.25	U	0.19	2.5	ug/Kg
7421-93-4	Endrin aldehyde	1.25	U	0.22	2.5	ug/Kg
5103-71-9	alpha-Chlordane	1.25	U	0.21	2.5	ug/Kg
5103-74-2	gamma-Chlordane	1.25	U	0.19	2.5	ug/Kg
8001-35-2	Toxaphene	12.5	U	15	25	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	15.3		55 - 130	76%	SPK: 20
877-09-8	Tetrachloro-m-xylene	15		70 - 125	75%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007178.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	21.1		55 - 130	105%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.4		70 - 125	92%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	18.9 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007182.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	21.1		55 - 130	105%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.1		70 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	33.2 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007179.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.25	U	0.19	2.5	ug/Kg
319-85-7	beta-BHC	1.25	U	0.27	2.5	ug/Kg
319-86-8	delta-BHC	1.25	U	0.15	2.5	ug/Kg
58-89-9	gamma-BHC	1.25	U	0.22	2.5	ug/Kg
76-44-8	Heptachlor	1.25	U	0.21	2.5	ug/Kg
309-00-2	Aldrin	1.25	U	0.15	2.5	ug/Kg
1024-57-3	Heptachlor epoxide	1.25	U	0.24	2.5	ug/Kg
959-98-8	Endosulfan I	1.25	U	0.22	2.5	ug/Kg
60-57-1	Dieldrin	1.25	U	0.19	2.5	ug/Kg
72-55-9	4,4-DDE	1.25	U	0.3	2.5	ug/Kg
72-20-8	Endrin	1.25	U	0.27	2.5	ug/Kg
33213-65-9	Endosulfan II	1.25	U	0.21	2.5	ug/Kg
72-54-8	4,4-DDD	1.25	U	0.25	2.5	ug/Kg
1031-07-8	Endosulfan Sulfate	1.25	U	0.22	2.5	ug/Kg
50-29-3	4,4-DDT	1.25	U	0.21	2.5	ug/Kg
72-43-5	Methoxychlor	1.25	U	0.25	2.5	ug/Kg
53494-70-5	Endrin ketone	1.25	U	0.19	2.5	ug/Kg
7421-93-4	Endrin aldehyde	1.25	U	0.22	2.5	ug/Kg
5103-71-9	alpha-Chlordane	1.25	U	0.21	2.5	ug/Kg
5103-74-2	gamma-Chlordane	1.25	U	0.19	2.5	ug/Kg
8001-35-2	Toxaphene	12.5	U	15	25	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	21.1		55 - 130	105%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.9		70 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.5 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007183.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.16	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.16	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.16	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.16	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	13.7		55 - 130	69%	SPK: 20
877-09-8	Tetrachloro-m-xylene	9.97	*	70 - 125	50%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03RE	SDG No.:	C5017
Lab Sample ID:	C5017-12RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.5 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007217.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.16	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.16	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.16	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.16	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	10.9	*	55 - 130	54%	SPK: 20
877-09-8	Tetrachloro-m-xylene	7.96	*	70 - 125	40%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	12.5 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007185.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.95	U	0.15	1.9	ug/Kg
319-85-7	beta-BHC	0.95	U	0.21	1.9	ug/Kg
319-86-8	delta-BHC	0.95	U	0.11	1.9	ug/Kg
58-89-9	gamma-BHC	0.95	U	0.17	1.9	ug/Kg
76-44-8	Heptachlor	0.95	U	0.16	1.9	ug/Kg
309-00-2	Aldrin	0.95	U	0.11	1.9	ug/Kg
1024-57-3	Heptachlor epoxide	0.95	U	0.18	1.9	ug/Kg
959-98-8	Endosulfan I	0.95	U	0.17	1.9	ug/Kg
60-57-1	Dieldrin	0.95	U	0.15	1.9	ug/Kg
72-55-9	4,4-DDE	0.95	U	0.23	1.9	ug/Kg
72-20-8	Endrin	0.95	U	0.21	1.9	ug/Kg
33213-65-9	Endosulfan II	0.95	U	0.16	1.9	ug/Kg
72-54-8	4,4-DDD	0.95	U	0.19	1.9	ug/Kg
1031-07-8	Endosulfan Sulfate	0.95	U	0.17	1.9	ug/Kg
50-29-3	4,4-DDT	0.95	U	0.16	1.9	ug/Kg
72-43-5	Methoxychlor	0.95	U	0.19	1.9	ug/Kg
53494-70-5	Endrin ketone	0.95	U	0.15	1.9	ug/Kg
7421-93-4	Endrin aldehyde	0.95	U	0.17	1.9	ug/Kg
5103-71-9	alpha-Chlordane	0.95	U	0.16	1.9	ug/Kg
5103-74-2	gamma-Chlordane	0.95	U	0.15	1.9	ug/Kg
8001-35-2	Toxaphene	9.5	U	11	19	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.02	*	55 - 130	40%	SPK: 20
877-09-8	Tetrachloro-m-xylene	10.1	*	70 - 125	51%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02RE	SDG No.:	C5017
Lab Sample ID:	C5017-14RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	12.5 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007218.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.95	U	0.15	1.9	ug/Kg
319-85-7	beta-BHC	0.95	U	0.21	1.9	ug/Kg
319-86-8	delta-BHC	0.95	U	0.11	1.9	ug/Kg
58-89-9	gamma-BHC	0.95	U	0.17	1.9	ug/Kg
76-44-8	Heptachlor	0.95	U	0.16	1.9	ug/Kg
309-00-2	Aldrin	0.95	U	0.11	1.9	ug/Kg
1024-57-3	Heptachlor epoxide	0.95	U	0.18	1.9	ug/Kg
959-98-8	Endosulfan I	0.95	U	0.17	1.9	ug/Kg
60-57-1	Dieldrin	0.95	U	0.15	1.9	ug/Kg
72-55-9	4,4-DDE	0.95	U	0.23	1.9	ug/Kg
72-20-8	Endrin	0.95	U	0.21	1.9	ug/Kg
33213-65-9	Endosulfan II	0.95	U	0.16	1.9	ug/Kg
72-54-8	4,4-DDD	0.95	U	0.19	1.9	ug/Kg
1031-07-8	Endosulfan Sulfate	0.95	U	0.17	1.9	ug/Kg
50-29-3	4,4-DDT	0.95	U	0.16	1.9	ug/Kg
72-43-5	Methoxychlor	0.95	U	0.19	1.9	ug/Kg
53494-70-5	Endrin ketone	0.95	U	0.15	1.9	ug/Kg
7421-93-4	Endrin aldehyde	0.95	U	0.17	1.9	ug/Kg
5103-71-9	alpha-Chlordane	0.95	U	0.16	1.9	ug/Kg
5103-74-2	gamma-Chlordane	0.95	U	0.15	1.9	ug/Kg
8001-35-2	Toxaphene	9.5	U	11	19	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	9.91	*	55 - 130	50%	SPK: 20
877-09-8	Tetrachloro-m-xylene	11.6	*	70 - 125	58%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	29.7 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007184.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.26	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.26	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.6		55 - 130	103%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.6		70 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	13.3 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007186.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.18	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14		55 - 130	70%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16		70 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	15.9 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007176.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.4		55 - 130	97%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.1		70 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	30.1 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007173.D	1	12/19/11	12/29/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.19	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.26	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.19	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.29	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.26	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.19	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.19	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18		55 - 130	90%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.8		70 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.5 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007177.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.16	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.16	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.16	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.16	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.9		55 - 130	90%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.8		70 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	14.2 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007191.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.7		55 - 130	74%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.1		70 - 125	100%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	14.1 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007194.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.9		55 - 130	100%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.2		70 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
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S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	17.6 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007188.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.6		55 - 130	88%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18		70 - 125	90%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	32.9 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007187.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.25	U	0.19	2.5	ug/Kg
319-85-7	beta-BHC	1.25	U	0.27	2.5	ug/Kg
319-86-8	delta-BHC	1.25	U	0.15	2.5	ug/Kg
58-89-9	gamma-BHC	1.25	U	0.22	2.5	ug/Kg
76-44-8	Heptachlor	1.25	U	0.21	2.5	ug/Kg
309-00-2	Aldrin	1.25	U	0.15	2.5	ug/Kg
1024-57-3	Heptachlor epoxide	1.25	U	0.24	2.5	ug/Kg
959-98-8	Endosulfan I	1.25	U	0.22	2.5	ug/Kg
60-57-1	Dieldrin	1.25	U	0.19	2.5	ug/Kg
72-55-9	4,4-DDE	1.25	U	0.3	2.5	ug/Kg
72-20-8	Endrin	1.25	U	0.27	2.5	ug/Kg
33213-65-9	Endosulfan II	1.25	U	0.21	2.5	ug/Kg
72-54-8	4,4-DDD	1.25	U	0.25	2.5	ug/Kg
1031-07-8	Endosulfan Sulfate	1.25	U	0.22	2.5	ug/Kg
50-29-3	4,4-DDT	1.25	U	0.21	2.5	ug/Kg
72-43-5	Methoxychlor	1.25	U	0.25	2.5	ug/Kg
53494-70-5	Endrin ketone	1.25	U	0.19	2.5	ug/Kg
7421-93-4	Endrin aldehyde	1.25	U	0.22	2.5	ug/Kg
5103-71-9	alpha-Chlordane	1.25	U	0.21	2.5	ug/Kg
5103-74-2	gamma-Chlordane	1.25	U	0.19	2.5	ug/Kg
8001-35-2	Toxaphene	12.5	U	15	25	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	15.6		55 - 130	78%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.8		70 - 125	89%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	18.2 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007189.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.1		55 - 130	90%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		70 - 125	96%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.1 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007171.D	1	12/19/11	12/29/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	13.5		55 - 130	68%	SPK: 20
877-09-8	Tetrachloro-m-xylene	12.5	*	70 - 125	63%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02RE	SDG No.:	C5017
Lab Sample ID:	C5017-02RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.1 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007215.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	11.4		55 - 130	57%	SPK: 20
877-09-8	Tetrachloro-m-xylene	10.6	*	70 - 125	53%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	34.6 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007170.D	1	12/19/11	12/29/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.3	U	0.2	2.6	ug/Kg
319-85-7	beta-BHC	1.3	U	0.27	2.6	ug/Kg
319-86-8	delta-BHC	1.3	U	0.15	2.6	ug/Kg
58-89-9	gamma-BHC	1.3	U	0.23	2.6	ug/Kg
76-44-8	Heptachlor	1.3	U	0.21	2.6	ug/Kg
309-00-2	Aldrin	1.3	U	0.15	2.6	ug/Kg
1024-57-3	Heptachlor epoxide	1.3	U	0.24	2.6	ug/Kg
959-98-8	Endosulfan I	1.3	U	0.23	2.6	ug/Kg
60-57-1	Dieldrin	1.3	U	0.2	2.6	ug/Kg
72-55-9	4,4-DDE	1.3	U	0.31	2.6	ug/Kg
72-20-8	Endrin	1.3	U	0.27	2.6	ug/Kg
33213-65-9	Endosulfan II	1.3	U	0.21	2.6	ug/Kg
72-54-8	4,4-DDD	1.3	U	0.26	2.6	ug/Kg
1031-07-8	Endosulfan Sulfate	1.3	U	0.23	2.6	ug/Kg
50-29-3	4,4-DDT	1.3	U	0.21	2.6	ug/Kg
72-43-5	Methoxychlor	1.3	U	0.26	2.6	ug/Kg
53494-70-5	Endrin ketone	1.3	U	0.2	2.6	ug/Kg
7421-93-4	Endrin aldehyde	1.3	U	0.23	2.6	ug/Kg
5103-71-9	alpha-Chlordane	1.3	U	0.21	2.6	ug/Kg
5103-74-2	gamma-Chlordane	1.3	U	0.2	2.6	ug/Kg
8001-35-2	Toxaphene	13	U	15	26	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.8		55 - 130	94%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.4		70 - 125	87%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	19.1 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007172.D	1	12/19/11	12/29/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.5		55 - 130	83%	SPK: 20
877-09-8	Tetrachloro-m-xylene	13.4	*	70 - 125	67%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03RE	SDG No.:	C5017
Lab Sample ID:	C5017-03RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	19.1 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007216.D	1	12/19/11	12/30/11	PB59993

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	12.7		55 - 130	64%	SPK: 20
877-09-8	Tetrachloro-m-xylene	10.4	*	70 - 125	52%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	33 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006216.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12.5	U	5.2	25	ug/Kg
11104-28-2	Aroclor-1221	12.5	U	5.1	25	ug/Kg
11141-16-5	Aroclor-1232	12.5	U	11	25	ug/Kg
53469-21-9	Aroclor-1242	12.5	U	5.1	25	ug/Kg
12672-29-6	Aroclor-1248	12.5	U	9.8	25	ug/Kg
11097-69-1	Aroclor-1254	12.5	U	2.2	25	ug/Kg
11096-82-5	Aroclor-1260	12.5	U	6.1	25	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11		10 - 166	55%	SPK: 20
2051-24-3	Decachlorobiphenyl	13.1		60 - 125	66%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006204.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.9		10 - 166	80%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.9		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006206.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.1		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.9		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	33 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006205.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12.5	U	5.2	25	ug/Kg
11104-28-2	Aroclor-1221	12.5	U	5.1	25	ug/Kg
11141-16-5	Aroclor-1232	12.5	U	11	25	ug/Kg
53469-21-9	Aroclor-1242	12.5	U	5.1	25	ug/Kg
12672-29-6	Aroclor-1248	12.5	U	9.8	25	ug/Kg
11097-69-1	Aroclor-1254	12.5	U	2.2	25	ug/Kg
11096-82-5	Aroclor-1260	12.5	U	6.1	25	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.8		10 - 166	79%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.3		60 - 125	87%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	17 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006207.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.2	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4.1	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4.1	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.9	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	8.92		10 - 166	45%	SPK: 20
2051-24-3	Decachlorobiphenyl	12.3		60 - 125	62%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	13 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006209.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.6	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.7	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	6.86		10 - 166	34%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.7		60 - 125	99%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	30 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006208.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	11	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.4	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.9	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.3		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.9		60 - 125	79%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	13 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006210.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.6	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.7	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.5		10 - 166	57%	SPK: 20
2051-24-3	Decachlorobiphenyl	25.8	*	60 - 125	129%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	16 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006202.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.8	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.5		10 - 166	92%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.3		60 - 125	82%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	30 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006189.D	1	12/19/11	12/21/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	11	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.4	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.9	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.1		10 - 166	91%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.7		60 - 125	79%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	17 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006203.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.2	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4.1	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4.1	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.9	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.9		10 - 166	90%	SPK: 20
2051-24-3	Decachlorobiphenyl	16		60 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006217.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.8		10 - 166	59%	SPK: 20
2051-24-3	Decachlorobiphenyl	23.4		60 - 125	117%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006218.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.7	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.8		10 - 166	84%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.5		60 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006214.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.5		10 - 166	82%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.7		60 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	33 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006211.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12.5	U	5.2	25	ug/Kg
11104-28-2	Aroclor-1221	12.5	U	5.1	25	ug/Kg
11141-16-5	Aroclor-1232	12.5	U	11	25	ug/Kg
53469-21-9	Aroclor-1242	12.5	U	5.1	25	ug/Kg
12672-29-6	Aroclor-1248	12.5	U	9.8	25	ug/Kg
11097-69-1	Aroclor-1254	12.5	U	2.2	25	ug/Kg
11096-82-5	Aroclor-1260	12.5	U	6.1	25	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.8		10 - 166	84%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.4		60 - 125	97%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006215.D	1	12/19/11	12/22/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.7		10 - 166	88%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.1		60 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	16 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006187.D	1	12/19/11	12/21/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.8	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.6		10 - 166	68%	SPK: 20
2051-24-3	Decachlorobiphenyl	12.2		60 - 125	61%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	35 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006186.D	1	12/19/11	12/21/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	13	U	5.3	26	ug/Kg
11104-28-2	Aroclor-1221	13	U	5.2	26	ug/Kg
11141-16-5	Aroclor-1232	13	U	11	26	ug/Kg
53469-21-9	Aroclor-1242	13	U	5.2	26	ug/Kg
12672-29-6	Aroclor-1248	13	U	10	26	ug/Kg
11097-69-1	Aroclor-1254	13	U	2.3	26	ug/Kg
11096-82-5	Aroclor-1260	13	U	6.3	26	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.2		10 - 166	86%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.4		60 - 125	82%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006188.D	1	12/19/11	12/21/11	PB59992

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	12.6		10 - 166	63%	SPK: 20
2051-24-3	Decachlorobiphenyl	12.3		60 - 125	61%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Appendix C

Support Documentation

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C5017

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number	Test	Out of Hold
C5017-01	12SB16-000.5-01	pH	*
C5017-02	12SB16-0.502-02	pH	*
C5017-03	12SB16-0304-03	pH	*
C5017-04	12SB11-000.5-01	pH	*
C5017-05	C5017-04MS		
C5017-06	C5017-04MSD		
C5017-07	12SB11-0.501-02	pH	*
C5017-08	12SB11-0304-03	pH	*
C5017-09	12SB-DUP02	pH	*
C5017-10	12SB09-000.5-01	pH	*
C5017-11	12SB09-0.502-02	pH	*
C5017-12	12SB09-0304-03	pH	*
C5017-13	12SB10-000.5-01	pH	*
C5017-14	12SB10-0.502-02	pH	*
C5017-15	12SB10-0304-03	pH	*
C5017-16	12SB15-000.5-01	pH	*
C5017-17	12SB15-0.502-02	pH	*
C5017-18	12SB15-0304-03	pH	*
C5017-19	12SB-DUP-04		
C5017-20	12SB14-0.502-02	pH	*
C5017-21	12SB14-0304-03	pH	*
C5017-22	12TB-20111215		

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:48:28 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_T were done using GC column Rtx-624SIL MS 30m 0.25mm 1.4um 872456The analysis performed on instrument MSVOA_F were done using GC column RTX-VMS, which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB11-000.5-01 [4-Bromofluorobenzene - 80%], 12SB11-000.5-01MS [4-Bromofluorobenzene - 71%] and 12SB11-000.5-01MSD [4-Bromofluorobenzene - 70%].The sample 12SB11-000.5-01 and its associated matrix spike and matrix spike duplicate are failing for surrogate confirming that surrogates are failing due to the matrix of sample so, no not re-analyze was performed.
The Internal Standards Areas met the acceptable requirements except 12SB11-000.5-01MS & 12SB11-000.5-01MSD.
The Retention Times were acceptable for all samples.
The MS {C5017-05MS} with File ID: VT001916.D recoveries met the requirements for all compounds except for 1,2,3-Trichlorobenzene[49%] and 1,2,4-Trichlorobenzene[58%] .
The MSD {C5017-06MSD} with File ID: VT001917.D recoveries met the acceptable requirements except for 1,1,2,2-Tetrachloroethane[134%], 1,2,3-Trichlorobenzene[54%] and 1,2,4-Trichlorobenzene[58%] .

The RPD for {C5017-06MSD} with File ID: VT001917.D recoveries met criteria except for Methyl Acetate[37%] .
The Blank Spike met requirements for all samples.
The Blank Spike Duplicate met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration File ID VF030198.D met the requirements except for Trichlorofluoromethane.
The Continuous Calibration File ID VG039730.D met the requirements except for Bromomethane and Acetone.
The Continuous Calibration File ID VT002020.D met the requirements except for Carbon Tetrachloride, Methylcyclohexane and Tetrachloroethene .
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:48:18 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_F using GC Column RTX-5 SILMS which is 20 meters, 0.18 mm ID, 0.36 um df, Catalog # 42704.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB10-0.502-02 [2-Fluorobiphenyl - 110%, Nitrobenzene-d5 - 105%, Phenol-d5 - 110%], 12SB10-0.502-02DL [2-Fluorobiphenyl - 160%, 2-Fluorophenol - 125%, Nitrobenzene-d5 - 147%, Phenol-d5 - 152%, Terphenyl-d14 - 145%], 12SB10-0304-03 [2-Fluorobiphenyl - 123%, 2-Fluorophenol - 113%, Nitrobenzene-d5 - 115%, Phenol-d5 - 127%], 12SB10-0304-03RE [2-Fluorobiphenyl - 124%, 2-Fluorophenol - 113%, Nitrobenzene-d5 - 117%, Phenol-d5 - 126%], 12SB14-0.502-02DL [2-Fluorobiphenyl - 112%, Nitrobenzene-d5 - 107% and Phenol-d5 - 109%]. Samples failing in surrogate were re-analyzed.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD for {C5017-06MSD} with File ID: BF052596.D recoveries met criteria except for 1,2,4,5-Tetrachlorobenzene[21%], 2,4-Dimethylphenol[26%], 3,3-Dichlorobenzidine[30%], 4-Chloroaniline[40%], 4-Nitroaniline[21%], 4-Nitrophenol[23%], bis(2-Ethylhexyl)phthalate[22%], Caprolactam[23%], Dimethylphthalate[26%], Pentachlorophenol[21%] and Phenol[21%] .
The Blank Spike for {PB59994BS} with File ID: BF052566.D met requirements for all samples except for 4-Chloroaniline [19%].
The Blank analysis did not indicate the presence of lab contamination.

CHEMTECH

The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration File ID BF052632.D met the requirements except for 4,6-Dinitro-2-methylphenol but not detected in any samples.
The Tuning criteria met requirements.
Samples 12SB10-0.502-02 and 12SB10-0304-03 were diluted due to bad matrices.
Samples 12SB10-0.502-02, 12SB14-0.502-02 was diluted due to high concentrations.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:48:09 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5017-05MS} with File ID: BG002469.D recoveries met the requirements for all compounds except for Anthracene[172%], Benzo(a)anthracene[296%], Benzo(a)pyrene[297%], Benzo(b)fluoranthene[394%], Benzo(g,h,i)perylene[222%], Benzo(k)fluoranthene[199%], Chrysene[273%], Fluoranthene[517%], Phenanthrene[293%] and Pyrene[404%] .
The MSD {C5017-06MSD} with File ID: BG002470.D recoveries met the acceptable requirements except for Benzo(a)anthracene[192%], Benzo(a)pyrene[193%], Benzo(b)fluoranthene[248%], Chrysene[189%], Fluoranthene[350%], Phenanthrene[189%] and Pyrene[279%] .
The RPD for {C5017-06MSD} with File ID: BG002470.D recoveries did not meet criteria except for Benzo(k)fluoranthene.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.

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The Continuous Calibration File ID BG002578.D met the requirements except for Benzo(g,h,i)perylene .
The Tuning criteria met requirements.
Samples 12SB10-0.502-02, 12SB10-0304-03 was diluted due to bad matrix.
Samples 12SB10-000.5-01, 12SB10-0.502-02, 12SB10-0304-03 and 12SB14-0.502-02 were diluted due to high concentrations.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:48:01 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11 . The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB16-0.502-02 [Tetrachloro-m-xylene(1) - 63%, Tetrachloro-m-xylene(2) - 63%], 12SB16-0.502-02RE [Tetrachloro-m-xylene(1) - 53%, Tetrachloro-m-xylene(2) - 63%], 12SB16-0304-03 [Tetrachloro-m-xylene(1) - 67%, Tetrachloro-m-xylene(2) - 67%], 12SB16-0304-03RE [Tetrachloro-m-xylene(1) - 52%, Tetrachloro-m-xylene(2) - 65%], 12SB09-0304-03 [Tetrachloro-m-xylene(1) - 50%, Tetrachloro-m-xylene(2) - 49%], 12SB09-0304-03RE [Decachlorobiphenyl(1) - 54%, Tetrachloro-m-xylene(1) - 40%, Tetrachloro-m-xylene(2) - 48%], 12SB10-0.502-02 [Decachlorobiphenyl(1) - 40%, Decachlorobiphenyl(2) - 16%, Tetrachloro-m-xylene(1) - 51%, Tetrachloro-m-xylene(2) - 33%], 12SB10-0.502-02RE [Decachlorobiphenyl(1) - 50%, Tetrachloro-m-xylene(1) - 58%, Tetrachloro-m-xylene(2) - 50%] and 12SB10-0304-03 [Tetrachloro-m-xylene(2) - 56%]. The samples failing in both the columns were re-analyzed.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.

The Initial Calibration met the requirements.
The Continuous Calibration File ID PD007193.D met the requirements except for Decachlorobiphenyl, it is failing in 2nd column but passing in 1st column.
The Continuous Calibration File ID PD007212.D met the requirements except for gamma-BHC,Methoxychlor,alpha-Chlordane , gamma-Chlordane failing in 1st column while Endosulfan II failing in 2nd column.
The Continuous Calibration File ID PD007223.D met the requirements except for alpha-BHC,beta-BHC,delta-BHC,gamma-BHC,Aldrin,Heptachlor epoxide,Dieldrin,4,4-DDE,4,4-DDT,alpha-Chlordane,gamma-Chlordane , Tetrachloro-m-xylene , these were failing in 1st column while Endosulfan II,Endrin ketone and Decachlorobiphenyl failing in 2nd column.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature___ Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:47:52 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: PCB

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB10-0304-03 [Decachlorobiphenyl(1) - 129%].As only one surrogates failing, as per method, sample was not re-analyzed.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PC006181.D met the requirements except for Aroclor-1016(Peak-03 & 04) is failing in 1st column but passing in 2nd column.
The Continuous Calibration File ID PC006193.D met the requirements except for Aroclor-1016(Peak-03), Aroclor-1260(Peak-05) and Decachlorobiphenyl are failing in 1st column but passing in 2nd column.
The Continuous Calibration File ID PC006201.D met the requirements except for Aroclor-1016(Peak-03) and Decachlorobiphenyl are failing in 1st column but passing in 2nd column.

CHEMTECH

The Continuous Calibration File ID PC006213.D met the requirements except for Aroclor-1016(Peak-03) is failing in 1st column but passing in 2nd column.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature__ Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:47:43 -05'00'

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5017
QUOTE NO.
COC Number 021254

CLIENT INFORMATION (REPORT TO BE SENT TO)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO. CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC
2 TCL SVOC/PAH SIM
3 Pest/PCB
4 metals/Hg/CN/pH
5 ORP
6
7
8
9

CHEMTECH SAMPLE (VP 12/16/11)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E					← Specify Preservatives A-HCl B-HNO3 C-H2SO4 D-NaOH E-ICE F-Other
1.	125B16-000.5-01	Soil		X	12/15/11	0845	6	X	X	X	X						
2.	125B16-0.502-02			X		0850	6	X	X	X	X						
3.	125B16-0304-03			X		0900	6	X	X	X	X						
4. 5,6.	125B11-000.5-01			X		1045	15	X	X	X	X						Do MS/MSD
5. 7.	125B11-0.501-02			X		1005	6	X	X	X	X						
6. 8.	125B11-0304-03			X		1015	6	X	X	X	X						
7. 9.	125B-DUP-02			X		1000	6	X	X	X	X						
8. 10.	125B09-000.5-01			X		1140	7	X	X	X	X	X					
9. 11.	125B09-0.502-02			X		1150	7	X	X	X	X	X					
10. 12.	125B09-0304-03	↓		X	↓	1200	7	X	X	X	X	X					

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. David Kahler	12/15/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	12/16/11 9:05	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5017
QUOTE NO.
COC Number 021255

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Ultra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Willow Grove
PROJECT NO. Cro WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	TCL Pest/PCB	metals/Hg/CN/pH	ORP	metals/Hg/CN	TCL VOC		

CHEMTECH SAMPLE ID 12/16/11	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	E	A			← Specify Preservatives A-HCl B-HNO3 C-H2SO4 D-NaOH E-ICE F-Other
1. 13.	12SB10-000.5-01	Soil		X	12/15/11	1325	6	X	X	X	X						
2. 14.	12SB10-0.502-02			X		1335	6	X	X	X	X						
3. 15.	12SB10-0304-03			X		1345	6	X	X	X	X						
4. 16.	12SB15-000.5-01			X		1450	6	X	X	X	X						
5. 17.	12SB15-0.502-02			X		1455	6	X	X	X	X						
6. 18.	12SB15-0304-03			X		1505	6	X	X	X	X						
7. 19.	12SB-DUP-04			X		1530	6	X	X	X	X		X				
8. 20.	12SB14-0.502-02			X		1605	6	X	X	X	X						
9. 21.	12SB14-0304-03	↓		X	↓	1610	6	X	X	X	X						
10. 22.	12TB-20111215	AQ		X	↓	0800	2							X			Trip Blank

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Donald Whalen	12/15/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/16/11 9:05	3. RS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

HOLDTIME

SDG C5017

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
M	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/21/2011	4	2	6
M	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
ORP	MV	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
ORP	MV	12SB09-0304-03	C5017-12	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
ORP	MV	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
PH	S.U.	12SB-DUP02	C5017-09	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB16-0304-03	C5017-03	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB15-0304-03	C5017-18	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB11-0304-03	C5017-08	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB10-0304-03	C5017-15	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	S.U.	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB09-0304-03	C5017-12	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB14-0304-03	C5017-21	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
OS	UG/KG	12SB10-0.502-02	C5017-14DL	NM	12/15/2011	12/19/2011	1/4/2012	4	16	20
OS	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-000.5-01	C5017-13DL	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB14-0.502-02	C5017-20DL	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-0.502-02	C5017-14DL	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	1/3/2012	4	15	19
OS	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0304-03	C5017-15DL	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	1/2/2012	4	14	18
OS	UG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/28/2011	4	9	13
OS	UG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/28/2011	4	9	13
OS	UG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/28/2011	4	9	13
OS	UG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/31/2011	4	12	16
OS	UG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0304-03	C5017-15RE	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-0304-03	C5017-15RE	NM	12/15/2011	12/19/2011	1/3/2012	4	15	19
OS	UG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/27/2011	4	8	12
OS	UG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/28/2011	4	9	13
OS	UG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	1/2/2012	4	14	18
OS	UG/KG	12SB14-0.502-02	C5017-20DL	NM	12/15/2011	12/19/2011	1/4/2012	4	16	20
OS	UG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/31/2011	4	12	16
OS	UG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OV	UG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
OV	UG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
OV	UG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
OV	UG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
OV	UG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/22/2011	12/22/2011	7	0	7
OV	UG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/22/2011	12/22/2011	7	0	7
OV	UG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/22/2011	12/22/2011	7	0	7
OV	UG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
OV	UG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
OV	UG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
OV	UG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
OV	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/22/2011	12/22/2011	7	0	7
OV	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
OV	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
OV	UG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/22/2011	12/22/2011	7	0	7
OV	UG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
OV	UG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
OV	UG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/22/2011	12/22/2011	7	0	7
OV	UG/L	12TB-20111215	C5017-22	NM	12/15/2011	12/21/2011	12/21/2011	6	0	6
PCB	UG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	UG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/21/2011	4	2	6
PCB	UG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/21/2011	4	2	6
PCB	UG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/21/2011	4	2	6
PCB	UG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/21/2011	4	2	6
PCB	UG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
PCB	UG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
PEST	UG/KG	12SB16-0.502-02	C5017-02RE	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
PEST	UG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
PEST	UG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB16-0304-03	C5017-03RE	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
PEST	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB10-0.502-02	C5017-14RE	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/KG	12SB09-0304-03	C5017-12RE	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15
PEST	UG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/30/2011	4	11	15

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB15-000.5-01	UNITS	12SB-DUP-04	RPD	D
OV	2-BUTANONE	200	UG/KG	ND	200.00	200.00
OV	2-HEXANONE	14 J	UG/KG	ND	200.00	14.00
OV	ACETONE	340	UG/KG	14 J	184.18	326.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB15-000.5-01	UNITS	12SB-DUP-04	RPD	D
OS	ANTHRACENE	22	UG/KG	18	20.00	4.00
OS	BENZO(A)ANTHRACENE	97	UG/KG	72	29.59	25.00
OS	BENZO(A)PYRENE	81	UG/KG	59	31.43	22.00
OS	BENZO(B)FLUORANTHENE	110	UG/KG	83	27.98	27.00
OS	BENZO(G,H,I)PERYLENE	50	UG/KG	26 J	63.16	24.00 ✓
OS	BENZO(K)FLUORANTHENE	44	UG/KG	31	34.67	13.00
OS	CHRYSENE	99	UG/KG	79	22.47	20.00
OS	DIBENZO(A,H)ANTHRACENE	5	UG/KG	3 J	50.00	2.00
OS	DIMETHYL PHTHALATE	270 J	UG/KG	480 J	56.00	210.00 ✓
OS	FLUORANTHENE	270	UG/KG	200	29.79	70.00
OS	FLUORENE	6	UG/KG	7.5	22.22	1.50
OS	INDENO(1,2,3-CD)PYRENE	49	UG/KG	29	51.28	20.00 ✓
OS	PYRENE	190	UG/KG	140	30.30	50.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB15-000.5-01GR2	UNITS	12SB-DUP-04GR2	RPD	D
OS	ACENAPHTHENE	5	UG/KG	5.5	9.52	0.50
OS	ACENAPHTHYLENE	2.5 J	UG/KG	3.5 J	33.33	1.00
OS	PHENANTHRENE	120	UG/KG	100	18.18	20.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB16-0304-03	UNITS	12SB-DUP02	RPD	D
OV	ACETONE	ND	UG/KG	15 J	200.00	15.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB16-0304-03	UNITS	12SB-DUP02	RPD	D
OS	BENZO(A)ANTHRACENE	4.5	UG/KG	2.4 J	60.87	2.10
OS	BENZO(A)PYRENE	3.7 J	UG/KG	2 J	59.65	1.70
OS	BENZO(B)FLUORANTHENE	4.9	UG/KG	3.2 J	41.98	1.70
OS	BENZO(K)FLUORANTHENE	2.1 J	UG/KG	ND	200.00	2.10
OS	CHRYSENE	4.9	UG/KG	2 J	84.06	2.90
OS	DIMETHYL PHTHALATE	340 J	UG/KG	260 J	26.67	80.00
OS	FLUORANTHENE	12	UG/KG	5.7	71.19	6.30
OS	INDENO(1,2,3-CD)PYRENE	2.5 J	UG/KG	ND	200.00	2.50
OS	PYRENE	8.6	UG/KG	4.1	70.87	4.50

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB16-0304-03GR2	UNITS	12SB-DUP02GR2	RPD	D
OS	PHENANTHRENE	8.6	UG/KG	4.1	70.87	4.50 ✓

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VG039044.D BFB Injection Date: 11/22/2011

Instrument ID: MSVOAG BFB Injection Time: 18:52

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.9
75	30.0 - 60.0% of mass 95	51
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	92.5
175	5.0 - 9.0% of mass 174	7.8 (8.4) 1
176	95.0 - 101.0% of mass 174	88 (95.1) 1
177	5.0 - 9.0% of mass 176	5.7 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD001	1 PPB ICC	VG039045.D	11/22/2011	19:31
VSTD005	5 PPB ICC	VG039046.D	11/22/2011	20:00
VSTD020	20 PPB ICC	VG039047.D	11/22/2011	20:44
VSTD050	50 PPB ICC	VG039048.D	11/22/2011	21:13
VSTD100	100 PPB ICC	VG039049.D	11/22/2011	21:42
VSTD150	150 PPB ICC	VG039050.D	11/22/2011	22:11

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD	
Dichlorodifluoromethane	0.322	0.285	0.403	0.410	0.419	0.387	0.371	14.7	
Chloromethane	0.668	0.928	0.740	0.737	0.728	0.687	0.748	12.4	
Vinyl Chloride	0.598	0.706	0.647	0.663	0.675	0.623	0.652	5.9	
Bromomethane	0.622	0.542	0.519	0.552	0.567	0.571	0.562	6.1	
Chloroethane	0.509	0.502	0.473	0.501	0.534	0.535	0.509	4.6	
Trichlorofluoromethane	0.679	0.695	0.680	0.659	0.679	0.671	0.677	1.8	
1,1,2-Trichlorotrifluor<	0.574	0.586	0.562	0.544	0.554	0.563	0.564	2.6	
1,1-Dichloroethene	0.658	0.783	0.619	0.610	0.644	0.636	0.658	9.6	
Acetone	0.245	0.369	0.198	0.187	0.176	0.170	0.224	33.8	r20K
Carbon Disulfide	1.852	2.032	1.980	1.896	1.955	1.879	1.932	3.5	
Methyl tert-butyl Ether	1.485	1.562	1.427	1.405	1.387	1.383	1.441	4.8	
Methyl Acetate	1.335	1.455	1.196	1.256	1.218	1.203	1.277	7.9	
Methylene Chloride	0.756	1.248	0.698	0.671	0.689	0.698	0.793	28.3	r20K
trans-1,2-Dichloroethene<	0.600	0.792	0.606	0.614	0.611	0.611	0.639	11.8	
1,1-Dichloroethane	1.265	1.505	1.231	1.207	1.204	1.180	1.266	9.5	
Cyclohexane	1.028	1.231	1.017	0.995	0.991	0.980	1.04	9.1	
2-Butanone	0.431	0.484	0.376	0.385	0.361	0.356	0.399	12.4	
Carbon Tetrachloride	0.302	0.246	0.331	0.326	0.309	0.305	0.303	10	
cis-1,2-Dichloroethene	0.819	0.979	0.785	0.786	0.766	0.774	0.818	9.9	
Bromochloromethane	0.697	0.783	0.684	0.632	0.611	0.612	0.67	9.9	
Chloroform	1.192	1.252	1.092	1.029	0.996	0.986	1.091	10.1	
1,1,1-Trichloroethane	0.681	0.850	0.693	0.665	0.638	0.617	0.691	12	
Methylcyclohexane	0.485	0.540	0.490	0.475	0.456	0.461	0.485	6.2	
Benzene	1.349	1.605	1.311	1.253	1.203	1.218	1.323	11.2	
1,2-Dichloroethane	0.460	0.570	0.468	0.440	0.413	0.412	0.461	12.7	
Trichloroethene	0.390	0.480	0.389	0.375	0.355	0.371	0.393	11.3	
1,2-Dichloropropane	0.391	0.457	0.365	0.365	0.353	0.354	0.381	10.4	
Bromodichloromethane	0.362	0.385	0.407	0.397	0.387	0.394	0.389	3.9	
4-Methyl-2-Pentanone	0.242	0.226	0.248	0.260	0.248	0.253	0.246	4.6	
Toluene	0.450	0.523	0.484	0.475	0.477	0.485	0.482	4.9	
t-1,3-Dichloropropene	0.238	0.175	0.287	0.300	0.307	0.327	0.272	20.6	r20K

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

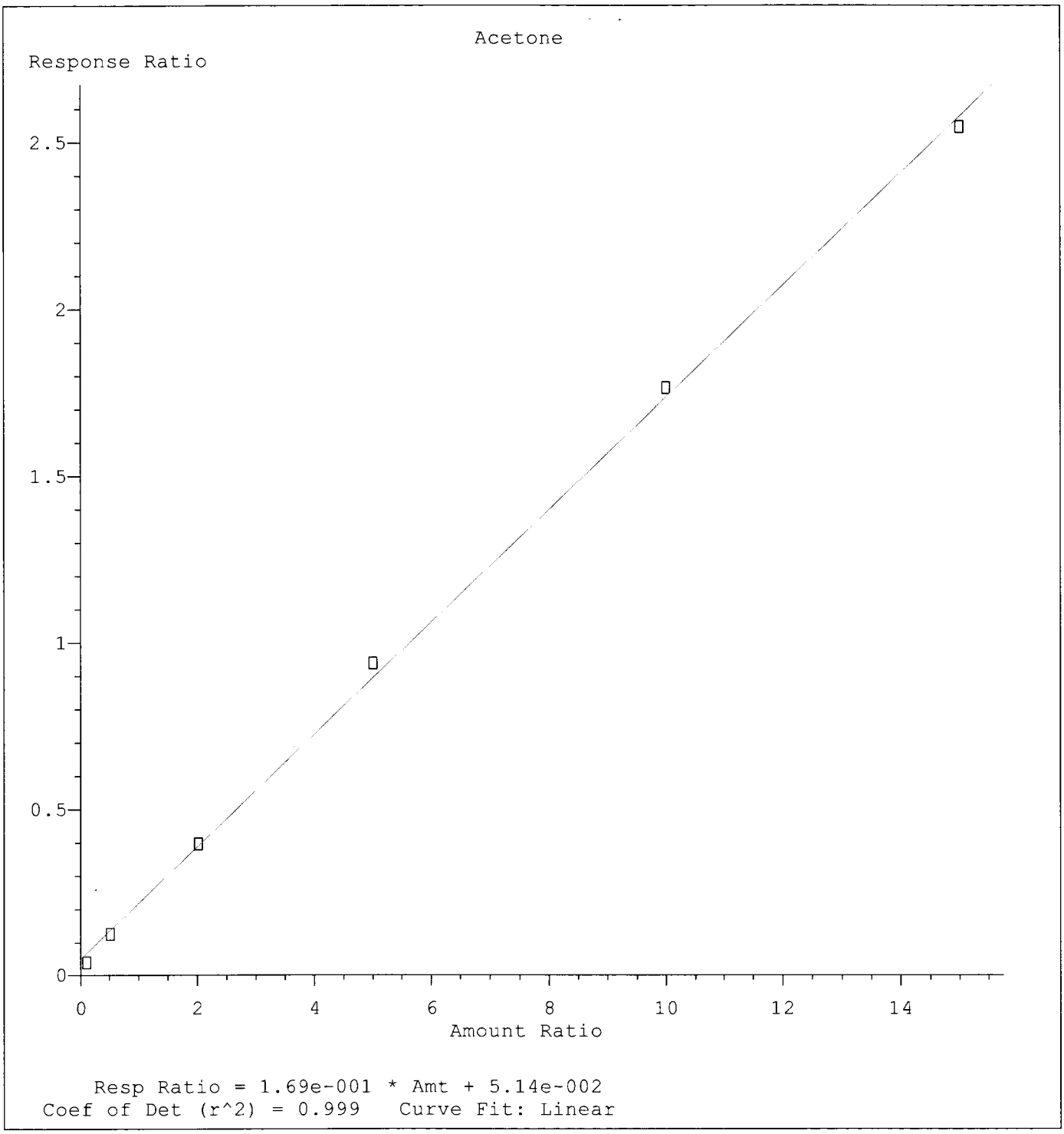
GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.291	0.266	0.314	0.333	0.344	0.369	0.32	11.6
1,1,2-Trichloroethane	0.189	0.192	0.189	0.191	0.194	0.201	0.193	2.4
2-Hexanone	0.186	0.147	0.182	0.190	0.179	0.182	0.178	8.8
Dibromochloromethane	0.182	0.146	0.209	0.219	0.222	0.233	0.202	16
1,2-Dibromoethane	0.198	0.213	0.208	0.214	0.221	0.230	0.214	5.1
Tetrachloroethene	0.440	0.505	0.439	0.428	0.411	0.444	0.444	7.2
Chlorobenzene	1.097	1.157	1.030	1.015	1.001	0.984	1.047	6.3
Ethyl Benzene	1.643	1.572	1.563	1.584	1.492	1.453	1.551	4.4
m/p-Xylenes	0.618	0.562	0.656	0.664	0.652	0.648	0.633	6
o-Xylene	0.546	0.549	0.623	0.648	0.620	0.618	0.601	7.1
Styrene	0.925	0.744	1.005	1.017	0.984	0.995	0.945	11
Bromoform	0.172	0.082	0.209	0.243	0.243	0.240	0.198	32.1
Isopropylbenzene	3.639	3.515	3.915	3.584	3.644	3.647	3.657	3.7
1,1,2,2-Tetrachloroethar	1.106	1.136	0.950	0.917	0.925	0.955	0.998	9.7
1,3-Dichlorobenzene	1.699	1.519	1.643	1.597	1.576	1.615	1.608	3.8
1,4-Dichlorobenzene	1.609	1.732	1.566	1.511	1.509	1.516	1.574	5.5
1,2-Dichlorobenzene	1.411	1.490	1.493	1.407	1.354	1.335	1.415	4.7
1,2-Dibromo-3-Chloropro	0.112		0.116	0.126	0.125	0.127	0.121	5.6
1,2,4-Trichlorobenzene	0.950	0.859	0.906	0.902	0.870	0.922	0.901	3.7
1,2,3-Trichlorobenzene	0.797	0.776	0.824	0.807	0.788	0.844	0.806	3.1
1,2-Dichloroethane-d4	0.641	0.809	0.625	0.580	0.567	0.532	0.626	15.7
Dibromofluoromethane	0.390	0.458	0.400	0.380	0.356	0.358	0.39	9.6
Toluene-d8	0.626	0.773	0.669	0.669	0.632	0.639	0.668	8.2
4-Bromofluorobenzene	0.193	0.215	0.243	0.251	0.240	0.238	0.23	9.4
1,4-Dioxane	0.002	0.001	0.002	0.003	0.002	0.002	0.002	20.8

MDK

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



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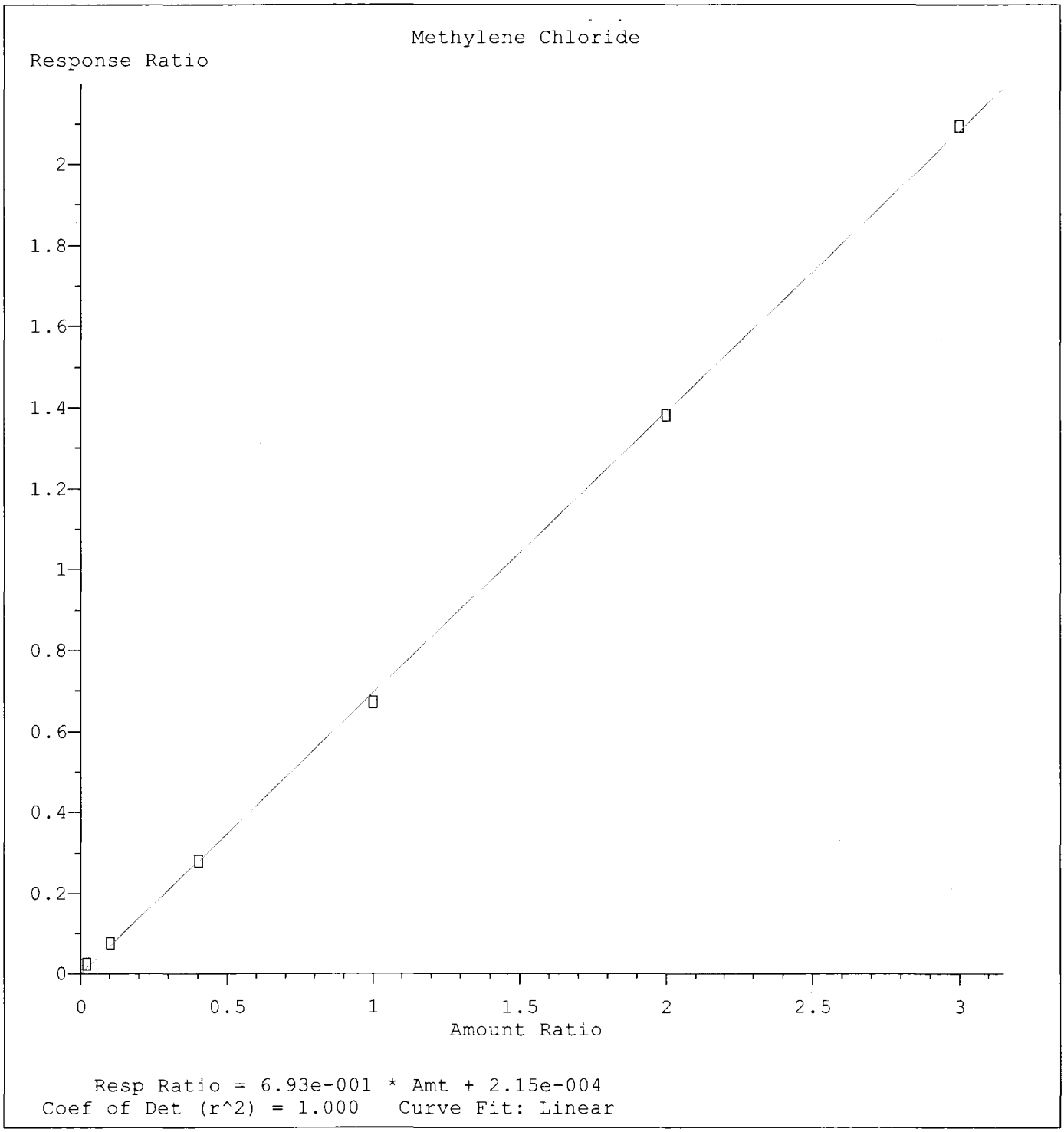
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



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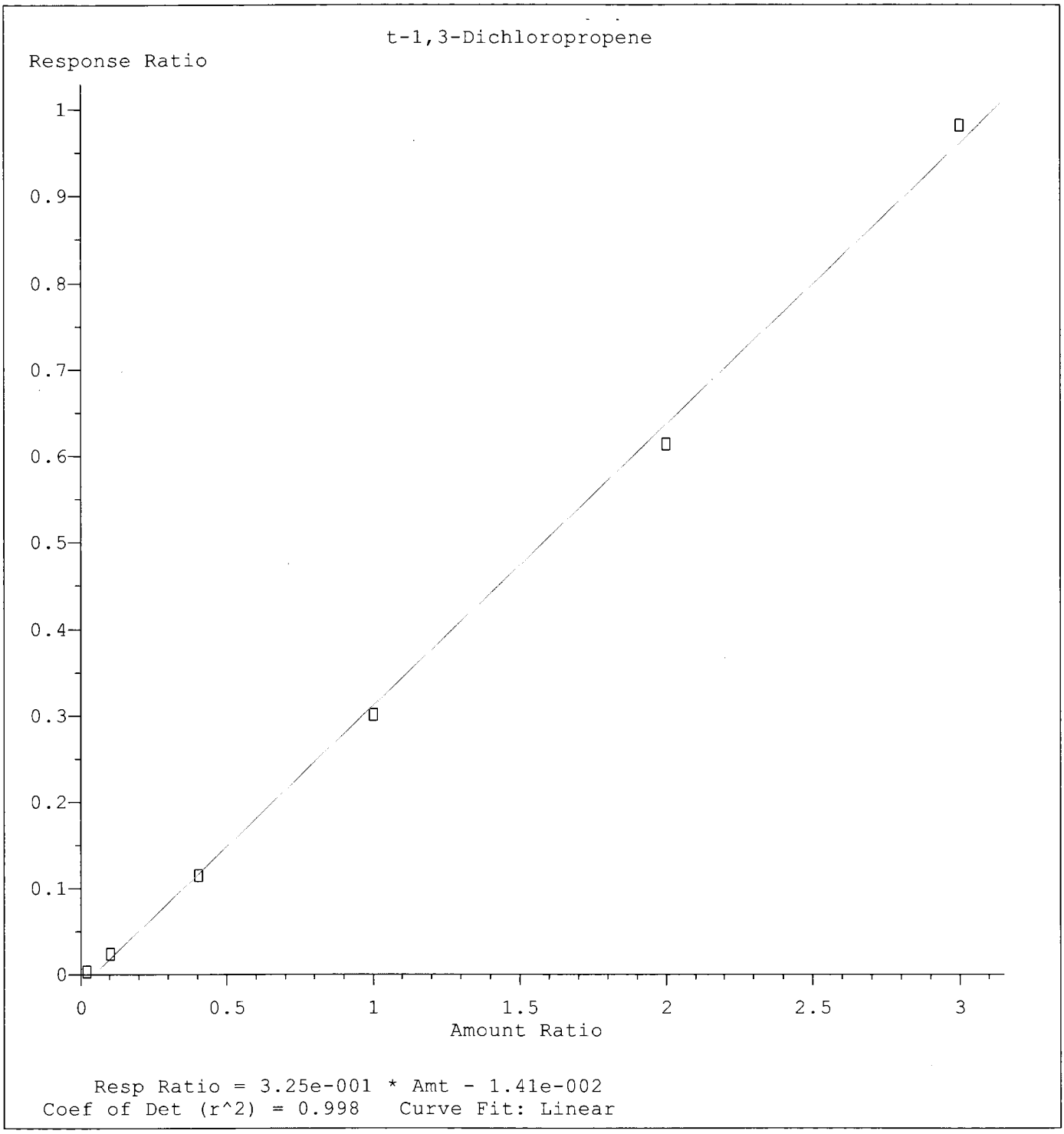
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



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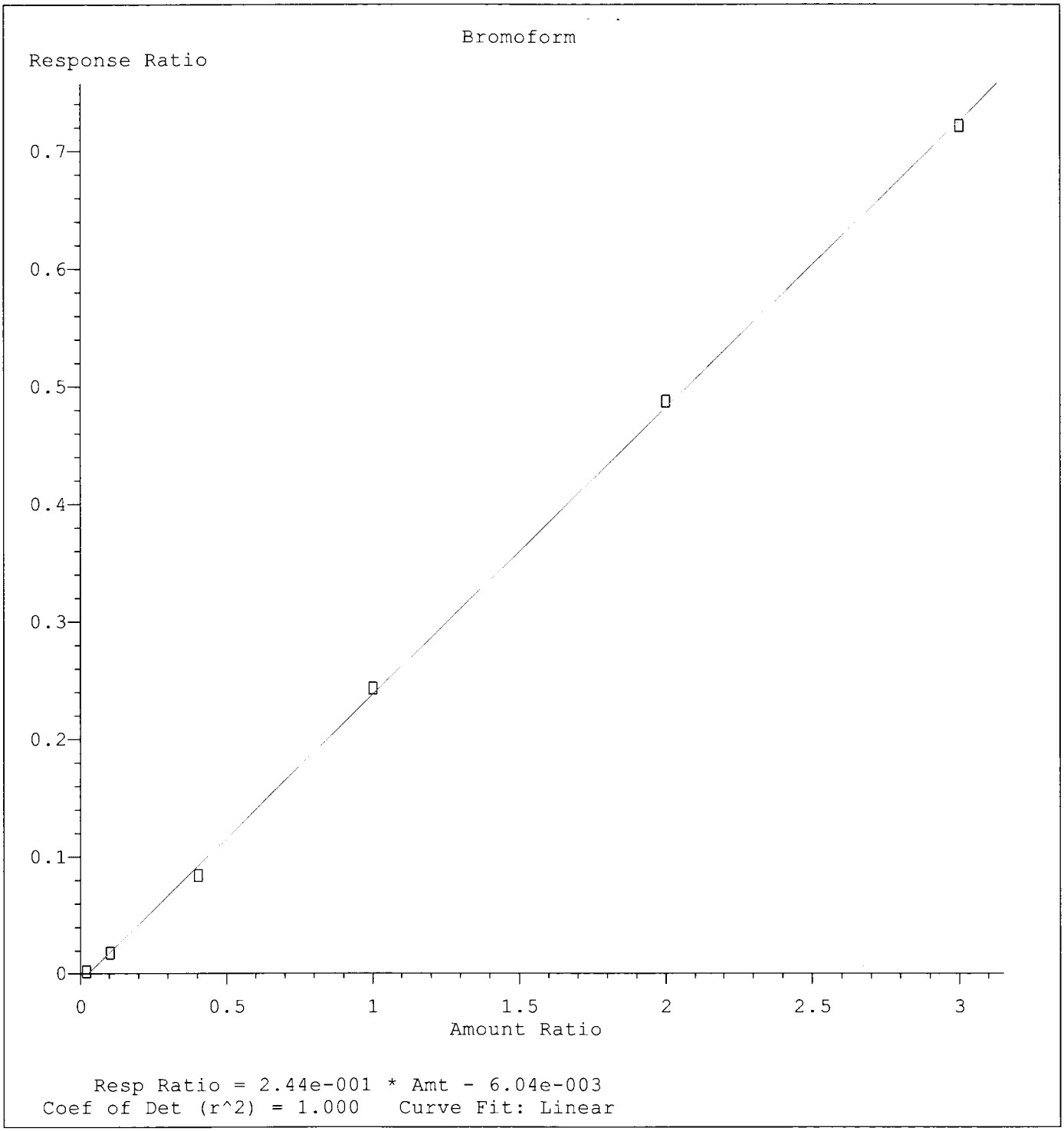
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VG039729.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOAG BFB Injection Time: 01:06

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.9
75	30.0 - 60.0% of mass 95	44.1
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	89.7
175	5.0 - 9.0% of mass 174	7.7 (8.6) 1
176	95.0 - 101.0% of mass 174	86.4 (96.3) 1
177	5.0 - 9.0% of mass 176	5.4 (6.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VG039730.D	12/21/2011	02:19
VBG1220W2	VBG1220W2	VG039732.D	12/21/2011	03:17
BSG1220W3	BSG1220W3	VG039733.D	12/21/2011	03:46
BSG1220W4	BSG1220W4	VG039734.D	12/21/2011	04:15
12TB-20111215	C5017-22	VG039739.D	12/21/2011	06:40

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOAG Calibration Date/Time: 12/21/2011 02:19

Lab File ID: VG039730.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.371	0.360		-2.96	
Chloromethane	0.748	0.816	0.1	9.09	
Vinyl Chloride	0.652	0.782		19.94	20
Bromomethane	0.562	0.732		30.25	
Chloroethane	0.509	0.603		18.47	
Trichlorofluoromethane	0.677	0.738		9.01	
1,1,2-Trichlorotrifluoroethane	0.564	0.606		7.45	
1,1-Dichloroethene	0.658	0.704		6.99	20
Acetone	0.224	0.221		-1.34	
Carbon Disulfide	1.932	2.305		19.31	
Methyl tert-butyl Ether	1.441	1.500		4.09	
Methyl Acetate	1.277	1.375		7.67	
Methylene Chloride	0.793	0.820		3.4	
trans-1,2-Dichloroethene	0.639	0.690		7.98	
1,1-Dichloroethane	1.266	1.372	0.1	8.37	
Cyclohexane	1.04	1.199		15.29	
2-Butanone	0.399	0.403		1	
Carbon Tetrachloride	0.303	0.355		17.16	
cis-1,2-Dichloroethene	0.818	0.890		8.8	
Bromochloromethane	0.67	0.705		5.22	
Chloroform	1.091	1.117		2.38	20
1,1,1-Trichloroethane	0.691	0.720		4.2	
Methylcyclohexane	0.485	0.527		8.66	
Benzene	1.323	1.377		4.08	
1,2-Dichloroethane	0.461	0.446		-3.25	
Trichloroethene	0.393	0.380		-3.31	
1,2-Dichloropropane	0.381	0.388		1.84	20
Bromodichloromethane	0.389	0.424		9	
4-Methyl-2-Pentanone	0.246	0.250		1.63	
Toluene	0.482	0.512		6.22	20
t-1,3-Dichloropropene	0.272	0.302		11.03	
cis-1,3-Dichloropropene	0.32	0.356		11.25	
1,1,2-Trichloroethane	0.193	0.200		3.63	
2-Hexanone	0.178	0.173		-2.81	
Dibromochloromethane	0.202	0.223		10.4	
1,2-Dibromoethane	0.214	0.222		3.74	
Tetrachloroethene	0.444	0.386		-13.06	
Chlorobenzene	1.047	1.084	0.3	3.53	
Ethyl Benzene	1.551	1.633		5.29	20
m/p-Xylenes	0.633	0.689		8.85	
o-Xylene	0.601	0.685		13.98	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOAG Calibration Date/Time: 12/21/2011 02:19

Lab File ID: VG039730.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	$\overline{RRF}$	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.104		16.83	
Bromoform	0.198	0.242	0.1	22.22	
Isopropylbenzene	3.657	3.515		-3.88	
1,1,2,2-Tetrachloroethane	0.998	0.891	0.3	-10.72	
1,3-Dichlorobenzene	1.608	1.646		2.36	
1,4-Dichlorobenzene	1.574	1.604		1.91	
1,2-Dichlorobenzene	1.415	1.413		-0.14	
1,2-Dibromo-3-Chloropropane	0.121	0.113		-6.61	
1,2,4-Trichlorobenzene	0.901	0.904		0.33	
1,2,3-Trichlorobenzene	0.806	0.801		-0.62	
1,2-Dichloroethane-d4	0.626	0.574		-8.31	
Dibromofluoromethane	0.39	0.375		-3.85	
Toluene-d8	0.668	0.629		-5.84	
4-Bromofluorobenzene	0.23	0.253		10	
1,4-Dioxane	0.002	0.003		50	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG122011\
Data File : VG039730.D
Acq On : 21 Dec 2011 2:19
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 21 03:46:21 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	99	0.01
2	T	Dichlorodifluoromethane	50.000	48.570	2.9	87	0.01
3	P	Chloromethane	50.000	54.555	-9.1	110	0.01
4	C	Vinyl Chloride	50.000	59.958	-19.9#	117	0.00
5	T	Bromomethane	50.000	65.129	-30.3#	131	0.02
6	T	Chloroethane	50.000	59.243	-18.5	119	0.02
7	T	Trichlorofluoromethane	50.000	54.509	-9.0	111	-0.02
8	T	Diethyl Ether	50.000	55.270	-10.5	109	0.02
9	T	1,1,2-Trichlorotrifluoroeth	50.000	53.772	-7.5	110	0.02
10	T	Methyl Iodide	50.000	55.787	-11.6	114	0.01
11	T	Tert butyl alcohol	250.000	262.539	-5.0	107	0.02
12	CM	1,1-Dichloroethene	50.000	53.467	-6.9#	114	0.00
13	T	Acrolein	250.000	300.940	-20.4#	124	0.02
14	T	Allyl chloride	50.000	62.661	-25.3#	123	0.00
15	T	Acrylonitrile	250.000	271.226	-8.5	108	0.02
16	T	Acetone	250.000	312.250	-24.9#	117	0.00
17	T	Carbon Disulfide	50.000	59.630	-19.3	120	0.01
18	T	Methyl Acetate	50.000	53.834	-7.7	108	0.00
19	T	Methyl tert-butyl Ether	50.000	52.039	-4.1	106	0.02
20	T	Methylene Chloride	50.000	59.137	-18.3	121	0.02
21	T	trans-1,2-Dichloroethene	50.000	53.976	-8.0	111	0.00
22	T	Acetonitrile	50.000	0.000	100.0#	0	-2.42#
23	T	Diisopropyl ether	50.000	58.355	-16.7	119	0.02
24	T	Vinyl Acetate	250.000	283.399	-13.4	113	0.02
25	P	1,1-Dichloroethane	50.000	54.193	-8.4	113	0.02
26	T	2-Butanone	250.000	252.553	-1.0	104	0.02
27	T	2,2-Dichloropropane	50.000	60.803	-21.6#	126	0.01
28	T	cis-1,2-Dichloroethene	50.000	54.411	-8.8	112	0.01
29	T	Bromochloromethane	50.000	52.609	-5.2	110	0.01
30	C	Chloroform	50.000	51.185	-2.4#	108	0.01
31	T	Cyclohexane	50.000	57.639	-15.3	119	0.01
32	T	1,1,1-Trichloroethane	50.000	52.089	-4.2	107	0.02
33	S	1,2-Dichloroethane-d4	50.000	51.245	-2.5	98	0.02
34	I	1,4-Difluorobenzene	50.000	50.000	0.0	101	0.02
35	S	Dibromofluoromethane	50.000	47.988	4.0	99	0.02
36	T	1,1-Dichloropropene	50.000	52.084	-4.2	109	0.02
37	T	Ethyl Acetate	50.000	53.444	-6.9	103	0.00
38	T	Carbon Tetrachloride	50.000	58.601	-17.2	110	0.02
39	T	Methylcyclohexane	50.000	54.334	-8.7	112	0.02
40	TM	Benzene	50.000	52.022	-4.0	111	0.02
41	T	Methacrylonitrile	50.000	54.540	-9.1	108	0.02
42	TM	1,2-Dichloroethane	50.000	48.363	3.3	102	0.02
43	T	Isopropyl Acetate	50.000	51.726	-3.5	100	0.02
44	T	Isobutyl alcohol	50.000	0.000	100.0#	0	-4.22#
45	TM	Trichloroethene	50.000	48.284	3.4	102	0.02

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG122011\
Data File : VG039730.D
Acq On : 21 Dec 2011 2:19
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 21 03:46:21 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	C	1,2-Dichloropropane	50.000	50.911	-1.8#	107	0.02
47	T	Dibromomethane	50.000	49.969	0.1	102	0.02
48	T	Bromodichloromethane	50.000	54.532	-9.1	107	0.01
49	T	Methyl methacrylate	50.000	49.473	1.1	97	0.01
50	T	1,4-Dioxane	1000.000	1194.329	-19.4	110	0.00
51	S	Toluene-d8	50.000	47.045	5.9	95	0.01
52	T	4-Methyl-2-Pentanone	250.000	254.245	-1.7	97	0.00
53	CM	Toluene	50.000	53.052	-6.1#	108	0.01
54	T	t-1,3-Dichloropropene	50.000	48.669	2.7	101	0.00
55	T	cis-1,3-Dichloropropene	50.000	55.723	-11.4	108	0.02
56	T	1,1,2-Trichloroethane	50.000	52.003	-4.0	106	0.00
57	T	Ethyl methacrylate	50.000	45.290	9.4	95	0.00
58	T	1,3-Dichloropropane	50.000	50.835	-1.7	103	0.01
59	T	2-Chloroethyl Vinyl ether	250.000	254.717	-1.9	99	0.00
60	T	2-Hexanone	250.000	244.259	2.3	92	0.00
61	T	Dibromochloromethane	50.000	49.663	0.7	102	0.01
62	T	1,2-Dibromoethane	50.000	51.851	-3.7	104	0.01
63	S	4-Bromofluorobenzene	50.000	55.104	-10.2	102	0.00
64	I	Chlorobenzene-d5	50.000	50.000	0.0	106	0.00
65	T	Tetrachloroethene	50.000	43.429	13.1	96	0.02
66	PM	Chlorobenzene	50.000	51.752	-3.5	114	0.01
67	T	1,1,1,2-Tetrachloroethane	50.000	52.214	-4.4	109	0.00
68	C	Ethyl Benzene	50.000	52.623	-5.2#	110	0.00
69	T	m/p-Xylenes	100.000	108.732	-8.7	110	0.00
70	T	o-Xylene	50.000	57.027	-14.1	112	0.00
71	T	Styrene	50.000	58.397	-16.8	115	0.00
72	P	Bromoform	50.000	50.776	-1.6	106	0.00
73	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	112	0.00
74	T	Isopropylbenzene	50.000	48.059	3.9	110	0.00
75	T	N-amyl acetate	50.000	48.477	3.0	105	0.00
76	P	1,1,2,2-Tetrachloroethane	50.000	44.652	10.7	109	0.00
77	T	1,2,3-Trichloropropane	50.000	45.124	9.8	108	0.00
78	T	Bromobenzene	50.000	49.616	0.8	114	0.00
79	T	n-propylbenzene	50.000	49.852	0.3	114	0.00
80	T	2-Chlorotoluene	50.000	49.292	1.4	113	0.00
81	T	1,3,5-Trimethylbenzene	50.000	51.641	-3.3	116	0.00
82	T	trans-1,4-Dichloro-2-butene	50.000	42.869	14.3	109	0.00
83	T	4-Chlorotoluene	50.000	49.927	0.1	114	0.00
84	T	tert-Butylbenzene	50.000	53.375	-6.8	119	0.00
85	T	1,2,4-Trimethylbenzene	50.000	52.756	-5.5	116	0.00
86	T	sec-Butylbenzene	50.000	52.199	-4.4	117	0.00
87	T	p-Isopropyltoluene	50.000	53.034	-6.1	117	0.00
88	T	1,3-Dichlorobenzene	50.000	51.169	-2.3	115	0.00
89	T	1,4-Dichlorobenzene	50.000	50.971	-1.9	119	0.00

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG122011\
Data File : VG039730.D
Acq On : 21 Dec 2011 2:19
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 21 03:46:21 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	n-Butylbenzene	50.000	55.023	-10.0	118	0.00
)1	T	Hexachloroethane	50.000	52.382	-4.8	115	0.00
)2	T	1,2-Dichlorobenzene	50.000	49.928	0.1	112	0.00
)3	T	1,2,4,5-Tetramethylbenzene	50.000	0.000	100.0#	0	-14.99#
)4	T	1,2-Dibromo-3-Chloropropane	50.000	46.510	7.0	100	0.00
)5	T	1,2,4-Trichlorobenzene	50.000	50.131	-0.3	112	0.00
)6	T	Hexachlorobutadiene	50.000	48.107	3.8	103	0.00
)7	T	Naphthalene	50.000	51.783	-3.6	108	0.01
)8	T	1,2,3-Trichlorobenzene	50.000	49.656	0.7	111	0.00
)9	T	p-ethyltoluene	50.000	0.000	100.0#	0	-11.64#
)0	T	p-diethylbenzene	50.000	0.000	100.0#	0	-13.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG1220W2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VG039732.D Lab Sample ID: VBG1220W2

Date Analyzed: 12/21/2011 Time Analyzed: 03:17

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG1220W3	BSG1220W3	VG039733.D	12/21/2011
BSG1220W4	BSG1220W4	VG039734.D	12/21/2011
12TB-20111215	C5017-22	VG039739.D	12/21/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1220W2	SDG No.:	C5017
Lab Sample ID:	VBG1220W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039732.D	1		12/21/11	VG122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1220W2	SDG No.:	C5017
Lab Sample ID:	VBG1220W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039732.D	1		12/21/11	VG122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	48		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	46.3		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.2		75 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	741629	3.9			
540-36-3	1,4-Difluorobenzene	1348000	4.71			
3114-55-4	Chlorobenzene-d5	737952	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	331735	13.39			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1220W2	SDG No.:	C5017
Lab Sample ID:	VBG1220W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039732.D	1		12/21/11	VG122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF029977.D BFB Injection Date: 12/13/2011

Instrument ID: MSVOA_F BFB Injection Time: 18:40

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.4
75	30.0 - 60.0% of mass 95	44.4
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	5.8
173	Less than 2.0% of mass 174	0.6 (0.7) 1
174	50.0 - 100.0% of mass 95	76.8
175	5.0 - 9.0% of mass 174	5.5 (7.2) 1
176	95.0 - 101.0% of mass 174	75.2 (97.9) 1
177	5.0 - 9.0% of mass 176	5 (6.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD100	100 PPB ICC	VF029979.D	12/13/2011	20:20
VSTD075	75 PPB ICC	VF029980.D	12/13/2011	20:51
VSTD050	50 PPB ICC	VF029981.D	12/13/2011	21:22
VSTD020	20 PPB ICC	VF029982.D	12/13/2011	21:53
VSTD010	10 PPB ICC	VF029983.D	12/13/2011	22:24
VSTD005	5 PPB ICC	VF029984.D	12/13/2011	22:55

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date(s): 12/13/2011 12/13/2011

Heated Purge: (Y/N) Y Calibration Time(s): 20:20 22:55

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF029984.D RRF020 = VF029982.D RRF050 = VF029981.D
RRF075 = VF029980.D RRF100 = VF029979.D RRF010 = VF029983.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD	
Dichlorodifluoromethane	0.700	0.751	0.611	0.652	0.656	0.595	0.661	8.7	
Chloromethane	0.884	0.893	0.840	0.878	0.837	0.862	0.866	2.7	
Vinyl Chloride	0.632	0.583	0.526	0.572	0.579	0.548	0.573	6.3	
Bromomethane	0.338	0.312	0.288	0.277	0.250	0.275	0.29	10.7	
Chloroethane	0.240	0.249	0.174	0.169	0.141	0.216	0.198	21.9	r2ok
Trichlorofluoromethane	0.697	0.699	0.639	0.661	0.615	0.593	0.651	6.6	
1,1,2-Trichlorotrifluor<	0.540	0.453	0.425	0.435	0.428	0.458	0.456	9.4	
1,1-Dichloroethene	0.490	0.459	0.383	0.425	0.399	0.420	0.43	9.1	
Acetone	0.437	0.381	0.333	0.356	0.351	0.321	0.363	11.5	
Carbon Disulfide	1.438	1.309	1.146	1.208	1.120	1.134	1.226	10.2	
Methyl tert-butyl Ether	1.942	1.727	1.524	1.635	1.536	1.554	1.653	9.7	
Methyl Acetate	1.499	1.333	1.091	1.224	1.166	1.264	1.263	11.3	
Methylene Chloride	0.800	0.610	0.477	0.523	0.470	0.614	0.582	21.2	r2ok
trans-1,2-Dichloroethene	0.496	0.418	0.374	0.403	0.386	0.429	0.418	10.4	
1,1-Dichloroethane	1.062	0.913	0.810	0.863	0.835	0.827	0.885	10.6	
Cyclohexane	1.121	1.089	0.937	1.027	0.980	1.049	1.034	6.6	
2-Butanone	0.755	0.663	0.578	0.627	0.614	0.614	0.642	9.6	
Carbon Tetrachloride	0.537	0.505	0.465	0.489	0.487	0.515	0.5	5	
cis-1,2-Dichloroethene	1.054	0.903	0.779	0.829	0.788	0.900	0.876	11.7	
Bromochloromethane	0.882	0.768	0.590	0.680	0.634	0.732	0.714	14.6	
Chloroform	1.418	1.315	1.153	1.255	1.183	1.222	1.258	7.7	
1,1,1-Trichloroethane	0.968	0.808	0.759	0.797	0.725	0.767	0.804	10.6	
Methylcyclohexane	0.591	0.555	0.524	0.531	0.544	0.564	0.551	4.4	
Benzene	1.588	1.397	1.226	1.296	1.314	1.387	1.368	9.1	
1,2-Dichloroethane	0.724	0.588	0.537	0.566	0.554	0.598	0.595	11.3	
Trichloroethene	0.618	0.574	0.509	0.531	0.527	0.577	0.556	7.3	
1,2-Dichloropropane	0.497	0.422	0.375	0.408	0.402	0.427	0.422	9.8	
Bromodichloromethane	0.637	0.574	0.524	0.558	0.558	0.561	0.568	6.6	
4-Methyl-2-Pentanone	0.754	0.683	0.574	0.584	0.586	0.630	0.635	11.2	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date(s): 12/13/2011 12/13/2011

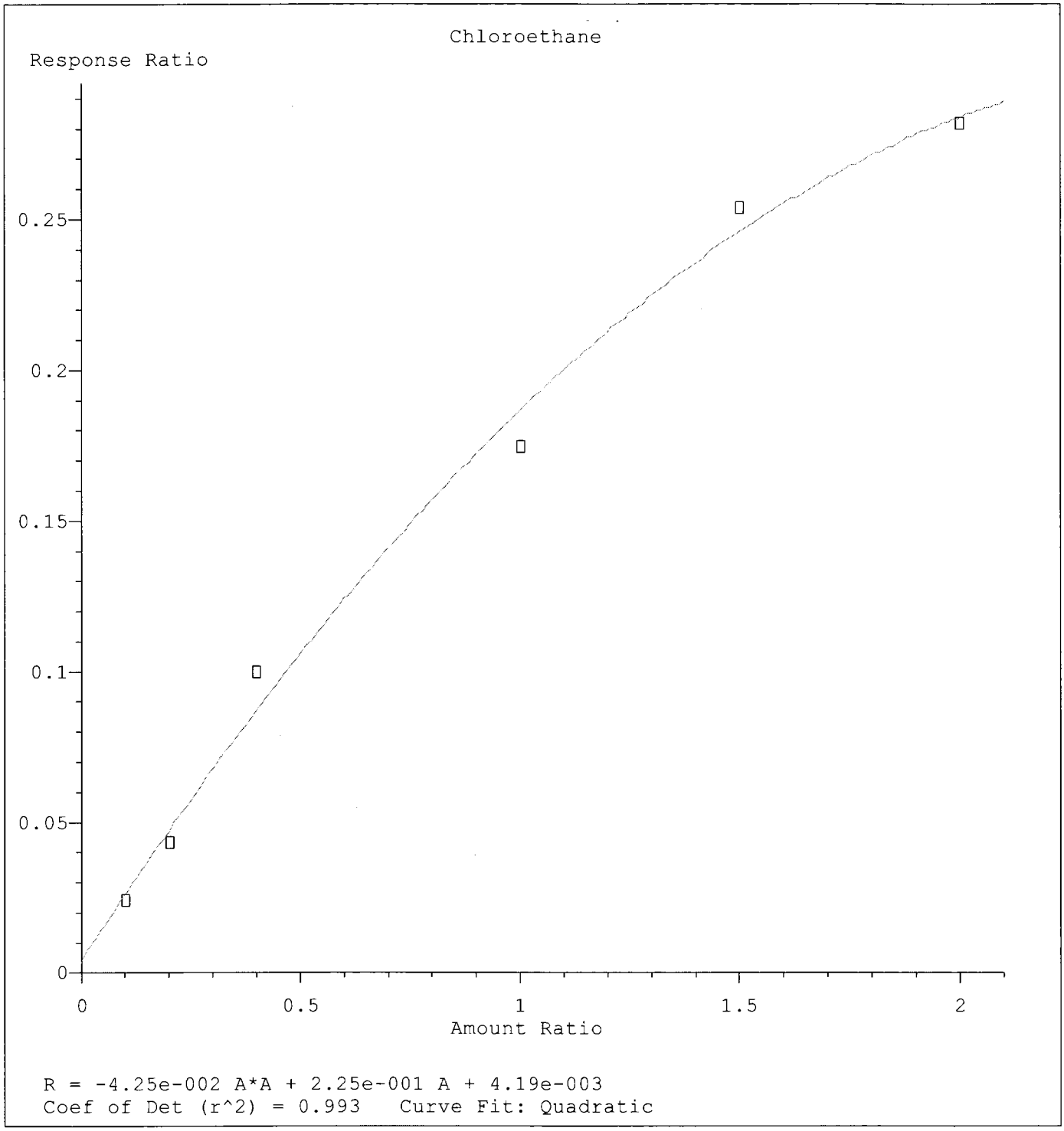
Heated Purge: (Y/N) Y Calibration Time(s): 20:20 22:55

GC Column: RTX-624 ID: 0.25 (mm)

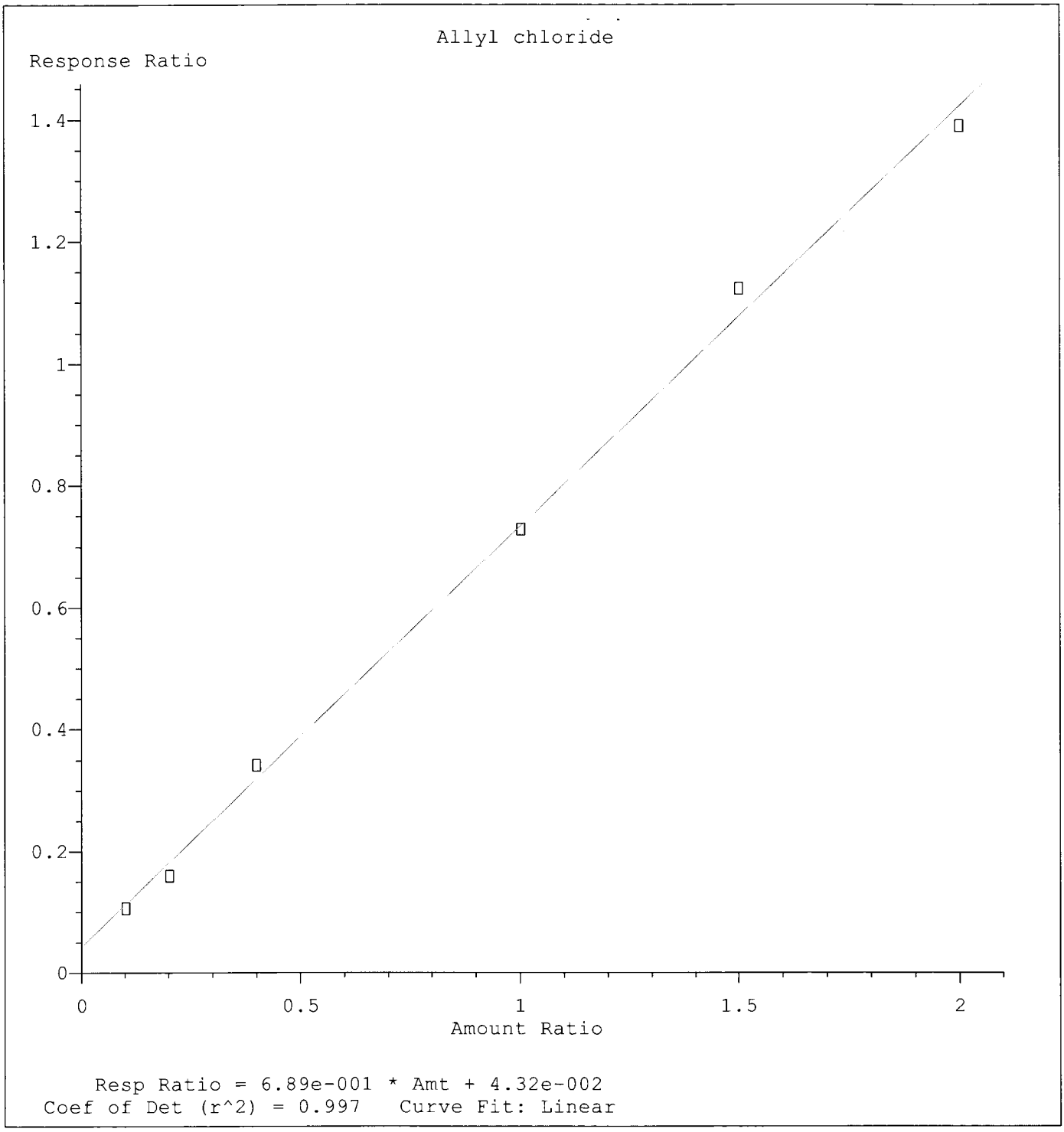
LAB FILE ID: RRF005 = VF029984.D RRF020 = VF029982.D RRF050 = VF029981.D
RRF075 = VF029980.D RRF100 = VF029979.D RRF010 = VF029983.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Toluene	0.949	0.865	0.780	0.808	0.803	0.871	0.846	7.3
t-1,3-Dichloropropene	0.766	0.731	0.633	0.654	0.640	0.701	0.687	7.9
cis-1,3-Dichloropropene	0.771	0.725	0.653	0.684	0.674	0.694	0.7	6
1,1,2-Trichloroethane	0.485	0.386	0.347	0.351	0.349	0.379	0.383	13.8
2-Hexanone	0.680	0.612	0.523	0.499	0.466	0.579	0.56	14.1
Dibromochloromethane	0.545	0.493	0.420	0.448	0.438	0.452	0.466	9.8
1,2-Dibromoethane	0.528	0.475	0.427	0.427	0.421	0.462	0.457	9
Tetrachloroethene	0.888	0.619	0.539	0.576	0.573	0.733	0.655	20.3
Chlorobenzene	1.170	1.003	0.956	1.019	1.030	1.052	1.038	7
Ethyl Benzene	1.836	1.645	1.524	1.626	1.654	1.687	1.662	6.1
m/p-Xylenes	0.661	0.604	0.566	0.597	0.606	0.632	0.611	5.3
o-Xylene	0.673	0.627	0.578	0.639	0.636	0.659	0.635	5.2
Styrene	1.087	1.052	0.997	1.055	1.052	1.016	1.043	3.1
Bromoform	0.332	0.330	0.313	0.341	0.353	0.310	0.33	5
Isopropylbenzene	3.280	2.914	2.747	2.908	2.958	2.988	2.966	5.9
1,1,2,2-Tetrachloroethar	0.412	0.388	0.359	0.389	0.388	0.411	0.391	5
1,3-Dichlorobenzene	1.873	1.535	1.449	1.538	1.528	1.635	1.593	9.4
1,4-Dichlorobenzene	1.884	1.595	1.503	1.564	1.582	1.591	1.62	8.3
1,2-Dichlorobenzene	1.786	1.566	1.459	1.530	1.512	1.668	1.587	7.6
1,2-Dibromo-3-Chloropro	0.176	0.170	0.163	0.173	0.182	0.159	0.171	5
1,2,4-Trichlorobenzene	1.235	1.157	1.087	1.106	1.083	1.190	1.143	5.4
1,2,3-Trichlorobenzene	1.210	1.082	1.003	1.061	1.036	1.109	1.084	6.6
1,2-Dichloroethane-d4	0.828	0.937	0.773	0.826	0.767	0.765	0.816	8.1
Dibromofluoromethane	0.442	0.499	0.400	0.408	0.408	0.414	0.428	8.8
Toluene-d8	1.178	1.377	1.076	1.143	1.099	1.120	1.166	9.4
4-Bromofluorobenzene	0.641	0.686	0.541	0.523	0.505	0.569	0.577	12.4
1,4-Dioxane	0.005	0.006	0.004	0.005	0.005	0.005	0.005	11

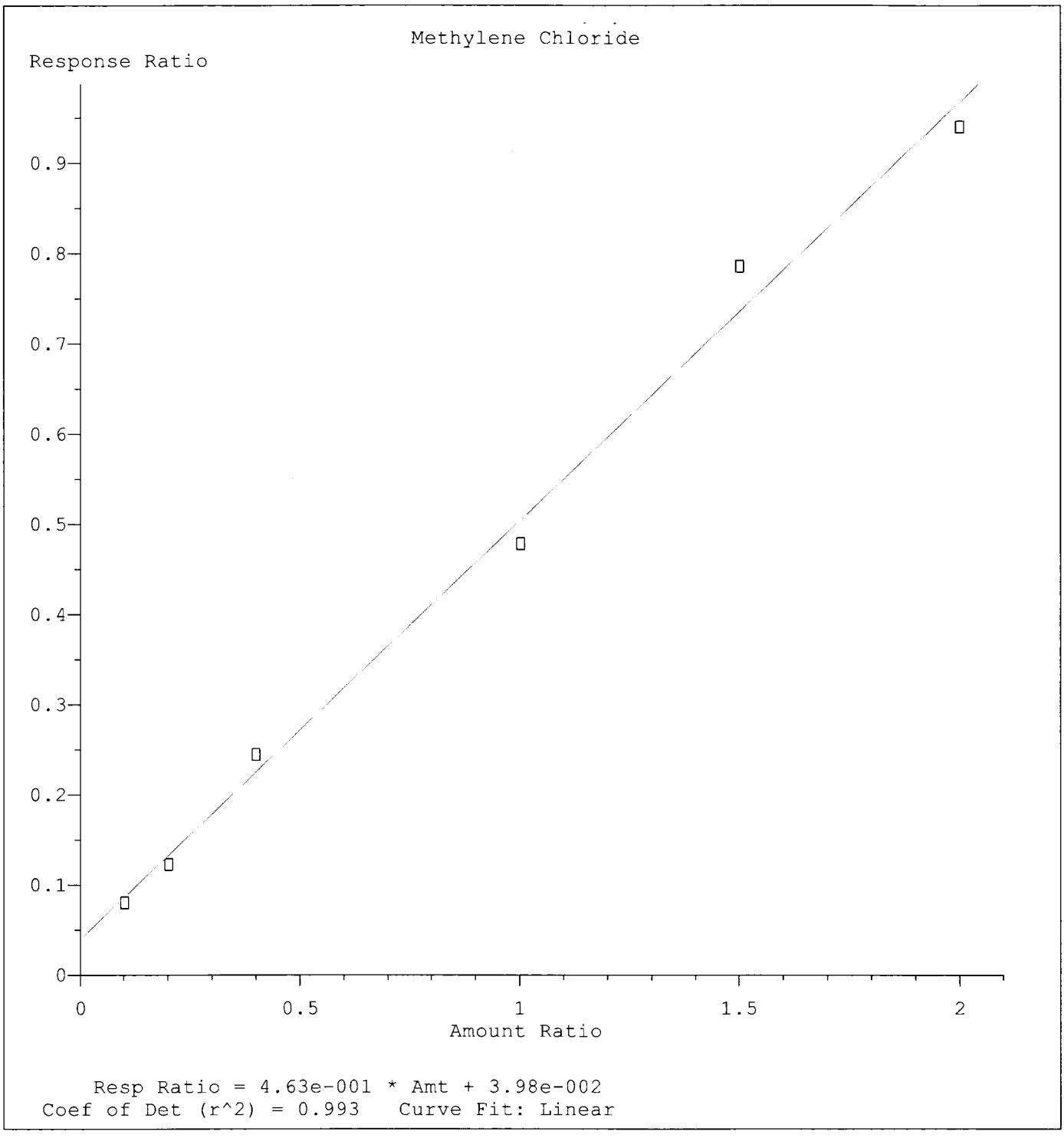
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



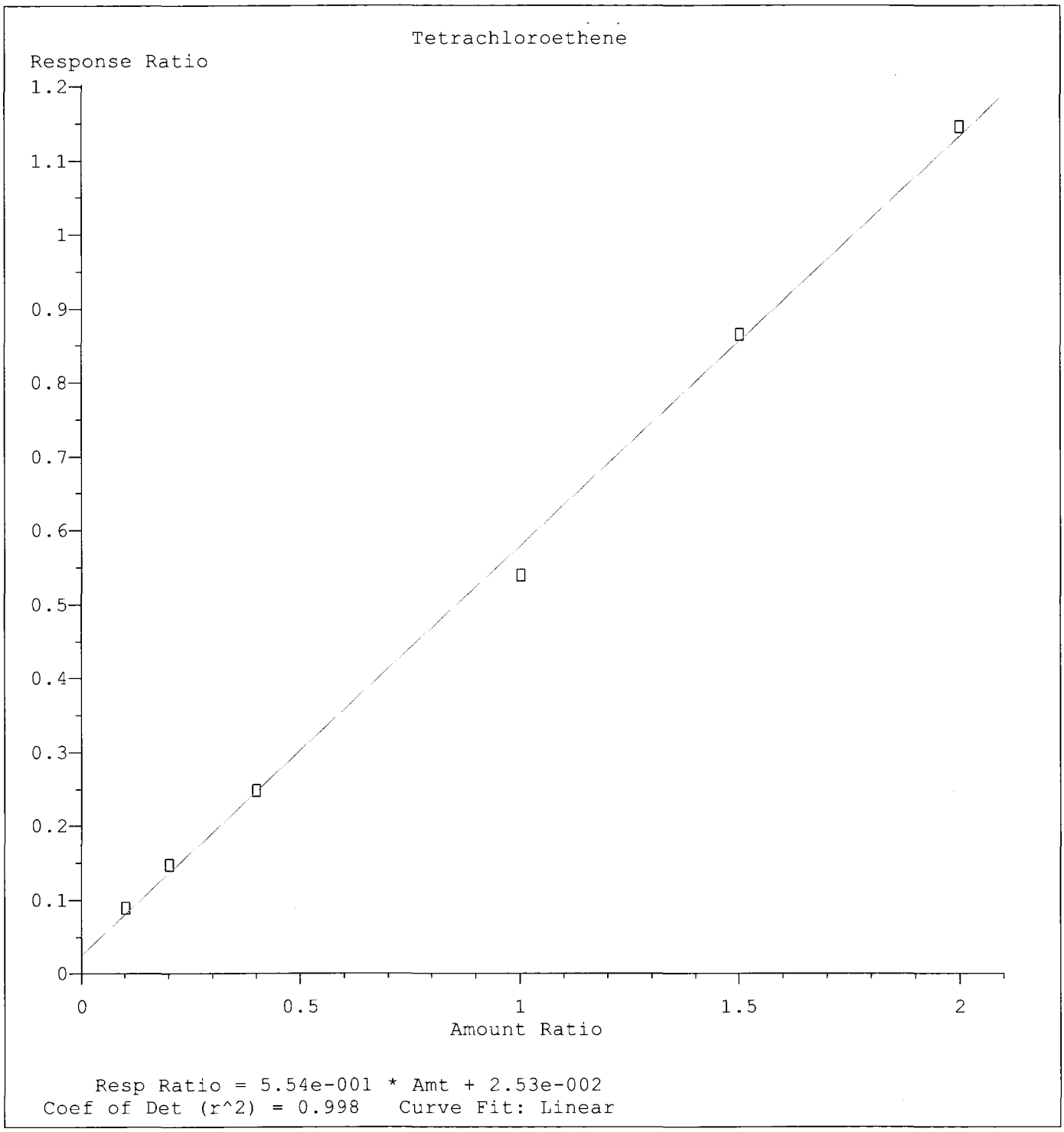
Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Calibration Table Last Updated: Wed Dec 14 02:21:56 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Calibration Table Last Updated: Wed Dec 14 02:24:07 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Calibration Table Last Updated: Wed Dec 14 02:24:33 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Calibration Table Last Updated: Wed Dec 14 02:25:01 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030197.D BFB Injection Date: 12/20/2011

Instrument ID: MSVOA_F BFB Injection Time: 21:27

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.2
75	30.0 - 60.0% of mass 95	48.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.4 (0.5) 1
174	50.0 - 100.0% of mass 95	77.6
175	5.0 - 9.0% of mass 174	5.3 (6.8) 1
176	95.0 - 101.0% of mass 174	74.3 (95.8) 1
177	5.0 - 9.0% of mass 176	4.5 (6.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030198.D	12/20/2011	22:09
VBF1220S1	VBF1220S1	VF030199.D	12/20/2011	22:40
BSF1220S1	BSF1220S1	VF030200.D	12/20/2011	23:11
12SB16-000.5-01	C5017-01	VF030212.D	12/21/2011	05:25
12SB16-0.502-02	C5017-02	VF030213.D	12/21/2011	05:56
12SB16-0304-03	C5017-03	VF030214.D	12/21/2011	06:27
12SB11-0.501-02	C5017-07	VF030215.D	12/21/2011	06:59
12SB11-0304-03	C5017-08	VF030216.D	12/21/2011	07:30
12SB-DUP02	C5017-09	VF030217.D	12/21/2011	08:01
12SB09-000.5-01	C5017-10	VF030218.D	12/21/2011	08:32

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date/Time: 12/20/2011 22:09

Lab File ID: VF030198.D Init. Calib. Date(s): 12/13/2011 12/13/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 20:20 22:55

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.661	0.735		11.2	
Chloromethane	0.866	0.984	0.1	13.63	
Vinyl Chloride	0.573	0.640		11.69	20
Bromomethane	0.29	0.329		13.45	
Chloroethane	0.198	0.203		2.53	
Trichlorofluoromethane	0.651	0.830		27.5	
1,1,2-Trichlorotrifluoroethane	0.456	0.505		10.75	
1,1-Dichloroethene	0.43	0.475		10.47	20
Acetone	0.363	0.367		1.1	
Carbon Disulfide	1.226	1.311		6.93	
Methyl tert-butyl Ether	1.653	1.688		2.12	
Methyl Acetate	1.263	1.303		3.17	
Methylene Chloride	0.582	0.574		-1.37	
trans-1,2-Dichloroethene	0.418	0.435		4.07	
1,1-Dichloroethane	0.885	0.977	0.1	10.4	
Cyclohexane	1.034	1.105		6.87	
2-Butanone	0.642	0.628		-2.18	
Carbon Tetrachloride	0.5	0.574		14.8	
cis-1,2-Dichloroethene	0.876	0.886		1.14	
Bromochloromethane	0.714	0.725		1.54	
Chloroform	1.258	1.377		9.46	20
1,1,1-Trichloroethane	0.804	0.890		10.7	
Methylcyclohexane	0.551	0.628		13.97	
Benzene	1.368	1.487		8.7	
1,2-Dichloroethane	0.595	0.625		5.04	
Trichloroethene	0.556	0.620		11.51	
1,2-Dichloropropane	0.422	0.458		8.53	20
Bromodichloromethane	0.568	0.640		12.68	
4-Methyl-2-Pentanone	0.635	0.651		2.52	
Toluene	0.846	0.945		11.7	20
t-1,3-Dichloropropene	0.687	0.758		10.33	
cis-1,3-Dichloropropene	0.7	0.788		12.57	
1,1,2-Trichloroethane	0.383	0.411		7.31	
2-Hexanone	0.56	0.542		-3.21	
Dibromochloromethane	0.466	0.492		5.58	
1,2-Dibromoethane	0.457	0.493		7.88	
Tetrachloroethene	0.655	0.628		-4.12	
Chlorobenzene	1.038	1.132	0.3	9.06	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date/Time: 12/20/2011 22:09

Lab File ID: VF030198.D Init. Calib. Date(s): 12/13/2011 12/13/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 20:20 22:55

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF050	MIN RRF	%D	MAX%D
Ethyl Benzene	1.662	1.860		11.91	20
m/p-Xylenes	0.611	0.686		12.27	
o-Xylene	0.635	0.698		9.92	
Styrene	1.043	1.158		11.03	
Bromoform	0.33	0.349	0.1	5.76	
Isopropylbenzene	2.966	3.555		19.86	
1,1,2,2-Tetrachloroethane	0.391	0.450	0.3	15.09	
1,3-Dichlorobenzene	1.593	1.789		12.3	
1,4-Dichlorobenzene	1.62	1.810		11.73	
1,2-Dichlorobenzene	1.587	1.742		9.77	
1,2-Dibromo-3-Chloropropane	0.171	0.183		7.02	
1,2,4-Trichlorobenzene	1.143	1.267		10.85	
1,2,3-Trichlorobenzene	1.084	1.197		10.42	
1,2-Dichloroethane-d4	0.816	0.839		2.82	
Dibromofluoromethane	0.428	0.447		4.44	
Toluene-d8	1.166	1.249		7.12	
4-Bromofluorobenzene	0.577	0.562		-2.6	
1,4-Dioxane	0.005	0.006		20	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122011\
Data File : VF030198.D
Acq On : 20 Dec 2011 22:09
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 22:39:04 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Quant Title : SW846 8260
QLast Update : Wed Dec 14 02:27:33 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	80	0.01
2	T	Dichlorodifluoromethane	50.000	55.601	-11.2	96	0.00
3	P	Chloromethane	50.000	56.831	-13.7	94	0.01
4	C	Vinyl Chloride	50.000	55.847	-11.7#	98	0.01
5	T	Bromomethane	50.000	56.663	-13.3	92	0.00
6	T	Chloroethane	50.000	56.270	-12.5	94	0.01
7	T	Trichlorofluoromethane	50.000	63.812	-27.6#	104	0.01
8	T	Diethyl Ether	50.000	54.212	-8.4	89	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	55.368	-10.7	95	0.01
10	T	Methyl Iodide	50.000	52.303	-4.6	89	0.01
11	T	Tert butyl alcohol	250.000	261.275	-4.5	90	0.01
12	CM	1,1-Dichloroethene	50.000	55.293	-10.6#	99	0.01
13	T	Acrolein	250.000	223.029	10.8	84	0.00
14	T	Allyl chloride	50.000	56.432	-12.9	91	0.00
15	T	Acrylonitrile	250.000	248.613	0.6	88	0.01
16	T	Acetone	250.000	252.593	-1.0	88	0.00
17	T	Carbon Disulfide	50.000	53.486	-7.0	92	0.01
18	T	Methyl Acetate	50.000	51.579	-3.2	96	0.01
19	T	Methyl tert-butyl Ether	50.000	51.051	-2.1	89	0.00
20	T	Methylene Chloride	50.000	57.624	-15.2	96	0.01
21	T	trans-1,2-Dichloroethene	50.000	52.108	-4.2	93	0.01
22	T	Diisopropyl ether	50.000	50.573	-1.1	90	0.01
23	T	Vinyl Acetate	250.000	265.408	-6.2	90	0.01
24	P	1,1-Dichloroethane	50.000	55.169	-10.3	97	0.00
25	T	2-Butanone	250.000	244.640	2.1	87	0.01
26	T	2,2-Dichloropropane	50.000	51.813	-3.6	87	0.01
27	T	cis-1,2-Dichloroethene	50.000	50.577	-1.2	91	0.01
28	T	Bromochloromethane	50.000	50.790	-1.6	99	0.01
29	C	Chloroform	50.000	54.741	-9.5#	96	0.01
30	T	Cyclohexane	50.000	53.453	-6.9	95	0.01
31	T	1,1,1-Trichloroethane	50.000	55.363	-10.7	94	0.01
32	S	1,2-Dichloroethane-d4	50.000	51.383	-2.8	87	0.01
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	79	0.01
34	S	Dibromofluoromethane	50.000	52.107	-4.2	88	0.01
35	T	1,1-Dichloropropene	50.000	58.084	-16.2	101	0.01
36	T	Ethyl Acetate	50.000	48.928	2.1	90	0.00
37	T	Carbon Tetrachloride	50.000	57.398	-14.8	98	0.01
38	T	Methylcyclohexane	50.000	56.968	-13.9	95	0.01
39	TM	Benzene	50.000	54.340	-8.7	96	0.01
40	T	Methacrylonitrile	50.000	52.345	-4.7	88	0.01
41	TM	1,2-Dichloroethane	50.000	52.509	-5.0	92	0.01
42	T	Isopropyl Acetate	50.000	51.603	-3.2	88	0.01
43	TM	Trichloroethene	50.000	55.733	-11.5	96	0.01
44	C	1,2-Dichloropropane	50.000	54.349	-8.7#	97	0.01
45	T	Dibromomethane	50.000	55.185	-10.4	94	0.01

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122011\
Data File : VF030198.D
Acq On : 20 Dec 2011 22:09
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 22:39:04 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Quant Title : SW846 8260
QLast Update : Wed Dec 14 02:27:33 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	56.335	-12.7	97	0.01
47	T	Methyl methacrylate	50.000	53.189	-6.4	92	0.01
48	T	1,4-Dioxane	1000.000	1207.107	-20.7#	118	0.01
49	S	Toluene-d8	50.000	53.593	-7.2	92	0.01
50	T	4-Methyl-2-Pentanone	250.000	256.137	-2.5	90	0.00
51	CM	Toluene	50.000	55.869	-11.7#	96	0.00
52	T	t-1,3-Dichloropropene	50.000	55.125	-10.3	95	0.01
53	T	cis-1,3-Dichloropropene	50.000	56.310	-12.6	96	0.01
54	T	1,1,2-Trichloroethane	50.000	53.710	-7.4	94	0.01
55	T	Ethyl methacrylate	50.000	51.849	-3.7	87	0.01
56	T	1,3-Dichloropropane	50.000	53.460	-6.9	94	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	2044.905	-718.0#	762	0.01
58	T	2-Hexanone	250.000	241.884	3.2	82	0.01
59	T	Dibromochloromethane	50.000	52.826	-5.7	93	0.01
60	T	1,2-Dibromoethane	50.000	54.011	-8.0	91	0.01
61	S	4-Bromofluorobenzene	50.000	48.690	2.6	82	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	78	0.01
63	T	Tetrachloroethene	50.000	54.408	-8.8	91	0.01
64	PM	Chlorobenzene	50.000	54.510	-9.0	92	0.01
65	T	1,1,1,2-Tetrachloroethane	50.000	55.286	-10.6	95	0.00
66	C	Ethyl Benzene	50.000	55.945	-11.9#	95	0.01
67	T	m/p-Xylenes	100.000	112.329	-12.3	95	0.01
68	T	o-Xylene	50.000	54.932	-9.9	94	0.01
69	T	Styrene	50.000	55.512	-11.0	91	0.00
70	P	Bromoform	50.000	52.973	-5.9	87	0.01
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	75	0.01
72	T	Isopropylbenzene	50.000	59.926	-19.9	97	0.00
73	T	N-amyl acetate	50.000	49.319	1.4	80	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	57.502	-15.0	94	0.00
75	T	1,2,3-Trichloropropane	50.000	56.544	-13.1	90	0.00
76	T	Bromobenzene	50.000	54.829	-9.7	87	0.00
77	T	n-propylbenzene	50.000	59.204	-18.4	94	0.00
78	T	2-Chlorotoluene	50.000	57.771	-15.5	95	0.01
79	T	1,3,5-Trimethylbenzene	50.000	58.907	-17.8	95	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	58.691	-17.4	91	0.01
81	T	4-Chlorotoluene	50.000	56.592	-13.2	93	0.01
82	T	tert-Butylbenzene	50.000	59.994	-20.0	95	0.01
83	T	1,2,4-Trimethylbenzene	50.000	56.719	-13.4	92	0.01
84	T	sec-Butylbenzene	50.000	58.871	-17.7	95	0.00
85	T	p-Isopropyltoluene	50.000	59.008	-18.0	94	0.00
86	T	1,3-Dichlorobenzene	50.000	56.147	-12.3	92	0.01
87	T	1,4-Dichlorobenzene	50.000	55.874	-11.7	90	0.00
88	T	n-Butylbenzene	50.000	59.706	-19.4	95	0.00
89	T	Hexachloroethane	50.000	60.632	-21.3#	93	0.01

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122011\
Data File : VF030198.D
Acq On : 20 Dec 2011 22:09
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 20 22:39:04 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Quant Title : SW846 8260
QLast Update : Wed Dec 14 02:27:33 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	1,2-Dichlorobenzene	50.000	54.904	-9.8	89	0.01
)1	T	1,2-Dibromo-3-Chloropropane	50.000	53.480	-7.0	84	0.00
)2	T	1,2,4-Trichlorobenzene	50.000	55.434	-10.9	87	0.00
)3	T	Hexachlorobutadiene	50.000	54.036	-8.1	88	0.00
)4	T	Naphthalene	50.000	54.452	-8.9	87	0.00
)5	T	1,2,3-Trichlorobenzene	50.000	55.227	-10.5	89	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1220S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030199.D Lab Sample ID: VBF1220S1

Date Analyzed: 12/20/2011 Time Analyzed: 22:40

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1220S1	BSF1220S1	VF030200.D	12/20/2011
12SB16-000.5-01	C5017-01	VF030212.D	12/21/2011
12SB16-0.502-02	C5017-02	VF030213.D	12/21/2011
12SB16-0304-03	C5017-03	VF030214.D	12/21/2011
12SB11-0.501-02	C5017-07	VF030215.D	12/21/2011
12SB11-0304-03	C5017-08	VF030216.D	12/21/2011
12SB-DUP02	C5017-09	VF030217.D	12/21/2011
12SB09-000.5-01	C5017-10	VF030218.D	12/21/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1220S1	SDG No.:	C5017
Lab Sample ID:	VBF1220S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030199.D	1		12/20/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1220S1	SDG No.:	C5017
Lab Sample ID:	VBF1220S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030199.D	1		12/20/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	20	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.2		55 - 158	100%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		53 - 156	100%	SPK: 50
2037-26-5	Toluene-d8	49.5		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.9		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	140815	4.38			
540-36-3	1,4-Difluorobenzene	243036	5.12			
3114-55-4	Chlorobenzene-d5	234923	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	128952	12.23			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1220S1	SDG No.:	C5017
Lab Sample ID:	VBF1220S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030199.D	1		12/20/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030228.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOA_F BFB Injection Time: 19:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	45
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.3 (0.5) 1
174	50.0 - 100.0% of mass 95	68.2
175	5.0 - 9.0% of mass 174	4.8 (7) 1
176	95.0 - 101.0% of mass 174	64.9 (95.2) 1
177	5.0 - 9.0% of mass 176	4.5 (7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB ICC	VF030230.D	12/21/2011	21:13
VSTD020	20 PPB ICC	VF030231.D	12/21/2011	21:44
VSTD010	10 PPB ICC	VF030232.D	12/21/2011	22:15
VSTD005	5 PPB ICC	VF030233.D	12/21/2011	22:46
VSTD075	75 PPB ICC	VF030234.D	12/21/2011	23:17
VSTD100	100 PPB ICC	VF030235.D	12/21/2011	23:48

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD	
Dichlorodifluoromethane	0.853	0.726	0.699	0.677	0.651	0.767	0.729	10	
Chloromethane	1.128	0.994	0.879	0.908	0.883	0.917	0.951	10.1	
Vinyl Chloride	0.587	0.541	0.528	0.512	0.530	0.542	0.54	4.7	
Bromomethane	0.414	0.370	0.279	0.287	0.291	0.333	0.329	16.4	r^2 ok
Chloroethane	0.227	0.248	0.178	0.151	0.164	0.193	0.193	19.4	
Trichlorofluoromethane	0.922	0.830	0.776	0.750	0.685	0.793	0.793	10.1	
1,1,2-Trichlorotrifluor(	0.536	0.470	0.466	0.453	0.439	0.456	0.47	7.3	
1,1-Dichloroethene	0.412	0.443	0.405	0.400	0.383	0.406	0.408	4.8	
Acetone	0.504	0.324	0.352	0.326	0.296	0.522	0.388	25.5	r^2 ok
Carbon Disulfide	1.209	1.124	1.057	1.045	1.048	1.070	1.092	5.9	
Methyl tert-butyl Ether	1.803	1.676	1.511	1.556	1.470	1.531	1.591	7.9	
Methyl Acetate	1.483	1.156	1.131	1.142	1.073	1.175	1.193	12.2	
Methylene Chloride	0.558	0.489	0.431	0.469	0.458	0.504	0.485	9.1	
trans-1,2-Dichloroethene	0.444	0.418	0.374	0.379	0.375	0.394	0.397	7.1	
1,1-Dichloroethane	0.974	0.855	0.795	0.841	0.802	0.893	0.86	7.7	
Cyclohexane	1.051	1.062	0.922	0.964	0.906	1.041	0.991	7	
2-Butanone	0.789	0.607	0.604	0.570	0.501	0.728	0.633	16.8	r^2 ok
Carbon Tetrachloride	0.526	0.588	0.496	0.517	0.497	0.537	0.527	6.4	
cis-1,2-Dichloroethene	0.996	0.874	0.778	0.828	0.791	0.896	0.861	9.4	
Bromochloromethane	0.843	0.677	0.636	0.662	0.617	0.717	0.692	11.8	
Chloroform	1.442	1.359	1.242	1.316	1.215	1.311	1.314	6.2	
1,1,1-Trichloroethane	0.893	0.846	0.765	0.811	0.780	0.853	0.825	5.8	
Methylcyclohexane	0.583	0.595	0.521	0.527	0.496	0.569	0.549	7.2	
Benzene	1.524	1.520	1.249	1.336	1.253	1.416	1.383	9	
1,2-Dichloroethane	0.596	0.631	0.574	0.594	0.546	0.614	0.592	5	
Trichloroethene	0.660	0.638	0.548	0.549	0.499	0.592	0.581	10.5	
1,2-Dichloropropane	0.446	0.459	0.394	0.411	0.380	0.445	0.422	7.6	
Bromodichloromethane	0.614	0.649	0.562	0.602	0.553	0.590	0.595	5.9	
4-Methyl-2-Pentanone	0.716	0.668	0.619	0.588	0.522	0.650	0.627	10.7	
Toluene	0.933	1.010	0.838	0.853	0.812	0.866	0.885	8.3	
t-1,3-Dichloropropene	0.739	0.753	0.647	0.689	0.625	0.700	0.692	7.2	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

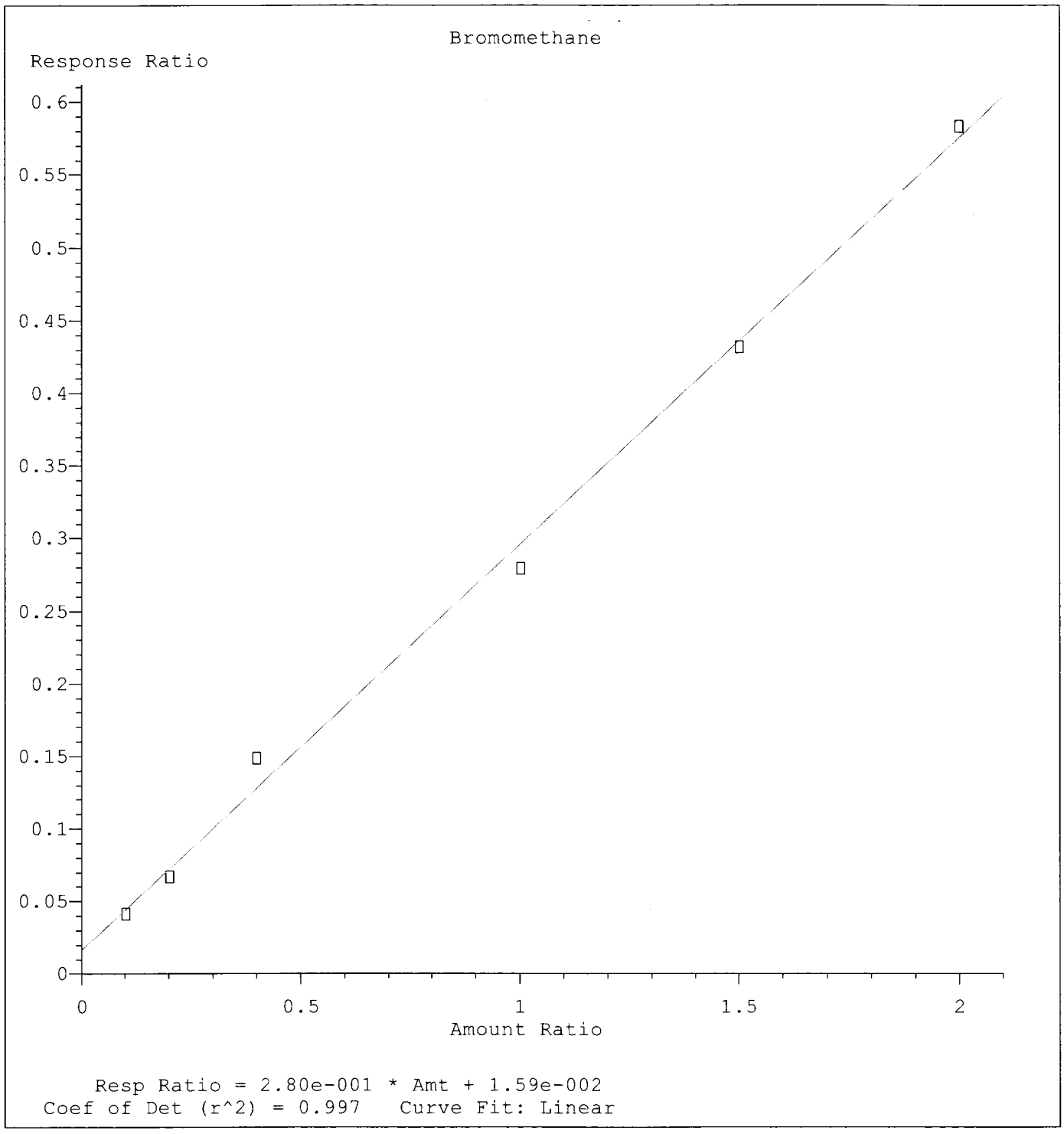
Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

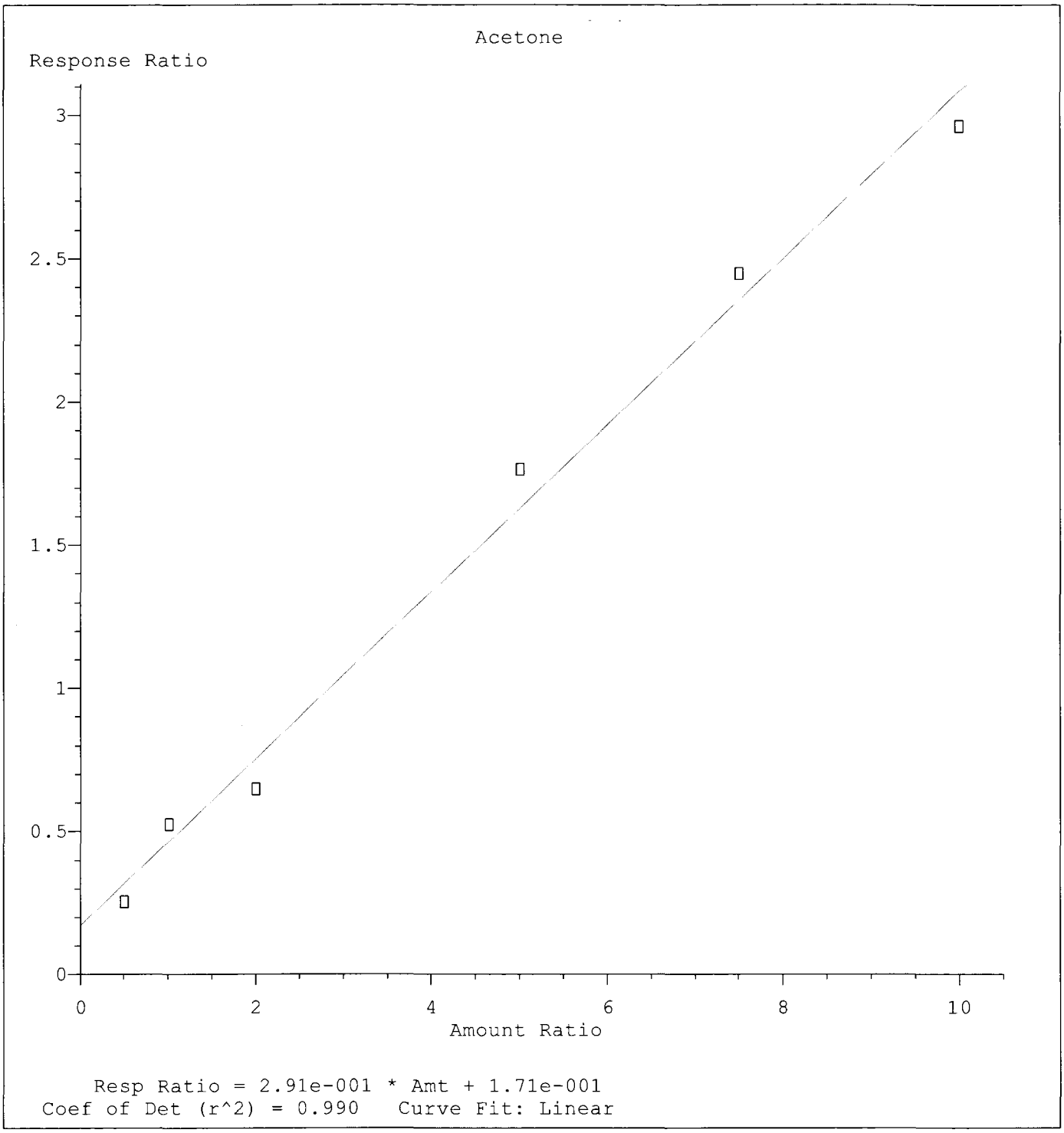
LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.773	0.787	0.646	0.693	0.635	0.694	0.705	8.9
1,1,2-Trichloroethane	0.434	0.451	0.371	0.399	0.356	0.415	0.404	9
2-Hexanone	0.636	0.534	0.523	0.496	0.453	0.605	0.541	12.6
Dibromochloromethane	0.443	0.517	0.460	0.482	0.442	0.477	0.47	6
1,2-Dibromoethane	0.493	0.504	0.440	0.460	0.422	0.470	0.465	6.6
Tetrachloroethene	0.645	0.669	0.555	0.545	0.530	0.588	0.589	9.6
Chlorobenzene	1.132	1.180	0.999	1.033	0.989	1.155	1.081	7.8
Ethyl Benzene	1.728	1.960	1.614	1.661	1.614	1.767	1.724	7.6
m/p-Xylenes	0.642	0.712	0.601	0.617	0.588	0.632	0.632	6.9
o-Xylene	0.650	0.708	0.609	0.631	0.611	0.620	0.638	5.9
Styrene	1.092	1.189	1.020	1.068	1.026	1.111	1.084	5.8
Bromoform	0.290	0.361	0.347	0.352	0.339	0.332	0.337	7.4
Isopropylbenzene	3.040	3.264	2.916	3.039	2.926	3.098	3.047	4.2
1,1,2,2-Tetrachloroethar	0.413	0.411	0.392	0.405	0.385	0.371	0.396	4.2
1,3-Dichlorobenzene	1.765	1.758	1.486	1.601	1.518	1.777	1.651	8
1,4-Dichlorobenzene	1.684	1.839	1.574	1.636	1.567	1.742	1.674	6.3
1,2-Dichlorobenzene	1.751	1.783	1.505	1.610	1.531	1.765	1.657	7.5
1,2-Dibromo-3-Chloropro	0.208	0.191	0.187	0.179	0.166	0.158	0.181	9.9
1,2,4-Trichlorobenzene	1.272	1.266	1.092	1.144	1.064	1.217	1.176	7.6
1,2,3-Trichlorobenzene	1.167	1.210	1.000	1.109	1.004	1.194	1.114	8.4
1,2-Dichloroethane-d4	1.017	0.824	0.765	0.748	0.742	0.854	0.825	12.6
Dibromofluoromethane	0.458	0.454	0.383	0.392	0.371	0.410	0.411	9
Toluene-d8	1.166	1.259	1.049	1.083	1.035	1.124	1.119	7.5
4-Bromofluorobenzene	0.565	0.588	0.510	0.518	0.494	0.518	0.532	6.8
1,4-Dioxane	0.007	0.006	0.005	0.005	0.005	0.006	0.006	12.5

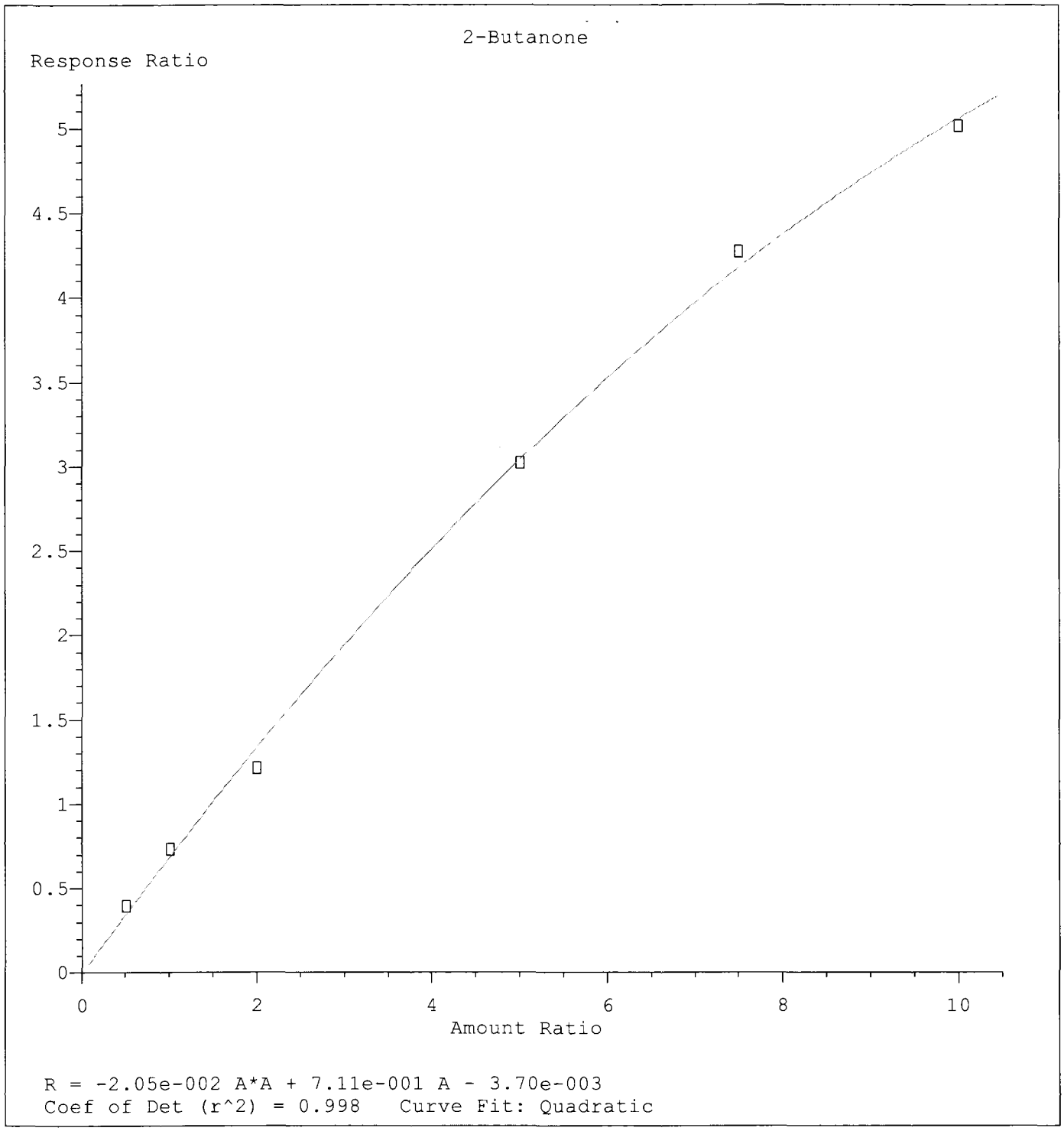
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030248.D BFB Injection Date: 12/22/2011

Instrument ID: MSVOA_F BFB Injection Time: 10:46

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.7
75	30.0 - 60.0% of mass 95	48.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	70.3
175	5.0 - 9.0% of mass 174	4.3 (6.2) 1
176	95.0 - 101.0% of mass 174	70.1 (99.7) 1
177	5.0 - 9.0% of mass 176	5 (7.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030250.D	12/22/2011	12:53
VBF1222S1	VBF1222S1	VF030251.D	12/22/2011	13:48
BSF1222S1	BSF1222S1	VF030252.D	12/22/2011	14:19
12SB09-0304-03	C5017-12	VF030256.D	12/22/2011	16:26
12SB10-0304-03	C5017-15	VF030259.D	12/22/2011	18:00
12SB15-000.5-01	C5017-16	VF030260.D	12/22/2011	18:31
12SB15-0.502-02	C5017-17	VF030261.D	12/22/2011	19:02
12SB15-0304-03	C5017-18	VF030262.D	12/22/2011	19:33
12SB-DUP-04	C5017-19	VF030263.D	12/22/2011	20:04

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date/Time: 12/22/2011 12:53

Lab File ID: VF030250.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.711		-2.47	
Chloromethane	0.951	0.963	0.1	1.26	
Vinyl Chloride	0.54	0.565		4.63	20
Bromomethane	0.329	0.307		-6.69	
Chloroethane	0.193	0.194		0.52	
Trichlorofluoromethane	0.793	0.855		7.82	
1,1,2-Trichlorotrifluoroethane	0.47	0.502		6.81	
1,1-Dichloroethene	0.408	0.449		10.05	20
Acetone	0.388	0.379		-2.32	
Carbon Disulfide	1.092	1.169		7.05	
Methyl tert-butyl Ether	1.591	1.674		5.22	
Methyl Acetate	1.193	1.227		2.85	
Methylene Chloride	0.485	0.516		6.39	
trans-1,2-Dichloroethene	0.397	0.389		-2.02	
1,1-Dichloroethane	0.86	0.910	0.1	5.81	
Cyclohexane	0.991	1.013		2.22	
2-Butanone	0.633	0.639		0.95	
Carbon Tetrachloride	0.527	0.566		7.4	
cis-1,2-Dichloroethene	0.861	0.857		-0.46	
Bromochloromethane	0.692	0.696		0.58	
Chloroform	1.314	1.390		5.78	20
1,1,1-Trichloroethane	0.825	0.834		1.09	
Methylcyclohexane	0.549	0.576		4.92	
Benzene	1.383	1.405		1.59	
1,2-Dichloroethane	0.592	0.617		4.22	
Trichloroethene	0.581	0.598		2.93	
1,2-Dichloropropane	0.422	0.442		4.74	20
Bromodichloromethane	0.595	0.642		7.9	
4-Methyl-2-Pentanone	0.627	0.661		5.42	
Toluene	0.885	0.923		4.29	20
t-1,3-Dichloropropene	0.692	0.741		7.08	
cis-1,3-Dichloropropene	0.705	0.748		6.1	
1,1,2-Trichloroethane	0.404	0.420		3.96	
2-Hexanone	0.541	0.567		4.81	
Dibromochloromethane	0.47	0.519		10.43	
1,2-Dibromoethane	0.465	0.504		8.39	
Tetrachloroethene	0.589	0.608		3.23	
Chlorobenzene	1.081	1.115	0.3	3.15	
Ethyl Benzene	1.724	1.818		5.45	20
m/p-Xylenes	0.632	0.672		6.33	
o-Xylene	0.638	0.706		10.66	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date/Time: 12/22/2011 12:53

Lab File ID: VF030250.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.084	1.127		3.97	
Bromoform	0.337	0.377	0.1	11.87	
Isopropylbenzene	3.047	3.251		6.7	
1,1,2,2-Tetrachloroethane	0.396	0.428	0.3	8.08	
1,3-Dichlorobenzene	1.651	1.739		5.33	
1,4-Dichlorobenzene	1.674	1.738		3.82	
1,2-Dichlorobenzene	1.657	1.723		3.98	
1,2-Dibromo-3-Chloropropane	0.181	0.192		6.08	
1,2,4-Trichlorobenzene	1.176	1.241		5.53	
1,2,3-Trichlorobenzene	1.114	1.164		4.49	
1,2-Dichloroethane-d4	0.825	0.830		0.61	
Dibromofluoromethane	0.411	0.428		4.14	
Toluene-d8	1.119	1.175		5	
4-Bromofluorobenzene	0.532	0.547		2.82	
1,4-Dioxane	0.006	0.005		-16.67	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122211\
Data File : VF030250.D
Acq On : 22 Dec 2011 12:53
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 22 14:39:28 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	104	-0.02
2	T	Dichlorodifluoromethane	50.000	48.773	2.5	106	0.00
3	P	Chloromethane	50.000	50.612	-1.2	114	0.00
4	C	Vinyl Chloride	50.000	52.367	-4.7#	111	0.00
5	T	Bromomethane	50.000	52.082	-4.2	114	0.00
6	T	Chloroethane	50.000	50.169	-0.3	113	0.00
7	T	Trichlorofluoromethane	50.000	53.921	-7.8	115	0.00
8	T	Diethyl Ether	50.000	50.591	-1.2	110	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	53.341	-6.7	112	-0.02
10	T	Methyl Iodide	50.000	52.660	-5.3	116	-0.02
11	T	Tert butyl alcohol	250.000	288.389	-15.4	115	-0.02
12	CM	1,1-Dichloroethene	50.000	54.994	-10.0#	115	0.00
13	T	Acrolein	250.000	275.548	-10.2	104	0.00
14	T	Allyl chloride	50.000	52.719	-5.4	121	0.00
15	T	Acrylonitrile	250.000	267.652	-7.1	114	-0.02
16	T	Acetone	250.000	296.046	-18.4	112	0.00
17	T	Carbon Disulfide	50.000	53.502	-7.0	115	-0.02
18	T	Methyl Acetate	50.000	51.423	-2.8	113	0.00
19	T	Methyl tert-butyl Ether	50.000	52.601	-5.2	115	0.00
20	T	Methylene Chloride	50.000	53.223	-6.4	125	-0.04
21	T	trans-1,2-Dichloroethene	50.000	48.873	2.3	108	0.00
22	T	Diisopropyl ether	50.000	51.971	-3.9	118	0.00
23	T	Vinyl Acetate	250.000	267.517	-7.0	114	-0.02
24	P	1,1-Dichloroethane	50.000	52.897	-5.8	119	-0.02
25	T	2-Butanone	250.000	265.647	-6.3	110	-0.02
26	T	2,2-Dichloropropane	50.000	51.953	-3.9	120	-0.02
27	T	cis-1,2-Dichloroethene	50.000	49.779	0.4	114	-0.02
28	T	Bromochloromethane	50.000	50.288	-0.6	114	-0.02
29	C	Chloroform	50.000	52.872	-5.7#	116	-0.02
30	T	Cyclohexane	50.000	51.105	-2.2	114	-0.03
31	T	1,1,1-Trichloroethane	50.000	50.565	-1.1	113	-0.02
32	S	1,2-Dichloroethane-d4	50.000	50.327	-0.7	113	-0.02
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	102	0.00
34	S	Dibromofluoromethane	50.000	52.071	-4.1	114	-0.02
35	T	1,1-Dichloropropene	50.000	51.064	-2.1	112	-0.02
36	T	Ethyl Acetate	50.000	52.130	-4.3	108	-0.02
37	T	Carbon Tetrachloride	50.000	53.665	-7.3	117	-0.02
38	T	Methylcyclohexane	50.000	52.521	-5.0	113	0.00
39	TM	Benzene	50.000	50.791	-1.6	115	-0.02
40	T	Methacrylonitrile	50.000	52.864	-5.7	114	-0.02
41	TM	1,2-Dichloroethane	50.000	52.051	-4.1	110	-0.02
42	T	Isopropyl Acetate	50.000	54.755	-9.5	115	-0.02
43	TM	Trichloroethene	50.000	51.457	-2.9	112	-0.02
44	C	1,2-Dichloropropane	50.000	52.319	-4.6#	115	-0.02
45	T	Dibromomethane	50.000	50.814	-1.6	109	-0.03

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122211\
Data File : VF030250.D
Acq On : 22 Dec 2011 12:53
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 22 14:39:28 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	53.977	-8.0	117	-0.02
47	T	Methyl methacrylate	50.000	50.753	-1.5	110	-0.02
48	T	1,4-Dioxane	1000.000	933.173	6.7	111	-0.02
49	S	Toluene-d8	50.000	52.485	-5.0	115	-0.02
50	T	4-Methyl-2-Pentanone	250.000	263.728	-5.5	109	-0.02
51	CM	Toluene	50.000	52.132	-4.3#	113	-0.02
52	T	t-1,3-Dichloropropene	50.000	53.550	-7.1	117	-0.02
53	T	cis-1,3-Dichloropropene	50.000	53.104	-6.2	118	-0.02
54	T	1,1,2-Trichloroethane	50.000	51.967	-3.9	116	-0.02
55	T	Ethyl methacrylate	50.000	55.178	-10.4	112	-0.02
56	T	1,3-Dichloropropane	50.000	51.602	-3.2	113	-0.02
57	T	2-Chloroethyl Vinyl ether	250.000	233.181	6.7	100	-0.02
58	T	2-Hexanone	250.000	262.081	-4.8	111	-0.02
59	T	Dibromochloromethane	50.000	55.215	-10.4	115	-0.02
60	T	1,2-Dibromoethane	50.000	54.165	-8.3	117	-0.02
61	S	4-Bromofluorobenzene	50.000	51.424	-2.8	110	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	104	-0.02
63	T	Tetrachloroethene	50.000	51.604	-3.2	114	-0.02
64	PM	Chlorobenzene	50.000	51.563	-3.1	116	-0.02
65	T	1,1,1,2-Tetrachloroethane	50.000	52.610	-5.2	117	-0.02
66	C	Ethyl Benzene	50.000	52.735	-5.5#	117	-0.02
67	T	m/p-Xylenes	100.000	106.285	-6.3	116	-0.02
68	T	o-Xylene	50.000	55.302	-10.6	120	-0.02
69	T	Styrene	50.000	51.972	-3.9	115	-0.02
70	P	Bromoform	50.000	55.971	-11.9	113	-0.02
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	104	0.00
72	T	Isopropylbenzene	50.000	53.351	-6.7	116	-0.02
73	T	N-amyl acetate	50.000	52.484	-5.0	111	-0.02
74	P	1,1,2,2-Tetrachloroethane	50.000	54.054	-8.1	114	0.00
75	T	1,2,3-Trichloropropane	50.000	52.535	-5.1	114	-0.02
76	T	Bromobenzene	50.000	49.964	0.1	112	-0.02
77	T	n-propylbenzene	50.000	53.192	-6.4	117	-0.02
78	T	2-Chlorotoluene	50.000	51.675	-3.3	116	0.00
79	T	1,3,5-Trimethylbenzene	50.000	52.918	-5.8	115	-0.02
80	T	trans-1,4-Dichloro-2-butene	50.000	54.037	-8.1	111	0.00
81	T	4-Chlorotoluene	50.000	52.462	-4.9	117	0.00
82	T	tert-Butylbenzene	50.000	53.025	-6.0	119	0.00
83	T	1,2,4-Trimethylbenzene	50.000	53.630	-7.3	117	0.00
84	T	sec-Butylbenzene	50.000	53.266	-6.5	116	-0.02
85	T	p-Isopropyltoluene	50.000	52.794	-5.6	116	0.00
86	T	1,3-Dichlorobenzene	50.000	52.669	-5.3	122	0.00
87	T	1,4-Dichlorobenzene	50.000	51.933	-3.9	115	-0.02
88	T	n-Butylbenzene	50.000	54.397	-8.8	116	0.00
89	T	Hexachloroethane	50.000	55.551	-11.1	123	0.00

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122211\
Data File : VF030250.D
Acq On : 22 Dec 2011 12:53
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 22 14:39:28 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	1,2-Dichlorobenzene	50.000	51.984	-4.0	119	0.00
)1	T	1,2-Dibromo-3-Chloropropane	50.000	52.799	-5.6	107	0.00
)2	T	1,2,4-Trichlorobenzene	50.000	52.792	-5.6	118	-0.02
)3	T	Hexachlorobutadiene	50.000	52.943	-5.9	121	-0.02
)4	T	Naphthalene	50.000	51.858	-3.7	116	0.00
)5	T	1,2,3-Trichlorobenzene	50.000	52.227	-4.5	121	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1222S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030251.D Lab Sample ID: VBF1222S1

Date Analyzed: 12/22/2011 Time Analyzed: 13:48

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1222S1	BSF1222S1	VF030252.D	12/22/2011
12SB09-0304-03	C5017-12	VF030256.D	12/22/2011
12SB10-0304-03	C5017-15	VF030259.D	12/22/2011
12SB15-000.5-01	C5017-16	VF030260.D	12/22/2011
12SB15-0.502-02	C5017-17	VF030261.D	12/22/2011
12SB15-0304-03	C5017-18	VF030262.D	12/22/2011
12SB-DUP-04	C5017-19	VF030263.D	12/22/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1222S1	SDG No.:	C5017
Lab Sample ID:	VBF1222S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030251.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1222S1	SDG No.:	C5017
Lab Sample ID:	VBF1222S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030251.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.2		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		53 - 156	101%	SPK: 50
2037-26-5	Toluene-d8	48.3		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.3		85 - 120	95%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	146124	4.37			
540-36-3	1,4-Difluorobenzene	242845	5.11			
3114-55-4	Chlorobenzene-d5	230791	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	126902	12.23			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1222S1	SDG No.:	C5017
Lab Sample ID:	VBF1222S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030251.D	1		12/22/11	VF122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030294.D BFB Injection Date: 12/23/2011

Instrument ID: MSVOA_F BFB Injection Time: 12:14

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.6
75	30.0 - 60.0% of mass 95	45.1
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	77.6
175	5.0 - 9.0% of mass 174	5.7 (7.4) 1
176	95.0 - 101.0% of mass 174	77.3 (99.7) 1
177	5.0 - 9.0% of mass 176	4.8 (6.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030295.D	12/23/2011	13:41
VBF1223S1	VBF1223S1	VF030296.D	12/23/2011	14:30
BSF1223S1	BSF1223S1	VF030297.D	12/23/2011	15:16
12SB10-000.5-01	C5017-13	VF030306.D	12/23/2011	20:06
12SB10-0.502-02	C5017-14	VF030307.D	12/23/2011	20:37
12SB14-0.502-02	C5017-20	VF030308.D	12/23/2011	21:08
12SB14-0304-03	C5017-21	VF030309.D	12/23/2011	21:39

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date/Time: 12/23/2011 13:41

Lab File ID: VF030295.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.658		-9.74	
Chloromethane	0.951	0.844	0.1	-11.25	
Vinyl Chloride	0.54	0.518		-4.07	20
Bromomethane	0.329	0.288		-12.46	
Chloroethane	0.193	0.174		-9.84	
Trichlorofluoromethane	0.793	0.774		-2.4	
1,1,2-Trichlorotrifluoroethane	0.47	0.478		1.7	
1,1-Dichloroethene	0.408	0.415		1.72	20
Acetone	0.388	0.363		-6.44	
Carbon Disulfide	1.092	1.056		-3.3	
Methyl tert-butyl Ether	1.591	1.484		-6.73	
Methyl Acetate	1.193	1.191		-0.17	
Methylene Chloride	0.485	0.459		-5.36	
trans-1,2-Dichloroethene	0.397	0.376		-5.29	
1,1-Dichloroethane	0.86	0.866	0.1	0.7	
Cyclohexane	0.991	0.922		-6.96	
2-Butanone	0.633	0.572		-9.64	
Carbon Tetrachloride	0.527	0.525		-0.38	
cis-1,2-Dichloroethene	0.861	0.745		-13.47	
Bromochloromethane	0.692	0.613		-11.42	
Chloroform	1.314	1.255		-4.49	20
1,1,1-Trichloroethane	0.825	0.795		-3.64	
Methylcyclohexane	0.549	0.524		-4.55	
Benzene	1.383	1.289		-6.8	
1,2-Dichloroethane	0.592	0.576		-2.7	
Trichloroethene	0.581	0.531		-8.61	
1,2-Dichloropropane	0.422	0.390		-7.58	20
Bromodichloromethane	0.595	0.570		-4.2	
4-Methyl-2-Pentanone	0.627	0.576		-8.13	
Toluene	0.885	0.851		-3.84	20
t-1,3-Dichloropropene	0.692	0.655		-5.35	
cis-1,3-Dichloropropene	0.705	0.656		-6.95	
1,1,2-Trichloroethane	0.404	0.372		-7.92	
2-Hexanone	0.541	0.479		-11.46	
Dibromochloromethane	0.47	0.445		-5.32	
1,2-Dibromoethane	0.465	0.424		-8.82	
Tetrachloroethene	0.589	0.555		-5.77	
Chlorobenzene	1.081	1.011	0.3	-6.48	
Ethyl Benzene	1.724	1.666		-3.36	20
m/p-Xylenes	0.632	0.616		-2.53	
o-Xylene	0.638	0.639		0.16	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date/Time: 12/23/2011 13:41

Lab File ID: VF030295.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.084	1.052		-2.95	
Bromoform	0.337	0.325	0.1	-3.56	
Isopropylbenzene	3.047	2.957		-2.95	
1,1,2,2-Tetrachloroethane	0.396	0.360	0.3	-9.09	
1,3-Dichlorobenzene	1.651	1.509		-8.6	
1,4-Dichlorobenzene	1.674	1.545		-7.71	
1,2-Dichlorobenzene	1.657	1.499		-9.54	
1,2-Dibromo-3-Chloropropane	0.181	0.159		-12.15	
1,2,4-Trichlorobenzene	1.176	1.038		-11.73	
1,2,3-Trichlorobenzene	1.114	0.988		-11.31	
1,2-Dichloroethane-d4	0.825	0.748		-9.33	
Dibromofluoromethane	0.411	0.390		-5.11	
Toluene-d8	1.119	1.063		-5	
4-Bromofluorobenzene	0.532	0.499		-6.2	
1,4-Dioxane	0.006	0.006		0	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122311\
Data File : VF030295.D
Acq On : 23 Dec 2011 13:41
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 23 19:01:07 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	108	-0.01
2	T	Dichlorodifluoromethane	50.000	45.155	9.7	102	0.00
3	P	Chloromethane	50.000	44.337	11.3	104	0.00
4	C	Vinyl Chloride	50.000	47.938	4.1#	106	-0.01
5	T	Bromomethane	50.000	48.740	2.5	112	-0.01
6	T	Chloroethane	50.000	45.016	10.0	106	0.00
7	T	Trichlorofluoromethane	50.000	48.830	2.3	108	-0.01
8	T	Diethyl Ether	50.000	45.118	9.8	102	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	50.802	-1.6	111	-0.01
10	T	Methyl Iodide	50.000	46.495	7.0	106	-0.02
11	T	Tert butyl alcohol	250.000	262.608	-5.0	109	0.00
12	CM	1,1-Dichloroethene	50.000	50.837	-1.7#	111	-0.01
13	T	Acrolein	250.000	237.780	4.9	95	0.00
14	T	Allyl chloride	50.000	48.020	4.0	115	-0.01
15	T	Acrylonitrile	250.000	256.627	-2.7	114	-0.01
16	T	Acetone	250.000	282.416	-13.0	112	0.00
17	T	Carbon Disulfide	50.000	48.345	3.3	108	-0.01
18	T	Methyl Acetate	50.000	49.929	0.1	114	0.00
19	T	Methyl tert-butyl Ether	50.000	46.630	6.7	106	0.00
20	T	Methylene Chloride	50.000	47.364	5.3	116	-0.02
21	T	trans-1,2-Dichloroethene	50.000	47.248	5.5	109	0.00
22	T	Diisopropyl ether	50.000	47.147	5.7	112	0.00
23	T	Vinyl Acetate	250.000	240.123	4.0	107	-0.01
24	P	1,1-Dichloroethane	50.000	50.336	-0.7	118	-0.01
25	T	2-Butanone	250.000	232.638	6.9	103	-0.01
26	T	2,2-Dichloropropane	50.000	43.816	12.4	105	-0.01
27	T	cis-1,2-Dichloroethene	50.000	43.260	13.5	104	-0.01
28	T	Bromochloromethane	50.000	44.276	11.4	104	-0.01
29	C	Chloroform	50.000	47.745	4.5#	109	-0.01
30	T	Cyclohexane	50.000	46.503	7.0	108	-0.01
31	T	1,1,1-Trichloroethane	50.000	48.181	3.6	113	-0.02
32	S	1,2-Dichloroethane-d4	50.000	45.328	9.3	106	-0.01
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	106	-0.01
34	S	Dibromofluoromethane	50.000	47.419	5.2	108	-0.01
35	T	1,1-Dichloropropene	50.000	47.608	4.8	108	-0.01
36	T	Ethyl Acetate	50.000	47.183	5.6	103	-0.01
37	T	Carbon Tetrachloride	50.000	49.773	0.5	112	0.00
38	T	Methylcyclohexane	50.000	47.747	4.5	106	0.00
39	TM	Benzene	50.000	46.593	6.8	109	-0.01
40	T	Methacrylonitrile	50.000	45.137	9.7	101	-0.01
41	TM	1,2-Dichloroethane	50.000	48.598	2.8	106	-0.01
42	T	Isopropyl Acetate	50.000	48.056	3.9	104	-0.01
43	TM	Trichloroethene	50.000	45.697	8.6	103	-0.01
44	C	1,2-Dichloropropane	50.000	46.177	7.6#	105	-0.01
45	T	Dibromomethane	50.000	45.829	8.3	102	-0.02

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122311\
Data File : VF030295.D
Acq On : 23 Dec 2011 13:41
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 23 19:01:07 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	47.909	4.2	107	-0.01
47	T	Methyl methacrylate	50.000	45.258	9.5	102	-0.01
48	T	1,4-Dioxane	1000.000	984.946	1.5	122	-0.01
49	S	Toluene-d8	50.000	47.508	5.0	107	-0.01
50	T	4-Methyl-2-Pentanone	250.000	229.719	8.1	98	-0.01
51	CM	Toluene	50.000	48.038	3.9#	108	-0.01
52	T	t-1,3-Dichloropropene	50.000	47.340	5.3	107	-0.01
53	T	cis-1,3-Dichloropropene	50.000	46.559	6.9	107	-0.01
54	T	1,1,2-Trichloroethane	50.000	46.038	7.9	106	-0.01
55	T	Ethyl methacrylate	50.000	47.436	5.1	100	-0.01
56	T	1,3-Dichloropropane	50.000	45.510	9.0	103	-0.01
57	T	2-Chloroethyl Vinyl ether	250.000	241.572	3.4	107	-0.01
58	T	2-Hexanone	250.000	221.221	11.5	97	-0.01
59	T	Dibromochloromethane	50.000	47.284	5.4	102	-0.01
60	T	1,2-Dibromoethane	50.000	45.587	8.8	102	-0.01
61	S	4-Bromofluorobenzene	50.000	46.879	6.2	104	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	106	-0.01
63	T	Tetrachloroethene	50.000	47.170	5.7	106	-0.01
64	PM	Chlorobenzene	50.000	46.731	6.5	107	-0.01
65	T	1,1,1,2-Tetrachloroethane	50.000	46.670	6.7	106	-0.01
66	C	Ethyl Benzene	50.000	48.304	3.4#	110	-0.01
67	T	m/p-Xylenes	100.000	97.483	2.5	109	-0.01
68	T	o-Xylene	50.000	50.089	-0.2	111	-0.01
69	T	Styrene	50.000	48.483	3.0	109	-0.01
70	P	Bromoform	50.000	48.258	3.5	99	-0.01
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	109	0.00
72	T	Isopropylbenzene	50.000	48.529	2.9	110	-0.01
73	T	N-amyl acetate	50.000	43.451	13.1	96	-0.01
74	P	1,1,2,2-Tetrachloroethane	50.000	45.471	9.1	100	-0.01
75	T	1,2,3-Trichloropropane	50.000	44.987	10.0	102	-0.01
76	T	Bromobenzene	50.000	44.613	10.8	105	-0.01
77	T	n-propylbenzene	50.000	48.872	2.3	112	-0.01
78	T	2-Chlorotoluene	50.000	46.003	8.0	108	0.00
79	T	1,3,5-Trimethylbenzene	50.000	48.729	2.5	111	-0.01
80	T	trans-1,4-Dichloro-2-butene	50.000	48.521	3.0	105	0.00
81	T	4-Chlorotoluene	50.000	46.853	6.3	109	0.00
82	T	tert-Butylbenzene	50.000	48.242	3.5	113	0.00
83	T	1,2,4-Trimethylbenzene	50.000	47.225	5.5	108	-0.01
84	T	sec-Butylbenzene	50.000	49.076	1.8	111	-0.01
85	T	p-Isopropyltoluene	50.000	48.194	3.6	111	-0.01
86	T	1,3-Dichlorobenzene	50.000	45.702	8.6	111	0.00
87	T	1,4-Dichlorobenzene	50.000	46.161	7.7	107	-0.01
88	T	n-Butylbenzene	50.000	47.777	4.4	107	0.00
89	T	Hexachloroethane	50.000	48.737	2.5	113	0.00

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122311\
Data File : VF030295.D
Acq On : 23 Dec 2011 13:41
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 23 19:01:07 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0 T	1,2-Dichlorobenzene	50.000	45.218	9.6	108	0.00
)1 T	1,2-Dibromo-3-Chloropropane	50.000	43.697	12.6	92	0.00
)2 T	1,2,4-Trichlorobenzene	50.000	44.142	11.7	103	-0.01
)3 T	Hexachlorobutadiene	50.000	46.763	6.5	112	-0.01
)4 T	Naphthalene	50.000	44.430	11.1	104	-0.01
)5 T	1,2,3-Trichlorobenzene	50.000	44.330	11.3	107	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1223S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030296.D Lab Sample ID: VBF1223S1

Date Analyzed: 12/23/2011 Time Analyzed: 14:30

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1223S1	BSF1223S1	VF030297.D	12/23/2011
12SB10-00.5-01	C5017-13	VF030306.D	12/23/2011
12SB10-0.502-02	C5017-14	VF030307.D	12/23/2011
12SB14-0.502-02	C5017-20	VF030308.D	12/23/2011
12SB14-0304-03	C5017-21	VF030309.D	12/23/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1223S1	SDG No.:	C5017
Lab Sample ID:	VBF1223S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030296.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1223S1	SDG No.:	C5017
Lab Sample ID:	VBF1223S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030296.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	48.3		55 - 158	97%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	48.5		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.8		85 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	136486	4.38			
540-36-3	1,4-Difluorobenzene	238796	5.12			
3114-55-4	Chlorobenzene-d5	225923	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	124757	12.24			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1223S1	SDG No.:	C5017
Lab Sample ID:	VBF1223S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030296.D	1		12/23/11	VF122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VT001897.D BFB Injection Date: 12/19/2011

Instrument ID: MSVOA_T BFB Injection Time: 12:08

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.9
75	30.0 - 60.0% of mass 95	57.9
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.5 (0.8) 1
174	50.0 - 100.0% of mass 95	62.2
175	5.0 - 9.0% of mass 174	4.9 (7.9) 1
176	95.0 - 101.0% of mass 174	59.2 (95.2) 1
177	5.0 - 9.0% of mass 176	4.8 (8.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD020	20 PPB ICC	VT001899.D	12/19/2011	13:48
VSTD010	10 PPB ICC	VT001900.D	12/19/2011	14:19
VSTD005	5 PPB ICC	VT001901.D	12/19/2011	14:49
VSTD050	50 PPB ICC	VT001902.D	12/19/2011	15:20
VSTD100	100 PPB ICC	VT001903.D	12/19/2011	15:51
VSTD200	200 PPB ICC	VT001904.D	12/19/2011	16:21
VBT1219S1	VBT1219S1	VT001906.D	12/19/2011	17:22
BST1219S1	BST1219S1	VT001907.D	12/19/2011	18:02
12SB11-000.5-01	C5017-04	VT001915.D	12/19/2011	22:08
12SB11-000.5-01MS	C5017-05MS	VT001916.D	12/19/2011	22:39
12SB11-000.5-01MSD	C5017-06MSD	VT001917.D	12/19/2011	23:09

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_T Calibration Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Calibration Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT001901.D RRF020 = VT001899.D RRF050 = VT001902.D
RRF100 = VT001903.D RRF200 = VT001904.D RRF010 = VT001900.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.436	0.453	0.397	0.394	0.366	0.479	0.421	10.1
Chloromethane	0.684	0.661	0.610	0.572	0.533	0.707	0.628	10.8
Vinyl Chloride	0.554	0.581	0.525	0.496	0.459	0.598	0.535	9.9
Bromomethane	0.269	0.272	0.252	0.195		0.266	0.251	12.7
Chloroethane	0.361	0.368	0.340	0.308		0.385	0.352	8.4
Trichlorofluoromethane	0.837	0.837	0.745	0.688	0.631	0.876	0.769	12.6
1,1,2-Trichlorotrifluor<	0.423	0.410	0.379	0.365	0.355	0.440	0.395	8.6
1,1-Dichloroethene	0.550	0.585	0.528	0.499	0.485	0.584	0.538	7.8
Acetone	0.366	0.310	0.279	0.240	0.243	0.372	0.302	19.3 r²20<
Carbon Disulfide	1.825	1.984	1.870	1.807	1.850	1.967	1.884	4
Methyl tert-butyl Ether	1.424	1.486	1.537	1.397	1.557	1.450	1.475	4.3
Methyl Acetate	1.171	1.221	1.223	1.157	1.246	1.197	1.202	2.8
Methylene Chloride	0.718	0.669	0.644	0.599	0.607	0.707	0.658	7.6
trans-1,2-Dichloroethen<	0.544	0.556	0.531	0.518	0.516	0.568	0.539	3.9
1,1-Dichloroethane	1.310	1.317	1.287	1.255	1.264	1.357	1.298	2.9
Cyclohexane	1.521	1.357	1.239	1.188	1.165	1.471	1.323	11.3
2-Butanone	0.429	0.377	0.369	0.330	0.338	0.431	0.379	11.5
Carbon Tetrachloride	0.382	0.417	0.406	0.410	0.419	0.417	0.408	3.4
cis-1,2-Dichloroethene	0.675	0.732	0.730	0.711	0.712	0.728	0.715	3
Bromochloromethane	0.627	0.608	0.676	0.631	0.637	0.693	0.645	5
Chloroform	1.161	1.190	1.176	1.128	1.117	1.201	1.162	2.9
1,1,1-Trichloroethane	0.851	0.901	0.870	0.846	0.836	0.895	0.867	3.1
Methylcyclohexane	0.592	0.637	0.612	0.614	0.623	0.648	0.621	3.2
Benzene	1.587	1.625	1.613	1.633	1.681	1.649	1.631	1.9
1,2-Dichloroethane	0.550	0.531	0.543	0.525	0.539	0.568	0.543	2.8
Trichloroethene	0.293	0.288	0.278	0.279	0.274	0.300	0.285	3.5
1,2-Dichloropropane	0.429	0.424	0.430	0.424	0.425	0.439	0.428	1.3
Bromodichloromethane	0.438	0.471	0.480	0.471	0.470	0.477	0.468	3.3
4-Methyl-2-Pentanone	0.353	0.366	0.389	0.358	0.366	0.367	0.366	3.4
Toluene	0.817	0.817	0.807	0.800	0.793	0.843	0.813	2.2
t-1,3-Dichloropropene	0.383	0.453	0.478	0.472	0.480	0.435	0.45	8.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_T Calibration Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Calibration Time(s): 13:48 16:21

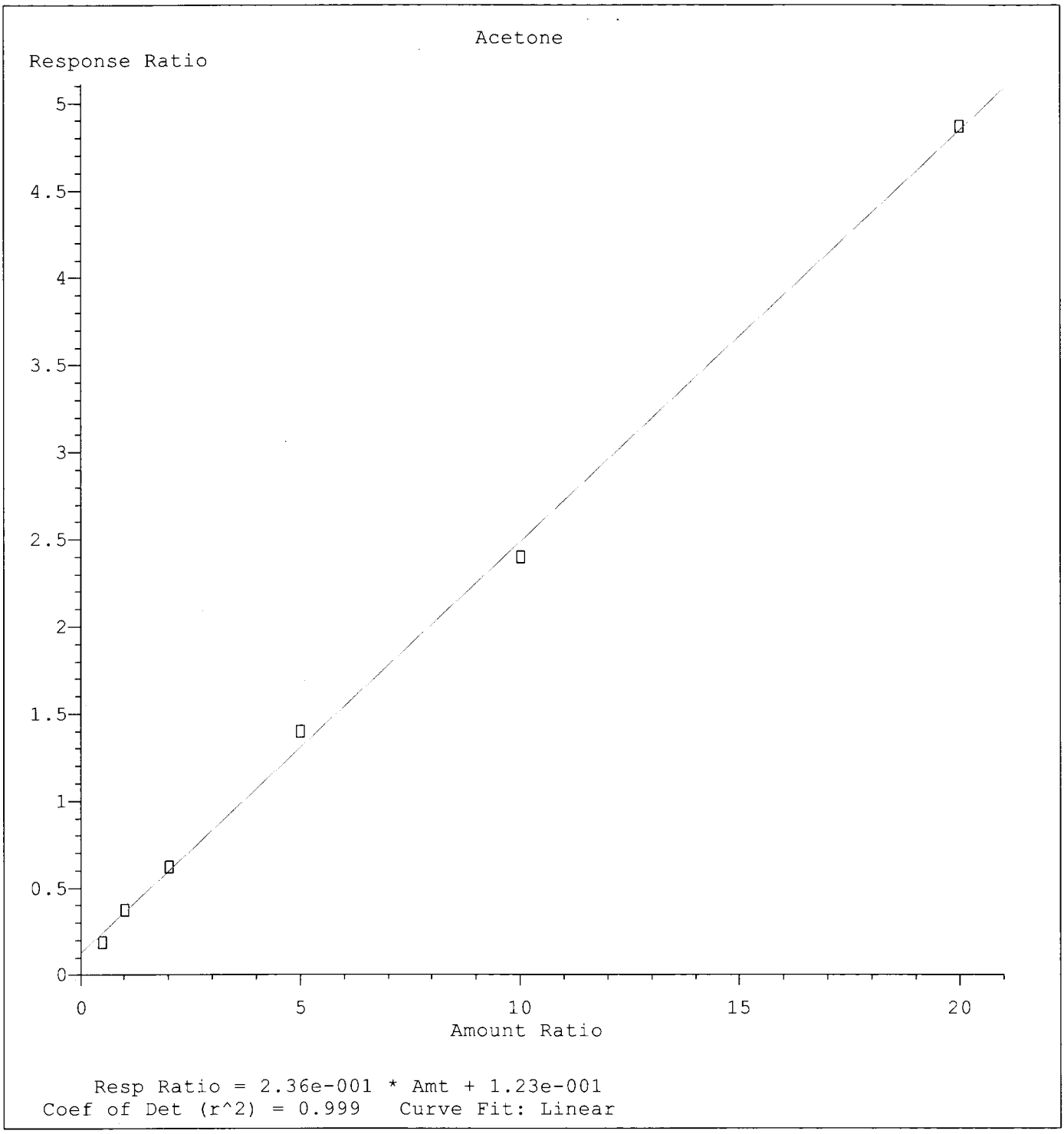
GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT001901.D RRF020 = VT001899.D RRF050 = VT001902.D
RRF100 = VT001903.D RRF200 = VT001904.D RRF010 = VT001900.D

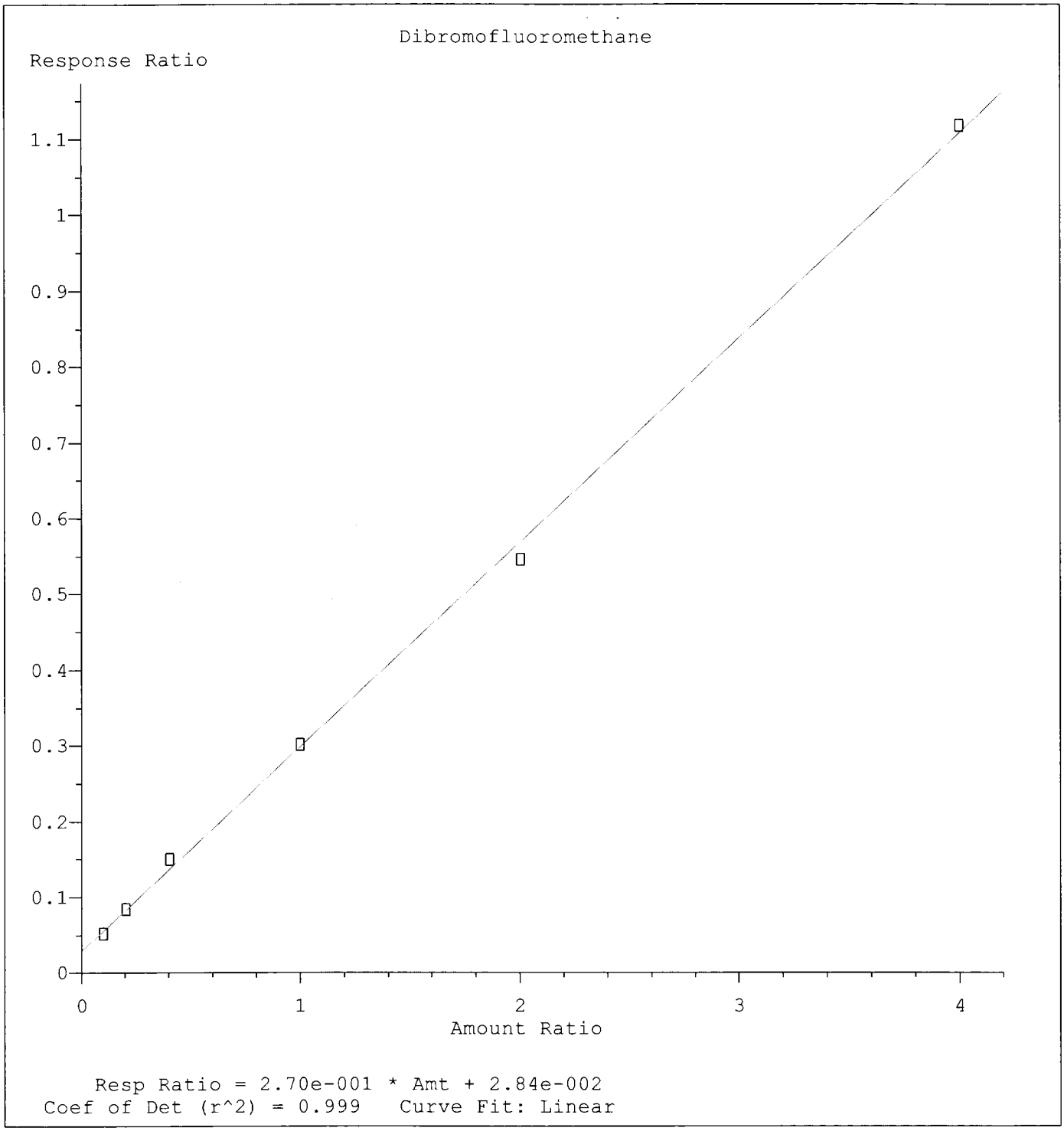
COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.507	0.558	0.583	0.579	0.577	0.548	0.559	5.2
1,1,2-Trichloroethane	0.250	0.249	0.253	0.233	0.230	0.255	0.245	4.5
2-Hexanone	0.284	0.269	0.275	0.246	0.264	0.305	0.274	7.3
Dibromochloromethane	0.192	0.206	0.210	0.200	0.203	0.198	0.202	3.2
1,2-Dibromoethane	0.194	0.198	0.209	0.195	0.200	0.204	0.2	2.8
Tetrachloroethene	0.374	0.340	0.343	0.347	0.353	0.369	0.354	4
Chlorobenzene	0.991	0.982	0.952	0.952	0.953	1.029	0.977	3.2
Ethyl Benzene	1.871	1.989	1.950	2.044	2.059	2.071	1.997	3.9
m/p-Xylenes	0.675	0.692	0.687	0.712	0.730	0.718	0.702	3
o-Xylene	0.611	0.665	0.667	0.696	0.733	0.671	0.674	6
Styrene	0.957	1.081	1.119	1.174	1.267	1.101	1.116	9.2
Bromoform	0.147	0.168	0.181	0.181	0.201	0.166	0.174	10.5
Isopropylbenzene	3.224	3.325	3.227	3.351	3.489	3.351	3.328	2.9
1,1,2,2-Tetrachloroethar	0.814	0.809	0.816	0.774	0.802	0.829	0.808	2.3
1,3-Dichlorobenzene	1.435	1.411	1.385	1.388	1.333	1.517	1.412	4.4
1,4-Dichlorobenzene	1.488	1.415	1.361	1.365	1.353	1.524	1.418	5.1
1,2-Dichlorobenzene	1.333	1.299	1.278	1.244	1.236	1.380	1.295	4.2
1,2-Dibromo-3-Chloropro	0.146	0.150	0.160	0.146	0.155	0.148	0.151	3.7
1,2,4-Trichlorobenzene	0.695	0.793	0.815	0.782	0.773	0.814	0.779	5.7
1,2,3-Trichlorobenzene	0.623	0.683	0.697	0.654	0.621	0.704	0.664	5.5
1,2-Dichloroethane-d4	1.261	0.983	0.815	0.718	0.720	1.078	0.929	23.4
Dibromofluoromethane	0.513	0.375	0.300	0.272	0.279	0.421	0.36	26.3
Toluene-d8	2.291	1.487	1.218	1.089	1.075	1.822	1.497	32.2
4-Bromofluorobenzene	0.620	0.424	0.375	0.344	0.382	0.504	0.442	23.5
1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	4

OK

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Calibration Table Last Updated: Mon Dec 19 17:16:55 2011



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Calibration Table Last Updated: Mon Dec 19 17:16:55 2011

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBT1219S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VT001906.D Lab Sample ID: VBT1219S1

Date Analyzed: 12/19/2011 Time Analyzed: 17:22

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_T

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BST1219S1	BST1219S1	VT001907.D	12/19/2011
12SB11-000.5-01	C5017-04	VT001915.D	12/19/2011
12SB11-000.5-01MS	C5017-05MS	VT001916.D	12/19/2011
12SB11-000.5-01MSD	C5017-06MSD	VT001917.D	12/19/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1219S1	SDG No.:	C5017
Lab Sample ID:	VBT1219S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001906.D	1		12/19/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1219S1	SDG No.:	C5017
Lab Sample ID:	VBT1219S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001906.D	1		12/19/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	48.2		55 - 158	96%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	51.9		85 - 115	104%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.6		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	1057100	8.05			
540-36-3	1,4-Difluorobenzene	1728500	8.95			
3114-55-4	Chlorobenzene-d5	1070890	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	523368	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1219S1	SDG No.:	C5017
Lab Sample ID:	VBT1219S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001906.D	1		12/19/11	VT121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VT002019.D BFB Injection Date: 12/22/2011

Instrument ID: MSVOA_T BFB Injection Time: 15:13

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.3
75	30.0 - 60.0% of mass 95	58.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	61.3
175	5.0 - 9.0% of mass 174	5 (8.2) 1
176	95.0 - 101.0% of mass 174	59.9 (97.8) 1
177	5.0 - 9.0% of mass 176	4 (6.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VT002020.D	12/22/2011	15:53
VBT1222S1	VBT1222S1	VT002021.D	12/22/2011	16:59
BST1222S2	BST1222S2	VT002023.D	12/22/2011	19:08
12SB09-0.502-02	C5017-11	VT002035.D	12/23/2011	01:18

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_T Calibration Date/Time: 12/22/2011 15:53

Lab File ID: VT002020.D Init. Calib. Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.421	0.414		-1.66	
Chloromethane	0.628	0.532	0.1	-15.29	
Vinyl Chloride	0.535	0.463		-13.46	20
Bromomethane	0.251	0.205		-18.33	
Chloroethane	0.352	0.295		-16.19	
Trichlorofluoromethane	0.769	0.691		-10.14	
1,1,2-Trichlorotrifluoroethane	0.395	0.392		-0.76	
1,1-Dichloroethene	0.538	0.530		-1.49	20
Acetone	0.302	0.225		-25.5	
Carbon Disulfide	1.884	1.928		2.34	
Methyl tert-butyl Ether	1.475	1.545		4.75	
Methyl Acetate	1.202	1.155		-3.91	
Methylene Chloride	0.658	0.643		-2.28	
trans-1,2-Dichloroethene	0.539	0.575		6.68	
1,1-Dichloroethane	1.298	1.361	0.1	4.85	
Cyclohexane	1.323	1.368		3.4	
2-Butanone	0.379	0.321		-15.3	
Carbon Tetrachloride	0.408	0.507		24.26	
cis-1,2-Dichloroethene	0.715	0.759		6.15	
Bromochloromethane	0.645	0.636		-1.4	
Chloroform	1.162	1.228		5.68	20
1,1,1-Trichloroethane	0.867	0.968		11.65	
Methylcyclohexane	0.621	0.781		25.76	
Benzene	1.631	1.862		14.16	
1,2-Dichloroethane	0.543	0.579		6.63	
Trichloroethene	0.285	0.333		16.84	
1,2-Dichloropropane	0.428	0.473		10.51	20
Bromodichloromethane	0.468	0.529		13.03	
4-Methyl-2-Pentanone	0.366	0.389		6.28	
Toluene	0.813	0.947		16.48	20
t-1,3-Dichloropropene	0.45	0.514		14.22	
cis-1,3-Dichloropropene	0.559	0.645		15.38	
1,1,2-Trichloroethane	0.245	0.261		6.53	
2-Hexanone	0.274	0.248		-9.49	
Dibromochloromethane	0.202	0.217		7.43	
1,2-Dibromoethane	0.2	0.208		4	
Tetrachloroethene	0.354	0.432		22.03	
Chlorobenzene	0.977	1.127	0.3	15.35	
Ethyl Benzene	1.997	2.390		19.68	20
m/p-Xylenes	0.702	0.811		15.53	
o-Xylene	0.674	0.734		8.9	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_T Calibration Date/Time: 12/22/2011 15:53

Lab File ID: VT002020.D Init. Calib. Date(s): 12/19/2011 12/19/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 13:48 16:21

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.116	1.187		6.36	
Bromoform	0.174	0.171	0.1	-1.72	
Isopropylbenzene	3.328	3.868		16.23	
1,1,2,2-Tetrachloroethane	0.808	0.819	0.3	1.36	
1,3-Dichlorobenzene	1.412	1.562		10.62	
1,4-Dichlorobenzene	1.418	1.554		9.59	
1,2-Dichlorobenzene	1.295	1.420		9.65	
1,2-Dibromo-3-Chloropropane	0.151	0.169		11.92	
1,2,4-Trichlorobenzene	0.779	0.926		18.87	
1,2,3-Trichlorobenzene	0.664	0.777		17.02	
1,2-Dichloroethane-d4	0.929	0.721		-22.39	
Dibromofluoromethane	0.36	0.304		-15.56	
Toluene-d8	1.497	1.228		-17.97	
4-Bromofluorobenzene	0.442	0.315		-28.73	
1,4-Dioxane	0.003	0.003		0	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122211\
Data File : VT002020.D
Acq On : 22 Dec 2011 15:53
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 22 16:42:09 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	128	0.00
2	T	Dichlorodifluoromethane	50.000	49.247	1.5	133	0.00
3	P	Chloromethane	50.000	42.389	15.2	111	0.00
4	C	Vinyl Chloride	50.000	43.250	13.5#	113	0.00
5	T	Bromomethane	50.000	40.834	18.3	104	0.00
6	T	Chloroethane	50.000	41.801	16.4	110	0.00
7	T	Trichlorofluoromethane	50.000	44.921	10.2	118	0.00
8	T	Diethyl Ether	50.000	44.135	11.7	113	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	49.666	0.7	132	0.00
10	T	Methyl Iodide	50.000	49.265	1.5	124	0.00
11	T	Tert butyl alcohol	250.000	260.895	-4.4	128	0.00
12	CM	1,1-Dichloroethene	50.000	49.212	1.6#	128	0.00
13	T	Acrolein	250.000	186.744	25.3#	97	0.00
14	T	Allyl chloride	50.000	54.704	-9.4	136	0.00
15	T	Acrylonitrile	250.000	246.844	1.3	118	0.00
16	T	Acetone	250.000	212.408	15.0	103	0.00
17	T	Carbon Disulfide	50.000	51.182	-2.4	132	0.00
18	T	Methyl Acetate	50.000	48.015	4.0	121	0.00
19	T	Methyl tert-butyl Ether	50.000	52.373	-4.7	128	0.00
20	T	Methylene Chloride	50.000	48.881	2.2	127	0.00
21	T	trans-1,2-Dichloroethene	50.000	53.327	-6.7	138	0.00
22	T	Diisopropyl ether	50.000	51.308	-2.6	128	0.00
23	T	Vinyl Acetate	250.000	256.229	-2.5	128	0.00
24	P	1,1-Dichloroethane	50.000	52.432	-4.9	135	0.00
25	T	2-Butanone	250.000	211.985	15.2	111	0.00
26	T	2,2-Dichloropropane	50.000	56.352	-12.7	141	0.00
27	T	cis-1,2-Dichloroethene	50.000	53.131	-6.3	133	0.00
28	T	Bromochloromethane	50.000	49.237	1.5	120	0.00
29	C	Chloroform	50.000	52.827	-5.7#	133	0.00
30	T	Cyclohexane	50.000	51.696	-3.4	141	0.00
31	T	1,1,1-Trichloroethane	50.000	55.837	-11.7	142	0.00
32	S	1,2-Dichloroethane-d4	50.000	45.788	8.4	113	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	117	0.00
34	S	Dibromofluoromethane	50.000	51.081	-2.2	119	0.00
35	T	1,1-Dichloropropene	50.000	59.458	-18.9	146	0.00
36	T	Ethyl Acetate	50.000	52.766	-5.5	120	0.00
37	T	Carbon Tetrachloride	50.000	62.093	-24.2#	147	0.00
38	T	Methylcyclohexane	50.000	62.868	-25.7#	150	0.00
39	TM	Benzene	50.000	57.064	-14.1	136	0.00
40	T	Methacrylonitrile	50.000	49.636	0.7	108	0.00
41	TM	1,2-Dichloroethane	50.000	53.326	-6.7	125	0.00
42	T	Isopropyl Acetate	50.000	54.113	-8.2	121	0.00
43	TM	Trichloroethene	50.000	58.408	-16.8	141	0.00
44	C	1,2-Dichloropropane	50.000	55.235	-10.5#	129	0.00
45	T	Dibromomethane	50.000	53.631	-7.3	124	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122211\
Data File : VT002020.D
Acq On : 22 Dec 2011 15:53
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 22 16:42:09 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	56.611	-13.2	130	0.00
47	T	Methyl methacrylate	50.000	54.348	-8.7	121	0.00
48	T	1,4-Dioxane	1000.000	1062.308	-6.2	121	0.00
49	S	Toluene-d8	50.000	51.941	-3.9	118	0.00
50	T	4-Methyl-2-Pentanone	250.000	265.734	-6.3	118	0.00
51	CM	Toluene	50.000	58.226	-16.5#	138	0.00
52	T	t-1,3-Dichloropropene	50.000	57.124	-14.2	126	0.00
53	T	cis-1,3-Dichloropropene	50.000	57.743	-15.5	130	0.00
54	T	1,1,2-Trichloroethane	50.000	53.220	-6.4	121	0.00
55	T	Ethyl methacrylate	50.000	56.892	-13.8	122	0.00
56	T	1,3-Dichloropropane	50.000	53.967	-7.9	123	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	269.891	-8.0	124	0.00
58	T	2-Hexanone	250.000	226.754	9.3	106	0.00
59	T	Dibromochloromethane	50.000	53.921	-7.8	122	0.00
60	T	1,2-Dibromoethane	50.000	51.872	-3.7	117	0.00
61	S	4-Bromofluorobenzene	50.000	41.002	18.0	99	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	106	0.00
63	T	Tetrachloroethene	50.000	61.041	-22.1#	134	0.00
64	PM	Chlorobenzene	50.000	57.680	-15.4	126	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	58.275	-16.5	122	0.00
66	C	Ethyl Benzene	50.000	59.832	-19.7#	130	0.00
67	T	m/p-Xylenes	100.000	115.493	-15.5	126	0.00
68	T	o-Xylene	50.000	54.512	-9.0	117	0.00
69	T	Styrene	50.000	53.156	-6.3	113	0.00
70	P	Bromoform	50.000	49.266	1.5	101	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	98	0.00
72	T	Isopropylbenzene	50.000	58.117	-16.2	118	0.00
73	T	N-amyl acetate	50.000	54.178	-8.4	99	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	50.699	-1.4	99	0.00
75	T	1,2,3-Trichloropropane	50.000	53.319	-6.6	102	0.00
76	T	Bromobenzene	50.000	52.838	-5.7	105	0.00
77	T	n-propylbenzene	50.000	56.505	-13.0	114	0.00
78	T	2-Chlorotoluene	50.000	55.061	-10.1	112	0.00
79	T	1,3,5-Trimethylbenzene	50.000	56.736	-13.5	113	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	55.547	-11.1	102	0.00
81	T	4-Chlorotoluene	50.000	55.279	-10.6	112	0.00
82	T	tert-Butylbenzene	50.000	57.009	-14.0	112	0.00
83	T	1,2,4-Trimethylbenzene	50.000	56.342	-12.7	113	0.00
84	T	sec-Butylbenzene	50.000	58.041	-16.1	117	0.00
85	T	p-Isopropyltoluene	50.000	58.970	-17.9	118	0.00
86	T	1,3-Dichlorobenzene	50.000	55.309	-10.6	111	0.00
87	T	1,4-Dichlorobenzene	50.000	54.819	-9.6	112	0.00
88	T	n-Butylbenzene	50.000	61.139	-22.3#	122	0.00
89	T	Hexachloroethane	50.000	60.894	-21.8#	118	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT122211\
Data File : VT002020.D
Acq On : 22 Dec 2011 15:53
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 22 16:42:09 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T121911S.M
Quant Title : SW846 8260
QLast Update : Mon Dec 19 17:20:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0 T	1,2-Dichlorobenzene	50.000	54.841	-9.7	109	0.00
)1 T	1,2-Dibromo-3-Chloropropane	50.000	55.994	-12.0	104	0.00
)2 T	1,2,4-Trichlorobenzene	50.000	59.490	-19.0	112	0.00
)3 T	Hexachlorobutadiene	50.000	62.190	-24.4#	124	0.00
)4 T	Naphthalene	50.000	56.972	-13.9	104	0.00
)5 T	1,2,3-Trichlorobenzene	50.000	58.517	-17.0	110	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBT1222S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VT002021.D Lab Sample ID: VBT1222S1

Date Analyzed: 12/22/2011 Time Analyzed: 16:59

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_T

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BST1222S2	BST1222S2	VT002023.D	12/22/2011
12SB09-0.502-02	C5017-11	VT002035.D	12/23/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1222S1	SDG No.:	C5017
Lab Sample ID:	VBT1222S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002021.D	1		12/22/11	VT122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1222S1	SDG No.:	C5017
Lab Sample ID:	VBT1222S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002021.D	1		12/22/11	VT122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	20	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.4		55 - 158	111%	SPK: 50
1868-53-7	Dibromofluoromethane	49.4		53 - 156	99%	SPK: 50
2037-26-5	Toluene-d8	53.3		85 - 115	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.9		85 - 120	92%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	793216	8.04			
540-36-3	1,4-Difluorobenzene	1417720	8.95			
3114-55-4	Chlorobenzene-d5	941986	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	454840	13.63			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1222S1	SDG No.:	C5017
Lab Sample ID:	VBT1222S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002021.D	1		12/22/11	VT122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF1220S1	BSF1220S1	1,2-Dichloroethane-d4	50	47.91	96		55	158
		Dibromofluoromethane	50	46.21	92		53	156
		Toluene-d8	50	45.65	91		85	115
		4-Bromofluorobenzene	50	44.42	89		85	120
BSF1222S1	BSF1222S1	1,2-Dichloroethane-d4	50	51.52	103		55	158
		Dibromofluoromethane	50	53	106		53	156
		Toluene-d8	50	52.57	105		85	115
		4-Bromofluorobenzene	50	53.12	106		85	120
BSF1223S1	BSF1223S1	1,2-Dichloroethane-d4	50	52.07	104		55	158
		Dibromofluoromethane	50	50.19	100		53	156
		Toluene-d8	50	47.77	96		85	115
		4-Bromofluorobenzene	50	48.53	97		85	120
BSG1220W3	BSG1220W3	1,2-Dichloroethane-d4	50	55.46	111		70	120
		Dibromofluoromethane	50	47.12	94		85	115
		Toluene-d8	50	46.4	93		85	120
		4-Bromofluorobenzene	50	53.82	108		75	120
BSG1220W4	BSG1220W4	1,2-Dichloroethane-d4	50	56.85	114		70	120
		Dibromofluoromethane	50	49.76	100		85	115
		Toluene-d8	50	49.13	98		85	120
		4-Bromofluorobenzene	50	54.29	109		75	120
BST1219S1	BST1219S1	1,2-Dichloroethane-d4	50	50.57	101		55	158
		Dibromofluoromethane	50	52.64	105		53	156
		Toluene-d8	50	54.99	110		85	115
		4-Bromofluorobenzene	50	46.84	94		85	120
BST1222S2	BST1222S2	1,2-Dichloroethane-d4	50	50.26	101		55	158
		Dibromofluoromethane	50	52.78	106		53	156
		Toluene-d8	50	54.56	109		85	115
		4-Bromofluorobenzene	50	43.14	86		85	120
C5017-01	12SB16-000.5-01	1,2-Dichloroethane-d4	50	42.83	86		55	158
		Dibromofluoromethane	50	45.77	92		53	156
		Toluene-d8	50	48.84	98		85	115
		4-Bromofluorobenzene	50	45.53	91		85	120
C5017-02	12SB16-0.502-02	1,2-Dichloroethane-d4	50	42.13	84		55	158
		Dibromofluoromethane	50	45.72	91		53	156
		Toluene-d8	50	48.56	97		85	115
		4-Bromofluorobenzene	50	47.81	96		85	120
C5017-03	12SB16-0304-03	1,2-Dichloroethane-d4	50	44.27	89		55	158
		Dibromofluoromethane	50	45.23	90		53	156
		Toluene-d8	50	48.4	97		85	115
		4-Bromofluorobenzene	50	47.59	95		85	120
C5017-04	12SB11-000.5-01	1,2-Dichloroethane-d4	50	50.59	101		55	158
		Dibromofluoromethane	50	49.61	99		53	156
		Toluene-d8	50	53.69	107		85	115
		4-Bromofluorobenzene	50	40.07	80	*	85	120
C5017-05MS	12SB11-000.5-01MS	1,2-Dichloroethane-d4	50	47.2	94		55	158
		Dibromofluoromethane	50	50.67	101		53	156
		Toluene-d8	50	48.83	98		85	115
		4-Bromofluorobenzene	50	35.57	71	*	85	120
C5017-06MSD	12SB11-000.5-01MSD	1,2-Dichloroethane-d4	50	51.3	103		55	158
		Dibromofluoromethane	50	53.29	107		53	156
		Toluene-d8	50	50.24	100		85	115
		4-Bromofluorobenzene	50	34.9	70	*	85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5017-07	12SB11-0.501-02	1,2-Dichloroethane-d4	50	46.9	94		55	158
		Dibromofluoromethane	50	47.73	95		53	156
		Toluene-d8	50	48.2	96		85	115
		4-Bromofluorobenzene	50	47.38	95		85	120
C5017-08	12SB11-0304-03	1,2-Dichloroethane-d4	50	45.18	90		55	158
		Dibromofluoromethane	50	47.19	94		53	156
		Toluene-d8	50	48.76	98		85	115
		4-Bromofluorobenzene	50	47.97	96		85	120
C5017-09	12SB-DUP02	1,2-Dichloroethane-d4	50	43.6	87		55	158
		Dibromofluoromethane	50	46.53	93		53	156
		Toluene-d8	50	48.62	97		85	115
		4-Bromofluorobenzene	50	45.15	90		85	120
C5017-10	12SB09-000.5-01	1,2-Dichloroethane-d4	50	43.82	88		55	158
		Dibromofluoromethane	50	47.77	96		53	156
		Toluene-d8	50	48.13	96		85	115
		4-Bromofluorobenzene	50	45.49	91		85	120
C5017-11	12SB09-0.502-02	1,2-Dichloroethane-d4	50	53.39	107		55	158
		Dibromofluoromethane	50	50.95	102		53	156
		Toluene-d8	50	53.98	108		85	115
		4-Bromofluorobenzene	50	42.28	85		85	120
C5017-12	12SB09-0304-03	1,2-Dichloroethane-d4	50	41.14	82		55	158
		Dibromofluoromethane	50	46.97	94		53	156
		Toluene-d8	50	51.55	103		85	115
		4-Bromofluorobenzene	50	50.49	101		85	120
C5017-13	12SB10-00.5-01	1,2-Dichloroethane-d4	50	43.19	86		55	158
		Dibromofluoromethane	50	48.61	97		53	156
		Toluene-d8	50	50.94	102		85	115
		4-Bromofluorobenzene	50	53.91	108		85	120
C5017-14	12SB10-0.502-02	1,2-Dichloroethane-d4	50	44.84	90		55	158
		Dibromofluoromethane	50	47.37	95		53	156
		Toluene-d8	50	51.42	103		85	115
		4-Bromofluorobenzene	50	53.59	107		85	120
C5017-15	12SB10-0304-03	1,2-Dichloroethane-d4	50	41.79	84		55	158
		Dibromofluoromethane	50	47.83	96		53	156
		Toluene-d8	50	50.76	102		85	115
		4-Bromofluorobenzene	50	53.29	107		85	120
C5017-16	12SB15-000.5-01	1,2-Dichloroethane-d4	50	43.08	86		55	158
		Dibromofluoromethane	50	46.76	94		53	156
		Toluene-d8	50	51.64	103		85	115
		4-Bromofluorobenzene	50	51.53	103		85	120
C5017-17	12SB15-0.502-02	1,2-Dichloroethane-d4	50	42.64	85		55	158
		Dibromofluoromethane	50	47.59	95		53	156
		Toluene-d8	50	51.14	102		85	115
		4-Bromofluorobenzene	50	55.07	110		85	120
C5017-18	12SB15-0304-03	1,2-Dichloroethane-d4	50	41.59	83		55	158
		Dibromofluoromethane	50	46.73	93		53	156
		Toluene-d8	50	50.76	102		85	115
		4-Bromofluorobenzene	50	54.41	109		85	120
C5017-19	12SB-DUP-04	1,2-Dichloroethane-d4	50	44.46	89		55	158
		Dibromofluoromethane	50	48.28	97		53	156
		Toluene-d8	50	50.45	101		85	115
		4-Bromofluorobenzene	50	54.78	110		85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5017-20	12SB14-0.502-02	1,2-Dichloroethane-d4	50	46.64	93		55	158
		Dibromofluoromethane	50	48.42	97		53	156
		Toluene-d8	50	50.31	101		85	115
		4-Bromofluorobenzene	50	53.61	107		85	120
C5017-21	12SB14-0304-03	1,2-Dichloroethane-d4	50	44.58	89		55	158
		Dibromofluoromethane	50	49.97	100		53	156
		Toluene-d8	50	51.28	103		85	115
		4-Bromofluorobenzene	50	54.5	109		85	120
C5017-22	12TB-20111215	1,2-Dichloroethane-d4	50	59.58	119		70	120
		Dibromofluoromethane	50	47.66	95		85	115
		Toluene-d8	50	50.32	101		85	120
		4-Bromofluorobenzene	50	58.52	117		75	120
VBF1220S1	VBF1220S1	1,2-Dichloroethane-d4	50	50.17	100		55	158
		Dibromofluoromethane	50	50.21	100		53	156
		Toluene-d8	50	49.52	99		85	115
		4-Bromofluorobenzene	50	47.9	96		85	120
VBF1222S1	VBF1222S1	1,2-Dichloroethane-d4	50	44.16	88		55	158
		Dibromofluoromethane	50	50.27	101		53	156
		Toluene-d8	50	48.27	97		85	115
		4-Bromofluorobenzene	50	47.29	95		85	120
VBF1223S1	VBF1223S1	1,2-Dichloroethane-d4	50	48.33	97		55	158
		Dibromofluoromethane	50	48.4	97		53	156
		Toluene-d8	50	48.54	97		85	115
		4-Bromofluorobenzene	50	46.8	94		85	120
VBG1220W2	VBG1220W2	1,2-Dichloroethane-d4	50	53.95	108		70	120
		Dibromofluoromethane	50	48.02	96		85	115
		Toluene-d8	50	46.28	93		85	120
		4-Bromofluorobenzene	50	47.19	94		75	120
VBT1219S1	VBT1219S1	1,2-Dichloroethane-d4	50	48.19	96		55	158
		Dibromofluoromethane	50	48.22	96		53	156
		Toluene-d8	50	51.88	104		85	115
		4-Bromofluorobenzene	50	44.56	89		85	120
VBT1222S1	VBT1222S1	1,2-Dichloroethane-d4	50	55.35	111		55	158
		Dibromofluoromethane	50	49.35	99		53	156
		Toluene-d8	50	53.3	107		85	115
		4-Bromofluorobenzene	50	45.86	92		85	120

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5017 **SAS No :** C5017 **SDG No:** C5017

Matrix Spike - EPA Sample No : C5017-05 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001916.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	50	0	73	103	(42-135)
Chloromethane	50	0	75	106	(50-130)
Vinyl Chloride	50	0	77	108	(60-125)
Bromomethane	50	0	71	100	(40-154)
Chloroethane	50	0	76	107	(40-155)
Trichlorofluoromethane	50	0	74	104	(46-159)
1,1,2-Trichlorotrifluoroethane	50	0	68	96	(59-140)
1,1-Dichloroethene	50	0	75	106	(65-135)
Acetone	250	0	210	59	(31-158)
Carbon Disulfide	50	0	69	97	(45-144)
Methyl tert-butyl Ether	50	0	69	97	(56-146)
Methyl Acetate	50	0	110	155	(16-205)
Methylene Chloride	50	0	71	100	(55-140)
trans-1,2-Dichloroethene	50	0	73	103	(65-135)
1,1-Dichloroethane	50	0	73	103	(75-125)
Cyclohexane	50	0	62	87	(51-136)
2-Butanone	250	0	230	64	(40-157)
Carbon Tetrachloride	50	0	74	104	(65-135)
cis-1,2-Dichloroethene	50	0	73	103	(65-125)
Bromochloromethane	50	0	72	101	(70-125)
Chloroform	50	0	73	103	(70-125)
1,1,1-Trichloroethane	50	0	72	101	(70-135)
Methylcyclohexane	50	0	60	85	(43-133)
Benzene	50	0	75	106	(75-125)
1,2-Dichloroethane	50	0	73	103	(70-135)
Trichloroethene	50	0	71	100	(75-125)
1,2-Dichloropropane	50	0	74	104	(70-120)
Bromodichloromethane	50	0	73	103	(70-130)
4-Methyl-2-Pentanone	250	0	330	92	(53-145)
Toluene	50	0	72	101	(70-125)
t-1,3-Dichloropropene	50	0	62	87	(65-125)
cis-1,3-Dichloropropene	50	0	61	86	(70-125)
1,1,2-Trichloroethane	50	0	70	99	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5017 **SAS No :** C5017 **SDG No:** C5017

Matrix Spike - EPA Sample No : C5017-05 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001916.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	250	0	220	62	(45-145)
Dibromochloromethane	50	0	67	94	(65-130)
1,2-Dibromoethane	50	0	67	94	(70-125)
Tetrachloroethene	50	0	63	89	(65-140)
Chlorobenzene	50	0	72	101	(75-125)
Ethyl Benzene	50	0	75	106	(75-125)
m/p-Xylenes	100	0	140	98	(80-125)
o-Xylene	50	0	70	99	(75-125)
Styrene	50	0	65	92	(75-125)
Bromoform	50	0	66	93	(62-135)
Isopropylbenzene	50	0	88	124	(75-130)
1,1,2,2-Tetrachloroethane	50	0	89	125	(55-130)
1,3-Dichlorobenzene	50	0	68	96	(70-125)
1,4-Dichlorobenzene	50	0	66	93	(70-124)
1,2-Dichlorobenzene	50	0	64	90	(75-120)
1,2-Dibromo-3-Chloropropane	50	0	84	118	(44-135)
1,2,4-Trichlorobenzene	50	0	41	58	(65-130)
1,2,3-Trichlorobenzene	50	0	35	49	(60-135)
1,4-Dioxane	1000	0	1600	112	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5017 **SAS No :** C5017 **SDG No:** C5017

Matrix Spike - EPA Sample No : C5017-06 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001917.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	50	79	111	7	20	(42-135)
Chloromethane	50	75	106	0	20	(50-130)
Vinyl Chloride	50	79	111	3	20	(60-125)
Bromomethane	50	66	93	7	20	(40-154)
Chloroethane	50	79	111	4	20	(40-155)
Trichlorofluoromethane	50	74	104	0	20	(46-159)
1,1,2-Trichlorotrifluoroethane	50	69	97	1	20	(59-140)
1,1-Dichloroethene	50	78	110	4	20	(65-135)
Acetone	250	230	64	8	20	(31-158)
Carbon Disulfide	50	71	100	3	20	(45-144)
Methyl tert-butyl Ether	50	72	101	4	20	(56-146)
Methyl Acetate	50	76	107	37	20	(16-205)
Methylene Chloride	50	73	103	3	20	(55-140)
trans-1,2-Dichloroethene	50	75	106	3	20	(65-135)
1,1-Dichloroethane	50	76	107	4	20	(75-125)
Cyclohexane	50	63	89	2	20	(51-136)
2-Butanone	250	250	70	9	20	(40-157)
Carbon Tetrachloride	50	75	106	2	20	(65-135)
cis-1,2-Dichloroethene	50	74	104	1	20	(65-125)
Bromochloromethane	50	72	101	0	20	(70-125)
Chloroform	50	73	103	0	20	(70-125)
1,1,1-Trichloroethane	50	75	106	5	20	(70-135)
Methylcyclohexane	50	62	87	2	20	(43-133)
Benzene	50	75	106	0	20	(75-125)
1,2-Dichloroethane	50	73	103	0	20	(70-135)
Trichloroethene	50	71	100	0	20	(75-125)
1,2-Dichloropropane	50	74	104	0	20	(70-120)
Bromodichloromethane	50	71	100	3	20	(70-130)
4-Methyl-2-Pentanone	250	330	92	0	20	(53-145)
Toluene	50	70	99	2	20	(70-125)
t-1,3-Dichloropropene	50	58	82	6	20	(65-125)
cis-1,3-Dichloropropene	50	56	79	8	20	(70-125)
1,1,2-Trichloroethane	50	70	99	0	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5017 **SAS No :** C5017 **SDG No:** C5017

Matrix Spike - EPA Sample No : C5017-06 **Analytical Method:** EPA SW846 8260 **Datafile :** VT001917.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	%	QC LIMITS RPD	REC
2-Hexanone	250	210	59	5	20	(45-145)
Dibromochloromethane	50	66	93	1	20	(65-130)
1,2-Dibromoethane	50	64	90	4	20	(70-125)
Tetrachloroethene	50	63	89	0	20	(65-140)
Chlorobenzene	50	71	100	1	20	(75-125)
Ethyl Benzene	50	73	103	3	20	(75-125)
m/p-Xylenes	100	140	98	0	20	(80-125)
o-Xylene	50	69	97	2	20	(75-125)
Styrene	50	62	87	6	20	(75-125)
Bromoform	50	64	90	3	20	(62-135)
Isopropylbenzene	50	90	127	2	20	(75-130)
1,1,2,2-Tetrachloroethane	50	95	134	7	20	(55-130)
1,3-Dichlorobenzene	50	69	97	1	20	(70-125)
1,4-Dichlorobenzene	50	68	96	3	20	(70-124)
1,2-Dichlorobenzene	50	66	93	3	20	(75-120)
1,2-Dibromo-3-Chloropropane	50	87	123	4	20	(44-135)
1,2,4-Trichlorobenzene	50	41	58	0	20	(65-130)
1,2,3-Trichlorobenzene	50	38	54	10	20	(60-135)
1,4-Dioxane	1000	1600	112	0	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSF1220S1 Analytical Method: EPA SW846 8260 Datafile : VF030200.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(47-135)
Chloromethane	20		21	105	(56-130)
Vinyl Chloride	20		19	95	(60-125)
Bromomethane	20		22	110	(45-158)
Chloroethane	20		19	95	(42-155)
Trichlorofluoromethane	20		23	115	(55-146)
1,1,2-Trichlorotrifluoroethane	20		21	105	(65-134)
1,1-Dichloroethene	20		20	100	(65-135)
Acetone	100		100	100	(57-148)
Carbon Disulfide	20		20	100	(60-138)
Methyl tert-butyl Ether	20		19	95	(70-131)
Methyl Acetate	20		20	100	(44-187)
Methylene Chloride	20		21	105	(63-140)
trans-1,2-Dichloroethene	20		19	95	(73-130)
1,1-Dichloroethane	20		21	105	(75-125)
Cyclohexane	20		18	90	(66-132)
2-Butanone	100		96	96	(52-153)
Carbon Tetrachloride	20		20	100	(74-122)
cis-1,2-Dichloroethene	20		19	95	(75-125)
Bromochloromethane	20		20	100	(74-125)
Chloroform	20		21	105	(75-125)
1,1,1-Trichloroethane	20		20	100	(75-128)
Methylcyclohexane	20		18	90	(71-124)
Benzene	20		19	95	(79-122)
1,2-Dichloroethane	20		20	100	(75-132)
Trichloroethene	20		20	100	(77-120)
1,2-Dichloropropane	20		20	100	(76-120)
Bromodichloromethane	20		20	100	(77-124)
4-Methyl-2-Pentanone	100		99	99	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		20	100	(79-122)
1,1,2-Trichloroethane	20		20	100	(76-125)
2-Hexanone	100		120	120	(55-145)
Dibromochloromethane	20		19	95	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSF1220S1 Analytical Method: EPA SW846 8260 Datafile : VF030200.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		19	95	(76-125)
Tetrachloroethene	20		18	90	(65-140)
Chlorobenzene	20		20	100	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		20	100	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		19	95	(82-121)
1,4-Dichlorobenzene	20		19	95	(82-118)
1,2-Dichlorobenzene	20		19	95	(81-120)
1,2-Dibromo-3-Chloropropane	20		19	95	(66-132)
1,2,4-Trichlorobenzene	20		18	90	(71-124)
1,2,3-Trichlorobenzene	20		19	95	(74-123)
1,4-Dioxane	400		370	93	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSF1222S1 Analytical Method: EPA SW846 8260 Datafile : VF030252.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(47-135)
Chloromethane	20		18	90	(56-130)
Vinyl Chloride	20		18	90	(60-125)
Bromomethane	20		19	95	(45-158)
Chloroethane	20		20	100	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		21	105	(65-134)
1,1-Dichloroethene	20		20	100	(65-135)
Acetone	100		83	83	(57-148)
Carbon Disulfide	20		18	90	(60-138)
Methyl tert-butyl Ether	20		19	95	(70-131)
Methyl Acetate	20		18	90	(44-187)
Methylene Chloride	20		19	95	(63-140)
trans-1,2-Dichloroethene	20		18	90	(73-130)
1,1-Dichloroethane	20		20	100	(75-125)
Cyclohexane	20		18	90	(66-132)
2-Butanone	100		82	82	(52-153)
Carbon Tetrachloride	20		20	100	(74-122)
cis-1,2-Dichloroethene	20		19	95	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		20	100	(75-125)
1,1,1-Trichloroethane	20		20	100	(75-128)
Methylcyclohexane	20		20	100	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		21	105	(75-132)
Trichloroethene	20		20	100	(77-120)
1,2-Dichloropropane	20		19	95	(76-120)
Bromodichloromethane	20		20	100	(77-124)
4-Methyl-2-Pentanone	100		98	98	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		21	105	(79-122)
1,1,2-Trichloroethane	20		20	100	(76-125)
2-Hexanone	100		87	87	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSF1222S1 Analytical Method: EPA SW846 8260 Datafile : VF030252.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		19	95	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		19	95	(80-119)
Bromoform	20		20	100	(71-125)
Isopropylbenzene	20		20	100	(77-124)
1,1,2,2-Tetrachloroethane	20		19	95	(77-130)
1,3-Dichlorobenzene	20		20	100	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		19	95	(71-124)
1,2,3-Trichlorobenzene	20		20	100	(74-123)
1,4-Dioxane	400		310	78	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSF1223S1 Analytical Method: EPA SW846 8260 Datafile : VF030297.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(47-135)
Chloromethane	20		17	85	(56-130)
Vinyl Chloride	20		19	95	(60-125)
Bromomethane	20		19	95	(45-158)
Chloroethane	20		18	90	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		19	95	(65-134)
1,1-Dichloroethene	20		19	95	(65-135)
Acetone	100		94	94	(57-148)
Carbon Disulfide	20		20	100	(60-138)
Methyl tert-butyl Ether	20		20	100	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		19	95	(63-140)
trans-1,2-Dichloroethene	20		20	100	(73-130)
1,1-Dichloroethane	20		20	100	(75-125)
Cyclohexane	20		18	90	(66-132)
2-Butanone	100		93	93	(52-153)
Carbon Tetrachloride	20		18	90	(74-122)
cis-1,2-Dichloroethene	20		18	90	(75-125)
Bromochloromethane	20		20	100	(74-125)
Chloroform	20		19	95	(75-125)
1,1,1-Trichloroethane	20		18	90	(75-128)
Methylcyclohexane	20		18	90	(71-124)
Benzene	20		18	90	(79-122)
1,2-Dichloroethane	20		19	95	(75-132)
Trichloroethene	20		18	90	(77-120)
1,2-Dichloropropane	20		18	90	(76-120)
Bromodichloromethane	20		18	90	(77-124)
4-Methyl-2-Pentanone	100		99	99	(70-141)
Toluene	20		17	85	(78-121)
t-1,3-Dichloropropene	20		18	90	(76-125)
cis-1,3-Dichloropropene	20		19	95	(79-122)
1,1,2-Trichloroethane	20		18	90	(76-125)
2-Hexanone	100		98	98	(55-145)
Dibromochloromethane	20		18	90	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSF1223S1 Analytical Method: EPA SW846 8260 Datafile : VF030297.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		19	95	(76-125)
Tetrachloroethene	20		18	90	(65-140)
Chlorobenzene	20		17	85	(79-120)
Ethyl Benzene	20		18	90	(77-120)
m/p-Xylenes	40		35	88	(80-120)
o-Xylene	20		18	90	(78-119)
Styrene	20		18	90	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		18	90	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		18	90	(82-121)
1,4-Dichlorobenzene	20		18	90	(82-118)
1,2-Dichlorobenzene	20		18	90	(81-120)
1,2-Dibromo-3-Chloropropane	20		16	80	(66-132)
1,2,4-Trichlorobenzene	20		17	85	(71-124)
1,2,3-Trichlorobenzene	20		17	85	(74-123)
1,4-Dioxane	400		310	78	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSG1220W3 Analytical Method: EPA SW846 8260 Datafile : VG039733.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(35-124)
Chloromethane	20		22	110	(40-125)
Vinyl Chloride	20		24	120	(50-144)
Bromomethane	20		27	135	(44-145)
Chloroethane	20		21	105	(60-135)
Trichlorofluoromethane	20		24	120	(60-137)
1,1,2-Trichlorotrifluoroethane	20		21	105	(52-142)
1,1-Dichloroethene	20		22	110	(70-130)
Acetone	100		130	130	(50-140)
Carbon Disulfide	20		25	125	(36-155)
Methyl tert-butyl Ether	20		22	110	(65-125)
Methyl Acetate	20		24	120	(51-158)
Methylene Chloride	20		24	120	(61-138)
trans-1,2-Dichloroethene	20		23	115	(60-137)
1,1-Dichloroethane	20		24	120	(70-135)
Cyclohexane	20		24	120	(56-141)
2-Butanone	100		110	110	(56-150)
Carbon Tetrachloride	20		26	130	(65-138)
cis-1,2-Dichloroethene	20		23	115	(70-125)
Bromochloromethane	20		25	125	(65-130)
Chloroform	20		23	115	(67-135)
1,1,1-Trichloroethane	20		24	120	(65-130)
Methylcyclohexane	20		22	110	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		21	105	(70-130)
Trichloroethene	20		21	105	(70-125)
1,2-Dichloropropane	20		21	105	(75-125)
Bromodichloromethane	20		23	115	(75-120)
4-Methyl-2-Pentanone	100		110	110	(63-135)
Toluene	20		21	105	(75-120)
t-1,3-Dichloropropene	20		20	100	(66-135)
cis-1,3-Dichloropropene	20		21	105	(70-130)
1,1,2-Trichloroethane	20		21	105	(75-125)
2-Hexanone	100		110	110	(56-130)
Dibromochloromethane	20		22	110	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSG1220W3 Analytical Method: EPA SW846 8260 Datafile : VG039733.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(80-120)
Tetrachloroethene	20		23	115	(45-178)
Chlorobenzene	20		21	105	(80-120)
Ethyl Benzene	20		21	105	(75-125)
m/p-Xylenes	40		42	105	(75-130)
o-Xylene	20		22	110	(80-120)
Styrene	20		23	115	(65-135)
Bromoform	20		21	105	(70-130)
Isopropylbenzene	20		19	95	(75-125)
1,1,2,2-Tetrachloroethane	20		18	90	(65-130)
1,3-Dichlorobenzene	20		21	105	(75-125)
1,4-Dichlorobenzene	20		21	105	(75-125)
1,2-Dichlorobenzene	20		21	105	(70-120)
1,2-Dibromo-3-Chloropropane	20		19	95	(54-130)
1,2,4-Trichlorobenzene	20		20	100	(65-133)
1,2,3-Trichlorobenzene	20		19	95	(60-135)
1,4-Dioxane	400		510	128	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSG1220W4 Analytical Method: EPA SW846 8260 Datafile : VG039734.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	20	18	90	11	20	(35-124)
Chloromethane	20	25	125	13	20	(40-125)
Vinyl Chloride	20	26	130	8	20	(50-144)
Bromomethane	20	28	140	4	20	(44-145)
Chloroethane	20	24	120	13	20	(60-135)
Trichlorofluoromethane	20	24	120	0	20	(60-137)
1,1,2-Trichlorotrifluoroethane	20	20	100	5	20	(52-142)
1,1-Dichloroethene	20	23	115	4	20	(70-130)
Acetone	100	130	130	0	20	(50-140)
Carbon Disulfide	20	27	135	8	20	(36-155)
Methyl tert-butyl Ether	20	23	115	4	20	(65-125)
Methyl Acetate	20	25	125	4	20	(51-158)
Methylene Chloride	20	25	125	4	20	(61-138)
trans-1,2-Dichloroethene	20	23	115	0	20	(60-137)
1,1-Dichloroethane	20	24	120	0	20	(70-135)
Cyclohexane	20	23	115	4	20	(56-141)
2-Butanone	100	120	120	9	20	(56-150)
Carbon Tetrachloride	20	25	125	4	20	(65-138)
cis-1,2-Dichloroethene	20	24	120	4	20	(70-125)
Bromochloromethane	20	25	125	0	20	(65-130)
Chloroform	20	23	115	0	20	(67-135)
1,1,1-Trichloroethane	20	23	115	4	20	(65-130)
Methylcyclohexane	20	19	95	15	20	(56-137)
Benzene	20	22	110	5	20	(80-120)
1,2-Dichloroethane	20	21	105	0	20	(70-130)
Trichloroethene	20	21	105	0	20	(70-125)
1,2-Dichloropropane	20	22	110	5	20	(75-125)
Bromodichloromethane	20	24	120	4	20	(75-120)
4-Methyl-2-Pentanone	100	110	110	0	20	(63-135)
Toluene	20	21	105	0	20	(75-120)
t-1,3-Dichloropropene	20	20	100	0	20	(66-135)
cis-1,3-Dichloropropene	20	21	105	0	20	(70-130)
1,1,2-Trichloroethane	20	21	105	0	20	(75-125)
2-Hexanone	100	100	100	10	20	(56-130)
Dibromochloromethane	20	22	110	0	20	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BSG1220W4 Analytical Method: EPA SW846 8260 Datafile : VG039734.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
1,2-Dibromoethane	20	21	105	0	20	(80-120)
Tetrachloroethene	20	25	125	8	20	(45-178)
Chlorobenzene	20	21	105	0	20	(80-120)
Ethyl Benzene	20	21	105	0	20	(75-125)
m/p-Xylenes	40	43	108	3	20	(75-130)
o-Xylene	20	24	120	9	20	(80-120)
Styrene	20	24	120	4	20	(65-135)
Bromoform	20	22	110	5	20	(70-130)
Isopropylbenzene	20	20	100	5	20	(75-125)
1,1,2,2-Tetrachloroethane	20	18	90	0	20	(65-130)
1,3-Dichlorobenzene	20	21	105	0	20	(75-125)
1,4-Dichlorobenzene	20	22	110	5	20	(75-125)
1,2-Dichlorobenzene	20	22	110	5	20	(70-120)
1,2-Dibromo-3-Chloropropane	20	19	95	0	20	(54-130)
1,2,4-Trichlorobenzene	20	20	100	0	20	(65-133)
1,2,3-Trichlorobenzene	20	21	105	10	20	(60-135)
1,4-Dioxane	400	460	115	11	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BST1219S1 Analytical Method: EPA SW846 8260 Datafile : VT001907.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		20	100	(60-125)
Bromomethane	20		20	100	(45-158)
Chloroethane	20		19	95	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		21	105	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		73	73	(57-148)
Carbon Disulfide	20		21	105	(60-138)
Methyl tert-butyl Ether	20		21	105	(70-131)
Methyl Acetate	20		19	95	(44-187)
Methylene Chloride	20		21	105	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		21	105	(75-125)
Cyclohexane	20		21	105	(66-132)
2-Butanone	100		83	83	(52-153)
Carbon Tetrachloride	20		23	115	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		21	105	(74-125)
Chloroform	20		21	105	(75-125)
1,1,1-Trichloroethane	20		22	110	(75-128)
Methylcyclohexane	20		23	115	(71-124)
Benzene	20		22	110	(79-122)
1,2-Dichloroethane	20		21	105	(75-132)
Trichloroethene	20		22	110	(77-120)
1,2-Dichloropropane	20		22	110	(76-120)
Bromodichloromethane	20		22	110	(77-124)
4-Methyl-2-Pentanone	100		96	96	(70-141)
Toluene	20		22	110	(78-121)
t-1,3-Dichloropropene	20		21	105	(76-125)
cis-1,3-Dichloropropene	20		21	105	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		84	84	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BST1219S1 Analytical Method: EPA SW846 8260 Datafile : VT001907.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(76-125)
Tetrachloroethene	20		22	110	(65-140)
Chlorobenzene	20		22	110	(79-120)
Ethyl Benzene	20		23	115	(77-120)
m/p-Xylenes	40		44	110	(80-120)
o-Xylene	20		21	105	(78-119)
Styrene	20		21	105	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		24	120	(77-124)
1,1,2,2-Tetrachloroethane	20		21	105	(77-130)
1,3-Dichlorobenzene	20		22	110	(82-121)
1,4-Dichlorobenzene	20		22	110	(82-118)
1,2-Dichlorobenzene	20		22	110	(81-120)
1,2-Dibromo-3-Chloropropane	20		20	100	(66-132)
1,2,4-Trichlorobenzene	20		22	110	(71-124)
1,2,3-Trichlorobenzene	20		22	110	(74-123)
1,4-Dioxane	400		380	95	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BST1222S2 Analytical Method: EPA SW846 8260 Datafile : VT002023.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(47-135)
Chloromethane	20		17	85	(56-130)
Vinyl Chloride	20		18	90	(60-125)
Bromomethane	20		18	90	(45-158)
Chloroethane	20		18	90	(42-155)
Trichlorofluoromethane	20		18	90	(55-146)
1,1,2-Trichlorotrifluoroethane	20		19	95	(65-134)
1,1-Dichloroethene	20		20	100	(65-135)
Acetone	100		76	76	(57-148)
Carbon Disulfide	20		18	90	(60-138)
Methyl tert-butyl Ether	20		22	110	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		21	105	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		21	105	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		89	89	(52-153)
Carbon Tetrachloride	20		23	115	(74-122)
cis-1,2-Dichloroethene	20		21	105	(75-125)
Bromochloromethane	20		21	105	(74-125)
Chloroform	20		21	105	(75-125)
1,1,1-Trichloroethane	20		22	110	(75-128)
Methylcyclohexane	20		22	110	(71-124)
Benzene	20		22	110	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		23	115	(77-120)
1,2-Dichloropropane	20		22	110	(76-120)
Bromodichloromethane	20		22	110	(77-124)
4-Methyl-2-Pentanone	100		110	110	(70-141)
Toluene	20		22	110	(78-121)
t-1,3-Dichloropropene	20		22	110	(76-125)
cis-1,3-Dichloropropene	20		22	110	(79-122)
1,1,2-Trichloroethane	20		22	110	(76-125)
2-Hexanone	100		92	92	(55-145)
Dibromochloromethane	20		21	105	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH · Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5017 SAS No : C5017 SDG No: C5017

Matrix Spike - EPA Sample No : BST1222S2 Analytical Method: EPA SW846 8260 Datafile : VT002023.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		24	120	(65-140)
Chlorobenzene	20		22	110	(79-120)
Ethyl Benzene	20		22	110	(77-120)
m/p-Xylenes	40		43	108	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		22	110	(77-124)
1,1,2,2-Tetrachloroethane	20		21	105	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		21	105	(82-118)
1,2-Dichlorobenzene	20		22	110	(81-120)
1,2-Dibromo-3-Chloropropane	20		22	110	(66-132)
1,2,4-Trichlorobenzene	20		22	110	(71-124)
1,2,3-Trichlorobenzene	20		23	115	(74-123)
1,4-Dioxane	400		440	110	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030198.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_F Time Analyzed: 22:09

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	133966	4.37	228343	5.11	223027	9.32
UPPER LIMIT	267932	4.87	456686	5.61	446054	9.82
LOWER LIMIT	66983	3.87	114171.5	4.61	111513.5	8.82
EPA SAMPLE NO.						
BSF1220S1	137581	4.38	245319	5.12	235706	9.31
12SB16-000.5-01	127263	4.39	226786	5.13	228286	9.32
12SB16-0.502-02	123597	4.39	222423	5.13	222667	9.32
12SB16-0304-03	119725	4.39	214382	5.13	216750	9.33
12SB11-0.501-02	113529	4.39	206692	5.13	209496	9.33
12SB11-0304-03	113002	4.38	203636	5.13	206362	9.33
12SB-DUP02	112762	4.39	205350	5.13	205823	9.33
12SB09-000.5-01	113167	4.39	198551	5.13	204451	9.34
VBF1220S1	140815	4.38	243036	5.12	234923	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030198.D Date Analyzed: 12/20/2011

Instrument ID: MSVOA_F Time Analyzed: 22:09

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	117442	12.24				
UPPER LIMIT	234884	12.74				
LOWER LIMIT	58721	11.74				
EPA SAMPLE NO.						
BSF1220S1	131701	12.23				
12SB16-000.5-01	112080	12.24				
12SB16-0.502-02	113487	12.24				
12SB16-0304-03	116268	12.24				
12SB11-0.501-02	111868	12.24				
12SB11-0304-03	115715	12.24				
12SB-DUP02	106510	12.24				
12SB09-000.5-01	102973	12.24				
VBF1220S1	128952	12.23				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030250.D Date Analyzed: 12/22/2011

Instrument ID: MSVOA_F Time Analyzed: 12:53

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	134600	4.37	229695	5.12	225407	9.32
UPPER LIMIT	269200	4.87	459390	5.62	450814	9.82
LOWER LIMIT	67300	3.87	114847.5	4.62	112703.5	8.82
EPA SAMPLE NO.						
BSF1222S1	133106	4.37	222070	5.12	221765	9.31
12SB09-0304-03	128499	4.36	226883	5.11	230916	9.30
12SB10-0304-03	114013	4.37	199271	5.11	211729	9.31
12SB15-000.5-01	111535	4.37	198200	5.11	205622	9.31
12SB15-0.502-02	117583	4.37	203420	5.11	215716	9.30
12SB15-0304-03	117176	4.37	203973	5.11	216895	9.31
12SB-DUP-04	110724	4.37	197216	5.11	204866	9.32
VBF1222S1	146124	4.37	242845	5.11	230791	9.31

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030250.D Date Analyzed: 12/22/2011

Instrument ID: MSVOA_F Time Analyzed: 12:53

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	127469	12.23				
UPPER LIMIT	254938	12.73				
LOWER LIMIT	63734.5	11.73				
EPA SAMPLE NO.						
BSF1222S1	124360	12.23				
12SB09-0304-03	114786	12.23				
12SB10-0304-03	117461	12.23				
12SB15-000.5-01	104515	12.23				
12SB15-0.502-02	121149	12.23				
12SB15-0304-03	121946	12.23				
12SB-DUP-04	111110	12.23				
VBF1222S1	126902	12.23				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030295.D Date Analyzed: 12/23/2011

Instrument ID: MSVOA_F Time Analyzed: 13:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	140305	4.38	237801	5.12	230471	9.32
UPPER LIMIT	280610	4.88	475602	5.62	460942	9.82
LOWER LIMIT	70152.5	3.88	118900.5	4.62	115235.5	8.82
EPA SAMPLE NO.						
BSF1223S1	131284	4.38	230812	5.12	224089	9.32
12SB10-00.5-01	117434	4.37	204235	5.12	217087	9.31
12SB10-0.502-02	111830	4.37	201825	5.11	210395	9.31
12SB14-0.502-02	108151	4.37	200009	5.11	209330	9.31
12SB14-0304-03	107403	4.37	193310	5.11	206402	9.31
VBF1223S1	136486	4.38	238796	5.12	225923	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VF030295.D Date Analyzed: 12/23/2011

Instrument ID: MSVOA_F Time Analyzed: 13:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	133203	12.24				
UPPER LIMIT	266406	12.74				
LOWER LIMIT	66601.5	11.74				
EPA SAMPLE NO.						
BSF1223S1	124726	12.24				
12SB10-00.5-01	116542	12.23				
12SB10-0.502-02	117946	12.23				
12SB14-0.502-02	116407	12.24				
12SB14-0304-03	114400	12.23				
VBF1223S1	124757	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VG039730.D Date Analyzed: 12/21/2011

Instrument ID: MSVOAG Time Analyzed: 02:19

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	829401	3.90	1437927	4.71	829754	9.68
UPPER LIMIT	1658802	4.4	2875854	5.21	1659508	10.18
LOWER LIMIT	414700.5	3.4	718963.5	4.21	414877	9.18
EPA SAMPLE NO.						
BSG1220W3	662924	3.90	1218846	4.72	709422	9.68
BSG1220W4	711028	3.90	1296539	4.72	736160	9.68
12TB-20111215	553033	3.92	1037675	4.72	609492	9.70
VBG1220W2	741629	3.90	1348004	4.71	737952	9.68

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: VG039730.D Date Analyzed: 12/21/2011

Instrument ID: MSVOAG Time Analyzed: 02:19

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	414301	13.38				
UPPER LIMIT	828602	13.88				
LOWER LIMIT	207150.5	12.88				
EPA SAMPLE NO.						
BSG1220W3	361276	13.38				
BSG1220W4	378815	13.39				
12TB-20111215	292994	13.39				
VBG1220W2	331735	13.39				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BF052543.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_F DFTPP Injection Time: 16:29

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.7
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	41.2
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	52
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	21.8
365	Greater than 1% of mass 198	2.9
441	Present, but less than mass 443	11.2
442	Greater than 40% of mass 198	72.6
443	17.0 - 23.0% of mass 442	14.2 (19.6) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA ICC	BF052544.D	12/31/2011	16:57
02	SSTD010	10 ng BNA ICC	BF052545.D	12/31/2011	17:25
03	SSTD025	25 ng BNA ICC	BF052546.D	12/31/2011	17:53
04	SSTD050	50 ng BNA ICC	BF052547.D	12/31/2011	18:21
05	SSTD060	60 ng BNA ICC	BF052548.D	12/31/2011	18:49
06	SSTD080	80 ng BNA ICC	BF052549.D	12/31/2011	19:17
07	PB59994B	PB59994B	BF052565.D	01/01/2012	02:42
08	PB59994BS	PB59994BS	BF052566.D	01/01/2012	03:10

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date(s): 12/31/2011 12/31/2011

Calibration Time(s): 16:57 19:17

LAB FILE ID: RRF010 = BF052545.D RRF025 = BF052546.D RRF040 = BF052544.D
RRF050 = BF052547.D RRF060 = BF052548.D RRF080 = BF052549.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.173	1.053	0.880	0.811	0.765	0.651	0.889	21.7
Phenol	2.123	2.094	1.950	1.940	1.878	1.795	1.963	6.4
bis(2-Chloroethyl)ether	1.553	1.576	1.502	1.476	1.470	1.366	1.491	5.0
2-Chlorophenol	1.499	1.477	1.406	1.386	1.373	1.278	1.403	5.7
2-Methylphenol	1.130	1.159	1.093	1.082	1.081	1.007	1.092	4.7
2,2-oxybis(1-Chloropropane)	2.109	2.083	1.940	1.884	1.889	1.745	1.942	7.0
Acetophenone	0.512	0.518	0.492	0.492	0.481	0.467	0.494	3.8
3+4-Methylphenols	1.447	1.525	1.433	1.423	1.421	1.358	1.435	3.7
n-Nitroso-di-n-propylamine	1.031	1.078	1.023	1.020	1.031	0.981	1.027	3.0
Hexachloroethane	0.594	0.616	0.584	0.582	0.586	0.542	0.584	4.1
Nitrobenzene	0.401	0.391	0.378	0.378	0.367	0.359	0.379	4.0
Isophorone	0.701	0.698	0.688	0.695	0.685	0.680	0.691	1.2
2-Nitrophenol	0.185	0.197	0.196	0.202	0.201	0.196	0.196	3.1
2,4-Dimethylphenol	0.336	0.344	0.334	0.332	0.329	0.323	0.333	2.1
bis(2-Chloroethoxy)methane	0.468	0.473	0.460	0.459	0.449	0.437	0.458	2.9
2,4-Dichlorophenol	0.290	0.292	0.288	0.284	0.283	0.274	0.285	2.3
4-Chloroaniline	0.433	0.448	0.430	0.437	0.424	0.412	0.431	2.8
Hexachlorobutadiene	0.164	0.168	0.162	0.163	0.161	0.157	0.162	2.3
Caprolactam	0.103	0.108	0.113	0.117	0.119	0.119	0.113	6.0
4-Chloro-3-methylphenol	0.301	0.312	0.309	0.312	0.311	0.307	0.309	1.4
Hexachlorocyclopentadiene	0.249	0.288	0.276	0.292	0.289	0.283	0.280	5.6
2,4,6-Trichlorophenol	0.337	0.367	0.352	0.365	0.356	0.348	0.354	3.2
2,4,5-Trichlorophenol	0.362	0.385	0.367	0.382	0.375	0.369	0.374	2.4
1,1-Biphenyl	1.662	1.568	1.431	1.415	1.362	1.252	1.449	10.1
2-Chloronaphthalene	1.203	1.159	1.064	1.053	1.025	0.964	1.078	8.2
2-Nitroaniline	0.376	0.398	0.388	0.406	0.399	0.398	0.394	2.7
Dimethylphthalate	1.276	1.288	1.216	1.224	1.199	1.154	1.226	4.1
Acenaphthylene	1.880	1.806	1.693	1.692	1.651	1.556	1.713	6.7
2,6-Dinitrotoluene	0.297	0.298	0.291	0.287	0.286	0.278	0.290	2.6
3-Nitroaniline	0.384	0.421	0.418	0.434	0.429	0.429	0.419	4.3
Acenaphthene	1.179	1.167	1.123	1.126	1.104	1.063	1.127	3.8
2,4-Dinitrophenol	0.035	0.076	0.102	0.127	0.143	0.163	0.108	43.5
4-Nitrophenol	0.225	0.259	0.268	0.283	0.285	0.284	0.267	8.8
Dibenzofuran	1.686	1.653	1.552	1.572	1.533	1.471	1.578	5.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date(s): 12/31/2011 12/31/2011

Calibration Time(s): 16:57 19:17

LAB FILE ID: RRF010 = BF052545.D RRF025 = BF052546.D RRF040 = BF052544.D
RRF050 = BF052547.D RRF060 = BF052548.D RRF080 = BF052549.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.357	0.380	0.374	0.383	0.385	0.365	0.374	2.9
Diethylphthalate	1.225	1.244	1.186	1.213	1.204	1.173	1.207	2.1
4-Chlorophenyl-phenylether	0.628	0.614	0.591	0.594	0.584	0.565	0.596	3.7
4-Nitroaniline	0.321	0.351	0.332	0.352	0.351	0.353	0.343	4.0
4,6-Dinitro-2-methylphenol	0.054	0.097	0.110	0.123	0.126	0.132	0.107	27.1
n-Nitrosodiphenylamine	0.691	0.683	0.651	0.628	0.615	0.595	0.644	5.9
4-Bromophenyl-phenylether	0.203	0.208	0.204	0.201	0.200	0.197	0.202	1.8
Hexachlorobenzene	0.217	0.208	0.200	0.199	0.194	0.192	0.202	4.7
Atrazine	0.196	0.200	0.195	0.193	0.190	0.192	0.194	1.8
Pentachlorophenol	0.095	0.119	0.140	0.133	0.136	0.138	0.127	13.5
Phenanthrene	1.155	1.109	1.064	1.027	1.003	0.968	1.054	6.6
Carbazole	1.044	1.049	0.998	0.984	0.976	0.931	0.997	4.5
Di-n-butylphthalate	1.140	1.196	1.158	1.133	1.116	1.084	1.138	3.3
Butylbenzylphthalate	0.490	0.548	0.565	0.585	0.590	0.604	0.564	7.3
3,3-Dichlorobenzidine	0.339	0.358	0.371	0.372	0.373	0.369	0.364	3.6
Bis(2-ethylhexyl)phthalate	0.655	0.730	0.758	0.772	0.769	0.794	0.746	6.6
Di-n-octyl phthalate	0.927	1.184	1.296	1.331	1.341	1.382	1.243	13.6
1,2,4,5-Tetrachlorobenzene	0.557	0.550	0.512	0.509	0.496	0.468	0.515	6.5
2,3,4,6-Tetrachlorophenol	0.266	0.306	0.291	0.305	0.312	0.298	0.296	5.6
2-Fluorophenol	1.452	1.422	1.344	1.335	1.323	1.252	1.354	5.3
Phenol-d5	1.862	1.807	1.684	1.642	1.620	1.527	1.690	7.4
Nitrobenzene-d5	0.421	0.408	0.386	0.387	0.380	0.364	0.391	5.2
2-Fluorobiphenyl	1.454	1.360	1.230	1.213	1.171	1.080	1.251	10.8
2,4,6-Tribromophenol	0.158	0.167	0.160	0.167	0.164	0.160	0.163	2.4
Terphenyl-d14	0.811	0.769	0.747	0.730	0.719	0.705	0.747	5.1

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59994B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: BF052565.D Lab Sample ID: PB59994B

Instrument ID: BNA_F Date Extracted: 12/19/2011

Matrix: (soil/water) SOIL Date Analyzed: 01/01/2012

Level: (low/med) LOW Time Analyzed: 02:42

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB15-0304-03	C5017-18	BF052583.D	01/01/2012
12SB14-0304-03	C5017-21	BF052582.D	01/01/2012
12SB11-0.501-02	C5017-07	BF052581.D	01/01/2012
12SB-DUP02	C5017-09	BF052580.D	01/01/2012
12SB16-0304-03	C5017-03	BF052579.D	01/01/2012
12SB16-0.502-02	C5017-02	BF052578.D	01/01/2012
PB59994BS	PB59994BS	BF052566.D	01/01/2012
12SB14-0.502-02	C5017-20	BF052607.D	01/02/2012
12SB-DUP-04	C5017-19	BF052606.D	01/02/2012
12SB15-0.502-02	C5017-17	BF052605.D	01/01/2012
12SB15-000.5-01	C5017-16	BF052604.D	01/01/2012
12SB10-0304-03	C5017-15	BF052603.D	01/01/2012
12SB10-0.502-02	C5017-14	BF052602.D	01/01/2012
12SB10-000.5-01	C5017-13	BF052601.D	01/01/2012
12SB09-0304-03	C5017-12	BF052600.D	01/01/2012
12SB09-0.502-02	C5017-11	BF052599.D	01/01/2012
12SB09-000.5-01	C5017-10	BF052598.D	01/01/2012
12SB11-0304-03	C5017-08	BF052597.D	01/01/2012
12SB11-000.5-01MSD	C5017-06MSD	BF052596.D	01/01/2012
12SB11-000.5-01MS	C5017-05MS	BF052595.D	01/01/2012
12SB11-000.5-01	C5017-04	BF052594.D	01/01/2012
12SB16-000.5-01	C5017-01	BF052593.D	01/01/2012

COMMENTS:

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BF052567.D DFTPP Injection Date: 01/01/2012

Instrument ID: BNA_F DFTPP Injection Time: 05:29

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.3
68	Less than 2.0% of mass 69	0.5 (1.3) 1
69	Mass 69 relative abundance	41.1
70	Less than 2.0% of mass 69	0.2 (0.6) 1
127	40.0 - 60.0% of mass 198	51.3
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	11.4
442	Greater than 40% of mass 198	71.3
443	17.0 - 23.0% of mass 442	14.2 (19.9) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052568.D	01/01/2012	06:25
02	12SB16-0.502-02	C5017-02	BF052578.D	01/01/2012	11:02
03	12SB16-0304-03	C5017-03	BF052579.D	01/01/2012	11:30
04	12SB-DUP02	C5017-09	BF052580.D	01/01/2012	11:57
05	12SB11-0.501-02	C5017-07	BF052581.D	01/01/2012	12:25
06	12SB14-0304-03	C5017-21	BF052582.D	01/01/2012	12:53
07	12SB15-0304-03	C5017-18	BF052583.D	01/01/2012	13:21

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date/Time: 01/01/2012 06:25

Lab File ID: BF052568.D Init. Calib. Date(s): 12/31/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:57 19:17

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.889	0.891		0.3	
Phenol	1.963	1.972		0.5	20.0
bis(2-Chloroethyl)ether	1.491	1.477		0.9	
2-Chlorophenol	1.403	1.386		1.2	
2-Methylphenol	1.092	1.081		1.0	
2,2-oxybis(1-Chloropropane)	1.942	1.919		1.2	
Acetophenone	0.494	0.501		1.5	
3+4-Methylphenols	1.435	1.435		0.0	
n-Nitroso-di-n-propylamine	1.027	1.027	0.050	0.0	
Hexachloroethane	0.584	0.585		0.1	
Nitrobenzene	0.379	0.387		2.2	
Isophorone	0.691	0.695		0.6	
2-Nitrophenol	0.196	0.201		2.6	20.0
2,4-Dimethylphenol	0.333	0.329		1.2	
bis(2-Chloroethoxy)methane	0.458	0.460		0.4	
2,4-Dichlorophenol	0.285	0.289		1.6	20.0
4-Chloroaniline	0.431	0.430		0.3	
Hexachlorobutadiene	0.162	0.161		0.4	20.0
Caprolactam	0.113	0.115		1.9	
4-Chloro-3-methylphenol	0.309	0.311		0.7	20.0
Hexachlorocyclopentadiene	0.280	0.279	0.050	0.2	
2,4,6-Trichlorophenol	0.354	0.358		1.2	20.0
2,4,5-Trichlorophenol	0.374	0.382		2.0	
1,1-Biphenyl	1.449	1.456		0.5	
2-Chloronaphthalene	1.078	1.081		0.2	
2-Nitroaniline	0.394	0.398		1.0	
Dimethylphthalate	1.226	1.243		1.4	
Acenaphthylene	1.713	1.729		0.9	
2,6-Dinitrotoluene	0.290	0.296		2.0	
3-Nitroaniline	0.419	0.423		1.1	
Acenaphthene	1.127	1.142		1.4	20.0
2,4-Dinitrophenol	0.108	0.131	0.050	21.1	
4-Nitrophenol	0.267	0.275	0.050	2.8	
Dibenzofuran	1.578	1.594		1.0	
2,4-Dinitrotoluene	0.374	0.381		1.9	
Diethylphthalate	1.207	1.204		0.2	
4-Chlorophenyl-phenylether	0.596	0.603		1.2	
4-Nitroaniline	0.343	0.347		1.2	
4,6-Dinitro-2-methylphenol	0.107	0.120		12.4	
n-Nitrosodiphenylamine	0.644	0.641		0.5	20.0
4-Bromophenyl-phenylether	0.202	0.201		0.5	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date/Time: 01/01/2012 06:25

Lab File ID: BF052568.D Init. Calib. Date(s): 12/31/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:57 19:17

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.202	0.198		2.2	
Atrazine	0.194	0.194		0.2	
Pentachlorophenol	0.127	0.134		5.2	20.0
Phenanthrene	1.054	1.051		0.3	
Carbazole	0.997	1.009		1.2	
Di-n-butylphthalate	1.138	1.172		3.0	
Butylbenzylphthalate	0.564	0.571		1.3	
3,3-Dichlorobenzidine	0.364	0.358		1.7	
Bis(2-ethylhexyl)phthalate	0.746	0.773		3.7	
Di-n-octyl phthalate	1.243	1.279		2.9	20.0
1,2,4,5-Tetrachlorobenzene	0.515	0.512		0.6	
2,3,4,6-Tetrachlorophenol	0.296	0.308		4.2	
2-Fluorophenol	1.354	1.370		1.2	
Phenol-d5	1.690	1.682		0.5	
Nitrobenzene-d5	0.391	0.391		0.1	
2-Fluorobiphenyl	1.251	1.251		0.0	
2,4,6-Tribromophenol	0.163	0.162		0.8	
Terphenyl-d14	0.747	0.740		1.0	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_F\Data\BF123111\
Data File : BF052568.D
Acq On : 1 Jan 2012 6:25
Operator : HNP
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 01 07:17:49 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	99	0.00
2		1,4-Dioxane	40.000	40.104	-0.3	96	0.00
3		Pyridine	40.000	39.651	0.9	99	0.00
4		n-Nitrosodimethylamine	40.000	39.327	1.7	99	0.00
5	S	2-Fluorophenol	80.000	80.909	-1.1	101	0.00
6		Aniline	40.000	39.403	1.5	99	0.00
7	S	Phenol-d5	80.000	79.592	0.5	99	0.00
8		2-Chlorophenol	40.000	39.517	1.2	98	0.00
9		Benzaldehyde	40.000	40.244	-0.6	101	0.00
10	C	Phenol	40.000	40.184	-0.5	101	0.00
11		bis(2-Chloroethyl)ether	40.000	39.640	0.9	98	0.00
12	S	2-Chlorophenol-d4	80.000	79.169	1.0	99	0.00
13		1,3-Dichlorobenzene	40.000	39.290	1.8	98	0.00
14	C	1,4-Dichlorobenzene	40.000	39.889	0.3	100	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	78.965	1.3	98	0.00
16		1,2-Dichlorobenzene	40.000	39.793	0.5	98	0.00
17		Benzyl Alcohol	40.000	40.220	-0.5	102	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	39.536	1.2	98	0.00
19		2-Methylphenol	40.000	39.583	1.0	98	0.00
20		Hexachloroethane	40.000	40.056	-0.1	100	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	39.997	0.0	100	0.00
22		3+4-Methylphenols	40.000	40.000	0.0	100	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	98	0.00
24		Acetophenone	40.000	40.608	-1.5	100	0.00
25	S	Nitrobenzene-d5	80.000	80.083	-0.1	99	0.00
26		Nitrobenzene	40.000	40.893	-2.2	101	0.00
27		Isophorone	40.000	40.236	-0.6	99	0.00
28	C	2-Nitrophenol	40.000	41.025	-2.6	101	0.00
29		2,4-Dimethylphenol	40.000	39.523	1.2	97	0.00
30		bis(2-Chloroethoxy)methane	40.000	40.190	-0.5	98	0.00
31	C	2,4-Dichlorophenol	40.000	40.621	-1.6	99	0.00
32		1,2,4-Trichlorobenzene	40.000	40.043	-0.1	99	0.00
33		Naphthalene	40.000	39.552	1.1	98	0.00
34		Benzoic acid	40.000	44.553	-11.4	124	0.01
35		4-Chloroaniline	40.000	39.916	0.2	98	0.00
36	C	Hexachlorobutadiene	40.000	39.710	0.7	98	0.00
37		Caprolactam	40.000	40.673	-1.7	100	0.00
38	C	4-Chloro-3-methylphenol	40.000	40.316	-0.8	99	0.00
39		2-Methylnaphthalene	40.000	40.199	-0.5	99	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	97	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	39.725	0.7	97	0.00
42	P	Hexachlorocyclopentadiene	40.000	39.964	0.1	98	0.00
43	S	2,4,6-Tribromophenol	80.000	79.406	0.7	99	0.00
44	C	2,4,6-Trichlorophenol	40.000	40.459	-1.1	99	0.00

Data Path : Z:\HPCHEM1\BNA_F\Data\BF123111\
Data File : BF052568.D
Acq On : 1 Jan 2012 6:25
Operator : HNP
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 01 07:17:49 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	40.855	-2.1	101	0.00
46	S	2-Fluorobiphenyl	80.000	79.988	0.0	99	0.00
47		1,1'-Biphenyl	40.000	40.217	-0.5	99	0.00
48		2-Chloronaphthalene	40.000	40.107	-0.3	99	0.00
49		2-Nitroaniline	40.000	40.363	-0.9	100	0.00
50		Acenaphthylene	40.000	40.378	-0.9	99	0.00
51		Dimethylphthalate	40.000	40.558	-1.4	99	0.00
52		2,6-Dinitrotoluene	40.000	40.845	-2.1	99	0.00
53	C	Acenaphthene	40.000	40.550	-1.4	99	0.00
54		3-Nitroaniline	40.000	40.411	-1.0	99	0.00
55	P	2,4-Dinitrophenol	40.000	44.866	-12.2	124	0.00
56		Dibenzofuran	40.000	40.396	-1.0	100	0.00
57	P	4-Nitrophenol	40.000	41.093	-2.7	100	0.00
58		2,4-Dinitrotoluene	40.000	40.765	-1.9	99	0.00
59		Fluorene	40.000	39.971	0.1	98	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	41.639	-4.1	103	0.00
61		Diethylphthalate	40.000	39.896	0.3	99	0.00
62		4-Chlorophenyl-phenylether	40.000	40.488	-1.2	99	0.00
63		4-Nitroaniline	40.000	40.445	-1.1	102	0.00
64		Azobenzene	40.000	40.721	-1.8	101	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	100	0.00
66		4,6-Dinitro-2-methylphenol	40.000	40.936	-2.3	110	0.00
67	c	n-Nitrosodiphenylamine	40.000	39.804	0.5	99	0.00
68		4-Bromophenyl-phenylether	40.000	39.745	0.6	99	0.00
69		Hexachlorobenzene	40.000	39.148	2.1	99	0.00
70		Atrazine	40.000	39.983	0.0	100	0.00
71	C	Pentachlorophenol	40.000	42.184	-5.5	96	0.00
72		Phenanthrene	40.000	39.888	0.3	99	0.00
73		Anthracene	40.000	40.089	-0.2	100	0.00
74		Carbazole	40.000	40.471	-1.2	101	0.00
75		Di-n-butylphthalate	40.000	41.216	-3.0	102	0.00
76	C	Fluoranthene	40.000	39.989	0.0	99	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	100	0.00
78		Benzidine	40.000	39.861	0.3	94	0.00
79		Pyrene	40.000	40.373	-0.9	100	0.00
80	S	Terphenyl-d14	80.000	79.223	1.0	99	0.00
81		Butylbenzylphthalate	40.000	40.548	-1.4	101	0.00
82		Benzo(a)anthracene	40.000	40.452	-1.1	100	0.00
83		3,3'-Dichlorobenzidine	40.000	39.359	1.6	96	0.00
84		Chrysene	40.000	40.403	-1.0	101	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	41.443	-3.6	102	0.00
86	c	Di-n-octyl phthalate	40.000	41.159	-2.9	99	0.00
87		Indeno(1,2,3-cd)pyrene	40.000	39.768	0.6	97	0.00

Data Path : Z:\HPCHEM1\BNA_F\Data\BF123111\
Data File : BF052568.D
Acq On : 1 Jan 2012 6:25
Operator : HNP
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 01 07:17:49 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	98	0.00
39		Benzo(b)fluoranthene	40.000	38.096	4.8	89	0.00
40		Benzo(k)fluoranthene	40.000	43.541	-8.9	107	0.00
41	C	Benzo(a)pyrene	40.000	41.257	-3.1	99	0.00
42		Dibenzo(a,h)anthracene	40.000	41.017	-2.5	99	0.00
43		Benzo(g,h,i)perylene	40.000	40.744	-1.9	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BF052591.D DFTPP Injection Date: 01/01/2012

Instrument ID: BNA_F DFTPP Injection Time: 17:03

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.3
68	Less than 2.0% of mass 69	0.8 (1.9) 1
69	Mass 69 relative abundance	40.7
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	53
197	Less than 1.0% of mass 198	0.7
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.2
275	10.0 - 30.0% of mass 198	22
365	Greater than 1% of mass 198	3
441	Present, but less than mass 443	11.3
442	Greater than 40% of mass 198	74.7
443	17.0 - 23.0% of mass 442	14.7 (19.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052592.D	01/01/2012	17:31
02	12SB16-000.5-01	C5017-01	BF052593.D	01/01/2012	17:58
03	12SB11-000.5-01	C5017-04	BF052594.D	01/01/2012	18:26
04	12SB11-000.5-01MS	C5017-05MS	BF052595.D	01/01/2012	18:54
05	12SB11-000.5-01MSD	C5017-06MSD	BF052596.D	01/01/2012	19:22
06	12SB11-0304-03	C5017-08	BF052597.D	01/01/2012	19:50
07	12SB09-000.5-01	C5017-10	BF052598.D	01/01/2012	20:18
08	12SB09-0.502-02	C5017-11	BF052599.D	01/01/2012	20:46
09	12SB09-0304-03	C5017-12	BF052600.D	01/01/2012	21:14
10	12SB10-000.5-01	C5017-13	BF052601.D	01/01/2012	21:42
11	12SB10-0.502-02	C5017-14	BF052602.D	01/01/2012	22:10
12	12SB10-0304-03	C5017-15	BF052603.D	01/01/2012	22:38
13	12SB15-000.5-01	C5017-16	BF052604.D	01/01/2012	23:06
14	12SB15-0.502-02	C5017-17	BF052605.D	01/01/2012	23:33
15	12SB-DUP-04	C5017-19	BF052606.D	01/02/2012	00:02
16	12SB14-0.502-02	C5017-20	BF052607.D	01/02/2012	00:30

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date/Time: 01/01/2012 17:31

Lab File ID: BF052592.D Init. Calib. Date(s): 12/31/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:57 19:17

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.889	0.943		6.0	
Phenol	1.963	1.992		1.5	20.0
bis(2-Chloroethyl)ether	1.491	1.533		2.8	
2-Chlorophenol	1.403	1.410		0.5	
2-Methylphenol	1.092	1.108		1.4	
2,2-oxybis(1-Chloropropane)	1.942	1.972		1.6	
Acetophenone	0.494	0.495		0.2	
3+4-Methylphenols	1.435	1.467		2.2	
n-Nitroso-di-n-propylamine	1.027	1.055	0.050	2.7	
Hexachloroethane	0.584	0.589		0.9	
Nitrobenzene	0.379	0.376		0.7	
Isophorone	0.691	0.686		0.7	
2-Nitrophenol	0.196	0.198		1.1	20.0
2,4-Dimethylphenol	0.333	0.330		0.8	
bis(2-Chloroethoxy)methane	0.458	0.459		0.3	
2,4-Dichlorophenol	0.285	0.283		0.8	20.0
4-Chloroaniline	0.431	0.431		0.0	
Hexachlorobutadiene	0.162	0.160		1.4	20.0
Caprolactam	0.113	0.115		1.7	
4-Chloro-3-methylphenol	0.309	0.310		0.3	20.0
Hexachlorocyclopentadiene	0.280	0.273	0.050	2.4	
2,4,6-Trichlorophenol	0.354	0.354		0.1	20.0
2,4,5-Trichlorophenol	0.374	0.373		0.1	
1,1-Biphenyl	1.449	1.459		0.7	
2-Chloronaphthalene	1.078	1.076		0.2	
2-Nitroaniline	0.394	0.394		0.0	
Dimethylphthalate	1.226	1.244		1.5	
Acenaphthylene	1.713	1.718		0.3	
2,6-Dinitrotoluene	0.290	0.288		0.5	
3-Nitroaniline	0.419	0.421		0.6	
Acenaphthene	1.127	1.131		0.3	20.0
2,4-Dinitrophenol	0.108	0.124	0.050	14.7	
4-Nitrophenol	0.267	0.270	0.050	1.0	
Dibenzofuran	1.578	1.590		0.7	
2,4-Dinitrotoluene	0.374	0.377		0.7	
Diethylphthalate	1.207	1.215		0.7	
4-Chlorophenyl-phenylether	0.596	0.597		0.1	
4-Nitroaniline	0.343	0.343		0.1	
4,6-Dinitro-2-methylphenol	0.107	0.119		11.0	
n-Nitrosodiphenylamine	0.644	0.638		0.9	20.0
4-Bromophenyl-phenylether	0.202	0.205		1.5	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date/Time: 01/01/2012 17:31

Lab File ID: BF052592.D Init. Calib. Date(s): 12/31/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:57 19:17

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.202	0.204		0.8	
Atrazine	0.194	0.195		0.5	
Pentachlorophenol	0.127	0.136		7.0	20.0
Phenanthrene	1.054	1.046		0.7	
Carbazole	0.997	0.996		0.1	
Di-n-butylphthalate	1.138	1.156		1.6	
Butylbenzylphthalate	0.564	0.565		0.1	
3,3-Dichlorobenzidine	0.364	0.352		3.2	
Bis(2-ethylhexyl)phthalate	0.746	0.755		1.2	
Di-n-octyl phthalate	1.243	1.294		4.1	20.0
1,2,4,5-Tetrachlorobenzene	0.515	0.514		0.2	
2,3,4,6-Tetrachlorophenol	0.296	0.306		3.3	
2-Fluorophenol	1.354	1.372		1.3	
Phenol-d5	1.690	1.683		0.4	
Nitrobenzene-d5	0.391	0.385		1.6	
2-Fluorobiphenyl	1.251	1.233		1.4	
2,4,6-Tribromophenol	0.163	0.164		0.8	
Terphenyl-d14	0.747	0.723		3.2	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF010112\
Data File : BF052592.D
Acq On : 1 Jan 2012 17:31
Operator : HNP
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 02 05:15:53 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	102	0.00
2		1,4-Dioxane	40.000	45.502	-13.8	111	0.00
3		Pyridine	40.000	39.176	2.1	101	0.00
4		n-Nitrosodimethylamine	40.000	40.699	-1.7	105	0.00
5	S	2-Fluorophenol	80.000	81.016	-1.3	104	0.00
6		Aniline	40.000	40.445	-1.1	104	0.00
7	S	Phenol-d5	80.000	79.642	0.4	102	0.00
8		2-Chlorophenol	40.000	40.202	-0.5	102	0.00
9		Benzaldehyde	40.000	43.673	-9.2	109	0.00
10	C	Phenol	40.000	40.579	-1.4	104	0.00
11		bis(2-Chloroethyl)ether	40.000	41.154	-2.9	104	0.00
12	S	2-Chlorophenol-d4	80.000	79.893	0.1	103	0.00
13		1,3-Dichlorobenzene	40.000	40.607	-1.5	104	0.00
14	C	1,4-Dichlorobenzene	40.000	40.585	-1.5	104	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	80.518	-0.6	103	0.00
16		1,2-Dichlorobenzene	40.000	40.501	-1.3	102	0.00
17		Benzyl Alcohol	40.000	40.713	-1.8	106	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	40.632	-1.6	104	0.00
19		2-Methylphenol	40.000	40.579	-1.4	103	0.00
20		Hexachloroethane	40.000	40.385	-1.0	103	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	41.066	-2.7	105	0.00
22		3+4-Methylphenols	40.000	40.892	-2.2	104	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	103	0.00
24		Acetophenone	40.000	40.075	-0.2	104	0.00
25	S	Nitrobenzene-d5	80.000	78.707	1.6	103	0.00
26		Nitrobenzene	40.000	39.732	0.7	103	0.00
27		Isophorone	40.000	39.717	0.7	103	0.00
28	C	2-Nitrophenol	40.000	40.440	-1.1	104	0.00
29		2,4-Dimethylphenol	40.000	39.676	0.8	102	0.00
30		bis(2-Chloroethoxy)methane	40.000	40.117	-0.3	103	0.00
31	C	2,4-Dichlorophenol	40.000	39.669	0.8	101	0.00
32		1,2,4-Trichlorobenzene	40.000	39.054	2.4	102	0.00
33		Naphthalene	40.000	39.692	0.8	104	0.00
34		Benzoic acid	40.000	48.979	-22.4	149	0.02
35		4-Chloroaniline	40.000	40.034	-0.1	103	0.00
36	C	Hexachlorobutadiene	40.000	39.336	1.7	102	0.00
37		Caprolactam	40.000	40.614	-1.5	105	0.00
38	C	4-Chloro-3-methylphenol	40.000	40.175	-0.4	104	0.00
39		2-Methylnaphthalene	40.000	39.682	0.8	103	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	102	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	39.889	0.3	102	0.00

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF010112\
Data File : BF052592.D
Acq On : 1 Jan 2012 17:31
Operator : HNP
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 02 05:15:53 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	P	Hexachlorocyclopentadiene	40.000	39.098	2.3	101	0.00
43	S	2,4,6-Tribromophenol	80.000	80.723	-0.9	105	0.00
44	C	2,4,6-Trichlorophenol	40.000	40.043	-0.1	103	0.00
45		2,4,5-Trichlorophenol	40.000	39.987	0.0	104	0.00
46	S	2-Fluorobiphenyl	80.000	78.837	1.5	102	0.00
47		1,1'-Biphenyl	40.000	40.297	-0.7	104	0.00
48		2-Chloronaphthalene	40.000	39.928	0.2	103	0.00
49		2-Nitroaniline	40.000	39.968	0.1	104	0.00
50		Acenaphthylene	40.000	40.130	-0.3	104	0.00
51		Dimethylphthalate	40.000	40.582	-1.5	104	0.00
52		2,6-Dinitrotoluene	40.000	39.834	0.4	101	0.00
53	C	Acenaphthene	40.000	40.131	-0.3	103	0.00
54		3-Nitroaniline	40.000	40.208	-0.5	103	0.00
55	P	2,4-Dinitrophenol	40.000	43.368	-8.4	124	0.00
56		Dibenzofuran	40.000	40.294	-0.7	105	0.00
57	P	4-Nitrophenol	40.000	40.364	-0.9	103	0.00
58		2,4-Dinitrotoluene	40.000	40.278	-0.7	103	0.00
59		Fluorene	40.000	40.079	-0.2	104	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	41.264	-3.2	107	0.00
61		Diethylphthalate	40.000	40.247	-0.6	105	0.00
62		4-Chlorophenyl-phenylether	40.000	40.043	-0.1	103	0.00
63		4-Nitroaniline	40.000	39.982	0.0	106	0.00
64		Azobenzene	40.000	40.730	-1.8	106	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	105	0.00
66		4,6-Dinitro-2-methylphenol	40.000	40.535	-1.3	113	0.00
67	c	n-Nitrosodiphenylamine	40.000	39.637	0.9	103	0.00
68		4-Bromophenyl-phenylether	40.000	40.566	-1.4	105	0.00
69		Hexachlorobenzene	40.000	40.346	-0.9	106	0.00
70		Atrazine	40.000	40.124	-0.3	104	0.00
71	C	Pentachlorophenol	40.000	42.934	-7.3	102	0.00
72		Phenanthrene	40.000	39.695	0.8	103	0.00
73		Anthracene	40.000	40.256	-0.6	105	0.00
74		Carbazole	40.000	39.977	0.1	104	0.00
75		Di-n-butylphthalate	40.000	40.635	-1.6	104	0.00
76	C	Fluoranthene	40.000	40.077	-0.2	104	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	106	0.00
78		Benzidine	40.000	40.024	-0.1	100	0.00
79		Pyrene	40.000	39.836	0.4	105	0.00
80	S	Terphenyl-d14	80.000	77.466	3.2	103	0.00
81		Butylbenzylphthalate	40.000	40.078	-0.2	106	0.00
82		Benzo(a)anthracene	40.000	39.874	0.3	104	0.00

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF010112\
Data File : BF052592.D
Acq On : 1 Jan 2012 17:31
Operator : HNP
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 02 05:15:53 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
83		3,3'-Dichlorobenzidine	40.000	38.748	3.1	101	0.00
84		Chrysene	40.000	39.150	2.1	104	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	40.443	-1.1	106	0.00
86	c	Di-n-octyl phthalate	40.000	41.622	-4.1	106	0.00
87		Indeno(1,2,3-cd)pyrene	40.000	40.866	-2.2	106	0.00
88	I	Perylene-d12	20.000	20.000	0.0	104	0.00
89		Benzo(b)fluoranthene	40.000	41.637	-4.1	103	0.00
90		Benzo(k)fluoranthene	40.000	40.467	-1.2	106	0.00
91	C	Benzo(a)pyrene	40.000	40.413	-1.0	103	0.00
92		Dibenzo(a,h)anthracene	40.000	42.634	-6.6	109	0.00
93		Benzo(g,h,i)perylene	40.000	41.628	-4.1	105	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BF052631.D DFTPP Injection Date: 01/03/2012

Instrument ID: BNA_F DFTPP Injection Time: 20:20

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.2
68	Less than 2.0% of mass 69	0.8 (2) 1
69	Mass 69 relative abundance	38.9
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	49.6
197	Less than 1.0% of mass 198	0.6
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.6
365	Greater than 1% of mass 198	2.9
441	Present, but less than mass 443	10.4
442	Greater than 40% of mass 198	73.1
443	17.0 - 23.0% of mass 442	15 (20.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052632.D	01/03/2012	20:50
02	12SB10-0304-03RE	C5017-15RE	BF052638.D	01/03/2012	23:39
03	12SB10-0.502-02DL	C5017-14DL	BF052639.D	01/04/2012	00:07
04	12SB14-0.502-02DL	C5017-20DL	BF052640.D	01/04/2012	00:34

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date/Time: 01/03/2012 20:50

Lab File ID: BF052632.D Init. Calib. Date(s): 12/31/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:57 19:17

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.889	0.921		3.7	
Phenol	1.963	1.914		2.5	20.0
bis(2-Chloroethyl)ether	1.491	1.461		2.0	
2-Chlorophenol	1.403	1.353		3.5	
2-Methylphenol	1.092	1.061		2.8	
2,2-oxybis(1-Chloropropane)	1.942	1.909		1.7	
Acetophenone	0.494	0.480		2.8	
3+4-Methylphenols	1.435	1.402		2.3	
n-Nitroso-di-n-propylamine	1.027	1.010	0.050	1.7	
Hexachloroethane	0.584	0.575		1.6	
Nitrobenzene	0.379	0.370		2.4	
Isophorone	0.691	0.666		3.6	
2-Nitrophenol	0.196	0.193		1.5	20.0
2,4-Dimethylphenol	0.333	0.325		2.5	
bis(2-Chloroethoxy)methane	0.458	0.441		3.7	
2,4-Dichlorophenol	0.285	0.278		2.3	20.0
4-Chloroaniline	0.431	0.413		4.2	
Hexachlorobutadiene	0.162	0.157		2.8	20.0
Caprolactam	0.113	0.104		8.0	
4-Chloro-3-methylphenol	0.309	0.297		3.8	20.0
Hexachlorocyclopentadiene	0.280	0.290	0.050	3.5	
2,4,6-Trichlorophenol	0.354	0.344		2.8	20.0
2,4,5-Trichlorophenol	0.374	0.358		4.3	
1,1-Biphenyl	1.449	1.384		4.5	
2-Chloronaphthalene	1.078	1.028		4.6	
2-Nitroaniline	0.394	0.385		2.2	
Dimethylphthalate	1.226	1.174		4.2	
Acenaphthylene	1.713	1.641		4.2	
2,6-Dinitrotoluene	0.290	0.280		3.4	
3-Nitroaniline	0.419	0.411		1.9	
Acenaphthene	1.127	1.087		3.6	20.0
2,4-Dinitrophenol	0.108	0.085	0.050	20.8	
4-Nitrophenol	0.267	0.260	0.050	2.7	
Dibenzofuran	1.578	1.505		4.6	
2,4-Dinitrotoluene	0.374	0.363		2.9	
Diethylphthalate	1.207	1.130		6.4	
4-Chlorophenyl-phenylether	0.596	0.563		5.5	
4-Nitroaniline	0.343	0.328		4.5	
4,6-Dinitro-2-methylphenol	0.107	0.076		29.3	
n-Nitrosodiphenylamine	0.644	0.625		2.9	20.0
4-Bromophenyl-phenylether	0.202	0.198		2.2	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date/Time: 01/03/2012 20:50

Lab File ID: BF052632.D Init. Calib. Date(s): 12/31/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:57 19:17

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.202	0.196		3.2	
Atrazine	0.194	0.179		7.9	
Pentachlorophenol	0.127	0.135		6.1	20.0
Phenanthrene	1.054	1.007		4.5	
Carbazole	0.997	0.960		3.7	
Di-n-butylphthalate	1.138	1.106		2.8	
Butylbenzylphthalate	0.564	0.581		2.9	
3,3-Dichlorobenzidine	0.364	0.353		3.1	
Bis(2-ethylhexyl)phthalate	0.746	0.767		2.8	
Di-n-octyl phthalate	1.243	1.344		8.2	20.0
1,2,4,5-Tetrachlorobenzene	0.515	0.499		3.1	
2,3,4,6-Tetrachlorophenol	0.296	0.283		4.4	
2-Fluorophenol	1.354	1.321		2.5	
Phenol-d5	1.690	1.639		3.0	
Nitrobenzene-d5	0.391	0.380		2.9	
2-Fluorobiphenyl	1.251	1.182		5.5	
2,4,6-Tribromophenol	0.163	0.151		7.2	
Terphenyl-d14	0.747	0.713		4.6	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_F\Data\BF010312\
Data File : BF052632.D
Acq On : 3 Jan 2012 20:50
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 04 11:48:00 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	125	-0.02
2		1,4-Dioxane	40.000	41.588	-4.0	125	-0.01
3		Pyridine	40.000	35.718	10.7	113	-0.02
4		n-Nitrosodimethylamine	40.000	39.615	1.0	125	-0.01
5	S	2-Fluorophenol	80.000	77.999	2.5	123	-0.02
6		Aniline	40.000	39.325	1.7	124	-0.02
7	S	Phenol-d5	80.000	77.556	3.1	122	-0.02
8		2-Chlorophenol	40.000	38.579	3.6	121	-0.02
9		Benzaldehyde	40.000	42.227	-5.6	131	-0.02
.0	C	Phenol	40.000	39.000	2.5	123	-0.02
.1		bis(2-Chloroethyl)ether	40.000	39.215	2.0	122	-0.02
.2	S	2-Chlorophenol-d4	80.000	76.307	4.6	121	-0.02
.3		1,3-Dichlorobenzene	40.000	38.860	2.9	122	-0.02
.4	C	1,4-Dichlorobenzene	40.000	38.959	2.6	123	-0.02
.5	s	1,2-Dichlorobenzene-d4	80.000	76.345	4.6	120	-0.02
.6		1,2-Dichlorobenzene	40.000	38.471	3.8	119	-0.02
.7		Benzyl Alcohol	40.000	39.485	1.3	126	-0.02
.8		2,2'-oxybis(1-Chloropropane	40.000	39.321	1.7	123	-0.02
.9		2-Methylphenol	40.000	38.868	2.8	122	-0.02
20		Hexachloroethane	40.000	39.364	1.6	123	-0.02
21	P	n-Nitroso-di-n-propylamine	40.000	39.312	1.7	124	-0.02
22		3+4-Methylphenols	40.000	39.100	2.2	123	-0.02
23	I	Naphthalene-d8	20.000	20.000	0.0	124	-0.02
24		Acetophenone	40.000	38.906	2.7	121	-0.02
25	S	Nitrobenzene-d5	80.000	77.696	2.9	122	-0.02
26		Nitrobenzene	40.000	39.063	2.3	122	-0.02
27		Isophorone	40.000	38.565	3.6	120	-0.02
28	C	2-Nitrophenol	40.000	39.419	1.5	122	-0.02
29		2,4-Dimethylphenol	40.000	39.009	2.5	121	-0.02
30		bis(2-Chloroethoxy)methane	40.000	38.545	3.6	119	-0.02
31	C	2,4-Dichlorophenol	40.000	39.055	2.4	120	-0.02
32		1,2,4-Trichlorobenzene	40.000	39.224	1.9	123	-0.02
33		Naphthalene	40.000	38.476	3.8	121	-0.02
34		Benzoic acid	40.000	6.428	83.9#	9	-0.06
35		4-Chloroaniline	40.000	38.360	4.1	119	-0.02
36	C	Hexachlorobutadiene	40.000	38.758	3.1	121	-0.03
37		Caprolactam	40.000	36.743	8.1	114	-0.02
38	C	4-Chloro-3-methylphenol	40.000	38.531	3.7	120	-0.02
39		2-Methylnaphthalene	40.000	38.310	4.2	120	-0.02
40	I	Acenaphthene-d10	20.000	20.000	0.0	121	-0.02
41		1,2,4,5-Tetrachlorobenzene	40.000	38.747	3.1	118	-0.02
42	P	Hexachlorocyclopentadiene	40.000	41.429	-3.6	126	-0.03
43	S	2,4,6-Tribromophenol	80.000	74.312	7.1	114	-0.02
44	C	2,4,6-Trichlorophenol	40.000	38.896	2.8	118	-0.02

Data Path : Z:\HPCHEM1\BNA_F\Data\BF010312\
Data File : BF052632.D
Acq On : 3 Jan 2012 20:50
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 04 11:48:00 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	38.326	4.2	118	-0.02
46	S	2-Fluorobiphenyl	80.000	75.576	5.5	116	-0.02
47		1,1'-Biphenyl	40.000	38.222	4.4	117	-0.03
48		2-Chloronaphthalene	40.000	38.158	4.6	117	-0.02
49		2-Nitroaniline	40.000	39.098	2.3	120	-0.02
50		Acenaphthylene	40.000	38.327	4.2	117	-0.03
51		Dimethylphthalate	40.000	38.298	4.3	116	-0.02
52		2,6-Dinitrotoluene	40.000	38.699	3.3	116	-0.02
53	C	Acenaphthene	40.000	38.567	3.6	117	-0.02
54		3-Nitroaniline	40.000	39.230	1.9	119	-0.03
55	P	2,4-Dinitrophenol	40.000	34.354	14.1	101	-0.02
56		Dibenzofuran	40.000	38.159	4.6	117	-0.02
57	P	4-Nitrophenol	40.000	38.884	2.8	117	-0.02
58		2,4-Dinitrotoluene	40.000	38.836	2.9	117	-0.02
59		Fluorene	40.000	37.927	5.2	116	-0.02
60		2,3,4,6-Tetrachlorophenol	40.000	38.192	4.5	117	-0.02
61		Diethylphthalate	40.000	37.436	6.4	115	-0.02
62		4-Chlorophenyl-phenylether	40.000	37.793	5.5	115	-0.02
63		4-Nitroaniline	40.000	38.174	4.6	119	-0.02
64		Azobenzene	40.000	38.542	3.6	119	-0.02
65	I	Phenanthrene-d10	20.000	20.000	0.0	119	-0.02
66		4,6-Dinitro-2-methylphenol	40.000	28.628	28.4#	82	-0.02
67	c	n-Nitrosodiphenylamine	40.000	38.853	2.9	115	-0.02
68		4-Bromophenyl-phenylether	40.000	39.085	2.3	115	-0.02
69		Hexachlorobenzene	40.000	38.741	3.1	116	-0.02
70		Atrazine	40.000	36.765	8.1	109	-0.02
71	C	Pentachlorophenol	40.000	42.553	-6.4	115	-0.02
72		Phenanthrene	40.000	38.204	4.5	113	-0.02
73		Anthracene	40.000	38.873	2.8	115	-0.02
74		Carbazole	40.000	38.506	3.7	115	-0.02
75		Di-n-butylphthalate	40.000	38.884	2.8	114	-0.02
76	C	Fluoranthene	40.000	38.283	4.3	113	-0.02
77	I	Chrysene-d12	20.000	20.000	0.0	115	-0.02
78		Benzidine	40.000	40.265	-0.7	109	-0.02
79		Pyrene	40.000	39.299	1.8	112	-0.02
80	S	Terphenyl-d14	80.000	76.334	4.6	110	-0.02
81		Butylbenzylphthalate	40.000	41.199	-3.0	118	-0.02
82		Benzo(a)anthracene	40.000	40.419	-1.0	115	-0.02
83		3,3'-Dichlorobenzidine	40.000	38.791	3.0	109	-0.02
84		Chrysene	40.000	38.444	3.9	111	-0.02
85		Bis(2-ethylhexyl)phthalate	40.000	41.098	-2.7	116	-0.02
86	c	Di-n-octyl phthalate	40.000	43.249	-8.1	119	-0.01
87		Indeno(1,2,3-cd)pyrene	40.000	41.946	-4.9	118	-0.03

Data Path : Z:\HPCHEM1\BNA_F\Data\BF010312\
Data File : BF052632.D
Acq On : 3 Jan 2012 20:50
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 04 11:48:00 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	117	-0.02
39		Benzo(b)fluoranthene	40.000	43.290	-8.2	121	-0.02
40		Benzo(k)fluoranthene	40.000	36.758	8.1	108	-0.02
41	C	Benzo(a)pyrene	40.000	39.796	0.5	114	-0.02
42		Dibenzo(a,h)anthracene	40.000	41.353	-3.4	119	-0.03
43		Benzo(g,h,i)perylene	40.000	41.497	-3.7	117	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
C5017-01	12SB16-000.5-01	2-Fluorophenol	150	101.86	68		35	105
		Phenol-d5	150	111.56	74		40	100
		Nitrobenzene-d5	100	76.63	77		35	100
		2-Fluorobiphenyl	100	64.83	65		45	105
		2,4,6-Tribromophenol	150	105.74	70		35	125
		Terphenyl-d14	100	58.17	58		30	125
C5017-02	12SB16-0.502-02	2-Fluorophenol	150	106.18	71		35	105
		Phenol-d5	150	117.55	78		40	100
		Nitrobenzene-d5	100	79.52	80		35	100
		2-Fluorobiphenyl	100	74.58	75		45	105
		2,4,6-Tribromophenol	150	109.79	73		35	125
		Terphenyl-d14	100	71.96	72		30	125
C5017-03	12SB16-0304-03	2-Fluorophenol	150	106.02	71		35	105
		Phenol-d5	150	117.62	78		40	100
		Nitrobenzene-d5	100	76.99	77		35	100
		2-Fluorobiphenyl	100	72.18	72		45	105
		2,4,6-Tribromophenol	150	109.88	73		35	125
		Terphenyl-d14	100	70.16	70		30	125
C5017-04	12SB11-000.5-01	2-Fluorophenol	150	105.01	70		35	105
		Phenol-d5	150	115.77	77		40	100
		Nitrobenzene-d5	100	78.03	78		35	100
		2-Fluorobiphenyl	100	68.79	69		45	105
		2,4,6-Tribromophenol	150	108.61	72		35	125
		Terphenyl-d14	100	65.67	66		30	125
C5017-05MS	12SB11-000.5-01MS	2-Fluorophenol	150	104.49	70		35	105
		Phenol-d5	150	114.68	76		40	100
		Nitrobenzene-d5	100	76.60	77		35	100
		2-Fluorobiphenyl	100	71.58	72		45	105
		2,4,6-Tribromophenol	150	113.84	76		35	125
		Terphenyl-d14	100	68.56	69		30	125
C5017-06MSD	12SB11-000.5-01MSD	2-Fluorophenol	150	121.25	81		35	105
		Phenol-d5	150	131.26	88		40	100
		Nitrobenzene-d5	100	89.02	89		35	100
		2-Fluorobiphenyl	100	82.74	83		45	105
		2,4,6-Tribromophenol	150	134.67	90		35	125
		Terphenyl-d14	100	80.70	81		30	125
C5017-07	12SB11-0.501-02	2-Fluorophenol	150	111.03	74		35	105
		Phenol-d5	150	123.08	82		40	100
		Nitrobenzene-d5	100	83.35	83		35	100
		2-Fluorobiphenyl	100	79.66	80		45	105
		2,4,6-Tribromophenol	150	119.67	80		35	125
		Terphenyl-d14	100	74.04	74		30	125
C5017-08	12SB11-0304-03	2-Fluorophenol	150	97.24	65		35	105
		Phenol-d5	150	108.00	72		40	100
		Nitrobenzene-d5	100	72.03	72		35	100
		2-Fluorobiphenyl	100	69.57	70		45	105
		2,4,6-Tribromophenol	150	103.68	69		35	125
		Terphenyl-d14	100	64.13	64		30	125
C5017-09	12SB-DUP02	2-Fluorophenol	150	104.95	70		35	105
		Phenol-d5	150	117.21	78		40	100
		Nitrobenzene-d5	100	77.70	78		35	100
		2-Fluorobiphenyl	100	73.74	74		45	105

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5017-09	12SB-DUP02	2,4,6-Tribromophenol	150	114.50	76		35	125
		Terphenyl-d14	100	69.26	69		30	125
C5017-10	12SB09-000.5-01	2-Fluorophenol	150	116.57	78		35	105
		Phenol-d5	150	131.78	88		40	100
		Nitrobenzene-d5	100	87.42	87		35	100
		2-Fluorobiphenyl	100	81.11	81		45	105
		2,4,6-Tribromophenol	150	126.90	85		35	125
		Terphenyl-d14	100	75.45	75		30	125
C5017-11	12SB09-0.502-02	2-Fluorophenol	150	122.16	81		35	105
		Phenol-d5	150	138.73	92		40	100
		Nitrobenzene-d5	100	90.85	91		35	100
		2-Fluorobiphenyl	100	80.68	81		45	105
		2,4,6-Tribromophenol	150	126.79	85		35	125
		Terphenyl-d14	100	76.94	77		30	125
C5017-12	12SB09-0304-03	2-Fluorophenol	150	97.73	65		35	105
		Phenol-d5	150	111.06	74		40	100
		Nitrobenzene-d5	100	77.42	77		35	100
		2-Fluorobiphenyl	100	75.23	75		45	105
		2,4,6-Tribromophenol	150	109.80	73		35	125
		Terphenyl-d14	100	70.77	71		30	125
C5017-13	12SB10-000.5-01	2-Fluorophenol	150	121.24	81		35	105
		Phenol-d5	150	134.58	90		40	100
		Nitrobenzene-d5	100	85.28	85		35	100
		2-Fluorobiphenyl	100	83.64	84		45	105
		2,4,6-Tribromophenol	150	134.83	90		35	125
		Terphenyl-d14	100	78.24	78		30	125
C5017-14	12SB10-0.502-02	2-Fluorophenol	150	141.70	94		35	105
		Phenol-d5	150	165.60	110	*	40	100
		Nitrobenzene-d5	100	105.05	105	*	35	100
		2-Fluorobiphenyl	100	110.25	110	*	45	105
		2,4,6-Tribromophenol	150	134.60	90		35	125
		Terphenyl-d14	100	108.25	108		30	125
C5017-14DL	12SB10-0.502-02DL	2-Fluorophenol	150	187.50	125	*	35	105
		Phenol-d5	150	227.25	152	*	40	100
		Nitrobenzene-d5	100	146.50	147	*	35	100
		2-Fluorobiphenyl	100	159.75	160	*	45	105
		2,4,6-Tribromophenol	150	155.00	103		35	125
		Terphenyl-d14	100	144.75	145	*	30	125
C5017-15	12SB10-0304-03	2-Fluorophenol	150	169.10	113	*	35	105
		Phenol-d5	150	190.30	127	*	40	100
		Nitrobenzene-d5	100	115.40	115	*	35	100
		2-Fluorobiphenyl	100	123.00	123	*	45	105
		2,4,6-Tribromophenol	150	167.60	112		35	125
		Terphenyl-d14	100	115.60	116		30	125
C5017-15RE	12SB10-0304-03RE	2-Fluorophenol	150	169.40	113	*	35	105
		Phenol-d5	150	188.90	126	*	40	100
		Nitrobenzene-d5	100	117.20	117	*	35	100
		2-Fluorobiphenyl	100	124.20	124	*	45	105
		2,4,6-Tribromophenol	150	144.10	96		35	125
		Terphenyl-d14	100	113.20	113		30	125
C5017-16	12SB15-000.5-01	2-Fluorophenol	150	93.73	62		35	105
		Phenol-d5	150	102.33	68		40	100

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5017-16	12SB15-000.5-01	Nitrobenzene-d5	100	67.98	68		35	100
		2-Fluorobiphenyl	100	65.53	66		45	105
		2,4,6-Tribromophenol	150	95.25	64		35	125
		Terphenyl-d14	100	60.33	60		30	125
C5017-17	12SB15-0.502-02	2-Fluorophenol	150	134.86	90		35	105
		Phenol-d5	150	149.35	100		40	100
		Nitrobenzene-d5	100	99.47	99		35	100
		2-Fluorobiphenyl	100	96.61	97		45	105
		2,4,6-Tribromophenol	150	150.39	100		35	125
		Terphenyl-d14	100	86.44	86		30	125
C5017-18	12SB15-0304-03	2-Fluorophenol	150	93.63	62		35	105
		Phenol-d5	150	102.17	68		40	100
		Nitrobenzene-d5	100	68.28	68		35	100
		2-Fluorobiphenyl	100	69.45	69		45	105
		2,4,6-Tribromophenol	150	97.30	65		35	125
		Terphenyl-d14	100	64.46	64		30	125
C5017-19	12SB-DUP-04	2-Fluorophenol	150	116.46	78		35	105
		Phenol-d5	150	128.92	86		40	100
		Nitrobenzene-d5	100	87.00	87		35	100
		2-Fluorobiphenyl	100	85.56	86		45	105
		2,4,6-Tribromophenol	150	130.97	87		35	125
		Terphenyl-d14	100	75.41	75		30	125
C5017-20	12SB14-0.502-02	2-Fluorophenol	150	95.91	64		35	105
		Phenol-d5	150	108.37	72		40	100
		Nitrobenzene-d5	100	73.18	73		35	100
		2-Fluorobiphenyl	100	72.17	72		45	105
		2,4,6-Tribromophenol	150	104.06	69		35	125
		Terphenyl-d14	100	72.85	73		30	125
C5017-20DL	12SB14-0.502-02DL	2-Fluorophenol	150	139.00	93		35	105
		Phenol-d5	150	162.90	109	*	40	100
		Nitrobenzene-d5	100	106.75	107	*	35	100
		2-Fluorobiphenyl	100	111.80	112	*	45	105
		2,4,6-Tribromophenol	150	128.45	86		35	125
		Terphenyl-d14	100	104.10	104		30	125
C5017-21	12SB14-0304-03	2-Fluorophenol	150	117.93	79		35	105
		Phenol-d5	150	133.24	89		40	100
		Nitrobenzene-d5	100	86.97	87		35	100
		2-Fluorobiphenyl	100	85.25	85		45	105
		2,4,6-Tribromophenol	150	113.25	76		35	125
		Terphenyl-d14	100	79.38	79		30	125
PB59994B	PB59994B	2-Fluorophenol	150	100.84	67		35	105
		Phenol-d5	150	108.11	72		40	100
		Nitrobenzene-d5	100	70.81	71		35	100
		2-Fluorobiphenyl	100	72.47	72		45	105
		2,4,6-Tribromophenol	150	101.63	68		35	125
		Terphenyl-d14	100	69.39	69		30	125
PB59994BS	PB59994BS	2-Fluorophenol	150	113.22	75		35	105
		Phenol-d5	150	122.14	81		40	100
		Nitrobenzene-d5	100	81.64	82		35	100
		2-Fluorobiphenyl	100	79.70	80		45	105
		2,4,6-Tribromophenol	150	121.51	81		35	125
		Terphenyl-d14	100	81.53	82		30	125

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5017-05MS	**Client Sample ID: 12SB11-000.5-01MS**									
Benzaldehyde	2400	0	1500	63				10	161	
Phenol	2400	0	1700	71				43	100	
bis(2-Chloroethyl)ether	2400	0	1900	79				43	105	
2-Chlorophenol	2400	0	1800	75				45	105	
2-Methylphenol	2400	0	1800	75				44	105	
2,2-oxybis(1-Chloropropane)	2400	0	1900	79				36	115	
Acetophenone	2400	0	1900	79				48	131	
3+4-Methylphenols	2400	0	1800	75				44	105	
N-Nitroso-di-n-propylamine	2400	0	1900	79				41	115	
Hexachloroethane	2400	0	1800	75				35	110	
Nitrobenzene	2400	0	1900	79				40	115	
Isophorone	2400	0	2000	83				45	110	
2-Nitrophenol	2400	0	1900	79				40	110	
2,4-Dimethylphenol	2400	0	1700	71				35	105	
bis(2-Chloroethoxy)methane	2400	0	1900	79				45	110	
2,4-Dichlorophenol	2400	0	1800	75				45	110	
4-Chloroaniline	2400	0	680	28				10	160	
Hexachlorobutadiene	2400	0	1900	79				40	115	
Caprolactam	2400	0	1900	79				24	145	
4-Chloro-3-methylphenol	2400	0	1900	79				45	115	
Hexachlorocyclopentadiene	4800	0	3400	71				10	128	
2,4,6-Trichlorophenol	2400	0	1900	79				45	110	
2,4,5-Trichlorophenol	2400	0	1900	79				50	110	
1,1-Biphenyl	2400	0	1900	79				47	131	
2-Chloronaphthalene	2400	0	1900	79				45	105	
2-Nitroaniline	2400	0	2000	83				45	120	
Dimethylphthalate	2400	400	2100	71				51	110	
Acenaphthylene	2400	0	1900	79				45	105	
2,6-Dinitrotoluene	2400	0	1900	79				50	110	
3-Nitroaniline	2400	0	2000	83				25	110	
Acenaphthene	2400	0	1900	79				45	110	
2,4-Dinitrophenol	4800	0	3800	79				15	130	
4-Nitrophenol	4800	0	3800	79				15	140	
Dibenzofuran	2400	0	1800	75				50	105	
2,4-Dinitrotoluene	2400	0	1900	79				50	115	
Diethylphthalate	2400	0	1900	79				50	115	
4-Chlorophenyl-phenylether	2400	0	1900	79				45	110	
4-Nitroaniline	2400	0	1600	67				35	115	
4,6-Dinitro-2-methylphenol	2400	0	2100	88				30	135	
N-Nitrosodiphenylamine	2400	0	1900	79				50	115	
4-Bromophenyl-phenylether	2400	0	1900	79				45	115	
Hexachlorobenzene	2400	0	1900	79				45	120	
Atrazine	2400	0	2000	83				38	135	
Pentachlorophenol	4800	0	3800	79				25	120	
Phenanthrene	2400	0	1900	79				50	110	
Carbazole	2400	0	1900	79				45	115	
Di-n-butylphthalate	2400	0	2000	83				55	110	
Butylbenzylphthalate	2400	0	2000	83				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
3,3-Dichlorobenzidine	2400	0	950	40				10	126	
bis(2-Ethylhexyl)phthalate	2400	0	2000	83				45	125	
Di-n-octyl phthalate	2400	0	2100	88				40	130	
1,2,4,5-Tetrachlorobenzene	2400	0	1700	71				70	130	
2,3,4,6-Tetrachlorophenol	2400	0	2000	83				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5017-06MSD	**Client Sample ID: 12SB11-000.5-01MSD**									
Benzaldehyde	2400	0	1700	71		12		10	161	20
Phenol	2400	0	2100	88		21	*	43	100	20
bis(2-Chloroethyl)ether	2400	0	2300	96		19		43	105	20
2-Chlorophenol	2400	0	2100	88		16		45	105	20
2-Methylphenol	2400	0	2200	92		20		44	105	20
2,2-oxybis(1-Chloropropane)	2400	0	2300	96		19		36	115	20
Acetophenone	2400	0	2200	92		15		48	131	20
3+4-Methylphenols	2400	0	2200	92		20		44	105	20
N-Nitroso-di-n-propylamine	2400	0	2300	96		19		41	115	20
Hexachloroethane	2400	0	2100	88		16		35	110	20
Nitrobenzene	2400	0	2300	96		19		40	115	20
Isophorone	2400	0	2300	96		15		45	110	20
2-Nitrophenol	2400	0	2300	96		19		40	110	20
2,4-Dimethylphenol	2400	0	2200	92		26	*	35	105	20
bis(2-Chloroethoxy)methane	2400	0	2300	96		19		45	110	20
2,4-Dichlorophenol	2400	0	2200	92		20		45	110	20
4-Chloroaniline	2400	0	1000	42		40	*	10	160	20
Hexachlorobutadiene	2400	0	2200	92		15		40	115	20
Caprolactam	2400	0	2400	100		23	*	24	145	20
4-Chloro-3-methylphenol	2400	0	2200	92		15		45	115	20
Hexachlorocyclopentadiene	4800	0	3800	79		11		10	128	20
2,4,6-Trichlorophenol	2400	0	2300	96		19		45	110	20
2,4,5-Trichlorophenol	2400	0	2300	96		19		50	110	20
1,1-Biphenyl	2400	0	2200	92		15		47	131	20
2-Chloronaphthalene	2400	0	2200	92		15		45	105	20
2-Nitroaniline	2400	0	2400	100		19		45	120	20
Dimethylphthalate	2400	400	2600	92		26	*	51	110	20
Acenaphthylene	2400	0	2300	96		19		45	105	20
2,6-Dinitrotoluene	2400	0	2300	96		19		50	110	20
3-Nitroaniline	2400	0	2400	100		19		25	110	20
Acenaphthene	2400	0	2300	96		19		45	110	20
2,4-Dinitrophenol	4800	0	4300	90		13		15	130	20
4-Nitrophenol	4800	0	4800	100		23	*	15	140	20
Dibenzofuran	2400	0	2200	92		20		50	105	20
2,4-Dinitrotoluene	2400	0	2300	96		19		50	115	20
Diethylphthalate	2400	0	2300	96		19		50	115	20
4-Chlorophenyl-phenylether	2400	0	2300	96		19		45	110	20
4-Nitroaniline	2400	0	2000	83		21	*	35	115	20
4,6-Dinitro-2-methylphenol	2400	0	2500	104		17		30	135	20
N-Nitrosodiphenylamine	2400	0	2300	96		19		50	115	20
4-Bromophenyl-phenylether	2400	0	2300	96		19		45	115	20
Hexachlorobenzene	2400	0	2200	92		15		45	120	20
Atrazine	2400	0	2400	100		19		38	135	20
Pentachlorophenol	4800	0	4700	98		21	*	25	120	20
Phenanthrene	2400	0	2300	96		19		50	110	20
Carbazole	2400	0	2200	92		15		45	115	20
Di-n-butylphthalate	2400	0	2300	96		15		55	110	20
Butylbenzylphthalate	2400	0	2400	100		19		50	125	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2400	0	1300	54		30	*	10	126	20
bis(2-Ethylhexyl)phthalate	2400	0	2500	104		22	*	45	125	20
Di-n-octyl phthalate	2400	0	2600	108		20		40	130	20
1,2,4,5-Tetrachlorobenzene	2400	0	2100	88		21	*	70	130	20
2,3,4,6-Tetrachlorophenol	2400	0	2400	100		19		70	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59994BS	Benzaldehyde	1700	1200	71				10	161	
	Phenol	1700	1300	76				51	100	
	bis(2-Chloroethyl)ether	1700	1400	82				48	105	
	2-Chlorophenol	1700	1300	76				53	105	
	2-Methylphenol	1700	1400	82				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1400	82				45	115	
	Acetophenone	1700	1400	82				51	114	
	3+4-Methylphenols	1700	1400	82				54	105	
	N-Nitroso-di-n-propylamine	1700	1400	82				51	114	
	Hexachloroethane	1700	1400	82				44	110	
	Nitrobenzene	1700	1400	82				49	114	
	Isophorone	1700	1400	82				52	110	
	2-Nitrophenol	1700	1400	82				51	110	
	2,4-Dimethylphenol	1700	1400	82				46	105	
	bis(2-Chloroethoxy)methane	1700	1400	82				52	110	
	2,4-Dichlorophenol	1700	1300	76				53	110	
	4-Chloroaniline	1700	320	19		*		25	115	
	Hexachlorobutadiene	1700	1400	82				47	115	
	Caprolactam	1700	1400	82				45	115	
	4-Chloro-3-methylphenol	1700	1300	76				56	111	
	Hexachlorocyclopentadiene	3300	3000	91				43	112	
	2,4,6-Trichlorophenol	1700	1400	82				53	110	
	2,4,5-Trichlorophenol	1700	1400	82				53	110	
	1,1-Biphenyl	1700	1400	82				55	109	
	2-Chloronaphthalene	1700	1400	82				55	105	
	2-Nitroaniline	1700	1400	82				53	118	
	Dimethylphthalate	1700	1400	82				57	110	
	Acenaphthylene	1700	1400	82				54	105	
	2,6-Dinitrotoluene	1700	1400	82				55	110	
	3-Nitroaniline	1700	1400	82				25	110	
	Acenaphthene	1700	1400	82				54	110	
	2,4-Dinitrophenol	3300	2300	70				15	130	
	4-Nitrophenol	3300	2600	79				44	115	
	Dibenzofuran	1700	1300	76				59	105	
	2,4-Dinitrotoluene	1700	1300	76				55	115	
	Diethylphthalate	1700	1400	82				56	111	
	4-Chlorophenyl-phenylether	1700	1400	82				56	110	
	4-Nitroaniline	1700	1200	71				46	113	
	4,6-Dinitro-2-methylphenol	1700	1400	82				39	126	
	N-Nitrosodiphenylamine	1700	1400	82				54	115	
	4-Bromophenyl-phenylether	1700	1400	82				51	115	
	Hexachlorobenzene	1700	1400	82				52	117	
	Atrazine	1700	1500	88				40	127	
	Pentachlorophenol	3300	2700	82				47	116	
	Phenanthrene	1700	1400	82				56	110	
	Carbazole	1700	1400	82				54	117	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59994BS	Di-n-butylphthalate	1700	1400	82				58	110	
	Butylbenzylphthalate	1700	1500	88				57	122	
	3,3-Dichlorobenzidine	1700	450	26				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1400	82				60	119	
	Di-n-octyl phthalate	1700	1400	82				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	1300	76				70	130	
	2,3,4,6-Tetrachlorophenol	1700	1400	82				70	130	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 01/01/2012

Lab File ID: BF052568.D Time Analyzed: 06:25

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	89392	4.03	331222	5.55	164500	8.12
	UPPER LIMIT	178784	4.53	662444	6.05	329000	8.62
	LOWER LIMIT	44696	3.53	165611	5.05	82250	7.62
	EPA SAMPLE NO.						
01	12SB16-0.502-02	97613	4.03	379794	5.55	189964	8.11
02	12SB16-0304-03	97090	4.03	375262	5.55	187786	8.11
03	12SB-DUP02	103285	4.03	400491	5.55	199399	8.11
04	12SB11-0.501-02	95171	4.03	365022	5.55	184360	8.11
05	12SB14-0304-03	91200	4.03	356697	5.55	178971	8.11
06	12SB15-0304-03	102547	4.03	394590	5.55	195168	8.11

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 01/01/2012

Lab File ID: BF052568.D Time Analyzed: 06:25

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	278395	10.17	245123	13.45	235704	15.04
	UPPER LIMIT	556790	10.67	490246	13.95	471408	15.54
	LOWER LIMIT	139197.5	9.67	122561.5	12.95	117852	14.54
	EPA SAMPLE NO.						
01	12SB16-0.502-02	298365	10.16	277417	13.44	249724	15.04
02	12SB16-0304-03	303294	10.16	283194	13.44	258828	15.04
03	12SB-DUP02	319223	10.16	296632	13.44	280712	15.04
04	12SB11-0.501-02	293259	10.16	274603	13.44	252522	15.04
05	12SB14-0304-03	285771	10.16	263309	13.44	235411	15.04
06	12SB15-0304-03	317527	10.16	286348	13.44	267298	15.04

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 01/01/2012

Lab File ID: BF052592.D Time Analyzed: 17:31

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	91735	4.03	348549	5.55	172534	8.12
	UPPER LIMIT	183470	4.53	697098	6.05	345068	8.62
	LOWER LIMIT	45867.5	3.53	174274.5	5.05	86267	7.62
	EPA SAMPLE NO.						
01	12SB16-000.5-01	92207	4.03	353294	5.55	179578	8.11
02	12SB11-000.5-01	96457	4.03	358788	5.55	180593	8.11
03	12SB11-000.5-01MS	94562	4.03	351742	5.55	173342	8.12
04	12SB11-000.5-01MSD	92425	4.03	346035	5.55	169569	8.12
05	12SB11-0304-03	96284	4.03	375199	5.55	191343	8.11
06	12SB09-000.5-01	95614	4.03	366202	5.55	184903	8.11
07	12SB09-0.502-02	92655	4.03	359968	5.55	182478	8.11
08	12SB09-0304-03	94075	4.03	357495	5.55	182314	8.11
09	12SB10-000.5-01	82946	4.03	331076	5.55	169626	8.11
10	12SB10-0.502-02	106401	4.03	415684	5.55	212648	8.11
11	12SB10-0304-03	106694	4.03	407095	5.55	209289	8.11
12	12SB15-000.5-01	106115	4.03	407011	5.55	208833	8.11
13	12SB15-0.502-02	84109	4.03	324005	5.55	164060	8.11
14	12SB-DUP-04	97264	4.03	371670	5.55	186671	8.11
15	12SB14-0.502-02	104110	4.03	398843	5.55	201652	8.11

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 01/01/2012

Lab File ID: BF052592.D Time Analyzed: 17:31

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	290138	10.17	259920	13.45	250315	15.05
	UPPER LIMIT	580276	10.67	519840	13.95	500630	15.55
	LOWER LIMIT	145069	9.67	129960	12.95	125157.5	14.55
	EPA SAMPLE NO.						
01	12SB16-000.5-01	290590	10.16	277418	13.44	247997	15.04
02	12SB11-000.5-01	291445	10.16	271370	13.45	245447	15.04
03	12SB11-000.5-01MS	287229	10.17	250794	13.45	247763	15.05
04	12SB11-000.5-01MSD	283771	10.17	245424	13.46	250740	15.05
05	12SB11-0304-03	308355	10.16	291288	13.44	268619	15.04
06	12SB09-000.5-01	297925	10.16	280266	13.44	258612	15.04
07	12SB09-0.502-02	295591	10.16	272244	13.44	253393	15.04
08	12SB09-0304-03	304838	10.16	282475	13.44	257488	15.04
09	12SB10-000.5-01	277409	10.16	257885	13.45	255878	15.04
10	12SB10-0.502-02	342845	10.17	289458	13.46	289226	15.05
11	12SB10-0304-03	343776	10.17	311995	13.45	296056	15.05
12	12SB15-000.5-01	338370	10.16	316264	13.45	283594	15.04
13	12SB15-0.502-02	272513	10.16	262381	13.44	236336	15.04
14	12SB-DUP-04	306126	10.17	301704	13.45	273502	15.04
15	12SB14-0.502-02	328744	10.17	267555	13.46	290459	15.06

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 01/03/2012

Lab File ID: BF052632.D Time Analyzed: 20:50

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	112707	4.01	419546	5.53	203978	8.09
	UPPER LIMIT	225414	4.51	839092	6.03	407956	8.59
	LOWER LIMIT	56353.5	3.51	209773	5.03	101989	7.59
	EPA SAMPLE NO.						
01	12SB10-0304-03RE	114942	4.01	432054	5.52	210699	8.09
02	12SB10-0.502-02DL	109802	4.01	405584	5.52	200791	8.09
03	12SB14-0.502-02DL	106086	4.01	391979	5.52	191719	8.09

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 01/03/2012

Lab File ID: BF052632.D Time Analyzed: 20:50

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	330876	10.15	281785	13.43	281515	15.03
	UPPER LIMIT	661752	10.65	563570	13.93	563030	15.53
	LOWER LIMIT	165438	9.65	140892.5	12.93	140757.5	14.53
	EPA SAMPLE NO.						
01	12SB10-0304-03RE	330845	10.14	297442	13.43	278956	15.03
02	12SB10-0.502-02DL	313894	10.15	283536	13.43	262973	15.03
03	12SB14-0.502-02DL	298599	10.14	264423	13.43	252538	15.03

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 12/31/2011

Lab File ID: BF052544.D Time Analyzed: 16:57

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	89902	4.03	337450	5.55	169030	8.12
	UPPER LIMIT	179804	4.53	674900	6.05	338060	8.62
	LOWER LIMIT	44951	3.53	168725	5.05	84515	7.62
	EPA SAMPLE NO.						
01	PB59994B	99073	4.03	385750	5.55	189829	8.11
02	PB59994BS	94162	4.03	352449	5.55	175294	8.12

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD040 Date Analyzed: 12/31/2011

Lab File ID: BF052544.D Time Analyzed: 16:57

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	277414	10.17	244905	13.45	241587	15.05
	UPPER LIMIT	554828	10.67	489810	13.95	483174	15.55
	LOWER LIMIT	138707	9.67	122452.5	12.95	120793.5	14.55
	EPA SAMPLE NO.						
01	PB59994B	306279	10.16	268702	13.44	237455	15.04
02	PB59994BS	282619	10.17	240891	13.45	234085	15.04

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002138.D DFTPP Injection Date: 12/12/2011

Instrument ID: BNA_G DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	40.0 - 60.0% of mass 198	44.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	25.2
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	12.8
442	Greater than 40% of mass 198	87.2
443	17.0 - 23.0% of mass 442	16.5 (19) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD025	25 PPM BNA ICC	BG002140.D	12/12/2011	21:33
02	SSTD010	10 PPM BNA ICC	BG002141.D	12/12/2011	22:11
03	SSTD2.5	2.5 PPM BNA ICC	BG002142.D	12/12/2011	22:50
04	SSTD0.5	0.5 PPM BNA ICC	BG002143.D	12/12/2011	23:28
05	SSTD0.1	0.1 PPM BNA ICC	BG002144.D	12/13/2011	00:07

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF2.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002435.D DFTPP Injection Date: 12/27/2011

Instrument ID: BNA_G DFTPP Injection Time: 14:30

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.8
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	42.8
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	41.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	23.6
365	Greater than 1% of mass 198	3.3
441	Present, but less than mass 443	13
442	Greater than 40% of mass 198	86.7
443	17.0 - 23.0% of mass 442	15.6 (18) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002437.D	12/27/2011	15:59
02	12SB11-0.501-02	C5017-07	BG002449.D	12/27/2011	23:56
03	PB59995B	PB59995B	BG002450.D	12/28/2011	00:36
04	PB59995BS	PB59995BS	BG002451.D	12/28/2011	01:16

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date/Time: 12/27/2011 15:59

Lab File ID: BG002437.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.124		3.1	20.0
2-Methylnapthalene	2.867	2.935		2.4	20.0
Acenaphthylene	6.939	6.552		5.6	20.0
Acenaphthene	1.136	1.052		7.4	20.0
Fluorene	1.311	1.439		9.8	20.0
Phenanthrene	4.275	4.417		3.3	20.0
Anthracene	4.258	4.363		2.5	20.0
Fluoranthene	4.390	4.920		12.1	20.0
Pyrene	4.768	4.848		1.7	20.0
Benzo(a)anthracene	4.640	4.448		4.1	20.0
Chrysene	4.416	4.355		1.4	20.0
Benzo(b)fluoranthene	10.733	10.578		1.4	20.0
Benzo(k)fluoranthene	10.683	10.860		1.7	20.0
Benzo(a)pyrene	10.071	9.936		1.3	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.688		9.2	20.0
Dibenzo(a,h)anthracene	0.929	0.872		6.1	20.0
Benzo(g,h,i)perylene	3.949	3.604		8.7	20.0
Nitrobenzene-d5	0.405	0.435		7.4	20.0
2-Fluorobiphenyl	1.475	1.433		2.8	20.0
Terphenyl-d14	0.779	0.753		3.3	20.0

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG122711\
Data File : BG002437.D
Acq On : 27 Dec 2011 15:59
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 01:08:15 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 15:47:51 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	68	-0.05
2	I	Naphthalene-d8	5.000	5.000	0.0	72	-0.05
3	S	Nitrobenzene-d5	2.500	2.682	-7.3	75	-0.05
4		Naphthalene	2.500	2.577	-3.1	73	-0.04
5		2-Methylnapthalene	2.500	2.559	-2.4	72	-0.04
6		1-Methylnapthalene	2.500	2.609	-4.4	74	-0.04
7	I	Acenaphthene-d10	5.000	5.000	0.0	84	-0.04
8	S	2-Fluorobiphenyl	2.500	2.430	2.8	78	-0.04
9		Acenaphthylene	2.500	2.361	5.6	77	-0.04
.0		Acenaphthene	2.500	2.315	7.4	80	-0.04
.1		Fluorene	2.500	2.744	-9.8	93	-0.04
.2	I	Phenanthrene-d10	5.000	5.000	0.0	103	-0.06
.3		Phenanthrene	2.500	2.583	-3.3	106	-0.06
.4		Anthracene	2.500	2.562	-2.5	103	-0.06
.5		Fluoranthene	2.500	2.802	-12.1	126	-0.05
.6	I	Chrysene-d12	5.000	5.000	0.0	141	-0.07
.7		Pyrene	2.500	2.542	-1.7	129	-0.05
.8	S	Terphenyl-d14	2.500	2.416	3.4	126	-0.05
.9		Bis(2-ethylhexyl)phthalate	2.500	2.186	12.6	131	-0.05
20		Benzo(a)anthracene	2.500	2.397	4.1	139	-0.07
21		Chrysene	2.500	2.466	1.4	140	-0.07
22		Indeno(1,2,3-cd)pyrene	2.500	2.269	9.2	122	-0.39
23	I	Perylene-d12	5.000	5.000	0.0	134	-0.21
24		Benzo(b)fluoranthene	2.500	2.464	1.4	136	-0.16
25		Benzo(k)fluoranthene	2.500	2.542	-1.7	140	-0.16
26		Benzo(a)pyrene	2.500	2.467	1.3	134	-0.20
27		Dibenzo(a,h)anthracene	2.500	2.347	6.1	117	-0.39
28		Benzo(g,h,i)perylene	2.500	2.281	8.8	116	-0.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59995B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002450.D Lab Sample ID: PB59995B

Instrument ID: BNA_G Date Extracted: 12/19/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/28/2011

Level: (low/med) LOW Time Analyzed: 00:36

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB11-000.5-01MSD	C5017-06MSD	BG002470.D	12/28/2011
12SB11-000.5-01MS	C5017-05MS	BG002469.D	12/28/2011
12SB11-000.5-01	C5017-04	BG002468.D	12/28/2011
12SB14-0.502-02	C5017-20	BG002504.D	12/29/2011
12SB10-0304-03	C5017-15	BG002503.D	12/29/2011
12SB-DUP02	C5017-09	BG002467.D	12/28/2011
12SB16-0304-03	C5017-03	BG002466.D	12/28/2011
12SB10-0.502-02	C5017-14	BG002502.D	12/29/2011
12SB16-000.5-01	C5017-01	BG002465.D	12/28/2011
12SB09-0.502-02	C5017-11	BG002501.D	12/29/2011
12SB09-000.5-01	C5017-10	BG002500.D	12/29/2011
12SB09-0304-03	C5017-12	BG002498.D	12/29/2011
12SB10-000.5-01	C5017-13	BG002497.D	12/29/2011
12SB15-000.5-01	C5017-16	BG002496.D	12/29/2011
12SB15-0.502-02	C5017-17	BG002495.D	12/29/2011
12SB15-0304-03	C5017-18	BG002494.D	12/29/2011
12SB11-0304-03	C5017-08	BG002582.D	01/01/2012
12SB-DUP-04	C5017-19	BG002581.D	01/01/2012
PB59995BS	PB59995BS	BG002451.D	12/28/2011
12SB11-0.501-02	C5017-07	BG002449.D	12/27/2011
12SB16-0.502-02	C5017-02	BG002569.D	12/31/2011
12SB14-0304-03	C5017-21	BG002568.D	12/31/2011

COMMENTS:

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002452.D DFTPP Injection Date: 12/28/2011

Instrument ID: BNA_G DFTPP Injection Time: 01:55

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	42.9
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	41.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	8.1
275	10.0 - 30.0% of mass 198	24.2
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	10.9
442	Greater than 40% of mass 198	81.4
443	17.0 - 23.0% of mass 442	13.9 (17.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002453.D	12/28/2011	02:35
02	12SB16-000.5-01	C5017-01	BG002465.D	12/28/2011	10:26
03	12SB16-0304-03	C5017-03	BG002466.D	12/28/2011	11:05
04	12SB-DUP02	C5017-09	BG002467.D	12/28/2011	11:44
05	12SB11-000.5-01	C5017-04	BG002468.D	12/28/2011	12:24
06	12SB11-000.5-01MS	C5017-05MS	BG002469.D	12/28/2011	13:03
07	12SB11-000.5-01MSD	C5017-06MSD	BG002470.D	12/28/2011	13:43

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date/Time: 12/28/2011 02:35

Lab File ID: BG002453.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.138		3.4	20.0
2-Methylnapthalene	2.867	2.895		1.0	20.0
Acenaphthylene	6.939	6.403		7.7	20.0
Acenaphthene	1.136	1.024		9.8	20.0
Fluorene	1.311	1.434		9.4	20.0
Phenanthrene	4.275	4.391		2.7	20.0
Anthracene	4.258	4.314		1.3	20.0
Fluoranthene	4.390	4.849		10.4	20.0
Pyrene	4.768	4.835		1.4	20.0
Benzo(a)anthracene	4.640	4.438		4.3	20.0
Chrysene	4.416	4.397		0.4	20.0
Benzo(b)fluoranthene	10.733	10.267		4.3	20.0
Benzo(k)fluoranthene	10.683	11.123		4.1	20.0
Benzo(a)pyrene	10.071	9.906		1.6	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.602		11.4	20.0
Dibenzo(a,h)anthracene	0.929	0.882		5.0	20.0
Benzo(g,h,i)perylene	3.949	3.646		7.7	20.0
Nitrobenzene-d5	0.405	0.437		7.8	20.0
2-Fluorobiphenyl	1.475	1.438		2.5	20.0
Terphenyl-d14	0.779	0.748		4.0	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG122711\
Data File : BG002453.D
Acq On : 28 Dec 2011 2:35
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 28 04:48:01 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 15:47:51 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	64	-0.05
2	I	Naphthalene-d8	5.000	5.000	0.0	66	-0.06
3	S	Nitrobenzene-d5	2.500	2.692	-7.7	70	-0.05
4		Naphthalene	2.500	2.585	-3.4	68	-0.05
5		2-Methylnapthalene	2.500	2.524	-1.0	66	-0.04
6		1-Methylnapthalene	2.500	2.559	-2.4	67	-0.04
7	I	Acenaphthene-d10	5.000	5.000	0.0	76	-0.04
8	S	2-Fluorobiphenyl	2.500	2.438	2.5	71	-0.04
9		Acenaphthylene	2.500	2.307	7.7	68	-0.04
10		Acenaphthene	2.500	2.254	9.8	70	-0.04
11		Fluorene	2.500	2.735	-9.4	84	-0.04
12	I	Phenanthrene-d10	5.000	5.000	0.0	92	-0.06
13		Phenanthrene	2.500	2.568	-2.7	94	-0.06
14		Anthracene	2.500	2.533	-1.3	91	-0.06
15		Fluoranthene	2.500	2.761	-10.4	111	-0.05
16	I	Chrysene-d12	5.000	5.000	0.0	124	-0.07
17		Pyrene	2.500	2.535	-1.4	114	-0.05
18	S	Terphenyl-d14	2.500	2.398	4.1	110	-0.05
19		Bis(2-ethylhexyl)phthalate	2.500	2.139	14.4	113	-0.05
20		Benzo(a)anthracene	2.500	2.391	4.4	123	-0.07
21		Chrysene	2.500	2.489	0.4	125	-0.07
22		Indeno(1,2,3-cd)pyrene	2.500	2.216	11.4	105	-0.39
23	I	Perylene-d12	5.000	5.000	0.0	119	-0.21
24		Benzo(b)fluoranthene	2.500	2.391	4.4	117	-0.16
25		Benzo(k)fluoranthene	2.500	2.603	-4.1	128	-0.16
26		Benzo(a)pyrene	2.500	2.459	1.6	119	-0.20
27		Dibenzo(a,h)anthracene	2.500	2.374	5.0	105	-0.39
28		Benzo(g,h,i)perylene	2.500	2.308	7.7	104	-0.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002488.D DFTPP Injection Date: 12/29/2011

Instrument ID: BNA_G DFTPP Injection Time: 03:45

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.3 (0.7) 1
69	Mass 69 relative abundance	47.7
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	47.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	8.4
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	11.3
442	Greater than 40% of mass 198	76
443	17.0 - 23.0% of mass 442	14.9 (19.6) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002489.D	12/29/2011	04:24
02	12SB15-0304-03	C5017-18	BG002494.D	12/29/2011	07:38
03	12SB15-0.502-02	C5017-17	BG002495.D	12/29/2011	08:17
04	12SB15-000.5-01	C5017-16	BG002496.D	12/29/2011	08:55
05	12SB10-000.5-01	C5017-13	BG002497.D	12/29/2011	09:34
06	12SB09-0304-03	C5017-12	BG002498.D	12/29/2011	10:13
07	12SB09-000.5-01	C5017-10	BG002500.D	12/29/2011	11:30
08	12SB09-0.502-02	C5017-11	BG002501.D	12/29/2011	12:09
09	12SB10-0.502-02	C5017-14	BG002502.D	12/29/2011	12:47
10	12SB10-0304-03	C5017-15	BG002503.D	12/29/2011	13:26
11	12SB14-0.502-02	C5017-20	BG002504.D	12/29/2011	14:05
12	12SB10-000.5-01DL	C5017-13DL	BG002505.D	12/29/2011	14:44
13	12SB14-0.502-02DL	C5017-20DL	BG002506.D	12/29/2011	15:23

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date/Time: 12/29/2011 04:24

Lab File ID: BG002489.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.158		3.9	20.0
2-Methylnapthalene	2.867	2.866		0.0	20.0
Acenaphthylene	6.939	6.516		6.1	20.0
Acenaphthene	1.136	1.056		7.1	20.0
Fluorene	1.311	1.386		5.7	20.0
Phenanthrene	4.275	4.409		3.1	20.0
Anthracene	4.258	4.318		1.4	20.0
Fluoranthene	4.390	4.947		12.7	20.0
Pyrene	4.768	4.684		1.8	20.0
Benzo(a)anthracene	4.640	4.463		3.8	20.0
Chrysene	4.416	4.440		0.5	20.0
Benzo(b)fluoranthene	10.733	10.395		3.2	20.0
Benzo(k)fluoranthene	10.683	10.917		2.2	20.0
Benzo(a)pyrene	10.071	9.924		1.5	20.0
Indeno(1,2,3-cd)pyrene	4.064	4.078		0.3	20.0
Dibenzo(a,h)anthracene	0.929	0.944		1.6	20.0
Benzo(g,h,i)perylene	3.949	4.088		3.5	20.0
Nitrobenzene-d5	0.405	0.447		10.4	20.0
2-Fluorobiphenyl	1.475	1.440		2.4	20.0
Terphenyl-d14	0.779	0.733		6.0	20.0

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG122811\
Data File : BG002489.D
Acq On : 29 Dec 2011 4:24
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 29 05:31:22 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Dec 28 18:33:42 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	90	0.00
2	I	Naphthalene-d8	5.000	5.000	0.0	94	0.00
3	S	Nitrobenzene-d5	2.500	2.758	-10.3	101	0.00
4		Naphthalene	2.500	2.598	-3.9	96	0.00
5		2-Methylnapthalene	2.500	2.499	0.0	92	0.01
6		1-Methylnapthalene	2.500	2.580	-3.2	95	0.01
7	I	Acenaphthene-d10	5.000	5.000	0.0	107	0.01
8	S	2-Fluorobiphenyl	2.500	2.440	2.4	100	0.01
9		Acenaphthylene	2.500	2.348	6.1	98	0.01
10		Acenaphthene	2.500	2.323	7.1	102	0.01
11		Fluorene	2.500	2.643	-5.7	114	0.01
12	I	Phenanthrene-d10	5.000	5.000	0.0	126	0.00
13		Phenanthrene	2.500	2.578	-3.1	130	0.00
14		Anthracene	2.500	2.535	-1.4	125	0.00
15		Fluoranthene	2.500	2.817	-12.7	156	0.00
16	I	Chrysene-d12	5.000	5.000	0.0	179	-0.02
17		Pyrene	2.500	2.456	1.8	159	0.00
18	S	Terphenyl-d14	2.500	2.350	6.0	156	0.00
19		Bis(2-ethylhexyl)phthalate	2.500	2.294	8.2	176	0.00
20		Benzo(a)anthracene	2.500	2.405	3.8	178	-0.02
21		Chrysene	2.500	2.513	-0.5	182	-0.02
22		Indeno(1,2,3-cd)pyrene	2.500	2.509	-0.4	171	-0.39
23	I	Perylene-d12	5.000	5.000	0.0	174	-0.19
24		Benzo(b)fluoranthene	2.500	2.421	3.2	174	-0.13
25		Benzo(k)fluoranthene	2.500	2.555	-2.2	184	-0.13
26		Benzo(a)pyrene	2.500	2.463	1.5	175	-0.17
27		Dibenzo(a,h)anthracene	2.500	2.540	-1.6	165	-0.40
28		Benzo(g,h,i)perylene	2.500	2.588	-3.5	171	-0.46

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002559.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_G DFTPP Injection Time: 10:43

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.6
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	42.3
70	Less than 2.0% of mass 69	0.4 (0.8) 1
127	40.0 - 60.0% of mass 198	47.9
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.4
275	10.0 - 30.0% of mass 198	28.6
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	15.7
442	Greater than 40% of mass 198	88.9
443	17.0 - 23.0% of mass 442	18.9 (21.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA ICC	BG002560.D	12/31/2011	11:22
02	12SB14-0304-03	C5017-21	BG002568.D	12/31/2011	16:39
03	12SB16-0.502-02	C5017-02	BG002569.D	12/31/2011	17:19

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date/Time: 12/31/2011 11:22

Lab File ID: BG002560.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{\text{RRF}}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.077		1.9	20.0
2-Methylnapthalene	2.867	2.810		2.0	20.0
Acenaphthylene	6.939	6.491		6.4	20.0
Acenaphthene	1.136	1.026		9.7	20.0
Fluorene	1.311	1.333		1.7	20.0
Phenanthrene	4.275	4.366		2.1	20.0
Anthracene	4.258	4.320		1.5	20.0
Fluoranthene	4.390	4.667		6.3	20.0
Pyrene	4.768	4.655		2.4	20.0
Benzo(a)anthracene	4.640	4.388		5.4	20.0
Chrysene	4.416	4.430		0.3	20.0
Benzo(b)fluoranthene	10.733	10.150		5.4	20.0
Benzo(k)fluoranthene	10.683	10.864		1.7	20.0
Benzo(a)pyrene	10.071	9.691		3.8	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.355		17.5	20.0
Dibenzo(a,h)anthracene	0.929	0.763		17.9	20.0
Benzo(g,h,i)perylene	3.949	3.162		19.9	20.0
Nitrobenzene-d5	0.405	0.446		10.2	20.0
2-Fluorobiphenyl	1.475	1.424		3.5	20.0
Terphenyl-d14	0.779	0.716		8.1	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG123111\
Data File : BG002560.D
Acq On : 31 Dec 2011 11:22
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 02 03:52:00 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Dec 28 18:33:42 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	81	-0.05
2	I	Naphthalene-d8	5.000	5.000	0.0	83	-0.05
3	S	Nitrobenzene-d5	2.500	2.751	-10.0	89	-0.04
4		Naphthalene	2.500	2.547	-1.9	83	-0.04
5		2-Methylnapthalene	2.500	2.450	2.0	80	-0.03
6		1-Methylnapthalene	2.500	2.403	3.9	78	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	93	-0.03
8	S	2-Fluorobiphenyl	2.500	2.414	3.4	86	-0.02
9		Acenaphthylene	2.500	2.339	6.4	85	-0.03
10		Acenaphthene	2.500	2.258	9.7	87	-0.02
11		Fluorene	2.500	2.542	-1.7	95	-0.03
12	I	Phenanthrene-d10	5.000	5.000	0.0	101	-0.05
13		Phenanthrene	2.500	2.553	-2.1	103	-0.05
14		Anthracene	2.500	2.537	-1.5	101	-0.05
15		Fluoranthene	2.500	2.658	-6.3	118	-0.05
16	I	Chrysene-d12	5.000	5.000	0.0	140	-0.06
17		Pyrene	2.500	2.441	2.4	123	-0.05
18	S	Terphenyl-d14	2.500	2.297	8.1	118	-0.04
19		Bis(2-ethylhexyl)phthalate	2.500	2.174	13.0	129	-0.04
20		Benzo(a)anthracene	2.500	2.364	5.4	136	-0.06
21		Chrysene	2.500	2.508	-0.3	141	-0.06
22		Indeno(1,2,3-cd)pyrene	2.500	2.064	17.4	110	-0.51#
23	I	Perylene-d12	5.000	5.000	0.0	141	-0.26
24		Benzo(b)fluoranthene	2.500	2.364	5.4	138	-0.19
25		Benzo(k)fluoranthene	2.500	2.542	-1.7	148	-0.19
26		Benzo(a)pyrene	2.500	2.406	3.8	138	-0.25
27		Dibenzo(a,h)anthracene	2.500	2.052	17.9	108	-0.51#
28		Benzo(g,h,i)perylene	2.500	2.002	19.9	107	-0.60#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5017 SDG NO.: C5017

Lab File ID: BG002577.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_G DFTPP Injection Time: 22:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	43.8
70	Less than 2.0% of mass 69	0.4 (0.9) 1
127	40.0 - 60.0% of mass 198	45.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	24
365	Greater than 1% of mass 198	2.7
441	Present, but less than mass 443	12
442	Greater than 40% of mass 198	83.6
443	17.0 - 23.0% of mass 442	15 (18) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA ICC	BG002578.D	12/31/2011	23:16
02	12SB-DUP-04	C5017-19	BG002581.D	01/01/2012	01:15
03	12SB11-0304-03	C5017-08	BG002582.D	01/01/2012	01:54
04	12SB10-0.502-02DL	C5017-14DL	BG002583.D	01/01/2012	02:34
05	12SB10-0304-03DL	C5017-15DL	BG002584.D	01/01/2012	03:13

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date/Time: 12/31/2011 23:16

Lab File ID: BG002578.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.045		1.1	20.0
2-Methylnapthalene	2.867	2.841		0.9	20.0
Acenaphthylene	6.939	6.589		5.1	20.0
Acenaphthene	1.136	1.011		11.0	20.0
Fluorene	1.311	1.352		3.1	20.0
Phenanthrene	4.275	4.337		1.5	20.0
Anthracene	4.258	4.265		0.2	20.0
Fluoranthene	4.390	4.657		6.1	20.0
Pyrene	4.768	4.625		3.0	20.0
Benzo(a)anthracene	4.640	4.360		6.0	20.0
Chrysene	4.416	4.398		0.4	20.0
Benzo(b)fluoranthene	10.733	10.371		3.4	20.0
Benzo(k)fluoranthene	10.683	10.722		0.4	20.0
Benzo(a)pyrene	10.071	9.629		4.4	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.268		19.6	20.0
Dibenzo(a,h)anthracene	0.929	0.753		18.9	20.0
Benzo(g,h,i)perylene	3.949	3.105		21.4	20.0
Nitrobenzene-d5	0.405	0.451		11.3	20.0
2-Fluorobiphenyl	1.475	1.438		2.5	20.0
Terphenyl-d14	0.779	0.709		9.0	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG123111\
Data File : BG002578.D
Acq On : 31 Dec 2011 23:16
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 02 04:56:17 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Dec 28 18:33:42 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	79	-0.05
2	I	Naphthalene-d8	5.000	5.000	0.0	82	-0.05
3	S	Nitrobenzene-d5	2.500	2.779	-11.2	89	-0.05
4		Naphthalene	2.500	2.527	-1.1	82	-0.04
5		2-Methylnapthalene	2.500	2.477	0.9	79	-0.03
6		1-Methylnapthalene	2.500	2.381	4.8	76	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	90	-0.03
8	S	2-Fluorobiphenyl	2.500	2.437	2.5	84	-0.02
9		Acenaphthylene	2.500	2.374	5.0	83	-0.03
10		Acenaphthene	2.500	2.225	11.0	82	-0.03
11		Fluorene	2.500	2.579	-3.2	93	-0.03
12	I	Phenanthrene-d10	5.000	5.000	0.0	98	-0.05
13		Phenanthrene	2.500	2.536	-1.4	100	-0.05
14		Anthracene	2.500	2.505	-0.2	97	-0.05
15		Fluoranthene	2.500	2.652	-6.1	115	-0.05
16	I	Chrysene-d12	5.000	5.000	0.0	136	-0.06
17		Pyrene	2.500	2.425	3.0	119	-0.05
18	S	Terphenyl-d14	2.500	2.275	9.0	114	-0.04
19		Bis(2-ethylhexyl)phthalate	2.500	2.108	15.7	123	-0.04
20		Benzo(a)anthracene	2.500	2.349	6.0	132	-0.07
21		Chrysene	2.500	2.490	0.4	137	-0.07
22		Indeno(1,2,3-cd)pyrene	2.500	2.010	19.6	104	-0.52#
23	I	Perylene-d12	5.000	5.000	0.0	136	-0.26
24		Benzo(b)fluoranthene	2.500	2.416	3.4	136	-0.19
25		Benzo(k)fluoranthene	2.500	2.509	-0.4	141	-0.20
26		Benzo(a)pyrene	2.500	2.390	4.4	133	-0.25
27		Dibenzo(a,h)anthracene	2.500	2.027	18.9	103	-0.53#
28		Benzo(g,h,i)perylene	2.500	1.966	21.4#	102	-0.60#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
C5017-01	12SB16-000.5-01	Nitrobenzene-d5	100	74.88	75		30	150
		2-Fluorobiphenyl	100	51.88	52		45	105
		Terphenyl-d14	100	46.53	47		30	125
C5017-02	12SB16-0.502-02	Nitrobenzene-d5	100	68.48	68		30	150
		2-Fluorobiphenyl	100	50.55	51		45	105
		Terphenyl-d14	100	50.96	51		30	125
C5017-03	12SB16-0304-03	Nitrobenzene-d5	100	89.88	90		30	150
		2-Fluorobiphenyl	100	65.14	65		45	105
		Terphenyl-d14	100	70.58	71		30	125
C5017-04	12SB11-000.5-01	Nitrobenzene-d5	100	78.69	79		30	150
		2-Fluorobiphenyl	100	54.57	55		45	105
		Terphenyl-d14	100	55.65	56		30	125
C5017-05MS	12SB11-000.5-01MS	Nitrobenzene-d5	10	9.87	99		30	150
		2-Fluorobiphenyl	10	8.50	85		45	105
		Terphenyl-d14	10	8.21	82		30	125
C5017-06MSD	12SB11-000.5-01MSD	Nitrobenzene-d5	10	7.25	73		30	150
		2-Fluorobiphenyl	10	6.45	65		45	105
		Terphenyl-d14	10	6.20	62		30	125
C5017-07	12SB11-0.501-02	Nitrobenzene-d5	100	72.29	72		30	150
		2-Fluorobiphenyl	100	54.15	54		45	105
		Terphenyl-d14	100	56.70	57		30	125
C5017-08	12SB11-0304-03	Nitrobenzene-d5	100	67.53	68		30	150
		2-Fluorobiphenyl	100	51.92	52		45	105
		Terphenyl-d14	100	50.30	50		30	125
C5017-09	12SB-DUP02	Nitrobenzene-d5	100	71.14	71		30	150
		2-Fluorobiphenyl	100	51.94	52		45	105
		Terphenyl-d14	100	54.27	54		30	125
C5017-10	12SB09-000.5-01	Nitrobenzene-d5	100	64.04	64		30	150
		2-Fluorobiphenyl	100	47.80	48		45	105
		Terphenyl-d14	100	51.24	51		30	125
C5017-11	12SB09-0.502-02	Nitrobenzene-d5	100	64.51	65		30	150
		2-Fluorobiphenyl	100	45.56	46		45	105
		Terphenyl-d14	100	50.01	50		30	125
C5017-12	12SB09-0304-03	Nitrobenzene-d5	100	62.30	62		30	150
		2-Fluorobiphenyl	100	47.21	47		45	105
		Terphenyl-d14	100	50.71	51		30	125
C5017-13	12SB10-000.5-01	Nitrobenzene-d5	100	60.74	61		30	150
		2-Fluorobiphenyl	100	46.10	46		45	105
		Terphenyl-d14	100	46.84	47		30	125
C5017-13DL	12SB10-000.5-01DL	Nitrobenzene-d5	100	67.24	67		30	150
		2-Fluorobiphenyl	100	54.40	54		45	105
		Terphenyl-d14	100	55.24	55		30	125
C5017-14	12SB10-0.502-02	Nitrobenzene-d5	100	66.30	66		30	150
		2-Fluorobiphenyl	100	58.70	59		45	105
		Terphenyl-d14	100	55.50	56		30	125
C5017-14DL	12SB10-0.502-02DL	Nitrobenzene-d5	100	67.00	67		30	150
		2-Fluorobiphenyl	100	63.50	64		45	105
		Terphenyl-d14	100	59.00	59		30	125
C5017-15	12SB10-0304-03	Nitrobenzene-d5	100	62.60	63		30	150
		2-Fluorobiphenyl	100	56.95	57		45	105
		Terphenyl-d14	100	53.20	53		30	125
C5017-15DL	12SB10-0304-03DL	Nitrobenzene-d5	100	66.00	66		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5017-15DL	12SB10-0304-03DL	2-Fluorobiphenyl	100	60.50	61		45	105
		Terphenyl-d14	100	55.75	56		30	125
C5017-16	12SB15-000.5-01	Nitrobenzene-d5	100	69.86	70		30	150
		2-Fluorobiphenyl	100	52.88	53		45	105
		Terphenyl-d14	100	54.41	54		30	125
C5017-17	12SB15-0.502-02	Nitrobenzene-d5	100	66.68	67		30	150
		2-Fluorobiphenyl	100	51.44	51		45	105
		Terphenyl-d14	100	53.44	53		30	125
C5017-18	12SB15-0304-03	Nitrobenzene-d5	100	61.98	62		30	150
		2-Fluorobiphenyl	100	47.52	48		45	105
		Terphenyl-d14	100	49.31	49		30	125
C5017-19	12SB-DUP-04	Nitrobenzene-d5	100	69.88	70		30	150
		2-Fluorobiphenyl	100	55.63	56		45	105
		Terphenyl-d14	100	53.25	53		30	125
C5017-20	12SB14-0.502-02	Nitrobenzene-d5	100	74.09	74		30	150
		2-Fluorobiphenyl	100	55.45	55		45	105
		Terphenyl-d14	100	58.17	58		30	125
C5017-20DL	12SB14-0.502-02DL	Nitrobenzene-d5	100	92.10	92		30	150
		2-Fluorobiphenyl	100	82.20	82		45	105
		Terphenyl-d14	100	78.40	78		30	125
C5017-21	12SB14-0304-03	Nitrobenzene-d5	100	82.96	83		30	150
		2-Fluorobiphenyl	100	63.74	64		45	105
		Terphenyl-d14	100	65.07	65		30	125
PB59995B	PB59995B	Nitrobenzene-d5	10	8.97	90		30	150
		2-Fluorobiphenyl	10	7.87	79		45	105
		Terphenyl-d14	10	8.46	85		30	125
PB59995BS	PB59995BS	Nitrobenzene-d5	10	9.35	94		30	150
		2-Fluorobiphenyl	10	8.13	81		45	105
		Terphenyl-d14	10	8.18	82		30	125

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5017-05MS	**Client Sample ID: 12SB11-000.5-01MS**									
Naphthalene	480	0	450	94				23	160	
2-Methylnaphthalene	480	0	440	92				37	139	
Acenaphthylene	480	3.3	450	93				28	155	
Acenaphthene	480	3.8	500	103				32	146	
Fluorene	480	5.7	520	107				17	166	
Phenanthrene	480	93	1500	293	*			30	149	
Anthracene	480	13	840	172	*			27	158	
Fluoranthene	480	220	2700	517	*			26	155	
Pyrene	480	160	2100	404	*			22	173	
Benzo(a)anthracene	480	77	1500	296	*			27	159	
Chrysene	480	91	1400	273	*			23	166	
Benzo(b)fluoranthene	480	110	2000	394	*			21	171	
Benzo(k)fluoranthene	480	44	1000	199	*			26	165	
Benzo(a)pyrene	480	76	1500	297	*			26	157	
Indeno(1,2,3-cd)pyrene	480	37	780	155				10	188	
Dibenz(a,h)anthracene	480	3.3	630	131				18	147	
Benzo(g,h,i)perylene	480	35	1100	222	*			10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5017-06MSD	**Client Sample ID: 12SB11-000.5-01MSD**									
Naphthalene	480	0	340	71		28	*	23	160	20
2-Methylnaphthalene	480	0	320	67		31	*	37	139	20
Acenaphthylene	480	3.3	340	70		28	*	28	155	20
Acenaphthene	480	3.8	360	74		33	*	32	146	20
Fluorene	480	5.7	380	78		31	*	17	166	20
Phenanthrene	480	93	1000	189	*	43	*	30	149	20
Anthracene	480	13	590	120		36	*	27	158	20
Fluoranthene	480	220	1900	350	*	39	*	26	155	20
Pyrene	480	160	1500	279	*	37	*	22	173	20
Benzo(a)anthracene	480	77	1000	192	*	43	*	27	159	20
Chrysene	480	91	1000	189	*	36	*	23	166	20
Benzo(b)fluoranthene	480	110	1300	248	*	45	*	21	171	20
Benzo(k)fluoranthene	480	44	820	162		20		26	165	20
Benzo(a)pyrene	480	76	1000	193	*	42	*	26	157	20
Indeno(1,2,3-cd)pyrene	480	37	540	105		38	*	10	188	20
Dibenz(a,h)anthracene	480	3.3	430	89		38	*	18	147	20
Benzo(g,h,i)perylene	480	35	720	143		43	*	10	177	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59995BS	Naphthalene	330	300	91				51	114	
	2-Methylnaphthalene	330	300	91				54	111	
	Acenaphthylene	330	280	85				54	113	
	Acenaphthene	330	290	88				54	113	
	Fluorene	330	310	94				56	113	
	Phenanthrene	330	300	91				56	113	
	Anthracene	330	310	94				56	113	
	Fluoranthene	330	330	100				54	117	
	Pyrene	330	310	94				58	117	
	Benzo(a)anthracene	330	280	85				57	112	
	Chrysene	330	290	88				59	114	
	Benzo(b)fluoranthene	330	300	91				53	120	
	Benzo(k)fluoranthene	330	310	94				56	117	
	Benzo(a)pyrene	330	300	91				56	117	
	Indeno(1,2,3-cd)pyrene	330	240	73				49	120	
	Dibenz(a,h)anthracene	330	260	79				52	119	
	Benzo(g,h,i)perylene	330	240	73				53	119	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/27/2011

Lab File ID: BG002437.D Time Analyzed: 15:59

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	44483	7.98	164984	10.16	113020	13.14
	UPPER LIMIT	88966	8.48	329968	10.66	226040	13.64
	LOWER LIMIT	22241.5	7.48	82492	9.66	56510	12.64
	EPA SAMPLE NO.						
01	12SB11-0.501-02	51248	7.99	177124	10.16	113670	13.14
02	PB59995B	49329	7.99	181773	10.16	124971	13.14
03	PB59995BS	50206	7.99	187013	10.16	126400	13.14

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/27/2011

Lab File ID: BG002437.D Time Analyzed: 15:59

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	212711	15.59	220598	19.96	184543	23.09
	UPPER LIMIT	425422	16.09	441196	20.46	369086	23.59
	LOWER LIMIT	106355.5	15.09	110299	19.46	92271.5	22.59
	EPA SAMPLE NO.						
01	12SB11-0.501-02	205015	15.59	203318	19.96	186184	23.09
02	PB59995B	229243	15.59	216502	19.96	189139	23.09
03	PB59995BS	223427	15.59	231305	19.96	194035	23.09

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/28/2011

Lab File ID: BG002453.D Time Analyzed: 02:35

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	41552	7.99	152409	10.16	102166	13.14
	UPPER LIMIT	83104	8.49	304818	10.66	204332	13.64
	LOWER LIMIT	20776	7.49	76204.5	9.66	51083	12.64
	EPA SAMPLE NO.						
01	12SB16-000.5-01	54580	7.99	186908	10.16	109722	13.14
02	12SB16-0304-03	41843	7.99	149844	10.16	97070	13.14
03	12SB-DUP02	58674	7.99	210117	10.16	134395	13.14
04	12SB11-000.5-01	44869	7.99	161740	10.16	102414	13.14
05	12SB11-000.5-01MS	56533	7.99	205326	10.16	128536	13.14
06	12SB11-000.5-01MSD	58838	7.99	218499	10.16	134835	13.14

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/28/2011

Lab File ID: BG002453.D Time Analyzed: 02:35

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	189951	15.59	194552	19.96	163921	23.09
	UPPER LIMIT	379902	16.09	389104	20.46	327842	23.59
	LOWER LIMIT	94975.5	15.09	97276	19.46	81960.5	22.59
	EPA SAMPLE NO.						
01	12SB16-000.5-01	179022	15.59	205492	19.96	176881	23.09
02	12SB16-0304-03	165332	15.59	164799	19.96	151527	23.09
03	12SB-DUP02	227020	15.59	225528	19.96	208903	23.09
04	12SB11-000.5-01	174920	15.59	176821	19.96	157639	23.09
05	12SB11-000.5-01MS	219285	15.59	220456	19.97	140015	23.10
06	12SB11-000.5-01MSD	229694	15.59	232556	19.97	152544	23.09

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/29/2011

Lab File ID: BG002489.D Time Analyzed: 04:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	58575	7.97	215681	10.15	143796	13.12
	UPPER LIMIT	117150	8.46999	431362	10.65	287592	13.62
	LOWER LIMIT	29287.5	7.47	107840.5	9.65	71898	12.62
	EPA SAMPLE NO.						
01	12SB15-0304-03	74058	7.97	264761	10.15	167889	13.12
02	12SB15-0.502-02	66580	7.97	235467	10.15	149583	13.12
03	12SB15-000.5-01	66502	7.97	237674	10.15	150033	13.12
04	12SB10-000.5-01	78123	7.97	278681	10.15	174278	13.13
05	12SB09-0304-03	69064	7.97	248855	10.15	155244	13.12
06	12SB09-000.5-01	65210	7.97	245039	10.15	157027	13.12
07	12SB09-0.502-02	75075	7.97	271257	10.15	173071	13.12
08	12SB10-0.502-02	71537	7.97	267769	10.15	170456	13.12
09	12SB10-0304-03	75399	7.97	280796	10.15	173169	13.12
10	12SB14-0.502-02	80946	7.97	284309	10.15	178552	13.12
11	12SB10-000.5-01DL	71251	7.97	260399	10.15	164267	13.12
12	12SB14-0.502-02DL	66028	7.97	243674	10.15	152624	13.13

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/29/2011

Lab File ID: BG002489.D Time Analyzed: 04:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	261459	15.57	281055	19.94	240427	23.05
	UPPER LIMIT	522918	16.07	562110	20.44	480854	23.55
	LOWER LIMIT	130729.5	15.07	140527.5	19.44	120213.5	22.55
	EPA SAMPLE NO.						
01	12SB15-0304-03	299120	15.57	306741	19.95	270476	23.05
02	12SB15-0.502-02	269512	15.57	275825	19.95	242746	23.05
03	12SB15-000.5-01	266399	15.57	276718	19.95	243956	23.05
04	12SB10-000.5-01	308063	15.57	313965	19.95	278933	23.05
05	12SB09-0304-03	277026	15.57	284618	19.95	252870	23.05
06	12SB09-000.5-01	276139	15.57	268643	19.95	247179	23.05
07	12SB09-0.502-02	307799	15.57	305065	19.95	278360	23.05
08	12SB10-0.502-02	286771	15.58	296631	19.95	265400	23.05
09	12SB10-0304-03	298106	15.57	303906	19.95	268857	23.05
10	12SB14-0.502-02	297777	15.58	278523	19.95	201058	23.06
11	12SB10-000.5-01DL	281252	15.57	285580	19.95	257938	23.05
12	12SB14-0.502-02DL	261064	15.57	270664	19.95	241050	23.05

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002560.D Time Analyzed: 11:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	52738	7.92	190010	10.11	125396	13.08
	UPPER LIMIT	105476	8.42	380020	10.61	250792	13.58
	LOWER LIMIT	26369	7.42	95005	9.61	62698	12.58
	EPA SAMPLE NO.						
01	12SB14-0304-03	54615	7.92	196540	10.11	123107	13.08
02	12SB16-0.502-02	67286	7.92	237039	10.10	146507	13.08

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002560.D Time Analyzed: 11:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	209965	15.53	218693	19.9	194754	22.97
	UPPER LIMIT	419930	16.03	437386	20.4	389508	23.47
	LOWER LIMIT	104982.5	15.03	109346.5	19.4	97377	22.47
	EPA SAMPLE NO.						
01	12SB14-0304-03	205547	15.53	206650	19.90	194209	22.97
02	12SB16-0.502-02	242678	15.53	257743	19.90	239071	22.97

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002578.D Time Analyzed: 23:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	51854	7.92	187498	10.11	120659	13.08
	UPPER LIMIT	103708	8.42	374996	10.61	241318	13.58
	LOWER LIMIT	25927	7.42	93749	9.61	60329.5	12.58
	EPA SAMPLE NO.						
01	12SB-DUP-04	61409	7.92	215224	10.10	131481	13.08
02	12SB11-0304-03	61104	7.92	215418	10.10	131580	13.08
03	12SB10-0.502-02DL	55605	7.92	203735	10.10	127670	13.08
04	12SB10-0304-03DL	58985	7.92	216493	10.10	131520	13.08

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002578.D Time Analyzed: 23:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	204018	15.53	213640	19.9	188154	22.97
	UPPER LIMIT	408036	16.03	427280	20.4	376308	23.47
	LOWER LIMIT	102009	15.03	106820	19.4	94077	22.47
	EPA SAMPLE NO.						
01	12SB-DUP-04	220123	15.53	234563	19.90	215782	22.97
02	12SB11-0304-03	221004	15.53	229975	19.90	212463	22.96
03	12SB10-0.502-02DL	219002	15.53	222394	19.90	204275	22.97
04	12SB10-0304-03DL	225758	15.53	232083	19.90	209655	22.96

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5017

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/29/2011	13:55	PD007129.D	9.01	3.92
PEM01	PEM01	12/29/2011	14:08	PD007130.D	9.01	3.92
RESC01	RESCHK	12/29/2011	14:21	PD007131.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	14:35	PD007132.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	14:48	PD007133.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	15:02	PD007134.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	15:15	PD007135.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	15:29	PD007136.D	9.01	3.92
TOX 500	TOX	12/29/2011	15:56	PD007138.D	9.01	3.92
CHLOR 500	CHLOR 500	12/29/2011	16:09	PD007139.D	9.01	3.92
PIBLK02	I.BLK02	12/29/2011	16:50	PD007142.D	9.01	3.92
CCAL01	STD 25	12/29/2011	17:03	PD007143.D	9.01	3.92
PB59993BL	PB59993BL	12/29/2011	18:51	PD007151.D	9.01	3.92
PB59993BS	PB59993BS	12/29/2011	19:04	PD007152.D	9.01	3.92
PIBLK03	I.BLK03	12/29/2011	19:31	PD007154.D	9.01	3.92
CCAL02	STD 25	12/29/2011	19:45	PD007155.D	9.01	3.92
PEM02	PEM02	12/29/2011	19:58	PD007156.D	9.01	3.92
PIBLK04	I.BLK04	12/29/2011	22:40	PD007168.D	9.01	3.92
CCAL03	STD 25	12/29/2011	22:53	PD007169.D	9.01	3.92
12SB16-000.5-01	C5017-01	12/29/2011	23:07	PD007170.D	9.01	3.92
12SB16-0.502-02	C5017-02	12/29/2011	23:20	PD007171.D	9.01	3.92
12SB16-0304-03	C5017-03	12/29/2011	23:34	PD007172.D	9.01	3.92
12SB11-000.5-01	C5017-04	12/29/2011	23:47	PD007173.D	9.01	3.92
12SB11-000.5-01MS	C5017-05MS	12/30/2011	00:00	PD007174.D	9.01	3.92
12SB11-000.5-01MSD	C5017-06MSD	12/30/2011	00:14	PD007175.D	9.01	3.92
12SB11-0.501-02	C5017-07	12/30/2011	00:27	PD007176.D	9.01	3.92
12SB11-0304-03	C5017-08	12/30/2011	00:41	PD007177.D	9.01	3.92
12SB-DUP02	C5017-09	12/30/2011	00:54	PD007178.D	9.01	3.92
12SB09-000.5-01	C5017-10	12/30/2011	01:08	PD007179.D	9.01	3.92
PIBLK05	I.BLK05	12/30/2011	01:21	PD007180.D	9.01	3.92
CCAL04	STD 25	12/30/2011	01:35	PD007181.D	9.01	3.92
12SB09-0.502-02	C5017-11	12/30/2011	01:48	PD007182.D	9.01	3.92
12SB09-0304-03	C5017-12	12/30/2011	02:02	PD007183.D	9.01	3.92
12SB10-000.5-01	C5017-13	12/30/2011	02:15	PD007184.D	9.01	3.92
12SB10-0.502-02	C5017-14	12/30/2011	02:29	PD007185.D	9.00	3.92
12SB10-0304-03	C5017-15	12/30/2011	02:42	PD007186.D	9.00	3.92
12SB15-000.5-01	C5017-16	12/30/2011	02:56	PD007187.D	9.01	3.92
12SB15-0.502-02	C5017-17	12/30/2011	03:09	PD007188.D	9.01	3.92
12SB15-0304-03	C5017-18	12/30/2011	03:23	PD007189.D	9.01	3.92
12SB-DUP-04	C5017-19	12/30/2011	03:36	PD007190.D	9.01	3.92
12SB14-0.502-02	C5017-20	12/30/2011	03:50	PD007191.D	9.00	3.92
PIBLK06	I.BLK06	12/30/2011	04:03	PD007192.D	9.01	3.92
CCAL05	STD 25	12/30/2011	04:17	PD007193.D	9.01	3.92
12SB14-0304-03	C5017-21	12/30/2011	04:30	PD007194.D	9.01	3.92
PIBLK07	I.BLK07	12/30/2011	06:05	PD007201.D	9.01	3.92

CHEMTECH

Analytical Sequence

CCAL06	STD 25	12/30/2011	06:18	PD007202.D	9.01	3.92
PIBLK08	I.BLK08	12/30/2011	11:19	PD007210.D	9.02	3.92
PEM03	PEM03	12/30/2011	11:33	PD007211.D	9.01	3.92
CCAL07	STD 25	12/30/2011	12:04	PD007212.D	9.04	3.92
12SB16-0.502-02RE	C5017-02RE	12/30/2011	12:52	PD007215.D	9.01	3.92
12SB16-0304-03RE	C5017-03RE	12/30/2011	13:05	PD007216.D	9.01	3.92
12SB09-0304-03RE	C5017-12RE	12/30/2011	13:19	PD007217.D	9.01	3.92
12SB10-0.502-02RE	C5017-14RE	12/30/2011	13:32	PD007218.D	9.01	3.92
PIBLK09	I.BLK09	12/30/2011	14:26	PD007222.D	9.01	3.92
CCAL08	STD 25	12/30/2011	14:58	PD007223.D	9.03	3.92

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD007136.D RT 025 = PD007135.D

RT 050 = PD007134.D RT 075 = PD007133.D RT 100 = PD007132.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	9.01	9.01	9.01	9.01	9.01	9.01	8.91	9.11
Tetrachloro-m-xylene	3.92	3.92	3.92	3.92	3.92	3.92	3.82	4.02
alpha-BHC	4.30	4.30	4.30	4.30	4.30	4.30	4.25	4.35
beta-BHC	4.75	4.75	4.75	4.75	4.75	4.75	4.70	4.80
delta-BHC	4.97	4.97	4.97	4.97	4.97	4.97	4.92	5.02
gamma-BHC (Lindane)	4.59	4.59	4.59	4.59	4.59	4.59	4.54	4.64
Heptachlor	5.10	5.10	5.10	5.10	5.10	5.10	5.05	5.15
Aldrin	5.41	5.41	5.41	5.40	5.41	5.40	5.35	5.45
Heptachlor epoxide	5.79	5.79	5.79	5.79	5.79	5.79	5.72	5.86
Endosulfan I	6.15	6.15	6.15	6.15	6.15	6.15	6.08	6.22
Dieldrin	6.41	6.41	6.41	6.41	6.41	6.41	6.34	6.48
4,4-DDE	6.26	6.26	6.26	6.26	6.27	6.26	6.19	6.33
Endrin	6.62	6.62	6.62	6.62	6.62	6.62	6.55	6.69
Endosulfan II	6.83	6.83	6.83	6.83	6.83	6.83	6.76	6.90
4,4-DDD	6.75	6.76	6.76	6.76	6.76	6.76	6.69	6.83
Endosulfan sulfate	7.18	7.18	7.18	7.18	7.18	7.18	7.11	7.25
4,4-DDT	7.06	7.06	7.06	7.06	7.06	7.06	6.99	7.13
Methoxychlor	7.53	7.53	7.53	7.53	7.53	7.53	7.46	7.60
Endrin ketone	7.65	7.65	7.65	7.65	7.65	7.65	7.58	7.72
Endrin aldehyde	6.96	6.96	6.96	6.96	6.96	6.96	6.89	7.03
alpha-Chlordane	6.10	6.10	6.10	6.10	6.10	6.10	6.03	6.17
gamma-Chlordane	6.03	6.03	6.03	6.03	6.03	6.03	5.96	6.10

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007136.D CF 025 = PD007135.D

CF 050 = PD007134.D CF 075 = PD007133.D CF 100 = PD007132.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	2830559580	2576868092	2476147302	2382805400	2426775204	2538631116	7
Tetrachloro-m-xylene	5175091560	4948301884	4892105406	4733555568	4832289344	4916268752	3
alpha-BHC	85712462000	80174255160	80436772960	78720909373	81345919460	81278063791	3
beta-BHC	32321218200	30104854440	29454427900	28500597507	28552057800	29786631169	5
delta-BHC	81028752600	73476843520	73190917320	71928928627	73884555650	74701999543	5
gamma-BHC (Lindane)	79084411600	74697166320	74824075740	73702709067	75840530810	75629778707	3
Heptachlor	74446579200	69453087200	68254067700	66012098080	66602560680	68953678572	5
Aldrin	70513195600	65564881440	64241148760	62505547400	63055775850	65176109810	5
Heptachlor epoxide	64867990200	61312820760	56354767700	54481105507	54480316780	58299400189	8
Endosulfan I	60852500400	53789938840	51942826580	50309198987	50441814360	53467255833	8
Dieldrin	62037717600	56116553080	55104273300	53738726013	53990280910	56197510181	6
4,4-DDE	64508380800	56204410640	54759614080	53662990427	54304155100	56687910209	8
Endrin	47589985600	48953718120	46938833020	44013557987	43994933240	46298205593	5
Endosulfan II	46889749400	43769668480	44942819760	41781347747	41800865880	43836890253	5
4,4-DDD	48998178400	49048419840	46046604760	42944700733	42924709430	45992522633	7
Endosulfan sulfate	44201752600	38819636160	37578081720	36887686133	37077304790	38912892281	8
4,4-DDT	44786656400	41180858080	40611194320	40365005347	40635061760	41515755181	4
Methoxychlor	20889640800	18804165760	17983039380	17647999893	17642962790	18593561725	7
Endrin ketone	44883229200	41144744840	40173444160	39072625347	39341088510	40923026411	6
Endrin aldehyde	41268976600	36644526400	35179480220	34582126600	34769392230	36488900410	8
alpha-Chlordane	61091529200	55778358880	54500811940	53340908587	53709796430	55684281007	6
gamma-Chlordane	64015185200	57531846840	56137126620	54950543600	55640523260	57655045104	6

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_D **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	752569400
		2	6.85	6.80	6.90	1658150000
		3	7.09	7.04	7.14	2775068000
		4	7.58	7.53	7.63	2626631000
		5	7.94	7.89	7.99	828090200

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 17:03 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.40	5.35	5.45	-0.01
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 19:45 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.40	5.40	5.35	5.45	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 22:53 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.40	5.35	5.45	-0.01
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 01:35 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.40	5.40	5.35	5.45	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 04:17 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.41	5.40	5.35	5.45	-0.01
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.76	6.76	6.69	6.83	0.00
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.00
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 06:18 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.01
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.40	5.40	5.35	5.45	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.41	6.34	6.48	0.00
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.75	6.76	6.69	6.83	0.01
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.96	6.89	7.03	0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 12:04 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.04	9.01	8.91	9.11	-0.03
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.31	4.30	4.25	4.35	-0.01
beta-BHC	4.76	4.75	4.70	4.80	-0.01
delta-BHC	4.98	4.97	4.92	5.02	-0.01
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.00
Heptachlor	5.11	5.10	5.05	5.15	-0.01
Aldrin	5.42	5.40	5.35	5.45	-0.02
Heptachlor epoxide	5.81	5.79	5.72	5.86	-0.02
Endosulfan I	6.17	6.15	6.08	6.22	-0.02
Dieldrin	6.43	6.41	6.34	6.48	-0.02
4,4-DDE	6.29	6.26	6.19	6.33	-0.02
Endrin	6.64	6.62	6.55	6.69	-0.02
Endosulfan II	6.85	6.83	6.76	6.90	-0.02
4,4-DDD	6.78	6.76	6.69	6.83	-0.02
Endosulfan sulfate	7.21	7.18	7.11	7.25	-0.03
4,4-DDT	7.08	7.06	6.99	7.13	-0.02
Methoxychlor	7.55	7.53	7.46	7.60	-0.02
Endrin ketone	7.68	7.65	7.58	7.72	-0.03
Endrin aldehyde	6.98	6.96	6.89	7.03	-0.02
alpha-Chlordane	6.12	6.10	6.03	6.17	-0.02
gamma-Chlordane	6.05	6.03	5.96	6.10	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 14:58 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.03	9.01	8.91	9.11	-0.02
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.31	4.30	4.25	4.35	-0.01
beta-BHC	4.76	4.75	4.70	4.80	-0.01
delta-BHC	4.98	4.97	4.92	5.02	-0.01
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.00
Heptachlor	5.11	5.10	5.05	5.15	-0.01
Aldrin	5.42	5.40	5.35	5.45	-0.02
Heptachlor epoxide	5.81	5.79	5.72	5.86	-0.01
Endosulfan I	6.16	6.15	6.08	6.22	-0.01
Dieldrin	6.42	6.41	6.34	6.48	-0.01
4,4-DDE	6.28	6.26	6.19	6.33	-0.02
Endrin	6.64	6.62	6.55	6.69	-0.02
Endosulfan II	6.85	6.83	6.76	6.90	-0.02
4,4-DDD	6.78	6.76	6.69	6.83	-0.02
Endosulfan sulfate	7.20	7.18	7.11	7.25	-0.02
4,4-DDT	7.08	7.06	6.99	7.13	-0.02
Methoxychlor	7.55	7.53	7.46	7.60	-0.02
Endrin ketone	7.67	7.65	7.58	7.72	-0.02
Endrin aldehyde	6.98	6.96	6.89	7.03	-0.02
alpha-Chlordane	6.12	6.10	6.03	6.17	-0.02
gamma-Chlordane	6.04	6.03	5.96	6.10	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007143.D **Time Analyzed:** 17:03

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.967	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.100	5.050	5.150	0.025	0.025	0.0
Aldrin	5.405	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.791	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.405	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.264	6.190	6.330	0.025	0.025	0.0
Endrin	6.622	6.550	6.690	0.025	0.025	0.0
Endosulfan II	6.831	6.760	6.900	0.025	0.025	0.0
4,4-DDD	6.755	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.182	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.058	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.527	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.651	7.580	7.720	0.026	0.025	4.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.010	8.910	9.110	0.026	0.025	4.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007155.D **Time Analyzed:** 19:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.024	0.025	4.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.967	4.920	5.020	0.024	0.025	4.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.024	0.025	4.0
Heptachlor	5.099	5.050	5.150	0.025	0.025	0.0
Aldrin	5.404	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.790	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.405	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.264	6.190	6.330	0.024	0.025	4.0
Endrin	6.622	6.550	6.690	0.025	0.025	0.0
Endosulfan II	6.831	6.760	6.900	0.023	0.025	8.0
4,4-DDD	6.755	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.182	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.059	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.526	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.651	7.580	7.720	0.026	0.025	4.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.100	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.024	0.025	4.0
Decachlorobiphenyl	9.009	8.910	9.110	0.026	0.025	4.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007169.D **Time Analyzed:** 22:53

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.967	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.024	0.025	4.0
Heptachlor	5.099	5.050	5.150	0.025	0.025	0.0
Aldrin	5.405	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.791	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.405	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.264	6.190	6.330	0.025	0.025	0.0
Endrin	6.622	6.550	6.690	0.025	0.025	0.0
Endosulfan II	6.831	6.760	6.900	0.022	0.025	12.0
4,4-DDD	6.755	6.690	6.830	0.026	0.025	4.0
Endosulfan sulfate	7.182	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.058	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.526	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.651	7.580	7.720	0.026	0.025	4.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.100	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.026	5.960	6.100	0.024	0.025	4.0
Decachlorobiphenyl	9.009	8.910	9.110	0.026	0.025	4.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007181.D **Time Analyzed:** 01:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.752	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.967	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.100	5.050	5.150	0.025	0.025	0.0
Aldrin	5.404	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.791	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.405	6.340	6.480	0.026	0.025	4.0
4,4-DDE	6.264	6.190	6.330	0.025	0.025	0.0
Endrin	6.622	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.832	6.760	6.900	0.022	0.025	12.0
4,4-DDD	6.755	6.690	6.830	0.026	0.025	4.0
Endosulfan sulfate	7.182	7.110	7.250	0.026	0.025	4.0
4,4-DDT	7.058	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.526	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.650	7.580	7.720	0.027	0.025	8.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.010	8.910	9.110	0.027	0.025	8.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007193.D **Time Analyzed:** 04:17

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.304	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.752	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.968	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.100	5.050	5.150	0.026	0.025	4.0
Aldrin	5.405	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.791	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.148	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.406	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.264	6.190	6.330	0.025	0.025	0.0
Endrin	6.623	6.550	6.690	0.025	0.025	0.0
Endosulfan II	6.832	6.760	6.900	0.023	0.025	8.0
4,4-DDD	6.756	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.183	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.059	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.527	7.460	7.600	0.023	0.025	8.0
Endrin ketone	7.651	7.580	7.720	0.027	0.025	8.0
Endrin aldehyde	6.957	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.028	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.010	8.910	9.110	0.030	0.025	20.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007202.D **Time Analyzed:** 06:18

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.303	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.752	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.967	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.100	5.050	5.150	0.025	0.025	0.0
Aldrin	5.404	5.350	5.450	0.026	0.025	4.0
Heptachlor epoxide	5.790	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.147	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.405	6.340	6.480	0.026	0.025	4.0
4,4-DDE	6.264	6.190	6.330	0.025	0.025	0.0
Endrin	6.623	6.550	6.690	0.024	0.025	4.0
Endosulfan II	6.831	6.760	6.900	0.023	0.025	8.0
4,4-DDD	6.754	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.182	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.058	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.526	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.651	7.580	7.720	0.027	0.025	8.0
Endrin aldehyde	6.955	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.008	8.910	9.110	0.026	0.025	4.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL07 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007212.D **Time Analyzed:** 12:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.310	4.250	4.350	0.027	0.025	8.0
beta-BHC	4.763	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.979	4.920	5.020	0.026	0.025	4.0
gamma-BHC (Lindane)	4.594	4.540	4.640	0.026	0.025	4.0
Heptachlor	5.111	5.050	5.150	0.026	0.025	4.0
Aldrin	5.418	5.350	5.450	0.026	0.025	4.0
Heptachlor epoxide	5.807	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.166	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.425	6.340	6.480	0.026	0.025	4.0
4,4-DDE	6.285	6.190	6.330	0.026	0.025	4.0
Endrin	6.643	6.550	6.690	0.024	0.025	4.0
Endosulfan II	6.853	6.760	6.900	0.019	0.025	24.0
4,4-DDD	6.779	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.205	7.110	7.250	0.026	0.025	4.0
4,4-DDT	7.084	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.554	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.675	7.580	7.720	0.028	0.025	12.0
Endrin aldehyde	6.978	6.890	7.030	0.026	0.025	4.0
alpha-Chlordane	6.119	6.030	6.170	0.026	0.025	4.0
gamma-Chlordane	6.045	5.960	6.100	0.026	0.025	4.0
Decachlorobiphenyl	9.040	8.910	9.110	0.028	0.025	12.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL08 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007223.D **Time Analyzed:** 14:58

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.310	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.761	4.700	4.800	0.028	0.025	12.0
delta-BHC	4.977	4.920	5.020	0.027	0.025	8.0
gamma-BHC (Lindane)	4.592	4.540	4.640	0.028	0.025	12.0
Heptachlor	5.110	5.050	5.150	0.027	0.025	8.0
Aldrin	5.416	5.350	5.450	0.028	0.025	12.0
Heptachlor epoxide	5.805	5.720	5.860	0.028	0.025	12.0
Endosulfan I	6.163	6.080	6.220	0.027	0.025	8.0
Dieldrin	6.423	6.340	6.480	0.028	0.025	12.0
4,4-DDE	6.283	6.190	6.330	0.027	0.025	8.0
Endrin	6.640	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.851	6.760	6.900	0.019	0.025	24.0
4,4-DDD	6.777	6.690	6.830	0.027	0.025	8.0
Endosulfan sulfate	7.203	7.110	7.250	0.027	0.025	8.0
4,4-DDT	7.081	6.990	7.130	0.027	0.025	8.0
Methoxychlor	7.550	7.460	7.600	0.027	0.025	8.0
Endrin ketone	7.672	7.580	7.720	0.029	0.025	16.0
Endrin aldehyde	6.976	6.890	7.030	0.028	0.025	12.0
alpha-Chlordane	6.117	6.030	6.170	0.027	0.025	8.0
gamma-Chlordane	6.043	5.960	6.100	0.027	0.025	8.0
Decachlorobiphenyl	9.034	8.910	9.110	0.029	0.025	16.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.028	0.025	12.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_D

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/29/2011	13:55	PD007129.D	8.06	3.34
PEM01	PEM01	12/29/2011	14:08	PD007130.D	8.06	3.33
RESC01	RESCHK	12/29/2011	14:21	PD007131.D	8.06	3.34
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	14:35	PD007132.D	8.06	3.34
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	14:48	PD007133.D	8.06	3.34
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	15:02	PD007134.D	8.06	3.34
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	15:15	PD007135.D	8.06	3.34
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	15:29	PD007136.D	8.06	3.34
TOX 500	TOX	12/29/2011	15:56	PD007138.D	8.06	3.34
CHLOR 500	CHLOR 500	12/29/2011	16:09	PD007139.D	8.06	3.34
PIBLK02	I.BLK02	12/29/2011	16:50	PD007142.D	8.06	3.34
CCAL01	STD 25	12/29/2011	17:03	PD007143.D	8.06	3.34
PB59993BL	PB59993BL	12/29/2011	18:51	PD007151.D	8.06	3.34
PB59993BS	PB59993BS	12/29/2011	19:04	PD007152.D	8.06	3.34
PIBLK03	I.BLK03	12/29/2011	19:31	PD007154.D	8.06	3.34
CCAL02	STD 25	12/29/2011	19:45	PD007155.D	8.06	3.33
PEM02	PEM02	12/29/2011	19:58	PD007156.D	8.06	3.33
PIBLK04	I.BLK04	12/29/2011	22:40	PD007168.D	8.06	3.34
CCAL03	STD 25	12/29/2011	22:53	PD007169.D	8.06	3.34
12SB16-000.5-01	C5017-01	12/29/2011	23:07	PD007170.D	8.06	3.33
12SB16-0.502-02	C5017-02	12/29/2011	23:20	PD007171.D	8.06	3.33
12SB16-0304-03	C5017-03	12/29/2011	23:34	PD007172.D	8.06	3.33
12SB11-000.5-01	C5017-04	12/29/2011	23:47	PD007173.D	8.06	3.33
12SB11-000.5-01MS	C5017-05MS	12/30/2011	00:00	PD007174.D	8.06	3.34
12SB11-000.5-01MSD	C5017-06MSD	12/30/2011	00:14	PD007175.D	8.06	3.34
12SB11-0.501-02	C5017-07	12/30/2011	00:27	PD007176.D	8.06	3.33
12SB11-0304-03	C5017-08	12/30/2011	00:41	PD007177.D	8.06	3.33
12SB-DUP02	C5017-09	12/30/2011	00:54	PD007178.D	8.06	3.33
12SB09-000.5-01	C5017-10	12/30/2011	01:08	PD007179.D	8.06	3.33
PIBLK05	I.BLK05	12/30/2011	01:21	PD007180.D	8.06	3.34
CCAL04	STD 25	12/30/2011	01:35	PD007181.D	8.06	3.34
12SB09-0.502-02	C5017-11	12/30/2011	01:48	PD007182.D	8.06	3.33
12SB09-0304-03	C5017-12	12/30/2011	02:02	PD007183.D	8.06	3.33
12SB10-000.5-01	C5017-13	12/30/2011	02:15	PD007184.D	8.06	3.34
12SB10-0.502-02	C5017-14	12/30/2011	02:29	PD007185.D	8.06	3.33
12SB10-0304-03	C5017-15	12/30/2011	02:42	PD007186.D	8.06	3.33
12SB15-000.5-01	C5017-16	12/30/2011	02:56	PD007187.D	8.06	3.33
12SB15-0.502-02	C5017-17	12/30/2011	03:09	PD007188.D	8.06	3.33
12SB15-0304-03	C5017-18	12/30/2011	03:23	PD007189.D	8.06	3.33
12SB-DUP-04	C5017-19	12/30/2011	03:36	PD007190.D	8.06	3.33
12SB14-0.502-02	C5017-20	12/30/2011	03:50	PD007191.D	8.06	3.33
PIBLK06	I.BLK06	12/30/2011	04:03	PD007192.D	8.06	3.34
CCAL05	STD 25	12/30/2011	04:17	PD007193.D	8.06	3.34
12SB14-0304-03	C5017-21	12/30/2011	04:30	PD007194.D	8.06	3.33
PIBLK07	I.BLK07	12/30/2011	06:05	PD007201.D	8.06	3.34

CHEMTECH

Analytical Sequence

CCAL06	STD 25	12/30/2011	06:18	PD007202.D	8.06	3.34
PIBLK08	I.BLK08	12/30/2011	11:19	PD007210.D	8.06	3.34
PEM03	PEM03	12/30/2011	11:33	PD007211.D	8.06	3.34
CCAL07	STD 25	12/30/2011	12:04	PD007212.D	8.07	3.34
12SB16-0.502-02RE	C5017-02RE	12/30/2011	12:52	PD007215.D	8.06	3.33
12SB16-0304-03RE	C5017-03RE	12/30/2011	13:05	PD007216.D	8.06	3.33
12SB09-0304-03RE	C5017-12RE	12/30/2011	13:19	PD007217.D	8.06	3.33
12SB10-0.502-02RE	C5017-14RE	12/30/2011	13:32	PD007218.D	8.06	3.33
PIBLK09	I.BLK09	12/30/2011	14:26	PD007222.D	8.06	3.34
CCAL08	STD 25	12/30/2011	14:58	PD007223.D	8.07	3.34

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD007136.D RT 025 = PD007135.D

RT 050 = PD007134.D RT 075 = PD007133.D RT 100 = PD007132.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	8.06	8.06	8.06	8.06	8.06	8.06	7.96	8.16
Tetrachloro-m-xylene	3.34	3.34	3.34	3.34	3.34	3.33	3.23	3.43
alpha-BHC	3.77	3.77	3.77	3.77	3.77	3.77	3.72	3.82
beta-BHC	4.30	4.30	4.30	4.30	4.30	4.30	4.25	4.35
delta-BHC	4.50	4.50	4.50	4.50	4.50	4.50	4.45	4.55
gamma-BHC (Lindane)	4.05	4.05	4.05	4.05	4.05	4.05	4.00	4.10
Heptachlor	4.34	4.34	4.34	4.34	4.34	4.34	4.29	4.39
Aldrin	4.58	4.59	4.58	4.59	4.59	4.58	4.53	4.63
Heptachlor epoxide	5.03	5.03	5.03	5.03	5.03	5.03	4.96	5.10
Endosulfan I	5.36	5.36	5.36	5.36	5.36	5.36	5.29	5.43
Dieldrin	5.61	5.61	5.61	5.61	5.61	5.61	5.54	5.68
4,4-DDE	5.48	5.48	5.48	5.48	5.48	5.48	5.41	5.55
Endrin	5.86	5.86	5.86	5.86	5.86	5.86	5.79	5.93
Endosulfan II	6.14	6.14	6.14	6.14	6.14	6.14	6.07	6.21
4,4-DDD	6.00	6.00	6.00	6.00	6.00	6.00	5.93	6.07
Endosulfan sulfate	6.52	6.52	6.52	6.52	6.52	6.52	6.45	6.59
4,4-DDT	6.23	6.23	6.23	6.23	6.23	6.23	6.16	6.30
Methoxychlor	6.79	6.79	6.79	6.79	6.79	6.79	6.72	6.86
Endrin ketone	7.01	7.01	7.01	7.01	7.01	7.01	6.94	7.08
Endrin aldehyde	6.31	6.31	6.31	6.31	6.31	6.31	6.24	6.38
alpha-Chlordane	5.31	5.31	5.31	5.31	5.31	5.31	5.24	5.38
gamma-Chlordane	5.25	5.25	5.25	5.25	5.25	5.25	5.18	5.32

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007136.D CF 025 = PD007135.D

CF 050 = PD007134.D CF 075 = PD007133.D CF 100 = PD007132.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	18179417820	15194947796	14135404650	13590500057	13618967345	14943847534	13
Tetrachloro-m-xylene	20394322940	18257858588	17838857876	17076299929	19014005771	18516269021	7
alpha-BHC	348690445400	327207932840	268570974720	316396179400	298371411540	311847388780	10
beta-BHC	149560382600	130098167920	122732780180	117830452373	123459905230	128736337661	10
delta-BHC	350767916200	314652339560	317578071520	267536243347	290345512390	308176016603	10
gamma-BHC (Lindane)	379680953000	339605512280	321477736420	308843730853	293221439580	328565874427	10
Heptachlor	305210699000	273008714960	259697950540	245713832133	256144856400	267955210607	9
Aldrin	325170495400	291415544520	271099204680	255850825667	264458591560	281598932365	10
Heptachlor epoxide	306294969200	308047133080	253318588660	238798735907	235104180040	268312721377	13
Endosulfan I	313812178800	263074982520	240949262620	224883145947	223563945910	253256703159	15
Dieldrin	343535852600	290505026600	274957161920	261853114880	267770709870	287724373174	11
4,4-DDE	322768782600	293297436520	264272919200	251996479027	259908500720	278448823613	11
Endrin	288726386800	239909025000	222394335180	209149893680	208292576440	233694443420	14
Endosulfan II	301418073200	243140959280	221769729280	205934254520	205664899480	235585583152	17
4,4-DDD	288388685400	234331789360	215628987840	200124881133	197630394420	227220947631	16
Endosulfan sulfate	286123685800	228083958600	211101033360	200118295200	197027425890	224490879770	16
4,4-DDT	252534064800	219993734960	204992621300	195100386480	193981877550	213320537018	11
Methoxychlor	127604340000	106285058160	94928729460	87918470053	83920035450	100131326625	18
Endrin ketone	262418290000	227760199840	209044903160	196712933080	192071840660	217601633348	13
Endrin aldehyde	245079304000	198892099960	180633205300	170226334973	162702133670	191506615581	17
alpha-Chlordane	339321852200	286858306840	269600600000	256666749093	271844087470	284858319121	11
gamma-Chlordane	352416859600	312538160200	294031078080	281244573627	290156038480	306077341997	9

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_D **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	6212066000
		2	5.84	5.79	5.89	6359210000
		3	6.42	6.37	6.47	2018680000
		4	6.90	6.85	6.95	8587220000
		5	7.20	7.15	7.25	6033186000

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD123011\
Data File : PD007131.D
Acq On : 29 Dec 2011 14:21
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD123011.M
Title : GC Extractables
Last Update : Fri Dec 30 04:35:25 2011
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.335	5.251	100.00%
5.251	5.364	99.81%
5.364	5.480	100.00%
5.480	5.606	100.00%
5.606	6.518	100.00%
6.518	6.787	100.00%
6.787	7.010	100.00%
7.010	8.063	100.00%

Signal #2

3.920	6.027	100.00%
6.027	6.148	100.00%
6.148	6.264	100.00%
6.264	6.406	100.00%
6.406	7.183	100.00%
7.183	7.527	100.00%
7.527	7.652	100.00%
7.652	9.010	100.00%

D123011.M Fri Dec 30 05:51:17 2011 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM01 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 14:08

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.063	7.960	8.160	0.022	0.020	10.0
Tetrachloro-m-xylene	3.334	3.230	3.430	0.023	0.020	15.0
alpha-BHC	3.770	3.720	3.820	0.013	0.010	30.0
beta-BHC	4.298	4.250	4.350	0.014	0.010	40.0
gamma-BHC (Lindane)	4.049	4.000	4.100	0.013	0.010	30.0
Endrin	5.863	5.790	5.930	0.055	0.050	10.0
4,4-DDT	6.234	6.160	6.300	0.077	0.100	23.0
Methoxychlor	6.777	6.720	6.860	0.155	0.250	38.0

Client Sample No. (PEM): PEM01 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 14:08

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.011	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.022	0.020	10.0
alpha-BHC	4.303	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.752	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.011	0.010	10.0
Endrin	6.622	6.550	6.690	0.050	0.050	0.0
4,4-DDT	7.059	6.990	7.130	0.104	0.100	4.0
Methoxychlor	7.527	7.460	7.600	0.237	0.250	5.2

Sample: PEM
Data File: PD007130.D **Date Acquired** 12/29/2011 14:08
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	1.294258E+010	1.39800018E+010	1037426503	**7.42**
Endrin aldehyde	6.31	217459860.1			
Endrin ketone	7.01	819966643.2			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2301303483	2436650115	135346633	**5.55**
Endrin aldehyde #2	6.96	26430248.3			
Endrin ketone #2	7.65	108916384.5			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.644099E+010	1.69593478E+010	518359588	**3.06**
4,4'-DDE	5.48	186431473.3			
4,4'-DDD	6.00	331928114.3			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4333734184	4371014680	37280495.9	**0.85**
4,4'-DDE #2	6.26	18659211.13			
4,4'-DDD #2	6.75	18621284.8			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM02 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 19:58

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.063	7.960	8.160	0.023	0.020	15.0
Tetrachloro-m-xylene	3.334	3.230	3.430	0.019	0.020	5.0
alpha-BHC	3.770	3.720	3.820	0.010	0.010	0.0
beta-BHC	4.298	4.250	4.350	0.011	0.010	10.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.012	0.010	20.0
Endrin	5.862	5.790	5.930	0.047	0.050	6.0
4,4-DDT	6.234	6.160	6.300	0.082	0.100	18.0
Methoxychlor	6.787	6.720	6.860	0.142	0.250	43.2

Client Sample No. (PEM): PEM02 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 19:58

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.010	8.910	9.110	0.022	0.020	10.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.022	0.020	10.0
alpha-BHC	4.303	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.751	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.011	0.010	10.0
Endrin	6.622	6.550	6.690	0.048	0.050	4.0
4,4-DDT	7.058	6.990	7.130	0.107	0.100	7.0
Methoxychlor	7.526	7.460	7.600	0.242	0.250	3.2

Sample: PEM
Data File: PD007156.D **Date Acquired** 12/29/2011 19:58
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	1.109547E+010	1.21237305E+010	1028262057	**8.48**
Endrin aldehyde	6.31	221453089.8			
Endrin ketone	7.01	806808967.4			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2205333176	2384957038	179623862	**7.53**
Endrin aldehyde #2	6.95	29642045.53			
Endrin ketone #2	7.65	149981816.6			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.759624E+010	1.81120314E+010	515792009	**2.85**
4,4'-DDE	5.48	223108235.9			
4,4'-DDD	6.00	292683773.1			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4450940571	4491405833	40465262.5	**0.90**
4,4'-DDE #2	6.26	18216886.09			
4,4'-DDD #2	6.75	22248376.39			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM03 Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:33

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.061	7.960	8.160	0.018	0.020	10.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.018	0.020	10.0
alpha-BHC	3.770	3.720	3.820	0.009	0.010	10.0
beta-BHC	4.298	4.250	4.350	0.010	0.010	0.0
gamma-BHC (Lindane)	4.049	4.000	4.100	0.010	0.010	0.0
Endrin	5.861	5.790	5.930	0.039	0.050	22.0
4,4-DDT	6.231	6.160	6.300	0.079	0.100	21.0
Methoxychlor	6.784	6.720	6.860	0.139	0.250	44.4

Client Sample No. (PEM): PEM03 Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:33

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.011	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.020	0.020	0.0
alpha-BHC	4.303	4.250	4.350	0.009	0.010	10.0
beta-BHC	4.752	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.010	0.010	0.0
Endrin	6.623	6.550	6.690	0.045	0.050	10.0
4,4-DDT	7.059	6.990	7.130	0.097	0.100	3.0
Methoxychlor	7.527	7.460	7.600	0.218	0.250	12.8

Sample: PEM
Data File: PD007211.D **Date Acquired** 12/30/2011 11:33
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	9069713427	9976524655	906811229	**9.09**
Endrin aldehyde	6.31	149782907.3			
Endrin ketone	7.01	757028321.4			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2082864206	2283654991	200790785	**8.79**
Endrin aldehyde #2	6.95	37387901.44			
Endrin ketone #2	7.65	163402884			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.684013E+010	1.73160734E+010	475943420	**2.75**
4,4'-DDE	5.48	232462655.2			
4,4'-DDD	5.99	243480765			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4008449403	4052240646	43791243	**1.08**
4,4'-DDE #2	6.26	11517315.66			
4,4'-DDD #2	6.75	32273927.29			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 17:03 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 19:45 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.33	3.33	3.23	3.43	0.00
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	5.99	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.01
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/29/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 22:53 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	5.99	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 01:35 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.58	4.58	4.53	4.63	0.00
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	5.99	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.79	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.01
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 04:17 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.79	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 06:18 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.00
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.61	5.61	5.54	5.68	0.01
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	5.99	6.00	5.93	6.07	0.01
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.79	6.72	6.86	0.01
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 12:04 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.07	8.06	7.96	8.16	-0.01
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.78	3.77	3.72	3.82	-0.01
beta-BHC	4.31	4.30	4.25	4.35	-0.01
delta-BHC	4.51	4.50	4.45	4.55	-0.01
gamma-BHC (Lindane)	4.06	4.05	4.00	4.10	-0.01
Heptachlor	4.35	4.34	4.29	4.39	-0.01
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.04	5.03	4.96	5.10	-0.01
Endosulfan I	5.37	5.36	5.29	5.43	-0.01
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.49	5.48	5.41	5.55	-0.01
Endrin	5.87	5.86	5.79	5.93	-0.01
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.00
Endosulfan sulfate	6.53	6.52	6.45	6.59	-0.01
4,4-DDT	6.24	6.23	6.16	6.30	-0.01
Methoxychlor	6.79	6.79	6.72	6.86	0.00
Endrin ketone	7.02	7.01	6.94	7.08	-0.01
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.32	5.31	5.24	5.38	-0.01
gamma-Chlordane	5.26	5.25	5.18	5.32	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 14:58 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.07	8.06	7.96	8.16	-0.01
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.78	3.77	3.72	3.82	-0.01
beta-BHC	4.31	4.30	4.25	4.35	0.00
delta-BHC	4.51	4.50	4.45	4.55	-0.01
gamma-BHC (Lindane)	4.06	4.05	4.00	4.10	-0.01
Heptachlor	4.35	4.34	4.29	4.39	-0.01
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.37	5.36	5.29	5.43	-0.01
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.49	5.48	5.41	5.55	-0.01
Endrin	5.87	5.86	5.79	5.93	-0.01
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.00
Endosulfan sulfate	6.52	6.52	6.45	6.59	0.00
4,4-DDT	6.24	6.23	6.16	6.30	-0.01
Methoxychlor	6.79	6.79	6.72	6.86	0.00
Endrin ketone	7.02	7.01	6.94	7.08	0.00
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.32	5.31	5.24	5.38	-0.01
gamma-Chlordane	5.26	5.25	5.18	5.32	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007143.D **Time Analyzed:** 17:03

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.025	0.025	0.0
beta-BHC	4.299	4.250	4.350	0.025	0.025	0.0
delta-BHC	4.500	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.051	4.000	4.100	0.025	0.025	0.0
Heptachlor	4.342	4.290	4.390	0.025	0.025	0.0
Aldrin	4.585	4.530	4.630	0.026	0.025	4.0
Heptachlor epoxide	5.028	4.960	5.100	0.025	0.025	0.0
Endosulfan I	5.364	5.290	5.430	0.026	0.025	4.0
Dieldrin	5.606	5.540	5.680	0.025	0.025	0.0
4,4-DDE	5.480	5.410	5.550	0.025	0.025	0.0
Endrin	5.863	5.790	5.930	0.025	0.025	0.0
Endosulfan II	6.137	6.070	6.210	0.026	0.025	4.0
4,4-DDD	5.995	5.930	6.070	0.026	0.025	4.0
Endosulfan sulfate	6.518	6.450	6.590	0.026	0.025	4.0
4,4-DDT	6.233	6.160	6.300	0.026	0.025	4.0
Methoxychlor	6.784	6.720	6.860	0.026	0.025	4.0
Endrin ketone	7.009	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.306	6.240	6.380	0.027	0.025	8.0
alpha-Chlordane	5.311	5.240	5.380	0.025	0.025	0.0
gamma-Chlordane	5.252	5.180	5.320	0.024	0.025	4.0
Decachlorobiphenyl	8.062	7.960	8.160	0.027	0.025	8.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007155.D **Time Analyzed:** 19:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.770	3.720	3.820	0.024	0.025	4.0
beta-BHC	4.298	4.250	4.350	0.024	0.025	4.0
delta-BHC	4.499	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.024	0.025	4.0
Heptachlor	4.341	4.290	4.390	0.025	0.025	0.0
Aldrin	4.585	4.530	4.630	0.025	0.025	0.0
Heptachlor epoxide	5.028	4.960	5.100	0.023	0.025	8.0
Endosulfan I	5.362	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.606	5.540	5.680	0.024	0.025	4.0
4,4-DDE	5.479	5.410	5.550	0.024	0.025	4.0
Endrin	5.862	5.790	5.930	0.025	0.025	0.0
Endosulfan II	6.135	6.070	6.210	0.025	0.025	0.0
4,4-DDD	5.993	5.930	6.070	0.024	0.025	4.0
Endosulfan sulfate	6.518	6.450	6.590	0.025	0.025	0.0
4,4-DDT	6.231	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.784	6.720	6.860	0.026	0.025	4.0
Endrin ketone	7.009	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.305	6.240	6.380	0.025	0.025	0.0
alpha-Chlordane	5.310	5.240	5.380	0.024	0.025	4.0
gamma-Chlordane	5.251	5.180	5.320	0.023	0.025	8.0
Decachlorobiphenyl	8.063	7.960	8.160	0.026	0.025	4.0
Tetrachloro-m-xylene	3.334	3.230	3.430	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PD007169.D **Time Analyzed:** 22:53

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.770	3.720	3.820	0.024	0.025	4.0
beta-BHC	4.298	4.250	4.350	0.024	0.025	4.0
delta-BHC	4.500	4.450	4.550	0.024	0.025	4.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.024	0.025	4.0
Heptachlor	4.341	4.290	4.390	0.024	0.025	4.0
Aldrin	4.585	4.530	4.630	0.024	0.025	4.0
Heptachlor epoxide	5.028	4.960	5.100	0.024	0.025	4.0
Endosulfan I	5.363	5.290	5.430	0.024	0.025	4.0
Dieldrin	5.606	5.540	5.680	0.024	0.025	4.0
4,4-DDE	5.480	5.410	5.550	0.024	0.025	4.0
Endrin	5.863	5.790	5.930	0.025	0.025	0.0
Endosulfan II	6.136	6.070	6.210	0.024	0.025	4.0
4,4-DDD	5.993	5.930	6.070	0.024	0.025	4.0
Endosulfan sulfate	6.518	6.450	6.590	0.026	0.025	4.0
4,4-DDT	6.233	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.784	6.720	6.860	0.026	0.025	4.0
Endrin ketone	7.007	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.306	6.240	6.380	0.025	0.025	0.0
alpha-Chlordane	5.310	5.240	5.380	0.023	0.025	8.0
gamma-Chlordane	5.252	5.180	5.320	0.023	0.025	8.0
Decachlorobiphenyl	8.062	7.960	8.160	0.026	0.025	4.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007181.D **Time Analyzed:** 01:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.026	0.025	4.0
beta-BHC	4.298	4.250	4.350	0.025	0.025	0.0
delta-BHC	4.500	4.450	4.550	0.026	0.025	4.0
gamma-BHC (Lindane)	4.051	4.000	4.100	0.025	0.025	0.0
Heptachlor	4.341	4.290	4.390	0.026	0.025	4.0
Aldrin	4.584	4.530	4.630	0.025	0.025	0.0
Heptachlor epoxide	5.027	4.960	5.100	0.025	0.025	0.0
Endosulfan I	5.363	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.606	5.540	5.680	0.025	0.025	0.0
4,4-DDE	5.480	5.410	5.550	0.025	0.025	0.0
Endrin	5.862	5.790	5.930	0.026	0.025	4.0
Endosulfan II	6.135	6.070	6.210	0.025	0.025	0.0
4,4-DDD	5.993	5.930	6.070	0.025	0.025	0.0
Endosulfan sulfate	6.517	6.450	6.590	0.027	0.025	8.0
4,4-DDT	6.231	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.785	6.720	6.860	0.027	0.025	8.0
Endrin ketone	7.008	6.940	7.080	0.028	0.025	12.0
Endrin aldehyde	6.305	6.240	6.380	0.027	0.025	8.0
alpha-Chlordane	5.310	5.240	5.380	0.024	0.025	4.0
gamma-Chlordane	5.251	5.180	5.320	0.024	0.025	4.0
Decachlorobiphenyl	8.062	7.960	8.160	0.027	0.025	8.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007193.D **Time Analyzed:** 04:17

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.025	0.025	0.0
beta-BHC	4.299	4.250	4.350	0.025	0.025	0.0
delta-BHC	4.500	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.051	4.000	4.100	0.025	0.025	0.0
Heptachlor	4.342	4.290	4.390	0.025	0.025	0.0
Aldrin	4.585	4.530	4.630	0.026	0.025	4.0
Heptachlor epoxide	5.028	4.960	5.100	0.023	0.025	8.0
Endosulfan I	5.363	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.606	5.540	5.680	0.024	0.025	4.0
4,4-DDE	5.480	5.410	5.550	0.024	0.025	4.0
Endrin	5.862	5.790	5.930	0.024	0.025	4.0
Endosulfan II	6.135	6.070	6.210	0.024	0.025	4.0
4,4-DDD	5.995	5.930	6.070	0.026	0.025	4.0
Endosulfan sulfate	6.517	6.450	6.590	0.024	0.025	4.0
4,4-DDT	6.233	6.160	6.300	0.024	0.025	4.0
Methoxychlor	6.785	6.720	6.860	0.023	0.025	8.0
Endrin ketone	7.008	6.940	7.080	0.025	0.025	0.0
Endrin aldehyde	6.307	6.240	6.380	0.024	0.025	4.0
alpha-Chlordane	5.310	5.240	5.380	0.023	0.025	8.0
gamma-Chlordane	5.252	5.180	5.320	0.023	0.025	8.0
Decachlorobiphenyl	8.062	7.960	8.160	0.023	0.025	8.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007202.D **Time Analyzed:** 06:18

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.771	3.720	3.820	0.025	0.025	0.0
beta-BHC	4.298	4.250	4.350	0.024	0.025	4.0
delta-BHC	4.499	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.050	4.000	4.100	0.024	0.025	4.0
Heptachlor	4.341	4.290	4.390	0.025	0.025	0.0
Aldrin	4.585	4.530	4.630	0.025	0.025	0.0
Heptachlor epoxide	5.027	4.960	5.100	0.024	0.025	4.0
Endosulfan I	5.362	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.605	5.540	5.680	0.024	0.025	4.0
4,4-DDE	5.479	5.410	5.550	0.024	0.025	4.0
Endrin	5.862	5.790	5.930	0.024	0.025	4.0
Endosulfan II	6.136	6.070	6.210	0.025	0.025	0.0
4,4-DDD	5.992	5.930	6.070	0.024	0.025	4.0
Endosulfan sulfate	6.517	6.450	6.590	0.025	0.025	0.0
4,4-DDT	6.233	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.784	6.720	6.860	0.025	0.025	0.0
Endrin ketone	7.008	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.306	6.240	6.380	0.025	0.025	0.0
alpha-Chlordane	5.310	5.240	5.380	0.024	0.025	4.0
gamma-Chlordane	5.251	5.180	5.320	0.023	0.025	8.0
Decachlorobiphenyl	8.061	7.960	8.160	0.025	0.025	0.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL07 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007212.D **Time Analyzed:** 12:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.777	3.720	3.820	0.023	0.025	8.0
beta-BHC	4.306	4.250	4.350	0.022	0.025	12.0
delta-BHC	4.508	4.450	4.550	0.023	0.025	8.0
gamma-BHC (Lindane)	4.058	4.000	4.100	0.020	0.025	20.0
Heptachlor	4.349	4.290	4.390	0.022	0.025	12.0
Aldrin	4.592	4.530	4.630	0.023	0.025	8.0
Heptachlor epoxide	5.036	4.960	5.100	0.022	0.025	12.0
Endosulfan I	5.371	5.290	5.430	0.022	0.025	12.0
Dieldrin	5.613	5.540	5.680	0.022	0.025	12.0
4,4-DDE	5.488	5.410	5.550	0.022	0.025	12.0
Endrin	5.870	5.790	5.930	0.023	0.025	8.0
Endosulfan II	6.144	6.070	6.210	0.022	0.025	12.0
4,4-DDD	6.002	5.930	6.070	0.022	0.025	12.0
Endosulfan sulfate	6.525	6.450	6.590	0.023	0.025	8.0
4,4-DDT	6.240	6.160	6.300	0.022	0.025	12.0
Methoxychlor	6.793	6.720	6.860	0.021	0.025	16.0
Endrin ketone	7.017	6.940	7.080	0.024	0.025	4.0
Endrin aldehyde	6.314	6.240	6.380	0.023	0.025	8.0
alpha-Chlordane	5.318	5.240	5.380	0.021	0.025	16.0
gamma-Chlordane	5.259	5.180	5.320	0.021	0.025	16.0
Decachlorobiphenyl	8.070	7.960	8.160	0.023	0.025	8.0
Tetrachloro-m-xylene	3.341	3.230	3.430	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL08 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007223.D **Time Analyzed:** 14:58

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.777	3.720	3.820	0.021	0.025	16.0
beta-BHC	4.305	4.250	4.350	0.021	0.025	16.0
delta-BHC	4.506	4.450	4.550	0.021	0.025	16.0
gamma-BHC (Lindane)	4.056	4.000	4.100	0.020	0.025	20.0
Heptachlor	4.348	4.290	4.390	0.022	0.025	12.0
Aldrin	4.591	4.530	4.630	0.021	0.025	16.0
Heptachlor epoxide	5.034	4.960	5.100	0.021	0.025	16.0
Endosulfan I	5.370	5.290	5.430	0.022	0.025	12.0
Dieldrin	5.613	5.540	5.680	0.021	0.025	16.0
4,4-DDE	5.487	5.410	5.550	0.021	0.025	16.0
Endrin	5.869	5.790	5.930	0.022	0.025	12.0
Endosulfan II	6.143	6.070	6.210	0.022	0.025	12.0
4,4-DDD	6.001	5.930	6.070	0.022	0.025	12.0
Endosulfan sulfate	6.524	6.450	6.590	0.022	0.025	12.0
4,4-DDT	6.240	6.160	6.300	0.021	0.025	16.0
Methoxychlor	6.792	6.720	6.860	0.022	0.025	12.0
Endrin ketone	7.015	6.940	7.080	0.024	0.025	4.0
Endrin aldehyde	6.313	6.240	6.380	0.022	0.025	12.0
alpha-Chlordane	5.317	5.240	5.380	0.021	0.025	16.0
gamma-Chlordane	5.258	5.180	5.320	0.020	0.025	20.0
Decachlorobiphenyl	8.069	7.960	8.160	0.024	0.025	4.0
Tetrachloro-m-xylene	3.341	3.230	3.430	0.021	0.025	16.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59993BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab Sample ID: PB59993BL Lab File ID: PD007151.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/19/2011

Date Analyzed (1): 12/29/2011 Date Analyzed (2): 12/29/2011

Time Analyzed (1): 18:51 Time Analyzed (2): 18:51

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column (1): ZB-MR2 ID: 0.32 (mm) GC Column (2): ZB-MR1 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB59993BS	PB59993BS	PD007152.D	12/29/2011	12/29/2011
12SB16-000.5-01	C5017-01	PD007170.D	12/29/2011	12/29/2011
12SB16-0.502-02	C5017-02	PD007171.D	12/29/2011	12/29/2011
12SB16-0304-03	C5017-03	PD007172.D	12/29/2011	12/29/2011
12SB11-000.5-01	C5017-04	PD007173.D	12/29/2011	12/29/2011
12SB11-000.5-01MS	C5017-05MS	PD007174.D	12/30/2011	12/30/2011
12SB11-000.5-01MSD	C5017-06MSD	PD007175.D	12/30/2011	12/30/2011
12SB11-0.501-02	C5017-07	PD007176.D	12/30/2011	12/30/2011
12SB11-0304-03	C5017-08	PD007177.D	12/30/2011	12/30/2011
12SB-DUP02	C5017-09	PD007178.D	12/30/2011	12/30/2011
12SB09-000.5-01	C5017-10	PD007179.D	12/30/2011	12/30/2011
12SB09-0.502-02	C5017-11	PD007182.D	12/30/2011	12/30/2011
12SB09-0304-03	C5017-12	PD007183.D	12/30/2011	12/30/2011
12SB10-000.5-01	C5017-13	PD007184.D	12/30/2011	12/30/2011
12SB10-0.502-02	C5017-14	PD007185.D	12/30/2011	12/30/2011
12SB10-0304-03	C5017-15	PD007186.D	12/30/2011	12/30/2011
12SB15-000.5-01	C5017-16	PD007187.D	12/30/2011	12/30/2011
12SB15-0.502-02	C5017-17	PD007188.D	12/30/2011	12/30/2011
12SB15-0304-03	C5017-18	PD007189.D	12/30/2011	12/30/2011
12SB-DUP-04	C5017-19	PD007190.D	12/30/2011	12/30/2011
12SB14-0.502-02	C5017-20	PD007191.D	12/30/2011	12/30/2011
12SB14-0304-03	C5017-21	PD007194.D	12/30/2011	12/30/2011

COMMENTS:

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD007129.D	PIBLK-PD007129.D	Decachlorobiphenyl	1	20	22.6	113		10	192
		Tetrachloro-m-xylene	1	20	26.36	132		10	172
		Decachlorobiphenyl	2	20	20.04	100		10	192
		Tetrachloro-m-xylene	2	20	19.88	99		10	172
I.BLK-PD007142.D	PIBLK-PD007142.D	Decachlorobiphenyl	1	20	21.55	108		10	192
		Tetrachloro-m-xylene	1	20	19.47	97		10	172
		Decachlorobiphenyl	2	20	20.86	104		10	192
		Tetrachloro-m-xylene	2	20	19.66	98		10	172
PB59993BL	PB59993BL	Decachlorobiphenyl	1	20	22.68	113		55	130
		Tetrachloro-m-xylene	1	20	19.29	96		70	125
		Decachlorobiphenyl	2	20	21.19	106		55	130
		Tetrachloro-m-xylene	2	20	19.73	99		70	125
PB59993BS	PB59993BS	Decachlorobiphenyl	1	20	22.68	113		55	130
		Tetrachloro-m-xylene	1	20	19.76	99		70	125
		Decachlorobiphenyl	2	20	21.61	108		55	130
		Tetrachloro-m-xylene	2	20	21.01	105		70	125
I.BLK-PD007154.D	PIBLK-PD007154.D	Decachlorobiphenyl	1	20	21	105		10	192
		Tetrachloro-m-xylene	1	20	18.55	93		10	172
		Decachlorobiphenyl	2	20	20.68	103		10	192
		Tetrachloro-m-xylene	2	20	19.58	98		10	172
I.BLK-PD007168.D	PIBLK-PD007168.D	Decachlorobiphenyl	1	20	20.87	104		10	192
		Tetrachloro-m-xylene	1	20	19.14	96		10	172
		Decachlorobiphenyl	2	20	20.76	104		10	192
		Tetrachloro-m-xylene	2	20	19.99	100		10	172
C5017-01	12SB16-000.5-01	Decachlorobiphenyl	1	20	18.78	94		55	130
		Tetrachloro-m-xylene	1	20	17.41	87		70	125
		Decachlorobiphenyl	2	20	19.32	97		55	130
		Tetrachloro-m-xylene	2	20	20.01	100		70	125
C5017-02	12SB16-0.502-02	Decachlorobiphenyl	1	20	13.53	68		55	130
		Tetrachloro-m-xylene	1	20	12.52	63	*	70	125
		Decachlorobiphenyl	2	20	12.87	64		55	130
		Tetrachloro-m-xylene	2	20	12.6	63	*	70	125
C5017-03	12SB16-0304-03	Decachlorobiphenyl	1	20	16.52	83		55	130
		Tetrachloro-m-xylene	1	20	13.4	67	*	70	125
		Decachlorobiphenyl	2	20	14.64	73		55	130
		Tetrachloro-m-xylene	2	20	13.45	67	*	70	125
C5017-04	12SB11-000.5-01	Decachlorobiphenyl	1	20	17.96	90		55	130
		Tetrachloro-m-xylene	1	20	17.85	89		70	125
		Decachlorobiphenyl	2	20	18.43	92		55	130
		Tetrachloro-m-xylene	2	20	20.25	101		70	125
C5017-05MS	12SB11-000.5-01MS	Decachlorobiphenyl	1	20	20.2	101		55	130
		Tetrachloro-m-xylene	1	20	22.17	111		70	125
		Decachlorobiphenyl	2	20	20.3	102		55	130
		Tetrachloro-m-xylene	2	20	21.97	110		70	125

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5017-06MSD	12SB11-000.5-01MSD	Decachlorobiphenyl	1	20	21.87	109		55	130
		Tetrachloro-m-xylene	1	20	21.98	110		70	125
		Decachlorobiphenyl	2	20	20.03	100		55	130
		Tetrachloro-m-xylene	2	20	21.85	109		70	125
C5017-07	12SB11-0.501-02	Decachlorobiphenyl	1	20	19.45	97		55	130
		Tetrachloro-m-xylene	1	20	18.1	91		70	125
		Decachlorobiphenyl	2	20	18.78	94		55	130
		Tetrachloro-m-xylene	2	20	18.23	91		70	125
C5017-08	12SB11-0304-03	Decachlorobiphenyl	1	20	17.93	90		55	130
		Tetrachloro-m-xylene	1	20	17.84	89		70	125
		Decachlorobiphenyl	2	20	18.01	90		55	130
		Tetrachloro-m-xylene	2	20	18.41	92		70	125
C5017-09	12SB-DUP02	Decachlorobiphenyl	1	20	21.08	105		55	130
		Tetrachloro-m-xylene	1	20	18.37	92		70	125
		Decachlorobiphenyl	2	20	18.82	94		55	130
		Tetrachloro-m-xylene	2	20	18.28	91		70	125
C5017-10	12SB09-000.5-01	Decachlorobiphenyl	1	20	21.08	105		55	130
		Tetrachloro-m-xylene	1	20	18.89	94		70	125
		Decachlorobiphenyl	2	20	20.44	102		55	130
		Tetrachloro-m-xylene	2	20	19.29	96		70	125
I.BLK-PD007180.D	PIBLK-PD007180.D	Decachlorobiphenyl	1	20	22.33	112		10	192
		Tetrachloro-m-xylene	1	20	20.06	100		10	172
		Decachlorobiphenyl	2	20	21.61	108		10	192
		Tetrachloro-m-xylene	2	20	19.8	99		10	172
C5017-11	12SB09-0.502-02	Decachlorobiphenyl	1	20	21.06	105		55	130
		Tetrachloro-m-xylene	1	20	19.13	96		70	125
		Decachlorobiphenyl	2	20	20.17	101		55	130
		Tetrachloro-m-xylene	2	20	19.22	96		70	125
C5017-12	12SB09-0304-03	Decachlorobiphenyl	1	20	13.73	69		55	130
		Tetrachloro-m-xylene	1	20	9.97	50	*	70	125
		Decachlorobiphenyl	2	20	12.85	64		55	130
		Tetrachloro-m-xylene	2	20	9.76	49	*	70	125
C5017-13	12SB10-000.5-01	Decachlorobiphenyl	1	20	20.63	103		55	130
		Tetrachloro-m-xylene	1	20	19.59	98		70	125
		Decachlorobiphenyl	2	20	19.21	96		55	130
		Tetrachloro-m-xylene	2	20	20.76	104		70	125
C5017-14	12SB10-0.502-02	Decachlorobiphenyl	1	20	8.02	40	*	55	130
		Tetrachloro-m-xylene	1	20	10.12	51	*	70	125
		Decachlorobiphenyl	2	20	3.22	16	*	55	130
		Tetrachloro-m-xylene	2	20	6.58	33	*	70	125
C5017-15	12SB10-0304-03	Decachlorobiphenyl	1	20	13.95	70		55	130
		Tetrachloro-m-xylene	1	20	15.99	80		70	125
		Decachlorobiphenyl	2	20	13.69	68		55	130
		Tetrachloro-m-xylene	2	20	11.15	56	*	70	125

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5017-16	12SB15-000.5-01	Decachlorobiphenyl	1	20	15.6	78		55	130
		Tetrachloro-m-xylene	1	20	17.8	89		70	125
		Decachlorobiphenyl	2	20	21.81	109		55	130
		Tetrachloro-m-xylene	2	20	20.39	102		70	125
C5017-17	12SB15-0.502-02	Decachlorobiphenyl	1	20	17.57	88		55	130
		Tetrachloro-m-xylene	1	20	17.96	90		70	125
		Decachlorobiphenyl	2	20	22	110		55	130
		Tetrachloro-m-xylene	2	20	18.55	93		70	125
C5017-18	12SB15-0304-03	Decachlorobiphenyl	1	20	18.07	90		55	130
		Tetrachloro-m-xylene	1	20	19.18	96		70	125
		Decachlorobiphenyl	2	20	19.25	96		55	130
		Tetrachloro-m-xylene	2	20	19.76	99		70	125
C5017-19	12SB-DUP-04	Decachlorobiphenyl	1	20	15.29	76		55	130
		Tetrachloro-m-xylene	1	20	15.04	75		70	125
		Decachlorobiphenyl	2	20	16.18	81		55	130
		Tetrachloro-m-xylene	2	20	15.13	76		70	125
C5017-20	12SB14-0.502-02	Decachlorobiphenyl	1	20	14.73	74		55	130
		Tetrachloro-m-xylene	1	20	20.09	100		70	125
		Decachlorobiphenyl	2	20	11.63	58		55	130
		Tetrachloro-m-xylene	2	20	17.13	86		70	125
I.BLK-PD007192.D	PIBLK-PD007192.D	Decachlorobiphenyl	1	20	17.23	86		10	192
		Tetrachloro-m-xylene	1	20	18.69	93		10	172
		Decachlorobiphenyl	2	20	20.54	103		10	192
		Tetrachloro-m-xylene	2	20	19.54	98		10	172
C5017-21	12SB14-0304-03	Decachlorobiphenyl	1	20	19.91	100		55	130
		Tetrachloro-m-xylene	1	20	18.15	91		70	125
		Decachlorobiphenyl	2	20	20.07	100		55	130
		Tetrachloro-m-xylene	2	20	20.08	100		70	125
I.BLK-PD007201.D	PIBLK-PD007201.D	Decachlorobiphenyl	1	20	19.22	96		10	192
		Tetrachloro-m-xylene	1	20	19.22	96		10	172
		Decachlorobiphenyl	2	20	20.26	101		10	192
		Tetrachloro-m-xylene	2	20	19.81	99		10	172
I.BLK-PD007210.D	PIBLK-PD007210.D	Decachlorobiphenyl	1	20	16.99	85		10	192
		Tetrachloro-m-xylene	1	20	18.85	94		10	172
		Decachlorobiphenyl	2	20	19.45	97		10	192
		Tetrachloro-m-xylene	2	20	19.12	96		10	172
C5017-02RE	12SB16-0.502-02RE	Decachlorobiphenyl	1	20	11.45	57		55	130
		Tetrachloro-m-xylene	1	20	10.6	(53)	*	70	125
		Decachlorobiphenyl	2	20	12.5	63		55	130
		Tetrachloro-m-xylene	2	20	12.64	(63)	*	70	125
C5017-03RE	12SB16-0304-03RE	Decachlorobiphenyl	1	20	12.73	64		55	130
		Tetrachloro-m-xylene	1	20	10.38	(52)	*	70	125
		Decachlorobiphenyl	2	20	13.99	70		55	130
		Tetrachloro-m-xylene	2	20	12.92	(65)	*	70	125

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5017-12RE	12SB09-0304-03RE	Decachlorobiphenyl	1	20	10.86	54	*	55	130
		Tetrachloro-m-xylene	1	20	7.96	40	*	70	125
		Decachlorobiphenyl	2	20	12.22	61		55	130
		Tetrachloro-m-xylene	2	20	9.68	48	*	70	125
C5017-14RE	12SB10-0.502-02RE	Decachlorobiphenyl	1	20	9.91	50	*	55	130
		Tetrachloro-m-xylene	1	20	11.59	58	*	70	125
		Decachlorobiphenyl	2	20	16.15	81		55	130
		Tetrachloro-m-xylene	2	20	10.03	50	*	70	125
I.BLK-PD007222.D	PIBLK-PD007222.D	Decachlorobiphenyl	1	20	16.67	83		10	192
		Tetrachloro-m-xylene	1	20	14.64	73		10	172
		Decachlorobiphenyl	2	20	20.5	103		10	192
		Tetrachloro-m-xylene	2	20	19.66	98		10	172

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12SB11-000.5-01MS**										
C5017-05MS	alpha-BHC	23.8	0	24	101				60	125	
	beta-BHC	23.8	0	21	88				60	125	
	delta-BHC	23.8	0	22	92				55	130	
	gamma-BHC (Lindane)	23.8	0	23	97				60	125	
	Heptachlor	23.8	0	23	97				50	140	
	Aldrin	23.8	0	23	97				45	140	
	Heptachlor epoxide	23.8	0	23	97				65	130	
	Endosulfan I	23.8	0	25	105				15	135	
	Dieldrin	23.8	0	24	101				65	125	
	4,4-DDE	23.8	0	20	84				70	125	
	Endrin	23.8	0	23	97				60	135	
	Endosulfan II	23.8	0	22	92				35	140	
	4,4-DDD	23.8	0	22	92				30	135	
	Endosulfan sulfate	23.8	0	21	88				60	135	
	4,4-DDT	23.8	0	24	101				45	140	
	Methoxychlor	23.8	0	24	101				55	145	
	Endrin ketone	23.8	0	23	97				65	135	
	Endrin aldehyde	23.8	0	20	84				35	145	
	alpha-Chlordane	23.8	0	24	101				65	120	
	gamma-Chlordane	23.8	0	23	97				65	125	
Client Sample ID:	**12SB11-000.5-01MSD**										
C5017-06MSD	alpha-BHC	23.8	0	24	101		0		60	125	20
	beta-BHC	23.8	0	21	88		0		60	125	20
	delta-BHC	23.8	0	21	88		4		55	130	20
	gamma-BHC (Lindane)	23.8	0	23	97		0		60	125	20
	Heptachlor	23.8	0	23	97		0		50	140	20
	Aldrin	23.8	0	23	97		0		45	140	20
	Heptachlor epoxide	23.8	0	22	92		5		65	130	20
	Endosulfan I	23.8	0	24	101		4		15	135	20
	Dieldrin	23.8	0	23	97		4		65	125	20
	4,4-DDE	23.8	0	20	84		0		70	125	20
	Endrin	23.8	0	23	97		0		60	135	20
	Endosulfan II	23.8	0	21	88		4		35	140	20
	4,4-DDD	23.8	0	22	92		0		30	135	20
	Endosulfan sulfate	23.8	0	21	88		0		60	135	20
	4,4-DDT	23.8	0	24	101		0		45	140	20
	Methoxychlor	23.8	0	24	101		0		55	145	20
	Endrin ketone	23.8	0	23	97		0		65	135	20
	Endrin aldehyde	23.8	0	20	84		0		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
C5017-06MSD	alpha-Chlordane	23.8	0	24	101		0		65	120	20
	gamma-Chlordane	23.8	0	23	97		0		65	125	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59993BS	alpha-BHC	16.7	18	108				84	123	
	beta-BHC	16.7	17	102				82	123	
	delta-BHC	16.7	17	102				83	126	
	gamma-BHC (Lindane)	16.7	17	102				83	125	
	Heptachlor	16.7	17	102				83	122	
	Aldrin	16.7	17	102				82	124	
	Heptachlor epoxide	16.7	17	102				83	120	
	Endosulfan I	16.7	17	102				81	124	
	Dieldrin	16.7	17	102				85	121	
	4,4-DDE	16.7	17	102				81	123	
	Endrin	16.7	17	102				76	130	
	Endosulfan II	16.7	16	96				80	125	
	4,4-DDD	16.7	17	102				80	131	
	Endosulfan sulfate	16.7	17	102				81	122	
	4,4-DDT	16.7	17	102				70	129	
	Methoxychlor	16.7	17	102				78	129	
	Endrin ketone	16.7	18	108				77	132	
	Endrin aldehyde	16.7	17	102				79	124	
	alpha-Chlordane	16.7	17	102				84	120	
	gamma-Chlordane	16.7	17	102				83	122	

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_C

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.58	8.43
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.58	8.42
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.57	8.42
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.58	8.42
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.58	8.42
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.58	8.43
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.58	8.42
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.58	8.42
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.58	8.42
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.58	8.43
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.58	8.42
PIBLK02	I.BLK02	12/21/2011	12:46	PC006180.D	1.59	8.43
CCAL01	1660 250	12/21/2011	13:02	PC006181.D	1.59	8.43
PB59992BL	PB59992BL	12/21/2011	14:35	PC006184.D	1.59	8.43
PB59992BS	PB59992BS	12/21/2011	14:52	PC006185.D	1.59	8.43
12SB16-000.5-01	C5017-01	12/21/2011	15:08	PC006186.D	1.59	8.43
12SB16-0.502-02	C5017-02	12/21/2011	15:24	PC006187.D	1.58	8.43
12SB16-0304-03	C5017-03	12/21/2011	15:41	PC006188.D	1.59	8.43
12SB11-000.5-01	C5017-04	12/21/2011	15:57	PC006189.D	1.59	8.43
12SB11-000.5-01MS	C5017-05MS	12/21/2011	16:13	PC006190.D	1.59	8.43
12SB11-000.5-01MSD	C5017-06MSD	12/21/2011	16:29	PC006191.D	1.59	8.43
PIBLK03	I.BLK03	12/21/2011	16:46	PC006192.D	1.59	8.43
CCAL02	1660 250	12/21/2011	17:02	PC006193.D	1.59	8.43
PIBLK04	I.BLK04	12/22/2011	12:33	PC006200.D	1.59	8.43
CCAL03	1660 250	12/22/2011	14:37	PC006201.D	1.59	8.42
12SB11-0.501-02	C5017-07	12/22/2011	14:53	PC006202.D	1.59	8.43
12SB11-0304-03	C5017-08	12/22/2011	15:10	PC006203.D	1.59	8.43
12SB-DUP02	C5017-09	12/22/2011	15:26	PC006204.D	1.59	8.43
12SB09-000.5-01	C5017-10	12/22/2011	15:42	PC006205.D	1.59	8.43
12SB09-0.502-02	C5017-11	12/22/2011	15:59	PC006206.D	1.59	8.43
12SB09-0304-03	C5017-12	12/22/2011	16:15	PC006207.D	1.59	8.43
12SB10-000.5-01	C5017-13	12/22/2011	16:31	PC006208.D	1.59	8.43
12SB10-0.502-02	C5017-14	12/22/2011	16:48	PC006209.D	1.59	8.39
12SB10-0304-03	C5017-15	12/22/2011	17:04	PC006210.D	1.59	8.41
12SB15-000.5-01	C5017-16	12/22/2011	17:20	PC006211.D	1.59	8.43
PIBLK05	I.BLK05	12/22/2011	17:36	PC006212.D	1.59	8.43
CCAL04	1660 250	12/22/2011	17:53	PC006213.D	1.59	8.43
12SB15-0.502-02	C5017-17	12/22/2011	18:09	PC006214.D	1.59	8.43
12SB15-0304-03	C5017-18	12/22/2011	18:25	PC006215.D	1.59	8.43
12SB-DUP-04	C5017-19	12/22/2011	18:42	PC006216.D	1.59	8.43
12SB14-0.502-02	C5017-20	12/22/2011	18:58	PC006217.D	1.59	8.42
12SB14-0304-03	C5017-21	12/22/2011	19:14	PC006218.D	1.59	8.43
PIBLK06	I.BLK06	12/22/2011	20:51	PC006224.D	1.59	8.43
CCAL05	1660 250	12/22/2011	21:08	PC006225.D	1.59	8.43

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006011.D RT 250 = PC006010.D

RT 500 = PC006009.D RT 750 = PC006008.D RT 1000 = PC006007.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.58	1.58	1.58	1.57	1.58	1.58	1.53	1.63
Decachlorobiphenyl		8.43	8.42	8.42	8.42	8.42	8.42	8.32	8.52
AR1016	(1)	2.25	2.25	2.25	2.24	2.25	2.25	2.20	2.30
AR1016	(2)	2.74	2.74	2.74	2.73	2.73	2.73	2.68	2.78
AR1016	(3)	2.89	2.89	2.89	2.88	2.89	2.89	2.84	2.94
AR1016	(4)	3.13	3.13	3.13	3.12	3.12	3.12	3.07	3.17
AR1016	(5)	3.37	3.37	3.37	3.36	3.36	3.37	3.32	3.42
AR1260	(1)	4.90	4.90	4.89	4.89	4.89	4.89	4.84	4.94
AR1260	(2)	5.27	5.27	5.27	5.26	5.26	5.27	5.22	5.32
AR1260	(3)	5.63	5.63	5.63	5.63	5.63	5.63	5.58	5.68
AR1260	(4)	6.54	6.54	6.54	6.54	6.54	6.54	6.49	6.59
AR1260	(5)	6.91	6.91	6.91	6.91	6.91	6.91	6.86	6.96

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1539340	1583428	1652292	1516859	1525454	1563475	4
Decachlorobiphenyl	2753860	2322628	2228812	1984339	1934411	2244810	15
AR1016 (1)	81972	69605	66677	59385	58354	67199	14
AR1016 (2)	119474	139033	138562	120044	124271	128277	8
AR1016 (3)	45572	50213	49382	43690	43986	46569	7
AR1016 (4)	95814	81476	78901	71383	69652	79445	13
AR1016 (5)	63008	59206	58785	53206	52860	57413	8
AR1260 (1)	101772	94032	93196	83493	82614	91021	9
AR1260 (2)	209384	177891	177586	158917	156997	176155	12
AR1260 (3)	161338	151174	155707	141296	141029	150109	6
AR1260 (4)	233482	216564	219776	189635	189204	209732	9
AR1260 (5)	99230	95811	98680	92081	91537	95468	4

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.20	1.15	1.25	10802
		2	1.74	1.69	1.79	17204
		3	1.90	1.85	1.95	53471
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.90	1.85	1.95	42188
		2	2.25	2.20	2.30	31833
		3	2.74	2.69	2.79	61113
		4	2.89	2.84	2.94	21823
		5	3.90	3.85	3.95	39339
AR1242	0.5000	1	2.25	2.20	2.30	56293
		2	2.74	2.69	2.79	114860
		3	3.13	3.08	3.18	65688
		4	3.37	3.32	3.42	49772
		5	3.90	3.85	3.95	83942
AR1248	0.5000	1	2.74	2.69	2.79	73698
		2	3.13	3.08	3.18	106133
		3	3.37	3.32	3.42	73441
		4	3.90	3.85	3.95	138267
		5	4.66	4.61	4.71	38608
AR1254	0.5000	1	3.11	3.06	3.16	65083
		2	4.65	4.60	4.70	165431
		3	5.02	4.97	5.07	134662
		4	5.26	5.21	5.31	122909
		5	5.63	5.58	5.68	193414

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/21/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 13:02 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.59	1.58	1.53	1.63	-0.01
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	-0.01
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.63	5.63	5.58	5.68	0.00
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.91	6.91	6.86	6.96	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/21/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 17:02 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.59	1.58	1.53	1.63	-0.01
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.75	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	-0.01
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.64	5.63	5.58	5.68	-0.01
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.91	6.91	6.86	6.96	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/22/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 14:37 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.59	1.58	1.53	1.63	-0.01
Decachlorobiphenyl	8.42	8.42	8.32	8.52	0.00
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.75	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	-0.01
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.63	5.63	5.58	5.68	0.00
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.91	6.91	6.86	6.96	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/22/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 17:53 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.59	1.58	1.53	1.63	-0.01
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	-0.01
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.63	5.63	5.58	5.68	0.00
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.91	6.91	6.86	6.96	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/22/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 21:08 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.59	1.58	1.53	1.63	-0.01
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.75	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	-0.01
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.63	5.63	5.58	5.68	0.00
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.91	6.91	6.86	6.96	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/21/2011

Lab Sample No.: 1660 250 **Data File :** PC006181.D **Time Analyzed:** 13:02

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.259	2.200	2.300	0.243	0.250	2.8
AR1016 (2)	2.744	2.680	2.780	0.277	0.250	10.8
AR1016 (3)	2.897	2.840	2.940	0.295	0.250	18.0
AR1016 (4)	3.132	3.070	3.170	0.289	0.250	15.6
AR1016 (5)	3.373	3.320	3.420	0.245	0.250	2.0
AR1260 (1)	4.900	4.840	4.940	0.234	0.250	6.4
AR1260 (2)	5.271	5.220	5.320	0.234	0.250	6.4
AR1260 (3)	5.633	5.580	5.680	0.226	0.250	9.6
AR1260 (4)	6.542	6.490	6.590	0.223	0.250	10.8
AR1260 (5)	6.912	6.860	6.960	0.215	0.250	14.0
Tetrachloro-m-xylene	1.588	1.530	1.630	0.024	0.025	4.0
Decachlorobiphenyl	8.426	8.320	8.520	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/21/2011

Lab Sample No.: 1660 250 **Data File :** PC006193.D **Time Analyzed:** 17:02

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.236	0.250	5.6
AR1016 (2)	2.745	2.680	2.780	0.272	0.250	8.8
AR1016 (3)	2.898	2.840	2.940	0.290	0.250	16.0
AR1016 (4)	3.133	3.070	3.170	0.267	0.250	6.8
AR1016 (5)	3.374	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.901	4.840	4.940	0.229	0.250	8.4
AR1260 (2)	5.273	5.220	5.320	0.230	0.250	8.0
AR1260 (3)	5.635	5.580	5.680	0.220	0.250	12.0
AR1260 (4)	6.544	6.490	6.590	0.216	0.250	13.6
AR1260 (5)	6.914	6.860	6.960	0.209	0.250	16.4
Tetrachloro-m-xylene	1.589	1.530	1.630	0.023	0.025	8.0
Decachlorobiphenyl	8.426	8.320	8.520	0.021	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006201.D **Time Analyzed:** 14:37

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.259	2.200	2.300	0.237	0.250	5.2
AR1016 (2)	2.745	2.680	2.780	0.270	0.250	8.0
AR1016 (3)	2.898	2.840	2.940	0.288	0.250	15.2
AR1016 (4)	3.132	3.070	3.170	0.266	0.250	6.4
AR1016 (5)	3.373	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.900	4.840	4.940	0.228	0.250	8.8
AR1260 (2)	5.271	5.220	5.320	0.224	0.250	10.4
AR1260 (3)	5.633	5.580	5.680	0.222	0.250	11.2
AR1260 (4)	6.542	6.490	6.590	0.220	0.250	12.0
AR1260 (5)	6.912	6.860	6.960	0.218	0.250	12.8
Tetrachloro-m-xylene	1.589	1.530	1.630	0.024	0.025	4.0
Decachlorobiphenyl	8.424	8.320	8.520	0.021	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006213.D **Time Analyzed:** 17:53

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.259	2.200	2.300	0.237	0.250	5.2
AR1016 (2)	2.744	2.680	2.780	0.271	0.250	8.4
AR1016 (3)	2.897	2.840	2.940	0.292	0.250	16.8
AR1016 (4)	3.133	3.070	3.170	0.286	0.250	14.4
AR1016 (5)	3.373	3.320	3.420	0.257	0.250	2.8
AR1260 (1)	4.900	4.840	4.940	0.241	0.250	3.6
AR1260 (2)	5.271	5.220	5.320	0.235	0.250	6.0
AR1260 (3)	5.633	5.580	5.680	0.234	0.250	6.4
AR1260 (4)	6.542	6.490	6.590	0.241	0.250	3.6
AR1260 (5)	6.912	6.860	6.960	0.233	0.250	6.8
Tetrachloro-m-xylene	1.588	1.530	1.630	0.024	0.025	4.0
Decachlorobiphenyl	8.425	8.320	8.520	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006225.D **Time Analyzed:** 21:08

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.225	0.250	10.0
AR1016 (2)	2.745	2.680	2.780	0.243	0.250	2.8
AR1016 (3)	2.898	2.840	2.940	0.245	0.250	2.0
AR1016 (4)	3.133	3.070	3.170	0.214	0.250	14.4
AR1016 (5)	3.373	3.320	3.420	0.214	0.250	14.4
AR1260 (1)	4.901	4.840	4.940	0.256	0.250	2.4
AR1260 (2)	5.272	5.220	5.320	0.256	0.250	2.4
AR1260 (3)	5.634	5.580	5.680	0.248	0.250	0.8
AR1260 (4)	6.543	6.490	6.590	0.251	0.250	0.4
AR1260 (5)	6.913	6.860	6.960	0.244	0.250	2.4
Tetrachloro-m-xylene	1.589	1.530	1.630	0.022	0.025	12.0
Decachlorobiphenyl	8.425	8.320	8.520	0.025	0.025	0.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5017

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.97	9.88
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.97	9.88
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.96	9.88
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.97	9.88
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.97	9.88
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.97	9.88
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.97	9.88
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.97	9.88
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.97	9.88
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.98	9.89
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.97	9.88
PIBLK02	I.BLK02	12/21/2011	12:46	PC006180.D	1.98	9.88
CCAL01	1660 250	12/21/2011	13:02	PC006181.D	1.98	9.88
PB59992BL	PB59992BL	12/21/2011	14:35	PC006184.D	1.98	9.88
PB59992BS	PB59992BS	12/21/2011	14:52	PC006185.D	1.98	9.88
12SB16-000.5-01	C5017-01	12/21/2011	15:08	PC006186.D	1.98	9.88
12SB16-0.502-02	C5017-02	12/21/2011	15:24	PC006187.D	1.98	9.88
12SB16-0304-03	C5017-03	12/21/2011	15:41	PC006188.D	1.99	9.88
12SB11-000.5-01	C5017-04	12/21/2011	15:57	PC006189.D	1.99	9.88
12SB11-000.5-01MS	C5017-05MS	12/21/2011	16:13	PC006190.D	1.98	9.88
12SB11-000.5-01MSD	C5017-06MSD	12/21/2011	16:29	PC006191.D	1.99	9.88
PIBLK03	I.BLK03	12/21/2011	16:46	PC006192.D	1.99	9.88
CCAL02	1660 250	12/21/2011	17:02	PC006193.D	1.99	9.88
PIBLK04	I.BLK04	12/22/2011	12:33	PC006200.D	1.99	9.88
CCAL03	1660 250	12/22/2011	14:37	PC006201.D	1.98	9.88
12SB11-0.501-02	C5017-07	12/22/2011	14:53	PC006202.D	1.98	9.88
12SB11-0304-03	C5017-08	12/22/2011	15:10	PC006203.D	1.99	9.88
12SB-DUP02	C5017-09	12/22/2011	15:26	PC006204.D	1.98	9.88
12SB09-000.5-01	C5017-10	12/22/2011	15:42	PC006205.D	1.98	9.88
12SB09-0.502-02	C5017-11	12/22/2011	15:59	PC006206.D	1.98	9.88
12SB09-0304-03	C5017-12	12/22/2011	16:15	PC006207.D	1.99	9.88
12SB10-000.5-01	C5017-13	12/22/2011	16:31	PC006208.D	1.99	9.88
12SB10-0.502-02	C5017-14	12/22/2011	16:48	PC006209.D	1.99	9.88
12SB10-0304-03	C5017-15	12/22/2011	17:04	PC006210.D	1.99	9.88
12SB15-000.5-01	C5017-16	12/22/2011	17:20	PC006211.D	1.98	9.88
PIBLK05	I.BLK05	12/22/2011	17:36	PC006212.D	1.98	9.88
CCAL04	1660 250	12/22/2011	17:53	PC006213.D	1.98	9.88
12SB15-0.502-02	C5017-17	12/22/2011	18:09	PC006214.D	1.99	9.88
12SB15-0304-03	C5017-18	12/22/2011	18:25	PC006215.D	1.98	9.88
12SB-DUP-04	C5017-19	12/22/2011	18:42	PC006216.D	1.99	9.88
12SB14-0.502-02	C5017-20	12/22/2011	18:58	PC006217.D	1.99	9.89
12SB14-0304-03	C5017-21	12/22/2011	19:14	PC006218.D	1.99	9.88
PIBLK06	I.BLK06	12/22/2011	20:51	PC006224.D	1.98	9.88
CCAL05	1660 250	12/22/2011	21:08	PC006225.D	1.99	9.88

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: **RT 50 =** PC006011.D **RT 250 =** PC006010.D

RT 500 = PC006009.D **RT 750 =** PC006008.D **RT 1000 =** PC006007.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.97	1.97	1.97	1.96	1.97	1.97	1.92	2.02
Decachlorobiphenyl		9.88	9.88	9.88	9.88	9.88	9.88	9.78	9.98
AR1016	(1)	3.01	3.01	3.00	3.00	3.00	3.00	2.95	3.05
AR1016	(2)	3.57	3.57	3.57	3.56	3.57	3.57	3.52	3.62
AR1016	(3)	3.74	3.74	3.74	3.74	3.74	3.74	3.69	3.79
AR1016	(4)	3.87	3.87	3.87	3.87	3.87	3.87	3.82	3.92
AR1016	(5)	4.52	4.52	4.52	4.52	4.52	4.52	4.47	4.57
AR1260	(1)	6.08	6.08	6.08	6.08	6.08	6.08	6.03	6.13
AR1260	(2)	6.39	6.39	6.38	6.38	6.38	6.38	6.33	6.43
AR1260	(3)	6.86	6.86	6.86	6.86	6.86	6.86	6.81	6.91
AR1260	(4)	7.77	7.76	7.76	7.76	7.76	7.76	7.71	7.81
AR1260	(5)	8.26	8.26	8.26	8.26	8.26	8.26	8.21	8.31

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4286580	3835452	3775146	3400877	3401207	3739852	10
Decachlorobiphenyl	6971140	5675536	5299222	4567911	4287308	5360223	20
AR1016 (1)	170044	148835	143778	126098	124730	142697	13
AR1016 (2)	410106	328973	318375	281943	276128	323105	17
AR1016 (3)	180598	137123	144625	129749	128291	144077	15
AR1016 (4)	133338	109270	115039	104717	105265	113526	10
AR1016 (5)	175524	131268	128639	115200	114714	133069	19
AR1260 (1)	280148	237834	225971	198178	193735	227173	15
AR1260 (2)	334588	285589	273392	234251	234942	272552	15
AR1260 (3)	492282	361751	366763	345958	338776	381106	17
AR1260 (4)	616564	523832	498470	440964	429018	501769	15
AR1260 (5)	474756	365290	400652	358039	342462	388240	14

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.30	2.25	2.35	40341
		2	2.45	2.40	2.50	25307
		3	2.52	2.47	2.57	102884
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.52	2.47	2.57	95734
		2	3.01	2.96	3.06	78811
		3	3.57	3.52	3.62	159496
		4	3.74	3.69	3.79	72117
		5	4.52	4.47	4.57	59201
AR1242	0.5000	1	3.01	2.96	3.06	144390
		2	3.57	3.52	3.62	284971
		3	3.74	3.69	3.79	130662
		4	4.88	4.83	4.93	99797
		5	4.93	4.88	4.98	133151
AR1248	0.5000	1	3.57	3.52	3.62	189426
		2	4.36	4.31	4.41	227718
		3	4.52	4.47	4.57	179891
		4	4.88	4.83	4.93	165968
		5	4.93	4.88	4.98	218113
AR1254	0.5000	1	5.20	5.15	5.25	277781
		2	5.81	5.76	5.86	403951
		3	6.39	6.34	6.44	181582
		4	6.60	6.55	6.65	366397
		5	6.86	6.81	6.91	453032

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/21/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 13:02 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.98	1.97	1.92	2.02	-0.01
Decachlorobiphenyl	9.88	9.88	9.78	9.98	0.00
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.57	3.57	3.52	3.62	0.00
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.86	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	0.00
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/21/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 17:02 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.99	1.97	1.92	2.02	-0.01
Decachlorobiphenyl	9.88	9.88	9.78	9.98	0.00
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.58	3.57	3.52	3.62	-0.01
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.53	4.52	4.47	4.57	-0.01
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.86	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/22/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 14:37 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.98	1.97	1.92	2.02	-0.01
Decachlorobiphenyl	9.88	9.88	9.78	9.98	0.00
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.58	3.57	3.52	3.62	-0.01
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.86	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/22/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 17:53 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.98	1.97	1.92	2.02	-0.01
Decachlorobiphenyl	9.88	9.88	9.78	9.98	0.00
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.58	3.57	3.52	3.62	-0.01
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.86	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

Continuing Calib Date: 12/22/2011 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 21:08 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.99	1.97	1.92	2.02	-0.01
Decachlorobiphenyl	9.88	9.88	9.78	9.98	0.00
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.58	3.57	3.52	3.62	-0.01
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.86	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/21/2011

Lab Sample No.: 1660 250 **Data File :** PC006181.D **Time Analyzed:** 13:02

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.011	2.950	3.050	0.279	0.250	11.6
AR1016 (2)	3.574	3.520	3.620	0.243	0.250	2.8
AR1016 (3)	3.747	3.690	3.790	0.248	0.250	0.8
AR1016 (4)	3.877	3.820	3.920	0.244	0.250	2.4
AR1016 (5)	4.522	4.470	4.570	0.238	0.250	4.8
AR1260 (1)	6.081	6.030	6.130	0.244	0.250	2.4
AR1260 (2)	6.387	6.330	6.430	0.244	0.250	2.4
AR1260 (3)	6.861	6.810	6.910	0.239	0.250	4.4
AR1260 (4)	7.765	7.710	7.810	0.246	0.250	1.6
AR1260 (5)	8.259	8.210	8.310	0.234	0.250	6.4
Tetrachloro-m-xylene	1.983	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/21/2011

Lab Sample No.: 1660 250 **Data File :** PC006193.D **Time Analyzed:** 17:02

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.013	2.950	3.050	0.277	0.250	10.8
AR1016 (2)	3.577	3.520	3.620	0.244	0.250	2.4
AR1016 (3)	3.749	3.690	3.790	0.257	0.250	2.8
AR1016 (4)	3.880	3.820	3.920	0.247	0.250	1.2
AR1016 (5)	4.525	4.470	4.570	0.243	0.250	2.8
AR1260 (1)	6.084	6.030	6.130	0.247	0.250	1.2
AR1260 (2)	6.389	6.330	6.430	0.238	0.250	4.8
AR1260 (3)	6.864	6.810	6.910	0.248	0.250	0.8
AR1260 (4)	7.767	7.710	7.810	0.259	0.250	3.6
AR1260 (5)	8.261	8.210	8.310	0.247	0.250	1.2
Tetrachloro-m-xylene	1.985	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.883	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006201.D **Time Analyzed:** 14:37

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.270	0.250	8.0
AR1016 (2)	3.576	3.520	3.620	0.240	0.250	4.0
AR1016 (3)	3.748	3.690	3.790	0.255	0.250	2.0
AR1016 (4)	3.879	3.820	3.920	0.243	0.250	2.8
AR1016 (5)	4.524	4.470	4.570	0.239	0.250	4.4
AR1260 (1)	6.083	6.030	6.130	0.245	0.250	2.0
AR1260 (2)	6.388	6.330	6.430	0.247	0.250	1.2
AR1260 (3)	6.862	6.810	6.910	0.244	0.250	2.4
AR1260 (4)	7.766	7.710	7.810	0.257	0.250	2.8
AR1260 (5)	8.260	8.210	8.310	0.247	0.250	1.2
Tetrachloro-m-xylene	1.984	1.920	2.020	0.023	0.025	8.0
Decachlorobiphenyl	9.882	9.780	9.980	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006213.D **Time Analyzed:** 17:53

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.013	2.950	3.050	0.281	0.250	12.4
AR1016 (2)	3.576	3.520	3.620	0.248	0.250	0.8
AR1016 (3)	3.749	3.690	3.790	0.263	0.250	5.2
AR1016 (4)	3.879	3.820	3.920	0.250	0.250	0.0
AR1016 (5)	4.524	4.470	4.570	0.244	0.250	2.4
AR1260 (1)	6.083	6.030	6.130	0.250	0.250	0.0
AR1260 (2)	6.389	6.330	6.430	0.253	0.250	1.2
AR1260 (3)	6.863	6.810	6.910	0.250	0.250	0.0
AR1260 (4)	7.766	7.710	7.810	0.264	0.250	5.6
AR1260 (5)	8.261	8.210	8.310	0.255	0.250	2.0
Tetrachloro-m-xylene	1.984	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.883	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG NO.:** C5017

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006225.D **Time Analyzed:** 21:08

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.276	0.250	10.4
AR1016 (2)	3.577	3.520	3.620	0.264	0.250	5.6
AR1016 (3)	3.749	3.690	3.790	0.287	0.250	14.8
AR1016 (4)	3.880	3.820	3.920	0.287	0.250	14.8
AR1016 (5)	4.524	4.470	4.570	0.276	0.250	10.4
AR1260 (1)	6.083	6.030	6.130	0.260	0.250	4.0
AR1260 (2)	6.388	6.330	6.430	0.264	0.250	5.6
AR1260 (3)	6.863	6.810	6.910	0.259	0.250	3.6
AR1260 (4)	7.766	7.710	7.810	0.273	0.250	9.2
AR1260 (5)	8.260	8.210	8.310	0.263	0.250	5.2
Tetrachloro-m-xylene	1.985	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.882	9.780	9.980	0.025	0.025	0.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB59992BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG NO.: C5017

Lab Sample ID: PB59992BL Lab File ID: PC006184.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/19/2011

Date Analyzed (1): 12/21/2011 Date Analyzed (2): 12/21/2011

Time Analyzed (1): 14:35 Time Analyzed (2): 14:35

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB59992BS	PB59992BS	PC006185.D	12/21/2011	12/21/2011
12SB16-000.5-01	C5017-01	PC006186.D	12/21/2011	12/21/2011
12SB16-0.502-02	C5017-02	PC006187.D	12/21/2011	12/21/2011
12SB16-0304-03	C5017-03	PC006188.D	12/21/2011	12/21/2011
12SB11-000.5-01	C5017-04	PC006189.D	12/21/2011	12/21/2011
12SB11-000.5-01MS	C5017-05MS	PC006190.D	12/21/2011	12/21/2011
12SB11-000.5-01MSD	C5017-06MSD	PC006191.D	12/21/2011	12/21/2011
12SB11-0.501-02	C5017-07	PC006202.D	12/22/2011	12/22/2011
12SB11-0304-03	C5017-08	PC006203.D	12/22/2011	12/22/2011
12SB-DUP02	C5017-09	PC006204.D	12/22/2011	12/22/2011
12SB09-000.5-01	C5017-10	PC006205.D	12/22/2011	12/22/2011
12SB09-0.502-02	C5017-11	PC006206.D	12/22/2011	12/22/2011
12SB09-0304-03	C5017-12	PC006207.D	12/22/2011	12/22/2011
12SB10-000.5-01	C5017-13	PC006208.D	12/22/2011	12/22/2011
12SB10-0.502-02	C5017-14	PC006209.D	12/22/2011	12/22/2011
12SB10-0304-03	C5017-15	PC006210.D	12/22/2011	12/22/2011
12SB15-000.5-01	C5017-16	PC006211.D	12/22/2011	12/22/2011
12SB15-0.502-02	C5017-17	PC006214.D	12/22/2011	12/22/2011
12SB15-0304-03	C5017-18	PC006215.D	12/22/2011	12/22/2011
12SB-DUP-04	C5017-19	PC006216.D	12/22/2011	12/22/2011
12SB14-0.502-02	C5017-20	PC006217.D	12/22/2011	12/22/2011
12SB14-0304-03	C5017-21	PC006218.D	12/22/2011	12/22/2011

COMMENTS:

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006006.D	PIBLK-PC006006.D	Tetrachloro-m-xylene	1	20	24.47	122		35	137
		Decachlorobiphenyl	1	20	23.61	118		40	135
		Tetrachloro-m-xylene	2	20	25.07	125		35	137
		Decachlorobiphenyl	2	20	24.18	121		40	135
I.BLK-PC006180.D	PIBLK-PC006180.D	Tetrachloro-m-xylene	1	20	21.4	107		35	137
		Decachlorobiphenyl	1	20	19.26	96		40	135
		Tetrachloro-m-xylene	2	20	20.73	104		35	137
		Decachlorobiphenyl	2	20	18.13	91		40	135
PB59992BL	PB59992BL	Tetrachloro-m-xylene	1	20	19.05	95		10	166
		Decachlorobiphenyl	1	20	18.01	90		60	125
		Tetrachloro-m-xylene	2	20	20.31	102		10	166
		Decachlorobiphenyl	2	20	18.64	93		60	125
PB59992BS	PB59992BS	Tetrachloro-m-xylene	1	20	19.33	97		10	166
		Decachlorobiphenyl	1	20	18.03	90		60	125
		Tetrachloro-m-xylene	2	20	19.51	98		10	166
		Decachlorobiphenyl	2	20	20.89	104		60	125
C5017-01	12SB16-000.5-01	Tetrachloro-m-xylene	1	20	17.18	86		10	166
		Decachlorobiphenyl	1	20	16.39	82		60	125
		Tetrachloro-m-xylene	2	20	18.03	90		10	166
		Decachlorobiphenyl	2	20	22.64	113		60	125
C5017-02	12SB16-0.502-02	Tetrachloro-m-xylene	1	20	13.56	68		10	166
		Decachlorobiphenyl	1	20	12.17	61		60	125
		Tetrachloro-m-xylene	2	20	14.08	70		10	166
		Decachlorobiphenyl	2	20	13.33	67		60	125
C5017-03	12SB16-0304-03	Tetrachloro-m-xylene	1	20	12.56	63		10	166
		Decachlorobiphenyl	1	20	12.27	61		60	125
		Tetrachloro-m-xylene	2	20	13.37	67		10	166
		Decachlorobiphenyl	2	20	13.76	69		60	125
C5017-04	12SB11-000.5-01	Tetrachloro-m-xylene	1	20	18.1	91		10	166
		Decachlorobiphenyl	1	20	15.7	79		60	125
		Tetrachloro-m-xylene	2	20	19.99	100		10	166
		Decachlorobiphenyl	2	20	20.05	100		60	125
C5017-05MS	12SB11-000.5-01MS	Tetrachloro-m-xylene	1	20	18.9	95		10	166
		Decachlorobiphenyl	1	20	14.63	73		60	125
		Tetrachloro-m-xylene	2	20	19.82	99		10	166
		Decachlorobiphenyl	2	20	16.56	83		60	125
C5017-06MSD	12SB11-000.5-01MSD	Tetrachloro-m-xylene	1	20	18.68	93		10	166
		Decachlorobiphenyl	1	20	15.48	77		60	125
		Tetrachloro-m-xylene	2	20	19.28	96		10	166
		Decachlorobiphenyl	2	20	22.74	114		60	125
I.BLK-PC006192.D	PIBLK-PC006192.D	Tetrachloro-m-xylene	1	20	21.21	106		35	137
		Decachlorobiphenyl	1	20	19.5	98		40	135
		Tetrachloro-m-xylene	2	20	22.12	111		35	137
		Decachlorobiphenyl	2	20	23.1	116		40	135

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006200.D	PIBLK-PC006200.D	Tetrachloro-m-xylene	1	20	28.84	144		35	137
		Decachlorobiphenyl	1	20	24.68	123		40	135
		Tetrachloro-m-xylene	2	20	28.59	143		35	137
		Decachlorobiphenyl	2	20	24.84	124		40	135
C5017-07	12SB11-0.501-02	Tetrachloro-m-xylene	1	20	18.48	92		10	166
		Decachlorobiphenyl	1	20	16.32	82		60	125
		Tetrachloro-m-xylene	2	20	19.35	97		10	166
		Decachlorobiphenyl	2	20	19.3	97		60	125
C5017-08	12SB11-0304-03	Tetrachloro-m-xylene	1	20	17.91	90		10	166
		Decachlorobiphenyl	1	20	15.95	80		60	125
		Tetrachloro-m-xylene	2	20	17.4	87		10	166
		Decachlorobiphenyl	2	20	15.98	80		60	125
C5017-09	12SB-DUP02	Tetrachloro-m-xylene	1	20	15.93	80		10	166
		Decachlorobiphenyl	1	20	17.87	89		60	125
		Tetrachloro-m-xylene	2	20	18.32	92		10	166
		Decachlorobiphenyl	2	20	18.04	90		60	125
C5017-10	12SB09-000.5-01	Tetrachloro-m-xylene	1	20	15.76	79		10	166
		Decachlorobiphenyl	1	20	17.31	87		60	125
		Tetrachloro-m-xylene	2	20	18.36	92		10	166
		Decachlorobiphenyl	2	20	18.46	92		60	125
C5017-11	12SB09-0.502-02	Tetrachloro-m-xylene	1	20	16.13	81		10	166
		Decachlorobiphenyl	1	20	17.87	89		60	125
		Tetrachloro-m-xylene	2	20	18.88	94		10	166
		Decachlorobiphenyl	2	20	21.22	106		60	125
C5017-12	12SB09-0304-03	Tetrachloro-m-xylene	1	20	8.92	45		10	166
		Decachlorobiphenyl	1	20	12.33	62		60	125
		Tetrachloro-m-xylene	2	20	10.44	52		10	166
		Decachlorobiphenyl	2	20	13.05	65		60	125
C5017-13	12SB10-000.5-01	Tetrachloro-m-xylene	1	20	16.29	81		10	166
		Decachlorobiphenyl	1	20	15.88	79		60	125
		Tetrachloro-m-xylene	2	20	18.53	93		10	166
		Decachlorobiphenyl	2	20	20.35	102		60	125
C5017-14	12SB10-0.502-02	Tetrachloro-m-xylene	1	20	6.86	34		10	166
		Decachlorobiphenyl	1	20	19.7	99		60	125
		Tetrachloro-m-xylene	2	20	12.87	64		10	166
		Decachlorobiphenyl	2	20	12	60		60	125
C5017-15	12SB10-0304-03	Tetrachloro-m-xylene	1	20	11.47	57		10	166
		Decachlorobiphenyl	1	20	25.8	129	*	60	125
		Tetrachloro-m-xylene	2	20	19.54	98		10	166
		Decachlorobiphenyl	2	20	19.52	98		60	125
C5017-16	12SB15-000.5-01	Tetrachloro-m-xylene	1	20	16.78	84		10	166
		Decachlorobiphenyl	1	20	19.44	97		60	125
		Tetrachloro-m-xylene	2	20	20.1	101		10	166
		Decachlorobiphenyl	2	20	20.81	104		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006212.D	PIBLK-PC006212.D	Tetrachloro-m-xylene	1	20	18.97	95		35	137
		Decachlorobiphenyl	1	20	21.42	107		40	135
		Tetrachloro-m-xylene	2	20	21.02	105		35	137
		Decachlorobiphenyl	2	20	22.01	110		40	135
C5017-17	12SB15-0.502-02	Tetrachloro-m-xylene	1	20	16.48	82		10	166
		Decachlorobiphenyl	1	20	18.71	94		60	125
		Tetrachloro-m-xylene	2	20	18.97	95		10	166
		Decachlorobiphenyl	2	20	20.48	102		60	125
C5017-18	12SB15-0304-03	Tetrachloro-m-xylene	1	20	17.68	88		10	166
		Decachlorobiphenyl	1	20	19.13	96		60	125
		Tetrachloro-m-xylene	2	20	20.29	101		10	166
		Decachlorobiphenyl	2	20	19.42	97		60	125
C5017-19	12SB-DUP-04	Tetrachloro-m-xylene	1	20	11.05	55		10	166
		Decachlorobiphenyl	1	20	13.11	66		60	125
		Tetrachloro-m-xylene	2	20	12.89	64		10	166
		Decachlorobiphenyl	2	20	13.57	68		60	125
C5017-20	12SB14-0.502-02	Tetrachloro-m-xylene	1	20	11.77	59		10	166
		Decachlorobiphenyl	1	20	23.4	117		60	125
		Tetrachloro-m-xylene	2	20	19.94	100		10	166
		Decachlorobiphenyl	2	20	20.13	101		60	125
C5017-21	12SB14-0304-03	Tetrachloro-m-xylene	1	20	16.81	84		10	166
		Decachlorobiphenyl	1	20	18.54	93		60	125
		Tetrachloro-m-xylene	2	20	19.24	96		10	166
		Decachlorobiphenyl	2	20	18.65	93		60	125
I.BLK-PC006224.D	PIBLK-PC006224.D	Tetrachloro-m-xylene	1	20	18.62	93		35	137
		Decachlorobiphenyl	1	20	21.59	108		40	135
		Tetrachloro-m-xylene	2	20	21.7	109		35	137
		Decachlorobiphenyl	2	20	20.77	104		40	135

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12SB11-000.5-01MS**										
C5017-05MS	AR1016	95.1	0	110	116				40	140	
	AR1260	95.1	0	100	105				60	130	
Client Sample ID:	**12SB11-000.5-01MSD**										
C5017-06MSD	AR1016	95.2	0	110	116		0		40	140	20
	AR1260	95.2	0	100	103		0		60	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5017

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB59992BS	AR1016	66.7	79	118				53	140	
	AR1260	66.7	73	109				65	130	

TETRA TECH **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT		JOB NUMBER	
NAS JRB Willow Grove		SDG C5017	
SUBJECT			
Sample Calculations			
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
Ann Cognetti			March 5, 2012

I. VOC, Sample 125B16-000.5-01; (acetone)

$$\frac{81391}{127263} * \frac{5000^{uL}}{5.72g} * \frac{50^{ug/L}}{0.363} * \frac{1}{0.65} * \frac{1}{1000} = 118.3^{ug/kg}$$

II. SVOC; Sample 125B16-0.502-02; dimethylphthalate)

$$\frac{115449}{189964} * \frac{1000^{uL}}{30.09g} * \frac{20ng}{1.226} * \frac{1}{0.84} = 392.2^{ug/kg}$$

III. PAH; Sample 125B10-0.502-02; phenanthrene)

$$\frac{2047967}{219002} * 50 * \frac{1000^{uL}}{30.06g} * \frac{5^{ng}}{4.275} * \frac{1}{0.88} = 20673.2^{ug/kg}$$

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	35
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030212.D	1		12/21/11	VF122011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.35	U	0.87	6.7	ug/Kg
74-87-3	Chloromethane	3.35	U	1.2	6.7	ug/Kg
75-01-4	Vinyl Chloride	3.35	U	1.7	6.7	ug/Kg
74-83-9	Bromomethane	3.35	U	3.3	6.7	ug/Kg
75-00-3	Chloroethane	3.35	U	1.9	6.7	ug/Kg
75-69-4	Trichlorofluoromethane	3.35	U	1.8	6.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.35	U	1.8	6.7	ug/Kg
75-35-4	1,1-Dichloroethene	3.35	U	2	6.7	ug/Kg
67-64-1	Acetone	120		4.1	34	ug/Kg
75-15-0	Carbon Disulfide	3.35	U	1.4	6.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.35	U	1.3	6.7	ug/Kg
79-20-9	Methyl Acetate	3.35	U	2	6.7	ug/Kg
75-09-2	Methylene Chloride	3.35	U	1.9	6.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.35	U	0.93	6.7	ug/Kg
75-34-3	1,1-Dichloroethane	3.35	U	1.3	6.7	ug/Kg
110-82-7	Cyclohexane	3.35	U	1.4	6.7	ug/Kg
78-93-3	2-Butanone	15	J	4.2	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.35	U	1.3	6.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.35	U	1.2	6.7	ug/Kg
74-97-5	Bromochloromethane	3.35	U	1.1	6.7	ug/Kg
67-66-3	Chloroform	3.35	U	1	6.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.35	U	1.2	6.7	ug/Kg
108-87-2	Methylcyclohexane	3.35	U	1.4	6.7	ug/Kg
71-43-2	Benzene	3.35	U	0.51	6.7	ug/Kg
107-06-2	1,2-Dichloroethane	3.35	U	0.86	6.7	ug/Kg
79-01-6	Trichloroethene	3.35	U	1.2	6.7	ug/Kg
78-87-5	1,2-Dichloropropane	3.35	U	0.35	6.7	ug/Kg
75-27-4	Bromodichloromethane	3.35	U	0.83	6.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	3.9	34	ug/Kg
108-88-3	Toluene	3.35	U	0.86	6.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.35	U	1.1	6.7	ug/Kg

Sample Calculation

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122011\
Data File : VF030212.D
Acq On : 21 Dec 2011 5:25
Operator : MS
Sample : C5017-01 125B16-000.5-01
Misc : 5.72g/5mL,MSVOA_F
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jan 11 15:32:11 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F121311S.M
Quant Title : SW846 8260
QLast Update : Wed Dec 14 02:27:33 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Pentafluorobenzene	4.39	168	127263	50.00 ug/l		0.03
33) 1,4-Difluorobenzene	5.13	114	226786	50.00 ug/l		0.03
62) Chlorobenzene-d5	9.32	117	228286	50.00 ug/l		0.02
71) 1,4-Dichlorobenzene-d4	12.24	152	112080	50.00 ug/l		0.02
System Monitoring Compounds						
32) 1,2-Dichloroethane-d4	4.34	65	88946	42.83 ug/l		0.02
Spiked Amount 50.000			Recovery =	85.66%		
34) Dibromofluoromethane	3.63	113	88959	45.77 ug/l		0.03
Spiked Amount 50.000			Recovery =	91.54%		
49) Toluene-d8	7.11	98	258210	48.84 ug/l		0.03
Spiked Amount 50.000			Recovery =	97.68%		
61) 4-Bromofluorobenzene	11.06	95	119251	45.53 ug/l		0.02
Spiked Amount 50.000			Recovery =	91.06%		
Target Compounds						Qvalue
8) Diethyl Ether	1.47	74	66	Below Cal		79
14) Allyl chloride	1.81	41	3830	Below Cal	#	63
16) Acetone	1.97	43	81391	88.05 ug/l		98
18) Methyl Acetate	1.97	43	79731	24.81 ug/l	#	57
20) Methylene Chloride	1.93	84	1350	Below Cal	#	59
25) 2-Butanone	3.84	43	17790	10.89 ug/l		94
48) 1,4-Dioxane	6.30	88	62	2.75 ug/l	#	17
63) Tetrachloroethene	7.72	164	598	Below Cal	#	45

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: MSVOA_F Calibration Date(s): 12/13/2011 12/13/2011

Heated Purge: (Y/N) Y Calibration Time(s): 20:20 22:55

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF029984.D RRF020 = VF029982.D RRF050 = VF029981.D
RRF075 = VF029980.D RRF100 = VF029979.D RRF010 = VF029983.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.700	0.751	0.611	0.652	0.656	0.595	0.661	8.7
Chloromethane	0.884	0.893	0.840	0.878	0.837	0.862	0.866	2.7
Vinyl Chloride	0.632	0.583	0.526	0.572	0.579	0.548	0.573	6.3
Bromomethane	0.338	0.312	0.288	0.277	0.250	0.275	0.29	10.7
Chloroethane	0.240	0.249	0.174	0.169	0.141	0.216	0.198	21.9
Trichlorofluoromethane	0.697	0.699	0.639	0.661	0.615	0.593	0.651	6.6
1,1,2-Trichlorotrifluor<	0.540	0.453	0.425	0.435	0.428	0.458	0.456	9.4
1,1-Dichloroethene	0.490	0.459	0.383	0.425	0.399	0.420	0.43	9.1
Acetone	0.437	0.381	0.333	0.356	0.351	0.321	0.363	11.5
Carbon Disulfide	1.438	1.309	1.146	1.208	1.120	1.134	1.226	10.2
Methyl tert-butyl Ether	1.942	1.727	1.524	1.635	1.536	1.554	1.653	9.7
Methyl Acetate	1.499	1.333	1.091	1.224	1.166	1.264	1.263	11.3
Methylene Chloride	0.800	0.610	0.477	0.523	0.470	0.614	0.582	21.2
trans-1,2-Dichloroethen<	0.496	0.418	0.374	0.403	0.386	0.429	0.418	10.4
1,1-Dichloroethane	1.062	0.913	0.810	0.863	0.835	0.827	0.885	10.6
Cyclohexane	1.121	1.089	0.937	1.027	0.980	1.049	1.034	6.6
2-Butanone	0.755	0.663	0.578	0.627	0.614	0.614	0.642	9.6
Carbon Tetrachloride	0.537	0.505	0.465	0.489	0.487	0.515	0.5	5
cis-1,2-Dichloroethene	1.054	0.903	0.779	0.829	0.788	0.900	0.876	11.7
Bromochloromethane	0.882	0.768	0.590	0.680	0.634	0.732	0.714	14.6
Chloroform	1.418	1.315	1.153	1.255	1.183	1.222	1.258	7.7
1,1,1-Trichloroethane	0.968	0.808	0.759	0.797	0.725	0.767	0.804	10.6
Methylcyclohexane	0.591	0.555	0.524	0.531	0.544	0.564	0.551	4.4
Benzene	1.588	1.397	1.226	1.296	1.314	1.387	1.368	9.1
1,2-Dichloroethane	0.724	0.588	0.537	0.566	0.554	0.598	0.595	11.3
Trichloroethene	0.618	0.574	0.509	0.531	0.527	0.577	0.556	7.3
1,2-Dichloropropane	0.497	0.422	0.375	0.408	0.402	0.427	0.422	9.8
Bromodichloromethane	0.637	0.574	0.524	0.558	0.558	0.561	0.568	6.6
4-Methyl-2-Pentanone	0.754	0.683	0.574	0.584	0.586	0.630	0.635	11.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052578.D	1	12/19/11	01/01/12	PB59994

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.1	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	390		11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

Sample Calculation

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF123111\
Data File : BF052578.D
Acq On : 1 Jan 2012 11:02
Operator : HNP
Sample : C5017-02 125B16-0.502-02
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jan 02 01:33:37 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF123111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sun Jan 01 06:04:19 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.03	152	97613	20.00	ng	0.00
23) Naphthalene-d8	5.55	136	379794	20.00	ng	0.00
40) Acenaphthene-d10	8.11	164	189964	20.00	ng	0.00
65) Phenanthrene-d10	10.16	188	298365	20.00	ng	0.00
77) Chrysene-d12	13.44	240	277417	20.00	ng	0.00
88) Perylene-d12	15.04	264	249724	20.00	ng	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.79	112	701904	106.18	ng	0.00
7) Phenol-d5	3.71	99	969767	117.55	ng	0.00
12) 2-Chlorophenol-d4	3.80	132	658579	113.82	ng	0.00
15) 1,2-Dichlorobenzene-d4	4.19	152	311492	75.75	ng	0.00
25) Nitrobenzene-d5	4.66	82	590454	79.52	ng	0.00
43) 2,4,6-Tribromophenol	9.26	330	169831	109.79	ng	0.00
46) 2-Fluorobiphenyl	7.14	172	886495	74.58	ng	0.00
80) Terphenyl-d14	12.23	244	745373	71.96	ng	0.00
Target Compounds						Qvalue
9) Benzaldehyde	3.71	77	1196	Below Cal	#	3
21) n-Nitroso-di-n-propylamine	4.66	70	77992	15.56	ng	# 75
51) Dimethylphthalate	7.80	163	115449	9.91	ng	98
55) 2,4-Dinitrophenol	8.26	184	6	7.77	ng	# 1
66) 4,6-Dinitro-2-methylphenol	9.02	198	20	7.74	ng	# 1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_F Calibration Date(s): 12/31/2011 12/31/2011

Calibration Time(s): 16:57 19:17

LAB FILE ID: RRF010 = BF052545.D RRF025 = BF052546.D RRF040 = BF052544.D
RRF050 = BF052547.D RRF060 = BF052548.D RRF080 = BF052549.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.173	1.053	0.880	0.811	0.765	0.651	0.889	21.7
Phenol	2.123	2.094	1.950	1.940	1.878	1.795	1.963	6.4
bis(2-Chloroethyl)ether	1.553	1.576	1.502	1.476	1.470	1.366	1.491	5.0
2-Chlorophenol	1.499	1.477	1.406	1.386	1.373	1.278	1.403	5.7
2-Methylphenol	1.130	1.159	1.093	1.082	1.081	1.007	1.092	4.7
2,2-oxybis(1-Chloropropane)	2.109	2.083	1.940	1.884	1.889	1.745	1.942	7.0
Acetophenone	0.512	0.518	0.492	0.492	0.481	0.467	0.494	3.8
3+4-Methylphenols	1.447	1.525	1.433	1.423	1.421	1.358	1.435	3.7
n-Nitroso-di-n-propylamine	1.031	1.078	1.023	1.020	1.031	0.981	1.027	3.0
Hexachloroethane	0.594	0.616	0.584	0.582	0.586	0.542	0.584	4.1
Nitrobenzene	0.401	0.391	0.378	0.378	0.367	0.359	0.379	4.0
Isophorone	0.701	0.698	0.688	0.695	0.685	0.680	0.691	1.2
2-Nitrophenol	0.185	0.197	0.196	0.202	0.201	0.196	0.196	3.1
2,4-Dimethylphenol	0.336	0.344	0.334	0.332	0.329	0.323	0.333	2.1
bis(2-Chloroethoxy)methane	0.468	0.473	0.460	0.459	0.449	0.437	0.458	2.9
2,4-Dichlorophenol	0.290	0.292	0.288	0.284	0.283	0.274	0.285	2.3
4-Chloroaniline	0.433	0.448	0.430	0.437	0.424	0.412	0.431	2.8
Hexachlorobutadiene	0.164	0.168	0.162	0.163	0.161	0.157	0.162	2.3
Caprolactam	0.103	0.108	0.113	0.117	0.119	0.119	0.113	6.0
4-Chloro-3-methylphenol	0.301	0.312	0.309	0.312	0.311	0.307	0.309	1.4
Hexachlorocyclopentadiene	0.249	0.288	0.276	0.292	0.289	0.283	0.280	5.6
2,4,6-Trichlorophenol	0.337	0.367	0.352	0.365	0.356	0.348	0.354	3.2
2,4,5-Trichlorophenol	0.362	0.385	0.367	0.382	0.375	0.369	0.374	2.4
1,1-Biphenyl	1.662	1.568	1.431	1.415	1.362	1.252	1.449	10.1
2-Chloronaphthalene	1.203	1.159	1.064	1.053	1.025	0.964	1.078	8.2
2-Nitroaniline	0.376	0.398	0.388	0.406	0.399	0.398	0.394	2.7
Dimethylphthalate	1.276	1.288	1.216	1.224	1.199	1.154	1.226	4.1
Acenaphthylene	1.880	1.806	1.693	1.692	1.651	1.556	1.713	6.7
2,6-Dinitrotoluene	0.297	0.298	0.291	0.287	0.286	0.278	0.290	2.6
3-Nitroaniline	0.384	0.421	0.418	0.434	0.429	0.429	0.419	4.3
Acenaphthene	1.179	1.167	1.123	1.126	1.104	1.063	1.127	3.8
2,4-Dinitrophenol	0.035	0.076	0.102	0.127	0.143	0.163	0.108	43.5
4-Nitrophenol	0.225	0.259	0.268	0.283	0.285	0.284	0.267	8.8
Dibenzofuran	1.686	1.653	1.552	1.572	1.533	1.471	1.578	5.0

All other compounds must meet a minimum RRF of 0.010.

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02DL	SDG No.:	C5017
Lab Sample ID:	C5017-14DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002583.D	50	12/19/11	01/01/12	PB59995

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	640	D	23	190	ug/Kg
91-57-6	2-Methylnaphthalene	1000	D	23	190	ug/Kg
208-96-8	Acenaphthylene	250	D	23	190	ug/Kg
83-32-9	Acenaphthene	2100	D	23	190	ug/Kg
86-73-7	Fluorene	3600	D	23	190	ug/Kg
85-01-8	Phenanthrene	21000	D	23	190	ug/Kg
120-12-7	Anthracene	5500	D	23	190	ug/Kg
206-44-0	Fluoranthene	18000	D	23	190	ug/Kg
129-00-0	Pyrene	13000	D	23	190	ug/Kg
56-55-3	Benzo(a)anthracene	6000	D	23	190	ug/Kg
218-01-9	Chrysene	5900	D	23	190	ug/Kg
205-99-2	Benzo(b)fluoranthene	6000	D	23	190	ug/Kg
207-08-9	Benzo(k)fluoranthene	2500	D	23	190	ug/Kg
50-32-8	Benzo(a)pyrene	4900	D	23	190	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2400	D	23	190	ug/Kg
53-70-3	Dibenz(a,h)anthracene	230	D	23	190	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2200	D	23	190	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	67		30 - 150	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	63.5		45 - 105	64%	SPK: 100
1718-51-0	Terphenyl-d14	59		30 - 125	59%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	55605	7.92			
1146-65-2	Naphthalene-d8	203735	10.1			
15067-26-2	Acenaphthene-d10	127670	13.08			
1517-22-2	Phenanthrene-d10	219002	15.53			
1719-03-5	Chrysene-d12	222394	19.9			
1520-96-3	Perylene-d12	204275	22.97			

Sample Calculation

Data Path : Z:\HPCHEM1\BNA_G\Data\BG123111\
Data File : BG002583.D
Acq On : 1 Jan 2012 2:34
Operator : HNP
Sample : C5017-14DL 50X 125B10-0.502-02
Misc : PAH
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jan 02 04:47:11 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Dec 28 18:33:42 2011
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) 1,4-Dichlorobenzene-d4	7.920	152	55605	5.00	ng		-0.05
2) Naphthalene-d8	10.104	136	203735	5.00	ng		-0.05
7) Acenaphthene-d10	13.078	164	127670	5.00	ng		-0.03
12) Phenanthrene-d10	15.534	188	219002	5.00	ng		-0.05
16) Chrysene-d12	19.903	240	222394	5.00	ng		-0.06
23) Perylene-d12	22.971	264	204275	5.00	ng		-0.26
System Monitoring Compounds							
3) Nitrobenzene-d5	8.863	82	22176	1.34	ng		-0.04
8) 2-Fluorobiphenyl	11.956	172	47797	1.27	ng		-0.02
18) Terphenyl-d14	18.160	244	41006	1.18	ng		-0.04
Target Compounds							Qvalue
4) Naphthalene	10.142	128	56200	0.34	ng		100
5) 2-Methylnapthalene	11.320	142	62679	0.54	ng	#	98
6) 1-Methylnapthalene	11.486	142	45978	0.41	ng	#	99
9) Acenaphthylene	12.836	152	23720	0.13	ng	#	89
10) Acenaphthene	13.124	154	32080	1.11	ng		94
11) Fluorene	13.988	166	63473	1.90	ng		98
13) Phenanthrene	15.566	178	2047967	10.94	ng		99
14) Anthracene	15.649	178	546098	2.93	ng		98
15) Fluoranthene	17.541	202	1851292	9.63	ng		99
17) Pyrene	17.913	202	1434603	6.77	ng		94
20) Benzo(a)anthracene	19.877	228	649262	3.15	ng		97
21) Chrysene	19.937	228	579606	2.95	ng		96
22) Indeno(1,2,3-cd)pyrene	26.993	276	9420	0.05	ng	#	26
24) Benzo(b)fluoranthene	22.002	252	1385288	3.16	ng	#	97
25) Benzo(k)fluoranthene	22.244	252	191874	0.44	ng		99
26) Benzo(a)pyrene	22.812	252	1058294	2.57	ng		99
27) Dibenzo(a,h)anthracene	26.752	278	4660	0.12	ng	#	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5017 SAS No.: C5017 SDG No.: C5017

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF2.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

All other compounds must meet a minimum RRF of 0.010.

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 2, 2012**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, OXIDATION REDUCTION POTENTAIL, pH**
NASJRB WILLOW GROVE – CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5017

SAMPLES: 19/Soil/

12SB09-0.502-02	12SB09-000.5-01	12SB09-0304-03
12SB10-0.502-02	12SB10-000.5-01	12SB10-0304-03
12SB11-0.501-02	12SB11-000.5-01	12SB11-0304-03
12SB14-0.502-02	12SB14-0304-03	12SB15-0.502-02
12SB15-000.5-01	12SB15-0304-03	12SB16-0.502-02
12SB16-000.5-01	12SB16-0304-03	12SB-DUP02
12SB-DUP-04		

Overview

The sample set for NASJRB Willow Grove, CTO WE05, SDG C5017, consists of nineteen (19) soil environmental samples. Two (2) field duplicate pairs (12SB16-0304-03 / 12SB-DUP02 and 12SB15-000.5-01 / 12SB-DUP-04) were included within this SDG.

All samples were analyzed for target analyte list (TAL) metals and cyanide. All samples with the exception of 12SB-DUP-04 were analyzed for pH. Samples 12SB09-0.502-02, 12SB09-000.5-01 and 12SB09-0304-03 were also analyzed for oxidation reduction potential. The samples were collected by Tetra Tech on December 15, 2011 and analyzed by Chemtech under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. TAL metals analyses were conducted using SW-846 method 6020. Mercury analyses were conducted using SW-846 method 7471A. Cyanide analyses were conducted using SW-846 method 9012B. pH analyses were conducted using SW-846 method 9045C. Oxidation reduction potential analyses were conducted using method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, matrix spike / matrix spike duplicate percent recoveries, laboratory duplicate precision, ICP interference results, laboratory control sample results, internal standard recoveries, field duplicate precision, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems – None.

Minor Problems

- The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	10.920 ug/L	5.46 mg/kg
Antimony	0.933 ug/L	0.4665 mg/kg
Arsenic	0.293 ug/L	0.1465 mg/kg
Barium	1.009 ug/L	0.5045 mg/kg
Beryllium	0.312 ug/L	0.156 mg/kg
Cadmium	0.211 ug/L	0.1055 mg/kg
Calcium	26.960 ug/L	13.48 mg/kg
Chromium	0.309 ug/L	0.1545 mg/kg
Cobalt	0.185 ug/L	0.0925 mg/kg
Copper	0.432 ug/L	0.216 mg/kg
Iron	15.520 ug/L	7.76 mg/kg
Lead	0.260 ug/L	0.13 mg/kg
Magnesium	18.530 ug/L	9.265 mg/kg
Manganese	0.904 ug/L	0.452 mg/kg
Nickel	0.265 ug/L	0.1325 mg/kg
Potassium	63.79 ug/L	31.895 mg/kg
Silver	0.298 ug/L	0.149 mg/kg
Sodium	62.310 ug/L	31.155 mg/kg
Thallium[(1)]	0.598 ug/L	0.299 mg/kg
Thallium[(2)]	0.424 ug/L	0.212 mg/kg
Vanadium	0.678 ug/L	0.339 mg/kg
Zinc[(3)]	0.125 mg/kg	0.625 mg/kg

(1) Maximum concentration present in a laboratory method blank affecting samples 12SB11-000.5-01, 12SB09-0304-03, 12SB-10-0.502-02, 12SB10-000.5-01, 12SB10-0304-03, 12SB15-000.5-01, 12SB15-0304-03, 12SB15-0.502-02, 12SB-DUP-04, 12SB14-0.502-02 and SB14-0304-03.

(2) Maximum concentration present in a laboratory method blank affecting samples 12SB16-0.502-02, 12SB16-000.5-01, 12SB16-0304-03, 12SB11-0.501-02, 12SB11-0304-03, 12SB-DUP02, 12SB09-0.502-02 and 12SB09-000.5-01.

(3) Maximum concentration present in a laboratory preparation blank.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level were qualified "B" as a result of laboratory blank contamination.

- The interfering analyte iron was present in samples 12SB09-0304-03, 12SB10-0.502-02, 12SB10-0304-03, 12SB11-0.501-02, 12SB11-0304-03 and 12SB16-0.502-02 at a concentration comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, barium, beryllium, cobalt, copper, manganese, nickel, thallium, vanadium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, copper and silver in the affected samples. The positive results reported for

copper and silver were qualified as estimated, "J", as a result of conflicting noncompliances. The positive results reported for antimony were qualified as a result of blank contamination.

- The interfering analyte iron was present in samples 12SB15-0304-03, 12SB16-0304-03 and 12SB-DUP02 at a concentration comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, barium, beryllium, cobalt, copper, manganese, nickel, thallium, vanadium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, copper and silver in the affected samples. The positive results reported for beryllium, copper and silver were qualified as estimated, "J", as a result of conflicting noncompliances. The positive results reported for antimony were qualified as a result of blank contamination.

- The matrix spike and/or matrix spike duplicate percent recoveries for barium and magnesium were > 120% quality control limit. The positive results reported for barium and magnesium were qualified as estimated, "J", as a result of conflicting noncompliances.

- The matrix spike duplicate percent recoveries for antimony, arsenic, beryllium, nickel and potassium were < 80% quality control limit. The positive results reported for arsenic, beryllium and nickel were qualified as estimated, "J", as a result of conflicting noncompliances. The positive results reported for potassium were qualified as biased low, "L". The positive results reported for antimony were qualified as a result of blank contamination.

- Laboratory duplicate imprecision (RPD > 35%) was present for arsenic and barium. The positive results reported for the aforementioned analytes were qualified as estimated, "J".

- The ICP serial dilution percent differences were > 10% quality control limit (sample results > 50X MDL) for aluminum, arsenic, barium, beryllium, calcium, cobalt, copper, iron, lead, magnesium, manganese, sodium, vanadium and zinc. The positive results reported for the aforementioned analytes were qualified as estimated, "J".

- Field duplicate imprecision (RPD > 50%) was present for calcium for sample pair 12SB16-0304-03 / 12SB-DUP02. The positive results reported for calcium for samples 12SB16-0304-03 and 12SB-DUP02 were qualified as estimated, "J".

- The internal standard recovery for Scandium-45 was > 130% quality control limit for sample 12SB16-0304-03. The positive results reported for beryllium, sodium, magnesium, aluminum, potassium, calcium, vanadium, chromium, iron, manganese, cobalt, nickel, copper, arsenic and selenium for sample 12SB16-0304-03 were qualified as estimated, "J".

- Positive results reported below the limit of quantitation (LOQ) but above the method detection limit (MDL) were qualified as estimated, "J".

Notes

The contract required detection limit (CRDL) percent recoveries for chromium, cobalt, copper, iron, manganese, nickel and zinc were > 110% quality control limits. No validation actions were warranted as the sample results were > 2X CRDL.

The interfering analyte iron was present in sample 12SB14-0.502-02 at a concentration comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, barium, beryllium, cobalt, copper, manganese, nickel, thallium, vanadium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony in

the affected sample. The positive result reported for antimony was qualified as a result of blank contamination.

The following sample results were missing from the EDD and were added by the validator:

Sample 12SB11-000.5-01	mercury and zinc
Sample 12SB16-0.502-02	thallium and zinc
Sample 12SB16-000.5-01	thallium and zinc
Sample 12SB16-0304-03	thallium and zinc

Nondetected results are reported to the limit of detection (LOD).

The nondetected results for all samples were below the project action level.

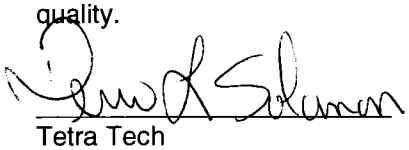
Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks. Laboratory duplicate imprecision (RPD > 35%) was present for arsenic and barium. The internal standard recovery for Scandium-45 was > 130% quality control limit for sample 12SB16-0304-03.

Other Factors Affecting Data Quality: The interfering analyte iron was present in several samples. Several matrix spike / matrix spike duplicate percent recoveries were outside the 80-120% quality control limits. The ICP serial dilution percent differences were > 10% quality control limit (sample results > 50X MDL) for several analytes. Field duplicate imprecision was present for calcium for sample pair 12SB16-0304-03 / 12SB-DUP02. Positive results reported below the LOQ but above the MDL were qualified as estimated.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Terri L. Solomon
Environmental Scientist

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-000.5-01			12SB09-0304-03			12SB10-0.502-02		
SDG: C5017	LAB_ID	C5017-11			C5017-10			C5017-12			C5017-14		
FRACTION: M	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.1			66.8			83.5			87.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		5280	J	I	3970	J	I	5990	J	I	4060	J	I
ANTIMONY		0.13	B	A	0.17	B	A	0.33	B	A	0.17	B	A
ARSENIC		3	J	DFI	2.1	J	DFI	2.4	J	DFI	0.96	J	DFI
BARIUM		44.2	J	DFI	32.5	J	DFI	111	J	DFI	67.2	J	DFI
BERYLLIUM		0.47	J	DI	0.31	J	DI	0.68	J	DI	0.56	J	DI
CADMIUM		0.33			0.14	B	A	0.11	B	A	0.084	B	A
CALCIUM		627	J	I	592	J	I	504	J	I	3080	J	I
CHROMIUM		8.7			7.7			11.8			8.5		
COBALT		3	J	I	2.1	J	I	5.3	J	I	4.5	J	I
COPPER		5.3	J	I	4.8	J	I	5.4	J	IK	5.7	J	IK
IRON		7790	J	I	7180	J	I	13200	J	I	9670	J	I
LEAD		10.6	J	I	11	J	I	16.8	J	I	7.2	J	I
MAGNESIUM		851	J	DI	618	J	DI	1120	J	DI	2120	J	DI
MANGANESE		227	J	I	127	J	I	419	J	I	312	J	I
MERCURY		0.028			0.042			0.035			0.007	J	P
NICKEL		4.3	J	DK	3.5	J	D	6.6	J	DK	5.3	J	DK
POTASSIUM		163	L	D	191	L	D	635	L	D	440	L	D
SELENIUM		0.19	J	P	0.12	J	P	0.17	J	P	0.076	J	P
SILVER		0.028	B	A	0.024	B	A	0.024	B	A	0.013	B	A
SODIUM		45	J	IP	28.5	B	A	56.6	J	I	67.6	J	I
THALLIUM		0.14	B	A	0.17	B	A	0.63			0.15	B	A
VANADIUM		11.6	J	I	10.4	J	I	13.6	J	I	10.5	J	I
ZINC		23	J	I	28	J	I	27.6	J	I	16.9	J	I

PROJ_NO: 02014	NSAMPLE	12SB10-000.5-01			12SB10-0304-03			12SB11-0.501-02			12SB11-000.5-01		
SDG: C5017	LAB_ID	C5017-13			C5017-15			C5017-07			C5017-04		
FRACTION: M	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	70.3			86.7			84.1			69.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		2770	J	I	3910	J	I	5310	J	I	6090	J	I
ANTIMONY		0.25	B	A	0.23	B	A	0.14	B	A	0.32	B	A
ARSENIC		1.1	J	DFI	1.1	J	DFI	1.8	J	DFI	3.3	J	DFI
BARIUM		53.1	J	DFI	70	J	DFI	62.2	J	DFI	62.9	J	DFI
BERYLLIUM		0.4	J	DI	0.52	J	DI	0.53	J	DI	0.65	J	DI
CADMIUM		0.12	B	A	0.12	B	A	0.071	B	A	0.18		
CALCIUM		2000	J	I	5700	J	I	381	J	I	698	J	I
CHROMIUM		8.1			9.5			10.5			11.5		
COBALT		3.5	J	I	5.4	J	I	5.2	J	I	3.2	J	I
COPPER		6.2	J	I	7.1	J	IK	6.8	J	IK	8.2	J	I
IRON		7460	J	I	11800	J	I	11300	J	I	11500	J	I
LEAD		11.1	J	I	10.9	J	I	7	J	I	17	J	I
MAGNESIUM		1290	J	DI	4370	J	DI	923	J	DI	940	J	DI
MANGANESE		213	J	I	386	J	I	323	J	I	177	J	I
MERCURY		0.022			0.009	J	P	0.018			0.034		
NICKEL		4.4	J	D	6.4	J	DK	5.6	J	DK	5.5	J	D
POTASSIUM		354	L	D	439	L	D	362	L	D	304	L	D
SELENIUM		0.081	J	P	0.22	U		0.07	J	P	0.23	J	P
SILVER		0.022	B	A	0.012	B	A	0.014	B	A	0.042	B	A
SODIUM		41.6	B	A	66.4	J	I	42.5	J	IP	42.1	B	A
THALLIUM		0.28	B	A	0.12	B	A	0.08	B	A	0.13	B	A
VANADIUM		9.7	J	I	12.5	J	I	14.7	J	I	16.3	J	I
ZINC		27.9	J	I	20.1	J	I	18.3	J	I	29	J	I

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03			12SB14-0.502-02			12SB14-0304-03			12SB15-0.502-02		
SDG: C5017	LAB_ID	C5017-08			C5017-20			C5017-21			C5017-17		
FRACTION: M	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.5			85.8			85.9			82.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		5920	J	I	4240	J	I	4940	J	I	4190	J	I
ANTIMONY		0.28	B	A	0.25	B	A	0.039	B	A	0.24	B	A
ARSENIC		3.7	J	DFI	3.3	J	DFI	0.76	J	DFI	1.1	J	DFI
BARIUM		114	J	DFI	66.5	J	DFI	25.8	J	DFI	51.5	J	DFI
BERYLLIUM		0.68	J	DI	0.54	J	DI	0.22	B	A	0.42	J	DI
CADMIUM		0.12	B	A	0.13	B	A	0.018	B	A	0.064	B	A
CALCIUM		599	J	I	1330	J	I	166	J	I	393	J	I
CHROMIUM		13.6			7.9			4			9.6		
COBALT		5.2	J	I	4.7	J	I	2.6	J	I	3.8	J	I
COPPER		3.9	J	IK	19.4	J	I	3.2	J	I	4.2	J	I
IRON		14300	J	I	10300	J	I	4610	J	I	10600	J	I
LEAD		10.2	J	I	9.2	J	I	1.6	J	I	8.1	J	I
MAGNESIUM		1010	J	DI	1190	J	DI	357	J	DI	732	J	DI
MANGANESE		406	J	I	259	J	I	90.3	J	I	158	J	I
MERCURY		0.012			0.018			0.013			0.008	J	P
NICKEL		6.2	J	DK	8.3	J	D	2.8	J	D	4.4	J	D
POTASSIUM		623	L	D	314	L	D	103	L	D	482	L	D
SELENIUM		0.19	J	P	0.11	J	P	0.225	U		0.285	U	
SILVER		0.05	B	A	0.039	B	A	0.0455	U		0.025	B	A
SODIUM		57.5	J	IP	59.3	J	I	223	J	I	46.5	J	IP
THALLIUM		0.43			0.1	B	A	0.041	B	A	0.11	B	A
VANADIUM		15.4	J	I	10.6	J	I	5.2	J	I	9.7	J	I
ZINC		21.1	J	I	20.9	J	I	8.6	J	I	17	J	I

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-0304-03			12SB16-0.502-02			12SB16-000.5-01		
SDG: C5017	LAB_ID	C5017-16			C5017-18			C5017-02			C5017-01		
FRACTION: M	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	67.1			81.8			83.9			65.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		3930	J	I	6020	J	I	7440	J	I	8380	J	I
ANTIMONY		0.39	B	A	0.13	B	A	0.21	B	A	0.53	B	A
ARSENIC		1.5	J	DFI	3.3	J	DFI	4.6	J	DFI	5	J	DFI
BARIUM		55.3	J	DFI	23.2	J	DFI	60.3	J	DFI	93.2	J	DFI
BERYLLIUM		0.52	J	DI	0.23	B	A	0.72	J	DI	0.79	J	DI
CADMIUM		0.17			0.035	B	A	0.1	B	A	0.4		
CALCIUM		787	J	I	283	J	I	410	J	I	1770	J	I
CHROMIUM		11			10.6			12.6			15.2		
COBALT		4.4	J	I	1.9	J	I	4.6	J	I	5.8	J	I
COPPER		6.1	J	I	4.4	J	IK	4.9	J	IK	9.3	J	I
IRON		9450	J	I	9990	J	I	12600	J	I	14300	J	I
LEAD		24	J	I	5.5	J	I	12.7	J	I	31.2	J	I
MAGNESIUM		813	J	DI	849	J	DI	945	J	DI	1360	J	DI
MANGANESE		274	J	I	87.2	J	I	308	J	I	414	J	I
MERCURY		0.037			0.018			0.046			0.075		
NICKEL		5.6	J	D	3.9	J	DK	5.8	J	DK	7.9	J	D
POTASSIUM		487	L	D	149	L	D	200	L	D	528	L	D
SELENIUM		0.375	U		0.12	J	P	0.3	J	P	0.54	J	P
SILVER		0.036	B	A	0.013	B	A	0.032	B	A	0.079	B	A
SODIUM		45.4	B	A	26.9	B	A	35.2	B	A	47.8	J	IP
THALLIUM		0.15	B	A	0.09	B	A	0.12	B	A	0.28	B	A
VANADIUM		12	J	I	14.8	J	I	18.5	J	I	21.5	J	I
ZINC		30.8	J	I	19.8	J	I	22.7	J	I	46.6	J	I

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB-DUP02			12SB-DUP-04		
SDG: C5017	LAB_ID	C5017-03			C5017-09			C5017-19		
FRACTION: M	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.9			82.0			67.3		
	DUP_OF				12SB16-0304-03			12SB15-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11400	J	IN	7070	J	I	4010	J	I
ANTIMONY		0.22	B	A	0.14	B	A	0.29	B	A
ARSENIC		5.2	J	DFIN	3.3	J	DFI	1.4	J	DFI
BARIUM		60.2	J	DFI	37	J	DFI	52.7	J	DFI
BERYLLIUM		0.44	J	DIKN	0.33	J	DIK	0.45	J	DI
CADMIUM		0.1	B	A	0.14	B	A	0.14	B	A
CALCIUM		630	J	GIN	356	J	GI	645	J	I
CHROMIUM		18.2	J	N	11.4			10.5		
COBALT		5.4	J	IN	4.8	J	I	3.7	J	I
COPPER		8.8	J	IKN	6.2	J	IK	5.8	J	I
IRON		20300	J	IN	12800	J	I	9650	J	I
LEAD		12	J	I	7.5	J	I	21.2	J	I
MAGNESIUM		1370	J	DIN	949	J	DI	789	J	DI
MANGANESE		229	J	IN	174	J	I	192	J	I
MERCURY		0.037			0.047			0.03		
NICKEL		7.6	J	DKN	5.4	J	DK	5.2	J	D
POTASSIUM		313	L	DN	194	L	D	467	L	D
SELENIUM		0.1	J	PN	0.057	J	P	0.096	J	P
SILVER		0.029	B	A	0.018	B	A	0.032	B	A
SODIUM		47.2	J	INP	22.7	B	A	34.9	B	A
THALLIUM		0.13	B	A	0.19	B	A	0.095	B	A
VANADIUM		28.3	J	IN	18.2	J	I	11.8	J	I
ZINC		26.3	J	I	22.7	J	I	26.8	J	I

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02								12SB09-000.5-01		
SDG: C5017	LAB_ID	C5017-11								C5017-10		
FRACTION: MISC	SAMP_DATE	12/15/2011								12/15/2011		
MEDIA: SOIL	QC_TYPE	NM								NM		
	UNITS	MG/KG			MV			S.U.		MG/KG		
	PCT_SOLIDS	81.1			81.1			100.0		66.8		
	DUP_OF											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.077	J	P							0.059	J	P
OXIDATION REDUCTION POTENTIAL					275.8								
PH								6.52					

PROJ_NO: 02014	NSAMPLE	12SB09-000.5-01						12SB09-0304-03					
SDG: C5017	LAB_ID	C5017-10						C5017-12					
FRACTION: MISC	SAMP_DATE	12/15/2011						12/15/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	66.8			100.0			83.5			83.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.096	J	P			
OXIDATION REDUCTION POTENTIAL		280.4									356.7		
PH					5.56								

PROJ_NO: 02014	NSAMPLE	12SB09-0304-03			12SB10-0.502-02						12SB10-000.5-01		
SDG: C5017	LAB_ID	C5017-12			C5017-14						C5017-13		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			87.5			100.0			70.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.426						0.111	J	P
OXIDATION REDUCTION POTENTIAL													
PH		5.25						7.52					

PROJ_NO: 02014	NSAMPLE	12SB10-000.5-01			12SB10-0304-03						12SB11-0.501-02		
SDG: C5017	LAB_ID	C5017-13			C5017-15						C5017-07		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			86.7			100.0			84.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.144	U					0.085	J	P
OXIDATION REDUCTION POTENTIAL													
PH		6.68						7.42					

PROJ_NO: 02014	NSAMPLE	12SB11-0.501-02			12SB11-000.5-01						12SB11-0304-03		
SDG: C5017	LAB_ID	C5017-07			C5017-04						C5017-08		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			69.9			100.0			83.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.073	J	P				0.053	J	P
OXIDATION REDUCTION POTENTIAL													
PH		5.41						5.22					

PROJ_NO: 02014	NSAMPLE	12SB11-0304-03			12SB14-0.502-02						12SB14-0304-03		
SDG: C5017	LAB_ID	C5017-08			C5017-20						C5017-21		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			85.8			100.0			85.9		
	DUP_OF	.											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.1455	U					0.066	J	P
OXIDATION REDUCTION POTENTIAL													
PH		5.7						7.22					

PROJ_NO: 02014	NSAMPLE	12SB14-0304-03			12SB15-0.502-02						12SB15-000.5-01		
SDG: C5017	LAB_ID	C5017-21			C5017-17						C5017-16		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			82.4			100.0			67.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.077	J	P				0.093	J	P
OXIDATION REDUCTION POTENTIAL													
PH		7.21						5.23					

PROJ_NO: 02014	NSAMPLE	12SB15-000.5-01			12SB15-0304-03						12SB16-0.502-02		
SDG: C5017	LAB_ID	C5017-16			C5017-18						C5017-02		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			81.8			100.0			83.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.1525	U					0.079	J	P
OXIDATION REDUCTION POTENTIAL													
PH		5.91						5.65					

PROJ_NO: 02014	NSAMPLE	12SB16-0.502-02			12SB16-000.5-01						12SB16-0304-03		
SDG: C5017	LAB_ID	C5017-02			C5017-01						C5017-03		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			65.4			100.0			80.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.209	J	P				0.045	J	P
OXIDATION REDUCTION POTENTIAL													
PH		4.96						5.79					

PROJ_NO: 02014	NSAMPLE	12SB16-0304-03			12SB-DUP02						12SB-DUP-04		
SDG: C5017	LAB_ID	C5017-03			C5017-09						C5017-19		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011						12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			82.0			100.0			67.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.055	J	P				0.1855	U	
OXIDATION REDUCTION POTENTIAL													
PH		5.32						5.46					

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
Level (low/med):	low	% Solid:	67.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4010	*	1	0.77	2.3	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.29	N*	1	0.03	0.23	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	1.4	N*	1	0.025	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	52.7	N*	1	0.009	1.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.45	N*	1	0.008	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.14	*	1	0.01	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	645	*	1	0.73	57.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	10.5	*	1	0.013	0.23	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	3.7	*	1	0.007	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	5.8	*	1	0.007	0.23	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	9650	*	1	1.1	22.9	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	21.2	*	1	0.005	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	789	N*	1	0.79	57.1	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	192	*	1	0.007	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.03		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.2	N	1	0.01	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	467	N*	1	1	57.1	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.096	J	1	0.064	0.57	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.032	J	1	0.008	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	34.9	J	1	1.4	57.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.095	J	1	0.006	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	11.8	*	1	0.015	0.57	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	26.8		1	0.013	0.23	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	82

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7070	*	1	0.62	1.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.14	JN*	1	0.024	0.18	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	3.3	N*	1	0.02	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	37	N*	1	0.007	0.92	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.33	N*	1	0.006	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.14	*	1	0.008	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	356	*	1	0.58	45.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	11.4	*	1	0.01	0.18	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	4.8	*	1	0.006	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	6.2	*	1	0.006	0.18	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	12800	*	1	0.85	18.3	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	7.5	*	1	0.004	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	949	N*	1	0.64	45.8	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	174	*	1	0.006	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.047		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.4	N	1	0.008	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	194	N*	1	0.83	45.8	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.057	J	1	0.051	0.46	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.018	J	1	0.006	0.092	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	22.7	J	1	1.1	45.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.19		1	0.005	0.092	mg/Kg	12/19/11	12/22/11	SW6020
7440-62-2	Vanadium	18.2	*	1	0.012	0.46	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	22.7		1	0.01	0.18	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5280	*	1	0.69	2	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.13	JN*	1	0.026	0.2	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	3	N*	1	0.022	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	44.2	N*	1	0.008	1	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.47	N*	1	0.007	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.33	*	1	0.009	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	627	*	1	0.65	51	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	8.7	*	1	0.011	0.2	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	3	*	1	0.006	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	5.3	*	1	0.006	0.2	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	7790	*	1	0.94	20.4	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	10.6	*	1	0.004	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	851	N*	1	0.71	51	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	227	*	1	0.006	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.028		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.3	N	1	0.009	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	163	N*	1	0.92	51	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.19	J	1	0.057	0.51	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.028	J	1	0.007	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	45	J	1	1.2	51	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.14		1	0.005	0.1	mg/Kg	12/19/11	12/22/11	SW6020
7440-62-2	Vanadium	11.6	*	1	0.013	0.51	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	23		1	0.011	0.2	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
Level (low/med):	low	% Solid:	66.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	3970	*	1	0.92	2.7	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.17	JN*	1	0.035	0.27	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	2.1	N*	1	0.03	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	32.5	N*	1	0.011	1.4	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.31	N*	1	0.01	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.14	*	1	0.012	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	592	*	1	0.86	68	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	7.7	*	1	0.015	0.27	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	2.1	*	1	0.008	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	4.8	*	1	0.008	0.27	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	7180	*	1	1.3	27.2	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	11	*	1	0.005	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	618	N*	1	0.94	68	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	127	*	1	0.008	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.042		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	3.5	N	1	0.012	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	191	N*	1	1.2	68	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.12	J	1	0.076	0.68	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.024	J	1	0.01	0.14	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	28.5	J	1	1.7	68	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.17		1	0.007	0.14	mg/Kg	12/19/11	12/22/11	SW6020
7440-62-2	Vanadium	10.4	*	1	0.018	0.68	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	28		1	0.015	0.27	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5990	*	1	0.68	2	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.33	N*	1	0.026	0.2	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	2.4	N*	1	0.022	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	111	N*	1	0.008	1	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.68	N*	1	0.007	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.11	*	1	0.009	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	504	*	1	0.63	49.9	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	11.8	*	1	0.011	0.2	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	5.3	*	1	0.006	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	5.4	*	1	0.006	0.2	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	13200	*	1	0.92	20	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	16.8	*	1	0.004	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	1120	N*	1	0.69	49.9	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	419	*	1	0.006	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.035		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	6.6	N	1	0.009	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	635	N*	1	0.9	49.9	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.17	J	1	0.056	0.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.024	J	1	0.007	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	56.6		1	1.2	49.9	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.63		1	0.005	0.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	13.6	*	1	0.013	0.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	27.6		1	0.011	0.2	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
Level (low/med):	low	% Solid:	87.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4060	*	1	0.61	1.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.17	JN*	1	0.024	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	0.96	N*	1	0.02	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	67.2	N*	1	0.007	0.91	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.56	N*	1	0.006	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.084	J*	1	0.008	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	3080	*	1	0.58	45.4	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	8.5	*	1	0.01	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	4.5	*	1	0.005	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	5.7	*	1	0.005	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	9670	*	1	0.84	18.1	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	7.2	*	1	0.004	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	2120	N*	1	0.63	45.4	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	312	*	1	0.005	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.007	J	1	0.002	0.01	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.3	N	1	0.008	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	440	N*	1	0.82	45.4	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.076	J	1	0.051	0.45	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.013	J	1	0.006	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	67.6		1	1.1	45.4	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.15		1	0.004	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	10.5	*	1	0.012	0.45	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	16.9		1	0.01	0.18	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	2770	*	1	0.89	2.6	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.25	JN*	1	0.034	0.26	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	1.1	N*	1	0.029	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	53.1	N*	1	0.011	1.3	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.4	N*	1	0.009	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.12	J*	1	0.012	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	2000	*	1	0.84	65.9	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	8.1	*	1	0.015	0.26	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	3.5	*	1	0.008	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	6.2	*	1	0.008	0.26	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	7460	*	1	1.2	26.3	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	11.1	*	1	0.005	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	1290	N*	1	0.91	65.9	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	213	*	1	0.008	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.022		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.4	N	1	0.012	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	354	N*	1	1.2	65.9	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.081	J	1	0.074	0.66	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.022	J	1	0.009	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	41.6	J	1	1.6	65.9	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.28		1	0.007	0.13	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	9.7	*	1	0.017	0.66	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	27.9		1	0.015	0.26	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
Level (low/med):	low	% Solid:	86.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	3910	*	1	0.6	1.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.23	N*	1	0.023	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	1.1	N*	1	0.019	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	70	N*	1	0.007	0.88	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.52	N*	1	0.006	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.12	*	1	0.008	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	5700	*	1	0.56	44	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	9.5	*	1	0.01	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	5.4	*	1	0.005	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	7.1	*	1	0.005	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	11800	*	1	0.82	17.6	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	10.9	*	1	0.004	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	4370	N*	1	0.61	44	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	386	*	1	0.005	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.009	J	1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	6.4	N	1	0.008	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	439	N*	1	0.79	44	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.22	U	1	0.049	0.44	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.012	J	1	0.006	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	66.4		1	1.1	44	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.12		1	0.004	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	12.5	*	1	0.011	0.44	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	20.1		1	0.01	0.18	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	84.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5310	*	1	0.68	2	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.14	JN*	1	0.026	0.2	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	1.8	N*	1	0.022	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	62.2	N*	1	0.008	1	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.53	N*	1	0.007	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.071	J*	1	0.009	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	381	*	1	0.64	50.4	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	10.5	*	1	0.011	0.2	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	5.2	*	1	0.006	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	6.8	*	1	0.006	0.2	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	11300	*	1	0.93	20.2	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	7	*	1	0.004	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	923	N*	1	0.7	50.4	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	323	*	1	0.006	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.018		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.6	N	1	0.009	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	362	N*	1	0.91	50.4	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.07	J	1	0.056	0.5	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.014	J	1	0.007	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	42.5	J	1	1.2	50.4	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.08	J	1	0.005	0.1	mg/Kg	12/19/11	12/21/11	SW6020
7440-62-2	Vanadium	14.7	*	1	0.013	0.5	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	18.3		1	0.011	0.2	mg/Kg	12/19/11	12/21/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
Level (low/med):	low	% Solid:	69.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	6090	*	1	0.97	2.9	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.32	N*	1	0.037	0.29	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	3.3	N*	1	0.032	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	62.9	N*	1	0.011	1.4	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.65	N*	1	0.01	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.18	*	1	0.013	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	698	*	1	0.91	71.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	11.5	*	1	0.016	0.29	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	3.2	*	1	0.009	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	8.2	*	1	0.009	0.29	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	11500	*	1	1.3	28.6	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	17	*	1	0.006	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	940	N*	1	0.99	71.5	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	177	*	1	0.009	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.034		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.5	N	1	0.013	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	304	N*	1	1.3	71.5	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.23	J	1	0.08	0.72	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.042	J	1	0.01	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	42.1	J	1	1.8	71.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.13	J	1	0.007	0.14	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	16.3	*	1	0.019	0.72	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	29		1	0.016	0.29	mg/Kg	12/19/11	12/21/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5920	*	1	0.78	2.3	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.28	N*	1	0.03	0.23	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	3.7	N*	1	0.025	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	114	N*	1	0.009	1.2	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.68	N*	1	0.008	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.12	*	1	0.01	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	599	*	1	0.73	57.6	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	13.6	*	1	0.013	0.23	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	5.2	*	1	0.007	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	3.9	*	1	0.007	0.23	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	14300	*	1	1.1	23	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	10.2	*	1	0.005	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	1010	N*	1	0.8	57.6	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	406	*	1	0.007	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.012		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	6.2	N	1	0.01	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	623	N*	1	1	57.6	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.19	J	1	0.065	0.58	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.05	J	1	0.008	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	57.5	J	1	1.4	57.6	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.43		1	0.006	0.12	mg/Kg	12/19/11	12/22/11	SW6020
7440-62-2	Vanadium	15.4	*	1	0.015	0.58	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	21.1		1	0.013	0.23	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
Level (low/med):	low	% Solid:	85.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4240	*	1	0.59	1.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.25	N*	1	0.023	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	3.3	N*	1	0.019	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	66.5	N*	1	0.007	0.88	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.54	N*	1	0.006	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.13	*	1	0.008	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	1330	*	1	0.56	43.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	7.9	*	1	0.01	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	4.7	*	1	0.005	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	19.4	*	1	0.005	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	10300	*	1	0.81	17.5	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	9.2	*	1	0.004	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	1190	N*	1	0.61	43.8	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	259	*	1	0.005	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.018		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	8.3	N	1	0.008	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	314	N*	1	0.79	43.8	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.11	J	1	0.049	0.44	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.039	J	1	0.006	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	59.3		1	1.1	43.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.1		1	0.004	0.088	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	10.6	*	1	0.011	0.44	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	20.9		1	0.01	0.18	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
Level (low/med):	low	% Solid:	85.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4940	*	1	0.62	1.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.039	JN*	1	0.024	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	0.76	N*	1	0.02	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	25.8	N*	1	0.007	0.91	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.22	N*	1	0.006	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.018	J*	1	0.008	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	166	*	1	0.58	45.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	4	*	1	0.01	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	2.6	*	1	0.006	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	3.2	*	1	0.006	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	4610	*	1	0.84	18.2	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	1.6	*	1	0.004	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	357	N*	1	0.63	45.5	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	90.3	*	1	0.006	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.013		1	0.002	0.01	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	2.8	N	1	0.008	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	103	N*	1	0.82	45.5	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.225	U	1	0.051	0.45	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.0455	U	1	0.006	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	223		1	1.1	45.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.041	J	1	0.004	0.091	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	5.2	*	1	0.012	0.45	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	8.6		1	0.01	0.18	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4190	*	1	0.77	2.3	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.24	N*	1	0.029	0.23	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	1.1	N*	1	0.025	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	51.5	N*	1	0.009	1.1	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.42	N*	1	0.008	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.064	J*	1	0.01	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	393	*	1	0.72	56.7	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	9.6	*	1	0.013	0.23	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	3.8	*	1	0.007	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	4.2	*	1	0.007	0.23	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	10600	*	1	1.1	22.7	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	8.1	*	1	0.004	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	732	N*	1	0.79	56.7	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	158	*	1	0.007	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.008	J	1	0.002	0.012	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.4	N	1	0.01	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	482	N*	1	1	56.7	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.285	U	1	0.064	0.57	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.025	J	1	0.008	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	46.5	J	1	1.4	56.7	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.11	J	1	0.006	0.11	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	9.7	*	1	0.015	0.57	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	17		1	0.013	0.23	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
Level (low/med):	low	% Solid:	67.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	3930	*	1	1	3	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.39	N*	1	0.039	0.3	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	1.5	N*	1	0.033	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	55.3	N*	1	0.012	1.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.52	N*	1	0.01	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.17	*	1	0.013	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	787	*	1	0.95	74.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	11	*	1	0.016	0.3	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	4.4	*	1	0.009	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	6.1	*	1	0.009	0.3	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	9450	*	1	1.4	29.8	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	24	*	1	0.006	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	813	N*	1	1	74.5	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	274	*	1	0.009	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.037		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.6	N	1	0.013	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	487	N*	1	1.3	74.5	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.375	U	1	0.084	0.75	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.036	J	1	0.01	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	45.4	J	1	1.8	74.5	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.15	J	1	0.008	0.15	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	12	*	1	0.019	0.75	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	30.8		1	0.016	0.3	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	6020	*	1	0.6	1.8	mg/Kg	12/19/11	12/20/11	SW6020
7440-36-0	Antimony	0.13	JN*	1	0.023	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-38-2	Arsenic	3.3	N*	1	0.02	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-39-3	Barium	23.2	N*	1	0.007	0.89	mg/Kg	12/19/11	12/20/11	SW6020
7440-41-7	Beryllium	0.23	N*	1	0.006	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-43-9	Cadmium	0.035	J*	1	0.008	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-70-2	Calcium	283	*	1	0.57	44.6	mg/Kg	12/19/11	12/20/11	SW6020
7440-47-3	Chromium	10.6	*	1	0.01	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7440-48-4	Cobalt	1.9	*	1	0.005	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-50-8	Copper	4.4	*	1	0.005	0.18	mg/Kg	12/19/11	12/20/11	SW6020
7439-89-6	Iron	9990	*	1	0.83	17.8	mg/Kg	12/19/11	12/20/11	SW6020
7439-92-1	Lead	5.5	*	1	0.004	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7439-95-4	Magnesium	849	N*	1	0.62	44.6	mg/Kg	12/19/11	12/20/11	SW6020
7439-96-5	Manganese	87.2	*	1	0.005	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7439-97-6	Mercury	0.018		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	3.9	N	1	0.008	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-09-7	Potassium	149	N*	1	0.8	44.6	mg/Kg	12/19/11	12/20/11	SW6020
7782-49-2	Selenium	0.12	J	1	0.05	0.45	mg/Kg	12/19/11	12/20/11	SW6020
7440-22-4	Silver	0.013	J	1	0.006	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-23-5	Sodium	26.9	J	1	1.1	44.6	mg/Kg	12/19/11	12/20/11	SW6020
7440-28-0	Thallium	0.09		1	0.004	0.089	mg/Kg	12/19/11	12/20/11	SW6020
7440-62-2	Vanadium	14.8	*	1	0.012	0.45	mg/Kg	12/19/11	12/20/11	SW6020
7440-66-6	Zinc	19.8		1	0.01	0.18	mg/Kg	12/19/11	12/22/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7440	*	1	0.7	2.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.21	N*	1	0.027	0.21	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	4.6	N*	1	0.023	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	60.3	N*	1	0.008	1	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.72	N*	1	0.007	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.1	*	1	0.009	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	410	*	1	0.65	51.4	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	12.6	*	1	0.011	0.21	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	4.6	*	1	0.006	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	4.9	*	1	0.006	0.21	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	12600	*	1	0.95	20.5	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	12.7	*	1	0.004	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	945	N*	1	0.71	51.4	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	308	*	1	0.006	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.046		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.8	N	1	0.009	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	200	N*	1	0.93	51.4	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.3	J	1	0.058	0.51	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.032	J	1	0.007	0.1	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	35.2	J	1	1.3	51.4	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.12		1	0.005	0.1	mg/Kg	12/19/11	12/21/11	SW6020
7440-62-2	Vanadium	18.5	*	1	0.013	0.51	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	22.7		1	0.011	0.21	mg/Kg	12/19/11	12/21/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	65.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8380	*	1	0.99	2.9	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.53	N*	1	0.038	0.29	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	5	N*	1	0.032	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	93.2	N*	1	0.012	1.5	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.79	N*	1	0.01	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.4	*	1	0.013	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	1770	*	1	0.92	72.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	15.2	*	1	0.016	0.29	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	5.8	*	1	0.009	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	9.3	*	1	0.009	0.29	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	14300	*	1	1.3	29.1	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	31.2	*	1	0.006	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	1360	N*	1	1	72.8	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	414	*	1	0.009	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.075		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	7.9	N	1	0.013	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	528	N*	1	1.3	72.8	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.54	J	1	0.082	0.73	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.079	J	1	0.01	0.15	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	47.8	J	1	1.8	72.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.28		1	0.007	0.15	mg/Kg	12/19/11	12/21/11	SW6020
7440-62-2	Vanadium	21.5	*	1	0.019	0.73	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	46.6		1	0.016	0.29	mg/Kg	12/19/11	12/21/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11400	*	1	0.84	2.5	mg/Kg	12/19/11	12/19/11	SW6020
7440-36-0	Antimony	0.22	JN*	1	0.032	0.25	mg/Kg	12/19/11	12/19/11	SW6020
7440-38-2	Arsenic	5.2	N*	1	0.027	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-39-3	Barium	60.2	N*	1	0.01	1.2	mg/Kg	12/19/11	12/19/11	SW6020
7440-41-7	Beryllium	0.44	N*	1	0.009	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-43-9	Cadmium	0.1	J*	1	0.011	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-70-2	Calcium	630	*	1	0.78	61.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-47-3	Chromium	18.2	*	1	0.014	0.25	mg/Kg	12/19/11	12/19/11	SW6020
7440-48-4	Cobalt	5.4	*	1	0.007	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-50-8	Copper	8.8	*	1	0.007	0.25	mg/Kg	12/19/11	12/19/11	SW6020
7439-89-6	Iron	20300	*	1	1.1	24.7	mg/Kg	12/19/11	12/19/11	SW6020
7439-92-1	Lead	12	*	1	0.005	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7439-95-4	Magnesium	1370	N*	1	0.86	61.8	mg/Kg	12/19/11	12/19/11	SW6020
7439-96-5	Manganese	229	*	1	0.007	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7439-97-6	Mercury	0.037		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	7.6	N	1	0.011	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-09-7	Potassium	313	N*	1	1.1	61.8	mg/Kg	12/19/11	12/19/11	SW6020
7782-49-2	Selenium	0.1	J	1	0.069	0.62	mg/Kg	12/19/11	12/19/11	SW6020
7440-22-4	Silver	0.029	J	1	0.009	0.12	mg/Kg	12/19/11	12/19/11	SW6020
7440-23-5	Sodium	47.2	J	1	1.5	61.8	mg/Kg	12/19/11	12/19/11	SW6020
7440-28-0	Thallium	0.13		1	0.006	0.12	mg/Kg	12/19/11	12/21/11	SW6020
7440-62-2	Vanadium	28.3	*	1	0.016	0.62	mg/Kg	12/19/11	12/19/11	SW6020
7440-66-6	Zinc	26.3		1	0.014	0.25	mg/Kg	12/19/11	12/21/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP-04	SDG No.:	C5017
Lab Sample ID:	C5017-19	Matrix:	SOIL
		% Solid:	67.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.186	U	1	0.049	0.371	mg/Kg	12/19/11	12/22/11	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB-DUP02	SDG No.:	C5017
Lab Sample ID:	C5017-09	Matrix:	SOIL
		% Solid:	82

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.055	J	1	0.04	0.304	mg/Kg	12/19/11	12/22/11	9012B
pH	5.46		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-11	Matrix:	SOIL
		% Solid:	81.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.077	J	1	0.041	0.308	mg/Kg	12/19/11	12/22/11	9012B
pH	6.52		1	0	0	pH	12/16/11	12/16/11	9045C
Redox Potential	275.8		1	0.123	0.123	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-10	Matrix:	SOIL
		% Solid:	66.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.059	J	1	0.049	0.373	mg/Kg	12/19/11	12/22/11	9012B
pH	5.56		1	0	0	pH	12/16/11	12/16/11	9045C
Redox Potential	280.4		1	0.15	0.15	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB09-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-12	Matrix:	SOIL
		% Solid:	83.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.096	J	1	0.039	0.299	mg/Kg	12/19/11	12/22/11	9012B
pH	5.25		1	0	0	pH	12/16/11	12/16/11	9045C
Redox Potential	356.7		1	0.12	0.12	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-14	Matrix:	SOIL
		% Solid:	87.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.426		1	0.038	0.286	mg/Kg	12/19/11	12/22/11	9012B
pH	7.52		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-13	Matrix:	SOIL
		% Solid:	70.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.111	J	1	0.047	0.355	mg/Kg	12/19/11	12/22/11	9012B
pH	6.68		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB10-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-15	Matrix:	SOIL
		% Solid:	86.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.144	U	1	0.038	0.288	mg/Kg	12/19/11	12/22/11	9012B
pH	7.42		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0.501-02	SDG No.:	C5017
Lab Sample ID:	C5017-07	Matrix:	SOIL
		% Solid:	84.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.085	J	1	0.039	0.297	mg/Kg	12/19/11	12/22/11	9012B
pH	5.41		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-04	Matrix:	SOIL
		% Solid:	69.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.073	J	1	0.047	0.357	mg/Kg	12/19/11	12/22/11	9012B
pH	5.22		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB11-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-08	Matrix:	SOIL
		% Solid:	83.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.053	J	1	0.039	0.299	mg/Kg	12/19/11	12/22/11	9012B
pH	5.7		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-20	Matrix:	SOIL
		% Solid:	85.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.146	U	1	0.038	0.291	mg/Kg	12/19/11	12/22/11	9012B
pH	7.22		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB14-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-21	Matrix:	SOIL
		% Solid:	85.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.066	J	1	0.038	0.291	mg/Kg	12/19/11	12/22/11	9012B
pH	7.21		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-17	Matrix:	SOIL
		% Solid:	82.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.077	J	1	0.04	0.303	mg/Kg	12/19/11	12/22/11	9012B
pH	5.23		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-16	Matrix:	SOIL
		% Solid:	67.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.093	J	1	0.049	0.372	mg/Kg	12/19/11	12/22/11	9012B
pH	5.91		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB15-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-18	Matrix:	SOIL
		% Solid:	81.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.153	U	1	0.04	0.305	mg/Kg	12/19/11	12/22/11	9012B
pH	5.65		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0.502-02	SDG No.:	C5017
Lab Sample ID:	C5017-02	Matrix:	SOIL
		% Solid:	83.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.079	J	1	0.039	0.298	mg/Kg	12/19/11	12/22/11	9012B
pH	4.96		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-000.5-01	SDG No.:	C5017
Lab Sample ID:	C5017-01	Matrix:	SOIL
		% Solid:	65.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.209	J	1	0.05	0.382	mg/Kg	12/19/11	12/22/11	9012B
pH	5.79		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/15/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/16/11
Client Sample ID:	12SB16-0304-03	SDG No.:	C5017
Lab Sample ID:	C5017-03	Matrix:	SOIL
		% Solid:	80.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.045	J	1	0.041	0.309	mg/Kg	12/19/11	12/22/11	9012B
pH	5.32		1	0	0	pH	12/16/11	12/16/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C
SUPPORT DOCUMENTATION

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met criteria for all samples.
The Duplicate analysis met criteria for all samples except for Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Potassium and Vanadium.
The Matrix Spike analysis met criteria for all samples except for Barium and Magnesium.
The Matrix Spike Duplicate analysis met criteria for all samples except for Antimony, Arsenic, Barium, Beryllium, Magnesium, Nickel and Potassium.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met criteria for all samples except for Aluminum, Arsenic, Barium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Sodium, Vanadium and Zinc.

E. Additional Comments:
CCV02 is failing for Silver in LB58525. Samples analyzed for Thallium and/or Zinc in this Run.
CRI01 is failing for Chromium and Nickel in LB58430.
CRI01 is failing for Nickel in LB58525.

CHEMTECH

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.16 16:47:35 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5017
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/16/2011.
1 Water sample was received on 12/16/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide,pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, the analysis of Cyanide was based on method 9012B and the analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were not meet for all analysis except for pH.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature M Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.16 16:45:29 -05'00'

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5017
QUOTE NO.
COC Number 021254

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO. CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC
2 TCL SVOC/PAH SIM
3 Pest/PCB
4 Metals (Hg) CN pH
5 O&P
6
7
8
9

CHEMTECH SAMPLE	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
KP 12/16/11								E	E	E	E	E					← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	125B16-000.5-01	Soil		X	12/15/11	0845	6	X	X	X	X						
2.	125B16-0.502-02			X		0850	6	X	X	X	X						
3.	125B16-0304-03			X		0900	6	X	X	X	X						
4. 5,6.	125B11-000.5-01			X		1045	15	X	X	X	X						Do MS/MSD
5. 7.	125B11-0.501-02			X		1005	6	X	X	X	X						
6. 8.	125B11-0304-03			X		1015	6	X	X	X	X						
7. 9.	125B-DUP-02			X		1000	6	X	X	X	X						
8. 10.	125B09-000.5-01			X		1140	7	X	X	X	X	X					
9. 11.	125B09-0.502-02			X		1150	7	X	X	X	X	X					
10. 12.	125B09-0304-03	↓		X	↓	1200	7	X	X	X	X	X					

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. David Kohler	12/15/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	12/16/11 9:05	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
Cooler Temp. 4°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☐ YES ☒ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5017
QUOTE NO.
COC Number 021255

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Ultra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Willow Grove
PROJECT NO. Cro WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC
2 TCL SVOC / PAH SIM
3 TCL Pest / PCB
4 Metals (Hg) / CN / pH
5 ORP
6 Metals (Hg) / CN
7 TCL VOC
8
9

PRESERVATIVES

CHEMTECH SAMPLE ID (RE 12/16/11)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	E	A			← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1. 13.	125B10-000.5-01	Soil		X	12/15/11	1325	6	X	X	X	X						
2. 14.	125B10-0.502-02			X		1335	6	X	X	X	X						
3. 15.	125B10-0304-03			X		1345	6	X	X	X	X						
4. 16.	125B15-000.5-01			X		1450	6	X	X	X	X						
5. 17.	125B15-0.502-02			X		1455	6	X	X	X	X						
6. 18.	125B15-0304-03			X		1505	6	X	X	X	X						
7. 19.	125B-DUP-04			X		1530	6	X	X	X	X 12/15		X				
8. 20.	125B14-0.502-02			X		1605	6	X	X	X	X						
9. 21.	125B14-0304-03	↓		X		1610	6	X	X	X	X						
10. 22.	12TB-20111215	AQ		X	↓	0800	2							X			Trip Blank

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Donald Whalen	12/15/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/16/11 9:05	3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4 °C
Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

HOLDTIME

SDG C5017

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
HG	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/20/2011	12/22/2011	5	2	7
M	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5
M	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/21/2011	4	2	6
M	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/19/2011	4	0	4
M	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
M	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/20/2011	4	1	5

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB-DUP-04	C5017-19	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB11-0304-03	C5017-08	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB15-0304-03	C5017-18	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB-DUP02	C5017-09	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB16-0304-03	C5017-03	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB14-0304-03	C5017-21	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
CN	MG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/22/2011	4	3	7
ORP	MV	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
ORP	MV	12SB09-0304-03	C5017-12	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
ORP	MV	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/23/2011	12/23/2011	8	0	8
PH	S.U.	12SB-DUP02	C5017-09	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB16-0304-03	C5017-03	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB16-000.5-01	C5017-01	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB16-0.502-02	C5017-02	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB15-0304-03	C5017-18	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB15-000.5-01	C5017-16	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB11-0304-03	C5017-08	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB15-0.502-02	C5017-17	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB09-0.502-02	C5017-11	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB11-000.5-01	C5017-04	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB11-0.501-02	C5017-07	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB10-0304-03	C5017-15	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	S.U.	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB09-0304-03	C5017-12	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB14-0304-03	C5017-21	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
PH	S.U.	12SB14-0.502-02	C5017-20	NM	12/15/2011	12/16/2011	12/16/2011	1	0	1
OS	UG/KG	12SB10-0.502-02	C5017-14DL	NM	12/15/2011	12/19/2011	1/4/2012	4	16	20
OS	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-000.5-01	C5017-13	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-000.5-01	C5017-13DL	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB14-0.502-02	C5017-20DL	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB09-000.5-01	C5017-10	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB10-0.502-02	C5017-14DL	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0304-03	C5017-15	NM	12/15/2011	12/19/2011	1/3/2012	4	15	19
OS	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	1/1/2012	4	13	17
OS	UG/KG	12SB10-0.502-02	C5017-14	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14
OS	UG/KG	12SB09-0304-03	C5017-12	NM	12/15/2011	12/19/2011	12/29/2011	4	10	14

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB15-000.5-01	UNITS	12SB-DUP-04	RPD	D
M	ALUMINUM	3930	MG/KG	4010	2.02	80.00
M	ANTIMONY	0.39 B	MG/KG	0.29 B	29.41	0.10
M	ARSENIC	1.5	MG/KG	1.4	6.90	0.10
M	BARIUM	55.3	MG/KG	52.7	4.81	2.60
M	BERYLLIUM	0.52	MG/KG	0.45	14.43	0.07
M	CADMIUM	0.17	MG/KG	0.14	19.35	0.03
M	CALCIUM	787	MG/KG	645	19.83	142.00
M	CHROMIUM	11	MG/KG	10.5	4.65	0.50
M	COBALT	4.4	MG/KG	3.7	17.28	0.70
M	COPPER	6.1	MG/KG	5.8	5.04	0.30
M	IRON	9450	MG/KG	9650	2.09	200.00
M	LEAD	24	MG/KG	21.2	12.39	2.80
M	MAGNESIUM	813	MG/KG	789	3.00	24.00
M	MANGANESE	274	MG/KG	192	35.19	82.00
M	MERCURY	0.037	MG/KG	0.03	20.90	0.01
M	NICKEL	5.6	MG/KG	5.2	7.41	0.40
M	POTASSIUM	487	MG/KG	467	4.19	20.00
M	SELENIUM	ND	MG/KG	0.096 J	200.00	0.10
M	SILVER	0.075 B	MG/KG	0.055 B	30.77	0.02
M	SODIUM	45.4 B	MG/KG	34.9 B	26.15	10.50
M	THALLIUM	0.15 B	MG/KG	0.095 B	44.90	0.06
M	VANADIUM	12	MG/KG	11.8	1.68	0.20
M	ZINC	30.8	MG/KG	26.8	13.89	4.00
MISC	CYANIDE	0.093 J	MG/KG	ND	200.00	0.09
MISC	PH	5.91	S.U.	ND NOT Analyzed	200.00	5.91

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5017

FRACTION	CHEMICAL	12SB16-0304-03	UNITS	12SB-DUP02	RPD	D
M	ALUMINUM	11400	MG/KG	7070	46.89	4330.00
M	ANTIMONY	0.22 B	MG/KG	0.14 B	44.44	0.08
M	ARSENIC	5.2	MG/KG	3.3	44.71	1.90
M	BARIUM	60.2	MG/KG	37	47.74	23.20
M	BERYLLIUM	0.44	MG/KG	0.33	28.57	0.11
M	CADMIUM	0.1 B	MG/KG	0.14	33.33	0.04
M	CALCIUM	630	MG/KG	356	55.58	274.00
M	CHROMIUM	18.2	MG/KG	11.4	45.95	6.80
M	COBALT	5.4	MG/KG	4.8	11.76	0.60
M	COPPER	8.8	MG/KG	6.2	34.67	2.60
M	IRON	20300	MG/KG	12800	45.32	7500.00
M	LEAD	12	MG/KG	7.5	46.15	4.50
M	MAGNESIUM	1370	MG/KG	949	36.31	421.00
M	MANGANESE	229	MG/KG	174	27.30	55.00
M	MERCURY	0.037	MG/KG	0.047	23.81	0.01
M	NICKEL	7.6	MG/KG	5.4	33.85	2.20
M	POTASSIUM	313	MG/KG	194	46.94	119.00
M	SELENIUM	0.1 J	MG/KG	0.057 J	54.78	0.04
M	SILVER	0.06 B	MG/KG	0.046 B	26.42	0.01
M	SODIUM	47.2 J	MG/KG	22.9 B	69.33	24.30
M	THALLIUM	0.13 B	MG/KG	0.19 B	37.50	0.06
M	VANADIUM	28.3	MG/KG	18.2	43.44	10.10
M	ZINC	26.3	MG/KG	22.7	14.69	3.60
MISC	CYANIDE	0.045 J	MG/KG	0.055 J	20.00	0.01
MISC	PH	5.32	S.U.	5.46	2.60	0.14

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.86	4.0	96.5	90 - 110	CV	12/22/2011	19:52	LB58505
CCV01	Mercury	5.03	5.0	100.6	90 - 110	CV	12/22/2011	19:56	LB58505
CCV02	Mercury	5.02	5.0	100.4	90 - 110	CV	12/22/2011	20:21	LB58505
CCV03	Mercury	4.94	5.0	98.8	90 - 110	CV	12/22/2011	20:42	LB58505
CCV04	Mercury	4.95	5.0	99.0	90 - 110	CV	12/22/2011	21:06	LB58505
CCV05	Mercury	4.96	5.0	99.2	90 - 110	CV	12/22/2011	21:28	LB58505
CCV06	Mercury	4.88	5.0	97.6	90 - 110	CV	12/22/2011	21:51	LB58505
CCV07	Mercury	4.96	5.0	99.2	90 - 110	CV	12/22/2011	22:14	LB58505
CCV08	Mercury	4.93	5.0	98.6	90 - 110	CV	12/22/2011	22:34	LB58505
CCV09	Mercury	5.04	5.0	100.8	90 - 110	CV	12/22/2011	22:56	LB58505
CCV10	Mercury	5.04	5.0	100.8	90 - 110	CV	12/22/2011	23:22	LB58505
CCV11	Mercury	5.01	5.0	100.2	90 - 110	CV	12/22/2011	23:40	LB58505

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	512.00	504.0	101.6	90 - 110	MS	12/19/2011	15:05	LB58430
	Antimony	187.40	199.0	94.2	90 - 110	MS	12/19/2011	15:05	LB58430
	Arsenic	190.50	200.0	95.2	90 - 110	MS	12/19/2011	15:05	LB58430
	Barium	99.85	99.0	100.9	90 - 110	MS	12/19/2011	15:05	LB58430
	Beryllium	93.70	99.0	94.6	90 - 110	MS	12/19/2011	15:05	LB58430
	Cadmium	96.37	99.0	97.3	90 - 110	MS	12/19/2011	15:05	LB58430
	Calcium	1944.00	2005.0	97.0	90 - 110	MS	12/19/2011	15:05	LB58430
	Chromium	97.34	98.0	99.3	90 - 110	MS	12/19/2011	15:05	LB58430
	Cobalt	97.55	100.0	97.6	90 - 110	MS	12/19/2011	15:05	LB58430
	Copper	102.50	98.0	104.6	90 - 110	MS	12/19/2011	15:05	LB58430
	Iron	996.80	1016.0	98.1	90 - 110	MS	12/19/2011	15:05	LB58430
	Lead	194.50	200.0	97.2	90 - 110	MS	12/19/2011	15:05	LB58430
	Magnesium	1187.00	1215.0	97.7	90 - 110	MS	12/19/2011	15:05	LB58430
	Manganese	100.70	100.0	100.7	90 - 110	MS	12/19/2011	15:05	LB58430
	Nickel	101.10	101.0	100.1	90 - 110	MS	12/19/2011	15:05	LB58430
	Potassium	2022.00	2004.0	100.9	90 - 110	MS	12/19/2011	15:05	LB58430
	Selenium	189.90	206.0	92.2	90 - 110	MS	12/19/2011	15:05	LB58430
	Silver	97.72	100.0	97.7	90 - 110	MS	12/19/2011	15:05	LB58430
	Sodium	2001.00	2019.0	99.1	90 - 110	MS	12/19/2011	15:05	LB58430
	Thallium	196.60	206.0	95.4	90 - 110	MS	12/19/2011	15:05	LB58430
	Vanadium	95.94	100.0	95.9	90 - 110	MS	12/19/2011	15:05	LB58430
	Zinc	198.70	205.0	96.9	90 - 110	MS	12/19/2011	15:05	LB58430
CCV01	Aluminum	9847.00	10000.0	98.5	90 - 110	MS	12/19/2011	16:07	LB58430
	Antimony	492.50	500.0	98.5	90 - 110	MS	12/19/2011	16:07	LB58430
	Arsenic	495.10	500.0	99.0	90 - 110	MS	12/19/2011	16:07	LB58430
	Barium	2487.00	2500.0	99.5	90 - 110	MS	12/19/2011	16:07	LB58430
	Beryllium	494.70	500.0	98.9	90 - 110	MS	12/19/2011	16:07	LB58430
	Cadmium	496.50	500.0	99.3	90 - 110	MS	12/19/2011	16:07	LB58430
	Calcium	49140.00	50000.0	98.3	90 - 110	MS	12/19/2011	16:07	LB58430
	Chromium	498.30	500.0	99.7	90 - 110	MS	12/19/2011	16:07	LB58430
	Cobalt	498.50	500.0	99.7	90 - 110	MS	12/19/2011	16:07	LB58430
	Copper	1001.00	1000.0	100.1	90 - 110	MS	12/19/2011	16:07	LB58430
	Iron	24790.00	25000.0	99.2	90 - 110	MS	12/19/2011	16:07	LB58430
	Lead	499.80	500.0	100.0	90 - 110	MS	12/19/2011	16:07	LB58430
	Magnesium	49160.00	50000.0	98.3	90 - 110	MS	12/19/2011	16:07	LB58430

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Manganese	1001.00	1000.0	100.1	90 - 110	MS	12/19/2011	16:07	LB58430
	Nickel	496.20	500.0	99.2	90 - 110	MS	12/19/2011	16:07	LB58430
	Potassium	25000.00	25000.0	100.0	90 - 110	MS	12/19/2011	16:07	LB58430
	Selenium	491.20	500.0	98.2	90 - 110	MS	12/19/2011	16:07	LB58430
	Silver	496.40	500.0	99.3	90 - 110	MS	12/19/2011	16:07	LB58430
	Sodium	50170.00	50000.0	100.3	90 - 110	MS	12/19/2011	16:07	LB58430
	Thallium	496.50	500.0	99.3	90 - 110	MS	12/19/2011	16:07	LB58430
	Vanadium	496.80	500.0	99.4	90 - 110	MS	12/19/2011	16:07	LB58430
	Zinc	996.70	1000.0	99.7	90 - 110	MS	12/19/2011	16:07	LB58430
CCV02	Aluminum	10070.00	10000.0	100.7	90 - 110	MS	12/19/2011	18:13	LB58430
	Antimony	501.40	500.0	100.3	90 - 110	MS	12/19/2011	18:13	LB58430
	Arsenic	499.00	500.0	99.8	90 - 110	MS	12/19/2011	18:13	LB58430
	Barium	2533.00	2500.0	101.3	90 - 110	MS	12/19/2011	18:13	LB58430
	Beryllium	505.30	500.0	101.1	90 - 110	MS	12/19/2011	18:13	LB58430
	Cadmium	506.90	500.0	101.4	90 - 110	MS	12/19/2011	18:13	LB58430
	Calcium	49870.00	50000.0	99.7	90 - 110	MS	12/19/2011	18:13	LB58430
	Chromium	505.40	500.0	101.1	90 - 110	MS	12/19/2011	18:13	LB58430
	Cobalt	503.10	500.0	100.6	90 - 110	MS	12/19/2011	18:13	LB58430
	Copper	1009.00	1000.0	100.9	90 - 110	MS	12/19/2011	18:13	LB58430
	Iron	25070.00	25000.0	100.3	90 - 110	MS	12/19/2011	18:13	LB58430
	Lead	506.20	500.0	101.2	90 - 110	MS	12/19/2011	18:13	LB58430
	Magnesium	50080.00	50000.0	100.2	90 - 110	MS	12/19/2011	18:13	LB58430
	Manganese	1018.00	1000.0	101.8	90 - 110	MS	12/19/2011	18:13	LB58430
	Nickel	501.10	500.0	100.2	90 - 110	MS	12/19/2011	18:13	LB58430
	Potassium	25240.00	25000.0	101.0	90 - 110	MS	12/19/2011	18:13	LB58430
	Selenium	506.90	500.0	101.4	90 - 110	MS	12/19/2011	18:13	LB58430
	Silver	506.90	500.0	101.4	90 - 110	MS	12/19/2011	18:13	LB58430
	Sodium	50370.00	50000.0	100.7	90 - 110	MS	12/19/2011	18:13	LB58430
	Thallium	504.50	500.0	100.9	90 - 110	MS	12/19/2011	18:13	LB58430
	Vanadium	502.80	500.0	100.6	90 - 110	MS	12/19/2011	18:13	LB58430
	Zinc	1012.00	1000.0	101.2	90 - 110	MS	12/19/2011	18:13	LB58430
CCV03	Aluminum	9785.00	10000.0	97.8	90 - 110	MS	12/19/2011	19:48	LB58430
	Antimony	500.10	500.0	100.0	90 - 110	MS	12/19/2011	19:48	LB58430
	Arsenic	494.40	500.0	98.9	90 - 110	MS	12/19/2011	19:48	LB58430
	Barium	2496.00	2500.0	99.8	90 - 110	MS	12/19/2011	19:48	LB58430

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Beryllium	499.10	500.0	99.8	90 - 110	MS	12/19/2011	19:48	LB58430
	Cadmium	501.70	500.0	100.3	90 - 110	MS	12/19/2011	19:48	LB58430
	Calcium	49820.00	50000.0	99.6	90 - 110	MS	12/19/2011	19:48	LB58430
	Chromium	507.10	500.0	101.4	90 - 110	MS	12/19/2011	19:48	LB58430
	Cobalt	503.50	500.0	100.7	90 - 110	MS	12/19/2011	19:48	LB58430
	Copper	1006.00	1000.0	100.6	90 - 110	MS	12/19/2011	19:48	LB58430
	Iron	25300.00	25000.0	101.2	90 - 110	MS	12/19/2011	19:48	LB58430
	Lead	503.40	500.0	100.7	90 - 110	MS	12/19/2011	19:48	LB58430
	Magnesium	49260.00	50000.0	98.5	90 - 110	MS	12/19/2011	19:48	LB58430
	Manganese	1027.00	1000.0	102.7	90 - 110	MS	12/19/2011	19:48	LB58430
	Nickel	494.80	500.0	99.0	90 - 110	MS	12/19/2011	19:48	LB58430
	Potassium	24900.00	25000.0	99.6	90 - 110	MS	12/19/2011	19:48	LB58430
	Selenium	496.70	500.0	99.3	90 - 110	MS	12/19/2011	19:48	LB58430
	Silver	501.70	500.0	100.3	90 - 110	MS	12/19/2011	19:48	LB58430
	Sodium	50340.00	50000.0	100.7	90 - 110	MS	12/19/2011	19:48	LB58430
	Thallium	501.30	500.0	100.3	90 - 110	MS	12/19/2011	19:48	LB58430
	Vanadium	503.80	500.0	100.8	90 - 110	MS	12/19/2011	19:48	LB58430
	Zinc	1025.00	1000.0	102.5	90 - 110	MS	12/19/2011	19:48	LB58430
CCV04	Aluminum	9741.00	10000.0	97.4	90 - 110	MS	12/19/2011	21:23	LB58430
	Antimony	502.20	500.0	100.4	90 - 110	MS	12/19/2011	21:23	LB58430
	Arsenic	491.00	500.0	98.2	90 - 110	MS	12/19/2011	21:23	LB58430
	Barium	2484.00	2500.0	99.4	90 - 110	MS	12/19/2011	21:23	LB58430
	Beryllium	491.70	500.0	98.3	90 - 110	MS	12/19/2011	21:23	LB58430
	Cadmium	502.80	500.0	100.6	90 - 110	MS	12/19/2011	21:23	LB58430
	Calcium	49230.00	50000.0	98.5	90 - 110	MS	12/19/2011	21:23	LB58430
	Chromium	501.60	500.0	100.3	90 - 110	MS	12/19/2011	21:23	LB58430
	Cobalt	499.50	500.0	99.9	90 - 110	MS	12/19/2011	21:23	LB58430
	Copper	990.70	1000.0	99.1	90 - 110	MS	12/19/2011	21:23	LB58430
	Iron	25220.00	25000.0	100.9	90 - 110	MS	12/19/2011	21:23	LB58430
	Lead	504.20	500.0	100.8	90 - 110	MS	12/19/2011	21:23	LB58430
	Magnesium	48390.00	50000.0	96.8	90 - 110	MS	12/19/2011	21:23	LB58430
	Manganese	1025.00	1000.0	102.5	90 - 110	MS	12/19/2011	21:23	LB58430
	Nickel	490.10	500.0	98.0	90 - 110	MS	12/19/2011	21:23	LB58430
	Potassium	24650.00	25000.0	98.6	90 - 110	MS	12/19/2011	21:23	LB58430
	Selenium	494.40	500.0	98.9	90 - 110	MS	12/19/2011	21:23	LB58430

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	501.80	500.0	100.4	90 - 110	MS	12/19/2011	21:23	LB58430
	Sodium	50290.00	50000.0	100.6	90 - 110	MS	12/19/2011	21:23	LB58430
	Thallium	501.30	500.0	100.3	90 - 110	MS	12/19/2011	21:23	LB58430
	Vanadium	497.30	500.0	99.5	90 - 110	MS	12/19/2011	21:23	LB58430
	Zinc	1013.00	1000.0	101.3	90 - 110	MS	12/19/2011	21:23	LB58430
CCV05	Aluminum	9688.00	10000.0	96.9	90 - 110	MS	12/19/2011	22:35	LB58430
	Antimony	502.80	500.0	100.6	90 - 110	MS	12/19/2011	22:35	LB58430
	Arsenic	493.10	500.0	98.6	90 - 110	MS	12/19/2011	22:35	LB58430
	Barium	2506.00	2500.0	100.2	90 - 110	MS	12/19/2011	22:35	LB58430
	Beryllium	491.10	500.0	98.2	90 - 110	MS	12/19/2011	22:35	LB58430
	Cadmium	510.30	500.0	102.1	90 - 110	MS	12/19/2011	22:35	LB58430
	Calcium	49440.00	50000.0	98.9	90 - 110	MS	12/19/2011	22:35	LB58430
	Chromium	505.80	500.0	101.2	90 - 110	MS	12/19/2011	22:35	LB58430
	Cobalt	498.70	500.0	99.7	90 - 110	MS	12/19/2011	22:35	LB58430
	Copper	995.10	1000.0	99.5	90 - 110	MS	12/19/2011	22:35	LB58430
	Iron	25220.00	25000.0	100.9	90 - 110	MS	12/19/2011	22:35	LB58430
	Lead	505.40	500.0	101.1	90 - 110	MS	12/19/2011	22:35	LB58430
	Magnesium	47960.00	50000.0	95.9	90 - 110	MS	12/19/2011	22:35	LB58430
	Manganese	1034.00	1000.0	103.4	90 - 110	MS	12/19/2011	22:35	LB58430
	Nickel	491.80	500.0	98.4	90 - 110	MS	12/19/2011	22:35	LB58430
	Potassium	24990.00	25000.0	100.0	90 - 110	MS	12/19/2011	22:35	LB58430
	Selenium	498.00	500.0	99.6	90 - 110	MS	12/19/2011	22:35	LB58430
	Silver	502.00	500.0	100.4	90 - 110	MS	12/19/2011	22:35	LB58430
	Sodium	50600.00	50000.0	101.2	90 - 110	MS	12/19/2011	22:35	LB58430
	Thallium	503.90	500.0	100.8	90 - 110	MS	12/19/2011	22:35	LB58430
	Vanadium	498.40	500.0	99.7	90 - 110	MS	12/19/2011	22:35	LB58430
	Zinc	1027.00	1000.0	102.7	90 - 110	MS	12/19/2011	22:35	LB58430
CCV06	Aluminum	9754.00	10000.0	97.5	90 - 110	MS	12/20/2011	00:10	LB58430
	Antimony	503.00	500.0	100.6	90 - 110	MS	12/20/2011	00:10	LB58430
	Arsenic	495.00	500.0	99.0	90 - 110	MS	12/20/2011	00:10	LB58430
	Barium	2503.00	2500.0	100.1	90 - 110	MS	12/20/2011	00:10	LB58430
	Beryllium	486.30	500.0	97.3	90 - 110	MS	12/20/2011	00:10	LB58430
	Cadmium	509.70	500.0	101.9	90 - 110	MS	12/20/2011	00:10	LB58430
	Calcium	49570.00	50000.0	99.1	90 - 110	MS	12/20/2011	00:10	LB58430
	Chromium	507.30	500.0	101.5	90 - 110	MS	12/20/2011	00:10	LB58430

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	498.00	500.0	99.6	90 - 110	MS	12/20/2011	00:10	LB58430
	Copper	994.90	1000.0	99.5	90 - 110	MS	12/20/2011	00:10	LB58430
	Iron	25280.00	25000.0	101.1	90 - 110	MS	12/20/2011	00:10	LB58430
	Lead	502.70	500.0	100.5	90 - 110	MS	12/20/2011	00:10	LB58430
	Magnesium	47690.00	50000.0	95.4	90 - 110	MS	12/20/2011	00:10	LB58430
	Manganese	1037.00	1000.0	103.7	90 - 110	MS	12/20/2011	00:10	LB58430
	Nickel	487.80	500.0	97.6	90 - 110	MS	12/20/2011	00:10	LB58430
	Potassium	25060.00	25000.0	100.2	90 - 110	MS	12/20/2011	00:10	LB58430
	Selenium	490.90	500.0	98.2	90 - 110	MS	12/20/2011	00:10	LB58430
	Silver	503.50	500.0	100.7	90 - 110	MS	12/20/2011	00:10	LB58430
	Sodium	51030.00	50000.0	102.1	90 - 110	MS	12/20/2011	00:10	LB58430
	Thallium	501.20	500.0	100.2	90 - 110	MS	12/20/2011	00:10	LB58430
	Vanadium	501.40	500.0	100.3	90 - 110	MS	12/20/2011	00:10	LB58430
	Zinc	1027.00	1000.0	102.7	90 - 110	MS	12/20/2011	00:10	LB58430
CCV07	Aluminum	9673.00	10000.0	96.7	90 - 110	MS	12/20/2011	01:45	LB58430
	Antimony	497.90	500.0	99.6	90 - 110	MS	12/20/2011	01:45	LB58430
	Arsenic	494.90	500.0	99.0	90 - 110	MS	12/20/2011	01:45	LB58430
	Barium	2494.00	2500.0	99.8	90 - 110	MS	12/20/2011	01:45	LB58430
	Beryllium	483.00	500.0	96.6	90 - 110	MS	12/20/2011	01:45	LB58430
	Cadmium	503.80	500.0	100.8	90 - 110	MS	12/20/2011	01:45	LB58430
	Calcium	49460.00	50000.0	98.9	90 - 110	MS	12/20/2011	01:45	LB58430
	Chromium	508.80	500.0	101.8	90 - 110	MS	12/20/2011	01:45	LB58430
	Cobalt	499.70	500.0	99.9	90 - 110	MS	12/20/2011	01:45	LB58430
	Copper	1004.00	1000.0	100.4	90 - 110	MS	12/20/2011	01:45	LB58430
	Iron	25300.00	25000.0	101.2	90 - 110	MS	12/20/2011	01:45	LB58430
	Lead	499.50	500.0	99.9	90 - 110	MS	12/20/2011	01:45	LB58430
	Magnesium	47270.00	50000.0	94.5	90 - 110	MS	12/20/2011	01:45	LB58430
	Manganese	1040.00	1000.0	104.0	90 - 110	MS	12/20/2011	01:45	LB58430
	Nickel	492.70	500.0	98.5	90 - 110	MS	12/20/2011	01:45	LB58430
	Potassium	25150.00	25000.0	100.6	90 - 110	MS	12/20/2011	01:45	LB58430
	Selenium	493.60	500.0	98.7	90 - 110	MS	12/20/2011	01:45	LB58430
	Silver	501.00	500.0	100.2	90 - 110	MS	12/20/2011	01:45	LB58430
	Sodium	50500.00	50000.0	101.0	90 - 110	MS	12/20/2011	01:45	LB58430
	Thallium	498.00	500.0	99.6	90 - 110	MS	12/20/2011	01:45	LB58430
	Vanadium	504.10	500.0	100.8	90 - 110	MS	12/20/2011	01:45	LB58430

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1022.00	1000.0	102.2	90 - 110	MS	12/20/2011	01:45	LB58430
CCV08	Aluminum	9905.00	10000.0	99.0	90 - 110	MS	12/20/2011	02:49	LB58430
	Antimony	501.30	500.0	100.3	90 - 110	MS	12/20/2011	02:49	LB58430
	Arsenic	492.30	500.0	98.5	90 - 110	MS	12/20/2011	02:49	LB58430
	Barium	2500.00	2500.0	100.0	90 - 110	MS	12/20/2011	02:49	LB58430
	Beryllium	491.90	500.0	98.4	90 - 110	MS	12/20/2011	02:49	LB58430
	Cadmium	508.10	500.0	101.6	90 - 110	MS	12/20/2011	02:49	LB58430
	Calcium	49400.00	50000.0	98.8	90 - 110	MS	12/20/2011	02:49	LB58430
	Chromium	506.10	500.0	101.2	90 - 110	MS	12/20/2011	02:49	LB58430
	Cobalt	498.20	500.0	99.6	90 - 110	MS	12/20/2011	02:49	LB58430
	Copper	994.90	1000.0	99.5	90 - 110	MS	12/20/2011	02:49	LB58430
	Iron	25340.00	25000.0	101.4	90 - 110	MS	12/20/2011	02:49	LB58430
	Lead	501.80	500.0	100.4	90 - 110	MS	12/20/2011	02:49	LB58430
	Magnesium	47420.00	50000.0	94.8	90 - 110	MS	12/20/2011	02:49	LB58430
	Manganese	1036.00	1000.0	103.6	90 - 110	MS	12/20/2011	02:49	LB58430
	Nickel	489.40	500.0	97.9	90 - 110	MS	12/20/2011	02:49	LB58430
	Potassium	25170.00	25000.0	100.7	90 - 110	MS	12/20/2011	02:49	LB58430
	Selenium	494.90	500.0	99.0	90 - 110	MS	12/20/2011	02:49	LB58430
	Silver	502.80	500.0	100.6	90 - 110	MS	12/20/2011	02:49	LB58430
	Sodium	50960.00	50000.0	101.9	90 - 110	MS	12/20/2011	02:49	LB58430
	Thallium	499.20	500.0	99.8	90 - 110	MS	12/20/2011	02:49	LB58430
	Vanadium	501.20	500.0	100.2	90 - 110	MS	12/20/2011	02:49	LB58430
	Zinc	1020.00	1000.0	102.0	90 - 110	MS	12/20/2011	02:49	LB58430
ICV01	Aluminum	523.50	504.0	103.9	90 - 110	MS	12/21/2011	18:39	LB58525
	Antimony	190.90	199.0	95.9	90 - 110	MS	12/21/2011	18:39	LB58525
	Arsenic	195.00	200.0	97.5	90 - 110	MS	12/21/2011	18:39	LB58525
	Barium	102.00	99.0	103.0	90 - 110	MS	12/21/2011	18:39	LB58525
	Beryllium	99.32	99.0	100.3	90 - 110	MS	12/21/2011	18:39	LB58525
	Cadmium	99.13	99.0	100.1	90 - 110	MS	12/21/2011	18:39	LB58525
	Calcium	1986.00	2005.0	99.1	90 - 110	MS	12/21/2011	18:39	LB58525
	Chromium	99.91	98.0	101.9	90 - 110	MS	12/21/2011	18:39	LB58525
	Cobalt	101.10	100.0	101.1	90 - 110	MS	12/21/2011	18:39	LB58525
	Copper	106.00	98.0	108.2	90 - 110	MS	12/21/2011	18:39	LB58525
	Iron	1023.00	1016.0	100.7	90 - 110	MS	12/21/2011	18:39	LB58525
	Lead	197.90	200.0	99.0	90 - 110	MS	12/21/2011	18:39	LB58525

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Magnesium	1217.00	1215.0	100.2	90 - 110	MS	12/21/2011	18:39	LB58525
	Manganese	101.80	100.0	101.8	90 - 110	MS	12/21/2011	18:39	LB58525
	Nickel	103.40	101.0	102.4	90 - 110	MS	12/21/2011	18:39	LB58525
	Potassium	2064.00	2004.0	103.0	90 - 110	MS	12/21/2011	18:39	LB58525
	Selenium	194.00	206.0	94.2	90 - 110	MS	12/21/2011	18:39	LB58525
	Silver	100.30	100.0	100.3	90 - 110	MS	12/21/2011	18:39	LB58525
	Sodium	2044.00	2019.0	101.2	90 - 110	MS	12/21/2011	18:39	LB58525
	Thallium	198.40	206.0	96.3	90 - 110	MS	12/21/2011	18:39	LB58525
	Vanadium	96.50	100.0	96.5	90 - 110	MS	12/21/2011	18:39	LB58525
	Zinc	207.80	205.0	101.4	90 - 110	MS	12/21/2011	18:39	LB58525
CCV01	Aluminum	10090.00	10000.0	100.9	90 - 110	MS	12/21/2011	19:41	LB58525
	Antimony	516.80	500.0	103.4	90 - 110	MS	12/21/2011	19:41	LB58525
	Arsenic	513.00	500.0	102.6	90 - 110	MS	12/21/2011	19:41	LB58525
	Barium	2562.00	2500.0	102.5	90 - 110	MS	12/21/2011	19:41	LB58525
	Beryllium	518.90	500.0	103.8	90 - 110	MS	12/21/2011	19:41	LB58525
	Cadmium	516.70	500.0	103.3	90 - 110	MS	12/21/2011	19:41	LB58525
	Calcium	50240.00	50000.0	100.5	90 - 110	MS	12/21/2011	19:41	LB58525
	Chromium	508.70	500.0	101.7	90 - 110	MS	12/21/2011	19:41	LB58525
	Cobalt	513.00	500.0	102.6	90 - 110	MS	12/21/2011	19:41	LB58525
	Copper	1035.00	1000.0	103.5	90 - 110	MS	12/21/2011	19:41	LB58525
	Iron	25640.00	25000.0	102.6	90 - 110	MS	12/21/2011	19:41	LB58525
	Lead	510.20	500.0	102.0	90 - 110	MS	12/21/2011	19:41	LB58525
	Magnesium	52080.00	50000.0	104.2	90 - 110	MS	12/21/2011	19:41	LB58525
	Manganese	1025.00	1000.0	102.5	90 - 110	MS	12/21/2011	19:41	LB58525
	Nickel	513.50	500.0	102.7	90 - 110	MS	12/21/2011	19:41	LB58525
	Potassium	26300.00	25000.0	105.2	90 - 110	MS	12/21/2011	19:41	LB58525
	Selenium	520.80	500.0	104.2	90 - 110	MS	12/21/2011	19:41	LB58525
	Silver	519.60	500.0	103.9	90 - 110	MS	12/21/2011	19:41	LB58525
	Sodium	52570.00	50000.0	105.1	90 - 110	MS	12/21/2011	19:41	LB58525
	Thallium	504.90	500.0	101.0	90 - 110	MS	12/21/2011	19:41	LB58525
	Vanadium	508.40	500.0	101.7	90 - 110	MS	12/21/2011	19:41	LB58525
	Zinc	1048.00	1000.0	104.8	90 - 110	MS	12/21/2011	19:41	LB58525
CCV02	Aluminum	10230.00	10000.0	102.3	90 - 110	MS	12/21/2011	21:23	LB58525
	Antimony	510.10	500.0	102.0	90 - 110	MS	12/21/2011	21:23	LB58525
	Arsenic	504.30	500.0	100.9	90 - 110	MS	12/21/2011	21:23	LB58525

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV02	Barium	2500.00	2500.0	100.0	90 - 110	MS	12/21/2011	21:23	LB58525
	Beryllium	523.30	500.0	104.7	90 - 110	MS	12/21/2011	21:23	LB58525
	Cadmium	517.90	500.0	103.6	90 - 110	MS	12/21/2011	21:23	LB58525
	Calcium	50300.00	50000.0	100.6	90 - 110	MS	12/21/2011	21:23	LB58525
	Chromium	504.00	500.0	100.8	90 - 110	MS	12/21/2011	21:23	LB58525
	Cobalt	509.40	500.0	101.9	90 - 110	MS	12/21/2011	21:23	LB58525
	Copper	1026.00	1000.0	102.6	90 - 110	MS	12/21/2011	21:23	LB58525
	Iron	25530.00	25000.0	102.1	90 - 110	MS	12/21/2011	21:23	LB58525
	Lead	506.40	500.0	101.3	90 - 110	MS	12/21/2011	21:23	LB58525
	Magnesium	51630.00	50000.0	103.3	90 - 110	MS	12/21/2011	21:23	LB58525
	Manganese	1025.00	1000.0	102.5	90 - 110	MS	12/21/2011	21:23	LB58525
	Nickel	508.90	500.0	101.8	90 - 110	MS	12/21/2011	21:23	LB58525
	Potassium	26300.00	25000.0	105.2	90 - 110	MS	12/21/2011	21:23	LB58525
	Selenium	513.10	500.0	102.6	90 - 110	MS	12/21/2011	21:23	LB58525
	Silver	385.00	500.0	77.0	90 - 110	MS	12/21/2011	21:23	LB58525
	Sodium	52630.00	50000.0	105.3	90 - 110	MS	12/21/2011	21:23	LB58525
	Thallium	500.40	500.0	100.1	90 - 110	MS	12/21/2011	21:23	LB58525
	Vanadium	503.90	500.0	100.8	90 - 110	MS	12/21/2011	21:23	LB58525
	Zinc	1054.00	1000.0	105.4	90 - 110	MS	12/21/2011	21:23	LB58525
CCV03	Aluminum	9882.00	10000.0	98.8	90 - 110	MS	12/21/2011	22:58	LB58525
	Antimony	510.10	500.0	102.0	90 - 110	MS	12/21/2011	22:58	LB58525
	Arsenic	504.40	500.0	100.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Barium	2494.00	2500.0	99.8	90 - 110	MS	12/21/2011	22:58	LB58525
	Beryllium	523.50	500.0	104.7	90 - 110	MS	12/21/2011	22:58	LB58525
	Cadmium	517.70	500.0	103.5	90 - 110	MS	12/21/2011	22:58	LB58525
	Calcium	50110.00	50000.0	100.2	90 - 110	MS	12/21/2011	22:58	LB58525
	Chromium	506.60	500.0	101.3	90 - 110	MS	12/21/2011	22:58	LB58525
	Cobalt	512.20	500.0	102.4	90 - 110	MS	12/21/2011	22:58	LB58525
	Copper	1025.00	1000.0	102.5	90 - 110	MS	12/21/2011	22:58	LB58525
	Iron	25890.00	25000.0	103.6	90 - 110	MS	12/21/2011	22:58	LB58525
	Lead	507.10	500.0	101.4	90 - 110	MS	12/21/2011	22:58	LB58525
	Magnesium	51460.00	50000.0	102.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Manganese	1031.00	1000.0	103.1	90 - 110	MS	12/21/2011	22:58	LB58525
	Nickel	509.70	500.0	101.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Potassium	26480.00	25000.0	105.9	90 - 110	MS	12/21/2011	22:58	LB58525

NO Samples Affected

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Selenium	514.30	500.0	102.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Silver	514.40	500.0	102.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Sodium	52940.00	50000.0	105.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Thallium	499.60	500.0	99.9	90 - 110	MS	12/21/2011	22:58	LB58525
	Vanadium	503.40	500.0	100.7	90 - 110	MS	12/21/2011	22:58	LB58525
	Zinc	1061.00	1000.0	106.1	90 - 110	MS	12/21/2011	22:58	LB58525
CCV04	Aluminum	9685.00	10000.0	96.8	90 - 110	MS	12/22/2011	00:33	LB58525
	Antimony	512.50	500.0	102.5	90 - 110	MS	12/22/2011	00:33	LB58525
	Arsenic	506.80	500.0	101.4	90 - 110	MS	12/22/2011	00:33	LB58525
	Barium	2500.00	2500.0	100.0	90 - 110	MS	12/22/2011	00:33	LB58525
	Beryllium	522.10	500.0	104.4	90 - 110	MS	12/22/2011	00:33	LB58525
	Cadmium	520.70	500.0	104.1	90 - 110	MS	12/22/2011	00:33	LB58525
	Calcium	50320.00	50000.0	100.6	90 - 110	MS	12/22/2011	00:33	LB58525
	Chromium	508.20	500.0	101.6	90 - 110	MS	12/22/2011	00:33	LB58525
	Cobalt	510.30	500.0	102.1	90 - 110	MS	12/22/2011	00:33	LB58525
	Copper	1027.00	1000.0	102.7	90 - 110	MS	12/22/2011	00:33	LB58525
	Iron	25940.00	25000.0	103.8	90 - 110	MS	12/22/2011	00:33	LB58525
	Lead	504.90	500.0	101.0	90 - 110	MS	12/22/2011	00:33	LB58525
	Magnesium	51360.00	50000.0	102.7	90 - 110	MS	12/22/2011	00:33	LB58525
	Manganese	1036.00	1000.0	103.6	90 - 110	MS	12/22/2011	00:33	LB58525
	Nickel	506.90	500.0	101.4	90 - 110	MS	12/22/2011	00:33	LB58525
	Potassium	27000.00	25000.0	108.0	90 - 110	MS	12/22/2011	00:33	LB58525
	Selenium	510.50	500.0	102.1	90 - 110	MS	12/22/2011	00:33	LB58525
	Silver	508.10	500.0	101.6	90 - 110	MS	12/22/2011	00:33	LB58525
	Sodium	54120.00	50000.0	108.2	90 - 110	MS	12/22/2011	00:33	LB58525
	Thallium	497.50	500.0	99.5	90 - 110	MS	12/22/2011	00:33	LB58525
	Vanadium	503.70	500.0	100.7	90 - 110	MS	12/22/2011	00:33	LB58525
	Zinc	1068.00	1000.0	106.8	90 - 110	MS	12/22/2011	00:33	LB58525
CCV05	Aluminum	9668.00	10000.0	96.7	90 - 110	MS	12/22/2011	02:08	LB58525
	Antimony	518.40	500.0	103.7	90 - 110	MS	12/22/2011	02:08	LB58525
	Arsenic	507.50	500.0	101.5	90 - 110	MS	12/22/2011	02:08	LB58525
	Barium	2492.00	2500.0	99.7	90 - 110	MS	12/22/2011	02:08	LB58525
	Beryllium	514.00	500.0	102.8	90 - 110	MS	12/22/2011	02:08	LB58525
	Cadmium	521.00	500.0	104.2	90 - 110	MS	12/22/2011	02:08	LB58525
	Calcium	50000.00	50000.0	100.0	90 - 110	MS	12/22/2011	02:08	LB58525

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Chromium	505.80	500.0	101.2	90 - 110	MS	12/22/2011	02:08	LB58525
	Cobalt	509.90	500.0	102.0	90 - 110	MS	12/22/2011	02:08	LB58525
	Copper	1023.00	1000.0	102.3	90 - 110	MS	12/22/2011	02:08	LB58525
	Iron	25880.00	25000.0	103.5	90 - 110	MS	12/22/2011	02:08	LB58525
	Lead	506.30	500.0	101.3	90 - 110	MS	12/22/2011	02:08	LB58525
	Magnesium	50710.00	50000.0	101.4	90 - 110	MS	12/22/2011	02:08	LB58525
	Manganese	1036.00	1000.0	103.6	90 - 110	MS	12/22/2011	02:08	LB58525
	Nickel	507.40	500.0	101.5	90 - 110	MS	12/22/2011	02:08	LB58525
	Potassium	27100.00	25000.0	108.4	90 - 110	MS	12/22/2011	02:08	LB58525
	Selenium	508.60	500.0	101.7	90 - 110	MS	12/22/2011	02:08	LB58525
	Silver	474.80	500.0	95.0	90 - 110	MS	12/22/2011	02:08	LB58525
	Sodium	54420.00	50000.0	108.8	90 - 110	MS	12/22/2011	02:08	LB58525
	Thallium	498.00	500.0	99.6	90 - 110	MS	12/22/2011	02:08	LB58525
	Vanadium	502.10	500.0	100.4	90 - 110	MS	12/22/2011	02:08	LB58525
	Zinc	1071.00	1000.0	107.1	90 - 110	MS	12/22/2011	02:08	LB58525
CCV06	Aluminum	9840.00	10000.0	98.4	90 - 110	MS	12/22/2011	03:43	LB58525
	Antimony	527.20	500.0	105.4	90 - 110	MS	12/22/2011	03:43	LB58525
	Arsenic	513.80	500.0	102.8	90 - 110	MS	12/22/2011	03:43	LB58525
	Barium	2529.00	2500.0	101.2	90 - 110	MS	12/22/2011	03:43	LB58525
	Beryllium	516.40	500.0	103.3	90 - 110	MS	12/22/2011	03:43	LB58525
	Cadmium	522.50	500.0	104.5	90 - 110	MS	12/22/2011	03:43	LB58525
	Calcium	50380.00	50000.0	100.8	90 - 110	MS	12/22/2011	03:43	LB58525
	Chromium	509.20	500.0	101.8	90 - 110	MS	12/22/2011	03:43	LB58525
	Cobalt	511.20	500.0	102.2	90 - 110	MS	12/22/2011	03:43	LB58525
	Copper	1029.00	1000.0	102.9	90 - 110	MS	12/22/2011	03:43	LB58525
	Iron	25920.00	25000.0	103.7	90 - 110	MS	12/22/2011	03:43	LB58525
	Lead	508.40	500.0	101.7	90 - 110	MS	12/22/2011	03:43	LB58525
	Magnesium	51960.00	50000.0	103.9	90 - 110	MS	12/22/2011	03:43	LB58525
	Manganese	1040.00	1000.0	104.0	90 - 110	MS	12/22/2011	03:43	LB58525
	Nickel	506.80	500.0	101.4	90 - 110	MS	12/22/2011	03:43	LB58525
	Potassium	27460.00	25000.0	109.8	90 - 110	MS	12/22/2011	03:43	LB58525
	Selenium	516.40	500.0	103.3	90 - 110	MS	12/22/2011	03:43	LB58525
	Silver	479.20	500.0	95.8	90 - 110	MS	12/22/2011	03:43	LB58525
	Sodium	54600.00	50000.0	109.2	90 - 110	MS	12/22/2011	03:43	LB58525
	Thallium	502.20	500.0	100.4	90 - 110	MS	12/22/2011	03:43	LB58525

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Vanadium	509.00	500.0	101.8	90 - 110	MS	12/22/2011	03:43	LB58525
	Zinc	1083.00	1000.0	108.3	90 - 110	MS	12/22/2011	03:43	LB58525
CCV07	Aluminum	9738.00	10000.0	97.4	90 - 110	MS	12/22/2011	05:02	LB58525
	Antimony	517.10	500.0	103.4	90 - 110	MS	12/22/2011	05:02	LB58525
	Arsenic	506.80	500.0	101.4	90 - 110	MS	12/22/2011	05:02	LB58525
	Barium	2510.00	2500.0	100.4	90 - 110	MS	12/22/2011	05:02	LB58525
	Beryllium	516.20	500.0	103.2	90 - 110	MS	12/22/2011	05:02	LB58525
	Cadmium	512.60	500.0	102.5	90 - 110	MS	12/22/2011	05:02	LB58525
	Calcium	50040.00	50000.0	100.1	90 - 110	MS	12/22/2011	05:02	LB58525
	Chromium	503.40	500.0	100.7	90 - 110	MS	12/22/2011	05:02	LB58525
	Cobalt	501.80	500.0	100.4	90 - 110	MS	12/22/2011	05:02	LB58525
	Copper	1010.00	1000.0	101.0	90 - 110	MS	12/22/2011	05:02	LB58525
	Iron	25620.00	25000.0	102.5	90 - 110	MS	12/22/2011	05:02	LB58525
	Lead	501.80	500.0	100.4	90 - 110	MS	12/22/2011	05:02	LB58525
	Magnesium	51600.00	50000.0	103.2	90 - 110	MS	12/22/2011	05:02	LB58525
	Manganese	1027.00	1000.0	102.7	90 - 110	MS	12/22/2011	05:02	LB58525
	Nickel	499.20	500.0	99.8	90 - 110	MS	12/22/2011	05:02	LB58525
	Potassium	27270.00	25000.0	109.1	90 - 110	MS	12/22/2011	05:02	LB58525
	Selenium	504.40	500.0	100.9	90 - 110	MS	12/22/2011	05:02	LB58525
	Silver	508.00	500.0	101.6	90 - 110	MS	12/22/2011	05:02	LB58525
	Sodium	54360.00	50000.0	108.7	90 - 110	MS	12/22/2011	05:02	LB58525
	Thallium	495.20	500.0	99.0	90 - 110	MS	12/22/2011	05:02	LB58525
	Vanadium	498.30	500.0	99.7	90 - 110	MS	12/22/2011	05:02	LB58525
	Zinc	1057.00	1000.0	105.7	90 - 110	MS	12/22/2011	05:02	LB58525

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source:

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Aluminum	21.51	20.0	107.6	50 - 150	MS	12/19/2011	16:46	LB58430
	Antimony	2.06	2.0	103.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Arsenic	1.09	1.0	109.0	70 - 130	MS	12/19/2011	16:46	LB58430
	Barium	10.97	10.0	109.7	70 - 130	MS	12/19/2011	16:46	LB58430
	Beryllium	1.04	1.0	104.0	70 - 130	MS	12/19/2011	16:46	LB58430
	Cadmium	1.07	1.0	107.0	70 - 130	MS	12/19/2011	16:46	LB58430
	Calcium	499.80	500.0	100.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Chromium	5.79	2.0	289.5	70 - 130	MS	12/19/2011	16:46	LB58430
	Cobalt	1.12	1.0	112.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Copper	2.23	2.0	111.5	70 - 130	MS	12/19/2011	16:46	LB58430
	Iron	226.00	200.0	113.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Lead	1.01	1.0	101.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Magnesium	514.90	500.0	103.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Manganese	1.46	1.0	146.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Nickel	3.26	1.0	326.0	70 - 130	MS	12/19/2011	16:46	LB58430
	Potassium	523.70	500.0	104.7	50 - 150	MS	12/19/2011	16:46	LB58430
	Selenium	4.90	5.0	98.0	70 - 130	MS	12/19/2011	16:46	LB58430
	Silver	1.06	1.0	106.0	70 - 130	MS	12/19/2011	16:46	LB58430
	Sodium	516.60	500.0	103.3	50 - 150	MS	12/19/2011	16:46	LB58430
	Thallium	1.00	1.0	100.0	50 - 150	MS	12/19/2011	16:46	LB58430
	Vanadium	5.06	5.0	101.2	70 - 130	MS	12/19/2011	16:46	LB58430
	Zinc	2.26	2.0	113.0	50 - 150	MS	12/19/2011	16:46	LB58430
CRI01	Mercury	0.17	0.2	85.0	0 - 200	CV	12/22/2011	20:00	LB58505
CRI01	Aluminum	20.30	20.0	101.5	50 - 150	MS	12/22/2011	04:22	LB58525
	Antimony	2.02	2.0	101.0	50 - 150	MS	12/22/2011	04:22	LB58525
	Arsenic	0.75	1.0	75.0	70 - 130	MS	12/22/2011	04:22	LB58525
	Barium	9.68	10.0	96.8	70 - 130	MS	12/22/2011	04:22	LB58525
	Beryllium	0.96	1.0	96.0	70 - 130	MS	12/22/2011	04:22	LB58525
	Cadmium	1.10	1.0	110.0	70 - 130	MS	12/22/2011	04:22	LB58525
	Calcium	490.40	500.0	98.1	50 - 150	MS	12/22/2011	04:22	LB58525
	Chromium	2.06	2.0	103.0	70 - 130	MS	12/22/2011	04:22	LB58525
	Cobalt	1.00	1.0	100.0	50 - 150	MS	12/22/2011	04:22	LB58525
	Copper	2.05	2.0	102.5	70 - 130	MS	12/22/2011	04:22	LB58525
	Iron	207.80	200.0	103.9	50 - 150	MS	12/22/2011	04:22	LB58525
	Lead	1.00	1.0	100.0	50 - 150	MS	12/22/2011	04:22	LB58525
	Magnesium	487.70	500.0	97.5	50 - 150	MS	12/22/2011	04:22	LB58525
	Manganese	1.03	1.0	103.0	50 - 150	MS	12/22/2011	04:22	LB58525
	Nickel	0.62	1.0	62.0	70 - 130	MS	12/22/2011	04:22	LB58525

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Initial Calibration Source:

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Potassium	575.80	500.0	115.2	50 - 150	MS	12/22/2011	04:22	LB58525
	Selenium	4.38	5.0	87.6	70 - 130	MS	12/22/2011	04:22	LB58525
	Silver	1.05	1.0	105.0	70 - 130	MS	12/22/2011	04:22	LB58525
	Sodium	562.10	500.0	112.4	50 - 150	MS	12/22/2011	04:22	LB58525
	Thallium	1.04	1.0	104.0	50 - 150	MS	12/22/2011	04:22	LB58525
	Vanadium	4.66	5.0	93.2	70 - 130	MS	12/22/2011	04:22	LB58525
	Zinc	2.28	2.0	114.0	50 - 150	MS	12/22/2011	04:22	LB58525

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/19/2011	15:13	LB58430
	Antimony	1.013	+/-2.000	J	0.140	2.000	MS	12/19/2011	15:13	LB58430
	Arsenic	0.322	+/-1.000	J	0.180	1.000	MS	12/19/2011	15:13	LB58430
	Barium	0.398	+/-10.000	J	0.100	10.000	MS	12/19/2011	15:13	LB58430
	Beryllium	0.176	+/-1.000	J	0.090	1.000	MS	12/19/2011	15:13	LB58430
	Cadmium	0.148	+/-1.000	J	0.130	1.000	MS	12/19/2011	15:13	LB58430
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/19/2011	15:13	LB58430
	Chromium	0.802	+/-2.000	J	0.040	2.000	MS	12/19/2011	15:13	LB58430
	Cobalt	0.125	+/-1.000	J	0.050	1.000	MS	12/19/2011	15:13	LB58430
	Copper	0.183	+/-2.000	J	0.040	2.000	MS	12/19/2011	15:13	LB58430
	Iron	13.920	+/-200.000	J	10.280	200.000	MS	12/19/2011	15:13	LB58430
	Lead	0.118	+/-1.000	J	0.040	1.000	MS	12/19/2011	15:13	LB58430
	Magnesium	5.304	+/-500.000	J	4.950	500.000	MS	12/19/2011	15:13	LB58430
	Manganese	0.169	+/-1.000	J	0.050	1.000	MS	12/19/2011	15:13	LB58430
	Nickel	0.531	+/-1.000	J	0.060	1.000	MS	12/19/2011	15:13	LB58430
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	12/19/2011	15:13	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/19/2011	15:13	LB58430
	Silver	0.110	+/-1.000	J	0.030	1.000	MS	12/19/2011	15:13	LB58430
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	12/19/2011	15:13	LB58430
	Thallium	0.170	+/-1.000	J	0.020	1.000	MS	12/19/2011	15:13	LB58430
	Vanadium	0.290	+/-5.000	J	0.150	5.000	MS	12/19/2011	15:13	LB58430
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/19/2011	15:13	LB58430
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/19/2011	16:31	LB58430
	Antimony	0.140	+/-2.000	U	0.140	2.000	MS	12/19/2011	16:31	LB58430
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/19/2011	16:31	LB58430
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/19/2011	16:31	LB58430
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/19/2011	16:31	LB58430
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/19/2011	16:31	LB58430
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/19/2011	16:31	LB58430
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/19/2011	16:31	LB58430
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/19/2011	16:31	LB58430
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	12/19/2011	16:31	LB58430
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/19/2011	16:31	LB58430
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	12/19/2011	16:31	LB58430
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/19/2011	16:31	LB58430
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	12/19/2011	16:31	LB58430
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/19/2011	16:31	LB58430
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	12/19/2011	16:31	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/19/2011	16:31	LB58430

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Silver	0.030	+/-1.000	U	0.030	1.000	MS	12/19/2011	16:31	LB58430
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	12/19/2011	16:31	LB58430
	Thallium	0.020	+/-1.000	U	0.020	1.000	MS	12/19/2011	16:31	LB58430
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/19/2011	16:31	LB58430
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/19/2011	16:31	LB58430
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/19/2011	18:21	LB58430
	Antimony	0.817	+/-2.000	J	0.140	2.000	MS	12/19/2011	18:21	LB58430
	Arsenic	0.226	+/-1.000	J	0.180	1.000	MS	12/19/2011	18:21	LB58430
	Barium	0.652	+/-10.000	J	0.100	10.000	MS	12/19/2011	18:21	LB58430
	Beryllium	0.106	+/-1.000	J	0.090	1.000	MS	12/19/2011	18:21	LB58430
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/19/2011	18:21	LB58430
	Calcium	15.290	+/-500.000	J	9.060	500.000	MS	12/19/2011	18:21	LB58430
	Chromium	0.090	+/-2.000	J	0.040	2.000	MS	12/19/2011	18:21	LB58430
	Cobalt	0.118	+/-1.000	J	0.050	1.000	MS	12/19/2011	18:21	LB58430
	Copper	0.265	+/-2.000	J	0.040	2.000	MS	12/19/2011	18:21	LB58430
	Iron	12.410	+/-200.000	J	10.280	200.000	MS	12/19/2011	18:21	LB58430
	Lead	0.112	+/-1.000	J	0.040	1.000	MS	12/19/2011	18:21	LB58430
	Magnesium	16.250	+/-500.000	J	4.950	500.000	MS	12/19/2011	18:21	LB58430
	Manganese	0.170	+/-1.000	J	0.050	1.000	MS	12/19/2011	18:21	LB58430
	Nickel	0.106	+/-1.000	J	0.060	1.000	MS	12/19/2011	18:21	LB58430
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	12/19/2011	18:21	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/19/2011	18:21	LB58430
	Silver	0.171	+/-1.000	J	0.030	1.000	MS	12/19/2011	18:21	LB58430
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	12/19/2011	18:21	LB58430
	Thallium	0.165	+/-1.000	J	0.020	1.000	MS	12/19/2011	18:21	LB58430
	Vanadium	0.151	+/-5.000	J	0.150	5.000	MS	12/19/2011	18:21	LB58430
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/19/2011	18:21	LB58430
CCB03	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/19/2011	19:56	LB58430
	Antimony	0.816	+/-2.000	J	0.140	2.000	MS	12/19/2011	19:56	LB58430
	Arsenic	0.211	+/-1.000	J	0.180	1.000	MS	12/19/2011	19:56	LB58430
	Barium	0.560	+/-10.000	J	0.100	10.000	MS	12/19/2011	19:56	LB58430
	Beryllium	0.187	+/-1.000	J	0.090	1.000	MS	12/19/2011	19:56	LB58430
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/19/2011	19:56	LB58430
	Calcium	18.250	+/-500.000	J	9.060	500.000	MS	12/19/2011	19:56	LB58430
	Chromium	0.225	+/-2.000	J	0.040	2.000	MS	12/19/2011	19:56	LB58430
	Cobalt	0.096	+/-1.000	J	0.050	1.000	MS	12/19/2011	19:56	LB58430
	Copper	0.262	+/-2.000	J	0.040	2.000	MS	12/19/2011	19:56	LB58430
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/19/2011	19:56	LB58430
	Lead	0.091	+/-1.000	J	0.040	1.000	MS	12/19/2011	19:56	LB58430
	Magnesium	11.880	+/-500.000	J	4.950	500.000	MS	12/19/2011	19:56	LB58430
	Manganese	0.185	+/-1.000	J	0.050	1.000	MS	12/19/2011	19:56	LB58430
	Nickel	0.101	+/-1.000	J	0.060	1.000	MS	12/19/2011	19:56	LB58430

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Potassium	32.460	+/-500.000	J	12.220	500.000	MS	12/19/2011	19:56	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/19/2011	19:56	LB58430
	Silver	0.179	+/-1.000	J	0.030	1.000	MS	12/19/2011	19:56	LB58430
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	12/19/2011	19:56	LB58430
	Thallium	0.229	+/-1.000	J	0.020	1.000	MS	12/19/2011	19:56	LB58430
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/19/2011	19:56	LB58430
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/19/2011	19:56	LB58430
CCB04	Aluminum	7.257	+/-20.000	J	4.970	20.000	MS	12/19/2011	21:31	LB58430
	Antimony	0.869	+/-2.000	J	0.140	2.000	MS	12/19/2011	21:31	LB58430
	Arsenic	0.373	+/-1.000	J	0.180	1.000	MS	12/19/2011	21:31	LB58430
	Barium	0.783	+/-10.000	J	0.100	10.000	MS	12/19/2011	21:31	LB58430
	Beryllium	0.228	+/-1.000	J	0.090	1.000	MS	12/19/2011	21:31	LB58430
	Cadmium	0.131	+/-1.000	J	0.130	1.000	MS	12/19/2011	21:31	LB58430
	Calcium	16.940	+/-500.000	J	9.060	500.000	MS	12/19/2011	21:31	LB58430
	Chromium	0.240	+/-2.000	J	0.040	2.000	MS	12/19/2011	21:31	LB58430
	Cobalt	0.182	+/-1.000	J	0.050	1.000	MS	12/19/2011	21:31	LB58430
	Copper	0.348	+/-2.000	J	0.040	2.000	MS	12/19/2011	21:31	LB58430
	Iron	40.180	+/-200.000	J	10.280	200.000	MS	12/19/2011	21:31	LB58430
	Lead	0.193	+/-1.000	J	0.040	1.000	MS	12/19/2011	21:31	LB58430
	Magnesium	16.060	+/-500.000	J	4.950	500.000	MS	12/19/2011	21:31	LB58430
	Manganese	0.314	+/-1.000	J	0.050	1.000	MS	12/19/2011	21:31	LB58430
	Nickel	0.180	+/-1.000	J	0.060	1.000	MS	12/19/2011	21:31	LB58430
	Potassium	45.540	+/-500.000	J	12.220	500.000	MS	12/19/2011	21:31	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/19/2011	21:31	LB58430
	Silver	0.247	+/-1.000	J	0.030	1.000	MS	12/19/2011	21:31	LB58430
	Sodium	26.580	+/-500.000	J	5.320	500.000	MS	12/19/2011	21:31	LB58430
	Thallium	0.670	+/-1.000	J	0.020	1.000	MS	12/19/2011	21:31	LB58430
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/19/2011	21:31	LB58430
	Zinc	0.227	+/-2.000	J	0.090	2.000	MS	12/19/2011	21:31	LB58430
CCB05	Aluminum	5.033	+/-20.000	J	4.970	20.000	MS	12/19/2011	22:43	LB58430
	Antimony	0.933	+/-2.000	J	0.140	2.000	MS	12/19/2011	22:43	LB58430
	Arsenic	0.285	+/-1.000	J	0.180	1.000	MS	12/19/2011	22:43	LB58430
	Barium	1.009	+/-10.000	J	0.100	10.000	MS	12/19/2011	22:43	LB58430
	Beryllium	0.311	+/-1.000	J	0.090	1.000	MS	12/19/2011	22:43	LB58430
	Cadmium	0.211	+/-1.000	J	0.130	1.000	MS	12/19/2011	22:43	LB58430
	Calcium	14.880	+/-500.000	J	9.060	500.000	MS	12/19/2011	22:43	LB58430
	Chromium	0.309	+/-2.000	J	0.040	2.000	MS	12/19/2011	22:43	LB58430
	Cobalt	0.185	+/-1.000	J	0.050	1.000	MS	12/19/2011	22:43	LB58430
	Copper	0.432	+/-2.000	J	0.040	2.000	MS	12/19/2011	22:43	LB58430
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/19/2011	22:43	LB58430
	Lead	0.260	+/-1.000	J	0.040	1.000	MS	12/19/2011	22:43	LB58430
	Magnesium	18.530	+/-500.000	J	4.950	500.000	MS	12/19/2011	22:43	LB58430

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB05	Manganese	0.383	+/-1.000	J	0.050	1.000	MS	12/19/2011	22:43	LB58430
	Nickel	0.265	+/-1.000	J	0.060	1.000	MS	12/19/2011	22:43	LB58430
	Potassium	63.790	+/-500.000	J	12.220	500.000	MS	12/19/2011	22:43	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/19/2011	22:43	LB58430
	Silver	0.298	+/-1.000	J	0.030	1.000	MS	12/19/2011	22:43	LB58430
	Sodium	46.030	+/-500.000	J	5.320	500.000	MS	12/19/2011	22:43	LB58430
	Thallium	1.153	+/-1.000		0.020	1.000	MS	12/19/2011	22:43	LB58430
	Vanadium	0.678	+/-5.000	J	0.150	5.000	MS	12/19/2011	22:43	LB58430
	Zinc	0.232	+/-2.000	J	0.090	2.000	MS	12/19/2011	22:43	LB58430
CCB06	Aluminum	10.920	+/-20.000	J	4.970	20.000	MS	12/20/2011	00:18	LB58430
	Antimony	0.820	+/-2.000	J	0.140	2.000	MS	12/20/2011	00:18	LB58430
	Arsenic	0.202	+/-1.000	J	0.180	1.000	MS	12/20/2011	00:18	LB58430
	Barium	0.727	+/-10.000	J	0.100	10.000	MS	12/20/2011	00:18	LB58430
	Beryllium	0.312	+/-1.000	J	0.090	1.000	MS	12/20/2011	00:18	LB58430
	Cadmium	0.171	+/-1.000	J	0.130	1.000	MS	12/20/2011	00:18	LB58430
	Calcium	26.960	+/-500.000	J	9.060	500.000	MS	12/20/2011	00:18	LB58430
	Chromium	0.226	+/-2.000	J	0.040	2.000	MS	12/20/2011	00:18	LB58430
	Cobalt	0.151	+/-1.000	J	0.050	1.000	MS	12/20/2011	00:18	LB58430
	Copper	0.309	+/-2.000	J	0.040	2.000	MS	12/20/2011	00:18	LB58430
	Iron	15.070	+/-200.000	J	10.280	200.000	MS	12/20/2011	00:18	LB58430
	Lead	0.151	+/-1.000	J	0.040	1.000	MS	12/20/2011	00:18	LB58430
	Magnesium	14.130	+/-500.000	J	4.950	500.000	MS	12/20/2011	00:18	LB58430
	Manganese	0.904	+/-1.000	J	0.050	1.000	MS	12/20/2011	00:18	LB58430
	Nickel	0.227	+/-1.000	J	0.060	1.000	MS	12/20/2011	00:18	LB58430
	Potassium	52.600	+/-500.000	J	12.220	500.000	MS	12/20/2011	00:18	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/20/2011	00:18	LB58430
	Silver	0.199	+/-1.000	J	0.030	1.000	MS	12/20/2011	00:18	LB58430
	Sodium	62.310	+/-500.000	J	5.320	500.000	MS	12/20/2011	00:18	LB58430
	Thallium	0.361	+/-1.000	J	0.020	1.000	MS	12/20/2011	00:18	LB58430
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/20/2011	00:18	LB58430
	Zinc	12.950	+/-2.000		0.090	2.000	MS	12/20/2011	00:18	LB58430
CCB07	Aluminum	8.459	+/-20.000	J	4.970	20.000	MS	12/20/2011	01:53	LB58430
	Antimony	0.925	+/-2.000	J	0.140	2.000	MS	12/20/2011	01:53	LB58430
	Arsenic	0.293	+/-1.000	J	0.180	1.000	MS	12/20/2011	01:53	LB58430
	Barium	0.674	+/-10.000	J	0.100	10.000	MS	12/20/2011	01:53	LB58430
	Beryllium	0.219	+/-1.000	J	0.090	1.000	MS	12/20/2011	01:53	LB58430
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/20/2011	01:53	LB58430
	Calcium	11.770	+/-500.000	J	9.060	500.000	MS	12/20/2011	01:53	LB58430
	Chromium	0.201	+/-2.000	J	0.040	2.000	MS	12/20/2011	01:53	LB58430
	Cobalt	0.126	+/-1.000	J	0.050	1.000	MS	12/20/2011	01:53	LB58430
	Copper	0.248	+/-2.000	J	0.040	2.000	MS	12/20/2011	01:53	LB58430
	Iron	15.520	+/-200.000	J	10.280	200.000	MS	12/20/2011	01:53	LB58430

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB07	Lead	0.122	+/-1.000	J	0.040	1.000	MS	12/20/2011	01:53	LB58430
	Magnesium	15.600	+/-500.000	J	4.950	500.000	MS	12/20/2011	01:53	LB58430
	Manganese	0.730	+/-1.000	J	0.050	1.000	MS	12/20/2011	01:53	LB58430
	Nickel	0.175	+/-1.000	J	0.060	1.000	MS	12/20/2011	01:53	LB58430
	Potassium	40.720	+/-500.000	J	12.220	500.000	MS	12/20/2011	01:53	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/20/2011	01:53	LB58430
	Silver	0.166	+/-1.000	J	0.030	1.000	MS	12/20/2011	01:53	LB58430
	Sodium	54.150	+/-500.000	J	5.320	500.000	MS	12/20/2011	01:53	LB58430
	Thallium	0.598	+/-1.000	J	0.020	1.000	MS	12/20/2011	01:53	LB58430
	Vanadium	0.390	+/-5.000	J	0.150	5.000	MS	12/20/2011	01:53	LB58430
	Zinc	0.095	+/-2.000	J	0.090	2.000	MS	12/20/2011	01:53	LB58430
CCB08	Aluminum	7.094	+/-20.000	J	4.970	20.000	MS	12/20/2011	02:57	LB58430
	Antimony	0.826	+/-2.000	J	0.140	2.000	MS	12/20/2011	02:57	LB58430
	Arsenic	0.204	+/-1.000	J	0.180	1.000	MS	12/20/2011	02:57	LB58430
	Barium	0.294	+/-10.000	J	0.100	10.000	MS	12/20/2011	02:57	LB58430
	Beryllium	0.115	+/-1.000	J	0.090	1.000	MS	12/20/2011	02:57	LB58430
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/20/2011	02:57	LB58430
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/20/2011	02:57	LB58430
	Chromium	0.128	+/-2.000	J	0.040	2.000	MS	12/20/2011	02:57	LB58430
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/20/2011	02:57	LB58430
	Copper	0.122	+/-2.000	J	0.040	2.000	MS	12/20/2011	02:57	LB58430
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/20/2011	02:57	LB58430
	Lead	0.057	+/-1.000	J	0.040	1.000	MS	12/20/2011	02:57	LB58430
	Magnesium	6.674	+/-500.000	J	4.950	500.000	MS	12/20/2011	02:57	LB58430
	Manganese	0.230	+/-1.000	J	0.050	1.000	MS	12/20/2011	02:57	LB58430
	Nickel	0.080	+/-1.000	J	0.060	1.000	MS	12/20/2011	02:57	LB58430
	Potassium	41.030	+/-500.000	J	12.220	500.000	MS	12/20/2011	02:57	LB58430
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/20/2011	02:57	LB58430
	Silver	0.088	+/-1.000	J	0.030	1.000	MS	12/20/2011	02:57	LB58430
	Sodium	55.230	+/-500.000	J	5.320	500.000	MS	12/20/2011	02:57	LB58430
	Thallium	0.296	+/-1.000	J	0.020	1.000	MS	12/20/2011	02:57	LB58430
	Vanadium	0.352	+/-5.000	J	0.150	5.000	MS	12/20/2011	02:57	LB58430
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/20/2011	02:57	LB58430
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	19:54	LB58505
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	19:58	LB58505
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	20:23	LB58505
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	20:44	LB58505
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	21:09	LB58505
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	21:31	LB58505
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	21:54	LB58505
CCB07	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	22:16	LB58505

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB08	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	22:36	LB58505
CCB09	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	22:59	LB58505
CCB10	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	23:24	LB58505
CCB11	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	23:43	LB58505
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/21/2011	18:47	LB58525
	Antimony	0.822	+/-2.000	J	0.140	2.000	MS	12/21/2011	18:47	LB58525
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/21/2011	18:47	LB58525
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/21/2011	18:47	LB58525
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/21/2011	18:47	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/21/2011	18:47	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/21/2011	18:47	LB58525
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/21/2011	18:47	LB58525
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/21/2011	18:47	LB58525
	Copper	0.162	+/-2.000	J	0.040	2.000	MS	12/21/2011	18:47	LB58525
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/21/2011	18:47	LB58525
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	12/21/2011	18:47	LB58525
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/21/2011	18:47	LB58525
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	12/21/2011	18:47	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/21/2011	18:47	LB58525
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	12/21/2011	18:47	LB58525
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/21/2011	18:47	LB58525
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	12/21/2011	18:47	LB58525
	Sodium	12.660	+/-500.000	J	5.320	500.000	MS	12/21/2011	18:47	LB58525
	Thallium	0.020	+/-1.000	U	0.020	1.000	MS	12/21/2011	18:47	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/21/2011	18:47	LB58525
	Zinc	0.779	+/-2.000	J	0.090	2.000	MS	12/21/2011	18:47	LB58525
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/21/2011	19:49	LB58525
	Antimony	0.671	+/-2.000	J	0.140	2.000	MS	12/21/2011	19:49	LB58525
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/21/2011	19:49	LB58525
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/21/2011	19:49	LB58525
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/21/2011	19:49	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/21/2011	19:49	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/21/2011	19:49	LB58525
	Chromium	0.044	+/-2.000	J	0.040	2.000	MS	12/21/2011	19:49	LB58525
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/21/2011	19:49	LB58525
	Copper	0.179	+/-2.000	J	0.040	2.000	MS	12/21/2011	19:49	LB58525
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/21/2011	19:49	LB58525
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	12/21/2011	19:49	LB58525
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/21/2011	19:49	LB58525
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	12/21/2011	19:49	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/21/2011	19:49	LB58525
	Potassium	15.330	+/-500.000	J	12.220	500.000	MS	12/21/2011	19:49	LB58525

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/21/2011	19:49	LB58525
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	12/21/2011	19:49	LB58525
	Sodium	6.281	+/-500.000	J	5.320	500.000	MS	12/21/2011	19:49	LB58525
	Thallium	0.024	+/-1.000	J	0.020	1.000	MS	12/21/2011	19:49	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/21/2011	19:49	LB58525
	Zinc	0.197	+/-2.000	J	0.090	2.000	MS	12/21/2011	19:49	LB58525
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/21/2011	21:31	LB58525
	Antimony	0.716	+/-2.000	J	0.140	2.000	MS	12/21/2011	21:31	LB58525
	Arsenic	0.183	+/-1.000	J	0.180	1.000	MS	12/21/2011	21:31	LB58525
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/21/2011	21:31	LB58525
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/21/2011	21:31	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/21/2011	21:31	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/21/2011	21:31	LB58525
	Chromium	0.055	+/-2.000	J	0.040	2.000	MS	12/21/2011	21:31	LB58525
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/21/2011	21:31	LB58525
	Copper	0.134	+/-2.000	J	0.040	2.000	MS	12/21/2011	21:31	LB58525
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/21/2011	21:31	LB58525
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	12/21/2011	21:31	LB58525
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/21/2011	21:31	LB58525
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	12/21/2011	21:31	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/21/2011	21:31	LB58525
	Potassium	40.510	+/-500.000	J	12.220	500.000	MS	12/21/2011	21:31	LB58525
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/21/2011	21:31	LB58525
	Silver	0.097	+/-1.000	J	0.030	1.000	MS	12/21/2011	21:31	LB58525
	Sodium	7.134	+/-500.000	J	5.320	500.000	MS	12/21/2011	21:31	LB58525
	Thallium	0.250	+/-1.000	J	0.020	1.000	MS	12/21/2011	21:31	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/21/2011	21:31	LB58525
	Zinc	0.941	+/-2.000	J	0.090	2.000	MS	12/21/2011	21:31	LB58525
CCB03	Aluminum	13.100	+/-20.000	J	4.970	20.000	MS	12/21/2011	23:06	LB58525
	Antimony	0.772	+/-2.000	J	0.140	2.000	MS	12/21/2011	23:06	LB58525
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/21/2011	23:06	LB58525
	Barium	0.612	+/-10.000	J	0.100	10.000	MS	12/21/2011	23:06	LB58525
	Beryllium	0.137	+/-1.000	J	0.090	1.000	MS	12/21/2011	23:06	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/21/2011	23:06	LB58525
	Calcium	9.364	+/-500.000	J	9.060	500.000	MS	12/21/2011	23:06	LB58525
	Chromium	0.148	+/-2.000	J	0.040	2.000	MS	12/21/2011	23:06	LB58525
	Cobalt	0.109	+/-1.000	J	0.050	1.000	MS	12/21/2011	23:06	LB58525
	Copper	0.294	+/-2.000	J	0.040	2.000	MS	12/21/2011	23:06	LB58525
	Iron	29.830	+/-200.000	J	10.280	200.000	MS	12/21/2011	23:06	LB58525
	Lead	0.144	+/-1.000	J	0.040	1.000	MS	12/21/2011	23:06	LB58525
	Magnesium	12.540	+/-500.000	J	4.950	500.000	MS	12/21/2011	23:06	LB58525
	Manganese	0.775	+/-1.000	J	0.050	1.000	MS	12/21/2011	23:06	LB58525

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/21/2011	23:06	LB58525
	Potassium	37.800	+/-500.000	J	12.220	500.000	MS	12/21/2011	23:06	LB58525
	Selenium	0.847	+/-5.000	J	0.700	5.000	MS	12/21/2011	23:06	LB58525
	Silver	0.150	+/-1.000	J	0.030	1.000	MS	12/21/2011	23:06	LB58525
	Sodium	21.430	+/-500.000	J	5.320	500.000	MS	12/21/2011	23:06	LB58525
	Thallium	0.222	+/-1.000	J	0.020	1.000	MS	12/21/2011	23:06	LB58525
	Vanadium	0.188	+/-5.000	J	0.150	5.000	MS	12/21/2011	23:06	LB58525
	Zinc	0.918	+/-2.000	J	0.090	2.000	MS	12/21/2011	23:06	LB58525
CCB04	Aluminum	6.305	+/-20.000	J	4.970	20.000	MS	12/22/2011	00:41	LB58525
	Antimony	0.768	+/-2.000	J	0.140	2.000	MS	12/22/2011	00:41	LB58525
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/22/2011	00:41	LB58525
	Barium	0.285	+/-10.000	J	0.100	10.000	MS	12/22/2011	00:41	LB58525
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/22/2011	00:41	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/22/2011	00:41	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/22/2011	00:41	LB58525
	Chromium	0.095	+/-2.000	J	0.040	2.000	MS	12/22/2011	00:41	LB58525
	Cobalt	0.066	+/-1.000	J	0.050	1.000	MS	12/22/2011	00:41	LB58525
	Copper	0.133	+/-2.000	J	0.040	2.000	MS	12/22/2011	00:41	LB58525
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/22/2011	00:41	LB58525
	Lead	0.088	+/-1.000	J	0.040	1.000	MS	12/22/2011	00:41	LB58525
	Magnesium	5.929	+/-500.000	J	4.950	500.000	MS	12/22/2011	00:41	LB58525
	Manganese	0.340	+/-1.000	J	0.050	1.000	MS	12/22/2011	00:41	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/22/2011	00:41	LB58525
	Potassium	42.050	+/-500.000	J	12.220	500.000	MS	12/22/2011	00:41	LB58525
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/22/2011	00:41	LB58525
	Silver	0.128	+/-1.000	J	0.030	1.000	MS	12/22/2011	00:41	LB58525
	Sodium	34.270	+/-500.000	J	5.320	500.000	MS	12/22/2011	00:41	LB58525
	Thallium	0.424	+/-1.000	J	0.020	1.000	MS	12/22/2011	00:41	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	00:41	LB58525
	Zinc	0.190	+/-2.000	J	0.090	2.000	MS	12/22/2011	00:41	LB58525
CCB05	Aluminum	5.149	+/-20.000	J	4.970	20.000	MS	12/22/2011	02:16	LB58525
	Antimony	0.744	+/-2.000	J	0.140	2.000	MS	12/22/2011	02:16	LB58525
	Arsenic	0.183	+/-1.000	J	0.180	1.000	MS	12/22/2011	02:16	LB58525
	Barium	0.343	+/-10.000	J	0.100	10.000	MS	12/22/2011	02:16	LB58525
	Beryllium	0.097	+/-1.000	J	0.090	1.000	MS	12/22/2011	02:16	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/22/2011	02:16	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/22/2011	02:16	LB58525
	Chromium	0.081	+/-2.000	J	0.040	2.000	MS	12/22/2011	02:16	LB58525
	Cobalt	0.081	+/-1.000	J	0.050	1.000	MS	12/22/2011	02:16	LB58525
	Copper	0.116	+/-2.000	J	0.040	2.000	MS	12/22/2011	02:16	LB58525
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/22/2011	02:16	LB58525
	Lead	0.080	+/-1.000	J	0.040	1.000	MS	12/22/2011	02:16	LB58525

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB05	Magnesium	5.576	+/-500.000	J	4.950	500.000	MS	12/22/2011	02:16	LB58525
	Manganese	0.287	+/-1.000	J	0.050	1.000	MS	12/22/2011	02:16	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/22/2011	02:16	LB58525
	Potassium	50.870	+/-500.000	J	12.220	500.000	MS	12/22/2011	02:16	LB58525
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/22/2011	02:16	LB58525
	Silver	0.111	+/-1.000	J	0.030	1.000	MS	12/22/2011	02:16	LB58525
	Sodium	49.740	+/-500.000	J	5.320	500.000	MS	12/22/2011	02:16	LB58525
	Thallium	0.205	+/-1.000	J	0.020	1.000	MS	12/22/2011	02:16	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	02:16	LB58525
	Zinc	0.156	+/-2.000	J	0.090	2.000	MS	12/22/2011	02:16	LB58525
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/22/2011	03:51	LB58525
	Antimony	0.746	+/-2.000	J	0.140	2.000	MS	12/22/2011	03:51	LB58525
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/22/2011	03:51	LB58525
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/22/2011	03:51	LB58525
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/22/2011	03:51	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/22/2011	03:51	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/22/2011	03:51	LB58525
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/22/2011	03:51	LB58525
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/22/2011	03:51	LB58525
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	12/22/2011	03:51	LB58525
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/22/2011	03:51	LB58525
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	12/22/2011	03:51	LB58525
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/22/2011	03:51	LB58525
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	12/22/2011	03:51	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/22/2011	03:51	LB58525
	Potassium	45.600	+/-500.000	J	12.220	500.000	MS	12/22/2011	03:51	LB58525
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/22/2011	03:51	LB58525
	Silver	0.085	+/-1.000	J	0.030	1.000	MS	12/22/2011	03:51	LB58525
	Sodium	33.640	+/-500.000	J	5.320	500.000	MS	12/22/2011	03:51	LB58525
	Thallium	0.115	+/-1.000	J	0.020	1.000	MS	12/22/2011	03:51	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	03:51	LB58525
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/22/2011	03:51	LB58525
CCB07	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/22/2011	05:10	LB58525
	Antimony	0.736	+/-2.000	J	0.140	2.000	MS	12/22/2011	05:10	LB58525
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/22/2011	05:10	LB58525
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/22/2011	05:10	LB58525
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/22/2011	05:10	LB58525
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/22/2011	05:10	LB58525
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/22/2011	05:10	LB58525
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/22/2011	05:10	LB58525
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/22/2011	05:10	LB58525
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	12/22/2011	05:10	LB58525

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB07	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/22/2011	05:10	LB58525
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	12/22/2011	05:10	LB58525
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/22/2011	05:10	LB58525
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	12/22/2011	05:10	LB58525
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/22/2011	05:10	LB58525
	Potassium	41.740	+/-500.000	J	12.220	500.000	MS	12/22/2011	05:10	LB58525
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/22/2011	05:10	LB58525
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	12/22/2011	05:10	LB58525
	Sodium	36.390	+/-500.000	J	5.320	500.000	MS	12/22/2011	05:10	LB58525
	Thallium	0.070	+/-1.000	J	0.020	1.000	MS	12/22/2011	05:10	LB58525
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	05:10	LB58525
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	12/22/2011	05:10	LB58525

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Instrument: P6

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB59980BL		**SOIL**		**Batch Number:**	**PB59980**			**Prep Date:**	**12/19/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	12/19/2011	22:51	LB58430
	Antimony	0.026	<0.200	U	0.026	0.200	MS	12/19/2011	22:51	LB58430
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	12/19/2011	22:51	LB58430
	Barium	0.013	<1.000	J	0.008	1.000	MS	12/19/2011	22:51	LB58430
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	12/19/2011	22:51	LB58430
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	12/19/2011	22:51	LB58430
	Calcium	0.635	<50.000	U	0.635	50.000	MS	12/19/2011	22:51	LB58430
	Chromium	0.011	<0.200	U	0.011	0.200	MS	12/19/2011	22:51	LB58430
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	12/19/2011	22:51	LB58430
	Copper	0.006	<0.200	J	0.006	0.200	MS	12/19/2011	22:51	LB58430
	Iron	0.926	<20.000	U	0.926	20.000	MS	12/19/2011	22:51	LB58430
	Lead	0.004	<0.100	U	0.004	0.100	MS	12/19/2011	22:51	LB58430
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	12/19/2011	22:51	LB58430
	Manganese	0.006	<0.100	U	0.006	0.100	MS	12/19/2011	22:51	LB58430
	Nickel	0.009	<0.100	U	0.009	0.100	MS	12/19/2011	22:51	LB58430
	Potassium	4.556	<50.000	J	0.901	50.000	MS	12/19/2011	22:51	LB58430
	Selenium	0.056	<0.500	U	0.056	0.500	MS	12/19/2011	22:51	LB58430
	Silver	0.007	<0.100	U	0.007	0.100	MS	12/19/2011	22:51	LB58430
	Sodium	1.677	<50.000	J	1.225	50.000	MS	12/19/2011	22:51	LB58430
	Vanadium	0.050	<0.500	J	0.013	0.500	MS	12/19/2011	22:51	LB58430
PB60050BL		**SOIL**		**Batch Number:**	**PB60050**			**Prep Date:**	**12/20/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	12/22/2011	20:09	LB58505
PB59980BL		**SOIL**		**Batch Number:**	**PB59980**			**Prep Date:**	**12/19/2011**	
	Thallium	0.013	<0.100	J	0.005	0.100	MS	12/21/2011	22:02	LB58525
	Zinc	0.125	<0.200	J	0.011	0.200	MS	12/21/2011	22:02	LB58525

CHEMTECH

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INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	95900	100000	95.9	80 - 120%	12/19/2011	15:35	LB58430
	Antimony	1.3				12/19/2011	15:35	LB58430
	Arsenic	-0.031				12/19/2011	15:35	LB58430
	Barium	1.8				12/19/2011	15:35	LB58430
	Beryllium	0.33				12/19/2011	15:35	LB58430
	Cadmium	0.13				12/19/2011	15:35	LB58430
	Calcium	98900	100000	98.9	80 - 120%	12/19/2011	15:35	LB58430
	Chromium	22.1	21	105.2	80 - 120%	12/19/2011	15:35	LB58430
	Cobalt	1.2				12/19/2011	15:35	LB58430
	Copper	8.3				12/19/2011	15:35	LB58430
	Iron	93100	100000	93.1	80 - 120%	12/19/2011	15:35	LB58430
	Lead	4.2	4	105.0	80 - 120%	12/19/2011	15:35	LB58430
	Magnesium	96200	100000	96.2	80 - 120%	12/19/2011	15:35	LB58430
	Manganese	8.2				12/19/2011	15:35	LB58430
	Nickel	7.2				12/19/2011	15:35	LB58430
	Potassium	97800	100000	97.8	80 - 120%	12/19/2011	15:35	LB58430
	Selenium	-0.20				12/19/2011	15:35	LB58430
	Silver	0.028				12/19/2011	15:35	LB58430
	Sodium	99600	100000	99.6	80 - 120%	12/19/2011	15:35	LB58430
	Thallium	0.044				12/19/2011	15:35	LB58430
	Vanadium	-0.16				12/19/2011	15:35	LB58430
	~~Zinc~~	12.9				12/19/2011	15:35	LB58430
ICSAB01	Aluminum	95800	100000	95.8	80 - 120%	12/19/2011	15:43	LB58430
	Antimony	20.7	22	94.1	80 - 120%	12/19/2011	15:43	LB58430
	Arsenic	19.3	19	101.6	80 - 120%	12/19/2011	15:43	LB58430
	Barium	21.7	22	98.6	80 - 120%	12/19/2011	15:43	LB58430
	Beryllium	20.1	20	100.5	80 - 120%	12/19/2011	15:43	LB58430
	Cadmium	19.8	20	99.0	80 - 120%	12/19/2011	15:43	LB58430
	Calcium	98800	100000	98.8	80 - 120%	12/19/2011	15:43	LB58430
	Chromium	41.4	40	103.5	80 - 120%	12/19/2011	15:43	LB58430
	Cobalt	20.6	20	103.0	80 - 120%	12/19/2011	15:43	LB58430
	Copper	28.5	25	114.0	80 - 120%	12/19/2011	15:43	LB58430
	Iron	93100	100000	93.1	80 - 120%	12/19/2011	15:43	LB58430
	Lead	24.0	25	96.0	80 - 120%	12/19/2011	15:43	LB58430
	Magnesium	96300	100000	96.3	80 - 120%	12/19/2011	15:43	LB58430
	Manganese	28.6	27	105.9	80 - 120%	12/19/2011	15:43	LB58430
	Nickel	26.0	24	108.3	80 - 120%	12/19/2011	15:43	LB58430
	Potassium	97900	100000	97.9	80 - 120%	12/19/2011	15:43	LB58430
	Selenium	18.4	19	96.8	80 - 120%	12/19/2011	15:43	LB58430
	Silver	19.1	18	106.1	80 - 120%	12/19/2011	15:43	LB58430
	Sodium	99400	100000	99.4	80 - 120%	12/19/2011	15:43	LB58430
	Thallium	20.2	21	96.2	80 - 120%	12/19/2011	15:43	LB58430
	Vanadium	19.1	19	100.5	80 - 120%	12/19/2011	15:43	LB58430
	Zinc	33.5	29	115.5	80 - 120%	12/19/2011	15:43	LB58430
ICSA01	Aluminum	92800	100000	92.8	80 - 120%	12/21/2011	19:10	LB58525
	Antimony	1.2				12/21/2011	19:10	LB58525

CHEMTECH

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INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Arsenic	0.063				12/21/2011	19:10	LB58525
	Barium	1.4				12/21/2011	19:10	LB58525
	Beryllium	0.29				12/21/2011	19:10	LB58525
	Cadmium	0.16				12/21/2011	19:10	LB58525
	Calcium	98400	100000	98.4	80 - 120%	12/21/2011	19:10	LB58525
	Chromium	18.9	21	90.0	80 - 120%	12/21/2011	19:10	LB58525
	Cobalt	1.2				12/21/2011	19:10	LB58525
	Copper	8.2				12/21/2011	19:10	LB58525
	Iron	93300	100000	93.3	80 - 120%	12/21/2011	19:10	LB58525
	Lead	4.2	4	105.0	80 - 120%	12/21/2011	19:10	LB58525
	Magnesium	96900	100000	96.9	80 - 120%	12/21/2011	19:10	LB58525
	Manganese	7.8				12/21/2011	19:10	LB58525
	Nickel	5.8				12/21/2011	19:10	LB58525
	Potassium	98300	100000	98.3	80 - 120%	12/21/2011	19:10	LB58525
	Selenium	-0.24				12/21/2011	19:10	LB58525
	Silver	0.034				12/21/2011	19:10	LB58525
	Sodium	98700	100000	98.7	80 - 120%	12/21/2011	19:10	LB58525
	✓Thallium	0.017				12/21/2011	19:10	LB58525
	Vanadium	0.17				12/21/2011	19:10	LB58525
	✓Zinc	12.2				12/21/2011	19:10	LB58525
ICSAB01	Aluminum	95200	100000	95.2	80 - 120%	12/21/2011	19:18	LB58525
	Antimony	21.1	22	95.9	80 - 120%	12/21/2011	19:18	LB58525
	Arsenic	19.4	19	102.1	80 - 120%	12/21/2011	19:18	LB58525
	Barium	21.7	22	98.6	80 - 120%	12/21/2011	19:18	LB58525
	Beryllium	20.2	20	101.0	80 - 120%	12/21/2011	19:18	LB58525
	Cadmium	20.0	20	100.0	80 - 120%	12/21/2011	19:18	LB58525
	Calcium	100000	100000	100.0	80 - 120%	12/21/2011	19:18	LB58525
	Chromium	40.7	40	101.8	80 - 120%	12/21/2011	19:18	LB58525
	Cobalt	20.8	20	104.0	80 - 120%	12/21/2011	19:18	LB58525
	Copper	28.1	25	112.4	80 - 120%	12/21/2011	19:18	LB58525
	Iron	95400	100000	95.4	80 - 120%	12/21/2011	19:18	LB58525
	Lead	24.2	25	96.8	80 - 120%	12/21/2011	19:18	LB58525
	Magnesium	99300	100000	99.3	80 - 120%	12/21/2011	19:18	LB58525
	Manganese	28.2	27	104.4	80 - 120%	12/21/2011	19:18	LB58525
	Nickel	26.2	24	109.2	80 - 120%	12/21/2011	19:18	LB58525
	Potassium	101000	100000	101.0	80 - 120%	12/21/2011	19:18	LB58525
	Selenium	20.0	19	105.3	80 - 120%	12/21/2011	19:18	LB58525
	Silver	19.2	18	106.7	80 - 120%	12/21/2011	19:18	LB58525
	Sodium	102000	100000	102.0	80 - 120%	12/21/2011	19:18	LB58525
	Thallium	19.8	21	94.3	80 - 120%	12/21/2011	19:18	LB58525
	Vanadium	19.2	19	101.1	80 - 120%	12/21/2011	19:18	LB58525
	Zinc	34.0	29	117.2	80 - 120%	12/21/2011	19:18	LB58525

SDG C5017

Soil

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12SB09-0304-03	0.33		Fe	100000	1.3	13200	0.17	BC	na
Ba		111			100000	1.8	13200	0.24	na	na
Be		0.68			100000	0.33	13200	0.04	na	na
Co		5.3			100000	1.2	13200	0.16	na	na
Cu		5.4			100000	8.3	13200	1.10	J	na
Mn		419			100000	8.2	13200	1.08	na	na
Ni		6.6			100000	7.2	13200	0.95	J	na
Tl		0.63			100000	0.044	13200	0.01	na	na
V		13.6			100000	-0.16	13200	-0.02	na	na
Zn		27.6			100000	12.2	13200	1.61	na	na
Sb	12SB10-0.502-02	0.17		Fe	100000	1.3	9670	0.13	BC	na
Ba		67.2			100000	1.8	9670	0.17	na	na
Be		0.56			100000	0.33	9670	0.03	na	na
Co		4.5			100000	1.2	9670	0.12	na	na
Cu		5.7			100000	8.3	9670	0.80	J	na
Mn		312			100000	8.2	9670	0.79	na	na
Ni		5.3			100000	7.2	9670	0.70	J	na
Tl		0.15			100000	0.044	9670	0.00	na	na
V		10.5			100000	-0.16	9670	-0.02	na	na
Zn		16.9			100000	12.2	9670	1.18	na	na
Sb	12SB10-0304-03	0.23		Fe	100000	1.3	11800	0.15	BC	na
Ba		70			100000	1.8	11800	0.21	na	na
Be		0.52			100000	0.33	11800	0.04	na	na
Co		5.4			100000	1.2	11800	0.14	na	na
Cu		7.1			100000	8.3	11800	0.98	J	na

Mn		386			100000	8.2	11800	0.97	na	na
Ni		6.4			100000	7.2	11800	0.85	J	na
Tl		0.12			100000	0.044	11800	0.01	na	na
V		12.5			100000	-0.16	11800	-0.02	na	na
Zn		20.1			100000	12.2	11800	1.44	na	na

Sb	12SB11-0.501-02	0.14		Fe	100000	1.3	11300	0.15	JBC	na
Ba		62.2			100000	1.8	11300	0.20	na	na
Be		0.53			100000	0.33	11300	0.04	na	na
Co		5.2			100000	1.2	11300	0.14	na	na
Cu		6.8			100000	8.3	11300	0.94	J	na
Mn		323			100000	8.2	11300	0.93	na	na
Ni		5.6			100000	7.2	11300	0.81	J	na
V		14.7			100000	-0.16	11300	-0.02	na	na
Zn		18.3			100000	12.2	11300	1.38	na	na

Sb	12SB11-0304-03	0.28		Fe	100000	1.3	14300	0.19	JBC	na
Ba		114			100000	1.8	14300	0.26	na	na
Be		0.68			100000	0.33	14300	0.05	na	na
Co		5.2			100000	1.2	14300	0.17	na	na
Cu		3.9			100000	8.3	14300	1.19	J	na
Mn		406			100000	8.2	14300	1.17	na	na
Ni		6.2			100000	7.2	14300	1.03	J	na
V		15.4			100000	-0.16	14300	-0.02	na	na
Zn		21.1			100000	12.2	14300	1.74	na	na

Sb	12SB14-0.502-02	0.25		Fe	100000	1.3	10300	0.13	JBC	na
Ba		66.5			100000	1.8	10300	0.19	na	na
Be		0.54			100000	0.33	10300	0.03	na	na
Co		4.7			100000	1.2	10300	0.12	na	na
Cu		19.4			100000	8.3	10300	0.85	na	na
Mn		259			100000	8.2	10300	0.84	na	na

Ni		8.3			100000	7.2	10300	0.74	na	na
Tl		0.1			100000	0.044	10300	0.005	na	na
V		10.6			100000	-0.16	10300	-0.02	na	na
Zn		20.9			100000	12.2	10300	1.26	na	na

Sb	12SB15-0304-03	0.13		Fe	100000	1.3	9990	0.13	ABL	na
Ba		23.2			100000	1.8	9990	0.18	na	na
Be		0.23			100000	0.33	9990	0.03	J	na
Co		1.9			100000	1.2	9990	0.12	na	na
Cu		4.4			100000	8.3	9990	0.83	J	na
Mn		87.2			100000	8.2	9990	0.82	na	na
Ni		3.9			100000	7.2	9990	0.72	J	na
Tl		0.09			100000	0.044	9990	0.00	na	na
V		14.8			100000	-0.16	9990	-0.02	na	na
Zn		19.8			100000	12.2	9990	1.22	na	na

Sb	12SB16-0.502-02	0.21		Fe	100000	1.3	12600	0.16	ABL	na
Ba		60.3			100000	1.8	12600	0.23	na	na
Be		0.72			100000	0.33	12600	0.04	na	na
Co		4.6			100000	1.2	12600	0.15	na	na
Cu		4.9			100000	8.3	12600	1.05	J	na
Mn		308			100000	8.2	12600	1.03	na	na
Ni		5.8			100000	7.2	12600	0.91	J	na
V		18.5			100000	-0.16	12600	-0.02	na	na
Zn		22.7			100000	12.2	12600	1.54	na	na

Sb	12SB16-0304-03	0.22		Fe	100000	1.3	20300	0.26	ABL	na
Ba		60.2			100000	1.8	20300	0.37	na	na
Be		0.44			100000	0.33	20300	0.07	J	na
Co		5.4			100000	1.2	20300	0.24	na	na
Cu		8.8			100000	8.3	20300	1.68	J	na
Mn		229			100000	8.2	20300	1.66	na	na

Ni		7.6			100000	7.2	20300	1.46	J	na
V		28.3			100000	-0.16	20300	-0.03	na	na
Zn		26.3			100000	12.2	20300	2.48	na	na

Sb	12SB-DUP02	0.14		Fe	100000	1.3	12800	0.17	J BL	na
Ba		37			100000	1.8	12800	0.23	na	na
Be		0.33			100000	0.33	12800	0.04	J	na
Co		4.8			100000	1.2	12800	0.15	na	na
Cu		6.2			100000	8.3	12800	1.06	J	na
Mn		174			100000	8.2	12800	1.05	na	na
Ni		5.4			100000	7.2	12800	0.92	J	na
V		18.2			100000	-0.16	12800	-0.02	na	na
Zn		22.7			100000	12.2	12800	1.56	na	na

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Matrix: SOIL **Sample ID:** C5017-04 **Client ID:** 12SB11-000.5-01S

Percent Solids for Sample: 69.9 **Spiked ID:** C5017-05S **Percent Solids for Spike Sample:** 69.9

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	7260.3720		6092.9900		286.12	408.0		MS
Antimony	mg/Kg	80 - 120	108.1831		0.3243		114.45	94.2		MS
Arsenic	mg/Kg	80 - 120	103.9485		3.3033		114.45	87.9		MS
Barium	mg/Kg	80 - 120	106.6238		62.9471		28.61	152.7	N	MS
Beryllium	mg/Kg	80 - 120	23.5765		0.6544		28.61	80.1		MS
Cadmium	mg/Kg	80 - 120	28.1688		0.1780		28.61	97.8		MS
Calcium	mg/Kg	80 - 120	975.9657		697.9972		143.06	194.3		MS
Chromium	mg/Kg	80 - 120	62.9757		11.4735		57.22	90.0		MS
Cobalt	mg/Kg	80 - 120	28.7268		3.2446		28.61	89.1		MS
Copper	mg/Kg	80 - 120	48.1545		8.2375		42.92	93.0		MS
Iron	mg/Kg	80 - 120	14635.1900		11503.5800		429.18	729.7		MS
Lead	mg/Kg	80 - 120	163.9485		16.9528		143.06	102.8		MS
Magnesium	mg/Kg	80 - 120	1288.8410		940.2003		286.12	121.9	N	MS
Manganese	mg/Kg	80 - 120	247.0673		177.2532		28.61	244.0		MS
Nickel	mg/Kg	80 - 120	67.6538		5.4950		71.53	86.9		MS
Mercury	mg/Kg	34 - 153	0.2754		0.0343		0.29	83.1		CV
Potassium	mg/Kg	80 - 120	1532.1890		303.7196		1430.62	85.9		MS
Silver	mg/Kg	80 - 120	10.8140		0.0415	J	10.73	100.4		MS
Sodium	mg/Kg	80 - 120	405.4364		42.0887	J	429.18	84.7		MS
Vanadium	mg/Kg	80 - 120	56.1517		16.3233		42.92	92.8		MS
Zinc	mg/Kg	80 - 120	57.2675		28.9986		28.61	98.8		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Matrix: SOIL **Sample ID:** C5017-04 **Client ID:** 12SB11-000.5-01SD

Percent Solids for Sample: 69.9 **Spiked ID:** C5017-06SD **Percent Solids for Spike Sample:** 69.9

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	9052.9340		6092.9900		286.12	1034.5		MS
Antimony	mg/Kg	80 - 120	69.4135		0.3243		114.45	60.4	N	MS
Arsenic	mg/Kg	80 - 120	93.9056		3.3033		114.45	79.2	N	MS
Barium	mg/Kg	80 - 120	104.1059		62.9471		28.61	143.9	N	MS
Beryllium	mg/Kg	80 - 120	21.6023		0.6544		28.61	73.2	N	MS
Cadmium	mg/Kg	80 - 120	26.0229		0.1780		28.61	90.3		MS
Calcium	mg/Kg	80 - 120	985.4078		697.9972		143.06	200.9		MS
Chromium	mg/Kg	80 - 120	57.6538		11.4735		57.22	80.7		MS
Cobalt	mg/Kg	80 - 120	26.4092		3.2446		28.61	81.0		MS
Copper	mg/Kg	80 - 120	44.6209		8.2375		42.92	84.8		MS
Iron	mg/Kg	80 - 120	13897.0000		11503.5800		429.18	557.7		MS
Lead	mg/Kg	80 - 120	148.3548		16.9528		143.06	91.9		MS
Magnesium	mg/Kg	80 - 120	1361.8030		940.2003		286.12	147.4	N	MS
Manganese	mg/Kg	80 - 120	244.4921		177.2532		28.61	235.0		MS
Nickel	mg/Kg	80 - 120	61.9743		5.4950		71.53	79.0	N	MS
Mercury	mg/Kg	34 - 153	0.2754		0.0343		0.29	83.1		CV
Potassium	mg/Kg	80 - 120	1428.1830		303.7196		1430.62	78.6	N	MS
Silver	mg/Kg	80 - 120	9.7311		0.0415	J	10.73	90.3		MS
Sodium	mg/Kg	80 - 120	390.8441		42.0887	J	429.18	81.3		MS
Vanadium	mg/Kg	80 - 120	51.1731		16.3233		42.92	81.2		MS
Zinc	mg/Kg	80 - 120	57.7826		28.9986		28.61	100.6		MS

CHEMTECH

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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Matrix: WATER **Level:** LOW **Client ID:** 12SB11-000.5-01A

Sample ID: C5017-04 **Spiked ID:** C5017-04A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	746.70		2.45		800.0	93.0		MS
Arsenic	ug/L	80 - 120	724.80		23.93		800.0	87.6		MS
Barium	ug/L	80 - 120	753.40		467.50		200.0	143.0		MS
Beryllium	ug/L	80 - 120	178.70		4.84		200.0	86.9		MS
Magnesium	ug/L	80 - 120	10050.00		7465.00		2000.0	129.2		MS
Nickel	ug/L	80 - 120	489.30		41.87		500.0	89.5		MS
Potassium	ug/L	80 - 120	11560.00		2416.00		10000.0	91.4		MS

CHEMTECH

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Matrix: SOIL **Sample ID:** C5017-04 **Client ID:** 12SB11-000.5-01D

Percent Solids for Sample: 69.9 **Duplicate ID** C5017-04D **Percent Solids for Spike Sample:** 69.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	6092.9900		4387.6970		32.5	* OK	MS
Antimony	mg/Kg	20	0.3243		0.2119	J	41.9		MS
Arsenic	mg/Kg	20	3.3033		2.1402		42.7	*	MS
Barium	mg/Kg	20	62.9471		43.5622		36.4	*	MS
Beryllium	mg/Kg	20	0.6544		0.4375		39.7	* OK	MS
Cadmium	mg/Kg	20	0.1780		0.1362	J	26.6	* OK	MS
Calcium	mg/Kg	20	697.9972		545.4936		24.5	* OK	MS
Chromium	mg/Kg	20	11.4735		8.5107		29.7	* OK	MS
Cobalt	mg/Kg	20	3.2446		2.4735		27.0	* OK	MS
Copper	mg/Kg	20	8.2375		6.1817		28.5	* OK	MS
Iron	mg/Kg	20	11503.5800		8323.3190		32.1	* OK	MS
Lead	mg/Kg	20	16.9528		12.6066		29.4	* OK	MS
Magnesium	mg/Kg	20	940.2003		692.5609		30.3	* OK	MS
Manganese	mg/Kg	20	177.2532		128.9413		31.6	* OK	MS
Nickel	mg/Kg	20	5.4950		5.0873		7.7		MS
Mercury	mg/Kg	20	0.0343		0.0413		18.5		CV
Potassium	mg/Kg	20	303.7196		244.3491		21.7	* OK	MS
Selenium	mg/Kg	20	0.2316	J	0.1300	J	56.2		MS
Silver	mg/Kg	20	0.0415	J	0.0256	J	47.4		MS
Sodium	mg/Kg	20	42.0887	J	39.4135	J	6.6		MS
Thallium	mg/Kg	20	0.1266	J	0.0718	J	55.2		MS
Vanadium	mg/Kg	20	16.3233		11.9127		31.2	* OK	MS
Zinc	mg/Kg	20	28.9986		24.5923		16.4		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

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MS/MSD RPD

DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Matrix: SOIL **Sample ID:** C5017-04 **Client ID:** 12SB11-000.5-01SD

Percent Solids for Sample: 69.9 **Duplicate ID** C5017-06SD **Percent Solids for Spike Sample:** 69.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	7260.3720		9052.9340		22.0	*	MS
Antimony	mg/Kg	20	108.1831		69.4135		43.7	*	MS
Arsenic	mg/Kg	20	103.9485		93.9056		10.2		MS
Barium	mg/Kg	20	106.6238		104.1059		2.4		MS
Beryllium	mg/Kg	20	23.5765		21.6023		8.7		MS
Cadmium	mg/Kg	20	28.1688		26.0229		7.9		MS
Calcium	mg/Kg	20	975.9657		985.4078		1.0		MS
Chromium	mg/Kg	20	62.9757		57.6538		8.8		MS
Cobalt	mg/Kg	20	28.7268		26.4092		8.4		MS
Copper	mg/Kg	20	48.1545		44.6209		7.6		MS
Iron	mg/Kg	20	14635.1900		13897.0000		5.2		MS
Lead	mg/Kg	20	163.9485		148.3548		10.0		MS
Magnesium	mg/Kg	20	1288.8410		1361.8030		5.5		MS
Manganese	mg/Kg	20	247.0673		244.4921		1.0		MS
Nickel	mg/Kg	20	67.6538		61.9743		8.8		MS
Mercury	mg/Kg	20	0.2754		0.2754		0.0		CV
Potassium	mg/Kg	20	1532.1890		1428.1830		7.0		MS
Silver	mg/Kg	20	10.8140		9.7311		10.5		MS
Sodium	mg/Kg	20	405.4364		390.8441		3.7		MS
Vanadium	mg/Kg	20	56.1517		51.1731		9.3		MS
Zinc	mg/Kg	20	57.2675		57.7826		0.9		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB59980BS							
Aluminum	mg/Kg	200.0	191.7		95.8	80 - 120	MS
Antimony	mg/Kg	80.0	80.5		100.6	80 - 120	MS
Arsenic	mg/Kg	80.0	80.0		100.0	80 - 120	MS
Barium	mg/Kg	20.0	20.6		103.0	80 - 120	MS
Beryllium	mg/Kg	20.0	17.7		88.5	80 - 120	MS
Cadmium	mg/Kg	20.0	20.9		104.5	80 - 120	MS
Calcium	mg/Kg	100.0	106.7		106.7	80 - 120	MS
Chromium	mg/Kg	40.0	41.2		103.0	80 - 120	MS
Cobalt	mg/Kg	20.0	20.5		102.5	80 - 120	MS
Copper	mg/Kg	30.0	32.0		106.7	80 - 120	MS
Iron	mg/Kg	300.0	309.3		103.1	80 - 120	MS
Lead	mg/Kg	100.0	101.4		101.4	80 - 120	MS
Magnesium	mg/Kg	200.0	182.0		91.0	80 - 120	MS
Manganese	mg/Kg	20.0	21.5		107.5	80 - 120	MS
Nickel	mg/Kg	50.0	50.7		101.4	80 - 120	MS
Potassium	mg/Kg	1000.0	1010.0		101.0	80 - 120	MS
Selenium	mg/Kg	200.0	197.9		99.0	80 - 120	MS
Silver	mg/Kg	7.5	7.8		104.0	80 - 120	MS
Sodium	mg/Kg	300.0	300.4		100.1	80 - 120	MS
Thallium	mg/Kg	200.0	210.3		105.2	80 - 120	MS
Vanadium	mg/Kg	30.0	30.3		101.0	80 - 120	MS
Zinc	mg/Kg	20.0	22.7		113.5	80 - 120	MS

CHEMTECH

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60050BS							
Mercury	mg/Kg	0.200	0.195		97.5	73 - 121	CV

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB11-000.5-01L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	42590.00		36000.00		15.5		MS
Antimony	2.27		1.64	J	27.8	OV	MS
Arsenic	23.09		18.68		19.1		MS
Barium	440.00		343.75		21.9		MS
Beryllium	4.57		3.81	J	16.6		MS
Cadmium	1.24		1.08	J	12.9	OV	MS
Calcium	4879.00		4291.00		12.1		MS
Chromium	80.20		76.35		4.8		MS
Cobalt	22.68		19.30		14.9		MS
Copper	57.58		48.95		15.0		MS
Iron	80410.00		70250.00		12.6		MS
Lead	118.50		91.15		23.1		MS
Magnesium	6572.00		5300.00		19.4		MS
Manganese	1239.00		1058.50		14.6		MS
Nickel	38.41		36.39		5.3		MS
Mercury	0.48		0.46	U	100.0		CV
Potassium	2123.00		1987.50	J	6.4		MS
Selenium	1.62	J	3.50	U	100.0		MS
Silver	0.29	J	0.31	J	6.9		MS
Sodium	294.20	J	396.50	J	34.8		MS
Thallium	0.89	J	0.88	J	1.1		MS
Vanadium	114.10		94.20		17.4		MS
Zinc	202.70		180.70		10.9		MS

CHEMTECH

Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Aluminum	27	0.6770	2.00	
Antimony	121	0.0260	0.20	
Arsenic	75	0.0220	0.10	
Barium	137	0.0080	1.00	
Beryllium	9	0.0070	0.10	
Cadmium	111	0.0090	0.10	
Calcium	44	0.6350	50.00	
Chromium	52	0.0110	0.20	
Cobalt	59	0.0060	0.10	
Copper	63	0.0060	0.20	
Iron	57	0.9260	20.00	
Lead	208	0.0040	0.10	
Magnesium	24	0.6930	50.00	
Manganese	55	0.0060	0.10	
Nickel	60	0.0090	0.10	
Potassium	39	0.9010	50.00	
Selenium	82	0.0560	0.50	
Silver	107	0.0070	0.10	
Sodium	23	1.2250	50.00	
Thallium	205	0.0050	0.10	
Vanadium	51	0.0130	0.50	
Zinc	66	0.0110	0.20	

CHEMTECH

Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5017 **SAS No.:** C5017

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 01/15/2009
Mercury	253.70	0.0020	0.010	

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5017 **SAS No.:** C5017

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB59980**						
C5017-01	12SB16-000.5-01	SAM	SOIL	12/19/2011	1.05	100.0	65.40
C5017-02	12SB16-0.502-02	SAM	SOIL	12/19/2011	1.16	100.0	83.90
C5017-03	12SB16-0304-03	SAM	SOIL	12/19/2011	1.00	100.0	80.90
C5017-04	12SB11-000.5-01	SAM	SOIL	12/19/2011	1.00	100.0	69.90
C5017-04D	12SB11-000.5-01D	DUP	SOIL	12/19/2011	1.00	100.0	69.90
C5017-05S	12SB11-000.5-01S	MS	SOIL	12/19/2011	1.00	100.0	69.90
C5017-06SD	12SB11-000.5-01SD	MSD	SOIL	12/19/2011	1.00	100.0	69.90
C5017-07	12SB11-0.501-02	SAM	SOIL	12/19/2011	1.18	100.0	84.10
C5017-08	12SB11-0304-03	SAM	SOIL	12/19/2011	1.04	100.0	83.50
C5017-09	12SB-DUP02	SAM	SOIL	12/19/2011	1.33	100.0	82.00
C5017-10	12SB09-000.5-01	SAM	SOIL	12/19/2011	1.10	100.0	66.80
C5017-11	12SB09-0.502-02	SAM	SOIL	12/19/2011	1.21	100.0	81.10
C5017-12	12SB09-0304-03	SAM	SOIL	12/19/2011	1.20	100.0	83.50
C5017-13	12SB10-000.5-01	SAM	SOIL	12/19/2011	1.08	100.0	70.30
C5017-14	12SB10-0.502-02	SAM	SOIL	12/19/2011	1.26	100.0	87.50
C5017-15	12SB10-0304-03	SAM	SOIL	12/19/2011	1.31	100.0	86.70
C5017-16	12SB15-000.5-01	SAM	SOIL	12/19/2011	1.00	100.0	67.10
C5017-17	12SB15-0.502-02	SAM	SOIL	12/19/2011	1.07	100.0	82.40
C5017-18	12SB15-0304-03	SAM	SOIL	12/19/2011	1.37	100.0	81.80
C5017-19	12SB-DUP-04	SAM	SOIL	12/19/2011	1.30	100.0	67.30
C5017-20	12SB14-0.502-02	SAM	SOIL	12/19/2011	1.33	100.0	85.80
C5017-21	12SB14-0304-03	SAM	SOIL	12/19/2011	1.28	100.0	85.90
PB59980BL	PB59980BL	MB	SOIL	12/19/2011	1.00	100.0	100.00
PB59980BS	PB59980BS	LCS	SOIL	12/19/2011	1.00	100.0	100.00

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5017 **SAS No.:** C5017

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60050**						
C5017-01	12SB16-000.5-01	SAM	SOIL	12/20/2011	0.64	30.0	65.40
C5017-02	12SB16-0.502-02	SAM	SOIL	12/20/2011	0.66	30.0	83.90
C5017-03	12SB16-0304-03	SAM	SOIL	12/20/2011	0.67	30.0	80.90
C5017-04	12SB11-000.5-01	SAM	SOIL	12/20/2011	0.60	30.0	69.90
C5017-04D	12SB11-000.5-01D	DUP	SOIL	12/20/2011	0.60	30.0	69.90
C5017-05S	12SB11-000.5-01S	MS	SOIL	12/20/2011	0.60	30.0	69.90
C5017-06SD	12SB11-000.5-01SD	MSD	SOIL	12/20/2011	0.60	30.0	69.90
C5017-07	12SB11-0.501-02	SAM	SOIL	12/20/2011	0.66	30.0	84.10
C5017-08	12SB11-0304-03	SAM	SOIL	12/20/2011	0.68	30.0	83.50
C5017-09	12SB-DUP02	SAM	SOIL	12/20/2011	0.66	30.0	82.00
C5017-10	12SB09-000.5-01	SAM	SOIL	12/20/2011	0.65	30.0	66.80
C5017-11	12SB09-0.502-02	SAM	SOIL	12/20/2011	0.68	30.0	81.10
C5017-12	12SB09-0304-03	SAM	SOIL	12/20/2011	0.64	30.0	83.50
C5017-13	12SB10-000.5-01	SAM	SOIL	12/20/2011	0.62	30.0	70.30
C5017-14	12SB10-0.502-02	SAM	SOIL	12/20/2011	0.66	30.0	87.50
C5017-15	12SB10-0304-03	SAM	SOIL	12/20/2011	0.65	30.0	86.70
C5017-16	12SB15-000.5-01	SAM	SOIL	12/20/2011	0.65	30.0	67.10
C5017-17	12SB15-0.502-02	SAM	SOIL	12/20/2011	0.62	30.0	82.40
C5017-18	12SB15-0304-03	SAM	SOIL	12/20/2011	0.68	30.0	81.80
C5017-19	12SB-DUP-04	SAM	SOIL	12/20/2011	0.63	30.0	67.30
C5017-20	12SB14-0.502-02	SAM	SOIL	12/20/2011	0.66	30.0	85.80
C5017-21	12SB14-0304-03	SAM	SOIL	12/20/2011	0.67	30.0	85.90
PB60050BL	PB60050BL	MB	SOIL	12/20/2011	0.60	30.0	100.00
PB60050BS	PB60050BS	LCS	SOIL	12/20/2011	0.60	30.0	100.00

C5017-03 12/19/2011 11:22:45 PM 125816-0304-03 internal stds.

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	124%	3.564	13.580	0.000	381.600	11080.000	10870.000	10860.000	91570.000
2	23:25:01	125%	3.600	9.513	0.000	381.800	11140.000	10870.000	10950.000	92270.000
3	23:26:10	126%	3.425	11.760	0.000	382.600	11030.000	10840.000	10880.000	92040.000
x		125%	3.530	11.620	0.000	382.000	11080.000	10860.000	10900.000	91960.000
σ		1%	0.093	2.035	0.000	0.521	53.730	18.890	48.600	359.800
%RSD		1	2.630	17.520	0.000	0.136	0.485	0.174	0.446	0.391

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	2938.000	1393.000	0.000	0.000	2533.000	5241.000	5118.000	138%	2035.000
2	23:25:01	2933.000	1411.000	0.000	0.000	2541.000	5195.000	5130.000	140%	2048.000
3	23:26:10	2918.000	1433.000	0.000	0.000	2531.000	5014.000	5044.000	140%	2040.000
x		2930.000	1412.000	0.000	0.000	2535.000	5150.000	5097.000	139%	2041.000
σ		10.310	19.830	0.000	0.000	5.201	120.200	46.830	1%	6.512
%RSD		0.352	1.404	0.000	0.000	0.205	2.333	0.919	1	0.319

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	233.300	146.800	1198.000	166000.000	1845.000	169300.000	163800.000	43.370	61.790
2	23:25:01	227.700	147.600	1230.000	167200.000	1869.000	169200.000	164800.000	43.250	61.690
3	23:26:10	225.400	147.200	1229.000	166200.000	1854.000	170100.000	163900.000	43.620	61.780
x		228.800	147.200	1219.000	166400.000	1856.000	169600.000	164200.000	43.410	61.750
σ		4.065	0.404	18.600	653.500	12.130	496.000	531.800	0.190	0.055
%RSD		1.777	0.274	1.526	0.393	0.654	0.293	0.324	0.439	0.089

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	70.300	72.180	207.100	44.560	1.316	12.470	2.262	1.355	7.181
2	23:25:01	71.630	71.980	206.000	40.900	0.762	13.610	0.852	0.784	12.250
3	23:26:10	70.970	72.290	205.200	41.860	0.330	13.660	1.326	0.339	10.210
x		70.960	72.150	206.100	42.440	0.803	13.250	1.480	0.826	9.883
σ		0.666	0.159	0.919	1.896	0.495	0.670	0.717	0.510	2.553
%RSD		0.938	0.221	0.446	4.467	61.620	5.060	48.490	61.660	25.830

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	151.900	7.135	20.430	6.755	7.324	0.002	92%	17.350	0.200
2	23:25:01	153.500	7.067	20.200	7.158	7.169	0.016	93%	16.300	0.266
3	23:26:10	152.100	6.994	19.980	7.066	7.067	0.016	93%	16.220	0.245
x		152.500	7.065	20.200	6.993	7.187	0.011	93%	16.630	0.237
σ		0.859	0.070	0.226	0.212	0.129	0.008	1%	0.632	0.034
%RSD		0.564	0.995	1.117	3.025	1.800	72.680	1	3.800	14.350

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	-4.560	17.360	0.202	0.805	6.426	1.889	489.700	488.000	96%
2	23:25:01	-3.502	16.310	0.135	0.711	6.359	1.756	489.000	487.100	97%
3	23:26:10	-4.637	16.230	0.144	0.917	6.349	1.743	488.400	486.700	97%
x		-4.233	16.630	0.160	0.811	6.378	1.796	489.100	487.300	97%
σ		0.634	0.629	0.036	0.103	0.042	0.081	0.645	0.636	1%
%RSD		14.980	3.783	22.580	12.720	0.652	4.483	0.132	0.131	1

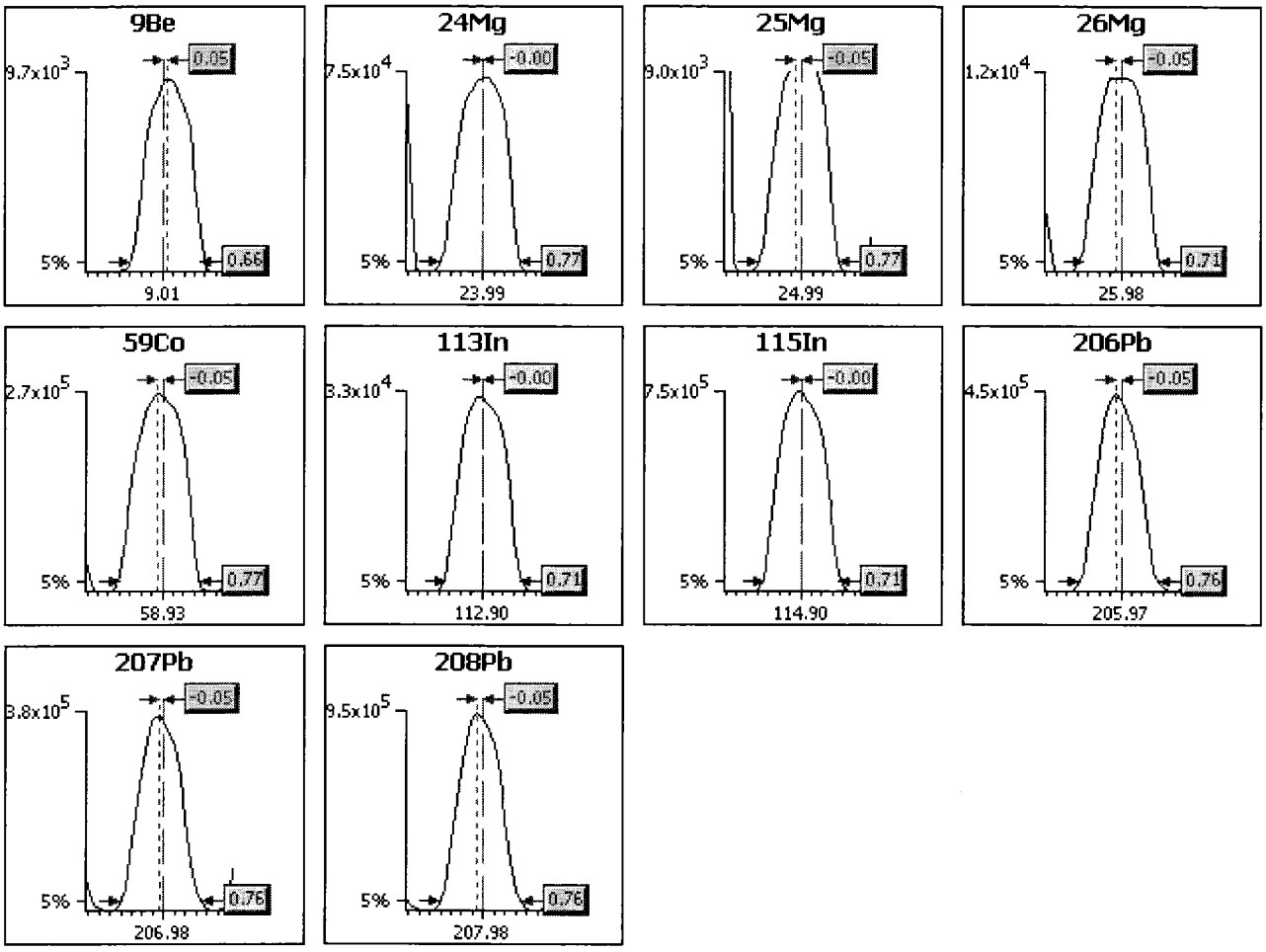
Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:53	96%	1.183	1.195	102.600	91.300	96.860	92%	11.530
2	23:25:01	97%	1.164	1.216	103.500	91.390	97.540	92%	11.530
3	23:26:10	97%	1.231	1.165	102.300	90.630	96.660	94%	11.390
x		97%	1.193	1.192	102.800	91.110	97.020	93%	11.480
σ		1%	0.034	0.025	0.613	0.416	0.463	1%	0.079
%RSD		1	2.885	2.118	0.596	0.456	0.477	1	0.688

Performance Report

Sample details
Sample name : TUNE
Acquired at : 12/19/2011 12:41:49 PM
Report name : ISM01.2 [03/09/2010 11:16:01 AM]

Mass Calibration verification

Acquisition parameters
Sweeps : 20
Dwell : 3.0 mSecs
Point spacing : 0.05 amu
Peak width measured at 5% of the peak maximum



Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
9Be	0.85	0.65	0.10	0.66	0.05
24Mg	0.85	0.65	0.10	0.77	-0.00
25Mg	0.85	0.65	0.10	0.77	-0.05
26Mg	0.85	0.65	0.10	0.71	-0.05
59Co	0.85	0.65	0.10	0.77	-0.05
113In	0.85	0.65	0.10	0.71	-0.00
115In	0.85	0.65	0.10	0.71	-0.00
206Pb	0.85	0.65	0.10	0.76	-0.05
207Pb	0.85	0.65	0.10	0.76	-0.05
208Pb	0.85	0.65	0.10	0.76	-0.05

C5017-01 12/19/2011 11:06:55 PM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	119%	5.551	21.870	0.000	336.300	9315.000	9191.000	9213.000	57590.000
2	23:09:12	125%	5.386	21.710	0.000	327.300	9358.000	9195.000	9309.000	57530.000
3	23:10:20	127%	5.426	22.210	0.000	321.200	9309.000	9207.000	9227.000	57540.000
x		124%	5.454	21.930	0.000	328.300	9327.000	9198.000	9250.000	57560.000
σ		5%	0.086	0.255	0.000	7.610	26.870	8.544	51.730	33.710
%RSD		4	1.573	1.164	0.000	2.318	0.288	0.093	0.559	0.059

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	4768.000	3422.000	0.000	0.000	3625.000	12260.000	12110.000	112%	1536.000
2	23:09:12	4826.000	3436.000	0.000	0.000	3634.000	12110.000	12240.000	115%	1543.000
3	23:10:20	4827.000	3473.000	0.000	0.000	3610.000	12080.000	12040.000	119%	1535.000
x		4807.000	3444.000	0.000	0.000	3623.000	12150.000	12130.000	115%	1538.000
σ		33.930	26.130	0.000	0.000	12.430	97.530	99.100	4%	4.020
%RSD		0.706	0.759	0.000	0.000	0.343	0.803	0.817	3	0.261

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	147.600	102.400	1353.000	99670.000	2837.000	102100.000	98170.000	40.020	53.070
2	23:09:12	143.600	105.500	1809.000	100300.000	2854.000	102400.000	98750.000	39.960	54.340
3	23:10:20	151.000	104.600	1923.000	99520.000	2833.000	101500.000	97630.000	40.140	54.830
x		147.400	104.200	1695.000	99840.000	2841.000	102000.000	98180.000	40.040	54.080
σ		3.668	1.587	301.600	417.400	11.310	486.800	560.300	0.092	0.909
%RSD		2.489	1.524	17.790	0.418	0.398	0.477	0.571	0.231	1.681

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	63.070	64.480	315.400	34.740	4.237	10.570	2.593	4.299	6.325
2	23:09:12	63.910	64.680	318.000	34.130	2.982	14.280	2.849	3.028	11.240
3	23:10:20	64.100	65.050	316.400	34.240	3.701	15.570	2.981	3.761	6.280
x		63.690	64.740	316.600	34.370	3.640	13.470	2.807	3.696	7.947
σ		0.549	0.289	1.346	0.323	0.629	2.597	0.197	0.638	2.848
%RSD		0.863	0.447	0.425	0.941	17.290	19.280	7.021	17.260	35.840

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	19.790	6.762	7.682	6.270	6.508	0.019	89%	5.911	0.541
2	23:09:12	19.920	5.870	6.853	6.082	5.831	0.009	91%	7.102	0.531
3	23:10:20	19.320	5.274	6.568	5.485	5.288	0.004	93%	8.008	0.552
x		19.680	5.969	7.034	5.946	5.875	0.011	91%	7.007	0.541
σ		0.317	0.749	0.578	0.410	0.611	0.008	2%	1.052	0.011
%RSD		1.610	12.550	8.222	6.894	10.400	71.550	2	15.010	2.003

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	-0.918	5.901	0.559	2.790	10.440	3.772	644.400	640.400	95%
2	23:09:12	-1.618	7.088	0.524	2.559	8.920	3.550	642.600	639.400	99%
3	23:10:20	-2.308	7.996	0.574	2.886	9.093	3.615	646.800	639.600	100%
x		-1.615	6.995	0.552	2.745	9.484	3.646	644.600	639.800	98%
σ		0.695	1.050	0.025	0.168	0.831	0.114	2.077	0.533	3%
%RSD		43.050	15.010	4.617	6.118	8.764	3.124	0.322	0.083	3

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:08:03	96%	1.729	1.744	225.300	203.000	214.100	91%	6.939
2	23:09:12	99%	1.453	1.490	223.900	202.900	214.000	93%	6.817
3	23:10:20	101%	1.436	1.435	226.500	204.500	215.100	94%	6.818
x		98%	1.539	1.556	225.200	203.500	214.400	93%	6.858
σ		2%	0.165	0.165	1.304	0.918	0.577	2%	0.070
%RSD		2	10.690	10.600	0.579	0.451	0.269	2	1.022

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	115%	7.218	9.164	0.000	349.700	9263.000	9168.000	9165.000	72750.000
2	23:17:06	117%	7.002	8.010	0.000	347.500	9226.000	9071.000	9184.000	72730.000
3	23:18:14	121%	6.730	9.734	0.000	331.100	9097.000	8934.000	8987.000	71670.000
x		118%	6.984	8.969	0.000	342.700	9196.000	9058.000	9112.000	72380.000
σ		3%	0.245	0.879	0.000	10.130	87.400	117.900	109.100	619.700
%RSD		2	3.503	9.794	0.000	2.957	0.950	1.302	1.197	0.856

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	2967.000	2736.000	0.000	0.000	1961.000	4050.000	3973.000	115%	1245.000
2	23:17:06	2962.000	2711.000	0.000	0.000	1956.000	4008.000	4017.000	116%	1263.000
3	23:18:14	2918.000	2685.000	0.000	0.000	1924.000	3980.000	3970.000	118%	1255.000
x		2949.000	2710.000	0.000	0.000	1947.000	4013.000	3987.000	116%	1255.000
σ		27.220	25.650	0.000	0.000	20.010	35.110	26.090	1%	8.977
%RSD		0.923	0.946	0.000	0.000	1.028	0.875	0.655	1	0.716

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	178.600	123.900	1352.000	125400.000	3001.000	127300.000	122800.000	44.820	56.590
2	23:17:06	178.600	123.400	1402.000	125000.000	2997.000	127400.000	122900.000	44.480	56.730
3	23:18:14	182.800	122.100	1398.000	125300.000	2990.000	127500.000	122800.000	44.950	56.370
x		180.000	123.100	1384.000	125200.000	2996.000	127400.000	122800.000	44.750	56.560
σ		2.410	0.973	27.960	214.600	5.701	102.400	79.660	0.241	0.179
%RSD		1.339	0.790	2.020	0.171	0.190	0.080	0.065	0.539	0.316

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	47.610	48.960	213.200	46.180	3.334	10.890	3.446	3.390	9.574
2	23:17:06	47.950	48.810	214.000	43.130	2.769	12.090	2.984	2.816	12.580
3	23:18:14	48.050	48.390	212.100	44.340	2.451	12.200	2.874	2.494	9.628
x		47.870	48.720	213.100	44.550	2.851	11.730	3.101	2.900	10.590
σ		0.231	0.296	0.911	1.535	0.447	0.726	0.303	0.454	1.721
%RSD		0.483	0.607	0.427	3.445	15.680	6.187	9.778	15.650	16.240

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	37.840	4.695	7.813	5.120	4.870	0.021	89%	7.172	0.347
2	23:17:06	37.230	4.837	7.990	5.097	4.844	0.004	91%	7.729	0.298
3	23:18:14	37.290	4.665	7.839	4.628	4.843	0.002	91%	8.544	0.296
x		37.450	4.732	7.881	4.949	4.852	0.009	90%	7.815	0.314
σ		0.336	0.092	0.096	0.278	0.015	0.011	1%	0.690	0.029
%RSD		0.897	1.940	1.215	5.611	0.312	116.300	1	8.830	9.163

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	-2.180	7.151	0.316	0.989	6.716	2.031	587.800	585.300	98%
2	23:17:06	-2.389	7.710	0.297	1.021	6.872	1.955	587.800	586.200	99%
3	23:18:14	-2.749	8.525	0.331	1.035	6.690	2.087	595.700	588.600	99%
x		-2.439	7.795	0.314	1.015	6.759	2.024	590.400	586.700	98%
σ		0.288	0.691	0.017	0.024	0.098	0.066	4.573	1.709	0%
%RSD		11.790	8.860	5.437	2.325	1.456	3.262	0.775	0.291	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:58	98%	1.224	1.242	130.500	117.000	123.700	92%	8.252
2	23:17:06	100%	1.187	1.218	130.200	117.300	123.700	93%	8.223
3	23:18:14	99%	1.252	1.201	131.100	117.200	124.000	93%	8.344
x		99%	1.221	1.220	130.600	117.200	123.800	92%	8.273
σ		1%	0.033	0.021	0.429	0.180	0.152	1%	0.063
%RSD		1	2.688	1.699	0.329	0.154	0.123	1	0.759

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	113%	5.056	9.622	0.000	419.200	9129.000	8897.000	8972.000	52620.000
2	23:32:57	113%	5.078	7.685	0.000	423.200	9147.000	8918.000	8977.000	52580.000
3	23:34:05	112%	5.554	13.370	0.000	423.800	9201.000	9054.000	9055.000	52810.000
x		113%	5.229	10.230	0.000	422.100	9159.000	8956.000	9001.000	52670.000
σ		1%	0.282	2.891	0.000	2.515	37.450	84.870	46.480	121.900
%RSD		1	5.382	28.270	0.000	0.596	0.409	0.948	0.516	0.232

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	2284.000	1291.000	0.000	0.000	3584.000	3986.000	3778.000	124%	1737.000
2	23:32:57	2315.000	1292.000	0.000	0.000	3601.000	3813.000	3786.000	125%	1739.000
3	23:34:05	2299.000	1301.000	0.000	0.000	3602.000	3843.000	3790.000	125%	1743.000
x		2299.000	1295.000	0.000	0.000	3596.000	3881.000	3785.000	125%	1740.000
σ		15.490	5.623	0.000	0.000	9.706	92.070	5.963	0%	3.321
%RSD		0.674	0.434	0.000	0.000	0.270	2.373	0.158	0	0.191

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	146.100	104.700	954.300	113800.000	3194.000	116500.000	112800.000	52.170	55.310
2	23:32:57	147.300	103.700	984.900	113700.000	3204.000	116400.000	111400.000	51.780	56.090
3	23:34:05	143.700	105.400	995.300	114600.000	3226.000	117800.000	112600.000	52.030	55.410
x		145.700	104.600	978.200	114000.000	3208.000	116900.000	112300.000	51.990	55.600
σ		1.878	0.866	21.310	452.500	16.210	805.200	727.600	0.197	0.421
%RSD		1.289	0.828	2.179	0.397	0.505	0.689	0.648	0.379	0.757

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	67.430	68.620	163.600	17.010	0.244	9.241	0.196	0.249	5.869
2	23:32:57	67.450	67.610	164.500	16.930	0.695	9.662	-0.144	0.710	9.862
3	23:34:05	67.920	68.440	167.500	19.400	1.106	9.585	0.340	1.131	5.310
x		67.600	68.220	165.200	17.780	0.681	9.496	0.131	0.697	7.014
σ		0.277	0.537	2.078	1.404	0.431	0.224	0.249	0.441	2.483
%RSD		0.409	0.788	1.258	7.894	63.260	2.360	190.100	63.300	35.400

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	73.380	3.096	9.593	3.183	3.060	0.019	91%	11.100	0.131
2	23:32:57	72.510	3.191	9.385	3.169	3.247	0.007	92%	9.491	0.122
3	23:34:05	74.290	3.133	9.736	3.133	3.194	0.002	91%	12.050	0.177
x		73.400	3.140	9.571	3.162	3.167	0.009	91%	10.880	0.143
σ		0.890	0.048	0.176	0.026	0.096	0.009	1%	1.294	0.029
%RSD		1.212	1.535	1.840	0.822	3.034	96.380	1	11.890	20.560

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	-3.078	11.090	0.080	0.731	4.951	1.409	619.500	617.400	96%
2	23:32:57	-2.481	9.485	0.095	0.624	4.951	1.391	619.300	612.200	97%
3	23:34:05	-3.875	12.040	0.096	0.773	5.018	1.458	623.300	622.100	97%
x		-3.145	10.870	0.090	0.709	4.973	1.419	620.700	617.200	97%
σ		0.699	1.290	0.009	0.077	0.038	0.035	2.275	4.943	1%
%RSD		22.240	11.870	9.616	10.830	0.770	2.450	0.367	0.801	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:48	97%	0.841	0.858	74.210	66.110	70.260	92%	8.041
2	23:32:57	97%	0.840	0.851	73.170	65.530	69.390	93%	7.943
3	23:34:05	98%	0.860	0.846	73.800	65.340	69.700	93%	7.895
x		97%	0.847	0.852	73.720	65.660	69.780	93%	7.960
σ		0%	0.011	0.006	0.527	0.397	0.439	1%	0.075
%RSD		1	1.289	0.705	0.715	0.605	0.629	1	0.936

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	116%	5.719	11.200	0.000	492.800	8658.000	8555.000	8505.000	51030.000
2	23:40:54	114%	6.165	13.080	0.000	505.100	8829.000	8618.000	8657.000	51530.000
3	23:42:02	116%	5.786	13.380	0.000	501.300	8740.000	8529.000	8544.000	51570.000
x		116%	5.890	12.550	0.000	499.700	8743.000	8567.000	8569.000	51370.000
σ		1%	0.241	1.179	0.000	6.312	85.560	45.680	78.870	303.300
%RSD		1	4.084	9.395	0.000	1.263	0.979	0.533	0.920	0.591

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	2556.000	1016.000	0.000	0.000	5395.000	5214.000	5165.000	126%	1666.000
2	23:40:54	2628.000	1020.000	0.000	0.000	5433.000	5427.000	5232.000	127%	1656.000
3	23:42:02	2589.000	1017.000	0.000	0.000	5398.000	5165.000	5203.000	127%	1676.000
x		2591.000	1017.000	0.000	0.000	5408.000	5269.000	5200.000	126%	1666.000
σ		35.770	1.908	0.000	0.000	20.990	139.300	33.390	0%	9.681
%RSD		1.380	0.188	0.000	0.000	0.388	2.644	0.642	0	0.581

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	136.200	117.200	1001.000	125200.000	3515.000	127800.000	123400.000	45.480	53.690
2	23:40:54	127.600	118.300	1037.000	125400.000	3534.000	128500.000	123900.000	45.680	53.280
3	23:42:02	137.600	118.100	1030.000	125900.000	3531.000	127700.000	124200.000	45.550	54.240
x		133.800	117.900	1023.000	125500.000	3527.000	128000.000	123800.000	45.570	53.730
σ		5.402	0.605	18.820	324.000	10.080	444.600	377.100	0.103	0.482
%RSD		4.038	0.513	1.840	0.258	0.286	0.347	0.304	0.226	0.898

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	33.550	34.160	173.500	32.470	1.910	10.460	0.689	1.956	4.247
2	23:40:54	33.970	35.280	174.500	32.650	1.866	10.950	0.547	1.909	7.408
3	23:42:02	34.010	34.900	173.400	31.650	0.961	11.080	1.581	0.983	8.300
x		33.840	34.780	173.800	32.260	1.579	10.830	0.939	1.616	6.652
σ		0.254	0.569	0.602	0.531	0.536	0.326	0.560	0.548	2.130
%RSD		0.751	1.634	0.346	1.646	33.940	3.008	59.680	33.950	32.020

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	96.610	3.462	11.750	3.718	3.522	0.016	90%	12.960	0.419
2	23:40:54	96.020	3.418	11.980	3.743	3.570	0.016	91%	12.120	0.455
3	23:42:02	95.600	3.802	11.710	3.728	3.521	0.014	91%	13.520	0.435
x		96.080	3.561	11.810	3.729	3.538	0.015	91%	12.870	0.437
σ		0.507	0.210	0.142	0.013	0.028	0.001	1%	0.702	0.018
%RSD		0.528	5.906	1.202	0.338	0.788	9.263	1	5.457	4.090

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	-3.215	12.950	0.414	1.000	5.894	2.473	992.000	984.700	96%
2	23:40:54	-2.403	12.110	0.412	1.009	6.021	2.520	989.700	984.500	97%
3	23:42:02	-3.591	13.510	0.408	1.056	6.233	2.432	984.200	990.000	97%
x		-3.070	12.860	0.411	1.021	6.049	2.475	988.600	986.400	97%
σ		0.607	0.703	0.003	0.030	0.171	0.044	4.026	3.137	1%
%RSD		19.770	5.466	0.691	2.955	2.829	1.775	0.407	0.318	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:39:45	97%	1.028	1.062	92.410	83.430	88.160	93%	6.893
2	23:40:54	97%	1.061	1.101	93.800	83.630	88.700	93%	6.857
3	23:42:02	97%	1.036	1.074	92.980	83.940	88.560	94%	6.815
x		97%	1.042	1.079	93.060	83.670	88.470	93%	6.855
σ		0%	0.017	0.020	0.701	0.258	0.282	0%	0.039
%RSD		0	1.633	1.841	0.754	0.309	0.319	0	0.569

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	112%	3.809	8.435	0.000	250.500	10350.000	10170.000	10270.000	77290.000
2	23:48:50	114%	3.368	10.530	0.000	245.100	10320.000	10210.000	10240.000	76940.000
3	23:49:58	114%	3.684	8.325	0.000	246.800	10370.000	10150.000	10160.000	77210.000
x		113%	3.620	9.096	0.000	247.500	10350.000	10180.000	10220.000	77150.000
σ		1%	0.227	1.242	0.000	2.746	21.280	30.300	57.110	183.600
%RSD		1	6.273	13.650	0.000	1.110	0.206	0.298	0.559	0.238

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	1797.000	1423.000	0.000	0.000	2110.000	3917.000	3863.000	127%	1667.000
2	23:48:50	1798.000	1425.000	0.000	0.000	2119.000	3842.000	3882.000	128%	1676.000
3	23:49:58	1761.000	1427.000	0.000	0.000	2119.000	3925.000	3891.000	128%	1655.000
x		1785.000	1425.000	0.000	0.000	2116.000	3895.000	3879.000	128%	1666.000
σ		21.160	1.956	0.000	0.000	5.358	45.680	14.200	1%	10.310
%RSD		1.185	0.137	0.000	0.000	0.253	1.173	0.366	1	0.619

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	201.100	125.300	863.500	141800.000	1898.000	145000.000	139100.000	52.640	58.210
2	23:48:50	197.100	125.000	901.700	141600.000	1890.000	146000.000	139700.000	52.390	58.310
3	23:49:58	196.500	124.000	904.200	141700.000	1894.000	145200.000	139200.000	52.490	58.700
x		198.200	124.800	889.800	141700.000	1894.000	145400.000	139400.000	52.510	58.410
σ		2.517	0.703	22.830	114.000	4.047	530.000	321.300	0.122	0.261
%RSD		1.269	0.564	2.566	0.080	0.214	0.364	0.231	0.233	0.446

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	67.750	69.500	223.700	37.620	-0.108	8.328	0.373	-0.111	9.962
2	23:48:50	68.430	67.550	222.800	33.300	1.182	9.530	0.140	1.211	6.698
3	23:49:58	67.130	68.550	218.600	37.640	0.749	8.876	1.723	0.767	7.839
x		67.770	68.530	221.700	36.190	0.607	8.911	0.745	0.623	8.167
σ		0.651	0.977	2.703	2.502	0.656	0.602	0.855	0.673	1.657
%RSD		0.960	1.425	1.219	6.914	108.100	6.753	114.700	108.100	20.280

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	100.300	5.510	13.920	5.322	5.509	0.012	89%	12.200	0.174
2	23:48:50	103.200	5.427	13.690	5.439	5.344	0.004	90%	12.420	0.195
3	23:49:58	102.000	5.246	13.930	5.802	5.227	0.028	90%	11.280	0.208
x		101.800	5.395	13.850	5.521	5.360	0.015	90%	11.970	0.192
σ		1.475	0.135	0.137	0.251	0.142	0.012	1%	0.609	0.017
%RSD		1.448	2.503	0.986	4.541	2.647	83.430	1	5.084	8.779

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	-1.793	12.200	0.151	1.452	5.141	1.554	406.500	402.100	95%
2	23:48:50	-2.788	12.410	0.158	1.552	5.019	1.536	409.200	406.400	96%
3	23:49:58	-2.823	11.270	0.125	1.690	5.106	1.594	406.000	403.400	96%
x		-2.468	11.960	0.145	1.565	5.088	1.561	407.200	403.900	96%
σ		0.585	0.608	0.017	0.120	0.063	0.030	1.720	2.212	0%
%RSD		23.690	5.080	11.970	7.640	1.236	1.902	0.422	0.547	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:47:41	95%	0.878	0.947	86.880	77.900	82.230	92%	9.437
2	23:48:50	96%	0.967	0.940	86.390	78.160	82.700	92%	9.417
3	23:49:58	96%	0.974	0.911	86.070	76.400	81.420	93%	9.388
x		95%	0.940	0.933	86.450	77.480	82.120	92%	9.414
σ		1%	0.053	0.019	0.410	0.948	0.646	1%	0.025
%RSD		1	5.678	2.025	0.475	1.224	0.787	1	0.261

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	105%	2.362	9.273	0.000	210.700	4541.000	4475.000	4548.000	29080.000
2	23:56:46	105%	2.349	5.633	0.000	210.600	4543.000	4505.000	4541.000	29160.000
3	23:57:55	105%	2.226	5.857	0.000	206.700	4546.000	4503.000	4535.000	29240.000
x		105%	2.312	6.921	0.000	209.300	4543.000	4494.000	4541.000	29160.000
σ		0%	0.075	2.040	0.000	2.272	2.943	16.490	6.241	76.480
%RSD		0	3.237	29.470	0.000	1.085	0.065	0.367	0.137	0.262

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	1765.000	1678.000	0.000	0.000	1406.000	4357.000	4329.000	101%	694.500
2	23:56:46	1834.000	1696.000	0.000	0.000	1410.000	4403.000	4377.000	101%	698.700
3	23:57:55	1788.000	1684.000	0.000	0.000	1404.000	4298.000	4347.000	101%	678.600
x		1795.000	1686.000	0.000	0.000	1407.000	4353.000	4351.000	101%	690.600
σ		35.120	9.531	0.000	0.000	3.211	52.330	23.990	0%	10.640
%RSD		1.956	0.565	0.000	0.000	0.228	1.202	0.551	0	1.540

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	78.750	56.320	863.700	52900.000	927.700	53880.000	52830.000	15.460	25.700
2	23:56:46	72.050	56.650	926.700	52810.000	928.900	53730.000	52640.000	15.490	25.370
3	23:57:55	77.750	56.930	936.100	52980.000	935.500	53610.000	52710.000	15.260	26.610
x		76.180	56.630	908.800	52890.000	930.700	53740.000	52730.000	15.400	25.890
σ		3.618	0.304	39.370	83.710	4.194	133.000	94.720	0.126	0.642
%RSD		4.748	0.537	4.332	0.158	0.451	0.248	0.180	0.816	2.479

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	34.910	35.800	165.900	14.930	0.618	6.603	0.624	0.621	5.547
2	23:56:46	34.810	35.280	164.700	15.310	0.411	6.976	0.316	0.413	5.488
3	23:57:55	35.280	35.620	167.400	15.080	1.619	6.986	1.914	1.628	0.307
x		35.000	35.570	166.000	15.110	0.883	6.855	0.951	0.887	3.781
σ		0.246	0.264	1.359	0.190	0.647	0.218	0.848	0.650	3.008
%RSD		0.704	0.742	0.819	1.260	73.240	3.184	89.130	73.240	79.570

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	13.650	1.996	3.118	2.081	2.142	0.009	90%	2.588	0.165
2	23:56:46	12.080	1.926	3.125	2.041	1.885	0.007	91%	3.804	0.183
3	23:57:55	11.400	1.943	3.008	1.979	2.012	0.007	90%	2.301	0.173
x		12.380	1.955	3.084	2.034	2.013	0.008	90%	2.898	0.173
σ		1.151	0.037	0.066	0.052	0.129	0.001	0%	0.798	0.009
%RSD		9.303	1.882	2.125	2.538	6.400	18.730	0	27.540	5.217

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	0.056	2.583	0.183	1.048	3.175	1.325	240.400	240.300	94%
2	23:56:46	-1.327	3.800	0.170	1.061	3.310	1.294	238.600	239.000	95%
3	23:57:55	-0.561	2.295	0.172	0.909	3.301	1.217	242.000	237.900	94%
x		-0.611	2.893	0.175	1.006	3.262	1.278	240.300	239.100	95%
σ		0.693	0.799	0.007	0.084	0.075	0.055	1.736	1.226	0%
%RSD		113.500	27.610	4.029	8.393	2.312	4.336	0.722	0.513	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:55:38	94%	0.495	0.479	85.550	77.240	81.170	92%	4.185
2	23:56:46	95%	0.511	0.491	85.440	77.480	81.190	93%	4.184
3	23:57:55	95%	0.456	0.507	86.060	77.340	81.130	93%	4.187
x		95%	0.487	0.492	85.680	77.350	81.160	92%	4.186
σ		0%	0.029	0.014	0.331	0.120	0.030	0%	0.001
%RSD		0	5.865	2.867	0.386	0.156	0.037	0	0.031

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:03:36	108%	4.660	6.758	0.000	443.700	8385.000	8215.000	8250.000	51780.000
2	00:04:44	108%	4.608	6.004	0.000	442.900	8396.000	8184.000	8234.000	52040.000
3	00:05:52	110%	4.611	4.611	0.000	436.600	8270.000	8100.000	8208.000	51600.000
x		109%	4.626	5.791	0.000	441.100	8350.000	8166.000	8231.000	51810.000
σ		1%	0.029	1.089	0.000	3.880	69.410	59.290	21.210	221.100
%RSD		1	0.633	18.810	0.000	0.880	0.831	0.726	0.258	0.427
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:03:36	2211.000	1724.000	0.000	0.000	1603.000	6178.000	6154.000	106%	1001.000
2	00:04:44	2210.000	1725.000	0.000	0.000	1607.000	6037.000	6147.000	107%	1009.000
3	00:05:52	2185.000	1692.000	0.000	0.000	1603.000	6195.000	6165.000	108%	1007.000
x		2202.000	1714.000	0.000	0.000	1604.000	6137.000	6155.000	107%	1006.000
σ		14.870	18.490	0.000	0.000	2.610	86.610	9.128	1%	4.138
%RSD		0.675	1.079	0.000	0.000	0.163	1.411	0.148	1	0.411
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:03:36	115.800	84.990	956.600	78410.000	2227.000	79490.000	76160.000	29.700	41.750
2	00:04:44	109.500	85.210	1012.000	77940.000	2229.000	79870.000	76880.000	29.650	42.410
3	00:05:52	115.900	84.860	1022.000	77890.000	2218.000	79450.000	76380.000	29.420	42.390
x		113.800	85.020	996.800	78080.000	2225.000	79610.000	76470.000	29.590	42.180
σ		3.650	0.180	35.160	286.600	5.902	231.800	369.300	0.149	0.376
%RSD		3.208	0.212	3.528	0.367	0.265	0.291	0.483	0.503	0.890
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:03:36	52.070	52.840	182.300	30.910	2.015	7.694	2.588	2.035	6.795
2	00:04:44	52.080	52.580	181.900	27.940	1.506	8.554	2.194	1.521	6.948
3	00:05:52	51.910	52.830	180.200	29.110	1.998	8.470	2.097	2.019	8.321
x		52.020	52.750	181.400	29.320	1.840	8.239	2.293	1.858	7.355
σ		0.095	0.146	1.132	1.492	0.289	0.474	0.260	0.293	0.841
%RSD		0.182	0.276	0.624	5.090	15.710	5.755	11.330	15.750	11.430
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:03:36	23.110	2.680	4.782	2.724	2.922	0.009	90%	8.362	0.253
2	00:04:44	22.680	2.784	4.626	2.985	2.827	-0.001	91%	8.971	0.304
3	00:05:52	22.120	2.887	4.425	2.898	2.804	0.007	91%	8.469	0.257
x		22.630	2.784	4.611	2.869	2.851	0.005	91%	8.601	0.271
σ		0.498	0.103	0.179	0.133	0.063	0.005	1%	0.325	0.028
%RSD		2.201	3.715	3.879	4.640	2.206	99.140	1	3.780	10.490
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:03:36	-1.821	8.349	0.239	3.211	5.178	1.328	435.900	432.600	97%
2	00:04:44	-2.557	8.961	0.292	3.216	4.776	1.302	432.200	432.500	97%
3	00:05:52	-1.470	8.456	0.248	3.357	4.901	1.334	437.400	436.000	97%
x		-1.950	8.588	0.260	3.261	4.952	1.321	435.200	433.700	97%
σ		0.555	0.327	0.028	0.083	0.206	0.017	2.685	2.013	0%
%RSD		28.460	3.806	10.860	2.533	4.155	1.303	0.617	0.464	0
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	00:03:36	97%	0.764	0.776	110.200	99.490	104.600	92%	6.241	
2	00:04:44	97%	0.771	0.788	109.000	98.810	104.300	93%	6.179	
3	00:05:52	98%	0.779	0.776	110.100	98.580	104.600	93%	6.264	
x		97%	0.771	0.780	109.800	98.960	104.500	93%	6.228	
σ		0%	0.007	0.007	0.643	0.476	0.193	1%	0.044	
%RSD		0	0.948	0.936	0.586	0.481	0.185	1	0.709	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	108%	4.670	12.430	0.000	306.700	6575.000	6445.000	6454.000	42790.000
2	00:28:37	115%	4.373	11.590	0.000	287.000	6519.000	6429.000	6400.000	42180.000
3	00:29:46	115%	4.680	11.080	0.000	288.900	6622.000	6450.000	6494.000	42820.000
x		113%	4.574	11.700	0.000	294.200	6572.000	6441.000	6450.000	42590.000
σ		4%	0.175	0.685	0.000	10.860	51.570	11.120	47.450	361.900
%RSD		4	3.817	5.853	0.000	3.692	0.785	0.173	0.736	0.850

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	3996.000	1874.000	0.000	0.000	2123.000	4866.000	4886.000	108%	1018.000
2	00:28:37	3973.000	1873.000	0.000	0.000	2116.000	4914.000	4859.000	112%	1018.000
3	00:29:46	3970.000	1865.000	0.000	0.000	2130.000	4873.000	4893.000	113%	1033.000
x		3980.000	1871.000	0.000	0.000	2123.000	4884.000	4879.000	111%	1023.000
σ		14.070	4.946	0.000	0.000	7.074	26.210	18.190	2%	8.470
%RSD		0.354	0.264	0.000	0.000	0.333	0.537	0.373	2	0.828

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	116.100	78.250	1193.000	81590.000	1235.000	83160.000	79900.000	22.540	38.600
2	00:28:37	110.700	80.810	1371.000	81610.000	1238.000	83370.000	80880.000	22.510	38.500
3	00:29:46	115.400	81.550	1404.000	82350.000	1244.000	83860.000	80460.000	22.990	38.150
x		114.100	80.200	1323.000	81850.000	1239.000	83460.000	80410.000	22.680	38.410
σ		2.935	1.731	113.800	432.700	4.682	356.600	489.000	0.269	0.235
%RSD		2.573	2.158	8.603	0.529	0.378	0.427	0.608	1.188	0.611

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	57.260	58.070	185.500	21.500	2.336	9.015	1.742	2.366	7.618
2	00:28:37	57.600	57.920	187.500	23.000	1.318	10.880	2.036	1.336	8.986
3	00:29:46	57.890	57.720	188.200	24.770	1.139	11.590	2.033	1.154	7.731
x		57.580	57.900	187.100	23.090	1.598	10.500	1.937	1.619	8.112
σ		0.315	0.175	1.377	1.638	0.646	1.331	0.169	0.653	0.759
%RSD		0.546	0.302	0.736	7.092	40.400	12.680	8.725	40.360	9.362

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	18.390	3.592	4.906	3.436	3.760	0.002	89%	3.868	0.321
2	00:28:37	18.070	3.425	4.861	3.643	3.524	0.009	91%	2.829	0.273
3	00:29:46	18.190	3.190	4.847	3.844	3.452	0.014	92%	3.523	0.277
x		18.220	3.402	4.871	3.641	3.579	0.008	90%	3.407	0.290
σ		0.158	0.202	0.031	0.204	0.161	0.006	2%	0.529	0.027
%RSD		0.866	5.931	0.633	5.604	4.497	71.590	2	15.520	9.174

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	-0.922	3.861	0.284	1.243	5.502	2.541	441.900	439.400	93%
2	00:28:37	-0.518	2.820	0.282	1.242	5.153	2.173	442.300	440.700	97%
3	00:29:46	-0.605	3.514	0.304	1.248	4.875	2.086	440.200	439.800	98%
x		-0.681	3.398	0.290	1.244	5.177	2.267	441.500	440.000	96%
σ		0.213	0.530	0.012	0.004	0.314	0.242	1.094	0.674	2%
%RSD		31.230	15.600	4.292	0.299	6.071	10.650	0.248	0.153	2

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:27:29	94%	1.084	1.052	125.600	111.700	118.100	91%	5.906
2	00:28:37	96%	0.826	0.847	126.600	112.500	119.300	93%	6.031
3	00:29:46	97%	0.775	0.755	124.200	111.900	118.000	93%	5.987
x		96%	0.895	0.885	125.500	112.000	118.500	92%	5.975
σ		2%	0.166	0.152	1.227	0.459	0.768	1%	0.064
%RSD		2	18.520	17.160	0.978	0.410	0.648	1	1.064

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	106%	6.993	18.570	0.000	590.400	11430.000	11210.000	11320.000	60810.000
2	01:16:10	114%	6.500	16.950	0.000	553.700	11120.000	10900.000	10940.000	59470.000
3	01:17:18	113%	6.957	17.200	0.000	556.900	11190.000	11010.000	11070.000	59890.000
x		111%	6.816	17.570	0.000	567.000	11240.000	11040.000	11110.000	60050.000
σ		4%	0.275	0.869	0.000	20.310	161.200	159.200	190.700	684.600
%RSD		4	4.035	4.948	0.000	3.582	1.434	1.442	1.717	1.140

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	2578.000	1757.000	0.000	0.000	6405.000	5251.000	5087.000	118%	1757.000
2	01:16:10	2514.000	1699.000	0.000	0.000	6307.000	5160.000	5015.000	120%	1757.000
3	01:17:18	2556.000	1697.000	0.000	0.000	6374.000	5122.000	5050.000	120%	1758.000
x		2549.000	1718.000	0.000	0.000	6362.000	5178.000	5051.000	119%	1757.000
σ		32.980	34.250	0.000	0.000	50.350	66.230	36.150	1%	0.731
%RSD		1.294	1.994	0.000	0.000	0.791	1.279	0.716	1	0.042

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	135.200	118.200	981.000	134800.000	4216.000	137700.000	132300.000	53.880	66.660
2	01:16:10	137.500	118.900	992.100	134400.000	4181.000	137100.000	131600.000	53.320	65.740
3	01:17:18	136.600	118.000	994.500	134300.000	4203.000	137100.000	131800.000	52.690	66.080
x		136.400	118.400	989.200	134500.000	4200.000	137300.000	131900.000	53.300	66.160
σ		1.150	0.441	7.235	256.500	18.030	369.000	395.100	0.598	0.467
%RSD		0.843	0.372	0.731	0.191	0.429	0.269	0.300	1.121	0.705

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	53.950	55.270	240.700	24.260	1.873	10.250	0.632	1.912	7.621
2	01:16:10	53.720	54.070	240.900	21.950	1.324	11.000	0.861	1.351	10.440
3	01:17:18	54.160	55.140	240.200	26.130	1.727	10.330	1.266	1.761	12.440
x		53.940	54.820	240.600	24.110	1.641	10.530	0.920	1.675	10.170
σ		0.223	0.659	0.382	2.094	0.284	0.416	0.321	0.290	2.421
%RSD		0.414	1.201	0.159	8.684	17.320	3.952	34.930	17.320	23.810

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	50.070	4.435	8.788	4.603	4.403	0.004	88%	10.730	0.246
2	01:16:10	50.180	4.082	8.521	4.411	4.093	0.012	89%	11.100	0.250
3	01:17:18	49.500	3.974	8.272	3.834	4.148	0.007	90%	9.550	0.214
x		49.910	4.164	8.527	4.283	4.215	0.008	89%	10.460	0.237
σ		0.365	0.241	0.258	0.400	0.165	0.004	1%	0.808	0.019
%RSD		0.732	5.793	3.025	9.342	3.924	48.490	1	7.726	8.182

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	-3.489	10.700	0.262	1.083	6.902	3.361	1115.000	1112.000	97%
2	01:16:10	-3.998	11.080	0.216	1.107	6.744	3.320	1113.000	1113.000	97%
3	01:17:18	-3.112	9.535	0.231	1.068	6.605	3.266	1111.000	1105.000	97%
x		-3.533	10.440	0.237	1.086	6.751	3.316	1113.000	1110.000	97%
σ		0.444	0.805	0.024	0.020	0.149	0.048	1.959	4.420	0%
%RSD		12.580	7.712	10.010	1.848	2.202	1.434	0.176	0.398	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:15:02	96%	7.722	7.774	176.300	160.500	168.200	91%	7.375
2	01:16:10	98%	6.043	6.092	176.600	159.300	167.900	92%	7.318
3	01:17:18	97%	4.998	5.069	174.700	159.600	167.400	92%	7.253
x		97%	6.254	6.312	175.900	159.800	167.900	92%	7.315
σ		1%	1.375	1.366	1.058	0.619	0.406	1%	0.061
%RSD		1	21.980	21.640	0.602	0.387	0.242	1	0.837

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	100%	2.798	11.610	0.000	315.100	9680.000	9477.000	9523.000	20780.000
2	01:24:07	101%	3.243	13.130	0.000	314.200	9856.000	9601.000	9673.000	20960.000
3	01:25:15	102%	3.173	15.170	0.000	318.700	9892.000	9681.000	9785.000	21270.000
x		101%	3.071	13.310	0.000	316.000	9809.000	9587.000	9660.000	21000.000
σ		1%	0.239	1.786	0.000	2.388	113.100	102.900	131.200	247.000
%RSD		1	7.788	13.420	0.000	0.756	1.153	1.073	1.358	1.176

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	2135.000	1036.000	0.000	0.000	2657.000	15000.000	15070.000	101%	948.400
2	01:24:07	2152.000	1059.000	0.000	0.000	2671.000	14690.000	15070.000	102%	958.100
3	01:25:15	2149.000	1078.000	0.000	0.000	2734.000	15670.000	15420.000	101%	982.000
x		2145.000	1058.000	0.000	0.000	2687.000	15120.000	15180.000	101%	962.900
σ		9.464	20.960	0.000	0.000	40.700	501.400	204.100	1%	17.310
%RSD		0.441	1.982	0.000	0.000	1.515	3.315	1.344	1	1.797

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	73.550	60.400	793.800	56770.000	1608.000	57300.000	56250.000	26.470	31.930
2	01:24:07	72.610	60.730	834.300	56310.000	1601.000	57310.000	55810.000	26.310	32.920
3	01:25:15	74.940	62.480	865.800	58140.000	1652.000	59270.000	57800.000	27.190	35.230
x		73.700	61.200	831.300	57070.000	1620.000	57960.000	56620.000	26.660	33.360
σ		1.174	1.122	36.070	951.700	27.570	1134.000	1045.000	0.474	1.692
%RSD		1.593	1.833	4.339	1.668	1.702	1.956	1.845	1.776	5.072

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	45.960	46.700	166.400	8.569	1.076	6.140	0.052	1.084	3.143
2	01:24:07	46.940	46.690	166.400	6.893	0.297	6.666	0.436	0.299	6.086
3	01:25:15	47.190	47.640	170.300	9.715	0.448	6.328	1.398	0.452	4.086
x		46.700	47.010	167.700	8.392	0.607	6.378	0.629	0.611	4.438
σ		0.650	0.547	2.262	1.419	0.413	0.267	0.694	0.416	1.502
%RSD		1.391	1.164	1.349	16.910	68.060	4.180	110.300	68.050	33.850

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	20.310	1.716	3.400	1.685	1.707	0.007	88%	4.533	0.155
2	01:24:07	20.850	1.651	3.330	1.657	1.630	0.009	88%	4.781	0.184
3	01:25:15	21.420	1.667	3.640	1.658	1.715	0.007	88%	3.468	0.174
x		20.860	1.678	3.457	1.666	1.684	0.008	88%	4.261	0.171
σ		0.556	0.034	0.162	0.016	0.047	0.001	0%	0.698	0.015
%RSD		2.667	2.004	4.696	0.949	2.799	17.990	0	16.370	8.773

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	-1.196	4.530	0.159	0.785	3.636	1.888	398.500	399.900	92%
2	01:24:07	-1.782	4.774	0.156	0.953	3.542	1.930	397.800	400.200	93%
3	01:25:15	-0.877	3.465	0.164	0.885	3.676	1.866	406.000	408.500	92%
x		-1.285	4.256	0.160	0.874	3.618	1.894	400.800	402.900	92%
σ		0.459	0.696	0.004	0.085	0.069	0.033	4.530	4.892	1%
%RSD		35.750	16.360	2.595	9.675	1.907	1.722	1.130	1.214	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:22:58	92%	2.265	2.333	88.840	79.560	84.110	90%	3.892
2	01:24:07	93%	2.078	2.109	87.920	79.670	83.510	91%	3.896
3	01:25:15	92%	1.936	1.970	90.970	81.350	85.990	90%	4.032
x		92%	2.093	2.137	89.250	80.200	84.540	90%	3.940
σ		1%	0.165	0.183	1.561	1.000	1.296	1%	0.080
%RSD		1	7.871	8.560	1.750	1.247	1.533	1	2.028

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:30:55	102%	6.089	15.970	0.000	742.000	23360.000	22790.000	22970.000	44590.000
2	01:32:03	100%	6.152	16.810	0.000	759.200	23550.000	23200.000	23110.000	45290.000
3	01:33:11	104%	6.304	14.710	0.000	734.200	23350.000	22850.000	22870.000	44330.000
x		102%	6.181	15.830	0.000	745.100	23420.000	22950.000	22980.000	44740.000
σ		2%	0.110	1.055	0.000	12.770	113.300	221.500	119.200	494.100
%RSD		2	1.783	6.664	0.000	1.714	0.484	0.965	0.519	1.104
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:30:55	2104.000	1024.000	0.000	0.000	4799.000	34400.000	33750.000	113%	1580.000
2	01:32:03	2156.000	1011.000	0.000	0.000	4883.000	34460.000	34040.000	112%	1589.000
3	01:33:11	2073.000	1020.000	0.000	0.000	4854.000	34160.000	34100.000	113%	1604.000
x		2111.000	1018.000	0.000	0.000	4846.000	34340.000	33960.000	113%	1591.000
σ		41.890	6.907	0.000	0.000	42.900	155.200	184.800	0%	12.110
%RSD		1.985	0.678	0.000	0.000	0.885	0.452	0.544	0	0.761
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:30:55	112.100	93.040	833.400	107000.000	3414.000	109900.000	105800.000	48.940	57.620
2	01:32:03	116.600	93.950	888.300	108800.000	3447.000	110300.000	106900.000	49.680	58.050
3	01:33:11	117.300	94.160	902.900	108100.000	3455.000	111800.000	107200.000	50.080	58.210
x		115.300	93.720	874.900	108000.000	3439.000	110700.000	106600.000	49.570	57.960
σ		2.828	0.600	36.680	900.100	21.450	1014.000	711.900	0.580	0.303
%RSD		2.453	0.640	4.193	0.834	0.624	0.916	0.668	1.170	0.522
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:30:55	63.220	63.090	171.900	9.007	0.608	7.208	0.753	0.619	9.099
2	01:32:03	63.190	65.000	175.000	10.690	1.039	7.359	-0.027	1.057	3.991
3	01:33:11	63.040	65.080	172.700	12.110	0.812	7.128	0.609	0.828	5.780
x		63.150	64.390	173.200	10.600	0.820	7.232	0.445	0.835	6.290
σ		0.099	1.127	1.618	1.552	0.216	0.117	0.415	0.219	2.592
%RSD		0.156	1.750	0.934	14.640	26.330	1.616	93.250	26.280	41.210
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:30:55	72.930	2.620	8.831	2.423	2.562	0.015	86%	8.076	0.129
2	01:32:03	73.550	2.400	9.030	2.587	2.481	0.002	87%	9.534	0.177
3	01:33:11	76.140	2.607	9.100	2.828	2.481	0.012	85%	11.410	0.141
x		74.210	2.543	8.987	2.613	2.508	0.010	86%	9.672	0.149
σ		1.703	0.124	0.139	0.204	0.047	0.007	1%	1.670	0.025
%RSD		2.295	4.858	1.551	7.790	1.870	69.270	1	17.260	16.460
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:30:55	-1.811	8.064	0.109	0.872	5.065	1.803	742.300	734.900	92%
2	01:32:03	-2.215	9.520	0.100	0.969	4.725	1.870	744.900	743.200	93%
3	01:33:11	-3.483	11.390	0.114	0.944	5.229	1.868	750.700	746.000	93%
x		-2.503	9.657	0.108	0.928	5.006	1.847	746.000	741.400	93%
σ		0.872	1.666	0.007	0.050	0.257	0.038	4.257	5.757	0%
%RSD		34.840	17.250	6.795	5.437	5.129	2.060	0.571	0.777	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	01:30:55	92%	1.718	1.729	82.890	74.780	78.810	89%	6.128	
2	01:32:03	94%	1.634	1.633	82.350	74.530	78.540	90%	6.202	
3	01:33:11	93%	1.550	1.540	83.880	75.560	79.460	90%	6.223	
x		93%	1.634	1.634	83.040	74.950	78.940	89%	6.185	
σ		1%	0.084	0.094	0.775	0.536	0.472	0%	0.050	
%RSD		1	5.132	5.780	0.933	0.715	0.598	1	0.807	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:38:52	98%	6.156	11.160	0.000	770.300	50300.000	49500.000	49620.000	45130.000
2	01:40:00	99%	5.857	12.960	0.000	755.300	49620.000	48980.000	48960.000	44330.000
3	01:41:08	101%	5.864	10.010	0.000	738.200	49030.000	48300.000	48280.000	43910.000
x		100%	5.959	11.380	0.000	754.600	49650.000	48930.000	48950.000	44460.000
σ		2%	0.171	1.484	0.000	16.080	635.000	601.100	671.400	622.500
%RSD		2	2.861	13.040	0.000	2.132	1.279	1.229	1.372	1.400
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:38:52	2267.000	1408.000	0.000	0.000	5023.000	65500.000	65090.000	113%	1841.000
2	01:40:00	2199.000	1365.000	0.000	0.000	4978.000	65630.000	64810.000	115%	1810.000
3	01:41:08	2209.000	1355.000	0.000	0.000	4971.000	65370.000	64350.000	114%	1808.000
x		2225.000	1376.000	0.000	0.000	4991.000	65500.000	64750.000	114%	1820.000
σ		36.720	28.340	0.000	0.000	28.320	129.100	372.000	1%	18.150
%RSD		1.650	2.060	0.000	0.000	0.568	0.197	0.575	1	0.998
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:38:52	145.600	109.500	977.100	136500.000	4409.000	139500.000	134700.000	61.560	73.030
2	01:40:00	143.300	108.300	1023.000	135400.000	4391.000	138900.000	133900.000	61.160	72.860
3	01:41:08	136.100	106.900	1036.000	135400.000	4346.000	138400.000	133500.000	61.150	72.670
x		141.700	108.200	1012.000	135700.000	4382.000	138900.000	134000.000	61.290	72.850
σ		4.995	1.287	30.940	620.300	32.570	555.300	614.900	0.234	0.180
%RSD		3.526	1.189	3.057	0.457	0.743	0.400	0.459	0.382	0.247
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:38:52	81.470	83.310	208.500	11.800	-0.119	7.375	-0.167	-0.121	7.738
2	01:40:00	80.250	82.620	207.900	12.390	0.444	7.318	-0.068	0.455	6.534
3	01:41:08	80.770	81.890	208.000	13.660	-0.766	7.077	-0.233	-0.784	10.490
x		80.830	82.610	208.100	12.620	-0.147	7.257	-0.156	-0.150	8.255
σ		0.610	0.710	0.311	0.952	0.606	0.158	0.083	0.620	2.030
%RSD		0.754	0.859	0.149	7.543	412.100	2.178	53.220	412.300	24.590
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:38:52	96.320	3.186	11.230	3.371	3.235	0.016	82%	12.960	0.154
2	01:40:00	96.700	3.323	11.710	3.089	3.001	0.010	82%	10.940	0.129
3	01:41:08	94.560	2.830	11.630	3.141	2.997	0.005	83%	11.220	0.128
x		95.860	3.113	11.520	3.200	3.078	0.010	82%	11.710	0.137
σ		1.145	0.255	0.255	0.150	0.137	0.005	0%	1.092	0.015
%RSD		1.195	8.181	2.215	4.684	4.443	51.880	0	9.326	10.680
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:38:52	-3.446	12.930	0.100	1.395	5.789	2.576	795.100	798.200	89%
2	01:40:00	-2.391	10.910	0.117	1.234	5.753	2.655	798.100	796.900	91%
3	01:41:08	-2.872	11.190	0.111	1.312	5.440	2.649	789.400	790.200	91%
x		-2.903	11.680	0.109	1.314	5.660	2.626	794.200	795.100	91%
σ		0.528	1.097	0.009	0.081	0.192	0.044	4.439	4.315	1%
%RSD		18.200	9.390	7.921	6.135	3.388	1.675	0.559	0.543	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	01:38:52	89%	1.409	1.463	130.400	118.500	124.400	86%	7.588	
2	01:40:00	91%	1.404	1.399	130.600	118.400	124.600	86%	7.532	
3	01:41:08	91%	1.330	1.355	128.300	116.400	122.600	87%	7.428	
x		90%	1.381	1.406	129.800	117.800	123.900	86%	7.516	
σ		1%	0.044	0.055	1.314	1.168	1.073	1%	0.081	
%RSD		1	3.214	3.892	1.013	0.992	0.866	1	1.084	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	98%	3.317	13.520	0.000	311.700	5410.000	5312.000	5286.000	25940.000
2	02:03:54	101%	3.980	15.720	0.000	308.200	5517.000	5386.000	5450.000	26730.000
3	02:05:03	104%	3.142	13.920	0.000	293.800	5446.000	5326.000	5361.000	26360.000
x		101%	3.480	14.390	0.000	304.600	5458.000	5341.000	5366.000	26340.000
σ		3%	0.442	1.173	0.000	9.454	54.410	39.420	81.700	391.800
%RSD		3	12.710	8.154	0.000	3.104	0.997	0.738	1.523	1.487

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	2644.000	1177.000	0.000	0.000	3244.000	5114.000	5197.000	100%	1120.000
2	02:03:54	2682.000	1206.000	0.000	0.000	3290.000	5388.000	5341.000	102%	1146.000
3	02:05:03	2670.000	1189.000	0.000	0.000	3267.000	5265.000	5295.000	104%	1128.000
x		2665.000	1191.000	0.000	0.000	3267.000	5256.000	5278.000	102%	1131.000
σ		19.180	14.690	0.000	0.000	22.820	137.400	73.260	2%	13.680
%RSD		0.720	1.234	0.000	0.000	0.698	2.615	1.388	2	1.209

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	79.940	72.590	838.600	64290.000	1825.000	65650.000	62490.000	29.450	37.990
2	02:03:54	80.540	74.530	991.200	65170.000	1860.000	66600.000	64020.000	29.850	36.560
3	02:05:03	80.340	74.270	1020.000	64840.000	1837.000	66420.000	63740.000	29.930	37.920
x		80.270	73.800	950.100	64770.000	1841.000	66220.000	63420.000	29.750	37.490
σ		0.305	1.056	97.640	440.800	17.710	504.800	811.700	0.257	0.803
%RSD		0.380	1.430	10.280	0.681	0.962	0.762	1.280	0.864	2.143

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	40.130	40.780	181.500	10.890	0.061	5.271	0.466	0.062	7.807
2	02:03:54	40.750	40.880	183.300	8.932	0.357	6.897	1.430	0.360	5.377
3	02:05:03	41.010	40.530	182.300	9.664	0.440	7.119	1.058	0.444	6.874
x		40.630	40.730	182.400	9.827	0.286	6.429	0.985	0.289	6.686
σ		0.452	0.176	0.939	0.987	0.199	1.009	0.486	0.201	1.226
%RSD		1.111	0.431	0.515	10.040	69.530	15.690	49.350	69.530	18.340

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	18.840	2.314	3.836	2.448	2.436	0.015	85%	3.830	0.271
2	02:03:54	19.200	2.196	3.879	2.291	2.079	0.005	88%	4.571	0.228
3	02:05:03	18.120	2.132	3.608	2.227	2.255	0.019	89%	4.078	0.223
x		18.720	2.214	3.774	2.322	2.256	0.013	87%	4.160	0.241
σ		0.551	0.092	0.146	0.114	0.178	0.008	2%	0.377	0.026
%RSD		2.945	4.167	3.863	4.893	7.908	58.580	3	9.063	10.950

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	-0.574	3.821	0.267	1.001	5.330	2.894	373.500	372.100	90%
2	02:03:54	-1.486	4.563	0.251	1.148	4.711	2.561	372.700	371.900	93%
3	02:05:03	-1.218	4.072	0.255	1.172	4.568	2.324	372.900	369.800	94%
x		-1.092	4.152	0.258	1.107	4.870	2.593	373.000	371.300	92%
σ		0.469	0.377	0.008	0.093	0.405	0.286	0.399	1.256	2%
%RSD		42.890	9.091	3.180	8.355	8.323	11.040	0.107	0.338	2

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:02:46	91%	1.066	1.144	169.100	152.800	160.500	89%	3.683
2	02:03:54	93%	0.965	0.961	169.000	152.500	160.800	91%	3.694
3	02:05:03	94%	0.861	0.870	171.300	153.900	161.800	91%	3.710
x		93%	0.964	0.992	169.800	153.000	161.100	90%	3.696
σ		2%	0.103	0.140	1.281	0.738	0.681	1%	0.014
%RSD		2	10.650	14.090	0.755	0.482	0.423	1	0.369

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	106%	3.976	13.880	0.000	408.700	6360.000	6244.000	6298.000	36720.000
2	02:11:51	107%	3.546	9.960	0.000	408.100	6441.000	6258.000	6316.000	36720.000
3	02:12:59	106%	3.470	11.130	0.000	413.800	6572.000	6343.000	6402.000	37310.000
x		106%	3.664	11.660	0.000	410.200	6458.000	6282.000	6339.000	36920.000
σ		0%	0.272	2.016	0.000	3.116	107.100	53.150	55.410	337.700
%RSD		0	7.435	17.290	0.000	0.760	1.658	0.846	0.874	0.915

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	2071.000	571.400	0.000	0.000	4219.000	3404.000	3442.000	107%	1417.000
2	02:11:51	2098.000	568.800	0.000	0.000	4231.000	3517.000	3441.000	108%	1418.000
3	02:12:59	2122.000	577.600	0.000	0.000	4308.000	3511.000	3506.000	108%	1410.000
x		2097.000	572.600	0.000	0.000	4253.000	3477.000	3463.000	108%	1415.000
σ		25.440	4.516	0.000	0.000	48.470	63.350	37.120	1%	4.434
%RSD		1.213	0.789	0.000	0.000	1.140	1.822	1.072	0	0.313

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	86.750	84.680	904.000	94740.000	1391.000	96900.000	92930.000	33.770	37.770
2	02:11:51	85.470	84.360	937.700	94520.000	1391.000	96880.000	92910.000	33.110	38.580
3	02:12:59	84.210	85.120	951.800	95540.000	1407.000	97770.000	93790.000	33.530	38.990
x		85.480	84.720	931.200	94940.000	1397.000	97180.000	93210.000	33.470	38.450
σ		1.269	0.379	24.550	540.500	9.295	510.700	504.400	0.336	0.619
%RSD		1.484	0.448	2.636	0.569	0.666	0.526	0.541	1.003	1.611

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	37.620	38.020	128.200	9.305	0.147	7.656	0.823	0.149	6.184
2	02:11:51	37.200	38.050	125.300	9.268	-0.115	8.179	-0.017	-0.117	6.171
3	02:12:59	37.550	38.220	128.700	9.261	0.753	8.453	-0.256	0.763	5.267
x		37.460	38.100	127.400	9.278	0.262	8.096	0.183	0.265	5.874
σ		0.221	0.105	1.829	0.023	0.446	0.405	0.567	0.451	0.526
%RSD		0.591	0.276	1.435	0.253	170.300	5.002	309.200	170.300	8.955

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	62.030	2.188	7.500	2.223	2.233	0.022	87%	7.924	0.209
2	02:11:51	62.140	2.056	7.530	2.086	2.097	0.009	88%	7.808	0.214
3	02:12:59	63.440	2.007	7.825	2.216	1.966	0.002	88%	6.817	0.234
x		62.540	2.084	7.618	2.175	2.099	0.011	88%	7.516	0.219
σ		0.786	0.094	0.180	0.077	0.134	0.010	1%	0.608	0.013
%RSD		1.256	4.492	2.359	3.561	6.361	91.130	1	8.092	5.959

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	-1.883	7.916	0.175	0.555	6.378	2.162	452.900	456.400	92%
2	02:11:51	-2.550	7.803	0.170	0.670	6.267	2.116	451.400	452.700	93%
3	02:12:59	-1.569	6.808	0.191	0.462	6.474	2.045	455.700	453.600	94%
x		-2.001	7.509	0.178	0.563	6.373	2.108	453.300	454.200	93%
σ		0.501	0.609	0.011	0.104	0.104	0.059	2.198	1.898	1%
%RSD		25.040	8.115	6.165	18.490	1.628	2.792	0.485	0.418	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:10:43	92%	0.946	0.997	75.440	67.700	71.590	90%	4.180
2	02:11:51	93%	0.961	0.947	74.810	67.950	71.420	91%	4.124
3	02:12:59	93%	0.909	0.944	75.320	67.890	71.780	91%	4.134
x		93%	0.939	0.963	75.190	67.850	71.600	91%	4.146
σ		1%	0.027	0.030	0.333	0.135	0.180	1%	0.030
%RSD		1	2.857	3.086	0.442	0.199	0.252	1	0.719

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	111%	2.601	6.308	0.000	322.400	9496.000	9217.000	9275.000	67240.000
2	02:19:46	113%	2.396	6.559	0.000	291.200	9393.000	9145.000	9173.000	66690.000
3	02:20:54	110%	2.589	7.424	0.000	291.600	9639.000	9412.000	9423.000	68340.000
x		111%	2.529	6.764	0.000	301.700	9509.000	9258.000	9290.000	67420.000
σ		1%	0.115	0.586	0.000	17.910	123.700	138.300	126.000	843.100
%RSD		1	4.545	8.658	0.000	5.935	1.301	1.493	1.356	1.251

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	1539.000	1185.000	0.000	0.000	1669.000	3275.000	3166.000	115%	1021.000
2	02:19:46	1552.000	1182.000	0.000	0.000	1644.000	3131.000	3139.000	116%	1003.000
3	02:20:54	1565.000	1188.000	0.000	0.000	1683.000	3316.000	3212.000	115%	1040.000
x		1552.000	1185.000	0.000	0.000	1665.000	3241.000	3172.000	115%	1021.000
σ		12.850	3.251	0.000	0.000	19.500	96.840	37.010	1%	18.780
%RSD		0.828	0.274	0.000	0.000	1.171	2.988	1.167	1	1.840

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	166.900	117.500	925.700	113500.000	974.800	116200.000	111600.000	20.770	44.570
2	02:19:46	163.400	118.000	968.200	112200.000	962.500	114800.000	110300.000	20.780	42.960
3	02:20:54	166.200	119.800	992.100	114700.000	993.200	117600.000	114200.000	21.490	44.040
x		165.500	118.400	962.000	113500.000	976.800	116200.000	112000.000	21.010	43.860
σ		1.851	1.243	33.620	1267.000	15.420	1411.000	1980.000	0.417	0.819
%RSD		1.118	1.049	3.494	1.117	1.578	1.214	1.767	1.985	1.867

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	49.050	50.140	182.100	35.250	1.327	8.827	1.489	1.351	6.089
2	02:19:46	48.550	49.610	177.600	36.190	1.398	9.177	1.142	1.424	5.405
3	02:20:54	50.480	50.400	182.100	38.380	1.329	9.317	1.031	1.353	7.572
x		49.360	50.050	180.600	36.610	1.351	9.107	1.221	1.376	6.356
σ		1.001	0.406	2.582	1.603	0.041	0.253	0.239	0.042	1.108
%RSD		2.029	0.810	1.430	4.380	3.010	2.776	19.570	3.023	17.430

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	67.840	4.801	10.350	4.930	4.713	0.007	88%	7.454	0.132
2	02:19:46	67.660	4.709	10.690	4.845	4.879	-0.001	89%	5.619	0.150
3	02:20:54	69.840	4.901	11.220	4.812	4.947	0.009	88%	8.702	0.167
x		68.450	4.804	10.750	4.862	4.846	0.005	89%	7.258	0.150
σ		1.211	0.096	0.437	0.061	0.121	0.005	0%	1.551	0.018
%RSD		1.769	2.008	4.066	1.261	2.486	97.990	1	21.370	11.870

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	-1.802	7.451	0.131	0.365	4.334	1.399	258.300	260.600	93%
2	02:19:46	-1.390	5.612	0.116	0.326	4.212	1.459	257.300	258.500	94%
3	02:20:54	-2.672	8.699	0.124	0.472	4.413	1.421	261.100	260.300	93%
x		-1.955	7.254	0.124	0.388	4.320	1.427	258.900	259.800	93%
σ		0.654	1.552	0.007	0.076	0.102	0.030	1.999	1.138	1%
%RSD		33.470	21.400	6.004	19.500	2.351	2.137	0.772	0.438	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:18:37	93%	1.014	1.047	65.510	58.030	62.060	89%	8.141
2	02:19:46	94%	0.993	0.984	65.160	57.990	61.490	91%	8.011
3	02:20:54	92%	1.032	0.982	64.960	58.230	61.720	90%	8.065
x		93%	1.013	1.005	65.210	58.080	61.760	90%	8.072
σ		1%	0.020	0.037	0.280	0.129	0.289	1%	0.065
%RSD		1	1.949	3.669	0.429	0.223	0.468	1	0.809

C5017-19 12/20/2011 02:25:25 AM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	107%	3.966	9.693	0.000	307.800	6886.000	6668.000	6745.000	34960.000
2	02:27:41	110%	4.041	14.140	0.000	304.000	6919.000	6730.000	6720.000	35000.000
3	02:28:49	109%	3.794	12.980	0.000	304.800	6894.000	6745.000	6806.000	35170.000
x		109%	3.934	12.270	0.000	305.500	6899.000	6714.000	6757.000	35040.000
σ		1%	0.127	2.308	0.000	1.989	17.100	40.870	44.270	112.800
%RSD		1	3.216	18.810	0.000	0.651	0.248	0.609	0.655	0.322

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	2983.000	1279.000	0.000	0.000	4044.000	5698.000	5602.000	110%	1352.000
2	02:27:41	2998.000	1278.000	0.000	0.000	4127.000	5723.000	5702.000	109%	1384.000
3	02:28:49	3005.000	1284.000	0.000	0.000	4079.000	5700.000	5627.000	111%	1354.000
x		2995.000	1280.000	0.000	0.000	4083.000	5707.000	5644.000	110%	1363.000
σ		11.150	3.348	0.000	0.000	41.390	13.980	52.370	1%	17.940
%RSD		0.372	0.262	0.000	0.000	1.014	0.245	0.928	1	1.316

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	102.900	90.140	1022.000	84980.000	1680.000	87040.000	83660.000	32.210	44.900
2	02:27:41	103.600	92.670	1073.000	86640.000	1689.000	88650.000	85250.000	32.190	46.240
3	02:28:49	104.500	91.580	1062.000	85650.000	1678.000	87280.000	84280.000	32.220	44.960
x		103.600	91.460	1052.000	85760.000	1682.000	87650.000	84400.000	32.210	45.370
σ		0.779	1.270	26.850	833.900	5.933	868.800	798.300	0.014	0.756
%RSD		0.752	1.389	2.552	0.972	0.353	0.991	0.946	0.043	1.667

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	51.090	51.810	207.300	11.530	0.428	10.230	0.346	0.434	7.634
2	02:27:41	50.760	51.200	211.500	12.380	0.859	10.800	0.058	0.870	5.278
3	02:28:49	51.160	50.700	212.000	12.590	1.194	10.850	0.633	1.210	5.019
x		51.010	51.240	210.300	12.160	0.827	10.630	0.346	0.838	5.977
σ		0.213	0.554	2.585	0.559	0.384	0.347	0.287	0.389	1.441
%RSD		0.418	1.082	1.230	4.594	46.430	3.268	83.110	46.460	24.110

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	23.180	2.418	4.271	2.683	2.328	-0.001	89%	5.083	0.249
2	02:27:41	21.510	2.361	3.848	2.332	2.374	0.004	89%	4.207	0.298
3	02:28:49	21.260	2.301	4.159	2.375	2.467	0.017	89%	4.371	0.286
x		21.990	2.360	4.093	2.463	2.390	0.007	89%	4.553	0.278
σ		1.044	0.058	0.219	0.191	0.071	0.009	0%	0.466	0.025
%RSD		4.750	2.467	5.356	7.762	2.967	129.200	0	10.230	9.145

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	-1.554	5.079	0.283	1.230	5.376	2.603	466.300	459.500	94%
2	02:27:41	-1.093	4.200	0.257	1.272	5.305	2.569	467.400	460.000	94%
3	02:28:49	-1.630	4.363	0.222	1.232	5.349	2.563	466.500	463.900	95%
x		-1.426	4.547	0.254	1.245	5.344	2.578	466.700	461.200	94%
σ		0.290	0.467	0.031	0.024	0.036	0.022	0.577	2.400	1%
%RSD		20.370	10.280	12.030	1.906	0.675	0.837	0.124	0.520	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:26:33	94%	0.844	0.834	196.000	177.800	185.600	90%	4.591
2	02:27:41	95%	0.818	0.845	193.500	176.300	185.100	91%	4.619
3	02:28:49	94%	0.835	0.815	194.200	176.400	186.100	91%	4.697
x		94%	0.832	0.832	194.500	176.800	185.600	91%	4.635
σ		0%	0.013	0.015	1.284	0.843	0.516	1%	0.055
%RSD		0	1.587	1.852	0.660	0.477	0.278	1	1.189

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	111%	6.396	14.680	0.000	696.700	13770.000	13280.000	13290.000	49040.000
2	02:35:36	117%	6.357	13.020	0.000	662.800	13410.000	12980.000	13090.000	47770.000
3	02:36:44	116%	5.594	14.600	0.000	669.100	13470.000	13180.000	13180.000	48470.000
x		115%	6.116	14.100	0.000	676.200	13550.000	13150.000	13190.000	48420.000
σ		3%	0.452	0.935	0.000	18.010	190.800	148.700	103.000	637.600
%RSD		2	7.397	6.634	0.000	2.664	1.408	1.131	0.781	1.317
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	2665.000	1181.000	0.000	0.000	3628.000	15360.000	15290.000	123%	1441.000
2	02:35:36	2624.000	1168.000	0.000	0.000	3546.000	15190.000	15160.000	126%	1426.000
3	02:36:44	2652.000	1184.000	0.000	0.000	3582.000	15230.000	15160.000	126%	1432.000
x		2647.000	1178.000	0.000	0.000	3586.000	15260.000	15210.000	125%	1433.000
σ		20.780	8.159	0.000	0.000	41.110	87.760	71.440	2%	7.616
%RSD		0.785	0.693	0.000	0.000	1.147	0.575	0.470	1	0.531
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	123.200	90.920	1003.000	118800.000	2964.000	122800.000	118000.000	54.110	94.410
2	02:35:36	121.200	90.460	1015.000	119300.000	2939.000	121500.000	117400.000	53.930	94.950
3	02:36:44	118.400	90.370	1033.000	119800.000	2974.000	123400.000	118100.000	53.960	95.000
x		120.900	90.580	1017.000	119300.000	2959.000	122500.000	117800.000	54.000	94.790
σ		2.378	0.292	14.950	524.400	17.910	977.700	380.000	0.096	0.328
%RSD		1.966	0.323	1.471	0.440	0.605	0.798	0.323	0.178	0.346
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	221.800	225.600	220.400	38.300	1.555	11.760	1.610	1.590	5.833
2	02:35:36	221.000	223.000	219.900	37.740	0.835	12.030	1.165	0.855	10.950
3	02:36:44	221.800	223.500	222.000	38.580	1.135	12.040	1.224	1.162	11.010
x		221.500	224.000	220.800	38.210	1.175	11.940	1.333	1.203	9.263
σ		0.445	1.374	1.113	0.429	0.362	0.156	0.242	0.369	2.970
%RSD		0.201	0.613	0.504	1.122	30.770	1.304	18.120	30.690	32.070
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	90.230	7.483	15.180	7.463	7.750	0.016	90%	12.010	0.453
2	02:35:36	92.100	7.922	15.410	7.266	7.575	0.007	90%	11.360	0.438
3	02:36:44	93.080	7.505	15.560	7.924	7.886	0.009	90%	12.430	0.441
x		91.800	7.637	15.380	7.551	7.737	0.011	90%	11.930	0.444
σ		1.450	0.247	0.193	0.337	0.156	0.005	0%	0.540	0.008
%RSD		1.580	3.237	1.253	4.467	2.013	47.230	0	4.527	1.830
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	-2.847	12.010	0.382	1.427	4.825	2.880	756.100	756.300	95%
2	02:35:36	-2.054	11.350	0.432	1.487	5.175	2.805	762.400	762.200	95%
3	02:36:44	-3.207	12.420	0.404	1.410	5.165	2.790	761.900	758.800	95%
x		-2.703	11.930	0.406	1.441	5.055	2.825	760.100	759.100	95%
σ		0.590	0.539	0.025	0.040	0.199	0.048	3.488	2.956	0%
%RSD		21.820	4.522	6.225	2.806	3.939	1.707	0.459	0.390	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	02:34:28	95%	1.134	1.146	109.600	99.470	105.200	90%	9.360	
2	02:35:36	96%	1.223	1.182	110.500	98.690	104.700	91%	9.314	
3	02:36:44	95%	1.141	1.198	110.000	99.400	104.700	91%	9.306	
x		95%	1.166	1.175	110.000	99.180	104.900	91%	9.327	
σ		0%	0.050	0.027	0.425	0.433	0.291	1%	0.029	
%RSD		0	4.254	2.272	0.386	0.437	0.277	1	0.314	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	107%	2.558	3.826	0.000	2466.000	3913.000	3922.000	3973.000	54540.000
2	02:43:32	108%	2.301	2.872	0.000	2453.000	3939.000	3931.000	3960.000	54420.000
3	02:44:40	109%	2.252	3.572	0.000	2451.000	3915.000	3904.000	3956.000	54040.000
x		108%	2.370	3.423	0.000	2457.000	3923.000	3919.000	3963.000	54330.000
σ		1%	0.164	0.494	0.000	8.329	14.230	14.150	8.970	258.600
%RSD		1	6.930	14.440	0.000	0.339	0.363	0.361	0.226	0.476

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	1713.000	676.900	0.000	0.000	1131.000	1923.000	1826.000	105%	497.300
2	02:43:32	1759.000	681.800	0.000	0.000	1132.000	1911.000	1820.000	105%	494.000
3	02:44:40	1730.000	689.200	0.000	0.000	1129.000	1851.000	1818.000	106%	502.400
x		1734.000	682.600	0.000	0.000	1131.000	1895.000	1821.000	105%	497.900
σ		23.640	6.193	0.000	0.000	1.199	38.620	4.161	0%	4.210
%RSD		1.363	0.907	0.000	0.000	0.106	2.038	0.228	0	0.845

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	56.650	43.360	1105.000	51140.000	989.200	51970.000	50570.000	29.150	29.860
2	02:43:32	60.830	44.130	1163.000	51170.000	999.000	52130.000	50780.000	29.040	30.350
3	02:44:40	54.410	43.820	1191.000	51050.000	991.600	51790.000	50630.000	28.840	30.540
x		57.290	43.770	1153.000	51120.000	993.300	51970.000	50660.000	29.010	30.250
σ		3.258	0.387	44.050	62.270	5.086	168.300	110.300	0.158	0.351
%RSD		5.687	0.885	3.820	0.122	0.512	0.324	0.218	0.543	1.159

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	34.550	35.090	85.080	8.319	0.175	9.196	0.548	0.177	3.230
2	02:43:32	35.900	35.030	87.810	7.254	0.174	9.930	0.158	0.175	4.801
3	02:44:40	34.750	35.220	87.300	9.341	0.461	9.790	0.621	0.465	3.076
x		35.070	35.110	86.730	8.304	0.270	9.639	0.442	0.272	3.702
σ		0.728	0.095	1.453	1.043	0.165	0.390	0.249	0.167	0.955
%RSD		2.077	0.271	1.676	12.570	61.180	4.041	56.340	61.170	25.780

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	37.490	1.351	4.641	1.451	1.428	0.014	89%	3.414	0.069
2	02:43:32	39.030	1.369	4.749	1.485	1.414	0.002	90%	3.973	0.068
3	02:44:40	38.470	1.444	4.856	1.350	1.436	0.002	91%	4.153	0.069
x		38.330	1.388	4.749	1.429	1.426	0.006	90%	3.847	0.069
σ		0.780	0.050	0.108	0.070	0.011	0.007	1%	0.385	0.000
%RSD		2.035	3.587	2.271	4.899	0.768	118.600	1	10.020	0.604

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	-0.099	3.412	0.051	0.161	2.047	0.421	281.100	283.300	93%
2	02:43:32	-0.725	3.972	0.036	0.173	1.974	0.446	284.800	282.700	93%
3	02:44:40	-1.270	4.151	0.039	0.249	1.968	0.408	284.600	285.700	94%
x		-0.698	3.845	0.042	0.194	1.996	0.425	283.500	283.900	93%
σ		0.586	0.386	0.008	0.048	0.044	0.020	2.118	1.563	1%
%RSD		83.940	10.030	19.150	24.620	2.217	4.630	0.747	0.551	1

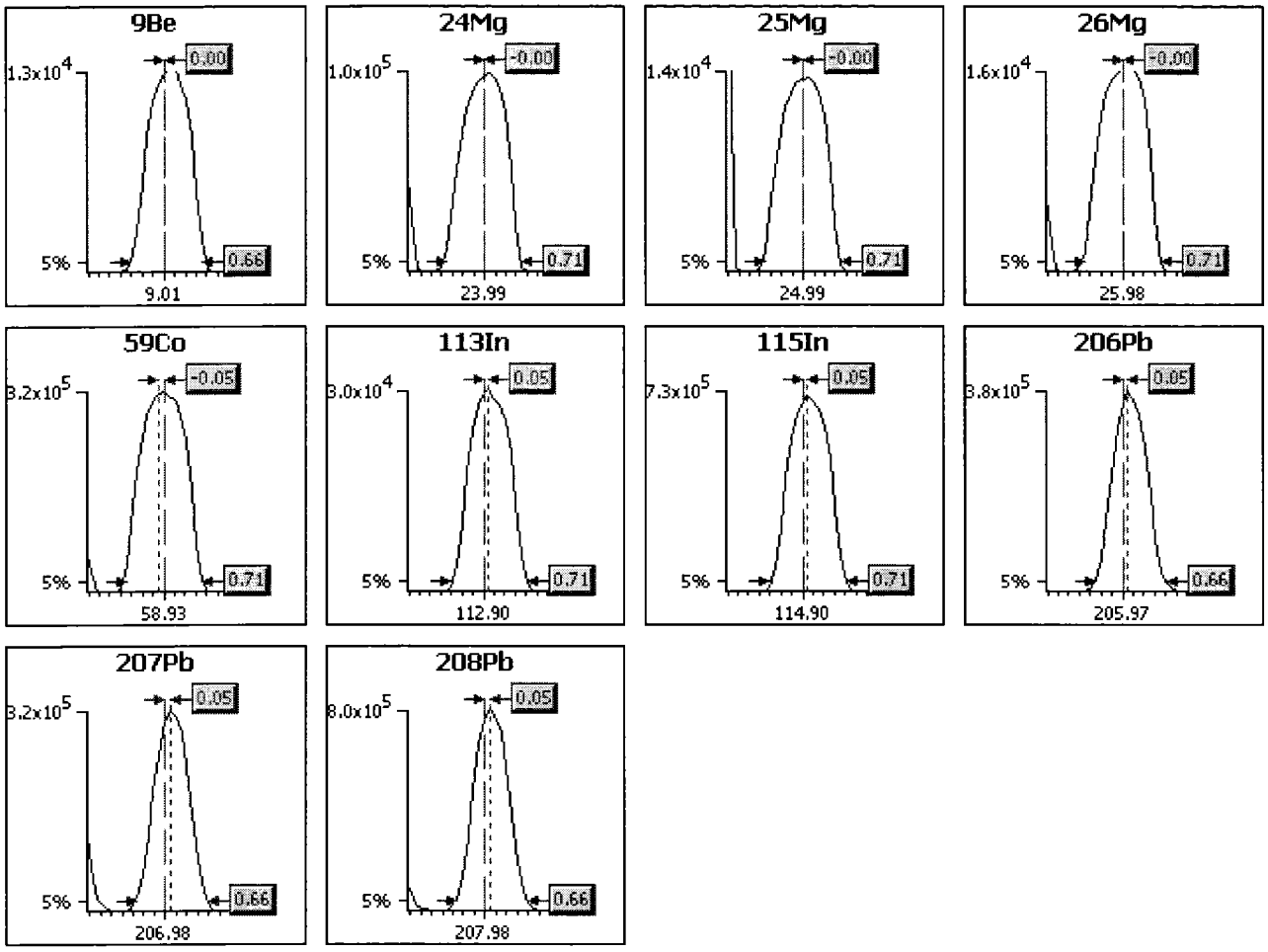
Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:42:24	93%	0.420	0.453	19.160	16.610	17.900	90%	3.073
2	02:43:32	93%	0.454	0.463	19.250	16.870	18.070	91%	3.111
3	02:44:40	95%	0.447	0.443	19.420	16.860	18.140	91%	3.111
x		93%	0.440	0.453	19.270	16.780	18.030	91%	3.098
σ		1%	0.018	0.010	0.129	0.151	0.125	0%	0.022
%RSD		1	4.093	2.213	0.672	0.898	0.692	0	0.710

Performance Report

Sample details
Sample name : TUNE
Acquired at : 12/21/2011 05:07:37 PM
Report name : ISM01.2 [03/09/2010 11:16:01 AM]

Mass Calibration verification

Acquisition parameters
Sweeps : 20
Dwell : 3.0 mSecs
Point spacing : 0.05 amu
Peak width measured at 5% of the peak maximum



Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
9Be	0.85	0.65	0.10	0.66	0.00
24Mg	0.85	0.65	0.10	0.71	-0.00
25Mg	0.85	0.65	0.10	0.71	-0.00
26Mg	0.85	0.65	0.10	0.71	-0.00
59Co	0.85	0.65	0.10	0.71	-0.05
113In	0.85	0.65	0.10	0.71	0.05
115In	0.85	0.65	0.10	0.71	0.05
206Pb	0.85	0.65	0.10	0.66	0.05
207Pb	0.85	0.65	0.10	0.66	0.05
208Pb	0.85	0.65	0.10	0.66	0.05

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	103%	5.514	24.030	0.000	391.800	9874.000	9592.000	9508.000	59420.000
2	22:28:57	110%	5.450	24.560	0.000	384.600	9817.000	9487.000	9429.000	59170.000
3	22:30:05	113%	5.436	23.390	0.000	389.300	9908.000	9518.000	9558.000	59330.000
x		109%	5.467	23.990	0.000	388.600	9866.000	9532.000	9498.000	59310.000
σ		5%	0.041	0.583	0.000	3.656	46.120	53.670	65.320	125.400
%RSD		5	0.756	2.429	0.000	0.941	0.467	0.563	0.688	0.211

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	4438.000	3420.000	0.000	0.000	3824.000	12360.000	12250.000	102%	1539.000
2	22:28:57	4392.000	3419.000	0.000	0.000	3859.000	12350.000	12260.000	106%	1550.000
3	22:30:05	4394.000	3439.000	0.000	0.000	3850.000	12370.000	12370.000	108%	1552.000
x		4408.000	3426.000	0.000	0.000	3844.000	12360.000	12290.000	105%	1547.000
σ		26.090	11.130	0.000	0.000	18.350	7.188	69.430	3%	6.688
%RSD		0.592	0.325	0.000	0.000	0.477	0.058	0.565	3	0.432

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	156.300	98.860	475.600	101400.000	2826.000	102400.000	100600.000	40.820	54.920
2	22:28:57	155.200	100.100	694.400	102300.000	2855.000	103300.000	101200.000	40.970	56.170
3	22:30:05	159.500	101.300	844.800	102900.000	2878.000	103400.000	100700.000	41.130	57.460
x		157.000	100.100	671.600	102200.000	2853.000	103000.000	100800.000	40.970	56.190
σ		2.205	1.235	185.700	730.700	26.090	582.600	353.300	0.156	1.270
%RSD		1.404	1.234	27.640	0.715	0.915	0.566	0.350	0.380	2.261

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	67.430	67.420	317.900	34.210	4.497	3.160	4.117	4.544	6.661
2	22:28:57	66.680	67.650	320.200	35.040	5.335	4.365	3.254	5.391	6.010
3	22:30:05	66.910	67.570	321.000	36.980	3.994	5.148	3.310	4.036	10.570
x		67.010	67.550	319.700	35.410	4.609	4.224	3.560	4.657	7.747
σ		0.382	0.117	1.629	1.421	0.677	1.002	0.483	0.684	2.468
%RSD		0.570	0.173	0.510	4.013	14.700	23.710	13.560	14.700	31.850

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	18.230	4.597	5.877	4.847	4.713	0.004	85%	9.110	0.653
2	22:28:57	17.970	4.719	6.046	4.932	4.624	0.002	88%	8.077	0.611
3	22:30:05	18.420	4.412	5.709	4.338	4.520	-0.002	90%	8.784	0.599
x		18.210	4.576	5.877	4.706	4.619	0.001	88%	8.657	0.621
σ		0.222	0.155	0.169	0.321	0.097	0.003	2%	0.528	0.028
%RSD		1.220	3.377	2.872	6.822	2.097	255.200	3	6.103	4.580

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	-2.455	9.079	0.728	3.058	10.740	4.149	626.300	624.600	93%
2	22:28:57	-1.867	8.053	0.646	2.870	9.453	3.957	633.700	632.000	96%
3	22:30:05	-2.471	8.758	0.695	2.848	9.561	3.909	634.300	630.900	98%
x		-2.264	8.630	0.690	2.925	9.917	4.005	631.400	629.200	96%
σ		0.344	0.525	0.041	0.116	0.712	0.127	4.439	3.955	2%
%RSD		15.200	6.084	6.006	3.951	7.179	3.173	0.703	0.629	2

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:49	95%	2.082	2.140	224.700	202.900	212.400	89%	6.697
2	22:28:57	97%	1.915	1.845	223.000	201.800	211.600	92%	6.706
3	22:30:05	98%	1.812	1.811	225.700	202.700	212.600	93%	6.708
x		97%	1.936	1.932	224.500	202.400	212.200	92%	6.704
σ		2%	0.136	0.181	1.344	0.559	0.501	2%	0.006
%RSD		2	7.041	9.360	0.599	0.276	0.236	2	0.085

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	112%	7.174	10.860	0.000	442.000	9971.000	9683.000	9628.000	75960.000
2	22:36:52	112%	7.376	8.415	0.000	448.300	9962.000	9579.000	9560.000	76220.000
3	22:38:00	110%	7.579	11.680	0.000	451.700	10090.000	9638.000	9588.000	75680.000
x		111%	7.376	10.320	0.000	447.400	10010.000	9633.000	9592.000	75950.000
σ		1%	0.203	1.697	0.000	4.937	70.570	52.390	34.270	270.400
%RSD		1	2.746	16.450	0.000	1.104	0.705	0.544	0.357	0.356

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	2808.000	2787.000	0.000	0.000	2117.000	4376.000	4146.000	111%	1296.000
2	22:36:52	2825.000	2785.000	0.000	0.000	2144.000	4392.000	4191.000	110%	1302.000
3	22:38:00	2797.000	2763.000	0.000	0.000	2138.000	4288.000	4120.000	109%	1303.000
x		2810.000	2778.000	0.000	0.000	2133.000	4352.000	4152.000	110%	1300.000
σ		13.960	13.090	0.000	0.000	14.220	55.850	36.140	1%	3.500
%RSD		0.497	0.471	0.000	0.000	0.667	1.283	0.870	1	0.269

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	195.100	123.300	701.500	131600.000	3088.000	131500.000	127800.000	47.560	60.430
2	22:36:52	194.700	124.500	737.600	132000.000	3105.000	132900.000	128800.000	47.070	60.130
3	22:38:00	193.500	122.200	749.000	130300.000	3076.000	131500.000	127500.000	46.600	59.660
x		194.400	123.300	729.400	131300.000	3090.000	132000.000	128000.000	47.080	60.080
σ		0.876	1.189	24.800	901.100	14.610	799.400	682.900	0.479	0.393
%RSD		0.450	0.964	3.400	0.686	0.473	0.606	0.533	1.018	0.653

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	50.460	51.140	218.800	43.450	4.456	4.582	3.319	4.507	8.707
2	22:36:52	50.170	51.780	220.100	45.800	4.087	4.776	3.299	4.131	10.190
3	22:38:00	50.360	50.830	223.800	44.040	3.847	5.262	3.300	3.893	9.287
x		50.330	51.250	220.900	44.430	4.130	4.873	3.306	4.177	9.394
σ		0.145	0.483	2.578	1.223	0.307	0.351	0.011	0.310	0.747
%RSD		0.287	0.943	1.167	2.754	7.430	7.192	0.345	7.413	7.947

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	35.490	4.591	7.774	4.788	4.612	-0.000	91%	9.149	0.363
2	22:36:52	35.310	4.545	7.508	4.917	4.663	0.010	91%	9.687	0.363
3	22:38:00	36.570	4.637	7.462	4.693	4.652	-0.000	89%	10.940	0.345
x		35.790	4.591	7.581	4.799	4.642	0.003	90%	9.924	0.357
σ		0.680	0.046	0.169	0.112	0.027	0.006	1%	0.918	0.010
%RSD		1.899	1.010	2.225	2.343	0.575	188.100	1	9.246	2.901

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	-2.835	9.128	0.338	1.211	6.879	2.088	595.300	594.400	98%
2	22:36:52	-2.984	9.666	0.394	1.242	6.693	2.129	594.800	592.100	98%
3	22:38:00	-3.741	10.910	0.373	1.213	6.862	2.131	595.900	591.400	98%
x		-3.187	9.900	0.368	1.222	6.811	2.116	595.300	592.600	98%
σ		0.486	0.912	0.028	0.017	0.103	0.024	0.567	1.596	0%
%RSD		15.250	9.208	7.686	1.429	1.505	1.134	0.095	0.269	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:35:44	98%	1.115	1.166	136.400	121.100	127.900	92%	8.254
2	22:36:52	99%	1.130	1.152	135.900	121.400	128.700	92%	8.276
3	22:38:00	99%	1.170	1.166	135.800	121.900	128.300	92%	8.371
x		98%	1.138	1.162	136.000	121.400	128.300	92%	8.300
σ		0%	0.029	0.008	0.284	0.419	0.371	0%	0.062
%RSD		0	2.505	0.676	0.209	0.345	0.289	0	0.746

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	109%	3.735	8.216	0.000	461.800	12080.000	11590.000	11520.000	96010.000
2	22:44:48	110%	4.133	12.720	0.000	462.600	12060.000	11560.000	11510.000	96060.000
3	22:45:56	107%	3.756	11.420	0.000	475.600	12280.000	11690.000	11530.000	97130.000
x		109%	3.875	10.780	0.000	466.700	12140.000	11610.000	11520.000	96400.000
σ		1%	0.224	2.317	0.000	7.764	122.000	67.090	9.324	633.400
%RSD		1	5.792	21.480	0.000	1.664	1.005	0.578	0.081	0.657

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	2740.000	1432.000	0.000	0.000	2800.000	5413.000	5322.000	121%	2098.000
2	22:44:48	2730.000	1458.000	0.000	0.000	2808.000	5516.000	5299.000	121%	2101.000
3	22:45:56	2767.000	1456.000	0.000	0.000	2813.000	5505.000	5293.000	121%	2103.000
x		2745.000	1448.000	0.000	0.000	2807.000	5478.000	5305.000	121%	2101.000
σ		19.180	14.690	0.000	0.000	6.173	56.870	15.580	0%	2.915
%RSD		0.699	1.014	0.000	0.000	0.220	1.038	0.294	0	0.139

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	241.600	148.100	656.200	175400.000	1926.000	175200.000	171300.000	45.550	65.880
2	22:44:48	244.400	148.100	663.300	174000.000	1923.000	176000.000	171800.000	45.190	66.940
3	22:45:56	238.600	149.800	669.500	175300.000	1930.000	175600.000	172000.000	44.860	64.270
x		241.500	148.700	663.000	174900.000	1926.000	175600.000	171700.000	45.200	65.700
σ		2.906	0.963	6.674	768.500	3.849	408.300	330.100	0.341	1.345
%RSD		1.203	0.648	1.007	0.439	0.200	0.233	0.192	0.755	2.047

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	75.020	76.390	213.000	42.610	1.589	5.044	1.475	1.619	10.470
2	22:44:48	74.380	76.010	212.400	44.340	1.800	5.256	1.440	1.835	5.890
3	22:45:56	74.550	76.100	212.800	41.210	1.228	5.741	1.231	1.249	7.842
x		74.650	76.170	212.700	42.720	1.539	5.347	1.382	1.568	8.066
σ		0.330	0.201	0.312	1.569	0.289	0.358	0.132	0.296	2.296
%RSD		0.442	0.264	0.147	3.674	18.800	6.685	9.540	18.890	28.470

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	145.400	6.811	19.270	6.680	6.748	0.009	86%	21.520	0.303
2	22:44:48	147.800	6.490	18.820	6.670	6.735	-0.000	86%	23.140	0.311
3	22:45:56	146.400	6.339	19.730	6.843	6.668	0.004	86%	18.670	0.256
x		146.500	6.547	19.270	6.731	6.717	0.004	86%	21.110	0.290
σ		1.211	0.241	0.451	0.097	0.043	0.004	0%	2.261	0.030
%RSD		0.826	3.683	2.342	1.448	0.643	102.500	0	10.710	10.310

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	-4.927	21.490	0.220	0.943	6.464	1.787	487.500	485.100	93%
2	22:44:48	-5.785	23.100	0.189	1.096	6.320	1.832	479.900	479.500	93%
3	22:45:56	-3.412	18.640	0.169	0.732	6.295	1.830	481.200	478.100	92%
x		-4.708	21.080	0.193	0.924	6.360	1.816	482.900	480.900	93%
σ		1.202	2.258	0.026	0.183	0.091	0.025	4.085	3.726	0%
%RSD		25.530	10.710	13.290	19.780	1.430	1.387	0.846	0.775	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:43:40	93%	1.035	1.042	104.600	92.100	98.160	88%	11.340
2	22:44:48	93%	1.028	1.039	103.700	91.640	97.150	89%	11.340
3	22:45:56	93%	1.047	1.050	103.400	91.310	97.320	89%	11.430
x		93%	1.037	1.043	103.900	91.680	97.540	89%	11.370
σ		0%	0.009	0.006	0.646	0.398	0.540	0%	0.054
%RSD		0	0.897	0.540	0.621	0.435	0.554	0	0.473

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	101%	6.546	11.680	0.000	508.700	10170.000	9745.000	9730.000	56320.000
2	22:52:44	101%	5.921	9.623	0.000	515.100	10360.000	9905.000	9881.000	56730.000
3	22:53:52	98%	6.229	13.100	0.000	533.600	10580.000	10040.000	9924.000	57650.000
x		100%	6.232	11.470	0.000	519.100	10370.000	9897.000	9845.000	56900.000
σ		1%	0.312	1.748	0.000	12.960	208.400	148.000	101.900	678.600
%RSD		1	5.009	15.240	0.000	2.496	2.010	1.496	1.035	1.193

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	2222.000	1384.000	0.000	0.000	4204.000	4171.000	4128.000	108%	1859.000
2	22:52:44	2255.000	1390.000	0.000	0.000	4222.000	4238.000	4146.000	108%	1871.000
3	22:53:52	2292.000	1414.000	0.000	0.000	4248.000	4228.000	4169.000	108%	1849.000
x		2256.000	1396.000	0.000	0.000	4225.000	4212.000	4148.000	108%	1860.000
σ		35.000	15.720	0.000	0.000	22.070	36.200	20.590	0%	10.890
%RSD		1.551	1.126	0.000	0.000	0.523	0.859	0.496	0	0.586

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	160.200	108.900	591.100	123800.000	3460.000	125000.000	121600.000	56.470	59.420
2	22:52:44	156.800	109.300	610.000	125300.000	3498.000	126000.000	122900.000	57.170	61.000
3	22:53:52	158.500	108.700	608.200	125800.000	3487.000	126000.000	122800.000	57.000	61.780
x		158.500	109.000	603.100	125000.000	3482.000	125700.000	122400.000	56.880	60.740
σ		1.684	0.324	10.410	1043.000	19.260	607.600	720.800	0.367	1.202
%RSD		1.062	0.297	1.727	0.834	0.553	0.483	0.589	0.646	1.979

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	74.450	76.780	181.100	20.100	1.861	4.290	0.475	1.889	4.898
2	22:52:44	74.350	77.090	181.400	19.220	1.032	4.795	0.261	1.044	6.688
3	22:53:52	74.540	76.130	183.200	17.650	1.004	4.999	0.383	1.015	8.942
x		74.440	76.670	181.900	18.990	1.299	4.695	0.373	1.316	6.843
σ		0.095	0.490	1.133	1.242	0.487	0.365	0.107	0.497	2.027
%RSD		0.127	0.639	0.623	6.539	37.500	7.772	28.800	37.730	29.620

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	71.830	3.030	10.020	2.912	2.997	0.012	82%	10.210	0.178
2	22:52:44	71.080	3.265	9.345	3.149	3.202	0.002	83%	11.820	0.170
3	22:53:52	71.980	3.073	9.213	3.227	3.134	0.005	83%	13.140	0.181
x		71.630	3.123	9.524	3.096	3.111	0.006	83%	11.720	0.176
σ		0.481	0.125	0.430	0.164	0.104	0.005	0%	1.469	0.006
%RSD		0.672	4.007	4.518	5.304	3.357	77.720	1	12.540	3.330

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	-2.342	10.180	0.152	0.677	5.404	1.562	642.600	643.100	89%
2	22:52:44	-2.853	11.790	0.140	0.769	5.265	1.576	646.600	639.400	91%
3	22:53:52	-3.445	13.110	0.128	0.885	5.359	1.503	655.500	653.900	90%
x		-2.880	11.690	0.140	0.777	5.343	1.547	648.200	645.500	90%
σ		0.552	1.469	0.012	0.104	0.071	0.039	6.625	7.495	1%
%RSD		19.170	12.560	8.529	13.370	1.327	2.509	1.022	1.161	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:51:35	89%	0.754	0.791	80.410	71.580	75.600	87%	8.263
2	22:52:44	91%	0.737	0.800	81.040	72.100	76.250	87%	8.349
3	22:53:52	91%	0.815	0.777	81.720	72.610	76.910	87%	8.362
x		90%	0.769	0.789	81.060	72.100	76.250	87%	8.325
σ		1%	0.041	0.011	0.652	0.518	0.652	0%	0.054
%RSD		1	5.324	1.455	0.804	0.719	0.855	0	0.648

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Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	104%	4.946	12.360	0.000	356.800	7382.000	7139.000	7128.000	46260.000
2	23:16:24	106%	4.700	14.010	0.000	362.900	7547.000	7256.000	7201.000	47010.000
3	23:17:32	108%	4.873	11.440	0.000	357.700	7468.000	7074.000	7097.000	46390.000
x		106%	4.840	12.610	0.000	359.100	7465.000	7156.000	7142.000	46550.000
σ		2%	0.126	1.302	0.000	3.290	82.360	92.260	53.370	403.900
%RSD		2	2.606	10.330	0.000	0.916	1.103	1.289	0.747	0.868

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	3906.000	1975.000	0.000	0.000	2415.000	5413.000	5373.000	101%	1113.000
2	23:16:24	3909.000	2001.000	0.000	0.000	2419.000	5560.000	5347.000	104%	1110.000
3	23:17:32	3867.000	1976.000	0.000	0.000	2414.000	5579.000	5309.000	106%	1109.000
x		3894.000	1984.000	0.000	0.000	2416.000	5517.000	5343.000	104%	1111.000
σ		23.200	14.530	0.000	0.000	2.481	90.770	31.980	3%	2.345
%RSD		0.596	0.732	0.000	0.000	0.103	1.645	0.599	3	0.211

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	127.200	82.970	744.300	90260.000	1357.000	91260.000	88530.000	24.810	41.230
2	23:16:24	132.300	84.090	791.600	90860.000	1365.000	91260.000	89210.000	24.900	42.540
3	23:17:32	127.000	83.040	790.500	90140.000	1349.000	90300.000	88230.000	25.020	41.840
x		128.800	83.370	775.500	90420.000	1357.000	90940.000	88660.000	24.910	41.870
σ		2.991	0.629	26.990	387.200	7.549	551.300	503.000	0.105	0.657
%RSD		2.322	0.755	3.480	0.428	0.556	0.606	0.567	0.422	1.569

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	63.480	64.960	203.000	24.250	2.550	4.049	1.205	2.571	3.054
2	23:16:24	64.050	64.650	204.700	23.490	2.763	4.877	2.088	2.787	5.169
3	23:17:32	62.770	64.220	200.300	24.060	1.960	5.012	1.644	1.977	7.176
x		63.440	64.610	202.700	23.930	2.425	4.646	1.646	2.445	5.133
σ		0.641	0.373	2.176	0.395	0.416	0.521	0.442	0.420	2.061
%RSD		1.010	0.578	1.074	1.651	17.160	11.220	26.840	17.160	40.160

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	18.600	3.162	4.713	3.285	3.219	0.011	86%	6.700	0.402
2	23:16:24	18.130	3.097	4.711	2.971	3.299	0.006	88%	4.477	0.446
3	23:17:32	18.120	3.225	4.539	3.172	3.048	-0.000	89%	5.289	0.491
x		18.280	3.161	4.655	3.142	3.188	0.006	88%	5.489	0.446
σ		0.271	0.064	0.100	0.159	0.129	0.006	2%	1.125	0.045
%RSD		1.482	2.024	2.152	5.061	4.030	99.340	2	20.490	9.983

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	-2.106	6.684	0.367	1.616	5.777	2.651	465.700	468.300	92%
2	23:16:24	-0.429	4.458	0.469	1.438	5.455	2.374	472.100	467.100	95%
3	23:17:32	-1.486	5.268	0.460	1.545	5.265	2.329	469.400	467.000	97%
x		-1.341	5.470	0.432	1.533	5.499	2.451	469.100	467.500	95%
σ		0.848	1.127	0.056	0.090	0.259	0.174	3.180	0.698	3%
%RSD		63.250	20.600	12.980	5.847	4.711	7.104	0.678	0.149	3

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:15:16	92%	1.035	1.031	136.200	121.000	127.500	90%	6.352
2	23:16:24	95%	0.864	0.843	137.300	121.500	128.300	92%	6.401
3	23:17:32	96%	0.747	0.759	137.900	122.400	128.800	92%	6.406
x		95%	0.882	0.877	137.100	121.600	128.200	92%	6.386
σ		2%	0.145	0.139	0.847	0.688	0.651	1%	0.030
%RSD		2	16.390	15.870	0.618	0.565	0.508	1	0.471

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Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	101%	3.197	8.444	0.000	317.200	5462.000	5163.000	5137.000	32390.000
2	23:24:18	99%	3.097	7.404	0.000	324.100	5467.000	5205.000	5142.000	32230.000
3	23:25:27	100%	3.110	8.232	0.000	322.900	5490.000	5196.000	5147.000	32410.000
x		100%	3.135	8.027	0.000	321.400	5473.000	5188.000	5142.000	32340.000
σ		1%	0.055	0.550	0.000	3.653	15.260	22.200	4.985	97.460
%RSD		1	1.739	6.850	0.000	1.137	0.279	0.428	0.097	0.301

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	2451.000	1487.000	0.000	0.000	1929.000	4125.000	4100.000	96%	821.200
2	23:24:18	2441.000	1501.000	0.000	0.000	1932.000	4192.000	4106.000	97%	818.600
3	23:25:27	2470.000	1500.000	0.000	0.000	1931.000	4153.000	4094.000	96%	807.800
x		2454.000	1496.000	0.000	0.000	1930.000	4157.000	4100.000	97%	815.800
σ		14.690	7.599	0.000	0.000	1.690	33.980	6.458	0%	7.111
%RSD		0.599	0.508	0.000	0.000	0.088	0.817	0.158	0	0.872

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	93.370	60.700	650.900	62660.000	954.300	63090.000	61190.000	18.870	38.960
2	23:24:18	87.390	60.400	672.200	62260.000	938.800	62530.000	61230.000	18.810	38.930
3	23:25:27	88.480	60.280	679.500	62050.000	941.600	62740.000	61090.000	18.910	38.990
x		89.750	60.460	667.500	62320.000	944.900	62790.000	61170.000	18.860	38.960
σ		3.185	0.217	14.880	308.500	8.251	279.900	75.630	0.052	0.030
%RSD		3.549	0.358	2.229	0.495	0.873	0.446	0.124	0.273	0.077

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	48.670	48.270	172.300	16.220	1.664	3.757	1.173	1.669	3.240
2	23:24:18	47.640	47.870	170.800	15.590	1.504	3.932	1.165	1.508	4.129
3	23:25:27	47.520	47.090	172.600	15.320	1.870	4.168	0.780	1.875	2.920
x		47.950	47.740	171.900	15.710	1.679	3.952	1.039	1.684	3.430
σ		0.634	0.604	1.011	0.467	0.183	0.207	0.225	0.184	0.627
%RSD		1.321	1.264	0.588	2.970	10.920	5.227	21.650	10.920	18.270

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	9.742	2.277	3.059	2.210	2.095	0.002	87%	4.161	0.216
2	23:24:18	10.020	2.171	2.931	2.423	2.108	0.004	88%	6.119	0.296
3	23:25:27	9.738	2.203	3.004	2.295	2.117	-0.000	88%	3.365	0.274
x		9.835	2.217	2.998	2.309	2.106	0.002	87%	4.548	0.262
σ		0.163	0.055	0.064	0.107	0.011	0.002	0%	1.417	0.042
%RSD		1.662	2.460	2.131	4.633	0.525	105.900	0	31.160	15.900

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	-1.467	4.148	0.273	1.277	4.001	1.546	318.200	320.800	92%
2	23:24:18	-2.242	6.105	0.257	1.302	4.119	1.559	321.500	318.300	93%
3	23:25:27	-0.601	3.350	0.251	1.138	4.115	1.547	321.200	319.200	93%
x		-1.437	4.535	0.260	1.239	4.078	1.551	320.300	319.500	93%
σ		0.821	1.417	0.011	0.088	0.067	0.007	1.820	1.265	0%
%RSD		57.140	31.250	4.299	7.139	1.653	0.464	0.568	0.396	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:23:10	93%	0.518	0.494	104.600	92.670	97.820	91%	4.459
2	23:24:18	94%	0.477	0.483	103.600	91.460	96.850	92%	4.494
3	23:25:27	94%	0.498	0.501	103.900	92.180	97.330	92%	4.517
x		94%	0.498	0.493	104.100	92.100	97.330	91%	4.490
σ		1%	0.021	0.009	0.519	0.607	0.486	0%	0.029
%RSD		1	4.187	1.910	0.499	0.659	0.499	0	0.644

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Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	85%	0.664	2.269	0.000	60.850	1122.000	1121.000	1095.000	7236.000
2	23:32:12	84%	0.754	3.164	0.000	61.740	1137.000	1112.000	1108.000	7290.000
3	23:33:20	84%	0.547	1.847	0.000	62.890	1135.000	1118.000	1109.000	7275.000
x		84%	0.655	2.427	0.000	61.830	1131.000	1117.000	1104.000	7267.000
σ		0%	0.104	0.672	0.000	1.024	8.390	4.707	7.515	28.030
%RSD		0	15.860	27.700	0.000	1.656	0.742	0.421	0.681	0.386

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	586.300	319.700	0.000	0.000	401.600	872.500	875.500	81%	175.100
2	23:32:12	590.100	332.300	0.000	0.000	406.000	883.000	881.700	80%	175.100
3	23:33:20	596.200	331.000	0.000	0.000	408.600	916.500	914.700	79%	181.700
x		590.800	327.700	0.000	0.000	405.400	890.700	890.600	80%	177.300
σ		4.978	6.931	0.000	0.000	3.506	22.960	21.080	1%	3.794
%RSD		0.843	2.115	0.000	0.000	0.865	2.578	2.367	1	2.140

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	19.910	15.020	166.600	14800.000	211.400	14660.000	14250.000	4.034	7.488
2	23:32:12	21.240	14.900	173.900	14910.000	213.600	14810.000	14440.000	4.016	7.386
3	23:33:20	21.940	14.840	174.800	14940.000	212.800	14800.000	14460.000	3.975	7.375
x		21.030	14.920	171.800	14880.000	212.600	14760.000	14380.000	4.009	7.416
σ		1.029	0.091	4.528	73.850	1.112	82.390	113.200	0.030	0.062
%RSD		4.895	0.613	2.637	0.496	0.523	0.558	0.787	0.755	0.840

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	10.310	10.290	36.020	2.978	0.139	0.741	-0.336	0.139	2.302
2	23:32:12	10.560	10.000	36.440	3.503	1.047	0.680	-0.427	1.042	-2.120
3	23:33:20	10.340	10.580	35.970	3.478	0.197	0.709	-0.643	0.197	0.447
x		10.400	10.290	36.140	3.320	0.461	0.710	-0.469	0.459	0.210
σ		0.132	0.291	0.260	0.297	0.508	0.031	0.158	0.506	2.220
%RSD		1.267	2.822	0.720	8.933	110.200	4.308	33.730	110.100	1058.000

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	3.030	0.637	0.808	0.638	0.629	0.003	82%	0.647	0.049
2	23:32:12	2.541	0.626	0.783	0.668	0.599	0.000	82%	1.349	0.046
3	23:33:20	2.630	0.629	0.895	0.648	0.706	-0.005	82%	0.023	0.037
x		2.734	0.631	0.829	0.652	0.645	-0.001	82%	0.673	0.044
σ		0.261	0.006	0.059	0.016	0.055	0.004	0%	0.663	0.007
%RSD		9.542	0.904	7.062	2.386	8.579	645.000	0	98.540	14.840

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	-0.129	0.636	0.059	0.231	0.743	0.331	68.910	68.490	86%
2	23:32:12	-0.420	1.338	0.055	0.263	0.730	0.365	69.260	68.280	86%
3	23:33:20	0.238	0.011	0.041	0.202	0.716	0.343	68.720	67.580	86%
x		-0.103	0.662	0.051	0.232	0.730	0.346	68.960	68.110	86%
σ		0.330	0.664	0.009	0.031	0.014	0.017	0.272	0.475	0%
%RSD		318.600	100.300	18.130	13.220	1.864	4.964	0.395	0.697	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:04	86%	0.127	0.106	19.950	17.760	18.610	87%	0.922
2	23:32:12	86%	0.106	0.108	19.830	17.580	18.590	87%	0.913
3	23:33:20	87%	0.096	0.109	19.640	17.460	18.390	88%	0.931
x		87%	0.109	0.108	19.810	17.600	18.530	87%	0.922
σ		0%	0.016	0.002	0.152	0.154	0.120	0%	0.009
%RSD		0	14.400	1.585	0.769	0.873	0.650	0	0.999

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Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	116%	178.000	290.000	0.000	3079.000	9874.000	9492.000	9438.000	52800.000
2	23:40:07	118%	177.500	281.800	0.000	3069.000	9907.000	9477.000	9448.000	52590.000
3	23:41:14	121%	175.500	283.100	0.000	3062.000	9847.000	9418.000	9362.000	52240.000
x		118%	177.000	284.900	0.000	3070.000	9876.000	9462.000	9416.000	52540.000
σ		2%	1.290	4.387	0.000	8.696	29.840	39.430	46.610	284.300
%RSD		2	0.729	1.540	0.000	0.283	0.302	0.417	0.495	0.541

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	5064.000	6777.000	0.000	0.000	11410.000	6975.000	6989.000	104%	1457.000
2	23:40:07	4988.000	6691.000	0.000	0.000	11370.000	7061.000	6959.000	107%	1441.000
3	23:41:14	4978.000	6699.000	0.000	0.000	11510.000	7248.000	6963.000	106%	1450.000
x		5010.000	6723.000	0.000	0.000	11430.000	7095.000	6970.000	106%	1449.000
σ		47.090	47.380	0.000	0.000	69.960	139.900	16.050	2%	7.812
%RSD		0.940	0.705	0.000	0.000	0.612	1.971	0.230	2	0.539

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	408.500	437.500	817.000	106500.000	1751.000	107500.000	105800.000	207.300	494.200
2	23:40:07	404.700	436.900	835.800	107000.000	1737.000	107100.000	104700.000	205.300	486.300
3	23:41:14	407.600	435.400	848.800	107500.000	1746.000	108200.000	105800.000	207.600	492.300
x		406.900	436.600	833.900	107000.000	1745.000	107600.000	105400.000	206.700	490.900
σ		2.009	1.103	15.990	488.600	7.220	546.900	658.500	1.240	4.135
%RSD		0.494	0.253	1.918	0.457	0.414	0.508	0.625	0.600	0.842

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	353.300	350.700	399.100	727.800	1719.000	3.476	1714.000	1740.000	12.470
2	23:40:07	346.900	348.300	400.700	721.600	1715.000	4.434	1716.000	1739.000	10.390
3	23:41:14	350.500	350.900	401.000	734.200	1723.000	3.633	1707.000	1745.000	12.050
x		350.200	350.000	400.300	727.900	1719.000	3.848	1712.000	1741.000	11.640
σ		3.215	1.424	0.983	6.284	4.005	0.514	4.464	3.254	1.099
%RSD		0.918	0.407	0.246	0.863	0.233	13.360	0.261	0.187	9.438

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	411.900	398.100	400.500	403.400	400.200	-0.000	85%	200.600	76.270
2	23:40:07	417.800	401.700	401.300	401.600	404.300	0.007	86%	205.600	77.730
3	23:41:14	415.500	396.000	399.600	399.200	396.300	0.009	87%	203.600	76.740
x		415.100	398.600	400.500	401.400	400.300	0.005	86%	203.300	76.910
σ		2.986	2.879	0.885	2.077	3.974	0.005	1%	2.526	0.743
%RSD		0.719	0.722	0.221	0.518	0.993	89.730	1	1.243	0.966

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	4.767	200.400	76.850	194.400	711.000	748.800	737.400	737.600	93%
2	23:40:07	2.999	205.500	76.550	200.100	717.800	756.800	758.200	748.600	94%
3	23:41:14	4.431	203.400	76.770	196.400	710.700	758.800	746.300	744.300	95%
x		4.066	203.100	76.720	197.000	713.200	754.800	747.300	743.500	94%
σ		0.939	2.523	0.157	2.905	4.056	5.248	10.470	5.516	1%
%RSD		23.090	1.242	0.204	1.475	0.569	0.695	1.401	0.742	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:38:58	93%	1993.000	1959.000	1142.000	1115.000	1147.000	90%	7.595
2	23:40:07	94%	2025.000	1996.000	1148.000	1130.000	1158.000	90%	7.537
3	23:41:14	96%	2027.000	2007.000	1153.000	1130.000	1159.000	90%	7.703
x		94%	2015.000	1988.000	1148.000	1125.000	1155.000	90%	7.611
σ		1%	19.280	25.240	5.711	8.613	7.040	0%	0.084
%RSD		1	0.957	1.270	0.498	0.766	0.610	0	1.104

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	118%	164.400	226.900	0.000	2971.000	10390.000	9917.000	9864.000	65650.000
2	23:48:01	118%	163.900	234.100	0.000	2976.000	10470.000	9961.000	9885.000	65890.000
3	23:49:09	117%	164.300	237.400	0.000	3034.000	10520.000	9932.000	9888.000	65870.000
x		118%	164.200	232.800	0.000	2994.000	10460.000	9937.000	9879.000	65800.000
σ		1%	0.297	5.340	0.000	35.420	63.940	22.580	13.370	132.200
%RSD		1	0.181	2.294	0.000	1.183	0.611	0.227	0.135	0.201

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	3990.000	6249.000	0.000	0.000	10790.000	7379.000	7067.000	106%	1375.000
2	23:48:01	3993.000	6222.000	0.000	0.000	10840.000	7238.000	7153.000	107%	1394.000
3	23:49:09	4016.000	6290.000	0.000	0.000	10910.000	7359.000	7122.000	106%	1400.000
x		4000.000	6254.000	0.000	0.000	10850.000	7326.000	7114.000	106%	1390.000
σ		13.790	34.260	0.000	0.000	60.140	76.060	43.780	0%	13.010
%RSD		0.345	0.548	0.000	0.000	0.554	1.038	0.615	0	0.936

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	373.000	401.700	784.500	102400.000	1741.000	102600.000	101200.000	191.200	454.800
2	23:48:01	379.200	408.200	798.100	103000.000	1755.000	103800.000	101600.000	191.200	455.300
3	23:49:09	375.500	405.700	807.200	103000.000	1753.000	103800.000	102000.000	192.300	453.000
x		375.900	405.200	796.600	102800.000	1749.000	103400.000	101600.000	191.600	454.400
σ		3.140	3.300	11.420	333.800	7.567	678.900	409.600	0.622	1.229
%RSD		0.835	0.814	1.434	0.325	0.433	0.657	0.403	0.325	0.271

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	325.200	331.500	401.300	657.100	1558.000	4.140	1581.000	1578.000	11.250
2	23:48:01	327.400	329.000	407.100	668.500	1592.000	3.699	1588.000	1612.000	8.686
3	23:49:09	330.600	332.100	403.200	668.400	1588.000	4.430	1595.000	1607.000	7.587
x		327.700	330.900	403.900	664.700	1579.000	4.090	1588.000	1599.000	9.173
σ		2.725	1.659	2.962	6.560	18.650	0.368	6.978	18.870	1.878
%RSD		0.832	0.502	0.734	0.987	1.181	9.001	0.439	1.180	20.470

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	369.800	355.300	359.300	360.100	356.400	0.006	88%	189.400	69.860
2	23:48:01	368.200	356.800	362.800	357.700	361.000	0.006	88%	191.600	69.510
3	23:49:09	367.000	357.000	359.400	360.200	361.500	0.006	87%	183.700	70.150
x		368.300	356.400	360.500	359.300	359.700	0.006	88%	188.200	69.840
σ		1.437	0.943	1.952	1.391	2.810	0.000	0%	4.097	0.321
%RSD		0.390	0.265	0.541	0.387	0.781	0.495	0	2.177	0.460

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	0.060	189.100	69.990	181.400	631.200	488.700	722.500	722.000	97%
2	23:48:01	-2.086	191.400	70.310	183.000	633.300	488.300	727.800	727.100	97%
3	23:49:09	6.013	183.500	70.130	183.100	633.900	488.800	733.400	720.800	96%
x		1.329	188.000	70.140	182.500	632.800	488.600	727.900	723.300	97%
σ		4.196	4.078	0.162	0.934	1.420	0.240	5.444	3.361	1%
%RSD		315.700	2.169	0.231	0.512	0.224	0.049	0.748	0.465	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:46:53	97%	1817.000	1800.000	1088.000	983.300	1055.000	92%	7.457
2	23:48:01	97%	1837.000	1810.000	1091.000	986.800	1058.000	92%	7.491
3	23:49:09	96%	1841.000	1814.000	1091.000	978.500	1054.000	92%	7.444
x		97%	1831.000	1808.000	1090.000	982.900	1056.000	92%	7.464
σ		0%	12.890	7.159	1.747	4.174	2.221	0%	0.024
%RSD		0	0.704	0.396	0.160	0.425	0.210	0	0.322

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	118%	179.800	288.300	0.000	3096.000	10070.000	9580.000	9559.000	53810.000
2	23:55:56	118%	180.100	295.400	0.000	3119.000	10130.000	9594.000	9625.000	53790.000
3	23:57:04	121%	176.200	284.200	0.000	3086.000	9954.000	9457.000	9411.000	52670.000
x		119%	178.700	289.300	0.000	3100.000	10050.000	9544.000	9532.000	53420.000
σ		2%	2.216	5.662	0.000	16.980	91.310	75.410	109.500	649.000
%RSD		1	1.240	1.957	0.000	0.548	0.908	0.790	1.149	1.215

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	5109.000	6798.000	0.000	0.000	11570.000	7297.000	7158.000	106%	1485.000
2	23:55:56	5045.000	6797.000	0.000	0.000	11610.000	7327.000	7091.000	109%	1473.000
3	23:57:04	5014.000	6719.000	0.000	0.000	11500.000	7221.000	7107.000	109%	1469.000
x		5056.000	6771.000	0.000	0.000	11560.000	7282.000	7119.000	108%	1475.000
σ		48.380	45.300	0.000	0.000	57.140	54.960	35.240	2%	8.613
%RSD		0.957	0.669	0.000	0.000	0.494	0.755	0.495	2	0.584

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	411.300	444.300	832.100	109500.000	1782.000	109500.000	107200.000	207.100	492.300
2	23:55:56	400.700	436.500	832.800	108900.000	1783.000	109100.000	106300.000	206.700	488.200
3	23:57:04	407.100	437.700	822.400	108800.000	1775.000	109000.000	106200.000	205.500	487.600
x		406.400	439.500	829.100	109000.000	1780.000	109200.000	106600.000	206.400	489.300
σ		5.346	4.191	5.855	371.700	4.237	267.400	529.000	0.858	2.538
%RSD		1.315	0.954	0.706	0.341	0.238	0.245	0.496	0.415	0.519

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	352.900	354.000	404.900	730.500	1708.000	3.936	1725.000	1731.000	6.359
2	23:55:56	350.000	350.700	399.400	725.300	1706.000	3.145	1691.000	1729.000	9.217
3	23:57:04	347.400	350.300	398.800	718.600	1685.000	4.933	1690.000	1707.000	9.447
x		350.100	351.700	401.000	724.800	1700.000	4.005	1702.000	1722.000	8.341
σ		2.718	2.052	3.348	5.941	13.090	0.896	20.110	12.920	1.720
%RSD		0.776	0.584	0.835	0.820	0.770	22.370	1.182	0.750	20.620

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	415.300	392.900	396.100	399.200	398.900	0.004	86%	201.600	77.120
2	23:55:56	407.300	389.900	394.900	394.700	391.100	0.004	89%	202.700	76.180
3	23:57:04	404.400	391.500	390.700	392.400	394.000	0.013	89%	203.900	75.810
x		409.000	391.400	393.900	395.500	394.700	0.007	88%	202.700	76.370
σ		5.632	1.518	2.842	3.441	3.898	0.005	2%	1.161	0.677
%RSD		1.377	0.388	0.722	0.870	0.988	69.350	2	0.573	0.887

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	6.738	201.500	78.100	199.700	710.700	754.400	759.900	756.300	94%
2	23:55:56	3.465	202.600	76.690	195.100	700.400	741.600	751.700	750.700	96%
3	23:57:04	1.605	203.900	76.460	195.400	705.500	744.200	757.100	753.200	96%
x		3.936	202.600	77.080	196.700	705.500	746.700	756.200	753.400	95%
σ		2.599	1.197	0.889	2.529	5.129	6.753	4.162	2.798	1%
%RSD		66.030	0.591	1.153	1.286	0.727	0.904	0.550	0.371	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:54:48	95%	2025.000	2008.000	1162.000	1139.000	1168.000	90%	7.790
2	23:55:56	97%	2003.000	1990.000	1139.000	1121.000	1151.000	92%	7.704
3	23:57:04	97%	2025.000	2004.000	1158.000	1129.000	1159.000	91%	7.822
x		96%	2018.000	2001.000	1153.000	1129.000	1160.000	91%	7.772
σ		1%	12.980	9.525	12.420	9.095	8.657	1%	0.061
%RSD		1	0.643	0.476	1.077	0.805	0.747	1	0.787

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	97%	6.446	20.670	0.000	610.800	9887.000	9381.000	9160.000	54960.000
2	00:03:51	99%	5.844	21.160	0.000	604.500	9769.000	9299.000	9157.000	54160.000
3	00:04:59	99%	6.290	16.100	0.000	598.400	9751.000	9158.000	9088.000	54620.000
x		98%	6.194	19.310	0.000	604.500	9802.000	9279.000	9135.000	54580.000
σ		1%	0.312	2.792	0.000	6.209	74.020	112.500	40.400	403.200
%RSD		1	5.041	14.460	0.000	1.027	0.755	1.213	0.442	0.739

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	2501.000	1057.000	0.000	0.000	6219.000	5725.000	5587.000	109%	1753.000
2	00:03:51	2457.000	1061.000	0.000	0.000	6168.000	5757.000	5560.000	108%	1736.000
3	00:04:59	2475.000	1065.000	0.000	0.000	6158.000	5644.000	5511.000	107%	1728.000
x		2478.000	1061.000	0.000	0.000	6181.000	5709.000	5552.000	108%	1739.000
σ		22.370	4.103	0.000	0.000	33.030	58.440	38.530	1%	12.970
%RSD		0.903	0.387	0.000	0.000	0.534	1.024	0.694	1	0.746

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	144.400	121.500	568.500	135900.000	3786.000	137200.000	133600.000	48.530	58.660
2	00:03:51	144.500	121.800	569.700	136200.000	3770.000	136400.000	132800.000	48.230	58.480
3	00:04:59	144.700	119.900	566.200	135800.000	3786.000	136300.000	132800.000	48.970	58.200
x		144.500	121.000	568.100	136000.000	3781.000	136600.000	133100.000	48.580	58.450
σ		0.147	1.029	1.785	211.400	9.413	535.700	441.400	0.375	0.234
%RSD		0.102	0.850	0.314	0.155	0.249	0.392	0.332	0.773	0.400

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	36.260	37.360	184.100	33.650	2.450	4.810	1.575	2.487	7.916
2	00:03:51	36.840	37.460	183.200	33.640	2.059	5.061	1.310	2.087	7.991
3	00:04:59	36.350	37.930	183.600	33.630	2.297	5.137	0.997	2.331	6.422
x		36.480	37.580	183.600	33.640	2.269	5.003	1.294	2.302	7.443
σ		0.312	0.304	0.452	0.007	0.197	0.171	0.290	0.202	0.885
%RSD		0.854	0.810	0.246	0.021	8.698	3.424	22.380	8.763	11.890

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	92.340	3.436	11.720	3.406	3.896	0.009	85%	18.380	0.484
2	00:03:51	93.140	3.529	11.570	3.758	3.728	0.009	84%	13.540	0.527
3	00:04:59	95.070	3.507	12.350	3.530	3.608	0.009	82%	14.900	0.532
x		93.520	3.491	11.880	3.565	3.744	0.009	84%	15.610	0.515
σ		1.404	0.048	0.415	0.178	0.145	0.000	1%	2.500	0.026
%RSD		1.502	1.389	3.495	5.003	3.869	2.125	1	16.020	5.096

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	-5.255	18.350	0.414	1.372	6.171	2.784	1015.000	1010.000	93%
2	00:03:51	-2.910	13.510	0.460	1.101	6.161	2.767	1003.000	1002.000	92%
3	00:04:59	-3.390	14.870	0.477	1.076	6.369	2.712	1013.000	1002.000	91%
x		-3.852	15.570	0.450	1.183	6.234	2.754	1010.000	1005.000	92%
σ		1.239	2.497	0.032	0.165	0.117	0.037	6.533	4.430	1%
%RSD		32.170	16.040	7.187	13.920	1.881	1.359	0.647	0.441	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:02:44	93%	4.394	4.263	98.960	87.950	92.910	90%	7.166
2	00:03:51	92%	3.658	3.558	97.130	87.460	92.260	90%	7.042
3	00:04:59	91%	3.213	3.297	97.500	88.100	92.800	89%	7.107
x		92%	3.755	3.706	97.860	87.840	92.660	90%	7.105
σ		1%	0.596	0.500	0.971	0.337	0.349	1%	0.062
%RSD		1	15.880	13.490	0.992	0.383	0.376	1	0.875

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:10:39	96%	3.972	10.410	0.000	345.600	12080.000	11370.000	11220.000	83460.000
2	00:11:47	98%	4.011	10.440	0.000	340.600	11950.000	11300.000	11050.000	82560.000
3	00:12:55	98%	3.804	10.320	0.000	340.600	11900.000	11230.000	11080.000	82480.000
x		98%	3.929	10.390	0.000	342.300	11980.000	11300.000	11120.000	82830.000
σ		1%	0.110	0.065	0.000	2.904	91.810	72.180	90.720	546.400
%RSD		1	2.797	0.629	0.000	0.849	0.767	0.639	0.816	0.660
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:10:39	1796.000	1589.000	0.000	0.000	2605.000	4442.000	4299.000	107%	1803.000
2	00:11:47	1768.000	1575.000	0.000	0.000	2603.000	4511.000	4271.000	109%	1794.000
3	00:12:55	1745.000	1553.000	0.000	0.000	2583.000	4518.000	4287.000	108%	1774.000
x		1770.000	1572.000	0.000	0.000	2597.000	4491.000	4285.000	108%	1790.000
σ		25.450	18.010	0.000	0.000	12.520	41.890	13.760	1%	14.860
%RSD		1.438	1.146	0.000	0.000	0.482	0.933	0.321	1	0.830
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:10:39	220.900	133.000	531.600	158400.000	2098.000	158700.000	155200.000	58.450	66.090
2	00:11:47	213.900	131.600	538.700	157400.000	2091.000	157600.000	154400.000	57.920	64.150
3	00:12:55	218.300	131.400	532.900	156000.000	2078.000	157000.000	153700.000	57.790	64.030
x		217.700	132.000	534.400	157300.000	2089.000	157800.000	154500.000	58.050	64.760
σ		3.537	0.842	3.787	1208.000	10.050	843.000	756.300	0.350	1.155
%RSD		1.625	0.638	0.709	0.768	0.481	0.534	0.490	0.604	1.784
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:10:39	76.570	76.350	249.700	38.520	1.179	5.020	0.701	1.196	9.400
2	00:11:47	75.150	75.870	248.000	38.800	1.243	4.947	0.973	1.261	7.124
3	00:12:55	75.340	75.340	245.000	38.820	1.063	4.972	0.745	1.077	8.054
x		75.690	75.850	247.600	38.720	1.162	4.980	0.806	1.178	8.193
σ		0.773	0.505	2.363	0.168	0.092	0.037	0.146	0.094	1.144
%RSD		1.021	0.666	0.955	0.433	7.886	0.737	18.130	7.956	13.970
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:10:39	104.200	5.573	14.590	5.392	5.647	0.005	80%	16.660	0.226
2	00:11:47	102.500	5.694	14.690	5.699	5.421	0.005	81%	19.140	0.205
3	00:12:55	102.500	5.207	14.410	5.519	5.706	0.012	81%	14.300	0.232
x		103.100	5.491	14.560	5.537	5.591	0.007	81%	16.700	0.221
σ		0.974	0.254	0.142	0.154	0.150	0.004	1%	2.420	0.014
%RSD		0.945	4.617	0.972	2.788	2.688	55.330	1	14.490	6.239
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:10:39	-4.141	16.630	0.187	2.100	5.679	1.793	436.300	437.000	87%
2	00:11:47	-5.889	19.110	0.169	2.230	5.729	1.719	434.800	435.800	89%
3	00:12:55	-3.254	14.270	0.171	1.884	5.539	1.758	430.300	429.600	89%
x		-4.428	16.670	0.175	2.071	5.649	1.757	433.800	434.100	88%
σ		1.341	2.418	0.010	0.175	0.099	0.037	3.117	3.938	1%
%RSD		30.280	14.500	5.601	8.443	1.745	2.105	0.718	0.907	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	00:10:39	88%	2.207	2.175	99.370	89.120	93.860	86%	10.140	
2	00:11:47	89%	2.040	2.069	99.100	87.990	93.140	87%	10.210	
3	00:12:55	88%	1.998	1.999	99.030	87.510	92.960	87%	10.100	
x		88%	2.082	2.081	99.170	88.210	93.320	87%	10.150	
σ		0%	0.110	0.089	0.178	0.823	0.476	0%	0.055	
%RSD		0	5.293	4.269	0.179	0.933	0.510	1	0.540	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	89%	2.825	10.530	0.000	322.200	6162.000	5808.000	5729.000	35660.000
2	00:19:43	92%	2.827	7.676	0.000	314.000	6129.000	5765.000	5694.000	35100.000
3	00:20:51	92%	2.624	8.709	0.000	304.400	5905.000	5585.000	5518.000	34090.000
x		91%	2.758	8.972	0.000	313.600	6065.000	5719.000	5647.000	34950.000
σ		2%	0.117	1.445	0.000	8.873	139.600	118.300	113.400	795.100
%RSD		2	4.230	16.110	0.000	2.830	2.302	2.069	2.008	2.275

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	2186.000	2136.000	0.000	0.000	1947.000	5793.000	5533.000	86%	870.800
2	00:19:43	2152.000	2112.000	0.000	0.000	1947.000	5536.000	5473.000	88%	861.800
3	00:20:51	2090.000	2071.000	0.000	0.000	1887.000	5392.000	5336.000	89%	836.800
x		2143.000	2107.000	0.000	0.000	1927.000	5574.000	5447.000	88%	856.500
σ		48.600	32.590	0.000	0.000	34.790	202.900	100.700	1%	17.610
%RSD		2.268	1.547	0.000	0.000	1.805	3.641	1.849	2	2.056

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	102.300	67.850	597.900	67150.000	1170.000	67760.000	66010.000	19.700	33.600
2	00:19:43	100.400	67.360	617.200	66310.000	1156.000	67090.000	65350.000	19.250	32.720
3	00:20:51	97.830	64.810	601.900	64160.000	1116.000	64830.000	62850.000	18.860	31.910
x		100.200	66.670	605.700	65870.000	1147.000	66560.000	64740.000	19.270	32.740
σ		2.243	1.631	10.210	1541.000	28.080	1537.000	1668.000	0.420	0.847
%RSD		2.240	2.446	1.686	2.340	2.447	2.310	2.577	2.177	2.586

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	46.570	45.990	208.600	19.150	1.688	4.532	1.881	1.690	4.918
2	00:19:43	45.860	45.740	208.400	18.720	0.966	4.711	1.176	0.967	8.690
3	00:20:51	44.550	45.330	200.600	17.560	1.812	4.591	0.937	1.814	2.098
x		45.660	45.690	205.900	18.480	1.489	4.612	1.332	1.491	5.236
σ		1.024	0.330	4.539	0.823	0.457	0.091	0.491	0.458	3.307
%RSD		2.242	0.722	2.205	4.455	30.690	1.974	36.870	30.700	63.170

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	15.680	2.335	3.624	2.507	2.437	0.005	80%	4.990	0.225
2	00:19:43	13.910	2.348	3.580	2.582	2.461	0.005	80%	5.794	0.281
3	00:20:51	12.720	2.575	3.347	2.565	2.336	0.005	83%	5.086	0.244
x		14.110	2.419	3.517	2.551	2.412	0.005	81%	5.290	0.250
σ		1.491	0.135	0.149	0.039	0.066	0.000	1%	0.439	0.028
%RSD		10.570	5.572	4.221	1.538	2.750	3.257	2	8.304	11.360

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	-1.345	4.971	0.236	1.578	4.210	1.740	294.800	298.400	86%
2	00:19:43	-1.876	5.772	0.238	1.656	4.238	1.687	301.200	300.800	87%
3	00:20:51	-1.682	5.066	0.258	1.529	4.033	1.553	286.800	289.700	89%
x		-1.634	5.269	0.244	1.588	4.160	1.660	294.300	296.300	88%
σ		0.269	0.438	0.012	0.064	0.111	0.097	7.189	5.831	2%
%RSD		16.460	8.307	4.973	4.051	2.672	5.815	2.443	1.968	2

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:18:35	88%	1.261	1.265	116.900	104.500	110.300	85%	5.258
2	00:19:43	87%	1.242	1.248	117.000	105.300	110.300	87%	5.298
3	00:20:51	90%	1.166	1.198	113.800	100.700	106.500	88%	5.098
x		88%	1.223	1.237	115.900	103.500	109.000	87%	5.218
σ		1%	0.050	0.035	1.792	2.421	2.182	1%	0.106
%RSD		1	4.083	2.810	1.546	2.339	2.002	2	2.026

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	95%	6.026	7.090	0.000	590.500	10900.000	10320.000	10180.000	62200.000
2	00:27:39	95%	6.105	7.351	0.000	599.400	11030.000	10400.000	10260.000	62950.000
3	00:28:47	96%	5.589	5.861	0.000	585.800	10840.000	10260.000	10050.000	61610.000
x		95%	5.907	6.768	0.000	591.900	10920.000	10320.000	10160.000	62250.000
σ		1%	0.278	0.796	0.000	6.957	95.810	69.110	102.700	672.600
%RSD		1	4.707	11.760	0.000	1.175	0.877	0.669	1.011	1.080

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	2459.000	2128.000	0.000	0.000	2129.000	7846.000	7600.000	95%	1227.000
2	00:27:39	2504.000	2131.000	0.000	0.000	2180.000	7770.000	7578.000	95%	1215.000
3	00:28:47	2431.000	2080.000	0.000	0.000	2111.000	7781.000	7540.000	95%	1225.000
x		2465.000	2113.000	0.000	0.000	2140.000	7799.000	7573.000	95%	1222.000
σ		36.720	28.580	0.000	0.000	35.710	40.950	30.130	0%	6.021
%RSD		1.490	1.353	0.000	0.000	1.669	0.525	0.398	0	0.493

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	143.600	99.510	629.400	97650.000	2761.000	98300.000	96460.000	36.980	51.680
2	00:27:39	146.600	100.600	635.400	98670.000	2779.000	99210.000	97270.000	36.940	51.670
3	00:28:47	138.200	98.820	643.900	96560.000	2727.000	97160.000	95800.000	37.690	51.770
x		142.800	99.640	636.200	97620.000	2756.000	98220.000	96510.000	37.210	51.710
σ		4.243	0.888	7.261	1057.000	26.120	1028.000	737.800	0.423	0.053
%RSD		2.972	0.891	1.141	1.083	0.948	1.047	0.765	1.136	0.104

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	66.650	67.720	224.400	38.100	2.310	4.952	2.574	2.327	11.330
2	00:27:39	66.580	67.410	228.700	35.680	3.411	5.445	1.862	3.438	8.940
3	00:28:47	65.980	68.030	223.000	36.980	2.748	5.190	2.507	2.768	11.930
x		66.400	67.720	225.400	36.920	2.823	5.196	2.314	2.845	10.730
σ		0.371	0.310	2.938	1.212	0.554	0.247	0.393	0.559	1.580
%RSD		0.558	0.458	1.304	3.282	19.640	4.748	16.980	19.660	14.730

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	26.190	3.695	5.405	3.646	3.459	-0.005	81%	12.920	0.411
2	00:27:39	25.890	3.395	5.766	3.530	3.380	-0.002	82%	10.990	0.372
3	00:28:47	26.450	3.310	5.208	3.463	3.359	0.002	82%	12.710	0.418
x		26.180	3.467	5.460	3.546	3.399	-0.001	81%	12.200	0.400
σ		0.280	0.202	0.283	0.093	0.053	0.004	1%	1.055	0.025
%RSD		1.069	5.829	5.183	2.614	1.548	254.900	1	8.646	6.204

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	-3.384	12.870	0.399	4.401	6.250	1.805	544.600	542.400	90%
2	00:27:39	-2.166	10.950	0.388	4.572	6.408	1.729	542.700	542.300	91%
3	00:28:47	-3.471	12.660	0.376	4.567	6.147	1.657	535.500	533.700	91%
x		-3.007	12.160	0.388	4.513	6.268	1.730	540.900	539.500	91%
σ		0.730	1.055	0.011	0.098	0.132	0.074	4.830	5.006	1%
%RSD		24.270	8.674	2.949	2.164	2.103	4.269	0.893	0.928	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:26:31	91%	1.470	1.467	147.400	132.200	139.500	87%	7.825
2	00:27:39	92%	1.420	1.421	147.100	132.100	138.700	88%	7.793
3	00:28:47	92%	1.371	1.376	145.600	130.100	137.100	88%	7.751
x		91%	1.420	1.421	146.700	131.500	138.400	88%	7.790
σ		1%	0.049	0.046	0.969	1.185	1.254	1%	0.037
%RSD		1	3.472	3.219	0.660	0.902	0.906	1	0.479

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:26	72%	530.500	511.600	0.000	54730.000	51540.000	50230.000	49510.000	9759.000
2	00:35:34	73%	525.200	518.700	0.000	54430.000	51740.000	50460.000	49190.000	9750.000
3	00:36:42	75%	510.800	495.300	0.000	53190.000	50810.000	49630.000	48630.000	9546.000
x		73%	522.100	508.500	0.000	54120.000	51360.000	50110.000	49110.000	9685.000
σ		1%	10.200	12.000	0.000	818.600	488.600	425.700	445.100	120.400
%RSD		2	1.953	2.359	0.000	1.513	0.951	0.850	0.906	1.243
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:26	411.400	10180.000	0.000	0.000	27200.000	51500.000	50620.000	69%	493.500
2	00:35:34	408.000	9976.000	0.000	0.000	27200.000	51700.000	50420.000	69%	502.700
3	00:36:42	399.800	9903.000	0.000	0.000	26590.000	50910.000	49910.000	71%	492.400
x		406.400	10020.000	0.000	0.000	27000.000	51370.000	50320.000	70%	496.200
σ		5.977	145.700	0.000	0.000	351.700	408.100	368.100	1%	5.666
%RSD		1.471	1.454	0.000	0.000	1.303	0.794	0.732	1	1.142
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:26	505.400	510.600	39.590	26640.000	1042.000	26710.000	26100.000	512.500	512.200
2	00:35:34	510.900	513.000	30.230	26670.000	1047.000	26730.000	26220.000	514.400	510.200
3	00:36:42	494.900	500.900	32.670	26260.000	1019.000	26180.000	25500.000	504.200	498.300
x		503.700	508.200	34.170	26520.000	1036.000	26540.000	25940.000	510.300	506.900
σ		8.124	6.395	4.855	229.100	14.900	312.000	383.900	5.433	7.504
%RSD		1.613	1.259	14.210	0.864	1.438	1.176	1.480	1.065	1.480
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:26	1028.000	1029.000	1072.000	506.600	517.100	-0.824	509.400	513.200	1.051
2	00:35:34	1034.000	1031.000	1070.000	506.100	509.900	-0.420	513.000	505.900	3.342
3	00:36:42	1020.000	1010.000	1062.000	507.900	515.400	-1.051	503.600	512.400	0.622
x		1027.000	1024.000	1068.000	506.800	514.100	-0.765	508.700	510.500	1.672
σ		6.929	11.750	5.125	0.910	3.778	0.320	4.730	4.029	1.462
%RSD		0.674	1.148	0.480	0.180	0.735	41.820	0.930	0.789	87.470
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:26	496.900	501.900	497.900	502.400	497.000	-0.005	72%	523.900	509.800
2	00:35:34	498.500	496.600	497.100	502.800	496.600	0.001	73%	517.100	506.800
3	00:36:42	498.700	500.700	495.100	501.800	496.700	0.009	72%	510.700	507.800
x		498.000	499.700	496.700	502.300	496.800	0.002	72%	517.200	508.100
σ		0.948	2.756	1.433	0.546	0.235	0.007	0%	6.574	1.552
%RSD		0.190	0.551	0.288	0.109	0.047	388.600	0	1.271	0.305
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:26	1.823	523.500	513.100	526.500	510.900	512.500	2518.000	2512.000	79%
2	00:35:34	6.765	516.800	510.600	518.000	508.600	512.000	2502.000	2496.000	79%
3	00:36:42	9.169	510.200	508.000	517.600	505.700	513.100	2475.000	2491.000	79%
x		5.919	516.900	510.600	520.700	508.400	512.500	2498.000	2500.000	79%
σ		3.745	6.661	2.520	5.027	2.637	0.530	21.890	10.650	0%
%RSD		63.280	1.289	0.494	0.965	0.519	0.104	0.876	0.426	0
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	00:34:26	79%	509.100	502.500	514.800	512.300	511.000	79%	538.500	
2	00:35:34	80%	501.700	497.400	506.600	506.300	504.400	80%	534.000	
3	00:36:42	80%	497.300	492.700	501.600	498.800	499.500	81%	525.300	
x		80%	502.700	497.500	507.700	505.800	504.900	80%	532.600	
σ		0%	5.980	4.898	6.682	6.754	5.763	1%	6.705	
%RSD		1	1.190	0.984	1.316	1.335	1.141	1	1.259	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:42:19	75%	0.041	10.220	0.000	39.320	9.334	9.550	9.548	9.306
2	00:43:27	76%	0.087	9.791	0.000	31.330	5.162	4.168	5.794	5.562
3	00:44:35	76%	0.011	6.410	0.000	32.160	3.293	2.299	3.085	4.048
x		76%	0.046	8.807	0.000	34.270	5.929	5.339	6.143	6.305
σ		0%	0.038	2.087	0.000	4.397	3.093	3.764	3.246	2.707
%RSD		0	82.630	23.700	0.000	12.830	52.160	70.500	52.840	42.930
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:42:19	-1.931	9.397	0.000	0.000	45.960	8.137	6.307	71%	0.270
2	00:43:27	-0.830	7.389	0.000	0.000	37.730	6.551	-2.787	73%	0.094
3	00:44:35	-1.815	7.895	0.000	0.000	42.450	1.763	-0.260	71%	0.124
x		-1.525	8.227	0.000	0.000	42.050	5.484	1.087	72%	0.163
σ		0.605	1.045	0.000	0.000	4.134	3.318	4.694	1%	0.094
%RSD		39.650	12.700	0.000	0.000	9.831	60.510	431.900	1	58.050
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:42:19	-0.051	0.159	23.260	12.630	0.535	7.041	16.080	0.112	-0.225
2	00:43:27	-0.290	0.097	22.620	2.390	0.297	-2.281	2.975	0.045	-0.293
3	00:44:35	0.288	0.031	21.070	0.610	0.189	-3.473	5.216	0.039	-0.175
x		-0.018	0.095	22.320	5.209	0.340	0.429	8.090	0.066	-0.231
σ		0.291	0.064	1.126	6.486	0.177	5.757	7.009	0.040	0.059
%RSD		1637.000	67.200	5.047	124.500	52.010	1341.000	86.640	61.630	25.720
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:42:19	0.214	0.157	0.143	0.454	0.506	0.036	-0.386	0.503	-1.177
2	00:43:27	0.126	0.133	0.273	-0.015	-0.316	0.093	0.097	-0.312	1.518
3	00:44:35	0.060	0.018	0.154	-0.115	0.475	0.112	-0.568	0.473	0.184
x		0.133	0.103	0.190	0.108	0.222	0.080	-0.286	0.221	0.175
σ		0.077	0.074	0.072	0.304	0.466	0.040	0.343	0.462	1.348
%RSD		58.010	72.320	37.850	281.500	210.200	49.300	120.200	208.800	769.300
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:42:19	0.492	0.555	0.488	0.427	0.458	0.003	77%	-1.189	0.202
2	00:43:27	0.207	0.303	0.318	0.346	0.324	-0.005	77%	-0.530	0.096
3	00:44:35	0.264	0.334	0.305	0.366	0.242	-0.002	76%	-0.489	0.085
x		0.321	0.397	0.370	0.380	0.341	-0.001	76%	-0.736	0.128
σ		0.151	0.137	0.102	0.042	0.109	0.004	1%	0.393	0.065
%RSD		46.980	34.600	27.590	11.010	31.970	343.500	1	53.370	50.840
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:42:19	0.823	-1.200	0.156	-0.047	0.666	0.978	0.540	0.492	80%
2	00:43:27	0.273	-0.541	0.114	0.028	0.519	0.755	0.189	0.226	80%
3	00:44:35	0.295	-0.500	0.080	-0.002	0.399	0.572	0.193	0.139	79%
x		0.463	-0.747	0.117	-0.007	0.528	0.768	0.307	0.285	80%
σ		0.312	0.393	0.038	0.038	0.134	0.203	0.202	0.184	0%
%RSD		67.230	52.580	32.610	556.900	25.340	26.460	65.610	64.480	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	00:42:19	81%	0.487	0.482	0.117	0.143	0.133	83%	0.104	
2	00:43:27	81%	0.417	0.416	0.072	0.068	0.070	84%	0.052	
3	00:44:35	80%	0.397	0.375	0.074	0.063	0.059	83%	0.037	
x		81%	0.434	0.424	0.087	0.091	0.088	83%	0.064	
σ		1%	0.047	0.054	0.025	0.045	0.040	1%	0.035	
%RSD		1	10.900	12.770	29.040	48.920	45.380	1	54.520	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	94%	8.270	17.690	0.000	750.200	14180.000	13370.000	13190.000	70200.000
2	00:51:20	99%	8.023	17.610	0.000	727.100	13920.000	13080.000	12960.000	68520.000
3	00:52:28	97%	8.653	18.580	0.000	741.500	14070.000	13170.000	13000.000	69360.000
x		97%	8.315	17.960	0.000	739.600	14060.000	13210.000	13050.000	69360.000
σ		2%	0.317	0.540	0.000	11.660	129.000	147.100	120.100	841.800
%RSD		2	3.817	3.008	0.000	1.577	0.918	1.114	0.920	1.214

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	2757.000	2000.000	0.000	0.000	7976.000	6360.000	5975.000	108%	1999.000
2	00:51:20	2688.000	1935.000	0.000	0.000	7928.000	6128.000	5886.000	108%	1973.000
3	00:52:28	2695.000	1963.000	0.000	0.000	7937.000	6319.000	5985.000	105%	2007.000
x		2713.000	1966.000	0.000	0.000	7947.000	6269.000	5949.000	107%	1993.000
σ		37.820	32.640	0.000	0.000	25.640	124.000	54.710	1%	17.850
%RSD		1.394	1.660	0.000	0.000	0.323	1.978	0.920	1	0.896

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	163.000	128.800	516.200	157400.000	4870.000	158800.000	155000.000	62.840	80.650
2	00:51:20	164.000	130.800	547.700	156300.000	4852.000	156400.000	153600.000	62.030	78.790
3	00:52:28	167.500	132.100	555.900	159500.000	4948.000	159800.000	156200.000	62.870	79.600
x		164.800	130.600	539.900	157700.000	4890.000	158300.000	154900.000	62.580	79.680
σ		2.370	1.694	20.960	1620.000	51.060	1702.000	1310.000	0.478	0.930
%RSD		1.438	1.297	3.883	1.027	1.044	1.075	0.846	0.765	1.168

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	65.430	66.630	278.800	27.190	2.263	4.146	1.973	2.297	13.160
2	00:51:20	64.940	65.230	273.400	27.210	3.194	4.859	1.630	3.243	9.951
3	00:52:28	64.810	66.570	277.200	28.340	2.665	5.106	1.931	2.705	10.220
x		65.060	66.140	276.500	27.580	2.707	4.704	1.845	2.748	11.110
σ		0.325	0.793	2.789	0.656	0.467	0.499	0.188	0.474	1.783
%RSD		0.500	1.200	1.009	2.380	17.250	10.600	10.170	17.260	16.040

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	52.750	4.553	8.842	4.280	4.578	0.002	83%	15.220	0.384
2	00:51:20	51.930	4.285	8.646	4.052	4.326	0.002	84%	13.880	0.308
3	00:52:28	53.510	4.280	8.764	4.130	4.377	-0.002	81%	13.660	0.337
x		52.730	4.373	8.751	4.154	4.427	0.001	83%	14.260	0.343
σ		0.788	0.156	0.098	0.116	0.133	0.003	1%	0.843	0.038
%RSD		1.494	3.566	1.123	2.780	3.004	310.500	1	5.910	11.190

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	-5.223	15.170	0.357	1.635	8.491	4.051	1304.000	1290.000	92%
2	00:51:20	-4.582	13.840	0.313	1.537	7.999	3.679	1276.000	1267.000	94%
3	00:52:28	-4.239	13.610	0.317	1.376	7.898	3.690	1286.000	1283.000	92%
x		-4.681	14.210	0.329	1.516	8.129	3.806	1289.000	1280.000	93%
σ		0.500	0.844	0.025	0.131	0.317	0.212	14.270	11.410	1%
%RSD		10.670	5.941	7.451	8.623	3.903	5.559	1.107	0.891	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:50:12	92%	2.427	2.387	207.300	188.100	197.600	90%	8.493
2	00:51:20	94%	2.205	2.169	207.000	185.500	196.300	90%	8.451
3	00:52:28	92%	2.155	2.143	208.000	188.600	198.200	89%	8.515
x		93%	2.262	2.233	207.400	187.400	197.400	89%	8.486
σ		1%	0.145	0.134	0.527	1.625	0.944	0%	0.033
%RSD		1	6.395	6.012	0.254	0.867	0.478	1	0.385

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	89%	4.006	16.680	0.000	459.700	14040.000	13270.000	13130.000	27900.000
2	00:59:13	89%	4.694	17.790	0.000	462.700	14070.000	13210.000	13100.000	27780.000
3	01:00:21	91%	4.090	17.340	0.000	453.500	14020.000	13130.000	12920.000	27580.000
x		90%	4.263	17.270	0.000	458.600	14040.000	13200.000	13050.000	27750.000
σ		1%	0.375	0.557	0.000	4.664	27.060	67.100	112.900	159.000
%RSD		1	8.793	3.224	0.000	1.017	0.193	0.508	0.865	0.573

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	2704.000	1412.000	0.000	0.000	3936.000	20880.000	20430.000	90%	1258.000
2	00:59:13	2704.000	1384.000	0.000	0.000	3879.000	20890.000	20220.000	91%	1252.000
3	01:00:21	2689.000	1395.000	0.000	0.000	3904.000	20690.000	20390.000	92%	1253.000
x		2699.000	1397.000	0.000	0.000	3906.000	20820.000	20350.000	91%	1254.000
σ		8.279	14.000	0.000	0.000	28.350	113.600	109.700	1%	3.267
%RSD		0.307	1.002	0.000	0.000	0.726	0.546	0.539	1	0.260

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	101.800	77.560	524.100	76470.000	2204.000	78010.000	76010.000	36.360	45.530
2	00:59:13	101.200	76.770	540.800	76250.000	2184.000	77180.000	75230.000	36.460	45.960
3	01:00:21	101.000	76.920	549.900	76330.000	2191.000	76780.000	75500.000	36.240	45.360
x		101.300	77.080	538.300	76350.000	2193.000	77320.000	75580.000	36.350	45.620
σ		0.405	0.424	13.090	108.800	10.410	624.800	393.500	0.109	0.306
%RSD		0.400	0.550	2.432	0.143	0.475	0.808	0.521	0.301	0.670

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	64.720	65.540	212.600	10.940	0.933	3.723	0.545	0.936	6.630
2	00:59:13	64.510	64.250	211.400	12.290	2.315	3.612	0.973	2.327	1.500
3	01:00:21	64.430	64.460	212.100	11.850	2.183	3.636	0.877	2.193	3.361
x		64.550	64.750	212.000	11.690	1.810	3.657	0.798	1.819	3.830
σ		0.149	0.696	0.568	0.690	0.763	0.059	0.224	0.767	2.597
%RSD		0.230	1.074	0.268	5.901	42.120	1.600	28.090	42.190	67.800

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	27.450	2.004	4.267	2.192	2.079	0.003	80%	8.327	0.261
2	00:59:13	27.680	1.881	4.290	1.980	2.033	0.000	81%	6.262	0.246
3	01:00:21	26.920	1.965	4.312	2.281	2.002	0.003	82%	5.673	0.228
x		27.350	1.950	4.289	2.151	2.038	0.002	81%	6.754	0.245
σ		0.385	0.063	0.023	0.155	0.039	0.001	1%	1.394	0.016
%RSD		1.408	3.237	0.525	7.200	1.920	75.560	1	20.630	6.674

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	-2.743	8.302	0.276	1.344	4.977	2.374	546.500	543.100	87%
2	00:59:13	-1.069	6.242	0.268	1.175	4.923	2.325	540.700	543.000	87%
3	01:00:21	-1.309	5.653	0.273	1.171	4.930	2.191	543.500	540.600	88%
x		-1.707	6.732	0.272	1.230	4.944	2.296	543.600	542.200	87%
σ		0.905	1.391	0.004	0.099	0.029	0.095	2.861	1.387	1%
%RSD		53.020	20.660	1.437	8.043	0.592	4.119	0.526	0.256	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:58:05	88%	0.995	0.937	125.500	112.600	118.000	87%	5.392
2	00:59:13	88%	0.968	0.971	125.900	112.800	118.500	87%	5.328
3	01:00:21	88%	0.888	0.934	124.400	111.300	117.200	89%	5.245
x		88%	0.950	0.947	125.300	112.200	117.900	87%	5.322
σ		0%	0.056	0.020	0.753	0.818	0.680	1%	0.074
%RSD		0	5.890	2.149	0.601	0.728	0.577	1	1.381

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:05:59	94%	6.371	18.110	0.000	866.900	26120.000	25530.000	25140.000	46080.000
2	01:07:07	94%	6.714	17.440	0.000	865.200	26170.000	25700.000	25270.000	46150.000
3	01:08:15	92%	6.608	19.110	0.000	889.100	26870.000	26050.000	25650.000	47110.000
x		93%	6.564	18.220	0.000	873.700	26390.000	25760.000	25350.000	46450.000
σ		1%	0.176	0.837	0.000	13.330	417.000	269.000	264.200	574.300
%RSD		1	2.676	4.594	0.000	1.526	1.580	1.044	1.042	1.236
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:05:59	2026.000	1069.000	0.000	0.000	5637.000	37710.000	36560.000	101%	1677.000
2	01:07:07	2038.000	1079.000	0.000	0.000	5619.000	37300.000	36230.000	101%	1665.000
3	01:08:15	2066.000	1094.000	0.000	0.000	5734.000	37810.000	36870.000	102%	1681.000
x		2043.000	1081.000	0.000	0.000	5664.000	37610.000	36550.000	101%	1675.000
σ		20.010	12.180	0.000	0.000	61.960	269.400	320.100	1%	8.247
%RSD		0.979	1.127	0.000	0.000	1.094	0.716	0.876	1	0.493
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:05:59	126.400	96.050	508.600	115800.000	3677.000	116700.000	114200.000	53.030	62.100
2	01:07:07	125.200	96.080	531.400	117000.000	3703.000	117300.000	115300.000	53.390	63.100
3	01:08:15	124.700	97.590	540.500	118300.000	3732.000	119100.000	117200.000	53.500	63.650
x		125.400	96.570	526.800	117000.000	3704.000	117700.000	115500.000	53.310	62.950
σ		0.849	0.879	16.450	1228.000	27.600	1271.000	1494.000	0.246	0.785
%RSD		0.677	0.911	3.123	1.050	0.745	1.080	1.293	0.462	1.247
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:05:59	67.950	70.260	184.600	13.660	0.788	3.383	1.214	0.793	7.768
2	01:07:07	68.730	70.300	187.000	10.840	1.180	3.812	0.810	1.191	7.714
3	01:08:15	70.230	70.570	187.900	12.560	1.812	3.612	-0.023	1.831	3.001
x		68.970	70.380	186.500	12.350	1.260	3.602	0.667	1.272	6.161
σ		1.156	0.168	1.686	1.422	0.516	0.215	0.631	0.524	2.737
%RSD		1.676	0.239	0.904	11.510	40.970	5.960	94.590	41.160	44.420
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:05:59	72.560	2.723	8.700	2.669	2.682	0.000	82%	10.700	0.181
2	01:07:07	72.430	2.661	8.922	2.732	2.552	-0.002	83%	13.920	0.172
3	01:08:15	75.770	2.571	9.137	2.570	2.753	0.007	83%	13.950	0.182
x		73.580	2.652	8.919	2.657	2.662	0.002	83%	12.850	0.178
σ		1.896	0.076	0.218	0.082	0.102	0.005	0%	1.869	0.005
%RSD		2.576	2.878	2.448	3.071	3.824	291.100	0	14.540	3.024
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:05:59	-2.583	10.670	0.129	0.978	5.391	1.900	770.000	769.600	90%
2	01:07:07	-4.168	13.880	0.137	1.152	5.274	1.880	771.400	773.600	91%
3	01:08:15	-3.919	13.920	0.147	1.239	5.096	1.846	783.300	779.400	90%
x		-3.557	12.820	0.138	1.123	5.254	1.875	774.900	774.200	91%
σ		0.852	1.867	0.009	0.133	0.149	0.027	7.310	4.900	0%
%RSD		23.960	14.560	6.673	11.820	2.828	1.460	0.943	0.633	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	01:05:59	90%	0.977	1.000	90.320	80.950	85.540	89%	6.496	
2	01:07:07	92%	1.066	1.018	90.710	81.140	85.560	90%	6.466	
3	01:08:15	91%	1.042	1.016	91.680	82.610	86.690	89%	6.551	
x		91%	1.028	1.012	90.900	81.570	85.930	89%	6.505	
σ		1%	0.046	0.010	0.703	0.910	0.656	1%	0.043	
%RSD		1	4.463	1.002	0.773	1.116	0.763	1	0.663	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	95%	7.215	13.530	0.000	880.200	56340.000	54840.000	53530.000	47110.000
2	01:15:01	95%	6.877	12.530	0.000	878.900	56030.000	54280.000	53480.000	46890.000
3	01:16:10	94%	7.284	11.620	0.000	877.700	55670.000	53900.000	52620.000	46300.000
x		94%	7.125	12.560	0.000	879.000	56010.000	54340.000	53210.000	46760.000
σ		1%	0.218	0.953	0.000	1.238	331.900	472.500	511.400	415.100
%RSD		1	3.059	7.589	0.000	0.141	0.593	0.870	0.961	0.888

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	2178.000	1451.000	0.000	0.000	5921.000	73820.000	75180.000	105%	1964.000
2	01:15:01	2186.000	1478.000	0.000	0.000	5833.000	72120.000	74520.000	108%	1954.000
3	01:16:10	2153.000	1448.000	0.000	0.000	5812.000	71790.000	74010.000	108%	1923.000
x		2173.000	1459.000	0.000	0.000	5856.000	72570.000	74570.000	107%	1947.000
σ		17.310	16.390	0.000	0.000	58.060	1088.000	583.900	1%	21.240
%RSD		0.797	1.123	0.000	0.000	0.992	1.498	0.783	1	1.091

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	158.400	116.000	579.900	150900.000	4810.000	152100.000	147200.000	67.520	81.540
2	01:15:01	153.500	115.300	593.100	149500.000	4721.000	149500.000	146300.000	66.490	79.890
3	01:16:10	153.900	113.000	584.300	147400.000	4673.000	148000.000	144400.000	65.950	79.530
x		155.300	114.800	585.800	149300.000	4735.000	149800.000	146000.000	66.650	80.320
σ		2.742	1.564	6.696	1761.000	69.200	2092.000	1468.000	0.797	1.071
%RSD		1.766	1.363	1.143	1.179	1.461	1.396	1.006	1.196	1.334

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	89.780	89.900	228.700	13.880	0.733	3.842	0.414	0.740	5.718
2	01:15:01	89.330	90.680	230.000	14.670	0.730	3.666	0.537	0.737	8.305
3	01:16:10	88.000	90.430	226.700	12.670	0.210	3.881	0.469	0.207	9.982
x		89.040	90.340	228.500	13.740	0.558	3.796	0.473	0.561	8.001
σ		0.929	0.398	1.658	1.009	0.301	0.115	0.062	0.307	2.148
%RSD		1.043	0.441	0.726	7.345	53.970	3.029	13.030	54.660	26.850

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	95.840	3.182	11.600	3.459	3.158	0.012	81%	15.950	0.183
2	01:15:01	97.400	2.982	11.560	3.239	3.178	0.005	81%	16.640	0.213
3	01:16:10	93.720	2.948	10.810	3.038	3.293	0.000	82%	13.300	0.152
x		95.650	3.037	11.320	3.245	3.210	0.006	81%	15.300	0.183
σ		1.849	0.127	0.443	0.211	0.073	0.006	1%	1.767	0.030
%RSD		1.933	4.167	3.908	6.496	2.278	105.500	1	11.550	16.650

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	-4.230	15.900	0.154	1.582	6.083	2.708	845.200	841.200	90%
2	01:15:01	-3.910	16.590	0.133	1.513	6.020	2.717	853.100	851.000	91%
3	01:16:10	-2.484	13.260	0.124	1.459	5.819	2.704	827.100	827.700	91%
x		-3.541	15.250	0.137	1.518	5.974	2.709	841.800	839.900	91%
σ		0.930	1.760	0.015	0.062	0.138	0.007	13.330	11.690	1%
%RSD		26.250	11.540	11.210	4.072	2.309	0.246	1.584	1.392	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:13:53	90%	1.009	1.008	140.100	129.200	134.700	88%	8.009
2	01:15:01	91%	1.019	1.004	142.000	128.400	135.200	88%	8.040
3	01:16:10	92%	1.012	1.014	139.800	128.000	133.700	89%	7.925
x		91%	1.013	1.009	140.600	128.600	134.500	88%	7.991
σ		1%	0.005	0.005	1.210	0.582	0.782	0%	0.059
%RSD		1	0.518	0.492	0.860	0.453	0.582	0	0.741

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:21:48	94%	3.835	17.680	0.000	393.500	6537.000	6093.000	6047.000	29320.000
2	01:22:56	95%	4.068	11.350	0.000	397.000	6582.000	6125.000	6045.000	29230.000
3	01:24:04	95%	3.891	11.870	0.000	394.300	6572.000	6103.000	6041.000	29360.000
x		95%	3.932	13.630	0.000	394.900	6564.000	6107.000	6044.000	29300.000
σ		0%	0.122	3.517	0.000	1.863	23.620	16.260	2.895	65.220
%RSD		0	3.090	25.800	0.000	0.472	0.360	0.266	0.048	0.223
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:21:48	2852.000	1338.000	0.000	0.000	4137.000	6340.000	6056.000	96%	1263.000
2	01:22:56	2827.000	1349.000	0.000	0.000	4160.000	6086.000	6038.000	96%	1255.000
3	01:24:04	2828.000	1324.000	0.000	0.000	4119.000	6321.000	5998.000	95%	1268.000
x		2836.000	1337.000	0.000	0.000	4139.000	6249.000	6031.000	95%	1262.000
σ		14.120	12.860	0.000	0.000	20.630	141.500	29.690	0%	6.871
%RSD		0.498	0.962	0.000	0.000	0.499	2.265	0.492	0	0.544
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:21:48	95.410	81.940	591.700	74060.000	2106.000	75200.000	73230.000	34.160	42.980
2	01:22:56	96.680	81.170	590.200	75050.000	2127.000	74800.000	72930.000	34.060	44.300
3	01:24:04	96.650	82.940	584.900	74530.000	2126.000	75460.000	73720.000	34.030	44.020
x		96.250	82.020	588.900	74550.000	2120.000	75160.000	73290.000	34.080	43.770
σ		0.723	0.886	3.557	494.700	11.740	335.500	396.500	0.068	0.696
%RSD		0.751	1.080	0.604	0.664	0.554	0.446	0.541	0.199	1.591
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:21:48	47.080	47.840	206.200	12.250	1.902	3.759	1.126	1.910	4.080
2	01:22:56	47.550	48.590	207.800	12.470	1.584	4.143	1.888	1.591	6.595
3	01:24:04	47.480	47.870	206.800	10.940	1.057	4.506	1.029	1.060	7.104
x		47.370	48.100	207.000	11.890	1.514	4.136	1.348	1.520	5.926
σ		0.257	0.427	0.777	0.829	0.427	0.374	0.471	0.429	1.619
%RSD		0.542	0.889	0.376	6.971	28.190	9.034	34.920	28.240	27.310
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:21:48	20.460	1.943	3.791	2.182	2.097	-0.000	85%	4.001	0.312
2	01:22:56	20.360	1.965	3.698	2.068	2.002	0.004	85%	5.645	0.276
3	01:24:04	19.800	2.105	3.716	2.137	1.800	0.007	85%	5.569	0.350
x		20.210	2.004	3.735	2.129	1.966	0.004	85%	5.072	0.313
σ		0.353	0.088	0.049	0.058	0.151	0.003	0%	0.928	0.037
%RSD		1.745	4.368	1.325	2.703	7.702	91.860	0	18.300	11.850
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:21:48	-0.724	3.981	0.337	1.273	5.725	2.299	420.200	420.700	92%
2	01:22:56	-1.529	5.627	0.341	1.490	5.491	2.362	420.900	421.900	91%
3	01:24:04	-1.380	5.549	0.350	1.348	5.431	2.463	421.200	420.100	92%
x		-1.211	5.052	0.343	1.370	5.549	2.375	420.800	420.900	92%
σ		0.429	0.928	0.007	0.110	0.155	0.083	0.511	0.914	0%
%RSD		35.400	18.380	1.967	8.037	2.797	3.485	0.122	0.217	0
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	01:21:48	92%	0.765	0.731	202.100	182.400	190.700	90%	4.175	
2	01:22:56	91%	0.760	0.752	201.800	182.800	191.600	91%	4.214	
3	01:24:04	92%	0.745	0.743	203.000	180.900	190.700	91%	4.141	
x		92%	0.757	0.742	202.300	182.000	191.000	91%	4.177	
σ		0%	0.010	0.011	0.625	0.989	0.550	0%	0.037	
%RSD		0	1.353	1.451	0.309	0.543	0.288	0	0.876	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	91%	4.857	12.520	0.000	582.200	8324.000	7808.000	7733.000	43590.000
2	01:30:51	90%	4.655	11.110	0.000	587.800	8342.000	7818.000	7700.000	43990.000
3	01:31:58	93%	4.987	11.920	0.000	575.100	8191.000	7649.000	7554.000	42860.000
x		91%	4.833	11.850	0.000	581.700	8286.000	7758.000	7662.000	43480.000
σ		1%	0.167	0.705	0.000	6.363	82.430	94.760	95.300	572.000
%RSD		1	3.456	5.950	0.000	1.094	0.995	1.221	1.244	1.315

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	2357.000	678.300	0.000	0.000	5675.000	4210.000	4255.000	95%	1657.000
2	01:30:51	2319.000	702.500	0.000	0.000	5674.000	4405.000	4250.000	93%	1666.000
3	01:31:58	2276.000	682.100	0.000	0.000	5603.000	4319.000	4183.000	93%	1638.000
x		2318.000	687.600	0.000	0.000	5651.000	4312.000	4229.000	94%	1654.000
σ		40.510	13.020	0.000	0.000	41.220	97.950	40.140	1%	14.340
%RSD		1.748	1.893	0.000	0.000	0.729	2.272	0.949	1	0.867

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	101.500	96.360	531.800	115800.000	1722.000	116900.000	114600.000	41.410	48.000
2	01:30:51	107.300	97.060	532.800	116900.000	1742.000	117700.000	114900.000	41.130	46.450
3	01:31:58	104.600	97.220	529.600	115300.000	1725.000	116400.000	113900.000	40.390	46.880
x		104.500	96.880	531.400	116000.000	1729.000	117000.000	114500.000	40.980	47.110
σ		2.922	0.457	1.617	786.900	10.630	652.200	486.700	0.526	0.801
%RSD		2.798	0.472	0.304	0.678	0.614	0.557	0.425	1.284	1.701

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	45.570	46.090	148.800	13.130	0.203	4.524	0.368	0.201	10.220
2	01:30:51	45.330	45.340	150.600	12.410	0.783	4.744	0.213	0.786	5.231
3	01:31:58	44.960	45.840	149.500	11.590	0.845	5.023	0.437	0.849	5.902
x		45.290	45.760	149.600	12.380	0.610	4.763	0.339	0.612	7.118
σ		0.310	0.382	0.914	0.770	0.354	0.250	0.115	0.357	2.708
%RSD		0.685	0.835	0.611	6.218	57.950	5.246	33.900	58.360	38.040

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	72.710	2.330	8.764	2.504	2.314	0.000	81%	13.240	0.300
2	01:30:51	73.860	2.281	8.769	2.041	2.318	0.003	80%	13.330	0.267
3	01:31:58	74.870	2.280	8.916	2.266	2.315	0.015	79%	12.350	0.332
x		73.810	2.297	8.816	2.270	2.316	0.006	80%	12.970	0.299
σ		1.082	0.028	0.086	0.232	0.002	0.008	1%	0.542	0.032
%RSD		1.466	1.239	0.980	10.200	0.087	132.900	1	4.181	10.760

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	-3.412	13.200	0.238	0.819	7.958	2.453	542.700	546.600	88%
2	01:30:51	-3.376	13.300	0.267	0.964	7.675	2.340	547.000	542.500	88%
3	01:31:58	-3.525	12.310	0.239	0.999	7.595	2.347	544.000	543.500	87%
x		-3.438	12.940	0.248	0.927	7.742	2.380	544.500	544.200	88%
σ		0.078	0.545	0.017	0.096	0.191	0.063	2.174	2.128	1%
%RSD		2.270	4.213	6.769	10.310	2.463	2.667	0.399	0.391	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:29:43	88%	0.892	0.979	94.130	84.460	88.800	88%	5.049
2	01:30:51	89%	0.965	0.977	94.430	85.370	89.340	87%	5.131
3	01:31:58	88%	0.949	0.960	94.300	84.170	89.100	87%	5.010
x		88%	0.935	0.972	94.290	84.670	89.080	87%	5.063
σ		1%	0.038	0.010	0.151	0.625	0.272	0%	0.062
%RSD		1	4.077	1.072	0.160	0.739	0.305	0	1.226

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:37:38	93%	2.809	7.496	0.000	400.500	11350.000	10670.000	10580.000	74040.000
2	01:38:46	94%	3.353	4.556	0.000	396.300	11350.000	10690.000	10520.000	73380.000
3	01:39:54	94%	3.211	5.351	0.000	398.400	11220.000	10480.000	10390.000	72980.000
x		93%	3.124	5.801	0.000	398.400	11310.000	10610.000	10500.000	73470.000
σ		0%	0.282	1.521	0.000	2.104	73.010	115.400	100.400	532.600
%RSD		0	9.035	26.210	0.000	0.528	0.646	1.087	0.957	0.725
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:37:38	1695.000	1407.000	0.000	0.000	2082.000	3911.000	3768.000	96%	1149.000
2	01:38:46	1699.000	1408.000	0.000	0.000	2073.000	4027.000	3761.000	96%	1139.000
3	01:39:54	1641.000	1409.000	0.000	0.000	2060.000	3822.000	3735.000	96%	1141.000
x		1679.000	1408.000	0.000	0.000	2072.000	3920.000	3754.000	96%	1143.000
σ		32.410	1.037	0.000	0.000	10.820	102.600	17.210	0%	5.175
%RSD		1.931	0.074	0.000	0.000	0.522	2.617	0.458	0	0.453
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:37:38	196.600	130.800	577.000	133500.000	1156.000	134600.000	131500.000	24.410	50.380
2	01:38:46	196.100	130.500	586.400	133500.000	1156.000	133900.000	130800.000	24.120	49.590
3	01:39:54	190.600	129.500	591.900	132100.000	1140.000	132600.000	129700.000	23.940	50.070
x		194.400	130.300	585.100	133000.000	1151.000	133700.000	130700.000	24.150	50.010
σ		3.354	0.705	7.522	823.200	8.893	1017.000	881.700	0.236	0.400
%RSD		1.725	0.541	1.285	0.619	0.773	0.761	0.675	0.978	0.800
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:37:38	60.210	59.490	223.100	44.560	1.843	5.490	1.468	1.861	5.886
2	01:38:46	59.050	60.140	220.100	43.200	1.585	5.863	1.693	1.600	3.993
3	01:39:54	58.660	58.440	222.100	41.960	1.832	5.886	1.369	1.850	5.300
x		59.310	59.360	221.700	43.240	1.753	5.747	1.510	1.771	5.060
σ		0.809	0.857	1.562	1.301	0.146	0.222	0.166	0.148	0.969
%RSD		1.365	1.443	0.705	3.008	8.316	3.866	10.990	8.336	19.150
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:37:38	76.140	5.497	11.700	5.364	5.393	0.010	78%	11.770	0.170
2	01:38:46	74.630	5.080	11.630	5.001	5.396	0.000	79%	8.309	0.187
3	01:39:54	74.030	5.544	11.320	5.445	5.318	-0.002	79%	9.373	0.181
x		74.930	5.374	11.550	5.270	5.369	0.003	79%	9.818	0.179
σ		1.089	0.255	0.204	0.237	0.044	0.006	0%	1.774	0.009
%RSD		1.453	4.752	1.770	4.493	0.824	231.900	0	18.070	5.035
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:37:38	-2.641	11.740	0.192	0.535	4.908	1.469	300.100	297.300	86%
2	01:38:46	-1.391	8.286	0.187	0.321	4.767	1.510	298.400	298.000	85%
3	01:39:54	-2.440	9.346	0.143	0.490	4.723	1.567	293.700	293.200	86%
x		-2.157	9.791	0.174	0.449	4.800	1.515	297.400	296.200	86%
σ		0.671	1.770	0.027	0.113	0.096	0.049	3.323	2.630	0%
%RSD		31.100	18.070	15.530	25.170	2.007	3.239	1.117	0.888	0
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	01:37:38	86%	1.081	1.109	81.210	71.680	76.160	86%	9.345	
2	01:38:46	85%	1.081	1.050	80.900	71.820	76.190	86%	9.242	
3	01:39:54	86%	1.078	1.083	80.620	71.120	75.700	86%	9.359	
x		86%	1.080	1.081	80.910	71.540	76.020	86%	9.316	
σ		0%	0.002	0.029	0.297	0.368	0.273	0%	0.064	
%RSD		0	0.155	2.719	0.367	0.514	0.360	0	0.684	

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	90%	4.555	13.480	0.000	403.400	7614.000	7082.000	6986.000	35680.000
2	01:46:41	89%	4.361	11.990	0.000	404.100	7692.000	7170.000	7015.000	35710.000
3	01:47:49	89%	4.369	14.890	0.000	416.900	7741.000	7172.000	7129.000	36250.000
x		89%	4.428	13.450	0.000	408.100	7682.000	7142.000	7043.000	35880.000
σ		1%	0.110	1.448	0.000	7.638	64.180	51.690	75.440	320.300
%RSD		1	2.489	10.760	0.000	1.872	0.835	0.724	1.071	0.893

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	2899.000	1335.000	0.000	0.000	4845.000	6226.000	6059.000	89%	1418.000
2	01:46:41	2917.000	1332.000	0.000	0.000	4814.000	6166.000	6063.000	90%	1434.000
3	01:47:49	2901.000	1354.000	0.000	0.000	4871.000	6244.000	6147.000	88%	1435.000
x		2906.000	1340.000	0.000	0.000	4843.000	6212.000	6090.000	89%	1429.000
σ		10.060	11.590	0.000	0.000	28.720	40.770	49.540	1%	9.484
%RSD		0.346	0.864	0.000	0.000	0.593	0.656	0.814	1	0.663

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	113.000	93.020	556.000	92050.000	1797.000	93280.000	90730.000	34.280	48.660
2	01:46:41	109.600	92.330	568.400	92860.000	1821.000	93750.000	91840.000	34.600	49.140
3	01:47:49	113.900	93.210	573.000	94280.000	1830.000	94350.000	91610.000	34.470	50.150
x		112.200	92.850	565.800	93060.000	1816.000	93790.000	91390.000	34.450	49.320
σ		2.262	0.465	8.788	1129.000	17.160	532.900	582.200	0.161	0.759
%RSD		2.017	0.500	1.553	1.214	0.945	0.568	0.637	0.468	1.538

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	55.610	56.080	232.700	13.630	1.373	5.275	0.744	1.380	5.672
2	01:46:41	55.170	55.620	235.400	11.010	1.056	5.871	1.201	1.061	12.450
3	01:47:49	55.410	57.490	236.000	13.580	1.229	5.585	0.993	1.233	8.527
x		55.400	56.400	234.700	12.740	1.220	5.577	0.979	1.225	8.882
σ		0.218	0.978	1.761	1.501	0.159	0.298	0.229	0.160	3.402
%RSD		0.394	1.733	0.750	11.780	13.020	5.348	23.370	13.060	38.300

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	21.740	2.437	4.020	2.478	2.399	0.005	78%	6.408	0.319
2	01:46:41	21.470	2.529	4.286	2.463	2.541	0.013	78%	6.515	0.334
3	01:47:49	20.570	2.639	3.974	2.540	2.388	0.008	79%	5.552	0.296
x		21.260	2.535	4.093	2.494	2.443	0.009	78%	6.158	0.316
σ		0.617	0.101	0.169	0.041	0.085	0.004	0%	0.528	0.019
%RSD		2.901	3.983	4.116	1.644	3.495	43.920	1	8.575	6.014

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	-1.822	6.382	0.323	1.410	5.465	2.604	485.300	482.600	85%
2	01:46:41	-1.635	6.485	0.325	1.550	5.698	2.644	485.800	477.100	86%
3	01:47:49	-1.471	5.526	0.297	1.438	5.783	2.699	479.400	475.800	86%
x		-1.643	6.131	0.315	1.466	5.649	2.649	483.500	478.500	86%
σ		0.175	0.527	0.016	0.074	0.165	0.048	3.556	3.608	1%
%RSD		10.680	8.590	5.019	5.077	2.919	1.802	0.736	0.754	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:45:33	86%	0.768	0.804	217.000	194.400	204.200	85%	4.998
2	01:46:41	86%	0.809	0.802	217.400	193.800	205.200	85%	5.004
3	01:47:49	87%	0.814	0.777	213.800	192.300	202.300	86%	4.984
x		86%	0.797	0.794	216.000	193.500	203.900	86%	4.995
σ		0%	0.025	0.015	1.966	1.062	1.486	1%	0.010
%RSD		0	3.113	1.893	0.910	0.549	0.729	1	0.201

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User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:53:29	91%	7.001	14.390	0.000	824.400	15080.000	14150.000	13850.000	50640.000
2	01:54:37	93%	6.617	14.450	0.000	804.900	15010.000	14020.000	13800.000	50320.000
3	01:55:45	92%	6.850	14.520	0.000	818.900	15120.000	13990.000	13750.000	50100.000
x		92%	6.823	14.450	0.000	816.100	15070.000	14060.000	13800.000	50350.000
σ		1%	0.194	0.067	0.000	10.060	53.170	86.980	51.350	275.500
%RSD		1	2.840	0.461	0.000	1.233	0.353	0.619	0.372	0.547
Run	**Time**	**28Si**	**31P**	**34S**	**37Cl**	**39K**	**43Ca**	**44Ca**	**45Sc**	**47Ti**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:53:29	2518.000	1231.000	0.000	0.000	4160.000	16720.000	16330.000	99%	1505.000
2	01:54:37	2483.000	1207.000	0.000	0.000	4135.000	16800.000	16300.000	99%	1493.000
3	01:55:45	2451.000	1222.000	0.000	0.000	4147.000	16760.000	16260.000	99%	1495.000
x		2484.000	1220.000	0.000	0.000	4147.000	16760.000	16290.000	99%	1498.000
σ		33.750	12.070	0.000	0.000	12.680	42.790	36.100	0%	6.466
%RSD		1.359	0.989	0.000	0.000	0.306	0.255	0.222	0	0.432
Run	**Time**	**51V**	**52Cr**	**53Cl O**	**54Fe**	**55Mn**	**56Fe**	**57Fe**	**59Co**	**60Ni**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:53:29	132.700	93.560	506.100	129700.000	3184.000	131600.000	127500.000	57.830	102.500
2	01:54:37	133.600	91.910	517.000	129700.000	3185.000	131400.000	127900.000	57.310	101.800
3	01:55:45	131.400	93.020	524.000	129600.000	3185.000	131400.000	128000.000	57.340	101.200
x		132.600	92.830	515.700	129700.000	3185.000	131500.000	127800.000	57.500	101.800
σ		1.129	0.844	8.981	51.080	0.673	144.300	242.700	0.292	0.647
%RSD		0.852	0.909	1.741	0.039	0.021	0.110	0.190	0.508	0.635
Run	**Time**	**63Cu**	**65Cu**	**66Zn**	**75As**	**77Se**	**77Ar Cl**	**78Se**	**82Se**	**83Kr**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:53:29	236.700	240.900	238.200	40.710	1.857	5.478	1.094	1.881	6.162
2	01:54:37	238.300	237.800	238.200	40.350	1.026	5.643	1.624	1.037	11.530
3	01:55:45	236.800	239.700	238.300	38.890	1.334	5.993	1.510	1.350	9.156
x		237.200	239.400	238.200	39.980	1.406	5.705	1.409	1.423	8.949
σ		0.886	1.570	0.061	0.965	0.420	0.263	0.279	0.427	2.690
%RSD		0.374	0.656	0.026	2.413	29.870	4.611	19.800	30.030	30.060
Run	**Time**	**94Mo**	**95Mo**	**96Mo**	**97Mo**	**98Mo**	**99Ru**	**103Rh**	**106Cd**	**107Ag**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:53:29	90.340	7.666	15.360	7.741	7.968	0.005	78%	15.510	0.542
2	01:54:37	92.410	7.896	15.400	8.270	7.582	0.000	78%	13.560	0.512
3	01:55:45	91.960	7.773	15.280	7.838	7.917	0.005	77%	13.860	0.531
x		91.570	7.779	15.350	7.949	7.823	0.004	78%	14.310	0.529
σ		1.089	0.115	0.061	0.282	0.210	0.003	0%	1.051	0.016
%RSD		1.189	1.476	0.396	3.542	2.680	78.050	0	7.344	2.937
Run	**Time**	**108Mo O**	**108Cd**	**109Ag**	**111Cd**	**118Sn**	**121Sb**	**135Ba**	**137Ba**	**159Tb**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	01:53:29	-3.452	15.470	0.456	1.791	5.547	2.955	779.600	782.900	86%
2	01:54:37	-3.276	13.520	0.524	1.605	5.442	2.976	774.000	775.600	87%
3	01:55:45	-3.111	13.820	0.505	1.757	5.462	2.933	783.900	785.700	86%
x		-3.280	14.270	0.495	1.718	5.484	2.955	779.200	781.400	86%
σ		0.171	1.053	0.035	0.099	0.056	0.021	4.951	5.228	1%
%RSD		5.203	7.382	7.039	5.757	1.018	0.717	0.636	0.669	1
Run	**Time**	**165Ho**	**203Tl**	**205Tl**	**206Pb**	**207Pb**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	01:53:29	86%	1.127	1.115	117.500	104.600	110.900	85%	10.060	
2	01:54:37	87%	1.078	1.149	115.900	103.800	109.300	86%	9.890	
3	01:55:45	87%	1.134	1.130	117.100	105.800	111.200	85%	10.010	
x		87%	1.113	1.131	116.800	104.700	110.500	85%	9.985	
σ		0%	0.031	0.017	0.825	0.973	1.002	1%	0.086	
%RSD		1	2.768	1.490	0.706	0.929	0.907	1	0.860	

C5017-21 12/22/2011 02:00:18 AM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	87%	2.457	2.034	0.000	2973.000	4710.000	4363.000	4334.000	58450.000
2	02:02:34	87%	2.641	1.467	0.000	2957.000	4691.000	4343.000	4304.000	57990.000
3	02:03:42	85%	2.637	2.522	0.000	3021.000	4755.000	4452.000	4351.000	59010.000
x		86%	2.578	2.008	0.000	2984.000	4718.000	4386.000	4330.000	58480.000
σ		1%	0.105	0.528	0.000	33.550	32.850	57.980	24.240	514.200
%RSD		1	4.074	26.300	0.000	1.124	0.696	1.322	0.560	0.879

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	1699.000	746.500	0.000	0.000	1369.000	2191.000	2067.000	85%	547.300
2	02:02:34	1678.000	732.100	0.000	0.000	1355.000	2064.000	2039.000	85%	540.100
3	02:03:42	1705.000	764.500	0.000	0.000	1353.000	2155.000	2053.000	86%	546.600
x		1694.000	747.700	0.000	0.000	1359.000	2137.000	2053.000	85%	544.700
σ		13.990	16.230	0.000	0.000	8.471	65.220	13.850	1%	3.951
%RSD		0.826	2.171	0.000	0.000	0.623	3.052	0.674	1	0.725

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	69.760	45.420	599.000	57650.000	1092.000	57840.000	56230.000	31.960	33.710
2	02:02:34	71.830	45.410	622.800	57450.000	1093.000	57740.000	56150.000	32.040	33.110
3	02:03:42	69.060	45.560	633.900	57890.000	1090.000	57670.000	56420.000	32.100	33.620
x		70.220	45.460	618.600	57660.000	1092.000	57750.000	56270.000	32.030	33.480
σ		1.439	0.083	17.870	223.600	1.295	85.370	140.000	0.073	0.326
%RSD		2.050	0.182	2.888	0.388	0.119	0.148	0.249	0.229	0.974

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	39.780	40.600	94.010	7.984	1.017	5.017	0.315	1.018	1.736
2	02:02:34	38.990	38.630	95.460	7.250	0.608	5.347	0.657	0.608	2.993
3	02:03:42	39.750	39.770	94.510	8.742	-0.125	5.283	-0.067	-0.128	5.032
x		39.510	39.670	94.660	7.992	0.500	5.216	0.301	0.499	3.254
σ		0.449	0.988	0.738	0.746	0.579	0.175	0.363	0.581	1.663
%RSD		1.136	2.490	0.780	9.332	115.700	3.355	120.200	116.400	51.110

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	39.790	1.403	4.870	1.432	1.484	-0.002	78%	6.478	0.058
2	02:02:34	40.690	1.606	5.160	1.498	1.462	0.008	77%	3.832	0.073
3	02:03:42	41.170	1.458	5.110	1.461	1.480	0.003	77%	5.218	0.077
x		40.550	1.489	5.047	1.464	1.475	0.003	78%	5.176	0.070
σ		0.701	0.105	0.155	0.033	0.011	0.005	0%	1.323	0.010
%RSD		1.728	7.042	3.068	2.266	0.779	169.900	0	25.570	14.930

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	-2.133	6.459	0.056	0.517	2.388	0.457	305.900	305.800	84%
2	02:02:34	-0.450	3.808	0.050	0.126	2.453	0.468	307.700	305.400	85%
3	02:03:42	-0.937	5.193	0.052	0.246	2.263	0.494	307.500	307.200	84%
x		-1.173	5.153	0.053	0.296	2.368	0.473	307.100	306.100	84%
σ		0.866	1.326	0.003	0.200	0.097	0.019	0.993	0.966	0%
%RSD		73.810	25.720	6.109	67.500	4.086	3.991	0.323	0.316	0

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:01:26	84%	0.389	0.435	22.000	18.770	20.330	85%	3.448
2	02:02:34	86%	0.406	0.408	21.780	18.880	20.380	85%	3.480
3	02:03:42	85%	0.441	0.428	21.990	19.220	20.530	85%	3.475
x		85%	0.412	0.424	21.920	18.960	20.420	85%	3.468
σ		1%	0.027	0.014	0.124	0.234	0.103	0%	0.017
%RSD		1	6.481	3.282	0.565	1.232	0.504	0	0.502

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58430

Start Date: 12/19/2011 **End Date:** 12/20/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1418		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1426		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1434		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1442		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1450		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1457		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1505		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1513		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1535		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1543		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1607		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1631		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1646		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1813		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1821		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1948		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1956		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2123		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2131		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	2235		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2243		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB59980BL	1	2251		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
PB59980BS	1	2259		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB16-000.5-01	1	2306		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB16-0.502-02	1	2314		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB16-0304-03	1	2322		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB11-0.501-02	1	2330		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB11-0304-03	1	2338		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB-DUP02	1	2346		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB09-000.5-01	1	2354		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
12SB09-0.502-02	1	0002		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		
CCV06	1	0010		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	0018		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB11-000.5-01	1	0026		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB11-000.5-01D	1	0034		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB11-000.5-01L	5	0042		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB11-000.5-01SD	1	0058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X		X		
12SB11-000.5-01S	1	0105		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X		X		
12SB09-0304-03	1	0113		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB10-000.5-01	1	0121		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB10-0.502-02	1	0129		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58430

Start Date: 12/19/2011 **End Date:** 12/20/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB10-0304-03	1	0137		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
CCV07	1	0145		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0153		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB15-000.5-01	1	0201		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB15-0.502-02	1	0209		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB15-0304-03	1	0217		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB-DUP-04	1	0225		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB14-0.502-02	1	0233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
12SB14-0304-03	1	0241		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
CCV08	1	0249		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB08	1	0257		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58525

Start Date: 12/21/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1744		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1752		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1807		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1815		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1823		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1831		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1839		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1847		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1910		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1918		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1941		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1949		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	2123		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	2131		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB59980BL	1	2202																						X		X	
PB59980BS	1	2218																						X		X	
12SB16-000.5-01	1	2226																						X		X	
12SB16-0.502-02	1	2234																						X		X	
12SB16-0304-03	1	2242																						X		X	
12SB11-0.501-02	1	2250																						X		X	
CCV03	1	2258		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	2306		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB11-000.5-01	1	2314																								X	
12SB11-000.5-01D	1	2322																								X	
12SB11-000.5-01L	5	2329																								X	
12SB11-000.5-01S	1	2337																								X	
12SB11-000.5-01SD	1	2345																								X	
12SB11-000.5-01A	1	2353			X	X	X	X								X			X	X							
12SB11-0304-03	1	0001																						X		X	
12SB-DUP02	1	0009																						X		X	
12SB09-000.5-01	1	0017																						X		X	
12SB09-0.502-02	1	0025																						X		X	
CCV04	1	0033		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	0041		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB09-0304-03	1	0049																								X	
12SB10-000.5-01	1	0056																								X	
12SB10-0.502-02	1	0104																								X	
12SB10-0304-03	1	0112																								X	
12SB15-000.5-01	1	0120																								X	
12SB15-0.502-02	1	0128																								X	
12SB15-0304-03	1	0136																								X	

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58525

Start Date: 12/21/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB-DUP-04	1	0144																							X	
12SB14-0.502-02	1	0152																							X	
12SB14-0304-03	1	0200																							X	
CCV05	1	0208		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	0216		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV06	1	0343		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	0351		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	0422		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV07	1	0502		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0510		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals
- 14 -
ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58505

Start Date: 12/22/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1938																X								
Std02Rep1	1	1940																X								
Std03Rep1	1	1942																X								
Std04Rep1	1	1944																X								
Std05Rep1	1	1946																X								
Std06Rep1	1	1949																X								
ICV01	1	1952																X								
ICB01	1	1954																X								
CCV01	1	1956																X								
CCB01	1	1958																X								
CRI01	1	2000																X								
PB60050BL	1	2009																X								
PB60050BS	1	2011																X								
12SB16-000.5-01	1	2014																X								
12SB16-0.502-02	1	2016																X								
12SB16-0304-03	1	2018																X								
CCV02	1	2021																X								
CCB02	1	2023																X								
12SB11-000.5-01	1	2025																X								
12SB11-000.5-01D	1	2027																X								
12SB11-000.5-01L	5	2029																X								
12SB11-000.5-01S	1	2032																X								
12SB11-000.5-01SD	1	2034																X								
12SB11-000.5-01A	1	2036																								
12SB11-0.501-02	1	2038																X								
12SB11-0304-03	1	2040																X								
CCV03	1	2042																X								
CCB03	1	2044																X								
12SB-DUP02	1	2047																X								
12SB09-000.5-01	1	2049																X								
12SB09-0.502-02	1	2051																X								
12SB09-0304-03	1	2054																X								
12SB10-000.5-01	1	2056																X								
12SB10-0.502-02	1	2058																X								
12SB10-0304-03	1	2101																X								
12SB15-000.5-01	1	2104																X								
CCV04	1	2106																X								
CCB04	1	2109																X								
12SB15-0.502-02	1	2111																X								
12SB15-0304-03	1	2113																X								
12SB-DUP-04	1	2115																X								

CHEMTECH

Metals
- 14 -
ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5017 **SAS No.:** C5017 **SDG No.:** C5017

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58505

Start Date: 12/22/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB14-0.502-02	1	2117																X								
12SB14-0304-03	1	2120																X								
CCV05	1	2128																X								
CCB05	1	2131																X								
CCV06	1	2151																X								
CCB06	1	2154																X								
CCV07	1	2214																X								
CCB07	1	2216																X								
CCV08	1	2234																X								
CCB08	1	2236																X								
CCV09	1	2256																X								
CCB09	1	2259																X								
CCV10	1	2322																X								
CCB10	1	2324																X								
CCV11	1	2340																X								
CCB11	1	2343																X								

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58446

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	**ICV1**						
pH		pH	7.02	7.00	100	90-110	12/16/2011
Sample ID:	**CCV1**						
pH		pH	2.02	2.00	101	90-110	12/16/2011
Sample ID:	**CCV2**						
pH		pH	2.03	2.00	102	90-110	12/16/2011
Sample ID:	**CCV3**						
pH		pH	12.04	12.00	100	90-110	12/16/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Project: CTO WE05 NAS JRB Willow Grove **RunNo.:** LB58528

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60107						
Cyanide		mg/L	0.10	0.10	100	85-115	12/22/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011
Sample ID:	CCV4						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011
Sample ID:	CCV5						
Cyanide		mg/L	0.26	0.25	104	90-110	12/22/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58528

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.000	0.005	12/22/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB4						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB5						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB58528BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/22/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5017-04
Client ID:	12SB11-000.5-01S	**Percent Solids for Spike Sample:**	69.9

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.700		0.073	J	2.86	1	92		12/22/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5017-04
Client ID:	12SB11-000.5-01SD	**Percent Solids for Spike Sample:**	69.9

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.680		0.073	J	2.86	1	91		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5005-04
Client ID:	12SB22-000.5-01D	**Percent Solids for Spike Sample:**	70.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Redox Potential	**mV**	**+/-20**	**299.4**		**299.8**		**1**	**0.13**		**12/23/2011**

CHEMTECH

Duplicate Sample Summary

Client: Tetra Tech NUS, Inc.
SDG No.: C5017
Project: CTO WE05 NAS JRB Willow Grove
Sample ID: C5017-04
Client ID: 12SB11-000.5-01D
Percent Solids for Spike Sample: 100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	5.220		5.210		1	0.2		12/16/2011
Cyanide	mg/Kg	+/-20	0.073	J	0.072	J	1	1.4		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5017-04
Client ID:	12SB11-000.5-01SD	**Percent Solids for Spike Sample:**	69.9

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.700	2.680		1	0.7		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5017
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5017-21
Client ID:	12SB14-0304-03D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	7.210		7.220		1	0.1		12/16/2011

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5017

Project: CTO WE05 NAS JRB Willow Grove

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	**LB58528BSS**								
Cyanide		**mg/Kg**	**10.00**	**9.77**		**98**	**1**	**80-110**	**12/22/2011**

C5017-20 12/20/2011 02:33:20 AM Sample 125814-0.502-02

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	111%	6.396	14.680	0.000	696.700	13770.000	13280.000	13290.000	49040.000
2	02:35:36	117%	6.357	13.020	0.000	662.800	13410.000	12980.000	13090.000	47770.000
3	02:36:44	116%	5.594	14.600	0.000	669.100	13470.000	13180.000	13180.000	48470.000
x		115%	6.116	14.100	0.000	676.200	13550.000	13150.000	13190.000	48420.000
σ		3%	0.452	0.935	0.000	18.010	190.800	148.700	103.000	637.600
%RSD		2	7.397	6.634	0.000	2.664	1.408	1.131	0.781	1.317

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	2665.000	1181.000	0.000	0.000	3628.000	15360.000	15290.000	123%	1441.000
2	02:35:36	2624.000	1168.000	0.000	0.000	3546.000	15190.000	15160.000	126%	1426.000
3	02:36:44	2652.000	1184.000	0.000	0.000	3582.000	15230.000	15160.000	126%	1432.000
x		2647.000	1178.000	0.000	0.000	3586.000	15260.000	15210.000	125%	1433.000
σ		20.780	8.159	0.000	0.000	41.110	87.760	71.440	2%	7.616
%RSD		0.785	0.693	0.000	0.000	1.147	0.575	0.470	1	0.531

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	123.200	90.920	1003.000	118800.000	2964.000	122800.000	118000.000	54.110	94.410
2	02:35:36	121.200	90.460	1015.000	119300.000	2939.000	121500.000	117400.000	53.930	94.950
3	02:36:44	118.400	90.370	1033.000	119800.000	2974.000	123400.000	118100.000	53.960	95.000
x		120.900	90.580	1017.000	119300.000	2959.000	122500.000	117800.000	54.000	94.790
σ		2.378	0.292	14.950	524.400	17.910	977.700	380.000	0.096	0.328
%RSD		1.966	0.323	1.471	0.440	0.605	0.798	0.323	0.178	0.346

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	221.800	225.600	220.400	38.300	1.555	11.760	1.610	1.590	5.833
2	02:35:36	221.000	223.000	219.900	37.740	0.835	12.030	1.165	0.855	10.950
3	02:36:44	221.800	223.500	222.000	38.580	1.135	12.040	1.224	1.162	11.010
x		221.500	224.000	220.800	38.210	1.175	11.940	1.333	1.203	9.263
σ		0.445	1.374	1.113	0.429	0.362	0.156	0.242	0.369	2.970
%RSD		0.201	0.613	0.504	1.122	30.770	1.304	18.120	30.690	32.070

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	90.230	7.483	15.180	7.463	7.750	0.016	90%	12.010	0.453
2	02:35:36	92.100	7.922	15.410	7.266	7.575	0.007	90%	11.360	0.438
3	02:36:44	93.080	7.505	15.560	7.924	7.886	0.009	90%	12.430	0.441
x		91.800	7.637	15.380	7.551	7.737	0.011	90%	11.930	0.444
σ		1.450	0.247	0.193	0.337	0.156	0.005	0%	0.540	0.008
%RSD		1.580	3.237	1.253	4.467	2.013	47.230	0	4.527	1.830

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	-2.847	12.010	0.382	1.427	4.825	2.880	756.100	756.300	95%
2	02:35:36	-2.054	11.350	0.432	1.487	5.175	2.805	762.400	762.200	95%
3	02:36:44	-3.207	12.420	0.404	1.410	5.165	2.790	761.900	758.800	95%
x		-2.703	11.930	0.406	1.441	5.055	2.825	760.100	759.100	95%
σ		0.590	0.539	0.025	0.040	0.199	0.048	3.488	2.956	0%
%RSD		21.820	4.522	6.225	2.806	3.939	1.707	0.459	0.390	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:34:28	95%	1.134	1.146	109.600	99.470	105.200	90%	9.360
2	02:35:36	96%	1.223	1.182	110.500	98.690	104.700	91%	9.314
3	02:36:44	95%	1.141	1.198	110.000	99.400	104.700	91%	9.306
x		95%	1.166	1.175	110.000	99.180	104.900	91%	9.327
σ		0%	0.050	0.027	0.425	0.433	0.291	1%	0.029
%RSD		0	4.254	2.272	0.386	0.437	0.277	1	0.314

Arsenic rep result 3.3 mg/kg

$$\left(\frac{38.3\ ug}{L}\right)\left(\frac{1\ L}{1.33g}\right)\left(\frac{1}{.858}\right)\left(\frac{1mg}{1000ug}\right)\left(\frac{1000g}{1kg}\right) = 3.35\ mg/kg$$

TO: A. FREBOWITZ **DATE:** MARCH 12, 2012

FROM: EDWARD SEDLMYER **COPIES:** DV FILE

SUBJECT: **ORGANIC DATA VALIDATION - VOC / SVOC / PEST / PCB**
NASJRB WILLOW GROVE
SDG C5039

SAMPLES: 16/Soil/VOC/SVOC/PEST/PCB

12SB-DUP-05	12SB13-0.502-02	12SB13-000.5-01
12SB13-0304-03	12SB14-000.5-01	12SB25-0.502-02
12SB25-000.5-01	12SB25-0304-03	12SB26-0.502-02
12SB26-000.5-01	12SB26-0304-03	12SB28-0.502-02
12SB28-0304-03	12SB29-0.502-02	12SB29-000.5-01
12SB29-0304-03		

1/Aqueous/VOC

12TB-20111216

Overview

The sample set for NASJRB Willow Grove, SDG C5039 consists of sixteen (16) soil environmental samples and one (1) trip blank. One field duplicate pair was included in this SDG: 12SB26-000.5-01 / 12SB-DUP-05. Samples were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides (PEST), and polychlorinated biphenyls (PCBs), as stated above.

The samples were collected by Tetra Tech on December 16, 2011 and analyzed by Chemtech Laboratories. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A, and 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, field duplicate results, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major

- None.

Minor

- The VOC initial calibration performed on 12/21/11 on instrument MSVOA_F exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for bromomethane, chloroethane, acetone and 2-butanone. The positive acetone and 2-butanone results for samples 12SB25-000.5-01, 12SB26-0.502-02, 12SB26-000.5-01 and 12SB29-0.502-02 have been qualified as estimated (J). No action was taken on the nondetected results for the remaining compounds.

- The surrogate 4-bromofluorobenzene had a percent recovery less than the quality control limit for sample 12SB13-0.502-02. The sample was re-analyzed with similar results. Only nondetected results were reported for this sample and these results have been qualified as estimated (UJ).

- The surrogate toluene-d8 and 4-bromofluorobenzene had percent recoveries less than the quality control limit of the re-analysis of sample 12SB25-000.5-01. Only acetone was reported from the re-analysis. The positive result for acetone in sample 12SB 25-000.5-01 has been qualified as estimated (J).

- The internal standard 1,4-dichlorobenzene-d4 had %R less than the quality control limit for sample 12SB14-000.5-01. The sample was re-analyzed with similar results. The original analysis was used for validation. The nondetected results quantified using 1,4-dichlorobenzene-d4 have been qualified as estimated (UJ).

- The PEST surrogate decachlorobiphenyl had percent recoveries less than the quality control limit for sample 12SB25-000.5-01 on the primary and secondary columns. Only nondetected results were reported for sample 12SB25-000.5-01 and these results were qualified as estimated (UJ).

- The PEST surrogates decachlorobiphenyl had percent recoveries less than the quality control limit for sample 12SB13-000.5-01 on the primary and secondary columns and tetrachloro-m-xylene had a low recovery on the primary column. Only nondetected results were reported for sample 12SB13-000.5-01 and these results were qualified as estimated (UL).

- The PEST surrogate decachlorobiphenyl had percent recoveries less than the quality control limit for sample 12SB29-000.5-01 on the primary and secondary columns. Only nondetected results were reported for sample 12SB29-000.5-01 and these results were qualified as estimated (UJ).

- The PEST surrogates decachlorobiphenyl and tetrachloro-m-xylene had percent recoveries less than the quality control limit for sample 12SB26-000.5-01 on the primary and secondary columns. The positive and nondetected results reported for sample 12SB26-000.5-01 have been qualified as estimated (UL) and (L), respectively.

- The PEST surrogate decachlorobiphenyl had percent recoveries less than the quality control limit for sample 12SB-DUP-05 on the primary and secondary columns. The positive and nondetected results reported for sample 12SB-DUP-05 have been qualified as estimated (UJ) and (J), respectively.

- The PEST matrix spike / matrix spike duplicate (MS/MSD) performed on sample 12SB25-000.5-01 had %Rs for delta-BHC, 4,4'-DDE, endosulfan sulfate, and methyoxychlor in the MS/MSD and a low recovery for endrin ketone in the MSD. The nondetected results for delta-BHC, 4,4'-DDE, endosulfan sulfate, and methyoxychlor in sample 12SB25-000.5-01 have been qualified as estimated (UJ). No action was taken on the endrin ketone results because the MS had acceptable recoveries.

- The PCB surrogate decachlorobiphenyl had percent recoveries less than the quality control limit for samples 12SB13-000.5-01, 12SB13-0.502-02, 12SB29-000.5-01, 12SB29-0.502-02, 12SB26-000.5-01, 12SB-DUP-05, 12SB25-000.5-01, and 12SB25-0304-03 on the primary and secondary columns. Only nondetected results were reported for the aforementioned samples

and these results were qualified as estimated (UJ).

- Field duplicate imprecision (RPD > 50% was noted for 2-butanone, acetone, acenaphthene, anthracene, fluorene, and phenanthrene for sample pair 12SB26-000.5-01 / 12SB-DUP-05. The positive and nondetected results reported for 2-butanone, acetone, acenaphthene, anthracene, fluorene, and phenanthrene in the sample pair 12SB26-000.5-01 / 12SB-DUP-05 were qualified as estimated, (J) and (UJ), respectively.

- Positive results less than the reporting limit (RL) and greater than the method detection limit (MDL) were qualified as estimated, (J), due to uncertainty near the detection limit.

Notes

VOC continuing calibration percent difference (% D) was greater than the quality control limit of 20% but less than 50% for vinyl chloride for instrument MSVOA_F on 12/29/11 @ 10:49. All associated sample results were non-detects for vinyl chloride and no data qualification was necessary.

VOC continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for vinyl chloride, 1,1-dichloroethene, methyl tert-butyl ether, methylene chloride, trans-1,2-dichloroethene, 1,1-dichloroethane, and bromochloromethane for instrument MSVOA_F on 12/29/11 @ 23:41. All associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

The VOC initial calibration performed on 11/22/11 on instrument MSVOAG exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for acetone, methylene chloride, trans-1,3-dichloropropene, and bromoform. All associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

VOC continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for bromomethane and chloroethane for instrument MSVOAG on 12/21/11 @ 13:48. The associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

The VOC initial calibration performed on 12/23/11 on instrument MSVOA_T exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for bromomethane, methyl tert-butyl ether, trans-1,3-dichloropropene, cis-1,3-dichloropropene, dibromochloromethane, o-xylene, styrene, bromoform, 1,2-dibromo-3-chloropropene, and 1,2,4-trichlorobenzene. All associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

VOC continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for bromomethane and 1,1-dichloroethene for instrument MSVOA_T on 12/30/12 @ 12:10. The associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

The laboratory control sample (LCS) analyzed on 12/30/12 had percent recoveries (%Rs) for vinyl chloride, carbon disulfide, methylene chloride, trans-1,2-dichloroethene, 1,1-dichloroethane, and chloroform above the quality control limits. Only nondetected results were reported for the above mentioned compounds and no action was taken on this basis.

The VOC matrix spike / matrix spike duplicate (MS/MSD) performed on sample 12SB25-000.5-01 had %Rs for vinyl chloride, 1,1-dichloroethane, and 1,1,2,2-tetrachloroethane greater than the quality control limit in the MS. The MSD had a %R for trichloroethene less than the quality control limit. In addition, the relative percent differences (RPDs) exceeded the quality control limit for most compounds. No action was taken on

this basis because either the MS or the MSD had acceptable recoveries for all compounds.

The SVOC initial calibration performed on 12/30/11 on instrument BNA_E exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol. No action was taken on this basis because all results for the aforementioned compounds were non-detected.

The SVOC matrix spike / matrix spike duplicate (MS/MSD) performed on sample 12SB25-000.5-01 had a %R for phenol greater than the quality control limit in the MSD. In addition, the relative percent differences (RPDs) exceeded the quality control limit for most. No action was taken on this basis because the MS had acceptable recoveries for all compounds.

The SVOC SIM surrogate 2-fluorobiphenyl had percent recoveries less than the quality control limit for samples 12SB13-000.5-01, 12SB13-0.502-02, and 12SB-DUP-05. No action was taken on this basis because only one surrogate per fraction was outside of criteria.

The SVOC SIM matrix spike / matrix spike duplicate (MS/MSD) performed on sample 12SB25-000.5-01 had RPDs that exceeded the quality control limit for phenanthrene, fluroanthene, and pyrene. No action was taken on this basis because the MS and MSD had acceptable recoveries for all compounds.

The PEST surrogate decachlorobiphenyl had a percent recovery less than the quality control limit for sample 12SB25-0304-03 on the primary column. No action was taken on this basis because all other surrogate recoveries were acceptable on the primary and secondary columns.

PEST continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for beta-BHC, gamma-BHC, and methyoxychlor for instrument ECD_D on 12/21/11 @ 15:56 on the primary column. The associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

PEST continuing calibration % Ds was greater than the quality control limit of 20% but less than 50% for endrin ketone for instrument ECD_G on 12/29/11 @ 11:31 on the secondary column. The associated sample results were non-detects for endrin ketone and no data qualification was necessary.

PEST continuing calibration % D was greater than the quality control limit of 20% but less than 50% for endrin ketone for instrument ECD_G on 12/30/11 @ 15:44 on the secondary column. The associated sample results were non-detects for endrin ketone and no data qualification was necessary.

PEST continuing calibration % D was greater than the quality control limit of 20% but less than 50% for endrin ketone for instrument ECD_G on 12/30/11 @ 22:16 on the secondary column. The associated sample results were non-detects for endrin ketone and no data qualification was necessary.

The PCB surrogate decachlorobiphenyl had a percent recovery less than the quality control limit for sample 12SB23-000.5-01 on the secondary column. No action was taken on this basis because all other surrogate recoveries were acceptable on the primary and secondary columns.

Sample 12SB25-000.5-01 had a concentration for acetone greater than the linear calibration range of the instrument. The sample was re-analyzed undiluted within the hold time. The re-analyzed sample was used for the acetone result only. No action was taken on this basis.

Samples 12SB26-000.5-01 and 12SB-DUP-05 were analyzed at a 2 times dilution for the SVOC SIM analysis due to high concentrations of fluoranthene. The dilutions were used to report only the analytes that exceeded the linear range of the instrument. All other results were reported from the undiluted analysis.

The laboratory included the compounds 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate, and methyl cyclohexane in the VOC analysis. These compounds were not listed in the associated project QAPP and have been removed from the database by the data validator.

The laboratory included the compounds 1,1-biphenyl, 1,2,4,5-tetrachlorobenzene, acetophenone, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde and caprolactam in the SVOC analysis. These compounds were not listed in the associated project QAPP and have been removed from the database by the data validator.

Laboratory results were reported to the limit of detection (LOD).

Executive Summary

Laboratory Performance: Initial calibration noncompliances in the VOC fraction resulted in qualification of the data. Surrogate recovery noncompliances in the VOC, PEST, and PCB fractions resulted in the qualification of data. Internal standard recovery noncompliances in the VOC fraction resulted in the qualification of data. Matrix spike recovery noncompliances resulted in the qualification of data in the PEST fraction.

Other Factors Affecting Data Quality: Field duplicate precision noncompliances resulted in the qualification of data in the VOC and SVOC fractions. Positive results less than the reporting limit (RL) and greater than the method detection limit (MDL) were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation" (April 1993), the "National Functional guidelines for Organic Data Review" (September 1994), and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Edward Sedlmyer
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12TB-20111216
SDG: C5039	LAB_ID	C5039-19
FRACTION: OV	SAMP_DATE	12/16/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	100.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.5	U	
1,1,2,2-TETRACHLOROETHANE	0.5	U	
1,1,2-TRICHLOROETHANE	0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U	
1,1-DICHLOROETHANE	0.5	U	
1,1-DICHLOROETHENE	0.5	U	
1,2,3-TRICHLOROBENZENE	0.5	U	
1,2,4-TRICHLOROBENZENE	0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U	
1,2-DIBROMOETHANE	0.5	U	
1,2-DICHLOROBENZENE	0.5	U	
1,2-DICHLOROETHANE	0.5	U	
1,2-DICHLOROPROPANE	0.5	U	
1,3-DICHLOROBENZENE	0.5	U	
1,4-DICHLOROBENZENE	0.5	U	
1,4-DIOXANE	10	U	
2-BUTANONE	2.5	U	
2-HEXANONE	2.5	U	
4-METHYL-2-PENTANONE	2.5	U	
ACETONE	2.5	U	
BENZENE	0.5	U	
BROMOCHLOROMETHANE	0.5	U	
BROMODICHLOROMETHANE	0.5	U	
BROMOFORM	0.5	U	
BROMOMETHANE	0.5	U	
CARBON DISULFIDE	0.5	U	
CARBON TETRACHLORIDE	0.5	U	
CHLOROBENZENE	0.5	U	
CHLORODIBROMOMETHANE	0.5	U	
CHLOROETHANE	0.5	U	
CHLOROFORM	0.5	U	
CHLOROMETHANE	0.61	J	P
CIS-1,2-DICHLOROETHENE	0.5	U	
CIS-1,3-DICHLOROPROPENE	0.5	U	
CYCLOHEXANE	0.5	U	

PROJ_NO: 02014	NSAMPLE	12TB-20111216		
SDG: C5039	LAB_ID	C5039-19		
FRACTION: OV	SAMP_DATE	12/16/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	100.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U	
ETHYLBENZENE		0.5	U	
ISOPROPYLBENZENE		0.5	U	
M+P-XYLENES		1	U	
METHYL ACETATE		0.5	U	
METHYL CYCLOHEXANE		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
STYRENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TOTAL XYLENES		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-000.5-01			12SB13-0304-03			12SB14-000.5-01		
SDG: C5039	LAB_ID	C5039-03			C5039-02			C5039-04			C5039-01		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			83.0			64.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,1,2,2-TETRACHLOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
1,1,2-TRICHLOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,1-DICHLOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,1-DICHLOROETHENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,2,3-TRICHLOROBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
1,2,4-TRICHLOROBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
1,2-DIBROMOETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,2-DICHLOROBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
1,2-DICHLOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,2-DICHLOROPROPANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
1,3-DICHLOROBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
1,4-DICHLOROBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N
2-BUTANONE		15.5	UJ	R	13.5	U		12.5	U		20.5	U	
2-HEXANONE		15.5	UJ	R	13.5	U		12.5	U		20.5	U	
4-METHYL-2-PENTANONE		15.5	UJ	R	13.5	U		12.5	U		20.5	U	
ACETONE		15.5	UJ	R	13.5	U		12.5	U		20.5	U	
BENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
BROMODICHLOROMETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
BROMOFORM		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
BROMOMETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CARBON DISULFIDE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CARBON TETRACHLORIDE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CHLOROBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CHLORODIBROMOMETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CHLOROETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CHLOROFORM		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CHLOROMETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CIS-1,2-DICHLOROETHENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
CIS-1,3-DICHLOROPROPENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
DICHLORODIFLUOROMETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
ETHYLBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
ISOPROPYLBENZENE		3.1	UJ	R	2.7	U		2.55	U		4.1	UJ	N

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-000.5-01			12SB25-000.5-01RE			12SB25-0304-03		
SDG: C5039	LAB_ID	C5039-15			C5039-12			C5039-12RE			C5039-16		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			72.0			72.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		3.4	U					2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	U		3.4	U					2.5	U	
1,1,2-TRICHLOROETHANE		2.5	U		3.4	U					2.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.5	U		3.4	U					2.5	U	
1,1-DICHLOROETHANE		2.5	U		3.4	U					2.5	U	
1,1-DICHLOROETHENE		2.5	U		3.4	U					2.5	U	
1,2,3-TRICHLOROBENZENE		2.5	U		3.4	U					2.5	U	
1,2,4-TRICHLOROBENZENE		2.5	U		3.4	U					2.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.5	U		3.4	U					2.5	U	
1,2-DIBROMOETHANE		2.5	U		3.4	U					2.5	U	
1,2-DICHLOROBENZENE		2.5	U		3.4	U					2.5	U	
1,2-DICHLOROETHANE		2.5	U		3.4	U					2.5	U	
1,2-DICHLOROPROPANE		2.5	U		3.4	U					2.5	U	
1,3-DICHLOROBENZENE		2.5	U		3.4	U					2.5	U	
1,4-DICHLOROBENZENE		2.5	U		3.4	U					2.5	U	
2-BUTANONE		12.5	U		48	J	C				12.5	U	
2-HEXANONE		12.5	U		17	U					12.5	U	
4-METHYL-2-PENTANONE		12.5	U		17	U					12.5	U	
ACETONE		12.5	U					5.6	J	PR	11	J	P
BENZENE		2.5	U		3.4	U					2.5	U	
BROMODICHLOROMETHANE		2.5	U		3.4	U					2.5	U	
BROMOFORM		2.5	U		3.4	U					2.5	U	
BROMOMETHANE		2.5	U		3.4	U					2.5	U	
CARBON DISULFIDE		2.5	U		3.4	U					2.5	U	
CARBON TETRACHLORIDE		2.5	U		3.4	U					2.5	U	
CHLOROBENZENE		2.5	U		3.4	U					2.5	U	
CHLORODIBROMOMETHANE		2.5	U		3.4	U					2.5	U	
CHLOROETHANE		2.5	U		3.4	U					2.5	U	
CHLOROFORM		2.5	U		3.4	U					2.5	U	
CHLOROMETHANE		2.5	U		3.4	U					2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U		3.4	U					2.5	U	
CIS-1,3-DICHLOROPROPENE		2.5	U		3.4	U					2.5	U	
DICHLORODIFLUOROMETHANE		2.5	U		3.4	U					2.5	U	
ETHYLBENZENE		2.5	U		3.4	U					2.5	U	
ISOPROPYLBENZENE		2.5	U		3.4	U					2.5	U	

PROJ_NO: 02014	NSAMPLE	12SB26-0.502-02			12SB26-000.5-01			12SB26-0304-03			12SB28-0.502-02		
SDG: C5039	LAB_ID	C5039-09			C5039-08			C5039-10			C5039-17		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			75.0			84.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,1,2,2-TETRACHLOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,1,2-TRICHLOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,1-DICHLOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,1-DICHLOROETHENE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2,3-TRICHLOROBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2,4-TRICHLOROBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2-DIBROMOETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2-DICHLOROBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2-DICHLOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,2-DICHLOROPROPANE		2.55	U		2.8	U		2.5	U		2.65	U	
1,3-DICHLOROBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
1,4-DICHLOROBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
2-BUTANONE		19	J	CP	31	J	CG	12.5	U		13	U	
2-HEXANONE		13	U		14	U		12.5	U		13	U	
4-METHYL-2-PENTANONE		13	U		14	U		12.5	U		13	U	
ACETONE		100	J	C	350	J	CG	12.5	U		13	U	
BENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
BROMODICHLOROMETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
BROMOFORM		2.55	U		2.8	U		2.5	U		2.65	U	
BROMOMETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
CARBON DISULFIDE		2.55	U		2.8	U		2.5	U		2.65	U	
CARBON TETRACHLORIDE		2.55	U		2.8	U		2.5	U		2.65	U	
CHLOROBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
CHLORODIBROMOMETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
CHLOROETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
CHLOROFORM		2.55	U		2.8	U		2.5	U		2.65	U	
CHLOROMETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
CIS-1,2-DICHLOROETHENE		2.55	U		2.8	U		2.5	U		2.65	U	
CIS-1,3-DICHLOROPROPENE		2.55	U		2.8	U		2.5	U		2.65	U	
DICHLORODIFLUOROMETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
ETHYLBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	
ISOPROPYLBENZENE		2.55	U		2.8	U		2.5	U		2.65	U	

PROJ_NO: 02014	NSAMPLE	12SB28-0304-03			12SB29-0.502-02			12SB29-000.5-01			12SB29-0304-03		
SDG: C5039	LAB_ID	C5039-18			C5039-06			C5039-05			C5039-07		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			80.0			71.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,1,2,2-TETRACHLOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,1,2-TRICHLOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,1-DICHLOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,1-DICHLOROETHENE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2,3-TRICHLOROBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2,4-TRICHLOROBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2-DIBROMOETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2-DICHLOROBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2-DICHLOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,2-DICHLOROPROPANE		2.4	U		2.65	U		3.3	U		2.4	U	
1,3-DICHLOROBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
1,4-DICHLOROBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
2-BUTANONE		12	U		13	U		16.5	U		12	U	
2-HEXANONE		12	U		13	U		16.5	U		12	U	
4-METHYL-2-PENTANONE		12	U		13	U		16.5	U		12	U	
ACETONE		12	U		22	J	CP	16.5	U		12	U	
BENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
BROMODICHLOROMETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
BROMOFORM		2.4	U		2.65	U		3.3	U		2.4	U	
BROMOMETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
CARBON DISULFIDE		2.4	U		2.65	U		3.3	U		2.4	U	
CARBON TETRACHLORIDE		2.4	U		2.65	U		3.3	U		2.4	U	
CHLOROBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
CHLORODIBROMOMETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
CHLOROETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
CHLOROFORM		2.4	U		2.65	U		3.3	U		2.4	U	
CHLOROMETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
CIS-1,2-DICHLOROETHENE		2.4	U		2.65	U		3.3	U		2.4	U	
CIS-1,3-DICHLOROPROPENE		2.4	U		2.65	U		3.3	U		2.4	U	
DICHLORODIFLUOROMETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
ETHYLBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	
ISOPROPYLBENZENE		2.4	U		2.65	U		3.3	U		2.4	U	

PROJ_NO: 02014	NSAMPLE	12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-11		
FRACTION: OV	SAMP_DATE	12/16/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	74.0		
	DUP_OF	12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.8	U	
1,1,2,2-TETRACHLOROETHANE		2.8	U	
1,1,2-TRICHLOROETHANE		2.8	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.8	U	
1,1-DICHLOROETHANE		2.8	U	
1,1-DICHLOROETHENE		2.8	U	
1,2,3-TRICHLOROBENZENE		2.8	U	
1,2,4-TRICHLOROBENZENE		2.8	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.8	U	
1,2-DIBROMOETHANE		2.8	U	
1,2-DICHLOROBENZENE		2.8	U	
1,2-DICHLOROETHANE		2.8	U	
1,2-DICHLOROPROPANE		2.8	U	
1,3-DICHLOROBENZENE		2.8	U	
1,4-DICHLOROBENZENE		2.8	U	
2-BUTANONE		14	UJ	G
2-HEXANONE		14	U	
4-METHYL-2-PENTANONE		14	U	
ACETONE		14	UJ	G
BENZENE		2.8	U	
BROMODICHLOROMETHANE		2.8	U	
BROMOFORM		2.8	U	
BROMOMETHANE		2.8	U	
CARBON DISULFIDE		2.8	U	
CARBON TETRACHLORIDE		2.8	U	
CHLOROBENZENE		2.8	U	
CHLORODIBROMOMETHANE		2.8	U	
CHLOROETHANE		2.8	U	
CHLOROFORM		2.8	U	
CHLOROMETHANE		2.8	U	
CIS-1,2-DICHLOROETHENE		2.8	U	
CIS-1,3-DICHLOROPROPENE		2.8	U	
DICHLORODIFLUOROMETHANE		2.8	U	
ETHYLBENZENE		2.8	U	
ISOPROPYLBENZENE		2.8	U	

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-000.5-01			12SB13-0304-03			12SB14-000.5-01		
SDG: C5039	LAB_ID	C5039-03			C5039-02			C5039-04			C5039-01		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			83.0			64.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		6	UJ	R	5.5	U		5	U		8	U	
METHYL TERT-BUTYL ETHER		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
METHYLENE CHLORIDE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
O-XYLENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
STYRENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
TETRACHLOROETHENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
TOLUENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
TOTAL XYLENES		9.5	UJ	R	8	U		7.5	U		12.5	U	
TRANS-1,2-DICHLOROETHENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
TRANS-1,3-DICHLOROPROPENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
TRICHLOROETHENE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
TRICHLOROFLUOROMETHANE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	
VINYL CHLORIDE		3.1	UJ	R	2.7	U		2.55	U		4.1	U	

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-000.5-01			12SB25-000.5-01RE			12SB25-0304-03		
SDG: C5039	LAB_ID	C5039-15			C5039-12			C5039-12RE			C5039-16		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			72.0			72.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5	U		7	U					4.95	U	
METHYL TERT-BUTYL ETHER		2.5	U		3.4	U					2.5	U	
METHYLENE CHLORIDE		2.5	U		3.4	U					2.5	U	
O-XYLENE		2.5	U		3.4	U					2.5	U	
STYRENE		2.5	U		3.4	U					2.5	U	
TETRACHLOROETHENE		2.5	U		3.4	U					2.5	U	
TOLUENE		2.5	U		3.4	U					2.5	U	
TOTAL XYLENES		7.5	U		10.5	U					7.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		3.4	U					2.5	U	
TRANS-1,3-DICHLOROPROPENE		2.5	U		3.4	U					2.5	U	
TRICHLOROETHENE		2.5	U		3.4	U					2.5	U	
TRICHLOROFLUOROMETHANE		2.5	U		3.4	U					2.5	U	
VINYL CHLORIDE		2.5	U		3.4	U					2.5	U	

PROJ_NO: 02014	NSAMPLE	12SB26-0.502-02			12SB26-000.5-01			12SB26-0304-03			12SB28-0.502-02		
SDG: C5039	LAB_ID	C5039-09			C5039-08			C5039-10			C5039-17		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			75.0			84.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5	U		5.5	U		5	U		5.5	U	
METHYL TERT-BUTYL ETHER		2.55	U		2.8	U		2.5	U		2.65	U	
METHYLENE CHLORIDE		2.55	U		2.8	U		2.5	U		2.65	U	
O-XYLENE		2.55	U		2.8	U		2.5	U		2.65	U	
STYRENE		2.55	U		2.8	U		2.5	U		2.65	U	
TETRACHLOROETHENE		2.55	U		2.8	U		2.5	U		2.65	U	
TOLUENE		2.55	U		2.8	U		2.5	U		2.65	U	
TOTAL XYLENES		7.5	U		8.5	U		7.5	U		8	U	
TRANS-1,2-DICHLOROETHENE		2.55	U		2.8	U		2.5	U		2.65	U	
TRANS-1,3-DICHLOROPROPENE		2.55	U		2.8	U		2.5	U		2.65	U	
TRICHLOROETHENE		2.55	U		2.8	U		2.5	U		2.65	U	
TRICHLOROFLUOROMETHANE		2.55	U		2.8	U		2.5	U		2.65	U	
VINYL CHLORIDE		2.55	U		2.8	U		2.5	U		2.65	U	

PROJ_NO: 02014	NSAMPLE	12SB28-0304-03			12SB29-0.502-02			12SB29-000.5-01			12SB29-0304-03		
SDG: C5039	LAB_ID	C5039-18			C5039-06			C5039-05			C5039-07		
FRACTION: OV	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			80.0			71.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		4.8	U		5.5	U		6.5	U		4.85	U	
METHYL TERT-BUTYL ETHER		2.4	U		2.65	U		3.3	U		2.4	U	
METHYLENE CHLORIDE		2.4	U		2.65	U		3.3	U		2.4	U	
O-XYLENE		2.4	U		2.65	U		3.3	U		2.4	U	
STYRENE		2.4	U		2.65	U		3.3	U		2.4	U	
TETRACHLOROETHENE		2.4	U		2.65	U		3.3	U		2.4	U	
TOLUENE		2.4	U		2.65	U		3.3	U		2.4	U	
TOTAL XYLENES		7	U		8	U		10	U		7.5	U	
TRANS-1,2-DICHLOROETHENE		2.4	U		2.65	U		3.3	U		2.4	U	
TRANS-1,3-DICHLOROPROPENE		2.4	U		2.65	U		3.3	U		2.4	U	
TRICHLOROETHENE		2.4	U		2.65	U		3.3	U		2.4	U	
TRICHLOROFLUOROMETHANE		2.4	U		2.65	U		3.3	U		2.4	U	
VINYL CHLORIDE		2.4	U		2.65	U		3.3	U		2.4	U	

PROJ_NO: 02014	NSAMPLE	12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-11		
FRACTION: OV	SAMP_DATE	12/16/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	74.0		
	DUP_OF	12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD
M+P-XYLENES		5.5	U	
METHYL TERT-BUTYL ETHER		2.8	U	
METHYLENE CHLORIDE		2.8	U	
O-XYLENE		2.8	U	
STYRENE		2.8	U	
TETRACHLOROETHENE		2.8	U	
TOLUENE		2.8	U	
TOTAL XYLENES		8.5	U	
TRANS-1,2-DICHLOROETHENE		2.8	U	
TRANS-1,3-DICHLOROPROPENE		2.8	U	
TRICHLOROETHENE		2.8	U	
TRICHLOROFLUOROMETHANE		2.8	U	
VINYL CHLORIDE		2.8	U	

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-0.502-02-GR2			12SB13-000.5-01			12SB13-000.5-01-GR2		
SDG: C5039	LAB_ID	C5039-03			C5039-03			C5039-02			C5039-02		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		200	U					205	U				
2,4,5-TRICHLOROPHENOL		200	U					205	U				
2,4,6-TRICHLOROPHENOL		200	U					205	U				
2,4-DICHLOROPHENOL		200	U					205	U				
2,4-DIMETHYLPHENOL		200	U					205	U				
2,4-DINITROPHENOL		200	U					205	U				
2,4-DINITROTOLUENE		200	U					205	U				
2,6-DINITROTOLUENE		200	U					205	U				
2-CHLORONAPHTHALENE		200	U					205	U				
2-CHLOROPHENOL		200	U					205	U				
2-METHYLNAPHTHALENE					26						3.7	J	P
2-METHYLPHENOL		200	U					205	U				
2-NITROANILINE		200	U					205	U				
2-NITROPHENOL		200	U					205	U				
3&4-METHYLPHENOL		200	U					205	U				
3,3'-DICHLOROBENZIDINE		200	U					205	U				
3-NITROANILINE		200	U					205	U				
4,6-DINITRO-2-METHYLPHENOL		200	U					205	U				
4-BROMOPHENYL PHENYL ETHER		200	U					205	U				
4-CHLORO-3-METHYLPHENOL		200	U					205	U				
4-CHLOROANILINE		200	U					205	U				
4-CHLOROPHENYL PHENYL ETHER		200	U					205	U				
4-NITROANILINE		200	U					205	U				
4-NITROPHENOL		200	U					205	U				
ACENAPHTHENE					3.7	J	P				14		
ACENAPHTHYLENE					4.1						12		
ANTHRACENE					14						49		
BENZO(A)ANTHRACENE					60						270		
BENZO(A)PYRENE					70						320		
BENZO(B)FLUORANTHENE					99						510		
BENZO(G,H,I)PERYLENE					35						160		
BENZO(K)FLUORANTHENE					34						160		
BIS(2-CHLOROETHOXY)METHANE		200	U					205	U				
BIS(2-CHLOROETHYL)ETHER		200	U					205	U				
BIS(2-ETHYLHEXYL)PHTHALATE		200	U					205	U				

PROJ_NO: 02014	NSAMPLE	12SB13-0304-03			12SB13-0304-03-GR2			12SB14-000.5-01			12SB14-000.5-01-GR2		
SDG: C5039	LAB_ID	C5039-04			C5039-04			C5039-01			C5039-01		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.0			83.0			64.0			64.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		200	U					255	U				
2,4,5-TRICHLOROPHENOL		200	U					255	U				
2,4,6-TRICHLOROPHENOL		200	U					255	U				
2,4-DICHLOROPHENOL		200	U					255	U				
2,4-DIMETHYLPHENOL		200	U					255	U				
2,4-DINITROPHENOL		200	U					255	U				
2,4-DINITROTOLUENE		200	U					255	U				
2,6-DINITROTOLUENE		200	U					255	U				
2-CHLORONAPHTHALENE		200	U					255	U				
2-CHLOROPHENOL		200	U					255	U				
2-METHYLNAPHTHALENE					2	U					2.55	U	
2-METHYLPHENOL		200	U					255	U				
2-NITROANILINE		200	U					255	U				
2-NITROPHENOL		200	U					255	U				
3&4-METHYLPHENOL		200	U					255	U				
3,3'-DICHLOROBENZIDINE		200	U					255	U				
3-NITROANILINE		200	U					255	U				
4,6-DINITRO-2-METHYLPHENOL		200	U					255	U				
4-BROMOPHENYL PHENYL ETHER		200	U					255	U				
4-CHLORO-3-METHYLPHENOL		200	U					255	U				
4-CHLOROANILINE		200	U					255	U				
4-CHLOROPHENYL PHENYL ETHER		200	U					255	U				
4-NITROANILINE		200	U					255	U				
4-NITROPHENOL		200	U					255	U				
ACENAPHTHENE					2	U					2.55	U	
ACENAPHTHYLENE					2	U					2.55	U	
ANTHRACENE					2	U					2.55	U	
BENZO(A)ANTHRACENE					2.4	J					19		
BENZO(A)PYRENE					2	U					20		
BENZO(B)FLUORANTHENE					2.4	J	P				27		
BENZO(G,H,I)PERYLENE					2	U					11		
BENZO(K)FLUORANTHENE					2	U					10		
BIS(2-CHLOROETHOXY)METHANE		200	U					255	U				
BIS(2-CHLOROETHYL)ETHER		200	U					255	U				
BIS(2-ETHYLHEXYL)PHTHALATE		200	U					255	U				

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-0.502-02-GR2			12SB25-000.5-01			12SB25-000.5-01-GR2		
SDG: C5039	LAB_ID	C5039-15			C5039-15			C5039-12			C5039-12		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			72.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		190	U					230	U				
2,4,5-TRICHLOROPHENOL		190	U					230	U				
2,4,6-TRICHLOROPHENOL		190	U					230	U				
2,4-DICHLOROPHENOL		190	U					230	U				
2,4-DIMETHYLPHENOL		190	U					230	U				
2,4-DINITROPHENOL		190	U					230	U				
2,4-DINITROTOLUENE		190	U					230	U				
2,6-DINITROTOLUENE		190	U					230	U				
2-CHLORONAPHTHALENE		190	U					230	U				
2-CHLOROPHENOL		190	U					230	U				
2-METHYLNAPHTHALENE					33						15		
2-METHYLPHENOL		190	U					230	U				
2-NITROANILINE		190	U					230	U				
2-NITROPHENOL		190	U					230	U				
3&4-METHYLPHENOL		190	U					230	U				
3,3'-DICHLOROBENZIDINE		190	U					230	U				
3-NITROANILINE		190	U					230	U				
4,6-DINITRO-2-METHYLPHENOL		190	U					230	U				
4-BROMOPHENYL PHENYL ETHER		190	U					230	U				
4-CHLORO-3-METHYLPHENOL		190	U					230	U				
4-CHLOROANILINE		190	U					230	U				
4-CHLOROPHENYL PHENYL ETHER		190	U					230	U				
4-NITROANILINE		190	U					230	U				
4-NITROPHENOL		190	U					230	U				
ACENAPHTHENE					3.4	J	P				22		
ACENAPHTHYLENE					6.9						21		
ANTHRACENE					23						67		
BENZO(A)ANTHRACENE					110						260		
BENZO(A)PYRENE					100						280		
BENZO(B)FLUORANTHENE					140						450		
BENZO(G,H,I)PERYLENE					52						130		
BENZO(K)FLUORANTHENE					57						140		
BIS(2-CHLOROETHOXY)METHANE		190	U					230	U				
BIS(2-CHLOROETHYL)ETHER		190	U					230	U				
BIS(2-ETHYLHEXYL)PHTHALATE		190	U					230	U				

PROJ_NO: 02014	NSAMPLE	12SB25-0304-03			12SB25-0304-03-GR2			12SB26-0.502-02			12SB26-0.502-02-GR2		
SDG: C5039	LAB_ID	C5039-16			C5039-16			C5039-09			C5039-09		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			86.0			86.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		190	U					190	U				
2,4,5-TRICHLOROPHENOL		190	U					190	U				
2,4,6-TRICHLOROPHENOL		190	U					190	U				
2,4-DICHLOROPHENOL		190	U					190	U				
2,4-DIMETHYLPHENOL		190	U					190	U				
2,4-DINITROPHENOL		190	U					190	U				
2,4-DINITROTOLUENE		190	U					190	U				
2,6-DINITROTOLUENE		190	U					190	U				
2-CHLORONAPHTHALENE		190	U					190	U				
2-CHLOROPHENOL		190	U					190	U				
2-METHYLNAPHTHALENE					1.9	U					1.9	U	
2-METHYLPHENOL		190	U					190	U				
2-NITROANILINE		190	U					190	U				
2-NITROPHENOL		190	U					190	U				
3&4-METHYLPHENOL		190	U					190	U				
3,3'-DICHLOROBENZIDINE		190	U					190	U				
3-NITROANILINE		190	U					190	U				
4,6-DINITRO-2-METHYLPHENOL		190	U					190	U				
4-BROMOPHENYL PHENYL ETHER		190	U					190	U				
4-CHLORO-3-METHYLPHENOL		190	U					190	U				
4-CHLOROANILINE		190	U					190	U				
4-CHLOROPHENYL PHENYL ETHER		190	U					190	U				
4-NITROANILINE		190	U					190	U				
4-NITROPHENOL		190	U					190	U				
ACENAPHTHENE					1.9	U					1.9	U	
ACENAPHTHYLENE					1.9	U					1.9	U	
ANTHRACENE					1.9	U					1.9	U	
BENZO(A)ANTHRACENE					1.9	U					4.6		
BENZO(A)PYRENE					1.9	U					6.2		
BENZO(B)FLUORANTHENE					1.9	U					10		
BENZO(G,H,I)PERYLENE					1.9	U					4.3		
BENZO(K)FLUORANTHENE					1.9	U					3.9		
BIS(2-CHLOROETHOXY)METHANE		190	U					190	U				
BIS(2-CHLOROETHYL)ETHER		190	U					190	U				
BIS(2-ETHYLHEXYL)PHTHALATE		190	U					190	U				

PROJ_NO: 02014	NSAMPLE	12SB26-000.5-01			12SB26-000.5-01DL			12SB26-000.5-01-GR2			12SB26-0304-03		
SDG: C5039	LAB_ID	C5039-08			C5039-08DL			C5039-08			C5039-10		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			75.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		220	U								195	U	
2,4,5-TRICHLOROPHENOL		220	U								195	U	
2,4,6-TRICHLOROPHENOL		220	U								195	U	
2,4-DICHLOROPHENOL		220	U								195	U	
2,4-DIMETHYLPHENOL		220	U								195	U	
2,4-DINITROPHENOL		220	U								195	U	
2,4-DINITROTOLUENE		220	U								195	U	
2,6-DINITROTOLUENE		220	U								195	U	
2-CHLORONAPHTHALENE		220	U								195	U	
2-CHLOROPHENOL		220	U								195	U	
2-METHYLNAPHTHALENE								5.3					
2-METHYLPHENOL		220	U								195	U	
2-NITROANILINE		220	U								195	U	
2-NITROPHENOL		220	U								195	U	
3&4-METHYLPHENOL		220	U								195	U	
3,3'-DICHLOROBENZIDINE		220	U								195	U	
3-NITROANILINE		220	U								195	U	
4,6-DINITRO-2-METHYLPHENOL		220	U								195	U	
4-BROMOPHENYL PHENYL ETHER		220	U								195	U	
4-CHLORO-3-METHYLPHENOL		220	U								195	U	
4-CHLOROANILINE		220	U								195	U	
4-CHLOROPHENYL PHENYL ETHER		220	U								195	U	
4-NITROANILINE		220	U								195	U	
4-NITROPHENOL		220	U								195	U	
ACENAPHTHENE								31	J	G			
ACENAPHTHYLENE								23					
ANTHRACENE								260	J	G			
BENZO(A)ANTHRACENE								770					
BENZO(A)PYRENE								710					
BENZO(B)FLUORANTHENE								1100					
BENZO(G,H,I)PERYLENE								350					
BENZO(K)FLUORANTHENE								390					
BIS(2-CHLOROETHOXY)METHANE		220	U								195	U	
BIS(2-CHLOROETHYL)ETHER		220	U								195	U	
BIS(2-ETHYLHEXYL)PHTHALATE		220	U								195	U	

PROJ_NO: 02014	NSAMPLE	12SB26-0304-03-GR2			12SB28-0.502-02			12SB28-0.502-02-GR2			12SB28-0304-03		
SDG: C5039	LAB_ID	C5039-10			C5039-17			C5039-17			C5039-18		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			81.0			81.0			87.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					205	U					190	U	
2,4,5-TRICHLOROPHENOL					205	U					190	U	
2,4,6-TRICHLOROPHENOL					205	U					190	U	
2,4-DICHLOROPHENOL					205	U					190	U	
2,4-DIMETHYLPHENOL					205	U					190	U	
2,4-DINITROPHENOL					205	U					190	U	
2,4-DINITROTOLUENE					205	U					190	U	
2,6-DINITROTOLUENE					205	U					190	U	
2-CHLORONAPHTHALENE					205	U					190	U	
2-CHLOROPHENOL					205	U					190	U	
2-METHYLNAPHTHALENE		1.95	U					2.05	U				
2-METHYLPHENOL					205	U					190	U	
2-NITROANILINE					205	U					190	U	
2-NITROPHENOL					205	U					190	U	
3&4-METHYLPHENOL					205	U					190	U	
3,3'-DICHLOROBENZIDINE					205	U					190	U	
3-NITROANILINE					205	U					190	U	
4,6-DINITRO-2-METHYLPHENOL					205	U					190	U	
4-BROMOPHENYL PHENYL ETHER					205	U					190	U	
4-CHLORO-3-METHYLPHENOL					205	U					190	U	
4-CHLOROANILINE					205	U					190	U	
4-CHLOROPHENYL PHENYL ETHER					205	U					190	U	
4-NITROANILINE					205	U					190	U	
4-NITROPHENOL					205	U					190	U	
ACENAPHTHENE		1.95	U					2.05	U				
ACENAPHTHYLENE		1.95	U					2.05	U				
ANTHRACENE		1.95	U					2.05	U				
BENZO(A)ANTHRACENE		1.95	U					2.05	U				
BENZO(A)PYRENE		1.95	U					2.05	U				
BENZO(B)FLUORANTHENE		1.95	U					2.05	U				
BENZO(G,H,I)PERYLENE		1.95	U					2.05	U				
BENZO(K)FLUORANTHENE		1.95	U					2.05	U				
BIS(2-CHLOROETHOXY)METHANE					205	U					190	U	
BIS(2-CHLOROETHYL)ETHER					205	U					190	U	
BIS(2-ETHYLHEXYL)PHTHALATE					205	U					190	U	

PROJ_NO: 02014	NSAMPLE	12SB28-0304-03-GR2			12SB29-0.502-02			12SB29-0.502-02-GR2			12SB29-000.5-01		
SDG: C5039	LAB_ID	C5039-18			C5039-06			C5039-06			C5039-05		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			80.0			80.0			71.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					205	U					230	U	
2,4,5-TRICHLOROPHENOL					205	U					230	U	
2,4,6-TRICHLOROPHENOL					205	U					230	U	
2,4-DICHLOROPHENOL					205	U					230	U	
2,4-DIMETHYLPHENOL					205	U					230	U	
2,4-DINITROPHENOL					205	U					230	U	
2,4-DINITROTOLUENE					205	U					230	U	
2,6-DINITROTOLUENE					205	U					230	U	
2-CHLORONAPHTHALENE					205	U					230	U	
2-CHLOROPHENOL					205	U					230	U	
2-METHYLNAPHTHALENE		1.9	U					2.05	U				
2-METHYLPHENOL					205	U					230	U	
2-NITROANILINE					205	U					230	U	
2-NITROPHENOL					205	U					230	U	
3&4-METHYLPHENOL					205	U					230	U	
3,3'-DICHLOROBENZIDINE					205	U					230	U	
3-NITROANILINE					205	U					230	U	
4,6-DINITRO-2-METHYLPHENOL					205	U					230	U	
4-BROMOPHENYL PHENYL ETHER					205	U					230	U	
4-CHLORO-3-METHYLPHENOL					205	U					230	U	
4-CHLOROANILINE					205	U					230	U	
4-CHLOROPHENYL PHENYL ETHER					205	U					230	U	
4-NITROANILINE					205	U					230	U	
4-NITROPHENOL					205	U					230	U	
ACENAPHTHENE		1.9	U					2.05	U				
ACENAPHTHYLENE		1.9	U					2.05	U				
ANTHRACENE		1.9	U					2.05	U				
BENZO(A)ANTHRACENE		1.9	U					2.05	U				
BENZO(A)PYRENE		1.9	U					2.05	U				
BENZO(B)FLUORANTHENE		1.9	U					2.05	U				
BENZO(G,H,I)PERYLENE		1.9	U					2.05	U				
BENZO(K)FLUORANTHENE		1.9	U					2.05	U				
BIS(2-CHLOROETHOXY)METHANE					205	U					230	U	
BIS(2-CHLOROETHYL)ETHER					205	U					230	U	
BIS(2-ETHYLHEXYL)PHTHALATE					205	U					230	U	

PROJ_NO: 02014	NSAMPLE	12SB29-000.5-01-GR2			12SB29-0304-03			12SB29-0304-03-GR2			12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-05			C5039-07			C5039-07			C5039-11		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			85.0			85.0			74.0		
	DUP_OF										12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)					195	U					225	U	
2,4,5-TRICHLOROPHENOL					195	U					225	U	
2,4,6-TRICHLOROPHENOL					195	U					225	U	
2,4-DICHLOROPHENOL					195	U					225	U	
2,4-DIMETHYLPHENOL					195	U					225	U	
2,4-DINITROPHENOL					195	U					225	U	
2,4-DINITROTOLUENE					195	U					225	U	
2,6-DINITROTOLUENE					195	U					225	U	
2-CHLORONAPHTHALENE					195	U					225	U	
2-CHLOROPHENOL					195	U					225	U	
2-METHYLNAPHTHALENE		2.3	U					1.95	U				
2-METHYLPHENOL					195	U					225	U	
2-NITROANILINE					195	U					225	U	
2-NITROPHENOL					195	U					225	U	
3&4-METHYLPHENOL					195	U					225	U	
3,3'-DICHLOROBENZIDINE					195	U					225	U	
3-NITROANILINE					195	U					225	U	
4,6-DINITRO-2-METHYLPHENOL					195	U					225	U	
4-BROMOPHENYL PHENYL ETHER					195	U					225	U	
4-CHLORO-3-METHYLPHENOL					195	U					225	U	
4-CHLOROANILINE					195	U					225	U	
4-CHLOROPHENYL PHENYL ETHER					195	U					225	U	
4-NITROANILINE					195	U					225	U	
4-NITROPHENOL					195	U					225	U	
ACENAPHTHENE		2.3	U					1.95	U				
ACENAPHTHYLENE		2.3	U					1.95	U				
ANTHRACENE		2.3	U					1.95	U				
BENZO(A)ANTHRACENE		12						1.95	U				
BENZO(A)PYRENE		12						1.95	U				
BENZO(B)FLUORANTHENE		17						1.95	U				
BENZO(G,H,I)PERYLENE		7						1.95	U				
BENZO(K)FLUORANTHENE		7						1.95	U				
BIS(2-CHLOROETHOXY)METHANE					195	U					225	U	
BIS(2-CHLOROETHYL)ETHER					195	U					225	U	
BIS(2-ETHYLHEXYL)PHTHALATE					195	U					225	U	

PROJ_NO: 02014	NSAMPLE	12SB-DUP-05DL			12SB-DUP-05-GR2		
SDG: C5039	LAB_ID	C5039-11DL			C5039-11		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.0			74.0		
	DUP_OF	12SB26-000.5-01			12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)							
2,4,5-TRICHLOROPHENOL							
2,4,6-TRICHLOROPHENOL							
2,4-DICHLOROPHENOL							
2,4-DIMETHYLPHENOL							
2,4-DINITROPHENOL							
2,4-DINITROTOLUENE							
2,6-DINITROTOLUENE							
2-CHLORONAPHTHALENE							
2-CHLOROPHENOL							
2-METHYLNAPHTHALENE					5		
2-METHYLPHENOL							
2-NITROANILINE							
2-NITROPHENOL							
3&4-METHYLPHENOL							
3,3'-DICHLOROBENZIDINE							
3-NITROANILINE							
4,6-DINITRO-2-METHYLPHENOL							
4-BROMOPHENYL PHENYL ETHER							
4-CHLORO-3-METHYLPHENOL							
4-CHLOROANILINE							
4-CHLOROPHENYL PHENYL ETHER							
4-NITROANILINE							
4-NITROPHENOL							
ACENAPHTHENE					16	J	G
ACENAPHTHYLENE					24		
ANTHRACENE					120	J	G
BENZO(A)ANTHRACENE					490		
BENZO(A)PYRENE					490		
BENZO(B)FLUORANTHENE					750		
BENZO(G,H,I)PERYLENE					230		
BENZO(K)FLUORANTHENE					250		
BIS(2-CHLOROETHOXY)METHANE							
BIS(2-CHLOROETHYL)ETHER							
BIS(2-ETHYLHEXYL)PHTHALATE							

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-0.502-02-GR2			12SB13-000.5-01			12SB13-000.5-01-GR2		
SDG: C5039	LAB_ID	C5039-03			C5039-03			C5039-02			C5039-02		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		200	U					205	U				
CARBAZOLE		200	U					205	U				
CHRYSENE					78						340		
DIBENZO(A,H)ANTHRACENE					4.1						17		
DIBENZOFURAN		200	U					205	U				
DIETHYL PHTHALATE		200	U					205	U				
DIMETHYL PHTHALATE		270	J	P				220	J	P			
DI-N-BUTYL PHTHALATE		200	U					205	U				
DI-N-OCTYL PHTHALATE		200	U					205	U				
FLUORANTHENE					170						780		
FLUORENE					6.9						19		
HEXACHLOROBENZENE		200	U					205	U				
HEXACHLOROBUTADIENE		200	U					205	U				
HEXACHLOROCYCLOPENTADIENE		200	U					205	U				
HEXACHLOROETHANE		200	U					205	U				
INDENO(1,2,3-CD)PYRENE					37						140		
ISOPHORONE		200	U					205	U				
NAPHTHALENE					24						5		
NITROBENZENE		200	U					205	U				
N-NITROSO-DI-N-PROPYLAMINE		200	U					205	U				
N-NITROSODIPHENYLAMINE		200	U					205	U				
PENTACHLOROPHENOL		200	U					205	U				
PHENANTHRENE					99						340		
PHENOL		200	U					205	U				
PYRENE					130						550		

PROJ_NO: 02014	NSAMPLE	12SB13-0304-03			12SB13-0304-03-GR2			12SB14-000.5-01			12SB14-000.5-01-GR2		
SDG: C5039	LAB_ID	C5039-04			C5039-04			C5039-01			C5039-01		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.0			83.0			64.0			64.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		200	U					255	U				
CARBAZOLE		200	U					255	U				
CHRYSENE					2.8	J	P				22		
DIBENZO(A,H)ANTHRACENE					2	U					2.55	U	
DIBENZOFURAN		200	U					255	U				
DIETHYL PHTHALATE		200	U					255	U				
DIMETHYL PHTHALATE		180	J	P				280	J	P			
DI-N-BUTYL PHTHALATE		200	U					255	U				
DI-N-OCTYL PHTHALATE		200	U					255	U				
FLUORANTHENE					4.8						45		
FLUORENE					2	U					2.55	U	
HEXACHLOROBENZENE		200	U					255	U				
HEXACHLOROBUTADIENE		200	U					255	U				
HEXACHLOROCYCLOPENTADIENE		200	U					255	U				
HEXACHLOROETHANE		200	U					255	U				
INDENO(1,2,3-CD)PYRENE					2	U					12		
ISOPHORONE		200	U					255	U				
NAPHTHALENE					2	U					2.55	U	
NITROBENZENE		200	U					255	U				
N-NITROSO-DI-N-PROPYLAMINE		200	U					255	U				
N-NITROSODIPHENYLAMINE		200	U					255	U				
PENTACHLOROPHENOL		200	U					255	U				
PHENANTHRENE					4						21		
PHENOL		200	U					255	U				
PYRENE					4						36		

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-0.502-02-GR2			12SB25-000.5-01			12SB25-000.5-01-GR2		
SDG: C5039	LAB_ID	C5039-15			C5039-15			C5039-12			C5039-12		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			72.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		190	U					230	U				
CARBAZOLE		190	U					230	U				
CHRYSENE					110						330		
DIBENZO(A,H)ANTHRACENE					14						13		
DIBENZOFURAN		190	U					230	U				
DIETHYL PHTHALATE		190	U					230	U				
DIMETHYL PHTHALATE		250	J	P				240	J	P			
DI-N-BUTYL PHTHALATE		190	U					230	U				
DI-N-OCTYL PHTHALATE		190	U					230	U				
FLUORANTHENE					260						970		
FLUORENE					5.7						50		
HEXACHLOROBENZENE		190	U					230	U				
HEXACHLOROBUTADIENE		190	U					230	U				
HEXACHLOROCYCLOPENTADIENE		190	U					230	U				
HEXACHLOROETHANE		190	U					230	U				
INDENO(1,2,3-CD)PYRENE					51						140		
ISOPHORONE		190	U					230	U				
NAPHTHALENE					29						17		
NITROBENZENE		190	U					230	U				
N-NITROSO-DI-N-PROPYLAMINE		190	U					230	U				
N-NITROSODIPHENYLAMINE		190	U					230	U				
PENTACHLOROPHENOL		190	U					230	U				
PHENANTHRENE					110						580		
PHENOL		190	U					230	U				
PYRENE					180						630		

PROJ_NO: 02014	NSAMPLE	12SB25-0304-03			12SB25-0304-03-GR2			12SB26-0.502-02			12SB26-0.502-02-GR2		
SDG: C5039	LAB_ID	C5039-16			C5039-16			C5039-09			C5039-09		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			86.0			86.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		190	U					190	U				
CARBAZOLE		190	U					190	U				
CHRYSENE					1.9	U					8.5		
DIBENZO(A,H)ANTHRACENE					1.9	U					1.9	U	
DIBENZOFURAN		190	U					190	U				
DIETHYL PHTHALATE		190	U					190	U				
DIMETHYL PHTHALATE		230	J	P				220	J	P			
DI-N-BUTYL PHTHALATE		190	U					190	U				
DI-N-OCTYL PHTHALATE		190	U					190	U				
FLUORANTHENE					1.9	U					20		
FLUORENE					1.9	U					1.9	U	
HEXACHLOROBENZENE		190	U					190	U				
HEXACHLOROBUTADIENE		190	U					190	U				
HEXACHLOROCYCLOPENTADIENE		190	U					190	U				
HEXACHLOROETHANE		190	U					190	U				
INDENO(1,2,3-CD)PYRENE					1.9	U					4.3		
ISOPHORONE		190	U					190	U				
NAPHTHALENE					1.9	U					1.9	U	
NITROBENZENE		190	U					190	U				
N-NITROSO-DI-N-PROPYLAMINE		190	U					190	U				
N-NITROSODIPHENYLAMINE		190	U					190	U				
PENTACHLOROPHENOL		190	U					190	U				
PHENANTHRENE					1.9	U					11		
PHENOL		190	U					190	U				
PYRENE					1.9	U					15		

PROJ_NO: 02014	NSAMPLE	12SB26-000.5-01			12SB26-000.5-01DL			12SB26-000.5-01-GR2			12SB26-0304-03		
SDG: C5039	LAB_ID	C5039-08			C5039-08DL			C5039-08			C5039-10		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			75.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		220	U								195	U	
CARBAZOLE		220	U								195	U	
CHRYSENE								750					
DIBENZO(A,H)ANTHRACENE								39					
DIBENZOFURAN		220	U								195	U	
DIETHYL PHTHALATE		220	U								195	U	
DIMETHYL PHTHALATE		220	J	P							260	J	P
DI-N-BUTYL PHTHALATE		220	U								195	U	
DI-N-OCTYL PHTHALATE		220	U								195	U	
FLUORANTHENE					2100								
FLUORENE								59	J	G			
HEXACHLOROBENZENE		220	U								195	U	
HEXACHLOROBUTADIENE		220	U								195	U	
HEXACHLOROCYCLOPENTADIENE		220	U								195	U	
HEXACHLOROETHANE		220	U								195	U	
INDENO(1,2,3-CD)PYRENE								290					
ISOPHORONE		220	U								195	U	
NAPHTHALENE								9.3					
NITROBENZENE		220	U								195	U	
N-NITROSO-DI-N-PROPYLAMINE		220	U								195	U	
N-NITROSODIPHENYLAMINE		220	U								195	U	
PENTACHLOROPHENOL		220	U								195	U	
PHENANTHRENE								850	J	G			
PHENOL		220	U								195	U	
PYRENE								1300	E				

PROJ_NO: 02014	NSAMPLE	12SB26-0304-03-GR2			12SB28-0.502-02			12SB28-0.502-02-GR2			12SB28-0304-03		
SDG: C5039	LAB_ID	C5039-10			C5039-17			C5039-17			C5039-18		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			81.0			81.0			87.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					205	U					190	U	
CARBAZOLE					205	U					190	U	
CHRYSENE		1.95	U					2.05	U				
DIBENZO(A,H)ANTHRACENE		1.95	U					2.05	U				
DIBENZOFURAN					205	U					190	U	
DIETHYL PHTHALATE					205	U					190	U	
DIMETHYL PHTHALATE					170	J	P				260	J	P
DI-N-BUTYL PHTHALATE					205	U					190	U	
DI-N-OCTYL PHTHALATE					205	U					190	U	
FLUORANTHENE		1.95	U					3.3	J	P			
FLUORENE		1.95	U					2.05	U				
HEXACHLOROBENZENE					205	U					190	U	
HEXACHLOROBUTADIENE					205	U					190	U	
HEXACHLOROCYCLOPENTADIENE					205	U					190	U	
HEXACHLOROETHANE					205	U					190	U	
INDENO(1,2,3-CD)PYRENE		1.95	U					2.05	U				
ISOPHORONE					205	U					190	U	
NAPHTHALENE		1.95	U					2.05	U				
NITROBENZENE					205	U					190	U	
N-NITROSO-DI-N-PROPYLAMINE					205	U					190	U	
N-NITROSODIPHENYLAMINE					205	U					190	U	
PENTACHLOROPHENOL					205	U					190	U	
PHENANTHRENE		1.95	U					2.1	J	P			
PHENOL					205	U					190	U	
PYRENE		1.95	U					2.5	J	P			

PROJ_NO: 02014	NSAMPLE	12SB28-0304-03-GR2			12SB29-0.502-02			12SB29-0.502-02-GR2			12SB29-000.5-01		
SDG: C5039	LAB_ID	C5039-18			C5039-06			C5039-06			C5039-05		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			80.0			80.0			71.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					205	U					230	U	
CARBAZOLE					205	U					230	U	
CHRYSENE		1.9	U					2.05	U				
DIBENZO(A,H)ANTHRACENE		1.9	U					2.05	U				
DIBENZOFURAN					205	U					230	U	
DIETHYL PHTHALATE					205	U					230	U	
DIMETHYL PHTHALATE					210	J	P				230	J	P
DI-N-BUTYL PHTHALATE					205	U					230	U	
DI-N-OCTYL PHTHALATE					205	U					230	U	
FLUORANTHENE		1.9	U					2.05	U				
FLUORENE		1.9	U					2.05	U				
HEXACHLOROBENZENE					205	U					230	U	
HEXACHLOROBUTADIENE					205	U					230	U	
HEXACHLOROCYCLOPENTADIENE					205	U					230	U	
HEXACHLOROETHANE					205	U					230	U	
INDENO(1,2,3-CD)PYRENE		1.9	U					2.05	U				
ISOPHORONE					205	U					230	U	
NAPHTHALENE		1.9	U					2.05	U				
NITROBENZENE					205	U					230	U	
N-NITROSO-DI-N-PROPYLAMINE					205	U					230	U	
N-NITROSODIPHENYLAMINE					205	U					230	U	
PENTACHLOROPHENOL					205	U					230	U	
PHENANTHRENE		1.9	U					2.05	U				
PHENOL					205	U					230	U	
PYRENE		1.9	U					2.05	U				

PROJ_NO: 02014	NSAMPLE	12SB29-000.5-01-GR2			12SB29-0304-03			12SB29-0304-03-GR2			12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-05			C5039-07			C5039-07			C5039-11		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			85.0			85.0			74.0		
	DUP_OF										12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE					195	U					225	U	
CARBAZOLE					195	U					225	U	
CHRYSENE		14						1.95	U				
DIBENZO(A,H)ANTHRACENE		2.3	U					1.95	U				
DIBENZOFURAN					195	U					225	U	
DIETHYL PHTHALATE					195	U					225	U	
DIMETHYL PHTHALATE					170	J	P				330	J	P
DI-N-BUTYL PHTHALATE					195	U					225	U	
DI-N-OCTYL PHTHALATE					195	U					225	U	
FLUORANTHENE		30						1.95	U				
FLUORENE		2.3	U					1.95	U				
HEXACHLOROBENZENE					195	U					225	U	
HEXACHLOROBUTADIENE					195	U					225	U	
HEXACHLOROCYCLOPENTADIENE					195	U					225	U	
HEXACHLOROETHANE					195	U					225	U	
INDENO(1,2,3-CD)PYRENE		8.4						1.95	U				
ISOPHORONE					195	U					225	U	
NAPHTHALENE		2.3	U					1.95	U				
NITROBENZENE					195	U					225	U	
N-NITROSO-DI-N-PROPYLAMINE					195	U					225	U	
N-NITROSODIPHENYLAMINE					195	U					225	U	
PENTACHLOROPHENOL					195	U					225	U	
PHENANTHRENE		13						1.95	U				
PHENOL					195	U					225	U	
PYRENE		23						1.95	U				

PROJ_NO: 02014	NSAMPLE	12SB-DUP-05DL			12SB-DUP-05-GR2		
SDG: C5039	LAB_ID	C5039-11DL			C5039-11		
FRACTION: OS	SAMP_DATE	12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.0			74.0		
	DUP_OF	12SB26-000.5-01			12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE							
CARBAZOLE							
CHRYSENE					500		
DIBENZO(A,H)ANTHRACENE					26		
DIBENZOFURAN							
DIETHYL PHTHALATE							
DIMETHYL PHTHALATE							
DI-N-BUTYL PHTHALATE							
DI-N-OCTYL PHTHALATE							
FLUORANTHENE		1500					
FLUORENE					32	J	G
HEXACHLOROBENZENE							
HEXACHLOROBUTADIENE							
HEXACHLOROCYCLOPENTADIENE							
HEXACHLOROETHANE							
INDENO(1,2,3-CD)PYRENE					200		
ISOPHORONE							
NAPHTHALENE					6.3		
NITROBENZENE							
N-NITROSO-DI-N-PROPYLAMINE							
N-NITROSODIPHENYLAMINE							
PENTACHLOROPHENOL							
PHENANTHRENE					490	J	G
PHENOL							
PYRENE					860		

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-000.5-01			12SB13-0304-03			12SB14-000.5-01		
SDG: C5039	LAB_ID	C5039-03			C5039-02			C5039-04			C5039-01		
FRACTION: PEST	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.4			80.3			82.8			63.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.05	UL	R	1	U		1.35	U	
4,4'-DDE		1.05	U		1.05	UL	R	1	U		1.35	U	
4,4'-DDT		1.05	U		1.05	UL	R	1	U		1.35	U	
ALDRIN		1.05	U		1.05	UL	R	1	U		1.35	U	
ALPHA-BHC		1.05	U		1.05	UL	R	1	U		1.35	U	
ALPHA-CHLORDANE		1.05	U		1.05	UL	R	1	U		1.35	U	
BETA-BHC		1.05	U		1.05	UL	R	1	U		1.35	U	
DELTA-BHC		1.05	U		1.05	UL	R	1	U		1.35	U	
DIELDRIN		1.05	U		1.05	UL	R	1	U		1.35	U	
ENDOSULFAN I		1.05	U		1.05	UL	R	1	U		1.35	U	
ENDOSULFAN II		1.05	U		1.05	UL	R	1	U		1.35	U	
ENDOSULFAN SULFATE		1.05	U		1.05	UL	R	1	U		1.35	U	
ENDRIN		1.05	U		1.05	UL	R	1	U		1.35	U	
ENDRIN ALDEHYDE		1.05	U		1.05	UL	R	1	U		1.35	U	
ENDRIN KETONE		1.05	U		1.05	UL	R	1	U		1.35	U	
GAMMA-BHC (LINDANE)		1.05	U		1.05	UL	R	1	U		1.35	U	
GAMMA-CHLORDANE		1.05	U		1.05	UL	R	1	U		1.35	U	
HEPTACHLOR		1.05	U		1.05	UL	R	1	U		1.35	U	
HEPTACHLOR EPOXIDE		1.05	U		1.05	UL	R	1	U		1.35	U	
METHOXYCHLOR		1.05	U		1.05	UL	R	1	U		1.35	U	
TOXAPHENE		10.5	U		10.5	UL	R	10	U		13.5	U	

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-000.5-01			12SB25-0304-03			12SB26-0.502-02		
SDG: C5039	LAB_ID	C5039-15			C5039-12			C5039-16			C5039-09		
FRACTION: PEST	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.5			72.0			85.8			86.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1	U		1.2	UJ	R	1	U		1	U	
4,4'-DDE		1	U		1.2	UJ	DR	1	U		1	U	
4,4'-DDT		1	U		1.2	UJ	R	1	U		1	U	
ALDRIN		1	U		1.2	UJ	R	1	U		1	U	
ALPHA-BHC		1	U		1.2	UJ	R	1	U		1	U	
ALPHA-CHLORDANE		1	U		1.2	UJ	R	1	U		1	U	
BETA-BHC		1	U		1.2	UJ	R	1	U		1	U	
DELTA-BHC		1	U		1.2	UJ	DR	1	U		1	U	
DIELDRIN		1	U		1.2	UJ	R	1	U		1	U	
ENDOSULFAN I		1	U		1.2	UJ	R	1	U		1	U	
ENDOSULFAN II		1	U		1.2	UJ	R	1	U		1	U	
ENDOSULFAN SULFATE		1	U		1.2	UJ	DR	1	U		1	U	
ENDRIN		1	U		1.2	UJ	R	1	U		1	U	
ENDRIN ALDEHYDE		1	U		1.2	UJ	R	1	U		1	U	
ENDRIN KETONE		1	U		1.2	UJ	R	1	U		1	U	
GAMMA-BHC (LINDANE)		1	U		1.2	UJ	R	1	U		1	U	
GAMMA-CHLORDANE		1	U		1.2	UJ	R	1	U		1	U	
HEPTACHLOR		1	U		1.2	UJ	R	1	U		1	U	
HEPTACHLOR EPOXIDE		1	U		1.2	UJ	R	1	U		1	U	
METHOXYCHLOR		1	U		1.2	UJ	DR	1	U		1	U	
TOXAPHENE		10	U		12	UJ	R	10	U		10	U	

PROJ_NO: 02014	NSAMPLE	12SB26-000.5-01			12SB26-0304-03			12SB28-0.502-02			12SB28-0304-03		
SDG: C5039	LAB_ID	C5039-08			C5039-10			C5039-17			C5039-18		
FRACTION: PEST	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.9			83.8			80.9			86.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.15	UL	R	1	U		1.05	U		1	U	
4,4'-DDE		1.15	UL	R	1	U		1.05	U		1	U	
4,4'-DDT		1.15	UL	R	1	U		1.05	U		1	U	
ALDRIN		1.15	UL	R	1	U		1.05	U		1	U	
ALPHA-BHC		1.15	UL	R	1	U		1.05	U		1	U	
ALPHA-CHLORDANE		1.15	UL	R	1	U		1.05	U		1	U	
BETA-BHC		1.15	UL	R	1	U		1.05	U		1	U	
DELTA-BHC		1.15	UL	R	1	U		1.05	U		1	U	
DIELDRIN		28	L	R	1	U		1.05	U		1	U	
ENDOSULFAN I		1.15	UL	R	1	U		1.05	U		1	U	
ENDOSULFAN II		1.15	UL	R	1	U		1.05	U		1	U	
ENDOSULFAN SULFATE		1.15	UL	R	1	U		1.05	U		1	U	
ENDRIN		1.15	UL	R	1	U		1.05	U		1	U	
ENDRIN ALDEHYDE		1.15	UL	R	1	U		1.05	U		1	U	
ENDRIN KETONE		1.15	UL	R	1	U		1.05	U		1	U	
GAMMA-BHC (LINDANE)		1.15	UL	R	1	U		1.05	U		1	U	
GAMMA-CHLORDANE		1.15	UL	R	1	U		1.05	U		1	U	
HEPTACHLOR		1.15	UL	R	1	U		1.05	U		1	U	
HEPTACHLOR EPOXIDE		1.15	UL	R	1	U		1.05	U		1	U	
METHOXYCHLOR		1.15	UL	R	1	U		1.05	U		1	U	
TOXAPHENE		11.5	UL	R	10	U		10.5	U		10	U	

PROJ_NO: 02014	NSAMPLE	12SB29-0.502-02			12SB29-000.5-01			12SB29-0304-03			12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-06			C5039-05			C5039-07			C5039-11		
FRACTION: PEST	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			70.7			84.5			74.0		
	DUP_OF										12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
4,4'-DDE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
4,4'-DDT		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ALDRIN		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ALPHA-BHC		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ALPHA-CHLORDANE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
BETA-BHC		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
DELTA-BHC		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
DIELDRIN		1.05	U		1.2	UJ	R	1	U		28	J	R
ENDOSULFAN I		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ENDOSULFAN II		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ENDOSULFAN SULFATE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ENDRIN		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ENDRIN ALDEHYDE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
ENDRIN KETONE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
GAMMA-BHC (LINDANE)		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
GAMMA-CHLORDANE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
HEPTACHLOR		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
HEPTACHLOR EPOXIDE		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
METHOXYCHLOR		1.05	U		1.2	UJ	R	1	U		1.15	UJ	R
TOXAPHENE		10.5	U		12	UJ	R	10	U		11.5	UJ	R

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-000.5-01			12SB13-0304-03			12SB14-000.5-01		
SDG: C5039	LAB_ID	C5039-03			C5039-02			C5039-04			C5039-01		
FRACTION: PCB	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			83.0			64.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	
AROCLOR-1221		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	
AROCLOR-1232		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	
AROCLOR-1242		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	
AROCLOR-1248		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	
AROCLOR-1254		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	
AROCLOR-1260		10.5	UJ	R	10.5	UJ	R	10	U		13.5	U	

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-000.5-01			12SB25-0304-03			12SB26-0.502-02		
SDG: C5039	LAB_ID	C5039-15			C5039-12			C5039-16			C5039-09		
FRACTION: PCB	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.0			72.0			86.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10	U		12	UJ	R	10	UJ	R	10	U	
AROCLOR-1221		10	U		12	UJ	R	10	UJ	R	10	U	
AROCLOR-1232		10	U		12	UJ	R	10	UJ	R	10	U	
AROCLOR-1242		10	U		12	UJ	R	10	UJ	R	10	U	
AROCLOR-1248		10	U		12	UJ	R	10	UJ	R	10	U	
AROCLOR-1254		10	U		12	UJ	R	10	UJ	R	10	U	
AROCLOR-1260		10	U		12	UJ	R	10	UJ	R	10	U	

PROJ_NO: 02014	NSAMPLE	12SB26-000.5-01			12SB26-0304-03			12SB28-0.502-02			12SB28-0304-03		
SDG: C5039	LAB_ID	C5039-08			C5039-10			C5039-17			C5039-18		
FRACTION: PCB	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			84.0			81.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		11.5	UJ	R	10	U		10.5	U		10	U	
AROCLOR-1221		11.5	UJ	R	10	U		10.5	U		10	U	
AROCLOR-1232		11.5	UJ	R	10	U		10.5	U		10	U	
AROCLOR-1242		11.5	UJ	R	10	U		10.5	U		10	U	
AROCLOR-1248		11.5	UJ	R	10	U		10.5	U		10	U	
AROCLOR-1254		11.5	UJ	R	10	U		10.5	U		10	U	
AROCLOR-1260		11.5	UJ	R	10	U		10.5	U		10	U	

PROJ_NO: 02014	NSAMPLE	12SB29-0.502-02			12SB29-000.5-01			12SB29-0304-03			12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-06			C5039-05			C5039-07			C5039-11		
FRACTION: PCB	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			71.0			84.0			74.0		
	DUP_OF										12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R
AROCLOR-1221		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R
AROCLOR-1232		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R
AROCLOR-1242		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R
AROCLOR-1248		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R
AROCLOR-1254		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R
AROCLOR-1260		10.5	UJ	R	12	UJ	R	10	U		11.5	UJ	R

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.98 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030389.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.8	U	0.73	5.6	ug/Kg
74-87-3	Chloromethane	2.8	U	0.97	5.6	ug/Kg
75-01-4	Vinyl Chloride	2.8	U	1.4	5.6	ug/Kg
74-83-9	Bromomethane	2.8	U	2.8	5.6	ug/Kg
75-00-3	Chloroethane	2.8	U	1.6	5.6	ug/Kg
75-69-4	Trichlorofluoromethane	2.8	U	1.5	5.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.8	U	1.5	5.6	ug/Kg
75-35-4	1,1-Dichloroethene	2.8	U	1.7	5.6	ug/Kg
67-64-1	Acetone	14	U	3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.8	U	1.2	5.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.8	U	1.1	5.6	ug/Kg
79-20-9	Methyl Acetate	2.8	U	1.7	5.6	ug/Kg
75-09-2	Methylene Chloride	2.8	U	1.6	5.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.8	U	0.78	5.6	ug/Kg
75-34-3	1,1-Dichloroethane	2.8	U	1.1	5.6	ug/Kg
110-82-7	Cyclohexane	2.8	U	1.1	5.6	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.8	U	1.1	5.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.8	U	1	5.6	ug/Kg
74-97-5	Bromochloromethane	2.8	U	0.89	5.6	ug/Kg
67-66-3	Chloroform	2.8	U	0.84	5.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.8	U	0.99	5.6	ug/Kg
108-87-2	Methylcyclohexane	2.8	U	1.2	5.6	ug/Kg
71-43-2	Benzene	2.8	U	0.43	5.6	ug/Kg
107-06-2	1,2-Dichloroethane	2.8	U	0.72	5.6	ug/Kg
79-01-6	Trichloroethene	2.8	U	0.97	5.6	ug/Kg
78-87-5	1,2-Dichloropropane	2.8	U	0.29	5.6	ug/Kg
75-27-4	Bromodichloromethane	2.8	U	0.7	5.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.8	U	0.72	5.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.8	U	0.89	5.6	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.98 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030389.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.8	U	0.81	5.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.8	U	1	5.6	ug/Kg
591-78-6	2-Hexanone	14	U	4.4	28	ug/Kg
124-48-1	Dibromochloromethane	2.8	U	0.61	5.6	ug/Kg
106-93-4	1,2-Dibromoethane	2.8	U	0.72	5.6	ug/Kg
127-18-4	Tetrachloroethene	2.8	U	1.1	5.6	ug/Kg
108-90-7	Chlorobenzene	2.8	U	0.56	5.6	ug/Kg
100-41-4	Ethyl Benzene	2.8	U	0.7	5.6	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.81	11	ug/Kg
95-47-6	o-Xylene	2.8	U	0.77	5.6	ug/Kg
100-42-5	Styrene	2.8	U	0.51	5.6	ug/Kg
75-25-2	Bromoform	2.8	U	0.84	5.6	ug/Kg
98-82-8	Isopropylbenzene	2.8	U	0.54	5.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.8	U	0.52	5.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.8	U	0.42	5.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.8	U	0.46	5.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.8	U	0.7	5.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.8	U	0.98	5.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.8	U	0.79	5.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.8	U	0.56	5.6	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	48		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	50.2		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.7		85 - 120	97%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	116216	4.39			
540-36-3	1,4-Difluorobenzene	209005	5.13			
3114-55-4	Chlorobenzene-d5	206825	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	104246	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.98 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030389.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	4.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030380.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.1	U	0.81	6.2	ug/Kg
74-87-3	Chloromethane	3.1	U	1.1	6.2	ug/Kg
75-01-4	Vinyl Chloride	3.1	U	1.5	6.2	ug/Kg
74-83-9	Bromomethane	3.1	U	3	6.2	ug/Kg
75-00-3	Chloroethane	3.1	U	1.7	6.2	ug/Kg
75-69-4	Trichlorofluoromethane	3.1	U	1.6	6.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.1	U	1.6	6.2	ug/Kg
75-35-4	1,1-Dichloroethene	3.1	U	1.8	6.2	ug/Kg
67-64-1	Acetone	15.5	U	3.7	31	ug/Kg
75-15-0	Carbon Disulfide	3.1	U	1.3	6.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.1	U	1.2	6.2	ug/Kg
79-20-9	Methyl Acetate	3.1	U	1.9	6.2	ug/Kg
75-09-2	Methylene Chloride	3.1	U	1.8	6.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.1	U	0.86	6.2	ug/Kg
75-34-3	1,1-Dichloroethane	3.1	U	1.2	6.2	ug/Kg
110-82-7	Cyclohexane	3.1	U	1.3	6.2	ug/Kg
78-93-3	2-Butanone	15.5	U	3.9	31	ug/Kg
56-23-5	Carbon Tetrachloride	3.1	U	1.2	6.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.1	U	1.1	6.2	ug/Kg
74-97-5	Bromochloromethane	3.1	U	0.98	6.2	ug/Kg
67-66-3	Chloroform	3.1	U	0.92	6.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.1	U	1.1	6.2	ug/Kg
108-87-2	Methylcyclohexane	3.1	U	1.3	6.2	ug/Kg
71-43-2	Benzene	3.1	U	0.47	6.2	ug/Kg
107-06-2	1,2-Dichloroethane	3.1	U	0.79	6.2	ug/Kg
79-01-6	Trichloroethene	3.1	U	1.1	6.2	ug/Kg
78-87-5	1,2-Dichloropropane	3.1	U	0.32	6.2	ug/Kg
75-27-4	Bromodichloromethane	3.1	U	0.77	6.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15.5	U	3.6	31	ug/Kg
108-88-3	Toluene	3.1	U	0.79	6.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.1	U	0.98	6.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	4.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030380.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.1	U	0.89	6.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.1	U	1.1	6.2	ug/Kg
591-78-6	2-Hexanone	15.5	U	4.9	31	ug/Kg
124-48-1	Dibromochloromethane	3.1	U	0.67	6.2	ug/Kg
106-93-4	1,2-Dibromoethane	3.1	U	0.79	6.2	ug/Kg
127-18-4	Tetrachloroethene	3.1	U	1.3	6.2	ug/Kg
108-90-7	Chlorobenzene	3.1	U	0.62	6.2	ug/Kg
100-41-4	Ethyl Benzene	3.1	U	0.77	6.2	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.89	12	ug/Kg
95-47-6	o-Xylene	3.1	U	0.84	6.2	ug/Kg
100-42-5	Styrene	3.1	U	0.56	6.2	ug/Kg
75-25-2	Bromoform	3.1	U	0.92	6.2	ug/Kg
98-82-8	Isopropylbenzene	3.1	U	0.59	6.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.1	U	0.57	6.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.1	U	0.46	6.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.1	U	0.51	6.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.1	U	0.77	6.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.1	U	1.1	6.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.1	U	0.87	6.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.1	U	0.62	6.2	ug/Kg
1330-20-7	Total Xylenes	9.5	U	1.7	19	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	40.8		55 - 158	82%	SPK: 50
1868-53-7	Dibromofluoromethane	46.9		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	48		85 - 115	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	38.6	*	85 - 120	77%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	122115	4.38			
540-36-3	1,4-Difluorobenzene	220451	5.13			
3114-55-4	Chlorobenzene-d5	192694	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	85014	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	4.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030380.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-03RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002221.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.91	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	1	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.84	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.91	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.28	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.66	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.84	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-03RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002221.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.68	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.66	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.48	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.66	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	21	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.5		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	40.2		53 - 156	80%	SPK: 50
2037-26-5	Toluene-d8	41.6	*	85 - 115	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	31.2	*	85 - 120	62%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	572124	8.05			
540-36-3	1,4-Difluorobenzene	1055430	8.95			
3114-55-4	Chlorobenzene-d5	615885	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	230877	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-03RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002221.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.84 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030379.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.7	5.4	ug/Kg
74-87-3	Chloromethane	2.7	U	0.92	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
74-83-9	Bromomethane	2.7	U	2.6	5.4	ug/Kg
75-00-3	Chloroethane	2.7	U	1.5	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	13.5	U	3.2	27	ug/Kg
75-15-0	Carbon Disulfide	2.7	U	1.1	5.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.7	U	1	5.4	ug/Kg
79-20-9	Methyl Acetate	2.7	U	1.6	5.4	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.74	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
110-82-7	Cyclohexane	2.7	U	1.1	5.4	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.7	U	1.1	5.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.95	5.4	ug/Kg
74-97-5	Bromochloromethane	2.7	U	0.85	5.4	ug/Kg
67-66-3	Chloroform	2.7	U	0.79	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.94	5.4	ug/Kg
108-87-2	Methylcyclohexane	2.7	U	1.1	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.68	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.92	5.4	ug/Kg
78-87-5	1,2-Dichloropropane	2.7	U	0.28	5.4	ug/Kg
75-27-4	Bromodichloromethane	2.7	U	0.66	5.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.1	27	ug/Kg
108-88-3	Toluene	2.7	U	0.68	5.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.7	U	0.85	5.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.84 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030379.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.7	U	0.77	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.96	5.4	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.2	27	ug/Kg
124-48-1	Dibromochloromethane	2.7	U	0.58	5.4	ug/Kg
106-93-4	1,2-Dibromoethane	2.7	U	0.68	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
108-90-7	Chlorobenzene	2.7	U	0.54	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.66	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.73	5.4	ug/Kg
100-42-5	Styrene	2.7	U	0.48	5.4	ug/Kg
75-25-2	Bromoform	2.7	U	0.79	5.4	ug/Kg
98-82-8	Isopropylbenzene	2.7	U	0.51	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.49	5.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.7	U	0.4	5.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.7	U	0.44	5.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.7	U	0.66	5.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.7	U	0.93	5.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.7	U	0.75	5.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.7	U	0.54	5.4	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41		55 - 158	82%	SPK: 50
1868-53-7	Dibromofluoromethane	45.1		53 - 156	90%	SPK: 50
2037-26-5	Toluene-d8	49.1		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.3		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	135925	4.38			
540-36-3	1,4-Difluorobenzene	249355	5.12			
3114-55-4	Chlorobenzene-d5	234795	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	102132	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.84 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030379.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030381.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.87	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.2	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	12.5	U	3.1	25	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.98	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.4	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.7	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.95	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	12.5	U	3.2	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.9	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.8	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.75	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.89	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.87	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.26	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	3	25	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.8	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030381.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.73	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.91	5.1	ug/Kg
591-78-6	2-Hexanone	12.5	U	4	25	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.75	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.88	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.71	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.7		55 - 158	87%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	49.8		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.2		85 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	128112	4.38			
540-36-3	1,4-Difluorobenzene	237870	5.12			
3114-55-4	Chlorobenzene-d5	240219	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	127470	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030381.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	36
Sample Wt/Vol:	4.74 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030378.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	4.1	U	1.1	8.2	ug/Kg
74-87-3	Chloromethane	4.1	U	1.4	8.2	ug/Kg
75-01-4	Vinyl Chloride	4.1	U	2	8.2	ug/Kg
74-83-9	Bromomethane	4.1	U	4	8.2	ug/Kg
75-00-3	Chloroethane	4.1	U	2.3	8.2	ug/Kg
75-69-4	Trichlorofluoromethane	4.1	U	2.2	8.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	4.1	U	2.2	8.2	ug/Kg
75-35-4	1,1-Dichloroethene	4.1	U	2.4	8.2	ug/Kg
67-64-1	Acetone	20.5	U	5	41	ug/Kg
75-15-0	Carbon Disulfide	4.1	U	1.7	8.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	4.1	U	1.6	8.2	ug/Kg
79-20-9	Methyl Acetate	4.1	U	2.5	8.2	ug/Kg
75-09-2	Methylene Chloride	4.1	U	2.3	8.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	4.1	U	1.1	8.2	ug/Kg
75-34-3	1,1-Dichloroethane	4.1	U	1.5	8.2	ug/Kg
110-82-7	Cyclohexane	4.1	U	1.7	8.2	ug/Kg
78-93-3	2-Butanone	20.5	U	5.1	41	ug/Kg
56-23-5	Carbon Tetrachloride	4.1	U	1.6	8.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	4.1	U	1.5	8.2	ug/Kg
74-97-5	Bromochloromethane	4.1	U	1.3	8.2	ug/Kg
67-66-3	Chloroform	4.1	U	1.2	8.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	4.1	U	1.5	8.2	ug/Kg
108-87-2	Methylcyclohexane	4.1	U	1.7	8.2	ug/Kg
71-43-2	Benzene	4.1	U	0.63	8.2	ug/Kg
107-06-2	1,2-Dichloroethane	4.1	U	1.1	8.2	ug/Kg
79-01-6	Trichloroethene	4.1	U	1.4	8.2	ug/Kg
78-87-5	1,2-Dichloropropane	4.1	U	0.43	8.2	ug/Kg
75-27-4	Bromodichloromethane	4.1	U	1	8.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	20.5	U	4.8	41	ug/Kg
108-88-3	Toluene	4.1	U	1.1	8.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	4.1	U	1.3	8.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	36
Sample Wt/Vol:	4.74 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030378.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	4.1	U	1.2	8.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	4.1	U	1.5	8.2	ug/Kg
591-78-6	2-Hexanone	20.5	U	6.5	41	ug/Kg
124-48-1	Dibromochloromethane	4.1	U	0.89	8.2	ug/Kg
106-93-4	1,2-Dibromoethane	4.1	U	1.1	8.2	ug/Kg
127-18-4	Tetrachloroethene	4.1	U	1.7	8.2	ug/Kg
108-90-7	Chlorobenzene	4.1	U	0.82	8.2	ug/Kg
100-41-4	Ethyl Benzene	4.1	U	1	8.2	ug/Kg
179601-23-1	m/p-Xylenes	8	U	1.2	16	ug/Kg
95-47-6	o-Xylene	4.1	U	1.1	8.2	ug/Kg
100-42-5	Styrene	4.1	U	0.74	8.2	ug/Kg
75-25-2	Bromoform	4.1	U	1.2	8.2	ug/Kg
98-82-8	Isopropylbenzene	4.1	U	0.79	8.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	4.1	U	0.76	8.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	4.1	U	0.61	8.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	4.1	U	0.68	8.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	4.1	U	1	8.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	4.1	U	1.4	8.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	4.1	U	1.2	8.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	4.1	U	0.82	8.2	ug/Kg
1330-20-7	Total Xylenes	12.5	U	2.3	25	ug/Kg
123-91-1	1,4-Dioxane	80	U	160	160	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43		55 - 158	86%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	49.3		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.7		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	65665	4.39			
540-36-3	1,4-Difluorobenzene	118201	5.13			
3114-55-4	Chlorobenzene-d5	112266	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	49315	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	36
Sample Wt/Vol:	4.74 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030378.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-01RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	36
Sample Wt/Vol:	4.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002220.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.95	U	1	7.9	ug/Kg
74-87-3	Chloromethane	3.95	U	1.4	7.9	ug/Kg
75-01-4	Vinyl Chloride	3.95	U	1.9	7.9	ug/Kg
74-83-9	Bromomethane	3.95	U	3.9	7.9	ug/Kg
75-00-3	Chloroethane	3.95	U	2.2	7.9	ug/Kg
75-69-4	Trichlorofluoromethane	3.95	U	2.1	7.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.95	U	2.1	7.9	ug/Kg
75-35-4	1,1-Dichloroethene	3.95	U	2.3	7.9	ug/Kg
67-64-1	Acetone	20	U	4.8	40	ug/Kg
75-15-0	Carbon Disulfide	3.95	U	1.7	7.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.95	U	1.5	7.9	ug/Kg
79-20-9	Methyl Acetate	3.95	U	2.4	7.9	ug/Kg
75-09-2	Methylene Chloride	3.95	U	2.2	7.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.95	U	1.1	7.9	ug/Kg
75-34-3	1,1-Dichloroethane	3.95	U	1.5	7.9	ug/Kg
110-82-7	Cyclohexane	3.95	U	1.6	7.9	ug/Kg
78-93-3	2-Butanone	20	U	4.9	40	ug/Kg
56-23-5	Carbon Tetrachloride	3.95	U	1.6	7.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.95	U	1.4	7.9	ug/Kg
74-97-5	Bromochloromethane	3.95	U	1.2	7.9	ug/Kg
67-66-3	Chloroform	3.95	U	1.2	7.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.95	U	1.4	7.9	ug/Kg
108-87-2	Methylcyclohexane	3.95	U	1.7	7.9	ug/Kg
71-43-2	Benzene	3.95	U	0.6	7.9	ug/Kg
107-06-2	1,2-Dichloroethane	3.95	U	1	7.9	ug/Kg
79-01-6	Trichloroethene	3.95	U	1.4	7.9	ug/Kg
78-87-5	1,2-Dichloropropane	3.95	U	0.41	7.9	ug/Kg
75-27-4	Bromodichloromethane	3.95	U	0.98	7.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	20	U	4.6	40	ug/Kg
108-88-3	Toluene	3.95	U	1	7.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.95	U	1.2	7.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-01RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	36
Sample Wt/Vol:	4.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002220.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.95	U	1.1	7.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.95	U	1.4	7.9	ug/Kg
591-78-6	2-Hexanone	20	U	6.2	40	ug/Kg
124-48-1	Dibromochloromethane	3.95	U	0.85	7.9	ug/Kg
106-93-4	1,2-Dibromoethane	3.95	U	1	7.9	ug/Kg
127-18-4	Tetrachloroethene	3.95	U	1.6	7.9	ug/Kg
108-90-7	Chlorobenzene	3.95	U	0.79	7.9	ug/Kg
100-41-4	Ethyl Benzene	3.95	U	0.98	7.9	ug/Kg
179601-23-1	m/p-Xylenes	8	U	1.1	16	ug/Kg
95-47-6	o-Xylene	3.95	U	1.1	7.9	ug/Kg
100-42-5	Styrene	3.95	U	0.71	7.9	ug/Kg
75-25-2	Bromoform	3.95	U	1.2	7.9	ug/Kg
98-82-8	Isopropylbenzene	3.95	U	0.76	7.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.95	U	0.73	7.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.95	U	0.59	7.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.95	U	0.65	7.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.95	U	0.98	7.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.95	U	1.4	7.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.95	U	1.1	7.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.95	U	0.79	7.9	ug/Kg
1330-20-7	Total Xylenes	12	U	2.2	24	ug/Kg
123-91-1	1,4-Dioxane	80	U	32	160	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	40.6		55 - 158	81%	SPK: 50
1868-53-7	Dibromofluoromethane	40.6		53 - 156	81%	SPK: 50
2037-26-5	Toluene-d8	38.2	*	85 - 115	76%	SPK: 50
460-00-4	4-Bromofluorobenzene	25.6	*	85 - 120	51%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	253342	8.05			
540-36-3	1,4-Difluorobenzene	445141	8.95			
3114-55-4	Chlorobenzene-d5	227107	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	66891	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-01RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	36
Sample Wt/Vol:	4.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002220.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030390.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030390.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.9		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	48.7		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.9		85 - 115	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	51		85 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	116486	4.39			
540-36-3	1,4-Difluorobenzene	207191	5.13			
3114-55-4	Chlorobenzene-d5	216711	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	111882	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030390.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030384.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.4	U	0.89	6.8	ug/Kg
74-87-3	Chloromethane	3.4	U	1.2	6.8	ug/Kg
75-01-4	Vinyl Chloride	3.4	U	1.7	6.8	ug/Kg
74-83-9	Bromomethane	3.4	U	3.4	6.8	ug/Kg
75-00-3	Chloroethane	3.4	U	1.9	6.8	ug/Kg
75-69-4	Trichlorofluoromethane	3.4	U	1.8	6.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.4	U	1.8	6.8	ug/Kg
75-35-4	1,1-Dichloroethene	3.4	U	2	6.8	ug/Kg
67-64-1	Acetone	1200	E	4.1	34	ug/Kg
75-15-0	Carbon Disulfide	3.4	U	1.5	6.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.4	U	1.3	6.8	ug/Kg
79-20-9	Methyl Acetate	3.4	U	2.1	6.8	ug/Kg
75-09-2	Methylene Chloride	3.4	U	1.9	6.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.4	U	0.95	6.8	ug/Kg
75-34-3	1,1-Dichloroethane	3.4	U	1.3	6.8	ug/Kg
110-82-7	Cyclohexane	3.4	U	1.4	6.8	ug/Kg
78-93-3	2-Butanone	48		4.3	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.4	U	1.4	6.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.4	U	1.2	6.8	ug/Kg
74-97-5	Bromochloromethane	3.4	U	1.1	6.8	ug/Kg
67-66-3	Chloroform	3.4	U	1	6.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.4	U	1.2	6.8	ug/Kg
108-87-2	Methylcyclohexane	3.4	U	1.5	6.8	ug/Kg
71-43-2	Benzene	3.4	U	0.52	6.8	ug/Kg
107-06-2	1,2-Dichloroethane	3.4	U	0.88	6.8	ug/Kg
79-01-6	Trichloroethene	3.4	U	1.2	6.8	ug/Kg
78-87-5	1,2-Dichloropropane	3.4	U	0.36	6.8	ug/Kg
75-27-4	Bromodichloromethane	3.4	U	0.85	6.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	4	34	ug/Kg
108-88-3	Toluene	3.4	U	0.88	6.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.4	U	1.1	6.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030384.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.4	U	0.99	6.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.4	U	1.2	6.8	ug/Kg
591-78-6	2-Hexanone	17	U	5.4	34	ug/Kg
124-48-1	Dibromochloromethane	3.4	U	0.74	6.8	ug/Kg
106-93-4	1,2-Dibromoethane	3.4	U	0.88	6.8	ug/Kg
127-18-4	Tetrachloroethene	3.4	U	1.4	6.8	ug/Kg
108-90-7	Chlorobenzene	3.4	U	0.68	6.8	ug/Kg
100-41-4	Ethyl Benzene	3.4	U	0.85	6.8	ug/Kg
179601-23-1	m/p-Xylenes	7	U	0.99	14	ug/Kg
95-47-6	o-Xylene	3.4	U	0.93	6.8	ug/Kg
100-42-5	Styrene	3.4	U	0.62	6.8	ug/Kg
75-25-2	Bromoform	3.4	U	1	6.8	ug/Kg
98-82-8	Isopropylbenzene	3.4	U	0.66	6.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.4	U	0.63	6.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.4	U	0.51	6.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.4	U	0.56	6.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.4	U	0.85	6.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.4	U	1.2	6.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.4	U	0.96	6.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.4	U	0.68	6.8	ug/Kg
1330-20-7	Total Xylenes	10.5	U	1.9	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.3		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	49.7		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.7		85 - 120	93%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	119360	4.38			
540-36-3	1,4-Difluorobenzene	213572	5.12			
3114-55-4	Chlorobenzene-d5	211957	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	94061	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030384.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-12RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	4.78 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002224.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.65	U	0.94	7.3	ug/Kg
74-87-3	Chloromethane	3.65	U	1.2	7.3	ug/Kg
75-01-4	Vinyl Chloride	3.65	U	1.8	7.3	ug/Kg
74-83-9	Bromomethane	3.65	U	3.6	7.3	ug/Kg
75-00-3	Chloroethane	3.65	U	2	7.3	ug/Kg
75-69-4	Trichlorofluoromethane	3.65	U	1.9	7.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.65	U	1.9	7.3	ug/Kg
75-35-4	1,1-Dichloroethene	3.65	U	2.1	7.3	ug/Kg
67-64-1	Acetone	5.6	J	4.4	36	ug/Kg
75-15-0	Carbon Disulfide	3.65	U	1.5	7.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.65	U	1.4	7.3	ug/Kg
79-20-9	Methyl Acetate	3.65	U	2.2	7.3	ug/Kg
75-09-2	Methylene Chloride	3.65	U	2.1	7.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.65	U	1	7.3	ug/Kg
75-34-3	1,1-Dichloroethane	3.65	U	1.4	7.3	ug/Kg
110-82-7	Cyclohexane	3.65	U	1.5	7.3	ug/Kg
78-93-3	2-Butanone	18	U	4.5	36	ug/Kg
56-23-5	Carbon Tetrachloride	3.65	U	1.4	7.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.65	U	1.3	7.3	ug/Kg
74-97-5	Bromochloromethane	3.65	U	1.1	7.3	ug/Kg
67-66-3	Chloroform	3.65	U	1.1	7.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.65	U	1.3	7.3	ug/Kg
108-87-2	Methylcyclohexane	3.65	U	1.5	7.3	ug/Kg
71-43-2	Benzene	3.65	U	0.55	7.3	ug/Kg
107-06-2	1,2-Dichloroethane	3.65	U	0.93	7.3	ug/Kg
79-01-6	Trichloroethene	3.65	U	1.2	7.3	ug/Kg
78-87-5	1,2-Dichloropropane	3.65	U	0.38	7.3	ug/Kg
75-27-4	Bromodichloromethane	3.65	U	0.9	7.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	18	U	4.2	36	ug/Kg
108-88-3	Toluene	3.65	U	0.93	7.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.65	U	1.1	7.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-12RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	4.78 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002224.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.65	U	1	7.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.65	U	1.3	7.3	ug/Kg
591-78-6	2-Hexanone	18	U	5.7	36	ug/Kg
124-48-1	Dibromochloromethane	3.65	U	0.78	7.3	ug/Kg
106-93-4	1,2-Dibromoethane	3.65	U	0.93	7.3	ug/Kg
127-18-4	Tetrachloroethene	3.65	U	1.5	7.3	ug/Kg
108-90-7	Chlorobenzene	3.65	U	0.73	7.3	ug/Kg
100-41-4	Ethyl Benzene	3.65	U	0.9	7.3	ug/Kg
179601-23-1	m/p-Xylenes	7.5	U	1	15	ug/Kg
95-47-6	o-Xylene	3.65	U	0.99	7.3	ug/Kg
100-42-5	Styrene	3.65	U	0.65	7.3	ug/Kg
75-25-2	Bromoform	3.65	U	1.1	7.3	ug/Kg
98-82-8	Isopropylbenzene	3.65	U	0.7	7.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.65	U	0.67	7.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.65	U	0.54	7.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.65	U	0.6	7.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.65	U	0.9	7.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.65	U	1.3	7.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.65	U	1	7.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.65	U	0.73	7.3	ug/Kg
1330-20-7	Total Xylenes	11	U	2	22	ug/Kg
123-91-1	1,4-Dioxane	75	U	29	150	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	28		55 - 158	56%	SPK: 50
1868-53-7	Dibromofluoromethane	35.8		53 - 156	72%	SPK: 50
2037-26-5	Toluene-d8	39.4	*	85 - 115	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	23.3	*	85 - 120	47%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	457156	8.05			
540-36-3	1,4-Difluorobenzene	747809	8.95			
3114-55-4	Chlorobenzene-d5	365969	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	110206	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-12RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	4.78 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002224.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030401.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.85	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	11	J	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.95	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.93	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.98	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.88	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.87	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.85	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030401.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.89	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	4.95	U	0.72	9.9	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.86	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	49.5	U	99	99	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46.6		55 - 158	93%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	50		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.9		85 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	121429	4.39			
540-36-3	1,4-Difluorobenzene	224269	5.13			
3114-55-4	Chlorobenzene-d5	228704	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	116104	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030401.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030387.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	100		3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.98	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.96	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	19	J	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.91	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030387.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.74	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.92	5.1	ug/Kg
591-78-6	2-Hexanone	13	U	4	26	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.76	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.89	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.72	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.9		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	47.7		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	50.4		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.1		85 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	113974	4.38			
540-36-3	1,4-Difluorobenzene	213066	5.12			
3114-55-4	Chlorobenzene-d5	213243	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	101004	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030387.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-09RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.59 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002223.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.68	5.2	ug/Kg
74-87-3	Chloromethane	2.6	U	0.89	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
74-83-9	Bromomethane	2.6	U	2.5	5.2	ug/Kg
75-00-3	Chloroethane	2.6	U	1.5	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.6	U	1.1	5.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.6	U	1	5.2	ug/Kg
79-20-9	Methyl Acetate	2.6	U	1.6	5.2	ug/Kg
75-09-2	Methylene Chloride	2.6	U	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.72	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.98	5.2	ug/Kg
110-82-7	Cyclohexane	2.6	U	1.1	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.6	U	1	5.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.93	5.2	ug/Kg
74-97-5	Bromochloromethane	2.6	U	0.82	5.2	ug/Kg
67-66-3	Chloroform	2.6	U	0.77	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.92	5.2	ug/Kg
108-87-2	Methylcyclohexane	2.6	U	1.1	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.4	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.67	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.89	5.2	ug/Kg
78-87-5	1,2-Dichloropropane	2.6	U	0.27	5.2	ug/Kg
75-27-4	Bromodichloromethane	2.6	U	0.64	5.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.6	U	0.67	5.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.6	U	0.82	5.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-09RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.59 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002223.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.6	U	0.75	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.94	5.2	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.6	U	0.56	5.2	ug/Kg
106-93-4	1,2-Dibromoethane	2.6	U	0.67	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1.1	5.2	ug/Kg
108-90-7	Chlorobenzene	2.6	U	0.52	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.64	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.75	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.71	5.2	ug/Kg
100-42-5	Styrene	2.6	U	0.47	5.2	ug/Kg
75-25-2	Bromoform	2.6	U	0.77	5.2	ug/Kg
98-82-8	Isopropylbenzene	2.6	U	0.5	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.6	U	0.38	5.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.6	U	0.43	5.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.6	U	0.64	5.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.6	U	0.9	5.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.6	U	0.73	5.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.6	U	0.52	5.2	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	50	U	21	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	39.8		55 - 158	80%	SPK: 50
1868-53-7	Dibromofluoromethane	38.9		53 - 156	78%	SPK: 50
2037-26-5	Toluene-d8	42.1	*	85 - 115	84%	SPK: 50
460-00-4	4-Bromofluorobenzene	34.4	*	85 - 120	69%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	556876	8.04			
540-36-3	1,4-Difluorobenzene	1022500	8.95			
3114-55-4	Chlorobenzene-d5	629239	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	269419	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-09RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.59 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002223.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030386.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.8	U	0.73	5.6	ug/Kg
74-87-3	Chloromethane	2.8	U	0.97	5.6	ug/Kg
75-01-4	Vinyl Chloride	2.8	U	1.4	5.6	ug/Kg
74-83-9	Bromomethane	2.8	U	2.8	5.6	ug/Kg
75-00-3	Chloroethane	2.8	U	1.6	5.6	ug/Kg
75-69-4	Trichlorofluoromethane	2.8	U	1.5	5.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.8	U	1.5	5.6	ug/Kg
75-35-4	1,1-Dichloroethene	2.8	U	1.7	5.6	ug/Kg
67-64-1	Acetone	350		3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.8	U	1.2	5.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.8	U	1.1	5.6	ug/Kg
79-20-9	Methyl Acetate	2.8	U	1.7	5.6	ug/Kg
75-09-2	Methylene Chloride	2.8	U	1.6	5.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.8	U	0.78	5.6	ug/Kg
75-34-3	1,1-Dichloroethane	2.8	U	1.1	5.6	ug/Kg
110-82-7	Cyclohexane	2.8	U	1.1	5.6	ug/Kg
78-93-3	2-Butanone	31		3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.8	U	1.1	5.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.8	U	1	5.6	ug/Kg
74-97-5	Bromochloromethane	2.8	U	0.89	5.6	ug/Kg
67-66-3	Chloroform	2.8	U	0.83	5.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.8	U	0.99	5.6	ug/Kg
108-87-2	Methylcyclohexane	2.8	U	1.2	5.6	ug/Kg
71-43-2	Benzene	2.8	U	0.43	5.6	ug/Kg
107-06-2	1,2-Dichloroethane	2.8	U	0.72	5.6	ug/Kg
79-01-6	Trichloroethene	2.8	U	0.97	5.6	ug/Kg
78-87-5	1,2-Dichloropropane	2.8	U	0.29	5.6	ug/Kg
75-27-4	Bromodichloromethane	2.8	U	0.7	5.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.8	U	0.72	5.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.8	U	0.89	5.6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030386.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.8	U	0.81	5.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.8	U	1	5.6	ug/Kg
591-78-6	2-Hexanone	14	U	4.4	28	ug/Kg
124-48-1	Dibromochloromethane	2.8	U	0.61	5.6	ug/Kg
106-93-4	1,2-Dibromoethane	2.8	U	0.72	5.6	ug/Kg
127-18-4	Tetrachloroethene	2.8	U	1.1	5.6	ug/Kg
108-90-7	Chlorobenzene	2.8	U	0.56	5.6	ug/Kg
100-41-4	Ethyl Benzene	2.8	U	0.7	5.6	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.81	11	ug/Kg
95-47-6	o-Xylene	2.8	U	0.76	5.6	ug/Kg
100-42-5	Styrene	2.8	U	0.51	5.6	ug/Kg
75-25-2	Bromoform	2.8	U	0.83	5.6	ug/Kg
98-82-8	Isopropylbenzene	2.8	U	0.54	5.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.8	U	0.52	5.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.8	U	0.42	5.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.8	U	0.46	5.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.8	U	0.7	5.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.8	U	0.98	5.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.8	U	0.79	5.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.8	U	0.56	5.6	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	49.2		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	49.7		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.4		85 - 120	95%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	122944	4.38			
540-36-3	1,4-Difluorobenzene	220670	5.13			
3114-55-4	Chlorobenzene-d5	213330	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	104175	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030386.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-08RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002222.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.9	U	0.75	5.8	ug/Kg
74-87-3	Chloromethane	2.9	U	0.99	5.8	ug/Kg
75-01-4	Vinyl Chloride	2.9	U	1.4	5.8	ug/Kg
74-83-9	Bromomethane	2.9	U	2.8	5.8	ug/Kg
75-00-3	Chloroethane	2.9	U	1.6	5.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.9	U	1.5	5.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.9	U	1.5	5.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.9	U	1.7	5.8	ug/Kg
67-64-1	Acetone	19	J	3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.9	U	1.2	5.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.9	U	1.1	5.8	ug/Kg
79-20-9	Methyl Acetate	2.9	U	1.7	5.8	ug/Kg
75-09-2	Methylene Chloride	2.9	U	1.6	5.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.9	U	0.79	5.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.9	U	1.1	5.8	ug/Kg
110-82-7	Cyclohexane	2.9	U	1.2	5.8	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.9	U	1.1	5.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.9	U	1	5.8	ug/Kg
74-97-5	Bromochloromethane	2.9	U	0.91	5.8	ug/Kg
67-66-3	Chloroform	2.9	U	0.85	5.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.9	U	1	5.8	ug/Kg
108-87-2	Methylcyclohexane	2.9	U	1.2	5.8	ug/Kg
71-43-2	Benzene	2.9	U	0.44	5.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.9	U	0.74	5.8	ug/Kg
79-01-6	Trichloroethene	2.9	U	0.99	5.8	ug/Kg
78-87-5	1,2-Dichloropropane	2.9	U	0.3	5.8	ug/Kg
75-27-4	Bromodichloromethane	2.9	U	0.71	5.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.4	29	ug/Kg
108-88-3	Toluene	2.9	U	0.74	5.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.9	U	0.91	5.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-08RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002222.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.9	U	0.83	5.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.9	U	1	5.8	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.5	29	ug/Kg
124-48-1	Dibromochloromethane	2.9	U	0.62	5.8	ug/Kg
106-93-4	1,2-Dibromoethane	2.9	U	0.74	5.8	ug/Kg
127-18-4	Tetrachloroethene	2.9	U	1.2	5.8	ug/Kg
108-90-7	Chlorobenzene	2.9	U	0.58	5.8	ug/Kg
100-41-4	Ethyl Benzene	2.9	U	0.71	5.8	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.83	12	ug/Kg
95-47-6	o-Xylene	2.9	U	0.78	5.8	ug/Kg
100-42-5	Styrene	2.9	U	0.52	5.8	ug/Kg
75-25-2	Bromoform	2.9	U	0.85	5.8	ug/Kg
98-82-8	Isopropylbenzene	2.9	U	0.55	5.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.9	U	0.53	5.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.9	U	0.43	5.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.9	U	0.47	5.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.9	U	0.71	5.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.9	U	1	5.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.9	U	0.81	5.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.9	U	0.58	5.8	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	60	U	23	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.6		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	39.8		53 - 156	80%	SPK: 50
2037-26-5	Toluene-d8	41.2	*	85 - 115	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	33.6	*	85 - 120	67%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	522673	8.05			
540-36-3	1,4-Difluorobenzene	986946	8.95			
3114-55-4	Chlorobenzene-d5	594109	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	249712	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-08RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002222.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030388.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.5	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.97	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.95	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	1	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030388.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.2		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	46.7		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	49.8		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.3		85 - 120	101%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	117987	4.38			
540-36-3	1,4-Difluorobenzene	213261	5.13			
3114-55-4	Chlorobenzene-d5	215867	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	114168	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030388.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.83 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030402.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.91	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	1	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.84	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.91	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.28	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.66	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.84	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.83 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030402.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.2	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.68	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.66	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.48	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.66	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.4		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	46.2		53 - 156	92%	SPK: 50
2037-26-5	Toluene-d8	49.7		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.5		85 - 120	101%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	109881	4.39			
540-36-3	1,4-Difluorobenzene	205832	5.13			
3114-55-4	Chlorobenzene-d5	204280	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	110922	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.83 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030402.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030403.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.4	U	0.63	4.8	ug/Kg
74-87-3	Chloromethane	2.4	U	0.83	4.8	ug/Kg
75-01-4	Vinyl Chloride	2.4	U	1.2	4.8	ug/Kg
74-83-9	Bromomethane	2.4	U	2.4	4.8	ug/Kg
75-00-3	Chloroethane	2.4	U	1.3	4.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.4	U	1.3	4.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.4	U	1.3	4.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.4	U	1.4	4.8	ug/Kg
67-64-1	Acetone	12	U	2.9	24	ug/Kg
75-15-0	Carbon Disulfide	2.4	U	1	4.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.4	U	0.93	4.8	ug/Kg
79-20-9	Methyl Acetate	2.4	U	1.5	4.8	ug/Kg
75-09-2	Methylene Chloride	2.4	U	1.4	4.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.4	U	0.67	4.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.4	U	0.91	4.8	ug/Kg
110-82-7	Cyclohexane	2.4	U	0.97	4.8	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.4	U	0.95	4.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.4	U	0.86	4.8	ug/Kg
74-97-5	Bromochloromethane	2.4	U	0.76	4.8	ug/Kg
67-66-3	Chloroform	2.4	U	0.71	4.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.4	U	0.85	4.8	ug/Kg
108-87-2	Methylcyclohexane	2.4	U	1	4.8	ug/Kg
71-43-2	Benzene	2.4	U	0.37	4.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.4	U	0.62	4.8	ug/Kg
79-01-6	Trichloroethene	2.4	U	0.83	4.8	ug/Kg
78-87-5	1,2-Dichloropropane	2.4	U	0.25	4.8	ug/Kg
75-27-4	Bromodichloromethane	2.4	U	0.6	4.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.8	24	ug/Kg
108-88-3	Toluene	2.4	U	0.62	4.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.4	U	0.76	4.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030403.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.4	U	0.69	4.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.4	U	0.87	4.8	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.4	U	0.52	4.8	ug/Kg
106-93-4	1,2-Dibromoethane	2.4	U	0.62	4.8	ug/Kg
127-18-4	Tetrachloroethene	2.4	U	0.97	4.8	ug/Kg
108-90-7	Chlorobenzene	2.4	U	0.48	4.8	ug/Kg
100-41-4	Ethyl Benzene	2.4	U	0.6	4.8	ug/Kg
179601-23-1	m/p-Xylenes	4.8	U	0.69	9.6	ug/Kg
95-47-6	o-Xylene	2.4	U	0.66	4.8	ug/Kg
100-42-5	Styrene	2.4	U	0.43	4.8	ug/Kg
75-25-2	Bromoform	2.4	U	0.71	4.8	ug/Kg
98-82-8	Isopropylbenzene	2.4	U	0.46	4.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.4	U	0.44	4.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.4	U	0.36	4.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.4	U	0.4	4.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.4	U	0.6	4.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.4	U	0.84	4.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.4	U	0.67	4.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.4	U	0.48	4.8	ug/Kg
1330-20-7	Total Xylenes	7	U	1.3	14	ug/Kg
123-91-1	1,4-Dioxane	48	U	96	96	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.7		55 - 158	87%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	49.5		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.7		85 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	119323	4.39			
540-36-3	1,4-Difluorobenzene	219684	5.13			
3114-55-4	Chlorobenzene-d5	219100	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	115680	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030403.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030383.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.91	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.5	5.3	ug/Kg
67-64-1	Acetone	22	J	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	0.99	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.83	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.67	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.91	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.27	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.65	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.65	U	0.67	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.83	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030383.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.67	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.65	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.47	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.48	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.65	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	45.4		55 - 158	91%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	51.4		85 - 115	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.9		85 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	103884	4.38			
540-36-3	1,4-Difluorobenzene	187599	5.13			
3114-55-4	Chlorobenzene-d5	195637	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	103051	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030383.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.3 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030382.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.3	U	0.86	6.6	ug/Kg
74-87-3	Chloromethane	3.3	U	1.1	6.6	ug/Kg
75-01-4	Vinyl Chloride	3.3	U	1.6	6.6	ug/Kg
74-83-9	Bromomethane	3.3	U	3.3	6.6	ug/Kg
75-00-3	Chloroethane	3.3	U	1.9	6.6	ug/Kg
75-69-4	Trichlorofluoromethane	3.3	U	1.8	6.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.3	U	1.8	6.6	ug/Kg
75-35-4	1,1-Dichloroethene	3.3	U	2	6.6	ug/Kg
67-64-1	Acetone	16.5	U	4	33	ug/Kg
75-15-0	Carbon Disulfide	3.3	U	1.4	6.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.3	U	1.3	6.6	ug/Kg
79-20-9	Methyl Acetate	3.3	U	2	6.6	ug/Kg
75-09-2	Methylene Chloride	3.3	U	1.9	6.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.3	U	0.92	6.6	ug/Kg
75-34-3	1,1-Dichloroethane	3.3	U	1.2	6.6	ug/Kg
110-82-7	Cyclohexane	3.3	U	1.3	6.6	ug/Kg
78-93-3	2-Butanone	16.5	U	4.1	33	ug/Kg
56-23-5	Carbon Tetrachloride	3.3	U	1.3	6.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.3	U	1.2	6.6	ug/Kg
74-97-5	Bromochloromethane	3.3	U	1	6.6	ug/Kg
67-66-3	Chloroform	3.3	U	0.98	6.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.3	U	1.2	6.6	ug/Kg
108-87-2	Methylcyclohexane	3.3	U	1.4	6.6	ug/Kg
71-43-2	Benzene	3.3	U	0.5	6.6	ug/Kg
107-06-2	1,2-Dichloroethane	3.3	U	0.85	6.6	ug/Kg
79-01-6	Trichloroethene	3.3	U	1.1	6.6	ug/Kg
78-87-5	1,2-Dichloropropane	3.3	U	0.35	6.6	ug/Kg
75-27-4	Bromodichloromethane	3.3	U	0.82	6.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16.5	U	3.9	33	ug/Kg
108-88-3	Toluene	3.3	U	0.85	6.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.3	U	1	6.6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.3 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030382.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.3	U	0.96	6.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.3	U	1.2	6.6	ug/Kg
591-78-6	2-Hexanone	16.5	U	5.2	33	ug/Kg
124-48-1	Dibromochloromethane	3.3	U	0.72	6.6	ug/Kg
106-93-4	1,2-Dibromoethane	3.3	U	0.85	6.6	ug/Kg
127-18-4	Tetrachloroethene	3.3	U	1.3	6.6	ug/Kg
108-90-7	Chlorobenzene	3.3	U	0.66	6.6	ug/Kg
100-41-4	Ethyl Benzene	3.3	U	0.82	6.6	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.96	13	ug/Kg
95-47-6	o-Xylene	3.3	U	0.9	6.6	ug/Kg
100-42-5	Styrene	3.3	U	0.6	6.6	ug/Kg
75-25-2	Bromoform	3.3	U	0.98	6.6	ug/Kg
98-82-8	Isopropylbenzene	3.3	U	0.64	6.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.3	U	0.61	6.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.3	U	0.49	6.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.3	U	0.54	6.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.3	U	0.82	6.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.3	U	1.2	6.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.3	U	0.93	6.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.3	U	0.66	6.6	ug/Kg
1330-20-7	Total Xylenes	10	U	1.9	20	ug/Kg
123-91-1	1,4-Dioxane	65	U	130	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.5		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.6		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.5		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	116283	4.38			
540-36-3	1,4-Difluorobenzene	206721	5.13			
3114-55-4	Chlorobenzene-d5	207534	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	90500	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.3 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030382.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	6.08 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030385.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.4	U	0.63	4.8	ug/Kg
74-87-3	Chloromethane	2.4	U	0.83	4.8	ug/Kg
75-01-4	Vinyl Chloride	2.4	U	1.2	4.8	ug/Kg
74-83-9	Bromomethane	2.4	U	2.4	4.8	ug/Kg
75-00-3	Chloroethane	2.4	U	1.4	4.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.4	U	1.3	4.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.4	U	1.3	4.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.4	U	1.4	4.8	ug/Kg
67-64-1	Acetone	12	U	2.9	24	ug/Kg
75-15-0	Carbon Disulfide	2.4	U	1	4.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.4	U	0.93	4.8	ug/Kg
79-20-9	Methyl Acetate	2.4	U	1.5	4.8	ug/Kg
75-09-2	Methylene Chloride	2.4	U	1.4	4.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.4	U	0.67	4.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.4	U	0.91	4.8	ug/Kg
110-82-7	Cyclohexane	2.4	U	0.98	4.8	ug/Kg
78-93-3	2-Butanone	12	U	3	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.4	U	0.96	4.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.4	U	0.86	4.8	ug/Kg
74-97-5	Bromochloromethane	2.4	U	0.76	4.8	ug/Kg
67-66-3	Chloroform	2.4	U	0.72	4.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.4	U	0.85	4.8	ug/Kg
108-87-2	Methylcyclohexane	2.4	U	1	4.8	ug/Kg
71-43-2	Benzene	2.4	U	0.37	4.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.4	U	0.62	4.8	ug/Kg
79-01-6	Trichloroethene	2.4	U	0.83	4.8	ug/Kg
78-87-5	1,2-Dichloropropane	2.4	U	0.25	4.8	ug/Kg
75-27-4	Bromodichloromethane	2.4	U	0.6	4.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.8	24	ug/Kg
108-88-3	Toluene	2.4	U	0.62	4.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.4	U	0.76	4.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	6.08 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030385.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.4	U	0.7	4.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.4	U	0.87	4.8	ug/Kg
591-78-6	2-Hexanone	12	U	3.8	24	ug/Kg
124-48-1	Dibromochloromethane	2.4	U	0.52	4.8	ug/Kg
106-93-4	1,2-Dibromoethane	2.4	U	0.62	4.8	ug/Kg
127-18-4	Tetrachloroethene	2.4	U	0.98	4.8	ug/Kg
108-90-7	Chlorobenzene	2.4	U	0.48	4.8	ug/Kg
100-41-4	Ethyl Benzene	2.4	U	0.6	4.8	ug/Kg
179601-23-1	m/p-Xylenes	4.85	U	0.7	9.7	ug/Kg
95-47-6	o-Xylene	2.4	U	0.66	4.8	ug/Kg
100-42-5	Styrene	2.4	U	0.44	4.8	ug/Kg
75-25-2	Bromoform	2.4	U	0.72	4.8	ug/Kg
98-82-8	Isopropylbenzene	2.4	U	0.46	4.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.4	U	0.45	4.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.4	U	0.36	4.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.4	U	0.4	4.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.4	U	0.6	4.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.4	U	0.84	4.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.4	U	0.68	4.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.4	U	0.48	4.8	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	48.5	U	97	97	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.7		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	46.4		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	48.9		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.5		85 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	119946	4.38			
540-36-3	1,4-Difluorobenzene	222549	5.13			
3114-55-4	Chlorobenzene-d5	225641	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	119525	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	6.08 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030385.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12TB-20111216	SDG No.:	C5039
Lab Sample ID:	C5039-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039764.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.61	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12TB-20111216	SDG No.:	C5039
Lab Sample ID:	C5039-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039764.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.6		70 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	46.2		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.2		75 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	583593	3.9			
540-36-3	1,4-Difluorobenzene	1089920	4.72			
3114-55-4	Chlorobenzene-d5	577390	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	263755	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12TB-20111216	SDG No.:	C5039
Lab Sample ID:	C5039-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039764.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	c5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074797.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	225	U	24	450	ug/Kg
108-95-2	Phenol	225	U	10	450	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	225	U	22	450	ug/Kg
95-57-8	2-Chlorophenol	225	U	24	450	ug/Kg
95-48-7	2-Methylphenol	225	U	24	450	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	225	U	19	450	ug/Kg
98-86-2	Acetophenone	225	U	14	450	ug/Kg
65794-96-9	3+4-Methylphenols	225	U	23	450	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	225	U	23	450	ug/Kg
67-72-1	Hexachloroethane	225	U	20	450	ug/Kg
98-95-3	Nitrobenzene	225	U	17	450	ug/Kg
78-59-1	Isophorone	225	U	15	450	ug/Kg
88-75-5	2-Nitrophenol	225	U	22	450	ug/Kg
105-67-9	2,4-Dimethylphenol	225	U	26	450	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	225	U	26	450	ug/Kg
120-83-2	2,4-Dichlorophenol	225	U	17	450	ug/Kg
106-47-8	4-Chloroaniline	225	U	32	450	ug/Kg
87-68-3	Hexachlorobutadiene	225	U	16	450	ug/Kg
105-60-2	Caprolactam	225	U	21	450	ug/Kg
59-50-7	4-Chloro-3-methylphenol	225	U	20	450	ug/Kg
77-47-4	Hexachlorocyclopentadiene	225	U	11	450	ug/Kg
88-06-2	2,4,6-Trichlorophenol	225	U	14	450	ug/Kg
95-95-4	2,4,5-Trichlorophenol	225	U	32	450	ug/Kg
92-52-4	1,1-Biphenyl	225	U	17	450	ug/Kg
91-58-7	2-Chloronaphthalene	225	U	10	450	ug/Kg
88-74-4	2-Nitroaniline	225	U	20	450	ug/Kg
131-11-3	Dimethylphthalate	330	J	12	450	ug/Kg
208-96-8	Acenaphthylene	225	U	11	450	ug/Kg
606-20-2	2,6-Dinitrotoluene	225	U	18	450	ug/Kg
99-09-2	3-Nitroaniline	225	U	29	450	ug/Kg
83-32-9	Acenaphthene	225	U	13	450	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	c5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074797.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	225	U	46	450	ug/Kg
100-02-7	4-Nitrophenol	225	U	84	450	ug/Kg
132-64-9	Dibenzofuran	225	U	18	450	ug/Kg
121-14-2	2,4-Dinitrotoluene	225	U	14	450	ug/Kg
84-66-2	Diethylphthalate	225	U	7	450	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	225	U	24	450	ug/Kg
100-01-6	4-Nitroaniline	225	U	59	450	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	225	U	26	450	ug/Kg
86-30-6	N-Nitrosodiphenylamine	225	U	11	450	ug/Kg
101-55-3	4-Bromophenyl-phenylether	225	U	8.8	450	ug/Kg
118-74-1	Hexachlorobenzene	225	U	18	450	ug/Kg
1912-24-9	Atrazine	225	U	24	450	ug/Kg
87-86-5	Pentachlorophenol	225	U	31	450	ug/Kg
85-01-8	Phenanthrene	750		12	450	ug/Kg
86-74-8	Carbazole	225	U	9.9	450	ug/Kg
84-74-2	Di-n-butylphthalate	225	U	35	450	ug/Kg
85-68-7	Butylbenzylphthalate	225	U	22	450	ug/Kg
91-94-1	3,3-Dichlorobenzidine	225	U	29	450	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	225	U	16	450	ug/Kg
117-84-0	Di-n-octyl phthalate	225	U	5.1	450	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	225	U	18	450	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	225	U	450	450	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	138		35 - 105	92%	SPK: 150
13127-88-3	Phenol-d5	139		40 - 100	93%	SPK: 150
4165-60-0	Nitrobenzene-d5	86		35 - 100	86%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.5		45 - 105	70%	SPK: 100
118-79-6	2,4,6-Tribromophenol	127		35 - 125	85%	SPK: 150
1718-51-0	Terphenyl-d14	67		30 - 125	67%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	154926	8.64			
1146-65-2	Naphthalene-d8	615349	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	c5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074797.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	338514	13.78			
1517-22-2	Phenanthrene-d10	579142	16.25			
1719-03-5	Chrysene-d12	555197	20.7			
1520-96-3	Perylene-d12	518616	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074799.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	29	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.3	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	270	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074799.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	125		35 - 105	84%	SPK: 150
13127-88-3	Phenol-d5	131		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	82.1		35 - 100	82%	SPK: 100
321-60-8	2-Fluorobiphenyl	77.2		45 - 105	77%	SPK: 100
118-79-6	2,4,6-Tribromophenol	135		35 - 125	90%	SPK: 150
1718-51-0	Terphenyl-d14	79.3		30 - 125	79%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	154890	8.64			
1146-65-2	Naphthalene-d8	596121	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074799.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	323508	13.78			
1517-22-2	Phenanthrene-d10	569836	16.25			
1719-03-5	Chrysene-d12	540007	20.7			
1520-96-3	Perylene-d12	513074	24.39			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074800.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	220	J	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074800.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	440		11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	127		35 - 105	85%	SPK: 150
13127-88-3	Phenol-d5	130		40 - 100	87%	SPK: 150
4165-60-0	Nitrobenzene-d5	80.4		35 - 100	80%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.2		45 - 105	65%	SPK: 100
118-79-6	2,4,6-Tribromophenol	129		35 - 125	86%	SPK: 150
1718-51-0	Terphenyl-d14	65.4		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	161076	8.64			
1146-65-2	Naphthalene-d8	624341	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074800.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	334814	13.78			
1517-22-2	Phenanthrene-d10	577618	16.25			
1719-03-5	Chrysene-d12	547257	20.7			
1520-96-3	Perylene-d12	517517	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074761.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.3	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	19	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	28	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.7	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.1	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	180	J	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	16	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074761.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	74	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	52	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.6	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.8	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	16	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	27	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.8	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	31	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	125		35 - 105	84%	SPK: 150
13127-88-3	Phenol-d5	129		40 - 100	86%	SPK: 150
4165-60-0	Nitrobenzene-d5	74.1		35 - 100	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	78.2		45 - 105	78%	SPK: 100
118-79-6	2,4,6-Tribromophenol	126		35 - 125	84%	SPK: 150
1718-51-0	Terphenyl-d14	83.7		30 - 125	84%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	119776	8.64			
1146-65-2	Naphthalene-d8	483135	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074761.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	266231	13.78			
1517-22-2	Phenanthrene-d10	469531	16.26			
1719-03-5	Chrysene-d12	443878	20.71			
1520-96-3	Perylene-d12	395786	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	36
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074798.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	255	U	27	510	ug/Kg
108-95-2	Phenol	255	U	12	510	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	255	U	25	510	ug/Kg
95-57-8	2-Chlorophenol	255	U	27	510	ug/Kg
95-48-7	2-Methylphenol	255	U	28	510	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	255	U	22	510	ug/Kg
98-86-2	Acetophenone	255	U	16	510	ug/Kg
65794-96-9	3+4-Methylphenols	255	U	27	510	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	255	U	26	510	ug/Kg
67-72-1	Hexachloroethane	255	U	23	510	ug/Kg
98-95-3	Nitrobenzene	255	U	20	510	ug/Kg
78-59-1	Isophorone	255	U	17	510	ug/Kg
88-75-5	2-Nitrophenol	255	U	25	510	ug/Kg
105-67-9	2,4-Dimethylphenol	255	U	29	510	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	255	U	30	510	ug/Kg
120-83-2	2,4-Dichlorophenol	255	U	20	510	ug/Kg
106-47-8	4-Chloroaniline	255	U	37	510	ug/Kg
87-68-3	Hexachlorobutadiene	255	U	19	510	ug/Kg
105-60-2	Caprolactam	255	U	24	510	ug/Kg
59-50-7	4-Chloro-3-methylphenol	255	U	23	510	ug/Kg
77-47-4	Hexachlorocyclopentadiene	255	U	13	510	ug/Kg
88-06-2	2,4,6-Trichlorophenol	255	U	16	510	ug/Kg
95-95-4	2,4,5-Trichlorophenol	255	U	37	510	ug/Kg
92-52-4	1,1-Biphenyl	255	U	20	510	ug/Kg
91-58-7	2-Chloronaphthalene	255	U	12	510	ug/Kg
88-74-4	2-Nitroaniline	255	U	23	510	ug/Kg
131-11-3	Dimethylphthalate	280	J	14	510	ug/Kg
208-96-8	Acenaphthylene	255	U	13	510	ug/Kg
606-20-2	2,6-Dinitrotoluene	255	U	21	510	ug/Kg
99-09-2	3-Nitroaniline	255	U	33	510	ug/Kg
83-32-9	Acenaphthene	255	U	15	510	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	36
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074798.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	255	U	53	510	ug/Kg
100-02-7	4-Nitrophenol	255	U	97	510	ug/Kg
132-64-9	Dibenzofuran	255	U	20	510	ug/Kg
121-14-2	2,4-Dinitrotoluene	255	U	16	510	ug/Kg
84-66-2	Diethylphthalate	255	U	8.1	510	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	255	U	28	510	ug/Kg
100-01-6	4-Nitroaniline	255	U	68	510	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	255	U	30	510	ug/Kg
86-30-6	N-Nitrosodiphenylamine	255	U	12	510	ug/Kg
101-55-3	4-Bromophenyl-phenylether	255	U	10	510	ug/Kg
118-74-1	Hexachlorobenzene	255	U	21	510	ug/Kg
1912-24-9	Atrazine	255	U	27	510	ug/Kg
87-86-5	Pentachlorophenol	255	U	36	510	ug/Kg
85-01-8	Phenanthrene	255	U	14	510	ug/Kg
86-74-8	Carbazole	255	U	11	510	ug/Kg
84-74-2	Di-n-butylphthalate	255	U	41	510	ug/Kg
85-68-7	Butylbenzylphthalate	255	U	25	510	ug/Kg
91-94-1	3,3-Dichlorobenzidine	255	U	33	510	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	255	U	18	510	ug/Kg
117-84-0	Di-n-octyl phthalate	255	U	5.9	510	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	255	U	20	510	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	255	U	510	510	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	119		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	121		40 - 100	81%	SPK: 150
4165-60-0	Nitrobenzene-d5	73.1		35 - 100	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	75.1		45 - 105	75%	SPK: 100
118-79-6	2,4,6-Tribromophenol	122		35 - 125	81%	SPK: 150
1718-51-0	Terphenyl-d14	75.9		30 - 125	76%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	145649	8.64			
1146-65-2	Naphthalene-d8	575014	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	36
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074798.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	310795	13.78			
1517-22-2	Phenanthrene-d10	541011	16.25			
1719-03-5	Chrysene-d12	512163	20.71			
1520-96-3	Perylene-d12	469499	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074792.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	190	U	20	380	ug/Kg
108-95-2	Phenol	190	U	8.8	380	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	190	U	18	380	ug/Kg
95-57-8	2-Chlorophenol	190	U	20	380	ug/Kg
95-48-7	2-Methylphenol	190	U	21	380	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	190	U	16	380	ug/Kg
98-86-2	Acetophenone	190	U	12	380	ug/Kg
65794-96-9	3+4-Methylphenols	190	U	20	380	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	190	U	19	380	ug/Kg
67-72-1	Hexachloroethane	190	U	17	380	ug/Kg
98-95-3	Nitrobenzene	190	U	14	380	ug/Kg
78-59-1	Isophorone	190	U	13	380	ug/Kg
88-75-5	2-Nitrophenol	190	U	18	380	ug/Kg
105-67-9	2,4-Dimethylphenol	190	U	22	380	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	190	U	22	380	ug/Kg
120-83-2	2,4-Dichlorophenol	190	U	15	380	ug/Kg
106-47-8	4-Chloroaniline	190	U	27	380	ug/Kg
87-68-3	Hexachlorobutadiene	190	U	14	380	ug/Kg
105-60-2	Caprolactam	190	U	18	380	ug/Kg
59-50-7	4-Chloro-3-methylphenol	190	U	17	380	ug/Kg
77-47-4	Hexachlorocyclopentadiene	190	U	9.3	380	ug/Kg
88-06-2	2,4,6-Trichlorophenol	190	U	12	380	ug/Kg
95-95-4	2,4,5-Trichlorophenol	190	U	27	380	ug/Kg
92-52-4	1,1-Biphenyl	190	U	14	380	ug/Kg
91-58-7	2-Chloronaphthalene	190	U	8.7	380	ug/Kg
88-74-4	2-Nitroaniline	190	U	17	380	ug/Kg
131-11-3	Dimethylphthalate	250	J	10	380	ug/Kg
208-96-8	Acenaphthylene	190	U	9.6	380	ug/Kg
606-20-2	2,6-Dinitrotoluene	190	U	16	380	ug/Kg
99-09-2	3-Nitroaniline	190	U	25	380	ug/Kg
83-32-9	Acenaphthene	190	U	11	380	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074792.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	190	U	39	380	ug/Kg
100-02-7	4-Nitrophenol	190	U	71	380	ug/Kg
132-64-9	Dibenzofuran	190	U	15	380	ug/Kg
121-14-2	2,4-Dinitrotoluene	190	U	12	380	ug/Kg
84-66-2	Diethylphthalate	190	U	6	380	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	190	U	21	380	ug/Kg
100-01-6	4-Nitroaniline	190	U	50	380	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	190	U	22	380	ug/Kg
86-30-6	N-Nitrosodiphenylamine	190	U	9.2	380	ug/Kg
101-55-3	4-Bromophenyl-phenylether	190	U	7.5	380	ug/Kg
118-74-1	Hexachlorobenzene	190	U	16	380	ug/Kg
1912-24-9	Atrazine	190	U	20	380	ug/Kg
87-86-5	Pentachlorophenol	190	U	26	380	ug/Kg
85-01-8	Phenanthrene	190	U	10	380	ug/Kg
86-74-8	Carbazole	190	U	8.4	380	ug/Kg
84-74-2	Di-n-butylphthalate	190	U	30	380	ug/Kg
85-68-7	Butylbenzylphthalate	190	U	18	380	ug/Kg
91-94-1	3,3-Dichlorobenzidine	190	U	25	380	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	190	U	14	380	ug/Kg
117-84-0	Di-n-octyl phthalate	190	U	4.4	380	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U	15	380	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	190	U	380	380	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	117		35 - 105	78%	SPK: 150
13127-88-3	Phenol-d5	122		40 - 100	81%	SPK: 150
4165-60-0	Nitrobenzene-d5	73.8		35 - 100	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	72.8		45 - 105	73%	SPK: 100
118-79-6	2,4,6-Tribromophenol	117		35 - 125	79%	SPK: 150
1718-51-0	Terphenyl-d14	74.8		30 - 125	75%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	136138	8.64			
1146-65-2	Naphthalene-d8	540202	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074792.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	302175	13.78			
1517-22-2	Phenanthrene-d10	528578	16.25			
1719-03-5	Chrysene-d12	505448	20.7			
1520-96-3	Perylene-d12	453477	24.39			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074793.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	24	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	23	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	17	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	22	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	26	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	21	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	32	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	17	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	240	J	12	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074793.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	47	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	86	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.2	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	60	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	26	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	24	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	540		12	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	36	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	16	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	112		35 - 105	75%	SPK: 150
13127-88-3	Phenol-d5	114		40 - 100	77%	SPK: 150
4165-60-0	Nitrobenzene-d5	68.4		35 - 100	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.5		45 - 105	65%	SPK: 100
118-79-6	2,4,6-Tribromophenol	114		35 - 125	76%	SPK: 150
1718-51-0	Terphenyl-d14	69.8		30 - 125	70%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	139853	8.64			
1146-65-2	Naphthalene-d8	559064	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074793.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	306229	13.78			
1517-22-2	Phenanthrene-d10	544909	16.25			
1719-03-5	Chrysene-d12	521171	20.7			
1520-96-3	Perylene-d12	481951	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074764.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	190	U	20	380	ug/Kg
108-95-2	Phenol	190	U	8.9	380	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	190	U	19	380	ug/Kg
95-57-8	2-Chlorophenol	190	U	20	380	ug/Kg
95-48-7	2-Methylphenol	190	U	21	380	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	190	U	16	380	ug/Kg
98-86-2	Acetophenone	190	U	12	380	ug/Kg
65794-96-9	3+4-Methylphenols	190	U	20	380	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	190	U	20	380	ug/Kg
67-72-1	Hexachloroethane	190	U	17	380	ug/Kg
98-95-3	Nitrobenzene	190	U	15	380	ug/Kg
78-59-1	Isophorone	190	U	13	380	ug/Kg
88-75-5	2-Nitrophenol	190	U	19	380	ug/Kg
105-67-9	2,4-Dimethylphenol	190	U	22	380	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	190	U	22	380	ug/Kg
120-83-2	2,4-Dichlorophenol	190	U	15	380	ug/Kg
106-47-8	4-Chloroaniline	190	U	27	380	ug/Kg
87-68-3	Hexachlorobutadiene	190	U	14	380	ug/Kg
105-60-2	Caprolactam	190	U	18	380	ug/Kg
59-50-7	4-Chloro-3-methylphenol	190	U	17	380	ug/Kg
77-47-4	Hexachlorocyclopentadiene	190	U	9.4	380	ug/Kg
88-06-2	2,4,6-Trichlorophenol	190	U	12	380	ug/Kg
95-95-4	2,4,5-Trichlorophenol	190	U	27	380	ug/Kg
92-52-4	1,1-Biphenyl	190	U	15	380	ug/Kg
91-58-7	2-Chloronaphthalene	190	U	8.8	380	ug/Kg
88-74-4	2-Nitroaniline	190	U	17	380	ug/Kg
131-11-3	Dimethylphthalate	230	J	10	380	ug/Kg
208-96-8	Acenaphthylene	190	U	9.8	380	ug/Kg
606-20-2	2,6-Dinitrotoluene	190	U	16	380	ug/Kg
99-09-2	3-Nitroaniline	190	U	25	380	ug/Kg
83-32-9	Acenaphthene	190	U	11	380	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074764.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	190	U	39	380	ug/Kg
100-02-7	4-Nitrophenol	190	U	72	380	ug/Kg
132-64-9	Dibenzofuran	190	U	15	380	ug/Kg
121-14-2	2,4-Dinitrotoluene	190	U	12	380	ug/Kg
84-66-2	Diethylphthalate	190	U	6	380	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	190	U	21	380	ug/Kg
100-01-6	4-Nitroaniline	190	U	50	380	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	190	U	22	380	ug/Kg
86-30-6	N-Nitrosodiphenylamine	190	U	9.3	380	ug/Kg
101-55-3	4-Bromophenyl-phenylether	190	U	7.6	380	ug/Kg
118-74-1	Hexachlorobenzene	190	U	16	380	ug/Kg
1912-24-9	Atrazine	190	U	20	380	ug/Kg
87-86-5	Pentachlorophenol	190	U	26	380	ug/Kg
85-01-8	Phenanthrene	190	U	10	380	ug/Kg
86-74-8	Carbazole	190	U	8.5	380	ug/Kg
84-74-2	Di-n-butylphthalate	190	U	30	380	ug/Kg
85-68-7	Butylbenzylphthalate	190	U	19	380	ug/Kg
91-94-1	3,3-Dichlorobenzidine	190	U	25	380	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	190	U	14	380	ug/Kg
117-84-0	Di-n-octyl phthalate	190	U	4.4	380	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U	15	380	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	190	U	380	380	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	121		35 - 105	81%	SPK: 150
13127-88-3	Phenol-d5	128		40 - 100	85%	SPK: 150
4165-60-0	Nitrobenzene-d5	78.6		35 - 100	79%	SPK: 100
321-60-8	2-Fluorobiphenyl	78.6		45 - 105	79%	SPK: 100
118-79-6	2,4,6-Tribromophenol	120		35 - 125	80%	SPK: 150
1718-51-0	Terphenyl-d14	82.7		30 - 125	83%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	121683	8.64			
1146-65-2	Naphthalene-d8	467475	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074764.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	257582	13.78			
1517-22-2	Phenanthrene-d10	457403	16.25			
1719-03-5	Chrysene-d12	428920	20.71			
1520-96-3	Perylene-d12	380510	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074759.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	190	U	20	380	ug/Kg
108-95-2	Phenol	190	U	8.9	380	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	190	U	19	380	ug/Kg
95-57-8	2-Chlorophenol	190	U	20	380	ug/Kg
95-48-7	2-Methylphenol	190	U	21	380	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	190	U	16	380	ug/Kg
98-86-2	Acetophenone	190	U	12	380	ug/Kg
65794-96-9	3+4-Methylphenols	190	U	20	380	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	190	U	20	380	ug/Kg
67-72-1	Hexachloroethane	190	U	17	380	ug/Kg
98-95-3	Nitrobenzene	190	U	15	380	ug/Kg
78-59-1	Isophorone	190	U	13	380	ug/Kg
88-75-5	2-Nitrophenol	190	U	19	380	ug/Kg
105-67-9	2,4-Dimethylphenol	190	U	22	380	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	190	U	22	380	ug/Kg
120-83-2	2,4-Dichlorophenol	190	U	15	380	ug/Kg
106-47-8	4-Chloroaniline	190	U	27	380	ug/Kg
87-68-3	Hexachlorobutadiene	190	U	14	380	ug/Kg
105-60-2	Caprolactam	190	U	18	380	ug/Kg
59-50-7	4-Chloro-3-methylphenol	190	U	17	380	ug/Kg
77-47-4	Hexachlorocyclopentadiene	190	U	9.4	380	ug/Kg
88-06-2	2,4,6-Trichlorophenol	190	U	12	380	ug/Kg
95-95-4	2,4,5-Trichlorophenol	190	U	27	380	ug/Kg
92-52-4	1,1-Biphenyl	190	U	15	380	ug/Kg
91-58-7	2-Chloronaphthalene	190	U	8.8	380	ug/Kg
88-74-4	2-Nitroaniline	190	U	17	380	ug/Kg
131-11-3	Dimethylphthalate	220	J	10	380	ug/Kg
208-96-8	Acenaphthylene	190	U	9.8	380	ug/Kg
606-20-2	2,6-Dinitrotoluene	190	U	16	380	ug/Kg
99-09-2	3-Nitroaniline	190	U	25	380	ug/Kg
83-32-9	Acenaphthene	190	U	11	380	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074759.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	190	U	39	380	ug/Kg
100-02-7	4-Nitrophenol	190	U	72	380	ug/Kg
132-64-9	Dibenzofuran	190	U	15	380	ug/Kg
121-14-2	2,4-Dinitrotoluene	190	U	12	380	ug/Kg
84-66-2	Diethylphthalate	190	U	6	380	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	190	U	21	380	ug/Kg
100-01-6	4-Nitroaniline	190	U	50	380	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	190	U	22	380	ug/Kg
86-30-6	N-Nitrosodiphenylamine	190	U	9.3	380	ug/Kg
101-55-3	4-Bromophenyl-phenylether	190	U	7.6	380	ug/Kg
118-74-1	Hexachlorobenzene	190	U	16	380	ug/Kg
1912-24-9	Atrazine	190	U	20	380	ug/Kg
87-86-5	Pentachlorophenol	190	U	26	380	ug/Kg
85-01-8	Phenanthrene	190	U	10	380	ug/Kg
86-74-8	Carbazole	190	U	8.5	380	ug/Kg
84-74-2	Di-n-butylphthalate	190	U	30	380	ug/Kg
85-68-7	Butylbenzylphthalate	190	U	19	380	ug/Kg
91-94-1	3,3-Dichlorobenzidine	190	U	25	380	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	190	U	14	380	ug/Kg
117-84-0	Di-n-octyl phthalate	190	U	4.4	380	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U	15	380	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	190	U	380	380	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	120		35 - 105	80%	SPK: 150
13127-88-3	Phenol-d5	125		40 - 100	84%	SPK: 150
4165-60-0	Nitrobenzene-d5	76.6		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	80.3		45 - 105	80%	SPK: 100
118-79-6	2,4,6-Tribromophenol	120		35 - 125	80%	SPK: 150
1718-51-0	Terphenyl-d14	83.8		30 - 125	84%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	123701	8.64			
1146-65-2	Naphthalene-d8	483721	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074759.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	264115	13.78			
1517-22-2	Phenanthrene-d10	473714	16.25			
1719-03-5	Chrysene-d12	443518	20.71			
1520-96-3	Perylene-d12	396871	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074796.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	220	U	23	440	ug/Kg
108-95-2	Phenol	220	U	10	440	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	220	U	21	440	ug/Kg
95-57-8	2-Chlorophenol	220	U	23	440	ug/Kg
95-48-7	2-Methylphenol	220	U	24	440	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	220	U	18	440	ug/Kg
98-86-2	Acetophenone	220	U	14	440	ug/Kg
65794-96-9	3+4-Methylphenols	220	U	23	440	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	220	U	22	440	ug/Kg
67-72-1	Hexachloroethane	220	U	20	440	ug/Kg
98-95-3	Nitrobenzene	220	U	17	440	ug/Kg
78-59-1	Isophorone	220	U	15	440	ug/Kg
88-75-5	2-Nitrophenol	220	U	21	440	ug/Kg
105-67-9	2,4-Dimethylphenol	220	U	25	440	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	220	U	26	440	ug/Kg
120-83-2	2,4-Dichlorophenol	220	U	17	440	ug/Kg
106-47-8	4-Chloroaniline	220	U	31	440	ug/Kg
87-68-3	Hexachlorobutadiene	220	U	16	440	ug/Kg
105-60-2	Caprolactam	220	U	21	440	ug/Kg
59-50-7	4-Chloro-3-methylphenol	220	U	20	440	ug/Kg
77-47-4	Hexachlorocyclopentadiene	220	U	11	440	ug/Kg
88-06-2	2,4,6-Trichlorophenol	220	U	14	440	ug/Kg
95-95-4	2,4,5-Trichlorophenol	220	U	31	440	ug/Kg
92-52-4	1,1-Biphenyl	220	U	17	440	ug/Kg
91-58-7	2-Chloronaphthalene	220	U	10	440	ug/Kg
88-74-4	2-Nitroaniline	220	U	20	440	ug/Kg
131-11-3	Dimethylphthalate	220	J	12	440	ug/Kg
208-96-8	Acenaphthylene	220	U	11	440	ug/Kg
606-20-2	2,6-Dinitrotoluene	220	U	18	440	ug/Kg
99-09-2	3-Nitroaniline	220	U	28	440	ug/Kg
83-32-9	Acenaphthene	220	U	12	440	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074796.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	220	U	45	440	ug/Kg
100-02-7	4-Nitrophenol	220	U	82	440	ug/Kg
132-64-9	Dibenzofuran	220	U	17	440	ug/Kg
121-14-2	2,4-Dinitrotoluene	220	U	13	440	ug/Kg
84-66-2	Diethylphthalate	220	U	6.9	440	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	220	U	24	440	ug/Kg
100-01-6	4-Nitroaniline	220	U	58	440	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	220	U	25	440	ug/Kg
86-30-6	N-Nitrosodiphenylamine	220	U	11	440	ug/Kg
101-55-3	4-Bromophenyl-phenylether	220	U	8.6	440	ug/Kg
118-74-1	Hexachlorobenzene	220	U	18	440	ug/Kg
1912-24-9	Atrazine	220	U	23	440	ug/Kg
87-86-5	Pentachlorophenol	220	U	30	440	ug/Kg
85-01-8	Phenanthrene	900		12	440	ug/Kg
86-74-8	Carbazole	220	U	9.7	440	ug/Kg
84-74-2	Di-n-butylphthalate	220	U	35	440	ug/Kg
85-68-7	Butylbenzylphthalate	220	U	21	440	ug/Kg
91-94-1	3,3-Dichlorobenzidine	220	U	28	440	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	220	U	16	440	ug/Kg
117-84-0	Di-n-octyl phthalate	220	U	5.1	440	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	220	U	17	440	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	220	U	440	440	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	107		35 - 105	72%	SPK: 150
13127-88-3	Phenol-d5	110		40 - 100	74%	SPK: 150
4165-60-0	Nitrobenzene-d5	66.3		35 - 100	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	61.2		45 - 105	61%	SPK: 100
118-79-6	2,4,6-Tribromophenol	106		35 - 125	71%	SPK: 150
1718-51-0	Terphenyl-d14	64		30 - 125	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	162215	8.64			
1146-65-2	Naphthalene-d8	658536	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074796.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	362329	13.78			
1517-22-2	Phenanthrene-d10	623653	16.26			
1719-03-5	Chrysene-d12	596738	20.7			
1520-96-3	Perylene-d12	564329	24.39			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074763.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.2	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	22	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	260	J	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074763.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	74	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	22	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	52	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	127		35 - 105	85%	SPK: 150
13127-88-3	Phenol-d5	131		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.2		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	81.2		45 - 105	81%	SPK: 100
118-79-6	2,4,6-Tribromophenol	131		35 - 125	88%	SPK: 150
1718-51-0	Terphenyl-d14	85.1		30 - 125	85%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	122682	8.64			
1146-65-2	Naphthalene-d8	483103	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074763.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	262406	13.78			
1517-22-2	Phenanthrene-d10	476717	16.25			
1719-03-5	Chrysene-d12	443980	20.71			
1520-96-3	Perylene-d12	388901	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074765.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	170	J	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074765.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	53	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	118		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	118		40 - 100	79%	SPK: 150
4165-60-0	Nitrobenzene-d5	69.7		35 - 100	70%	SPK: 100
321-60-8	2-Fluorobiphenyl	75.4		45 - 105	75%	SPK: 100
118-79-6	2,4,6-Tribromophenol	120		35 - 125	80%	SPK: 150
1718-51-0	Terphenyl-d14	78.4		30 - 125	78%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	127212	8.64			
1146-65-2	Naphthalene-d8	498108	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074765.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	276350	13.78			
1517-22-2	Phenanthrene-d10	494493	16.26			
1719-03-5	Chrysene-d12	458826	20.7			
1520-96-3	Perylene-d12	406232	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074758.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	190	U	20	380	ug/Kg
108-95-2	Phenol	190	U	8.8	380	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	190	U	18	380	ug/Kg
95-57-8	2-Chlorophenol	190	U	20	380	ug/Kg
95-48-7	2-Methylphenol	190	U	21	380	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	190	U	16	380	ug/Kg
98-86-2	Acetophenone	190	U	12	380	ug/Kg
65794-96-9	3+4-Methylphenols	190	U	20	380	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	190	U	19	380	ug/Kg
67-72-1	Hexachloroethane	190	U	17	380	ug/Kg
98-95-3	Nitrobenzene	190	U	14	380	ug/Kg
78-59-1	Isophorone	190	U	13	380	ug/Kg
88-75-5	2-Nitrophenol	190	U	18	380	ug/Kg
105-67-9	2,4-Dimethylphenol	190	U	22	380	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	190	U	22	380	ug/Kg
120-83-2	2,4-Dichlorophenol	190	U	15	380	ug/Kg
106-47-8	4-Chloroaniline	190	U	27	380	ug/Kg
87-68-3	Hexachlorobutadiene	190	U	14	380	ug/Kg
105-60-2	Caprolactam	190	U	18	380	ug/Kg
59-50-7	4-Chloro-3-methylphenol	190	U	17	380	ug/Kg
77-47-4	Hexachlorocyclopentadiene	190	U	9.3	380	ug/Kg
88-06-2	2,4,6-Trichlorophenol	190	U	12	380	ug/Kg
95-95-4	2,4,5-Trichlorophenol	190	U	27	380	ug/Kg
92-52-4	1,1-Biphenyl	190	U	14	380	ug/Kg
91-58-7	2-Chloronaphthalene	190	U	8.7	380	ug/Kg
88-74-4	2-Nitroaniline	190	U	17	380	ug/Kg
131-11-3	Dimethylphthalate	260	J	10	380	ug/Kg
208-96-8	Acenaphthylene	190	U	9.6	380	ug/Kg
606-20-2	2,6-Dinitrotoluene	190	U	16	380	ug/Kg
99-09-2	3-Nitroaniline	190	U	25	380	ug/Kg
83-32-9	Acenaphthene	190	U	11	380	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074758.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	190	U	39	380	ug/Kg
100-02-7	4-Nitrophenol	190	U	71	380	ug/Kg
132-64-9	Dibenzofuran	190	U	15	380	ug/Kg
121-14-2	2,4-Dinitrotoluene	190	U	12	380	ug/Kg
84-66-2	Diethylphthalate	190	U	6	380	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	190	U	21	380	ug/Kg
100-01-6	4-Nitroaniline	190	U	50	380	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	190	U	22	380	ug/Kg
86-30-6	N-Nitrosodiphenylamine	190	U	9.2	380	ug/Kg
101-55-3	4-Bromophenyl-phenylether	190	U	7.5	380	ug/Kg
118-74-1	Hexachlorobenzene	190	U	16	380	ug/Kg
1912-24-9	Atrazine	190	U	20	380	ug/Kg
87-86-5	Pentachlorophenol	190	U	26	380	ug/Kg
85-01-8	Phenanthrene	190	U	10	380	ug/Kg
86-74-8	Carbazole	190	U	8.4	380	ug/Kg
84-74-2	Di-n-butylphthalate	190	U	30	380	ug/Kg
85-68-7	Butylbenzylphthalate	190	U	18	380	ug/Kg
91-94-1	3,3-Dichlorobenzidine	190	U	25	380	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	190	U	14	380	ug/Kg
117-84-0	Di-n-octyl phthalate	190	U	4.4	380	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U	15	380	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	190	U	380	380	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	140		35 - 105	94%	SPK: 150
13127-88-3	Phenol-d5	144		40 - 100	96%	SPK: 150
4165-60-0	Nitrobenzene-d5	85.4		35 - 100	85%	SPK: 100
321-60-8	2-Fluorobiphenyl	91.4		45 - 105	91%	SPK: 100
118-79-6	2,4,6-Tribromophenol	146		35 - 125	98%	SPK: 150
1718-51-0	Terphenyl-d14	93.4		30 - 125	93%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	230538	8.64			
1146-65-2	Naphthalene-d8	904767	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074758.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	500924	13.78			
1517-22-2	Phenanthrene-d10	895682	16.25			
1719-03-5	Chrysene-d12	847893	20.71			
1520-96-3	Perylene-d12	790703	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074760.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	210	J	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074760.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	126		35 - 105	84%	SPK: 150
13127-88-3	Phenol-d5	129		40 - 100	86%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.2		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	77		45 - 105	77%	SPK: 100
118-79-6	2,4,6-Tribromophenol	129		35 - 125	86%	SPK: 150
1718-51-0	Terphenyl-d14	81.1		30 - 125	81%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	129806	8.64			
1146-65-2	Naphthalene-d8	498783	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	c5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074760.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	276319	13.78			
1517-22-2	Phenanthrene-d10	499138	16.26			
1719-03-5	Chrysene-d12	458561	20.71			
1520-96-3	Perylene-d12	407914	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074791.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	25	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	24	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	18	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	23	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	27	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	22	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	33	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	18	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	230	J	13	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074791.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	48	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	87	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.3	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	61	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	27	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9.1	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	25	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	13	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	37	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	17	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	127		35 - 105	85%	SPK: 150
13127-88-3	Phenol-d5	131		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.6		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	73		45 - 105	73%	SPK: 100
118-79-6	2,4,6-Tribromophenol	129		35 - 125	87%	SPK: 150
1718-51-0	Terphenyl-d14	76.5		30 - 125	77%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	143393	8.64			
1146-65-2	Naphthalene-d8	569801	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	c5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074791.D	1	12/19/11	01/01/12	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	316808	13.78			
1517-22-2	Phenanthrene-d10	557579	16.25			
1719-03-5	Chrysene-d12	531091	20.7			
1520-96-3	Perylene-d12	478643	24.39			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074762.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	20	390	ug/Kg
108-95-2	Phenol	195	U	9.1	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	20	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	17	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.5	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	8.9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	17	390	ug/Kg
131-11-3	Dimethylphthalate	170	J	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	9.9	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074762.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	73	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.1	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	51	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	22	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.4	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.6	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.6	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	15	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	108		35 - 105	73%	SPK: 150
13127-88-3	Phenol-d5	115		40 - 100	77%	SPK: 150
4165-60-0	Nitrobenzene-d5	70.9		35 - 100	71%	SPK: 100
321-60-8	2-Fluorobiphenyl	73.2		45 - 105	73%	SPK: 100
118-79-6	2,4,6-Tribromophenol	105		35 - 125	71%	SPK: 150
1718-51-0	Terphenyl-d14	76.2		30 - 125	76%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	121082	8.64			
1146-65-2	Naphthalene-d8	467998	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	c5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074762.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	261678	13.78			
1517-22-2	Phenanthrene-d10	462708	16.26			
1719-03-5	Chrysene-d12	433150	20.7			
1520-96-3	Perylene-d12	376342	24.4			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002460.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	6.3		0.54	4.5	ug/Kg
91-57-6	2-Methylnaphthalene	5		0.54	4.5	ug/Kg
208-96-8	Acenaphthylene	24		0.54	4.5	ug/Kg
83-32-9	Acenaphthene	16		0.54	4.5	ug/Kg
86-73-7	Fluorene	32		0.54	4.5	ug/Kg
85-01-8	Phenanthrene	490		0.54	4.5	ug/Kg
120-12-7	Anthracene	120		0.54	4.5	ug/Kg
206-44-0	Fluoranthene	1200	E	0.54	4.5	ug/Kg
129-00-0	Pyrene	860		0.54	4.5	ug/Kg
56-55-3	Benzo(a)anthracene	490		0.54	4.5	ug/Kg
218-01-9	Chrysene	500		0.54	4.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	750		0.54	4.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	250		0.54	4.5	ug/Kg
50-32-8	Benzo(a)pyrene	490		0.54	4.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	200		0.54	4.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	26		0.54	4.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	230		0.54	4.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	59.3		30 - 150	59%	SPK: 100
321-60-8	2-Fluorobiphenyl	38.4	*	45 - 105	38%	SPK: 100
1718-51-0	Terphenyl-d14	34.4		30 - 125	34%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	67602	7.99			
1146-65-2	Naphthalene-d8	238054	10.16			
15067-26-2	Acenaphthene-d10	146142	13.14			
1517-22-2	Phenanthrene-d10	246505	15.59			
1719-03-5	Chrysene-d12	264653	19.97			
1520-96-3	Perylene-d12	190737	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002460.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05DL	SDG No.:	C5039
Lab Sample ID:	C5039-11DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002493.D	2	12/19/11	12/29/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	7.2	JD	1.1	8.9	ug/Kg
91-57-6	2-Methylnaphthalene	5.4	JD	1.1	8.9	ug/Kg
208-96-8	Acenaphthylene	24	D	1.1	8.9	ug/Kg
83-32-9	Acenaphthene	20	D	1.1	8.9	ug/Kg
86-73-7	Fluorene	38	D	1.1	8.9	ug/Kg
85-01-8	Phenanthrene	580	D	1.1	8.9	ug/Kg
120-12-7	Anthracene	130	D	1.1	8.9	ug/Kg
206-44-0	Fluoranthene	1500	D	1.1	8.9	ug/Kg
129-00-0	Pyrene	1100	D	1.1	8.9	ug/Kg
56-55-3	Benzo(a)anthracene	580	D	1.1	8.9	ug/Kg
218-01-9	Chrysene	570	D	1.1	8.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	700	D	1.1	8.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	280	D	1.1	8.9	ug/Kg
50-32-8	Benzo(a)pyrene	530	D	1.1	8.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	320	D	1.1	8.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	31	D	1.1	8.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	280	D	1.1	8.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	71.3		30 - 150	71%	SPK: 100
321-60-8	2-Fluorobiphenyl	47.7		45 - 105	48%	SPK: 100
1718-51-0	Terphenyl-d14	44.5		30 - 125	45%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	72963	7.97			
1146-65-2	Naphthalene-d8	263489	10.15			
15067-26-2	Acenaphthene-d10	166308	13.13			
1517-22-2	Phenanthrene-d10	299835	15.57			
1719-03-5	Chrysene-d12	312513	19.94			
1520-96-3	Perylene-d12	272951	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05DL	SDG No.:	C5039
Lab Sample ID:	C5039-11DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002493.D	2	12/19/11	12/29/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002457.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	24		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	26		0.49	4	ug/Kg
208-96-8	Acenaphthylene	4.1		0.49	4	ug/Kg
83-32-9	Acenaphthene	3.7	J	0.49	4	ug/Kg
86-73-7	Fluorene	6.9		0.49	4	ug/Kg
85-01-8	Phenanthrene	99		0.49	4	ug/Kg
120-12-7	Anthracene	14		0.49	4	ug/Kg
206-44-0	Fluoranthene	170		0.49	4	ug/Kg
129-00-0	Pyrene	130		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	60		0.49	4	ug/Kg
218-01-9	Chrysene	78		0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	99		0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	34		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	70		0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	37		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	4.1		0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	35		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	53.9		30 - 150	54%	SPK: 100
321-60-8	2-Fluorobiphenyl	40.2	*	45 - 105	40%	SPK: 100
1718-51-0	Terphenyl-d14	38.8		30 - 125	39%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	64052	7.99			
1146-65-2	Naphthalene-d8	228346	10.16			
15067-26-2	Acenaphthene-d10	137604	13.14			
1517-22-2	Phenanthrene-d10	232472	15.59			
1719-03-5	Chrysene-d12	236960	19.96			
1520-96-3	Perylene-d12	215655	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002457.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002456.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	5		0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	3.7	J	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	12		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	14		0.5	4.1	ug/Kg
86-73-7	Fluorene	19		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	340		0.5	4.1	ug/Kg
120-12-7	Anthracene	49		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	780		0.5	4.1	ug/Kg
129-00-0	Pyrene	550		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	270		0.5	4.1	ug/Kg
218-01-9	Chrysene	340		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	510		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	160		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	320		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	140		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	17		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	160		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	64.5		30 - 150	64%	SPK: 100
321-60-8	2-Fluorobiphenyl	41.3	*	45 - 105	41%	SPK: 100
1718-51-0	Terphenyl-d14	38.1		30 - 125	38%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	62943	7.99			
1146-65-2	Naphthalene-d8	218909	10.16			
15067-26-2	Acenaphthene-d10	136295	13.14			
1517-22-2	Phenanthrene-d10	226241	15.59			
1719-03-5	Chrysene-d12	241467	19.97			
1520-96-3	Perylene-d12	189337	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002456.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002441.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.48	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.48	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.48	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.48	4	ug/Kg
86-73-7	Fluorene	2	U	0.48	4	ug/Kg
85-01-8	Phenanthrene	4		0.48	4	ug/Kg
120-12-7	Anthracene	2	U	0.48	4	ug/Kg
206-44-0	Fluoranthene	4.8		0.48	4	ug/Kg
129-00-0	Pyrene	4		0.48	4	ug/Kg
56-55-3	Benzo(a)anthracene	2.4	J	0.48	4	ug/Kg
218-01-9	Chrysene	2.8	J	0.48	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.4	J	0.48	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.48	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.48	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.48	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.48	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.48	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.7		30 - 150	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.1		45 - 105	55%	SPK: 100
1718-51-0	Terphenyl-d14	61		30 - 125	61%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	48554	7.99			
1146-65-2	Naphthalene-d8	173701	10.16			
15067-26-2	Acenaphthene-d10	113121	13.14			
1517-22-2	Phenanthrene-d10	201394	15.59			
1719-03-5	Chrysene-d12	193877	19.96			
1520-96-3	Perylene-d12	175811	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002441.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	36
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002455.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.55	U	0.62	5.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.55	U	0.62	5.1	ug/Kg
208-96-8	Acenaphthylene	2.55	U	0.62	5.1	ug/Kg
83-32-9	Acenaphthene	2.55	U	0.62	5.1	ug/Kg
86-73-7	Fluorene	2.55	U	0.62	5.1	ug/Kg
85-01-8	Phenanthrene	21		0.62	5.1	ug/Kg
120-12-7	Anthracene	2.55	U	0.62	5.1	ug/Kg
206-44-0	Fluoranthene	45		0.62	5.1	ug/Kg
129-00-0	Pyrene	36		0.62	5.1	ug/Kg
56-55-3	Benzo(a)anthracene	19		0.62	5.1	ug/Kg
218-01-9	Chrysene	22		0.62	5.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	27		0.62	5.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	10		0.62	5.1	ug/Kg
50-32-8	Benzo(a)pyrene	20		0.62	5.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	12		0.62	5.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.55	U	0.62	5.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	11		0.62	5.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.4		30 - 150	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.8		45 - 105	56%	SPK: 100
1718-51-0	Terphenyl-d14	58.8		30 - 125	59%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	52143	7.99			
1146-65-2	Naphthalene-d8	186869	10.16			
15067-26-2	Acenaphthene-d10	119707	13.14			
1517-22-2	Phenanthrene-d10	208774	15.59			
1719-03-5	Chrysene-d12	200658	19.97			
1520-96-3	Perylene-d12	184405	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	36
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002455.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002464.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	29		0.46	3.8	ug/Kg
91-57-6	2-Methylnaphthalene	33		0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	6.9		0.46	3.8	ug/Kg
83-32-9	Acenaphthene	3.4	J	0.46	3.8	ug/Kg
86-73-7	Fluorene	5.7		0.46	3.8	ug/Kg
85-01-8	Phenanthrene	110		0.46	3.8	ug/Kg
120-12-7	Anthracene	23		0.46	3.8	ug/Kg
206-44-0	Fluoranthene	260		0.46	3.8	ug/Kg
129-00-0	Pyrene	180		0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	110		0.46	3.8	ug/Kg
218-01-9	Chrysene	110		0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	140		0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	57		0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	100		0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	51		0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	14		0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	52		0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.8		30 - 150	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.5		45 - 105	55%	SPK: 100
1718-51-0	Terphenyl-d14	52.8		30 - 125	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	52310	7.98			
1146-65-2	Naphthalene-d8	182494	10.16			
15067-26-2	Acenaphthene-d10	109515	13.14			
1517-22-2	Phenanthrene-d10	185759	15.59			
1719-03-5	Chrysene-d12	202901	19.96			
1520-96-3	Perylene-d12	179537	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002464.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002461.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	17		0.55	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	15		0.55	4.6	ug/Kg
208-96-8	Acenaphthylene	21		0.55	4.6	ug/Kg
83-32-9	Acenaphthene	22		0.55	4.6	ug/Kg
86-73-7	Fluorene	50		0.55	4.6	ug/Kg
85-01-8	Phenanthrene	580		0.55	4.6	ug/Kg
120-12-7	Anthracene	67		0.55	4.6	ug/Kg
206-44-0	Fluoranthene	970		0.55	4.6	ug/Kg
129-00-0	Pyrene	630		0.55	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	260		0.55	4.6	ug/Kg
218-01-9	Chrysene	330		0.55	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	450		0.55	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	140		0.55	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	280		0.55	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	140		0.55	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	13		0.55	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	130		0.55	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	78.6		30 - 150	79%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.3		45 - 105	55%	SPK: 100
1718-51-0	Terphenyl-d14	56.1		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	54838	7.99			
1146-65-2	Naphthalene-d8	195120	10.16			
15067-26-2	Acenaphthene-d10	119197	13.14			
1517-22-2	Phenanthrene-d10	199523	15.59			
1719-03-5	Chrysene-d12	216552	19.96			
1520-96-3	Perylene-d12	182731	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project: .	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002461.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002446.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.9	U	0.46	3.8	ug/Kg
91-57-6	2-Methylnaphthalene	1.9	U	0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	1.9	U	0.46	3.8	ug/Kg
83-32-9	Acenaphthene	1.9	U	0.46	3.8	ug/Kg
86-73-7	Fluorene	1.9	U	0.46	3.8	ug/Kg
85-01-8	Phenanthrene	1.9	U	0.46	3.8	ug/Kg
120-12-7	Anthracene	1.9	U	0.46	3.8	ug/Kg
206-44-0	Fluoranthene	1.9	U	0.46	3.8	ug/Kg
129-00-0	Pyrene	1.9	U	0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	1.9	U	0.46	3.8	ug/Kg
218-01-9	Chrysene	1.9	U	0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.9	U	0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.9	U	0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	1.9	U	0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.9	U	0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.9	U	0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.9	U	0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	68.2		30 - 150	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	49.6		45 - 105	50%	SPK: 100
1718-51-0	Terphenyl-d14	52.5		30 - 125	52%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	59211	7.99			
1146-65-2	Naphthalene-d8	207847	10.16			
15067-26-2	Acenaphthene-d10	132973	13.14			
1517-22-2	Phenanthrene-d10	240535	15.59			
1719-03-5	Chrysene-d12	236418	19.96			
1520-96-3	Perylene-d12	215932	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002446.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002444.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.9	U	0.46	3.8	ug/Kg
91-57-6	2-Methylnaphthalene	1.9	U	0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	1.9	U	0.46	3.8	ug/Kg
83-32-9	Acenaphthene	1.9	U	0.46	3.8	ug/Kg
86-73-7	Fluorene	1.9	U	0.46	3.8	ug/Kg
85-01-8	Phenanthrene	11		0.46	3.8	ug/Kg
120-12-7	Anthracene	1.9	U	0.46	3.8	ug/Kg
206-44-0	Fluoranthene	20		0.46	3.8	ug/Kg
129-00-0	Pyrene	15		0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	4.6		0.46	3.8	ug/Kg
218-01-9	Chrysene	8.5		0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	10		0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	3.9		0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	6.2		0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	4.3		0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.9	U	0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	4.3		0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	76.8		30 - 150	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	59.7		45 - 105	60%	SPK: 100
1718-51-0	Terphenyl-d14	63.2		30 - 125	63%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	41783	7.98			
1146-65-2	Naphthalene-d8	148538	10.16			
15067-26-2	Acenaphthene-d10	96519	13.14			
1517-22-2	Phenanthrene-d10	177345	15.59			
1719-03-5	Chrysene-d12	172819	19.96			
1520-96-3	Perylene-d12	154364	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002444.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002459.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	9.3		0.53	4.4	ug/Kg
91-57-6	2-Methylnaphthalene	5.3		0.53	4.4	ug/Kg
208-96-8	Acenaphthylene	23		0.53	4.4	ug/Kg
83-32-9	Acenaphthene	31		0.53	4.4	ug/Kg
86-73-7	Fluorene	59		0.53	4.4	ug/Kg
85-01-8	Phenanthrene	850		0.53	4.4	ug/Kg
120-12-7	Anthracene	260		0.53	4.4	ug/Kg
206-44-0	Fluoranthene	1800	E	0.53	4.4	ug/Kg
129-00-0	Pyrene	1300		0.53	4.4	ug/Kg
56-55-3	Benzo(a)anthracene	770		0.53	4.4	ug/Kg
218-01-9	Chrysene	750		0.53	4.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	1100		0.53	4.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	390		0.53	4.4	ug/Kg
50-32-8	Benzo(a)pyrene	710		0.53	4.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	290		0.53	4.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	39		0.53	4.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	350		0.53	4.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	66.5		30 - 150	67%	SPK: 100
321-60-8	2-Fluorobiphenyl	49.6		45 - 105	50%	SPK: 100
1718-51-0	Terphenyl-d14	46.8		30 - 125	47%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	56808	7.98			
1146-65-2	Naphthalene-d8	204509	10.16			
15067-26-2	Acenaphthene-d10	125246	13.14			
1517-22-2	Phenanthrene-d10	213209	15.59			
1719-03-5	Chrysene-d12	225977	19.96			
1520-96-3	Perylene-d12	157601	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002459.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01DL	SDG No.:	C5039
Lab Sample ID:	C5039-08DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002492.D	2	12/19/11	12/29/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	9.8	D	1.1	8.8	ug/Kg
91-57-6	2-Methylnaphthalene	5.3	JD	1.1	8.8	ug/Kg
208-96-8	Acenaphthylene	21	D	1.1	8.8	ug/Kg
83-32-9	Acenaphthene	34	D	1.1	8.8	ug/Kg
86-73-7	Fluorene	62	D	1.1	8.8	ug/Kg
85-01-8	Phenanthrene	940	D	1.1	8.8	ug/Kg
120-12-7	Anthracene	270	D	1.1	8.8	ug/Kg
206-44-0	Fluoranthene	2100	D	1.1	8.8	ug/Kg
129-00-0	Pyrene	1500	D	1.1	8.8	ug/Kg
56-55-3	Benzo(a)anthracene	830	D	1.1	8.8	ug/Kg
218-01-9	Chrysene	800	D	1.1	8.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	1000	D	1.1	8.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	330	D	1.1	8.8	ug/Kg
50-32-8	Benzo(a)pyrene	730	D	1.1	8.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	420	D	1.1	8.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	41	D	1.1	8.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	370	D	1.1	8.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	73.7		30 - 150	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	56		45 - 105	56%	SPK: 100
1718-51-0	Terphenyl-d14	56.3		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	64519	7.97			
1146-65-2	Naphthalene-d8	232895	10.15			
15067-26-2	Acenaphthene-d10	148869	13.13			
1517-22-2	Phenanthrene-d10	268986	15.57			
1719-03-5	Chrysene-d12	282056	19.94			
1520-96-3	Perylene-d12	243043	23.05			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01DL	SDG No.:	C5039
Lab Sample ID:	C5039-08DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002492.D	2	12/19/11	12/29/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002445.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.48	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.48	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.48	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.48	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.48	3.9	ug/Kg
85-01-8	Phenanthrene	1.95	U	0.48	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.48	3.9	ug/Kg
206-44-0	Fluoranthene	1.95	U	0.48	3.9	ug/Kg
129-00-0	Pyrene	1.95	U	0.48	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	1.95	U	0.48	3.9	ug/Kg
218-01-9	Chrysene	1.95	U	0.48	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.95	U	0.48	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.95	U	0.48	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	1.95	U	0.48	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.48	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.48	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.48	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	75.8		30 - 150	76%	SPK: 100
321-60-8	2-Fluorobiphenyl	56.1		45 - 105	56%	SPK: 100
1718-51-0	Terphenyl-d14	61.5		30 - 125	61%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	48863	7.99			
1146-65-2	Naphthalene-d8	173833	10.16			
15067-26-2	Acenaphthene-d10	112745	13.14			
1517-22-2	Phenanthrene-d10	200835	15.59			
1719-03-5	Chrysene-d12	196063	19.96			
1520-96-3	Perylene-d12	179836	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002445.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002447.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	2.1	J	0.49	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.49	4.1	ug/Kg
206-44-0	Fluoranthene	3.3	J	0.49	4.1	ug/Kg
129-00-0	Pyrene	2.5	J	0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.49	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	70.9		30 - 150	71%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.3		45 - 105	55%	SPK: 100
1718-51-0	Terphenyl-d14	56.2		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	55793	7.99			
1146-65-2	Naphthalene-d8	195298	10.16			
15067-26-2	Acenaphthene-d10	124760	13.14			
1517-22-2	Phenanthrene-d10	216352	15.59			
1719-03-5	Chrysene-d12	217976	19.96			
1520-96-3	Perylene-d12	201890	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002447.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002448.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.9	U	0.46	3.8	ug/Kg
91-57-6	2-Methylnaphthalene	1.9	U	0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	1.9	U	0.46	3.8	ug/Kg
83-32-9	Acenaphthene	1.9	U	0.46	3.8	ug/Kg
86-73-7	Fluorene	1.9	U	0.46	3.8	ug/Kg
85-01-8	Phenanthrene	1.9	U	0.46	3.8	ug/Kg
120-12-7	Anthracene	1.9	U	0.46	3.8	ug/Kg
206-44-0	Fluoranthene	1.9	U	0.46	3.8	ug/Kg
129-00-0	Pyrene	1.9	U	0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	1.9	U	0.46	3.8	ug/Kg
218-01-9	Chrysene	1.9	U	0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.9	U	0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.9	U	0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	1.9	U	0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.9	U	0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.9	U	0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.9	U	0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.8		30 - 150	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	55.6		45 - 105	56%	SPK: 100
1718-51-0	Terphenyl-d14	58		30 - 125	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	51387	7.98			
1146-65-2	Naphthalene-d8	179192	10.16			
15067-26-2	Acenaphthene-d10	115632	13.14			
1517-22-2	Phenanthrene-d10	203828	15.59			
1719-03-5	Chrysene-d12	204313	19.96			
1520-96-3	Perylene-d12	189373	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002448.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002442.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	2.05	U	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	2.05	U	0.5	4.1	ug/Kg
129-00-0	Pyrene	2.05	U	0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	68.6		30 - 150	69%	SPK: 100
321-60-8	2-Fluorobiphenyl	50.7		45 - 105	51%	SPK: 100
1718-51-0	Terphenyl-d14	53.1		30 - 125	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	53818	7.99			
1146-65-2	Naphthalene-d8	189888	10.16			
15067-26-2	Acenaphthene-d10	125347	13.14			
1517-22-2	Phenanthrene-d10	225598	15.59			
1719-03-5	Chrysene-d12	221061	19.96			
1520-96-3	Perylene-d12	200571	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002442.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002458.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.3	U	0.56	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	2.3	U	0.56	4.6	ug/Kg
208-96-8	Acenaphthylene	2.3	U	0.56	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.56	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.56	4.6	ug/Kg
85-01-8	Phenanthrene	13		0.56	4.6	ug/Kg
120-12-7	Anthracene	2.3	U	0.56	4.6	ug/Kg
206-44-0	Fluoranthene	30		0.56	4.6	ug/Kg
129-00-0	Pyrene	23		0.56	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	12		0.56	4.6	ug/Kg
218-01-9	Chrysene	14		0.56	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	17		0.56	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	7		0.56	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	12		0.56	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	8.4		0.56	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.56	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	7		0.56	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.9		30 - 150	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	52.3		45 - 105	52%	SPK: 100
1718-51-0	Terphenyl-d14	53.9		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	53582	7.98			
1146-65-2	Naphthalene-d8	189789	10.16			
15067-26-2	Acenaphthene-d10	117358	13.14			
1517-22-2	Phenanthrene-d10	200945	15.59			
1719-03-5	Chrysene-d12	201808	19.96			
1520-96-3	Perylene-d12	189720	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002458.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002443.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.47	3.9	ug/Kg
85-01-8	Phenanthrene	1.95	U	0.47	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.47	3.9	ug/Kg
206-44-0	Fluoranthene	1.95	U	0.47	3.9	ug/Kg
129-00-0	Pyrene	1.95	U	0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	1.95	U	0.47	3.9	ug/Kg
218-01-9	Chrysene	1.95	U	0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.95	U	0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.95	U	0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	1.95	U	0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	68		30 - 150	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	52.8		45 - 105	53%	SPK: 100
1718-51-0	Terphenyl-d14	54.3		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	54676	7.99			
1146-65-2	Naphthalene-d8	193294	10.16			
15067-26-2	Acenaphthene-d10	123755	13.14			
1517-22-2	Phenanthrene-d10	226608	15.59			
1719-03-5	Chrysene-d12	220678	19.96			
1520-96-3	Perylene-d12	198011	23.09			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002443.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	26 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003617.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.18	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.14	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.14	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	28		0.18	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.18	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.18	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	6.95	*	55 - 130	35%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.5		70 - 125	72%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05RE	SDG No.:	C5039
Lab Sample ID:	C5039-11RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	26 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003632.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.18	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.14	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.14	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	28		0.18	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.18	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.18	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	6.93	*	55 - 130	35%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.3		70 - 125	72%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	17.6 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003623.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	13.7		55 - 130	69%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.1		70 - 125	81%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
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D = Dilution
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	19.7 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003606.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	10.4	*	55 - 130	52%	SPK: 20
877-09-8	Tetrachloro-m-xylene	12.4	*	70 - 125	62%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
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J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-02RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	19.7 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003622.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	10.9	*	55 - 130	54%	SPK: 20
877-09-8	Tetrachloro-m-xylene	13	*	70 - 125	65%	SPK: 20

U = Not Detected
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LOD = Limit of Detection
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J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	17.2 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003624.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.16	2	ug/Kg
319-85-7	beta-BHC	1	U	0.22	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.16	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.22	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.16	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.16	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.2		55 - 130	81%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.6		70 - 125	88%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	36.1 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003605.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.35	U	0.2	2.7	ug/Kg
319-85-7	beta-BHC	1.35	U	0.28	2.7	ug/Kg
319-86-8	delta-BHC	1.35	U	0.16	2.7	ug/Kg
58-89-9	gamma-BHC	1.35	U	0.23	2.7	ug/Kg
76-44-8	Heptachlor	1.35	U	0.22	2.7	ug/Kg
309-00-2	Aldrin	1.35	U	0.16	2.7	ug/Kg
1024-57-3	Heptachlor epoxide	1.35	U	0.25	2.7	ug/Kg
959-98-8	Endosulfan I	1.35	U	0.23	2.7	ug/Kg
60-57-1	Dieldrin	1.35	U	0.2	2.7	ug/Kg
72-55-9	4,4-DDE	1.35	U	0.31	2.7	ug/Kg
72-20-8	Endrin	1.35	U	0.28	2.7	ug/Kg
33213-65-9	Endosulfan II	1.35	U	0.22	2.7	ug/Kg
72-54-8	4,4-DDD	1.35	U	0.27	2.7	ug/Kg
1031-07-8	Endosulfan Sulfate	1.35	U	0.23	2.7	ug/Kg
50-29-3	4,4-DDT	1.35	U	0.22	2.7	ug/Kg
72-43-5	Methoxychlor	1.35	U	0.27	2.7	ug/Kg
53494-70-5	Endrin ketone	1.35	U	0.2	2.7	ug/Kg
7421-93-4	Endrin aldehyde	1.35	U	0.23	2.7	ug/Kg
5103-71-9	alpha-Chlordane	1.35	U	0.22	2.7	ug/Kg
5103-74-2	gamma-Chlordane	1.35	U	0.2	2.7	ug/Kg
8001-35-2	Toxaphene	13.5	U	15	27	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.1		55 - 130	81%	SPK: 20
877-09-8	Tetrachloro-m-xylene	15		70 - 125	75%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	13.5 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003618.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.18	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	12.5		55 - 130	63%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.6		70 - 125	83%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD006882.D	1	12/19/11	12/21/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.19	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.19	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.19	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.19	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	6.89	*	55 - 130	34%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.1		70 - 125	71%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	14.2 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003619.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	10.5	*	55 - 130	53%	SPK: 20
877-09-8	Tetrachloro-m-xylene	15.7		70 - 125	79%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
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D = Dilution
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	13.9 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003613.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	12.2		55 - 130	61%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.8		70 - 125	84%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	25.1 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003612.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.21	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	28		0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	4.59	*	55 - 130	23%	SPK: 20
877-09-8	Tetrachloro-m-xylene	9.83	*	70 - 125	49%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-08RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	25.1 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003626.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.21	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	28		0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	4.53	*	55 - 130	23%	SPK: 20
877-09-8	Tetrachloro-m-xylene	9.8	*	70 - 125	49%	SPK: 20

U = Not Detected
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.2 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003614.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.1		55 - 130	91%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.2		70 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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E = Value Exceeds Calibration Range
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J = Estimated Value
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S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	19.1 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003620.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.8		55 - 130	84%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.9		70 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	13.5 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003621.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.17	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.18	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.17	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.17	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.17	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	15.6		55 - 130	78%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.1		70 - 125	90%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003610.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	11.3		55 - 130	57%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.2		70 - 125	71%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	29.3 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003609.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.74	*	55 - 130	44%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.3		70 - 125	72%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-05RE	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	29.3 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003625.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.89	*	55 - 130	44%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.5		70 - 125	72%	SPK: 20

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MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
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N = Presumptive Evidence of a Compound
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	15.5 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003611.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	15.3		55 - 130	77%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.5		70 - 125	82%	SPK: 20

U = Not Detected
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MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	26 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006233.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.7	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.6	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	10	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.6	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.9	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.6	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.8		10 - 166	59%	SPK: 20
2051-24-3	Decachlorobiphenyl	6.68	*	60 - 125	33%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05RE	SDG No.:	C5039
Lab Sample ID:	C5039-11RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	26 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006256.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.7	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.6	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	10	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.6	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.9	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.6	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.8		10 - 166	59%	SPK: 20
2051-24-3	Decachlorobiphenyl	6.73	*	60 - 125	34%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006223.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.2		10 - 166	56%	SPK: 20
2051-24-3	Decachlorobiphenyl	7.83	*	60 - 125	39%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-03RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006252.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.2		10 - 166	66%	SPK: 20
2051-24-3	Decachlorobiphenyl	7	*	60 - 125	35%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006222.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.3		10 - 166	57%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.8	*	60 - 125	59%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-02RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006251.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	12.3		10 - 166	62%	SPK: 20
2051-24-3	Decachlorobiphenyl	10.5	*	60 - 125	53%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
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S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	17 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006226.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.2	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4.1	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4.1	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.9	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15		10 - 166	75%	SPK: 20
2051-24-3	Decachlorobiphenyl	12.9		60 - 125	64%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	36 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006221.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	13.5	U	5.4	27	ug/Kg
11104-28-2	Aroclor-1221	13.5	U	5.3	27	ug/Kg
11141-16-5	Aroclor-1232	13.5	U	12	27	ug/Kg
53469-21-9	Aroclor-1242	13.5	U	5.3	27	ug/Kg
12672-29-6	Aroclor-1248	13.5	U	10	27	ug/Kg
11097-69-1	Aroclor-1254	13.5	U	2.3	27	ug/Kg
11096-82-5	Aroclor-1260	13.5	U	6.4	27	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.3		10 - 166	71%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.7		60 - 125	78%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006239.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.8		10 - 166	74%	SPK: 20
2051-24-3	Decachlorobiphenyl	12		60 - 125	60%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006234.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.8	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.7	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.7	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.1	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.7	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	12.8		10 - 166	64%	SPK: 20
2051-24-3	Decachlorobiphenyl	6.44	*	60 - 125	32%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-12RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006257.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.8	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.7	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.7	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.1	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.7	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.3		10 - 166	66%	SPK: 20
2051-24-3	Decachlorobiphenyl	6.04	*	60 - 125	30%	SPK: 20

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LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006240.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16		10 - 166	80%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.6	*	60 - 125	58%	SPK: 20

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03RE	SDG No.:	C5039
Lab Sample ID:	C5039-16RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006258.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.6		10 - 166	83%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.8	*	60 - 125	59%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

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B = Analyte Found in Associated Method Blank
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006231.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16		10 - 166	80%	SPK: 20
2051-24-3	Decachlorobiphenyl	13.9		60 - 125	70%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	25 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006230.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.6	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.5	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	9.9	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.5	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.8	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	7.56		10 - 166	38%	SPK: 20
2051-24-3	Decachlorobiphenyl	5.83	*	60 - 125	29%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-08RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	25 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006255.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.6	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.5	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	9.9	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.5	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.8	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	8.41		10 - 166	42%	SPK: 20
2051-24-3	Decachlorobiphenyl	6.08	*	60 - 125	30%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	16 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006232.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.8	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.4		10 - 166	77%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.6		60 - 125	88%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006241.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.6		10 - 166	73%	SPK: 20
2051-24-3	Decachlorobiphenyl	14.8		60 - 125	74%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	14 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006242.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	3.9	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.7	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	3.9	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.6	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.3		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.6		60 - 125	78%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006228.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	12.7		10 - 166	63%	SPK: 20
2051-24-3	Decachlorobiphenyl	10.9	*	60 - 125	55%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02RE	SDG No.:	C5039
Lab Sample ID:	C5039-06RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006254.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.8		10 - 166	69%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.1	*	60 - 125	55%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	29 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006227.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.3	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.5		10 - 166	68%	SPK: 20
2051-24-3	Decachlorobiphenyl	8.63	*	60 - 125	43%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01RE	SDG No.:	C5039
Lab Sample ID:	C5039-05RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	29 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006253.D	1	12/19/11	12/23/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.3	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.3		10 - 166	72%	SPK: 20
2051-24-3	Decachlorobiphenyl	8.72	*	60 - 125	44%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	16 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006229.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.8	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.6		10 - 166	73%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.4		60 - 125	77%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Appendix C

Support Documentation

HOLDTIME

SDG C5039

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
M	MG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-0304-03	C5039-04DL	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
ORP	MV	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7
ORP	MV	12SB13-0304-03	C5039-04	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7
ORP	MV	12SB26-0304-03	C5039-10	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7
ORP	MV	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7
ORP	MV	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7
PH	S.U.	12SB29-0304-03	C5039-07	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB28-0304-03	C5039-18	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB25-0304-03	C5039-16	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB13-0304-03	C5039-04	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
PH	S.U.	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	S.U.	12SB26-0304-03	C5039-10	NM	12/16/2011	12/19/2011	12/19/2011	3	0	3
OS	UG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OS	UG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OS	UG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OS	UG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OS	UG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB26-000.5-01	C5039-08DL	NM	12/16/2011	12/19/2011	12/29/2011	3	10	13
OS	UG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB-DUP-05	C5039-11DL	NM	12/16/2011	12/19/2011	12/29/2011	3	10	13
OS	UG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/19/2011	1/1/2012	3	13	16
OS	UG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/19/2011	12/28/2011	3	9	12
OS	UG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OS	UG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OS	UG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/19/2011	12/27/2011	3	8	11
OS	UG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/19/2011	12/31/2011	3	12	15
OV	UG/KG	12SB26-0.502-02	C5039-09RE	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14
OV	UG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14
OV	UG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB26-000.5-01	C5039-08RE	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14
OV	UG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB13-0.502-02	C5039-03RE	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14
OV	UG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB14-000.5-01	C5039-01RE	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14
OV	UG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/KG	12SB25-000.5-01	C5039-12RE	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/30/2011	12/30/2011	14	0	14
OV	UG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/29/2011	12/29/2011	13	0	13
OV	UG/L	12TB-20111216	C5039-19	NM	12/16/2011	12/21/2011	12/21/2011	5	0	5
PCB	UG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB29-0.502-02	C5039-06RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB29-000.5-01	C5039-05RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB-DUP-05	C5039-11RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB26-000.5-01	C5039-08RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB13-000.5-01	C5039-02RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	UG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB25-000.5-01	C5039-12RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB25-0304-03	C5039-16RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PCB	UG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/19/2011	12/22/2011	3	3	6
PCB	UG/KG	12SB13-0.502-02	C5039-03RE	NM	12/16/2011	12/19/2011	12/23/2011	3	4	7
PEST	UG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB29-000.5-01	C5039-05RE	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB-DUP-05	C5039-11RE	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB26-000.5-01	C5039-08RE	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB13-000.5-01	C5039-02RE	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/19/2011	12/30/2011	3	11	14
PEST	UG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/19/2011	12/21/2011	3	2	5

NASJRB WILLOW GROVE
SOIL DATA
C5039

FRACTION	CHEMICAL	12SB26-000.5-01	UNITS	12SB-DUP-05	RPD	D	
OS	DIMETHYL PHTHALATE	220 J	UG/KG	330 J	40.00	110.00	
~~OS~~	~~PHENANTHRENE~~	~~900~~	~~UG/KG~~	~~750~~	~~18.18~~	~~150.00~~	
OV	2-BUTANONE	31	UG/KG	ND	200.00	31.00	J
OV	ACETONE	350	UG/KG	ND	200.00	350.00	J
PEST	DIELDRIN	28	UG/KG	28	0.00	0.00	

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5039

FRACTION	CHEMICAL	12SB26-000.5-01-GR2	UNITS	12SB-DUP-05-GR2	RPD	D	
OS	2-METHYLNAPHTHALENE	5.3	UG/KG	5	5.83	0.30	
OS	ACENAPHTHENE	31	UG/KG	16	63.83	15.00	J
OS	ACENAPHTHYLENE	23	UG/KG	24	4.26	1.00	
OS	ANTHRACENE	260	UG/KG	120	73.68	140.00	J
OS	BENZO(A)ANTHRACENE	770	UG/KG	490	44.44	280.00	
OS	BENZO(A)PYRENE	710	UG/KG	490	36.67	220.00	
OS	BENZO(B)FLUORANTHENE	1100	UG/KG	750	37.84	350.00	
OS	BENZO(G,H,I)PERYLENE	350	UG/KG	230	41.38	120.00	
OS	BENZO(K)FLUORANTHENE	390	UG/KG	250	43.75	140.00	
OS	CHRYSENE	750	UG/KG	500	40.00	250.00	
OS	DIBENZO(A,H)ANTHRACENE	39	UG/KG	26	40.00	13.00	
~~OS~~	~~FLUORANTHENE~~	~~1800 E~~	~~UG/KG~~	~~1200 E~~	~~40.00~~	~~600.00~~	
OS	FLUORENE	59	UG/KG	32	59.34	27.00	J
OS	INDENO(1,2,3-CD)PYRENE	290	UG/KG	200	36.73	90.00	
OS	NAPHTHALENE	9.3	UG/KG	6.3	38.46	3.00	
OS	PHENANTHRENE	850	UG/KG	490	53.73	360.00	J
OS	PYRENE	1300 E	UG/KG	860	40.74	440.00	

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5039

FRACTION	CHEMICAL	12SB26-000.5-01DL	UNITS	12SB-DUP-05DL	RPD	D
OS	2-METHYLNAPHTHALENE	5.3 JD	UG/KG	5.4 JD	1.87	0.10
OS	ACENAPHTHENE	34 D	UG/KG	20 D	51.85	14.00
OS	ACENAPHTHYLENE	21 D	UG/KG	24 D	13.33	3.00
OS	ANTHRACENE	270 D	UG/KG	130 D	70.00	140.00
OS	BENZO(A)ANTHRACENE	830 D	UG/KG	580 D	35.46	250.00
OS	BENZO(A)PYRENE	730 D	UG/KG	530 D	31.75	200.00
OS	BENZO(B)FLUORANTHENE	1000 D	UG/KG	700 D	35.29	300.00
OS	BENZO(G,H,I)PERYLENE	370 D	UG/KG	280 D	27.69	90.00
OS	BENZO(K)FLUORANTHENE	330 D	UG/KG	280 D	16.39	50.00
OS	CHRYSENE	800 D	UG/KG	570 D	33.58	230.00
OS	DIBENZO(A,H)ANTHRACENE	41 D	UG/KG	31 D	27.78	10.00
OS	FLUORANTHENE	2100 D	UG/KG	1500 D	33.33	600.00
OS	FLUORENE	62 D	UG/KG	38 D	48.00	24.00
OS	INDENO(1,2,3-CD)PYRENE	420 D	UG/KG	320 D	27.03	100.00
OS	NAPHTHALENE	9.8 D	UG/KG	7.2 JD	30.59	2.60
OS	PHENANTHRENE	940 D	UG/KG	580 D	47.37	360.00
OS	PYRENE	1500 D	UG/KG	1100 D	30.77	400.00

NA

NA

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

ANALYTICAL RESULTS
SUMMARY

PROJECT NAME : CTO WE05 NAS JRB WILLOW GROVE

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : **C5039**
ATTENTION : **Andy Frebowitz**

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C5039

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C5039-01	12SB14-000.5-01
C5039-02	12SB13-000.5-01
C5039-03	12SB13-0.502-02
C5039-04	12SB13-0304-03
C5039-05	12SB29-000.5-01
C5039-06	12SB29-0.502-02
C5039-07	12SB29-0304-03
C5039-08	12SB26-000.5-01
C5039-09	12SB26-0.502-02
C5039-10	12SB26-0304-03
C5039-11	12SB-DUP-05
C5039-12	12SB25-000.5-01
C5039-13	C5039-12MS
C5039-14	C5039-12MSD
C5039-15	12SB25-0.502-02
C5039-16	12SB25-0304-03
C5039-17	12SB28-0.502-02
C5039-18	12SB28-0304-03
C5039-19	12TB-20111216

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature :

Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.12 17:39:07 -05'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5039
QUOTE NO.
COC Number 021256

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Willow Grove
PROJECT NO. GTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC
2 TCL SVOC / PAH SIM
3 Pest / PCB
4 metals / Hg / CN / pH
5 CRP
6
7 metals / Hg / CN
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	125B14-000.5-01	SOIL		X	12/16/11	0830	6	X	X	X	X						
2.	125B13-000.5-01			X		0900	7	X	X	X	X	X					
3.	125B13-0.502-02			X		0910	7	X	X	X	X	X					
4.	125B13-0304-03			X		0920	7	X	X	X	X	X					
5.	125B29-000.5-01			X		1035	6	X	X	X	X						
6.	125B29-0.502-02			X		1045	6	X	X	X	X						
7.	125B29-0304-03			X		1055	6	X	X	X	X						
8.	125B26-000.5-01			X		1235	7	X	X	X	X	X					
9.	125B26-0.502-02			X		1235	7	X	X	X	X	X					
10.	125B26-0304-03	↓		X	↓	1245	7	X	X	X	X	X					

PRESERVATIVES: 1 E, 2 E, 3 E, 4 E, 5 E

COMMENTS: ← Specify Preservatives
A - HCl B - HNO_3
C - H_2SO_4 D - NaOH
E - ICE F - Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. David Wheeler	12/16/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex	12/17/11 1030	3. Ken Krause

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☒ NO

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CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5039
QUOTE NO.
COC Number 021257

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SEM	Pest/PCB	metals/Hg/CN/pH	metals/Hg/CN	TCL VOC			

CHEMTECH SAMPLE ID 12/19/11	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	A				Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
11.	12SB-DUP-05	Soil		X	12/16/11	1300	6	X	X	X		X					
12,13,14.	12SB25-0005-01			X		1400	15	X	X	X	X						Do MS/MSD
15.	12SB25-0502-02			X		1410	6	X	X	X	X						
16.	12SB25-0304-03			X		1420	6	X	X	X	X						
17.	12SB28-0502-02			X		1520	6	X	X	X	X						
18.	12SB28-0304-03			X		1530	6	X	X	X	X						
19.	12TB-20111216	AQ		X		0800	2						X				

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. David Whalen	12/16/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex	12/17/11 1030	3. Jim Rua

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 2 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The samples were analyzed in instrument MSVOA_T using column Rtx-624SIL MS 30m 0.25mm 1.4um 872456The analysis performed on instrument MSVOA_F were done using GC column RTX-VMS, which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for BST1230S1 [4-Bromofluorobenzene - 80%], 12SB14-000.5-01RE [4-Bromofluorobenzene - 51%, Toluene-d8 - 76%], 12SB13-0.502-02 [4-Bromofluorobenzene - 77%], 12SB13-0.502-02RE [4-Bromofluorobenzene - 62%, Toluene-d8 - 83%], 12SB26-000.5-01RE [4-Bromofluorobenzene - 67%, Toluene-d8 - 82%], 12SB26-0.502-02RE [4-Bromofluorobenzene - 69%, Toluene-d8 - 84%] and 12SB25-000.5-01RE [4-Bromofluorobenzene - 47%, Toluene-d8 - 79%].
The Internal Standards Areas met the acceptable requirements except for 12SB14-000.5-01, 12SB14-000.5-01RE and 12SB25-000.5-01RE.
The Retention Times were acceptable for all samples.
The MS {C5039-13MS} with File ID: VF030391.D recoveries met the requirements for all compounds except for 1,1,2,2-Tetrachloroethane[159%], 1,1-Dichloroethane[138%], Acetone[-248%] and Vinyl chloride[130%] .
The MSD {C5039-14MSD} with File ID: VF030392.D recoveries met the acceptable requirements except for 1,4-Dioxane[67%], Acetone[-265%] and Trichloroethene[74%] .

The RPD for {C5039-14MSD} with File ID: VF030392.D recoveries met criteria except for 1,1,1-Trichloroethane[27%], 1,1,2,2-Tetrachloroethane[49%], 1,1,2-Trichloroethane[30%], 1,1,2-Trichlorotrifluoroethane[21%], 1,1-Dichloroethane[33%], 1,1-Dichloroethene[28%], 1,2-Dibromo-3-Chloropropane[39%], 1,2-Dibromoethane[33%], 1,2-Dichlorobenzene[27%], 1,2-Dichloroethane[33%], 1,2-Dichloropropane[29%], 1,3-Dichlorobenzene[28%], 1,4-Dichlorobenzene[24%], 1,4-Dioxane[47%], 2-Butanone[43%], 4-Methyl-2-Pentanone[27%], Benzene[31%], Bromochloromethane[22%], Bromodichloromethane[32%], Bromoform[27%], Carbon Tetrachloride[22%], Chlorobenzene[24%], Chloroform[28%], Chloromethane[23%], cis-1,2-Dichloroethene[29%], Dibromochloromethane[27%], Dichlorodifluoromethane[27%], Ethyl Benzene[24%], Isopropylbenzene[34%], m/p-Xylenes[23%], Methyl Acetate[44%], Methyl tert-butyl Ether[34%], Methylene Chloride[31%], o-Xylene[23%], Tetrachloroethene[21%], Toluene[23%], trans-1,2-Dichloroethene[25%], Trichloroethene[26%], Trichlorofluoromethane[26%] and Vinyl chloride[26%] .
The Blank Spike for {BSF1229S1} with File ID: VF030377.D met requirements for all samples except for 1,4-Dioxane[65%] .
The Blank Spike for {BSF1229S2} with File ID: VF030399.D met requirements for all samples except for 1,1-Dichloroethane[145%], Bromochloromethane[135%], Carbon disulfide[140%], Chloroform[130%], Methylene Chloride[165%], trans-1,2-Dichloroethene[135%] and Vinyl chloride[135%] .The Blank Spike Duplicate for {BSG1221W2} with File ID: VG039755.D met requirements for all samples except for 1,4-Dioxane[135%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration File ID VF030375.D met the requirements except for Vinyl Chloride and Acetone.
The Continuous Calibration File ID VF030396.D met the requirements except for Vinyl Chloride,1,1-Dichloroethene,Methyl Acetate,Methyl tert-butyl Ether,Methylene Chloride,trans-1,2-Dichloroethene,1,1-Dichloroethane,Bromochloromethane,1,2-Dichloroethane-d4 and Acetone .
The Continuous Calibration File ID VG039752.D met the requirements except for Bromomethane,Chloroethane,Methyl Acetate,2-Butanone,Cyclohexane and Acetone .
The Continuous Calibration File ID VT002214.D met the requirements except for 1,1-Dichloroethene and Bromomethane but they were not detected in any samples .
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

CHEMTECH

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature

Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.12 17:39:55 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB25-000.5-01MSD [Phenol-d5 - 104%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD {C5039-14MSD} with File ID: BE074795.D recoveries met the acceptable requirements except for Phenol [104%].
The RPD for {C5039-14MSD} with File ID: BE074795.D recoveries met criteria except for 1,1-Biphenyl[21%], 2,2-oxybis(1-Chloropropane)[25%], 2,4,5-Trichlorophenol[21%], 2,4,6-Trichlorophenol[21%], 2,4-Dichlorophenol[26%], 2,4-Dimethylphenol[26%], 2,6-Dinitrotoluene[21%], 2-Chlorophenol[30%], 2-Methylphenol[25%], 2-Nitroaniline[22%], 2-Nitrophenol[21%], 3+4-Methylphenols[25%], 3-Nitroaniline[24%], 4-Bromophenyl-phenylether[21%], 4-Chloro-3-methylphenol[21%], 4-Chlorophenyl-phenylether[21%], 4-Nitroaniline[21%], 4-Nitrophenol[21%], Acenaphthylene[25%], Acetophenone[21%], Atrazine[25%], Benzaldehyde[31%], bis(2-Chloroethoxy)methane[21%], bis(2-Chloroethyl)ether[25%], Carbazole[21%], Dibenzofuran[21%], Diethylphthalate[21%], Di-n-butylphthalate[25%], Di-n-octyl phthalate[22%], Hexachlorobenzene[26%], Hexachlorobutadiene[21%], Hexachlorocyclopentadiene[25%], Hexachloroethane[26%], Isophorone[25%],

Nitrobenzene[25%], N-Nitroso-di-n-propylamine[29%], N-Nitrosodiphenylamine[21%], Pentachlorophenol[21%], Phenanthrene[22%] and Phenol[29%] .
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration met the requirements.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_ Shelly

Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.12 23:22:05 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB13-000.5-01 [2-Fluorobiphenyl - 41%], 12SB13-0.502-02 [2-Fluorobiphenyl - 40%] and 12SB-DUP-05 [2-Fluorobiphenyl - 38%].Only one surrogate were failing, so as per method samples were not re-analyzed.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD for {C5039-14MSD} with File ID: BG002463.D recoveries met criteria except for Fluoranthene[36%], Phenanthrene[23%] and Pyrene[27%] .
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration met the requirements.
The Tuning criteria met requirements.
Samples 12SB26-000.5-01 and 12SB-DUP-05 were diluted due to high concentrations.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature

Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.13 00:12:25 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_G. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5um df, Catalogue #: 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalogue #: 7HM-G017-11The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11 . The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB13-000.5-01 [Decachlorobiphenyl(1) - 52%, Decachlorobiphenyl(2) - 49%, Tetrachloro-m-xylene(1) - 62%], 12SB13-000.5-01RE [Decachlorobiphenyl(1) - 54%, Decachlorobiphenyl(2) - 47%, Tetrachloro-m-xylene(1) - 65%], 12SB29-000.5-01 [Decachlorobiphenyl(1) - 44%, Decachlorobiphenyl(2) - 51%], 12SB29-000.5-01RE [Decachlorobiphenyl(1) - 44%, Decachlorobiphenyl(2) - 50%], 12SB26-000.5-01 [Decachlorobiphenyl(1) - 23%, Decachlorobiphenyl(2) - 20%, Tetrachloro-m-xylene(1) - 49%, Tetrachloro-m-xylene(2) - 59%], 12SB26-000.5-01RE [Decachlorobiphenyl(1) - 23%, Decachlorobiphenyl(2) - 18%, Tetrachloro-m-xylene(1) - 49%, Tetrachloro-m-xylene(2) - 56%], 12SB-DUP-05 [Decachlorobiphenyl(1) - 35%, Decachlorobiphenyl(2) - 35%], 12SB-DUP-05RE [Decachlorobiphenyl(1) - 35%, Decachlorobiphenyl(2) - 34%], 12SB25-000.5-01 [Decachlorobiphenyl(1) - 34%, Decachlorobiphenyl(2) - 25%], 12SB25-000.5-01MS [Decachlorobiphenyl(1) - 39%, Decachlorobiphenyl(2) - 42%, Tetrachloro-m-xylene(1) - 69%], 12SB25-000.5-01MSD [Decachlorobiphenyl(1) - 43%, Decachlorobiphenyl(2) -

49%] and 12SB25-0304-03 [Decachlorobiphenyl(1) - 53%]. As per method, samples failing in surrogated in both the columns were re-analyzed.
The Retention Times were acceptable for all samples.
The MS {C5039-13MS} with File ID: PD006884.D recoveries met the requirements for all compounds except for 4,4-DDE[52%], delta-BHC[52%], Endosulfan sulfate[42%], Endrin ketone[61%] and Methoxychlor[48%] .
The MSD {C5039-14MSD} with File ID: PD006885.D recoveries met the acceptable requirements except for 4,4-DDE[61%], delta-BHC[52%], Endosulfan sulfate[48%] and Methoxychlor[52%] .
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PG003604.D met the requirements except for delta-BHC,gamma-BHC,Endrin a, 4,4-DDD failing in 1st column and Heptachlor, Methoxychlor, Endrin ketone,Decachlorobiphenyl , Tetrachloro-m-xylene in 2nd column . alpha-BHC are failing in both columns.
The Continuous Calibration File ID PG003616.D met the requirements except for alpha-BHC , delta-BHC a failing in 1st column and 4,4-DDT is failing in 2nd column.
The Continuous Calibration File ID PG003628.D & PG003637.D met the requirements except for alpha-BHC,delta-BHC,gamma-BHC,Endrin , 4,4-DDT are failing in 1st column and Endrin ketone is failing in 2nd column.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature__ Shelly

Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.13 01:27:07 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: PCB

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB13-000.5-01 [Decachlorobiphenyl(1) - 59%, Decachlorobiphenyl(2) - 58%], 12SB13-000.5-01RE [Decachlorobiphenyl(1) - 53%, Decachlorobiphenyl(2) - 43%], 12SB13-0.502-02 [Decachlorobiphenyl(1) - 39%, Decachlorobiphenyl(2) - 36%], 12SB13-0.502-02RE [Decachlorobiphenyl(1) - 35%, Decachlorobiphenyl(2) - 35%], 12SB29-000.5-01 [Decachlorobiphenyl(1) - 43%, Decachlorobiphenyl(2) - 50%], 12SB29-000.5-01RE [Decachlorobiphenyl(1) - 44%, Decachlorobiphenyl(2) - 42%], 12SB29-0.502-02 [Decachlorobiphenyl(1) - 55%, Decachlorobiphenyl(2) - 56%], 12SB29-0.502-02RE [Decachlorobiphenyl(1) - 55%, Decachlorobiphenyl(2) - 55%], 12SB26-000.5-01 [Decachlorobiphenyl(1) - 29%, Decachlorobiphenyl(2) - 19%], 12SB26-000.5-01RE [Decachlorobiphenyl(1) - 30%, Decachlorobiphenyl(2) - 18%], 12SB-DUP-05 [Decachlorobiphenyl(1) - 33%, Decachlorobiphenyl(2) - 27%], 12SB-DUP-05RE [Decachlorobiphenyl(1) - 34%, Decachlorobiphenyl(2) - 28%], 12SB25-000.5-01 [Decachlorobiphenyl(1) - 32%, Decachlorobiphenyl(2) - 26%], 12SB25-000.5-01RE [Decachlorobiphenyl(1) - 30%, Decachlorobiphenyl(2) - 26%], 12SB25-000.5-01MS [Decachlorobiphenyl(1) - 39%, Decachlorobiphenyl(2) - 32%], 12SB25-000.5-01MSD [Decachlorobiphenyl(1) - 39%, Decachlorobiphenyl(2) - 56%], 12SB25-0304-03

[Decachlorobiphenyl(1) - 58%, Decachlorobiphenyl(2) - 57%], 12SB25-0304-03RE
[Decachlorobiphenyl(1) - 59% and Decachlorobiphenyl(2) - 58%].
Samples failing surrogate in both the columns were re-analyzed.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PC006213.D & PC006237.D met the requirements except for Aroclor-1016(Peak-03) failing in 1st column but passing in 2nd column.
The Continuous Calibration File ID PC006248.D met the requirements except for Aroclor-1016(Peak-03) failing in 1st column and Aroclor-1260(Peak-03) is failing in 2nd column..

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature
Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.13 02:00:20 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF1229S1	BSF1229S1	1,2-Dichloroethane-d4	50	58.24	116		55	158
		Dibromofluoromethane	50	57.72	115		53	156
		Toluene-d8	50	57.22	114		85	115
		4-Bromofluorobenzene	50	55.64	111		85	120
BSF1229S2	BSF1229S2	1,2-Dichloroethane-d4	50	59.9	120		55	158
		Dibromofluoromethane	50	57.05	114		53	156
		Toluene-d8	50	53.39	107		85	115
		4-Bromofluorobenzene	50	51.02	102		85	120
BSG1221W1	BSG1221W1	1,2-Dichloroethane-d4	50	50.88	102		70	120
		Dibromofluoromethane	50	44.74	89		85	115
		Toluene-d8	50	45.24	90		85	120
		4-Bromofluorobenzene	50	48.59	97		75	120
BSG1221W2	BSG1221W2	1,2-Dichloroethane-d4	50	52.49	105		70	120
		Dibromofluoromethane	50	46.24	92		85	115
		Toluene-d8	50	47.24	94		85	120
		4-Bromofluorobenzene	50	50.73	101		75	120
BST1230S1	BST1230S1	1,2-Dichloroethane-d4	50	41.99	84		55	158
		Dibromofluoromethane	50	45.88	92		53	156
		Toluene-d8	50	47.79	96		85	115
		4-Bromofluorobenzene	50	39.93	80	*	85	120
C5039-01	12SB14-000.5-01	1,2-Dichloroethane-d4	50	42.95	86		55	158
		Dibromofluoromethane	50	48.45	97		53	156
		Toluene-d8	50	49.29	99		85	115
		4-Bromofluorobenzene	50	44.66	89		85	120
C5039-01RE	12SB14-000.5-01RE	1,2-Dichloroethane-d4	50	40.58	81		55	158
		Dibromofluoromethane	50	40.56	81		53	156
		Toluene-d8	50	38.2	76	*	85	115
		4-Bromofluorobenzene	50	25.63	51	*	85	120
C5039-02	12SB13-000.5-01	1,2-Dichloroethane-d4	50	41	82		55	158
		Dibromofluoromethane	50	45.1	90		53	156
		Toluene-d8	50	49.07	98		85	115
		4-Bromofluorobenzene	50	44.29	89		85	120
C5039-03	12SB13-0.502-02	1,2-Dichloroethane-d4	50	40.84	82		55	158
		Dibromofluoromethane	50	46.87	94		53	156
		Toluene-d8	50	48.03	96		85	115
		4-Bromofluorobenzene	50	38.63	77	*	85	120
C5039-03RE	12SB13-0.502-02RE	1,2-Dichloroethane-d4	50	41.51	83		55	158
		Dibromofluoromethane	50	40.18	80		53	156
		Toluene-d8	50	41.63	83	*	85	115
		4-Bromofluorobenzene	50	31.17	62	*	85	120
C5039-04	12SB13-0304-03	1,2-Dichloroethane-d4	50	43.67	87		55	158
		Dibromofluoromethane	50	47.6	95		53	156
		Toluene-d8	50	49.8	100		85	115
		4-Bromofluorobenzene	50	51.18	102		85	120
C5039-05	12SB29-000.5-01	1,2-Dichloroethane-d4	50	42.46	85		55	158
		Dibromofluoromethane	50	48.37	97		53	156
		Toluene-d8	50	50.56	101		85	115
		4-Bromofluorobenzene	50	44.51	89		85	120
C5039-06	12SB29-0.502-02	1,2-Dichloroethane-d4	50	45.4	91		55	158
		Dibromofluoromethane	50	47.94	96		53	156
		Toluene-d8	50	51.41	103		85	115
		4-Bromofluorobenzene	50	51.89	104		85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-07	12SB29-0304-03	1,2-Dichloroethane-d4	50	42.68	85		55	158
		Dibromofluoromethane	50	46.4	93		53	156
		Toluene-d8	50	48.92	98		85	115
		4-Bromofluorobenzene	50	49.48	99		85	120
C5039-08	12SB26-000.5-01	1,2-Dichloroethane-d4	50	41.95	84		55	158
		Dibromofluoromethane	50	49.19	98		53	156
		Toluene-d8	50	49.67	99		85	115
		4-Bromofluorobenzene	50	47.38	95		85	120
C5039-08RE	12SB26-000.5-01RE	1,2-Dichloroethane-d4	50	41.61	83		55	158
		Dibromofluoromethane	50	39.78	80		53	156
		Toluene-d8	50	41.19	82	*	85	115
		4-Bromofluorobenzene	50	33.6	67	*	85	120
C5039-09	12SB26-0.502-02	1,2-Dichloroethane-d4	50	43.89	88		55	158
		Dibromofluoromethane	50	47.68	95		53	156
		Toluene-d8	50	50.43	101		85	115
		4-Bromofluorobenzene	50	47.12	94		85	120
C5039-09RE	12SB26-0.502-02RE	1,2-Dichloroethane-d4	50	39.82	80		55	158
		Dibromofluoromethane	50	38.91	78		53	156
		Toluene-d8	50	42.14	84	*	85	115
		4-Bromofluorobenzene	50	34.38	69	*	85	120
C5039-10	12SB26-0304-03	1,2-Dichloroethane-d4	50	44.19	88		55	158
		Dibromofluoromethane	50	46.68	93		53	156
		Toluene-d8	50	49.84	100		85	115
		4-Bromofluorobenzene	50	50.32	101		85	120
C5039-11	12SB-DUP-05	1,2-Dichloroethane-d4	50	43.96	88		55	158
		Dibromofluoromethane	50	47.95	96		53	156
		Toluene-d8	50	50.19	100		85	115
		4-Bromofluorobenzene	50	48.68	97		85	120
C5039-12	12SB25-000.5-01	1,2-Dichloroethane-d4	50	44.28	89		55	158
		Dibromofluoromethane	50	48.37	97		53	156
		Toluene-d8	50	49.68	99		85	115
		4-Bromofluorobenzene	50	46.72	93		85	120
C5039-12RE	12SB25-000.5-01RE	1,2-Dichloroethane-d4	50	28.02	56		55	158
		Dibromofluoromethane	50	35.77	72		53	156
		Toluene-d8	50	39.4	79	*	85	115
		4-Bromofluorobenzene	50	23.32	47	*	85	120
C5039-13MS	12SB25-000.5-01MS	1,2-Dichloroethane-d4	50	57.37	115		55	158
		Dibromofluoromethane	50	59.57	119		53	156
		Toluene-d8	50	57.33	115		85	115
		4-Bromofluorobenzene	50	45.9	92		85	120
C5039-14MSD	12SB25-000.5-01MSD	1,2-Dichloroethane-d4	50	51.36	103		55	158
		Dibromofluoromethane	50	53.64	107		53	156
		Toluene-d8	50	54.2	108		85	115
		4-Bromofluorobenzene	50	49.44	99		85	120
C5039-15	12SB25-0.502-02	1,2-Dichloroethane-d4	50	43.9	88		55	158
		Dibromofluoromethane	50	48.7	97		53	156
		Toluene-d8	50	50.89	102		85	115
		4-Bromofluorobenzene	50	50.99	102		85	120
C5039-16	12SB25-0304-03	1,2-Dichloroethane-d4	50	46.55	93		55	158
		Dibromofluoromethane	50	47.25	95		53	156
		Toluene-d8	50	49.96	100		85	115
		4-Bromofluorobenzene	50	48.88	98		85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-17	12SB28-0.502-02	1,2-Dichloroethane-d4	50	44.38	89		55	158
		Dibromofluoromethane	50	46.17	92		53	156
		Toluene-d8	50	49.74	99		85	115
		4-Bromofluorobenzene	50	50.47	101		85	120
C5039-18	12SB28-0304-03	1,2-Dichloroethane-d4	50	43.68	87		55	158
		Dibromofluoromethane	50	48.29	97		53	156
		Toluene-d8	50	49.48	99		85	115
		4-Bromofluorobenzene	50	49.71	99		85	120
C5039-19	12TB-20111216	1,2-Dichloroethane-d4	50	54.55	109		70	120
		Dibromofluoromethane	50	48.5	97		85	115
		Toluene-d8	50	46.16	92		85	120
		4-Bromofluorobenzene	50	48.21	96		75	120
VBF1229S1	VBF1229S1	1,2-Dichloroethane-d4	50	55.1	110		55	158
		Dibromofluoromethane	50	56.24	112		53	156
		Toluene-d8	50	53.71	107		85	115
		4-Bromofluorobenzene	50	50.77	102		85	120
VBF1229S3	VBF1229S3	1,2-Dichloroethane-d4	50	60.77	122		55	158
		Dibromofluoromethane	50	56.12	112		53	156
		Toluene-d8	50	53.04	106		85	115
		4-Bromofluorobenzene	50	48.72	97		85	120
VBG1221W1	VBG1221W1	1,2-Dichloroethane-d4	50	51.38	103		70	120
		Dibromofluoromethane	50	47.52	95		85	115
		Toluene-d8	50	47.66	95		85	120
		4-Bromofluorobenzene	50	52.1	104		75	120
VBT1230S2	VBT1230S2	1,2-Dichloroethane-d4	50	53.99	108		55	158
		Dibromofluoromethane	50	55.22	110		53	156
		Toluene-d8	50	57.04	114		85	115
		4-Bromofluorobenzene	50	44.77	90		85	120

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030228.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOA_F BFB Injection Time: 19:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	45
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.3 (0.5) 1
174	50.0 - 100.0% of mass 95	68.2
175	5.0 - 9.0% of mass 174	4.8 (7) 1
176	95.0 - 101.0% of mass 174	64.9 (95.2) 1
177	5.0 - 9.0% of mass 176	4.5 (7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB ICC	VF030230.D	12/21/2011	21:13
VSTD020	20 PPB ICC	VF030231.D	12/21/2011	21:44
VSTD010	10 PPB ICC	VF030232.D	12/21/2011	22:15
VSTD005	5 PPB ICC	VF030233.D	12/21/2011	22:46
VSTD075	75 PPB ICC	VF030234.D	12/21/2011	23:17
VSTD100	100 PPB ICC	VF030235.D	12/21/2011	23:48

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.853	0.726	0.699	0.677	0.651	0.767	0.729	10
Chloromethane	1.128	0.994	0.879	0.908	0.883	0.917	0.951	10.1
Vinyl Chloride	0.587	0.541	0.528	0.512	0.530	0.542	0.54	4.7
Bromomethane	0.414	0.370	0.279	0.287	0.291	0.333	0.329	16.4
Chloroethane	0.227	0.248	0.178	0.151	0.164	0.193	0.193	19.4
Trichlorofluoromethane	0.922	0.830	0.776	0.750	0.685	0.793	0.793	10.1
1,1,2-Trichlorotrifluor(	0.536	0.470	0.466	0.453	0.439	0.456	0.47	7.3
1,1-Dichloroethene	0.412	0.443	0.405	0.400	0.383	0.406	0.408	4.8
Acetone	0.504	0.324	0.352	0.326	0.296	0.522	0.388	25.5
Carbon Disulfide	1.209	1.124	1.057	1.045	1.048	1.070	1.092	5.9
Methyl tert-butyl Ether	1.803	1.676	1.511	1.556	1.470	1.531	1.591	7.9
Methyl Acetate	1.483	1.156	1.131	1.142	1.073	1.175	1.193	12.2
Methylene Chloride	0.558	0.489	0.431	0.469	0.458	0.504	0.485	9.1
trans-1,2-Dichloroethene(	0.444	0.418	0.374	0.379	0.375	0.394	0.397	7.1
1,1-Dichloroethane	0.974	0.855	0.795	0.841	0.802	0.893	0.86	7.7
Cyclohexane	1.051	1.062	0.922	0.964	0.906	1.041	0.991	7
2-Butanone	0.789	0.607	0.604	0.570	0.501	0.728	0.633	16.8
Carbon Tetrachloride	0.526	0.588	0.496	0.517	0.497	0.537	0.527	6.4
cis-1,2-Dichloroethene	0.996	0.874	0.778	0.828	0.791	0.896	0.861	9.4
Bromochloromethane	0.843	0.677	0.636	0.662	0.617	0.717	0.692	11.8
Chloroform	1.442	1.359	1.242	1.316	1.215	1.311	1.314	6.2
1,1,1-Trichloroethane	0.893	0.846	0.765	0.811	0.780	0.853	0.825	5.8
Methylcyclohexane	0.583	0.595	0.521	0.527	0.496	0.569	0.549	7.2
Benzene	1.524	1.520	1.249	1.336	1.253	1.416	1.383	9
1,2-Dichloroethane	0.596	0.631	0.574	0.594	0.546	0.614	0.592	5
Trichloroethene	0.660	0.638	0.548	0.549	0.499	0.592	0.581	10.5
1,2-Dichloropropane	0.446	0.459	0.394	0.411	0.380	0.445	0.422	7.6
Bromodichloromethane	0.614	0.649	0.562	0.602	0.553	0.590	0.595	5.9
4-Methyl-2-Pentanone	0.716	0.668	0.619	0.588	0.522	0.650	0.627	10.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Toluene	0.933	1.010	0.838	0.853	0.812	0.866	0.885	8.3
t-1,3-Dichloropropene	0.739	0.753	0.647	0.689	0.625	0.700	0.692	7.2
cis-1,3-Dichloropropene	0.773	0.787	0.646	0.693	0.635	0.694	0.705	8.9
1,1,2-Trichloroethane	0.434	0.451	0.371	0.399	0.356	0.415	0.404	9
2-Hexanone	0.636	0.534	0.523	0.496	0.453	0.605	0.541	12.6
Dibromochloromethane	0.443	0.517	0.460	0.482	0.442	0.477	0.47	6
1,2-Dibromoethane	0.493	0.504	0.440	0.460	0.422	0.470	0.465	6.6
Tetrachloroethene	0.645	0.669	0.555	0.545	0.530	0.588	0.589	9.6
Chlorobenzene	1.132	1.180	0.999	1.033	0.989	1.155	1.081	7.8
Ethyl Benzene	1.728	1.960	1.614	1.661	1.614	1.767	1.724	7.6
m/p-Xylenes	0.642	0.712	0.601	0.617	0.588	0.632	0.632	6.9
o-Xylene	0.650	0.708	0.609	0.631	0.611	0.620	0.638	5.9
Styrene	1.092	1.189	1.020	1.068	1.026	1.111	1.084	5.8
Bromoform	0.290	0.361	0.347	0.352	0.339	0.332	0.337	7.4
Isopropylbenzene	3.040	3.264	2.916	3.039	2.926	3.098	3.047	4.2
1,1,2,2-Tetrachloroethar	0.413	0.411	0.392	0.405	0.385	0.371	0.396	4.2
1,3-Dichlorobenzene	1.765	1.758	1.486	1.601	1.518	1.777	1.651	8
1,4-Dichlorobenzene	1.684	1.839	1.574	1.636	1.567	1.742	1.674	6.3
1,2-Dichlorobenzene	1.751	1.783	1.505	1.610	1.531	1.765	1.657	7.5
1,2-Dibromo-3-Chloropro	0.208	0.191	0.187	0.179	0.166	0.158	0.181	9.9
1,2,4-Trichlorobenzene	1.272	1.266	1.092	1.144	1.064	1.217	1.176	7.6
1,2,3-Trichlorobenzene	1.167	1.210	1.000	1.109	1.004	1.194	1.114	8.4
1,2-Dichloroethane-d4	1.017	0.824	0.765	0.748	0.742	0.854	0.825	12.6
Dibromofluoromethane	0.458	0.454	0.383	0.392	0.371	0.410	0.411	9
Toluene-d8	1.166	1.259	1.049	1.083	1.035	1.124	1.119	7.5
4-Bromofluorobenzene	0.565	0.588	0.510	0.518	0.494	0.518	0.532	6.8
1,4-Dioxane	0.007	0.006	0.005	0.005	0.005	0.006	0.006	12.5

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030374.D BFB Injection Date: 12/29/2011

Instrument ID: MSVOA_F BFB Injection Time: 09:50

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.1
75	30.0 - 60.0% of mass 95	49.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.1 (0.0) 1
174	50.0 - 100.0% of mass 95	69.9
175	5.0 - 9.0% of mass 174	5.5 (7.8) 1
176	95.0 - 101.0% of mass 174	69.7 (99.6) 1
177	5.0 - 9.0% of mass 176	4.7 (6.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030375.D	12/29/201	10:49
VBF1229S1	VBF1229S1	VF030376.D	12/29/201	12:27
BSF1229S1	BSF1229S1	VF030377.D	12/29/201	13:14
12SB14-000.5-01	C5039-01	VF030378.D	12/29/201	13:54
12SB13-000.5-01	C5039-02	VF030379.D	12/29/201	14:25
12SB13-0.502-02	C5039-03	VF030380.D	12/29/201	14:57
12SB13-0304-03	C5039-04	VF030381.D	12/29/201	15:28
12SB29-000.5-01	C5039-05	VF030382.D	12/29/201	15:59
12SB29-0.502-02	C5039-06	VF030383.D	12/29/201	16:30
12SB25-000.5-01	C5039-12	VF030384.D	12/29/201	17:01
12SB29-0304-03	C5039-07	VF030385.D	12/29/201	17:32
12SB26-000.5-01	C5039-08	VF030386.D	12/29/201	18:04
12SB26-0.502-02	C5039-09	VF030387.D	12/29/201	18:35
12SB26-0304-03	C5039-10	VF030388.D	12/29/201	19:06
12SB-DUP-05	C5039-11	VF030389.D	12/29/201	19:37
12SB25-0.502-02	C5039-15	VF030390.D	12/29/201	20:08
12SB25-000.5-01MS	C5039-13MS	VF030391.D	12/29/201	20:38
12SB25-000.5-01MSD	C5039-14MSD	VF030392.D	12/29/201	21:08

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_F Calibration Date/Time: 12/29/2011 10:49

Lab File ID: VF030375.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.615		-15.64	
Chloromethane	0.951	0.956	0.1	0.53	
Vinyl Chloride	0.54	0.651		20.56	20
Bromomethane	0.329	0.283		-13.98	
Chloroethane	0.193	0.191		-1.04	
Trichlorofluoromethane	0.793	0.741		-6.56	
1,1,2-Trichlorotrifluoroethane	0.47	0.509		8.3	
1,1-Dichloroethene	0.408	0.453		11.03	20
Acetone	0.388	0.409		5.41	
Carbon Disulfide	1.092	1.230		12.64	
Methyl tert-butyl Ether	1.591	1.594		0.19	
Methyl Acetate	1.193	1.290		8.13	
Methylene Chloride	0.485	0.549		13.2	
trans-1,2-Dichloroethene	0.397	0.416		4.79	
1,1-Dichloroethane	0.86	1.016	0.1	18.14	
Cyclohexane	0.991	1.078		8.78	
2-Butanone	0.633	0.700		10.58	
Carbon Tetrachloride	0.527	0.532		0.95	
cis-1,2-Dichloroethene	0.861	0.833		-3.25	
Bromochloromethane	0.692	0.736		6.36	
Chloroform	1.314	1.347		2.51	20
1,1,1-Trichloroethane	0.825	0.822		-0.36	
Methylcyclohexane	0.549	0.570		3.83	
Benzene	1.383	1.398		1.08	
1,2-Dichloroethane	0.592	0.544		-8.11	
Trichloroethene	0.581	0.538		-7.4	
1,2-Dichloropropane	0.422	0.441		4.5	20
Bromodichloromethane	0.595	0.580		-2.52	
4-Methyl-2-Pentanone	0.627	0.602		-3.99	
Toluene	0.885	0.866		-2.15	20
t-1,3-Dichloropropene	0.692	0.667		-3.61	
cis-1,3-Dichloropropene	0.705	0.704		-0.14	
1,1,2-Trichloroethane	0.404	0.355		-12.13	
2-Hexanone	0.541	0.521		-3.7	
Dibromochloromethane	0.47	0.423		-10	
1,2-Dibromoethane	0.465	0.392		-15.7	
Tetrachloroethene	0.589	0.583		-1.02	
Chlorobenzene	1.081	1.078	0.3	-0.28	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_F Calibration Date/Time: 12/29/2011 10:49

Lab File ID: VF030375.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Ethyl Benzene	1.724	1.809		4.93	20
m/p-Xylenes	0.632	0.653		3.32	
o-Xylene	0.638	0.663		3.92	
Styrene	1.084	1.092		0.74	
Bromoform	0.337	0.324	0.1	-3.86	
Isopropylbenzene	3.047	3.452		13.29	
1,1,2,2-Tetrachloroethane	0.396	0.392	0.3	-1.01	
1,3-Dichlorobenzene	1.651	1.650		-0.06	
1,4-Dichlorobenzene	1.674	1.661		-0.78	
1,2-Dichlorobenzene	1.657	1.582		-4.53	
1,2-Dibromo-3-Chloropropane	0.181	0.166		-8.29	
1,2,4-Trichlorobenzene	1.176	1.121		-4.68	
1,2,3-Trichlorobenzene	1.114	1.008		-9.52	
1,2-Dichloroethane-d4	0.825	0.872		5.7	
Dibromofluoromethane	0.411	0.463		12.65	
Toluene-d8	1.119	1.277		14.12	
4-Bromofluorobenzene	0.532	0.541		1.69	
1,4-Dioxane	0.006	0.005		-16.67	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1229S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030376.D Lab Sample ID: VBF1229S1

Date Analyzed: 12/29/2011 Time Analyzed: 12:27

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1229S1	BSF1229S1	VF030377.D	12/29/2011
12SB14-000.5-01	C5039-01	VF030378.D	12/29/2011
12SB13-000.5-01	C5039-02	VF030379.D	12/29/2011
12SB13-0.502-02	C5039-03	VF030380.D	12/29/2011
12SB13-0304-03	C5039-04	VF030381.D	12/29/2011
12SB29-000.5-01	C5039-05	VF030382.D	12/29/2011
12SB29-0.502-02	C5039-06	VF030383.D	12/29/2011
12SB25-000.5-01	C5039-12	VF030384.D	12/29/2011
12SB29-0304-03	C5039-07	VF030385.D	12/29/2011
12SB26-000.5-01	C5039-08	VF030386.D	12/29/2011
12SB26-0.502-02	C5039-09	VF030387.D	12/29/2011
12SB26-0304-03	C5039-10	VF030388.D	12/29/2011
12SB-DUP-05	C5039-11	VF030389.D	12/29/2011
12SB25-0.502-02	C5039-15	VF030390.D	12/29/2011
12SB25-000.5-01MS	C5039-13MS	VF030391.D	12/29/2011
12SB25-000.5-01MSD	C5039-14MSD	VF030392.D	12/29/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1229S1	SDG No.:	C5039
Lab Sample ID:	VBF1229S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030376.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1229S1	SDG No.:	C5039
Lab Sample ID:	VBF1229S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030376.D	1		12/29/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.1		55 - 158	110%	SPK: 50
1868-53-7	Dibromofluoromethane	56.2		53 - 156	112%	SPK: 50
2037-26-5	Toluene-d8	53.7		85 - 115	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.8		85 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	162560	4.38			
540-36-3	1,4-Difluorobenzene	289251	5.13			
3114-55-4	Chlorobenzene-d5	259808	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	132094	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSF1229S1 Analytical Method: EPA SW846 8260 Datafile : VF030377.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		15	75	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		22	110	(60-125)
Bromomethane	20		20	100	(45-158)
Chloroethane	20		23	115	(42-155)
Trichlorofluoromethane	20		18	90	(55-146)
1,1,2-Trichlorotrifluoroethane	20		21	105	(65-134)
1,1-Dichloroethene	20		20	100	(65-135)
Acetone	100		94	94	(57-148)
Carbon Disulfide	20		21	105	(60-138)
Methyl tert-butyl Ether	20		21	105	(70-131)
Methyl Acetate	20		23	115	(44-187)
Methylene Chloride	20		24	120	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		98	98	(52-153)
Carbon Tetrachloride	20		18	90	(74-122)
cis-1,2-Dichloroethene	20		18	90	(75-125)
Bromochloromethane	20		24	120	(74-125)
Chloroform	20		20	100	(75-125)
1,1,1-Trichloroethane	20		19	95	(75-128)
Methylcyclohexane	20		18	90	(71-124)
Benzene	20		19	95	(79-122)
1,2-Dichloroethane	20		18	90	(75-132)
Trichloroethene	20		17	85	(77-120)
1,2-Dichloropropane	20		20	100	(76-120)
Bromodichloromethane	20		18	90	(77-124)
4-Methyl-2-Pentanone	100		98	98	(70-141)
Toluene	20		17	85	(78-121)
t-1,3-Dichloropropene	20		18	90	(76-125)
cis-1,3-Dichloropropene	20		19	95	(79-122)
1,1,2-Trichloroethane	20		17	85	(76-125)
2-Hexanone	100		87	87	(55-145)
Dibromochloromethane	20		17	85	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSF1229S1 Analytical Method: EPA SW846 8260 Datafile : VF030377.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		17	85	(76-125)
Tetrachloroethene	20		18	90	(65-140)
Chlorobenzene	20		19	95	(79-120)
Ethyl Benzene	20		19	95	(77-120)
m/p-Xylenes	40		37	93	(80-120)
o-Xylene	20		18	90	(78-119)
Styrene	20		18	90	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		19	95	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		18	90	(82-121)
1,4-Dichlorobenzene	20		19	95	(82-118)
1,2-Dichlorobenzene	20		17	85	(81-120)
1,2-Dibromo-3-Chloropropane	20		17	85	(66-132)
1,2,4-Trichlorobenzene	20		18	90	(71-124)
1,2,3-Trichlorobenzene	20		17	85	(74-123)
1,4-Dioxane	400		260	65*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

Comments: _____

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5039 **SAS No :** C5039 **SDG No:** C5039

Matrix Spike - EPA Sample No : C5039-13 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030391.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	69	0	70	101	(42-135)
Chloromethane	69	0	73	106	(50-130)
Vinyl Chloride	69	0	90	130*	(60-125)
Bromomethane	69	0	60	87	(40-154)
Chloroethane	69	0	76	110	(40-155)
Trichlorofluoromethane	69	0	78	113	(46-159)
1,1,2-Trichlorotrifluoroethane	69	0	83	120	(59-140)
1,1-Dichloroethene	69	0	86	125	(65-135)
Acetone	347	1200	340	-248*	(31-158)
Carbon Disulfide	69	0	78	113	(45-144)
Methyl tert-butyl Ether	69	0	85	123	(56-146)
Methyl Acetate	69	0	130	188	(16-205)
Methylene Chloride	69	0	94	136	(55-140)
trans-1,2-Dichloroethene	69	0	81	117	(65-135)
1,1-Dichloroethane	69	0	95	138*	(75-125)
Cyclohexane	69	0	71	103	(51-136)
2-Butanone	347	48	360	90	(40-157)
Carbon Tetrachloride	69	0	74	107	(65-135)
cis-1,2-Dichloroethene	69	0	72	104	(65-125)
Bromochloromethane	69	0	75	109	(70-125)
Chloroform	69	0	79	114	(70-125)
1,1,1-Trichloroethane	69	0	79	114	(70-135)
Methylcyclohexane	69	0	61	88	(43-133)
Benzene	69	0	78	113	(75-125)
1,2-Dichloroethane	69	0	75	109	(70-135)
Trichloroethene	69	0	66	96	(75-125)
1,2-Dichloropropane	69	0	78	113	(70-120)
Bromodichloromethane	69	0	76	110	(70-130)
4-Methyl-2-Pentanone	347	0	340	98	(53-145)
Toluene	69	0	70	101	(70-125)
t-1,3-Dichloropropene	69	0	64	93	(65-125)
cis-1,3-Dichloropropene	69	0	66	96	(70-125)
1,1,2-Trichloroethane	69	0	69	100	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5039 **SAS No :** C5039 **SDG No:** C5039

Matrix Spike - EPA Sample No : C5039-13 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030391.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	347	0	280	81	(45-145)
Dibromochloromethane	69	0	70	101	(65-130)
1,2-Dibromoethane	69	0	68	99	(70-125)
Tetrachloroethene	69	0	68	99	(65-140)
Chlorobenzene	69	0	71	103	(75-125)
Ethyl Benzene	69	0	76	110	(75-125)
m/p-Xylenes	139	0	150	108	(80-125)
o-Xylene	69	0	76	110	(75-125)
Styrene	69	0	68	99	(75-125)
Bromoform	69	0	73	106	(62-135)
Isopropylbenzene	69	0	88	128	(75-130)
1,1,2,2-Tetrachloroethane	69	0	110	159*	(55-130)
1,3-Dichlorobenzene	69	0	74	107	(70-125)
1,4-Dichlorobenzene	69	0	73	106	(70-124)
1,2-Dichlorobenzene	69	0	70	101	(75-120)
1,2-Dibromo-3-Chloropropane	69	0	79	114	(44-135)
1,2,4-Trichlorobenzene	69	0	53	77	(65-130)
1,2,3-Trichlorobenzene	69	0	49	71	(60-135)
1,4-Dioxane	1389	0	1500	108	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 4 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5039 **SAS No :** C5039 **SDG No:** C5039

Matrix Spike - EPA Sample No : C5039-14 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030392.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	69	53	77	27*	20	(42-135)
Chloromethane	69	58	84	23*	20	(50-130)
Vinyl Chloride	69	69	100	26*	20	(60-125)
Bromomethane	69	54	78	11	20	(40-154)
Chloroethane	69	62	90	20	20	(40-155)
Trichlorofluoromethane	69	60	87	26*	20	(46-159)
1,1,2-Trichlorotrifluoroethane	69	67	97	21*	20	(59-140)
1,1-Dichloroethene	69	65	94	28*	20	(65-135)
Acetone	347	280	-265*	7	20	(31-158)
Carbon Disulfide	69	65	94	18	20	(45-144)
Methyl tert-butyl Ether	69	60	87	34*	20	(56-146)
Methyl Acetate	69	83	120	44*	20	(16-205)
Methylene Chloride	69	69	100	31*	20	(55-140)
trans-1,2-Dichloroethene	69	63	91	25*	20	(65-135)
1,1-Dichloroethane	69	68	99	33*	20	(75-125)
Cyclohexane	69	59	86	18	20	(51-136)
2-Butanone	347	250	58	43*	20	(40-157)
Carbon Tetrachloride	69	59	86	22*	20	(65-135)
cis-1,2-Dichloroethene	69	54	78	29*	20	(65-125)
Bromochloromethane	69	60	87	22*	20	(70-125)
Chloroform	69	59	86	28*	20	(70-125)
1,1,1-Trichloroethane	69	60	87	27*	20	(70-135)
Methylcyclohexane	69	56	81	8	20	(43-133)
Benzene	69	57	83	31*	20	(75-125)
1,2-Dichloroethane	69	54	78	33*	20	(70-135)
Trichloroethene	69	51	74*	26*	20	(75-125)
1,2-Dichloropropane	69	58	84	29*	20	(70-120)
Bromodichloromethane	69	55	80	32*	20	(70-130)
4-Methyl-2-Pentanone	347	260	75	27*	20	(53-145)
Toluene	69	55	80	23*	20	(70-125)
t-1,3-Dichloropropene	69	53	77	19	20	(65-125)
cis-1,3-Dichloropropene	69	55	80	18	20	(70-125)
1,1,2-Trichloroethane	69	51	74	30*	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5039 **SAS No :** C5039 **SDG No:** C5039

Matrix Spike - EPA Sample No : C5039-14 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030392.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
2-Hexanone	347	230	66	20	20	(45-145)
Dibromochloromethane	69	53	77	27*	20	(65-130)
1,2-Dibromoethane	69	49	71	33*	20	(70-125)
Tetrachloroethene	69	55	80	21*	20	(65-140)
Chlorobenzene	69	56	81	24*	20	(75-125)
Ethyl Benzene	69	59	86	24*	20	(75-125)
m/p-Xylenes	139	120	86	23*	20	(80-125)
o-Xylene	69	60	87	23*	20	(75-125)
Styrene	69	56	81	20	20	(75-125)
Bromoform	69	56	81	27*	20	(62-135)
Isopropylbenzene	69	63	91	34*	20	(75-130)
1,1,2,2-Tetrachloroethane	69	66	96	49*	20	(55-130)
1,3-Dichlorobenzene	69	56	81	28*	20	(70-125)
1,4-Dichlorobenzene	69	57	83	24*	20	(70-124)
1,2-Dichlorobenzene	69	53	77	27*	20	(75-120)
1,2-Dibromo-3-Chloropropane	69	53	77	39*	20	(44-135)
1,2,4-Trichlorobenzene	69	47	68	12	20	(65-130)
1,2,3-Trichlorobenzene	69	45	65	9	20	(60-135)
1,4-Dioxane	1389	930	67*	47*	20	(70-130)

RPD : 40 Out of 52 outside limits

Spike Recovery : 3 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030394.D BFB Injection Date: 12/29/2011

Instrument ID: MSVOA_F BFB Injection Time: 22:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.8
75	30.0 - 60.0% of mass 95	47.1
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	5.8
173	Less than 2.0% of mass 174	0.3 (0.0) 1
174	50.0 - 100.0% of mass 95	70.3
175	5.0 - 9.0% of mass 174	4.7 (6.7) 1
176	95.0 - 101.0% of mass 174	67.1 (95.5) 1
177	5.0 - 9.0% of mass 176	4.1 (6.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030396.D	12/29/201	23:41
VBF1229S3	VBF1229S3	VF030398.D	12/30/201	00:42
BSF1229S2	BSF1229S2	VF030399.D	12/30/201	01:13
12SB25-0304-03	C5039-16	VF030401.D	12/30/201	02:15
12SB28-0.502-02	C5039-17	VF030402.D	12/30/201	02:47
12SB28-0304-03	C5039-18	VF030403.D	12/30/201	03:18

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_F Calibration Date/Time: 12/29/2011 23:41

Lab File ID: VF030396.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.690		-5.35	
Chloromethane	0.951	1.041	0.1	9.46	
Vinyl Chloride	0.54	0.662		22.59	20
Bromomethane	0.329	0.311		-5.47	
Chloroethane	0.193	0.231		19.69	
Trichlorofluoromethane	0.793	0.864		8.95	
1,1,2-Trichlorotrifluoroethane	0.47	0.564		20	
1,1-Dichloroethene	0.408	0.498		22.06	20
Acetone	0.388	0.426		9.79	
Carbon Disulfide	1.092	1.284		17.58	
Methyl tert-butyl Ether	1.591	1.953		22.75	
~~Methyl Acetate~~	~~1.193~~	~~1.595~~		33.7	N.A
Methylene Chloride	0.485	0.664		36.91	
trans-1,2-Dichloroethene	0.397	0.483		21.66	
1,1-Dichloroethane	0.86	1.151	0.1	33.84	
Cyclohexane	0.991	1.046		5.55	
2-Butanone	0.633	0.700		10.58	
Carbon Tetrachloride	0.527	0.526		-0.19	
cis-1,2-Dichloroethene	0.861	0.956		11.03	
Bromochloromethane	0.692	0.852		23.12	
Chloroform	1.314	1.529		16.36	20
1,1,1-Trichloroethane	0.825	0.887		7.52	
Methylcyclohexane	0.549	0.515		-6.19	
Benzene	1.383	1.476		6.72	
1,2-Dichloroethane	0.592	0.628		6.08	
Trichloroethene	0.581	0.581		0	
1,2-Dichloropropane	0.422	0.473		12.09	20
Bromodichloromethane	0.595	0.637		7.06	
4-Methyl-2-Pentanone	0.627	0.667		6.38	
Toluene	0.885	0.878		-0.79	20
t-1,3-Dichloropropene	0.692	0.711		2.75	
cis-1,3-Dichloropropene	0.705	0.743		5.39	
1,1,2-Trichloroethane	0.404	0.394		-2.48	
2-Hexanone	0.541	0.509		-5.91	
Dibromochloromethane	0.47	0.478		1.7	
1,2-Dibromoethane	0.465	0.457		-1.72	
Tetrachloroethene	0.589	0.599		1.7	
Chlorobenzene	1.081	1.088	0.3	0.65	
Ethyl Benzene	1.724	1.793		4	20
m/p-Xylenes	0.632	0.652		3.16	
o-Xylene	0.638	0.677		6.11	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_F Calibration Date/Time: 12/29/2011 23:41

Lab File ID: VF030396.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.084	1.128		4.06	
Bromoform	0.337	0.360	0.1	6.82	
Isopropylbenzene	3.047	3.298		8.24	
1,1,2,2-Tetrachloroethane	0.396	0.410	0.3	3.54	
1,3-Dichlorobenzene	1.651	1.697		2.79	
1,4-Dichlorobenzene	1.674	1.722		2.87	
1,2-Dichlorobenzene	1.657	1.676		1.15	
1,2-Dibromo-3-Chloropropane	0.181	0.178		-1.66	
1,2,4-Trichlorobenzene	1.176	1.151		-2.13	
1,2,3-Trichlorobenzene	1.114	1.115		0.09	
1,2-Dichloroethane-d4	0.825	0.995		20.61	
Dibromofluoromethane	0.411	0.466		13.38	
Toluene-d8	1.119	1.255		12.15	
4-Bromofluorobenzene	0.532	0.563		5.83	
1,4-Dioxane	0.006	0.005		-16.67	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1229S3

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030398.D Lab Sample ID: VBF1229S3

Date Analyzed: 12/30/2011 Time Analyzed: 00:42

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1229S2	BSF1229S2	VF030399.D	12/30/2011
12SB25-0304-03	C5039-16	VF030401.D	12/30/2011
12SB28-0.502-02	C5039-17	VF030402.D	12/30/2011
12SB28-0304-03	C5039-18	VF030403.D	12/30/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1229S3	SDG No.:	C5039
Lab Sample ID:	VBF1229S3	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030398.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1229S3	SDG No.:	C5039
Lab Sample ID:	VBF1229S3	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030398.D	1		12/30/11	VF122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	60.8		55 - 158	122%	SPK: 50
1868-53-7	Dibromofluoromethane	56.1		53 - 156	112%	SPK: 50
2037-26-5	Toluene-d8	53		85 - 115	106%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.7		85 - 120	97%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	123948	4.39			
540-36-3	1,4-Difluorobenzene	242416	5.13			
3114-55-4	Chlorobenzene-d5	227618	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	116182	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSF1229S2 Analytical Method: EPA SW846 8260 Datafile : VF030399.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(47-135)
Chloromethane	20		24	120	(56-130)
Vinyl Chloride	20		27	135*	(60-125)
Bromomethane	20		27	135	(45-158)
Chloroethane	20		29	145	(42-155)
Trichlorofluoromethane	20		22	110	(55-146)
1,1,2-Trichlorotrifluoroethane	20		26	130	(65-134)
1,1-Dichloroethene	20		27	135	(65-135)
Acetone	100		120	120	(57-148)
Carbon Disulfide	20		28	140*	(60-138)
Methyl tert-butyl Ether	20		26	130	(70-131)
Methyl Acetate	20		27	135	(44-187)
Methylene Chloride	20		33	165*	(63-140)
trans-1,2-Dichloroethene	20		27	135*	(73-130)
1,1-Dichloroethane	20		29	145*	(75-125)
Cyclohexane	20		23	115	(66-132)
2-Butanone	100		110	110	(52-153)
Carbon Tetrachloride	20		21	105	(74-122)
cis-1,2-Dichloroethene	20		23	115	(75-125)
Bromochloromethane	20		27	135*	(74-125)
Chloroform	20		26	130*	(75-125)
1,1,1-Trichloroethane	20		25	125	(75-128)
Methylcyclohexane	20		19	95	(71-124)
Benzene	20		23	115	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		23	115	(76-120)
Bromodichloromethane	20		23	115	(77-124)
4-Methyl-2-Pentanone	100		110	110	(70-141)
Toluene	20		21	105	(78-121)
t-1,3-Dichloropropene	20		21	105	(76-125)
cis-1,3-Dichloropropene	20		21	105	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		100	100	(55-145)
Dibromochloromethane	20		21	105	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSF1229S2 Analytical Method: EPA SW846 8260 Datafile : VF030399.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		21	105	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		42	105	(80-120)
o-Xylene	20		21	105	(78-119)
Styrene	20		21	105	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		22	110	(77-124)
1,1,2,2-Tetrachloroethane	20		21	105	(77-130)
1,3-Dichlorobenzene	20		22	110	(82-121)
1,4-Dichlorobenzene	20		21	105	(82-118)
1,2-Dichlorobenzene	20		21	105	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		19	95	(71-124)
1,2,3-Trichlorobenzene	20		20	100	(74-123)
1,4-Dioxane	400		280	70	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 7 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VG039044.D BFB Injection Date: 11/22/2011

Instrument ID: MSVOAG BFB Injection Time: 18:52

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.9
75	30.0 - 60.0% of mass 95	51
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	92.5
175	5.0 - 9.0% of mass 174	7.8 (8.4) 1
176	95.0 - 101.0% of mass 174	88 (95.1) 1
177	5.0 - 9.0% of mass 176	5.7 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD001	1 PPB ICC	VG039045.D	11/22/2011	19:31
VSTD005	5 PPB ICC	VG039046.D	11/22/2011	20:00
VSTD020	20 PPB ICC	VG039047.D	11/22/2011	20:44
VSTD050	50 PPB ICC	VG039048.D	11/22/2011	21:13
VSTD100	100 PPB ICC	VG039049.D	11/22/2011	21:42
VSTD150	150 PPB ICC	VG039050.D	11/22/2011	22:11

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.322	0.285	0.403	0.410	0.419	0.387	0.371	14.7
Chloromethane	0.668	0.928	0.740	0.737	0.728	0.687	0.748	12.4
Vinyl Chloride	0.598	0.706	0.647	0.663	0.675	0.623	0.652	5.9
Bromomethane	0.622	0.542	0.519	0.552	0.567	0.571	0.562	6.1
Chloroethane	0.509	0.502	0.473	0.501	0.534	0.535	0.509	4.6
Trichlorofluoromethane	0.679	0.695	0.680	0.659	0.679	0.671	0.677	1.8
1,1,2-Trichlorotrifluor<	0.574	0.586	0.562	0.544	0.554	0.563	0.564	2.6
1,1-Dichloroethene	0.658	0.783	0.619	0.610	0.644	0.636	0.658	9.6
Acetone	0.245	0.369	0.198	0.187	0.176	0.170	0.224	33.8
Carbon Disulfide	1.852	2.032	1.980	1.896	1.955	1.879	1.932	3.5
Methyl tert-butyl Ether	1.485	1.562	1.427	1.405	1.387	1.383	1.441	4.8
Methyl Acetate	1.335	1.455	1.196	1.256	1.218	1.203	1.277	7.9
Methylene Chloride	0.756	1.248	0.698	0.671	0.689	0.698	0.793	28.3
trans-1,2-Dichloroethen<	0.600	0.792	0.606	0.614	0.611	0.611	0.639	11.8
1,1-Dichloroethane	1.265	1.505	1.231	1.207	1.204	1.180	1.266	9.5
Cyclohexane	1.028	1.231	1.017	0.995	0.991	0.980	1.04	9.1
2-Butanone	0.431	0.484	0.376	0.385	0.361	0.356	0.399	12.4
Carbon Tetrachloride	0.302	0.246	0.331	0.326	0.309	0.305	0.303	10
cis-1,2-Dichloroethene	0.819	0.979	0.785	0.786	0.766	0.774	0.818	9.9
Bromochloromethane	0.697	0.783	0.684	0.632	0.611	0.612	0.67	9.9
Chloroform	1.192	1.252	1.092	1.029	0.996	0.986	1.091	10.1
1,1,1-Trichloroethane	0.681	0.850	0.693	0.665	0.638	0.617	0.691	12
Methylcyclohexane	0.485	0.540	0.490	0.475	0.456	0.461	0.485	6.2
Benzene	1.349	1.605	1.311	1.253	1.203	1.218	1.323	11.2
1,2-Dichloroethane	0.460	0.570	0.468	0.440	0.413	0.412	0.461	12.7
Trichloroethene	0.390	0.480	0.389	0.375	0.355	0.371	0.393	11.3
1,2-Dichloropropane	0.391	0.457	0.365	0.365	0.353	0.354	0.381	10.4
Bromodichloromethane	0.362	0.385	0.407	0.397	0.387	0.394	0.389	3.9
4-Methyl-2-Pentanone	0.242	0.226	0.248	0.260	0.248	0.253	0.246	4.6
Toluene	0.450	0.523	0.484	0.475	0.477	0.485	0.482	4.9
t-1,3-Dichloropropene	0.238	0.175	0.287	0.300	0.307	0.327	0.272	20.6

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.291	0.266	0.314	0.333	0.344	0.369	0.32	11.6
1,1,2-Trichloroethane	0.189	0.192	0.189	0.191	0.194	0.201	0.193	2.4
2-Hexanone	0.186	0.147	0.182	0.190	0.179	0.182	0.178	8.8
Dibromochloromethane	0.182	0.146	0.209	0.219	0.222	0.233	0.202	16
1,2-Dibromoethane	0.198	0.213	0.208	0.214	0.221	0.230	0.214	5.1
Tetrachloroethene	0.440	0.505	0.439	0.428	0.411	0.444	0.444	7.2
Chlorobenzene	1.097	1.157	1.030	1.015	1.001	0.984	1.047	6.3
Ethyl Benzene	1.643	1.572	1.563	1.584	1.492	1.453	1.551	4.4
m/p-Xylenes	0.618	0.562	0.656	0.664	0.652	0.648	0.633	6
o-Xylene	0.546	0.549	0.623	0.648	0.620	0.618	0.601	7.1
Styrene	0.925	0.744	1.005	1.017	0.984	0.995	0.945	11
Bromoform	0.172	0.082	0.209	0.243	0.243	0.240	0.198	32.1
Isopropylbenzene	3.639	3.515	3.915	3.584	3.644	3.647	3.657	3.7
1,1,2,2-Tetrachloroethar	1.106	1.136	0.950	0.917	0.925	0.955	0.998	9.7
1,3-Dichlorobenzene	1.699	1.519	1.643	1.597	1.576	1.615	1.608	3.8
1,4-Dichlorobenzene	1.609	1.732	1.566	1.511	1.509	1.516	1.574	5.5
1,2-Dichlorobenzene	1.411	1.490	1.493	1.407	1.354	1.335	1.415	4.7
1,2-Dibromo-3-Chloropro	0.112		0.116	0.126	0.125	0.127	0.121	5.6
1,2,4-Trichlorobenzene	0.950	0.859	0.906	0.902	0.870	0.922	0.901	3.7
1,2,3-Trichlorobenzene	0.797	0.776	0.824	0.807	0.788	0.844	0.806	3.1
1,2-Dichloroethane-d4	0.641	0.809	0.625	0.580	0.567	0.532	0.626	15.7
Dibromofluoromethane	0.390	0.458	0.400	0.380	0.356	0.358	0.39	9.6
Toluene-d8	0.626	0.773	0.669	0.669	0.632	0.639	0.668	8.2
4-Bromofluorobenzene	0.193	0.215	0.243	0.251	0.240	0.238	0.23	9.4
1,4-Dioxane	0.002	0.001	0.002	0.003	0.002	0.002	0.002	20.8

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VG039751.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOAG BFB Injection Time: 13:15

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	28.9
75	30.0 - 60.0% of mass 95	49
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	90.4
175	5.0 - 9.0% of mass 174	7.5 (8.3) 1
176	95.0 - 101.0% of mass 174	88.4 (97.8) 1
177	5.0 - 9.0% of mass 176	6 (6.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VG039752.D	12/21/2011	13:48
VBG1221W1	VBG1221W1	VG039753.D	12/21/2011	15:39
BSG1221W1	BSG1221W1	VG039754.D	12/21/2011	16:29
BSG1221W2	BSG1221W2	VG039755.D	12/21/2011	16:58
12TB-20111216	C5039-19	VG039764.D	12/21/2011	21:35

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOAG Calibration Date/Time: 12/21/2011 13:48

Lab File ID: VG039752.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.371	0.341		-8.09	
Chloromethane	0.748	0.892	0.1	19.25	
Vinyl Chloride	0.652	0.718		10.12	20
Bromomethane	0.562	0.775		37.9	
Chloroethane	0.509	0.619		21.61	
Trichlorofluoromethane	0.677	0.694		2.51	
1,1,2-Trichlorotrifluoroethane	0.564	0.623		10.46	
1,1-Dichloroethene	0.658	0.707		7.45	20
Acetone	0.224	0.267		19.2	
Carbon Disulfide	1.932	2.062		6.73	
Methyl tert-butyl Ether	1.441	1.566		8.67	
Methyl Acetate	1.277	1.562		22.32	
Methylene Chloride	0.793	0.829		4.54	
trans-1,2-Dichloroethene	0.639	0.711		11.27	
1,1-Dichloroethane	1.266	1.442	0.1	13.9	
Cyclohexane	1.04	1.254		20.58	
2-Butanone	0.399	0.486		21.8	
Carbon Tetrachloride	0.303	0.339		11.88	
cis-1,2-Dichloroethene	0.818	0.949		16.01	
Bromochloromethane	0.67	0.792		18.21	
Chloroform	1.091	1.186		8.71	20
1,1,1-Trichloroethane	0.691	0.742		7.38	
Methylcyclohexane	0.485	0.536		10.52	
Benzene	1.323	1.417		7.11	
1,2-Dichloroethane	0.461	0.440		-4.56	
Trichloroethene	0.393	0.393		0	
1,2-Dichloropropane	0.381	0.413		8.4	20
Bromodichloromethane	0.389	0.422		8.48	
4-Methyl-2-Pentanone	0.246	0.279		13.41	
Toluene	0.482	0.525		8.92	20
t-1,3-Dichloropropene	0.272	0.291		6.99	
cis-1,3-Dichloropropene	0.32	0.337		5.31	
1,1,2-Trichloroethane	0.193	0.212		9.84	
2-Hexanone	0.178	0.201		12.92	
Dibromochloromethane	0.202	0.213		5.45	
1,2-Dibromoethane	0.214	0.239		11.68	
Tetrachloroethene	0.444	0.358		-19.37	
Chlorobenzene	1.047	1.098	0.3	4.87	
Ethyl Benzene	1.551	1.592		2.64	20
m/p-Xylenes	0.633	0.694		9.64	
o-Xylene	0.601	0.707		17.64	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOAG Calibration Date/Time: 12/21/2011 13:48

Lab File ID: VG039752.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.110		17.46	
Bromoform	0.198	0.218	0.1	10.1	
Isopropylbenzene	3.657	3.702		1.23	
1,1,2,2-Tetrachloroethane	0.998	0.979	0.3	-1.9	
1,3-Dichlorobenzene	1.608	1.716		6.72	
1,4-Dichlorobenzene	1.574	1.671		6.16	
1,2-Dichlorobenzene	1.415	1.502		6.15	
1,2-Dibromo-3-Chloropropane	0.121	0.122		0.83	
1,2,4-Trichlorobenzene	0.901	0.925		2.66	
1,2,3-Trichlorobenzene	0.806	0.807		0.12	
1,2-Dichloroethane-d4	0.626	0.638		1.92	
Dibromofluoromethane	0.39	0.368		-5.64	
Toluene-d8	0.668	0.686		2.69	
4-Bromofluorobenzene	0.23	0.262		13.91	
1,4-Dioxane	0.002	0.003		50	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG1221W1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VG039753.D Lab Sample ID: VBG1221W1

Date Analyzed: 12/21/2011 Time Analyzed: 15:39

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG1221W1	BSG1221W1	VG039754.D	12/21/2011
BSG1221W2	BSG1221W2	VG039755.D	12/21/2011
12TB-20111216	C5039-19	VG039764.D	12/21/2011

COMMENTS:

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSG1221W1 Analytical Method: EPA SW846 8260 Datafile : VG039754.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(35-124)
Chloromethane	20		22	110	(40-125)
Vinyl Chloride	20		24	120	(50-144)
Bromomethane	20		24	120	(44-145)
Chloroethane	20		22	110	(60-135)
Trichlorofluoromethane	20		19	95	(60-137)
1,1,2-Trichlorotrifluoroethane	20		21	105	(52-142)
1,1-Dichloroethene	20		22	110	(70-130)
Acetone	100		130	130	(50-140)
Carbon Disulfide	20		23	115	(36-155)
Methyl tert-butyl Ether	20		21	105	(65-125)
Methyl Acetate	20		25	125	(51-158)
Methylene Chloride	20		23	115	(61-138)
trans-1,2-Dichloroethene	20		23	115	(60-137)
1,1-Dichloroethane	20		23	115	(70-135)
Cyclohexane	20		24	120	(56-141)
2-Butanone	100		120	120	(56-150)
Carbon Tetrachloride	20		22	110	(65-138)
cis-1,2-Dichloroethene	20		23	115	(70-125)
Bromochloromethane	20		25	125	(65-130)
Chloroform	20		21	105	(67-135)
1,1,1-Trichloroethane	20		20	100	(65-130)
Methylcyclohexane	20		21	105	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		18	90	(70-130)
Trichloroethene	20		19	95	(70-125)
1,2-Dichloropropane	20		21	105	(75-125)
Bromodichloromethane	20		21	105	(75-120)
4-Methyl-2-Pentanone	100		110	110	(63-135)
Toluene	20		20	100	(75-120)
t-1,3-Dichloropropene	20		19	95	(66-135)
cis-1,3-Dichloropropene	20		20	100	(70-130)
1,1,2-Trichloroethane	20		22	110	(75-125)
2-Hexanone	100		97	97	(56-130)
Dibromochloromethane	20		20	100	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSG1221W1 Analytical Method: EPA SW846 8260 Datafile : VG039754.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(80-120)
Tetrachloroethene	20		17	85	(45-178)
Chlorobenzene	20		20	100	(80-120)
Ethyl Benzene	20		21	105	(75-125)
m/p-Xylenes	40		43	108	(75-130)
o-Xylene	20		23	115	(80-120)
Styrene	20		23	115	(65-135)
Bromoform	20		21	105	(70-130)
Isopropylbenzene	20		19	95	(75-125)
1,1,2,2-Tetrachloroethane	20		19	95	(65-130)
1,3-Dichlorobenzene	20		20	100	(75-125)
1,4-Dichlorobenzene	20		21	105	(75-125)
1,2-Dichlorobenzene	20		20	100	(70-120)
1,2-Dibromo-3-Chloropropane	20		20	100	(54-130)
1,2,4-Trichlorobenzene	20		19	95	(65-133)
1,2,3-Trichlorobenzene	20		19	95	(60-135)
1,4-Dioxane	400		480	120	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSG1221W2 Analytical Method: EPA SW846 8260 Datafile : VG039755.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	20	18	90	0	20	(35-124)
Chloromethane	20	25	125	13	20	(40-125)
Vinyl Chloride	20	25	125	4	20	(50-144)
Bromomethane	20	27	135	12	20	(44-145)
Chloroethane	20	24	120	9	20	(60-135)
Trichlorofluoromethane	20	21	105	10	20	(60-137)
1,1,2-Trichlorotrifluoroethane	20	22	110	5	20	(52-142)
1,1-Dichloroethene	20	23	115	4	20	(70-130)
Acetone	100	140	140	7	20	(50-140)
Carbon Disulfide	20	25	125	8	20	(36-155)
Methyl tert-butyl Ether	20	23	115	9	20	(65-125)
Methyl Acetate	20	28	140	11	20	(51-158)
Methylene Chloride	20	26	130	12	20	(61-138)
trans-1,2-Dichloroethene	20	24	120	4	20	(60-137)
1,1-Dichloroethane	20	24	120	4	20	(70-135)
Cyclohexane	20	26	130	8	20	(56-141)
2-Butanone	100	130	130	8	20	(56-150)
Carbon Tetrachloride	20	22	110	0	20	(65-138)
cis-1,2-Dichloroethene	20	24	120	4	20	(70-125)
Bromochloromethane	20	25	125	0	20	(65-130)
Chloroform	20	22	110	5	20	(67-135)
1,1,1-Trichloroethane	20	20	100	0	20	(65-130)
Methylcyclohexane	20	23	115	9	20	(56-137)
Benzene	20	23	115	9	20	(80-120)
1,2-Dichloroethane	20	20	100	11	20	(70-130)
Trichloroethene	20	20	100	5	20	(70-125)
1,2-Dichloropropane	20	23	115	9	20	(75-125)
Bromodichloromethane	20	22	110	5	20	(75-120)
4-Methyl-2-Pentanone	100	120	120	9	20	(63-135)
Toluene	20	22	110	10	20	(75-120)
t-1,3-Dichloropropene	20	21	105	10	20	(66-135)
cis-1,3-Dichloropropene	20	21	105	5	20	(70-130)
1,1,2-Trichloroethane	20	22	110	0	20	(75-125)
2-Hexanone	100	110	110	13	20	(56-130)
Dibromochloromethane	20	21	105	5	20	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BSG1221W2 Analytical Method: EPA SW846 8260 Datafile : VG039755.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
1,2-Dibromoethane	20	23	115	14	20	(80-120)
Tetrachloroethene	20	18	90	6	20	(45-178)
Chlorobenzene	20	21	105	5	20	(80-120)
Ethyl Benzene	20	22	110	5	20	(75-125)
m/p-Xylenes	40	44	110	2	20	(75-130)
o-Xylene	20	23	115	0	20	(80-120)
Styrene	20	24	120	4	20	(65-135)
Bromoform	20	22	110	5	20	(70-130)
Isopropylbenzene	20	20	100	5	20	(75-125)
1,1,2,2-Tetrachloroethane	20	21	105	10	20	(65-130)
1,3-Dichlorobenzene	20	21	105	5	20	(75-125)
1,4-Dichlorobenzene	20	22	110	5	20	(75-125)
1,2-Dichlorobenzene	20	22	110	10	20	(70-120)
1,2-Dibromo-3-Chloropropane	20	20	100	0	20	(54-130)
1,2,4-Trichlorobenzene	20	21	105	10	20	(65-133)
1,2,3-Trichlorobenzene	20	22	110	15	20	(60-135)
1,4-Dioxane	400	540	135*	12	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VT002062.D BFB Injection Date: 12/23/2011

Instrument ID: MSVOA_T BFB Injection Time: 15:40

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.4
75	30.0 - 60.0% of mass 95	56.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.9
173	Less than 2.0% of mass 174	0.3 (0.5) 1
174	50.0 - 100.0% of mass 95	61.1
175	5.0 - 9.0% of mass 174	5.1 (8.3) 1
176	95.0 - 101.0% of mass 174	58.5 (95.9) 1
177	5.0 - 9.0% of mass 176	3.8 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD005	5 PPB ICC	VT002063.D	12/23/2011	16:55
VSTD010	10 PPB ICC	VT002064.D	12/23/2011	17:26
VSTD020	20 PPB ICC	VT002065.D	12/23/2011	17:57
VSTD050	50 PPB ICC	VT002066.D	12/23/2011	18:27
VSTD100	100 PPB ICC	VT002067.D	12/23/2011	18:58
VSTD200	200 PPB ICC	VT002068.D	12/23/2011	19:29

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_T Calibration Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Calibration Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT002063.D RRF020 = VT002065.D RRF050 = VT002066.D
RRF100 = VT002067.D RRF200 = VT002068.D RRF010 = VT002064.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.346	0.374	0.416	0.411	0.396	0.329	0.379	9.3
Chloromethane	0.482	0.550	0.571	0.551	0.534	0.462	0.525	8.2
Vinyl Chloride	0.427	0.467	0.495	0.478	0.459	0.392	0.453	8.2
Bromomethane	0.206	0.229	0.232	0.190	0.135	0.161	0.192	20
Chloroethane	0.283	0.317	0.319	0.291	0.239	0.278	0.288	10.2
Trichlorofluoromethane	0.652	0.686	0.737	0.687	0.662	0.626	0.675	5.6
1,1,2-Trichlorotrifluor<	0.364	0.356	0.389	0.379	0.369	0.322	0.363	6.4
1,1-Dichloroethene	0.486	0.537	0.562	0.535	0.529	0.471	0.52	6.6
Acetone	0.239	0.255	0.275	0.256	0.244	0.207	0.246	9.3
Carbon Disulfide	1.486	1.815	2.029	1.982	2.104	1.520	1.823	14.5
Methyl tert-butyl Ether	1.150	1.493	1.777	1.703	1.777	1.356	1.543	16.6
Methyl Acetate	1.116	1.210	1.374	1.324	1.350	1.124	1.25	9.2
Methylene Chloride	0.715	0.690	0.715	0.689	0.698	0.602	0.685	6.2
trans-1,2-Dichloroethen<	0.542	0.591	0.644	0.646	0.660	0.499	0.597	10.9
1,1-Dichloroethane	1.168	1.351	1.448	1.437	1.472	1.148	1.337	10.8
Cyclohexane	1.432	1.341	1.403	1.349	1.362	1.216	1.35	5.5
2-Butanone	0.287	0.334	0.381	0.360	0.348	0.274	0.331	12.7
Carbon Tetrachloride	0.367	0.446	0.492	0.494	0.506	0.372	0.446	14.1
cis-1,2-Dichloroethene	0.590	0.699	0.768	0.772	0.778	0.593	0.7	12.7
Bromochloromethane	0.732	0.683	0.680	0.682	0.667	0.725	0.695	3.9
Chloroform	1.073	1.211	1.302	1.295	1.302	1.050	1.205	9.7
1,1,1-Trichloroethane	0.776	0.920	0.996	0.972	0.994	0.770	0.905	11.7
Methylcyclohexane	0.617	0.678	0.755	0.742	0.758	0.587	0.69	10.8
Benzene	1.577	1.750	1.883	1.905	1.981	1.469	1.761	11.5
1,2-Dichloroethane	0.529	0.573	0.625	0.610	0.615	0.504	0.576	8.7
Trichloroethene	0.275	0.310	0.329	0.326	0.332	0.264	0.306	9.6
1,2-Dichloropropane	0.394	0.452	0.494	0.486	0.486	0.387	0.45	10.7
Bromodichloromethane	0.404	0.487	0.548	0.543	0.539	0.408	0.488	13.8
4-Methyl-2-Pentanone	0.319	0.368	0.432	0.404	0.375	0.316	0.369	12.4
Toluene	0.772	0.871	0.945	0.934	0.926	0.746	0.866	10
t-1,3-Dichloropropene	0.328	0.453	0.539	0.543	0.527	0.353	0.457	21.1

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_T Calibration Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Calibration Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT002063.D RRF020 = VT002065.D RRF050 = VT002066.D
RRF100 = VT002067.D RRF200 = VT002068.D RRF010 = VT002064.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.454	0.598	0.674	0.680	0.663	0.475	0.591	17.3
1,1,2-Trichloroethane	0.228	0.255	0.278	0.264	0.249	0.227	0.25	8.1
2-Hexanone	0.180	0.236	0.284	0.265	0.252	0.187	0.234	18
Dibromochloromethane	0.157	0.202	0.231	0.225	0.215	0.164	0.199	15.8
1,2-Dibromoethane	0.172	0.199	0.224	0.214	0.204	0.175	0.198	10.5
Tetrachloroethene	0.391	0.415	0.458	0.455	0.468	0.377	0.427	9
Chlorobenzene	0.964	1.046	1.125	1.119	1.134	0.921	1.051	8.7
Ethyl Benzene	1.795	2.098	2.308	2.363	2.404	1.767	2.123	13.4
m/p-Xylenes	0.626	0.723	0.800	0.816	0.841	0.618	0.737	13.3
o-Xylene	0.544	0.654	0.743	0.764	0.817	0.550	0.679	16.9
Styrene	0.836	1.050	1.229	1.296	1.410	0.863	1.114	21.2
Bromoform	0.109	0.143	0.184	0.195	0.217	0.116	0.161	27.6
Isopropylbenzene	2.838	3.457	3.733	3.817	3.988	2.843	3.446	14.5
1,1,2,2-Tetrachloroethar	0.711	0.797	0.891	0.888	0.892	0.687	0.811	11.6
1,3-Dichlorobenzene	1.260	1.417	1.576	1.582	1.540	1.222	1.433	11.2
1,4-Dichlorobenzene	1.345	1.438	1.575	1.570	1.565	1.258	1.458	9.3
1,2-Dichlorobenzene	1.236	1.348	1.455	1.438	1.428	1.170	1.346	8.8
1,2-Dibromo-3-Chloropro	0.131	0.153	0.181	0.176	0.173	0.125	0.156	15.5
1,2,4-Trichlorobenzene	0.621	0.812	0.927	0.898	0.875	0.680	0.802	15.5
1,2,3-Trichlorobenzene	0.563	0.728	0.808	0.775	0.724	0.610	0.701	13.6
1,2-Dichloroethane-d4	1.292	0.981	0.880	0.888	0.856	0.924	0.97	16.8
Dibromofluoromethane	0.465	0.376	0.338	0.343	0.346	0.345	0.369	13.3
Toluene-d8	1.971	1.555	1.365	1.378	1.342	1.395	1.501	16.2
4-Bromofluorobenzene	0.543	0.382	0.355	0.369	0.388	0.357	0.399	18
1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	10.5

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VT002213.D BFB Injection Date: 12/30/2011

Instrument ID: MSVOA_T BFB Injection Time: 11:15

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.3
75	30.0 - 60.0% of mass 95	59.6
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.4 (0.0) 1
174	50.0 - 100.0% of mass 95	64.4
175	5.0 - 9.0% of mass 174	5.4 (8.4) 1
176	95.0 - 101.0% of mass 174	61.7 (95.8) 1
177	5.0 - 9.0% of mass 176	4.4 (7.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VT002214.D	12/30/201	12:10
VBT1230S2	VBT1230S2	VT002216.D	12/30/201	13:45
BST1230S1	BST1230S1	VT002217.D	12/30/201	14:25
12SB14-000.5-01RE	C5039-01RE	VT002220.D	12/30/201	16:39
12SB13-0.502-02RE	C5039-03RE	VT002221.D	12/30/201	17:09
12SB26-000.5-01RE	C5039-08RE	VT002222.D	12/30/201	17:40
12SB26-0.502-02RE	C5039-09RE	VT002223.D	12/30/201	18:11
12SB25-000.5-01RE	C5039-12RE	VT002224.D	12/30/201	18:41

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_T Calibration Date/Time: 12/30/2011 12:10

Lab File ID: VT002214.D Init. Calib. Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.379	0.382		0.79	
Chloromethane	0.525	0.566	0.1	7.81	
Vinyl Chloride	0.453	0.504		11.26	20
Bromomethane	0.192	0.245		27.6	
Chloroethane	0.288	0.334		15.97	
Trichlorofluoromethane	0.675	0.804		19.11	
1,1,2-Trichlorotrifluoroethane	0.363	0.371		2.2	
1,1-Dichloroethene	0.52	0.627		20.58	20
Acetone	0.246	0.278		13.01	
Carbon Disulfide	1.823	2.119		16.24	
Methyl tert-butyl Ether	1.543	1.627		5.44	
Methyl Acetate	1.25	1.339		7.12	
Methylene Chloride	0.685	0.704		2.77	
trans-1,2-Dichloroethene	0.597	0.653		9.38	
1,1-Dichloroethane	1.337	1.418	0.1	6.06	
Cyclohexane	1.35	1.416		4.89	
2-Butanone	0.331	0.376		13.6	
Carbon Tetrachloride	0.446	0.509		14.13	
cis-1,2-Dichloroethene	0.7	0.766		9.43	
Bromochloromethane	0.695	0.675		-2.88	
Chloroform	1.205	1.288		6.89	20
1,1,1-Trichloroethane	0.905	1.014		12.04	
Methylcyclohexane	0.69	0.786		13.91	
Benzene	1.761	1.954		10.96	
1,2-Dichloroethane	0.576	0.597		3.65	
Trichloroethene	0.306	0.344		12.42	
1,2-Dichloropropane	0.45	0.501		11.33	20
Bromodichloromethane	0.488	0.546		11.89	
4-Methyl-2-Pentanone	0.369	0.424		14.91	
Toluene	0.866	0.982		13.39	20
t-1,3-Dichloropropene	0.457	0.536		17.29	
cis-1,3-Dichloropropene	0.591	0.679		14.89	
1,1,2-Trichloroethane	0.25	0.276		10.4	
2-Hexanone	0.234	0.277		18.38	
Dibromochloromethane	0.199	0.227		14.07	
1,2-Dibromoethane	0.198	0.215		8.59	
Tetrachloroethene	0.427	0.459		7.49	
Chlorobenzene	1.051	1.151	0.3	9.51	
Ethyl Benzene	2.123	2.379		12.06	20
m/p-Xylenes	0.737	0.821		11.4	
o-Xylene	0.679	0.745		9.72	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: MSVOA_T Calibration Date/Time: 12/30/2011 12:10

Lab File ID: VT002214.D Init. Calib. Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.114	1.201		7.81	
Bromoform	0.161	0.177	0.1	9.94	
Isopropylbenzene	3.446	3.740		8.53	
1,1,2,2-Tetrachloroethane	0.811	0.873	0.3	7.64	
1,3-Dichlorobenzene	1.433	1.593		11.17	
1,4-Dichlorobenzene	1.458	1.591		9.12	
1,2-Dichlorobenzene	1.346	1.474		9.51	
1,2-Dibromo-3-Chloropropane	0.156	0.169		8.33	
1,2,4-Trichlorobenzene	0.802	0.900		12.22	
1,2,3-Trichlorobenzene	0.701	0.758		8.13	
1,2-Dichloroethane-d4	0.97	0.837		-13.71	
Dibromofluoromethane	0.369	0.346		-6.23	
Toluene-d8	1.501	1.395		-7.06	
4-Bromofluorobenzene	0.399	0.334		-16.29	
1,4-Dioxane	0.003	0.003		0	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBT1230S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VT002216.D Lab Sample ID: VBT1230S2

Date Analyzed: 12/30/2011 Time Analyzed: 13:45

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_T

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BST1230S1	BST1230S1	VT002217.D	12/30/2011
12SB14-000.5-01RE	C5039-01RE	VT002220.D	12/30/2011
12SB13-0.502-02RE	C5039-03RE	VT002221.D	12/30/2011
12SB26-000.5-01RE	C5039-08RE	VT002222.D	12/30/2011
12SB26-0.502-02RE	C5039-09RE	VT002223.D	12/30/2011
12SB25-000.5-01RE	C5039-12RE	VT002224.D	12/30/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1230S2	SDG No.:	C5039
Lab Sample ID:	VBT1230S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002216.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1230S2	SDG No.:	C5039
Lab Sample ID:	VBT1230S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002216.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	20	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		55 - 158	108%	SPK: 50
1868-53-7	Dibromofluoromethane	55.2		53 - 156	110%	SPK: 50
2037-26-5	Toluene-d8	57		85 - 115	114%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.8		85 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	656015	8.05			
540-36-3	1,4-Difluorobenzene	1107230	8.95			
3114-55-4	Chlorobenzene-d5	632546	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	288390	13.63			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BST1230S1 Analytical Method: EPA SW846 8260 Datafile : VT002217.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(47-135)
Chloromethane	20		20	100	(56-130)
Vinyl Chloride	20		22	110	(60-125)
Bromomethane	20		24	120	(45-158)
Chloroethane	20		23	115	(42-155)
Trichlorofluoromethane	20		23	115	(55-146)
1,1,2-Trichlorotrifluoroethane	20		20	100	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		95	95	(57-148)
Carbon Disulfide	20		21	105	(60-138)
Methyl tert-butyl Ether	20		20	100	(70-131)
Methyl Acetate	20		19	95	(44-187)
Methylene Chloride	20		20	100	(63-140)
trans-1,2-Dichloroethene	20		20	100	(73-130)
1,1-Dichloroethane	20		20	100	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		94	94	(52-153)
Carbon Tetrachloride	20		21	105	(74-122)
cis-1,2-Dichloroethene	20		20	100	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		20	100	(75-125)
1,1,1-Trichloroethane	20		21	105	(75-128)
Methylcyclohexane	20		21	105	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		19	95	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		21	105	(76-120)
Bromodichloromethane	20		20	100	(77-124)
4-Methyl-2-Pentanone	100		100	100	(70-141)
Toluene	20		22	110	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		21	105	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		96	96	(55-145)
Dibromochloromethane	20		21	105	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5039 SAS No : C5039 SDG No: C5039

Matrix Spike - EPA Sample No : BST1230S1 Analytical Method: EPA SW846 8260 Datafile : VT002217.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(76-125)
Tetrachloroethene	20		21	105	(65-140)
Chlorobenzene	20		21	105	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		41	103	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		19	95	(80-119)
Bromoform	20		18	90	(71-125)
Isopropylbenzene	20		21	105	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		21	105	(82-118)
1,2-Dichlorobenzene	20		21	105	(81-120)
1,2-Dibromo-3-Chloropropane	20		19	95	(66-132)
1,2,4-Trichlorobenzene	20		20	100	(71-124)
1,2,3-Trichlorobenzene	20		20	100	(74-123)
1,4-Dioxane	400		370	93	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030375.D Date Analyzed: 12/29/2011

Instrument ID: MSVOA_F Time Analyzed: 10:49

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	129129	4.37	226506	5.11	201308	9.32
UPPER LIMIT	258258	4.87	453012	5.61	402616	9.82
LOWER LIMIT	64564.5	3.87	113253	4.61	100654	8.82
EPA SAMPLE NO.						
BSF1229S1	147035	4.39	267111	5.13	235987	9.32
12SB14-000.5-01	65665	4.39	118201	5.13	112266	9.33
12SB13-000.5-01	135925	4.38	249355	5.12	234795	9.32
12SB13-0.502-02	122115	4.38	220451	5.13	192694	9.32
12SB13-0304-03	128112	4.38	237870	5.12	240219	9.33
12SB29-000.5-01	116283	4.38	206721	5.13	207534	9.33
12SB29-0.502-02	103884	4.38	187599	5.13	195637	9.32
12SB29-0304-03	119946	4.38	222549	5.13	225641	9.33
12SB26-000.5-01	122944	4.38	220670	5.13	213330	9.33
12SB26-0.502-02	113974	4.38	213066	5.12	213243	9.32
12SB26-0304-03	117987	4.38	213261	5.13	215867	9.32
12SB-DUP-05	116216	4.39	209005	5.13	206825	9.32
12SB25-000.5-01	119360	4.38	213572	5.12	211957	9.33
12SB25-000.5-01MS	112030	4.39	192857	5.13	167893	9.32
12SB25-000.5-01MSD	133321	4.38	233712	5.12	209930	9.32
12SB25-0.502-02	116486	4.39	207191	5.13	216711	9.32
VBF1229S1	162560	4.38	289251	5.13	259808	9.32

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030375.D Date Analyzed: 12/29/2011

Instrument ID: MSVOA_F Time Analyzed: 10:49

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	129129	4.37	226506	5.11	201308	9.32
UPPER LIMIT	258258	4.87	453012	5.61	402616	9.82
LOWER LIMIT	64564.5	3.87	113253	4.61	100654	8.82
EPA SAMPLE NO.						

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030375.D Date Analyzed: 12/29/2011

Instrument ID: MSVOA_F Time Analyzed: 10:49

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	104854	12.23				
UPPER LIMIT	209708	12.73				
LOWER LIMIT	52427	11.73				
EPA SAMPLE NO.						
BSF1229S1	127975	12.24				
12SB14-000.5-01	49315 *	12.24				
12SB13-000.5-01	102132	12.23				
12SB13-0.502-02	85014	12.24				
12SB13-0304-03	127470	12.23				
12SB29-000.5-01	90500	12.24				
12SB29-0.502-02	103051	12.24				
12SB29-0304-03	119525	12.24				
12SB26-000.5-01	104175	12.24				
12SB26-0.502-02	101004	12.23				
12SB26-0304-03	114168	12.24				
12SB-DUP-05	104246	12.24				
12SB25-000.5-01	94061	12.23				
12SB25-000.5-01MS	76084	12.24				
12SB25-000.5-01MSD	110313	12.24				
12SB25-0.502-02	111882	12.24				
VBF1229S1	132094	12.24				

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030375.D Date Analyzed: 12/29/2011

Instrument ID: MSVOA_F Time Analyzed: 10:49

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	104854	12.23				
UPPER LIMIT	209708	12.73				
LOWER LIMIT	52427	11.73				
EPA SAMPLE NO.						

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030396.D Date Analyzed: 12/29/2011

Instrument ID: MSVOA_F Time Analyzed: 23:11

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	121964	4.38	231421	5.12	210399	9.33
UPPER LIMIT	243928	4.88	462842	5.62	420798	9.83
LOWER LIMIT	60982	3.88	115710.5	4.62	105199.5	8.83
EPA SAMPLE NO.						
BSF1229S2	119419	4.38	226813	5.12	213381	9.33
12SB25-0304-03	121429	4.39	224269	5.13	228704	9.32
12SB28-0.502-02	109881	4.39	205832	5.13	204280	9.32
12SB28-0304-03	119323	4.39	219684	5.13	219100	9.32
VBF1229S3	123948	4.39	242416	5.13	227618	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VF030396.D Date Analyzed: 12/29/2011

Instrument ID: MSVOA_F Time Analyzed: 23:11

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	113924	12.23				
UPPER LIMIT	227848	12.73				
LOWER LIMIT	56962	11.73				
EPA SAMPLE NO.						
BSF1229S2	112417	12.24				
12SB25-0304-03	116104	12.24				
12SB28-0.502-02	110922	12.24				
12SB28-0304-03	115680	12.24				
VBF1229S3	116182	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VG039752.D Date Analyzed: 12/21/2011

Instrument ID: MSVOAG Time Analyzed: 13:48

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	658356	3.92	1221240	4.72	714725	9.69
UPPER LIMIT	1316712	4.42	2442480	5.22	1429450	10.19
LOWER LIMIT	329178	3.42	610620	4.22	357362.5	9.19
EPA SAMPLE NO.						
BSG1221W1	734111	3.91	1359744	4.71	736753	9.68
BSG1221W2	716294	3.90	1316284	4.71	732393	9.69
12TB-20111216	583593	3.90	1089920	4.72	577390	9.69
VBG1221W1	713188	3.90	1322131	4.71	729555	9.68

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VG039752.D Date Analyzed: 12/21/2011

Instrument ID: MSVOAG Time Analyzed: 13:48

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	349693	13.4				
UPPER LIMIT	699386	13.9				
LOWER LIMIT	174846.5	12.9				
EPA SAMPLE NO.						
BSG1221W1	377892	13.39				
BSG1221W2	357280	13.39				
12TB-20111216	263755	13.40				
VBG1221W1	330367	13.39				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VT002214.D Date Analyzed: 12/30/2011

Instrument ID: MSVOA_T Time Analyzed: 12:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	786109	8.04	1255827	8.95	762526	11.71
UPPER LIMIT	1572218	8.54	2511654	9.45	1525052	12.21
LOWER LIMIT	393054.5	7.54	627913.5	8.45	381263	11.21
EPA SAMPLE NO.						
BST1230S1	709006	8.04	1143362	8.95	708444	11.71
12SB14-000.5-01RE	253342 *	8.05	445141 *	8.95	227107 *	11.71
12SB13-0.502-02RE	572124	8.05	1055431	8.95	615885	11.71
12SB26-000.5-01RE	522673	8.05	986946	8.95	594109	11.71
12SB26-0.502-02RE	556876	8.04	1022501	8.95	629239	11.71
12SB25-000.5-01RE	457156	8.05	747809	8.95	365969 *	11.71
VBT1230S2	656015	8.05	1107225	8.95	632546	11.71

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: VT002214.D Date Analyzed: 12/30/2011

Instrument ID: MSVOA_T Time Analyzed: 12:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #		RT #				
12 HOUR STD	394567		13.62				
UPPER LIMIT	789134		14.12				
LOWER LIMIT	197283.5		13.12				
EPA SAMPLE NO.							
BST1230S1	333915		13.62				
12SB14-000.5-01RE	66891	*	13.62				
12SB13-0.502-02RE	230877		13.62				
12SB26-000.5-01RE	249712		13.62				
12SB26-0.502-02RE	269419		13.62				
12SB25-000.5-01RE	110206	*	13.63				
VBT1230S2	288390		13.63				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data Path : W:\HPCHEM1\MSVOA_T\data\VT123011\
Data File : VT002214.D
Acq On : 30 Dec 2011 12:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Internal Standard Associations

Quant Time: Dec 30 13:06:39 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Quant Title : SW846 8260
QLast Update : Sat Dec 24 03:00:13 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	55.912	-11.8	91	0.00
47	T	Methyl methacrylate	50.000	57.454	-14.9	89	0.00
48	T	1,4-Dioxane	1000.000	1035.623	-3.6	85	0.00
49	S	Toluene-d8	50.000	46.452	7.1	93	0.00
50	T	4-Methyl-2-Pentanone	250.000	287.395	-15.0	89	0.00
51	CM	Toluene	50.000	56.722	-13.4#	94	0.00
52	T	t-1,3-Dichloropropene	50.000	58.625	-17.3	90	0.00
53	T	cis-1,3-Dichloropropene	50.000	57.494	-15.0	92	0.00
54	T	1,1,2-Trichloroethane	50.000	55.123	-10.2	90	0.00
55	T	Ethyl methacrylate	50.000	57.440	-14.9	87	0.00
56	T	1,3-Dichloropropane	50.000	55.142	-10.3	89	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	250.942	-0.4	89	0.00
58	T	2-Hexanone	250.000	295.707	-18.3	89	0.00
59	T	Dibromochloromethane	50.000	56.931	-13.9	89	0.00
60	T	1,2-Dibromoethane	50.000	54.333	-8.7	87	0.00
61	S	4-Bromofluorobenzene	50.000	41.822	16.4	85	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	88	0.00
63	T	Tetrachloroethene	50.000	53.702	-7.4	89	0.00
64	PM	Chlorobenzene	50.000	54.748	-9.5	91	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	55.254	-10.5	88	0.00
66	C	Ethyl Benzene	50.000	56.050	-12.1#	91	0.00
67	T	m/p-Xylenes	100.000	111.422	-11.4	91	0.00
68	T	o-Xylene	50.000	54.847	-9.7	89	0.00
69	T	Styrene	50.000	53.923	-7.8	86	0.00
70	P	Bromoform	50.000	55.240	-10.5	85	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	88	0.00
72	T	Isopropylbenzene	50.000	54.273	-8.5	89	0.00
73	T	N-amyl acetate	50.000	54.950	-9.9	83	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	53.846	-7.7	87	0.00
75	T	1,2,3-Trichloropropane	50.000	54.526	-9.1	87	0.00
76	T	Bromobenzene	50.000	53.489	-7.0	88	0.00
77	T	n-propylbenzene	50.000	54.750	-9.5	90	0.00
78	T	2-Chlorotoluene	50.000	53.205	-6.4	88	0.00
79	T	1,3,5-Trimethylbenzene	50.000	54.711	-9.4	89	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	57.220	-14.4	87	0.00
81	T	4-Chlorotoluene	50.000	53.449	-6.9	89	0.00
82	T	tert-Butylbenzene	50.000	55.200	-10.4	89	0.00
83	T	1,2,4-Trimethylbenzene	50.000	54.982	-10.0	89	0.00
84	T	sec-Butylbenzene	50.000	55.729	-11.5	90	0.00
85	T	p-Isopropyltoluene	50.000	56.633	-13.3	90	0.00
86	T	1,3-Dichlorobenzene	50.000	55.595	-11.2	89	0.00
87	T	1,4-Dichlorobenzene	50.000	54.554	-9.1	89	0.00
88	T	n-Butylbenzene	50.000	57.084	-14.2	90	0.00
89	T	Hexachloroethane	50.000	59.746	-19.5	91	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT123011\
Data File : VT002214.D
Acq On : 30 Dec 2011 12:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 13:06:39 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Quant Title : SW846 8260
QLast Update : Sat Dec 24 03:00:13 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
30 T	1,2-Dichlorobenzene	50.000	54.755	-9.5	89	0.00
31 T	1,2-Dibromo-3-Chloropropane	50.000	54.055	-8.1	83	0.00
32 T	1,2,4-Trichlorobenzene	50.000	56.064	-12.1	86	0.00
33 T	Hexachlorobutadiene	50.000	49.364	1.3	78	0.00
34 T	Naphthalene	50.000	56.771	-13.5	83	0.00
35 T	1,2,3-Trichlorobenzene	50.000	54.039	-8.1	83	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5039-01	12SB14-000.5-01	2-Fluorophenol	150	119.16	79		35	105
		Phenol-d5	150	121.31	81		40	100
		Nitrobenzene-d5	100	73.07	73		35	100
		2-Fluorobiphenyl	100	75.09	75		45	105
		2,4,6-Tribromophenol	150	122.11	81		35	125
		Terphenyl-d14	100	75.91	76		30	125
C5039-02	12SB13-000.5-01	2-Fluorophenol	150	127.74	85		35	105
		Phenol-d5	150	130.13	87		40	100
		Nitrobenzene-d5	100	80.38	80		35	100
		2-Fluorobiphenyl	100	65.24	65		45	105
		2,4,6-Tribromophenol	150	129.51	86		35	125
		Terphenyl-d14	100	65.40	65		30	125
C5039-03	12SB13-0.502-02	2-Fluorophenol	150	125.99	84		35	105
		Phenol-d5	150	131.25	88		40	100
		Nitrobenzene-d5	100	82.14	82		35	100
		2-Fluorobiphenyl	100	77.24	77		45	105
		2,4,6-Tribromophenol	150	135.72	90		35	125
		Terphenyl-d14	100	79.27	79		30	125
C5039-04	12SB13-0304-03	2-Fluorophenol	150	125.79	84		35	105
		Phenol-d5	150	129.59	86		40	100
		Nitrobenzene-d5	100	74.14	74		35	100
		2-Fluorobiphenyl	100	78.22	78		45	105
		2,4,6-Tribromophenol	150	126.14	84		35	125
		Terphenyl-d14	100	83.69	84		30	125
C5039-05	12SB29-000.5-01	2-Fluorophenol	150	127.70	85		35	105
		Phenol-d5	150	131.57	88		40	100
		Nitrobenzene-d5	100	77.62	78		35	100
		2-Fluorobiphenyl	100	72.99	73		45	105
		2,4,6-Tribromophenol	150	129.96	87		35	125
		Terphenyl-d14	100	76.53	77		30	125
C5039-06	12SB29-0.502-02	2-Fluorophenol	150	126.25	84		35	105
		Phenol-d5	150	129.56	86		40	100
		Nitrobenzene-d5	100	77.16	77		35	100
		2-Fluorobiphenyl	100	76.95	77		45	105
		2,4,6-Tribromophenol	150	129.65	86		35	125
		Terphenyl-d14	100	81.10	81		30	125
C5039-07	12SB29-0304-03	2-Fluorophenol	150	108.84	73		35	105
		Phenol-d5	150	115.10	77		40	100
		Nitrobenzene-d5	100	70.94	71		35	100
		2-Fluorobiphenyl	100	73.19	73		45	105
		2,4,6-Tribromophenol	150	105.81	71		35	125
		Terphenyl-d14	100	76.18	76		30	125
C5039-08	12SB26-000.5-01	2-Fluorophenol	150	107.30	72		35	105
		Phenol-d5	150	110.83	74		40	100
		Nitrobenzene-d5	100	66.33	66		35	100
		2-Fluorobiphenyl	100	61.18	61		45	105
		2,4,6-Tribromophenol	150	106.12	71		35	125
		Terphenyl-d14	100	63.97	64		30	125
C5039-09	12SB26-0.502-02	2-Fluorophenol	150	120.32	80		35	105
		Phenol-d5	150	125.79	84		40	100
		Nitrobenzene-d5	100	76.57	77		35	100
		2-Fluorobiphenyl	100	80.28	80		45	105

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5039-09	12SB26-0.502-02	2,4,6-Tribromophenol	150	120.58	80		35	125
		Terphenyl-d14	100	83.75	84		30	125
C5039-10	12SB26-0304-03	2-Fluorophenol	150	127.89	85		35	105
		Phenol-d5	150	131.91	88		40	100
		Nitrobenzene-d5	100	77.25	77		35	100
		2-Fluorobiphenyl	100	81.24	81		45	105
		2,4,6-Tribromophenol	150	131.33	88		35	125
		Terphenyl-d14	100	85.10	85		30	125
C5039-11	12SB-DUP-05	2-Fluorophenol	150	138.36	92		35	105
		Phenol-d5	150	139.79	93		40	100
		Nitrobenzene-d5	100	85.97	86		35	100
		2-Fluorobiphenyl	100	69.51	70		45	105
		2,4,6-Tribromophenol	150	127.47	85		35	125
		Terphenyl-d14	100	67.03	67		30	125
C5039-12	12SB25-000.5-01	2-Fluorophenol	150	112.35	75		35	105
		Phenol-d5	150	114.79	77		40	100
		Nitrobenzene-d5	100	68.45	68		35	100
		2-Fluorobiphenyl	100	65.48	65		45	105
		2,4,6-Tribromophenol	150	114.20	76		35	125
		Terphenyl-d14	100	69.83	70		30	125
C5039-13MS	12SB25-000.5-01MS	2-Fluorophenol	150	117.69	78		35	105
		Phenol-d5	150	118.55	79		40	100
		Nitrobenzene-d5	100	73.84	74		35	100
		2-Fluorobiphenyl	100	65.89	66		45	105
		2,4,6-Tribromophenol	150	119.52	80		35	125
		Terphenyl-d14	100	70.29	70		30	125
C5039-14MSD	12SB25-000.5-01MSD	2-Fluorophenol	150	153.94	103		35	105
		Phenol-d5	150	155.41	104	*	40	100
		Nitrobenzene-d5	100	93.34	93		35	100
		2-Fluorobiphenyl	100	82.69	83		45	105
		2,4,6-Tribromophenol	150	145.82	97		35	125
		Terphenyl-d14	100	86.38	86		30	125
C5039-15	12SB25-0.502-02	2-Fluorophenol	150	117.22	78		35	105
		Phenol-d5	150	122.24	81		40	100
		Nitrobenzene-d5	100	73.76	74		35	100
		2-Fluorobiphenyl	100	72.75	73		45	105
		2,4,6-Tribromophenol	150	117.89	79		35	125
		Terphenyl-d14	100	74.80	75		30	125
C5039-16	12SB25-0304-03	2-Fluorophenol	150	121.96	81		35	105
		Phenol-d5	150	128.24	85		40	100
		Nitrobenzene-d5	100	78.61	79		35	100
		2-Fluorobiphenyl	100	78.62	79		45	105
		2,4,6-Tribromophenol	150	120.10	80		35	125
		Terphenyl-d14	100	82.71	83		30	125
C5039-17	12SB28-0.502-02	2-Fluorophenol	150	118.08	79		35	105
		Phenol-d5	150	118.30	79		40	100
		Nitrobenzene-d5	100	69.68	70		35	100
		2-Fluorobiphenyl	100	75.40	75		45	105
		2,4,6-Tribromophenol	150	120.58	80		35	125
		Terphenyl-d14	100	78.43	78		30	125
C5039-18	12SB28-0304-03	2-Fluorophenol	150	140.91	94		35	105
		Phenol-d5	150	144.07	96		40	100

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5039-18	12SB28-0304-03	Nitrobenzene-d5	100	85.41	85		35	100
		2-Fluorobiphenyl	100	91.38	91		45	105
		2,4,6-Tribromophenol	150	146.87	98		35	125
		Terphenyl-d14	100	93.37	93		30	125
PB60027B	PB60027B	2-Fluorophenol	150	128.52	86		35	105
		Phenol-d5	150	128.76	86		40	100
		Nitrobenzene-d5	100	78.88	79		35	100
		2-Fluorobiphenyl	100	84.51	85		45	105
		2,4,6-Tribromophenol	150	133.01	89		35	125
		Terphenyl-d14	100	88.12	88		30	125
PB60027BS	PB60027BS	2-Fluorophenol	150	134.03	89		35	105
		Phenol-d5	150	134.31	90		40	100
		Nitrobenzene-d5	100	85.35	85		35	100
		2-Fluorobiphenyl	100	86.24	86		45	105
		2,4,6-Tribromophenol	150	146.59	98		35	125
		Terphenyl-d14	100	87.55	88		30	125

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BE074743.D DFTPP Injection Date: 12/30/2011

Instrument ID: BNA_E DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.7
68	Less than 2.0% of mass 69	0.5 (1.2) 1
69	Mass 69 relative abundance	39.7
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.3
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	9.2
442	Greater than 40% of mass 198	57.9
443	17.0 - 23.0% of mass 442	11.8 (20.4) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074744.D	12/30/2011	21:01
02	SSTD025	25 ng BNA ICC	BE074745.D	12/30/2011	21:46
03	SSTD040	40 ng BNA ICC	BE074746.D	12/30/2011	22:27
04	SSTD050	50 ng BNA ICC	BE074747.D	12/30/2011	23:12
05	SSTD060	60 ng BNA ICC	BE074748.D	12/30/2011	23:54
06	SSTD080	80 ng BNA ICC	BE074749.D	12/31/2011	00:39

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_E Calibration Date(s): 12/30/2011 12/31/2011

Calibration Time(s): 21:01 00:39

LAB FILE ID: RRF010 = BE074744.D RRF025 = BE074745.D RRF040 = BE074746.D
RRF050 = BE074747.D RRF060 = BE074748.D RRF080 = BE074749.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	0.955	0.941	0.780	0.731	0.649	0.540	0.766	21.2
Phenol	1.705	1.836	1.811	1.872	1.933	1.913	1.845	4.5
bis(2-Chloroethyl)ether	1.407	1.432	1.416	1.451	1.486	1.484	1.446	2.3
2-Chlorophenol	1.405	1.469	1.448	1.495	1.502	1.488	1.468	2.5
2-Methylphenol	1.061	1.117	1.110	1.173	1.178	1.183	1.137	4.3
2,2-oxybis(1-Chloropropane)	2.015	2.141	2.101	2.210	2.201	2.216	2.147	3.7
Acetophenone	0.456	0.481	0.465	0.490	0.479	0.485	0.476	2.7
3+4-Methylphenols	1.374	1.514	1.481	1.553	1.572	1.556	1.509	4.9
n-Nitroso-di-n-propylamine	0.926	0.986	0.999	1.076	1.069	1.068	1.021	5.9
Hexachloroethane	0.498	0.534	0.521	0.550	0.553	0.548	0.534	4.0
Nitrobenzene	0.329	0.351	0.341	0.369	0.355	0.363	0.352	4.2
Isophorone	0.567	0.629	0.623	0.659	0.644	0.663	0.631	5.5
2-Nitrophenol	0.168	0.184	0.181	0.194	0.192	0.198	0.186	5.9
2,4-Dimethylphenol	0.296	0.319	0.307	0.324	0.322	0.328	0.316	3.8
bis(2-Chloroethoxy)methane	0.412	0.425	0.415	0.433	0.428	0.431	0.424	2.0
2,4-Dichlorophenol	0.269	0.291	0.281	0.299	0.295	0.295	0.288	3.9
4-Chloroaniline	0.413	0.447	0.430	0.453	0.444	0.444	0.439	3.3
Hexachlorobutadiene	0.145	0.150	0.142	0.149	0.144	0.148	0.147	2.1
Caprolactam	0.094	0.110	0.113	0.119	0.119	0.121	0.113	9.0
4-Chloro-3-methylphenol	0.264	0.291	0.284	0.303	0.300	0.302	0.291	5.1
Hexachlorocyclopentadiene	0.169	0.217	0.221	0.239	0.248	0.253	0.224	13.7
2,4,6-Trichlorophenol	0.312	0.344	0.338	0.349	0.357	0.353	0.342	4.8
2,4,5-Trichlorophenol	0.349	0.368	0.369	0.380	0.384	0.387	0.373	3.8
1,1-Biphenyl	1.550	1.586	1.544	1.592	1.602	1.579	1.576	1.5
2-Chloronaphthalene	1.118	1.191	1.144	1.158	1.179	1.149	1.157	2.3
2-Nitroaniline	0.279	0.325	0.328	0.346	0.355	0.358	0.332	8.8
Dimethylphthalate	1.251	1.317	1.271	1.297	1.302	1.300	1.290	1.9
Acenaphthylene	1.741	1.829	1.813	1.848	1.874	1.858	1.827	2.6
2,6-Dinitrotoluene	0.282	0.297	0.298	0.312	0.313	0.310	0.302	4.1
3-Nitroaniline	0.315	0.357	0.359	0.373	0.376	0.382	0.360	6.8
Acenaphthene	1.147	1.213	1.179	1.209	1.232	1.226	1.201	2.7
2,4-Dinitrophenol	0.036	0.072	0.095	0.111	0.124	0.140	0.096	39.3
4-Nitrophenol	0.211	0.267	0.280	0.294	0.301	0.311	0.277	13.1
Dibenzofuran	1.655	1.703	1.629	1.651	1.672	1.645	1.659	1.5
2,4-Dinitrotoluene	0.328	0.383	0.380	0.403	0.400	0.412	0.384	7.8
Diethylphthalate	1.196	1.265	1.249	1.269	1.280	1.260	1.253	2.4

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_E Calibration Date(s): 12/30/2011 12/31/2011

Calibration Time(s): 21:01 00:39

LAB FILE ID: RRF010 = BE074744.D RRF025 = BE074745.D RRF040 = BE074746.D
RRF050 = BE074747.D RRF060 = BE074748.D RRF080 = BE074749.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.599	0.609	0.590	0.601	0.597	0.598	0.599	1.1
4-Nitroaniline	0.332	0.370	0.373	0.390	0.396	0.392	0.376	6.3
4,6-Dinitro-2-methylphenol	0.053	0.085	0.103	0.110	0.117	0.128	0.099	27.1
n-Nitrosodiphenylamine	0.636	0.663	0.663	0.684	0.682	0.679	0.668	2.7
4-Bromophenyl-phenylether	0.178	0.184	0.182	0.186	0.188	0.189	0.185	2.3
Hexachlorobenzene	0.194	0.202	0.195	0.199	0.198	0.196	0.197	1.4
Atrazine	0.163	0.184	0.186	0.193	0.196	0.197	0.186	6.7
Pentachlorophenol	0.078	0.096	0.104	0.113	0.118	0.124	0.105	16.0
Phenanthrene	1.126	1.126	1.133	1.132	1.142	1.131	1.132	0.5
Carbazole	1.032	1.095	1.088	1.109	1.122	1.107	1.092	2.9
Di-n-butylphthalate	1.051	1.186	1.209	1.241	1.242	1.246	1.196	6.3
Butylbenzylphthalate	0.455	0.522	0.531	0.553	0.554	0.571	0.531	7.8
3,3-Dichlorobenzidine	0.335	0.381	0.378	0.380	0.371	0.368	0.369	4.7
Bis(2-ethylhexyl)phthalate	0.643	0.737	0.737	0.782	0.765	0.785	0.742	7.1
Di-n-octyl phthalate	0.989	1.174	1.202	1.281	1.265	1.312	1.204	9.7
1,2,4,5-Tetrachlorobenzene	0.507	0.512	0.496	0.504	0.502	0.490	0.502	1.5
2,3,4,6-Tetrachlorophenol	0.248	0.273	0.275	0.288	0.296	0.301	0.280	6.9
2-Fluorophenol	1.237	1.315	1.294	1.343	1.354	1.359	1.317	3.5
Phenol-d5	1.596	1.717	1.666	1.745	1.757	1.773	1.709	3.9
Nitrobenzene-d5	0.341	0.367	0.358	0.380	0.374	0.380	0.367	4.2
2-Fluorobiphenyl	1.402	1.429	1.367	1.379	1.377	1.325	1.380	2.5
2,4,6-Tribromophenol	0.128	0.144	0.141	0.146	0.148	0.147	0.143	5.3
Terphenyl-d14	0.757	0.774	0.746	0.746	0.729	0.690	0.740	3.9

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BE074751.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_E DFTPP Injection Time: 02:05

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.9
68	Less than 2.0% of mass 69	0.4 (1.2) 1
69	Mass 69 relative abundance	38
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	48.2
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	20.2
365	Greater than 1% of mass 198	2
441	Present, but less than mass 443	11.1
442	Greater than 40% of mass 198	65.6
443	17.0 - 23.0% of mass 442	13.2 (20.1) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074752.D	12/31/2011	02:47
02	12SB28-0304-03	C5039-18	BE074758.D	12/31/2011	07:07
03	12SB26-0.502-02	C5039-09	BE074759.D	12/31/2011	07:51
04	12SB29-0.502-02	C5039-06	BE074760.D	12/31/2011	08:33
05	12SB13-0304-03	C5039-04	BE074761.D	12/31/2011	09:18
06	12SB29-0304-03	C5039-07	BE074762.D	12/31/2011	10:03
07	12SB26-0304-03	C5039-10	BE074763.D	12/31/2011	10:45
08	12SB25-0304-03	C5039-16	BE074764.D	12/31/2011	11:29
09	12SB28-0.502-02	C5039-17	BE074765.D	12/31/2011	12:11
10	PB60027B	PB60027B	BE074766.D	12/31/2011	12:56
11	PB60027BS	PB60027BS	BE074767.D	12/31/2011	13:41

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_E Calibration Date/Time: 12/31/2011 02:47

Lab File ID: BE074752.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.766	0.732		4.5	
Phenol	1.845	1.812		1.8	20.0
bis(2-Chloroethyl)ether	1.446	1.413		2.3	
2-Chlorophenol	1.468	1.433		2.4	
2-Methylphenol	1.137	1.121		1.4	
2,2-oxybis(1-Chloropropane)	2.147	2.145		0.1	
Acetophenone	0.476	0.454		4.6	
3+4-Methylphenols	1.509	1.507		0.1	
n-Nitroso-di-n-propylamine	1.021	1.018	0.050	0.3	
Hexachloroethane	0.534	0.520		2.6	
Nitrobenzene	0.352	0.334		5.1	
Isophorone	0.631	0.601		4.8	
2-Nitrophenol	0.186	0.178		4.3	20.0
2,4-Dimethylphenol	0.316	0.301		4.7	
bis(2-Chloroethoxy)methane	0.424	0.398		6.2	
2,4-Dichlorophenol	0.288	0.278		3.6	20.0
4-Chloroaniline	0.439	0.419		4.6	
Hexachlorobutadiene	0.147	0.142		3.2	20.0
Caprolactam	0.113	0.106		5.8	
4-Chloro-3-methylphenol	0.291	0.276		5.0	20.0
Hexachlorocyclopentadiene	0.224	0.228	0.050	1.6	
2,4,6-Trichlorophenol	0.342	0.331		3.3	20.0
2,4,5-Trichlorophenol	0.373	0.364		2.3	
1,1-Biphenyl	1.576	1.540		2.3	
2-Chloronaphthalene	1.157	1.140		1.5	
2-Nitroaniline	0.332	0.320		3.5	
Dimethylphthalate	1.290	1.252		2.9	
Acenaphthylene	1.827	1.793		1.9	
2,6-Dinitrotoluene	0.302	0.297		1.7	
3-Nitroaniline	0.360	0.352		2.3	
Acenaphthene	1.201	1.173		2.3	20.0
2,4-Dinitrophenol	0.096	0.098	0.050	1.6	
4-Nitrophenol	0.277	0.272	0.050	1.9	
Dibenzofuran	1.659	1.642		1.0	
2,4-Dinitrotoluene	0.384	0.383		0.3	
Diethylphthalate	1.253	1.224		2.4	
4-Chlorophenyl-phenylether	0.599	0.584		2.5	
4-Nitroaniline	0.376	0.372		1.1	
4,6-Dinitro-2-methylphenol	0.099	0.104		4.9	
n-Nitrosodiphenylamine	0.668	0.654		2.2	20.0
4-Bromophenyl-phenylether	0.185	0.185		0.2	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_E Calibration Date/Time: 12/31/2011 02:47

Lab File ID: BE074752.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.197	0.198		0.7	
Atrazine	0.186	0.188		1.3	
Pentachlorophenol	0.105	0.105		0.4	20.0
Phenanthrene	1.132	1.117		1.3	
Carbazole	1.092	1.071		2.0	
Di-n-butylphthalate	1.196	1.163		2.8	
Butylbenzylphthalate	0.531	0.500		5.8	
3,3-Dichlorobenzidine	0.369	0.357		3.2	
Bis(2-ethylhexyl)phthalate	0.742	0.721		2.8	
Di-n-octyl phthalate	1.204	1.146		4.8	20.0
1,2,4,5-Tetrachlorobenzene	0.502	0.485		3.4	
2,3,4,6-Tetrachlorophenol	0.280	0.275		1.9	
2-Fluorophenol	1.317	1.306		0.8	
Phenol-d5	1.709	1.682		1.6	
Nitrobenzene-d5	0.367	0.349		5.0	
2-Fluorobiphenyl	1.380	1.356		1.8	
2,4,6-Tribromophenol	0.143	0.143		0.1	
Terphenyl-d14	0.740	0.736		0.6	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BE074784.D DFTPP Injection Date: 01/01/2012

Instrument ID: BNA_E DFTPP Injection Time: 02:01

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.7
68	Less than 2.0% of mass 69	0.7 (1.9) 1
69	Mass 69 relative abundance	34.8
70	Less than 2.0% of mass 69	0.2 (0.7) 1
127	40.0 - 60.0% of mass 198	48.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	21.1
365	Greater than 1% of mass 198	2.4
441	Present, but less than mass 443	10.8
442	Greater than 40% of mass 198	72.6
443	17.0 - 23.0% of mass 442	13.7 (18.8) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074785.D	01/01/2012	02:45
02	12SB29-000.5-01	C5039-05	BE074791.D	01/01/2012	07:05
03	12SB25-0.502-02	C5039-15	BE074792.D	01/01/2012	07:47
04	12SB25-000.5-01	C5039-12	BE074793.D	01/01/2012	08:32
05	12SB25-000.5-01MS	C5039-13MS	BE074794.D	01/01/2012	09:13
06	12SB25-000.5-01MSD	C5039-14MSD	BE074795.D	01/01/2012	09:58
07	12SB26-000.5-01	C5039-08	BE074796.D	01/01/2012	10:40
08	12SB-DUP-05	C5039-11	BE074797.D	01/01/2012	11:25
09	12SB14-000.5-01	C5039-01	BE074798.D	01/01/2012	12:06
10	12SB13-0.502-02	C5039-03	BE074799.D	01/01/2012	12:51
11	12SB13-000.5-01	C5039-02	BE074800.D	01/01/2012	13:33

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_E Calibration Date/Time: 01/01/2012 02:45

Lab File ID: BE074785.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.766	0.733		4.3	
Phenol	1.845	1.799		2.5	20.0
bis(2-Chloroethyl)ether	1.446	1.405		2.9	
2-Chlorophenol	1.468	1.436		2.2	
2-Methylphenol	1.137	1.113		2.1	
2,2-oxybis(1-Chloropropane)	2.147	2.141		0.3	
Acetophenone	0.476	0.472		0.8	
3+4-Methylphenols	1.509	1.461		3.2	
n-Nitroso-di-n-propylamine	1.021	1.005	0.050	1.5	
Hexachloroethane	0.534	0.523		2.0	
Nitrobenzene	0.352	0.350		0.5	
Isophorone	0.631	0.612		3.0	
2-Nitrophenol	0.186	0.180		3.2	20.0
2,4-Dimethylphenol	0.316	0.307		2.9	
bis(2-Chloroethoxy)methane	0.424	0.415		2.1	
2,4-Dichlorophenol	0.288	0.280		2.7	20.0
4-Chloroaniline	0.439	0.427		2.7	
Hexachlorobutadiene	0.147	0.141		4.2	20.0
Caprolactam	0.113	0.111		1.7	
4-Chloro-3-methylphenol	0.291	0.284		2.4	20.0
Hexachlorocyclopentadiene	0.224	0.226	0.050	1.0	
2,4,6-Trichlorophenol	0.342	0.332		3.0	20.0
2,4,5-Trichlorophenol	0.373	0.358		4.1	
1,1-Biphenyl	1.576	1.551		1.6	
2-Chloronaphthalene	1.157	1.142		1.3	
2-Nitroaniline	0.332	0.319		3.8	
Dimethylphthalate	1.290	1.264		2.0	
Acenaphthylene	1.827	1.782		2.5	
2,6-Dinitrotoluene	0.302	0.304		0.6	
3-Nitroaniline	0.360	0.357		0.9	
Acenaphthene	1.201	1.192		0.8	20.0
2,4-Dinitrophenol	0.096	0.106	0.050	10.0	
4-Nitrophenol	0.277	0.270	0.050	2.6	
Dibenzofuran	1.659	1.645		0.9	
2,4-Dinitrotoluene	0.384	0.391		1.8	
Diethylphthalate	1.253	1.229		1.9	
4-Chlorophenyl-phenylether	0.599	0.599		0.1	
4-Nitroaniline	0.376	0.370		1.5	
4,6-Dinitro-2-methylphenol	0.099	0.109		9.7	
n-Nitrosodiphenylamine	0.668	0.654		2.1	20.0
4-Bromophenyl-phenylether	0.185	0.182		1.8	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_E Calibration Date/Time: 01/01/2012 02:45

Lab File ID: BE074785.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.197	0.197		0.3	
Atrazine	0.186	0.180		3.4	
Pentachlorophenol	0.105	0.104		1.4	20.0
Phenanthrene	1.132	1.113		1.7	
Carbazole	1.092	1.088		0.4	
Di-n-butylphthalate	1.196	1.168		2.3	
Butylbenzylphthalate	0.531	0.494		7.0	
3,3-Dichlorobenzidine	0.369	0.342		7.2	
Bis(2-ethylhexyl)phthalate	0.742	0.706		4.9	
Di-n-octyl phthalate	1.204	1.101		8.6	20.0
1,2,4,5-Tetrachlorobenzene	0.502	0.486		3.2	
2,3,4,6-Tetrachlorophenol	0.280	0.280		0.1	
2-Fluorophenol	1.317	1.283		2.6	
Phenol-d5	1.709	1.692		1.0	
Nitrobenzene-d5	0.367	0.359		2.0	
2-Fluorobiphenyl	1.380	1.364		1.1	
2,4,6-Tribromophenol	0.143	0.144		1.0	
Terphenyl-d14	0.740	0.737		0.4	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60027B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: BE074766.D Lab Sample ID: PB60027B

Instrument ID: BNA_E Date Extracted: 12/19/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/31/2011

Level: (low/med) LOW Time Analyzed: 12:56

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
PB60027BS	PB60027BS	BE074767.D	12/31/2011
12SB13-000.5-01	C5039-02	BE074800.D	01/01/2012
12SB13-0.502-02	C5039-03	BE074799.D	01/01/2012
12SB28-0.502-02	C5039-17	BE074765.D	12/31/2011
12SB25-0304-03	C5039-16	BE074764.D	12/31/2011
12SB14-000.5-01	C5039-01	BE074798.D	01/01/2012
12SB26-0304-03	C5039-10	BE074763.D	12/31/2011
12SB-DUP-05	C5039-11	BE074797.D	01/01/2012
12SB26-000.5-01	C5039-08	BE074796.D	01/01/2012
12SB29-0304-03	C5039-07	BE074762.D	12/31/2011
12SB13-0304-03	C5039-04	BE074761.D	12/31/2011
12SB25-000.5-01MSD	C5039-14MSD	BE074795.D	01/01/2012
12SB25-000.5-01MS	C5039-13MS	BE074794.D	01/01/2012
12SB29-0.502-02	C5039-06	BE074760.D	12/31/2011
12SB26-0.502-02	C5039-09	BE074759.D	12/31/2011
12SB25-000.5-01	C5039-12	BE074793.D	01/01/2012
12SB25-0.502-02	C5039-15	BE074792.D	01/01/2012
12SB28-0304-03	C5039-18	BE074758.D	12/31/2011
12SB29-000.5-01	C5039-05	BE074791.D	01/01/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60027B	SDG No.:	c5039
Lab Sample ID:	PB60027B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074766.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	23	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	15	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60027B	SDG No.:	c5039
Lab Sample ID:	PB60027B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074766.D	1	12/19/11	12/31/11	PB60027

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	165	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	128		35 - 105	86%	SPK: 150
13127-88-3	Phenol-d5	128		40 - 100	86%	SPK: 150
4165-60-0	Nitrobenzene-d5	78.9		35 - 100	79%	SPK: 100
321-60-8	2-Fluorobiphenyl	84.5		45 - 105	85%	SPK: 100
118-79-6	2,4,6-Tribromophenol	133		35 - 125	89%	SPK: 150
1718-51-0	Terphenyl-d14	88.1		30 - 125	88%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	124557	8.64			
1146-65-2	Naphthalene-d8	473901	10.82			

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60027BS	Benzaldehyde	1700	1100	65				10	161	
	Phenol	1700	1400	82				51	100	
	bis(2-Chloroethyl)ether	1700	1400	82				48	105	
	2-Chlorophenol	1700	1400	82				53	105	
	2-Methylphenol	1700	1400	82				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1400	82				45	115	
	Acetophenone	1700	1400	82				51	114	
	3+4-Methylphenols	1700	1400	82				54	105	
	N-Nitroso-di-n-propylamine	1700	1400	82				51	114	
	Hexachloroethane	1700	1400	82				44	110	
	Nitrobenzene	1700	1500	88				49	114	
	Isophorone	1700	1500	88				52	110	
	2-Nitrophenol	1700	1400	82				51	110	
	2,4-Dimethylphenol	1700	1500	88				46	105	
	bis(2-Chloroethoxy)methane	1700	1500	88				52	110	
	2,4-Dichlorophenol	1700	1500	88				53	110	
	4-Chloroaniline	1700	810	48				25	115	
	Hexachlorobutadiene	1700	1500	88				47	115	
	Caprolactam	1700	1500	88				45	115	
	4-Chloro-3-methylphenol	1700	1500	88				56	111	
	Hexachlorocyclopentadiene	3300	3200	97				43	112	
	2,4,6-Trichlorophenol	1700	1500	88				53	110	
	2,4,5-Trichlorophenol	1700	1500	88				53	110	
	1,1-Biphenyl	1700	1400	82				55	109	
	2-Chloronaphthalene	1700	1500	88				55	105	
	2-Nitroaniline	1700	1500	88				53	118	
	Dimethylphthalate	1700	1500	88				57	110	
	Acenaphthylene	1700	1500	88				54	105	
	2,6-Dinitrotoluene	1700	1500	88				55	110	
	3-Nitroaniline	1700	1000	59				25	110	
	Acenaphthene	1700	1600	94				54	110	
	2,4-Dinitrophenol	3300	2700	82				15	130	
	4-Nitrophenol	3300	3100	94				44	115	
	Dibenzofuran	1700	1500	88				59	105	
	2,4-Dinitrotoluene	1700	1600	94				55	115	
	Diethylphthalate	1700	1500	88				56	111	
	4-Chlorophenyl-phenylether	1700	1500	88				56	110	
	4-Nitroaniline	1700	1500	88				46	113	
	4,6-Dinitro-2-methylphenol	1700	1500	88				39	126	
	N-Nitrosodiphenylamine	1700	1500	88				54	115	
	4-Bromophenyl-phenylether	1700	1500	88				51	115	
	Hexachlorobenzene	1700	1500	88				52	117	
	Atrazine	1700	1500	88				40	127	
	Pentachlorophenol	3300	2700	82				47	116	
	Phenanthrene	1700	1500	88				56	110	
	Carbazole	1700	1500	88				54	117	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60027BS	Di-n-butylphthalate	1700	1500	88				58	110	
	Butylbenzylphthalate	1700	1500	88				57	122	
	3,3-Dichlorobenzidine	1700	1000	59				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1500	88				60	119	
	Di-n-octyl phthalate	1700	1500	88				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	1400	82				70	130	
	2,3,4,6-Tetrachlorophenol	1700	1500	88				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5039-13MS	**Client Sample ID: 12SB25-000.5-01MS**									
Benzaldehyde	2300	0	1300	57				10	161	
Phenol	2300	0	1800	78				43	100	
bis(2-Chloroethyl)ether	2300	0	1800	78				43	105	
2-Chlorophenol	2300	0	1700	74				45	105	
2-Methylphenol	2300	0	1800	78				44	105	
2,2-oxybis(1-Chloropropane)	2300	0	1800	78				36	115	
Acetophenone	2300	0	1700	74				48	131	
3+4-Methylphenols	2300	0	1800	78				44	105	
N-Nitroso-di-n-propylamine	2300	0	1800	78				41	115	
Hexachloroethane	2300	0	1700	74				35	110	
Nitrobenzene	2300	0	1800	78				40	115	
Isophorone	2300	0	1800	78				45	110	
2-Nitrophenol	2300	0	1800	78				40	110	
2,4-Dimethylphenol	2300	0	1700	74				35	105	
bis(2-Chloroethoxy)methane	2300	0	1800	78				45	110	
2,4-Dichlorophenol	2300	0	1700	74				45	110	
4-Chloroaniline	2300	0	1200	52				10	160	
Hexachlorobutadiene	2300	0	1700	74				40	115	
Caprolactam	2300	0	1500	65				24	145	
4-Chloro-3-methylphenol	2300	0	1800	78				45	115	
Hexachlorocyclopentadiene	4600	0	3600	78				10	128	
2,4,6-Trichlorophenol	2300	0	1800	78				45	110	
2,4,5-Trichlorophenol	2300	0	1800	78				50	110	
1,1-Biphenyl	2300	0	1700	74				47	131	
2-Chloronaphthalene	2300	0	1800	78				45	105	
2-Nitroaniline	2300	0	1900	83				45	120	
Dimethylphthalate	2300	240	2100	81				51	110	
Acenaphthylene	2300	0	1800	78				45	105	
2,6-Dinitrotoluene	2300	0	1800	78				50	110	
3-Nitroaniline	2300	0	1500	65				25	110	
Acenaphthene	2300	0	1900	83				45	110	
2,4-Dinitrophenol	4600	0	3600	78				15	130	
4-Nitrophenol	4600	0	3800	83				15	140	
Dibenzofuran	2300	0	1800	78				50	105	
2,4-Dinitrotoluene	2300	0	1900	83				50	115	
Diethylphthalate	2300	0	1800	78				50	115	
4-Chlorophenyl-phenylether	2300	0	1800	78				45	110	
4-Nitroaniline	2300	0	1700	74				35	115	
4,6-Dinitro-2-methylphenol	2300	0	1900	83				30	135	
N-Nitrosodiphenylamine	2300	0	1700	74				50	115	
4-Bromophenyl-phenylether	2300	0	1800	78				45	115	
Hexachlorobenzene	2300	0	1700	74				45	120	
Atrazine	2300	0	1800	78				38	135	
Pentachlorophenol	4600	0	3400	74				25	120	
Phenanthrene	2300	540	2200	72				50	110	
Carbazole	2300	0	1800	78				45	115	
Di-n-butylphthalate	2300	0	1800	78				55	110	
Butylbenzylphthalate	2300	0	1900	83				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2300	0	1400	61				10	126	
bis(2-Ethylhexyl)phthalate	2300	0	1900	83				45	125	
Di-n-octyl phthalate	2300	0	1900	83				40	130	
1,2,4,5-Tetrachlorobenzene	2300	0	1700	74				70	130	
2,3,4,6-Tetrachlorophenol	2300	0	1900	83				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5039-14MSD	**Client Sample ID: 12SB25-000.5-01MSD**									
Benzaldehyde	2300	0	1800	78		31	*	10	161	20
Phenol	2300	0	2400	104	*	29	*	43	100	20
bis(2-Chloroethyl)ether	2300	0	2300	100		25	*	43	105	20
2-Chlorophenol	2300	0	2300	100		30	*	45	105	20
2-Methylphenol	2300	0	2300	100		25	*	44	105	20
2,2-oxybis(1-Chloropropane)	2300	0	2300	100		25	*	36	115	20
Acetophenone	2300	0	2100	91		21	*	48	131	20
3+4-Methylphenols	2300	0	2300	100		25	*	44	105	20
N-Nitroso-di-n-propylamine	2300	0	2400	104		29	*	41	115	20
Hexachloroethane	2300	0	2200	96		26	*	35	110	20
Nitrobenzene	2300	0	2300	100		25	*	40	115	20
Isophorone	2300	0	2300	100		25	*	45	110	20
2-Nitrophenol	2300	0	2200	96		21	*	40	110	20
2,4-Dimethylphenol	2300	0	2200	96		26	*	35	105	20
bis(2-Chloroethoxy)methane	2300	0	2200	96		21	*	45	110	20
2,4-Dichlorophenol	2300	0	2200	96		26	*	45	110	20
4-Chloroaniline	2300	0	1400	61		16		10	160	20
Hexachlorobutadiene	2300	0	2100	91		21	*	40	115	20
Caprolactam	2300	0	1800	78		18		24	145	20
4-Chloro-3-methylphenol	2300	0	2200	96		21	*	45	115	20
Hexachlorocyclopentadiene	4600	0	4600	100		25	*	10	128	20
2,4,6-Trichlorophenol	2300	0	2200	96		21	*	45	110	20
2,4,5-Trichlorophenol	2300	0	2200	96		21	*	50	110	20
1,1-Biphenyl	2300	0	2100	91		21	*	47	131	20
2-Chloronaphthalene	2300	0	2100	91		15		45	105	20
2-Nitroaniline	2300	0	2400	104		22	*	45	120	20
Dimethylphthalate	2300	240	2500	98		19		51	110	20
Acenaphthylene	2300	0	2300	100		25	*	45	105	20
2,6-Dinitrotoluene	2300	0	2200	96		21	*	50	110	20
3-Nitroaniline	2300	0	1900	83		24	*	25	110	20
Acenaphthene	2300	0	2300	100		19		45	110	20
2,4-Dinitrophenol	4600	0	4200	91		15		15	130	20
4-Nitrophenol	4600	0	4700	102		21	*	15	140	20
Dibenzofuran	2300	0	2200	96		21	*	50	105	20
2,4-Dinitrotoluene	2300	0	2300	100		19		50	115	20
Diethylphthalate	2300	0	2200	96		21	*	50	115	20
4-Chlorophenyl-phenylether	2300	0	2200	96		21	*	45	110	20
4-Nitroaniline	2300	0	2100	91		21	*	35	115	20
4,6-Dinitro-2-methylphenol	2300	0	2300	100		19		30	135	20
N-Nitrosodiphenylamine	2300	0	2100	91		21	*	50	115	20
4-Bromophenyl-phenylether	2300	0	2200	96		21	*	45	115	20
Hexachlorobenzene	2300	0	2200	96		26	*	45	120	20
Atrazine	2300	0	2300	100		25	*	38	135	20
Pentachlorophenol	4600	0	4200	91		21	*	25	120	20
Phenanthrene	2300	540	2600	90		22	*	50	110	20
Carbazole	2300	0	2200	96		21	*	45	115	20
Di-n-butylphthalate	2300	0	2300	100		25	*	55	110	20
Butylbenzylphthalate	2300	0	2300	100		19		50	125	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
3,3-Dichlorobenzidine	2300	0	1700	74		19		10	126	20
bis(2-Ethylhexyl)phthalate	2300	0	2300	100		19		45	125	20
Di-n-octyl phthalate	2300	0	2400	104		22	*	40	130	20
1,2,4,5-Tetrachlorobenzene	2300	0	2000	87		16		70	130	20
2,3,4,6-Tetrachlorophenol	2300	0	2300	100		19		70	130	20

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD040 Date Analyzed: 12/31/2011

Lab File ID: BE074752.D Time Analyzed: 02:47

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	126702	8.64	533141	10.81	290295	13.78
	UPPER LIMIT	253404	9.14	1066282	11.31	580590	14.28
	LOWER LIMIT	63351	8.14	266570.5	10.31	145147.5	13.28
	EPA SAMPLE NO.						
01	12SB26-0.502-02	123701	8.64	483721	10.82	264115	13.78
02	12SB28-0304-03	230538	8.64	904767	10.81	500924	13.78
03	PB60027BS	129922	8.64	500298	10.82	282946	13.78
04	12SB29-0.502-02	129806	8.64	498783	10.81	276319	13.78
05	12SB13-0304-03	119776	8.64	483135	10.81	266231	13.78
06	12SB29-0304-03	121082	8.64	467998	10.82	261678	13.78
07	12SB26-0304-03	122682	8.64	483103	10.82	262406	13.78
08	12SB25-0304-03	121683	8.64	467475	10.81	257582	13.78
09	12SB28-0.502-02	127212	8.64	498108	10.82	276350	13.78
10	PB60027B	124557	8.64	473901	10.82	262807	13.78

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD040 Date Analyzed: 01/01/2012

Lab File ID: BE074785.D Time Analyzed: 02:45

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	128048	8.64	517119	10.81	287856	13.78
	UPPER LIMIT	256096	9.14	1034238	11.31	575712	14.28
	LOWER LIMIT	64024	8.14	258559.5	10.31	143928	13.28
	EPA SAMPLE NO.						
01	12SB29-000.5-01	143393	8.64	569801	10.81	316808	13.78
02	12SB25-0.502-02	136138	8.64	540202	10.82	302175	13.78
03	12SB25-000.5-01	139853	8.64	559064	10.81	306229	13.78
04	12SB25-000.5-01MS	154197	8.64	628608	10.82	346969	13.78
05	12SB25-000.5-01MSD	134091	8.64	567919	10.82	310434	13.78
06	12SB26-000.5-01	162215	8.64	658536	10.82	362329	13.78
07	12SB-DUP-05	154926	8.64	615349	10.81	338514	13.78
08	12SB14-000.5-01	145649	8.64	575014	10.82	310795	13.78
09	12SB13-0.502-02	154890	8.64	596121	10.81	323508	13.78
10	12SB13-000.5-01	161076	8.64	624341	10.82	334814	13.78

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD040 Date Analyzed: 12/31/2011

Lab File ID: BE074752.D Time Analyzed: 02:47

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	503905	16.26	491029	20.71	428889	24.4
	UPPER LIMIT	1007810	16.76	982058	21.21	857778	24.9
	LOWER LIMIT	251952.5	15.76	245514.5	20.21	214444.5	23.9
	EPA SAMPLE NO.						
01	12SB26-0.502-02	473714	16.25	443518	20.71	396871	24.40
02	12SB28-0304-03	895682	16.25	847893	20.71	790703	24.40
03	PB60027BS	498993	16.25	495185	20.71	440255	24.40
04	12SB29-0.502-02	499138	16.26	458561	20.71	407914	24.40
05	12SB13-0304-03	469531	16.26	443878	20.71	395786	24.40
06	12SB29-0304-03	462708	16.26	433150	20.70	376342	24.40
07	12SB26-0304-03	476717	16.25	443980	20.71	388901	24.40
08	12SB25-0304-03	457403	16.25	428920	20.71	380510	24.40
09	12SB28-0.502-02	494493	16.26	458826	20.70	406232	24.40
10	PB60027B	472518	16.26	443925	20.71	390364	24.40

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD040 Date Analyzed: 01/01/2012

Lab File ID: BE074785.D Time Analyzed: 02:45

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	499432	16.25	494032	20.71	423427	24.4
	UPPER LIMIT	998864	16.75	988064	21.21	846854	24.9
	LOWER LIMIT	249716	15.75	247016	20.21	211713.5	23.9
	EPA SAMPLE NO.						
01	12SB29-000.5-01	557579	16.25	531091	20.70	478643	24.39
02	12SB25-0.502-02	528578	16.25	505448	20.70	453477	24.39
03	12SB25-000.5-01	544909	16.25	521171	20.70	481951	24.40
04	12SB25-000.5-01MS	608927	16.26	575255	20.71	535198	24.40
05	12SB25-000.5-01MSD	539466	16.26	514525	20.70	474813	24.39
06	12SB26-000.5-01	623653	16.26	596738	20.70	564329	24.39
07	12SB-DUP-05	579142	16.25	555197	20.70	518616	24.40
08	12SB14-000.5-01	541011	16.25	512163	20.71	469499	24.40
09	12SB13-0.502-02	569836	16.25	540007	20.70	513074	24.39
10	12SB13-000.5-01	577618	16.25	547257	20.70	517517	24.40

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5039-01	12SB14-000.5-01	Nitrobenzene-d5	100	72.36	72		30	150
		2-Fluorobiphenyl	100	55.84	56		45	105
		Terphenyl-d14	100	58.78	59		30	125
C5039-02	12SB13-000.5-01	Nitrobenzene-d5	100	64.48	64		30	150
		2-Fluorobiphenyl	100	41.33	41	*	45	105
		Terphenyl-d14	100	38.07	38		30	125
C5039-03	12SB13-0.502-02	Nitrobenzene-d5	100	53.86	54		30	150
		2-Fluorobiphenyl	100	40.19	40	*	45	105
		Terphenyl-d14	100	38.85	39		30	125
C5039-04	12SB13-0304-03	Nitrobenzene-d5	100	72.74	73		30	150
		2-Fluorobiphenyl	100	55.13	55		45	105
		Terphenyl-d14	100	61.04	61		30	125
C5039-05	12SB29-000.5-01	Nitrobenzene-d5	100	72.86	73		30	150
		2-Fluorobiphenyl	100	52.34	52		45	105
		Terphenyl-d14	100	53.93	54		30	125
C5039-06	12SB29-0.502-02	Nitrobenzene-d5	100	68.62	69		30	150
		2-Fluorobiphenyl	100	50.70	51		45	105
		Terphenyl-d14	100	53.11	53		30	125
C5039-07	12SB29-0304-03	Nitrobenzene-d5	100	67.98	68		30	150
		2-Fluorobiphenyl	100	52.79	53		45	105
		Terphenyl-d14	100	54.34	54		30	125
C5039-08	12SB26-000.5-01	Nitrobenzene-d5	100	66.51	67		30	150
		2-Fluorobiphenyl	100	49.60	50		45	105
		Terphenyl-d14	100	46.84	47		30	125
C5039-08DL	12SB26-000.5-01DL	Nitrobenzene-d5	100	73.74	74		30	150
		2-Fluorobiphenyl	100	56.00	56		45	105
		Terphenyl-d14	100	56.26	56		30	125
C5039-09	12SB26-0.502-02	Nitrobenzene-d5	100	76.76	77		30	150
		2-Fluorobiphenyl	100	59.74	60		45	105
		Terphenyl-d14	100	63.18	63		30	125
C5039-10	12SB26-0304-03	Nitrobenzene-d5	100	75.75	76		30	150
		2-Fluorobiphenyl	100	56.07	56		45	105
		Terphenyl-d14	100	61.47	61		30	125
C5039-11	12SB-DUP-05	Nitrobenzene-d5	100	59.31	59		30	150
		2-Fluorobiphenyl	100	38.38	38	*	45	105
		Terphenyl-d14	100	34.35	34		30	125
C5039-11DL	12SB-DUP-05DL	Nitrobenzene-d5	100	71.28	71		30	150
		2-Fluorobiphenyl	100	47.74	48		45	105
		Terphenyl-d14	100	44.52	45		30	125
C5039-12	12SB25-000.5-01	Nitrobenzene-d5	100	78.55	79		30	150
		2-Fluorobiphenyl	100	55.33	55		45	105
		Terphenyl-d14	100	56.14	56		30	125
C5039-13MS	12SB25-000.5-01MS	Nitrobenzene-d5	10	9.02	90		30	150
		2-Fluorobiphenyl	10	8.11	81		45	105
		Terphenyl-d14	10	7.54	75		30	125
C5039-14MSD	12SB25-000.5-01MSD	Nitrobenzene-d5	10	9.30	93		30	150
		2-Fluorobiphenyl	10	8.44	84		45	105
		Terphenyl-d14	10	8.02	80		30	125
C5039-15	12SB25-0.502-02	Nitrobenzene-d5	100	72.75	73		30	150
		2-Fluorobiphenyl	100	55.46	55		45	105
		Terphenyl-d14	100	52.85	53		30	125
C5039-16	12SB25-0304-03	Nitrobenzene-d5	100	68.25	68		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5039-16	12SB25-0304-03	2-Fluorobiphenyl	100	49.65	50		45	105
		Terphenyl-d14	100	52.48	52		30	125
C5039-17	12SB28-0.502-02	Nitrobenzene-d5	100	70.93	71		30	150
		2-Fluorobiphenyl	100	55.26	55		45	105
		Terphenyl-d14	100	56.25	56		30	125
C5039-18	12SB28-0304-03	Nitrobenzene-d5	100	72.75	73		30	150
		2-Fluorobiphenyl	100	55.63	56		45	105
		Terphenyl-d14	100	58.00	58		30	125
PB60028B	PB60028B	Nitrobenzene-d5	10	7.89	79		30	150
		2-Fluorobiphenyl	10	6.87	69		45	105
		Terphenyl-d14	10	7.28	73		30	125
PB60028BS	PB60028BS	Nitrobenzene-d5	10	9.44	94		30	150
		2-Fluorobiphenyl	10	8.45	85		45	105
		Terphenyl-d14	10	8.43	84		30	125

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BG002138.D DFTPP Injection Date: 12/12/2011

Instrument ID: BNA_G DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	40.0 - 60.0% of mass 198	44.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	25.2
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	12.8
442	Greater than 40% of mass 198	87.2
443	17.0 - 23.0% of mass 442	16.5 (19) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD025	25 PPM BNA ICC	BG002140.D	12/12/2011	21:33
02	SSTD010	10 PPM BNA ICC	BG002141.D	12/12/2011	22:11
03	SSTD2.5	2.5 PPM BNA ICC	BG002142.D	12/12/2011	22:50
04	SSTD0.5	0.5 PPM BNA ICC	BG002143.D	12/12/2011	23:28
05	SSTD0.1	0.1 PPM BNA ICC	BG002144.D	12/13/2011	00:07

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF2.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BG002435.D DFTPP Injection Date: 12/27/2011

Instrument ID: BNA_G DFTPP Injection Time: 14:30

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.8
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	42.8
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	41.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	23.6
365	Greater than 1% of mass 198	3.3
441	Present, but less than mass 443	13
442	Greater than 40% of mass 198	86.7
443	17.0 - 23.0% of mass 442	15.6 (18) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002437.D	12/27/2011	15:59
02	PB60028BS	PB60028BS	BG002439.D	12/27/2011	17:18
03	PB60028B	PB60028B	BG002440.D	12/27/2011	17:57
04	12SB13-0304-03	C5039-04	BG002441.D	12/27/2011	18:37
05	12SB29-0.502-02	C5039-06	BG002442.D	12/27/2011	19:17
06	12SB29-0304-03	C5039-07	BG002443.D	12/27/2011	19:57
07	12SB26-0.502-02	C5039-09	BG002444.D	12/27/2011	20:37
08	12SB26-0304-03	C5039-10	BG002445.D	12/27/2011	21:17
09	12SB25-0304-03	C5039-16	BG002446.D	12/27/2011	21:57
10	12SB28-0.502-02	C5039-17	BG002447.D	12/27/2011	22:37
11	12SB28-0304-03	C5039-18	BG002448.D	12/27/2011	23:17

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_G Calibration Date/Time: 12/27/2011 15:59

Lab File ID: BG002437.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.124		3.1	20.0
2-Methylnapthalene	2.867	2.935		2.4	20.0
Acenaphthylene	6.939	6.552		5.6	20.0
Acenaphthene	1.136	1.052		7.4	20.0
Fluorene	1.311	1.439		9.8	20.0
Phenanthrene	4.275	4.417		3.3	20.0
Anthracene	4.258	4.363		2.5	20.0
Fluoranthene	4.390	4.920		12.1	20.0
Pyrene	4.768	4.848		1.7	20.0
Benzo(a)anthracene	4.640	4.448		4.1	20.0
Chrysene	4.416	4.355		1.4	20.0
Benzo(b)fluoranthene	10.733	10.578		1.4	20.0
Benzo(k)fluoranthene	10.683	10.860		1.7	20.0
Benzo(a)pyrene	10.071	9.936		1.3	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.688		9.2	20.0
Dibenzo(a,h)anthracene	0.929	0.872		6.1	20.0
Benzo(g,h,i)perylene	3.949	3.604		8.7	20.0
Nitrobenzene-d5	0.405	0.435		7.4	20.0
2-Fluorobiphenyl	1.475	1.433		2.8	20.0
Terphenyl-d14	0.779	0.753		3.3	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BG002452.D DFTPP Injection Date: 12/28/2011

Instrument ID: BNA_G DFTPP Injection Time: 01:55

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	42.9
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	41.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	8.1
275	10.0 - 30.0% of mass 198	24.2
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	10.9
442	Greater than 40% of mass 198	81.4
443	17.0 - 23.0% of mass 442	13.9 (17.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002453.D	12/28/2011	02:35
02	12SB14-000.5-01	C5039-01	BG002455.D	12/28/2011	03:54
03	12SB13-000.5-01	C5039-02	BG002456.D	12/28/2011	04:33
04	12SB13-0.502-02	C5039-03	BG002457.D	12/28/2011	05:12
05	12SB29-000.5-01	C5039-05	BG002458.D	12/28/2011	05:52
06	12SB26-000.5-01	C5039-08	BG002459.D	12/28/2011	06:31
07	12SB-DUP-05	C5039-11	BG002460.D	12/28/2011	07:10
08	12SB25-000.5-01	C5039-12	BG002461.D	12/28/2011	07:50
09	12SB25-000.5-01MS	C5039-13MS	BG002462.D	12/28/2011	08:29
10	12SB25-000.5-01MSD	C5039-14MSD	BG002463.D	12/28/2011	09:08
11	12SB25-0.502-02	C5039-15	BG002464.D	12/28/2011	09:47

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_G Calibration Date/Time: 12/28/2011 02:35

Lab File ID: BG002453.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.138		3.4	20.0
2-Methylnapthalene	2.867	2.895		1.0	20.0
Acenaphthylene	6.939	6.403		7.7	20.0
Acenaphthene	1.136	1.024		9.8	20.0
Fluorene	1.311	1.434		9.4	20.0
Phenanthrene	4.275	4.391		2.7	20.0
Anthracene	4.258	4.314		1.3	20.0
Fluoranthene	4.390	4.849		10.4	20.0
Pyrene	4.768	4.835		1.4	20.0
Benzo(a)anthracene	4.640	4.438		4.3	20.0
Chrysene	4.416	4.397		0.4	20.0
Benzo(b)fluoranthene	10.733	10.267		4.3	20.0
Benzo(k)fluoranthene	10.683	11.123		4.1	20.0
Benzo(a)pyrene	10.071	9.906		1.6	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.602		11.4	20.0
Dibenzo(a,h)anthracene	0.929	0.882		5.0	20.0
Benzo(g,h,i)perylene	3.949	3.646		7.7	20.0
Nitrobenzene-d5	0.405	0.437		7.8	20.0
2-Fluorobiphenyl	1.475	1.438		2.5	20.0
Terphenyl-d14	0.779	0.748		4.0	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5039 SDG NO.: C5039

Lab File ID: BG002488.D DFTPP Injection Date: 12/29/2011

Instrument ID: BNA_G DFTPP Injection Time: 03:45

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.3 (0.7) 1
69	Mass 69 relative abundance	47.7
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	47.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	8.4
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	11.3
442	Greater than 40% of mass 198	76
443	17.0 - 23.0% of mass 442	14.9 (19.6) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002489.D	12/29/2011	04:24
02	12SB26-000.5-01DL	C5039-08DL	BG002492.D	12/29/2011	06:20
03	12SB-DUP-05DL	C5039-11DL	BG002493.D	12/29/2011	06:59

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG No.: C5039

Instrument ID: BNA_G Calibration Date/Time: 12/29/2011 04:24

Lab File ID: BG002489.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.158		3.9	20.0
2-Methylnapthalene	2.867	2.866		0.0	20.0
Acenaphthylene	6.939	6.516		6.1	20.0
Acenaphthene	1.136	1.056		7.1	20.0
Fluorene	1.311	1.386		5.7	20.0
Phenanthrene	4.275	4.409		3.1	20.0
Anthracene	4.258	4.318		1.4	20.0
Fluoranthene	4.390	4.947		12.7	20.0
Pyrene	4.768	4.684		1.8	20.0
Benzo(a)anthracene	4.640	4.463		3.8	20.0
Chrysene	4.416	4.440		0.5	20.0
Benzo(b)fluoranthene	10.733	10.395		3.2	20.0
Benzo(k)fluoranthene	10.683	10.917		2.2	20.0
Benzo(a)pyrene	10.071	9.924		1.5	20.0
Indeno(1,2,3-cd)pyrene	4.064	4.078		0.3	20.0
Dibenzo(a,h)anthracene	0.929	0.944		1.6	20.0
Benzo(g,h,i)perylene	3.949	4.088		3.5	20.0
Nitrobenzene-d5	0.405	0.447		10.4	20.0
2-Fluorobiphenyl	1.475	1.440		2.4	20.0
Terphenyl-d14	0.779	0.733		6.0	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60028B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab File ID: BG002440.D Lab Sample ID: PB60028B

Instrument ID: BNA_G Date Extracted: 12/19/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/27/2011

Level: (low/med) LOW Time Analyzed: 17:57

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB25-0.502-02	C5039-15	BG002464.D	12/28/2011
12SB25-000.5-01MSD	C5039-14MSD	BG002463.D	12/28/2011
12SB25-000.5-01MS	C5039-13MS	BG002462.D	12/28/2011
12SB25-000.5-01	C5039-12	BG002461.D	12/28/2011
12SB-DUP-05	C5039-11	BG002460.D	12/28/2011
12SB26-000.5-01	C5039-08	BG002459.D	12/28/2011
12SB29-000.5-01	C5039-05	BG002458.D	12/28/2011
12SB13-0.502-02	C5039-03	BG002457.D	12/28/2011
12SB13-000.5-01	C5039-02	BG002456.D	12/28/2011
12SB14-000.5-01	C5039-01	BG002455.D	12/28/2011
12SB28-0304-03	C5039-18	BG002448.D	12/27/2011
12SB28-0.502-02	C5039-17	BG002447.D	12/27/2011
12SB25-0304-03	C5039-16	BG002446.D	12/27/2011
12SB26-0304-03	C5039-10	BG002445.D	12/27/2011
12SB26-0.502-02	C5039-09	BG002444.D	12/27/2011
12SB29-0304-03	C5039-07	BG002443.D	12/27/2011
12SB29-0.502-02	C5039-06	BG002442.D	12/27/2011
12SB13-0304-03	C5039-04	BG002441.D	12/27/2011
PB60028BS	PB60028BS	BG002439.D	12/27/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60028B	SDG No.:	C5039
Lab Sample ID:	PB60028B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002440.D	1	12/19/11	12/27/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.89		30 - 150	79%	SPK: 10
321-60-8	2-Fluorobiphenyl	6.87		45 - 105	69%	SPK: 10
1718-51-0	Terphenyl-d14	7.28		30 - 125	73%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	52530	7.98			
1146-65-2	Naphthalene-d8	189148	10.16			
15067-26-2	Acenaphthene-d10	130607	13.14			
1517-22-2	Phenanthrene-d10	242183	15.59			
1719-03-5	Chrysene-d12	237266	19.96			
1520-96-3	Perylene-d12	202189	23.09			

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60028BS	Naphthalene	330	300	91				51	114	
	2-Methylnaphthalene	330	300	91				54	111	
	Acenaphthylene	330	290	88				54	113	
	Acenaphthene	330	300	91				54	113	
	Fluorene	330	310	94				56	113	
	Phenanthrene	330	310	94				56	113	
	Anthracene	330	320	97				56	113	
	Fluoranthene	330	340	103				54	117	
	Pyrene	330	320	97				58	117	
	Benzo(a)anthracene	330	290	88				57	112	
	Chrysene	330	300	91				59	114	
	Benzo(b)fluoranthene	330	310	94				53	120	
	Benzo(k)fluoranthene	330	310	94				56	117	
	Benzo(a)pyrene	330	310	94				56	117	
	Indeno(1,2,3-cd)pyrene	330	250	76				49	120	
	Dibenz(a,h)anthracene	330	260	79				52	119	
	Benzo(g,h,i)perylene	330	240	73				53	119	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5039-13MS	**Client Sample ID: 12SB25-000.5-01MS**									
Naphthalene	460	17	400	83				23	160	
2-Methylnaphthalene	460	15	390	82				37	139	
Acenaphthylene	460	21	390	80				28	155	
Acenaphthene	460	22	390	80				32	146	
Fluorene	460	50	430	83				17	166	
Phenanthrene	460	580	910	72				30	149	
Anthracene	460	67	440	81				27	158	
Fluoranthene	460	970	1200	50				26	155	
Pyrene	460	630	910	61				22	173	
Benzo(a)anthracene	460	260	570	67				27	159	
Chrysene	460	330	670	74				23	166	
Benzo(b)fluoranthene	460	450	850	87				21	171	
Benzo(k)fluoranthene	460	140	590	98				26	165	
Benzo(a)pyrene	460	280	660	83				26	157	
Indeno(1,2,3-cd)pyrene	460	140	410	59				10	188	
Dibenz(a,h)anthracene	460	13	380	80				18	147	
Benzo(g,h,i)perylene	460	130	470	74				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5039-14MSD	**Client Sample ID: 12SB25-000.5-01MSD**									
Naphthalene	460	17	420	88		6		23	160	20
2-Methylnaphthalene	460	15	410	86		5		37	139	20
Acenaphthylene	460	21	410	85		6		28	155	20
Acenaphthene	460	22	410	84		5		32	146	20
Fluorene	460	50	460	89		7		17	166	20
Phenanthrene	460	580	1000	91		23	*	30	149	20
Anthracene	460	67	470	88		8		27	158	20
Fluoranthene	460	970	1300	72		36	*	26	155	20
Pyrene	460	630	1000	80		27	*	22	173	20
Benzo(a)anthracene	460	260	630	80		18		27	159	20
Chrysene	460	330	740	89		18		23	166	20
Benzo(b)fluoranthene	460	450	920	102		16		21	171	20
Benzo(k)fluoranthene	460	140	640	109		11		26	165	20
Benzo(a)pyrene	460	280	730	98		17		26	157	20
Indeno(1,2,3-cd)pyrene	460	140	440	65		10		10	188	20
Dibenz(a,h)anthracene	460	13	410	86		7		18	147	20
Benzo(g,h,i)perylene	460	130	500	80		8		10	177	20

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD2.5 Date Analyzed: 12/29/2011

Lab File ID: BG002489.D Time Analyzed: 04:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	58575	7.97	215681	10.15	143796	13.12
	UPPER LIMIT	117150	8.46999	431362	10.65	287592	13.62
	LOWER LIMIT	29287.5	7.47	107840.5	9.65	71898	12.62
	EPA SAMPLE NO.						
01	12SB26-000.5-01DL	64519	7.97	232895	10.15	148869	13.13
02	12SB-DUP-05DL	72963	7.97	263489	10.15	166308	13.13

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD2.5 Date Analyzed: 12/29/2011

Lab File ID: BG002489.D Time Analyzed: 04:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	261459	15.57	281055	19.94	240427	23.05
	UPPER LIMIT	522918	16.07	562110	20.44	480854	23.55
	LOWER LIMIT	130729.5	15.07	140527.5	19.44	120213.5	22.55
	EPA SAMPLE NO.						
01	12SB26-000.5-01DL	268986	15.57	282056	19.94	243043	23.05
02	12SB-DUP-05DL	299835	15.57	312513	19.94	272951	23.05

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD2.5 Date Analyzed: 12/27/2011

Lab File ID: BG002437.D Time Analyzed: 15:59

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	44483	7.98	164984	10.16	113020	13.14
	UPPER LIMIT	88966	8.48	329968	10.66	226040	13.64
	LOWER LIMIT	22241.5	7.48	82492	9.66	56510	12.64
	EPA SAMPLE NO.						
01	PB60028BS	53183	7.99	198518	10.16	132171	13.14
02	PB60028B	52530	7.98	189148	10.16	130607	13.14
03	12SB13-0304-03	48554	7.99	173701	10.16	113121	13.14
04	12SB29-0.502-02	53818	7.99	189888	10.16	125347	13.14
05	12SB29-0304-03	54676	7.99	193294	10.16	123755	13.14
06	12SB26-0.502-02	41783	7.98	148538	10.16	96519	13.14
07	12SB26-0304-03	48863	7.99	173833	10.16	112745	13.14
08	12SB25-0304-03	59211	7.99	207847	10.16	132973	13.14
09	12SB28-0.502-02	55793	7.99	195298	10.16	124760	13.14
10	12SB28-0304-03	51387	7.98	179192	10.16	115632	13.14

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD2.5 Date Analyzed: 12/27/2011

Lab File ID: BG002437.D Time Analyzed: 15:59

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	212711	15.59	220598	19.96	184543	23.09
	UPPER LIMIT	425422	16.09	441196	20.46	369086	23.59
	LOWER LIMIT	106355.5	15.09	110299	19.46	92271.5	22.59
	EPA SAMPLE NO.						
01	PB60028BS	235824	15.59	241129	19.96	206398	23.09
02	PB60028B	242183	15.59	237266	19.96	202189	23.09
03	12SB13-0304-03	201394	15.59	193877	19.96	175811	23.09
04	12SB29-0.502-02	225598	15.59	221061	19.96	200571	23.09
05	12SB29-0304-03	226608	15.59	220678	19.96	198011	23.09
06	12SB26-0.502-02	177345	15.59	172819	19.96	154364	23.09
07	12SB26-0304-03	200835	15.59	196063	19.96	179836	23.09
08	12SB25-0304-03	240535	15.59	236418	19.96	215932	23.09
09	12SB28-0.502-02	216352	15.59	217976	19.96	201890	23.09
10	12SB28-0304-03	203828	15.59	204313	19.96	189373	23.09

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD2.5 Date Analyzed: 12/28/2011

Lab File ID: BG002453.D Time Analyzed: 02:35

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	41552	7.99	152409	10.16	102166	13.14
	UPPER LIMIT	83104	8.49	304818	10.66	204332	13.64
	LOWER LIMIT	20776	7.49	76204.5	9.66	51083	12.64
	EPA SAMPLE NO.						
01	12SB14-000.5-01	52143	7.99	186869	10.16	119707	13.14
02	12SB13-000.5-01	62943	7.99	218909	10.16	136295	13.14
03	12SB13-0.502-02	64052	7.99	228346	10.16	137604	13.14
04	12SB29-000.5-01	53582	7.98	189789	10.16	117358	13.14
05	12SB26-000.5-01	56808	7.98	204509	10.16	125246	13.14
06	12SB-DUP-05	67602	7.99	238054	10.16	146142	13.14
07	12SB25-000.5-01	54838	7.99	195120	10.16	119197	13.14
08	12SB25-000.5-01MS	60077	7.98	219821	10.16	134110	13.14
09	12SB25-000.5-01MSD	54461	7.99	200346	10.16	123616	13.14
10	12SB25-0.502-02	52310	7.98	182494	10.16	109515	13.14

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

EPA Sample No.: SSTD2.5 Date Analyzed: 12/28/2011

Lab File ID: BG002453.D Time Analyzed: 02:35

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	189951	15.59	194552	19.96	163921	23.09
	UPPER LIMIT	379902	16.09	389104	20.46	327842	23.59
	LOWER LIMIT	94975.5	15.09	97276	19.46	81960.5	22.59
	EPA SAMPLE NO.						
01	12SB14-000.5-01	208774	15.59	200658	19.97	184405	23.09
02	12SB13-000.5-01	226241	15.59	241467	19.97	189337	23.09
03	12SB13-0.502-02	232472	15.59	236960	19.96	215655	23.09
04	12SB29-000.5-01	200945	15.59	201808	19.96	189720	23.09
05	12SB26-000.5-01	213209	15.59	225977	19.96	157601	23.09
06	12SB-DUP-05	246505	15.59	264653	19.97	190737	23.09
07	12SB25-000.5-01	199523	15.59	216552	19.96	182731	23.09
08	12SB25-000.5-01MS	225640	15.59	232579	19.97	180079	23.09
09	12SB25-000.5-01MSD	206977	15.59	211910	19.97	165294	23.09
10	12SB25-0.502-02	185759	15.59	202901	19.96	179537	23.09

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

SAMPLE ID 12SB13-000.5-01

SAMPLE CALC

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	CONCENTRATION PPB
241467	1	3032982	5	1000	4.7680	547.37

% Solids	Sample Volume (Grams)
0.8	30.08

Pyrene = 550 ug/kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002456.D	1	12/19/11	12/28/11	PB60028

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	5		0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	3.7	J	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	12		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	14		0.5	4.1	ug/Kg
86-73-7	Fluorene	19		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	340		0.5	4.1	ug/Kg
120-12-7	Anthracene	49		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	780		0.5	4.1	ug/Kg
129-00-0	Pyrene	550		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	270		0.5	4.1	ug/Kg
218-01-9	Chrysene	340		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	510		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	160		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	320		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	140		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	17		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	160		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	64.5		30 - 150	64%	SPK: 100
321-60-8	2-Fluorobiphenyl	41.3	*	45 - 105	41%	SPK: 100
1718-51-0	Terphenyl-d14	38.1		30 - 125	38%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	62943	7.99			
1146-65-2	Naphthalene-d8	218909	10.16			
15067-26-2	Acenaphthene-d10	136295	13.14			
1517-22-2	Phenanthrene-d10	226241	15.59			
1719-03-5	Chrysene-d12	241467	19.97			
1520-96-3	Perylene-d12	189337	23.09			

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA G\DATA\BG122711\
Data File : BG002456.D
Acq On : 28 Dec 2011 4:33
Operator : HNP
Sample : C5039-02
Misc : PAH
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Dec 28 07:08:34 2011
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 15:47:51 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.99	152	62943m	5.00	ng	-0.05
2) Naphthalene-d8	10.16	136	218909m	5.00	ng	-0.06
7) Acenaphthene-d10	13.14	164	136295m	5.00	ng	-0.04
12) Phenanthrene-d10	15.59	188	226241m	5.00	ng	-0.05
16) Chrysene-d12	19.97	240	241467m	5.00	ng	-0.06
23) Perylene-d12	23.09	264	189337m	5.00	ng	-0.21
System Monitoring Compounds						
3) Nitrobenzene-d5	8.92	82	1144569m	64.48	ng	-0.05
8) 2-Fluorobiphenyl	12.00	172	1661406m	41.33	ng	-0.04
18) Terphenyl-d14	18.23	244	1432742m	38.07	ng	-0.04
Target Compounds						Qvalue
4) Naphthalene	10.20	128	21458m	0.12	ng	
5) 2-Methylnapthalene	11.38	142	11508m	0.09	ng	
6) 1-Methylnapthalene	11.55	142	12658m	0.11	ng	
9) Acenaphthylene	12.90	152	55623m	0.29	ng	
10) Acenaphthene	13.18	154	10659m	0.34	ng	
11) Fluorene	14.05	166	16174m	0.45	ng	
13) Phenanthrene	15.63	178	1582727m	8.18	ng	
14) Anthracene	15.71	178	227082m	1.18	ng	
15) Fluoranthene	17.60	202	3715807m	18.71	ng	
17) Pyrene	17.98	202	3032982m	13.17	ng	
19) Bis(2-ethylhexyl)phthalate	19.95	149	7367m	0.22	ng	
20) Benzo(a)anthracene	19.95	228	1473775m	6.58	ng	
21) Chrysene	20.01	228	1760626m	8.26	ng	
22) Indeno(1,2,3-cd)pyrene	26.70	276	676294m	3.45	ng	
24) Benzo(b)fluoranthene	22.10	252	5035780m	12.39	ng	
25) Benzo(k)fluoranthene	22.16	252	1588164m	3.93	ng	
26) Benzo(a)pyrene	22.93	252	2962610m	7.77	ng	
27) Dibenzo(a,h)anthracene	26.96	278	14538m	0.41	ng	
28) Benzo(g,h,i)perylene	27.83	276	584151m	3.91	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD006863.D	PIBLK-PD006863.D	Decachlorobiphenyl	1	20	17.67	88		10	192
		Tetrachloro-m-xylene	1	20	21.16	106		10	172
		Decachlorobiphenyl	2	20	19.23	96		10	192
		Tetrachloro-m-xylene	2	20	19.26	96		10	172
I.BLK-PD006876.D	PIBLK-PD006876.D	Decachlorobiphenyl	1	20	22.46	112		10	192
		Tetrachloro-m-xylene	1	20	20.84	104		10	172
		Decachlorobiphenyl	2	20	20.54	103		10	192
		Tetrachloro-m-xylene	2	20	20.33	102		10	172
PB60024BL	PB60024BL	Decachlorobiphenyl	1	20	22.42	112		55	130
		Tetrachloro-m-xylene	1	20	20.9	105		70	125
		Decachlorobiphenyl	2	20	20.54	103		55	130
		Tetrachloro-m-xylene	2	20	20.66	103		70	125
PB60024BS	PB60024BS	Decachlorobiphenyl	1	20	22.63	113		55	130
		Tetrachloro-m-xylene	1	20	20.91	105		70	125
		Decachlorobiphenyl	2	20	20.17	101		55	130
		Tetrachloro-m-xylene	2	20	21.02	105		70	125
C5039-12	12SB25-000.5-01	Decachlorobiphenyl	1	20	6.89	34	*	55	130
		Tetrachloro-m-xylene	1	20	14.14	71		70	125
		Decachlorobiphenyl	2	20	4.9	25	*	55	130
		Tetrachloro-m-xylene	2	20	14.66	73		70	125
C5039-13MS	12SB25-000.5-01MS	Decachlorobiphenyl	1	20	7.75	39	*	55	130
		Tetrachloro-m-xylene	1	20	13.76	69	*	70	125
		Decachlorobiphenyl	2	20	8.37	42	*	55	130
		Tetrachloro-m-xylene	2	20	15.36	77		70	125
C5039-14MSD	12SB25-000.5-01MSD	Decachlorobiphenyl	1	20	8.58	43	*	55	130
		Tetrachloro-m-xylene	1	20	14.2	71		70	125
		Decachlorobiphenyl	2	20	9.88	49	*	55	130
		Tetrachloro-m-xylene	2	20	15.49	77		70	125
I.BLK-PD006886.D	PIBLK-PD006886.D	Decachlorobiphenyl	1	20	20.2	101		10	192
		Tetrachloro-m-xylene	1	20	20.54	103		10	172
		Decachlorobiphenyl	2	20	20.26	101		10	192
		Tetrachloro-m-xylene	2	20	20.4	102		10	172
I.BLK-PG003560.D	PIBLK-PG003560.D	Decachlorobiphenyl	1	20	19.73	99		10	192
		Tetrachloro-m-xylene	1	20	18.8	94		10	172
		Decachlorobiphenyl	2	20	21.32	107		10	192
		Tetrachloro-m-xylene	2	20	24.26	121		10	172
I.BLK-PG003602.D	PIBLK-PG003602.D	Decachlorobiphenyl	1	20	18.84	94		10	192
		Tetrachloro-m-xylene	1	20	18.14	91		10	172
		Decachlorobiphenyl	2	20	24.02	120		10	192
		Tetrachloro-m-xylene	2	20	26.48	132		10	172
C5039-01	12SB14-000.5-01	Decachlorobiphenyl	1	20	16.13	81		55	130
		Tetrachloro-m-xylene	1	20	15.03	75		70	125
		Decachlorobiphenyl	2	20	19.49	97		55	130
		Tetrachloro-m-xylene	2	20	22.4	112		70	125

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-02	12SB13-000.5-01	Decachlorobiphenyl	1	20	10.37	52	*	55	130
		Tetrachloro-m-xylene	1	20	12.41	62	*	70	125
		Decachlorobiphenyl	2	20	9.85	49	*	55	130
		Tetrachloro-m-xylene	2	20	16.53	83		70	125
C5039-05	12SB29-000.5-01	Decachlorobiphenyl	1	20	8.74	44	*	55	130
		Tetrachloro-m-xylene	1	20	14.33	72		70	125
		Decachlorobiphenyl	2	20	10.24	51	*	55	130
		Tetrachloro-m-xylene	2	20	18.43	92		70	125
C5039-06	12SB29-0.502-02	Decachlorobiphenyl	1	20	11.33	57		55	130
		Tetrachloro-m-xylene	1	20	14.18	71		70	125
		Decachlorobiphenyl	2	20	13.01	65		55	130
		Tetrachloro-m-xylene	2	20	18.2	91		70	125
C5039-07	12SB29-0304-03	Decachlorobiphenyl	1	20	15.33	77		55	130
		Tetrachloro-m-xylene	1	20	16.49	82		70	125
		Decachlorobiphenyl	2	20	17.32	87		55	130
		Tetrachloro-m-xylene	2	20	20.76	104		70	125
C5039-08	12SB26-000.5-01	Decachlorobiphenyl	1	20	4.59	23	*	55	130
		Tetrachloro-m-xylene	1	20	9.83	49	*	70	125
		Decachlorobiphenyl	2	20	3.93	20	*	55	130
		Tetrachloro-m-xylene	2	20	11.78	59	*	70	125
C5039-09	12SB26-0.502-02	Decachlorobiphenyl	1	20	12.16	61		55	130
		Tetrachloro-m-xylene	1	20	16.83	84		70	125
		Decachlorobiphenyl	2	20	13.45	67		55	130
		Tetrachloro-m-xylene	2	20	20.86	104		70	125
C5039-10	12SB26-0304-03	Decachlorobiphenyl	1	20	18.1	91		55	130
		Tetrachloro-m-xylene	1	20	18.17	91		70	125
		Decachlorobiphenyl	2	20	19.73	99		55	130
		Tetrachloro-m-xylene	2	20	22.05	110		70	125
I.BLK-PG003615.D	PIBLK-PG003615.D	Decachlorobiphenyl	1	20	20.03	100		10	192
		Tetrachloro-m-xylene	1	20	19.15	96		10	172
		Decachlorobiphenyl	2	20	21.92	110		10	192
		Tetrachloro-m-xylene	2	20	23.5	118		10	172
C5039-11	12SB-DUP-05	Decachlorobiphenyl	1	20	6.95	35	*	55	130
		Tetrachloro-m-xylene	1	20	14.49	72		70	125
		Decachlorobiphenyl	2	20	6.94	35	*	55	130
		Tetrachloro-m-xylene	2	20	16.81	84		70	125
C5039-15	12SB25-0.502-02	Decachlorobiphenyl	1	20	12.52	63		55	130
		Tetrachloro-m-xylene	1	20	16.56	83		70	125
		Decachlorobiphenyl	2	20	13.81	69		55	130
		Tetrachloro-m-xylene	2	20	19.15	96		70	125
C5039-16	12SB25-0304-03	Decachlorobiphenyl	1	20	10.5	53	*	55	130
		Tetrachloro-m-xylene	1	20	15.74	79		70	125
		Decachlorobiphenyl	2	20	12.11	61		55	130
		Tetrachloro-m-xylene	2	20	19.03	95		70	125

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-17	12SB28-0.502-02	Decachlorobiphenyl	1	20	16.79	84		55	130
		Tetrachloro-m-xylene	1	20	18.87	94		70	125
		Decachlorobiphenyl	2	20	18.5	93		55	130
		Tetrachloro-m-xylene	2	20	22.46	112		70	125
C5039-18	12SB28-0304-03	Decachlorobiphenyl	1	20	15.63	78		55	130
		Tetrachloro-m-xylene	1	20	18.07	90		70	125
		Decachlorobiphenyl	2	20	17.3	86		55	130
		Tetrachloro-m-xylene	2	20	21.31	107		70	125
C5039-02RE	12SB13-000.5-01RE	Decachlorobiphenyl	1	20	10.86	54	*	55	130
		Tetrachloro-m-xylene	1	20	12.96	65	*	70	125
		Decachlorobiphenyl	2	20	9.47	47	*	55	130
		Tetrachloro-m-xylene	2	20	15.12	76		70	125
C5039-03	12SB13-0.502-02	Decachlorobiphenyl	1	20	13.73	69		55	130
		Tetrachloro-m-xylene	1	20	16.12	81		70	125
		Decachlorobiphenyl	2	20	13.18	66		55	130
		Tetrachloro-m-xylene	2	20	17.13	86		70	125
C5039-04	12SB13-0304-03	Decachlorobiphenyl	1	20	16.2	81		55	130
		Tetrachloro-m-xylene	1	20	17.57	88		70	125
		Decachlorobiphenyl	2	20	16.53	83		55	130
		Tetrachloro-m-xylene	2	20	20.97	105		70	125
C5039-05RE	12SB29-000.5-01RE	Decachlorobiphenyl	1	20	8.89	44	*	55	130
		Tetrachloro-m-xylene	1	20	14.47	72		70	125
		Decachlorobiphenyl	2	20	10.02	50	*	55	130
		Tetrachloro-m-xylene	2	20	17.52	88		70	125
C5039-08RE	12SB26-000.5-01RE	Decachlorobiphenyl	1	20	4.53	23	*	55	130
		Tetrachloro-m-xylene	1	20	9.8	49	*	70	125
		Decachlorobiphenyl	2	20	3.66	18	*	55	130
		Tetrachloro-m-xylene	2	20	11.21	56	*	70	125
I.BLK-PG003627.D	PIBLK-PG003627.D	Decachlorobiphenyl	1	20	19.82	99		10	192
		Tetrachloro-m-xylene	1	20	19.27	96		10	172
		Decachlorobiphenyl	2	20	20.66	103		10	192
		Tetrachloro-m-xylene	2	20	22.77	114		10	172
C5039-11RE	12SB-DUP-05RE	Decachlorobiphenyl	1	20	6.93	35	*	55	130
		Tetrachloro-m-xylene	1	20	14.33	72		70	125
		Decachlorobiphenyl	2	20	6.81	34	*	55	130
		Tetrachloro-m-xylene	2	20	16.01	80		70	125
I.BLK-PG003636.D	PIBLK-PG003636.D	Decachlorobiphenyl	1	20	20.64	103		10	192
		Tetrachloro-m-xylene	1	20	19.18	96		10	172
		Decachlorobiphenyl	2	20	22.27	111		10	192
		Tetrachloro-m-xylene	2	20	22.96	115		10	172

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_D

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/21/2011 12/21/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/21/2011	15:42	PD006863.D	8.07	3.34
PEM01	PEM01	12/21/2011	15:56	PD006864.D	8.07	3.34
RESC01	RESCHK	12/21/2011	16:09	PD006865.D	8.07	3.34
100 PPB PEST STD	100 PPB PEST STD	12/21/2011	16:23	PD006866.D	8.07	3.34
75 PPB PEST STD	75 PPB PEST STD	12/21/2011	16:36	PD006867.D	8.07	3.34
50 PPB PEST STD	50 PPB PEST STD	12/21/2011	16:50	PD006868.D	8.07	3.34
25 PPB PEST STD	25 PPB PEST STD	12/21/2011	17:03	PD006869.D	8.07	3.34
5 PPB PEST STD	5 PPB PEST STD	12/21/2011	17:17	PD006870.D	8.07	3.34
TOX 500	TOX	12/21/2011	17:44	PD006872.D	8.07	3.34
CHLOR 500	CHLOR 500	12/21/2011	17:57	PD006873.D	8.07	3.34
PIBLK02	I.BLK02	12/21/2011	18:38	PD006876.D	8.07	3.34
CCAL01	STD 25	12/21/2011	18:51	PD006877.D	8.07	3.34
PB60024BL	PB60024BL	12/21/2011	19:05	PD006878.D	8.07	3.34
PB60024BS	PB60024BS	12/21/2011	19:18	PD006879.D	8.07	3.34
12SB25-000.5-01	C5039-12	12/21/2011	19:59	PD006882.D	8.07	3.34
12SB25-000.5-01MS	C5039-13MS	12/21/2011	20:26	PD006884.D	8.07	3.34
12SB25-000.5-01MSD	C5039-14MSD	12/21/2011	20:39	PD006885.D	8.07	3.34
PIBLK03	I.BLK03	12/21/2011	20:53	PD006886.D	8.07	3.34
CCAL02	STD 25	12/21/2011	21:06	PD006887.D	8.07	3.34

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_D **Calibration Date(s):** 12/21/2011 12/21/2011

Calibration Times: 16:23 17:17

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD006870.D CF 025 = PD006869.D

CF 050 = PD006868.D CF 075 = PD006867.D CF 100 = PD006866.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	12756502120	10544881836	10182467334	9116889275	9105050917	10341158296	14
Tetrachloro-m-xylene	14020223640	12114092340	12256445388	11870419340	12173555467	12486947235	7
alpha-BHC	237585799200	205783410680	211145989560	207265631520	181865671600	208729300512	9
beta-BHC	95373030200	79690037840	77366340400	73533580733	74144156650	80021429165	11
delta-BHC	224547110800	190290105400	193938733420	187227253040	197404309850	198681502502	8
gamma-BHC (Lindane)	263631129200	207802524920	208788580740	201056975213	201965199810	216648881977	12
Heptachlor	216704405200	186521188040	183526616560	173891425120	174134817100	186955690404	9
Aldrin	223261159400	189670854320	185723977160	174840756493	177606377060	190220624887	10
Heptachlor epoxide	203698029600	170004892280	163448379300	148627856933	151159082090	167387648041	13
Endosulfan I	207191015800	166021988120	158623577060	144947899947	144244996210	164205895427	16
Dieldrin	221530565800	184986662080	179144088260	163741588200	165776807390	183035942346	13
4,4-DDE	216734580400	180888484840	178589633340	165251936693	168760416810	182045010417	11
Endrin	181774656200	151721808080	146439363820	133929230453	133621254720	149497262655	13
Endosulfan II	184551508000	153529239480	141259749500	129393153560	130060898750	147758909858	15
4,4-DDD	172539152800	148966072560	141855783580	131140705080	132598525500	145420047904	12
Endosulfan sulfate	167745561400	137687011560	133460069160	120991441960	121318871690	136240591154	14
4,4-DDT	185121245400	157570278320	151260544020	137825901333	140022094360	154360012687	12
Methoxychlor	84203530600	69797691520	63579918560	56780752400	55735023600	66019383336	18
Endrin ketone	169128826200	142644409440	131719579860	118213072693	117239796570	135789136953	16
Endrin aldehyde	159946109600	133521822800	121419791860	108548215360	107436156040	126174419132	17
alpha-Chlordane	219370631600	179457569760	175369440080	164438385587	168910943280	181509394061	12
gamma-Chlordane	225671354600	186757005120	184858736820	173034374560	178973954000	189859085020	11

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_D **Date(s) Analyzed:** 12/21/2011 12/21/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.58	5.53	5.63	2302764000
		2	5.84	5.79	5.89	3967608000
		3	6.42	6.37	6.47	2443780000
		4	6.90	6.85	6.95	4974480000
		5	7.21	7.16	7.26	4533431000

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5039

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/21/2011 12/21/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/21/2011	15:42	PD006863.D	9.01	3.92
PEM01	PEM01	12/21/2011	15:56	PD006864.D	9.01	3.92
RESC01	RESCHK	12/21/2011	16:09	PD006865.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	12/21/2011	16:23	PD006866.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	12/21/2011	16:36	PD006867.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	12/21/2011	16:50	PD006868.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	12/21/2011	17:03	PD006869.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	12/21/2011	17:17	PD006870.D	9.01	3.92
TOX 500	TOX	12/21/2011	17:44	PD006872.D	9.01	3.93
CHLOR 500	CHLOR 500	12/21/2011	17:57	PD006873.D	9.01	3.92
PIBLK02	I.BLK02	12/21/2011	18:38	PD006876.D	9.01	3.92
CCAL01	STD 25	12/21/2011	18:51	PD006877.D	9.01	3.92
PB60024BL	PB60024BL	12/21/2011	19:05	PD006878.D	9.01	3.92
PB60024BS	PB60024BS	12/21/2011	19:18	PD006879.D	9.01	3.92
12SB25-000.5-01	C5039-12	12/21/2011	19:59	PD006882.D	9.01	3.92
12SB25-000.5-01MS	C5039-13MS	12/21/2011	20:26	PD006884.D	9.01	3.92
12SB25-000.5-01MSD	C5039-14MSD	12/21/2011	20:39	PD006885.D	9.01	3.92
PIBLK03	I.BLK03	12/21/2011	20:53	PD006886.D	9.01	3.93
CCAL02	STD 25	12/21/2011	21:06	PD006887.D	9.01	3.93

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_D

Calibration Date(s): 12/21/2011 12/21/2011

Calibration Times: 16:23 17:17

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PD006870.D **CF 025 =** PD006869.D

CF 050 = PD006868.D **CF 075 =** PD006867.D **CF 100 =** PD006866.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	2503164260	2283809632	2355731712	2192106136	2222092531	2311380854	5
Tetrachloro-m-xylene	5116825700	4639474656	4716698566	4526754760	4580312400	4716013216	5
alpha-BHC	73778788000	71829677080	73696534820	72356976547	74815639630	73295523215	2
beta-BHC	30422315200	27341322240	27713932940	26250975213	26936112400	27732931599	6
delta-BHC	73182432000	66063669080	68256047760	65818332667	68288307660	68321757833	4
gamma-BHC (Lindane)	72925642600	67984750360	70304948320	68140889493	70672376510	70005721457	3
Heptachlor	70195759600	64220237960	65186260900	62807627000	63786780870	65239333266	4
Aldrin	68054274200	61046009440	61616540240	59409579173	60817474450	62188775501	5
Heptachlor epoxide	63334292800	54276200960	53678367420	50410542120	51016658780	54543212416	10
Endosulfan I	54547023200	49451766800	50379744260	48116697987	48921648400	50283376129	5
Dieldrin	58115923600	52726446360	54006767400	50996916747	52302785860	53629767993	5
4,4-DDE	59762497600	52796427320	54433253380	52243566853	53678217410	54582792513	6
Endrin	49191581800	43554266480	44933384860	42638128160	43592183380	44781908936	6
Endosulfan II	39933467600	39030901400	41734512600	38619102347	40312826980	39926162185	3
4,4-DDD	48796244600	42250735360	43530079860	41354095240	42197991520	43625829316	7
Endosulfan sulfate	40419686400	35894492760	37189203920	34964319840	36003566670	36894253918	6
4,4-DDT	46357896800	41742500440	43426597840	41432620640	42669165780	43125756300	5
Methoxychlor	19884605000	18123687360	18420207060	17104422173	17298507380	18166285795	6
Endrin ketone	40381639000	34889814560	36200482960	33941080200	34613981740	36005399692	7
Endrin aldehyde	37867765600	33824520000	34836167860	32960073773	33732930230	34644291493	6
alpha-Chlordane	58984292400	51693992000	52946578040	50765449253	51996400260	53277342391	6
gamma-Chlordane	59030693600	53556765160	54439369780	52046970707	53437796860	54502319221	5

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_D **Date(s) Analyzed:** 12/21/2011 12/21/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	528467400
		2	6.85	6.80	6.90	1620432000
		3	7.09	7.04	7.14	2702216000
		4	7.59	7.54	7.64	2665019000
		5	7.94	7.89	7.99	831084000

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD122111\
Data File : PD006865.D
Acq On : 21 Dec 2011 16:09
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD122111.M
Title : GC Extractables
Last Update : Thu Dec 22 13:48:07 2011
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.338	5.257	100.00%
5.257	5.368	98.44%
5.368	5.485	100.00%
5.485	5.611	100.00%
5.611	6.523	100.00%
6.523	6.791	100.00%
6.791	7.014	100.00%
7.014	8.068	100.00%

Signal #2

3.924	6.031	100.00%
6.031	6.151	100.00%
6.151	6.268	100.00%
6.268	6.410	100.00%
6.410	7.185	100.00%
7.185	7.528	100.00%
7.528	7.653	100.00%
7.653	9.010	100.00%

D122111.M Thu Dec 22 13:53:57 2011

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/21/2011 12/21/2011

Client Sample No. (PEM): PEM01 Date Analyzed: 12/21/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:56

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.068	7.970	8.170	0.019	0.020	5.0
Tetrachloro-m-xylene	3.338	3.240	3.440	0.022	0.020	10.0
alpha-BHC	3.774	3.720	3.820	0.011	0.010	10.0
beta-BHC	4.303	4.250	4.350	0.013	0.010	30.0
gamma-BHC (Lindane)	4.053	4.000	4.100	0.013	0.010	30.0
Endrin	5.867	5.800	5.940	0.047	0.050	6.0
4,4-DDT	6.237	6.170	6.310	0.090	0.100	10.0
Methoxychlor	6.790	6.720	6.860	0.176	0.250	29.6

Client Sample No. (PEM): PEM01 Date Analyzed: 12/21/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:56

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.012	8.910	9.110	0.020	0.020	0.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.307	4.260	4.360	0.011	0.010	10.0
beta-BHC	4.755	4.710	4.810	0.010	0.010	0.0
gamma-BHC (Lindane)	4.589	4.540	4.640	0.010	0.010	0.0
Endrin	6.626	6.560	6.700	0.049	0.050	2.0
4,4-DDT	7.061	6.990	7.130	0.099	0.100	1.0
Methoxychlor	7.528	7.460	7.600	0.228	0.250	8.8

Sample: PEM
Data File: PD006864.D **Date Acquired** 12/21/2011 15:56
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.87	6953774394	7445348794	491574401	**6.60**
Endrin aldehyde	6.31	63902460.4			
Endrin ketone	7.01	427671940.2			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.63	2198979435	2309889627	110910193	**4.80**
Endrin aldehyde #2	6.96	24990168.49			
Endrin ketone #2	7.65	85920024.24			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.24	1.387691E+010	1.40091199E+010	132213460	**0.94**
4,4'-DDE	5.48	97652584.98			
4,4'-DDD	6.00	34560875.49			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4274627765	4301517722	26889956	**0.63**
4,4'-DDE #2	6.27	20015601.82			
4,4'-DDD #2	6.76	6874354.233			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/21/2011 12/21/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/21/2011

Lab Sample No.: STD 25 **Data File :** PD006877.D **Time Analyzed:** 18:51

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.774	3.720	3.820	0.026	0.025	4.0
beta-BHC	4.303	4.250	4.350	0.026	0.025	4.0
delta-BHC	4.505	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.055	4.000	4.100	0.026	0.025	4.0
Heptachlor	4.346	4.300	4.400	0.026	0.025	4.0
Aldrin	4.590	4.540	4.640	0.026	0.025	4.0
Heptachlor epoxide	5.033	4.960	5.100	0.027	0.025	8.0
Endosulfan I	5.369	5.300	5.440	0.027	0.025	8.0
Dieldrin	5.611	5.540	5.680	0.027	0.025	8.0
4,4-DDE	5.485	5.410	5.550	0.026	0.025	4.0
Endrin	5.868	5.800	5.940	0.028	0.025	12.0
Endosulfan II	6.142	6.070	6.210	0.027	0.025	8.0
4,4-DDD	6.000	5.930	6.070	0.027	0.025	8.0
Endosulfan sulfate	6.523	6.450	6.590	0.027	0.025	8.0
4,4-DDT	6.238	6.170	6.310	0.027	0.025	8.0
Methoxychlor	6.790	6.720	6.860	0.028	0.025	12.0
Endrin ketone	7.014	6.940	7.080	0.028	0.025	12.0
Endrin aldehyde	6.312	6.240	6.380	0.027	0.025	8.0
alpha-Chlordane	5.316	5.250	5.390	0.026	0.025	4.0
gamma-Chlordane	5.257	5.190	5.330	0.026	0.025	4.0
Decachlorobiphenyl	8.068	7.970	8.170	0.027	0.025	8.0
Tetrachloro-m-xylene	3.339	3.240	3.440	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/21/2011 12/21/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/21/2011

Lab Sample No.: STD 25 **Data File :** PD006877.D **Time Analyzed:** 18:51

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.307	4.260	4.360	0.025	0.025	0.0
beta-BHC	4.756	4.710	4.810	0.025	0.025	0.0
delta-BHC	4.971	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.590	4.540	4.640	0.025	0.025	0.0
Heptachlor	5.104	5.050	5.150	0.025	0.025	0.0
Aldrin	5.409	5.360	5.460	0.025	0.025	0.0
Heptachlor epoxide	5.794	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.151	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.410	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.267	6.200	6.340	0.025	0.025	0.0
Endrin	6.625	6.560	6.700	0.025	0.025	0.0
Endosulfan II	6.834	6.760	6.900	0.025	0.025	0.0
4,4-DDD	6.757	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.185	7.110	7.250	0.025	0.025	0.0
4,4-DDT	7.061	6.990	7.130	0.025	0.025	0.0
Methoxychlor	7.528	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.653	7.580	7.720	0.025	0.025	0.0
Endrin aldehyde	6.959	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.104	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.031	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.011	8.910	9.110	0.025	0.025	0.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/21/2011 12/21/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/21/2011

Lab Sample No.: STD 25 **Data File :** PD006887.D **Time Analyzed:** 21:06

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.775	3.720	3.820	0.025	0.025	0.0
beta-BHC	4.303	4.250	4.350	0.025	0.025	0.0
delta-BHC	4.505	4.450	4.550	0.025	0.025	0.0
gamma-BHC (Lindane)	4.055	4.000	4.100	0.027	0.025	8.0
Heptachlor	4.346	4.300	4.400	0.026	0.025	4.0
Aldrin	4.590	4.540	4.640	0.026	0.025	4.0
Heptachlor epoxide	5.033	4.960	5.100	0.025	0.025	0.0
Endosulfan I	5.369	5.300	5.440	0.025	0.025	0.0
Dieldrin	5.612	5.540	5.680	0.025	0.025	0.0
4,4-DDE	5.486	5.410	5.550	0.024	0.025	4.0
Endrin	5.868	5.800	5.940	0.027	0.025	8.0
Endosulfan II	6.142	6.070	6.210	0.025	0.025	0.0
4,4-DDD	6.001	5.930	6.070	0.026	0.025	4.0
Endosulfan sulfate	6.523	6.450	6.590	0.027	0.025	8.0
4,4-DDT	6.239	6.170	6.310	0.024	0.025	4.0
Methoxychlor	6.792	6.720	6.860	0.025	0.025	0.0
Endrin ketone	7.015	6.940	7.080	0.027	0.025	8.0
Endrin aldehyde	6.312	6.240	6.380	0.025	0.025	0.0
alpha-Chlordane	5.316	5.250	5.390	0.025	0.025	0.0
gamma-Chlordane	5.257	5.190	5.330	0.024	0.025	4.0
Decachlorobiphenyl	8.070	7.970	8.170	0.025	0.025	0.0
Tetrachloro-m-xylene	3.339	3.240	3.440	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/21/2011 12/21/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/21/2011

Lab Sample No.: STD 25 **Data File :** PD006887.D **Time Analyzed:** 21:06

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.308	4.260	4.360	0.026	0.025	4.0
beta-BHC	4.756	4.710	4.810	0.026	0.025	4.0
delta-BHC	4.971	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.590	4.540	4.640	0.026	0.025	4.0
Heptachlor	5.105	5.050	5.150	0.026	0.025	4.0
Aldrin	5.409	5.360	5.460	0.025	0.025	0.0
Heptachlor epoxide	5.795	5.720	5.860	0.025	0.025	0.0
Endosulfan I	6.152	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.410	6.340	6.480	0.025	0.025	0.0
4,4-DDE	6.268	6.200	6.340	0.025	0.025	0.0
Endrin	6.627	6.560	6.700	0.025	0.025	0.0
Endosulfan II	6.836	6.760	6.900	0.024	0.025	4.0
4,4-DDD	6.759	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.186	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.062	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.529	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.654	7.580	7.720	0.027	0.025	8.0
Endrin aldehyde	6.960	6.890	7.030	0.025	0.025	0.0
alpha-Chlordane	6.105	6.030	6.170	0.026	0.025	4.0
gamma-Chlordane	6.030	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.012	8.910	9.110	0.025	0.025	0.0
Tetrachloro-m-xylene	3.925	3.820	4.020	0.025	0.025	0.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5039

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	12/29/2011	15:14	PG003560.D	11.38	4.78
PEM02	PEM02	12/29/2011	15:32	PG003561.D	11.38	4.78
RESC01	RESCHK	12/29/2011	15:51	PG003562.D	11.38	4.78
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	16:10	PG003563.D	11.38	4.77
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	16:28	PG003564.D	11.38	4.77
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	16:47	PG003565.D	11.38	4.78
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	17:05	PG003566.D	11.38	4.78
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	17:24	PG003567.D	11.38	4.78
TOX 500	TOX	12/29/2011	18:01	PG003569.D	11.38	4.78
CHLOR 500	CHLOR 500	12/29/2011	18:20	PG003570.D	11.38	4.77
PIBLK05	I.BLK05	12/30/2011	10:53	PG003602.D	11.39	4.78
PEM03	PEM03	12/30/2011	11:12	PG003603.D	11.38	4.78
CCAL03	STD 25	12/30/2011	11:31	PG003604.D	11.39	4.78
12SB14-000.5-01	C5039-01	12/30/2011	12:18	PG003605.D	11.40	4.79
12SB13-000.5-01	C5039-02	12/30/2011	12:37	PG003606.D	11.39	4.78
12SB29-000.5-01	C5039-05	12/30/2011	13:33	PG003609.D	11.38	4.78
12SB29-0.502-02	C5039-06	12/30/2011	13:52	PG003610.D	11.38	4.78
12SB29-0304-03	C5039-07	12/30/2011	14:10	PG003611.D	11.39	4.78
12SB26-000.5-01	C5039-08	12/30/2011	14:29	PG003612.D	11.39	4.78
12SB26-0.502-02	C5039-09	12/30/2011	14:48	PG003613.D	11.39	4.78
12SB26-0304-03	C5039-10	12/30/2011	15:06	PG003614.D	11.39	4.78
PIBLK06	I.BLK06	12/30/2011	15:25	PG003615.D	11.39	4.78
CCAL04	STD 25	12/30/2011	15:44	PG003616.D	11.39	4.78
12SB-DUP-05	C5039-11	12/30/2011	16:03	PG003617.D	11.39	4.78
12SB25-0.502-02	C5039-15	12/30/2011	16:21	PG003618.D	11.39	4.78
12SB25-0304-03	C5039-16	12/30/2011	16:40	PG003619.D	11.39	4.78
12SB28-0.502-02	C5039-17	12/30/2011	16:58	PG003620.D	11.38	4.78
12SB28-0304-03	C5039-18	12/30/2011	17:17	PG003621.D	11.39	4.78
12SB13-000.5-01RE	C5039-02RE	12/30/2011	17:36	PG003622.D	11.39	4.78
12SB13-0.502-02	C5039-03	12/30/2011	17:55	PG003623.D	11.38	4.78
12SB13-0304-03	C5039-04	12/30/2011	18:13	PG003624.D	11.39	4.78
12SB29-000.5-01RE	C5039-05RE	12/30/2011	18:32	PG003625.D	11.39	4.78
12SB26-000.5-01RE	C5039-08RE	12/30/2011	18:51	PG003626.D	11.39	4.78
PIBLK07	I.BLK07	12/30/2011	19:09	PG003627.D	11.39	4.78
CCAL05	STD 25	12/30/2011	19:28	PG003628.D	11.39	4.78
12SB-DUP-05RE	C5039-11RE	12/30/2011	20:43	PG003632.D	11.39	4.78
PIBLK08	I.BLK08	12/30/2011	21:58	PG003636.D	11.39	4.78
CCAL06	STD 25	12/30/2011	22:16	PG003637.D	11.39	4.78

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_G **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003567.D CF 025 = PG003566.D

CF 050 = PG003565.D CF 075 = PG003564.D CF 100 = PG003563.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	905840	823284	808662	765019	757823	812126	7
Tetrachloro-m-xylene	497100	479668	496794	486461	497615	491528	2
alpha-BHC	4141600	4463520	5350420	5720093	6226790	5180485	17
beta-BHC	2962600	2914240	2615800	2576653	3157190	2845297	9
delta-BHC	4331600	4039000	4654840	4941067	5318720	4657045	11
gamma-BHC (Lindane)	4354800	4736880	5536440	5820293	6234080	5336499	15
Heptachlor	5553000	5488800	5834520	5828787	6089700	5758961	4
Aldrin	5068400	4933280	5322440	5380560	5641950	5269326	5
Heptachlor epoxide	5880000	5547560	5759840	5687693	5826780	5740375	2
Endosulfan I	5239000	5123440	5385640	5353133	5488660	5317975	3
Dieldrin	4720600	4486080	4739820	4764267	4986660	4739485	4
4,4-DDE	4851000	4710840	4933920	4855467	5053790	4881003	3
Endrin	2997200	3004680	3048380	3033387	3136920	3044113	2
Endosulfan II	4978200	4721120	4902360	4833213	4964400	4879859	2
4,4-DDD	3704000	3117960	3294920	3332347	3521370	3394119	7
Endosulfan sulfate	4243800	4154360	4256960	4220840	4309030	4236998	1
4,4-DDT	3737800	3806440	4176260	4249453	4489410	4091873	8
Methoxychlor	2381200	2338600	2444720	2383253	2466510	2402857	2
Endrin ketone	4288000	4212960	4518080	4539747	4729050	4457567	5
Endrin aldehyde	5138800	4711200	4688840	4526293	4543690	4721765	5
alpha-Chlordane	5274000	5153800	5391000	5336613	5438700	5318823	2
gamma-Chlordane	5336000	5098040	5291500	5243213	5330070	5259765	2

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_G **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15466
		2	8.24	8.19	8.29	157526
		3	8.51	8.46	8.56	258706
		4	8.62	8.57	8.67	212526
		5	9.14	9.09	9.19	420676

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5039

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	12/29/2011	15:14	PG003560.D	9.74	4.07
PEM02	PEM02	12/29/2011	15:32	PG003561.D	9.74	4.07
RESC01	RESCHK	12/29/2011	15:51	PG003562.D	9.74	4.07
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	16:10	PG003563.D	9.74	4.07
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	16:28	PG003564.D	9.74	4.07
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	16:47	PG003565.D	9.75	4.07
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	17:05	PG003566.D	9.74	4.07
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	17:24	PG003567.D	9.74	4.07
TOX 500	TOX	12/29/2011	18:01	PG003569.D	9.74	4.07
CHLOR 500	CHLOR 500	12/29/2011	18:20	PG003570.D	9.74	4.07
PIBLK05	I.BLK05	12/30/2011	10:53	PG003602.D	9.75	4.07
PEM03	PEM03	12/30/2011	11:12	PG003603.D	9.74	4.07
CCAL03	STD 25	12/30/2011	11:31	PG003604.D	9.75	4.07
12SB14-000.5-01	C5039-01	12/30/2011	12:18	PG003605.D	9.75	4.08
12SB13-000.5-01	C5039-02	12/30/2011	12:37	PG003606.D	9.74	4.07
12SB29-000.5-01	C5039-05	12/30/2011	13:33	PG003609.D	9.74	4.07
12SB29-0.502-02	C5039-06	12/30/2011	13:52	PG003610.D	9.74	4.07
12SB29-0304-03	C5039-07	12/30/2011	14:10	PG003611.D	9.75	4.07
12SB26-000.5-01	C5039-08	12/30/2011	14:29	PG003612.D	9.74	4.07
12SB26-0.502-02	C5039-09	12/30/2011	14:48	PG003613.D	9.75	4.07
12SB26-0304-03	C5039-10	12/30/2011	15:06	PG003614.D	9.74	4.07
PIBLK06	I.BLK06	12/30/2011	15:25	PG003615.D	9.75	4.07
CCAL04	STD 25	12/30/2011	15:44	PG003616.D	9.74	4.07
12SB-DUP-05	C5039-11	12/30/2011	16:03	PG003617.D	9.75	4.07
12SB25-0.502-02	C5039-15	12/30/2011	16:21	PG003618.D	9.75	4.07
12SB25-0304-03	C5039-16	12/30/2011	16:40	PG003619.D	9.75	4.07
12SB28-0.502-02	C5039-17	12/30/2011	16:58	PG003620.D	9.74	4.07
12SB28-0304-03	C5039-18	12/30/2011	17:17	PG003621.D	9.75	4.07
12SB13-000.5-01RE	C5039-02RE	12/30/2011	17:36	PG003622.D	9.74	4.07
12SB13-0.502-02	C5039-03	12/30/2011	17:55	PG003623.D	9.74	4.07
12SB13-0304-03	C5039-04	12/30/2011	18:13	PG003624.D	9.75	4.07
12SB29-000.5-01RE	C5039-05RE	12/30/2011	18:32	PG003625.D	9.74	4.07
12SB26-000.5-01RE	C5039-08RE	12/30/2011	18:51	PG003626.D	9.75	4.07
PIBLK07	I.BLK07	12/30/2011	19:09	PG003627.D	9.74	4.07
CCAL05	STD 25	12/30/2011	19:28	PG003628.D	9.75	4.07
12SB-DUP-05RE	C5039-11RE	12/30/2011	20:43	PG003632.D	9.75	4.07
PIBLK08	I.BLK08	12/30/2011	21:58	PG003636.D	9.75	4.07
CCAL06	STD 25	12/30/2011	22:16	PG003637.D	9.75	4.07

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_G

Calibration Date(s): 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003567.D CF 025 = PG003566.D

CF 050 = PG003565.D CF 075 = PG003564.D CF 100 = PG003563.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3381660	2810924	2606838	2383196	2280875	2692699	16
Tetrachloro-m-xylene	2660500	2368236	2028354	2107512	2127890	2258498	11
alpha-BHC	33192600	33114720	32708040	31034560	30997110	32209406	3
beta-BHC	16876600	16110480	15543580	14484800	14183730	15439838	7
delta-BHC	30361400	30864800	30912180	29259347	29037680	30087081	3
gamma-BHC (Lindane)	35774200	33908480	33224720	31060067	30673410	32928175	6
Heptachlor	31169200	28995200	28373600	26502080	26312440	28270504	7
Aldrin	33402000	31269280	30504260	28404480	28021500	30320304	7
Heptachlor epoxide	34349200	30484080	29195720	26936413	25916240	29376331	11
Endosulfan I	32175200	28592840	27303660	25419107	24507580	27599677	11
Dieldrin	33001600	29850600	28796400	26955387	26330520	28986901	9
4,4-DDE	31826200	29507040	28816600	27107853	26538190	28759177	7
Endrin	20811600	20475600	20035480	19040813	18892300	19851159	4
Endosulfan II	29545400	26184200	24992020	23210560	21973570	25181150	12
4,4-DDD	22718000	21694080	21516200	20494320	20228310	21330182	5
Endosulfan sulfate	23953200	22008760	21511800	20086827	18876530	21287423	9
4,4-DDT	23094000	22963720	22791420	21584200	20627050	22212078	5
Methoxychlor	11299600	10317880	9909480	10206720	9497210	10246178	7
Endrin ketone	26688200	24093240	23349860	21698787	19550880	23076193	12
Endrin aldehyde	26165400	22545440	21356320	19679013	18516800	21652595	14
alpha-Chlordane	35226400	30968960	29762580	27670333	26931560	30111967	11
gamma-Chlordane	35059000	30922040	29852520	27738613	27017190	30117873	11

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_G **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.19	6.14	6.24	114734
		2	7.72	7.67	7.77	2282462
		3	8.02	7.97	8.07	1140404
		4	8.14	8.09	8.19	986690
		5	8.29	8.24	8.34	1897638

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG122911\
Data File : PG003562.D
Acq On : 29 Dec 2011 15:51
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG122911.M
Title : GC Extractables
Last Update : Fri Dec 30 02:01:52 2011
Integrator: ChemStation

RT#1	RT#2	Resolution
4.775	7.289	100.00%
7.289	7.441	100.00%
7.441	7.529	97.74%
7.529	7.735	100.00%
7.735	8.626	100.00%
8.626	8.971	100.00%
8.971	9.246	100.00%
9.246	11.382	100.00%

Signal #2

4.071	6.373	100.00%
6.373	6.517	100.00%
6.517	6.609	100.00%
6.609	6.797	100.00%
6.797	7.832	100.00%
7.832	8.075	100.00%
8.075	8.418	100.00%
8.418	9.744	100.00%

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM02 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:32

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.382	11.280	11.480	0.021	0.020	5.0
Tetrachloro-m-xylene	4.775	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.244	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.771	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.586	5.540	5.640	0.009	0.010	10.0
Endrin	7.992	7.920	8.060	0.056	0.050	12.0
4,4-DDT	8.436	8.370	8.510	0.103	0.100	3.0
Methoxychlor	8.968	8.900	9.040	0.276	0.250	10.4

Client Sample No. (PEM): PEM02 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:32

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.744	9.640	9.840	0.022	0.020	10.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.602	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.224	5.170	5.270	0.011	0.010	10.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.011	0.010	10.0
Endrin	7.100	7.030	7.170	0.050	0.050	0.0
4,4-DDT	7.475	7.410	7.550	0.090	0.100	10.0
Methoxychlor	8.074	8.010	8.150	0.209	0.250	16.4

Sample: PEM
Data File: PG003561.D **Date Acquired** 12/29/2011 15:32
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.99	171370.39	198440.114	27069.724	**13.64**
Endrin aldehyde	8.36	12603.767			
Endrin ketone	9.25	14465.957			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.10	996608.405	1142905.665	146297.26	**12.80**
Endrin aldehyde #2	7.60	59451.582			
Endrin ketone #2	8.42	86845.678			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.44	423443.969	437741.533	14297.564	**3.27**
4,4'-DDE	7.53	13748.95			
4,4'-DDD	8.09	548.614			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.48	2001916.32	2125953.892	124037.572	**5.83**
4,4'-DDE #2	6.61	107235.811			
4,4'-DDD #2	7.20	16801.761			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM03 Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:12

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.384	11.280	11.480	0.020	0.020	0.0
Tetrachloro-m-xylene	4.776	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.245	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.771	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.587	5.540	5.640	0.009	0.010	10.0
Endrin	7.991	7.920	8.060	0.053	0.050	6.0
4,4-DDT	8.438	8.370	8.510	0.100	0.100	0.0
Methoxychlor	8.970	8.900	9.040	0.266	0.250	6.4

Client Sample No. (PEM): PEM03 Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:12

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.744	9.640	9.840	0.024	0.020	20.0
Tetrachloro-m-xylene	4.070	3.970	4.170	0.026	0.020	30.0
alpha-BHC	4.603	4.550	4.650	0.012	0.010	20.0
beta-BHC	5.223	5.170	5.270	0.012	0.010	20.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.012	0.010	20.0
Endrin	7.100	7.030	7.170	0.056	0.050	12.0
4,4-DDT	7.476	7.410	7.550	0.102	0.100	2.0
Methoxychlor	8.074	8.010	8.150	0.229	0.250	8.4

Sample: PEM
Data File: PG003603.D **Date Acquired** 12/30/2011 11:12
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	7.99	161180.597	185131.886	23951.289	**12.94**
Endrin aldehyde	8.36	10124.293			
Endrin ketone	9.25	13826.996			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.10	1110861.361	1288321.379	177460.018	**13.77**
Endrin aldehyde #2	7.60	65136.648			
Endrin ketone #2	8.42	112323.37			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.44	409292.447	424140.251	14847.804	**3.50**
4,4'-DDE	7.53	13527.119			
4,4'-DDD	8.09	1320.685			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.48	2256543.082	2389216.652	132673.57	**5.55**
4,4'-DDE #2	6.61	101147.382			
4,4'-DDD #2	7.20	31526.188			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003604.D **Time Analyzed:** 11:31

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.243	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.772	5.720	5.820	0.025	0.025	0.0
delta-BHC	6.040	5.990	6.090	0.020	0.025	20.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.207	6.160	6.260	0.023	0.025	8.0
Aldrin	6.573	6.520	6.620	0.022	0.025	12.0
Heptachlor epoxide	7.019	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.441	7.370	7.510	0.023	0.025	8.0
Dieldrin	7.736	7.660	7.800	0.022	0.025	12.0
4,4-DDE	7.531	7.460	7.600	0.023	0.025	8.0
Endrin	7.993	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.223	8.150	8.290	0.023	0.025	8.0
4,4-DDD	8.091	8.020	8.160	0.021	0.025	16.0
Endosulfan sulfate	8.627	8.560	8.700	0.023	0.025	8.0
4,4-DDT	8.437	8.370	8.510	0.022	0.025	12.0
Methoxychlor	8.973	8.900	9.040	0.024	0.025	4.0
Endrin ketone	9.248	9.180	9.320	0.025	0.025	0.0
Endrin aldehyde	8.365	8.290	8.430	0.024	0.025	4.0
alpha-Chlordane	7.377	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.291	7.220	7.360	0.023	0.025	8.0
Decachlorobiphenyl	11.386	11.280	11.480	0.024	0.025	4.0
Tetrachloro-m-xylene	4.776	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003604.D **Time Analyzed:** 11:31

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.603	4.550	4.650	0.029	0.025	16.0
beta-BHC	5.224	5.170	5.270	0.028	0.025	12.0
delta-BHC	5.477	5.430	5.530	0.028	0.025	12.0
gamma-BHC (Lindane)	4.944	4.890	4.990	0.028	0.025	12.0
Heptachlor	5.301	5.250	5.350	0.029	0.025	16.0
Aldrin	5.600	5.550	5.650	0.028	0.025	12.0
Heptachlor epoxide	6.115	6.040	6.180	0.028	0.025	12.0
Endosulfan I	6.518	6.450	6.590	0.028	0.025	12.0
Dieldrin	6.798	6.730	6.870	0.028	0.025	12.0
4,4-DDE	6.610	6.540	6.680	0.028	0.025	12.0
Endrin	7.102	7.030	7.170	0.026	0.025	4.0
Endosulfan II	7.407	7.330	7.470	0.028	0.025	12.0
4,4-DDD	7.200	7.130	7.270	0.028	0.025	12.0
Endosulfan sulfate	7.833	7.760	7.900	0.029	0.025	16.0
4,4-DDT	7.477	7.410	7.550	0.028	0.025	12.0
Methoxychlor	8.077	8.010	8.150	0.029	0.025	16.0
Endrin ketone	8.419	8.350	8.490	0.032	0.025	28.0
Endrin aldehyde	7.597	7.520	7.660	0.028	0.025	12.0
alpha-Chlordane	6.443	6.370	6.510	0.028	0.025	12.0
gamma-Chlordane	6.374	6.300	6.440	0.028	0.025	12.0
Decachlorobiphenyl	9.745	9.640	9.840	0.029	0.025	16.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003616.D **Time Analyzed:** 15:44

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.246	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.773	5.720	5.820	0.025	0.025	0.0
delta-BHC	6.040	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.589	5.540	5.640	0.022	0.025	12.0
Heptachlor	6.208	6.160	6.260	0.024	0.025	4.0
Aldrin	6.574	6.520	6.620	0.023	0.025	8.0
Heptachlor epoxide	7.019	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.442	7.370	7.510	0.024	0.025	4.0
Dieldrin	7.737	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.532	7.460	7.600	0.024	0.025	4.0
Endrin	7.994	7.920	8.060	0.022	0.025	12.0
Endosulfan II	8.224	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.092	8.020	8.160	0.023	0.025	8.0
Endosulfan sulfate	8.627	8.560	8.700	0.025	0.025	0.0
4,4-DDT	8.438	8.370	8.510	0.021	0.025	16.0
Methoxychlor	8.974	8.900	9.040	0.023	0.025	8.0
Endrin ketone	9.249	9.180	9.320	0.026	0.025	4.0
Endrin aldehyde	8.366	8.290	8.430	0.025	0.025	0.0
alpha-Chlordane	7.377	7.310	7.450	0.024	0.025	4.0
gamma-Chlordane	7.292	7.220	7.360	0.024	0.025	4.0
Decachlorobiphenyl	11.386	11.280	11.480	0.025	0.025	0.0
Tetrachloro-m-xylene	4.777	4.670	4.870	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003616.D **Time Analyzed:** 15:44

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.603	4.550	4.650	0.027	0.025	8.0
beta-BHC	5.224	5.170	5.270	0.026	0.025	4.0
delta-BHC	5.477	5.430	5.530	0.027	0.025	8.0
gamma-BHC (Lindane)	4.944	4.890	4.990	0.026	0.025	4.0
Heptachlor	5.301	5.250	5.350	0.026	0.025	4.0
Aldrin	5.600	5.550	5.650	0.026	0.025	4.0
Heptachlor epoxide	6.116	6.040	6.180	0.027	0.025	8.0
Endosulfan I	6.518	6.450	6.590	0.027	0.025	8.0
Dieldrin	6.797	6.730	6.870	0.026	0.025	4.0
4,4-DDE	6.609	6.540	6.680	0.026	0.025	4.0
Endrin	7.102	7.030	7.170	0.024	0.025	4.0
Endosulfan II	7.407	7.330	7.470	0.027	0.025	8.0
4,4-DDD	7.200	7.130	7.270	0.026	0.025	4.0
Endosulfan sulfate	7.833	7.760	7.900	0.028	0.025	12.0
4,4-DDT	7.477	7.410	7.550	0.025	0.025	0.0
Methoxychlor	8.078	8.010	8.150	0.026	0.025	4.0
Endrin ketone	8.418	8.350	8.490	0.031	0.025	24.0
Endrin aldehyde	7.596	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.443	6.370	6.510	0.026	0.025	4.0
gamma-Chlordane	6.374	6.300	6.440	0.026	0.025	4.0
Decachlorobiphenyl	9.744	9.640	9.840	0.027	0.025	8.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003628.D **Time Analyzed:** 19:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.246	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.773	5.720	5.820	0.026	0.025	4.0
delta-BHC	6.040	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.208	6.160	6.260	0.023	0.025	8.0
Aldrin	6.574	6.520	6.620	0.022	0.025	12.0
Heptachlor epoxide	7.020	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.442	7.370	7.510	0.023	0.025	8.0
Dieldrin	7.737	7.660	7.800	0.022	0.025	12.0
4,4-DDE	7.531	7.460	7.600	0.023	0.025	8.0
Endrin	7.995	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.224	8.150	8.290	0.023	0.025	8.0
4,4-DDD	8.091	8.020	8.160	0.023	0.025	8.0
Endosulfan sulfate	8.627	8.560	8.700	0.024	0.025	4.0
4,4-DDT	8.437	8.370	8.510	0.021	0.025	16.0
Methoxychlor	8.974	8.900	9.040	0.022	0.025	12.0
Endrin ketone	9.249	9.180	9.320	0.026	0.025	4.0
Endrin aldehyde	8.366	8.290	8.430	0.024	0.025	4.0
alpha-Chlordane	7.377	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.292	7.220	7.360	0.023	0.025	8.0
Decachlorobiphenyl	11.386	11.280	11.480	0.025	0.025	0.0
Tetrachloro-m-xylene	4.777	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003628.D **Time Analyzed:** 19:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.603	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.224	5.170	5.270	0.024	0.025	4.0
delta-BHC	5.477	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.944	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.301	5.250	5.350	0.025	0.025	0.0
Aldrin	5.600	5.550	5.650	0.025	0.025	0.0
Heptachlor epoxide	6.115	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.517	6.450	6.590	0.025	0.025	0.0
Dieldrin	6.798	6.730	6.870	0.025	0.025	0.0
4,4-DDE	6.610	6.540	6.680	0.025	0.025	0.0
Endrin	7.101	7.030	7.170	0.022	0.025	12.0
Endosulfan II	7.406	7.330	7.470	0.025	0.025	0.0
4,4-DDD	7.200	7.130	7.270	0.025	0.025	0.0
Endosulfan sulfate	7.833	7.760	7.900	0.026	0.025	4.0
4,4-DDT	7.476	7.410	7.550	0.023	0.025	8.0
Methoxychlor	8.078	8.010	8.150	0.024	0.025	4.0
Endrin ketone	8.418	8.350	8.490	0.029	0.025	16.0
Endrin aldehyde	7.596	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.443	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.374	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.745	9.640	9.840	0.026	0.025	4.0
Tetrachloro-m-xylene	4.073	3.970	4.170	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003637.D **Time Analyzed:** 22:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.246	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.775	5.720	5.820	0.024	0.025	4.0
delta-BHC	6.040	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.208	6.160	6.260	0.023	0.025	8.0
Aldrin	6.573	6.520	6.620	0.022	0.025	12.0
Heptachlor epoxide	7.019	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.442	7.370	7.510	0.023	0.025	8.0
Dieldrin	7.737	7.660	7.800	0.022	0.025	12.0
4,4-DDE	7.531	7.460	7.600	0.023	0.025	8.0
Endrin	7.994	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.224	8.150	8.290	0.023	0.025	8.0
4,4-DDD	8.092	8.020	8.160	0.022	0.025	12.0
Endosulfan sulfate	8.627	8.560	8.700	0.024	0.025	4.0
4,4-DDT	8.437	8.370	8.510	0.020	0.025	20.0
Methoxychlor	8.974	8.900	9.040	0.022	0.025	12.0
Endrin ketone	9.249	9.180	9.320	0.027	0.025	8.0
Endrin aldehyde	8.366	8.290	8.430	0.024	0.025	4.0
alpha-Chlordane	7.377	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.292	7.220	7.360	0.023	0.025	8.0
Decachlorobiphenyl	11.385	11.280	11.480	0.025	0.025	0.0
Tetrachloro-m-xylene	4.776	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003637.D **Time Analyzed:** 22:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.603	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.224	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.476	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.944	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.301	5.250	5.350	0.025	0.025	0.0
Aldrin	5.600	5.550	5.650	0.025	0.025	0.0
Heptachlor epoxide	6.116	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.518	6.450	6.590	0.025	0.025	0.0
Dieldrin	6.798	6.730	6.870	0.025	0.025	0.0
4,4-DDE	6.611	6.540	6.680	0.024	0.025	4.0
Endrin	7.102	7.030	7.170	0.022	0.025	12.0
Endosulfan II	7.406	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.200	7.130	7.270	0.025	0.025	0.0
Endosulfan sulfate	7.833	7.760	7.900	0.027	0.025	8.0
4,4-DDT	7.477	7.410	7.550	0.023	0.025	8.0
Methoxychlor	8.077	8.010	8.150	0.024	0.025	4.0
Endrin ketone	8.418	8.350	8.490	0.031	0.025	24.0
Endrin aldehyde	7.597	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.443	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.375	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.745	9.640	9.840	0.026	0.025	4.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.025	0.025	0.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60024BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab Sample ID: PB60024BL Lab File ID: PD006878.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/19/2011

Date Analyzed (1): 12/21/2011 Date Analyzed (2): 12/21/2011

Time Analyzed (1): 19:05 Time Analyzed (2): 19:05

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column (1): ZB-MR2 ID: 0.32 (mm) GC Column (2): ZB-MR1 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60024BS	PB60024BS	PD006879.D	12/21/2011	12/21/2011
12SB25-000.5-01	C5039-12	PD006882.D	12/21/2011	12/21/2011
12SB25-000.5-01MS	C5039-13MS	PD006884.D	12/21/2011	12/21/2011
12SB25-000.5-01MSD	C5039-14MSD	PD006885.D	12/21/2011	12/21/2011
12SB14-000.5-01	C5039-01	PG003605.D	12/30/2011	12/30/2011
12SB13-000.5-01	C5039-02	PG003606.D	12/30/2011	12/30/2011
12SB29-000.5-01	C5039-05	PG003609.D	12/30/2011	12/30/2011
12SB29-0.502-02	C5039-06	PG003610.D	12/30/2011	12/30/2011
12SB29-0304-03	C5039-07	PG003611.D	12/30/2011	12/30/2011
12SB26-000.5-01	C5039-08	PG003612.D	12/30/2011	12/30/2011
12SB26-0.502-02	C5039-09	PG003613.D	12/30/2011	12/30/2011
12SB26-0304-03	C5039-10	PG003614.D	12/30/2011	12/30/2011
12SB-DUP-05	C5039-11	PG003617.D	12/30/2011	12/30/2011
12SB25-0.502-02	C5039-15	PG003618.D	12/30/2011	12/30/2011
12SB25-0304-03	C5039-16	PG003619.D	12/30/2011	12/30/2011
12SB28-0.502-02	C5039-17	PG003620.D	12/30/2011	12/30/2011
12SB28-0304-03	C5039-18	PG003621.D	12/30/2011	12/30/2011
12SB13-0.502-02	C5039-03	PG003623.D	12/30/2011	12/30/2011
12SB13-0304-03	C5039-04	PG003624.D	12/30/2011	12/30/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60024BL	SDG No.:	C5039
Lab Sample ID:	PB60024BL	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	0 Decanted:
Sample Wt/Vol:	30 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD006878.D	1	12/19/11	12/21/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	22.4		55 - 130	112%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.9		70 - 125	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60024BS	alpha-BHC	16.7	18	108				84	123	
	beta-BHC	16.7	18	108				82	123	
	delta-BHC	16.7	17	102				83	126	
	gamma-BHC (Lindane)	16.7	18	108				83	125	
	Heptachlor	16.7	18	108				83	122	
	Aldrin	16.7	18	108				82	124	
	Heptachlor epoxide	16.7	18	108				83	120	
	Endosulfan I	16.7	17	102				81	124	
	Dieldrin	16.7	18	108				85	121	
	4,4-DDE	16.7	18	108				81	123	
	Endrin	16.7	18	108				76	130	
	Endosulfan II	16.7	18	108				80	125	
	4,4-DDD	16.7	18	108				80	131	
	Endosulfan sulfate	16.7	18	108				81	122	
	4,4-DDT	16.7	18	108				70	129	
	Methoxychlor	16.7	18	108				78	129	
	Endrin ketone	16.7	18	108				77	132	
	Endrin aldehyde	16.7	17	102				79	124	
	alpha-Chlordane	16.7	18	108				84	120	
	gamma-Chlordane	16.7	18	108				83	122	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12SB25-000.5-01MS**										
C5039-13MS	alpha-BHC	23.1	0	18	78				60	125	
	beta-BHC	23.1	0	15	65				60	125	
	delta-BHC	23.1	0	12	52	*			55	130	
	gamma-BHC (Lindane)	23.1	0	19	82				60	125	
	Heptachlor	23.1	0	18	78				50	140	
	Aldrin	23.1	0	15	65				45	140	
	Heptachlor epoxide	23.1	0	15	65				65	130	
	Endosulfan I	23.1	0	18	78				15	135	
	Dieldrin	23.1	0	22	95				65	125	
	4,4-DDE	23.1	0	12	52	*			70	125	
	Endrin	23.1	0	14	61				60	135	
	Endosulfan II	23.1	0	12	52				35	140	
	4,4-DDD	23.1	0	14	61				30	135	
	Endosulfan sulfate	23.1	0	9.8	42	*			60	135	
	4,4-DDT	23.1	0	14	61				45	140	
	Methoxychlor	23.1	0	11	48	*			55	145	
	Endrin ketone	23.1	0	14	61	*			65	135	
	Endrin aldehyde	23.1	0	8.3	36				35	145	
	alpha-Chlordane	23.1	0	17	74				65	120	
	gamma-Chlordane	23.1	0	16	69				65	125	
Client Sample ID:	**12SB25-000.5-01MSD**										
C5039-14MSD	alpha-BHC	23.1	0	20	87		11		60	125	20
	beta-BHC	23.1	0	16	69		6		60	125	20
	delta-BHC	23.1	0	12	52	*	0		55	130	20
	gamma-BHC (Lindane)	23.1	0	19	82		0		60	125	20
	Heptachlor	23.1	0	17	74		5		50	140	20
	Aldrin	23.1	0	16	69		6		45	140	20
	Heptachlor epoxide	23.1	0	16	69		6		65	130	20
	Endosulfan I	23.1	0	20	87		11		15	135	20
	Dieldrin	23.1	0	23	100		5		65	125	20
	4,4-DDE	23.1	0	14	61	*	16		70	125	20
	Endrin	23.1	0	15	65		6		60	135	20
	Endosulfan II	23.1	0	12	52		0		35	140	20
	4,4-DDD	23.1	0	16	69		12		30	135	20
	Endosulfan sulfate	23.1	0	11	48	*	13		60	135	20
	4,4-DDT	23.1	0	15	65		6		45	140	20
	Methoxychlor	23.1	0	12	52	*	8		55	145	20
	Endrin ketone	23.1	0	16	69		12		65	135	20
	Endrin aldehyde	23.1	0	9.9	43		18		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
C5039-14MSD	alpha-Chlordane	23.1	0	18	78		5		65	120	20
	gamma-Chlordane	23.1	0	17	74		7		65	125	20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	PIBLK-PD006863.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PD006863.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD006863.D	1		12/21/11	PD122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.7		10 - 192	88%	SPK: 20
877-09-8	Tetrachloro-m-xylene	21.2		10 - 172	106%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	PIBLK-PG003560.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PG003560.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003560.D	1		12/29/11	PG122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.7		10 - 192	99%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.8		10 - 172	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
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S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	PIBLK-PD006876.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PD006876.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD006876.D	1		12/21/11	PD122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	22.5		10 - 192	112%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.8		10 - 172	104%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/30/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	PIBLK-PG003602.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PG003602.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003602.D	1		12/30/11	PG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.8		10 - 192	94%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.1		10 - 172	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	PIBLK-PD006886.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PD006886.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD006886.D	1		12/21/11	PD122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.2		10 - 192	101%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.5		10 - 172	103%	SPK: 20

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MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/30/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	PIBLK-PG003615.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PG003615.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003615.D	1		12/30/11	PG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20		10 - 192	100%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		10 - 172	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/30/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	PIBLK-PG003627.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PG003627.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003627.D	1		12/30/11	PG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.8		10 - 192	99%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.3		10 - 172	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/30/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	PIBLK-PG003636.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PG003636.D	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003636.D	1		12/30/11	PG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.6		10 - 192	103%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		10 - 172	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB26-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab Sample ID: C5039-08 Date(s) Analyzed: 12/30/2011 12/30/2011

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.74	7.66	7.80	28	15.4
	2	6.80	6.73	6.87	24	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB26-000.5-01RE

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab Sample ID: C5039-08RE Date(s) Analyzed: 12/30/2011 12/30/2011

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.74	7.66	7.80	28	19.6
	2	6.80	6.73	6.87	23	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB-DUP-05

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab Sample ID: C5039-11 Date(s) Analyzed: 12/30/2011 12/30/2011

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.74	7.66	7.80	28	7.4
	2	6.80	6.73	6.87	26	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB-DUP-05RE

Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab Sample ID: C5039-11RE Date(s) Analyzed: 12/30/2011 12/30/2011

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.74	7.66	7.80	28	11.3
	2	6.80	6.73	6.87	25	

SDG C5039

SAMPLE CALC	SAMPLE ID	12SB26-000.5-01				
	Correction	COMPOUND OF	Vol. of extract			
CF	factor	INTEREST AREA	(UL)	Sample Wt. in grams (G)	Percent Solids	CONCENTRATION PPB
4739485	1	296113	10000	30.05	0.749	27.7588

Dieldrin = 28 ug/kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	25.1 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003612.D	1	12/19/11	12/30/11	PB60024

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.21	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	28		0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	4.59	*	55 - 130	23%	SPK: 20
877-09-8	Tetrachloro-m-xylene	9.83	*	70 - 125	49%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Data Path : P:\HPCHEM1\Ecd_G\Data\PG123011\
Data File : PG003612.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 30 Dec 2011 14:29
Operator : JJ
Sample : C5039-08
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 31 04:44:00 2011
Quant Method : P:\HPCHEM1\Ecd_G\Method\PG122911.M
Quant Title : GC Extractables
QLast Update : Fri Dec 30 02:01:52 2011
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 µl
Signal #1 Phase : ZB-MR1 Signal #2 Phase: ZB-MR2
Signal #1 Info : 30M x 0.32mm x0.5 Signal #2 Info : 30M x 0.32mm x0.25µm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/ml	ng/ml
	System Monitoring Compounds						
.)	SA Tetrachlo...	4.777	4.070	48323	247125	9.831	11.776m
2)	SA Decachlor...	11.388	9.744	37292	105880	4.592	3.932
	Target Compounds						
3)	MA Dieldrin	7.736	6.798	296113	1576235	62.478	54.377

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006006.D	PIBLK-PC006006.D	Tetrachloro-m-xylene	1	20	24.47	122		35	137
		Decachlorobiphenyl	1	20	23.61	118		40	135
		Tetrachloro-m-xylene	2	20	25.07	125		35	137
		Decachlorobiphenyl	2	20	24.18	121		40	135
I.BLK-PC006212.D	PIBLK-PC006212.D	Tetrachloro-m-xylene	1	20	18.97	95		35	137
		Decachlorobiphenyl	1	20	21.42	107		40	135
		Tetrachloro-m-xylene	2	20	21.02	105		35	137
		Decachlorobiphenyl	2	20	22.01	110		40	135
PB60023BL	PB60023BL	Tetrachloro-m-xylene	1	20	16.91	85		10	166
		Decachlorobiphenyl	1	20	19.93	100		60	125
		Tetrachloro-m-xylene	2	20	19.7	99		10	166
		Decachlorobiphenyl	2	20	19.53	98		60	125
PB60023BS	PB60023BS	Tetrachloro-m-xylene	1	20	17.01	85		10	166
		Decachlorobiphenyl	1	20	19.74	99		60	125
		Tetrachloro-m-xylene	2	20	19.31	97		10	166
		Decachlorobiphenyl	2	20	20.33	102		60	125
C5039-01	12SB14-000.5-01	Tetrachloro-m-xylene	1	20	14.29	71		10	166
		Decachlorobiphenyl	1	20	15.67	78		60	125
		Tetrachloro-m-xylene	2	20	16.56	83		10	166
		Decachlorobiphenyl	2	20	16.23	81		60	125
C5039-02	12SB13-000.5-01	Tetrachloro-m-xylene	1	20	11.32	57		10	166
		Decachlorobiphenyl	1	20	11.75	59	*	60	125
		Tetrachloro-m-xylene	2	20	13.32	67		10	166
		Decachlorobiphenyl	2	20	11.51	58	*	60	125
C5039-03	12SB13-0.502-02	Tetrachloro-m-xylene	1	20	11.16	56		10	166
		Decachlorobiphenyl	1	20	7.83	39	*	60	125
		Tetrachloro-m-xylene	2	20	13.3	67		10	166
		Decachlorobiphenyl	2	20	7.13	36	*	60	125
I.BLK-PC006224.D	PIBLK-PC006224.D	Tetrachloro-m-xylene	1	20	18.62	93		35	137
		Decachlorobiphenyl	1	20	21.59	108		40	135
		Tetrachloro-m-xylene	2	20	21.7	109		35	137
		Decachlorobiphenyl	2	20	20.77	104		40	135
C5039-04	12SB13-0304-03	Tetrachloro-m-xylene	1	20	15	75		10	166
		Decachlorobiphenyl	1	20	12.86	64		60	125
		Tetrachloro-m-xylene	2	20	17.41	87		10	166
		Decachlorobiphenyl	2	20	14.14	71		60	125
C5039-05	12SB29-000.5-01	Tetrachloro-m-xylene	1	20	13.53	68		10	166
		Decachlorobiphenyl	1	20	8.63	43	*	60	125
		Tetrachloro-m-xylene	2	20	14.09	70		10	166
		Decachlorobiphenyl	2	20	9.9	50	*	60	125
C5039-06	12SB29-0.502-02	Tetrachloro-m-xylene	1	20	12.68	63		10	166
		Decachlorobiphenyl	1	20	10.94	55	*	60	125
		Tetrachloro-m-xylene	2	20	13.45	67		10	166
		Decachlorobiphenyl	2	20	11.22	56	*	60	125

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-07	12SB29-0304-03	Tetrachloro-m-xylene	1	20	14.62	73		10	166
		Decachlorobiphenyl	1	20	15.41	77		60	125
		Tetrachloro-m-xylene	2	20	16.86	84		10	166
		Decachlorobiphenyl	2	20	15.16	76		60	125
C5039-08	12SB26-000.5-01	Tetrachloro-m-xylene	1	20	7.56	38		10	166
		Decachlorobiphenyl	1	20	5.83	29	*	60	125
		Tetrachloro-m-xylene	2	20	8.66	43		10	166
		Decachlorobiphenyl	2	20	3.87	19	*	60	125
C5039-09	12SB26-0.502-02	Tetrachloro-m-xylene	1	20	15.96	80		10	166
		Decachlorobiphenyl	1	20	13.9	70		60	125
		Tetrachloro-m-xylene	2	20	18.41	92		10	166
		Decachlorobiphenyl	2	20	14.07	70		60	125
C5039-10	12SB26-0304-03	Tetrachloro-m-xylene	1	20	15.45	77		10	166
		Decachlorobiphenyl	1	20	17.57	88		60	125
		Tetrachloro-m-xylene	2	20	18.11	91		10	166
		Decachlorobiphenyl	2	20	17.85	89		60	125
C5039-11	12SB-DUP-05	Tetrachloro-m-xylene	1	20	11.85	59		10	166
		Decachlorobiphenyl	1	20	6.68	33	*	60	125
		Tetrachloro-m-xylene	2	20	12.06	60		10	166
		Decachlorobiphenyl	2	20	5.3	27	*	60	125
C5039-12	12SB25-000.5-01	Tetrachloro-m-xylene	1	20	12.8	64		10	166
		Decachlorobiphenyl	1	20	6.44	32	*	60	125
		Tetrachloro-m-xylene	2	20	13.86	69		10	166
		Decachlorobiphenyl	2	20	5.2	26	*	60	125
C5039-13MS	12SB25-000.5-01MS	Tetrachloro-m-xylene	1	20	14.08	70		10	166
		Decachlorobiphenyl	1	20	7.73	39	*	60	125
		Tetrachloro-m-xylene	2	20	14.86	74		10	166
		Decachlorobiphenyl	2	20	6.47	32	*	60	125
I.BLK-PC006236.D	PIBLK-PC006236.D	Tetrachloro-m-xylene	1	20	21.31	107		35	137
		Decachlorobiphenyl	1	20	21.83	109		40	135
		Tetrachloro-m-xylene	2	20	21.51	108		35	137
		Decachlorobiphenyl	2	20	21.66	108		40	135
C5039-14MSD	12SB25-000.5-01MSD	Tetrachloro-m-xylene	1	20	13.64	68		10	166
		Decachlorobiphenyl	1	20	7.79	39	*	60	125
		Tetrachloro-m-xylene	2	20	13.66	68		10	166
		Decachlorobiphenyl	2	20	11.12	56	*	60	125
C5039-15	12SB25-0.502-02	Tetrachloro-m-xylene	1	20	14.78	74		10	166
		Decachlorobiphenyl	1	20	11.95	60		60	125
		Tetrachloro-m-xylene	2	20	16.1	81		10	166
		Decachlorobiphenyl	2	20	14.09	70		60	125
C5039-16	12SB25-0304-03	Tetrachloro-m-xylene	1	20	16.01	80		10	166
		Decachlorobiphenyl	1	20	11.6	58	*	60	125
		Tetrachloro-m-xylene	2	20	16.82	84		10	166
		Decachlorobiphenyl	2	20	11.44	57	*	60	125

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-17	12SB28-0.502-02	Tetrachloro-m-xylene	1	20	14.62	73		10	166
		Decachlorobiphenyl	1	20	14.79	74		60	125
		Tetrachloro-m-xylene	2	20	17.11	86		10	166
		Decachlorobiphenyl	2	20	15.39	77		60	125
C5039-18	12SB28-0304-03	Tetrachloro-m-xylene	1	20	16.26	81		10	166
		Decachlorobiphenyl	1	20	15.61	78		60	125
		Tetrachloro-m-xylene	2	20	18.58	93		10	166
		Decachlorobiphenyl	2	20	16.11	81		60	125
I.BLK-PC006247.D	PIBLK-PC006247.D	Tetrachloro-m-xylene	1	20	21.47	107		35	137
		Decachlorobiphenyl	1	20	21.09	105		40	135
		Tetrachloro-m-xylene	2	20	21.58	108		35	137
		Decachlorobiphenyl	2	20	21.04	105		40	135
I.BLK-PC006249.D	PIBLK-PC006249.D	Tetrachloro-m-xylene	1	20	22.5	113		35	137
		Decachlorobiphenyl	1	20	21.98	110		40	135
		Tetrachloro-m-xylene	2	20	22.34	112		35	137
		Decachlorobiphenyl	2	20	21.97	110		40	135
C5039-02RE	12SB13-000.5-01RE	Tetrachloro-m-xylene	1	20	12.33	62		10	166
		Decachlorobiphenyl	1	20	10.52	53	*	60	125
		Tetrachloro-m-xylene	2	20	13.47	67		10	166
		Decachlorobiphenyl	2	20	8.68	43	*	60	125
C5039-03RE	12SB13-0.502-02RE	Tetrachloro-m-xylene	1	20	13.21	66		10	166
		Decachlorobiphenyl	1	20	7	35	*	60	125
		Tetrachloro-m-xylene	2	20	13.46	67		10	166
		Decachlorobiphenyl	2	20	7.04	35	*	60	125
C5039-05RE	12SB29-000.5-01RE	Tetrachloro-m-xylene	1	20	14.3	72		10	166
		Decachlorobiphenyl	1	20	8.72	44	*	60	125
		Tetrachloro-m-xylene	2	20	14.52	73		10	166
		Decachlorobiphenyl	2	20	8.37	42	*	60	125
C5039-06RE	12SB29-0.502-02RE	Tetrachloro-m-xylene	1	20	13.85	69		10	166
		Decachlorobiphenyl	1	20	11.08	55	*	60	125
		Tetrachloro-m-xylene	2	20	13.98	70		10	166
		Decachlorobiphenyl	2	20	10.91	55	*	60	125
C5039-08RE	12SB26-000.5-01RE	Tetrachloro-m-xylene	1	20	8.41	42		10	166
		Decachlorobiphenyl	1	20	6.08	30	*	60	125
		Tetrachloro-m-xylene	2	20	9.2	46		10	166
		Decachlorobiphenyl	2	20	3.53	18	*	60	125
C5039-11RE	12SB-DUP-05RE	Tetrachloro-m-xylene	1	20	11.83	59		10	166
		Decachlorobiphenyl	1	20	6.73	34	*	60	125
		Tetrachloro-m-xylene	2	20	12.48	62		10	166
		Decachlorobiphenyl	2	20	5.64	28	*	60	125
C5039-12RE	12SB25-000.5-01RE	Tetrachloro-m-xylene	1	20	13.28	66		10	166
		Decachlorobiphenyl	1	20	6.04	30	*	60	125
		Tetrachloro-m-xylene	2	20	13.91	70		10	166
		Decachlorobiphenyl	2	20	5.21	26	*	60	125

CHEMTECH

Surrogate Summary

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5039-16RE	12SB25-0304-03RE	Tetrachloro-m-xylene	1	20	16.64	83		10	166
		Decachlorobiphenyl	1	20	11.79	59	*	60	125
		Tetrachloro-m-xylene	2	20	17.08	85		10	166
		Decachlorobiphenyl	2	20	11.66	58	*	60	125
I.BLK-PC006259.D	PIBLK-PC006259.D	Tetrachloro-m-xylene	1	20	19.21	96		35	137
		Decachlorobiphenyl	1	20	21.8	109		40	135
		Tetrachloro-m-xylene	2	20	21	105		35	137
		Decachlorobiphenyl	2	20	21.5	108		40	135

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5039

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.58	8.43
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.58	8.42
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.57	8.42
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.58	8.42
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.58	8.42
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.58	8.43
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.58	8.42
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.58	8.42
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.58	8.42
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.58	8.43
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.58	8.42
PIBLK02	I.BLK02	12/22/2011	17:36	PC006212.D	1.59	8.43
CCAL01	1660 250	12/22/2011	17:53	PC006213.D	1.59	8.43
PB60023BL	PB60023BL	12/22/2011	19:30	PC006219.D	1.59	8.43
PB60023BS	PB60023BS	12/22/2011	19:46	PC006220.D	1.59	8.43
12SB14-000.5-01	C5039-01	12/22/2011	20:03	PC006221.D	1.59	8.43
12SB13-000.5-01	C5039-02	12/22/2011	20:19	PC006222.D	1.59	8.43
12SB13-0.502-02	C5039-03	12/22/2011	20:35	PC006223.D	1.59	8.43
PIBLK03	I.BLK03	12/22/2011	20:51	PC006224.D	1.59	8.43
CCAL02	1660 250	12/22/2011	21:08	PC006225.D	1.59	8.43
12SB13-0304-03	C5039-04	12/22/2011	21:24	PC006226.D	1.59	8.43
12SB29-000.5-01	C5039-05	12/22/2011	21:40	PC006227.D	1.59	8.43
12SB29-0.502-02	C5039-06	12/22/2011	21:56	PC006228.D	1.59	8.43
12SB29-0304-03	C5039-07	12/22/2011	22:12	PC006229.D	1.59	8.43
12SB26-000.5-01	C5039-08	12/22/2011	22:29	PC006230.D	1.59	8.42
12SB26-0.502-02	C5039-09	12/22/2011	22:45	PC006231.D	1.59	8.43
12SB26-0304-03	C5039-10	12/22/2011	23:01	PC006232.D	1.59	8.43
12SB-DUP-05	C5039-11	12/22/2011	23:17	PC006233.D	1.59	8.42
12SB25-000.5-01	C5039-12	12/22/2011	23:34	PC006234.D	1.59	8.43
12SB25-000.5-01MS	C5039-13MS	12/22/2011	23:50	PC006235.D	1.59	8.43
PIBLK04	I.BLK04	12/23/2011	00:06	PC006236.D	1.59	8.43
CCAL03	1660 250	12/23/2011	00:22	PC006237.D	1.59	8.43
12SB25-000.5-01MSD	C5039-14MSD	12/23/2011	00:38	PC006238.D	1.59	8.43
12SB25-0.502-02	C5039-15	12/23/2011	00:55	PC006239.D	1.59	8.43
12SB25-0304-03	C5039-16	12/23/2011	01:11	PC006240.D	1.59	8.43
12SB28-0.502-02	C5039-17	12/23/2011	01:27	PC006241.D	1.59	8.43
12SB28-0304-03	C5039-18	12/23/2011	01:44	PC006242.D	1.59	8.43
PIBLK05	I.BLK05	12/23/2011	03:05	PC006247.D	1.59	8.43
CCAL04	1660 250	12/23/2011	03:21	PC006248.D	1.59	8.43
PIBLK06	I.BLK06	12/23/2011	11:46	PC006249.D	1.59	8.42
CCAL05	1660 250	12/23/2011	12:03	PC006250.D	1.59	8.42
12SB13-000.5-01RE	C5039-02RE	12/23/2011	16:18	PC006251.D	1.59	8.43
12SB13-0.502-02RE	C5039-03RE	12/23/2011	16:35	PC006252.D	1.59	8.43
12SB29-000.5-01RE	C5039-05RE	12/23/2011	16:51	PC006253.D	1.59	8.43
12SB29-0.502-02RE	C5039-06RE	12/23/2011	17:07	PC006254.D	1.59	8.43

CHEMTECH

Analytical Sequence

12SB26-000.5-01RE	C5039-08RE	12/23/2011	17:24	PC006255.D	1.59	8.42
12SB-DUP-05RE	C5039-11RE	12/23/2011	17:40	PC006256.D	1.59	8.42
12SB25-000.5-01RE	C5039-12RE	12/23/2011	17:56	PC006257.D	1.59	8.43
12SB25-0304-03RE	C5039-16RE	12/23/2011	18:12	PC006258.D	1.59	8.42
PIBLK07	I.BLK07	12/23/2011	18:29	PC006259.D	1.59	8.42
CCAL06	1660 250	12/23/2011	18:45	PC006260.D	1.59	8.42

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1539340	1583428	1652292	1516859	1525454	1563475	4
Decachlorobiphenyl	2753860	2322628	2228812	1984339	1934411	2244810	15
AR1016 (1)	81972	69605	66677	59385	58354	67199	14
AR1016 (2)	119474	139033	138562	120044	124271	128277	8
AR1016 (3)	45572	50213	49382	43690	43986	46569	7
AR1016 (4)	95814	81476	78901	71383	69652	79445	13
AR1016 (5)	63008	59206	58785	53206	52860	57413	8
AR1260 (1)	101772	94032	93196	83493	82614	91021	9
AR1260 (2)	209384	177891	177586	158917	156997	176155	12
AR1260 (3)	161338	151174	155707	141296	141029	150109	6
AR1260 (4)	233482	216564	219776	189635	189204	209732	9
AR1260 (5)	99230	95811	98680	92081	91537	95468	4

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.20	1.15	1.25	10802
		2	1.74	1.69	1.79	17204
		3	1.90	1.85	1.95	53471
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.90	1.85	1.95	42188
		2	2.25	2.20	2.30	31833
		3	2.74	2.69	2.79	61113
		4	2.89	2.84	2.94	21823
		5	3.90	3.85	3.95	39339
AR1242	0.5000	1	2.25	2.20	2.30	56293
		2	2.74	2.69	2.79	114860
		3	3.13	3.08	3.18	65688
		4	3.37	3.32	3.42	49772
		5	3.90	3.85	3.95	83942
AR1248	0.5000	1	2.74	2.69	2.79	73698
		2	3.13	3.08	3.18	106133
		3	3.37	3.32	3.42	73441
		4	3.90	3.85	3.95	138267
		5	4.66	4.61	4.71	38608
AR1254	0.5000	1	3.11	3.06	3.16	65083
		2	4.65	4.60	4.70	165431
		3	5.02	4.97	5.07	134662
		4	5.26	5.21	5.31	122909
		5	5.63	5.58	5.68	193414

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006213.D **Time Analyzed:** 17:53

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.259	2.200	2.300	0.237	0.250	5.2
AR1016 (2)	2.744	2.680	2.780	0.271	0.250	8.4
AR1016 (3)	2.897	2.840	2.940	0.292	0.250	16.8
AR1016 (4)	3.133	3.070	3.170	0.286	0.250	14.4
AR1016 (5)	3.373	3.320	3.420	0.257	0.250	2.8
AR1260 (1)	4.900	4.840	4.940	0.241	0.250	3.6
AR1260 (2)	5.271	5.220	5.320	0.235	0.250	6.0
AR1260 (3)	5.633	5.580	5.680	0.234	0.250	6.4
AR1260 (4)	6.542	6.490	6.590	0.241	0.250	3.6
AR1260 (5)	6.912	6.860	6.960	0.233	0.250	6.8
Tetrachloro-m-xylene	1.588	1.530	1.630	0.024	0.025	4.0
Decachlorobiphenyl	8.425	8.320	8.520	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006225.D **Time Analyzed:** 21:08

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.225	0.250	10.0
AR1016 (2)	2.745	2.680	2.780	0.243	0.250	2.8
AR1016 (3)	2.898	2.840	2.940	0.245	0.250	2.0
AR1016 (4)	3.133	3.070	3.170	0.214	0.250	14.4
AR1016 (5)	3.373	3.320	3.420	0.214	0.250	14.4
AR1260 (1)	4.901	4.840	4.940	0.256	0.250	2.4
AR1260 (2)	5.272	5.220	5.320	0.256	0.250	2.4
AR1260 (3)	5.634	5.580	5.680	0.248	0.250	0.8
AR1260 (4)	6.543	6.490	6.590	0.251	0.250	0.4
AR1260 (5)	6.913	6.860	6.960	0.244	0.250	2.4
Tetrachloro-m-xylene	1.589	1.530	1.630	0.022	0.025	12.0
Decachlorobiphenyl	8.425	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006237.D **Time Analyzed:** 00:22

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.260	0.250	4.0
AR1016 (2)	2.744	2.680	2.780	0.255	0.250	2.0
AR1016 (3)	2.897	2.840	2.940	0.290	0.250	16.0
AR1016 (4)	3.131	3.070	3.170	0.231	0.250	7.6
AR1016 (5)	3.372	3.320	3.420	0.226	0.250	9.6
AR1260 (1)	4.901	4.840	4.940	0.244	0.250	2.4
AR1260 (2)	5.272	5.220	5.320	0.238	0.250	4.8
AR1260 (3)	5.634	5.580	5.680	0.236	0.250	5.6
AR1260 (4)	6.542	6.490	6.590	0.244	0.250	2.4
AR1260 (5)	6.912	6.860	6.960	0.234	0.250	6.4
Tetrachloro-m-xylene	1.589	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.425	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006248.D **Time Analyzed:** 03:21

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.261	2.200	2.300	0.256	0.250	2.4
AR1016 (2)	2.744	2.680	2.780	0.263	0.250	5.2
AR1016 (3)	2.897	2.840	2.940	0.300	0.250	20.0
AR1016 (4)	3.132	3.070	3.170	0.241	0.250	3.6
AR1016 (5)	3.372	3.320	3.420	0.245	0.250	2.0
AR1260 (1)	4.901	4.840	4.940	0.250	0.250	0.0
AR1260 (2)	5.272	5.220	5.320	0.240	0.250	4.0
AR1260 (3)	5.634	5.580	5.680	0.239	0.250	4.4
AR1260 (4)	6.543	6.490	6.590	0.247	0.250	1.2
AR1260 (5)	6.913	6.860	6.960	0.244	0.250	2.4
Tetrachloro-m-xylene	1.590	1.530	1.630	0.025	0.025	0.0
Decachlorobiphenyl	8.425	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006250.D **Time Analyzed:** 12:03

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.258	0.250	3.2
AR1016 (2)	2.744	2.680	2.780	0.279	0.250	11.6
AR1016 (3)	2.899	2.840	2.940	0.275	0.250	10.0
AR1016 (4)	3.134	3.070	3.170	0.249	0.250	0.4
AR1016 (5)	3.374	3.320	3.420	0.237	0.250	5.2
AR1260 (1)	4.900	4.840	4.940	0.229	0.250	8.4
AR1260 (2)	5.271	5.220	5.320	0.241	0.250	3.6
AR1260 (3)	5.634	5.580	5.680	0.233	0.250	6.8
AR1260 (4)	6.542	6.490	6.590	0.244	0.250	2.4
AR1260 (5)	6.911	6.860	6.960	0.249	0.250	0.4
Tetrachloro-m-xylene	1.590	1.530	1.630	0.024	0.025	4.0
Decachlorobiphenyl	8.424	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006260.D **Time Analyzed:** 18:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.262	0.250	4.8
AR1016 (2)	2.743	2.680	2.780	0.278	0.250	11.2
AR1016 (3)	2.898	2.840	2.940	0.277	0.250	10.8
AR1016 (4)	3.133	3.070	3.170	0.238	0.250	4.8
AR1016 (5)	3.373	3.320	3.420	0.228	0.250	8.8
AR1260 (1)	4.900	4.840	4.940	0.230	0.250	8.0
AR1260 (2)	5.271	5.220	5.320	0.239	0.250	4.4
AR1260 (3)	5.633	5.580	5.680	0.234	0.250	6.4
AR1260 (4)	6.541	6.490	6.590	0.246	0.250	1.6
AR1260 (5)	6.910	6.860	6.960	0.251	0.250	0.4
Tetrachloro-m-xylene	1.590	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.423	8.320	8.520	0.025	0.025	0.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5039

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.97	9.88
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.97	9.88
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.96	9.88
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.97	9.88
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.97	9.88
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.97	9.88
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.97	9.88
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.97	9.88
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.97	9.88
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.98	9.89
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.97	9.88
PIBLK02	I.BLK02	12/22/2011	17:36	PC006212.D	1.98	9.88
CCAL01	1660 250	12/22/2011	17:53	PC006213.D	1.98	9.88
PB60023BL	PB60023BL	12/22/2011	19:30	PC006219.D	1.99	9.88
PB60023BS	PB60023BS	12/22/2011	19:46	PC006220.D	1.98	9.88
12SB14-000.5-01	C5039-01	12/22/2011	20:03	PC006221.D	1.99	9.88
12SB13-000.5-01	C5039-02	12/22/2011	20:19	PC006222.D	1.99	9.88
12SB13-0.502-02	C5039-03	12/22/2011	20:35	PC006223.D	1.99	9.88
PIBLK03	I.BLK03	12/22/2011	20:51	PC006224.D	1.98	9.88
CCAL02	1660 250	12/22/2011	21:08	PC006225.D	1.99	9.88
12SB13-0304-03	C5039-04	12/22/2011	21:24	PC006226.D	1.98	9.88
12SB29-000.5-01	C5039-05	12/22/2011	21:40	PC006227.D	1.98	9.88
12SB29-0.502-02	C5039-06	12/22/2011	21:56	PC006228.D	1.99	9.88
12SB29-0304-03	C5039-07	12/22/2011	22:12	PC006229.D	1.99	9.88
12SB26-000.5-01	C5039-08	12/22/2011	22:29	PC006230.D	1.98	9.88
12SB26-0.502-02	C5039-09	12/22/2011	22:45	PC006231.D	1.98	9.88
12SB26-0304-03	C5039-10	12/22/2011	23:01	PC006232.D	1.98	9.88
12SB-DUP-05	C5039-11	12/22/2011	23:17	PC006233.D	1.98	9.88
12SB25-000.5-01	C5039-12	12/22/2011	23:34	PC006234.D	1.99	9.88
12SB25-000.5-01MS	C5039-13MS	12/22/2011	23:50	PC006235.D	1.99	9.88
PIBLK04	I.BLK04	12/23/2011	00:06	PC006236.D	1.98	9.88
CCAL03	1660 250	12/23/2011	00:22	PC006237.D	1.99	9.88
12SB25-000.5-01MSD	C5039-14MSD	12/23/2011	00:38	PC006238.D	1.99	9.88
12SB25-0.502-02	C5039-15	12/23/2011	00:55	PC006239.D	1.99	9.88
12SB25-0304-03	C5039-16	12/23/2011	01:11	PC006240.D	1.99	9.88
12SB28-0.502-02	C5039-17	12/23/2011	01:27	PC006241.D	1.99	9.88
12SB28-0304-03	C5039-18	12/23/2011	01:44	PC006242.D	1.99	9.88
PIBLK05	I.BLK05	12/23/2011	03:05	PC006247.D	1.99	9.88
CCAL04	1660 250	12/23/2011	03:21	PC006248.D	1.99	9.88
PIBLK06	I.BLK06	12/23/2011	11:46	PC006249.D	1.98	9.88
CCAL05	1660 250	12/23/2011	12:03	PC006250.D	1.99	9.88
12SB13-000.5-01RE	C5039-02RE	12/23/2011	16:18	PC006251.D	1.99	9.88
12SB13-0.502-02RE	C5039-03RE	12/23/2011	16:35	PC006252.D	1.98	9.88
12SB29-000.5-01RE	C5039-05RE	12/23/2011	16:51	PC006253.D	1.99	9.88
12SB29-0.502-02RE	C5039-06RE	12/23/2011	17:07	PC006254.D	1.99	9.88

CHEMTECH

Analytical Sequence

12SB26-000.5-01RE	C5039-08RE	12/23/2011	17:24	PC006255.D	1.99	9.88
12SB-DUP-05RE	C5039-11RE	12/23/2011	17:40	PC006256.D	1.99	9.88
12SB25-000.5-01RE	C5039-12RE	12/23/2011	17:56	PC006257.D	1.98	9.88
12SB25-0304-03RE	C5039-16RE	12/23/2011	18:12	PC006258.D	1.98	9.88
PIBLK07	I.BLK07	12/23/2011	18:29	PC006259.D	1.98	9.88
CCAL06	1660 250	12/23/2011	18:45	PC006260.D	1.98	9.88

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_C

Calibration Date(s): 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4286580	3835452	3775146	3400877	3401207	3739852	10
Decachlorobiphenyl	6971140	5675536	5299222	4567911	4287308	5360223	20
AR1016 (1)	170044	148835	143778	126098	124730	142697	13
AR1016 (2)	410106	328973	318375	281943	276128	323105	17
AR1016 (3)	180598	137123	144625	129749	128291	144077	15
AR1016 (4)	133338	109270	115039	104717	105265	113526	10
AR1016 (5)	175524	131268	128639	115200	114714	133069	19
AR1260 (1)	280148	237834	225971	198178	193735	227173	15
AR1260 (2)	334588	285589	273392	234251	234942	272552	15
AR1260 (3)	492282	361751	366763	345958	338776	381106	17
AR1260 (4)	616564	523832	498470	440964	429018	501769	15
AR1260 (5)	474756	365290	400652	358039	342462	388240	14

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.30	2.25	2.35	40341
		2	2.45	2.40	2.50	25307
		3	2.52	2.47	2.57	102884
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.52	2.47	2.57	95734
		2	3.01	2.96	3.06	78811
		3	3.57	3.52	3.62	159496
		4	3.74	3.69	3.79	72117
		5	4.52	4.47	4.57	59201
AR1242	0.5000	1	3.01	2.96	3.06	144390
		2	3.57	3.52	3.62	284971
		3	3.74	3.69	3.79	130662
		4	4.88	4.83	4.93	99797
		5	4.93	4.88	4.98	133151
AR1248	0.5000	1	3.57	3.52	3.62	189426
		2	4.36	4.31	4.41	227718
		3	4.52	4.47	4.57	179891
		4	4.88	4.83	4.93	165968
		5	4.93	4.88	4.98	218113
AR1254	0.5000	1	5.20	5.15	5.25	277781
		2	5.81	5.76	5.86	403951
		3	6.39	6.34	6.44	181582
		4	6.60	6.55	6.65	366397
		5	6.86	6.81	6.91	453032

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006213.D **Time Analyzed:** 17:53

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.013	2.950	3.050	0.281	0.250	12.4
AR1016 (2)	3.576	3.520	3.620	0.248	0.250	0.8
AR1016 (3)	3.749	3.690	3.790	0.263	0.250	5.2
AR1016 (4)	3.879	3.820	3.920	0.250	0.250	0.0
AR1016 (5)	4.524	4.470	4.570	0.244	0.250	2.4
AR1260 (1)	6.083	6.030	6.130	0.250	0.250	0.0
AR1260 (2)	6.389	6.330	6.430	0.253	0.250	1.2
AR1260 (3)	6.863	6.810	6.910	0.250	0.250	0.0
AR1260 (4)	7.766	7.710	7.810	0.264	0.250	5.6
AR1260 (5)	8.261	8.210	8.310	0.255	0.250	2.0
Tetrachloro-m-xylene	1.984	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.883	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/22/2011

Lab Sample No.: 1660 250 **Data File :** PC006225.D **Time Analyzed:** 21:08

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.276	0.250	10.4
AR1016 (2)	3.577	3.520	3.620	0.264	0.250	5.6
AR1016 (3)	3.749	3.690	3.790	0.287	0.250	14.8
AR1016 (4)	3.880	3.820	3.920	0.287	0.250	14.8
AR1016 (5)	4.524	4.470	4.570	0.276	0.250	10.4
AR1260 (1)	6.083	6.030	6.130	0.260	0.250	4.0
AR1260 (2)	6.388	6.330	6.430	0.264	0.250	5.6
AR1260 (3)	6.863	6.810	6.910	0.259	0.250	3.6
AR1260 (4)	7.766	7.710	7.810	0.273	0.250	9.2
AR1260 (5)	8.260	8.210	8.310	0.263	0.250	5.2
Tetrachloro-m-xylene	1.985	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.882	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006237.D **Time Analyzed:** 00:22

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.013	2.950	3.050	0.285	0.250	14.0
AR1016 (2)	3.575	3.520	3.620	0.247	0.250	1.2
AR1016 (3)	3.748	3.690	3.790	0.268	0.250	7.2
AR1016 (4)	3.878	3.820	3.920	0.270	0.250	8.0
AR1016 (5)	4.524	4.470	4.570	0.270	0.250	8.0
AR1260 (1)	6.083	6.030	6.130	0.254	0.250	1.6
AR1260 (2)	6.388	6.330	6.430	0.249	0.250	0.4
AR1260 (3)	6.863	6.810	6.910	0.254	0.250	1.6
AR1260 (4)	7.766	7.710	7.810	0.267	0.250	6.8
AR1260 (5)	8.261	8.210	8.310	0.254	0.250	1.6
Tetrachloro-m-xylene	1.985	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.883	9.780	9.980	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006248.D **Time Analyzed:** 03:21

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.257	0.250	2.8
AR1016 (2)	3.576	3.520	3.620	0.250	0.250	0.0
AR1016 (3)	3.748	3.690	3.790	0.266	0.250	6.4
AR1016 (4)	3.878	3.820	3.920	0.264	0.250	5.6
AR1016 (5)	4.523	4.470	4.570	0.243	0.250	2.8
AR1260 (1)	6.083	6.030	6.130	0.260	0.250	4.0
AR1260 (2)	6.387	6.330	6.430	0.244	0.250	2.4
AR1260 (3)	6.863	6.810	6.910	0.288	0.250	15.2
AR1260 (4)	7.767	7.710	7.810	0.276	0.250	10.4
AR1260 (5)	8.261	8.210	8.310	0.265	0.250	6.0
Tetrachloro-m-xylene	1.986	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.883	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006250.D **Time Analyzed:** 12:03

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.013	2.950	3.050	0.285	0.250	14.0
AR1016 (2)	3.576	3.520	3.620	0.254	0.250	1.6
AR1016 (3)	3.749	3.690	3.790	0.271	0.250	8.4
AR1016 (4)	3.879	3.820	3.920	0.263	0.250	5.2
AR1016 (5)	4.524	4.470	4.570	0.247	0.250	1.2
AR1260 (1)	6.083	6.030	6.130	0.259	0.250	3.6
AR1260 (2)	6.386	6.330	6.430	0.242	0.250	3.2
AR1260 (3)	6.862	6.810	6.910	0.277	0.250	10.8
AR1260 (4)	7.766	7.710	7.810	0.253	0.250	1.2
AR1260 (5)	8.260	8.210	8.310	0.260	0.250	4.0
Tetrachloro-m-xylene	1.985	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG NO.:** C5039

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006260.D **Time Analyzed:** 18:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.011	2.950	3.050	0.285	0.250	14.0
AR1016 (2)	3.575	3.520	3.620	0.252	0.250	0.8
AR1016 (3)	3.747	3.690	3.790	0.274	0.250	9.6
AR1016 (4)	3.878	3.820	3.920	0.256	0.250	2.4
AR1016 (5)	4.522	4.470	4.570	0.242	0.250	3.2
AR1260 (1)	6.081	6.030	6.130	0.259	0.250	3.6
AR1260 (2)	6.387	6.330	6.430	0.260	0.250	4.0
AR1260 (3)	6.861	6.810	6.910	0.258	0.250	3.2
AR1260 (4)	7.765	7.710	7.810	0.253	0.250	1.2
AR1260 (5)	8.259	8.210	8.310	0.264	0.250	5.6
Tetrachloro-m-xylene	1.984	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.025	0.025	0.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60023BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5039 SAS No.: C5039 SDG NO.: C5039

Lab Sample ID: PB60023BL Lab File ID: PC006219.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/19/2011

Date Analyzed (1): 12/22/2011 Date Analyzed (2): 12/22/2011

Time Analyzed (1): 19:30 Time Analyzed (2): 19:30

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60023BS	PB60023BS	PC006220.D	12/22/2011	12/22/2011
12SB14-000.5-01	C5039-01	PC006221.D	12/22/2011	12/22/2011
12SB13-000.5-01	C5039-02	PC006222.D	12/22/2011	12/22/2011
12SB13-0.502-02	C5039-03	PC006223.D	12/22/2011	12/22/2011
12SB13-0304-03	C5039-04	PC006226.D	12/22/2011	12/22/2011
12SB29-000.5-01	C5039-05	PC006227.D	12/22/2011	12/22/2011
12SB29-0.502-02	C5039-06	PC006228.D	12/22/2011	12/22/2011
12SB29-0304-03	C5039-07	PC006229.D	12/22/2011	12/22/2011
12SB26-000.5-01	C5039-08	PC006230.D	12/22/2011	12/22/2011
12SB26-0.502-02	C5039-09	PC006231.D	12/22/2011	12/22/2011
12SB26-0304-03	C5039-10	PC006232.D	12/22/2011	12/22/2011
12SB-DUP-05	C5039-11	PC006233.D	12/22/2011	12/22/2011
12SB25-000.5-01	C5039-12	PC006234.D	12/22/2011	12/22/2011
12SB25-000.5-01MS	C5039-13MS	PC006235.D	12/22/2011	12/22/2011
12SB25-000.5-01MSD	C5039-14MSD	PC006238.D	12/23/2011	12/23/2011
12SB25-0.502-02	C5039-15	PC006239.D	12/23/2011	12/23/2011
12SB25-0304-03	C5039-16	PC006240.D	12/23/2011	12/23/2011
12SB28-0.502-02	C5039-17	PC006241.D	12/23/2011	12/23/2011
12SB28-0304-03	C5039-18	PC006242.D	12/23/2011	12/23/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60023BL	SDG No.:	C5039
Lab Sample ID:	PB60023BL	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.01 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006219.D	1	12/19/11	12/22/11	PB60023

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.9		10 - 166	85%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.9		60 - 125	100%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60023BS	AR1016	66.6	73	110				53	140	
	AR1260	66.6	70	105				65	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5039

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12SB25-000.5-01MS**										
C5039-13MS	AR1016	92.5	0	100	108				40	140	
	AR1260	92.5	0	99	107				60	130	
Client Sample ID:	**12SB25-000.5-01MSD**										
C5039-14MSD	AR1016	92.4	0	99	107		1		40	140	20
	AR1260	92.4	0	87	94		13		60	130	20

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/13/11
Client Sample ID:	PIBLK-PC006006.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006006.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006006.D	1		12/13/11	PC121311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	24.5		35 - 137	122%	SPK: 20
2051-24-3	Decachlorobiphenyl	23.6		40 - 135	118%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/23/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	PIBLK-PC006249.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006249.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006249.D	1		12/23/11	pc122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	22.5		35 - 137	113%	SPK: 20
2051-24-3	Decachlorobiphenyl	22		40 - 135	110%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/22/11
Client Sample ID:	PIBLK-PC006212.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006212.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006212.D	1		12/22/11	pc122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19		35 - 137	95%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.4		40 - 135	107%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/23/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	PIBLK-PC006259.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006259.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006259.D	1		12/23/11	PC122311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.2		35 - 137	96%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.8		40 - 135	109%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/22/11
Client Sample ID:	PIBLK-PC006224.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006224.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006224.D	1		12/22/11	pc122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.6		35 - 137	93%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.6		40 - 135	108%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/23/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	PIBLK-PC006236.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006236.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006236.D	1		12/23/11	pc122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	21.3		35 - 137	107%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.8		40 - 135	109%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/23/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	PIBLK-PC006247.D	SDG No.:	C5039
Lab Sample ID:	I.BLK-PC006247.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006247.D	1		12/23/11	pc122211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	21.5		35 - 137	107%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.1		40 - 135	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **March 12, 2012**

FROM: **MEGAN CARSON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, CYANIDE, ORP, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5039

SAMPLES: 16/Soil/

12SB-DUP-05	12SB13-0.502-02	12SB13-000.5-01
12SB13-0304-03	12SB14-000.5-01	12SB25-0.502-02
12SB25-000.5-01	12SB25-0304-03	12SB26-0.502-02
12SB26-000.5-01	12SB26-0304-03	12SB28-0.502-02
12SB28-0304-03	12SB29-0.502-02	12SB29-000.5-01
12SB29-0304-03		

Overview

The sample set for NASJRB Willow Grove, SDG C5039, consists of sixteen (16) soil environmental samples. This SDG contained one field duplicate pair: 12SB-DUP-05/12SB26-000.5-01.

All samples were analyzed for target analyte list (TAL) metals, cyanide, and pH (except 12SB-DUP-05). Samples 12SB13-0.502-02, 12SB13-000.5-01, 12SB13-0304-03, 12SB26-0.502-02, 12SB26-000.5-01, and 12SB26-0304-03 were analyzed for oxygen reduction potential (ORP). The samples were collected by Tetra Tech on December 16th, 2011 and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7471A. Cyanide analyses were conducted using method 9012B. pH analyses were conducted using standard method 1498. ORP analyses were conducted using method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The following contaminants were detected in calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum [(1)]	7.72 ug/L	3.8 mg/kg
Antimony [(1)]	0.98 ug/L	0.49 mg/kg
Barium [(1)]	0.59 ug/L	0.29 mg/kg
Beryllium [(1)]	0.19 ug/L	0.095 mg/kg
Chromium [(1)]	0.13 ug/L	0.065 mg/kg
Cobalt [(1)]	0.13 ug/L	0.065 mg/kg
Copper [(1)]	0.30 ug/L	0.15 mg/kg
Lead [(1)]	0.17 ug/L	0.085 mg/kg
Magnesium [(1)]	12.56 ug/L	6.2 mg/kg
Manganese [(1)]	0.97 ug/L	0.48 mg/kg
Potassium [(1)]	38.8 ug/L	19.4 mg/kg
Silver [(1)]	0.17 ug/L	0.085 mg/kg
Sodium [(1)]	92.6 ug/L	46.3 mg/kg
Thallium [(1)]	0.38 ug/L	0.19 mg/kg
Vanadium [(1)]	0.22 ug/L	0.11 mg/kg
Zinc [(1)]	0.52 ug/L	0.26 mg/kg

[(1)] Maximum concentration found in a calibration blank affecting samples analyzed on 1/12/12.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. All samples in the SDG were affected. Positive results less than the blank action level were qualified "B" as a result of blank contamination.

- The continuing calibrations analyzed on 12/22/11 and 12/23/11 all had a percent recovery > 110% for sodium. All samples were affected. Positive results were qualified as high (K) and estimated (J) due to conflicting directional bias.

- The matrix spike and matrix spike duplicate had a percent recovery < 30% for antimony and percent recoveries < 80% for arsenic, beryllium, chromium, cobalt, copper, lead, nickel, potassium, sodium, and vanadium. The post digestion spike was within acceptable quality control limits. All samples were affected. Positive results were qualified as biased (L) and estimated (J) due to conflicting directional bias.

- Field duplicate pair 12SB-DUP-05/12SB26-000.5-01 had a relative percent difference > 50% for chromium. All samples were affected. Positive results were qualified as estimated (J).

- The following samples had percent recoveries <70% for internal standards and were qualified as biased low (L) or estimated (J) due to conflicting directional bias:

Sample ID	Internal	Analytes affected
12SB25-0.502-02	Rhodium	V, Cr, Fe, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba
12SB25-000.5-01	Rhodium	V, Cr, Fe, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba

12SB28-0.502-02	Rhodium	V, Cr, Fe, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba
12SB28-0304-03	Rhodium	V, Cr, Fe, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba

- The interfering analyte iron was present in samples 12SB-DUP-05, 12SB26-0304-03, 12SB28-0.502-02, 12SB29-0.502-02, 12SB29-000.5-01, and 12SB25-0.502-02 at concentrations comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for barium, beryllium, cadmium, copper, and nickel in the affected sample. The positive barium result for sample 12SB29-0.502-02 was qualified as estimated (J) due to conflicting directional bias. Positive beryllium, cadmium, and copper results for samples 12SB26-0304-03, 12SB28-0.502-02, and 12SB29-0.502-02 were qualified as estimated (J) due to conflicting directional bias. The positive copper result for sample 12SB29-000.5-01 was qualified as estimated (J) due to conflicting directional bias. All positive nickel results for the affected samples were qualified as estimated (J) due to conflicting directional bias. Several antimony, silver, and thallium results were not qualified as they were previously qualified for blank contamination.

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

Sample 12SB13-0304-03 was analyzed at a 2X dilution for manganese.

The CRDL standard analyzed on 12/22/11 had a percent recovery >110% for aluminum, copper, and zinc. All samples were affected. No validation action was warranted as sample results were > 2X LOQ.

Executive Summary

Laboratory Performance: Calibration blank contamination resulted in the qualification of sample results. Continuing calibration non-compliances resulted in the qualification of sample results. Internal standard non-compliances resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike non-compliances resulted in the qualification of sample results. Field duplicate non-compliances resulted in the qualification of sample results. Interference standard non-compliances resulted in the qualification of sample results.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-000.5-01			12SB13-0304-03			12SB13-0304-03DL		
SDG: C5039	LAB_ID	C5039-03			C5039-02			C5039-04			C5039-04DL		
FRACTION: M	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.4			80.3			82.8			82.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		2280			4360			5040					
ANTIMONY		1.8	J	D	0.25	B	A	0.1	B	A			
ARSENIC		5.1	L	D	3.1	L	D	1.7	L	D			
BARIUM		40.8			64			49.7					
BERYLLIUM		0.23	L	D	0.49	L	D	0.43	L	D			
CADMIUM		0.67			0.61			0.06	J	P			
CALCIUM		800			2360			184					
CHROMIUM		4.7	J	DG	8.3	J	DG	6.2	J	DG			
COBALT		2.6	L	D	4.9	L	D	3.7	L	D			
COPPER		9.8	L	D	7.4	L	D	3.2	L	D			
IRON		5810			8190			6730					
LEAD		71.3	L	D	29.9	L	D	6.7	L	D			
MAGNESIUM		478			1790			531					
MANGANESE		205			331						881		
MERCURY		0.056			0.049			0.021					
NICKEL		3.5	L	D	5.8	L	D	4.6	L	D			
POTASSIUM		175	L	D	331	L	D	146	L	D			
SELENIUM		0.1	J	P	0.18	J	P	0.15	J	P			
SILVER		0.27			0.06	B	A	0.026	B	A			
SODIUM		52.4	J	CD	44.8	B	A	188	J	CD			
THALLIUM		0.13	B	A	0.096	B	A	0.078	B	A			
VANADIUM		5.7	L	D	11.8	L	D	9.2	L	D			
ZINC		65			46.5			22.2					

PROJ_NO: 02014	NSAMPLE	12SB14-000.5-01			12SB25-0.502-02			12SB25-000.5-01			12SB25-0304-03		
SDG: C5039	LAB_ID	C5039-01			C5039-15			C5039-12			C5039-16		
FRACTION: M	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	63.9			86.5			72.2			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4160			5420			5000			3470		
ANTIMONY		0.34	B	A	1.7	J	DN	0.7	J	DN	0.065	B	A
ARSENIC		3.1	L	D	3	L	DN	4.7	L	DN	1.6	L	D
BARIUM		49.8			68	L	N	64.9	L	N	30.3		
BERYLLIUM		0.49	L	D	0.53	L	D	0.66	L	D	0.35	L	D
CADMIUM		0.47			0.68	L	N	1.2	L	N	0.042	J	P
CALCIUM		1600			735			1030			391		
CHROMIUM		13.7	J	DG	9.2	J	DGN	10.1	J	DGN	5.8	J	DG
COBALT		5.3	L	D	4.3	L	DN	4.6	L	DN	2.7	L	D
COPPER		10.4	L	D	9.9	L	DN	11.8	L	DN	4.4	L	D
IRON		9790			10500	L	N	9310	L	N	7250		
LEAD		49.1	L	D	32.9	L	D	74.4	L	D	5.5	L	D
MAGNESIUM		1290			1050			948			632		
MANGANESE		197			212	L	N	372	L	N	131		
MERCURY		0.04			0.023			0.059			0.016		
NICKEL		6.8	L	D	5.9	L	DKN	6.5	L	DN	3.4	L	D
POTASSIUM		569	L	D	298	L	D	426	L	D	130	L	D
SELENIUM		0.11	J	P	0.063	J	PN	0.21	J	PN	0.2	U	
SILVER		0.13			0.14	L	N	0.14	L	N	0.015	B	A
SODIUM		80.4	J	CD	43.8	J	CD	41.3	B	A	41.6	J	CD
THALLIUM		0.13	B	A	0.095	B	A	0.16	B	A	0.052	B	A
VANADIUM		17.1	L	D	13.2	L	DN	13.1	L	DN	9.7	L	D
ZINC		49.6			65.5	L	N	81.7	L	N	16.4		

PROJ_NO: 02014	NSAMPLE	12SB26-0.502-02			12SB26-000.5-01			12SB26-0304-03			12SB28-0.502-02		
SDG: C5039	LAB_ID	C5039-09			C5039-08			C5039-10			C5039-17		
FRACTION: M	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.1			74.9			83.8			80.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4620			3770			5730			5730		
ANTIMONY		0.14	B	A	0.34	B	A	0.17	B	A	0.11	B	A
ARSENIC		1.8	L	D	2.5	L	D	3.5	L	D	3.6	L	DN
BARIUM		32.3			54.6			33			33.1	L	N
BERYLLIUM		0.36	L	D	0.52	L	D	0.32	J	DK	0.27	J	DK
CADMIUM		0.066	J	P	0.64			0.048	J	KP	0.05	J	KNP
CALCIUM		396			870			379			410		
CHROMIUM		6.8	J	DG	8.3	J	DG	11.1	J	DG	10.4	J	DGN
COBALT		3.2	L	D	4.3	L	D	3.2	L	D	3.2	L	DN
COPPER		7	L	D	9.8	L	D	6.2	J	DK	5.1	J	DKN
IRON		7980			8850			13200			11500	L	N
LEAD		5.4	L	D	30.8	L	D	7.3	L	D	8.7	L	D
MAGNESIUM		758			914			970			977		
MANGANESE		205			321			94.2			130	L	N
MERCURY		0.035			0.039			0.033			0.069		
NICKEL		4.2	L	D	5.6	L	D	4.9	J	DK	4.7	J	DKN
POTASSIUM		247	L	D	451	L	D	249	L	D	231	L	D
SELENIUM		0.091	J	P	0.1	J	P	0.23	U		0.084	J	PN
SILVER		0.028	B	A	0.079	B	A	0.026	B	A	0.022	B	A
SODIUM		30	B	A	36.4	B	A	17.4	B	A	31.4	B	A
THALLIUM		0.059	B	A	0.091	B	A	0.13	B	A	0.093	B	A
VANADIUM		10.4	L	D	11.9	L	D	18.2	L	D	16.6	L	DN
ZINC		45.7			39.4			41.1			23.6	L	N

PROJ_NO: 02014	NSAMPLE	12SB28-0304-03			12SB29-0.502-02			12SB29-000.5-01			12SB29-0304-03		
SDG: C5039	LAB_ID	C5039-18			C5039-06			C5039-05			C5039-07		
FRACTION: M	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.5			80.0			70.7			84.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4050			5390			5810			5300		
ANTIMONY		0.073	B	A	0.11	B	A	0.28	B	A	0.094	B	A
ARSENIC		1.1	L	DN	2.8	L	D	3.2	L	D	2.4	L	D
BARIUM		15	L	N	28.7	J	K	55.1			37.1		
BERYLLIUM		0.2	L	D	0.29	J	DK	0.5	L	D	0.44	L	D
CADMIUM		0.027	J	PN	0.04	J	KP	0.21			0.045	J	P
CALCIUM		473			376			792			376		
CHROMIUM		7	J	DGN	10.1	J	DG	9.9	J	DG	11.4	J	DG
COBALT		2	L	DN	3.5	L	D	4.2	L	D	5.7	L	D
COPPER		2.8	L	DN	5.7	J	DK	8	J	DK	6.3	L	D
IRON		6230	L	N	11100			10200			11400		
LEAD		4.5	L	D	8.3	L	D	27	L	D	8	L	D
MAGNESIUM		540			1290			1010			1280		
MANGANESE		43.7	L	N	113			232			182		
MERCURY		0.009	J	P	0.019			0.05			0.012		
NICKEL		2.4	L	DN	5.5	J	DK	5.5	J	DK	5.4	L	D
POTASSIUM		169	L	D	341	L	D	435	L	D	340	L	D
SELENIUM		0.22	U		0.24	U		0.3	J	P	0.295	U	
SILVER		0.009	B	A	0.015	B	A	0.059	B	A	0.015	B	A
SODIUM		46	J	CD	34	B	A	29.5	B	A	37.7	B	A
THALLIUM		0.34			0.091	B	A	0.13	B	A	0.084	B	A
VANADIUM		11.7	L	DN	16.7	L	D	14.9	L	D	19.1	L	D
ZINC		10	L	N	22.7			63.5			21.7		

PROJ_NO: 02014	NSAMPLE	12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-11		
FRACTION: M	SAMP_DATE	12/16/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	74.0		
	DUP_OF	12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD
ALUMINUM		5400		
ANTIMONY		0.45	B	A
ARSENIC		3.6	L	D
BARIUM		71.6		
BERYLLIUM		0.62	L	D
CADMIUM		0.58		
CALCIUM		1290		
CHROMIUM		14.7	J	DG
COBALT		5.4	L	D
COPPER		12	L	D
IRON		11800		
LEAD		37.7	L	D
MAGNESIUM		1330		
MANGANESE		353		
MERCURY		0.039		
NICKEL		6.6	J	DK
POTASSIUM		486	L	D
SELENIUM		0.25	J	P
SILVER		0.096		
SODIUM		39.7	B	A
THALLIUM		0.11	B	A
VANADIUM		17.2	L	D
ZINC		46.8		

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02								12SB13-000.5-01		
SDG: C5039	LAB_ID	C5039-03								C5039-02		
FRACTION: MISC	SAMP_DATE	12/16/2011								12/16/2011		
MEDIA: SOIL	QC_TYPE	NM								NM		
	UNITS	MG/KG			MV			S.U.		MG/KG		
	PCT_SOLIDS	82.4			82.4			100.0		80.3		
	DUP_OF											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL QLCD	RESULT	VQL	QLCD
CYANIDE		0.058	J	P						0.076	J	P
OXIDATION REDUCTION POTENTIAL					232.4							
PH								7.01				

PROJ_NO: 02014	NSAMPLE	12SB13-000.5-01						12SB13-0304-03					
SDG: C5039	LAB_ID	C5039-02						C5039-04					
FRACTION: MISC	SAMP_DATE	12/16/2011						12/16/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	80.3			100.0			82.8			82.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.151	U				
OXIDATION REDUCTION POTENTIAL		270.2									101.7		
PH					6.81								

PROJ_NO: 02014	NSAMPLE	12SB13-0304-03			12SB14-000.5-01						12SB25-0.502-02		
SDG: C5039	LAB_ID	C5039-04			C5039-01						C5039-15		
FRACTION: MISC	SAMP_DATE	12/16/2011			12/16/2011						12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			63.9			100.0			86.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.101	J	P				0.043	J	P
OXIDATION REDUCTION POTENTIAL													
PH		6.54						6.45					

PROJ_NO: 02014	NSAMPLE	12SB25-0.502-02			12SB25-000.5-01						12SB25-0304-03		
SDG: C5039	LAB_ID	C5039-15			C5039-12						C5039-16		
FRACTION: MISC	SAMP_DATE	12/16/2011			12/16/2011						12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	100.0			72.2			100.0			85.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.141	J	P				0.1455	U	
OXIDATION REDUCTION POTENTIAL													
PH		6.8						5.62					

PROJ_NO: 02014	NSAMPLE	12SB25-0304-03			12SB26-0.502-02								
SDG: C5039	LAB_ID	C5039-16			C5039-09								
FRACTION: MISC	SAMP_DATE	12/16/2011			12/16/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	100.0			86.1			86.1			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.054	J	P						
OXIDATION REDUCTION POTENTIAL								252.2					
PH		6.79									6.27		

PROJ_NO: 02014	NSAMPLE	12SB26-000.5-01									12SB26-0304-03		
SDG: C5039	LAB_ID	C5039-08									C5039-10		
FRACTION: MISC	SAMP_DATE	12/16/2011									12/16/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	74.9			74.9			100.0			83.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.138	J	P							0.149	U	
OXIDATION REDUCTION POTENTIAL					255.6								
PH								5.78					

PROJ_NO: 02014	NSAMPLE	12SB26-0304-03						12SB28-0.502-02					
SDG: C5039	LAB_ID	C5039-10						C5039-17					
FRACTION: MISC	SAMP_DATE	12/16/2011						12/16/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	83.8			100.0			80.9			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.08	J	P			
OXIDATION REDUCTION POTENTIAL		277.7											
PH					6.12						5.97		

PROJ_NO: 02014	NSAMPLE	12SB28-0304-03						12SB29-0.502-02					
SDG: C5039	LAB_ID	C5039-18						C5039-06					
FRACTION: MISC	SAMP_DATE	12/16/2011						12/16/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	86.5			100.0			80.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.046	J	P				0.156	U				
OXIDATION REDUCTION POTENTIAL													
PH					5.2						5.38		

PROJ_NO: 02014	NSAMPLE	12SB29-000.5-01						12SB29-0304-03					
SDG: C5039	LAB_ID	C5039-05						C5039-07					
FRACTION: MISC	SAMP_DATE	12/16/2011						12/16/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	70.7			100.0			84.5			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.089	J	P				0.049	J	P			
OXIDATION REDUCTION POTENTIAL													
PH					5.58						5.45		

PROJ_NO: 02014	NSAMPLE	12SB-DUP-05		
SDG: C5039	LAB_ID	C5039-11		
FRACTION: MISC	SAMP_DATE	12/16/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	74.0		
	DUP_OF	12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD
CYANIDE		0.105	J	P
OXIDATION REDUCTION POTENTIAL				
PH				

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	74

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5400	*	1	0.64	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.45	N*	1	0.024	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3.6	N*	1	0.021	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	71.6	N	1	0.008	0.94	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.62	N*	1	0.007	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.58	N	1	0.008	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	1290	*	1	0.6	46.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	14.7	N*	1	0.01	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	5.4	N*	1	0.006	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	12	N*	1	0.006	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	11800	*	1	0.87	18.8	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	37.7	N	1	0.004	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1330	N*	1	0.65	46.9	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	353		1	0.006	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.039		1	0.002	0.012	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	6.6	N*	1	0.008	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	486	N	1	0.85	46.9	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.25	J	1	0.053	0.47	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.096		1	0.007	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	39.7	JN	1	1.1	46.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.11	N*	1	0.005	0.094	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	17.2	N*	1	0.012	0.47	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	46.8	N	1	0.01	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	2280	*	1	0.64	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	1.8	N*	1	0.025	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	5.1	N*	1	0.021	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	40.8	N	1	0.008	0.95	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.23	N*	1	0.007	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.67	N	1	0.008	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	800	*	1	0.6	47.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	4.7	N*	1	0.01	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	2.6	N*	1	0.006	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	9.8	N*	1	0.006	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	5810	*	1	0.88	19	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	71.3	N	1	0.004	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	478	N*	1	0.66	47.4	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	205		1	0.006	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.056		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	3.5	N*	1	0.008	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	175	N	1	0.85	47.4	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.1	J	1	0.053	0.47	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.27		1	0.007	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	52.4	N	1	1.2	47.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.13	N*	1	0.005	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	5.7	N*	1	0.012	0.47	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	65	N	1	0.01	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4360	*	1	0.73	2.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.25	N*	1	0.028	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3.1	N*	1	0.024	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	64	N	1	0.009	1.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.49	N*	1	0.008	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.61	N	1	0.01	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	2360	*	1	0.68	53.7	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	8.3	N*	1	0.012	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	4.9	N*	1	0.006	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	7.4	N*	1	0.006	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	8190	*	1	0.99	21.5	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	29.9	N	1	0.004	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1790	N*	1	0.74	53.7	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	331		1	0.006	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.049		1	0.002	0.012	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.8	N*	1	0.01	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	331	N	1	0.97	53.7	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.18	J	1	0.06	0.54	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.06	J	1	0.008	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	44.8	JN	1	1.3	53.7	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.096	JN*	1	0.005	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	11.8	N*	1	0.014	0.54	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	46.5	N	1	0.012	0.21	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5040	*	1	0.66	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.1	JN*	1	0.025	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	1.7	N*	1	0.021	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	49.7	N	1	0.008	0.97	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.43	N*	1	0.007	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.06	JN	1	0.009	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	184	*	1	0.62	48.7	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	6.2	N*	1	0.011	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	3.7	N*	1	0.006	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	3.2	N*	1	0.006	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	6730	*	1	0.9	19.5	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	6.7	N	1	0.004	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	531	N*	1	0.68	48.7	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	592.95	OR	1	0.006	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.021		1	0.002	0.012	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.6	N*	1	0.009	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	146	N	1	0.88	48.7	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.15	J	1	0.054	0.49	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.026	J	1	0.007	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	188	N	1	1.2	48.7	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.078	JN*	1	0.005	0.097	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	9.2	N*	1	0.013	0.49	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	22.2	N	1	0.011	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
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E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03DL	SDG No.:	C5039
Lab Sample ID:	C5039-04DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-96-5	Manganese	881	D	2	0.012	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	63.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4160	*	1	0.72	2.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.34	N*	1	0.028	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3.1	N*	1	0.023	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	49.8	N	1	0.008	1.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.49	N*	1	0.007	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.47	N	1	0.01	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	1600	*	1	0.67	52.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	13.7	N*	1	0.012	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	5.3	N*	1	0.006	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	10.4	N*	1	0.006	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	9790	*	1	0.98	21.1	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	49.1	N	1	0.004	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1290	N*	1	0.73	52.9	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	197		1	0.006	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.04		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	6.8	N*	1	0.01	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	569	N	1	0.95	52.9	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.11	J	1	0.059	0.53	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.13		1	0.007	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	80.4	N	1	1.3	52.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.13	N*	1	0.005	0.11	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	17.1	N*	1	0.014	0.53	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	49.6	N	1	0.012	0.21	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
Level (low/med):	low	% Solid:	86.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5420	*	1	0.54	1.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	1.7	N*	1	0.021	0.16	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3	N*	1	0.017	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	68	N	1	0.006	0.79	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.53	N*	1	0.006	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.68	N	1	0.007	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	735	*	1	0.5	39.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	9.2	N*	1	0.009	0.16	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	4.3	N*	1	0.005	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	9.9	N*	1	0.005	0.16	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	10500	*	1	0.73	15.8	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	32.9	N	1	0.003	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1050	N*	1	0.55	39.6	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	212		1	0.005	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.023		1	0.002	0.01	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.9	N*	1	0.007	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	298	N	1	0.71	39.6	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.063	J	1	0.044	0.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.14		1	0.006	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	43.8	N	1	0.97	39.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.095	N*	1	0.004	0.079	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	13.2	N*	1	0.01	0.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	65.5	N	1	0.009	0.16	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	72.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5000	*	1	0.94	2.8	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.7	N*	1	0.036	0.28	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	4.7	N*	1	0.03	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	64.9	N	1	0.011	1.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.66	N*	1	0.01	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	1.2	N	1	0.013	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	1030	*	1	0.88	69.3	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	10.1	N*	1	0.015	0.28	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	4.6	N*	1	0.008	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	11.8	N*	1	0.008	0.28	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	9310	*	1	1.3	27.7	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	74.4	N	1	0.006	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	948	N*	1	0.96	69.3	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	372		1	0.008	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.059		1	0.003	0.014	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	6.5	N*	1	0.013	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	426	N	1	1.2	69.3	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.21	J	1	0.078	0.69	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.14		1	0.01	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	41.3	JN	1	1.7	69.3	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.16	N*	1	0.007	0.14	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	13.1	N*	1	0.018	0.69	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	81.7	N	1	0.015	0.28	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
Level (low/med):	low	% Solid:	85.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	3470	*	1	0.54	1.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.065	JN*	1	0.021	0.16	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	1.6	N*	1	0.018	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	30.3	N	1	0.006	0.8	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.35	N*	1	0.006	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.042	JN	1	0.007	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	391	*	1	0.51	40.2	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	5.8	N*	1	0.009	0.16	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	2.7	N*	1	0.005	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	4.4	N*	1	0.005	0.16	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	7250	*	1	0.74	16.1	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	5.5	N	1	0.003	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	632	N*	1	0.56	40.2	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	131		1	0.005	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.016		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	3.4	N*	1	0.007	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	130	N	1	0.72	40.2	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.2	U	1	0.045	0.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.015	J	1	0.006	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	41.6	N	1	0.98	40.2	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.052	JN*	1	0.004	0.08	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	9.7	N*	1	0.01	0.4	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	16.4	N	1	0.009	0.16	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	86.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4620	*	1	0.7	2.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.14	JN*	1	0.027	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	1.8	N*	1	0.023	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	32.3	N	1	0.008	1	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.36	N*	1	0.007	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.066	JN	1	0.009	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	396	*	1	0.66	51.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	6.8	N*	1	0.011	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	3.2	N*	1	0.006	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	7	N*	1	0.006	0.21	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	7980	*	1	0.96	20.7	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	5.4	N	1	0.004	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	758	N*	1	0.72	51.9	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	205		1	0.006	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.035		1	0.002	0.01	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.2	N*	1	0.009	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	247	N	1	0.93	51.9	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.091	J	1	0.058	0.52	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.028	J	1	0.007	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	30	JN	1	1.3	51.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.059	JN*	1	0.005	0.1	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	10.4	N*	1	0.013	0.52	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	45.7	N	1	0.011	0.21	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
Level (low/med):	low	% Solid:	74.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	3770	*	1	0.79	2.3	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.34	N*	1	0.03	0.23	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	2.5	N*	1	0.026	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	54.6	N	1	0.009	1.2	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.52	N*	1	0.008	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.64	N	1	0.011	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	870	*	1	0.74	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	8.3	N*	1	0.013	0.23	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	4.3	N*	1	0.007	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	9.8	N*	1	0.007	0.23	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	8850	*	1	1.1	23.4	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	30.8	N	1	0.005	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	914	N*	1	0.81	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	321		1	0.007	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.039		1	0.003	0.013	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.6	N*	1	0.011	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	451	N	1	1.1	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.1	J	1	0.066	0.59	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.079	J	1	0.008	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	36.4	JN	1	1.4	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.091	JN*	1	0.006	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	11.9	N*	1	0.015	0.59	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	39.4	N	1	0.013	0.23	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5730	*	1	0.63	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.17	JN*	1	0.024	0.18	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3.5	N*	1	0.02	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	33	N	1	0.007	0.93	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.32	N*	1	0.006	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.048	JN	1	0.008	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	379	*	1	0.59	46.3	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	11.1	N*	1	0.01	0.18	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	3.2	N*	1	0.006	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	6.2	N*	1	0.006	0.18	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	13200	*	1	0.86	18.5	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	7.3	N	1	0.004	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	970	N*	1	0.64	46.3	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	94.2		1	0.006	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.033		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.9	N*	1	0.008	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	249	N	1	0.83	46.3	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.23	U	1	0.052	0.46	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.026	J	1	0.006	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	17.4	JN	1	1.1	46.3	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.13	N*	1	0.005	0.092	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	18.2	N*	1	0.012	0.46	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	41.1	N	1	0.01	0.18	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5730	*	1	0.65	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.11	JN*	1	0.025	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3.6	N*	1	0.021	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	33.1	N	1	0.008	0.96	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.27	N*	1	0.007	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.05	JN	1	0.009	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	410	*	1	0.61	47.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	10.4	N*	1	0.011	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	3.2	N*	1	0.006	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	5.1	N*	1	0.006	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	11500	*	1	0.89	19.2	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	8.7	N	1	0.004	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	977	N*	1	0.66	47.9	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	130		1	0.006	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.069		1	0.002	0.012	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	4.7	N*	1	0.009	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	231	N	1	0.86	47.9	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.084	J	1	0.054	0.48	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.022	J	1	0.007	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	31.4	JN	1	1.2	47.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.093	JN*	1	0.005	0.096	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	16.6	N*	1	0.013	0.48	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	23.6	N	1	0.011	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
Level (low/med):	low	% Solid:	86.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4050	*	1	0.59	1.8	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.073	JN*	1	0.023	0.18	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	1.1	N*	1	0.019	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	15	N	1	0.007	0.88	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.2	N*	1	0.006	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.027	JN	1	0.008	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	473	*	1	0.56	43.8	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	7	N*	1	0.01	0.18	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	2	N*	1	0.005	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	2.8	N*	1	0.005	0.18	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	6230	*	1	0.81	17.5	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	4.5	N	1	0.004	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	540	N*	1	0.61	43.8	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	43.7		1	0.005	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.009	J	1	0.002	0.01	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	2.4	N*	1	0.008	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	169	N	1	0.79	43.8	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.22	U	1	0.049	0.44	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.009	J	1	0.006	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	46	N	1	1.1	43.8	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.34	N*	1	0.004	0.088	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	11.7	N*	1	0.011	0.44	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	10	N	1	0.01	0.18	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	80

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5390	*	1	0.65	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.11	JN*	1	0.025	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	2.8	N*	1	0.021	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	28.7	N	1	0.008	0.95	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.29	N*	1	0.007	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.04	JN	1	0.009	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	376	*	1	0.61	47.7	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	10.1	N*	1	0.011	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	3.5	N*	1	0.006	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	5.7	N*	1	0.006	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	11100	*	1	0.88	19.1	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	8.3	N	1	0.004	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1290	N*	1	0.66	47.7	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	113		1	0.006	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.019		1	0.002	0.012	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.5	N*	1	0.009	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	341	N	1	0.86	47.7	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.24	U	1	0.053	0.48	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.015	J	1	0.007	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	34	JN	1	1.2	47.7	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.091	JN*	1	0.005	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	16.7	N*	1	0.012	0.48	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	22.7	N	1	0.011	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5810	*	1	0.64	1.9	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.28	N*	1	0.025	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	3.2	N*	1	0.021	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	55.1	N	1	0.008	0.95	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.5	N*	1	0.007	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.21	N	1	0.008	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	792	*	1	0.6	47.5	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	9.9	N*	1	0.01	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	4.2	N*	1	0.006	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	8	N*	1	0.006	0.19	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	10200	*	1	0.88	19	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	27	N	1	0.004	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1010	N*	1	0.66	47.5	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	232		1	0.006	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.05		1	0.003	0.013	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.5	N*	1	0.008	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	435	N	1	0.86	47.5	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.3	J	1	0.053	0.47	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.059	J	1	0.007	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	29.5	JN	1	1.2	47.5	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.13	N*	1	0.005	0.095	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	14.9	N*	1	0.012	0.47	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	63.5	N	1	0.01	0.19	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	84.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5300	*	1	0.79	2.3	mg/Kg	12/20/11	12/23/11	SW6020
7440-36-0	Antimony	0.094	JN*	1	0.03	0.23	mg/Kg	12/20/11	12/23/11	SW6020
7440-38-2	Arsenic	2.4	N*	1	0.026	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-39-3	Barium	37.1	N	1	0.009	1.2	mg/Kg	12/20/11	12/23/11	SW6020
7440-41-7	Beryllium	0.44	N*	1	0.008	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-43-9	Cadmium	0.045	JN	1	0.011	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-70-2	Calcium	376	*	1	0.74	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-47-3	Chromium	11.4	N*	1	0.013	0.23	mg/Kg	12/20/11	12/23/11	SW6020
7440-48-4	Cobalt	5.7	N*	1	0.007	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-50-8	Copper	6.3	N*	1	0.007	0.23	mg/Kg	12/20/11	12/23/11	SW6020
7439-89-6	Iron	11400	*	1	1.1	23.4	mg/Kg	12/20/11	12/23/11	SW6020
7439-92-1	Lead	8	N	1	0.005	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7439-95-4	Magnesium	1280	N*	1	0.81	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7439-96-5	Manganese	182		1	0.007	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7439-97-6	Mercury	0.012		1	0.002	0.011	mg/Kg	12/20/11	12/22/11	SW7471A
7440-02-0	Nickel	5.4	N*	1	0.011	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-09-7	Potassium	340	N	1	1.1	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7782-49-2	Selenium	0.295	U	1	0.066	0.59	mg/Kg	12/20/11	12/23/11	SW6020
7440-22-4	Silver	0.015	J	1	0.008	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-23-5	Sodium	37.7	JN	1	1.4	58.6	mg/Kg	12/20/11	12/23/11	SW6020
7440-28-0	Thallium	0.084	JN*	1	0.006	0.12	mg/Kg	12/20/11	12/23/11	SW6020
7440-62-2	Vanadium	19.1	N*	1	0.015	0.59	mg/Kg	12/20/11	12/23/11	SW6020
7440-66-6	Zinc	21.7	N	1	0.013	0.23	mg/Kg	12/20/11	12/23/11	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB-DUP-05	SDG No.:	C5039
Lab Sample ID:	C5039-11	Matrix:	SOIL
		% Solid:	74

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.105	J	1	0.045	0.338	mg/Kg	12/21/11	12/22/11	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-03	Matrix:	SOIL
		% Solid:	82.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.058	J	1	0.04	0.303	mg/Kg	12/21/11	12/22/11	9012B
pH	7.01		1	0	0	pH	12/19/11	12/19/11	9045C
Redox Potential	232.4		1	0.121	0.121	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-02	Matrix:	SOIL
		% Solid:	80.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.076	J	1	0.041	0.311	mg/Kg	12/21/11	12/22/11	9012B
pH	6.81		1	0	0	pH	12/19/11	12/19/11	9045C
Redox Potential	270.2		1	0.125	0.125	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB13-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-04	Matrix:	SOIL
		% Solid:	82.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.151	U	1	0.04	0.302	mg/Kg	12/21/11	12/22/11	9012B
pH	6.54		1	0	0	pH	12/19/11	12/19/11	9045C
Redox Potential	101.7		1	0.121	0.121	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB14-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-01	Matrix:	SOIL
		% Solid:	63.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.101	J	1	0.052	0.391	mg/Kg	12/21/11	12/22/11	9012B
pH	6.45		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-15	Matrix:	SOIL
		% Solid:	86.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.043	J	1	0.038	0.289	mg/Kg	12/21/11	12/22/11	9012B
pH	6.8		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-12	Matrix:	SOIL
		% Solid:	72.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.141	J	1	0.046	0.346	mg/Kg	12/21/11	12/22/11	9012B
pH	5.62		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB25-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-16	Matrix:	SOIL
		% Solid:	85.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.146	U	1	0.038	0.291	mg/Kg	12/21/11	12/22/11	9012B
pH	6.79		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-09	Matrix:	SOIL
		% Solid:	86.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.054	J	1	0.038	0.29	mg/Kg	12/21/11	12/22/11	9012B
pH	6.27		1	0	0	pH	12/19/11	12/19/11	9045C
Redox Potential	252.2		1	0.116	0.116	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-08	Matrix:	SOIL
		% Solid:	74.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.138	J	1	0.044	0.334	mg/Kg	12/21/11	12/22/11	9012B
pH	5.78		1	0	0	pH	12/19/11	12/19/11	9045C
Redox Potential	255.6		1	0.134	0.134	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB26-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-10	Matrix:	SOIL
		% Solid:	83.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.149	U	1	0.039	0.298	mg/Kg	12/21/11	12/22/11	9012B
pH	6.12		1	0	0	pH	12/19/11	12/19/11	9045C
Redox Potential	277.7		1	0.119	0.119	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-17	Matrix:	SOIL
		% Solid:	80.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.08	J	1	0.041	0.309	mg/Kg	12/21/11	12/22/11	9012B
pH	5.97		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB28-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-18	Matrix:	SOIL
		% Solid:	86.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.046	J	1	0.038	0.289	mg/Kg	12/21/11	12/22/11	9012B
pH	5.2		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0.502-02	SDG No.:	C5039
Lab Sample ID:	C5039-06	Matrix:	SOIL
		% Solid:	80

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.156	U	1	0.041	0.312	mg/Kg	12/21/11	12/22/11	9012B
pH	5.38		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-000.5-01	SDG No.:	C5039
Lab Sample ID:	C5039-05	Matrix:	SOIL
		% Solid:	70.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.089	J	1	0.047	0.354	mg/Kg	12/21/11	12/22/11	9012B
pH	5.58		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/16/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/17/11
Client Sample ID:	12SB29-0304-03	SDG No.:	C5039
Lab Sample ID:	C5039-07	Matrix:	SOIL
		% Solid:	84.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.049	J	1	0.039	0.296	mg/Kg	12/21/11	12/22/11	9012B
pH	5.45		1	0	0	pH	12/19/11	12/19/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5039
QUOTE NO.
COC Number 021256

CLIENT INFORMATION (REPORT TO BE SENT TO:)
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: FAX:

CLIENT PROJECT INFORMATION
PROJECT NAME: Willow Grove
PROJECT NO. CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS
1 TCL VOC
2 TCL SVOC / PAH SIM
3 Pest / PCB
4 Metals / Hg / CN / pH
5 CRP
6 Metals / Hg / CN
7
8
9

PRESERVATIVES
← Specify Preservatives
A - HCl B - HNO_3
C - H_2SO_4 D - NaOH
E - ICE F - Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	125B14-000.5-01	SO:1		X	12/16/11	0830	6	X	X	X	X						
2.	125B13-000.5-01			X		0900	7	X	X	X	X	X					
3.	125B13-0.502-02			X		0910	7	X	X	X	X	X					
4.	125B13-0304-03			X		0920	7	X	X	X	X	X					
5.	125B29-000.5-01			X		1035	6	X	X	X	X						
6.	125B29-0.502-02			X		1045	6	X	X	X	X						
7.	125B29-0304-03			X		1055	6	X	X	X	X						
8.	125B26-000.5-01			X		1225	7	X	X	X	X	X					
9.	125B26-0.502-02			X		1235	7	X	X	X	X	X					
10.	125B26-0304-03	↓		X	↓	1245	7	X	X	X	X	X					

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Brad Nichols	12/16/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/17/11 1030	3. Kim Rivera

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☒ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5039
QUOTE NO.
COC Number 021257

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC
2 TCL SVOC/PAH SIM
3 Pest/PCB
4 metals/Hg/CN/pH
5 metals/Hg/CN
6 TCL VOC
7
8
9

PRESERVATIVES

COMMENTS — Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
11. 10D 12/9/11	12SB-DUP-05	Soil		X	12/16/11	1300	6	X	X	X		X					
12,13,14.	12SB25-0005-01			X		1400	15	X	X	X	X						Do MS/MSD
15.	12SB25-0502-02			X		1410	6	X	X	X	X						
16.	12SB25-0304-03			X		1420	6	X	X	X	X						
17.	12SB28-0.502-02			X		1520	6	X	X	X	X						
18.	12SB28-0304-03	↓		X		1530	6	X	X	X	X						
19.	12TB-20111216	AQ		X	↓	0800	2						X				
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. David Whalen	12/16/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex	12/17/11 10:30	3. Jen Rivera

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Sample 12SB13-0304-03DL was diluted due to high concentrations for Manganese.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Aluminum, Antimony, Arsenic, Beryllium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Nickel, Thallium and Vanadium.
The Matrix Spike analysis met criteria for all samples except for Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Nickel, Potassium, Sodium, Vanadium, Zinc and Thallium.
The Matrix Spike Duplicate analysis met criteria for all samples except for Antimony, Arsenic, Beryllium, Chromium, Cobalt, Copper, Lead, Nickel, Potassium, Sodium and Vanadium.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:
The CCV04 to CCV15 is failing for Sodium. The recovery of this analyte is within 115%.

C5039-10 12/23/2011 10:11:20 AM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	90%	3.388	11.200	0.000	188.400	10500.000	9617.000	9348.000	61640.000
2	10:13:36	92%	3.733	8.282	0.000	187.300	10480.000	9640.000	9357.000	62170.000
3	10:14:44	91%	3.359	10.450	0.000	187.200	10480.000	9633.000	9361.000	61980.000
x		91%	3.493	9.977	0.000	187.600	10490.000	9630.000	9355.000	61930.000
σ		1%	0.208	1.515	0.000	0.680	8.901	11.720	6.556	269.600
%RSD		1	5.960	15.190	0.000	0.362	0.085	0.122	0.070	0.435

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	1768.000	1715.000	0.000	0.000	2696.000	4244.000	4063.000	90%	1524.000
2	10:13:36	1774.000	1744.000	0.000	0.000	2689.000	4156.000	4105.000	90%	1536.000
3	10:14:44	1796.000	1738.000	0.000	0.000	2700.000	4162.000	4131.000	90%	1517.000
x		1779.000	1732.000	0.000	0.000	2695.000	4187.000	4100.000	90%	1525.000
σ		14.770	15.690	0.000	0.000	5.312	49.010	34.120	0%	9.548
%RSD		0.830	0.906	0.000	0.000	0.197	1.170	0.832	0	0.626

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	194.900	119.300	706.200	144300.000	1011.000	145500.000	140900.000	33.740	53.930
2	10:13:36	197.700	121.400	685.900	145400.000	1021.000	146600.000	142600.000	34.090	53.510
3	10:14:44	198.600	120.500	670.200	145700.000	1022.000	148100.000	143000.000	34.700	53.030
x		197.100	120.400	687.500	145200.000	1018.000	146700.000	142200.000	34.180	53.490
σ		1.894	1.038	18.060	713.100	6.169	1256.000	1114.000	0.487	0.453
%RSD		0.961	0.862	2.626	0.491	0.606	0.856	0.784	1.425	0.847

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	67.070	69.040	443.400	36.860	0.887	8.472	1.241	0.903	14.200
2	10:13:36	67.160	69.170	443.300	38.060	0.204	9.044	1.133	0.209	15.350
3	10:14:44	68.190	69.910	447.100	38.360	0.511	9.327	0.407	0.521	16.290
x		67.470	69.370	444.600	37.760	0.534	8.948	0.927	0.544	15.280
σ		0.625	0.471	2.171	0.792	0.342	0.436	0.453	0.348	1.045
%RSD		0.926	0.678	0.488	2.098	64.030	4.871	48.910	63.840	6.842

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	70.250	5.622	11.480	5.789	5.786	0.003	72%	7.539	0.300
2	10:13:36	69.740	5.497	10.890	5.405	5.382	0.002	73%	8.935	0.256
3	10:14:44	69.100	5.211	11.480	5.190	5.349	0.003	72%	8.960	0.276
x		69.700	5.443	11.280	5.462	5.506	0.003	72%	8.478	0.277
σ		0.578	0.211	0.337	0.303	0.244	0.000	0%	0.813	0.022
%RSD		0.830	3.871	2.989	5.556	4.425	2.110	0	9.590	7.998

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	-1.445	7.507	0.217	0.391	6.401	1.953	360.500	358.300	79%
2	10:13:36	-1.919	8.906	0.217	0.597	6.014	1.905	358.200	356.000	79%
3	10:14:44	-2.453	8.922	0.218	0.570	6.029	1.735	363.300	356.600	80%
x		-1.939	8.445	0.218	0.519	6.148	1.864	360.700	357.000	80%
σ		0.504	0.813	0.001	0.112	0.219	0.115	2.552	1.164	0%
%RSD		26.010	9.621	0.283	21.580	3.562	6.141	0.708	0.326	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:27	80%	1.610	1.604	83.300	74.590	78.610	80%	7.896
2	10:13:36	81%	1.317	1.299	83.370	74.590	78.640	81%	7.824
3	10:14:44	80%	1.214	1.178	82.410	74.890	78.520	80%	7.849
x		80%	1.380	1.360	83.030	74.690	78.590	80%	7.856
σ		0%	0.205	0.220	0.531	0.171	0.061	1%	0.037
%RSD		1	14.880	16.140	0.640	0.229	0.077	1	0.467

$$\frac{142200\ ug}{L} \times \frac{0.1L}{1.29g} \times \frac{1000g}{1\ Kg} \times \frac{1\ mg}{1000\ ug} \times \frac{1}{0.83\%S} = 13281.0\ mg/Kg$$

reported as $\frac{13200 mg}{Kg}$

NASJRB WILLOW GROVE
SOIL DATA
C5039

FRACTION	CHEMICAL	12SB-DUP-05	UNITS	12SB26-000.5-01	RPD	D
M	ALUMINUM	5400	MG/KG	3770	35.55	1630.00
M	ANTIMONY	0.45	MG/KG	0.34	27.85	0.11
M	ARSENIC	3.6	MG/KG	2.5	36.07	1.10
M	BARIUM	71.6	MG/KG	54.6	26.94	17.00
M	BERYLLIUM	0.62	MG/KG	0.52	17.54	0.10
M	CADMIUM	0.58	MG/KG	0.64	9.84	0.06
M	CALCIUM	1290	MG/KG	870	38.89	420.00
M	CHROMIUM	14.7	MG/KG	8.3	55.65	6.40
M	COBALT	5.4	MG/KG	4.3	22.68	1.10
M	COPPER	12	MG/KG	9.8	20.18	2.20
M	IRON	11800	MG/KG	8850	28.57	2950.00
M	LEAD	37.7	MG/KG	30.8	20.15	6.90
M	MAGNESIUM	1330	MG/KG	914	37.08	416.00
M	MANGANESE	353	MG/KG	321	9.50	32.00
M	MERCURY	0.039	MG/KG	0.039	0.00	0.00
M	NICKEL	6.6	MG/KG	5.6	16.39	1.00
M	POTASSIUM	486	MG/KG	451	7.47	35.00
M	SELENIUM	0.25 J	MG/KG	0.1 J	85.71	OK 0.15
M	SILVER	0.096	MG/KG	0.079 J	19.43	0.02
M	SODIUM	39.7 J	MG/KG	36.4 J	8.67	3.30
M	THALLIUM	0.11	MG/KG	0.091 J	18.91	0.02
M	VANADIUM	17.2	MG/KG	11.9	36.43	5.30
M	ZINC	46.8	MG/KG	39.4	17.17	7.40

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5039

FRACTION	CHEMICAL	12SB-DUP-05	UNITS	12SB26-000.5-01	RPD	D
MISC	CYANIDE	0.105 J	MG/KG	0.138 J	27.16	0.03
~~MISC~~	~~HEXAVALENT CHROMIUM~~	~~ND~~	~~MG/KG~~	~~0.73~~	~~200.00~~	~~0.73~~
~~MISC~~	~~OXIDATION REDUCTION POTENTIAL~~	~~ND~~	~~MV~~	~~255.6~~	~~200.00~~	~~255.60~~
~~MISC~~	~~PH~~	~~ND~~	~~S.U.~~	~~5.78~~	~~200.00~~	~~5.78~~

Dup Not analyzed

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

SDG C5039

Soil

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12SB-DUP-05	0.45		Fe	100000	1.6	11800	0.19	NBC	na
As		3.6			100000	0.28	11800	0.03	na	na
Ba		71.6			100000	1.5	11800	0.18	na	na
Be		0.62			100000	0.35	11800	0.04	na	na
Cd		0.58			100000	0.19	11800	0.02	na	na
Co		5.4			100000	1.2	11800	0.14	na	na
Cu		12			100000	8.2	11800	0.97	na	na
Mn		353			100000	8.1	11800	0.96	na	na
Ni		6.6			100000	6	11800	0.71	J	na
Ag		0.096			100000	0.051	11800	0.01	na	na
Tl		0.11			100000	0.082	11800	0.01	na	na
V		17.2			100000	-0.23	11800	-0.03	na	na
Zn		46.8			100000	12.4	11800	1.46	na	na

Ni

Sb	12SB26-0304-03	0.17		Fe	100000	1.6	13200	0.21	NBC	na
As		3.5			100000	0.28	13200	0.04	na	na
Ba		33			100000	1.5	13200	0.20	na	na
Be		0.32			100000	0.35	13200	0.05	J	na
Cd		0.048			100000	0.19	13200	0.03	J	na
Co		3.2			100000	1.2	13200	0.16	na	na
Cu		6.2			100000	8.2	13200	1.08	J	na
Mn		94.2			100000	8.1	13200	1.07	na	na
Ni		4.9			100000	6	13200	0.79	J	na
Ag		0.046			100000	0.051	13200	0.01	NBC	na
Tl		0.13			100000	0.082	13200	0.01	na	na
V		18.2			100000	-0.23	13200	-0.03	na	na
Zn		41.1			100000	12.4	13200	1.64	na	na

Be, Cd, Co, Ni

Sb	12SB28-0.502-02	0.11		Fe	100000	1.6	11500	0.18	NBL	na
As		3.6			100000	0.28	11500	0.03	na	na
Ba		33.1			100000	1.5	11500	0.17	na	na
Be		0.27			100000	0.35	11500	0.04	J	na
Cd		0.05			100000	0.19	11500	0.02	J	na
Co		3.2			100000	1.2	11500	0.14	na	na
Cu		5.1			100000	8.2	11500	0.94	J	na
Mn		130			100000	8.1	11500	0.93	na	na
Ni		4.7			100000	6	11500	0.69	J	na
Ag		0.048			100000	0.051	11500	0.01	NBL	na
Tl		0.093			100000	0.082	11500	0.01	NBL	na
V		16.6			100000	-0.23	11500	-0.03	na	na
Zn		23.6			100000	12.4	11500	1.43	na	na

Be, Cd, Cu, Ni:

Sb	12SB29-0.502-02	0.11		Fe	100000	1.6	11100	0.18	NBL	na
As		2.8			100000	0.28	11100	0.03	na	na
Ba		0.29			100000	1.5	11100	0.17	J	na
Be		0.29			100000	0.35	11100	0.04	J	na
Cd		0.04			100000	0.19	11100	0.02	J	na
Co		3.5			100000	1.2	11100	0.13	na	na
Cu		5.7			100000	8.2	11100	0.91	J	na
Mn		113			100000	8.1	11100	0.90	na	na
Ni		5.5			100000	6	11100	0.67	J	na
Ag		0.0475			100000	0.051	11100	0.01	NBL	na
Tl		0.091			100000	0.082	11100	0.01	NBL	na
V		16.7			100000	-0.23	11100	-0.03	na	na
Zn		22.7			100000	12.4	11100	1.38	na	na

Ba, Be, Cd, Cu, Ni:

Sb	12SB29-000.5-01	0.28		Fe	100000	1.6	10200	0.16	NBL	na
As		3.2			100000	0.28	10200	0.03	na	na
Ba		55.1			100000	1.5	10200	0.15	na	na
Be		0.5			100000	0.35	10200	0.04	na	na

Cu, Ni:

Cd		0.21			100000	0.19	10200	0.02	na	na
Co		4.2			100000	1.2	10200	0.12	na	na
Cu		8			100000	8.2	10200	0.84	J	na
Mn		232			100000	8.1	10200	0.83	na	na
Ni		5.5			100000	6	10200	0.61	J	na
Ag		0.059			100000	0.051	10200	0.01	na	na
Tl		0.13			100000	0.082	10200	0.01	na	na
V		14.9			100000	-0.23	10200	-0.02	na	na
Zn		63.5			100000	12.4	10200	1.26	na	na

Sb	12SB25-0.502-02	1.7		Fe	100000	1.6	10500	0.17	na	na
As		3			100000	0.28	10500	0.03	na	na
Ba		68			100000	1.5	10500	0.16	na	na
Be		0.53			100000	0.35	10500	0.04	na	na
Cd		0.68			100000	0.19	10500	0.02	na	na
Co		4.3			100000	1.2	10500	0.13	na	na
Cu		9.9			100000	8.2	10500	0.86	na	na
Mn		212			100000	8.1	10500	0.85	na	na
Ni		5.9			100000	6	10500	0.63	J	na
Ag		0.14			100000	0.051	10500	0.01	na	na
Tl		0.095			100000	0.082	10500	0.01	na	na
V		13.2			100000	-0.23	10500	-0.02	na	na
Zn		65.5			100000	12.4	10500	1.30	na	na

HOLDTIME

SDG C5039

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
HG	MG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/20/2011	12/22/2011	4	2	6
M	MG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-0304-03	C5039-04DL	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7
M	MG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/20/2011	12/23/2011	4	3	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB14-000.5-01	C5039-01	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB-DUP-05	C5039-11	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB13-0.502-02	C5039-03	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB25-0.502-02	C5039-15	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB25-000.5-01	C5039-12	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB25-0304-03	C5039-16	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB29-0.502-02	C5039-06	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB26-000.5-01	C5039-08	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB26-0304-03	C5039-10	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB28-0.502-02	C5039-17	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB29-0304-03	C5039-07	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB28-0304-03	C5039-18	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB29-000.5-01	C5039-05	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB26-0.502-02	C5039-09	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
CN	MG/KG	12SB13-0304-03	C5039-04	NM	12/16/2011	12/21/2011	12/22/2011	5	1	6
ORP	MV	12SB13-000.5-01	C5039-02	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7
ORP	MV	12SB13-0304-03	C5039-04	NM	12/16/2011	12/23/2011	12/23/2011	7	0	7

CHEMTECH

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Instrument ID: CV2 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 01/15/2009
Mercury	253.70	0.0020	0.010	

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Aluminum	27	0.6770	2.00	
Antimony	121	0.0260	0.20	
Arsenic	75	0.0220	0.10	
Barium	137	0.0080	1.00	
Beryllium	9	0.0070	0.10	
Cadmium	111	0.0090	0.10	
Calcium	44	0.6350	50.00	
Chromium	52	0.0110	0.20	
Cobalt	59	0.0060	0.10	
Copper	63	0.0060	0.20	
Iron	57	0.9260	20.00	
Lead	208	0.0040	0.10	

CHEMTECH

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

CHEMTECH

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5039 **SAS No.:** C5039

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60032**						
C5039-01	12SB14-000.5-01	SAM	SOIL	12/20/2011	1.48	100.0	63.90
C5039-02	12SB13-000.5-01	SAM	SOIL	12/20/2011	1.16	100.0	80.30
C5039-03	12SB13-0.502-02	SAM	SOIL	12/20/2011	1.28	100.0	82.40
C5039-04	12SB13-0304-03	SAM	SOIL	12/20/2011	1.24	100.0	82.80
C5039-04DL	12SB13-0304-03DL	SAM	SOIL	12/20/2011	1.24	100.0	82.80
C5039-05	12SB29-000.5-01	SAM	SOIL	12/20/2011	1.49	100.0	70.70
C5039-06	12SB29-0.502-02	SAM	SOIL	12/20/2011	1.31	100.0	80.00
C5039-07	12SB29-0304-03	SAM	SOIL	12/20/2011	1.01	100.0	84.50
C5039-08	12SB26-000.5-01	SAM	SOIL	12/20/2011	1.14	100.0	74.90
C5039-09	12SB26-0.502-02	SAM	SOIL	12/20/2011	1.12	100.0	86.10
C5039-10	12SB26-0304-03	SAM	SOIL	12/20/2011	1.29	100.0	83.80
C5039-11	12SB-DUP-05	SAM	SOIL	12/20/2011	1.44	100.0	74.00
C5039-12	12SB25-000.5-01	SAM	SOIL	12/20/2011	1.00	100.0	72.20
C5039-12D	12SB25-000.5-01D	DUP	SOIL	12/20/2011	1.00	100.0	72.20
C5039-13S	12SB25-000.5-01S	MS	SOIL	12/20/2011	1.00	100.0	72.20
C5039-14SD	12SB25-000.5-01SD	MSD	SOIL	12/20/2011	1.00	100.0	72.20
C5039-15	12SB25-0.502-02	SAM	SOIL	12/20/2011	1.46	100.0	86.50
C5039-16	12SB25-0304-03	SAM	SOIL	12/20/2011	1.45	100.0	85.80
C5039-17	12SB28-0.502-02	SAM	SOIL	12/20/2011	1.29	100.0	80.90
C5039-18	12SB28-0304-03	SAM	SOIL	12/20/2011	1.32	100.0	86.50
PB60032BL	PB60032BL	MB	SOIL	12/20/2011	1.00	100.0	100.00
PB60032BS	PB60032BS	LCS	SOIL	12/20/2011	1.00	100.0	100.00

CHEMTECH

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5039 **SAS No.:** C5039

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60057**						
C5039-01	12SB14-000.5-01	SAM	SOIL	12/20/2011	0.65	30.0	63.90
C5039-02	12SB13-000.5-01	SAM	SOIL	12/20/2011	0.64	30.0	80.30
C5039-03	12SB13-0.502-02	SAM	SOIL	12/20/2011	0.68	30.0	82.40
C5039-04	12SB13-0304-03	SAM	SOIL	12/20/2011	0.62	30.0	82.80
C5039-05	12SB29-000.5-01	SAM	SOIL	12/20/2011	0.66	30.0	70.70
C5039-06	12SB29-0.502-02	SAM	SOIL	12/20/2011	0.64	30.0	80.00
C5039-07	12SB29-0304-03	SAM	SOIL	12/20/2011	0.64	30.0	84.50
C5039-08	12SB26-000.5-01	SAM	SOIL	12/20/2011	0.63	30.0	74.90
C5039-09	12SB26-0.502-02	SAM	SOIL	12/20/2011	0.69	30.0	86.10
C5039-10	12SB26-0304-03	SAM	SOIL	12/20/2011	0.65	30.0	83.80
C5039-11	12SB-DUP-05	SAM	SOIL	12/20/2011	0.65	30.0	74.00
C5039-12	12SB25-000.5-01	SAM	SOIL	12/20/2011	0.60	30.0	72.20
C5039-12D	12SB25-000.5-01D	DUP	SOIL	12/20/2011	0.60	30.0	72.20
C5039-13S	12SB25-000.5-01S	MS	SOIL	12/20/2011	0.60	30.0	72.20
C5039-14SD	12SB25-000.5-01SD	MSD	SOIL	12/20/2011	0.60	30.0	72.20
C5039-15	12SB25-0.502-02	SAM	SOIL	12/20/2011	0.68	30.0	86.50
C5039-16	12SB25-0304-03	SAM	SOIL	12/20/2011	0.65	30.0	85.80
C5039-17	12SB28-0.502-02	SAM	SOIL	12/20/2011	0.64	30.0	80.90
C5039-18	12SB28-0304-03	SAM	SOIL	12/20/2011	0.67	30.0	86.50
PB60057BL	PB60057BL	MB	SOIL	12/20/2011	0.60	30.0	100.00
PB60057BS	PB60057BS	LCS	SOIL	12/20/2011	0.60	30.0	100.00

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Instrument: CV2

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60057BL		**SOIL**		**Batch Number:**		**PB60057**		**Prep Date:**	**12/20/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	12/22/2011	22:38	LB58505
PB60032BL		**SOIL**		**Batch Number:**		**PB60032**		**Prep Date:**	**12/20/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	12/22/2011	20:03	LB58535
	Antimony	0.026	<0.200	U	0.026	0.200	MS	12/22/2011	20:03	LB58535
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	12/22/2011	20:03	LB58535
	Barium	0.008	<1.000	U	0.008	1.000	MS	12/22/2011	20:03	LB58535
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	12/22/2011	20:03	LB58535
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	12/22/2011	20:03	LB58535
	Calcium	0.635	<50.000	U	0.635	50.000	MS	12/22/2011	20:03	LB58535
	Chromium	0.011	<0.200	U	0.011	0.200	MS	12/22/2011	20:03	LB58535
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	12/22/2011	20:03	LB58535
	Copper	0.023	<0.200	J	0.006	0.200	MS	12/22/2011	20:03	LB58535
	Iron	0.926	<20.000	U	0.926	20.000	MS	12/22/2011	20:03	LB58535
	Lead	0.004	<0.100	J	0.004	0.100	MS	12/22/2011	20:03	LB58535
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	12/22/2011	20:03	LB58535
	Manganese	0.010	<0.100	J	0.006	0.100	MS	12/22/2011	20:03	LB58535
	Nickel	0.009	<0.100	U	0.009	0.100	MS	12/22/2011	20:03	LB58535
	Potassium	3.128	<50.000	J	0.901	50.000	MS	12/22/2011	20:03	LB58535
	Selenium	0.056	<0.500	U	0.056	0.500	MS	12/22/2011	20:03	LB58535
	Silver	0.007	<0.100	U	0.007	0.100	MS	12/22/2011	20:03	LB58535
	Sodium	1.225	<50.000	U	1.225	50.000	MS	12/22/2011	20:03	LB58535
	Thallium	0.005	<0.100	U	0.005	0.100	MS	12/22/2011	20:03	LB58535
	Vanadium	0.013	<0.500	U	0.013	0.500	MS	12/22/2011	20:03	LB58535
	Zinc	0.016	<0.200	J	0.011	0.200	MS	12/22/2011	20:03	LB58535

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Matrix: SOIL **Sample ID:** C5039-12 **Client ID:** 12SB25-000.5-01S

Percent Solids for Sample: 72.2 **Spiked ID:** C5039-13S **Percent Solids for Spike Sample:** 72.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	4858.7270		5004.1560		277.01	-52.5		MS
Antimony	mg/Kg	80 - 120	31.1496		0.6994		110.80	27.5	N	MS
Arsenic	mg/Kg	80 - 120	67.3684		4.7216		110.80	56.5	N	MS
Barium	mg/Kg	80 - 120	74.7923		64.9446		27.70	35.6	N	MS
Beryllium	mg/Kg	80 - 120	14.0997		0.6551		27.70	48.5	N	MS
Cadmium	mg/Kg	80 - 120	22.1330		1.2132		27.70	75.5	N	MS
Calcium	mg/Kg	80 - 120	918.1442		1032.5490		138.50	-82.6		MS
Chromium	mg/Kg	80 - 120	35.0831		10.1427		55.40	45.0	N	MS
Cobalt	mg/Kg	80 - 120	18.0609		4.6094		27.70	48.6	N	MS
Copper	mg/Kg	80 - 120	32.7008		11.8324		41.55	50.2	N	MS
Iron	mg/Kg	80 - 120	7667.5910		9314.4060		415.51	-396.3		MS
Lead	mg/Kg	80 - 120	157.8948		74.4321		138.50	60.3	N	MS
Magnesium	mg/Kg	80 - 120	948.3380		948.1996		277.01	0.0	N	MS
Manganese	mg/Kg	80 - 120	346.6760		371.7452		27.70	-90.5		MS
Nickel	mg/Kg	80 - 120	40.5263		6.5180		69.25	49.1	N	MS
Mercury	mg/Kg	34 - 153	0.2950		0.0588		0.28	84.4		CV
Potassium	mg/Kg	80 - 120	1193.4900		426.0388		1385.04	55.4	N	MS
Silver	mg/Kg	80 - 120	9.2687		0.1438		10.39	87.8		MS
Sodium	mg/Kg	80 - 120	296.1219		41.3435	J	415.51	61.3	N	MS
Thallium	mg/Kg	80 - 120	219.3906		0.1640		277.01	79.1	N	MS
Vanadium	mg/Kg	80 - 120	31.7590		13.0706		41.55	45.0	N	MS
Zinc	mg/Kg	80 - 120	99.1828		81.7452		27.70	63.0	N	MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Matrix: SOIL **Sample ID:** C5039-12 **Client ID:** 12SB25-000.5-01SD

Percent Solids for Sample: 72.2 **Spiked ID:** C5039-14SD **Percent Solids for Spike Sample:** 72.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	6304.7090		5004.1560		277.01	469.5		MS
Antimony	mg/Kg	80 - 120	31.7313		0.6994		110.80	28.0	N	MS
Arsenic	mg/Kg	80 - 120	76.1911		4.7216		110.80	64.5	N	MS
Barium	mg/Kg	80 - 120	87.5762		64.9446		27.70	81.7		MS
Beryllium	mg/Kg	80 - 120	16.6759		0.6551		27.70	57.8	N	MS
Cadmium	mg/Kg	80 - 120	24.2936		1.2132		27.70	83.3		MS
Calcium	mg/Kg	80 - 120	1178.1160		1032.5490		138.50	105.1		MS
Chromium	mg/Kg	80 - 120	42.5485		10.1427		55.40	58.5	N	MS
Cobalt	mg/Kg	80 - 120	21.1773		4.6094		27.70	59.8	N	MS
Copper	mg/Kg	80 - 120	38.2272		11.8324		41.55	63.5	N	MS
Iron	mg/Kg	80 - 120	9400.2780		9314.4060		415.51	20.7		MS
Lead	mg/Kg	80 - 120	181.3020		74.4321		138.50	77.2	N	MS
Magnesium	mg/Kg	80 - 120	1197.6460		948.1996		277.01	90.0		MS
Manganese	mg/Kg	80 - 120	400.1386		371.7452		27.70	102.5		MS
Nickel	mg/Kg	80 - 120	48.2272		6.5180		69.25	60.2	N	MS
Mercury	mg/Kg	34 - 153	0.3019		0.0588		0.28	86.8		CV
Potassium	mg/Kg	80 - 120	1355.1250		426.0388		1385.04	67.1	N	MS
Silver	mg/Kg	80 - 120	9.7715		0.1438		10.39	92.7		MS
Sodium	mg/Kg	80 - 120	334.7646		41.3435	J	415.51	70.6	N	MS
Thallium	mg/Kg	80 - 120	236.4266		0.1640		277.01	85.3		MS
Vanadium	mg/Kg	80 - 120	37.8116		13.0706		41.55	59.5	N	MS
Zinc	mg/Kg	80 - 120	107.0776		81.7452		27.70	91.5		MS

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Matrix: WATER **Level:** LOW **Client ID:** 12SB25-000.5-01A

Sample ID: C5039-12 **Spiked ID:** C5039-12A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	783.10		5.05		800.0	97.3		MS
Arsenic	ug/L	80 - 120	775.10		34.09		800.0	92.6		MS
Barium	ug/L	80 - 120	645.40		468.90		200.0	88.2		MS
Beryllium	ug/L	80 - 120	184.40		4.73		200.0	89.8		MS
Cadmium	ug/L	80 - 120	211.50		8.76		200.0	101.4		MS
Chromium	ug/L	80 - 120	445.00		73.23		400.0	92.9		MS
Cobalt	ug/L	80 - 120	222.00		33.28		200.0	94.4		MS
Copper	ug/L	80 - 120	371.80		85.43		300.0	95.5		MS
Lead	ug/L	80 - 120	1560.00		537.40		1000.0	102.3		MS
Magnesium	ug/L	80 - 120	7986.00		6846.00		2000.0	57.0		MS
Nickel	ug/L	80 - 120	517.30		47.06		500.0	94.0		MS
Potassium	ug/L	80 - 120	12580.00		3076.00		10000.0	95.0		MS
Sodium	ug/L	80 - 120	3285.00		298.50	J	3000.0	99.6		MS
Thallium	ug/L	80 - 120	2044.00		1.18		2000.0	102.1		MS
Vanadium	ug/L	80 - 120	367.40		94.37		300.0	91.0		MS
Zinc	ug/L	80 - 120	767.20		590.20		200.0	88.5		MS

CHEMTECH

Metals

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MS/MSD evaluation for RPD

DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Matrix: SOIL **Sample ID:** C5039-12 **Client ID:** 12SB25-000.5-01SD

Percent Solids for Sample: 72.2 **Duplicate ID** C5039-14SD **Percent Solids for Spike Sample:** 72.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	4858.7270		6304.7090		25.9	*	MS
Antimony	mg/Kg	20	31.1496		31.7313		1.9		MS
Arsenic	mg/Kg	20	67.3684		76.1911		12.3		MS
Barium	mg/Kg	20	74.7923		87.5762		15.7		MS
Beryllium	mg/Kg	20	14.0997		16.6759		16.7		MS
Cadmium	mg/Kg	20	22.1330		24.2936		9.3		MS
Calcium	mg/Kg	20	918.1442		1178.1160		24.8	*	MS
Chromium	mg/Kg	20	35.0831		42.5485		19.2		MS
Cobalt	mg/Kg	20	18.0609		21.1773		15.9		MS
Copper	mg/Kg	20	32.7008		38.2272		15.6		MS
Iron	mg/Kg	20	7667.5910		9400.2780		20.3	*	MS
Lead	mg/Kg	20	157.8948		181.3020		13.8		MS
Magnesium	mg/Kg	20	948.3380		1197.6460		23.2	*	MS
Manganese	mg/Kg	20	346.6760		400.1386		14.3		MS
Nickel	mg/Kg	20	40.5263		48.2272		17.4		MS
Mercury	mg/Kg	20	0.2950		0.3019		2.3		CV
Potassium	mg/Kg	20	1193.4900		1355.1250		12.7		MS
Silver	mg/Kg	20	9.2687		9.7715		5.3		MS
Sodium	mg/Kg	20	296.1219		334.7646		12.3		MS
Thallium	mg/Kg	20	219.3906		236.4266		7.5		MS
Vanadium	mg/Kg	20	31.7590		37.8116		17.4		MS
Zinc	mg/Kg	20	99.1828		107.0776		7.7		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Matrix: SOIL **Sample ID:** C5039-12 **Client ID:** 12SB25-000.5-01D

Percent Solids for Sample: 72.2 **Duplicate ID** C5039-12D **Percent Solids for Spike Sample:** 72.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	5004.1560		4085.8730		20.2	*	MS
Antimony	mg/Kg	20	0.6994		0.4978		33.7	*	MS
Arsenic	mg/Kg	20	4.7216		3.8172		21.2	*	MS
Barium	mg/Kg	20	64.9446		60.4709		7.1		MS
Beryllium	mg/Kg	20	0.6551		0.5242		22.2	*	MS
Cadmium	mg/Kg	20	1.2132		1.2675		4.4		MS
Calcium	mg/Kg	20	1032.5490		1209.4180		15.8		MS
Chromium	mg/Kg	20	10.1427		8.1163		22.2	*	MS
Cobalt	mg/Kg	20	4.6094		3.5069		27.2	*	MS
Copper	mg/Kg	20	11.8324		9.5734		21.1	*	MS
Iron	mg/Kg	20	9314.4060		7264.5440		24.7	*	MS
Lead	mg/Kg	20	74.4321		64.3629		14.5		MS
Magnesium	mg/Kg	20	948.1996		838.3658		12.3		MS
Manganese	mg/Kg	20	371.7452		342.3823		8.2		MS
Nickel	mg/Kg	20	6.5180		5.0540		25.3	*	MS
Mercury	mg/Kg	20	0.0588		0.0604		2.7		CV
Potassium	mg/Kg	20	426.0388		393.9059		7.8		MS
Selenium	mg/Kg	20	0.2072		0.1271	J	47.9 OK		MS
Silver	mg/Kg	20	0.1438		0.1417		1.5		MS
Sodium	mg/Kg	20	41.3435		45.6094	J	9.8		MS
Thallium	mg/Kg	20	0.1640		0.1141	J	35.9 OK	*	MS
Vanadium	mg/Kg	20	13.0706		10.2479		24.2	*	MS
Zinc	mg/Kg	20	81.7452		81.2050		0.7		MS

Limit of 35% used

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60032BS							
Aluminum	mg/Kg	200	190.5		95.2	80 - 120	MS
Antimony	mg/Kg	80	81.1		101.4	80 - 120	MS
Arsenic	mg/Kg	80	81.9		102.4	80 - 120	MS
Barium	mg/Kg	20	20.8		104.0	80 - 120	MS
Beryllium	mg/Kg	20	18.3		91.5	80 - 120	MS
Cadmium	mg/Kg	20	21.1		105.5	80 - 120	MS
Calcium	mg/Kg	100	107.9		107.9	80 - 120	MS
Chromium	mg/Kg	40	41.0		102.5	80 - 120	MS
Cobalt	mg/Kg	20	20.6		103.0	80 - 120	MS
Copper	mg/Kg	30	32.2		107.3	80 - 120	MS
Iron	mg/Kg	300	305.8		101.9	80 - 120	MS
Lead	mg/Kg	100	103.0		103.0	80 - 120	MS
Magnesium	mg/Kg	200	197.0		98.5	80 - 120	MS
Manganese	mg/Kg	20	21.2		106.0	80 - 120	MS
Nickel	mg/Kg	50	51.8		103.6	80 - 120	MS
Potassium	mg/Kg	1000	1060.0		106.0	80 - 120	MS
Selenium	mg/Kg	200	200.9		100.4	80 - 120	MS
Silver	mg/Kg	7.5	7.9		105.3	80 - 120	MS
Sodium	mg/Kg	300	315.9		105.3	80 - 120	MS
Thallium	mg/Kg	200	205.8		102.9	80 - 120	MS
Vanadium	mg/Kg	30	30.3		101.0	80 - 120	MS
Zinc	mg/Kg	20	22.0		110.0	80 - 120	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60057BS							
Mercury	mg/Kg	0.200	0.191		95.5	73 - 121	CV

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB25-000.5-01L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG No.:** C5039

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	36130.00		34235.00		5.2		MS
Antimony	0.14	U	4.70	J	100.0		MS
Arsenic	34.09		32.11		5.8		MS
Barium	468.90		443.00		5.5		MS
Beryllium	0.09	U	4.65	J	100.0		MS
Cadmium	0.13	U	7.77		100.0		MS
Calcium	7455.00		7535.00		1.1		MS
Chromium	73.23		73.35		0.2		MS
Cobalt	33.28		32.41		2.6		MS
Copper	85.43		85.50		0.1		MS
Iron	67250.00		67300.00		0.1		MS
Lead	537.40		519.00		3.4		MS
Magnesium	6846.00		6290.00		8.1		MS
Manganese	2684.00		2615.00		2.6		MS
Nickel	47.06		46.27		1.7		MS
Mercury	0.85		0.76	J	10.6		CV
Potassium	3076.00		3224.50		4.8		MS
Selenium	0.70	U	3.50	U			MS
Silver	0.03	U	0.93	J	100.0		MS
Sodium	5.32	U	570.50	J	100.0		MS
Thallium	0.02	U	2.85	J	100.0		MS
Vanadium	94.37		89.30		5.4		MS
Zinc	590.20		635.50		7.7		MS

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG No.:** C5039

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58505

Start Date: 12/22/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1938																X								
Std02Rep1	1	1940																X								
Std03Rep1	1	1942																X								
Std04Rep1	1	1944																X								
Std05Rep1	1	1946																X								
Std06Rep1	1	1949																X								
ICV01	1	1952																X								
ICB01	1	1954																X								
CCV01	1	1956																X								
CCB01	1	1958																X								
CRI01	1	2000																X								
CCV02	1	2021																X								
CCB02	1	2023																X								
CCV03	1	2042																X								
CCB03	1	2044																X								
CCV04	1	2106																X								
CCB04	1	2109																X								
CCV05	1	2128																X								
CCB05	1	2131																X								
CCV06	1	2151																X								
CCB06	1	2154																X								
CCV07	1	2214																X								
CCB07	1	2216																X								
CCV08	1	2234																X								
CCB08	1	2236																X								
PB60057BL	1	2238																X								
PB60057BS	1	2241																X								
12SB14-000.5-01	1	2243																X								
12SB13-000.5-01	1	2245																X								
12SB13-0.502-02	1	2248																X								
12SB13-0304-03	1	2250																X								
12SB29-000.5-01	1	2252																X								
12SB29-0.502-02	1	2254																X								
CCV09	1	2256																X								
CCB09	1	2259																X								
12SB29-0304-03	1	2301																X								
12SB26-000.5-01	1	2303																X								
12SB26-0.502-02	1	2307																X								
12SB26-0304-03	1	2309																X								
12SB-DUP-05	1	2311																X								
12SB25-000.5-01	1	2315																X								

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG No.:** C5039

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58505

Start Date: 12/22/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB25-000.5-01D	1	2317																X								
12SB25-000.5-01L	5	2319																X								
CCV10	1	2322																X								
CCB10	1	2324																X								
12SB25-000.5-01S	1	2326																X								
12SB25-000.5-01SD	1	2328																X								
12SB25-000.5-01A	1	2330																								
12SB25-0.502-02	1	2332																X								
12SB25-0304-03	1	2334																X								
12SB28-0.502-02	1	2336																X								
12SB28-0304-03	1	2338																X								
CCV11	1	2340																X								
CCB11	1	2343																X								

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG No.:** C5039

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58535

Start Date: 12/22/2011 **End Date:** 12/23/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1630		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1638		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1646		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1654		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1702		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1709		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1717		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1725		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1733		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1741		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1805		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1813		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1939		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1947		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60032BL	1	2003		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60032BS	1	2035		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	2114		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	2122		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2249		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2257		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	0024		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	0032		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV06	1	0159		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	0207		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV07	1	0334		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0342		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV08	1	0509		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB08	1	0517		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV09	1	0644		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB09	1	0652		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB14-000.5-01	1	0716		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB13-000.5-01	1	0724		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB13-0.502-02	1	0732		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB13-0304-03	1	0740		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB13-0304-03DL	2	0812															X										
CCV10	1	0820		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB10	1	0828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB29-000.5-01	1	0835		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB29-0.502-02	1	0843		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB29-0304-03	1	0851		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5039 **SAS No.:** C5039 **SDG No.:** C5039

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58535

Start Date: 12/22/2011 **End Date:** 12/23/2011

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB26-000.5-01	1	0859		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB26-0.502-02	1	0907		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV11	1	0955		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB11	1	1003		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB26-0304-03	1	1011		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB-DUP-05	1	1019		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB25-0.502-02	1	1027		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB25-0304-03	1	1035		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB28-0.502-02	1	1043		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV12	1	1130		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB12	1	1138		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB25-000.5-01	1	1146		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB25-000.5-01D	1	1154		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB25-000.5-01S	1	1202		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	
12SB25-000.5-01SD	1	1210		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	
12SB25-000.5-01A	1	1218			X	X	X	X	X		X	X	X		X	X			X	X			X	X	X	X	
12SB28-0304-03	1	1226		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB25-000.5-01L	5	1250		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV13	1	1306		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB13	1	1314		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV14	1	1418		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB14	1	1426		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV15	1	1537		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB15	1	1545		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.86	4.0	96.5	90 - 110	CV	12/22/2011	19:52	LB58505
CCV01	Mercury	5.03	5.0	100.6	90 - 110	CV	12/22/2011	19:56	LB58505
CCV02	Mercury	5.02	5.0	100.4	90 - 110	CV	12/22/2011	20:21	LB58505
CCV03	Mercury	4.94	5.0	98.8	90 - 110	CV	12/22/2011	20:42	LB58505
CCV04	Mercury	4.95	5.0	99.0	90 - 110	CV	12/22/2011	21:06	LB58505
CCV05	Mercury	4.96	5.0	99.2	90 - 110	CV	12/22/2011	21:28	LB58505
CCV06	Mercury	4.88	5.0	97.6	90 - 110	CV	12/22/2011	21:51	LB58505
CCV07	Mercury	4.96	5.0	99.2	90 - 110	CV	12/22/2011	22:14	LB58505
CCV08	Mercury	4.93	5.0	98.6	90 - 110	CV	12/22/2011	22:34	LB58505
CCV09	Mercury	5.04	5.0	100.8	90 - 110	CV	12/22/2011	22:56	LB58505
CCV10	Mercury	5.04	5.0	100.8	90 - 110	CV	12/22/2011	23:22	LB58505
CCV11	Mercury	5.01	5.0	100.2	90 - 110	CV	12/22/2011	23:40	LB58505

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	531.80	504	105.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Antimony	192.50	199	96.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Arsenic	197.00	200	98.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Barium	102.30	99	103.3	90 - 110	MS	12/22/2011	17:17	LB58535
	Beryllium	99.01	99	100.0	90 - 110	MS	12/22/2011	17:17	LB58535
	Cadmium	99.88	99	100.9	90 - 110	MS	12/22/2011	17:17	LB58535
	Calcium	1988.00	2005	99.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Chromium	99.14	98	101.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Cobalt	101.60	100	101.6	90 - 110	MS	12/22/2011	17:17	LB58535
	Copper	105.20	98	107.3	90 - 110	MS	12/22/2011	17:17	LB58535
	Iron	1023.00	1016	100.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Lead	198.40	200	99.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Magnesium	1233.00	1215	101.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Manganese	102.70	100	102.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Nickel	102.50	101	101.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Potassium	2036.00	2004	101.6	90 - 110	MS	12/22/2011	17:17	LB58535
	Selenium	196.50	206	95.4	90 - 110	MS	12/22/2011	17:17	LB58535
	Silver	100.50	100	100.5	90 - 110	MS	12/22/2011	17:17	LB58535
	Sodium	2065.00	2019	102.3	90 - 110	MS	12/22/2011	17:17	LB58535
	Thallium	199.30	206	96.7	90 - 110	MS	12/22/2011	17:17	LB58535
	Vanadium	98.24	100	98.2	90 - 110	MS	12/22/2011	17:17	LB58535
	Zinc	206.40	205	100.7	90 - 110	MS	12/22/2011	17:17	LB58535
CCV01	Aluminum	9957.00	10000	99.6	90 - 110	MS	12/22/2011	18:05	LB58535
X	Antimony	496.60	500	99.3	90 - 110	MS	12/22/2011	18:05	LB58535
	Arsenic	497.40	500	99.5	90 - 110	MS	12/22/2011	18:05	LB58535
	Barium	2494.00	2500	99.8	90 - 110	MS	12/22/2011	18:05	LB58535
	Beryllium	504.30	500	100.9	90 - 110	MS	12/22/2011	18:05	LB58535
	Cadmium	499.50	500	99.9	90 - 110	MS	12/22/2011	18:05	LB58535
	Calcium	49250.00	50000	98.5	90 - 110	MS	12/22/2011	18:05	LB58535
	Chromium	496.80	500	99.4	90 - 110	MS	12/22/2011	18:05	LB58535
	Cobalt	498.10	500	99.6	90 - 110	MS	12/22/2011	18:05	LB58535
	Copper	1001.00	1000	100.1	90 - 110	MS	12/22/2011	18:05	LB58535
	Iron	24780.00	25000	99.1	90 - 110	MS	12/22/2011	18:05	LB58535
	Lead	498.50	500	99.7	90 - 110	MS	12/22/2011	18:05	LB58535
	Magnesium	51030.00	50000	102.1	90 - 110	MS	12/22/2011	18:05	LB58535

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1040.00	1000	104.0	90 - 110	MS	12/23/2011	03:34	LB58535
CCV08	Aluminum	9168.00	10000	91.7	90 - 110	MS	12/23/2011	05:09	LB58535
X	Antimony	502.40	500	100.5	90 - 110	MS	12/23/2011	05:09	LB58535
	Arsenic	488.50	500	97.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Barium	2453.00	2500	98.1	90 - 110	MS	12/23/2011	05:09	LB58535
	Beryllium	488.50	500	97.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Cadmium	507.80	500	101.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Calcium	49080.00	50000	98.2	90 - 110	MS	12/23/2011	05:09	LB58535
	Chromium	488.00	500	97.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Cobalt	492.20	500	98.4	90 - 110	MS	12/23/2011	05:09	LB58535
	Copper	978.20	1000	97.8	90 - 110	MS	12/23/2011	05:09	LB58535
	Iron	24890.00	25000	99.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Lead	496.00	500	99.2	90 - 110	MS	12/23/2011	05:09	LB58535
	Magnesium	50900.00	50000	101.8	90 - 110	MS	12/23/2011	05:09	LB58535
	Manganese	1010.00	1000	101.0	90 - 110	MS	12/23/2011	05:09	LB58535
	Nickel	483.50	500	96.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Potassium	26670.00	25000	106.7	90 - 110	MS	12/23/2011	05:09	LB58535
	Selenium	481.60	500	96.3	90 - 110	MS	12/23/2011	05:09	LB58535
	Silver	494.30	500	98.9	90 - 110	MS	12/23/2011	05:09	LB58535
	Sodium	55680.00	50000	111.4	90 - 110	MS	12/23/2011	05:09	LB58535
	Thallium	490.30	500	98.1	90 - 110	MS	12/23/2011	05:09	LB58535
	Vanadium	488.00	500	97.6	90 - 110	MS	12/23/2011	05:09	LB58535
	Zinc	1039.00	1000	103.9	90 - 110	MS	12/23/2011	05:09	LB58535
CCV09	Aluminum	9296.00	10000	93.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Antimony	507.60	500	101.5	90 - 110	MS	12/23/2011	06:44	LB58535
	Arsenic	490.40	500	98.1	90 - 110	MS	12/23/2011	06:44	LB58535
	Barium	2477.00	2500	99.1	90 - 110	MS	12/23/2011	06:44	LB58535
	Beryllium	495.20	500	99.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Cadmium	507.40	500	101.5	90 - 110	MS	12/23/2011	06:44	LB58535
	Calcium	49520.00	50000	99.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Chromium	494.50	500	98.9	90 - 110	MS	12/23/2011	06:44	LB58535
	Cobalt	498.20	500	99.6	90 - 110	MS	12/23/2011	06:44	LB58535
	Copper	986.40	1000	98.6	90 - 110	MS	12/23/2011	06:44	LB58535
	Iron	25170.00	25000	100.7	90 - 110	MS	12/23/2011	06:44	LB58535
	Lead	497.60	500	99.5	90 - 110	MS	12/23/2011	06:44	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Magnesium	51330.00	50000	102.7	90 - 110	MS	12/23/2011	06:44	LB58535
	Manganese	1023.00	1000	102.3	90 - 110	MS	12/23/2011	06:44	LB58535
	Nickel	491.10	500	98.2	90 - 110	MS	12/23/2011	06:44	LB58535
	Potassium	27060.00	25000	108.2	90 - 110	MS	12/23/2011	06:44	LB58535
	Selenium	485.80	500	97.2	90 - 110	MS	12/23/2011	06:44	LB58535
	Silver	500.20	500	100.0	90 - 110	MS	12/23/2011	06:44	LB58535
	Sodium	56240.00	50000	112.5	90 - 110	MS	12/23/2011	06:44	LB58535
	Thallium	490.30	500	98.1	90 - 110	MS	12/23/2011	06:44	LB58535
	Vanadium	489.60	500	97.9	90 - 110	MS	12/23/2011	06:44	LB58535
	Zinc	1046.00	1000	104.6	90 - 110	MS	12/23/2011	06:44	LB58535
CCV10	Aluminum	9283.00	10000	92.8	90 - 110	MS	12/23/2011	08:20	LB58535
	Antimony	514.90	500	103.0	90 - 110	MS	12/23/2011	08:20	LB58535
	Arsenic	494.70	500	98.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Barium	2505.00	2500	100.2	90 - 110	MS	12/23/2011	08:20	LB58535
	Beryllium	494.40	500	98.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Cadmium	519.20	500	103.8	90 - 110	MS	12/23/2011	08:20	LB58535
	Calcium	49950.00	50000	99.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Chromium	498.40	500	99.7	90 - 110	MS	12/23/2011	08:20	LB58535
	Cobalt	500.50	500	100.1	90 - 110	MS	12/23/2011	08:20	LB58535
	Copper	988.70	1000	98.9	90 - 110	MS	12/23/2011	08:20	LB58535
	Iron	25440.00	25000	101.8	90 - 110	MS	12/23/2011	08:20	LB58535
	Lead	503.60	500	100.7	90 - 110	MS	12/23/2011	08:20	LB58535
	Magnesium	51280.00	50000	102.6	90 - 110	MS	12/23/2011	08:20	LB58535
	Manganese	1035.00	1000	103.5	90 - 110	MS	12/23/2011	08:20	LB58535
	Nickel	490.40	500	98.1	90 - 110	MS	12/23/2011	08:20	LB58535
	Potassium	27090.00	25000	108.4	90 - 110	MS	12/23/2011	08:20	LB58535
	Selenium	488.00	500	97.6	90 - 110	MS	12/23/2011	08:20	LB58535
	Silver	505.50	500	101.1	90 - 110	MS	12/23/2011	08:20	LB58535
	Sodium	56750.00	50000	113.5	90 - 110	MS	12/23/2011	08:20	LB58535
	Thallium	496.70	500	99.3	90 - 110	MS	12/23/2011	08:20	LB58535
	Vanadium	493.00	500	98.6	90 - 110	MS	12/23/2011	08:20	LB58535
	Zinc	1056.00	1000	105.6	90 - 110	MS	12/23/2011	08:20	LB58535
CCV11	Aluminum	9279.00	10000	92.8	90 - 110	MS	12/23/2011	09:55	LB58535
	Antimony	514.80	500	103.0	90 - 110	MS	12/23/2011	09:55	LB58535
	Arsenic	494.40	500	98.9	90 - 110	MS	12/23/2011	09:55	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV11	Barium	2488.00	2500	99.5	90 - 110	MS	12/23/2011	09:55	LB58535
	Beryllium	495.80	500	99.2	90 - 110	MS	12/23/2011	09:55	LB58535
	Cadmium	516.40	500	103.3	90 - 110	MS	12/23/2011	09:55	LB58535
	Calcium	49600.00	50000	99.2	90 - 110	MS	12/23/2011	09:55	LB58535
	Chromium	496.70	500	99.3	90 - 110	MS	12/23/2011	09:55	LB58535
	Cobalt	499.00	500	99.8	90 - 110	MS	12/23/2011	09:55	LB58535
	Copper	992.40	1000	99.2	90 - 110	MS	12/23/2011	09:55	LB58535
	Iron	25280.00	25000	101.1	90 - 110	MS	12/23/2011	09:55	LB58535
	Lead	504.70	500	100.9	90 - 110	MS	12/23/2011	09:55	LB58535
	Magnesium	51310.00	50000	102.6	90 - 110	MS	12/23/2011	09:55	LB58535
	Manganese	1029.00	1000	102.9	90 - 110	MS	12/23/2011	09:55	LB58535
	Nickel	491.90	500	98.4	90 - 110	MS	12/23/2011	09:55	LB58535
	Potassium	26940.00	25000	107.8	90 - 110	MS	12/23/2011	09:55	LB58535
	Selenium	487.50	500	97.5	90 - 110	MS	12/23/2011	09:55	LB58535
	Silver	505.50	500	101.1	90 - 110	MS	12/23/2011	09:55	LB58535
	Sodium	56480.00	50000	113.0	90 - 110	MS	12/23/2011	09:55	LB58535
	Thallium	497.90	500	99.6	90 - 110	MS	12/23/2011	09:55	LB58535
	Vanadium	492.90	500	98.6	90 - 110	MS	12/23/2011	09:55	LB58535
	Zinc	1059.00	1000	105.9	90 - 110	MS	12/23/2011	09:55	LB58535
CCV12	Aluminum	9282.00	10000	92.8	90 - 110	MS	12/23/2011	11:30	LB58535
	Antimony	508.10	500	101.6	90 - 110	MS	12/23/2011	11:30	LB58535
	Arsenic	489.20	500	97.8	90 - 110	MS	12/23/2011	11:30	LB58535
	Barium	2456.00	2500	98.2	90 - 110	MS	12/23/2011	11:30	LB58535
	Beryllium	499.90	500	100.0	90 - 110	MS	12/23/2011	11:30	LB58535
	Cadmium	511.20	500	102.2	90 - 110	MS	12/23/2011	11:30	LB58535
	Calcium	49140.00	50000	98.3	90 - 110	MS	12/23/2011	11:30	LB58535
	Chromium	493.90	500	98.8	90 - 110	MS	12/23/2011	11:30	LB58535
	Cobalt	494.10	500	98.8	90 - 110	MS	12/23/2011	11:30	LB58535
	Copper	979.50	1000	98.0	90 - 110	MS	12/23/2011	11:30	LB58535
	Iron	24990.00	25000	100.0	90 - 110	MS	12/23/2011	11:30	LB58535
	Lead	499.10	500	99.8	90 - 110	MS	12/23/2011	11:30	LB58535
	Magnesium	51020.00	50000	102.0	90 - 110	MS	12/23/2011	11:30	LB58535
	Manganese	1019.00	1000	101.9	90 - 110	MS	12/23/2011	11:30	LB58535
	Nickel	486.50	500	97.3	90 - 110	MS	12/23/2011	11:30	LB58535
	Potassium	26600.00	25000	106.4	90 - 110	MS	12/23/2011	11:30	LB58535

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV12	Selenium	482.80	500	96.6	90 - 110	MS	12/23/2011	11:30	LB58535
	Silver	500.80	500	100.2	90 - 110	MS	12/23/2011	11:30	LB58535
	Sodium	55760.00	50000	111.5	90 - 110	MS	12/23/2011	11:30	LB58535
	Thallium	493.50	500	98.7	90 - 110	MS	12/23/2011	11:30	LB58535
	Vanadium	488.20	500	97.6	90 - 110	MS	12/23/2011	11:30	LB58535
	Zinc	1053.00	1000	105.3	90 - 110	MS	12/23/2011	11:30	LB58535
CCV13	Aluminum	9357.00	10000	93.6	90 - 110	MS	12/23/2011	13:06	LB58535
	Antimony	511.80	500	102.4	90 - 110	MS	12/23/2011	13:06	LB58535
	Arsenic	491.80	500	98.4	90 - 110	MS	12/23/2011	13:06	LB58535
	Barium	2452.00	2500	98.1	90 - 110	MS	12/23/2011	13:06	LB58535
	Beryllium	496.00	500	99.2	90 - 110	MS	12/23/2011	13:06	LB58535
	Cadmium	515.40	500	103.1	90 - 110	MS	12/23/2011	13:06	LB58535
	Calcium	49390.00	50000	98.8	90 - 110	MS	12/23/2011	13:06	LB58535
	Chromium	496.40	500	99.3	90 - 110	MS	12/23/2011	13:06	LB58535
	Cobalt	501.20	500	100.2	90 - 110	MS	12/23/2011	13:06	LB58535
	Copper	990.80	1000	99.1	90 - 110	MS	12/23/2011	13:06	LB58535
	Iron	25340.00	25000	101.4	90 - 110	MS	12/23/2011	13:06	LB58535
	Lead	499.90	500	100.0	90 - 110	MS	12/23/2011	13:06	LB58535
	Magnesium	51520.00	50000	103.0	90 - 110	MS	12/23/2011	13:06	LB58535
	Manganese	1030.00	1000	103.0	90 - 110	MS	12/23/2011	13:06	LB58535
	Nickel	491.90	500	98.4	90 - 110	MS	12/23/2011	13:06	LB58535
	Potassium	26740.00	25000	107.0	90 - 110	MS	12/23/2011	13:06	LB58535
	Selenium	489.60	500	97.9	90 - 110	MS	12/23/2011	13:06	LB58535
	Silver	500.70	500	100.1	90 - 110	MS	12/23/2011	13:06	LB58535
	Sodium	56030.00	50000	112.1	90 - 110	MS	12/23/2011	13:06	LB58535
	Thallium	493.30	500	98.7	90 - 110	MS	12/23/2011	13:06	LB58535
	Vanadium	490.00	500	98.0	90 - 110	MS	12/23/2011	13:06	LB58535
	Zinc	1063.00	1000	106.3	90 - 110	MS	12/23/2011	13:06	LB58535
CCV14	Aluminum	9427.00	10000	94.3	90 - 110	MS	12/23/2011	14:18	LB58535
X	Antimony	513.80	500	102.8	90 - 110	MS	12/23/2011	14:18	LB58535
	Arsenic	493.20	500	98.6	90 - 110	MS	12/23/2011	14:18	LB58535
	Barium	2457.00	2500	98.3	90 - 110	MS	12/23/2011	14:18	LB58535
	Beryllium	497.30	500	99.5	90 - 110	MS	12/23/2011	14:18	LB58535
	Cadmium	516.20	500	103.2	90 - 110	MS	12/23/2011	14:18	LB58535
	Calcium	49310.00	50000	98.6	90 - 110	MS	12/23/2011	14:18	LB58535

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.17	0.2	85.0	0 - 200	CV	12/22/2011	20:00	LB58505
CRI01	Aluminum	22.47	20	112.4	50 - 150	MS	12/22/2011	18:28	LB58535
	Antimony	2.12	2	106.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Arsenic	1.07	1	107.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Barium	9.97	10	99.7	70 - 130	MS	12/22/2011	18:28	LB58535
	Beryllium	1.02	1	102.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Cadmium	0.94	1	94.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Calcium	498.40	500	99.7	50 - 150	MS	12/22/2011	18:28	LB58535
	Chromium	2.11	2	105.5	70 - 130	MS	12/22/2011	18:28	LB58535
	Cobalt	1.01	1	101.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Copper	2.54	2	127.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Iron	211.40	200	105.7	50 - 150	MS	12/22/2011	18:28	LB58535
	Lead	1.06	1	106.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Magnesium	516.70	500	103.3	50 - 150	MS	12/22/2011	18:28	LB58535
	Manganese	1.07	1	107.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Nickel	1.05	1	105.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Potassium	538.20	500	107.6	50 - 150	MS	12/22/2011	18:28	LB58535
	Selenium	4.97	5	99.4	70 - 130	MS	12/22/2011	18:28	LB58535
	Silver	1.04	1	104.0	70 - 130	MS	12/22/2011	18:28	LB58535
	Sodium	543.10	500	108.6	50 - 150	MS	12/22/2011	18:28	LB58535
	Thallium	1.04	1	104.0	50 - 150	MS	12/22/2011	18:28	LB58535
	Vanadium	4.76	5	95.2	70 - 130	MS	12/22/2011	18:28	LB58535
	Zinc	2.34	2	117.0	50 - 150	MS	12/22/2011	18:28	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	19:54	LB58505
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	19:58	LB58505
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	20:23	LB58505
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	20:44	LB58505
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	21:09	LB58505
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	21:31	LB58505
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	21:54	LB58505
CCB07	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	22:16	LB58505
CCB08	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	22:36	LB58505
CCB09	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	22:59	LB58505
CCB10	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	23:24	LB58505
CCB11	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	23:43	LB58505
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/22/2011	17:25	LB58535
	Antimony	0.982	+/-2.000	J	0.140	2.000	MS	12/22/2011	17:25	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/22/2011	17:25	LB58535
	Barium	0.319	+/-10.000	J	0.100	10.000	MS	12/22/2011	17:25	LB58535
	Beryllium	0.159	+/-1.000	J	0.090	1.000	MS	12/22/2011	17:25	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/22/2011	17:25	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/22/2011	17:25	LB58535
	Chromium	0.112	+/-2.000	J	0.040	2.000	MS	12/22/2011	17:25	LB58535
	Cobalt	0.103	+/-1.000	J	0.050	1.000	MS	12/22/2011	17:25	LB58535
	Copper	0.301	+/-2.000	J	0.040	2.000	MS	12/22/2011	17:25	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/22/2011	17:25	LB58535
	Lead	0.161	+/-1.000	J	0.040	1.000	MS	12/22/2011	17:25	LB58535
	Magnesium	6.405	+/-500.000	J	4.950	500.000	MS	12/22/2011	17:25	LB58535
	Manganese	0.158	+/-1.000	J	0.050	1.000	MS	12/22/2011	17:25	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/22/2011	17:25	LB58535
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	12/22/2011	17:25	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/22/2011	17:25	LB58535
	Silver	0.104	+/-1.000	J	0.030	1.000	MS	12/22/2011	17:25	LB58535
	Sodium	12.610	+/-500.000	J	5.320	500.000	MS	12/22/2011	17:25	LB58535
	Thallium	0.162	+/-1.000	J	0.020	1.000	MS	12/22/2011	17:25	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/22/2011	17:25	LB58535
	Zinc	0.267	+/-2.000	J	0.090	2.000	MS	12/22/2011	17:25	LB58535
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/22/2011	18:13	LB58535
	Antimony	0.811	+/-2.000	J	0.140	2.000	MS	12/22/2011	18:13	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/22/2011	18:13	LB58535

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB08	Silver	0.094	+/-1.000	J	0.030	1.000	MS	12/23/2011	05:17	LB58535
	Sodium	54.550	+/-500.000	J	5.320	500.000	MS	12/23/2011	05:17	LB58535
	Thallium	0.203	+/-1.000	J	0.020	1.000	MS	12/23/2011	05:17	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	05:17	LB58535
	Zinc	0.286	+/-2.000	J	0.090	2.000	MS	12/23/2011	05:17	LB58535
CCB09	Aluminum	5.658	+/-20.000	J	4.970	20.000	MS	12/23/2011	06:52	LB58535
	Antimony	0.835	+/-2.000	J	0.140	2.000	MS	12/23/2011	06:52	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	06:52	LB58535
	Barium	0.316	+/-10.000	J	0.100	10.000	MS	12/23/2011	06:52	LB58535
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/23/2011	06:52	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	06:52	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	06:52	LB58535
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/23/2011	06:52	LB58535
	Cobalt	0.076	+/-1.000	J	0.050	1.000	MS	12/23/2011	06:52	LB58535
	Copper	0.090	+/-2.000	J	0.040	2.000	MS	12/23/2011	06:52	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	06:52	LB58535
	Lead	0.111	+/-1.000	J	0.040	1.000	MS	12/23/2011	06:52	LB58535
	Magnesium	5.992	+/-500.000	J	4.950	500.000	MS	12/23/2011	06:52	LB58535
	Manganese	0.557	+/-1.000	J	0.050	1.000	MS	12/23/2011	06:52	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	06:52	LB58535
	Potassium	28.810	+/-500.000	J	12.220	500.000	MS	12/23/2011	06:52	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	06:52	LB58535
	Silver	0.084	+/-1.000	J	0.030	1.000	MS	12/23/2011	06:52	LB58535
	Sodium	58.270	+/-500.000	J	5.320	500.000	MS	12/23/2011	06:52	LB58535
	Thallium	0.187	+/-1.000	J	0.020	1.000	MS	12/23/2011	06:52	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	06:52	LB58535
	Zinc	0.286	+/-2.000	J	0.090	2.000	MS	12/23/2011	06:52	LB58535
CCB10	Aluminum	7.468	+/-20.000	J	4.970	20.000	MS	12/23/2011	08:28	LB58535
	Antimony	0.871	+/-2.000	J	0.140	2.000	MS	12/23/2011	08:28	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	08:28	LB58535
	Barium	0.595	+/-10.000	J	0.100	10.000	MS	12/23/2011	08:28	LB58535
	Beryllium	0.136	+/-1.000	J	0.090	1.000	MS	12/23/2011	08:28	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	08:28	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	08:28	LB58535
	Chromium	0.103	+/-2.000	J	0.040	2.000	MS	12/23/2011	08:28	LB58535
	Cobalt	0.100	+/-1.000	J	0.050	1.000	MS	12/23/2011	08:28	LB58535
	Copper	0.222	+/-2.000	J	0.040	2.000	MS	12/23/2011	08:28	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	08:28	LB58535
	Lead	0.170	+/-1.000	J	0.040	1.000	MS	12/23/2011	08:28	LB58535
	Magnesium	11.010	+/-500.000	J	4.950	500.000	MS	12/23/2011	08:28	LB58535
	Manganese	0.973	+/-1.000	J	0.050	1.000	MS	12/23/2011	08:28	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	08:28	LB58535

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB10	Potassium	37.740	+/-500.000	J	12.220	500.000	MS	12/23/2011	08:28	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	08:28	LB58535
	Silver	0.126	+/-1.000	J	0.030	1.000	MS	12/23/2011	08:28	LB58535
	Sodium	78.680	+/-500.000	J	5.320	500.000	MS	12/23/2011	08:28	LB58535
	Thallium	0.218	+/-1.000	J	0.020	1.000	MS	12/23/2011	08:28	LB58535
	Vanadium	0.225	+/-5.000	J	0.150	5.000	MS	12/23/2011	08:28	LB58535
	Zinc	0.375	+/-2.000	J	0.090	2.000	MS	12/23/2011	08:28	LB58535
CCB11	Aluminum	6.370	+/-20.000	J	4.970	20.000	MS	12/23/2011	10:03	LB58535
	Antimony	0.818	+/-2.000	J	0.140	2.000	MS	12/23/2011	10:03	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	10:03	LB58535
	Barium	0.423	+/-10.000	J	0.100	10.000	MS	12/23/2011	10:03	LB58535
	Beryllium	0.125	+/-1.000	J	0.090	1.000	MS	12/23/2011	10:03	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	10:03	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	10:03	LB58535
	Chromium	0.068	+/-2.000	J	0.040	2.000	MS	12/23/2011	10:03	LB58535
	Cobalt	0.087	+/-1.000	J	0.050	1.000	MS	12/23/2011	10:03	LB58535
	Copper	0.150	+/-2.000	J	0.040	2.000	MS	12/23/2011	10:03	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	10:03	LB58535
	Lead	0.137	+/-1.000	J	0.040	1.000	MS	12/23/2011	10:03	LB58535
	Magnesium	8.790	+/-500.000	J	4.950	500.000	MS	12/23/2011	10:03	LB58535
	Manganese	0.551	+/-1.000	J	0.050	1.000	MS	12/23/2011	10:03	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	10:03	LB58535
	Potassium	36.500	+/-500.000	J	12.220	500.000	MS	12/23/2011	10:03	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	10:03	LB58535
	Silver	0.122	+/-1.000	J	0.030	1.000	MS	12/23/2011	10:03	LB58535
	Sodium	83.790	+/-500.000	J	5.320	500.000	MS	12/23/2011	10:03	LB58535
	Thallium	0.225	+/-1.000	J	0.020	1.000	MS	12/23/2011	10:03	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	10:03	LB58535
	Zinc	0.411	+/-2.000	J	0.090	2.000	MS	12/23/2011	10:03	LB58535
CCB12	Aluminum	7.723	+/-20.000	J	4.970	20.000	MS	12/23/2011	11:38	LB58535
	Antimony	0.919	+/-2.000	J	0.140	2.000	MS	12/23/2011	11:38	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	11:38	LB58535
	Barium	0.571	+/-10.000	J	0.100	10.000	MS	12/23/2011	11:38	LB58535
	Beryllium	0.190	+/-1.000	J	0.090	1.000	MS	12/23/2011	11:38	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	11:38	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	11:38	LB58535
	Chromium	0.139	+/-2.000	J	0.040	2.000	MS	12/23/2011	11:38	LB58535
	Cobalt	0.131	+/-1.000	J	0.050	1.000	MS	12/23/2011	11:38	LB58535
	Copper	0.209	+/-2.000	J	0.040	2.000	MS	12/23/2011	11:38	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	11:38	LB58535
	Lead	0.179	+/-1.000	J	0.040	1.000	MS	12/23/2011	11:38	LB58535
	Magnesium	12.560	+/-500.000	J	4.950	500.000	MS	12/23/2011	11:38	LB58535

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB12	Manganese	0.544	+/-1.000	J	0.050	1.000	MS	12/23/2011	11:38	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	11:38	LB58535
	Potassium	38.860	+/-500.000	J	12.220	500.000	MS	12/23/2011	11:38	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	11:38	LB58535
	Silver	0.170	+/-1.000	J	0.030	1.000	MS	12/23/2011	11:38	LB58535
	Sodium	92.640	+/-500.000	J	5.320	500.000	MS	12/23/2011	11:38	LB58535
	Thallium	0.265	+/-1.000	J	0.020	1.000	MS	12/23/2011	11:38	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	11:38	LB58535
	Zinc	0.527	+/-2.000	J	0.090	2.000	MS	12/23/2011	11:38	LB58535
CCB13	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/23/2011	13:14	LB58535
	Antimony	0.823	+/-2.000	J	0.140	2.000	MS	12/23/2011	13:14	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	13:14	LB58535
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	12/23/2011	13:14	LB58535
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	12/23/2011	13:14	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	13:14	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	13:14	LB58535
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	12/23/2011	13:14	LB58535
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	12/23/2011	13:14	LB58535
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	12/23/2011	13:14	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	13:14	LB58535
	Lead	0.077	+/-1.000	J	0.040	1.000	MS	12/23/2011	13:14	LB58535
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	12/23/2011	13:14	LB58535
	Manganese	0.181	+/-1.000	J	0.050	1.000	MS	12/23/2011	13:14	LB58535
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	12/23/2011	13:14	LB58535
	Potassium	33.220	+/-500.000	J	12.220	500.000	MS	12/23/2011	13:14	LB58535
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	12/23/2011	13:14	LB58535
	Silver	0.033	+/-1.000	J	0.030	1.000	MS	12/23/2011	13:14	LB58535
	Sodium	76.060	+/-500.000	J	5.320	500.000	MS	12/23/2011	13:14	LB58535
	Thallium	0.383	+/-1.000	J	0.020	1.000	MS	12/23/2011	13:14	LB58535
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	12/23/2011	13:14	LB58535
	Zinc	0.288	+/-2.000	J	0.090	2.000	MS	12/23/2011	13:14	LB58535
CCB14	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	12/23/2011	14:26	LB58535
	Antimony	0.931	+/-2.000	J	0.140	2.000	MS	12/23/2011	14:26	LB58535
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	12/23/2011	14:26	LB58535
	Barium	0.629	+/-10.000	J	0.100	10.000	MS	12/23/2011	14:26	LB58535
	Beryllium	0.186	+/-1.000	J	0.090	1.000	MS	12/23/2011	14:26	LB58535
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	12/23/2011	14:26	LB58535
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	12/23/2011	14:26	LB58535
	Chromium	0.138	+/-2.000	J	0.040	2.000	MS	12/23/2011	14:26	LB58535
	Cobalt	0.140	+/-1.000	J	0.050	1.000	MS	12/23/2011	14:26	LB58535
	Copper	0.219	+/-2.000	J	0.040	2.000	MS	12/23/2011	14:26	LB58535
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	12/23/2011	14:26	LB58535

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Metals
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INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5039 **SAS No.:** C5039

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	98900	100000	98.9	80 - 120%	12/22/2011	17:33	LB58535
	Antimony	1.6				12/22/2011	17:33	LB58535
	Arsenic	0.28				12/22/2011	17:33	LB58535
	Barium	1.5				12/22/2011	17:33	LB58535
	Beryllium	0.35				12/22/2011	17:33	LB58535
	Cadmium	0.19				12/22/2011	17:33	LB58535
	Calcium	99700	100000	99.7	80 - 120%	12/22/2011	17:33	LB58535
	Chromium	20.1	21	95.7	80 - 120%	12/22/2011	17:33	LB58535
	Cobalt	1.2				12/22/2011	17:33	LB58535
	Copper	8.2				12/22/2011	17:33	LB58535
	Iron	93900	100000	93.9	80 - 120%	12/22/2011	17:33	LB58535
	Lead	4.4	4	110.0	80 - 120%	12/22/2011	17:33	LB58535
	Magnesium	100000	100000	100.0	80 - 120%	12/22/2011	17:33	LB58535
	Manganese	8.1				12/22/2011	17:33	LB58535
	Nickel	6.0				12/22/2011	17:33	LB58535
	Potassium	99200	100000	99.2	80 - 120%	12/22/2011	17:33	LB58535
	Selenium	-0.22				12/22/2011	17:33	LB58535
	Silver	0.051				12/22/2011	17:33	LB58535
	Sodium	102000	100000	102.0	80 - 120%	12/22/2011	17:33	LB58535
	Thallium	0.082				12/22/2011	17:33	LB58535
	Vanadium	-0.23				12/22/2011	17:33	LB58535
	Zinc	12.4				12/22/2011	17:33	LB58535
ICSAB01	Aluminum	97600	100000	97.6	80 - 120%	12/22/2011	17:41	LB58535
	Antimony	21.4	22	97.3	80 - 120%	12/22/2011	17:41	LB58535
	Arsenic	20.3	19	106.8	80 - 120%	12/22/2011	17:41	LB58535
	Barium	22.1	22	100.5	80 - 120%	12/22/2011	17:41	LB58535
	Beryllium	20.9	20	104.5	80 - 120%	12/22/2011	17:41	LB58535
	Cadmium	20.9	20	104.5	80 - 120%	12/22/2011	17:41	LB58535
	Calcium	99500	100000	99.5	80 - 120%	12/22/2011	17:41	LB58535
	Chromium	40.0	40	100.0	80 - 120%	12/22/2011	17:41	LB58535
	Cobalt	21.3	20	106.5	80 - 120%	12/22/2011	17:41	LB58535
	Copper	28.4	25	113.6	80 - 120%	12/22/2011	17:41	LB58535
	Iron	93300	100000	93.3	80 - 120%	12/22/2011	17:41	LB58535
	Lead	24.5	25	98.0	80 - 120%	12/22/2011	17:41	LB58535
	Magnesium	100000	100000	100.0	80 - 120%	12/22/2011	17:41	LB58535
	Manganese	28.0	27	103.7	80 - 120%	12/22/2011	17:41	LB58535
	Nickel	26.3	24	109.6	80 - 120%	12/22/2011	17:41	LB58535
	Potassium	99400	100000	99.4	80 - 120%	12/22/2011	17:41	LB58535
	Selenium	19.7	19	103.7	80 - 120%	12/22/2011	17:41	LB58535
	Silver	19.6	18	108.9	80 - 120%	12/22/2011	17:41	LB58535
	Sodium	102000	100000	102.0	80 - 120%	12/22/2011	17:41	LB58535
	Thallium	20.4	21	97.1	80 - 120%	12/22/2011	17:41	LB58535
	Vanadium	19.6	19	103.2	80 - 120%	12/22/2011	17:41	LB58535
	Zinc	32.5	29	112.1	80 - 120%	12/22/2011	17:41	LB58535

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5039
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/17/2011.
1 Water sample was received on 12/17/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide,pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, The analysis of Cyanide was based on method 9012B and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were met for all analysis except pH
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature

Digitally signed by Shelly Guha
DN: cn=Shelly Guha, c=US
Date: 2012.01.13 00:43:14 -05'00'

CHEMTECH

Method Detection Limits

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	MDL	RDL
Method: 1498 Redox Potential		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Redox Potential	**mV**	**0.10**	**0.10**
Method: 9012B Cyanide		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Cyanide	**mg/Kg**	**0.033**	**0.250**
Method: 9045C pH		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
pH	**pH**	**0.00**	**0.00**

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: LB58441
Instrument: pH Meter

REVIEWED BY: JR

TEMP. = 17.4 °C
SLOPE = 99.5

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL 4	CAL	4.00	1	840 AM	WATER	12/19/2011
2	CAL 7	CAL	7.02	1	844	WATER	12/19/2011
3	CAL 10	CAL	10.04	1	848	WATER	12/19/2011
4	ICV 7	ICV	7.03	1	852	WATER	12/19/2011
5	CCV 2	CCV	2.03	1	856	WATER	12/19/2011
6	C5039-01	SAM	6.45	1	900	SOIL	12/19/2011
7	C5039-01D	DUP	6.47	1	904	SOIL	12/19/2011
8	C5039-02	SAM	6.81	1	908	SOIL	12/19/2011
9	C5039-03	SAM	7.01	1	912	SOIL	12/19/2011
10	C5039-04	SAM	6.54	1	916	SOIL	12/19/2011
11	C5039-05	SAM	5.58	1	920	SOIL	12/19/2011
12	C5039-06	SAM	5:38	1	924	SOIL	12/19/2011
13	C5039-07	SAM	5:45	1	928	SOIL	12/19/2011
14	C5039-08	SAM	5:78	1	932	SOIL	12/19/2011
15	C5039-09	SAM	6:27	1	936	SOIL	12/19/2011
16	CCV 2	CCV	2.02	1	940	WATER	12/19/2011
17	C5039-10	SAM	6.12	1	944	SOIL	12/19/2011
18	C5039-12	SAM	5.62	1	948	SOIL	12/19/2011
19	C5039-12D	DUP	5.63	1	952	SOIL	12/19/2011
20	C5039-15	SAM	6.80	1	956	SOIL	12/19/2011
21	C5039-16	SAM	6.79	1	10:00	SOIL	12/19/2011
22	C5039-17	SAM	5.97	1	10:04	SOIL	12/19/2011
23	C5039-18	SAM	5.20	1	10:08	SOIL	12/19/2011
24	CCV 12	CCV	12.04	1	10:12	WATER	12/19/2011

Calibration Standards	Chemtech Log #
pH 4.00	W1572
pH 7.00	W1498
pH 10.00	W1468
(ICV) pH 7.00	W1286
(CCV) pH 2.00	W1384
(CCV) pH 12.00	W1493

True Value of ICV = 7.0. Control Limits [+/- 0.1].

True Value of CCV = 2.12. Control Limits [+/- 0.1].

% Recovery Percentage Difference = _____.

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax:

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: LB58441
Instrument: pH Meter

REVIEW: JM
REVIEWED BY:

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL	CAL	4.00	1		WATER	12/19/11
2	CAL	CAL	7.02	1		WATER	12/19/11
3	CAL	CAL	10.04	1		WATER	12/19/11
4	ICV	ICV	7.03	1		WATER	12/19/11
5	CCV	CCV	2.03	1		WATER	12/19/11
6	C5039-01	SAM	6.45	1		SOIL	12/19/11
7	C5039-01D	DUP	6.47	1		SOIL	12/19/11
8	C5039-02	SAM	6.81	1		SOIL	12/19/11
9	C5039-03	SAM	7.01	1		SOIL	12/19/11
10	C5039-04	SAM	6.54	1		SOIL	12/19/11
11	C5039-05	SAM	5.58	1		SOIL	12/19/11
12	C5039-06	SAM	5.38	1		SOIL	12/19/11
13	C5039-07	SAM	5.45	1		SOIL	12/19/11
14	C5039-08	SAM	5.78	1		SOIL	12/19/11
15	C5039-09	SAM	6.27	1		SOIL	12/19/11
16	CCV	CCV	2.02	1		WATER	12/19/11
17	C5039-10	SAM	6.12	1		SOIL	12/19/11
18	C5039-12	SAM	5.62	1		SOIL	12/19/11
19	C5039-12D	DUP	5.63	1		SOIL	12/19/11
20	C5039-15	SAM	6.80	1		SOIL	12/19/11
21	C5039-16	SAM	6.79	1		SOIL	12/19/11
22	C5039-17	SAM	5.97	1		SOIL	12/19/11
23	C5039-18	SAM	5.20	1		SOIL	12/19/11
24	CCV	CCV	12.04	1		WATER	12/19/11

JM 12-20-11

CHEMTECH

Initial and Continuing Calibration Verification

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Project: CTO WE05 NAS JRB Willow Grove **RunNo.:** LB58441

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	CCV1						
pH		pH	2.03	2.00	102	90-110	12/19/2011
Sample ID:	CCV2						
pH		pH	2.02	2.00	101	90-110	12/19/2011
Sample ID:	CCV3						
pH		pH	12.04	12.00	100	90-110	12/19/2011
Sample ID:	ICV1						
pH		pH	7.03	7.00	100	90-110	12/19/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**Sample ID:**	C5039-01
Client ID:	12SB14-000.5-01D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.450		6.470		1	0.3		12/19/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**Sample ID:**	C5039-12
Client ID:	12SB25-000.5-01D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	5.620		5.630		1	0.2		12/19/2011
Cyanide	mg/Kg	+/-20	0.141	J	0.148	J	1	4.8		12/22/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**RunNo.:**	lb58530

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60113						
Cyanide		mg/L	0.10	0.10	100	85-115	12/22/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.26	0.25	104	90-110	12/22/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.26	0.25	104	90-110	12/22/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011
Sample ID:	CCV4						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**RunNo.:**	lb58530

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB4						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Project: 12-23-2011

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB58530BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/22/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**Sample ID:**	C5039-12
Client ID:	12SB25-000.5-01S	**Percent Solids for Spike Sample:**	72.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.810		0.141	J	2.77	1	96		12/22/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**Sample ID:**	C5039-12
Client ID:	12SB25-000.5-01SD	**Percent Solids for Spike Sample:**	72.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.810		0.141	J	2.77	1	96		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**Sample ID:**	C5005-04
Client ID:	12SB22-000.5-01D	**Percent Solids for Spike Sample:**	70.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Redox Potential	**mV**	**+/-20**	**299.4**		**299.8**		**1**	**0.13**		**12/23/2011**

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5039
Project:	12-23-2011	**Sample ID:**	C5039-12
Client ID:	12SB25-000.5-01SD	**Percent Solids for Spike Sample:**	72.2

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.810	2.810		1	0		12/22/2011

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5039

Project: 12-23-2011

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	LB58530BSS								
Cyanide		mg/Kg	10.00	9.90		99	1	80-110	12/22/2011

CHEMTECH Cynide Distillation Log

PrepBatch ID : PB60113

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume mL	PH	Sulfide	Oxidizing	Comments
C5039-01	12SB14-000.5-01	SOIL	1.0020	N/A	N/A	N/A	
C5039-02	12SB13-000.5-01	SOIL	1.0017	N/A	N/A	N/A	
C5039-03	12SB13-0.502-02	SOIL	1.0013	N/A	N/A	N/A	
C5039-04	12SB13-0304-03	SOIL	1.0021	N/A	N/A	N/A	
C5039-05	12SB29-000.5-01	SOIL	1.0013	N/A	N/A	N/A	
C5039-06	12SB29-0.502-02	SOIL	1.0018	N/A	N/A	N/A	
C5039-07	12SB29-0304-03	SOIL	1.0025	N/A	N/A	N/A	
C5039-08	12SB26-000.5-01	SOIL	1.0014	N/A	N/A	N/A	
C5039-09	12SB26-0.502-02	SOIL	1.0011	N/A	N/A	N/A	
C5039-10	12SB26-0304-03	SOIL	1.0008	N/A	N/A	N/A	
C5039-11	12SB-DUP-05	SOIL	1.0012	N/A	N/A	N/A	
C5039-12	12SB25-000.5-01	SOIL	1.0016	N/A	N/A	N/A	
C5039-12DUP	12SB25-000.5-01DUP	SOIL	1.0013	N/A	N/A	N/A	
C5039-13	C5039-12MS	SOIL	1.0022	N/A	N/A	N/A	TV = 40 PPB
C5039-14	C5039-12MSD	SOIL	1.0013	N/A	N/A	N/A	TV 40 PPB
C5039-15	12SB25-0.502-02	SOIL	1.0004	N/A	N/A	N/A	
C5039-16	12SB25-0304-03	SOIL	1.0022	N/A	N/A	N/A	
C5039-17	12SB28-0.502-02	SOIL	1.0018	N/A	N/A	N/A	
C5039-18	12SB28-0304-03	SOIL	1.0021	N/A	N/A	N/A	
PB60113BL	PBS01	SOIL	1.0002	N/A	N/A	N/A	
PB60113BS	LCS01	SOIL	1.0004	N/A	N/A	N/A	

* BL=Blank BS=Blank Spike TB=TCLP Blank

CHEMTECH **Cynide Distillation Log** **PrepBatch ID : PB60113**

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume mL	PH	Sulfide	Oxidizing	Comments
C5039-01	12SB14-000.5-01	SOIL	1.0020	N/A	N/A	N/A	
C5039-02	12SB13-000.5-01	SOIL	1.0017	N/A	N/A	N/A	
C5039-03	12SB13-0.502-02	SOIL	1.0013	N/A	N/A	N/A	
C5039-04	12SB13-0304-03	SOIL	1.0021	N/A	N/A	N/A	
C5039-05	12SB29-000.5-01	SOIL	1.0013	N/A	N/A	N/A	
C5039-06	12SB29-0.502-02	SOIL	1.0018	N/A	N/A	N/A	
C5039-07	12SB29-0304-03	SOIL	1.0025	N/A	N/A	N/A	
C5039-08	12SB26-000.5-01	SOIL	1.0014	N/A	N/A	N/A	
C5039-09	12SB26-0.502-02	SOIL	1.0011	N/A	N/A	N/A	
C5039-10	12SB26-0304-03	SOIL	1.0008	N/A	N/A	N/A	
C5039-11	12SB-DUP-05	SOIL	1.0012	N/A	N/A	N/A	
C5039-12	12SB25-000.5-01	SOIL	1.0016	N/A	N/A	N/A	
C5039-12DUP	12SB25-000.5-01DUP	SOIL	1.0013	N/A	N/A	N/A	
C5039-13	C5039-12MS	SOIL	1.0022	N/A	N/A	N/A	TV=40 PPB
C5039-14	C5039-12MSD	SOIL	1.0013	N/A	N/A	N/A	TV=40 PPB
C5039-15	12SB25-0.502-02	SOIL	1.0004	N/A	N/A	N/A	
C5039-16	12SB25-0304-03	SOIL	1.0022	N/A	N/A	N/A	
C5039-17	12SB28-0.502-02	SOIL	1.0018	N/A	N/A	N/A	
C5039-18	12SB28-0304-03	SOIL	1.0021	N/A	N/A	N/A	
PB60113BL	PBS01	SOIL	1.0002	N/A	N/A	N/A	
PB60113BS	LCS01	SOIL	1.0004	N/A	N/A	N/A	

* BL=Blank BS=Blank Spike TB=TCLP Blank

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58595
Instrument: ~~Titroline Alpha Titrator~~ pH Meter gn 12-21-11

Time In:	10:35 AM	Temp In (C):	20.3
Time Out:	11:10 AM	Temp Out (C):	20.3

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ~~ppm/ppb~~ mV	Dil	Analytical Date
1	CAL	CAL	CAL	210.0		12-23-11
2	C5005-04	12SB22-000.5-01	SAM	299.4		
3	C5005-04D	12SB22-000.5-01D	DUP	299.8		
4	C5005-05	12SB22-0.502-02	SAM	329.2		
5	C5005-06	12SB22-0304-03	SAM	333.1		
6	C5005-13	12SB18-000.5-01	SAM	313.6		
7	C5005-14	12SB18-0.502-02	SAM	278.7		
8	C5005-15	12SB18-0304-03	SAM	323.7		
9	C5017-10	12SB09-000.5-01	SAM	280.4		
10	C5017-11	12SB09-0.502-02	SAM	275.8		
11	C5017-12	12SB09-0304-03	SAM	356.7		
12	C5039-02	12SB13-000.5-01	SAM	270.2		
13	C5039-03	12SB13-0.502-02	SAM	232.4		
14	C5039-04	12SB13-0304-03	SAM	101.7		
15	C5039-08	12SB26-000.5-01	SAM	255.6		
16	C5039-09	12SB26-0.502-02	SAM	252.2		
17	C5039-10	12SB26-0304-03	SAM	272.7		

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: lb58595
Instrument: ~~Titroline Alpha Titrator~~ pH Meter jm 12-28-4

jm

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ppm/ppb	Dil	Analytical Date
1	CAL	CAL	CAL	210.000	1	12/23/11
2	C5005-04	12SB22-000.5-01	SAM	299.400	1	12/23/11
3	C5005-04D	12SB22-000.5-01D	DUP	299.800	1	12/23/11
4	C5005-05	12SB22-0.502-02	SAM	329.200	1	12/23/11
5	C5005-06	12SB22-0304-03	SAM	333.100	1	12/23/11
6	C5005-13	12SB18-000.5-01	SAM	313.600	1	12/23/11
7	C5005-14	12SB18-0.502-02	SAM	278.700	1	12/23/11
8	C5005-15	12SB18-0304-03	SAM	323.700	1	12/23/11
9	C5017-10	12SB09-000.5-01	SAM	280.400	1	12/23/11
10	C5017-11	12SB09-0.502-02	SAM	275.800	1	12/23/11
11	C5017-12	12SB09-0304-03	SAM	356.700	1	12/23/11
12	C5039-02	12SB13-000.5-01	SAM	270.200	1	12/23/11
13	C5039-03	12SB13-0.502-02	SAM	232.400	1	12/23/11
14	C5039-04	12SB13-0304-03	SAM	101.700	1	12/23/11
15	C5039-08	12SB26-000.5-01	SAM	255.600	1	12/23/11
16	C5039-09	12SB26-0.502-02	SAM	252.200	1	12/23/11
17	C5039-10	12SB26-0304-03	SAM	277.700	1	12/23/11

Tetra Tech, Inc. **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 9, 2012**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC/SVOC/PAH/PEST/PCB**
NAVAL AIR STATION JOINT RESERVER BASE (NASJRB) WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG): C5056

SAMPLES: 5/Soil/VOC/SVOC/PAH/PEST/PCB

12TP-DUP-01	12TP16-0.502-02	12TP16-000.5-01
12TP16-0608-03	12TP16-0910-04	

1/Aqueous/VOC

TB-01-121911

Overview

The sample set for NASJRB Willow Grove, SDG C5056 consisted of five (5) soil environmental samples and one (1) trip blank. The six (6) samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). The five (5) soil samples were analyzed for TCL semi-volatile organic compound (SVOC), polynuclear aromatic hydrocarbons (PAH), pesticides (PEST), and polychlorinated biphenyls (PCBs). One field duplicate pair was included in the sample delivery group (SDG): 12TP-DUP-01/12TP16-0608-03.

The samples were collected by Tetra Tech, Inc. on December 19, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A, and 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method and field blank results, surrogate spike recoveries, blank spike/blank spike duplicate recoveries, matrix spike/matrix spike duplicate results, internal standard recoveries, field duplicate precision, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major

- The SVOC blank spike sample had a %R < 10% for 4-chloroaniline and a %R for 3-nitroaniline below the lower quality control limit. All SVOC samples were affected. The non-detected results for 4-chloroaniline and 3-nitroaniline in the affected samples were qualified as rejected, (UR) and biased low, (UL), respectively.

Minor

- The VOC continuing calibration performed on instrument MSVOAG on 12/21/11 @ 13:48 had Percent Differences (%Ds) for bromomethane, chloroethane, and 2-butanone greater than the 20% but less than 50%. In addition, the Percent Drift (%Drift) for acetone was greater than 50%. The trip blank, TB-01-121911, was affected. No action was taken for bromomethane, chloroethane, and 2-butanone because no positive results were reported for these compounds in

the affected sample. The non-detected result reported for acetone in the affected sample was qualified as estimated, (UJ).

- The PAH continuing calibration performed on instrument BNA_G on 12/31/11 @ 23:16 had a %D for benzo(g,h,i)perylene greater than the 20% but less than 50%. The positive results reported for this compound in the affected samples, 12TP-DUP-01, 12TP16-0.502-02, and 12TP16-0608-03, were qualified as estimated, (J).

- The VOC surrogate spike compound, toluene-d8, had a Percent Recoveries (%Rs) below the lower quality control limit in samples, 12TP-DUP-01 and 12TP16-0608-03. The samples were reanalyzed with similar results. The results from the initial analyses were used in the data validation. The positive and non-detected results reported for the target compounds were qualified as estimated, (J) and (UJ), respectively.

- The %Rs for the PEST surrogate spike compounds, decachlorobiphenyl and tetrachloro-m-xylene, were below the lower quality control limits in samples 12TP-DUP-01 and 12TP16-0608-03 on GC column 1. Furthermore, the %Rs for tetrachloro-m-xylene were low on GC column 2 for both samples. The samples were not re-extracted but were reanalyzed yielding similar results. The results from the reanalyses were not used in the data validation. Only non-detected results were reported for the target compounds in the aforementioned samples and these non-detects were qualified as estimated, (UJ).

- The PCB surrogate spike compound %Rs for decachlorobiphenyl were below the lower quality control limits in samples 12TP16-0.502-02, 12TP16-0608-03, and 12TP16-0910-04 on GC column 2. The %R for decachlorobiphenyl was also low on GC column 1 for sample 12TP16-000.5-01. No action was taken for samples 12TP16-0608-03 and 12TP16-0910-04 because only one surrogate was noncompliant. Sample 12TP16-0.502-02 was not re-extracted but was reanalyzed yielding similar results. The results from the initial analysis were used in the data validation. The non-detected results reported for the PCBs in this sample were qualified as estimated, (UJ).

- The VOC internal standard, 1,4-dichlorobenzene-d4, was below the lower quality control limit in sample 12TP-DUP-01. The area for this internal standard was acceptable in the reanalysis; however, these results were not used due to a surrogate noncompliance. The non-detected results reported for the target compounds associated with this internal standard were qualified as estimated, (UJ) in the initial analysis of this sample.

- The Matrix Spike/Matrix Spike Duplicate (MS/MSD) performed on sample 12TP16-000.5-01 in the PAH fraction yielded a %R for fluoranthene above the upper quality control limit. In addition, the Relative Percent Differences (RPDs) for all the PAH compounds exceeded the 30% quality control criterion. No action was taken for the noncompliant RPDs because the %Rs were acceptable, with the exception of fluoranthene, and the blank spike %Rs were acceptable. The positive result reported for fluoranthene was qualified as biased high, (K), in the parent sample.

- Positive results reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The VOC continuing calibration %D for methylene chloride and %Drift for 2-butanone performed on instrument MSVOA_F on 12/12/11 @ 15:10 were greater than the 20% quality control limit but less than

50%. No action was necessary because no positive results were reported for these compounds in the affected samples.

The VOC continuing calibration %Ds for vinyl chloride and carbon disulfide performed on instrument MSVOA_F on 12/27/11 @ 12:35 were greater than the 20% quality control limit but less than 50%. No action was necessary because no positive results were reported for these compounds in the affected samples.

The VOC initial and continuing calibrations performed on instrument MSVOA_T were not used in the data validation because these calibrations were only associated with sample reanalyses, and the reanalyzed sample results were not used in the data validation.

The SVOC continuing calibration performed on instrument BNA_F on 12/26/11 @ 04:42 had a %Drift for 2,4-dinitrophenol greater than the 20% quality control limit but less than 50%. No action was necessary in the associated samples because no positive results were reported for this compound.

Chloromethane was detected in the trip blank. No actions were necessary because no positive results were reported for chloromethane in the associated samples.

The base/neutral fraction surrogate spike compound, nitrobenzene-d5, had a high %R in sample 12TP16-0608-03. No action was necessary because only one surrogate was noncompliant.

The PAH surrogate spike compound, 2-fluorobiphenyl, had a %R below the lower quality control limit for sample 12TP16-0.502-02. No action was taken in the affected sample because only one PAH surrogate was noncompliant.

The internal standard area for chlorobenzene-d5 was below the lower quality control limit in the reanalysis of sample 12TP16-0608-03. No action was necessary because the results from this reanalysis were not used in the data validation.

Samples 12TP-DUP-01 and 12TP16-0608-03 were diluted 5X in the SVOC and PAH fractions prior to analyses. The reporting limits of the non-detected results were elevated.

The laboratory reported results for the VOC and SVOC compounds, 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate, methylcyclohexane, 1,1'-biphenyl, 1,2,4,5-tetrachlorobenzene, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde, and caprolactum. These compounds were not part of the project-specific Sampling and Analysis Plan (SAP); therefore, the compounds were not reported in the database and were not included in the data review.

Non-detected results were reported to the laboratory Limit of Detection (LOD).

Executive Summary

Laboratory Performance: Some continuing calibrations had %Ds and %Drifts above the quality control limits in the VOC, SVOC, and PAH fractions. The SVOC blank spike sample had a %R < 10% and a low %R. Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated.

Other Factors Affecting Data Quality: Chloromethane was detected in the trip blank. Noncompliant surrogate %Rs were noted in the VOC, SVOC, PEST and PCB fractions. VOC internal standard areas were low in two samples. Only one sample was qualified. The PAH MS/MSD had a %R and RPDs outside the quality control limits. Two samples were diluted prior to analyses.

The data for these analyses were reviewed with reference to Region III modifications to U.S. EPA National Functional Guidelines for Organic Data Validation (Sept. 1994). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-000.5-01			12TP16-0608-03			12TP16-0910-04		
SDG: C5056	LAB_ID	C5056-02			C5056-01			C5056-03			C5056-04		
FRACTION: OV	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			87.0			83.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,1,2,2-TETRACHLOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,1,2-TRICHLOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,1-DICHLOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,1-DICHLOROETHENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2,3-TRICHLOROBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2,4-TRICHLOROBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2-DIBROMOETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2-DICHLOROBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2-DICHLOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,2-DICHLOROPROPANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,3-DICHLOROBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
1,4-DICHLOROBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
2-BUTANONE		13.5	U		17	U		38	J	R	12.5	U	
2-HEXANONE		13.5	U		17	U		15	UJ	R	12.5	U	
4-METHYL-2-PENTANONE		13.5	U		17	U		15	UJ	R	12.5	U	
ACETONE		13.5	U		17	U		160	J	R	12.5	U	
BENZENE		2.7	U		3.45	U		4	J	PR	2.55	U	
BROMODICHLOROMETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
BROMOFORM		2.7	U		3.45	U		3	UJ	R	2.55	U	
BROMOMETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CARBON DISULFIDE		2.7	U		3.45	U		8.1	J	R	2.55	U	
CARBON TETRACHLORIDE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CHLOROBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CHLORODIBROMOMETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CHLOROETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CHLOROFORM		2.7	U		3.45	U		3	UJ	R	2.55	U	
CHLOROMETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CIS-1,2-DICHLOROETHENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
CIS-1,3-DICHLOROPROPENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
DICHLORODIFLUOROMETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
ETHYLBENZENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
ISOPROPYLBENZENE		2.7	U		3.45	U		11	J	R	2.55	U	

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01		
SDG: C5056	LAB_ID	C5056-05		
FRACTION: OV	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	88.0		
	DUP_OF	12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.8	UJ	R
1,1,2,2-TETRACHLOROETHANE		2.8	UJ	R
1,1,2-TRICHLOROETHANE		2.8	UJ	R
1,1,2-TRICHLOROTRIFLUOROETHANE		2.8	UJ	R
1,1-DICHLOROETHANE		2.8	UJ	R
1,1-DICHLOROETHENE		2.8	UJ	R
1,2,3-TRICHLOROBENZENE		2.8	UJ	NR
1,2,4-TRICHLOROBENZENE		2.8	UJ	NR
1,2-DIBROMO-3-CHLOROPROPANE		2.8	UJ	NR
1,2-DIBROMOETHANE		2.8	UJ	R
1,2-DICHLOROBENZENE		2.8	UJ	NR
1,2-DICHLOROETHANE		2.8	UJ	R
1,2-DICHLOROPROPANE		2.8	UJ	R
1,3-DICHLOROBENZENE		2.8	UJ	NR
1,4-DICHLOROBENZENE		2.8	UJ	NR
2-BUTANONE		28	J	PR
2-HEXANONE		14	UJ	R
4-METHYL-2-PENTANONE		14	UJ	R
ACETONE		110	J	R
BENZENE		3.4	J	PR
BROMODICHLOROMETHANE		2.8	UJ	R
BROMOFORM		2.8	UJ	R
BROMOMETHANE		2.8	UJ	R
CARBON DISULFIDE		2.8	UJ	R
CARBON TETRACHLORIDE		2.8	UJ	R
CHLOROBENZENE		2.8	UJ	R
CHLORODIBROMOMETHANE		2.8	UJ	R
CHLOROETHANE		2.8	UJ	R
CHLOROFORM		2.8	UJ	R
CHLOROMETHANE		2.8	UJ	R
CIS-1,2-DICHLOROETHENE		2.8	UJ	R
CIS-1,3-DICHLOROPROPENE		2.8	UJ	R
DICHLORODIFLUOROMETHANE		2.8	UJ	R
ETHYLBENZENE		2.8	UJ	R
ISOPROPYLBENZENE		9.2	J	R

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-000.5-01			12TP16-0608-03			12TP16-0910-04		
SDG: C5056	LAB_ID	C5056-02			C5056-01			C5056-03			C5056-04		
FRACTION: OV	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			87.0			83.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5.5	U		7	U		3.6	J	PR	5	U	
METHYL TERT-BUTYL ETHER		2.7	U		3.45	U		3	UJ	R	2.55	U	
METHYLENE CHLORIDE		2.7	U		3.45	U		3	UJ	R	2.55	U	
O-XYLENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
STYRENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
TETRACHLOROETHENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
TOLUENE		2.7	U		3.45	U		4.6	J	PR	2.55	U	
TOTAL XYLENES		8	U		10.5	U		3.6	J	PR	7.5	U	
TRANS-1,2-DICHLOROETHENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
TRANS-1,3-DICHLOROPROPENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
TRICHLOROETHENE		2.7	U		3.45	U		3	UJ	R	2.55	U	
TRICHLOROFLUOROMETHANE		2.7	U		3.45	U		3	UJ	R	2.55	U	
VINYL CHLORIDE		2.7	U		3.45	U		3	UJ	R	2.55	U	

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01		
SDG: C5056	LAB_ID	C5056-05		
FRACTION: OV	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	88.0		
	DUP_OF	12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD
M+P-XYLENES		2.5	J	R
METHYL TERT-BUTYL ETHER		2.8	UJ	R
METHYLENE CHLORIDE		2.8	UJ	R
O-XYLENE		2.8	UJ	R
STYRENE		2.8	UJ	R
TETRACHLOROETHENE		2.8	UJ	R
TOLUENE		2.8	UJ	R
TOTAL XYLENES		2.5	UJ	R
TRANS-1,2-DICHLOROETHENE		2.8	UJ	R
TRANS-1,3-DICHLOROPROPENE		2.8	UJ	R
TRICHLOROETHENE		2.8	UJ	R
TRICHLOROFLUOROMETHANE		2.8	UJ	R
VINYL CHLORIDE		2.8	UJ	R

PROJ_NO: 02014	NSAMPLE	TB-01-121911
SDG: C5056	LAB_ID	C5056-13
FRACTION: OV	SAMP_DATE	12/19/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.5	U	
1,1,2,2-TETRACHLOROETHANE	0.5	U	
1,1,2-TRICHLOROETHANE	0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U	
1,1-DICHLOROETHANE	0.5	U	
1,1-DICHLOROETHENE	0.5	U	
1,2,3-TRICHLOROBENZENE	0.5	U	
1,2,4-TRICHLOROBENZENE	0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U	
1,2-DIBROMOETHANE	0.5	U	
1,2-DICHLOROBENZENE	0.5	U	
1,2-DICHLOROETHANE	0.5	U	
1,2-DICHLOROPROPANE	0.5	U	
1,3-DICHLOROBENZENE	0.5	U	
1,4-DICHLOROBENZENE	0.5	U	
2-BUTANONE	2.5	U	
2-HEXANONE	2.5	U	
4-METHYL-2-PENTANONE	2.5	U	
ACETONE	2.5	UJ	C
BENZENE	0.5	U	
BROMODICHLOROMETHANE	0.5	U	
BROMOFORM	0.5	U	
BROMOMETHANE	0.5	U	
CARBON DISULFIDE	0.5	U	
CARBON TETRACHLORIDE	0.5	U	
CHLOROBENZENE	0.5	U	
CHLORODIBROMOMETHANE	0.5	U	
CHLOROETHANE	0.5	U	
CHLOROFORM	0.5	U	
CHLOROMETHANE	0.65	J	P
CIS-1,2-DICHLOROETHENE	0.5	U	
CIS-1,3-DICHLOROPROPENE	0.5	U	
DICHLORODIFLUOROMETHANE	0.5	U	
ETHYLBENZENE	0.5	U	
ISOPROPYLBENZENE	0.5	U	

PROJ_NO: 02014	NSAMPLE	TB-01-121911		
SDG: C5056	LAB_ID	C5056-13		
FRACTION: OV	SAMP_DATE	12/19/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
M+P-XYLENES		1	U	
METHYL TERT-BUTYL ETHER		0.5	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
STYRENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TOTAL XYLENES		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-0.502-02GR2			12TP16-000.5-01			12TP16-000.5-01GR2		
SDG: C5056	LAB_ID	C5056-02			C5056-02			C5056-01			C5056-01		
FRACTION: OS	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		200	U					205	U				
2,4,5-TRICHLOROPHENOL		200	U					205	U				
2,4,6-TRICHLOROPHENOL		200	U					205	U				
2,4-DICHLOROPHENOL		200	U					205	U				
2,4-DIMETHYLPHENOL		200	U					205	U				
2,4-DINITROPHENOL		200	U					205	U				
2,4-DINITROTOLUENE		200	U					205	U				
2,6-DINITROTOLUENE		200	U					205	U				
2-CHLORONAPHTHALENE		200	U					205	U				
2-CHLOROPHENOL		200	U					205	U				
2-METHYLNAPHTHALENE		2.4	J	P				2.05	U				
2-METHYLPHENOL		200	U					205	U				
2-NITROANILINE		200	U					205	U				
2-NITROPHENOL		200	U					205	U				
3&4-METHYLPHENOL		200	U					205	U				
3,3'-DICHLOROBENZIDINE		200	U					205	U				
3-NITROANILINE		200	UL	E				205	UL	E			
4,6-DINITRO-2-METHYLPHENOL		200	U					205	U				
4-BROMOPHENYL PHENYL ETHER		200	U					205	U				
4-CHLORO-3-METHYLPHENOL		200	U					205	U				
4-CHLOROANILINE		200	UR	E				205	UR	E			
4-CHLOROPHENYL PHENYL ETHER		200	U					205	U				
4-NITROANILINE		200	U					205	U				
4-NITROPHENOL		200	U					205	U				
ACENAPHTHENE					6.5						2.05	U	
ACENAPHTHYLENE					6.1						2.05	U	
ANTHRACENE		11						2.5	J	P			
BENZO(A)ANTHRACENE		49						20					
BENZO(A)PYRENE		62						22					
BENZO(B)FLUORANTHENE		94						35					
BENZO(G,H,I)PERYLENE		33	J	C				12					
BENZO(K)FLUORANTHENE		37						10					
BIS(2-CHLOROETHOXY)METHANE		200	U					205	U				
BIS(2-CHLOROETHYL)ETHER		200	U					205	U				
BIS(2-ETHYLHEXYL)PHTHALATE		200	U					205	U				

PROJ_NO: 02014	NSAMPLE	12TP16-0608-03			12TP16-0608-03GR2			12TP16-0910-04			12TP16-0910-04GR2		
SDG: C5056	LAB_ID	C5056-03			C5056-03			C5056-04			C5056-04		
FRACTION: OS	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			83.0			83.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		2850	U					200	U				
2,4,5-TRICHLOROPHENOL		2850	U					200	U				
2,4,6-TRICHLOROPHENOL		2850	U					200	U				
2,4-DICHLOROPHENOL		2850	U					200	U				
2,4-DIMETHYLPHENOL		2850	U					200	U				
2,4-DINITROPHENOL		2850	U					200	U				
2,4-DINITROTOLUENE		2850	U					200	U				
2,6-DINITROTOLUENE		2850	U					200	U				
2-CHLORONAPHTHALENE		2850	U					200	U				
2-CHLOROPHENOL		2850	U					200	U				
2-METHYLNAPHTHALENE		590						2	U				
2-METHYLPHENOL		2850	U					200	U				
2-NITROANILINE		2850	U					200	U				
2-NITROPHENOL		2850	U					200	U				
3&4-METHYLPHENOL		2850	U					200	U				
3,3'-DICHLOROBENZIDINE		2850	U					200	U				
3-NITROANILINE		2850	UL	E				200	UL	E			
4,6-DINITRO-2-METHYLPHENOL		2850	U					200	U				
4-BROMOPHENYL PHENYL ETHER		2850	U					200	U				
4-CHLORO-3-METHYLPHENOL		2850	U					200	U				
4-CHLOROANILINE		2850	UR	E				200	UR	E			
4-CHLOROPHENYL PHENYL ETHER		2850	U					200	U				
4-NITROANILINE		2850	U					200	U				
4-NITROPHENOL		2850	U					200	U				
ACENAPHTHENE					28.5	U					2	U	
ACENAPHTHYLENE					28.5	U					2	U	
ANTHRACENE		180						2	U				
BENZO(A)ANTHRACENE		550						2	U				
BENZO(A)PYRENE		490						2	U				
BENZO(B)FLUORANTHENE		1300						2.4	J	P			
BENZO(G,H,I)PERYLENE		530	J	C				2	U				
BENZO(K)FLUORANTHENE		380						2	U				
BIS(2-CHLOROETHOXY)METHANE		2850	U					200	U				
BIS(2-CHLOROETHYL)ETHER		2850	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		2850	U					200	U				

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01			12TP-DUP-01GR2		
SDG: C5056	LAB_ID	C5056-05			C5056-05		
FRACTION: OS	SAMP_DATE	12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.0			88.0		
	DUP_OF	12TP16-0608-03					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		2800	U				
2,4,5-TRICHLOROPHENOL		2800	U				
2,4,6-TRICHLOROPHENOL		2800	U				
2,4-DICHLOROPHENOL		2800	U				
2,4-DIMETHYLPHENOL		2800	U				
2,4-DINITROPHENOL		2800	U				
2,4-DINITROTOLUENE		2800	U				
2,6-DINITROTOLUENE		2800	U				
2-CHLORONAPHTHALENE		2800	U				
2-CHLOROPHENOL		2800	U				
2-METHYLNAPHTHALENE		400					
2-METHYLPHENOL		2800	U				
2-NITROANILINE		2800	U				
2-NITROPHENOL		2800	U				
3&4-METHYLPHENOL		2800	U				
3,3'-DICHLOROBENZIDINE		2800	U				
3-NITROANILINE		2800	UL	E			
4,6-DINITRO-2-METHYLPHENOL		2800	U				
4-BROMOPHENYL PHENYL ETHER		2800	U				
4-CHLORO-3-METHYLPHENOL		2800	U				
4-CHLOROANILINE		2800	UR	E			
4-CHLOROPHENYL PHENYL ETHER		2800	U				
4-NITROANILINE		2800	U				
4-NITROPHENOL		2800	U				
ACENAPHTHENE					28	U	
ACENAPHTHYLENE					28	U	
ANTHRACENE		140					
BENZO(A)ANTHRACENE		450					
BENZO(A)PYRENE		440					
BENZO(B)FLUORANTHENE		1100					
BENZO(G,H,I)PERYLENE		420	J	C			
BENZO(K)FLUORANTHENE		280					
BIS(2-CHLOROETHOXY)METHANE		2800	U				
BIS(2-CHLOROETHYL)ETHER		2800	U				
BIS(2-ETHYLHEXYL)PHTHALATE		2800	U				

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-0.502-02GR2			12TP16-000.5-01			12TP16-000.5-01GR2		
SDG: C5056	LAB_ID	C5056-02			C5056-02			C5056-01			C5056-01		
FRACTION: OS	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		200	U					205	U				
CARBAZOLE		200	U					205	U				
CHRYSENE		82						29					
DIBENZO(A,H)ANTHRACENE		2.4	J	P				2.05	U				
DIBENZOFURAN		200	U					205	U				
DIETHYL PHTHALATE		200	U					205	U				
DIMETHYL PHTHALATE		200	U					205	U				
DI-N-BUTYL PHTHALATE		200	U					205	U				
DI-N-OCTYL PHTHALATE		200	U					205	U				
FLUORANTHENE		250						69	K	D			
FLUORENE		15						2.5	J	P			
HEXACHLOROBENZENE		200	U					205	U				
HEXACHLOROBUTADIENE		200	U					205	U				
HEXACHLOROCYCLOPENTADIENE		200	U					205	U				
HEXACHLOROETHANE		200	U					205	U				
INDENO(1,2,3-CD)PYRENE		36						12					
ISOPHORONE		200	U					205	U				
NAPHTHALENE		4.9						2.05	U				
NITROBENZENE		200	U					205	U				
N-NITROSO-DI-N-PROPYLAMINE		200	U					205	U				
N-NITROSODIPHENYLAMINE		200	U					205	U				
PENTACHLOROPHENOL		200	U					205	U				
PHENANTHRENE					190						36		
PHENOL		200	U					205	U				
PYRENE		160						49					

PROJ_NO: 02014	NSAMPLE	12TP16-0608-03			12TP16-0608-03GR2			12TP16-0910-04			12TP16-0910-04GR2		
SDG: C5056	LAB_ID	C5056-03			C5056-03			C5056-04			C5056-04		
FRACTION: OS	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			83.0			83.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		2850	U					200	U				
CARBAZOLE		2850	U					200	U				
CHRYSENE		1100						2	U				
DIBENZO(A,H)ANTHRACENE		28.5	U					2	U				
DIBENZOFURAN		2850	U					200	U				
DIETHYL PHTHALATE		2850	U					200	U				
DIMETHYL PHTHALATE		2850	U					200	U				
DI-N-BUTYL PHTHALATE		2850	U					200	U				
DI-N-OCTYL PHTHALATE		2850	U					200	U				
FLUORANTHENE		2500						4.4					
FLUORENE		28.5	U					2	U				
HEXACHLOROBENZENE		2850	U					200	U				
HEXACHLOROBUTADIENE		2850	U					200	U				
HEXACHLOROCYCLOPENTADIENE		2850	U					200	U				
HEXACHLOROETHANE		2850	U					200	U				
INDENO(1,2,3-CD)PYRENE		340						2	U				
ISOPHORONE		2850	U					200	U				
NAPHTHALENE		28.5	U					2	U				
NITROBENZENE		2850	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		2850	U					200	U				
N-NITROSODIPHENYLAMINE		2850	U					200	U				
PENTACHLOROPHENOL		2850	U					200	U				
PHENANTHRENE					700						2.4	J	P
PHENOL		2850	U					200	U				
PYRENE		2100						3.2	J	P			

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01			12TP-DUP-01GR2		
SDG: C5056	LAB_ID	C5056-05			C5056-05		
FRACTION: OS	SAMP_DATE	12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	88.0			88.0		
	DUP_OF	12TP16-0608-03					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		2800	U				
CARBAZOLE		2800	U				
CHRYSENE		810					
DIBENZO(A,H)ANTHRACENE		28	U				
DIBENZOFURAN		2800	U				
DIETHYL PHTHALATE		2800	U				
DIMETHYL PHTHALATE		2800	U				
DI-N-BUTYL PHTHALATE		2800	U				
DI-N-OCTYL PHTHALATE		2800	U				
FLUORANTHENE		1900					
FLUORENE		28	U				
HEXACHLOROBENZENE		2800	U				
HEXACHLOROBUTADIENE		2800	U				
HEXACHLOROCYCLOPENTADIENE		2800	U				
HEXACHLOROETHANE		2800	U				
INDENO(1,2,3-CD)PYRENE		320					
ISOPHORONE		2800	U				
NAPHTHALENE		28	U				
NITROBENZENE		2800	U				
N-NITROSO-DI-N-PROPYLAMINE		2800	U				
N-NITROSODIPHENYLAMINE		2800	U				
PENTACHLOROPHENOL		2800	U				
PHENANTHRENE					560		
PHENOL		2800	U				
PYRENE		1600					

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-000.5-01			12TP16-0608-03			12TP16-0910-04		
SDG: C5056	LAB_ID	C5056-02			C5056-01			C5056-03			C5056-04		
FRACTION: PEST	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			87.0			82.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
4,4'-DDE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
4,4'-DDT		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ALDRIN		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ALPHA-BHC		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ALPHA-CHLORDANE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
BETA-BHC		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
DELTA-BHC		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
DIELDRIN		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ENDOSULFAN I		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ENDOSULFAN II		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ENDOSULFAN SULFATE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ENDRIN		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ENDRIN ALDEHYDE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
ENDRIN KETONE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
GAMMA-BHC (LINDANE)		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
GAMMA-CHLORDANE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
HEPTACHLOR		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
HEPTACHLOR EPOXIDE		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
METHOXYCHLOR		1.05	U		1.05	U		2.9	UJ	R	1.05	U	
TOXAPHENE		10.5	U		10.5	U		29	UJ	R	10.5	U	

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01		
SDG: C5056	LAB_ID	C5056-05		
FRACTION: PEST	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	88.0		
	DUP_OF	12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD
4,4'-DDD		2.9	UJ	R
4,4'-DDE		2.9	UJ	R
4,4'-DDT		2.9	UJ	R
ALDRIN		2.9	UJ	R
ALPHA-BHC		2.9	UJ	R
ALPHA-CHLORDANE		2.9	UJ	R
BETA-BHC		2.9	UJ	R
DELTA-BHC		2.9	UJ	R
DIELDRIN		2.9	UJ	R
ENDOSULFAN I		2.9	UJ	R
ENDOSULFAN II		2.9	UJ	R
ENDOSULFAN SULFATE		2.9	UJ	R
ENDRIN		2.9	UJ	R
ENDRIN ALDEHYDE		2.9	UJ	R
ENDRIN KETONE		2.9	UJ	R
GAMMA-BHC (LINDANE)		2.9	UJ	R
GAMMA-CHLORDANE		2.9	UJ	R
HEPTACHLOR		2.9	UJ	R
HEPTACHLOR EPOXIDE		2.9	UJ	R
METHOXYCHLOR		2.9	UJ	R
TOXAPHENE		29	UJ	R

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-000.5-01			12TP16-0608-03			12TP16-0910-04		
SDG: C5056	LAB_ID	C5056-02			C5056-01			C5056-03			C5056-04		
FRACTION: PCB	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			80.0			87.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	UJ	R	10.5	U		29	U		10.5	U	
AROCLOR-1221		10.5	UJ	R	10.5	U		29	U		10.5	U	
AROCLOR-1232		10.5	UJ	R	10.5	U		29	U		10.5	U	
AROCLOR-1242		10.5	UJ	R	10.5	U		29	U		10.5	U	
AROCLOR-1248		10.5	UJ	R	10.5	U		29	U		10.5	U	
AROCLOR-1254		10.5	UJ	R	10.5	U		29	U		10.5	U	
AROCLOR-1260		10.5	UJ	R	10.5	U		29	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01		
SDG: C5056	LAB_ID	C5056-05		
FRACTION: PCB	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	88.0		
	DUP_OF	12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD
AROCLOR-1016		29	U	
AROCLOR-1221		29	U	
AROCLOR-1232		29	U	
AROCLOR-1242		29	U	
AROCLOR-1248		29	U	
AROCLOR-1254		29	U	
AROCLOR-1260		29	U	

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030365.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.8	U	0.73	5.6	ug/Kg
74-87-3	Chloromethane	2.8	U	0.96	5.6	ug/Kg
75-01-4	Vinyl Chloride	2.8	U	1.4	5.6	ug/Kg
74-83-9	Bromomethane	2.8	U	2.7	5.6	ug/Kg
75-00-3	Chloroethane	2.8	U	1.6	5.6	ug/Kg
75-69-4	Trichlorofluoromethane	2.8	U	1.5	5.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.8	U	1.5	5.6	ug/Kg
75-35-4	1,1-Dichloroethene	2.8	U	1.6	5.6	ug/Kg
67-64-1	Acetone	110		3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.8	U	1.2	5.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.8	U	1.1	5.6	ug/Kg
79-20-9	Methyl Acetate	2.8	U	1.7	5.6	ug/Kg
75-09-2	Methylene Chloride	2.8	U	1.6	5.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.8	U	0.77	5.6	ug/Kg
75-34-3	1,1-Dichloroethane	2.8	U	1.1	5.6	ug/Kg
110-82-7	Cyclohexane	2.8	U	1.1	5.6	ug/Kg
78-93-3	2-Butanone	28	J	3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.8	U	1.1	5.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.8	U	1	5.6	ug/Kg
74-97-5	Bromochloromethane	2.8	U	0.89	5.6	ug/Kg
67-66-3	Chloroform	2.8	U	0.83	5.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.8	U	0.99	5.6	ug/Kg
108-87-2	Methylcyclohexane	11		1.2	5.6	ug/Kg
71-43-2	Benzene	3.4	J	0.43	5.6	ug/Kg
107-06-2	1,2-Dichloroethane	2.8	U	0.72	5.6	ug/Kg
79-01-6	Trichloroethene	2.8	U	0.96	5.6	ug/Kg
78-87-5	1,2-Dichloropropane	2.8	U	0.29	5.6	ug/Kg
75-27-4	Bromodichloromethane	2.8	U	0.69	5.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.8	U	0.72	5.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.8	U	0.89	5.6	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030365.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.8	U	0.81	5.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.8	U	1	5.6	ug/Kg
591-78-6	2-Hexanone	14	U	4.4	28	ug/Kg
124-48-1	Dibromochloromethane	2.8	U	0.61	5.6	ug/Kg
106-93-4	1,2-Dibromoethane	2.8	U	0.72	5.6	ug/Kg
127-18-4	Tetrachloroethene	2.8	U	1.1	5.6	ug/Kg
108-90-7	Chlorobenzene	2.8	U	0.56	5.6	ug/Kg
100-41-4	Ethyl Benzene	2.8	U	0.69	5.6	ug/Kg
179601-23-1	m/p-Xylenes	2.5	J	0.81	11	ug/Kg
95-47-6	o-Xylene	2.8	U	0.76	5.6	ug/Kg
100-42-5	Styrene	2.8	U	0.5	5.6	ug/Kg
75-25-2	Bromoform	2.8	U	0.83	5.6	ug/Kg
98-82-8	Isopropylbenzene	9.2		0.54	5.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.8	U	0.52	5.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.8	U	0.41	5.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.8	U	0.46	5.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.8	U	0.69	5.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.8	U	0.97	5.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.8	U	0.78	5.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.8	U	0.56	5.6	ug/Kg
1330-20-7	Total Xylenes	2.5	J	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.9		55 - 158	110%	SPK: 50
1868-53-7	Dibromofluoromethane	51.1		53 - 156	102%	SPK: 50
2037-26-5	Toluene-d8	41.1	*	85 - 115	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.1		85 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	97184	4.41			
540-36-3	1,4-Difluorobenzene	198628	5.15			
3114-55-4	Chlorobenzene-d5	149423	9.34			
3855-82-1	1,4-Dichlorobenzene-d4	58083	12.26			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01RE	SDG No.:	C5056
Lab Sample ID:	C5056-05RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.39 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002226.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.91	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.5	5.3	ug/Kg
67-64-1	Acetone	170		3.2	26	ug/Kg
75-15-0	Carbon Disulfide	3.3	J	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	0.99	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	48		3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.83	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	20		1.1	5.3	ug/Kg
71-43-2	Benzene	3.7	J	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.67	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.91	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.27	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.65	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	4.7	J	0.67	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.83	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01RE	SDG No.:	C5056
Lab Sample ID:	C5056-05RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.39 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002226.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.67	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.65	5.3	ug/Kg
179601-23-1	m/p-Xylenes	3	J	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.47	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	8.9		0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.48	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.65	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	21	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.3		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	42.6		53 - 156	85%	SPK: 50
2037-26-5	Toluene-d8	38.4	*	85 - 115	77%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.8		85 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	647779	8.05			
540-36-3	1,4-Difluorobenzene	1117380	8.95			
3114-55-4	Chlorobenzene-d5	543725	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	278611	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.68 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030351.D	1		12/26/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.7	5.4	ug/Kg
74-87-3	Chloromethane	2.7	U	0.92	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
74-83-9	Bromomethane	2.7	U	2.6	5.4	ug/Kg
75-00-3	Chloroethane	2.7	U	1.5	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	13.5	U	3.2	27	ug/Kg
75-15-0	Carbon Disulfide	2.7	U	1.1	5.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.7	U	1	5.4	ug/Kg
79-20-9	Methyl Acetate	2.7	U	1.6	5.4	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.74	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
110-82-7	Cyclohexane	2.7	U	1.1	5.4	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.7	U	1.1	5.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.96	5.4	ug/Kg
74-97-5	Bromochloromethane	2.7	U	0.85	5.4	ug/Kg
67-66-3	Chloroform	2.7	U	0.79	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.94	5.4	ug/Kg
108-87-2	Methylcyclohexane	2.7	U	1.1	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.69	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.92	5.4	ug/Kg
78-87-5	1,2-Dichloropropane	2.7	U	0.28	5.4	ug/Kg
75-27-4	Bromodichloromethane	2.7	U	0.67	5.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.1	27	ug/Kg
108-88-3	Toluene	2.7	U	0.69	5.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.7	U	0.85	5.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.68 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030351.D	1		12/26/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.7	U	0.77	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.97	5.4	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.2	27	ug/Kg
124-48-1	Dibromochloromethane	2.7	U	0.58	5.4	ug/Kg
106-93-4	1,2-Dibromoethane	2.7	U	0.69	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
108-90-7	Chlorobenzene	2.7	U	0.54	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.67	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.73	5.4	ug/Kg
100-42-5	Styrene	2.7	U	0.48	5.4	ug/Kg
75-25-2	Bromoform	2.7	U	0.79	5.4	ug/Kg
98-82-8	Isopropylbenzene	2.7	U	0.52	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.49	5.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.7	U	0.4	5.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.7	U	0.44	5.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.7	U	0.67	5.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.7	U	0.93	5.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.7	U	0.75	5.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.7	U	0.54	5.4	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.4		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.6		85 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	114180	4.39			
540-36-3	1,4-Difluorobenzene	207095	5.13			
3114-55-4	Chlorobenzene-d5	205569	9.34			
3855-82-1	1,4-Dichlorobenzene-d4	107644	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	4.54 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030363.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.45	U	0.89	6.9	ug/Kg
74-87-3	Chloromethane	3.45	U	1.2	6.9	ug/Kg
75-01-4	Vinyl Chloride	3.45	U	1.7	6.9	ug/Kg
74-83-9	Bromomethane	3.45	U	3.4	6.9	ug/Kg
75-00-3	Chloroethane	3.45	U	1.9	6.9	ug/Kg
75-69-4	Trichlorofluoromethane	3.45	U	1.8	6.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.45	U	1.8	6.9	ug/Kg
75-35-4	1,1-Dichloroethene	3.45	U	2	6.9	ug/Kg
67-64-1	Acetone	17	U	4.2	34	ug/Kg
75-15-0	Carbon Disulfide	3.45	U	1.5	6.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.45	U	1.3	6.9	ug/Kg
79-20-9	Methyl Acetate	3.45	U	2.1	6.9	ug/Kg
75-09-2	Methylene Chloride	3.45	U	2	6.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.45	U	0.95	6.9	ug/Kg
75-34-3	1,1-Dichloroethane	3.45	U	1.3	6.9	ug/Kg
110-82-7	Cyclohexane	3.45	U	1.4	6.9	ug/Kg
78-93-3	2-Butanone	17	U	4.3	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.45	U	1.4	6.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.45	U	1.2	6.9	ug/Kg
74-97-5	Bromochloromethane	3.45	U	1.1	6.9	ug/Kg
67-66-3	Chloroform	3.45	U	1	6.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
108-87-2	Methylcyclohexane	3.45	U	1.5	6.9	ug/Kg
71-43-2	Benzene	3.45	U	0.52	6.9	ug/Kg
107-06-2	1,2-Dichloroethane	3.45	U	0.88	6.9	ug/Kg
79-01-6	Trichloroethene	3.45	U	1.2	6.9	ug/Kg
78-87-5	1,2-Dichloropropane	3.45	U	0.36	6.9	ug/Kg
75-27-4	Bromodichloromethane	3.45	U	0.85	6.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	4	34	ug/Kg
108-88-3	Toluene	3.45	U	0.88	6.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.45	U	1.1	6.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	4.54 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030363.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.45	U	0.99	6.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
591-78-6	2-Hexanone	17	U	5.4	34	ug/Kg
124-48-1	Dibromochloromethane	3.45	U	0.74	6.9	ug/Kg
106-93-4	1,2-Dibromoethane	3.45	U	0.88	6.9	ug/Kg
127-18-4	Tetrachloroethene	3.45	U	1.4	6.9	ug/Kg
108-90-7	Chlorobenzene	3.45	U	0.69	6.9	ug/Kg
100-41-4	Ethyl Benzene	3.45	U	0.85	6.9	ug/Kg
179601-23-1	m/p-Xylenes	7	U	0.99	14	ug/Kg
95-47-6	o-Xylene	3.45	U	0.94	6.9	ug/Kg
100-42-5	Styrene	3.45	U	0.62	6.9	ug/Kg
75-25-2	Bromoform	3.45	U	1	6.9	ug/Kg
98-82-8	Isopropylbenzene	3.45	U	0.66	6.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.45	U	0.63	6.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.45	U	0.51	6.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.45	U	0.56	6.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.45	U	0.85	6.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.45	U	1.2	6.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.45	U	0.96	6.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.45	U	0.69	6.9	ug/Kg
1330-20-7	Total Xylenes	10.5	U	1.9	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.4		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	46.6		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	49.6		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.5		85 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	126331	4.4			
540-36-3	1,4-Difluorobenzene	239068	5.15			
3114-55-4	Chlorobenzene-d5	229368	9.35			
3855-82-1	1,4-Dichlorobenzene-d4	97373	12.25			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	4.81 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030364.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3	U	0.78	6	ug/Kg
74-87-3	Chloromethane	3	U	1	6	ug/Kg
75-01-4	Vinyl Chloride	3	U	1.5	6	ug/Kg
74-83-9	Bromomethane	3	U	2.9	6	ug/Kg
75-00-3	Chloroethane	3	U	1.7	6	ug/Kg
75-69-4	Trichlorofluoromethane	3	U	1.6	6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3	U	1.6	6	ug/Kg
75-35-4	1,1-Dichloroethene	3	U	1.8	6	ug/Kg
67-64-1	Acetone	160		3.6	30	ug/Kg
75-15-0	Carbon Disulfide	8.1		1.3	6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3	U	1.1	6	ug/Kg
79-20-9	Methyl Acetate	3	U	1.8	6	ug/Kg
75-09-2	Methylene Chloride	3	U	1.7	6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3	U	0.82	6	ug/Kg
75-34-3	1,1-Dichloroethane	3	U	1.1	6	ug/Kg
110-82-7	Cyclohexane	3	U	1.2	6	ug/Kg
78-93-3	2-Butanone	38		3.7	30	ug/Kg
56-23-5	Carbon Tetrachloride	3	U	1.2	6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3	U	1.1	6	ug/Kg
74-97-5	Bromochloromethane	3	U	0.94	6	ug/Kg
67-66-3	Chloroform	3	U	0.88	6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3	U	1.1	6	ug/Kg
108-87-2	Methylcyclohexane	25		1.3	6	ug/Kg
71-43-2	Benzene	4	J	0.45	6	ug/Kg
107-06-2	1,2-Dichloroethane	3	U	0.76	6	ug/Kg
79-01-6	Trichloroethene	3	U	1	6	ug/Kg
78-87-5	1,2-Dichloropropane	3	U	0.31	6	ug/Kg
75-27-4	Bromodichloromethane	3	U	0.74	6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.5	30	ug/Kg
108-88-3	Toluene	4.6	J	0.76	6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3	U	0.94	6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	4.81 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030364.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3	U	0.86	6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3	U	1.1	6	ug/Kg
591-78-6	2-Hexanone	15	U	4.7	30	ug/Kg
124-48-1	Dibromochloromethane	3	U	0.65	6	ug/Kg
106-93-4	1,2-Dibromoethane	3	U	0.76	6	ug/Kg
127-18-4	Tetrachloroethene	3	U	1.2	6	ug/Kg
108-90-7	Chlorobenzene	3	U	0.6	6	ug/Kg
100-41-4	Ethyl Benzene	3	U	0.74	6	ug/Kg
179601-23-1	m/p-Xylenes	3.6	J	0.86	12	ug/Kg
95-47-6	o-Xylene	3	U	0.81	6	ug/Kg
100-42-5	Styrene	3	U	0.54	6	ug/Kg
75-25-2	Bromoform	3	U	0.88	6	ug/Kg
98-82-8	Isopropylbenzene	11		0.57	6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3	U	0.55	6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3	U	0.44	6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3	U	0.49	6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3	U	0.74	6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3	U	1	6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3	U	0.84	6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3	U	0.6	6	ug/Kg
1330-20-7	Total Xylenes	3.6	J	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53		55 - 158	106%	SPK: 50
1868-53-7	Dibromofluoromethane	48.1		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	41.9	*	85 - 115	84%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.3		85 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	93140	4.41			
540-36-3	1,4-Difluorobenzene	194284	5.15			
3114-55-4	Chlorobenzene-d5	144953	9.35			
3855-82-1	1,4-Dichlorobenzene-d4	76627	12.25			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03RE	SDG No.:	C5056
Lab Sample ID:	C5056-03RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.34 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002225.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.7	5.4	ug/Kg
74-87-3	Chloromethane	2.7	U	0.93	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
74-83-9	Bromomethane	2.7	U	2.6	5.4	ug/Kg
75-00-3	Chloroethane	2.7	U	1.5	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	300		3.3	27	ug/Kg
75-15-0	Carbon Disulfide	7.2		1.1	5.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.7	U	1	5.4	ug/Kg
79-20-9	Methyl Acetate	2.7	U	1.6	5.4	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.74	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
110-82-7	Cyclohexane	2.7	U	1.1	5.4	ug/Kg
78-93-3	2-Butanone	76		3.3	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.7	U	1.1	5.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.4	J	0.96	5.4	ug/Kg
74-97-5	Bromochloromethane	2.7	U	0.85	5.4	ug/Kg
67-66-3	Chloroform	2.7	U	0.8	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.95	5.4	ug/Kg
108-87-2	Methylcyclohexane	47		1.1	5.4	ug/Kg
71-43-2	Benzene	5.8		0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.69	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.93	5.4	ug/Kg
78-87-5	1,2-Dichloropropane	2.7	U	0.28	5.4	ug/Kg
75-27-4	Bromodichloromethane	2.7	U	0.67	5.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.1	27	ug/Kg
108-88-3	Toluene	5.4	J	0.69	5.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.7	U	0.85	5.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03RE	SDG No.:	C5056
Lab Sample ID:	C5056-03RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	13
Sample Wt/Vol:	5.34 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002225.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.7	U	0.77	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.97	5.4	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.2	27	ug/Kg
124-48-1	Dibromochloromethane	2.7	U	0.58	5.4	ug/Kg
106-93-4	1,2-Dibromoethane	2.7	U	0.69	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
108-90-7	Chlorobenzene	2.7	U	0.54	5.4	ug/Kg
100-41-4	Ethyl Benzene	3.1	J	0.67	5.4	ug/Kg
179601-23-1	m/p-Xylenes	7	J	0.77	11	ug/Kg
95-47-6	o-Xylene	3.3	J	0.73	5.4	ug/Kg
100-42-5	Styrene	2.7	U	0.48	5.4	ug/Kg
75-25-2	Bromoform	2.7	U	0.8	5.4	ug/Kg
98-82-8	Isopropylbenzene	17		0.52	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.5	5.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.7	U	0.4	5.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.7	U	0.44	5.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.7	U	0.67	5.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.7	U	0.94	5.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.7	U	0.75	5.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.7	U	0.54	5.4	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	22	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.4		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	44.4		53 - 156	89%	SPK: 50
2037-26-5	Toluene-d8	37.9	*	85 - 115	76%	SPK: 50
460-00-4	4-Bromofluorobenzene	69.9	*	85 - 120	140%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	426699	8.05			
540-36-3	1,4-Difluorobenzene	712671	8.95			
3114-55-4	Chlorobenzene-d5	298739	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	198765	13.63			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030352.D	1		12/26/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.87	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.2	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	12.5	U	3.1	25	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.98	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.4	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.7	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.95	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	12.5	U	3.2	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.9	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.8	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.75	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.89	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.87	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.26	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	3	25	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.8	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	17
Sample Wt/Vol:	5.93 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030352.D	1		12/26/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.73	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.91	5.1	ug/Kg
591-78-6	2-Hexanone	12.5	U	4	25	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.75	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.88	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.71	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	45.5		55 - 158	91%	SPK: 50
1868-53-7	Dibromofluoromethane	48.6		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.5		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.8		85 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	114840	4.39			
540-36-3	1,4-Difluorobenzene	203922	5.14			
3114-55-4	Chlorobenzene-d5	205846	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	113217	12.25			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	TB-01-121911	SDG No.:	C5056
Lab Sample ID:	C5056-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039759.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.65	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	TB-01-121911	SDG No.:	C5056
Lab Sample ID:	C5056-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039759.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.7		61 - 141	107%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		69 - 133	96%	SPK: 50
2037-26-5	Toluene-d8	47.7		65 - 126	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.2		58 - 135	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	615355	3.91			
540-36-3	1,4-Difluorobenzene	1147230	4.71			
3114-55-4	Chlorobenzene-d5	624146	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	283212	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	10.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052372.D	5	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	2800	U	300	5600	ug/Kg
108-95-2	Phenol	2800	U	130	5600	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	2800	U	270	5600	ug/Kg
95-57-8	2-Chlorophenol	2800	U	300	5600	ug/Kg
95-48-7	2-Methylphenol	2800	U	310	5600	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	2800	U	230	5600	ug/Kg
98-86-2	Acetophenone	2800	U	170	5600	ug/Kg
65794-96-9	3+4-Methylphenols	2800	U	290	5600	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	2800	U	290	5600	ug/Kg
67-72-1	Hexachloroethane	2800	U	250	5600	ug/Kg
98-95-3	Nitrobenzene	2800	U	210	5600	ug/Kg
78-59-1	Isophorone	2800	U	190	5600	ug/Kg
88-75-5	2-Nitrophenol	2800	U	270	5600	ug/Kg
105-67-9	2,4-Dimethylphenol	2800	U	320	5600	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	2800	U	330	5600	ug/Kg
120-83-2	2,4-Dichlorophenol	2800	U	220	5600	ug/Kg
106-47-8	4-Chloroaniline	2800	U	400	5600	ug/Kg
87-68-3	Hexachlorobutadiene	2800	U	210	5600	ug/Kg
105-60-2	Caprolactam	2800	U	260	5600	ug/Kg
59-50-7	4-Chloro-3-methylphenol	2800	U	250	5600	ug/Kg
77-47-4	Hexachlorocyclopentadiene	2800	U	140	5600	ug/Kg
88-06-2	2,4,6-Trichlorophenol	2800	U	170	5600	ug/Kg
95-95-4	2,4,5-Trichlorophenol	2800	U	400	5600	ug/Kg
92-52-4	1,1-Biphenyl	2800	U	210	5600	ug/Kg
91-58-7	2-Chloronaphthalene	2800	U	130	5600	ug/Kg
88-74-4	2-Nitroaniline	2800	U	250	5600	ug/Kg
131-11-3	Dimethylphthalate	2800	U	150	5600	ug/Kg
208-96-8	Acenaphthylene	2800	U	140	5600	ug/Kg
606-20-2	2,6-Dinitrotoluene	2800	U	230	5600	ug/Kg
99-09-2	3-Nitroaniline	2800	U	360	5600	ug/Kg
83-32-9	Acenaphthene	2800	U	160	5600	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	10.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052372.D	5	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	2800	U	580	5600	ug/Kg
100-02-7	4-Nitrophenol	2800	U	1100	5600	ug/Kg
132-64-9	Dibenzofuran	2800	U	220	5600	ug/Kg
121-14-2	2,4-Dinitrotoluene	2800	U	170	5600	ug/Kg
84-66-2	Diethylphthalate	2800	U	88	5600	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	2800	U	310	5600	ug/Kg
100-01-6	4-Nitroaniline	2800	U	740	5600	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	2800	U	320	5600	ug/Kg
86-30-6	N-Nitrosodiphenylamine	2800	U	140	5600	ug/Kg
101-55-3	4-Bromophenyl-phenylether	2800	U	110	5600	ug/Kg
118-74-1	Hexachlorobenzene	2800	U	230	5600	ug/Kg
1912-24-9	Atrazine	2800	U	300	5600	ug/Kg
87-86-5	Pentachlorophenol	2800	U	390	5600	ug/Kg
85-01-8	Phenanthrene	2800	U	150	5600	ug/Kg
86-74-8	Carbazole	2800	U	120	5600	ug/Kg
84-74-2	Di-n-butylphthalate	2800	U	440	5600	ug/Kg
85-68-7	Butylbenzylphthalate	2800	U	270	5600	ug/Kg
91-94-1	3,3-Dichlorobenzidine	2800	U	360	5600	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	2800	U	200	5600	ug/Kg
117-84-0	Di-n-octyl phthalate	2800	U	65	5600	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	2800	U	220	5600	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	2800	U	5600	5600	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	118		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	127		40 - 100	85%	SPK: 150
4165-60-0	Nitrobenzene-d5	99.5		35 - 100	100%	SPK: 100
321-60-8	2-Fluorobiphenyl	54.6		45 - 105	55%	SPK: 100
118-79-6	2,4,6-Tribromophenol	129		35 - 125	86%	SPK: 150
1718-51-0	Terphenyl-d14	85.8		30 - 125	86%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	91762	4.15			
1146-65-2	Naphthalene-d8	304122	5.35			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	10.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052372.D	5	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	148097	6.94			
1517-22-2	Phenanthrene-d10	252196	8.5			
1719-03-5	Chrysene-d12	236847	11.62			
1520-96-3	Perylene-d12	202197	13.23			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074639.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074639.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	210	J	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	104		35 - 105	70%	SPK: 150
13127-88-3	Phenol-d5	113		40 - 100	76%	SPK: 150
4165-60-0	Nitrobenzene-d5	65.2		35 - 100	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	56.3		45 - 105	56%	SPK: 100
118-79-6	2,4,6-Tribromophenol	92.1		35 - 125	61%	SPK: 150
1718-51-0	Terphenyl-d14	60.1		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	84682	8.66			
1146-65-2	Naphthalene-d8	354381	10.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074639.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	196948	13.8			
1517-22-2	Phenanthrene-d10	357194	16.28			
1719-03-5	Chrysene-d12	302528	20.73			
1520-96-3	Perylene-d12	258889	24.45			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074638.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074638.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	100		35 - 105	67%	SPK: 150
13127-88-3	Phenol-d5	108		40 - 100	72%	SPK: 150
4165-60-0	Nitrobenzene-d5	61.6		35 - 100	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	60.7		45 - 105	61%	SPK: 100
118-79-6	2,4,6-Tribromophenol	96.6		35 - 125	64%	SPK: 150
1718-51-0	Terphenyl-d14	61.4		30 - 125	61%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	83773	8.66			
1146-65-2	Naphthalene-d8	353108	10.83			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074638.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	195845	13.8			
1517-22-2	Phenanthrene-d10	356741	16.28			
1719-03-5	Chrysene-d12	309450	20.73			
1520-96-3	Perylene-d12	261786	24.45			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	10.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052373.D	5	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	2850	U	300	5700	ug/Kg
108-95-2	Phenol	2850	U	130	5700	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	2850	U	270	5700	ug/Kg
95-57-8	2-Chlorophenol	2850	U	300	5700	ug/Kg
95-48-7	2-Methylphenol	2850	U	310	5700	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	2850	U	240	5700	ug/Kg
98-86-2	Acetophenone	2850	U	170	5700	ug/Kg
65794-96-9	3+4-Methylphenols	2850	U	300	5700	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	2850	U	290	5700	ug/Kg
67-72-1	Hexachloroethane	2850	U	260	5700	ug/Kg
98-95-3	Nitrobenzene	2850	U	220	5700	ug/Kg
78-59-1	Isophorone	2850	U	190	5700	ug/Kg
88-75-5	2-Nitrophenol	2850	U	280	5700	ug/Kg
105-67-9	2,4-Dimethylphenol	2850	U	320	5700	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	2850	U	330	5700	ug/Kg
120-83-2	2,4-Dichlorophenol	2850	U	220	5700	ug/Kg
106-47-8	4-Chloroaniline	2850	U	400	5700	ug/Kg
87-68-3	Hexachlorobutadiene	2850	U	210	5700	ug/Kg
105-60-2	Caprolactam	2850	U	270	5700	ug/Kg
59-50-7	4-Chloro-3-methylphenol	2850	U	250	5700	ug/Kg
77-47-4	Hexachlorocyclopentadiene	2850	U	140	5700	ug/Kg
88-06-2	2,4,6-Trichlorophenol	2850	U	170	5700	ug/Kg
95-95-4	2,4,5-Trichlorophenol	2850	U	400	5700	ug/Kg
92-52-4	1,1-Biphenyl	2850	U	220	5700	ug/Kg
91-58-7	2-Chloronaphthalene	2850	U	130	5700	ug/Kg
88-74-4	2-Nitroaniline	2850	U	250	5700	ug/Kg
131-11-3	Dimethylphthalate	2850	U	150	5700	ug/Kg
208-96-8	Acenaphthylene	2850	U	140	5700	ug/Kg
606-20-2	2,6-Dinitrotoluene	2850	U	230	5700	ug/Kg
99-09-2	3-Nitroaniline	2850	U	370	5700	ug/Kg
83-32-9	Acenaphthene	2850	U	160	5700	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	10.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052373.D	5	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	2850	U	580	5700	ug/Kg
100-02-7	4-Nitrophenol	2850	U	1100	5700	ug/Kg
132-64-9	Dibenzofuran	2850	U	220	5700	ug/Kg
121-14-2	2,4-Dinitrotoluene	2850	U	170	5700	ug/Kg
84-66-2	Diethylphthalate	2850	U	89	5700	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	2850	U	310	5700	ug/Kg
100-01-6	4-Nitroaniline	2850	U	740	5700	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	2850	U	330	5700	ug/Kg
86-30-6	N-Nitrosodiphenylamine	2850	U	140	5700	ug/Kg
101-55-3	4-Bromophenyl-phenylether	2850	U	110	5700	ug/Kg
118-74-1	Hexachlorobenzene	2850	U	230	5700	ug/Kg
1912-24-9	Atrazine	2850	U	300	5700	ug/Kg
87-86-5	Pentachlorophenol	2850	U	390	5700	ug/Kg
85-01-8	Phenanthrene	2850	U	150	5700	ug/Kg
86-74-8	Carbazole	2850	U	130	5700	ug/Kg
84-74-2	Di-n-butylphthalate	2850	U	450	5700	ug/Kg
85-68-7	Butylbenzylphthalate	2850	U	270	5700	ug/Kg
91-94-1	3,3-Dichlorobenzidine	2850	U	370	5700	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	2850	U	200	5700	ug/Kg
117-84-0	Di-n-octyl phthalate	2850	U	65	5700	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	2850	U	220	5700	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	2850	U	5700	5700	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	126		35 - 105	84%	SPK: 150
13127-88-3	Phenol-d5	138		40 - 100	93%	SPK: 150
4165-60-0	Nitrobenzene-d5	106	*	35 - 100	106%	SPK: 100
321-60-8	2-Fluorobiphenyl	61.2		45 - 105	61%	SPK: 100
118-79-6	2,4,6-Tribromophenol	142		35 - 125	95%	SPK: 150
1718-51-0	Terphenyl-d14	93.8		30 - 125	94%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	91584	4.15			
1146-65-2	Naphthalene-d8	304436	5.35			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	10.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052373.D	5	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	149204	6.94			
1517-22-2	Phenanthrene-d10	257082	8.5			
1719-03-5	Chrysene-d12	231014	11.62			
1520-96-3	Perylene-d12	189854	13.23			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052353.D	1	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.3	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	19	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	28	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.7	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.1	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	16	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052353.D	1	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	74	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	52	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.6	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.8	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	16	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	27	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.8	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	98.7		35 - 105	66%	SPK: 150
13127-88-3	Phenol-d5	106		40 - 100	71%	SPK: 150
4165-60-0	Nitrobenzene-d5	72.1		35 - 100	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.4		45 - 105	69%	SPK: 100
118-79-6	2,4,6-Tribromophenol	102		35 - 125	68%	SPK: 150
1718-51-0	Terphenyl-d14	75.4		30 - 125	75%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	96513	4.15			
1146-65-2	Naphthalene-d8	361359	5.35			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052353.D	1	12/21/11	12/26/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	184925	6.93			
1517-22-2	Phenanthrene-d10	279975	8.5			
1719-03-5	Chrysene-d12	219642	11.62			
1520-96-3	Perylene-d12	196252	13.22			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	12
Sample Wt/Vol:	10.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002592.D	5	12/21/11	01/01/12	PB60071

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	28	U	6.8	56	ug/Kg
91-57-6	2-Methylnaphthalene	400		6.8	56	ug/Kg
208-96-8	Acenaphthylene	28	U	6.8	56	ug/Kg
83-32-9	Acenaphthene	28	U	6.8	56	ug/Kg
86-73-7	Fluorene	28	U	6.8	56	ug/Kg
85-01-8	Phenanthrene	560		6.8	56	ug/Kg
120-12-7	Anthracene	140		6.8	56	ug/Kg
206-44-0	Fluoranthene	1900		6.8	56	ug/Kg
129-00-0	Pyrene	1600		6.8	56	ug/Kg
56-55-3	Benzo(a)anthracene	450		6.8	56	ug/Kg
218-01-9	Chrysene	810		6.8	56	ug/Kg
205-99-2	Benzo(b)fluoranthene	1100		6.8	56	ug/Kg
207-08-9	Benzo(k)fluoranthene	280		6.8	56	ug/Kg
50-32-8	Benzo(a)pyrene	440		6.8	56	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	320		6.8	56	ug/Kg
53-70-3	Dibenz(a,h)anthracene	28	U	6.8	56	ug/Kg
191-24-2	Benzo(g,h,i)perylene	420		6.8	56	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	72.1		30 - 150	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	52.1		45 - 105	52%	SPK: 100
1718-51-0	Terphenyl-d14	54		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	66203	7.93			
1146-65-2	Naphthalene-d8	231131	10.11			
15067-26-2	Acenaphthene-d10	145493	13.08			
1517-22-2	Phenanthrene-d10	235707	15.53			
1719-03-5	Chrysene-d12	243662	19.9			
1520-96-3	Perylene-d12	166536	22.98			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002580.D	1	12/21/11	01/01/12	PB60071

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.9		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2.4	J	0.49	4	ug/Kg
208-96-8	Acenaphthylene	6.1		0.49	4	ug/Kg
83-32-9	Acenaphthene	6.5		0.49	4	ug/Kg
86-73-7	Fluorene	15		0.49	4	ug/Kg
85-01-8	Phenanthrene	190		0.49	4	ug/Kg
120-12-7	Anthracene	11		0.49	4	ug/Kg
206-44-0	Fluoranthene	250		0.49	4	ug/Kg
129-00-0	Pyrene	160		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	49		0.49	4	ug/Kg
218-01-9	Chrysene	82		0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	94		0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	37		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	62		0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	36		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.4	J	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	33		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	61.4		30 - 150	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	43	*	45 - 105	43%	SPK: 100
1718-51-0	Terphenyl-d14	42.7		30 - 125	43%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	65859	7.92			
1146-65-2	Naphthalene-d8	231634	10.1			
15067-26-2	Acenaphthene-d10	142146	13.08			
1517-22-2	Phenanthrene-d10	239192	15.53			
1719-03-5	Chrysene-d12	258636	19.9			
1520-96-3	Perylene-d12	240346	22.96			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002566.D	1	12/21/11	12/31/11	PB60071

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.5	J	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	36		0.5	4.1	ug/Kg
120-12-7	Anthracene	2.5	J	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	69		0.5	4.1	ug/Kg
129-00-0	Pyrene	49		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	20		0.5	4.1	ug/Kg
218-01-9	Chrysene	29		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	35		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	10		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	22		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	12		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	12		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	57.7		30 - 150	58%	SPK: 100
321-60-8	2-Fluorobiphenyl	45.8		45 - 105	46%	SPK: 100
1718-51-0	Terphenyl-d14	44.6		30 - 125	45%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	66282	7.92			
1146-65-2	Naphthalene-d8	238736	10.11			
15067-26-2	Acenaphthene-d10	148202	13.08			
1517-22-2	Phenanthrene-d10	251725	15.53			
1719-03-5	Chrysene-d12	258332	19.9			
1520-96-3	Perylene-d12	239194	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	13
Sample Wt/Vol:	10.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002591.D	5	12/21/11	01/01/12	PB60071

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	28.5	U	6.9	57	ug/Kg
91-57-6	2-Methylnaphthalene	590		6.9	57	ug/Kg
208-96-8	Acenaphthylene	28.5	U	6.9	57	ug/Kg
83-32-9	Acenaphthene	28.5	U	6.9	57	ug/Kg
86-73-7	Fluorene	28.5	U	6.9	57	ug/Kg
85-01-8	Phenanthrene	700		6.9	57	ug/Kg
120-12-7	Anthracene	180		6.9	57	ug/Kg
206-44-0	Fluoranthene	2500		6.9	57	ug/Kg
129-00-0	Pyrene	2100		6.9	57	ug/Kg
56-55-3	Benzo(a)anthracene	550		6.9	57	ug/Kg
218-01-9	Chrysene	1100		6.9	57	ug/Kg
205-99-2	Benzo(b)fluoranthene	1300		6.9	57	ug/Kg
207-08-9	Benzo(k)fluoranthene	380		6.9	57	ug/Kg
50-32-8	Benzo(a)pyrene	490		6.9	57	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	340		6.9	57	ug/Kg
53-70-3	Dibenz(a,h)anthracene	28.5	U	6.9	57	ug/Kg
191-24-2	Benzo(g,h,i)perylene	530		6.9	57	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	90.8		30 - 150	91%	SPK: 100
321-60-8	2-Fluorobiphenyl	62.6		45 - 105	63%	SPK: 100
1718-51-0	Terphenyl-d14	65.7		30 - 125	66%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	60376	7.93			
1146-65-2	Naphthalene-d8	207759	10.1			
15067-26-2	Acenaphthene-d10	131904	13.08			
1517-22-2	Phenanthrene-d10	210702	15.53			
1719-03-5	Chrysene-d12	220628	19.9			
1520-96-3	Perylene-d12	147448	22.98			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002567.D	1	12/21/11	12/31/11	PB60071

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.48	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.48	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.48	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.48	4	ug/Kg
86-73-7	Fluorene	2	U	0.48	4	ug/Kg
85-01-8	Phenanthrene	2.4	J	0.48	4	ug/Kg
120-12-7	Anthracene	2	U	0.48	4	ug/Kg
206-44-0	Fluoranthene	4.4		0.48	4	ug/Kg
129-00-0	Pyrene	3.2	J	0.48	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.48	4	ug/Kg
218-01-9	Chrysene	2	U	0.48	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.4	J	0.48	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.48	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.48	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.48	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.48	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.48	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.1		30 - 150	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	46.3		45 - 105	46%	SPK: 100
1718-51-0	Terphenyl-d14	46.4		30 - 125	46%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	62706	7.93			
1146-65-2	Naphthalene-d8	220727	10.1			
15067-26-2	Acenaphthene-d10	135733	13.08			
1517-22-2	Phenanthrene-d10	229492	15.53			
1719-03-5	Chrysene-d12	239582	19.9			
1520-96-3	Perylene-d12	224186	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	12 Decanted:
Sample Wt/Vol:	10.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007311.D	1	12/21/11	01/04/12	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	2.9	U	0.44	5.8	ug/Kg
319-85-7	beta-BHC	2.9	U	0.61	5.8	ug/Kg
319-86-8	delta-BHC	2.9	U	0.34	5.8	ug/Kg
58-89-9	gamma-BHC	2.9	U	0.51	5.8	ug/Kg
76-44-8	Heptachlor	2.9	U	0.48	5.8	ug/Kg
309-00-2	Aldrin	2.9	U	0.34	5.8	ug/Kg
1024-57-3	Heptachlor epoxide	2.9	U	0.54	5.8	ug/Kg
959-98-8	Endosulfan I	2.9	U	0.51	5.8	ug/Kg
60-57-1	Dieldrin	2.9	U	0.44	5.8	ug/Kg
72-55-9	4,4-DDE	2.9	U	0.68	5.8	ug/Kg
72-20-8	Endrin	2.9	U	0.61	5.8	ug/Kg
33213-65-9	Endosulfan II	2.9	U	0.48	5.8	ug/Kg
72-54-8	4,4-DDD	2.9	U	0.58	5.8	ug/Kg
1031-07-8	Endosulfan Sulfate	2.9	U	0.51	5.8	ug/Kg
50-29-3	4,4-DDT	2.9	U	0.48	5.8	ug/Kg
72-43-5	Methoxychlor	2.9	U	0.58	5.8	ug/Kg
53494-70-5	Endrin ketone	2.9	U	0.44	5.8	ug/Kg
7421-93-4	Endrin aldehyde	2.9	U	0.51	5.8	ug/Kg
5103-71-9	alpha-Chlordane	2.9	U	0.48	5.8	ug/Kg
5103-74-2	gamma-Chlordane	2.9	U	0.44	5.8	ug/Kg
8001-35-2	Toxaphene	29	U	33	58	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	4.58	*	55 - 130	23%	SPK: 20
877-09-8	Tetrachloro-m-xylene	6.53	*	70 - 125	33%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01RE	SDG No.:	C5056
Lab Sample ID:	C5056-05RE	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	12 Decanted:
Sample Wt/Vol:	10.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007346.D	1	12/21/11	01/05/12	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	2.9	U	0.44	5.8	ug/Kg
319-85-7	beta-BHC	2.9	U	0.61	5.8	ug/Kg
319-86-8	delta-BHC	2.9	U	0.34	5.8	ug/Kg
58-89-9	gamma-BHC	2.9	U	0.51	5.8	ug/Kg
76-44-8	Heptachlor	2.9	U	0.48	5.8	ug/Kg
309-00-2	Aldrin	2.9	U	0.34	5.8	ug/Kg
1024-57-3	Heptachlor epoxide	2.9	U	0.54	5.8	ug/Kg
959-98-8	Endosulfan I	2.9	U	0.51	5.8	ug/Kg
60-57-1	Dieldrin	2.9	U	0.44	5.8	ug/Kg
72-55-9	4,4-DDE	2.9	U	0.68	5.8	ug/Kg
72-20-8	Endrin	2.9	U	0.61	5.8	ug/Kg
33213-65-9	Endosulfan II	2.9	U	0.48	5.8	ug/Kg
72-54-8	4,4-DDD	2.9	U	0.58	5.8	ug/Kg
1031-07-8	Endosulfan Sulfate	2.9	U	0.51	5.8	ug/Kg
50-29-3	4,4-DDT	2.9	U	0.48	5.8	ug/Kg
72-43-5	Methoxychlor	2.9	U	0.58	5.8	ug/Kg
53494-70-5	Endrin ketone	2.9	U	0.44	5.8	ug/Kg
7421-93-4	Endrin aldehyde	2.9	U	0.51	5.8	ug/Kg
5103-71-9	alpha-Chlordane	2.9	U	0.48	5.8	ug/Kg
5103-74-2	gamma-Chlordane	2.9	U	0.44	5.8	ug/Kg
8001-35-2	Toxaphene	29	U	33	58	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	3.99	*	55 - 130	20%	SPK: 20
877-09-8	Tetrachloro-m-xylene	8.13	*	70 - 125	41%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007309.D	1	12/21/11	01/04/12	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.7		55 - 130	74%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.9		70 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007308.D	1	12/21/11	01/04/12	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.8		55 - 130	84%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.4		70 - 125	102%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	13 Decanted:
Sample Wt/Vol:	10.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007310.D	1	12/21/11	01/04/12	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	2.9	U	0.45	5.8	ug/Kg
319-85-7	beta-BHC	2.9	U	0.62	5.8	ug/Kg
319-86-8	delta-BHC	2.9	U	0.34	5.8	ug/Kg
58-89-9	gamma-BHC	2.9	U	0.51	5.8	ug/Kg
76-44-8	Heptachlor	2.9	U	0.48	5.8	ug/Kg
309-00-2	Aldrin	2.9	U	0.34	5.8	ug/Kg
1024-57-3	Heptachlor epoxide	2.9	U	0.55	5.8	ug/Kg
959-98-8	Endosulfan I	2.9	U	0.51	5.8	ug/Kg
60-57-1	Dieldrin	2.9	U	0.45	5.8	ug/Kg
72-55-9	4,4-DDE	2.9	U	0.69	5.8	ug/Kg
72-20-8	Endrin	2.9	U	0.62	5.8	ug/Kg
33213-65-9	Endosulfan II	2.9	U	0.48	5.8	ug/Kg
72-54-8	4,4-DDD	2.9	U	0.58	5.8	ug/Kg
1031-07-8	Endosulfan Sulfate	2.9	U	0.51	5.8	ug/Kg
50-29-3	4,4-DDT	2.9	U	0.48	5.8	ug/Kg
72-43-5	Methoxychlor	2.9	U	0.58	5.8	ug/Kg
53494-70-5	Endrin ketone	2.9	U	0.45	5.8	ug/Kg
7421-93-4	Endrin aldehyde	2.9	U	0.51	5.8	ug/Kg
5103-71-9	alpha-Chlordane	2.9	U	0.48	5.8	ug/Kg
5103-74-2	gamma-Chlordane	2.9	U	0.45	5.8	ug/Kg
8001-35-2	Toxaphene	29	U	34	58	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	5.05	*	55 - 130	25%	SPK: 20
877-09-8	Tetrachloro-m-xylene	7.7	*	70 - 125	39%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03RE	SDG No.:	C5056
Lab Sample ID:	C5056-03RE	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	13 Decanted:
Sample Wt/Vol:	10.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007345.D	1	12/21/11	01/05/12	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	2.9	U	0.45	5.8	ug/Kg
319-85-7	beta-BHC	2.9	U	0.62	5.8	ug/Kg
319-86-8	delta-BHC	2.9	U	0.34	5.8	ug/Kg
58-89-9	gamma-BHC	2.9	U	0.51	5.8	ug/Kg
76-44-8	Heptachlor	2.9	U	0.48	5.8	ug/Kg
309-00-2	Aldrin	2.9	U	0.34	5.8	ug/Kg
1024-57-3	Heptachlor epoxide	2.9	U	0.55	5.8	ug/Kg
959-98-8	Endosulfan I	2.9	U	0.51	5.8	ug/Kg
60-57-1	Dieldrin	2.9	U	0.45	5.8	ug/Kg
72-55-9	4,4-DDE	2.9	U	0.69	5.8	ug/Kg
72-20-8	Endrin	2.9	U	0.62	5.8	ug/Kg
33213-65-9	Endosulfan II	2.9	U	0.48	5.8	ug/Kg
72-54-8	4,4-DDD	2.9	U	0.58	5.8	ug/Kg
1031-07-8	Endosulfan Sulfate	2.9	U	0.51	5.8	ug/Kg
50-29-3	4,4-DDT	2.9	U	0.48	5.8	ug/Kg
72-43-5	Methoxychlor	2.9	U	0.58	5.8	ug/Kg
53494-70-5	Endrin ketone	2.9	U	0.45	5.8	ug/Kg
7421-93-4	Endrin aldehyde	2.9	U	0.51	5.8	ug/Kg
5103-71-9	alpha-Chlordane	2.9	U	0.48	5.8	ug/Kg
5103-74-2	gamma-Chlordane	2.9	U	0.45	5.8	ug/Kg
8001-35-2	Toxaphene	29	U	34	58	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	4.53	*	55 - 130	23%	SPK: 20
877-09-8	Tetrachloro-m-xylene	9.09	*	70 - 125	45%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	17.5 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003579.D	1	12/21/11	12/29/11	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.1		55 - 130	100%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.1		70 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	12 Decanted:
Sample Wt/Vol:	10.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006267.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	29	U	12	58	ug/Kg
11104-28-2	Aroclor-1221	29	U	12	58	ug/Kg
11141-16-5	Aroclor-1232	29	U	25	58	ug/Kg
53469-21-9	Aroclor-1242	29	U	12	58	ug/Kg
12672-29-6	Aroclor-1248	29	U	22	58	ug/Kg
11097-69-1	Aroclor-1254	29	U	5	58	ug/Kg
11096-82-5	Aroclor-1260	29	U	14	58	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	12.4		10 - 166	62%	SPK: 20
2051-24-3	Decachlorobiphenyl	13.4		60 - 125	67%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006264.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.9		10 - 166	60%	SPK: 20
2051-24-3	Decachlorobiphenyl	10.9	*	60 - 125	54%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006263.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.6		10 - 166	68%	SPK: 20
2051-24-3	Decachlorobiphenyl	13.2		60 - 125	66%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02 RE	SDG No.:	C5056
Lab Sample ID:	C5056-02RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006327.D	1	12/22/11	12/28/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	10.1		10 - 166	50%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.6	*	60 - 125	58%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	13 Decanted:
Sample Wt/Vol:	10.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006265.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	29	U	12	58	ug/Kg
11104-28-2	Aroclor-1221	29	U	12	58	ug/Kg
11141-16-5	Aroclor-1232	29	U	26	58	ug/Kg
53469-21-9	Aroclor-1242	29	U	12	58	ug/Kg
12672-29-6	Aroclor-1248	29	U	23	58	ug/Kg
11097-69-1	Aroclor-1254	29	U	5.1	58	ug/Kg
11096-82-5	Aroclor-1260	29	U	14	58	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.5		10 - 166	67%	SPK: 20
2051-24-3	Decachlorobiphenyl	14.6		60 - 125	73%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006266.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.5		10 - 166	97%	SPK: 20
2051-24-3	Decachlorobiphenyl	14		60 - 125	70%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Appendix C

Support Documentation

NASJRB WILLOW GROVE
SOIL DATA
C5056

FRACTION	CHEMICAL	12TP16-0608-03	UNITS	12TP-DUP-01	RPD	D
OS	2-METHYLNAPHTHALENE	590	UG/KG	400	38.38	190.00
OS	ANTHRACENE	180	UG/KG	140	25.00	40.00
OS	BENZO(A)ANTHRACENE	550	UG/KG	450	20.00	100.00
OS	BENZO(A)PYRENE	490	UG/KG	440	10.75	50.00
OS	BENZO(B)FLUORANTHENE	1300	UG/KG	1100	16.67	200.00
OS	BENZO(G,H,I)PERYLENE	530 J	UG/KG	420 J	23.16	110.00
OS	BENZO(K)FLUORANTHENE	380	UG/KG	280	30.30	100.00
OS	CHRYSENE	1100	UG/KG	810	30.37	290.00
OS	FLUORANTHENE	2500	UG/KG	1900	27.27	600.00
OS	INDENO(1,2,3-CD)PYRENE	340	UG/KG	320	6.06	20.00
OS	PYRENE	2100	UG/KG	1600	27.03	500.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5056

FRACTION	CHEMICAL	12TP16-0608-03	UNITS	12TP-DUP-01	RPD	D
OV	2-BUTANONE	38	UG/KG	28 J	30.30	10.00
OV	ACETONE	160	UG/KG	110 J	37.04	50.00
OV	BENZENE	4 J	UG/KG	3.4 J	16.22	0.60
OV	CARBON DISULFIDE	8.1 J	UG/KG	ND	200.00	8.10
OV	ISOPROPYLBENZENE	11 J	UG/KG	9.2 J	17.82	1.80
OV	M+P-XYLENES	3.6 J	UG/KG	2.5 J	36.07	1.10
OV	TOLUENE	4.6 J	UG/KG	ND	200.00	4.60
OV	TOTAL XYLENES	3.6 J	UG/KG	ND	200.00	3.60

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5056

FRACTION	CHEMICAL	12TP16-0608-03GR2	UNITS	12TP-DUP-01GR2	RPD	D
OS	PHENANTHRENE	700	UG/KG	560	22.22	140.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SDG C5056

SAMPLE IDENTIFICATION	12TP-DUP-01
COMPOUND	ISOPROPYLBENZENE
COMPOUND AREA	28910
INTERNAL STANDARD AMOUNT (ng)	250
DILUTION FACTOR	1
INTERNAL STANDARD AREA	58083
AVERAGE RRF	3.047
% SOLIDS	0.88
WEIGHT OF SAMPLE (g)	5.07
ng to µg	1000
g to Kg	1000

CONCENTRATION = 9.2 µg/Kg

28910 x 250ng x 1µg x 1000g/(58083 x 3.047 x 5.07g x 0.88 x 1000ng)

Quantitation Report (QT/LSC Reviewed)

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122711\
Data File : VF030365.D
Acq On : 27 Dec 2011 18:12
Operator : MS
Sample : C5056-05 12TP-DUP-01
Misc : 5.07g/5mL,MSVOA_F
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 28 10:03:54 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Pentafluorobenzene	4.41	168	97184	50.00	ug/l		0.02
33) 1,4-Difluorobenzene	5.15	114	198628	50.00	ug/l		0.02
62) Chlorobenzene-d5	9.34	117	149423	50.00	ug/l		0.00
71) 1,4-Dichlorobenzene-d4	12.26	152	58083	50.00	ug/l		0.02
System Monitoring Compounds							
32) 1,2-Dichloroethane-d4	4.37	65	88003	54.89	ug/l		0.02
Spiked Amount 50.000			Recovery = 109.78%				
34) Dibromofluoromethane	3.65	113	83514	51.12	ug/l		0.02
Spiked Amount 50.000			Recovery = 102.24%				
49) Toluene-d8	7.13	98	182571	41.06	ug/l		0.02
Spiked Amount 50.000			Recovery = 82.12%				
61) 4-Bromofluorobenzene	11.08	95	110200	52.12	ug/l		0.02
Spiked Amount 50.000			Recovery = 104.24%				
Target Compounds							Qvalue
16) Acetone	1.98	43	73418	100.38	ug/l		97
25) 2-Butanone	3.86	43	33646	24.97	ug/l		92
38) Methylcyclohexane	5.02	83	21756	9.98	ug/l		91
39) Benzene	4.17	78	16631	3.03	ug/l	#	94
67) m/p-Xylenes	9.72	106	4243	2.25	ug/l	#	63
72) Isopropylbenzene	10.78	105	28910	8.17	ug/l		95
77) n-propylbenzene	11.27	91	39967	9.32	ug/l		98
79) 1,3,5-Trimethylbenzene	11.52	105	14714	5.10	ug/l		97
82) tert-Butylbenzene	11.84	119	13506	5.30	ug/l		97
83) 1,2,4-Trimethylbenzene	11.90	105	10960	3.67	ug/l		89
84) sec-Butylbenzene	12.01	105	34652	8.63	ug/l	#	77
88) n-Butylbenzene	12.55	91	30761	9.13	ug/l	#	65

(#) = qualifier out of range (m) = manual integration (+) = signals summed

% solids = 88%

$\overline{RRF} = 3.047$

NASJRB WILLOW GROVE
SDG C5056

SAMPLE IDENTIFICATION	12TP16-0608-03
COMPOUND	FLUORANTHENE
COMPOUND AREA	794355
INTERNAL STANDARD AMOUNT (ng)	5
DILUTION FACTOR	5
INTERNAL STANDARD AREA	210702
AVERAGE RRF	4.39
% SOLIDS	0.87
WEIGHT OF SAMPLE (g)	10.05
VOLUME EXTRACT (µl)	1000
VOLUME INJECTED (µl)	1
ng to µg	1000
g to Kg	1000

CONCENTRATION = 2455.48 µg/Kg

794355 x 5ng x 5 x 1000µl 1µg x 1000g/(210702 x 4.39 x 10.05g x 1µl x 0.87 x 1000ng x 1Kg)

Quantitation Report (QT Reviewed)

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG123111\
Data File : BG002591.D
Acq On : 1 Jan 2012 7:49
Operator : HNP
Sample : C5056-03 5X 12TP16-0608-03
Misc : PAH FIRST RUN
ALS Vial : 53 Sample Multiplier: 1

Quant Time: Jan 03 15:54:10 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Dec 28 18:33:42 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.93	152	60376m	5.00	ng	-0.04
2) Naphthalene-d8	10.10	136	207759m	5.00	ng	-0.05
7) Acenaphthene-d10	13.08	164	131904m	5.00	ng	-0.03
12) Phenanthrene-d10	15.53	188	210702m	5.00	ng	-0.05
16) Chrysene-d12	19.90	240	220628m	5.00	ng	-0.06
23) Perylene-d12	22.98	264	147448m	5.00	ng	-0.25
System Monitoring Compounds						
3) Nitrobenzene-d5	8.86	82	306011m	18.16	ng	-0.04
8) 2-Fluorobiphenyl	11.96	172	486824m	12.51	ng	-0.02
18) Terphenyl-d14	18.16	244	451736m	13.14	ng	-0.04
Target Compounds						Qvalue
5) 2-Methylnapthalene	11.32	142	123103m	1.03	ng	
6) 1-Methylnapthalene	11.49	142	163492m	1.44	ng	
13) Phenanthrene	15.57	178	221173m	1.23	ng	
14) Anthracene	15.65	178	56630m	0.32	ng	
→ 15) Fluoranthene	17.54	202	794355m	4.29	ng	
17) Pyrene	17.91	202	771648m	3.67	ng	
20) Benzo(a)anthracene	19.88	228	199465m	0.97	ng	
21) Chrysene	19.95	228	358204m	1.84	ng	
22) Indeno(1,2,3-cd)pyrene	26.52	276	108369m	0.60	ng	
24) Benzo(b)fluoranthene	22.00	252	726659m	2.30	ng	
25) Benzo(k)fluoranthene	22.06	252	209732m	0.67	ng	
26) Benzo(a)pyrene	22.82	252	253156m	0.85	ng	
28) Benzo(g,h,i)perylene	27.63	276	107114m	0.92	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

DF = 5X

RRF = 4.39

% solids ~ 87%

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60071**

Analytical Method: 8270D-Mod **Extraction Date:** 12/21/2011-10:31 **Concentration Date:** 12/21/11

Lab Sample ID	Client Sample ID	Test	@/ mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60071BL	PB60071BL	SVOCMS Group2	30.03	NA				
PB60071BS	PB60071BS	SVOCMS Group2	30.02					
C5056-01	12TP16-000.5-01	SVOCMS Group2	30.05					YELLOW EXT
C5056-01MS	12TP16-000.5-01MS	SVOCMS Group2	30.11					
C5056-01MSD	12TP16-000.5-01MSD	SVOCMS Group2	30.07					
C5056-02	12TP16-0.0502-02	SVOCMS Group2	30.07					
C5056-03	12TP16-0608-03	SVOCMS Group2	10.05					SAMPLE WAS DARK BROWN
C5056-04	12TP16-0910-04	SVOCMS Group2	30.06					YELLOW
C5056-05	12TP-DUP-01	SVOCMS Group2	10.04					SAMPLE WAS DARK BROWN

12/21/11

12/21

* Extracts relinquished on the same date as received.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5056
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
12 Solid samples were received on 12/20/2011.
1 Water sample was received on 12/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dioxin, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analyses for Volatile Organics were performed on instrument MSVOA_ T using GC column RTX-624 which is 30 meters, 0.25 mm id, 1.4 um df, Restek Cat. #872456. The Trap was supplied by OI Analytical, OI #10 Trap , OI 4560 Concentrator
The analysis performed on instrument MSVOA_F were done using GC column RTX-624 which is 20 meters, 0.25mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP16-0608-03 [Toluene-d8 - 84%], 12TP16-0608-03RE [4-Bromofluorobenzene - 140%, Toluene-d8 - 76%], 12TP-DUP-01 [Toluene-d8 - 82%], 12TP-DUP-01RE [Toluene-d8 - 77%], AG-1MS [4-Bromofluorobenzene - 83%] and AG-1MSD [4-Bromofluorobenzene - 80%].
The Internal Standards Areas met the acceptable requirements except for 12TP16-0608-03RE and 12TP-DUP-01.
The Retention Times were acceptable for all samples.
The MS {C5151-01MS} with File ID: VT002231.D recoveries met the requirements for all compounds except for 1,1,2,2-Tetrachloroethane[136%], 1,1,2-Trichloroethane[129%], 1,2-Dibromo-3-Chloropropane[145%], 1,2-Dibromoethane[129%], 1,2-Dichloropropane[121%], 1,4-Dioxane[138%], Chloroform[126%], cis-1,2-Dichloroethene[126%], Dibromochloromethane[131%], Methyl tert-butyl Ether[147%] and t-1,3-Dichloropropene[129%] .

The MSD {C5151-01MSD} with File ID: VT002232.D recoveries met the acceptable requirements except for 1,1,2,2-Tetrachloroethane[143%], 1,1,2-Trichloroethane[129%], 1,1-Dichloroethane[131%], 1,2-Dibromo-3-Chloropropane[150%], 1,2-Dibromoethane[129%], 1,2-Dichlorobenzene[121%], 1,2-Dichloropropane[122%], Chloroform[131%], cis-1,2-Dichloroethene[131%], cis-1,3-Dichloropropene[129%], Dibromochloromethane[133%] and t-1,3-Dichloropropene[133%] .
The RPD recoveries met criteria .
The Blank Spike for {BSF1225S1} with File ID: VF030337.D met requirements for all samples except for 1,1-Dichloroethane[130%] .
The Blank Spike for {BSF1227S1} with File ID: VF030357.D met requirements for all samples except for 1,4-Dioxane[65%] .
The Blank Spike for { BSG1221W2} with File ID: VF030357.D met requirements for all samples except for 1,4-Dioxane[135%] .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Chloroethane in the initial calibration dated 12/21/2011with instrument F is above 15 % but less than 20 %. however in this case they were left on average response factor and the samples have no hit for this compound.
The Initial Calibration Verification File ID : { VT002069.D } met the requirements except 1,2,3-Trichlorobenzene & 1,4-Dioxane .
The Continuous Calibration File ID VF030355.D met the requirements except for Vinyl Chloride,1,4-Dioxane and Carbon Disulfide .The Continuous Calibration File ID VF030335.D met the requirements except for Methyl Acetate, Methylene Chloride,1,2-Dichloroethane-d4,Dibromofluoromethane, Acetone, Toluene-d8,4-Bromofluorobenzene, and 2-Butanone .The Continuous Calibration File ID VG039752.D met the requirements except for Bromomethane, Chloroethane, Methyl Acetate, 2-Butanone, Cyclohexane and Acetone but they were not detected in any samples.
The Continuous Calibration File ID VT002214.D met the requirements except for 1,1-Dichloroethene and Bromomethane but they were not detected in any samples.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.02.29 16:25:15 -05'00'

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value. This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5056
QUOTE NO.
COC Number 021258

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: C70 WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC Encore
2 TCL SVOC/PAH SIM
3 Pest/PCB
4 Metals, Hg, Cn, pH
5 ORP
6 pH, ORP
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12TP16-0005-01	Soil		✓	12/19/11	0915	7	3	1	1	1	1					
2.	12TP16-0520-02	Soil		✓	12/19/11	0935	7	3	1	1	1	1					
3.	12TP16-0608-03	Soil		✓	12/19/11	1020	7	3	1	1	1	1					
4.	12TP16-0910-04	Soil		✓	12/19/11	1210	7	3	1	1	1	1					
5.	12TP-DUP-01	Soil		✓	12/19/11	1200	7	3	1	1	1	1					
6.	12TP03-0506-CS	Soil		✓	12/19/11	1405	1						1				
7.	12TP02-0405-CS	Soil		✓	12/19/11	1415	1						1				
8.	12TP14-0405-CS	Soil		✓	12/19/11	1515	1						1				
9.	12TP15-0304-CS	Soil		✓	12/19/11	1535	1						1				
10.	12TP09-0304-CS	Soil		✓	12/19/11	1550	1						1				

PRESERVATIVES: ← Specify Preservatives
A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/19/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	12/20/11 9:05	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant Cooler Temp. 3°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments: Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

Shipped Via Federal Express Airbill NO 8744 5464 0110

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5056
QUOTE NO.
COC Number 021260

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 pH 2 TCL VOC 40 ml VOA Vial HCl 3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12TP10-0405-CS	soil		✓	12/19/11	1610	1	1									
2.	12TP08-0304-CS	soil		✓	12/19/11	1635	1	1									
3.	TB-01-121911	AQ		✓	12/19/11	0800	2		2								
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/19/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	12/20/11 9:05	3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant · Cooler Temp. 3°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments: Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

Shipped Via Federal Express Airbill NO 8744 5964 0110

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF1225S1	BSF1225S1	1,2-Dichloroethane-d4	50	54.73	109		55	158
		Dibromofluoromethane	50	56.15	112		53	156
		Toluene-d8	50	55.35	111		85	115
		4-Bromofluorobenzene	50	54.11	108		85	120
BSF1227S1	BSF1227S1	1,2-Dichloroethane-d4	50	50.96	102		55	158
		Dibromofluoromethane	50	55.35	111		53	156
		Toluene-d8	50	56.26	113		85	115
		4-Bromofluorobenzene	50	52.34	105		85	120
BSG1221W1	BSG1221W1	1,2-Dichloroethane-d4	50	50.88	102		70	120
		Dibromofluoromethane	50	44.74	89		85	115
		Toluene-d8	50	45.24	90		85	120
		4-Bromofluorobenzene	50	48.59	97		75	120
BSG1221W2	BSG1221W2	1,2-Dichloroethane-d4	50	52.49	105		70	120
		Dibromofluoromethane	50	46.24	92		85	115
		Toluene-d8	50	47.24	94		85	120
		4-Bromofluorobenzene	50	50.73	101		75	120
BST1230S3	BST1230S3	1,2-Dichloroethane-d4	50	47.71	95		55	158
		Dibromofluoromethane	50	50.41	101		53	156
		Toluene-d8	50	52.35	105		85	115
		4-Bromofluorobenzene	50	43.99	88		85	120
C5056-01	12TP16-000.5-01	1,2-Dichloroethane-d4	50	44.37	89		55	158
		Dibromofluoromethane	50	46.56	93		53	156
		Toluene-d8	50	49.63	99		85	115
		4-Bromofluorobenzene	50	43.51	87		85	120
C5056-02	12TP16-0.502-02	1,2-Dichloroethane-d4	50	44.04	88		55	158
		Dibromofluoromethane	50	48.26	97		53	156
		Toluene-d8	50	50.39	101		85	115
		4-Bromofluorobenzene	50	49.6	99		85	120
C5056-03	12TP16-0608-03	1,2-Dichloroethane-d4	50	52.96	106		55	158
		Dibromofluoromethane	50	48.06	96		53	156
		Toluene-d8	50	41.93	84	*	85	115
		4-Bromofluorobenzene	50	54.34	109		85	120
C5056-03RE	12TP16-0608-03RE	1,2-Dichloroethane-d4	50	44.42	89		55	158
		Dibromofluoromethane	50	44.39	89		53	156
		Toluene-d8	50	37.92	76	*	85	115
		4-Bromofluorobenzene	50	69.9	140	*	85	120
C5056-04	12TP16-0910-04	1,2-Dichloroethane-d4	50	45.5	91		55	158
		Dibromofluoromethane	50	48.61	97		53	156
		Toluene-d8	50	50.46	101		85	115
		4-Bromofluorobenzene	50	50.81	102		85	120
C5056-05	12TP-DUP-01	1,2-Dichloroethane-d4	50	54.89	110		55	158
		Dibromofluoromethane	50	51.12	102		53	156
		Toluene-d8	50	41.06	82	*	85	115
		4-Bromofluorobenzene	50	52.12	104		85	120
C5056-05RE	12TP-DUP-01RE	1,2-Dichloroethane-d4	50	44.31	89		55	158
		Dibromofluoromethane	50	42.62	85		53	156
		Toluene-d8	50	38.35	77	*	85	115
		4-Bromofluorobenzene	50	49.83	100		85	120
C5056-13	TB-01-121911	1,2-Dichloroethane-d4	50	53.71	107		70	120
		Dibromofluoromethane	50	48.24	96		85	115
		Toluene-d8	50	47.69	95		85	120
		4-Bromofluorobenzene	50	50.24	100		75	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5151-01MS	AG-1MS	1,2-Dichloroethane-d4	50	54.81	110		55	158
		Dibromofluoromethane	50	49.74	99		53	156
		Toluene-d8	50	47.27	95		85	115
		4-Bromofluorobenzene	50	41.37	83	*	85	120
C5151-01MSD	AG-1MSD	1,2-Dichloroethane-d4	50	53.98	108		55	158
		Dibromofluoromethane	50	49.51	99		53	156
		Toluene-d8	50	47.08	94		85	115
		4-Bromofluorobenzene	50	40.08	80	*	85	120
VBF1225S1	VBF1225S1	1,2-Dichloroethane-d4	50	43.23	86		55	158
		Dibromofluoromethane	50	47.82	96		53	156
		Toluene-d8	50	50.12	100		85	115
		4-Bromofluorobenzene	50	52.52	105		85	120
VBF1227S1	VBF1227S1	1,2-Dichloroethane-d4	50	49.15	98		55	158
		Dibromofluoromethane	50	54.25	109		53	156
		Toluene-d8	50	55.32	111		85	115
		4-Bromofluorobenzene	50	49.42	99		85	120
VBG1221W1	VBG1221W1	1,2-Dichloroethane-d4	50	51.38	103		70	120
		Dibromofluoromethane	50	47.52	95		85	115
		Toluene-d8	50	47.66	95		85	120
		4-Bromofluorobenzene	50	52.1	104		75	120
VBT1230S2	VBT1230S2	1,2-Dichloroethane-d4	50	53.99	108		55	158
		Dibromofluoromethane	50	55.22	110		53	156
		Toluene-d8	50	57.04	114		85	115
		4-Bromofluorobenzene	50	44.77	90		85	120

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030335.D Date Analyzed: 12/25/2011

Instrument ID: MSVOA_F Time Analyzed: 15:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	117617	4.38	216334	5.12	211548	9.32
UPPER LIMIT	235234	4.88	432668	5.62	423096	9.82
LOWER LIMIT	58808.5	3.88	108167	4.62	105774	8.82
EPA SAMPLE NO.						
BSF1225S1	156516	4.38	274695	5.12	262257	9.32
12TP16-0.502-02	114180	4.39	207095	5.13	205569	9.34
12TP16-0910-04	114840	4.39	203922	5.14	205846	9.33
VBF1225S1	130758	4.38	238141	5.12	245851	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030335.D Date Analyzed: 12/25/2011

Instrument ID: MSVOA_F Time Analyzed: 15:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	116794	12.23				
UPPER LIMIT	233588	12.73				
LOWER LIMIT	58397	11.73				
EPA SAMPLE NO.						
BSF1225S1	144413	12.24				
12TP16-0.502-02	107644	12.24				
12TP16-0910-04	113217	12.25				
VBF1225S1	130272	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030355.D Date Analyzed: 12/27/2011

Instrument ID: MSVOA_F Time Analyzed: 12:35

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	158198	4.38	272828	5.12	254680	9.33
UPPER LIMIT	316396	4.88	545656	5.62	509360	9.83
LOWER LIMIT	79099	3.88	136414	4.62	127340	8.83
EPA SAMPLE NO.						
BSF1227S1	159266	4.39	268937	5.13	248341	9.33
12TP16-000.5-01	126331	4.40	239068	5.15	229368	9.35
12TP16-0608-03	93140	4.41	194284	5.15	144953	9.35
12TP-DUP-01	97184	4.41	198628	5.15	149423	9.34
VBF1227S1	166331	4.39	283773	5.13	261695	9.33

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030355.D Date Analyzed: 12/27/2011

Instrument ID: MSVOA_F Time Analyzed: 12:35

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	132650	12.24				
UPPER LIMIT	265300	12.74				
LOWER LIMIT	66325	11.74				
EPA SAMPLE NO.						
BSF1227S1	134685	12.25				
12TP16-000.5-01	97373	12.25				
12TP16-0608-03	76627	12.25				
12TP-DUP-01	58083 *	12.26				
VBF1227S1	133863	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VG039752.D Date Analyzed: 12/21/2011

Instrument ID: MSVOAG Time Analyzed: 13:48

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	658356	3.92	1221240	4.72	714725	9.69
UPPER LIMIT	1316712	4.42	2442480	5.22	1429450	10.19
LOWER LIMIT	329178	3.42	610620	4.22	357362.5	9.19
EPA SAMPLE NO.						
BSG1221W1	734111	3.91	1359744	4.71	736753	9.68
BSG1221W2	716294	3.90	1316284	4.71	732393	9.69
TB-01-121911	615355	3.91	1147227	4.71	624146	9.69
VBG1221W1	713188	3.90	1322131	4.71	729555	9.68

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VG039752.D Date Analyzed: 12/21/2011

Instrument ID: MSVOAG Time Analyzed: 13:48

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	349693	13.4				
UPPER LIMIT	699386	13.9				
LOWER LIMIT	174846.5	12.9				
EPA SAMPLE NO.						
BSG1221W1	377892	13.39				
BSG1221W2	357280	13.39				
TB-01-121911	283212	13.39				
VBG1221W1	330367	13.39				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VT002214.D Date Analyzed: 12/30/2011

Instrument ID: MSVOA_T Time Analyzed: 12:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	786109	8.04	1255827	8.95	762526	11.71
UPPER LIMIT	1572218	8.54	2511654	9.45	1525052	12.21
LOWER LIMIT	393054.5	7.54	627913.5	8.45	381263	11.21
EPA SAMPLE NO.						
BST1230S3	720510	8.05	1174896	8.95	731777	11.71
12TP16-0608-03RE	426699	8.05	712671	8.95	298739 *	11.71
12TP-DUP-01RE	647779	8.05	1117384	8.95	543725	11.71
AG-1MS	735150	8.05	1297957	8.95	774976	11.71
AG-1MSD	798189	8.05	1400172	8.95	830603	11.71
VBT1230S2	656015	8.05	1107225	8.95	632546	11.71

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VT002214.D Date Analyzed: 12/30/2011

Instrument ID: MSVOA_T Time Analyzed: 12:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	394567	13.62				
UPPER LIMIT	789134	14.12				
LOWER LIMIT	197283.5	13.12				
EPA SAMPLE NO.						
BST1230S3	348598	13.62				
12TP16-0608-03RE	198765	13.63				
12TP-DUP-01RE	278611	13.63				
AG-1MS	364234	13.62				
AG-1MSD	368763	13.63				
VBT1230S2	288390	13.63				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030228.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOA_F BFB Injection Time: 19:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	45
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.3 (0.5) 1
174	50.0 - 100.0% of mass 95	68.2
175	5.0 - 9.0% of mass 174	4.8 (7) 1
176	95.0 - 101.0% of mass 174	64.9 (95.2) 1
177	5.0 - 9.0% of mass 176	4.5 (7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB ICC	VF030230.D	12/21/2011	21:13
VSTD020	20 PPB ICC	VF030231.D	12/21/2011	21:44
VSTD010	10 PPB ICC	VF030232.D	12/21/2011	22:15
VSTD005	5 PPB ICC	VF030233.D	12/21/2011	22:46
VSTD075	75 PPB ICC	VF030234.D	12/21/2011	23:17
VSTD100	100 PPB ICC	VF030235.D	12/21/2011	23:48

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.853	0.726	0.699	0.677	0.651	0.767	0.729	10
Chloromethane	1.128	0.994	0.879	0.908	0.883	0.917	0.951	10.1
Vinyl Chloride	0.587	0.541	0.528	0.512	0.530	0.542	0.54	4.7
Bromomethane	0.414	0.370	0.279	0.287	0.291	0.333	0.329	16.4
Chloroethane	0.227	0.248	0.178	0.151	0.164	0.193	0.193	19.4
Trichlorofluoromethane	0.922	0.830	0.776	0.750	0.685	0.793	0.793	10.1
1,1,2-Trichlorotrifluor(	0.536	0.470	0.466	0.453	0.439	0.456	0.47	7.3
1,1-Dichloroethene	0.412	0.443	0.405	0.400	0.383	0.406	0.408	4.8
Acetone	0.504	0.324	0.352	0.326	0.296	0.522	0.388	25.5
Carbon Disulfide	1.209	1.124	1.057	1.045	1.048	1.070	1.092	5.9
Methyl tert-butyl Ether	1.803	1.676	1.511	1.556	1.470	1.531	1.591	7.9
Methyl Acetate	1.483	1.156	1.131	1.142	1.073	1.175	1.193	12.2
Methylene Chloride	0.558	0.489	0.431	0.469	0.458	0.504	0.485	9.1
trans-1,2-Dichloroethen(	0.444	0.418	0.374	0.379	0.375	0.394	0.397	7.1
1,1-Dichloroethane	0.974	0.855	0.795	0.841	0.802	0.893	0.86	7.7
Cyclohexane	1.051	1.062	0.922	0.964	0.906	1.041	0.991	7
2-Butanone	0.789	0.607	0.604	0.570	0.501	0.728	0.633	16.8
Carbon Tetrachloride	0.526	0.588	0.496	0.517	0.497	0.537	0.527	6.4
cis-1,2-Dichloroethene	0.996	0.874	0.778	0.828	0.791	0.896	0.861	9.4
Bromochloromethane	0.843	0.677	0.636	0.662	0.617	0.717	0.692	11.8
Chloroform	1.442	1.359	1.242	1.316	1.215	1.311	1.314	6.2
1,1,1-Trichloroethane	0.893	0.846	0.765	0.811	0.780	0.853	0.825	5.8
Methylcyclohexane	0.583	0.595	0.521	0.527	0.496	0.569	0.549	7.2
Benzene	1.524	1.520	1.249	1.336	1.253	1.416	1.383	9
1,2-Dichloroethane	0.596	0.631	0.574	0.594	0.546	0.614	0.592	5
Trichloroethene	0.660	0.638	0.548	0.549	0.499	0.592	0.581	10.5
1,2-Dichloropropane	0.446	0.459	0.394	0.411	0.380	0.445	0.422	7.6
Bromodichloromethane	0.614	0.649	0.562	0.602	0.553	0.590	0.595	5.9
4-Methyl-2-Pentanone	0.716	0.668	0.619	0.588	0.522	0.650	0.627	10.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

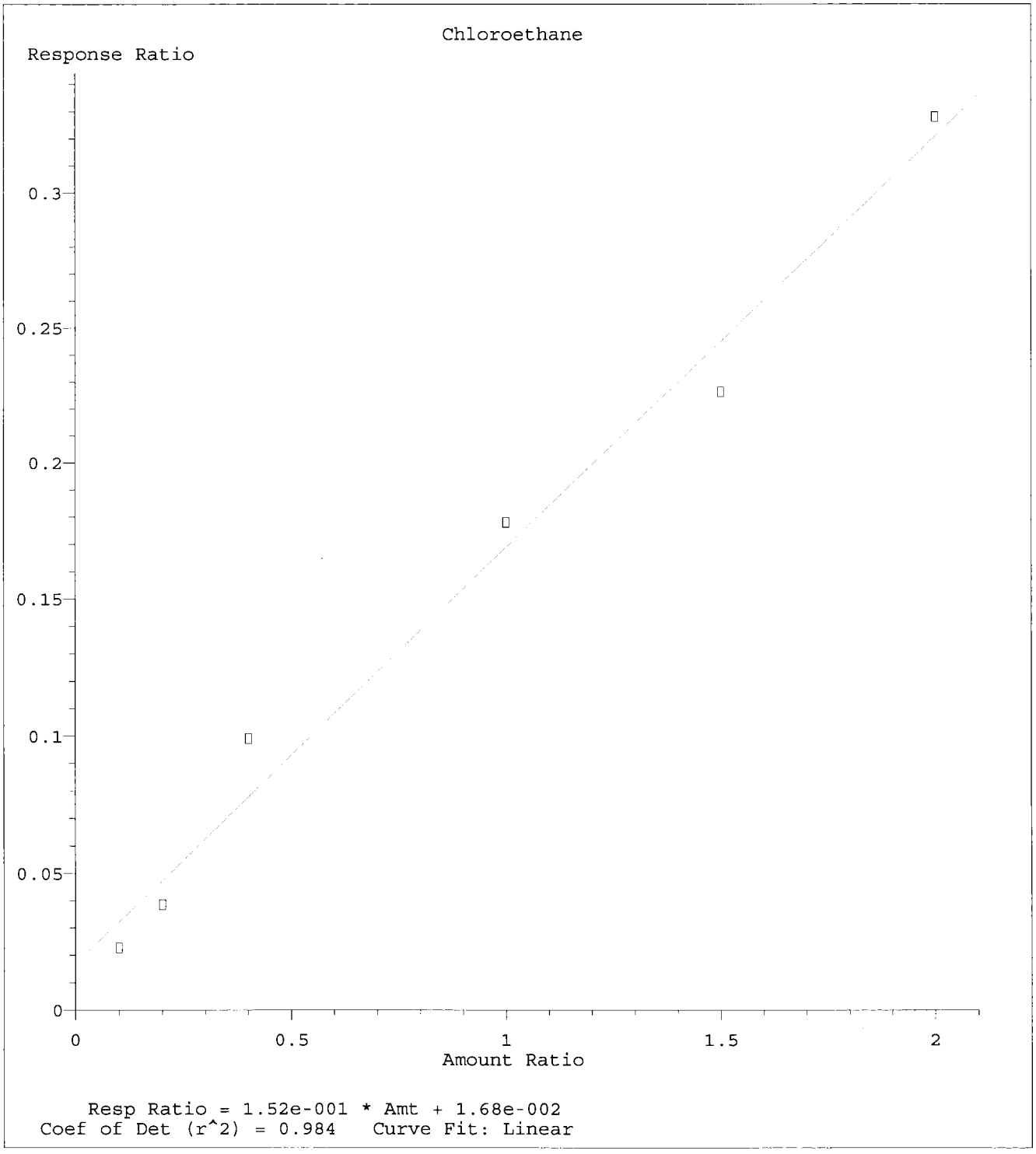
Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

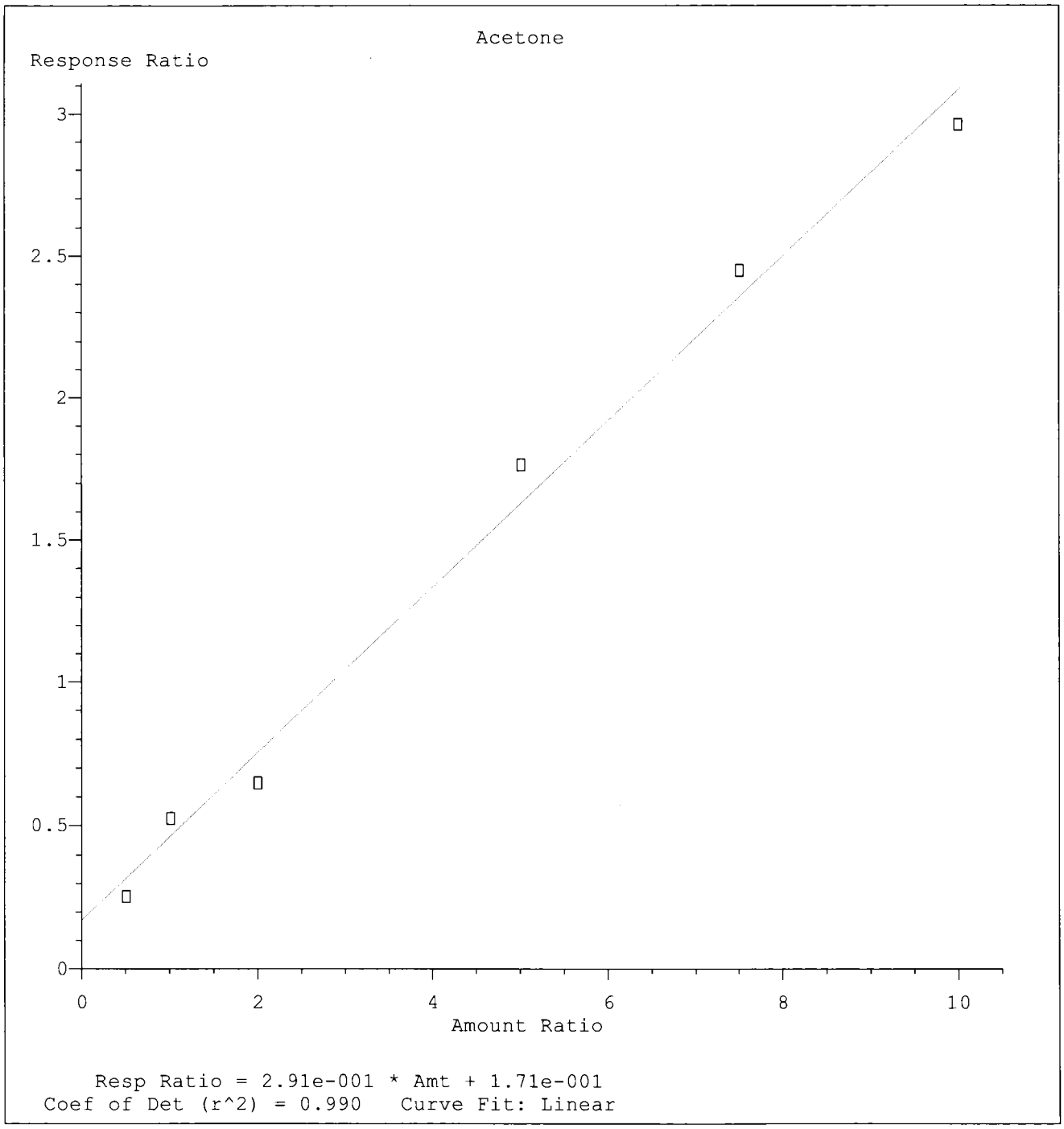
LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Toluene	0.933	1.010	0.838	0.853	0.812	0.866	0.885	8.3
t-1,3-Dichloropropene	0.739	0.753	0.647	0.689	0.625	0.700	0.692	7.2
cis-1,3-Dichloropropene	0.773	0.787	0.646	0.693	0.635	0.694	0.705	8.9
1,1,2-Trichloroethane	0.434	0.451	0.371	0.399	0.356	0.415	0.404	9
2-Hexanone	0.636	0.534	0.523	0.496	0.453	0.605	0.541	12.6
Dibromochloromethane	0.443	0.517	0.460	0.482	0.442	0.477	0.47	6
1,2-Dibromoethane	0.493	0.504	0.440	0.460	0.422	0.470	0.465	6.6
Tetrachloroethene	0.645	0.669	0.555	0.545	0.530	0.588	0.589	9.6
Chlorobenzene	1.132	1.180	0.999	1.033	0.989	1.155	1.081	7.8
Ethyl Benzene	1.728	1.960	1.614	1.661	1.614	1.767	1.724	7.6
m/p-Xylenes	0.642	0.712	0.601	0.617	0.588	0.632	0.632	6.9
o-Xylene	0.650	0.708	0.609	0.631	0.611	0.620	0.638	5.9
Styrene	1.092	1.189	1.020	1.068	1.026	1.111	1.084	5.8
Bromoform	0.290	0.361	0.347	0.352	0.339	0.332	0.337	7.4
Isopropylbenzene	3.040	3.264	2.916	3.039	2.926	3.098	3.047	4.2
1,1,2,2-Tetrachloroethai	0.413	0.411	0.392	0.405	0.385	0.371	0.396	4.2
1,3-Dichlorobenzene	1.765	1.758	1.486	1.601	1.518	1.777	1.651	8
1,4-Dichlorobenzene	1.684	1.839	1.574	1.636	1.567	1.742	1.674	6.3
1,2-Dichlorobenzene	1.751	1.783	1.505	1.610	1.531	1.765	1.657	7.5
1,2-Dibromo-3-Chloropro	0.208	0.191	0.187	0.179	0.166	0.158	0.181	9.9
1,2,4-Trichlorobenzene	1.272	1.266	1.092	1.144	1.064	1.217	1.176	7.6
1,2,3-Trichlorobenzene	1.167	1.210	1.000	1.109	1.004	1.194	1.114	8.4
1,2-Dichloroethane-d4	1.017	0.824	0.765	0.748	0.742	0.854	0.825	12.6
Dibromofluoromethane	0.458	0.454	0.383	0.392	0.371	0.410	0.411	9
Toluene-d8	1.166	1.259	1.049	1.083	1.035	1.124	1.119	7.5
4-Bromofluorobenzene	0.565	0.588	0.510	0.518	0.494	0.518	0.532	6.8
1,4-Dioxane	0.007	0.006	0.005	0.005	0.005	0.006	0.006	12.5

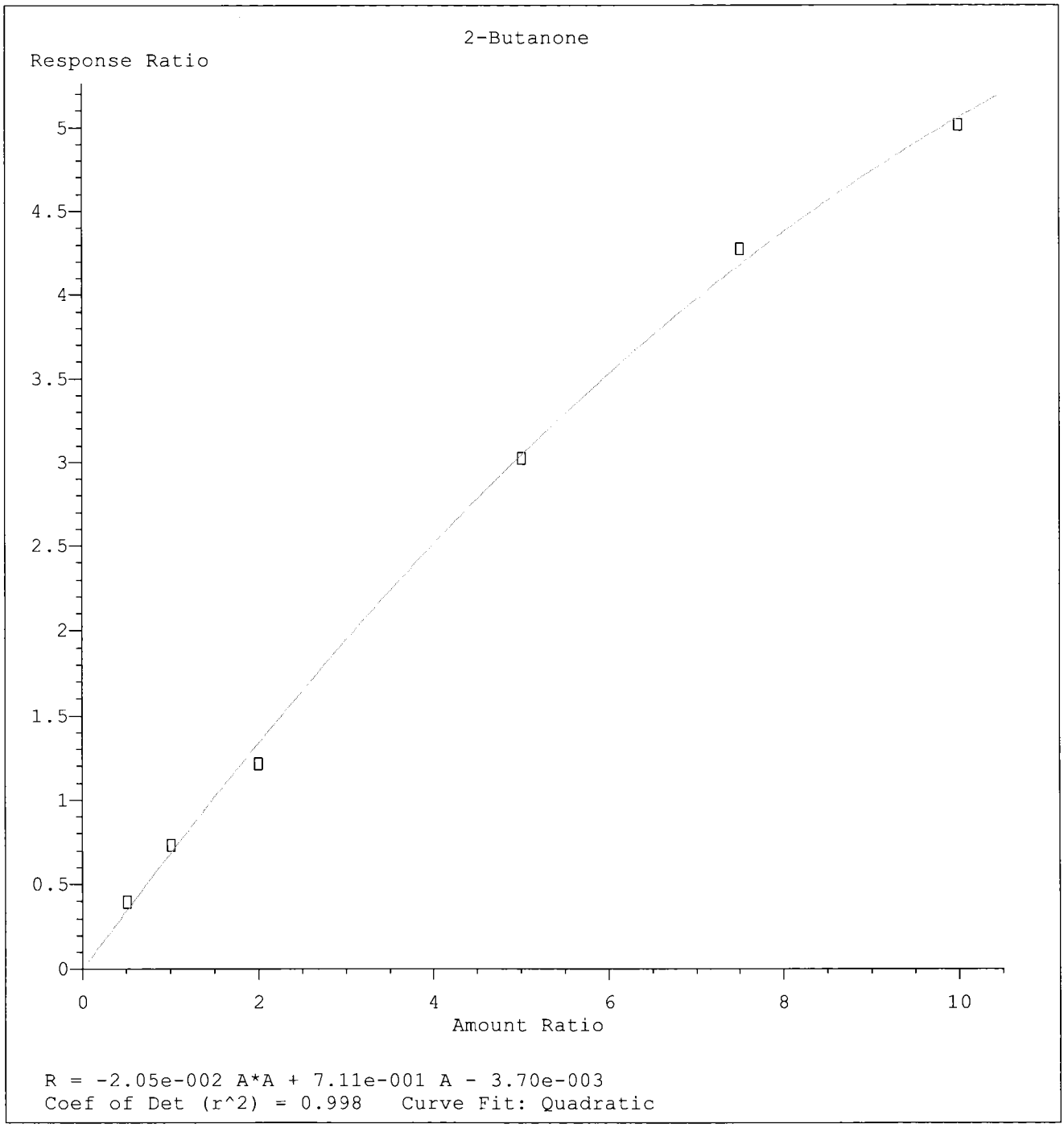
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



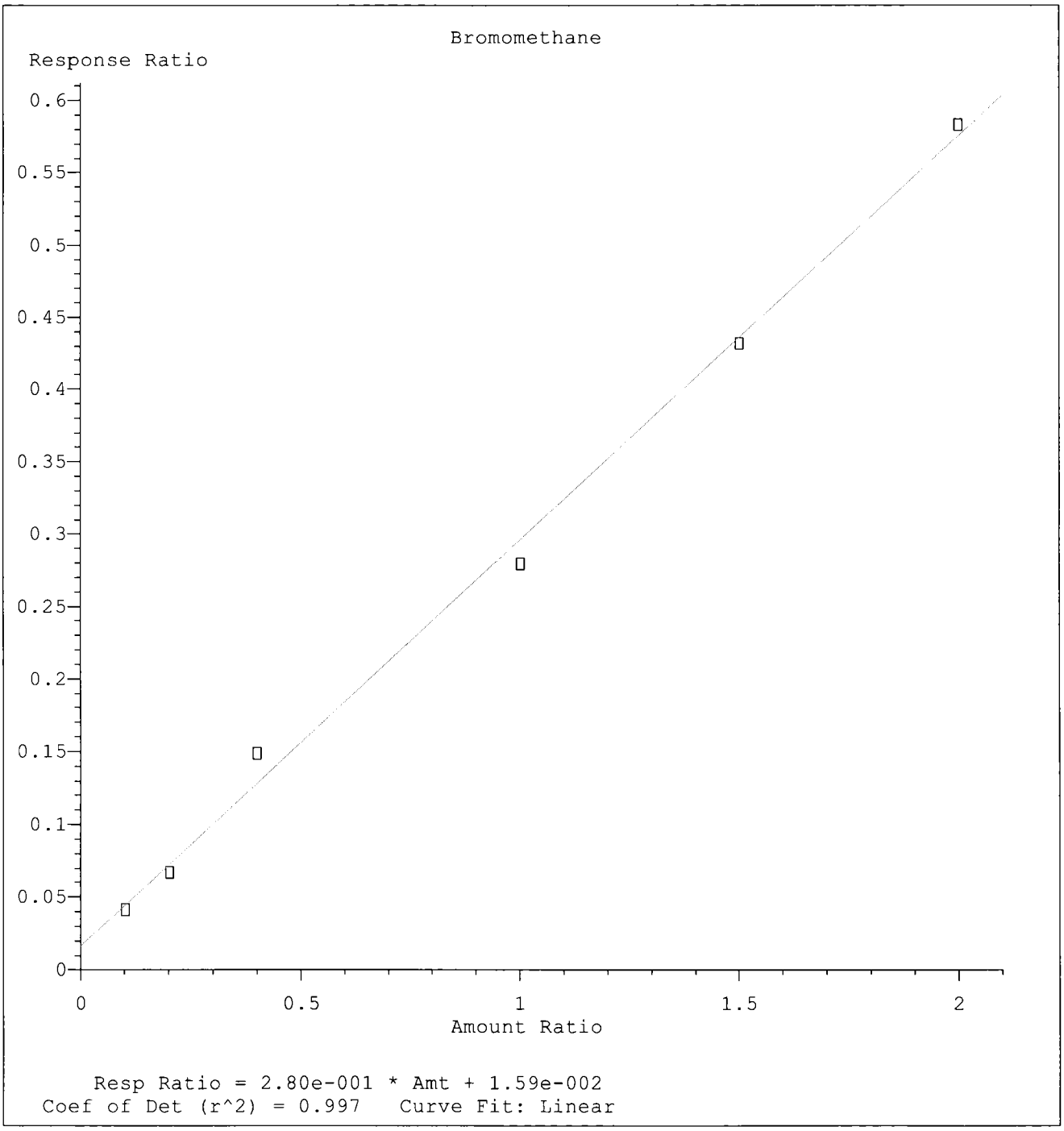
Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030333.D BFB Injection Date: 12/25/2011

Instrument ID: MSVOA_F BFB Injection Time: 13:32

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.2
75	30.0 - 60.0% of mass 95	50.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.7
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	72.5
175	5.0 - 9.0% of mass 174	4.7 (6.4) 1
176	95.0 - 101.0% of mass 174	70.2 (96.7) 1
177	5.0 - 9.0% of mass 176	5.3 (7.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030335.D	12/25/201	15:10
VBF1225S1	VBF1225S1	VF030336.D	12/25/201	15:54
BSF1225S1	BSF1225S1	VF030337.D	12/25/201	16:42
12TP16-0.502-02	C5056-02	VF030351.D	12/26/201	00:23
12TP16-0910-04	C5056-04	VF030352.D	12/26/201	00:54

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_F Calibration Date/Time: 12/25/2011 15:10

Lab File ID: VF030335.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.663		-9.05	
Chloromethane	0.951	0.948	0.1	-0.32	
Vinyl Chloride	0.54	0.616		14.07	20
Bromomethane	0.329	0.318		-3.34	
Chloroethane	0.193	0.188		-2.59	
Trichlorofluoromethane	0.793	0.742		-6.43	
1,1,2-Trichlorotrifluoroethane	0.47	0.493		4.89	
1,1-Dichloroethene	0.408	0.463		13.48	20
Acetone	0.388	0.470		21.13	
Carbon Disulfide	1.092	1.288		17.95	
Methyl tert-butyl Ether	1.591	1.897		19.23	
Methyl Acetate	1.193	1.563		31.01	
Methylene Chloride	0.485	0.589		21.44	
trans-1,2-Dichloroethene	0.397	0.433		9.07	
1,1-Dichloroethane	0.86	1.011	0.1	17.56	
Cyclohexane	0.991	0.947		-4.44	
2-Butanone	0.633	0.714		12.8	
Carbon Tetrachloride	0.527	0.488		-7.4	
cis-1,2-Dichloroethene	0.861	0.837		-2.79	
Bromochloromethane	0.692	0.723		4.48	
Chloroform	1.314	1.403		6.77	20
1,1,1-Trichloroethane	0.825	0.804		-2.55	
Methylcyclohexane	0.549	0.501		-8.74	
Benzene	1.383	1.312		-5.13	
1,2-Dichloroethane	0.592	0.592		0	
Trichloroethene	0.581	0.553		-4.82	
1,2-Dichloropropane	0.422	0.423		0.24	20
Bromodichloromethane	0.595	0.595		0	
4-Methyl-2-Pentanone	0.627	0.678		8.13	
Toluene	0.885	0.797		-9.94	20
t-1,3-Dichloropropene	0.692	0.706		2.02	
cis-1,3-Dichloropropene	0.705	0.720		2.13	
1,1,2-Trichloroethane	0.404	0.388		-3.96	
2-Hexanone	0.541	0.551		1.85	
Dibromochloromethane	0.47	0.480		2.13	
1,2-Dibromoethane	0.465	0.446		-4.09	
Tetrachloroethene	0.589	0.526		-10.7	
Chlorobenzene	1.081	0.987	0.3	-8.7	
Ethyl Benzene	1.724	1.608		-6.73	20
m/p-Xylenes	0.632	0.575		-9.02	
o-Xylene	0.638	0.613		-3.92	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_F Calibration Date/Time: 12/25/2011 15:10

Lab File ID: VF030335.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.084	1.020		-5.9	
Bromoform	0.337	0.348	0.1	3.26	
Isopropylbenzene	3.047	2.869		-5.84	
1,1,2,2-Tetrachloroethane	0.396	0.428	0.3	8.08	
1,3-Dichlorobenzene	1.651	1.539		-6.78	
1,4-Dichlorobenzene	1.674	1.610		-3.82	
1,2-Dichlorobenzene	1.657	1.554		-6.22	
1,2-Dibromo-3-Chloropropane	0.181	0.182		0.55	
1,2,4-Trichlorobenzene	1.176	1.121		-4.68	
1,2,3-Trichlorobenzene	1.114	1.057		-5.12	
1,2-Dichloroethane-d4	0.825	1.338		62.18	
Dibromofluoromethane	0.411	0.620		50.85	
Toluene-d8	1.119	1.697		51.65	
4-Bromofluorobenzene	0.532	0.789		48.31	
1,4-Dioxane	0.006	0.006		0	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122511\
Data File : VF030335.D
Acq On : 25 Dec 2011 15:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 26 01:48:34 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	91	-0.01
2	T	Dichlorodifluoromethane	50.000	45.499	9.0	86	0.00
3	P	Chloromethane	50.000	49.830	0.3	98	-0.01
4	C	Vinyl Chloride	50.000	57.051	-14.1#	106	-0.01
5	T	Bromomethane	50.000	54.027	-8.1	103	-0.01
6	T	Chloroethane	50.000	48.506	3.0	96	-0.01
7	T	Trichlorofluoromethane	50.000	46.803	6.4	87	-0.01
8	T	Diethyl Ether	50.000	60.875	-21.8#	116	-0.01
9	T	1,1,2-Trichlorotrifluoroeth	50.000	52.441	-4.9	96	-0.02
10	T	Methyl Iodide	50.000	57.009	-14.0	109	-0.02
11	T	Tert butyl alcohol	250.000	329.717	-31.9#	115	-0.02
12	CM	1,1-Dichloroethene	50.000	56.765	-13.5#	104	-0.01
13	T	Acrolein	250.000	298.795	-19.5	98	0.00
14	T	Allyl chloride	50.000	60.619	-21.2#	121	-0.01
15	T	Acrylonitrile	250.000	350.313	-40.1#	130	-0.02
16	T	Acetone	250.000	374.312	-49.7#	121	0.00
17	T	Carbon Disulfide	50.000	58.973	-17.9	111	-0.02
18	T	Methyl Acetate	50.000	65.499	-31.0#	126	-0.01
19	T	Methyl tert-butyl Ether	50.000	59.623	-19.2	114	-0.01
20	T	Methylene Chloride	50.000	60.745	-21.5#	124	-0.04
21	T	trans-1,2-Dichloroethene	50.000	54.511	-9.0	105	-0.01
22	T	Diisopropyl ether	50.000	62.835	-25.7#	125	-0.01
23	T	Vinyl Acetate	250.000	322.516	-29.0#	120	-0.02
24	P	1,1-Dichloroethane	50.000	58.753	-17.5	115	-0.02
25	T	2-Butanone	250.000	304.939	-22.0#	107	-0.02
26	T	2,2-Dichloropropane	50.000	50.985	-2.0	103	-0.02
27	T	cis-1,2-Dichloroethene	50.000	48.633	2.7	98	-0.02
28	T	Bromochloromethane	50.000	52.259	-4.5	103	-0.01
29	C	Chloroform	50.000	53.365	-6.7#	103	-0.02
30	T	Cyclohexane	50.000	47.770	4.5	93	-0.03
31	T	1,1,1-Trichloroethane	50.000	48.721	2.6	95	-0.02
32	S	1,2-Dichloroethane-d4	50.000	81.120	-62.2#	159	-0.02
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	96	-0.01
34	S	Dibromofluoromethane	50.000	75.371	-50.7#	156	-0.01
35	T	1,1-Dichloropropene	50.000	46.125	7.8	95	-0.01
36	T	Ethyl Acetate	50.000	52.846	-5.7	103	-0.02
37	T	Carbon Tetrachloride	50.000	46.280	7.4	95	-0.01
38	T	Methylcyclohexane	50.000	45.681	8.6	93	-0.01
39	TM	Benzene	50.000	47.434	5.1	101	-0.01
40	T	Methacrylonitrile	50.000	53.651	-7.3	109	-0.03
41	TM	1,2-Dichloroethane	50.000	49.993	0.0	99	-0.01
42	T	Isopropyl Acetate	50.000	55.912	-11.8	110	-0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122511\
Data File : VF030335.D
Acq On : 25 Dec 2011 15:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 26 01:48:34 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
43	TM	Trichloroethene	50.000	47.601	4.8	97	-0.02
44	C	1,2-Dichloropropane	50.000	50.060	-0.1#	103	-0.02
45	T	Dibromomethane	50.000	48.404	3.2	98	-0.02
46	T	Bromodichloromethane	50.000	49.987	0.0	102	-0.02
47	T	Methyl methacrylate	50.000	50.111	-0.2	103	-0.02
48	T	1,4-Dioxane	1000.000	1046.927	-4.7	118	-0.03
49	S	Toluene-d8	50.000	75.822	-51.6#	156	-0.01
50	T	4-Methyl-2-Pentanone	250.000	270.238	-8.1	105	-0.02
51	CM	Toluene	50.000	45.026	9.9#	92	-0.01
52	T	t-1,3-Dichloropropene	50.000	50.976	-2.0	105	-0.01
53	T	cis-1,3-Dichloropropene	50.000	51.050	-2.1	107	-0.01
54	T	1,1,2-Trichloroethane	50.000	48.006	4.0	101	-0.02
55	T	Ethyl methacrylate	50.000	52.309	-4.6	100	-0.01
56	T	1,3-Dichloropropane	50.000	49.940	0.1	103	-0.02
57	T	2-Chloroethyl Vinyl ether	250.000	260.111	-4.0	105	-0.01
58	T	2-Hexanone	250.000	254.713	-1.9	102	-0.01
59	T	Dibromochloromethane	50.000	50.986	-2.0	100	-0.02
60	T	1,2-Dibromoethane	50.000	47.993	4.0	98	-0.01
61	S	4-Bromofluorobenzene	50.000	74.118	-48.2#	149	-0.01
62	I	Chlorobenzene-d5	50.000	50.000	0.0	97	-0.02
63	T	Tetrachloroethene	50.000	44.645	10.7	92	-0.01
64	PM	Chlorobenzene	50.000	45.642	8.7	96	-0.01
65	T	1,1,1,2-Tetrachloroethane	50.000	47.512	5.0	99	-0.02
66	C	Ethyl Benzene	50.000	46.640	6.7#	97	-0.01
67	T	m/p-Xylenes	100.000	91.012	9.0	93	-0.02
68	T	o-Xylene	50.000	48.042	3.9	98	-0.02
69	T	Styrene	50.000	47.015	6.0	97	-0.01
70	P	Bromoform	50.000	51.653	-3.3	98	-0.01
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	95	-0.01
72	T	Isopropylbenzene	50.000	47.080	5.8	94	-0.01
73	T	N-amyl acetate	50.000	51.354	-2.7	100	-0.01
74	P	1,1,2,2-Tetrachloroethane	50.000	54.024	-8.0	104	-0.01
75	T	1,2,3-Trichloropropane	50.000	50.503	-1.0	101	-0.01
76	T	Bromobenzene	50.000	46.282	7.4	95	-0.01
77	T	n-propylbenzene	50.000	45.801	8.4	92	-0.01
78	T	2-Chlorotoluene	50.000	47.336	5.3	98	-0.01
79	T	1,3,5-Trimethylbenzene	50.000	46.330	7.3	92	-0.01
80	T	trans-1,4-Dichloro-2-butene	50.000	53.421	-6.8	101	-0.01
81	T	4-Chlorotoluene	50.000	47.745	4.5	97	-0.01
82	T	tert-Butylbenzene	50.000	45.480	9.0	93	-0.01
83	T	1,2,4-Trimethylbenzene	50.000	48.227	3.5	97	-0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122511\
Data File : VF030335.D
Acq On : 25 Dec 2011 15:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 26 01:48:34 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
84	T	sec-Butylbenzene	50.000	46.123	7.8	92	-0.01
85	T	p-Isopropyltoluene	50.000	46.350	7.3	93	-0.01
86	T	1,3-Dichlorobenzene	50.000	46.619	6.8	99	-0.01
87	T	1,4-Dichlorobenzene	50.000	48.117	3.8	98	-0.01
88	T	n-Butylbenzene	50.000	46.963	6.1	92	0.00
89	T	Hexachloroethane	50.000	46.971	6.1	95	-0.01
90	T	1,2-Dichlorobenzene	50.000	46.873	6.3	98	-0.01
91	T	1,2-Dibromo-3-Chloropropane	50.000	50.098	-0.2	93	-0.01
92	T	1,2,4-Trichlorobenzene	50.000	47.669	4.7	98	-0.01
93	T	Hexachlorobutadiene	50.000	43.391	13.2	91	-0.01
94	T	Naphthalene	50.000	48.169	3.7	99	-0.01
95	T	1,2,3-Trichlorobenzene	50.000	47.445	5.1	101	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1225S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030336.D Lab Sample ID: VBF1225S1

Date Analyzed: 12/25/2011 Time Analyzed: 15:54

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1225S1	BSF1225S1	VF030337.D	12/25/2011
12TP16-0.502-02	C5056-02	VF030351.D	12/26/2011
12TP16-0910-04	C5056-04	VF030352.D	12/26/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1225S1	SDG No.:	C5056
Lab Sample ID:	VBF1225S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030336.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1225S1	SDG No.:	C5056
Lab Sample ID:	VBF1225S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030336.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.2		55 - 158	86%	SPK: 50
1868-53-7	Dibromofluoromethane	47.8		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	50.1		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.5		85 - 120	105%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	130758	4.38			
540-36-3	1,4-Difluorobenzene	238141	5.12			
3114-55-4	Chlorobenzene-d5	245851	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	130272	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSF1225S1 Analytical Method: EPA SW846 8260 Datafile : VF030337.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		21	105	(47-135)
Chloromethane	20		22	110	(56-130)
Vinyl Chloride	20		25	125	(60-125)
Bromomethane	20		20	100	(45-158)
Chloroethane	20		24	120	(42-155)
Trichlorofluoromethane	20		22	110	(55-146)
1,1,2-Trichlorotrifluoroethane	20		25	125	(65-134)
1,1-Dichloroethene	20		25	125	(65-135)
Acetone	100		110	110	(57-148)
Carbon Disulfide	20		26	130	(60-138)
Methyl tert-butyl Ether	20		25	125	(70-131)
Methyl Acetate	20		26	130	(44-187)
Methylene Chloride	20		25	125	(63-140)
trans-1,2-Dichloroethene	20		24	120	(73-130)
1,1-Dichloroethane	20		26	130*	(75-125)
Cyclohexane	20		23	115	(66-132)
2-Butanone	100		110	110	(52-153)
Carbon Tetrachloride	20		22	110	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		24	120	(75-125)
1,1,1-Trichloroethane	20		23	115	(75-128)
Methylcyclohexane	20		22	110	(71-124)
Benzene	20		22	110	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		22	110	(77-120)
1,2-Dichloropropane	20		23	115	(76-120)
Bromodichloromethane	20		23	115	(77-124)
4-Methyl-2-Pentanone	100		110	110	(70-141)
Toluene	20		22	110	(78-121)
t-1,3-Dichloropropene	20		22	110	(76-125)
cis-1,3-Dichloropropene	20		23	115	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		110	110	(55-145)
Dibromochloromethane	20		22	110	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSF1225S1 Analytical Method: EPA SW846 8260 Datafile : VF030337.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		21	105	(65-140)
Chlorobenzene	20		22	110	(79-120)
Ethyl Benzene	20		22	110	(77-120)
m/p-Xylenes	40		44	110	(80-120)
o-Xylene	20		21	105	(78-119)
Styrene	20		21	105	(80-119)
Bromoform	20		21	105	(71-125)
Isopropylbenzene	20		23	115	(77-124)
1,1,2,2-Tetrachloroethane	20		23	115	(77-130)
1,3-Dichlorobenzene	20		22	110	(82-121)
1,4-Dichlorobenzene	20		22	110	(82-118)
1,2-Dichlorobenzene	20		21	105	(81-120)
1,2-Dibromo-3-Chloropropane	20		21	105	(66-132)
1,2,4-Trichlorobenzene	20		22	110	(71-124)
1,2,3-Trichlorobenzene	20		21	105	(74-123)
1,4-Dioxane	400		420	105	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030353.D BFB Injection Date: 12/27/2011

Instrument ID: MSVOA_F BFB Injection Time: 10:49

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.3
75	30.0 - 60.0% of mass 95	50.5
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	69.8
175	5.0 - 9.0% of mass 174	5.3 (7.5) 1
176	95.0 - 101.0% of mass 174	69.3 (99.3) 1
177	5.0 - 9.0% of mass 176	4.9 (7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030355.D	12/27/201	12:35
VBF1227S1	VBF1227S1	VF030356.D	12/27/201	13:19
BSF1227S1	BSF1227S1	VF030357.D	12/27/201	14:02
12TP16-000.5-01	C5056-01	VF030363.D	12/27/201	17:09
12TP16-0608-03	C5056-03	VF030364.D	12/27/201	17:41
12TP-DUP-01	C5056-05	VF030365.D	12/27/201	18:12

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_F Calibration Date/Time: 12/27/2011 12:35

Lab File ID: VF030355.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.673		-7.68	
Chloromethane	0.951	0.981	0.1	3.15	
Vinyl Chloride	0.54	0.649		20.19	20
Bromomethane	0.329	0.310		-5.78	
Chloroethane	0.193	0.213		10.36	
Trichlorofluoromethane	0.793	0.879		10.84	
1,1,2-Trichlorotrifluoroethane	0.47	0.558		18.72	
1,1-Dichloroethene	0.408	0.482		18.14	20
Acetone	0.388	0.358		-7.73	
Carbon Disulfide	1.092	1.376		26.01	
Methyl tert-butyl Ether	1.591	1.602		0.69	
Methyl Acetate	1.193	1.180		-1.09	
Methylene Chloride	0.485	0.549		13.2	
trans-1,2-Dichloroethene	0.397	0.466		17.38	
1,1-Dichloroethane	0.86	1.007	0.1	17.09	
Cyclohexane	0.991	1.042		5.15	
2-Butanone	0.633	0.527		-16.75	
Carbon Tetrachloride	0.527	0.552		4.74	
cis-1,2-Dichloroethene	0.861	0.818		-4.99	
Bromochloromethane	0.692	0.665		-3.9	
Chloroform	1.314	1.338		1.83	20
1,1,1-Trichloroethane	0.825	0.856		3.76	
Methylcyclohexane	0.549	0.564		2.73	
Benzene	1.383	1.401		1.3	
1,2-Dichloroethane	0.592	0.567		-4.22	
Trichloroethene	0.581	0.537		-7.57	
1,2-Dichloropropane	0.422	0.420		-0.47	20
Bromodichloromethane	0.595	0.592		-0.5	
4-Methyl-2-Pentanone	0.627	0.520		-17.07	
Toluene	0.885	0.865		-2.26	20
t-1,3-Dichloropropene	0.692	0.672		-2.89	
cis-1,3-Dichloropropene	0.705	0.721		2.27	
1,1,2-Trichloroethane	0.404	0.362		-10.4	
2-Hexanone	0.541	0.441		-18.48	
Dibromochloromethane	0.47	0.438		-6.81	
1,2-Dibromoethane	0.465	0.412		-11.4	
Tetrachloroethene	0.589	0.572		-2.89	
Chlorobenzene	1.081	1.053	0.3	-2.59	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_F Calibration Date/Time: 12/27/2011 12:35

Lab File ID: VF030355.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Ethyl Benzene	1.724	1.767		2.49	20
m/p-Xylenes	0.632	0.658		4.11	
o-Xylene	0.638	0.666		4.39	
Styrene	1.084	1.087		0.28	
Bromoform	0.337	0.304	0.1	-9.79	
Isopropylbenzene	3.047	3.423		12.34	
1,1,2,2-Tetrachloroethane	0.396	0.392	0.3	-1.01	
1,3-Dichlorobenzene	1.651	1.683		1.94	
1,4-Dichlorobenzene	1.674	1.720		2.75	
1,2-Dichlorobenzene	1.657	1.585		-4.35	
1,2-Dibromo-3-Chloropropane	0.181	0.149		-17.68	
1,2,4-Trichlorobenzene	1.176	1.120		-4.76	
1,2,3-Trichlorobenzene	1.114	1.026		-7.9	
1,2-Dichloroethane-d4	0.825	0.868		5.21	
Dibromofluoromethane	0.411	0.457		11.19	
Toluene-d8	1.119	1.303		16.44	
4-Bromofluorobenzene	0.532	0.559		5.08	
1,4-Dioxane	0.006	0.004		-33.33	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122711\
Data File : VF030355.D
Acq On : 27 Dec 2011 12:35
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 27 13:30:36 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	122	0.00
2	T	Dichlorodifluoromethane	50.000	46.130	7.7	117	0.00
3	P	Chloromethane	50.000	51.584	-3.2	136	0.00
4	C	Vinyl Chloride	50.000	60.105	-20.2#	150	-0.02
5	T	Bromomethane	50.000	52.552	-5.1	136	-0.02
6	T	Chloroethane	50.000	55.136	-10.3	146	0.00
7	T	Trichlorofluoromethane	50.000	55.431	-10.9	138	-0.02
8	T	Diethyl Ether	50.000	53.152	-6.3	136	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	59.294	-18.6	146	-0.02
10	T	Methyl Iodide	50.000	55.459	-10.9	143	-0.03
11	T	Tert butyl alcohol	250.000	207.034	17.2	97	-0.02
12	CM	1,1-Dichloroethene	50.000	59.024	-18.0#	146	-0.02
13	T	Acrolein	250.000	307.325	-22.9#	134	-0.02
14	T	Allyl chloride	50.000	61.771	-23.5#	166	0.00
15	T	Acrylonitrile	250.000	265.997	-6.4	133	-0.02
16	T	Acetone	250.000	278.112	-11.2	124	-0.02
17	T	Carbon Disulfide	50.000	63.016	-26.0#	159	-0.04
18	T	Methyl Acetate	50.000	49.452	1.1	127	0.00
19	T	Methyl tert-butyl Ether	50.000	50.340	-0.7	130	0.00
20	T	Methylene Chloride	50.000	56.627	-13.3	156	-0.04
21	T	trans-1,2-Dichloroethene	50.000	58.636	-17.3	152	0.00
22	T	Diisopropyl ether	50.000	59.103	-18.2	158	0.00
23	T	Vinyl Acetate	250.000	265.027	-6.0	133	-0.02
24	P	1,1-Dichloroethane	50.000	58.570	-17.1	155	-0.02
25	T	2-Butanone	250.000	211.372	15.5	107	-0.02
26	T	2,2-Dichloropropane	50.000	51.613	-3.2	140	-0.02
27	T	cis-1,2-Dichloroethene	50.000	47.545	4.9	128	-0.02
28	T	Bromochloromethane	50.000	48.061	3.9	128	0.00
29	C	Chloroform	50.000	50.890	-1.8#	132	-0.02
30	T	Cyclohexane	50.000	52.568	-5.1	138	-0.02
31	T	1,1,1-Trichloroethane	50.000	51.887	-3.8	137	0.00
32	S	1,2-Dichloroethane-d4	50.000	52.602	-5.2	139	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	121	0.00
34	S	Dibromofluoromethane	50.000	55.584	-11.2	145	0.00
35	T	1,1-Dichloropropene	50.000	50.761	-1.5	132	0.00
36	T	Ethyl Acetate	50.000	40.849	18.3	105	-0.02
37	T	Carbon Tetrachloride	50.000	52.337	-4.7	135	0.00
38	T	Methylcyclohexane	50.000	51.363	-2.7	131	0.00
39	TM	Benzene	50.000	50.657	-1.3	136	0.00
40	T	Methacrylonitrile	50.000	46.121	7.8	118	-0.02
41	TM	1,2-Dichloroethane	50.000	47.880	4.2	120	0.00
42	T	Isopropyl Acetate	50.000	43.692	12.6	109	0.00
43	TM	Trichloroethene	50.000	46.221	7.6	119	0.00
44	C	1,2-Dichloropropane	50.000	49.730	0.5#	130	0.00
45	T	Dibromomethane	50.000	45.451	9.1	116	-0.02

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122711\
Data File : VF030355.D
Acq On : 27 Dec 2011 12:35
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 27 13:30:36 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	49.764	0.5	128	0.00
47	T	Methyl methacrylate	50.000	41.081	17.8	106	0.00
48	T	1,4-Dioxane	1000.000	682.689	31.7#	97	-0.02
49	S	Toluene-d8	50.000	58.213	-16.4	151	0.00
50	T	4-Methyl-2-Pentanone	250.000	207.266	17.1	102	0.00
51	CM	Toluene	50.000	48.860	2.3#	125	0.00
52	T	t-1,3-Dichloropropene	50.000	48.541	2.9	126	0.00
53	T	cis-1,3-Dichloropropene	50.000	51.155	-2.3	136	0.00
54	T	1,1,2-Trichloroethane	50.000	44.722	10.6	118	0.00
55	T	Ethyl methacrylate	50.000	44.615	10.8	108	0.00
56	T	1,3-Dichloropropane	50.000	46.092	7.8	120	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	208.000	16.8	106	0.00
58	T	2-Hexanone	250.000	203.668	18.5	102	0.00
59	T	Dibromochloromethane	50.000	46.581	6.8	116	0.00
60	T	1,2-Dibromoethane	50.000	44.292	11.4	114	0.00
61	S	4-Bromofluorobenzene	50.000	52.487	-5.0	133	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	117	0.00
63	T	Tetrachloroethene	50.000	48.608	2.8	121	0.00
64	PM	Chlorobenzene	50.000	48.713	2.6	124	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	51.141	-2.3	128	0.00
66	C	Ethyl Benzene	50.000	51.231	-2.5#	128	0.00
67	T	m/p-Xylenes	100.000	104.181	-4.2	128	0.00
68	T	o-Xylene	50.000	52.197	-4.4	128	0.00
69	T	Styrene	50.000	50.099	-0.2	125	0.00
70	P	Bromoform	50.000	45.148	9.7	103	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	108	0.00
72	T	Isopropylbenzene	50.000	56.175	-12.3	127	0.00
73	T	N-amyl acetate	50.000	47.264	5.5	104	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	49.433	1.1	108	0.00
75	T	1,2,3-Trichloropropane	50.000	44.869	10.3	102	0.00
76	T	Bromobenzene	50.000	49.723	0.6	116	0.00
77	T	n-propylbenzene	50.000	55.663	-11.3	127	0.00
78	T	2-Chlorotoluene	50.000	53.047	-6.1	124	0.00
79	T	1,3,5-Trimethylbenzene	50.000	54.919	-9.8	124	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	48.671	2.7	104	0.00
81	T	4-Chlorotoluene	50.000	53.505	-7.0	124	0.00
82	T	tert-Butylbenzene	50.000	54.964	-9.9	128	0.00
83	T	1,2,4-Trimethylbenzene	50.000	55.060	-10.1	125	0.00
84	T	sec-Butylbenzene	50.000	54.641	-9.3	123	0.00
85	T	p-Isopropyltoluene	50.000	54.796	-9.6	125	0.00
86	T	1,3-Dichlorobenzene	50.000	50.986	-2.0	123	0.00
87	T	1,4-Dichlorobenzene	50.000	51.404	-2.8	118	0.00
88	T	n-Butylbenzene	50.000	55.896	-11.8	125	0.00
89	T	Hexachloroethane	50.000	55.240	-10.5	127	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122711\
Data File : VF030355.D
Acq On : 27 Dec 2011 12:35
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 27 13:30:36 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90 T	1,2-Dichlorobenzene	50.000	47.801	4.4	114	0.00
91 T	1,2-Dibromo-3-Chloropropane	50.000	41.028	17.9	86	0.00
92 T	1,2,4-Trichlorobenzene	50.000	47.644	4.7	111	0.00
93 T	Hexachlorobutadiene	50.000	52.000	-4.0	124	0.00
94 T	Naphthalene	50.000	42.290	15.4	98	0.00
95 T	1,2,3-Trichlorobenzene	50.000	46.062	7.9	111	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1227S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VF030356.D Lab Sample ID: VBF1227S1

Date Analyzed: 12/27/2011 Time Analyzed: 13:19

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1227S1	BSF1227S1	VF030357.D	12/27/2011
12TP16-000.5-01	C5056-01	VF030363.D	12/27/2011
12TP16-0608-03	C5056-03	VF030364.D	12/27/2011
12TP-DUP-01	C5056-05	VF030365.D	12/27/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1227S1	SDG No.:	C5056
Lab Sample ID:	VBF1227S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030356.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1227S1	SDG No.:	C5056
Lab Sample ID:	VBF1227S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030356.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.2		55 - 158	98%	SPK: 50
1868-53-7	Dibromofluoromethane	54.2		53 - 156	109%	SPK: 50
2037-26-5	Toluene-d8	55.3		85 - 115	111%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.4		85 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	166331	4.39			
540-36-3	1,4-Difluorobenzene	283773	5.13			
3114-55-4	Chlorobenzene-d5	261695	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	133863	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSF1227S1 Analytical Method: EPA SW846 8260 Datafile : VF030357.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		17	85	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		19	95	(45-158)
Chloroethane	20		22	110	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		22	110	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		84	84	(57-148)
Carbon Disulfide	20		24	120	(60-138)
Methyl tert-butyl Ether	20		19	95	(70-131)
Methyl Acetate	20		18	90	(44-187)
Methylene Chloride	20		21	105	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		76	76	(52-153)
Carbon Tetrachloride	20		20	100	(74-122)
cis-1,2-Dichloroethene	20		18	90	(75-125)
Bromochloromethane	20		20	100	(74-125)
Chloroform	20		19	95	(75-125)
1,1,1-Trichloroethane	20		19	95	(75-128)
Methylcyclohexane	20		20	100	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		18	90	(75-132)
Trichloroethene	20		19	95	(77-120)
1,2-Dichloropropane	20		20	100	(76-120)
Bromodichloromethane	20		19	95	(77-124)
4-Methyl-2-Pentanone	100		83	83	(70-141)
Toluene	20		19	95	(78-121)
t-1,3-Dichloropropene	20		18	90	(76-125)
cis-1,3-Dichloropropene	20		19	95	(79-122)
1,1,2-Trichloroethane	20		17	85	(76-125)
2-Hexanone	100		73	73	(55-145)
Dibromochloromethane	20		17	85	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSF1227S1 Analytical Method: EPA SW846 8260 Datafile : VF030357.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		17	85	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		19	95	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		19	95	(80-119)
Bromoform	20		17	85	(71-125)
Isopropylbenzene	20		20	100	(77-124)
1,1,2,2-Tetrachloroethane	20		19	95	(77-130)
1,3-Dichlorobenzene	20		19	95	(82-121)
1,4-Dichlorobenzene	20		19	95	(82-118)
1,2-Dichlorobenzene	20		18	90	(81-120)
1,2-Dibromo-3-Chloropropane	20		15	75	(66-132)
1,2,4-Trichlorobenzene	20		18	90	(71-124)
1,2,3-Trichlorobenzene	20		17	85	(74-123)
1,4-Dioxane	400		260	65*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VG039044.D BFB Injection Date: 11/22/2011

Instrument ID: MSVOAG BFB Injection Time: 18:52

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.9
75	30.0 - 60.0% of mass 95	51
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	92.5
175	5.0 - 9.0% of mass 174	7.8 (8.4) 1
176	95.0 - 101.0% of mass 174	88 (95.1) 1
177	5.0 - 9.0% of mass 176	5.7 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD001	1 PPB ICC	VG039045.D	11/22/2011	19:31
VSTD005	5 PPB ICC	VG039046.D	11/22/2011	20:00
VSTD020	20 PPB ICC	VG039047.D	11/22/2011	20:44
VSTD050	50 PPB ICC	VG039048.D	11/22/2011	21:13
VSTD100	100 PPB ICC	VG039049.D	11/22/2011	21:42
VSTD150	150 PPB ICC	VG039050.D	11/22/2011	22:11

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.322	0.285	0.403	0.410	0.419	0.387	0.371	14.7
Chloromethane	0.668	0.928	0.740	0.737	0.728	0.687	0.748	12.4
Vinyl Chloride	0.598	0.706	0.647	0.663	0.675	0.623	0.652	5.9
Bromomethane	0.622	0.542	0.519	0.552	0.567	0.571	0.562	6.1
Chloroethane	0.509	0.502	0.473	0.501	0.534	0.535	0.509	4.6
Trichlorofluoromethane	0.679	0.695	0.680	0.659	0.679	0.671	0.677	1.8
1,1,2-Trichlorotrifluor<	0.574	0.586	0.562	0.544	0.554	0.563	0.564	2.6
1,1-Dichloroethene	0.658	0.783	0.619	0.610	0.644	0.636	0.658	9.6
Acetone	0.245	0.369	0.198	0.187	0.176	0.170	0.224	33.8
Carbon Disulfide	1.852	2.032	1.980	1.896	1.955	1.879	1.932	3.5
Methyl tert-butyl Ether	1.485	1.562	1.427	1.405	1.387	1.383	1.441	4.8
Methyl Acetate	1.335	1.455	1.196	1.256	1.218	1.203	1.277	7.9
Methylene Chloride	0.756	1.248	0.698	0.671	0.689	0.698	0.793	28.3
trans-1,2-Dichloroethen<	0.600	0.792	0.606	0.614	0.611	0.611	0.639	11.8
1,1-Dichloroethane	1.265	1.505	1.231	1.207	1.204	1.180	1.266	9.5
Cyclohexane	1.028	1.231	1.017	0.995	0.991	0.980	1.04	9.1
2-Butanone	0.431	0.484	0.376	0.385	0.361	0.356	0.399	12.4
Carbon Tetrachloride	0.302	0.246	0.331	0.326	0.309	0.305	0.303	10
cis-1,2-Dichloroethene	0.819	0.979	0.785	0.786	0.766	0.774	0.818	9.9
Bromochloromethane	0.697	0.783	0.684	0.632	0.611	0.612	0.67	9.9
Chloroform	1.192	1.252	1.092	1.029	0.996	0.986	1.091	10.1
1,1,1-Trichloroethane	0.681	0.850	0.693	0.665	0.638	0.617	0.691	12
Methylcyclohexane	0.485	0.540	0.490	0.475	0.456	0.461	0.485	6.2
Benzene	1.349	1.605	1.311	1.253	1.203	1.218	1.323	11.2
1,2-Dichloroethane	0.460	0.570	0.468	0.440	0.413	0.412	0.461	12.7
Trichloroethene	0.390	0.480	0.389	0.375	0.355	0.371	0.393	11.3
1,2-Dichloropropane	0.391	0.457	0.365	0.365	0.353	0.354	0.381	10.4
Bromodichloromethane	0.362	0.385	0.407	0.397	0.387	0.394	0.389	3.9
4-Methyl-2-Pentanone	0.242	0.226	0.248	0.260	0.248	0.253	0.246	4.6
Toluene	0.450	0.523	0.484	0.475	0.477	0.485	0.482	4.9
t-1,3-Dichloropropene	0.238	0.175	0.287	0.300	0.307	0.327	0.272	20.6

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOAG Calibration Date(s): 11/22/2011 11/22/2011

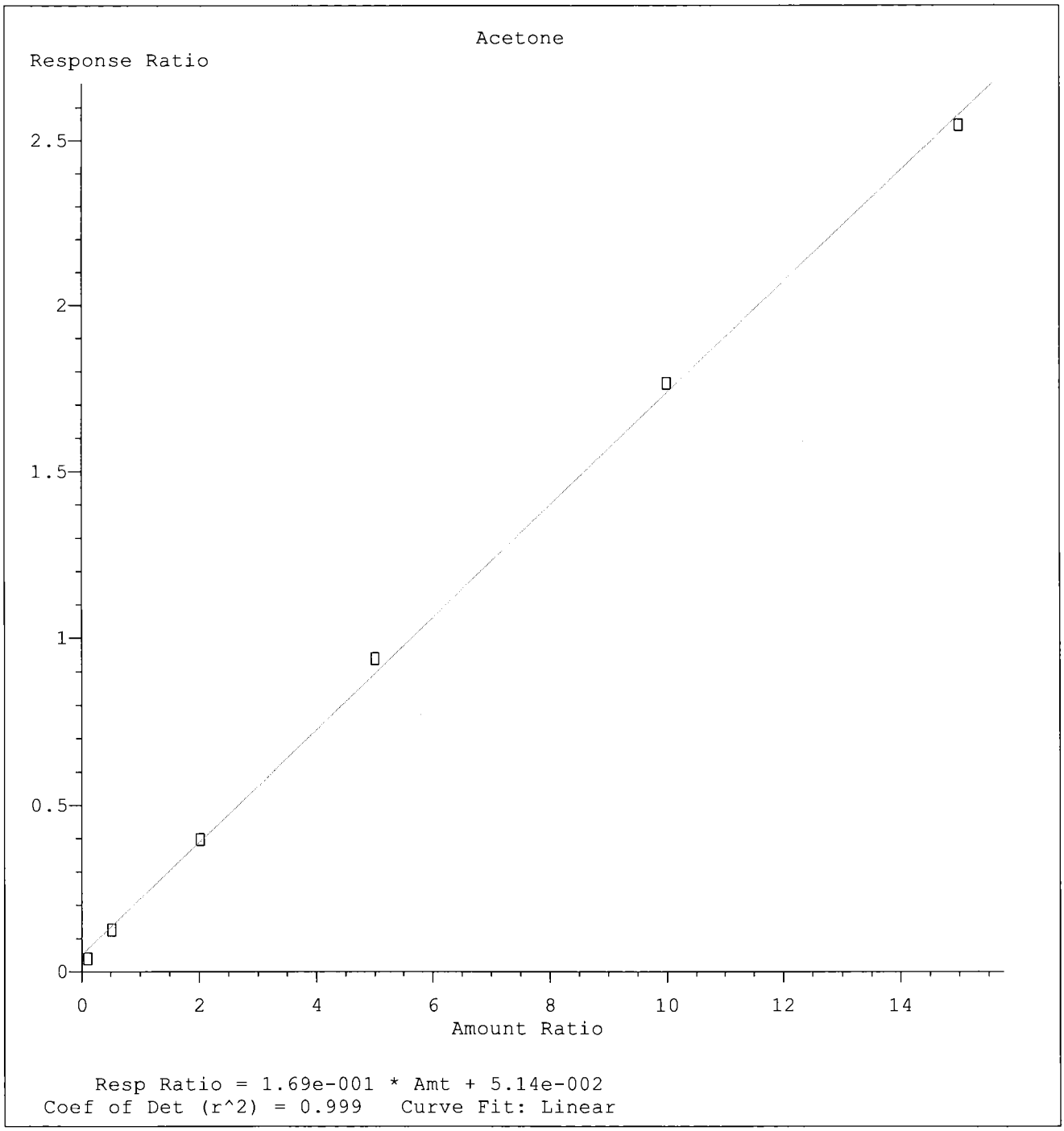
Heated Purge: (Y/N) N Calibration Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

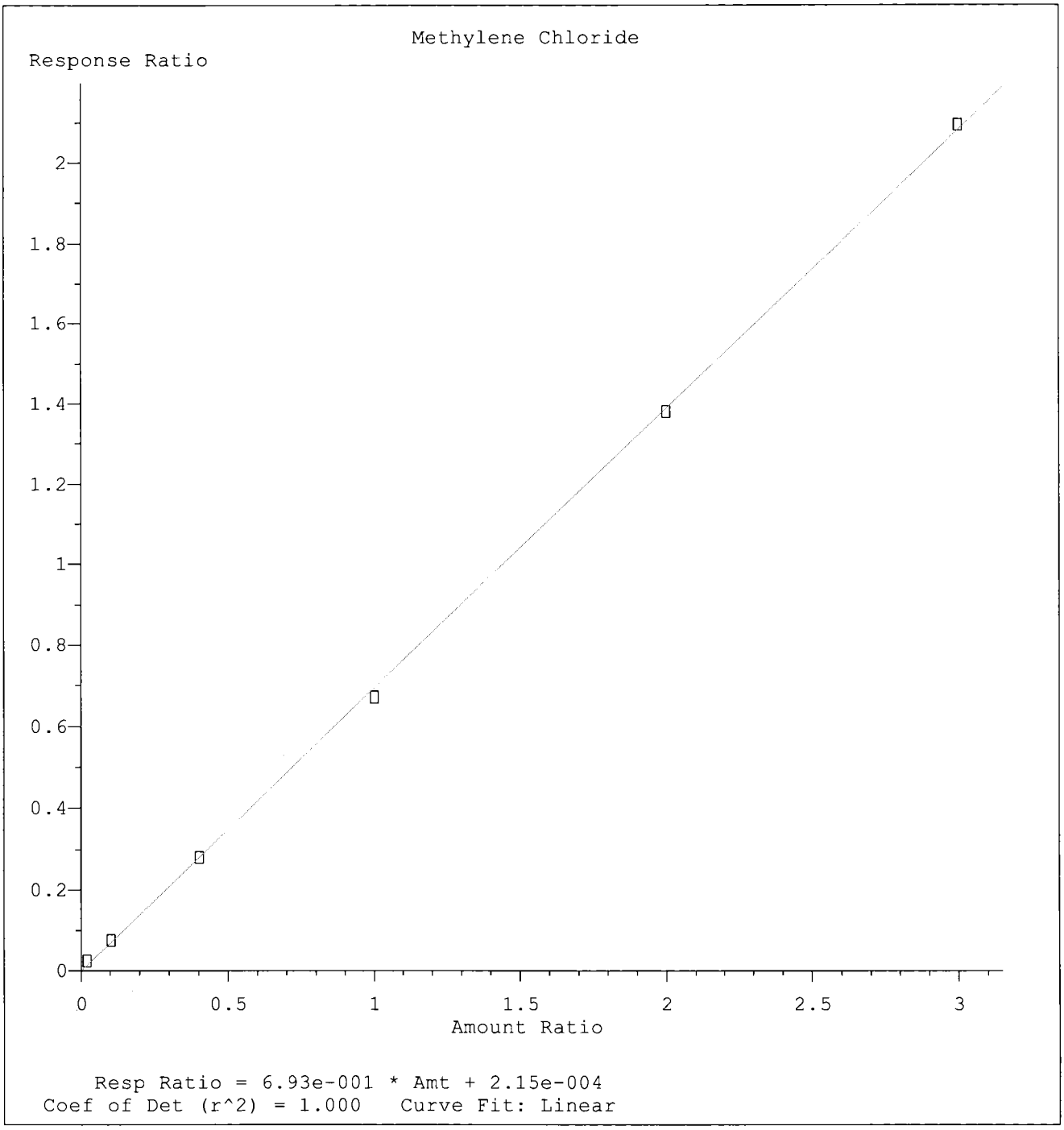
LAB FILE ID: RRF005 = VG039046.D RRF001 = VG039045.D RRF020 = VG039047.D
RRF050 = VG039048.D RRF100 = VG039049.D RRF150 = VG039050.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.291	0.266	0.314	0.333	0.344	0.369	0.32	11.6
1,1,2-Trichloroethane	0.189	0.192	0.189	0.191	0.194	0.201	0.193	2.4
2-Hexanone	0.186	0.147	0.182	0.190	0.179	0.182	0.178	8.8
Dibromochloromethane	0.182	0.146	0.209	0.219	0.222	0.233	0.202	16
1,2-Dibromoethane	0.198	0.213	0.208	0.214	0.221	0.230	0.214	5.1
Tetrachloroethene	0.440	0.505	0.439	0.428	0.411	0.444	0.444	7.2
Chlorobenzene	1.097	1.157	1.030	1.015	1.001	0.984	1.047	6.3
Ethyl Benzene	1.643	1.572	1.563	1.584	1.492	1.453	1.551	4.4
m/p-Xylenes	0.618	0.562	0.656	0.664	0.652	0.648	0.633	6
o-Xylene	0.546	0.549	0.623	0.648	0.620	0.618	0.601	7.1
Styrene	0.925	0.744	1.005	1.017	0.984	0.995	0.945	11
Bromoform	0.172	0.082	0.209	0.243	0.243	0.240	0.198	32.1
Isopropylbenzene	3.639	3.515	3.915	3.584	3.644	3.647	3.657	3.7
1,1,2,2-Tetrachloroethar	1.106	1.136	0.950	0.917	0.925	0.955	0.998	9.7
1,3-Dichlorobenzene	1.699	1.519	1.643	1.597	1.576	1.615	1.608	3.8
1,4-Dichlorobenzene	1.609	1.732	1.566	1.511	1.509	1.516	1.574	5.5
1,2-Dichlorobenzene	1.411	1.490	1.493	1.407	1.354	1.335	1.415	4.7
1,2-Dibromo-3-Chloropro	0.112		0.116	0.126	0.125	0.127	0.121	5.6
1,2,4-Trichlorobenzene	0.950	0.859	0.906	0.902	0.870	0.922	0.901	3.7
1,2,3-Trichlorobenzene	0.797	0.776	0.824	0.807	0.788	0.844	0.806	3.1
1,2-Dichloroethane-d4	0.641	0.809	0.625	0.580	0.567	0.532	0.626	15.7
Dibromofluoromethane	0.390	0.458	0.400	0.380	0.356	0.358	0.39	9.6
Toluene-d8	0.626	0.773	0.669	0.669	0.632	0.639	0.668	8.2
4-Bromofluorobenzene	0.193	0.215	0.243	0.251	0.240	0.238	0.23	9.4
1,4-Dioxane	0.002	0.001	0.002	0.003	0.002	0.002	0.002	20.8

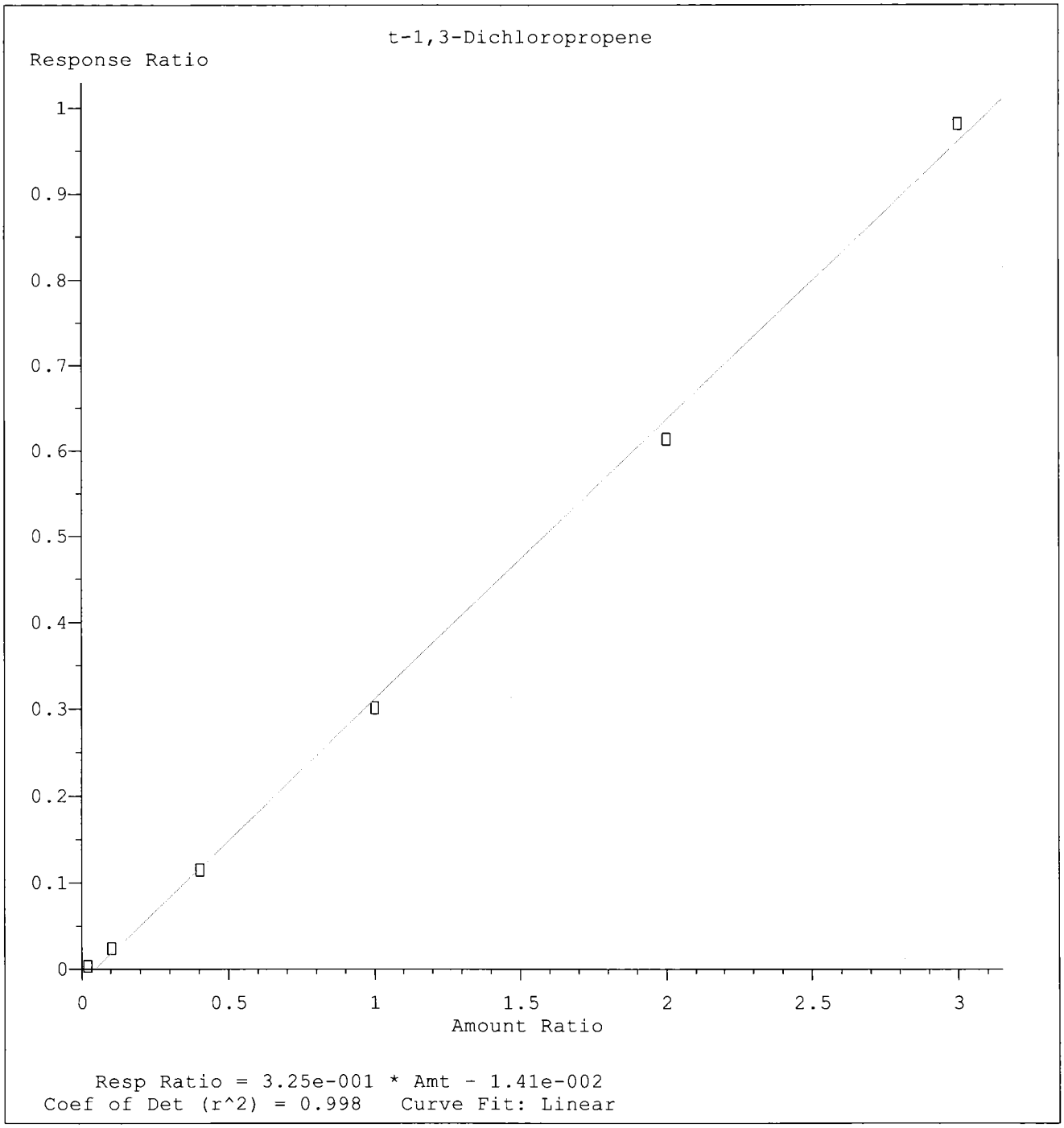
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



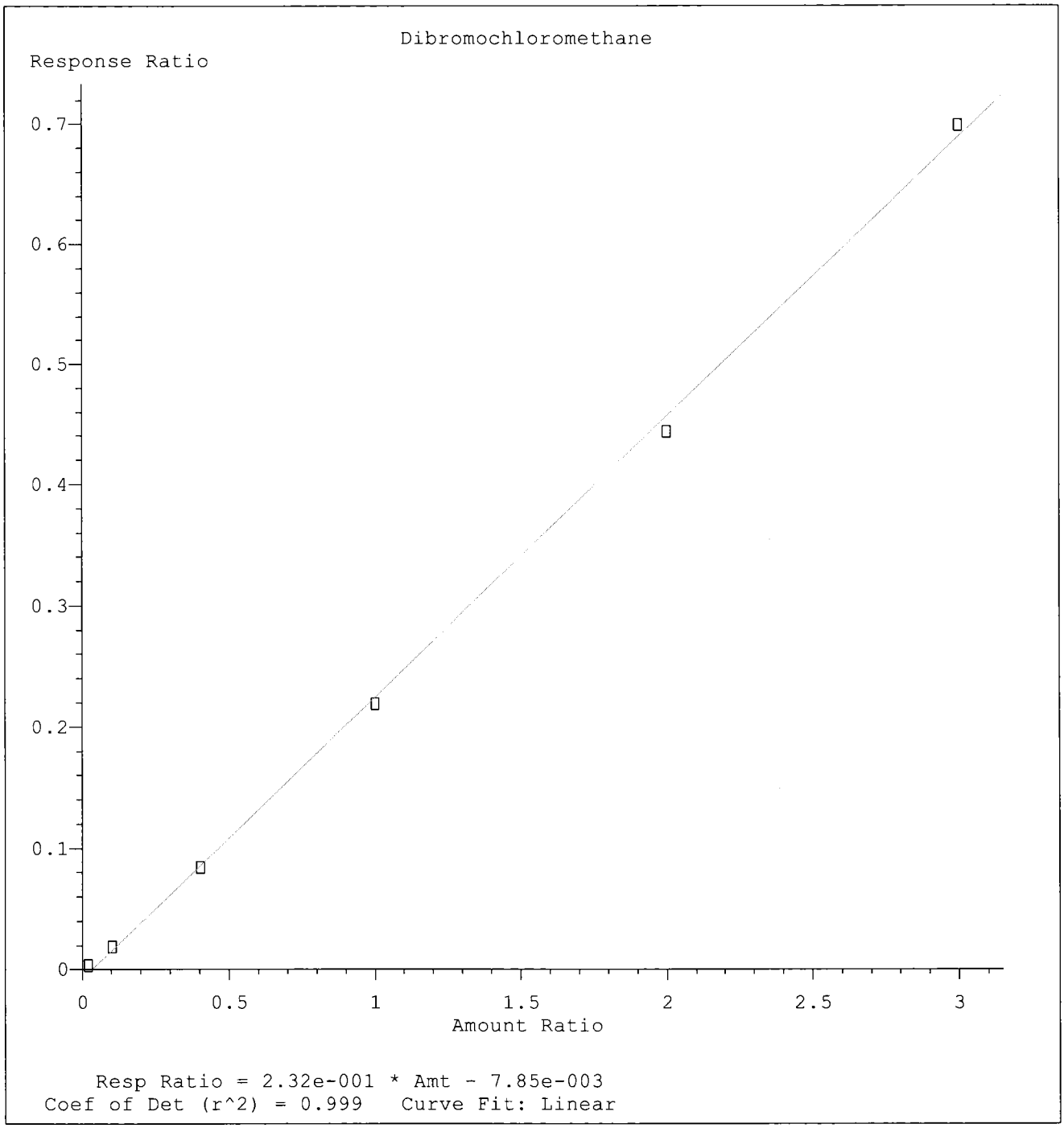
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



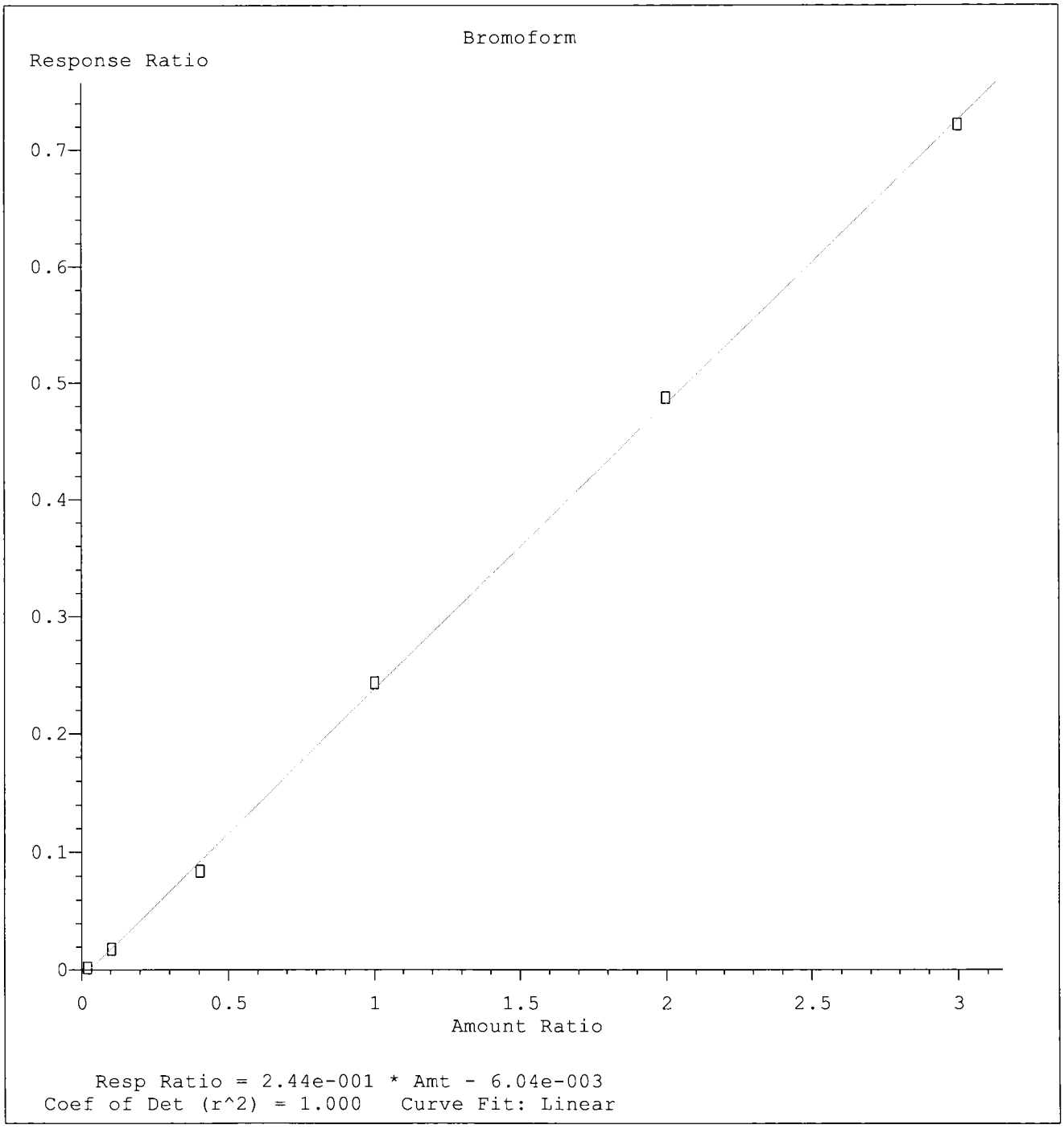
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Calibration Table Last Updated: Tue Nov 22 22:46:26 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VG039751.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOAG BFB Injection Time: 13:15

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	28.9
75	30.0 - 60.0% of mass 95	49
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	90.4
175	5.0 - 9.0% of mass 174	7.5 (8.3) 1
176	95.0 - 101.0% of mass 174	88.4 (97.8) 1
177	5.0 - 9.0% of mass 176	6 (6.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VG039752.D	12/21/2011	13:48
VBG1221W1	VBG1221W1	VG039753.D	12/21/2011	15:39
BSG1221W1	BSG1221W1	VG039754.D	12/21/2011	16:29
BSG1221W2	BSG1221W2	VG039755.D	12/21/2011	16:58
TB-01-121911	C5056-13	VG039759.D	12/21/2011	19:09

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOAG Calibration Date/Time: 12/21/2011 13:48

Lab File ID: VG039752.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.371	0.341		-8.09	
Chloromethane	0.748	0.892	0.1	19.25	
Vinyl Chloride	0.652	0.718		10.12	20
Bromomethane	0.562	0.775		37.9	
Chloroethane	0.509	0.619		21.61	
Trichlorofluoromethane	0.677	0.694		2.51	
1,1,2-Trichlorotrifluoroethane	0.564	0.623		10.46	
1,1-Dichloroethene	0.658	0.707		7.45	20
Acetone	0.224	0.267		19.2	
Carbon Disulfide	1.932	2.062		6.73	
Methyl tert-butyl Ether	1.441	1.566		8.67	
Methyl Acetate	1.277	1.562		22.32	
Methylene Chloride	0.793	0.829		4.54	
trans-1,2-Dichloroethene	0.639	0.711		11.27	
1,1-Dichloroethane	1.266	1.442	0.1	13.9	
Cyclohexane	1.04	1.254		20.58	
2-Butanone	0.399	0.486		21.8	
Carbon Tetrachloride	0.303	0.339		11.88	
cis-1,2-Dichloroethene	0.818	0.949		16.01	
Bromochloromethane	0.67	0.792		18.21	
Chloroform	1.091	1.186		8.71	20
1,1,1-Trichloroethane	0.691	0.742		7.38	
Methylcyclohexane	0.485	0.536		10.52	
Benzene	1.323	1.417		7.11	
1,2-Dichloroethane	0.461	0.440		-4.56	
Trichloroethene	0.393	0.393		0	
1,2-Dichloropropane	0.381	0.413		8.4	20
Bromodichloromethane	0.389	0.422		8.48	
4-Methyl-2-Pentanone	0.246	0.279		13.41	
Toluene	0.482	0.525		8.92	20
t-1,3-Dichloropropene	0.272	0.291		6.99	
cis-1,3-Dichloropropene	0.32	0.337		5.31	
1,1,2-Trichloroethane	0.193	0.212		9.84	
2-Hexanone	0.178	0.201		12.92	
Dibromochloromethane	0.202	0.213		5.45	
1,2-Dibromoethane	0.214	0.239		11.68	
Tetrachloroethene	0.444	0.358		-19.37	
Chlorobenzene	1.047	1.098	0.3	4.87	
Ethyl Benzene	1.551	1.592		2.64	20
m/p-Xylenes	0.633	0.694		9.64	
o-Xylene	0.601	0.707		17.64	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOAG Calibration Date/Time: 12/21/2011 13:48

Lab File ID: VG039752.D Init. Calib. Date(s): 11/22/2011 11/22/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:31 22:11

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.110		17.46	
Bromoform	0.198	0.218	0.1	10.1	
Isopropylbenzene	3.657	3.702		1.23	
1,1,2,2-Tetrachloroethane	0.998	0.979	0.3	-1.9	
1,3-Dichlorobenzene	1.608	1.716		6.72	
1,4-Dichlorobenzene	1.574	1.671		6.16	
1,2-Dichlorobenzene	1.415	1.502		6.15	
1,2-Dibromo-3-Chloropropane	0.121	0.122		0.83	
1,2,4-Trichlorobenzene	0.901	0.925		2.66	
1,2,3-Trichlorobenzene	0.806	0.807		0.12	
1,2-Dichloroethane-d4	0.626	0.638		1.92	
Dibromofluoromethane	0.39	0.368		-5.64	
Toluene-d8	0.668	0.686		2.69	
4-Bromofluorobenzene	0.23	0.262		13.91	
1,4-Dioxane	0.002	0.003		50	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG122111\
Data File : VG039752.D
Acq On : 21 Dec 2011 13:48
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 21 15:13:56 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	79	0.03
2	T	Dichlorodifluoromethane	50.000	46.005	8.0	65	0.02
3	P	Chloromethane	50.000	59.605	-19.2	95	0.03
4	C	Vinyl Chloride	50.000	55.032	-10.1#	85	0.00
5	T	Bromomethane	50.000	68.901	-37.8#	110	0.02
6	T	Chloroethane	50.000	60.779	-21.6#	97	0.02
7	T	Trichlorofluoromethane	50.000	51.224	-2.4	83	-0.02
8	T	Diethyl Ether	50.000	57.564	-15.1	90	0.02
9	T	1,1,2-Trichlorotrifluoroeth	50.000	55.279	-10.6	90	0.02
10	T	Methyl Iodide	50.000	55.141	-10.3	89	0.02
11	T	Tert butyl alcohol	250.000	289.967	-16.0	94	0.03
12	CM	1,1-Dichloroethene	50.000	53.689	-7.4#	91	0.01
13	T	Acrolein	250.000	248.789	0.5	81	0.02
14	T	Allyl chloride	50.000	53.424	-6.8	83	0.02
15	T	Acrylonitrile	250.000	311.460	-24.6#	98	0.02
16	T	Acetone	250.000	380.156	-52.1#	112	0.02
17	T	Carbon Disulfide	50.000	53.351	-6.7	85	0.01
18	T	Methyl Acetate	50.000	61.156	-22.3#	98	0.02
19	T	Methyl tert-butyl Ether	50.000	54.308	-8.6	88	0.02
20	T	Methylene Chloride	50.000	59.764	-19.5	97	0.02
21	T	trans-1,2-Dichloroethene	50.000	55.608	-11.2	91	0.01
22	T	Acetonitrile	50.000	0.000	100.0#	0	-2.42#
23	T	Diisopropyl ether	50.000	61.792	-23.6#	100	0.02
24	T	Vinyl Acetate	250.000	328.193	-31.3#	104	0.02
25	P	1,1-Dichloroethane	50.000	56.963	-13.9	94	0.02
26	T	2-Butanone	250.000	304.731	-21.9#	99	0.02
27	T	2,2-Dichloropropane	50.000	61.433	-22.9#	101	0.03
28	T	cis-1,2-Dichloroethene	50.000	57.988	-16.0	95	0.02
29	T	Bromochloromethane	50.000	59.076	-18.2	98	0.03
30	C	Chloroform	50.000	54.340	-8.7#	91	0.03
31	T	Cyclohexane	50.000	60.275	-20.5#	99	0.02
32	T	1,1,1-Trichloroethane	50.000	53.727	-7.5	88	0.03
33	S	1,2-Dichloroethane-d4	50.000	57.270	-14.5	86	0.03
34	I	1,4-Difluorobenzene	50.000	50.000	0.0	85	0.03
35	S	Dibromofluoromethane	50.000	47.143	5.7	83	0.03
36	T	1,1-Dichloropropene	50.000	50.380	-0.8	89	0.02
37	T	Ethyl Acetate	50.000	56.476	-13.0	93	0.02
38	T	Carbon Tetrachloride	50.000	55.831	-11.7	89	0.02
39	T	Methylcyclohexane	50.000	55.295	-10.6	96	0.03
40	TM	Benzene	50.000	53.534	-7.1	97	0.03
41	T	Methacrylonitrile	50.000	58.554	-17.1	99	0.03
42	TM	1,2-Dichloroethane	50.000	47.797	4.4	86	0.03
43	T	Isopropyl Acetate	50.000	57.485	-15.0	95	0.04
44	T	Isobutyl alcohol	50.000	0.000	100.0#	0	-4.22#
45	TM	Trichloroethene	50.000	49.989	0.0	90	0.03

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG122111\
Data File : VG039752.D
Acq On : 21 Dec 2011 13:48
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 21 15:13:56 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	C	1,2-Dichloropropane	50.000	54.303	-8.6#	97	0.03
47	T	Dibromomethane	50.000	54.595	-9.2	95	0.03
48	T	Bromodichloromethane	50.000	54.251	-8.5	91	0.02
49	T	Methyl methacrylate	50.000	53.950	-7.9	90	0.02
50	T	1,4-Dioxane	1000.000	1347.234	-34.7#	105	0.02
51	S	Toluene-d8	50.000	51.372	-2.7	88	0.02
52	T	4-Methyl-2-Pentanone	250.000	283.417	-13.4	92	0.01
53	CM	Toluene	50.000	54.381	-8.8#	94	0.02
54	T	t-1,3-Dichloropropene	50.000	46.832	6.3	83	0.02
55	T	cis-1,3-Dichloropropene	50.000	52.717	-5.4	86	0.02
56	T	1,1,2-Trichloroethane	50.000	55.054	-10.1	95	0.01
57	T	Ethyl methacrylate	50.000	47.265	5.5	84	0.01
58	T	1,3-Dichloropropane	50.000	54.082	-8.2	93	0.01
59	T	2-Chloroethyl Vinyl ether	250.000	278.962	-11.6	92	0.02
60	T	2-Hexanone	250.000	282.940	-13.2	91	0.00
61	T	Dibromochloromethane	50.000	47.577	4.8	83	0.02
62	T	1,2-Dibromoethane	50.000	55.786	-11.6	95	0.02
63	S	4-Bromofluorobenzene	50.000	57.085	-14.2	89	0.00
64	I	Chlorobenzene-d5	50.000	50.000	0.0	92	0.01
65	T	Tetrachloroethene	50.000	40.286	19.4	77	0.02
66	PM	Chlorobenzene	50.000	52.394	-4.8	99	0.02
67	T	1,1,1,2-Tetrachloroethane	50.000	52.720	-5.4	95	0.00
68	C	Ethyl Benzene	50.000	51.328	-2.7#	92	0.01
69	T	m/p-Xylenes	100.000	109.634	-9.6	96	0.02
70	T	o-Xylene	50.000	58.856	-17.7	100	0.00
71	T	Styrene	50.000	58.729	-17.5	100	0.01
72	P	Bromoform	50.000	45.837	8.3	82	0.01
73	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	94	0.00
74	T	Isopropylbenzene	50.000	50.612	-1.2	98	0.01
75	T	N-amyl acetate	50.000	53.368	-6.7	98	0.02
76	P	1,1,2,2-Tetrachloroethane	50.000	49.061	1.9	101	0.00
77	T	1,2,3-Trichloropropane	50.000	47.182	5.6	95	0.01
78	T	Bromobenzene	50.000	51.903	-3.8	100	0.02
79	T	n-propylbenzene	50.000	52.310	-4.6	101	0.00
80	T	2-Chlorotoluene	50.000	51.375	-2.8	99	0.01
81	T	1,3,5-Trimethylbenzene	50.000	51.767	-3.5	98	0.00
82	T	trans-1,4-Dichloro-2-butene	50.000	21.566	56.9#	40	0.01
83	T	4-Chlorotoluene	50.000	51.135	-2.3	99	0.01
84	T	tert-Butylbenzene	50.000	53.634	-7.3	101	0.01
85	T	1,2,4-Trimethylbenzene	50.000	53.780	-7.6	100	0.00
86	T	sec-Butylbenzene	50.000	53.267	-6.5	101	0.01
87	T	p-Isopropyltoluene	50.000	54.207	-8.4	101	0.00
88	T	1,3-Dichlorobenzene	50.000	53.350	-6.7	102	0.02
89	T	1,4-Dichlorobenzene	50.000	53.094	-6.2	104	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_G\Data\VG122111\
Data File : VG039752.D
Acq On : 21 Dec 2011 13:48
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 21 15:13:56 2011
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G112211W.M
Quant Title : SW846 8260
QLast Update : Tue Nov 22 22:46:26 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	n-Butylbenzene	50.000	57.664	-15.3	104	0.01
91	T	Hexachloroethane	50.000	50.314	-0.6	93	0.01
92	T	1,2-Dichlorobenzene	50.000	53.075	-6.2	101	0.01
93	T	1,2,4,5-Tetramethylbenzene	50.000	0.000	100.0#	0	-14.99#
94	T	1,2-Dibromo-3-Chloropropane	50.000	50.181	-0.4	91	0.00
95	T	1,2,4-Trichlorobenzene	50.000	51.327	-2.7	97	0.01
96	T	Hexachlorobutadiene	50.000	48.760	2.5	89	0.00
97	T	Naphthalene	50.000	53.713	-7.4	95	0.01
98	T	1,2,3-Trichlorobenzene	50.000	50.081	-0.2	95	0.01
99	T	p-ethyltoluene	50.000	0.000	100.0#	0	-11.64#
100	T	p-diethylbenzene	50.000	0.000	100.0#	0	-13.71#

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG1221W1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VG039753.D Lab Sample ID: VBG1221W1

Date Analyzed: 12/21/2011 Time Analyzed: 15:39

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG1221W1	BSG1221W1	VG039754.D	12/21/2011
BSG1221W2	BSG1221W2	VG039755.D	12/21/2011
TB-01-121911	C5056-13	VG039759.D	12/21/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1221W1	SDG No.:	C5056
Lab Sample ID:	VBG1221W1	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039753.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1221W1	SDG No.:	C5056
Lab Sample ID:	VBG1221W1	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039753.D	1		12/21/11	VG122111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.4		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	47.5		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	47.7		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.1		75 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	713188	3.9			
540-36-3	1,4-Difluorobenzene	1322130	4.71			
3114-55-4	Chlorobenzene-d5	729555	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	330367	13.39			

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSG1221W1 Analytical Method: EPA SW846 8260 Datafile : VG039754.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(35-124)
Chloromethane	20		22	110	(40-125)
Vinyl Chloride	20		24	120	(50-144)
Bromomethane	20		24	120	(44-145)
Chloroethane	20		22	110	(60-135)
Trichlorofluoromethane	20		19	95	(60-137)
1,1,2-Trichlorotrifluoroethane	20		21	105	(52-142)
1,1-Dichloroethene	20		22	110	(70-130)
Acetone	100		130	130	(50-140)
Carbon Disulfide	20		23	115	(36-155)
Methyl tert-butyl Ether	20		21	105	(65-125)
Methyl Acetate	20		25	125	(51-158)
Methylene Chloride	20		23	115	(61-138)
trans-1,2-Dichloroethene	20		23	115	(60-137)
1,1-Dichloroethane	20		23	115	(70-135)
Cyclohexane	20		24	120	(56-141)
2-Butanone	100		120	120	(56-150)
Carbon Tetrachloride	20		22	110	(65-138)
cis-1,2-Dichloroethene	20		23	115	(70-125)
Bromochloromethane	20		25	125	(65-130)
Chloroform	20		21	105	(67-135)
1,1,1-Trichloroethane	20		20	100	(65-130)
Methylcyclohexane	20		21	105	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		18	90	(70-130)
Trichloroethene	20		19	95	(70-125)
1,2-Dichloropropane	20		21	105	(75-125)
Bromodichloromethane	20		21	105	(75-120)
4-Methyl-2-Pentanone	100		110	110	(63-135)
Toluene	20		20	100	(75-120)
t-1,3-Dichloropropene	20		19	95	(66-135)
cis-1,3-Dichloropropene	20		20	100	(70-130)
1,1,2-Trichloroethane	20		22	110	(75-125)
2-Hexanone	100		97	97	(56-130)
Dibromochloromethane	20		20	100	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSG1221W1 Analytical Method: EPA SW846 8260 Datafile : VG039754.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(80-120)
Tetrachloroethene	20		17	85	(45-178)
Chlorobenzene	20		20	100	(80-120)
Ethyl Benzene	20		21	105	(75-125)
m/p-Xylenes	40		43	108	(75-130)
o-Xylene	20		23	115	(80-120)
Styrene	20		23	115	(65-135)
Bromoform	20		21	105	(70-130)
Isopropylbenzene	20		19	95	(75-125)
1,1,2,2-Tetrachloroethane	20		19	95	(65-130)
1,3-Dichlorobenzene	20		20	100	(75-125)
1,4-Dichlorobenzene	20		21	105	(75-125)
1,2-Dichlorobenzene	20		20	100	(70-120)
1,2-Dibromo-3-Chloropropane	20		20	100	(54-130)
1,2,4-Trichlorobenzene	20		19	95	(65-133)
1,2,3-Trichlorobenzene	20		19	95	(60-135)
1,4-Dioxane	400		480	120	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSG1221W2 Analytical Method: EPA SW846 8260 Datafile : VG039755.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	20	18	90	0	20	(35-124)
Chloromethane	20	25	125	13	20	(40-125)
Vinyl Chloride	20	25	125	4	20	(50-144)
Bromomethane	20	27	135	12	20	(44-145)
Chloroethane	20	24	120	9	20	(60-135)
Trichlorofluoromethane	20	21	105	10	20	(60-137)
1,1,2-Trichlorotrifluoroethane	20	22	110	5	20	(52-142)
1,1-Dichloroethene	20	23	115	4	20	(70-130)
Acetone	100	140	140	7	20	(50-140)
Carbon Disulfide	20	25	125	8	20	(36-155)
Methyl tert-butyl Ether	20	23	115	9	20	(65-125)
Methyl Acetate	20	28	140	11	20	(51-158)
Methylene Chloride	20	26	130	12	20	(61-138)
trans-1,2-Dichloroethene	20	24	120	4	20	(60-137)
1,1-Dichloroethane	20	24	120	4	20	(70-135)
Cyclohexane	20	26	130	8	20	(56-141)
2-Butanone	100	130	130	8	20	(56-150)
Carbon Tetrachloride	20	22	110	0	20	(65-138)
cis-1,2-Dichloroethene	20	24	120	4	20	(70-125)
Bromochloromethane	20	25	125	0	20	(65-130)
Chloroform	20	22	110	5	20	(67-135)
1,1,1-Trichloroethane	20	20	100	0	20	(65-130)
Methylcyclohexane	20	23	115	9	20	(56-137)
Benzene	20	23	115	9	20	(80-120)
1,2-Dichloroethane	20	20	100	11	20	(70-130)
Trichloroethene	20	20	100	5	20	(70-125)
1,2-Dichloropropane	20	23	115	9	20	(75-125)
Bromodichloromethane	20	22	110	5	20	(75-120)
4-Methyl-2-Pentanone	100	120	120	9	20	(63-135)
Toluene	20	22	110	10	20	(75-120)
t-1,3-Dichloropropene	20	21	105	10	20	(66-135)
cis-1,3-Dichloropropene	20	21	105	5	20	(70-130)
1,1,2-Trichloroethane	20	22	110	0	20	(75-125)
2-Hexanone	100	110	110	13	20	(56-130)
Dibromochloromethane	20	21	105	5	20	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BSG1221W2 Analytical Method: EPA SW846 8260 Datafile : VG039755.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
1,2-Dibromoethane	20	23	115	14	20	(80-120)
Tetrachloroethene	20	18	90	6	20	(45-178)
Chlorobenzene	20	21	105	5	20	(80-120)
Ethyl Benzene	20	22	110	5	20	(75-125)
m/p-Xylenes	40	44	110	2	20	(75-130)
o-Xylene	20	23	115	0	20	(80-120)
Styrene	20	24	120	4	20	(65-135)
Bromoform	20	22	110	5	20	(70-130)
Isopropylbenzene	20	20	100	5	20	(75-125)
1,1,2,2-Tetrachloroethane	20	21	105	10	20	(65-130)
1,3-Dichlorobenzene	20	21	105	5	20	(75-125)
1,4-Dichlorobenzene	20	22	110	5	20	(75-125)
1,2-Dichlorobenzene	20	22	110	10	20	(70-120)
1,2-Dibromo-3-Chloropropane	20	20	100	0	20	(54-130)
1,2,4-Trichlorobenzene	20	21	105	10	20	(65-133)
1,2,3-Trichlorobenzene	20	22	110	15	20	(60-135)
1,4-Dioxane	400	540	135*	12	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VT002062.D BFB Injection Date: 12/23/2011

Instrument ID: MSVOA_T BFB Injection Time: 15:40

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.4
75	30.0 - 60.0% of mass 95	56.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.9
173	Less than 2.0% of mass 174	0.3 (0.5) 1
174	50.0 - 100.0% of mass 95	61.1
175	5.0 - 9.0% of mass 174	5.1 (8.3) 1
176	95.0 - 101.0% of mass 174	58.5 (95.9) 1
177	5.0 - 9.0% of mass 176	3.8 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD005	5 PPB ICC	VT002063.D	12/23/2011	16:55
VSTD010	10 PPB ICC	VT002064.D	12/23/2011	17:26
VSTD020	20 PPB ICC	VT002065.D	12/23/2011	17:57
VSTD050	50 PPB ICC	VT002066.D	12/23/2011	18:27
VSTD100	100 PPB ICC	VT002067.D	12/23/2011	18:58
VSTD200	200 PPB ICC	VT002068.D	12/23/2011	19:29

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_T Calibration Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Calibration Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT002063.D RRF020 = VT002065.D RRF050 = VT002066.D
RRF100 = VT002067.D RRF200 = VT002068.D RRF010 = VT002064.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.346	0.374	0.416	0.411	0.396	0.329	0.379	9.3
Chloromethane	0.482	0.550	0.571	0.551	0.534	0.462	0.525	8.2
Vinyl Chloride	0.427	0.467	0.495	0.478	0.459	0.392	0.453	8.2
Bromomethane	0.206	0.229	0.232	0.190	0.135	0.161	0.192	20
Chloroethane	0.283	0.317	0.319	0.291	0.239	0.278	0.288	10.2
Trichlorofluoromethane	0.652	0.686	0.737	0.687	0.662	0.626	0.675	5.6
1,1,2-Trichlorotrifluor<	0.364	0.356	0.389	0.379	0.369	0.322	0.363	6.4
1,1-Dichloroethene	0.486	0.537	0.562	0.535	0.529	0.471	0.52	6.6
Acetone	0.239	0.255	0.275	0.256	0.244	0.207	0.246	9.3
Carbon Disulfide	1.486	1.815	2.029	1.982	2.104	1.520	1.823	14.5
Methyl tert-butyl Ether	1.150	1.493	1.777	1.703	1.777	1.356	1.543	16.6
Methyl Acetate	1.116	1.210	1.374	1.324	1.350	1.124	1.25	9.2
Methylene Chloride	0.715	0.690	0.715	0.689	0.698	0.602	0.685	6.2
trans-1,2-Dichloroethen<	0.542	0.591	0.644	0.646	0.660	0.499	0.597	10.9
1,1-Dichloroethane	1.168	1.351	1.448	1.437	1.472	1.148	1.337	10.8
Cyclohexane	1.432	1.341	1.403	1.349	1.362	1.216	1.35	5.5
2-Butanone	0.287	0.334	0.381	0.360	0.348	0.274	0.331	12.7
Carbon Tetrachloride	0.367	0.446	0.492	0.494	0.506	0.372	0.446	14.1
cis-1,2-Dichloroethene	0.590	0.699	0.768	0.772	0.778	0.593	0.7	12.7
Bromochloromethane	0.732	0.683	0.680	0.682	0.667	0.725	0.695	3.9
Chloroform	1.073	1.211	1.302	1.295	1.302	1.050	1.205	9.7
1,1,1-Trichloroethane	0.776	0.920	0.996	0.972	0.994	0.770	0.905	11.7
Methylcyclohexane	0.617	0.678	0.755	0.742	0.758	0.587	0.69	10.8
Benzene	1.577	1.750	1.883	1.905	1.981	1.469	1.761	11.5
1,2-Dichloroethane	0.529	0.573	0.625	0.610	0.615	0.504	0.576	8.7
Trichloroethene	0.275	0.310	0.329	0.326	0.332	0.264	0.306	9.6
1,2-Dichloropropane	0.394	0.452	0.494	0.486	0.486	0.387	0.45	10.7
Bromodichloromethane	0.404	0.487	0.548	0.543	0.539	0.408	0.488	13.8
4-Methyl-2-Pentanone	0.319	0.368	0.432	0.404	0.375	0.316	0.369	12.4
Toluene	0.772	0.871	0.945	0.934	0.926	0.746	0.866	10
t-1,3-Dichloropropene	0.328	0.453	0.539	0.543	0.527	0.353	0.457	21.1

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_T Calibration Date(s): 12/23/2011 12/23/2011

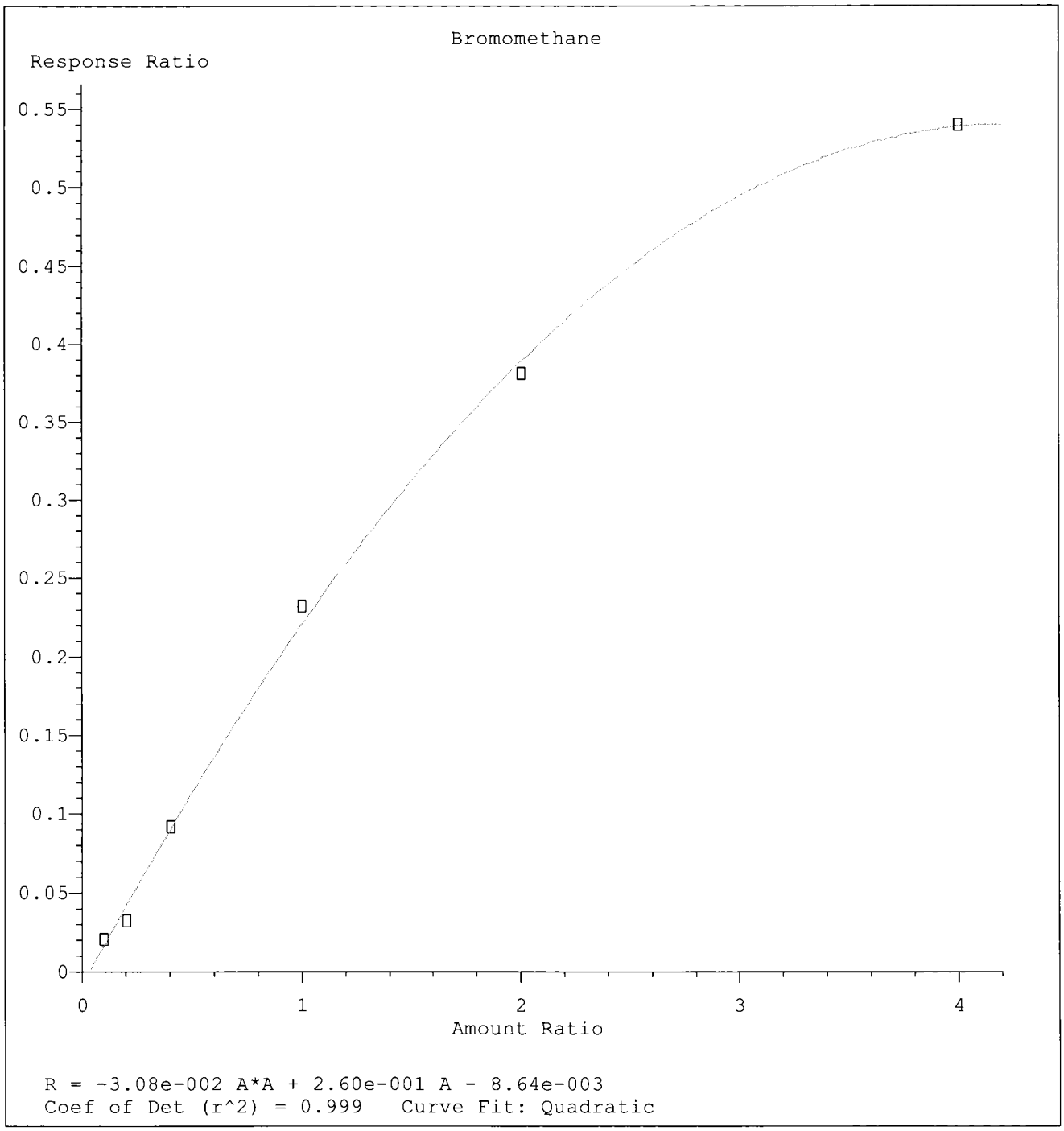
Heated Purge: (Y/N) Y Calibration Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VT002063.D RRF020 = VT002065.D RRF050 = VT002066.D
RRF100 = VT002067.D RRF200 = VT002068.D RRF010 = VT002064.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF200	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.454	0.598	0.674	0.680	0.663	0.475	0.591	17.3
1,1,2-Trichloroethane	0.228	0.255	0.278	0.264	0.249	0.227	0.25	8.1
2-Hexanone	0.180	0.236	0.284	0.265	0.252	0.187	0.234	18
Dibromochloromethane	0.157	0.202	0.231	0.225	0.215	0.164	0.199	15.8
1,2-Dibromoethane	0.172	0.199	0.224	0.214	0.204	0.175	0.198	10.5
Tetrachloroethene	0.391	0.415	0.458	0.455	0.468	0.377	0.427	9
Chlorobenzene	0.964	1.046	1.125	1.119	1.134	0.921	1.051	8.7
Ethyl Benzene	1.795	2.098	2.308	2.363	2.404	1.767	2.123	13.4
m/p-Xylenes	0.626	0.723	0.800	0.816	0.841	0.618	0.737	13.3
o-Xylene	0.544	0.654	0.743	0.764	0.817	0.550	0.679	16.9
Styrene	0.836	1.050	1.229	1.296	1.410	0.863	1.114	21.2
Bromoform	0.109	0.143	0.184	0.195	0.217	0.116	0.161	27.6
Isopropylbenzene	2.838	3.457	3.733	3.817	3.988	2.843	3.446	14.5
1,1,2,2-Tetrachloroethar	0.711	0.797	0.891	0.888	0.892	0.687	0.811	11.6
1,3-Dichlorobenzene	1.260	1.417	1.576	1.582	1.540	1.222	1.433	11.2
1,4-Dichlorobenzene	1.345	1.438	1.575	1.570	1.565	1.258	1.458	9.3
1,2-Dichlorobenzene	1.236	1.348	1.455	1.438	1.428	1.170	1.346	8.8
1,2-Dibromo-3-Chloropro	0.131	0.153	0.181	0.176	0.173	0.125	0.156	15.5
1,2,4-Trichlorobenzene	0.621	0.812	0.927	0.898	0.875	0.680	0.802	15.5
1,2,3-Trichlorobenzene	0.563	0.728	0.808	0.775	0.724	0.610	0.701	13.6
1,2-Dichloroethane-d4	1.292	0.981	0.880	0.888	0.856	0.924	0.97	16.8
Dibromofluoromethane	0.465	0.376	0.338	0.343	0.346	0.345	0.369	13.3
Toluene-d8	1.971	1.555	1.365	1.378	1.342	1.395	1.501	16.2
4-Bromofluorobenzene	0.543	0.382	0.355	0.369	0.388	0.357	0.399	18
1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	10.5

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



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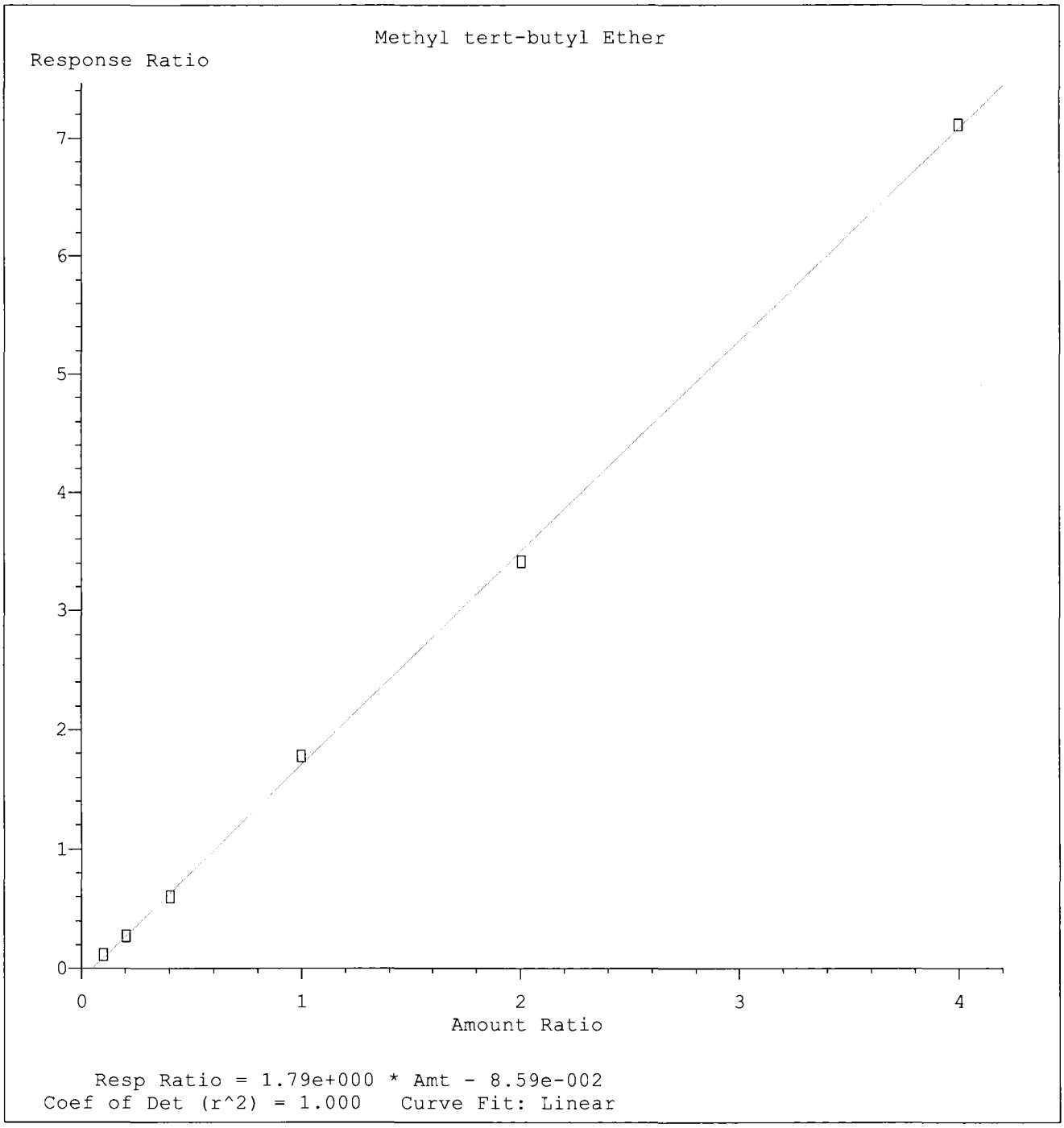
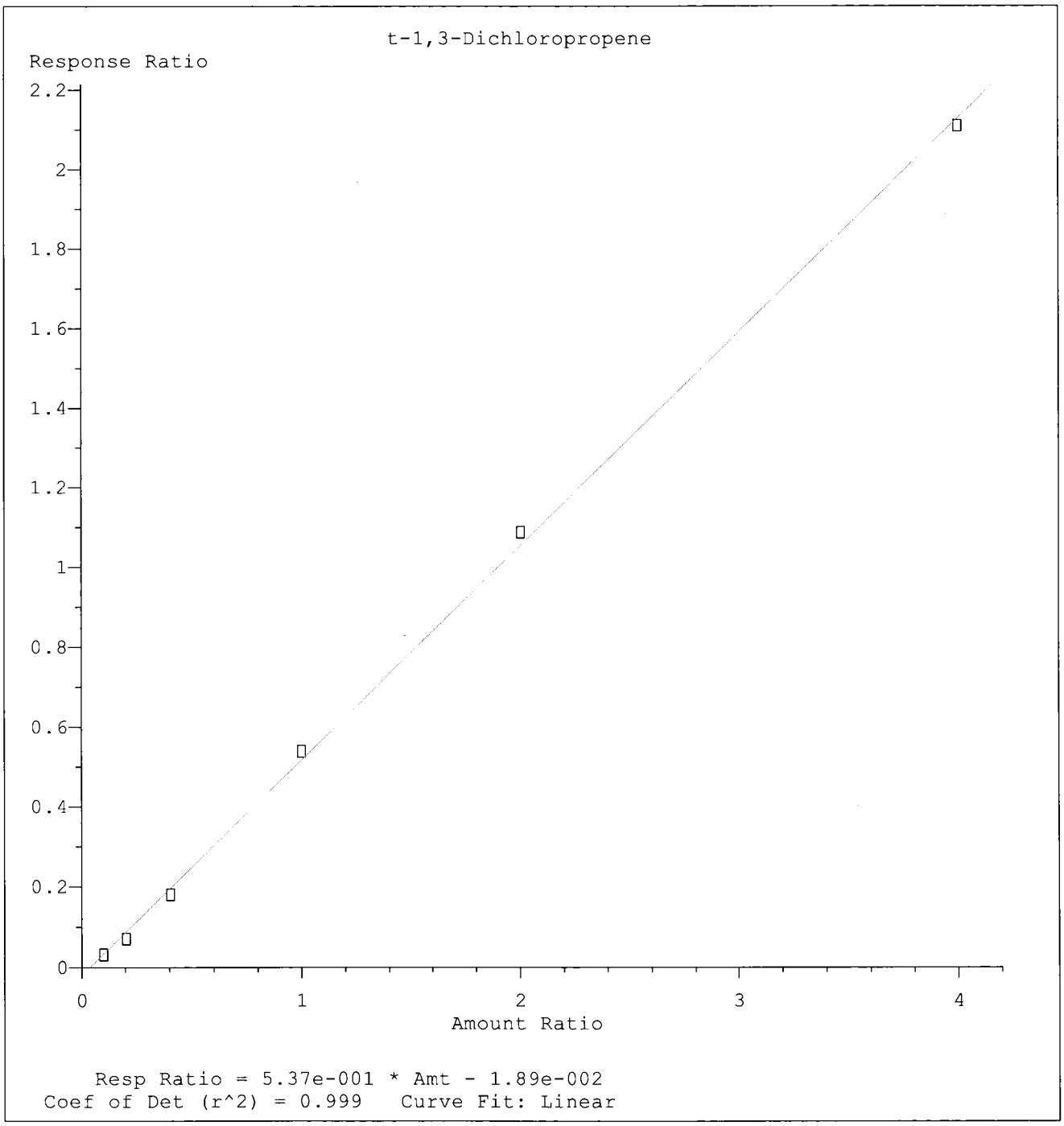
Calibration Table Last Updated: Sat Dec 24 04:27:35 2011



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Calibration Table Last Updated: Sat Dec 24 04:27:35 2011



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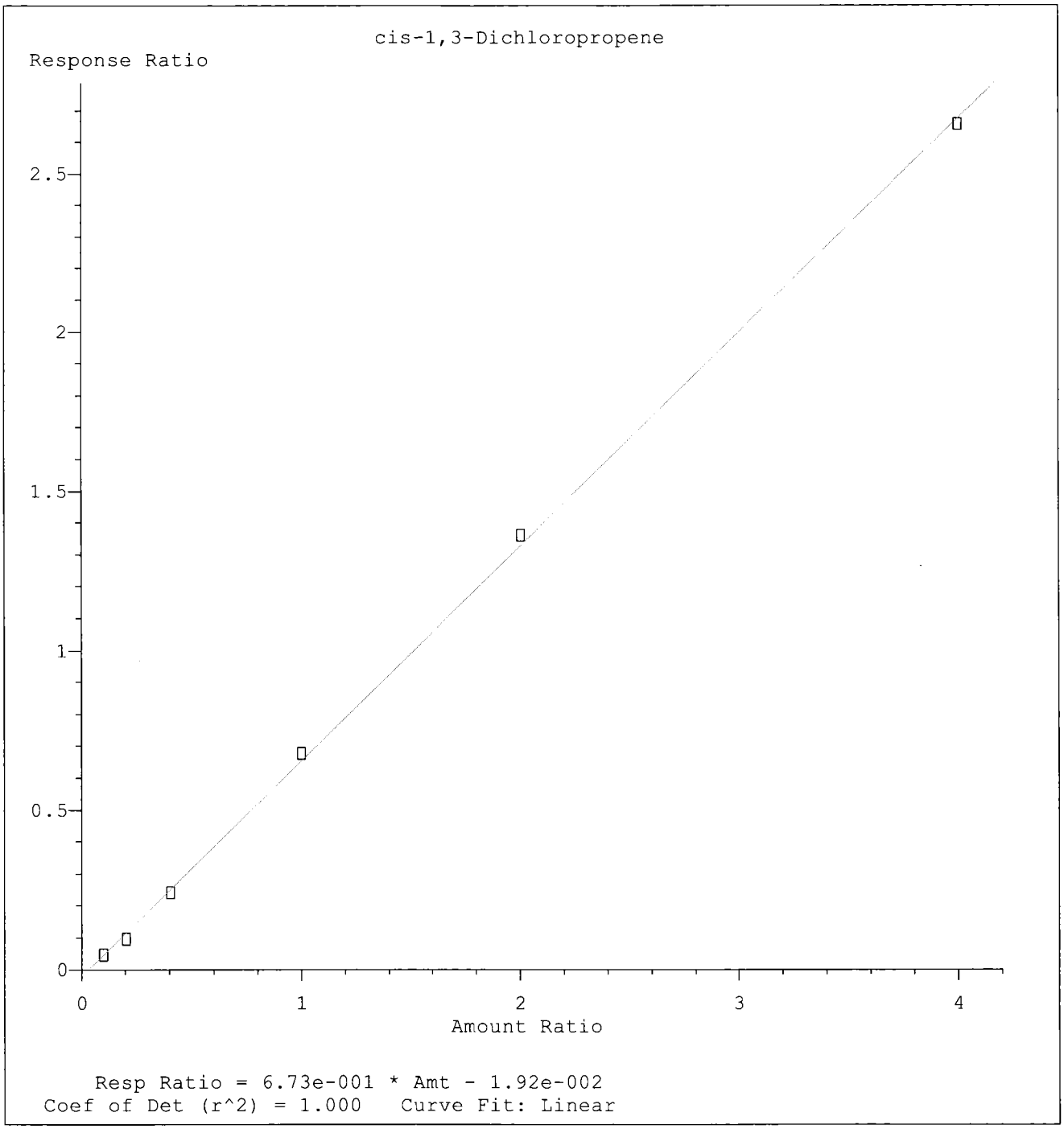
Calibration Table Last Updated: Sat Dec 24 04:37:48 2011



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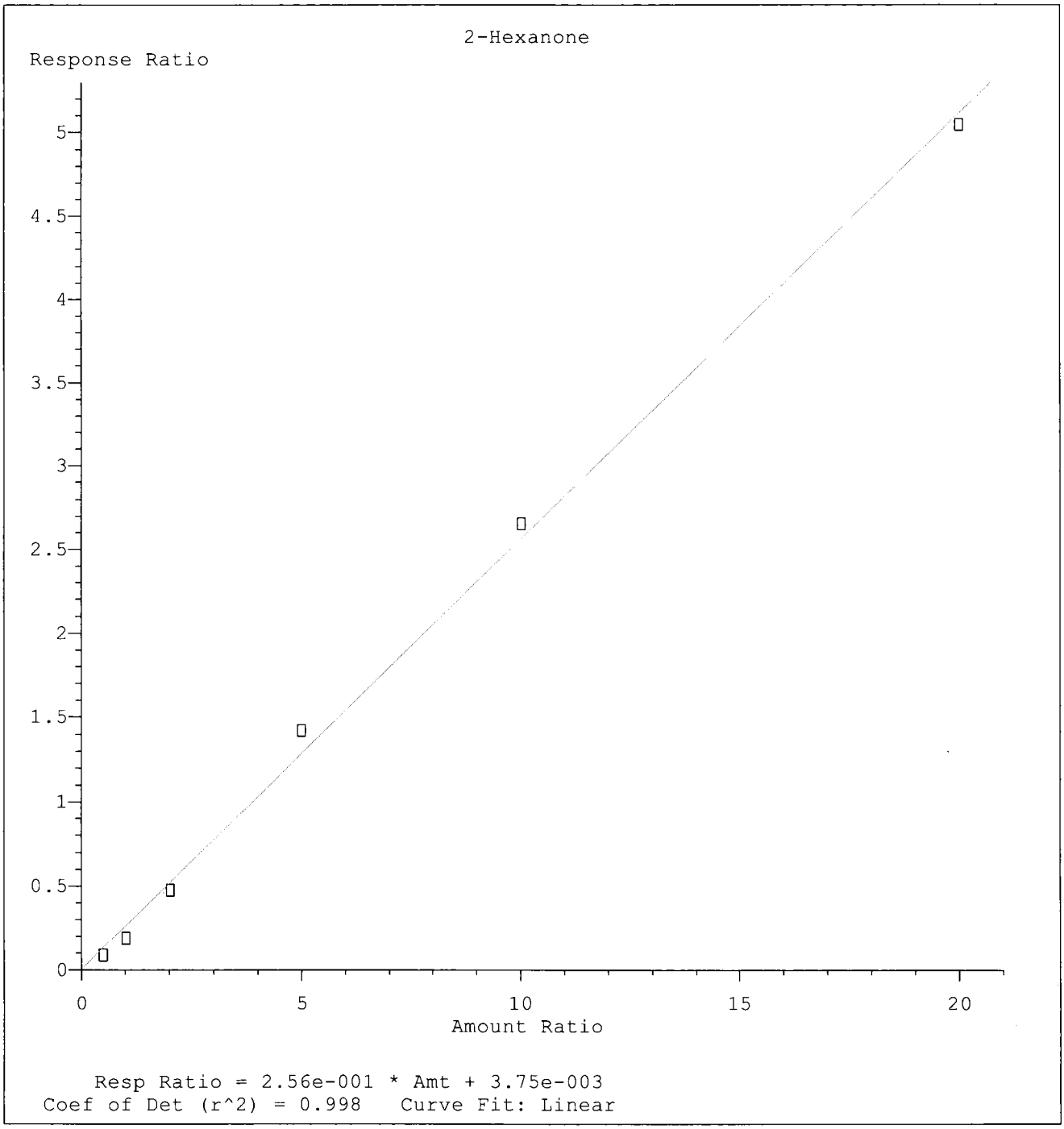
Calibration Table Last Updated: Sat Dec 24 04:38:02 2011



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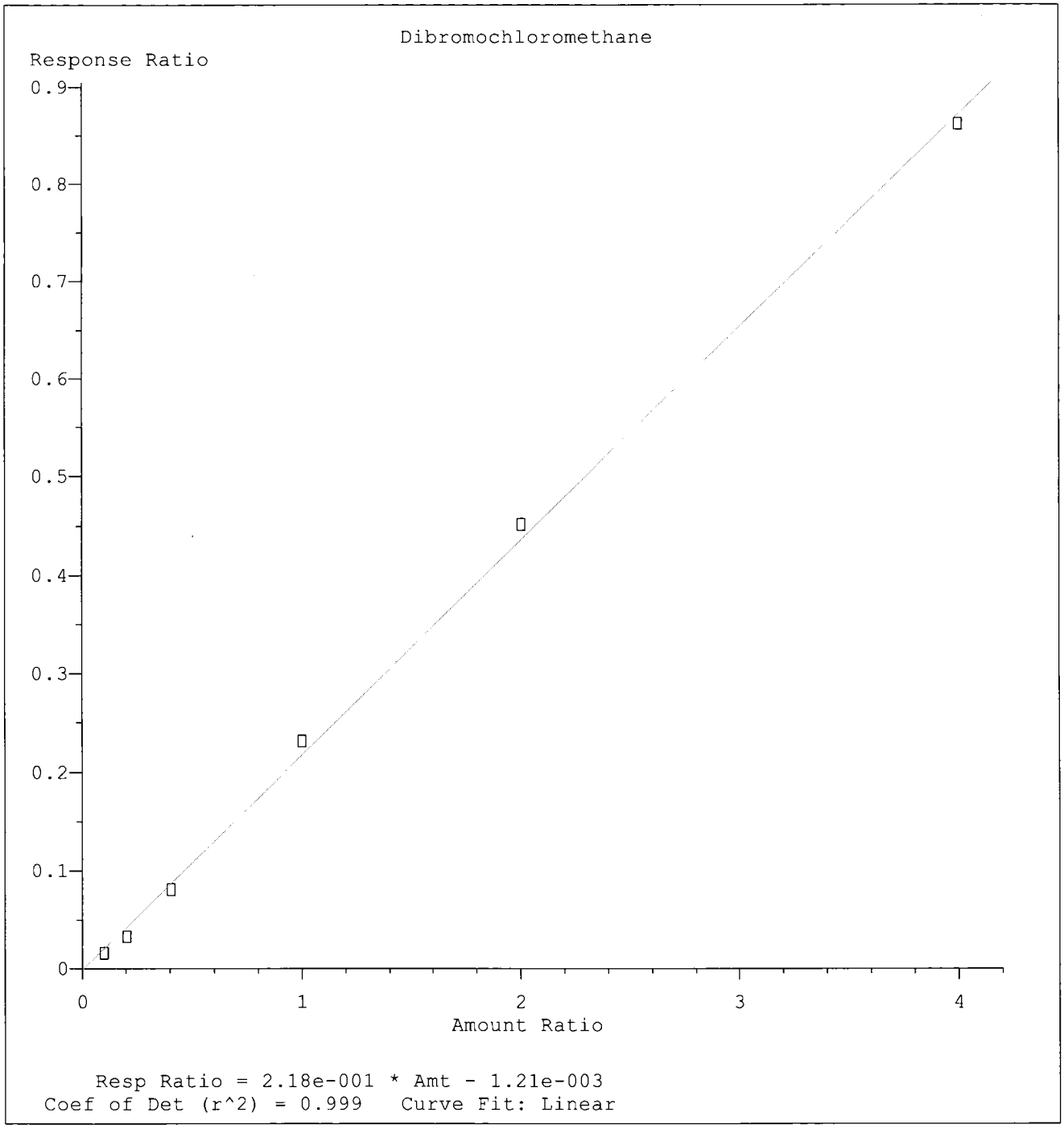
Calibration Table Last Updated: Sat Dec 24 04:38:24 2011



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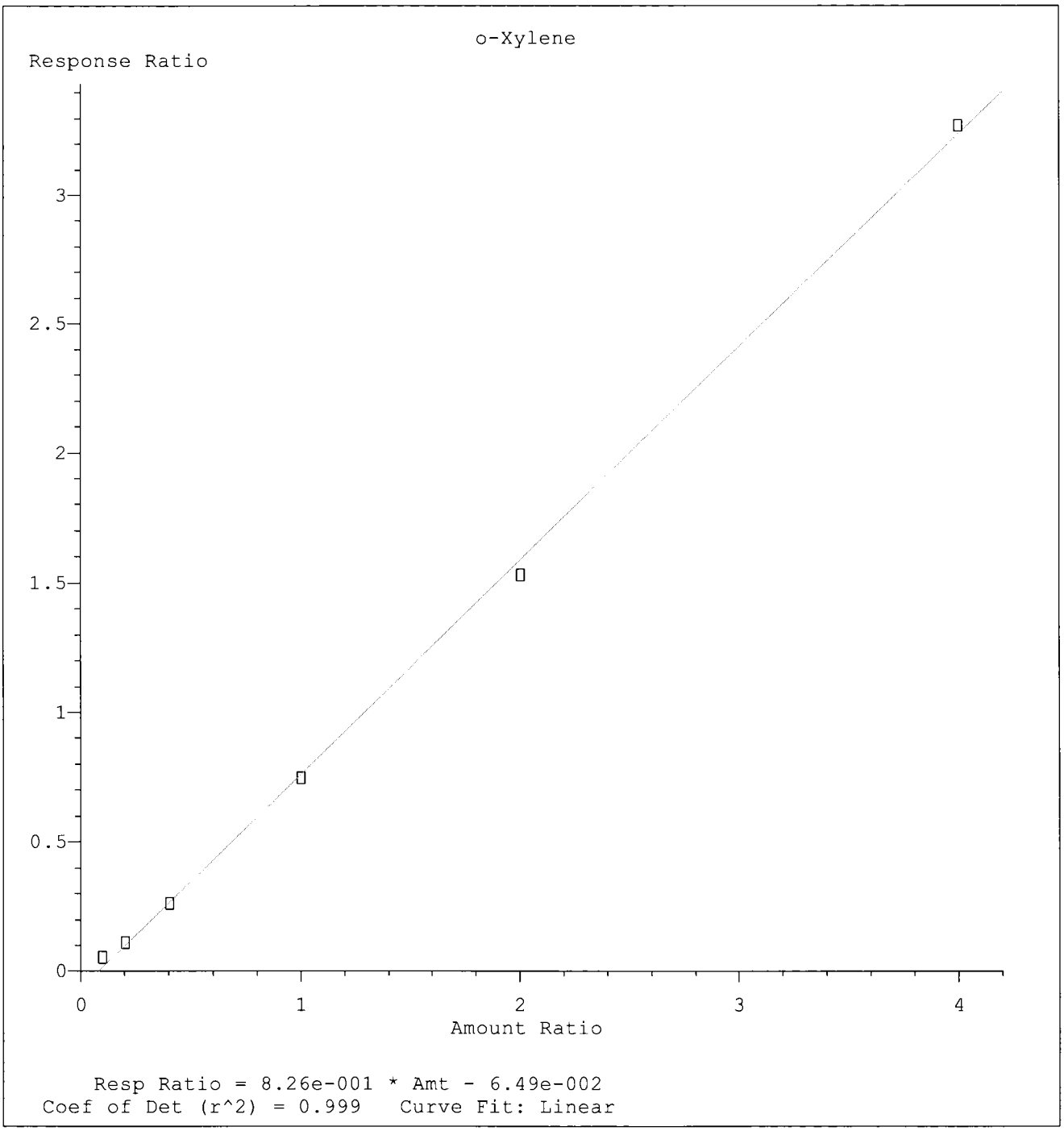
Calibration Table Last Updated: Sat Dec 24 04:39:58 2011



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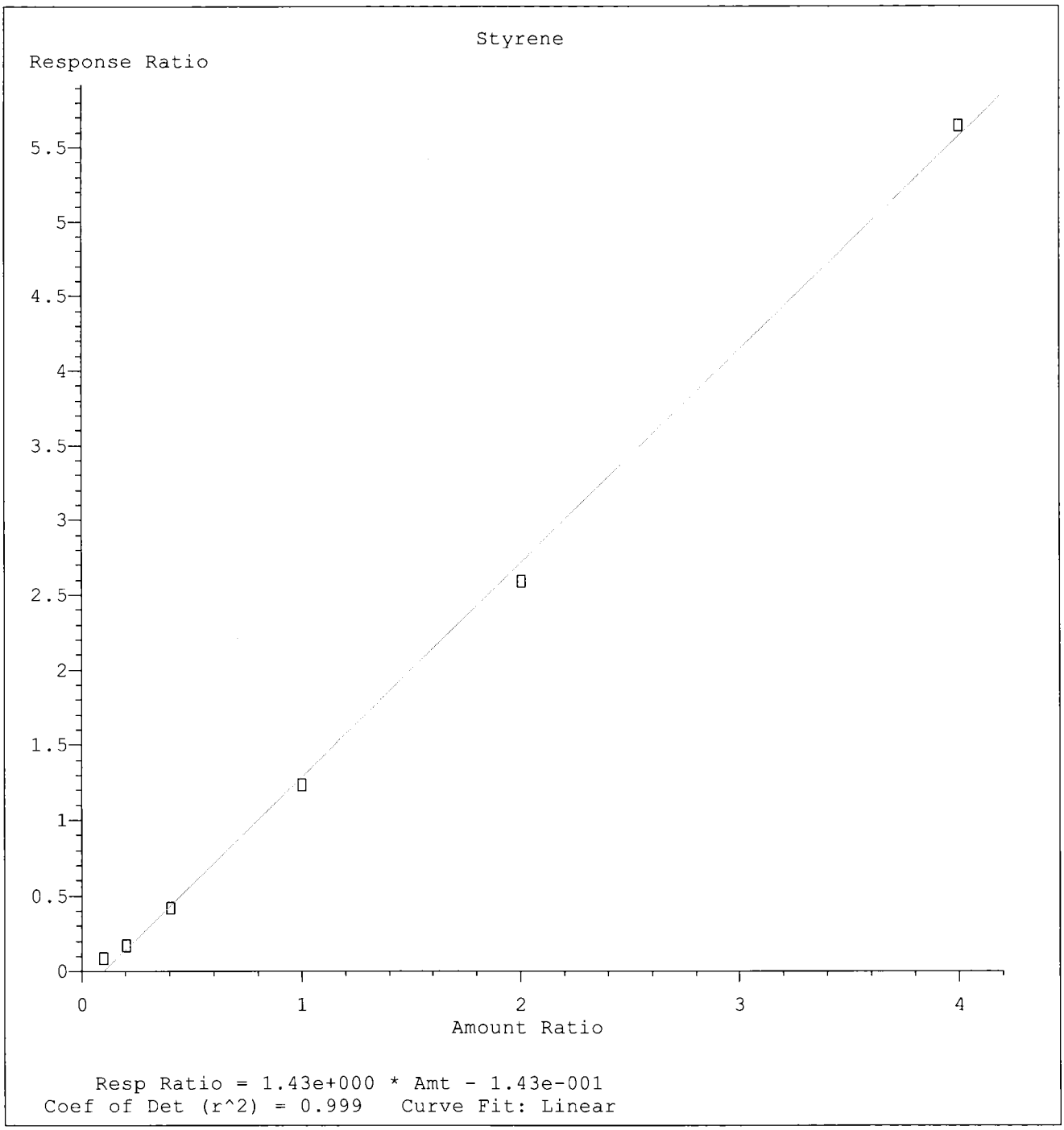
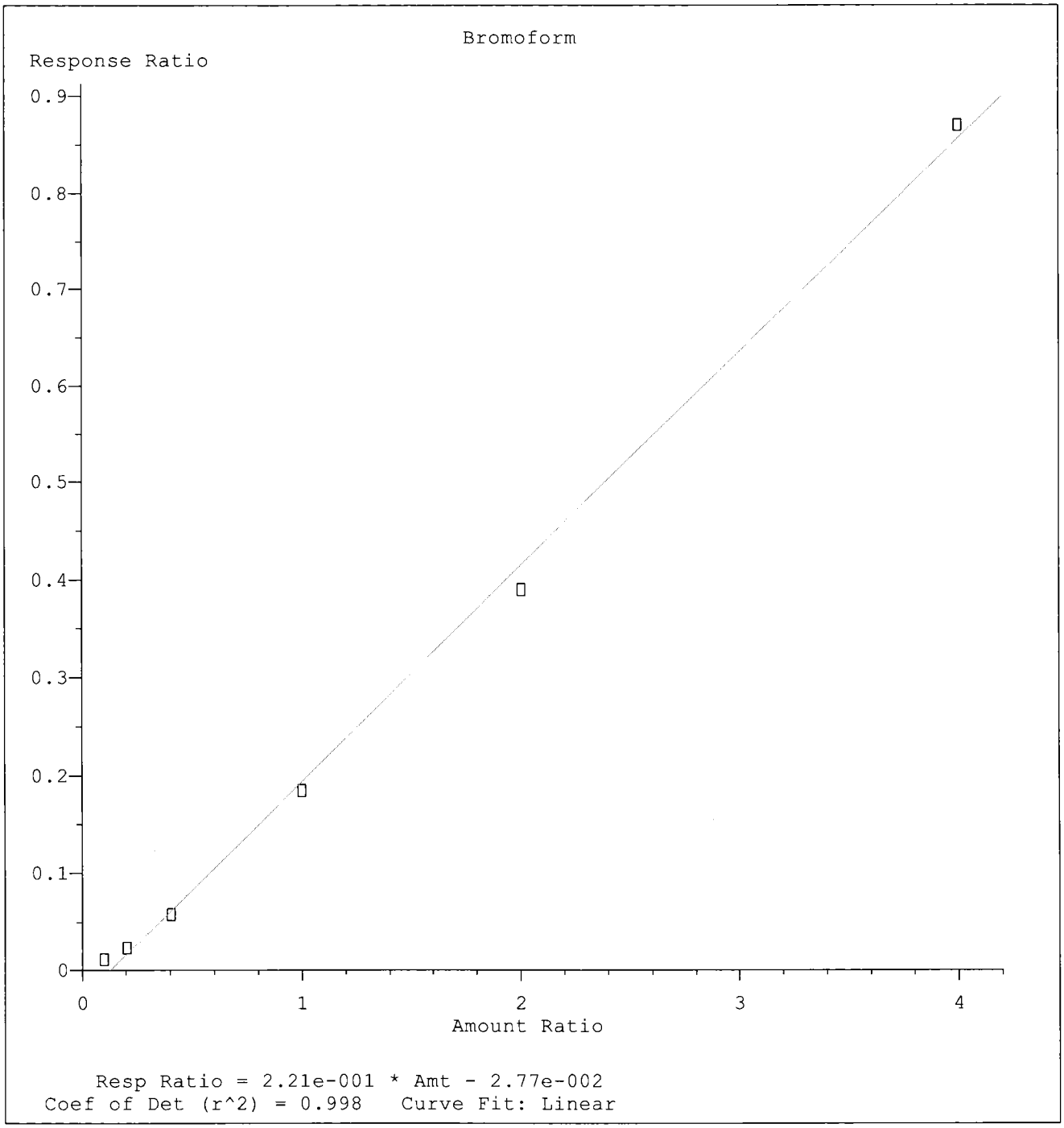
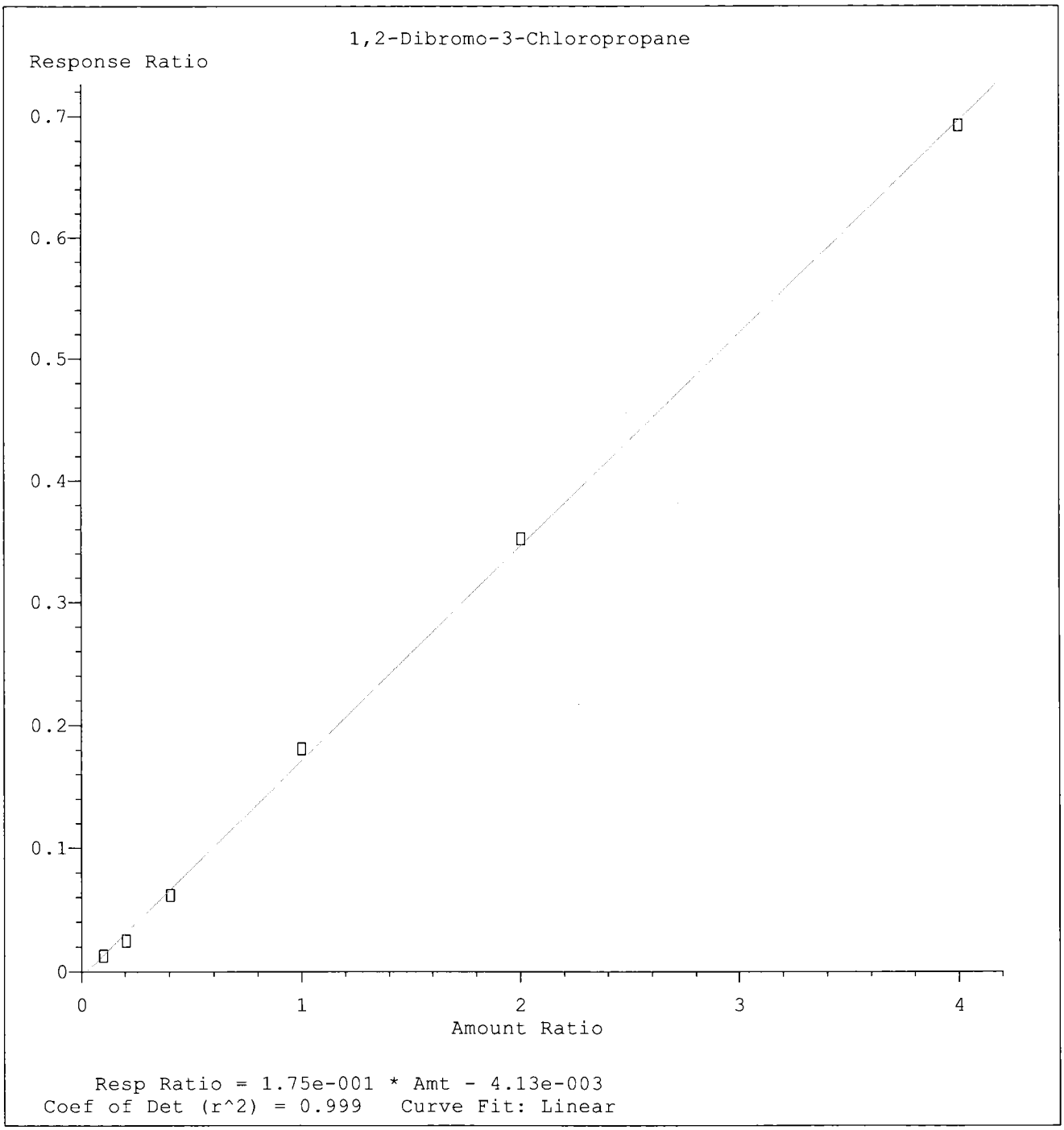
Calibration Table Last Updated: Sat Dec 24 04:40:24 2011



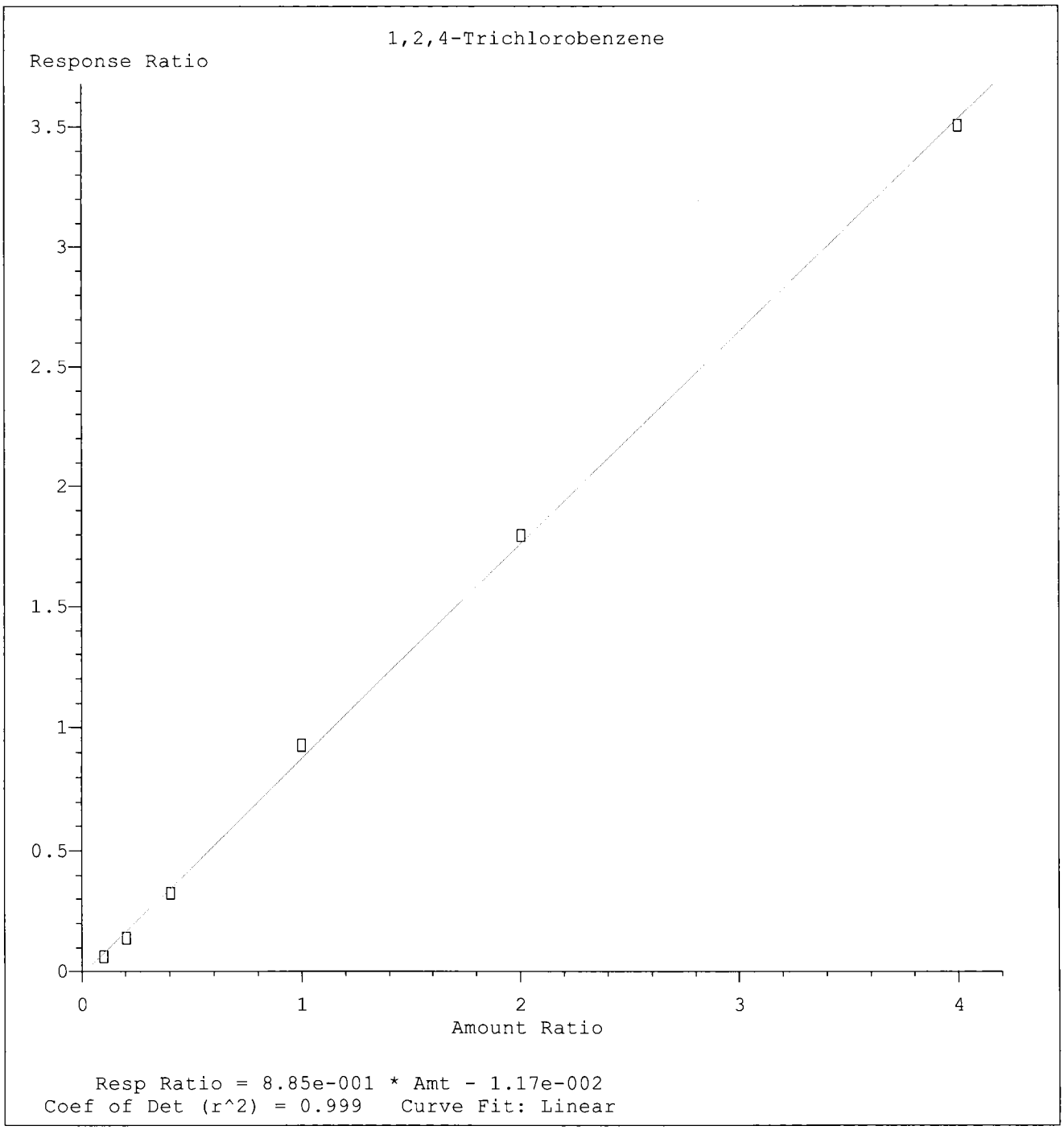
Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Calibration Table Last Updated: Sat Dec 24 04:40:50 2011



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Calibration Table Last Updated: Sat Dec 24 04:41:04 2011



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Calibration Table Last Updated: Sat Dec 24 04:43:42 2011



Method Name: W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Calibration Table Last Updated: Sat Dec 24 04:43:55 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VT002213.D BFB Injection Date: 12/30/2011

Instrument ID: MSVOA_T BFB Injection Time: 11:15

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.3
75	30.0 - 60.0% of mass 95	59.6
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	64.4
175	5.0 - 9.0% of mass 174	5.4 (8.4) 1
176	95.0 - 101.0% of mass 174	61.7 (95.8) 1
177	5.0 - 9.0% of mass 176	4.4 (7.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VT002214.D	12/30/201	12:10
VBT1230S2	VBT1230S2	VT002216.D	12/30/201	13:45
BST1230S3	BST1230S3	VT002219.D	12/30/201	15:58
12TP16-0608-03RE	C5056-03RE	VT002225.D	12/30/201	19:12
12TP-DUP-01RE	C5056-05RE	VT002226.D	12/30/201	19:43
AG-1MS	C5151-01MS	VT002231.D	12/30/201	22:16
AG-1MSD	C5151-01MSD	VT002232.D	12/30/201	22:47

not used

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_T Calibration Date/Time: 12/30/2011 12:10

Lab File ID: VT002214.D Init. Calib. Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.379	0.382		0.79	
Chloromethane	0.525	0.566	0.1	7.81	
Vinyl Chloride	0.453	0.504		11.26	20
Bromomethane	0.192	0.245		27.6	
Chloroethane	0.288	0.334		15.97	
Trichlorofluoromethane	0.675	0.804		19.11	
1,1,2-Trichlorotrifluoroethane	0.363	0.371		2.2	
1,1-Dichloroethene	0.52	0.627		20.58	20
Acetone	0.246	0.278		13.01	
Carbon Disulfide	1.823	2.119		16.24	
Methyl tert-butyl Ether	1.543	1.627		5.44	
Methyl Acetate	1.25	1.339		7.12	
Methylene Chloride	0.685	0.704		2.77	
trans-1,2-Dichloroethene	0.597	0.653		9.38	
1,1-Dichloroethane	1.337	1.418	0.1	6.06	
Cyclohexane	1.35	1.416		4.89	
2-Butanone	0.331	0.376		13.6	
Carbon Tetrachloride	0.446	0.509		14.13	
cis-1,2-Dichloroethene	0.7	0.766		9.43	
Bromochloromethane	0.695	0.675		-2.88	
Chloroform	1.205	1.288		6.89	20
1,1,1-Trichloroethane	0.905	1.014		12.04	
Methylcyclohexane	0.69	0.786		13.91	
Benzene	1.761	1.954		10.96	
1,2-Dichloroethane	0.576	0.597		3.65	
Trichloroethene	0.306	0.344		12.42	
1,2-Dichloropropane	0.45	0.501		11.33	20
Bromodichloromethane	0.488	0.546		11.89	
4-Methyl-2-Pentanone	0.369	0.424		14.91	
Toluene	0.866	0.982		13.39	20
t-1,3-Dichloropropene	0.457	0.536		17.29	
cis-1,3-Dichloropropene	0.591	0.679		14.89	
1,1,2-Trichloroethane	0.25	0.276		10.4	
2-Hexanone	0.234	0.277		18.38	
Dibromochloromethane	0.199	0.227		14.07	
1,2-Dibromoethane	0.198	0.215		8.59	
Tetrachloroethene	0.427	0.459		7.49	
Chlorobenzene	1.051	1.151	0.3	9.51	
Ethyl Benzene	2.123	2.379		12.06	20
m/p-Xylenes	0.737	0.821		11.4	
o-Xylene	0.679	0.745		9.72	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: MSVOA_T Calibration Date/Time: 12/30/2011 12:10

Lab File ID: VT002214.D Init. Calib. Date(s): 12/23/2011 12/23/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:55 19:29

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.114	1.201		7.81	
Bromoform	0.161	0.177	0.1	9.94	
Isopropylbenzene	3.446	3.740		8.53	
1,1,2,2-Tetrachloroethane	0.811	0.873	0.3	7.64	
1,3-Dichlorobenzene	1.433	1.593		11.17	
1,4-Dichlorobenzene	1.458	1.591		9.12	
1,2-Dichlorobenzene	1.346	1.474		9.51	
1,2-Dibromo-3-Chloropropane	0.156	0.169		8.33	
1,2,4-Trichlorobenzene	0.802	0.900		12.22	
1,2,3-Trichlorobenzene	0.701	0.758		8.13	
1,2-Dichloroethane-d4	0.97	0.837		-13.71	
Dibromofluoromethane	0.369	0.346		-6.23	
Toluene-d8	1.501	1.395		-7.06	
4-Bromofluorobenzene	0.399	0.334		-16.29	
1,4-Dioxane	0.003	0.003		0	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_T\data\VT123011\
Data File : VT002214.D
Acq On : 30 Dec 2011 12:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 13:06:39 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Quant Title : SW846 8260
QLast Update : Sat Dec 24 03:00:13 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	93	0.00
2	T	Dichlorodifluoromethane	50.000	50.392	-0.8	85	0.00
3	P	Chloromethane	50.000	53.936	-7.9	92	0.00
4	C	Vinyl Chloride	50.000	55.573	-11.1#	95	0.00
5	T	Bromomethane	50.000	63.718	-27.4#	98	0.00
6	T	Chloroethane	50.000	57.953	-15.9	97	0.00
7	T	Trichlorofluoromethane	50.000	59.589	-19.2	102	0.00
8	T	Diethyl Ether	50.000	54.482	-9.0	92	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	51.022	-2.0	88	0.01
10	T	Methyl Iodide	50.000	56.412	-12.8	96	0.00
11	T	Tert butyl alcohol	250.000	240.584	3.8	79	0.00
12	CM	1,1-Dichloroethene	50.000	60.253	-20.5#	104	0.00
13	T	Acrolein	250.000	191.360	23.5#	74	0.00
14	T	Allyl chloride	50.000	55.337	-10.7	93	0.00
15	T	Acrylonitrile	250.000	274.719	-9.9	90	0.00
16	T	Acetone	250.000	282.672	-13.1	94	0.00
17	T	Carbon Disulfide	50.000	58.118	-16.2	97	0.00
18	T	Methyl Acetate	50.000	53.583	-7.2	91	0.00
19	T	Methyl tert-butyl Ether	50.000	52.726	-5.5	85	0.00
20	T	Methylene Chloride	50.000	51.387	-2.8	91	0.00
21	T	trans-1,2-Dichloroethene	50.000	54.680	-9.4	94	0.00
22	T	Diisopropyl ether	50.000	54.995	-10.0	92	0.00
23	T	Vinyl Acetate	250.000	279.010	-11.6	89	0.00
24	P	1,1-Dichloroethane	50.000	53.011	-6.0	91	0.00
25	T	2-Butanone	250.000	284.211	-13.7	92	0.00
26	T	2,2-Dichloropropane	50.000	57.665	-15.3	95	0.00
27	T	cis-1,2-Dichloroethene	50.000	54.710	-9.4	93	0.00
28	T	Bromochloromethane	50.000	48.557	2.9	92	0.00
29	C	Chloroform	50.000	53.422	-6.8#	92	0.00
30	T	Cyclohexane	50.000	52.444	-4.9	94	0.00
31	T	1,1,1-Trichloroethane	50.000	56.037	-12.1	95	0.00
32	S	1,2-Dichloroethane-d4	50.000	43.113	13.8	88	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	91	0.00
34	S	Dibromofluoromethane	50.000	46.906	6.2	93	0.00
35	T	1,1-Dichloropropene	50.000	56.015	-12.0	95	0.00
36	T	Ethyl Acetate	50.000	56.847	-13.7	92	0.00
37	T	Carbon Tetrachloride	50.000	57.117	-14.2	94	0.00
38	T	Methylcyclohexane	50.000	56.970	-13.9	95	0.00
39	TM	Benzene	50.000	55.474	-10.9	94	0.00
40	T	Methacrylonitrile	50.000	49.935	0.1	80	0.00
41	TM	1,2-Dichloroethane	50.000	51.813	-3.6	87	0.00
42	T	Isopropyl Acetate	50.000	55.679	-11.4	87	0.00
43	TM	Trichloroethene	50.000	56.216	-12.4	95	0.00
44	C	1,2-Dichloropropane	50.000	55.658	-11.3#	92	0.00
45	T	Dibromomethane	50.000	55.005	-10.0	90	0.00

Data Path : W:\HPCHEM1\MSVOA_T\data\VT123011\
Data File : VT002214.D
Acq On : 30 Dec 2011 12:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 13:06:39 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Quant Title : SW846 8260
QLast Update : Sat Dec 24 03:00:13 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	55.912	-11.8	91	0.00
47	T	Methyl methacrylate	50.000	57.454	-14.9	89	0.00
48	T	1,4-Dioxane	1000.000	1035.623	-3.6	85	0.00
49	S	Toluene-d8	50.000	46.452	7.1	93	0.00
50	T	4-Methyl-2-Pentanone	250.000	287.395	-15.0	89	0.00
51	CM	Toluene	50.000	56.722	-13.4#	94	0.00
52	T	t-1,3-Dichloropropene	50.000	58.625	-17.3	90	0.00
53	T	cis-1,3-Dichloropropene	50.000	57.494	-15.0	92	0.00
54	T	1,1,2-Trichloroethane	50.000	55.123	-10.2	90	0.00
55	T	Ethyl methacrylate	50.000	57.440	-14.9	87	0.00
56	T	1,3-Dichloropropane	50.000	55.142	-10.3	89	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	250.942	-0.4	89	0.00
58	T	2-Hexanone	250.000	295.707	-18.3	89	0.00
59	T	Dibromochloromethane	50.000	56.931	-13.9	89	0.00
60	T	1,2-Dibromoethane	50.000	54.333	-8.7	87	0.00
61	S	4-Bromofluorobenzene	50.000	41.822	16.4	85	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	88	0.00
63	T	Tetrachloroethene	50.000	53.702	-7.4	89	0.00
64	PM	Chlorobenzene	50.000	54.748	-9.5	91	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	55.254	-10.5	88	0.00
66	C	Ethyl Benzene	50.000	56.050	-12.1#	91	0.00
67	T	m/p-Xylenes	100.000	111.422	-11.4	91	0.00
68	T	o-Xylene	50.000	54.847	-9.7	89	0.00
69	T	Styrene	50.000	53.923	-7.8	86	0.00
70	P	Bromoform	50.000	55.240	-10.5	85	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	88	0.00
72	T	Isopropylbenzene	50.000	54.273	-8.5	89	0.00
73	T	N-amyl acetate	50.000	54.950	-9.9	83	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	53.846	-7.7	87	0.00
75	T	1,2,3-Trichloropropane	50.000	54.526	-9.1	87	0.00
76	T	Bromobenzene	50.000	53.489	-7.0	88	0.00
77	T	n-propylbenzene	50.000	54.750	-9.5	90	0.00
78	T	2-Chlorotoluene	50.000	53.205	-6.4	88	0.00
79	T	1,3,5-Trimethylbenzene	50.000	54.711	-9.4	89	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	57.220	-14.4	87	0.00
81	T	4-Chlorotoluene	50.000	53.449	-6.9	89	0.00
82	T	tert-Butylbenzene	50.000	55.200	-10.4	89	0.00
83	T	1,2,4-Trimethylbenzene	50.000	54.982	-10.0	89	0.00
84	T	sec-Butylbenzene	50.000	55.729	-11.5	90	0.00
85	T	p-Isopropyltoluene	50.000	56.633	-13.3	90	0.00
86	T	1,3-Dichlorobenzene	50.000	55.595	-11.2	89	0.00
87	T	1,4-Dichlorobenzene	50.000	54.554	-9.1	89	0.00
88	T	n-Butylbenzene	50.000	57.084	-14.2	90	0.00
89	T	Hexachloroethane	50.000	59.746	-19.5	91	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_T\data\VT123011\
Data File : VT002214.D
Acq On : 30 Dec 2011 12:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/ 5mL,MSVOA_T
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 13:06:39 2011
Quant Method : W:\HPCHEM1\MSVOA_T\METHODS\82T122311S.M
Quant Title : SW846 8260
QLast Update : Sat Dec 24 03:00:13 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	54.755	-9.5	89	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	54.055	-8.1	83	0.00
92	T	1,2,4-Trichlorobenzene	50.000	56.064	-12.1	86	0.00
93	T	Hexachlorobutadiene	50.000	49.364	1.3	78	0.00
94	T	Naphthalene	50.000	56.771	-13.5	83	0.00
95	T	1,2,3-Trichlorobenzene	50.000	54.039	-8.1	83	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBT1230S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: VT002216.D Lab Sample ID: VBT1230S2

Date Analyzed: 12/30/2011 Time Analyzed: 13:45

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_T

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BST1230S3	BST1230S3	VT002219.D	12/30/2011
12TP16-0608-03RE	C5056-03RE	VT002225.D	12/30/2011
12TP-DUP-01RE	C5056-05RE	VT002226.D	12/30/2011
AG-1MS	C5151-01MS	VT002231.D	12/30/2011
AG-1MSD	C5151-01MSD	VT002232.D	12/30/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1230S2	SDG No.:	C5056
Lab Sample ID:	VBT1230S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002216.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBT1230S2	SDG No.:	C5056
Lab Sample ID:	VBT1230S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT002216.D	1		12/30/11	VT123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	20	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		55 - 158	108%	SPK: 50
1868-53-7	Dibromofluoromethane	55.2		53 - 156	110%	SPK: 50
2037-26-5	Toluene-d8	57		85 - 115	114%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.8		85 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	656015	8.05			
540-36-3	1,4-Difluorobenzene	1107230	8.95			
3114-55-4	Chlorobenzene-d5	632546	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	288390	13.63			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BST1230S3 Analytical Method: EPA SW846 8260 Datafile : VT002219.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		21	105	(47-135)
Chloromethane	20		22	110	(56-130)
Vinyl Chloride	20		22	110	(60-125)
Bromomethane	20		22	110	(45-158)
Chloroethane	20		23	115	(42-155)
Trichlorofluoromethane	20		23	115	(55-146)
1,1,2-Trichlorotrifluoroethane	20		20	100	(65-134)
1,1-Dichloroethene	20		23	115	(65-135)
Acetone	100		110	110	(57-148)
Carbon Disulfide	20		22	110	(60-138)
Methyl tert-butyl Ether	20		22	110	(70-131)
Methyl Acetate	20		22	110	(44-187)
Methylene Chloride	20		20	100	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		21	105	(75-125)
Cyclohexane	20		21	105	(66-132)
2-Butanone	100		110	110	(52-153)
Carbon Tetrachloride	20		22	110	(74-122)
cis-1,2-Dichloroethene	20		21	105	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		21	105	(75-125)
1,1,1-Trichloroethane	20		21	105	(75-128)
Methylcyclohexane	20		22	110	(71-124)
Benzene	20		21	105	(79-122)
1,2-Dichloroethane	20		21	105	(75-132)
Trichloroethene	20		22	110	(77-120)
1,2-Dichloropropane	20		22	110	(76-120)
Bromodichloromethane	20		21	105	(77-124)
4-Methyl-2-Pentanone	100		120	120	(70-141)
Toluene	20		22	110	(78-121)
t-1,3-Dichloropropene	20		22	110	(76-125)
cis-1,3-Dichloropropene	20		22	110	(79-122)
1,1,2-Trichloroethane	20		23	115	(76-125)
2-Hexanone	100		110	110	(55-145)
Dibromochloromethane	20		23	115	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5056 SAS No : C5056 SDG No: C5056

Matrix Spike - EPA Sample No : BST1230S3 Analytical Method: EPA SW846 8260 Datafile : VT002219.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		22	110	(76-125)
Tetrachloroethene	20		22	110	(65-140)
Chlorobenzene	20		22	110	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		42	105	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		20	100	(71-125)
Isopropylbenzene	20		21	105	(77-124)
1,1,2,2-Tetrachloroethane	20		22	110	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		21	105	(82-118)
1,2-Dichlorobenzene	20		21	105	(81-120)
1,2-Dibromo-3-Chloropropane	20		21	105	(66-132)
1,2,4-Trichlorobenzene	20		21	105	(71-124)
1,2,3-Trichlorobenzene	20		21	105	(74-123)
1,4-Dioxane	400		450	113	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5056 **SAS No :** C5056 **SDG No:** C5056

Matrix Spike - EPA Sample No : C5151-01 **Analytical Method:** EPA SW846 8260 **Datafile :** VT002231.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	58	0	60	103	(42-135)
Chloromethane	58	0	64	110	(50-130)
Vinyl Chloride	58	0	65	112	(60-125)
Bromomethane	58	0	69	119	(40-154)
Chloroethane	58	0	67	116	(40-155)
Trichlorofluoromethane	58	0	68	117	(46-159)
1,1,2-Trichlorotrifluoroethane	58	0	62	107	(59-140)
1,1-Dichloroethene	58	0	70	121	(65-135)
Acetone	291	8.4	410	138	(31-158)
Carbon Disulfide	58	0	61	105	(45-144)
Methyl tert-butyl Ether	58	0	85	147*	(56-146)
Methyl Acetate	58	0	100	172	(16-205)
Methylene Chloride	58	0	71	122	(55-140)
trans-1,2-Dichloroethene	58	0	68	117	(65-135)
1,1-Dichloroethane	58	0	72	124	(75-125)
Cyclohexane	58	0	65	112	(51-136)
2-Butanone	291	0	440	151	(40-157)
Carbon Tetrachloride	58	0	66	114	(65-135)
cis-1,2-Dichloroethene	58	0	73	126*	(65-125)
Bromochloromethane	58	0	64	110	(70-125)
Chloroform	58	0	73	126*	(70-125)
1,1,1-Trichloroethane	58	0	72	124	(70-135)
Methylcyclohexane	58	3.6	63	102	(43-133)
Benzene	58	0	66	114	(75-125)
1,2-Dichloroethane	58	0	70	121	(70-135)
Trichloroethene	58	0	64	110	(75-125)
1,2-Dichloropropane	58	0	70	121*	(70-120)
Bromodichloromethane	58	0	72	124	(70-130)
4-Methyl-2-Pentanone	291	0	420	144	(53-145)
Toluene	58	0	67	116	(70-125)
t-1,3-Dichloropropene	58	0	75	129*	(65-125)
cis-1,3-Dichloropropene	58	0	72	124	(70-125)
1,1,2-Trichloroethane	58	0	75	129*	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

no used not in this SDG

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5056 **SAS No :** C5056 **SDG No:** C5056

Matrix Spike - EPA Sample No : C5151-01 **Analytical Method:** EPA SW846 8260 **Datafile :** VT002231.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	291	0	410	141	(45-145)
Dibromochloromethane	58	0	76	131*	(65-130)
1,2-Dibromoethane	58	0	75	129*	(70-125)
Tetrachloroethene	58	0	63	109	(65-140)
Chlorobenzene	58	0	65	112	(75-125)
Ethyl Benzene	58	0	65	112	(75-125)
m/p-Xylenes	116	0	130	112	(80-125)
o-Xylene	58	0	65	112	(75-125)
Styrene	58	0	63	109	(75-125)
Bromoform	58	0	75	129	(62-135)
Isopropylbenzene	58	0	67	116	(75-130)
1,1,2,2-Tetrachloroethane	58	0	79	136*	(55-130)
1,3-Dichlorobenzene	58	0	64	110	(70-125)
1,4-Dichlorobenzene	58	0	62	107	(70-124)
1,2-Dichlorobenzene	58	0	66	114	(75-120)
1,2-Dibromo-3-Chloropropane	58	0	84	145*	(44-135)
1,2,4-Trichlorobenzene	58	0	60	103	(65-130)
1,2,3-Trichlorobenzene	58	0	63	109	(60-135)
1,4-Dioxane	1163	0	1600	138*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 11 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5056 **SAS No :** C5056 **SDG No:** C5056

Matrix Spike - EPA Sample No : C5151-01 **Analytical Method:** EPA SW846 8260 **Datafile :** VT002232.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	%	QC LIMITS RPD	REC
Dichlorodifluoromethane	58	62	107	4	20	(42-135)
Chloromethane	58	67	116	5	20	(50-130)
Vinyl Chloride	58	66	114	2	20	(60-125)
Bromomethane	58	70	121	2	20	(40-154)
Chloroethane	58	70	121	4	20	(40-155)
Trichlorofluoromethane	58	67	116	1	20	(46-159)
1,1,2-Trichlorotrifluoroethane	58	64	110	3	20	(59-140)
1,1-Dichloroethene	58	72	124	2	20	(65-135)
Acetone	291	390	131	5	20	(31-158)
Carbon Disulfide	58	63	109	4	20	(45-144)
Methyl tert-butyl Ether	58	84	145	1	20	(56-146)
Methyl Acetate	58	100	172	0	20	(16-205)
Methylene Chloride	58	72	124	2	20	(55-140)
trans-1,2-Dichloroethene	58	71	122	4	20	(65-135)
1,1-Dichloroethane	58	76	131*	5	20	(75-125)
Cyclohexane	58	65	112	0	20	(51-136)
2-Butanone	291	410	141	7	20	(40-157)
Carbon Tetrachloride	58	70	121	6	20	(65-135)
cis-1,2-Dichloroethene	58	76	131*	4	20	(65-125)
Bromochloromethane	58	68	117	6	20	(70-125)
Chloroform	58	76	131*	4	20	(70-125)
1,1,1-Trichloroethane	58	75	129	4	20	(70-135)
Methylcyclohexane	58	62	101	1	20	(43-133)
Benzene	58	69	119	4	20	(75-125)
1,2-Dichloroethane	58	72	124	2	20	(70-135)
Trichloroethene	58	66	114	4	20	(75-125)
1,2-Dichloropropane	58	71	122*	1	20	(70-120)
Bromodichloromethane	58	74	128	3	20	(70-130)
4-Methyl-2-Pentanone	291	400	137	5	20	(53-145)
Toluene	58	68	117	1	20	(70-125)
t-1,3-Dichloropropene	58	77	133*	3	20	(65-125)
cis-1,3-Dichloropropene	58	75	129*	4	20	(70-125)
1,1,2-Trichloroethane	58	75	129*	0	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5056 **SAS No :** C5056 **SDG No:** C5056

Matrix Spike - EPA Sample No : C5151-01 **Analytical Method:** EPA SW846 8260 **Datafile :** VT002232.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	%	QC LIMITS RPD	REC
2-Hexanone	291	380	131	7	20	(45-145)
Dibromochloromethane	58	77	133*	2	20	(65-130)
1,2-Dibromoethane	58	75	129*	0	20	(70-125)
Tetrachloroethene	58	66	114	4	20	(65-140)
Chlorobenzene	58	66	114	2	20	(75-125)
Ethyl Benzene	58	67	116	4	20	(75-125)
m/p-Xylenes	116	130	112	0	20	(80-125)
o-Xylene	58	66	114	2	20	(75-125)
Styrene	58	65	112	3	20	(75-125)
Bromoform	58	76	131	2	20	(62-135)
Isopropylbenzene	58	72	124	7	20	(75-130)
1,1,2,2-Tetrachloroethane	58	83	143*	5	20	(55-130)
1,3-Dichlorobenzene	58	68	117	6	20	(70-125)
1,4-Dichlorobenzene	58	66	114	6	20	(70-124)
1,2-Dichlorobenzene	58	70	121*	6	20	(75-120)
1,2-Dibromo-3-Chloropropane	58	87	150*	3	20	(44-135)
1,2,4-Trichlorobenzene	58	62	107	4	20	(65-130)
1,2,3-Trichlorobenzene	58	65	112	3	20	(60-135)
1,4-Dioxane	1163	1500	129	7	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 12 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5056
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
12 Solid samples were received on 12/20/2011.
1 Water sample was received on 12/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dioxin, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The samples were analyzed on instrument BNA_F using GC Column RTX-5 SILMS which is 20 meters, 0.18 mm ID, 0.36 um df, Catalog # 42704.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

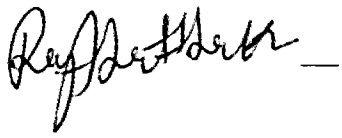
D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP16-0608-03 [Nitrobenzene-d5 - 106%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5021-01MS} with File ID: BF052277.D recoveries met the requirements for all compounds except for Atrazine[0%] .
The MSD {C5021-01MSD} with File ID: BF052278.D recoveries met the acceptable requirements except for Atrazine[0%] .
The RPD recoveries met criteria .
The Blank Spike for {PB60067BS} with File ID: BF052302.D met requirements for all samples except for 1,2,4,5-Tetrachlorobenzene[65%], 3-Nitroaniline[15%] and 4-Chloroaniline[9%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .
The Continuous Calibration File ID BF052352.D met the requirements except for 2,4-Dinitrophenol but it was not detected in any samples.
The Tuning criteria met requirements.

Samples 12TP16-0608-03, 12TP-DUP-01 was diluted due to bad matrix.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.
Reduce quantity of Samples 12TP16-0608-03 and 12TP-DUP-01 were taken for extraction due to bad matrices.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature  Kalpana Raythattha
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CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5021-01MS	SB-28_0-2MS	2-Fluorophenol	150	115.09	77		35	105
		Phenol-d5	150	121.46	81		40	100
		Nitrobenzene-d5	100	84.95	85		35	100
		2-Fluorobiphenyl	100	78.34	78		45	105
		2,4,6-Tribromophenol	150	122.63	82		35	125
		Terphenyl-d14	100	80.98	81		30	125
C5021-01MSD	SB-28_0-2MSD	2-Fluorophenol	150	124.13	83		35	105
		Phenol-d5	150	130.88	87		40	100
		Nitrobenzene-d5	100	89.36	89		35	100
		2-Fluorobiphenyl	100	84.84	85		45	105
		2,4,6-Tribromophenol	150	135.21	90		35	125
		Terphenyl-d14	100	86.27	86		30	125
C5056-01	12TP16-000.5-01	2-Fluorophenol	150	100.11	67		35	105
		Phenol-d5	150	108.07	72		40	100
		Nitrobenzene-d5	100	61.58	62		35	100
		2-Fluorobiphenyl	100	60.66	61		45	105
		2,4,6-Tribromophenol	150	96.61	64		35	125
		Terphenyl-d14	100	61.36	61		30	125
C5056-02	12TP16-0.502-02	2-Fluorophenol	150	104.97	70		35	105
		Phenol-d5	150	113.64	76		40	100
		Nitrobenzene-d5	100	65.23	65		35	100
		2-Fluorobiphenyl	100	56.27	56		45	105
		2,4,6-Tribromophenol	150	92.13	61		35	125
		Terphenyl-d14	100	60.06	60		30	125
C5056-03	12TP16-0608-03	2-Fluorophenol	150	126.15	84		35	105
		Phenol-d5	150	138.80	93		40	100
		Nitrobenzene-d5	100	106.45	106	*	35	100
		2-Fluorobiphenyl	100	61.20	61		45	105
		2,4,6-Tribromophenol	150	142.85	95		35	125
		Terphenyl-d14	100	93.75	94		30	125
C5056-04	12TP16-0910-04	2-Fluorophenol	150	98.67	66		35	105
		Phenol-d5	150	106.99	71		40	100
		Nitrobenzene-d5	100	72.11	72		35	100
		2-Fluorobiphenyl	100	69.42	69		45	105
		2,4,6-Tribromophenol	150	102.29	68		35	125
		Terphenyl-d14	100	75.40	75		30	125
C5056-05	12TP-DUP-01	2-Fluorophenol	150	118.20	79		35	105
		Phenol-d5	150	127.40	85		40	100
		Nitrobenzene-d5	100	99.50	100		35	100
		2-Fluorobiphenyl	100	54.60	55		45	105
		2,4,6-Tribromophenol	150	129.30	86		35	125
		Terphenyl-d14	100	85.80	86		30	125
PB60067B	PB60067B	2-Fluorophenol	150	107.49	72		35	105
		Phenol-d5	150	116.94	78		40	100
		Nitrobenzene-d5	100	78.38	78		35	100
		2-Fluorobiphenyl	100	78.41	78		45	105
		2,4,6-Tribromophenol	150	123.03	82		35	125
		Terphenyl-d14	100	74.53	75		30	125
PB60067BS	PB60067BS	2-Fluorophenol	150	96.94	65		35	105
		Phenol-d5	150	103.08	69		40	100
		Nitrobenzene-d5	100	69.34	69		35	100
		2-Fluorobiphenyl	100	63.41	63		45	105

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
PB60067BS	PB60067BS	2,4,6-Tribromophenol	150	101.31	68		35	125
		Terphenyl-d14	100	64.62	65		30	125

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD040 Date Analyzed: 12/25/2011

Lab File ID: BE074631.D Time Analyzed: 16:22

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	66584	8.66	278281	10.84	146799	13.8
	UPPER LIMIT	133168	9.16	556562	11.34	293598	14.3
	LOWER LIMIT	33292	8.16	139140.5	10.34	73399.5	13.3
	EPA SAMPLE NO.						
01	12TP16-000.5-01	83773	8.66	353108	10.83	195845	13.80
02	12TP16-0.502-02	84682	8.66	354381	10.84	196948	13.80

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD040 Date Analyzed: 12/25/2011

Lab File ID: BE074631.D Time Analyzed: 16:22

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	269623	16.28	238611	20.73	188837	24.45
	UPPER LIMIT	539246	16.78	477222	21.23	377674	24.95
	LOWER LIMIT	134811.5	15.78	119305.5	20.23	94418.5	23.95
	EPA SAMPLE NO.						
01	12TP16-000.5-01	356741	16.28	309450	20.73	261786	24.45
02	12TP16-0.502-02	357194	16.28	302528	20.73	258889	24.45

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD040 Date Analyzed: 12/24/2011

Lab File ID: BF052276.D Time Analyzed: 17:14

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	109015	4.16	381121	5.37	191077	6.96
	UPPER LIMIT	218030	4.66	762242	5.87	382154	7.46
	LOWER LIMIT	54507.5	3.66	190560.5	4.87	95538.5	6.46
	EPA SAMPLE NO.						
01	SB-28_0-2MS	96882	4.16	345116	5.37	172071	6.96
02	SB-28_0-2MSD	94350	4.16	345173	5.37	172490	6.96
03	PB60067B	99026	4.16	369692	5.37	187897	6.95
04	PB60067BS	93527	4.16	335306	5.37	174900	6.96

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD040 Date Analyzed: 12/24/2011

Lab File ID: BF052276.D Time Analyzed: 17:14

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	315533	8.53	268387	11.65	268322	13.24
	UPPER LIMIT	631066	9.03	536774	12.15	536644	13.74
	LOWER LIMIT	157766.5	8.03	134193.5	11.15	134161	12.74
	EPA SAMPLE NO.						
01	SB-28_0-2MS	275613	8.53	232741	11.64	233773	13.24
02	SB-28_0-2MSD	286100	8.53	239955	11.65	245799	13.24
03	PB60067B	308263	8.52	283157	11.64	247052	13.24
04	PB60067BS	284653	8.53	261062	11.64	243662	13.24

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD040 Date Analyzed: 12/26/2011

Lab File ID: BF052352.D Time Analyzed: 04:42

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	88369	4.15	318821	5.35	161291	6.94
	UPPER LIMIT	176738	4.65	637642	5.85	322582	7.44
	LOWER LIMIT	44184.5	3.65	159410.5	4.85	80645.5	6.44
	EPA SAMPLE NO.						
01	12TP16-0910-04	96513	4.15	361359	5.35	184925	6.93
02	12TP-DUP-01	91762	4.15	304122	5.35	148097	6.94
03	12TP16-0608-03	91584	4.15	304436	5.35	149204	6.94

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD040 Date Analyzed: 12/26/2011

Lab File ID: BF052352.D Time Analyzed: 04:42

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	258064	8.5	212962	11.62	202151	13.22
	UPPER LIMIT	516128	9	425924	12.12	404302	13.72
	LOWER LIMIT	129032	8	106481	11.12	101075.5	12.72
	EPA SAMPLE NO.						
01	12TP16-0910-04	279975	8.50	219642	11.62	196252	13.22
02	12TP-DUP-01	252196	8.50	236847	11.62	202197	13.23
03	12TP16-0608-03	257082	8.50	231014	11.62	189854	13.23

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60067B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: BF052301.D Lab Sample ID: PB60067B

Instrument ID: BNA_F Date Extracted: 12/21/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/25/2011

Level: (low/med) LOW Time Analyzed: 03:59

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12TP16-0608-03	C5056-03	BF052373.D	12/26/2011
12TP-DUP-01	C5056-05	BF052372.D	12/26/2011
12TP16-0910-04	C5056-04	BF052353.D	12/26/2011
PB60067BS	PB60067BS	BF052302.D	12/25/2011
SB-28_0-2MSD	C5021-01MSD	BF052278.D	12/24/2011
SB-28_0-2MS	C5021-01MS	BF052277.D	12/24/2011
12TP16-0.502-02	C5056-02	BE074639.D	12/25/2011
12TP16-000.5-01	C5056-01	BE074638.D	12/25/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60067B	SDG No.:	C5056
Lab Sample ID:	PB60067B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052301.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	23	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	15	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60067B	SDG No.:	C5056
Lab Sample ID:	PB60067B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052301.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	165	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	107		35 - 105	72%	SPK: 150
13127-88-3	Phenol-d5	116		40 - 100	78%	SPK: 150
4165-60-0	Nitrobenzene-d5	78.4		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	78.4		45 - 105	78%	SPK: 100
118-79-6	2,4,6-Tribromophenol	123		35 - 125	82%	SPK: 150
1718-51-0	Terphenyl-d14	74.5		30 - 125	75%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	99026	4.16			
1146-65-2	Naphthalene-d8	369692	5.37			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60067B	SDG No.:	C5056
Lab Sample ID:	PB60067B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052301.D	1	12/21/11	12/25/11	PB60067

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	187897	6.95			
1517-22-2	Phenanthrene-d10	308263	8.52			
1719-03-5	Chrysene-d12	283157	11.64			
1520-96-3	Perylene-d12	247052	13.24			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60067BS	Benzaldehyde	1700	850	50				10	161	
	Phenol	1700	1100	65				51	100	
	bis(2-Chloroethyl)ether	1700	1200	71				48	105	
	2-Chlorophenol	1700	1100	65				53	105	
	2-Methylphenol	1700	1200	71				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1200	71				45	115	
	Acetophenone	1700	1200	71				51	114	
	3+4-Methylphenols	1700	1200	71				54	105	
	N-Nitroso-di-n-propylamine	1700	1200	71				51	114	
	Hexachloroethane	1700	1200	71				44	110	
	Nitrobenzene	1700	1200	71				49	114	
	Isophorone	1700	1200	71				52	110	
	2-Nitrophenol	1700	1200	71				51	110	
	2,4-Dimethylphenol	1700	1200	71				46	105	
	bis(2-Chloroethoxy)methane	1700	1200	71				52	110	
	2,4-Dichlorophenol	1700	1200	71				53	110	
	4-Chloroaniline	1700	150	9		*		25	115	
	Hexachlorobutadiene	1700	1200	71				47	115	
	Caprolactam	1700	1200	71				45	115	
	4-Chloro-3-methylphenol	1700	1200	71				56	111	
	Hexachlorocyclopentadiene	3300	2300	70				43	112	
	2,4,6-Trichlorophenol	1700	1100	65				53	110	
	2,4,5-Trichlorophenol	1700	1100	65				53	110	
	1,1-Biphenyl	1700	1100	65				55	109	
	2-Chloronaphthalene	1700	1200	71				55	105	
	2-Nitroaniline	1700	1200	71				53	118	
	Dimethylphthalate	1700	1200	71				57	110	
	Acenaphthylene	1700	1200	71				54	105	
	2,6-Dinitrotoluene	1700	1200	71				55	110	
	3-Nitroaniline	1700	250	15		*		25	110	
	Acenaphthene	1700	1200	71				54	110	
	2,4-Dinitrophenol	3300	2600	79				15	130	
	4-Nitrophenol	3300	2200	67				44	115	
	Dibenzofuran	1700	1100	65				59	105	
	2,4-Dinitrotoluene	1700	1200	71				55	115	
	Diethylphthalate	1700	1200	71				56	111	
	4-Chlorophenyl-phenylether	1700	1200	71				56	110	
	4-Nitroaniline	1700	970	57				46	113	
	4,6-Dinitro-2-methylphenol	1700	1400	82				39	126	
	N-Nitrosodiphenylamine	1700	1200	71				54	115	
	4-Bromophenyl-phenylether	1700	1100	65				51	115	
	Hexachlorobenzene	1700	1200	71				52	117	
	Atrazine	1700	1400	82				40	127	
	Pentachlorophenol	3300	2400	73				47	116	
	Phenanthrene	1700	1200	71				56	110	
	Carbazole	1700	1200	71				54	117	

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Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	Limits RPD	
PB60067BS	Di-n-butylphthalate	1700	1200	71				58	110		
	Butylbenzylphthalate	1700	1100	65				57	122		
	3,3-Dichlorobenzidine	1700	200	12				10	157		
	bis(2-Ethylhexyl)phthalate	1700	1100	65				60	119		
	Di-n-octyl phthalate	1700	1100	65				56	122		
	1,2,4,5-Tetrachlorobenzene	1700	1100	65		*		70	130		not T.C.
	2,3,4,6-Tetrachlorophenol	1700	1200	71				70	130		

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5021-01MS	**Client Sample ID: SB-28_0-2MS**									
Benzaldehyde	2100	0	1300	62				10	161	
Phenol	2100	0	1700	81				43	100	
bis(2-Chloroethyl)ether	2100	0	1800	86				43	105	
2-Chlorophenol	2100	0	1800	86				45	105	
2-Methylphenol	2100	0	1800	86				44	105	
2,2-oxybis(1-Chloropropane)	2100	0	1900	90				36	115	
Acetophenone	2100	0	1800	86				48	131	
3+4-Methylphenols	2100	0	1800	86				44	105	
N-Nitroso-di-n-propylamine	2100	0	1900	90				41	115	
Hexachloroethane	2100	0	1800	86				35	110	
Nitrobenzene	2100	0	1900	90				40	115	
Isophorone	2100	0	1900	90				45	110	
2-Nitrophenol	2100	0	1900	90				40	110	
2,4-Dimethylphenol	2100	0	1900	90				35	105	
bis(2-Chloroethoxy)methane	2100	0	1900	90				45	110	
2,4-Dichlorophenol	2100	0	1800	86				45	110	
4-Chloroaniline	2100	0	1400	67				10	160	
Hexachlorobutadiene	2100	0	1900	90				40	115	
Caprolactam	2100	0	1800	86				24	145	
4-Chloro-3-methylphenol	2100	0	1900	90				45	115	
Hexachlorocyclopentadiene	4200	0	3600	86				10	128	
2,4,6-Trichlorophenol	2100	0	1800	86				45	110	
2,4,5-Trichlorophenol	2100	0	1800	86				50	110	
1,1-Biphenyl	2100	0	1800	86				47	131	
2-Chloronaphthalene	2100	0	1800	86				45	105	
2-Nitroaniline	2100	0	1900	90				45	120	
Dimethylphthalate	2100	0	2000	95				51	110	
Acenaphthylene	2100	0	1800	86				45	105	
2,6-Dinitrotoluene	2100	0	1900	90				50	110	
3-Nitroaniline	2100	0	1500	71				25	110	
Acenaphthene	2100	0	1800	86				45	110	
2,4-Dinitrophenol	4200	0	3600	86				15	130	
4-Nitrophenol	4200	0	3800	90				15	140	
Dibenzofuran	2100	0	1800	86				50	105	
2,4-Dinitrotoluene	2100	0	1900	90				50	115	
Diethylphthalate	2100	0	1800	86				50	115	
4-Chlorophenyl-phenylether	2100	0	1800	86				45	110	
4-Nitroaniline	2100	0	1800	86				35	115	
4,6-Dinitro-2-methylphenol	2100	0	2100	100				30	135	
N-Nitrosodiphenylamine	2100	0	1900	90				50	115	
4-Bromophenyl-phenylether	2100	0	1800	86				45	115	
Hexachlorobenzene	2100	0	1800	86				45	120	
Atrazine	2100	0	0	0	*			38	135	
Pentachlorophenol	4200	0	4000	95				25	120	
Phenanthrene	2100	0	1800	86				50	110	
Carbazole	2100	0	1800	86				45	115	
Di-n-butylphthalate	2100	0	1900	90				55	110	
Butylbenzylphthalate	2100	0	2000	95				50	125	

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
3,3-Dichlorobenzidine	2100	0	1500	71				10	126	
bis(2-Ethylhexyl)phthalate	2100	0	2000	95				45	125	
Di-n-octyl phthalate	2100	0	2000	95				40	130	
1,2,4,5-Tetrachlorobenzene	2100	0	1700	81				70	130	
2,3,4,6-Tetrachlorophenol	2100	0	1900	90				70	130	

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5021-01MSD	**Client Sample ID: SB-28_0-2MSD**									
Benzaldehyde	2100	0	1500	71		14		10	161	20
Phenol	2100	0	1900	90		11		43	100	20
bis(2-Chloroethyl)ether	2100	0	1900	90		5		43	105	20
2-Chlorophenol	2100	0	1900	90		5		45	105	20
2-Methylphenol	2100	0	1900	90		5		44	105	20
2,2-oxybis(1-Chloropropane)	2100	0	2000	95		5		36	115	20
Acetophenone	2100	0	1900	90		5		48	131	20
3+4-Methylphenols	2100	0	1900	90		5		44	105	20
N-Nitroso-di-n-propylamine	2100	0	2000	95		5		41	115	20
Hexachloroethane	2100	0	1900	90		5		35	110	20
Nitrobenzene	2100	0	2000	95		5		40	115	20
Isophorone	2100	0	2000	95		5		45	110	20
2-Nitrophenol	2100	0	2100	100		11		40	110	20
2,4-Dimethylphenol	2100	0	1900	90		0		35	105	20
bis(2-Chloroethoxy)methane	2100	0	1900	90		0		45	110	20
2,4-Dichlorophenol	2100	0	1900	90		5		45	110	20
4-Chloroaniline	2100	0	1400	67		0		10	160	20
Hexachlorobutadiene	2100	0	1900	90		0		40	115	20
Caprolactam	2100	0	1900	90		5		24	145	20
4-Chloro-3-methylphenol	2100	0	2000	95		5		45	115	20
Hexachlorocyclopentadiene	4200	0	3800	90		5		10	128	20
2,4,6-Trichlorophenol	2100	0	2000	95		10		45	110	20
2,4,5-Trichlorophenol	2100	0	1900	90		5		50	110	20
1,1-Biphenyl	2100	0	1900	90		5		47	131	20
2-Chloronaphthalene	2100	0	1900	90		5		45	105	20
2-Nitroaniline	2100	0	2000	95		5		45	120	20
Dimethylphthalate	2100	0	2100	100		5		51	110	20
Acenaphthylene	2100	0	1900	90		5		45	105	20
2,6-Dinitrotoluene	2100	0	1900	90		0		50	110	20
3-Nitroaniline	2100	0	1600	76		7		25	110	20
Acenaphthene	2100	0	1900	90		5		45	110	20
2,4-Dinitrophenol	4200	0	3900	93		8		15	130	20
4-Nitrophenol	4200	0	4300	102		13		15	140	20
Dibenzofuran	2100	0	1900	90		5		50	105	20
2,4-Dinitrotoluene	2100	0	2000	95		5		50	115	20
Diethylphthalate	2100	0	1900	90		5		50	115	20
4-Chlorophenyl-phenylether	2100	0	1900	90		5		45	110	20
4-Nitroaniline	2100	0	1900	90		5		35	115	20
4,6-Dinitro-2-methylphenol	2100	0	2200	105		5		30	135	20
N-Nitrosodiphenylamine	2100	0	1900	90		0		50	115	20
4-Bromophenyl-phenylether	2100	0	1900	90		5		45	115	20
Hexachlorobenzene	2100	0	1900	90		5		45	120	20
Atrazine	2100	0	0	0	*	0		38	135	20
Pentachlorophenol	4200	0	4000	95		0		25	120	20
Phenanthrene	2100	0	1900	90		5		50	110	20
Carbazole	2100	0	1900	90		5		45	115	20
Di-n-butylphthalate	2100	0	1900	90		0		55	110	20
Butylbenzylphthalate	2100	0	2100	100		5		50	125	20

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2100	0	1700	81		13		10	126	20
bis(2-Ethylhexyl)phthalate	2100	0	2200	105		10		45	125	20
Di-n-octyl phthalate	2100	0	2200	105		10		40	130	20
1,2,4,5-Tetrachlorobenzene	2100	0	1700	81		0		70	130	20
2,3,4,6-Tetrachlorophenol	2100	0	2000	95		5		70	130	20

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BE074508.D DFTPP Injection Date: 12/21/2011

Instrument ID: BNA_E DFTPP Injection Time: 15:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.5
68	Less than 2.0% of mass 69	0.5 (1.1) 1
69	Mass 69 relative abundance	44.2
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	53.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	18.1
365	Greater than 1% of mass 198	2.3
441	Present, but less than mass 443	7.7
442	Greater than 40% of mass 198	49.7
443	17.0 - 23.0% of mass 442	9.5 (19.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074509.D	12/21/2011	16:07
02	SSTD025	25 ng BNA ICC	BE074510.D	12/21/2011	16:52
03	SSTD040	40 ng BNA ICC	BE074511.D	12/21/2011	17:37
04	SSTD050	50 ng BNA ICC	BE074512.D	12/21/2011	18:22
05	SSTD060	60 ng BNA ICC	BE074513.D	12/21/2011	19:03
06	SSTD080	80 ng BNA ICC	BE074514.D	12/21/2011	19:48

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_E Calibration Date(s): 12/21/2011 12/21/2011

Calibration Time(s): 16:07 19:48

LAB FILE ID: RRF010 = BE074509.D RRF025 = BE074510.D RRF040 = BE074511.D
RRF050 = BE074512.D RRF060 = BE074513.D RRF080 = BE074514.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.224	0.935	0.907	0.867	0.806	0.766	0.918	17.7
Phenol	1.959	1.750	1.945	1.903	1.837	1.813	1.868	4.4
bis(2-Chloroethyl)ether	1.560	1.494	1.547	1.516	1.476	1.446	1.507	2.9
2-Chlorophenol	1.479	1.396	1.450	1.417	1.376	1.387	1.417	2.8
2-Methylphenol	1.206	1.177	1.229	1.235	1.196	1.186	1.205	1.9
2,2-oxybis(1-Chloropropane)	2.625	2.480	2.556	2.519	2.431	2.419	2.505	3.1
Acetophenone	0.544	0.529	0.515	0.503	0.514	0.502	0.518	3.1
3+4-Methylphenols	1.554	1.566	1.662	1.625	1.604	1.567	1.596	2.6
n-Nitroso-di-n-propylamine	1.088	1.094	1.130	1.111	1.062	1.061	1.091	2.5
Hexachloroethane	0.613	0.570	0.585	0.588	0.561	0.563	0.580	3.4
Nitrobenzene	0.416	0.414	0.393	0.395	0.393	0.393	0.401	2.7
Isophorone	0.721	0.716	0.712	0.712	0.711	0.702	0.712	0.8
2-Nitrophenol	0.164	0.181	0.184	0.186	0.189	0.191	0.183	5.3
2,4-Dimethylphenol	0.336	0.322	0.320	0.318	0.317	0.314	0.321	2.4
bis(2-Chloroethoxy)methane	0.469	0.457	0.451	0.436	0.435	0.430	0.446	3.4
2,4-Dichlorophenol	0.276	0.272	0.266	0.276	0.271	0.272	0.272	1.3
4-Chloroaniline	0.441	0.448	0.438	0.443	0.433	0.434	0.439	1.2
Hexachlorobutadiene	0.149	0.139	0.141	0.139	0.141	0.145	0.142	2.6
Caprolactam	0.119	0.117	0.124	0.126	0.125	0.126	0.123	3.0
4-Chloro-3-methylphenol	0.336	0.309	0.333	0.330	0.337	0.330	0.329	3.2
Hexachlorocyclopentadiene	0.220	0.236	0.246	0.246	0.254	0.261	0.244	5.9
2,4,6-Trichlorophenol	0.340	0.337	0.340	0.336	0.341	0.341	0.339	0.7
2,4,5-Trichlorophenol	0.357	0.364	0.377	0.369	0.370	0.372	0.368	1.9
1,1-Biphenyl	1.675	1.589	1.559	1.556	1.529	1.505	1.569	3.8
2-Chloronaphthalene	1.234	1.155	1.160	1.141	1.141	1.125	1.159	3.3
2-Nitroaniline	0.349	0.372	0.392	0.393	0.400	0.392	0.383	5.0
Dimethylphthalate	1.373	1.352	1.337	1.317	1.316	1.294	1.332	2.1
Acenaphthylene	2.026	1.919	1.944	1.919	1.934	1.896	1.940	2.3
2,6-Dinitrotoluene	0.271	0.296	0.305	0.302	0.307	0.306	0.298	4.6
3-Nitroaniline	0.367	0.369	0.378	0.377	0.386	0.381	0.376	1.9
Acenaphthene	1.298	1.230	1.218	1.199	1.208	1.190	1.224	3.2
2,4-Dinitrophenol	0.067	0.092	0.115	0.127	0.131	0.146	0.113	25.6
4-Nitrophenol	0.253	0.290	0.303	0.309	0.307	0.311	0.295	7.5
Dibenzofuran	1.858	1.784	1.745	1.704	1.710	1.674	1.746	3.8

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

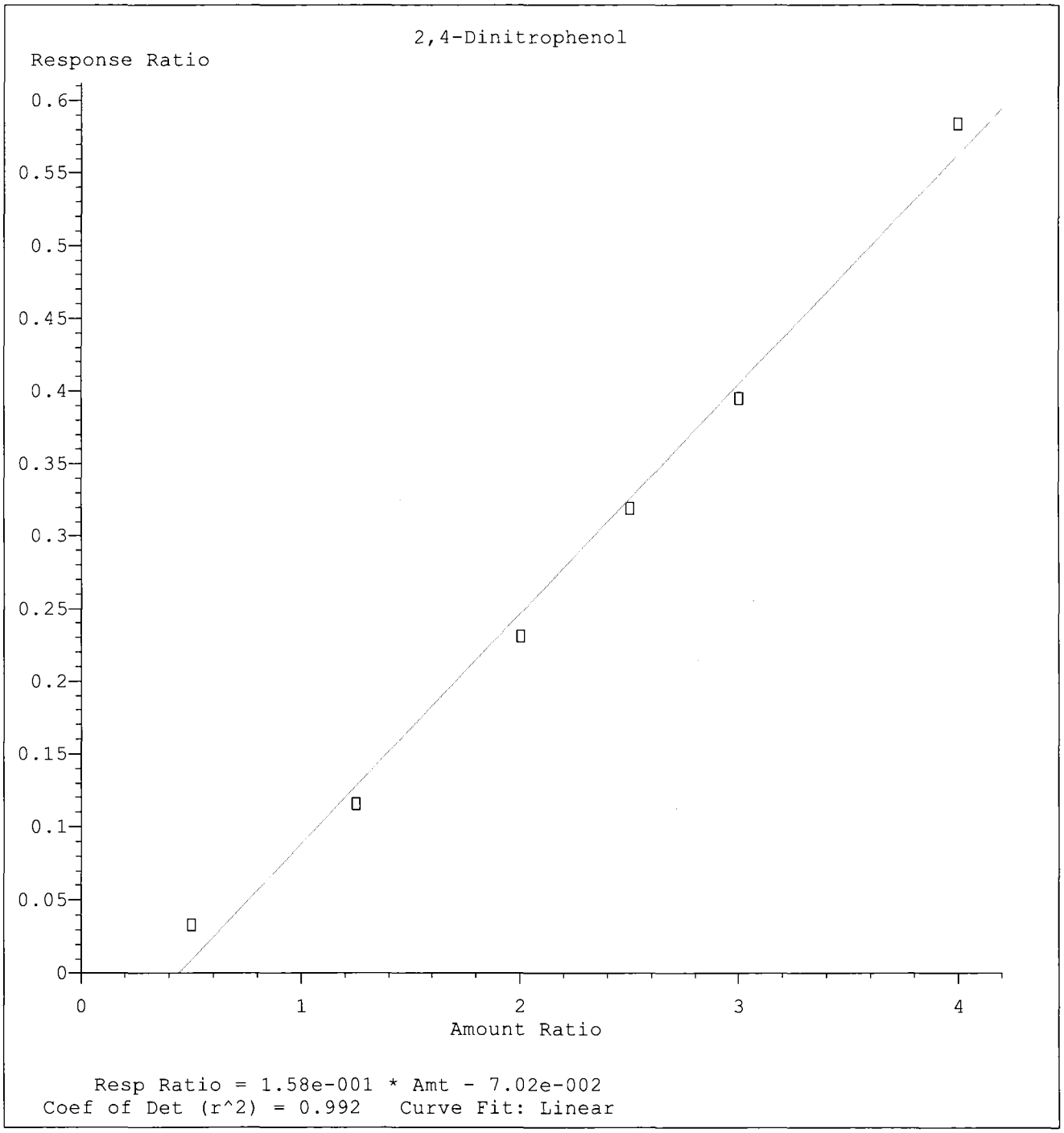
Instrument ID: BNA_E Calibration Date(s): 12/21/2011 12/21/2011

Calibration Time(s): 16:07 19:48

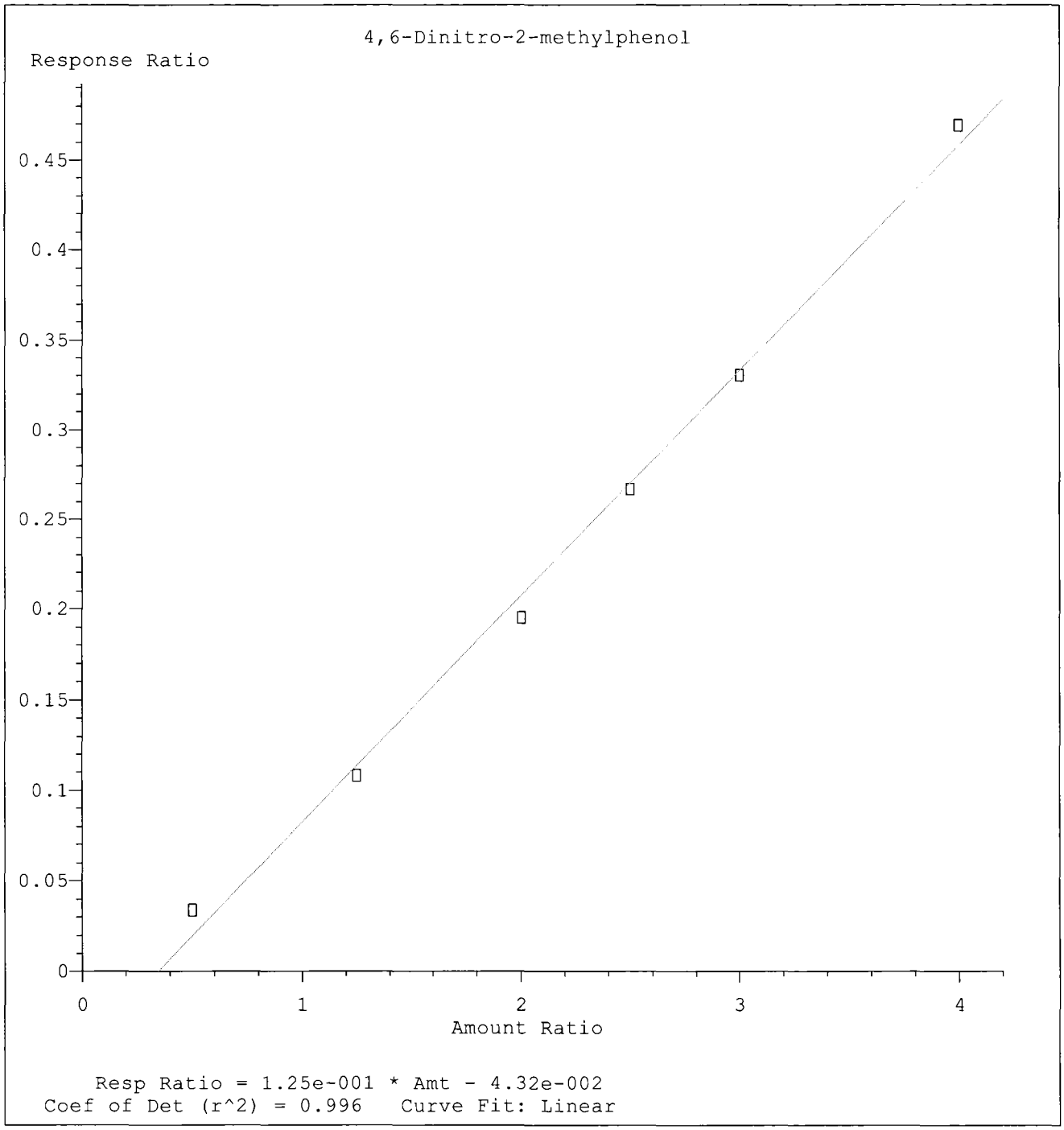
LAB FILE ID: RRF010 = BE074509.D RRF025 = BE074510.D RRF040 = BE074511.D
RRF050 = BE074512.D RRF060 = BE074513.D RRF080 = BE074514.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.358	0.375	0.389	0.400	0.400	0.402	0.387	4.5
Diethylphthalate	1.499	1.432	1.440	1.414	1.409	1.387	1.430	2.7
4-Chlorophenyl-phenylether	0.662	0.620	0.633	0.620	0.628	0.606	0.628	3.0
4-Nitroaniline	0.381	0.386	0.399	0.386	0.392	0.386	0.388	1.6
4,6-Dinitro-2-methylphenol	0.067	0.086	0.097	0.107	0.110	0.117	0.097	18.9
n-Nitrosodiphenylamine	0.666	0.679	0.640	0.655	0.659	0.643	0.657	2.2
4-Bromophenyl-phenylether	0.170	0.173	0.167	0.165	0.171	0.167	0.169	1.8
Hexachlorobenzene	0.183	0.186	0.171	0.173	0.168	0.172	0.176	4.1
Atrazine	0.182	0.178	0.159	0.143	0.129	0.106	0.149	19.7
Pentachlorophenol	0.075	0.093	0.097	0.104	0.104	0.109	0.097	12.7
Phenanthrene	1.118	1.080	1.040	1.052	1.046	1.021	1.059	3.2
Carbazole	1.123	1.105	1.089	1.100	1.082	1.065	1.094	1.8
Di-n-butylphthalate	1.242	1.275	1.271	1.294	1.300	1.283	1.278	1.6
Butylbenzylphthalate	0.635	0.626	0.661	0.658	0.661	0.654	0.649	2.3
3,3-Dichlorobenzidine	0.362	0.385	0.377	0.382	0.385	0.383	0.379	2.3
Bis(2-ethylhexyl)phthalate	0.897	0.871	0.919	0.921	0.921	0.908	0.906	2.2
Di-n-octyl phthalate	1.408	1.291	1.503	1.510	1.550	1.555	1.470	6.9
1,2,4,5-Tetrachlorobenzene	0.498	0.493	0.471	0.470	0.462	0.460	0.476	3.3
2,3,4,6-Tetrachlorophenol	0.241	0.272	0.264	0.262	0.270	0.274	0.264	4.7
2-Fluorophenol	1.448	1.308	1.408	1.408	1.349	1.339	1.377	3.8
Phenol-d5	1.829	1.606	1.760	1.755	1.663	1.633	1.708	5.1
Nitrobenzene-d5	0.422	0.412	0.407	0.405	0.403	0.398	0.408	2.0
2-Fluorobiphenyl	1.548	1.438	1.402	1.373	1.364	1.316	1.407	5.7
2,4,6-Tribromophenol	0.130	0.132	0.134	0.132	0.132	0.134	0.132	1.1
Terphenyl-d14	0.843	0.830	0.775	0.780	0.769	0.756	0.792	4.5

All other compounds must meet a minimum RRF of 0.010.



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE122111.M
Calibration Table Last Updated: Thu Dec 22 02:58:40 2011



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE122111.M
Calibration Table Last Updated: Thu Dec 22 02:59:15 2011

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BE074630.D DFTPP Injection Date: 12/25/2011

Instrument ID: BNA_E DFTPP Injection Time: 15:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	56.9
68	Less than 2.0% of mass 69	0.9 (1.8) 1
69	Mass 69 relative abundance	47.6
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	56
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.3
275	10.0 - 30.0% of mass 198	18.9
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	8.9
442	Greater than 40% of mass 198	56.1
443	17.0 - 23.0% of mass 442	10.3 (18.3) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074631.D	12/25/2011	16:22
02	12TP16-000.5-01	C5056-01	BE074638.D	12/25/2011	21:20
03	12TP16-0.502-02	C5056-02	BE074639.D	12/25/2011	22:05

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_E Calibration Date/Time: 12/25/2011 16:22

Lab File ID: BE074631.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.918	0.987		7.5	
Phenol	1.868	1.976		5.8	20.0
bis(2-Chloroethyl)ether	1.507	1.587		5.3	
2-Chlorophenol	1.417	1.422		0.4	
2-Methylphenol	1.205	1.244		3.2	
2,2-oxybis(1-Chloropropane)	2.505	2.757		10.0	
Acetophenone	0.518	0.526		1.6	
3+4-Methylphenols	1.596	1.652		3.5	
n-Nitroso-di-n-propylamine	1.091	1.219	0.050	11.7	
Hexachloroethane	0.580	0.568		2.1	
Nitrobenzene	0.401	0.405		0.9	
Isophorone	0.712	0.736		3.4	
2-Nitrophenol	0.183	0.183		0.2	20.0
2,4-Dimethylphenol	0.321	0.313		2.5	
bis(2-Chloroethoxy)methane	0.446	0.465		4.3	
2,4-Dichlorophenol	0.272	0.266		2.1	20.0
4-Chloroaniline	0.439	0.436		0.6	
Hexachlorobutadiene	0.142	0.139		2.1	20.0
Caprolactam	0.123	0.120		2.5	
4-Chloro-3-methylphenol	0.329	0.334		1.5	20.0
Hexachlorocyclopentadiene	0.244	0.218	0.050	10.7	
2,4,6-Trichlorophenol	0.339	0.331		2.5	20.0
2,4,5-Trichlorophenol	0.368	0.364		1.1	
1,1-Biphenyl	1.569	1.596		1.8	
2-Chloronaphthalene	1.159	1.180		1.8	
2-Nitroaniline	0.383	0.442		15.5	
Dimethylphthalate	1.332	1.388		4.2	
Acenaphthylene	1.940	1.978		1.9	
2,6-Dinitrotoluene	0.298	0.312		4.6	
3-Nitroaniline	0.376	0.378		0.4	
Acenaphthene	1.224	1.249		2.0	20.0
2,4-Dinitrophenol	0.113	0.107	0.050	5.5	
4-Nitrophenol	0.295	0.294	0.050	0.2	
Dibenzofuran	1.746	1.789		2.4	
2,4-Dinitrotoluene	0.387	0.413		6.8	
Diethylphthalate	1.430	1.468		2.7	
4-Chlorophenyl-phenylether	0.628	0.626		0.3	
4-Nitroaniline	0.388	0.408		5.2	

Form VII SV-1

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_E Calibration Date/Time: 12/25/2011 16:22

Lab File ID: BE074631.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.097	0.101		3.7	
n-Nitrosodiphenylamine	0.657	0.669		1.8	20.0
4-Bromophenyl-phenylether	0.169	0.173		2.2	
Hexachlorobenzene	0.176	0.176		0.0	
Atrazine	0.149	0.158		5.7	
Pentachlorophenol	0.097	0.100		2.6	20.0
Phenanthrene	1.059	1.072		1.2	
Carbazole	1.094	1.099		0.5	
Di-n-butylphthalate	1.278	1.288		0.8	
Butylbenzylphthalate	0.649	0.617		4.9	
3,3-Dichlorobenzidine	0.379	0.354		6.5	
Bis(2-ethylhexyl)phthalate	0.906	0.874		3.5	
Di-n-octyl phthalate	1.470	1.322		10.1	20.0
1,2,4,5-Tetrachlorobenzene	0.476	0.479		0.7	
2,3,4,6-Tetrachlorophenol	0.264	0.272		2.9	
2-Fluorophenol	1.377	1.371		0.5	
Phenol-d5	1.708	1.797		5.2	
Nitrobenzene-d5	0.408	0.421		3.3	
2-Fluorobiphenyl	1.407	1.463		4.0	
2,4,6-Tribromophenol	0.132	0.131		1.0	
Terphenyl-d14	0.792	0.763		3.7	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122511\
Data File : BE074631.D
Acq On : 25 Dec 2011 16:22
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 26 01:19:30 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	96	-0.01
2		1,4-Dioxane	40.000	41.383	-3.5	99	-0.03
3		Pyridine	40.000	42.408	-6.0	98	-0.03
4		n-Nitrosodimethylamine	40.000	43.866	-9.7	104	-0.02
5	S	2-Fluorophenol	80.000	79.656	0.4	93	-0.02
6		Aniline	40.000	42.053	-5.1	96	-0.01
7	S	Phenol-d5	80.000	84.194	-5.2	98	-0.01
8		2-Chlorophenol	40.000	40.133	-0.3	94	-0.02
9		Benzaldehyde	40.000	46.970	-17.4	104	-0.01
10	C	Phenol	40.000	42.314	-5.8	97	-0.01
11		bis(2-Chloroethyl)ether	40.000	42.130	-5.3	98	-0.02
12	S	2-Chlorophenol-d4	80.000	80.235	-0.3	94	-0.01
13		1,3-Dichlorobenzene	40.000	39.059	2.4	92	-0.01
14	C	1,4-Dichlorobenzene	40.000	39.093	2.3	94	-0.01
15	s	1,2-Dichlorobenzene-d4	80.000	80.614	-0.8	96	-0.02
16		1,2-Dichlorobenzene	40.000	39.338	1.7	91	-0.01
17		Benzyl Alcohol	40.000	41.297	-3.2	95	-0.02
18		2,2'-oxybis(1-Chloropropane	40.000	44.019	-10.0	103	-0.01
19		2-Methylphenol	40.000	41.299	-3.2	97	-0.01
20		Hexachloroethane	40.000	39.170	2.1	93	-0.01
21	P	n-Nitroso-di-n-propylamine	40.000	44.695	-11.7	103	-0.02
22		3+4-Methylphenols	40.000	41.394	-3.5	95	-0.01
23	I	Naphthalene-d8	20.000	20.000	0.0	97	-0.01
24		Acetophenone	40.000	40.639	-1.6	100	-0.02
25	S	Nitrobenzene-d5	80.000	82.676	-3.3	101	-0.01
26		Nitrobenzene	40.000	40.375	-0.9	100	-0.02
27		Isophorone	40.000	41.332	-3.3	101	-0.02
28	C	2-Nitrophenol	40.000	40.187	-0.5	97	-0.01
29		2,4-Dimethylphenol	40.000	38.978	2.6	95	-0.01
30		bis(2-Chloroethoxy)methane	40.000	41.693	-4.2	101	-0.02
31	C	2,4-Dichlorophenol	40.000	39.166	2.1	97	-0.02
32		1,2,4-Trichlorobenzene	40.000	38.655	3.4	96	-0.01
33		Naphthalene	40.000	39.640	0.9	97	-0.01
34		Benzoic acid	40.000	34.189	14.5	82	-0.01
35		4-Chloroaniline	40.000	39.719	0.7	97	-0.01
36	C	Hexachlorobutadiene	40.000	39.067	2.3	96	-0.01
37		Caprolactam	40.000	39.024	2.4	94	-0.02
38	C	4-Chloro-3-methylphenol	40.000	40.568	-1.4	98	-0.01
39		2-Methylnaphthalene	40.000	40.047	-0.1	97	-0.01
40	I	Acenaphthene-d10	20.000	20.000	0.0	95	-0.02
41		1,2,4,5-Tetrachlorobenzene	40.000	40.297	-0.7	97	-0.01
42	P	Hexachlorocyclopentadiene	40.000	35.769	10.6	84	-0.01
43	S	2,4,6-Tribromophenol	80.000	78.907	1.4	93	-0.02
44	C	2,4,6-Trichlorophenol	40.000	38.986	2.5	93	-0.01

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122511\
Data File : BE074631.D
Acq On : 25 Dec 2011 16:22
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 26 01:19:30 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.572	1.1	92	-0.02
46	S	2-Fluorobiphenyl	80.000	83.173	-4.0	99	-0.02
47		1,1'-Biphenyl	40.000	40.706	-1.8	97	-0.01
48		2-Chloronaphthalene	40.000	40.712	-1.8	97	-0.01
49		2-Nitroaniline	40.000	46.187	-15.5	107	-0.01
50		Acenaphthylene	40.000	40.781	-2.0	97	-0.01
51		Dimethylphthalate	40.000	41.687	-4.2	99	-0.01
52		2,6-Dinitrotoluene	40.000	41.869	-4.7	97	-0.01
53	C	Acenaphthene	40.000	40.823	-2.1	98	-0.01
54		3-Nitroaniline	40.000	40.156	-0.4	95	-0.01
55	P	2,4-Dinitrophenol	40.000	35.858	10.4 ✓	88	-0.01
56		Dibenzofuran	40.000	40.985	-2.5	97	-0.01
57	P	4-Nitrophenol	40.000	39.863	0.3	92	-0.01
58		2,4-Dinitrotoluene	40.000	42.685	-6.7	101	-0.01
59		Fluorene	40.000	41.274	-3.2	97	-0.01
60		2,3,4,6-Tetrachlorophenol	40.000	41.173	-2.9	98	-0.01
61		Diethylphthalate	40.000	41.063	-2.7	97	-0.01
62		4-Chlorophenyl-phenylether	40.000	39.848	0.4	94	-0.01
63		4-Nitroaniline	40.000	42.052	-5.1	97	-0.01
64		Azobenzene	40.000	44.578	-11.4	105	-0.01
65	I	Phenanthrene-d10	20.000	20.000	0.0	94	-0.01
66		4,6-Dinitro-2-methylphenol	40.000	38.978	2.6 ✓	97	-0.01
67	c	n-Nitrosodiphenylamine	40.000	40.723	-1.8	98	-0.01
68		4-Bromophenyl-phenylether	40.000	40.870	-2.2	97	-0.01
69		Hexachlorobenzene	40.000	40.086	-0.2	97	-0.02
70		Atrazine	40.000	40.485	-1.2	93	-0.02
71	C	Pentachlorophenol	40.000	41.152	-2.9	97	-0.01
72		Phenanthrene	40.000	40.474	-1.2	97	-0.02
73		Anthracene	40.000	41.061	-2.7	98	-0.02
74		Carbazole	40.000	40.189	-0.5	95	-0.01
75		Di-n-butylphthalate	40.000	40.321	-0.8	95	-0.01
76	C	Fluoranthene	40.000	40.541	-1.4	97	-0.02
77	I	Chrysene-d12	20.000	20.000	0.0	98	-0.03
78		Benzidine	40.000	40.544	-1.4	93	-0.02
79		Pyrene	40.000	39.267	1.8	96	-0.02
80	S	Terphenyl-d14	80.000	77.051	3.7	97	-0.02
81		Butylbenzylphthalate	40.000	38.020	4.9	92	-0.02
82		Benzo(a)anthracene	40.000	39.069	2.3	97	-0.02
83		3,3'-Dichlorobenzidine	40.000	37.367	6.6	92	-0.03
84		Chrysene	40.000	39.465	1.3	97	-0.03
85		Bis(2-ethylhexyl)phthalate	40.000	38.574	3.6	93	-0.02
86	c	Di-n-octyl phthalate	40.000	35.982	10.0	86	-0.03
87		Indeno(1,2,3-cd)pyrene	40.000	36.636	8.4	106	-0.07

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122511\
Data File : BE074631.D
Acq On : 25 Dec 2011 16:22
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 26 01:19:30 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88 I	Perylene-d12	20.000	20.000	0.0	91	-0.05
89	Benzo(b)fluoranthene	40.000	39.679	0.8	91	-0.03
90	Benzo(k)fluoranthene	40.000	42.054	-5.1	95	-0.04
91 C	Benzo(a)pyrene	40.000	40.075	-0.2	90	-0.04
92	Dibenzo(a,h)anthracene	40.000	40.266	-0.7	105	-0.09
93	Benzo(g,h,i)perylene	40.000	41.550	-3.9	109	-0.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BF052190.D DFTPP Injection Date: 12/22/2011

Instrument ID: BNA_F DFTPP Injection Time: 16:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.8
68	Less than 2.0% of mass 69	0.5 (1.2) 1
69	Mass 69 relative abundance	41.4
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.9
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	2.9
441	Present, but less than mass 443	10
442	Greater than 40% of mass 198	71.9
443	17.0 - 23.0% of mass 442	14.1 (19.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BF052191.D	12/22/2011	17:20
02	SSTD025	25 ng BNA ICC	BF052192.D	12/22/2011	17:46
03	SSTD040	40 ng BNA ICC	BF052193.D	12/22/2011	18:12
04	SSTD050	50 ng BNA ICC	BF052194.D	12/22/2011	18:39
05	SSTD060	60 ng BNA ICC	BF052195.D	12/22/2011	19:05
06	SSTD080	80 ng BNA ICC	BF052196.D	12/22/2011	19:31

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_F Calibration Date(s): 12/22/2011 12/22/2011

Calibration Time(s): 17:20 19:31

LAB FILE ID: RRF010 = BF052191.D RRF025 = BF052192.D RRF040 = BF052193.D
RRF050 = BF052194.D RRF060 = BF052195.D RRF080 = BF052196.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.279	1.051	0.967	0.909	0.847	0.799	0.976	17.7
Phenol	2.296	2.077	1.961	1.910	1.811	1.760	1.969	9.9
bis(2-Chloroethyl)ether	1.713	1.612	1.550	1.527	1.450	1.409	1.543	7.1
2-Chlorophenol	1.600	1.479	1.418	1.388	1.331	1.272	1.415	8.2
2-Methylphenol	1.231	1.140	1.102	1.064	1.036	1.002	1.096	7.5
2,2-oxybis(1-Chloropropane)	2.373	2.150	2.018	1.944	1.841	1.722	2.008	11.5
Acetophenone	0.554	0.517	0.508	0.488	0.481	0.457	0.501	6.7
3+4-Methylphenols	1.631	1.506	1.431	1.391	1.333	1.276	1.428	8.9
n-Nitroso-di-n-propylamine	1.124	1.045	1.001	0.971	0.949	0.923	1.002	7.3
Hexachloroethane	0.613	0.606	0.573	0.562	0.545	0.527	0.571	5.9
Nitrobenzene	0.422	0.403	0.384	0.370	0.368	0.355	0.384	6.5
Isophorone	0.747	0.707	0.701	0.678	0.681	0.660	0.696	4.4
2-Nitrophenol	0.175	0.192	0.197	0.194	0.198	0.192	0.191	4.3
2,4-Dimethylphenol	0.349	0.344	0.333	0.330	0.331	0.312	0.333	3.9
bis(2-Chloroethoxy)methane	0.514	0.485	0.469	0.446	0.451	0.427	0.465	6.7
2,4-Dichlorophenol	0.300	0.296	0.290	0.282	0.279	0.264	0.285	4.6
4-Chloroaniline	0.476	0.454	0.431	0.423	0.416	0.388	0.431	7.1
Hexachlorobutadiene	0.170	0.170	0.165	0.160	0.156	0.150	0.162	5.1
Caprolactam	0.108	0.109	0.119	0.118	0.123	0.124	0.117	5.9
4-Chloro-3-methylphenol	0.314	0.309	0.300	0.296	0.302	0.288	0.301	3.1
Hexachlorocyclopentadiene	0.239	0.267	0.281	0.278	0.275	0.273	0.269	5.7
2,4,6-Trichlorophenol	0.355	0.359	0.350	0.345	0.346	0.326	0.347	3.4
2,4,5-Trichlorophenol	0.382	0.384	0.381	0.374	0.364	0.351	0.373	3.5
1,1-Biphenyl	1.747	1.561	1.452	1.421	1.342	1.228	1.458	12.3
2-Chloronaphthalene	1.265	1.144	1.063	1.021	0.999	0.922	1.069	11.3
2-Nitroaniline	0.373	0.381	0.376	0.384	0.385	0.368	0.378	1.8
Dimethylphthalate	1.324	1.262	1.218	1.190	1.150	1.124	1.211	6.1
Acenaphthylene	1.970	1.778	1.657	1.621	1.563	1.465	1.676	10.6
2,6-Dinitrotoluene	0.297	0.297	0.296	0.295	0.288	0.285	0.293	1.8
3-Nitroaniline	0.351	0.350	0.357	0.356	0.361	0.358	0.355	1.3
Acenaphthene	1.270	1.173	1.103	1.090	1.061	1.006	1.117	8.3
2,4-Dinitrophenol	0.017	0.052	0.085	0.102	0.121	0.139	0.086	52.6
4-Nitrophenol	0.227	0.260	0.278	0.276	0.289	0.306	0.272	9.9
Dibenzofuran	1.732	1.590	1.488	1.428	1.403	1.319	1.493	9.9
2,4-Dinitrotoluene	0.345	0.349	0.355	0.346	0.347	0.343	0.348	1.2
Diethylphthalate	1.266	1.189	1.173	1.167	1.137	1.106	1.173	4.6

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_F Calibration Date(s): 12/22/2011 12/22/2011

Calibration Time(s): 17:20 19:31

LAB FILE ID: RRF010 = BF052191.D RRF025 = BF052192.D RRF040 = BF052193.D
RRF050 = BF052194.D RRF060 = BF052195.D RRF080 = BF052196.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.651	0.607	0.571	0.560	0.542	0.510	0.573	8.7
4-Nitroaniline	0.322	0.325	0.338	0.345	0.342	0.348	0.337	3.2
4,6-Dinitro-2-methylphenol	0.040	0.082	0.104	0.110	0.116	0.122	0.096	31.8
n-Nitrosodiphenylamine	0.729	0.690	0.643	0.616	0.596	0.561	0.639	9.7
4-Bromophenyl-phenylether	0.223	0.216	0.206	0.200	0.201	0.193	0.206	5.4
Hexachlorobenzene	0.222	0.211	0.205	0.195	0.191	0.184	0.201	6.9
Atrazine	0.189	0.193	0.177	0.149	0.136	0.107	0.158	21.5
Pentachlorophenol	0.103	0.114	0.129	0.127	0.130	0.130	0.122	9.2
Phenanthrene	1.225	1.130	1.066	1.014	0.985	0.924	1.057	10.2
Carbazole	1.108	1.057	1.024	0.989	0.947	0.906	1.005	7.3
Di-n-butylphthalate	1.213	1.195	1.172	1.117	1.107	1.036	1.140	5.8
Butylbenzylphthalate	0.511	0.554	0.581	0.580	0.595	0.596	0.569	5.7
3,3-Dichlorobenzidine	0.375	0.370	0.365	0.359	0.356	0.348	0.362	2.7
Bis(2-ethylhexyl)phthalate	0.701	0.757	0.782	0.773	0.783	0.766	0.760	4.0
Di-n-octyl phthalate	1.139	1.302	1.369	1.376	1.398	1.378	1.327	7.4
1,2,4,5-Tetrachlorobenzene	0.592	0.531	0.503	0.486	0.458	0.438	0.501	11.0
2,3,4,6-Tetrachlorophenol	0.302	0.298	0.303	0.297	0.292	0.292	0.297	1.5
2-Fluorophenol	1.529	1.462	1.390	1.370	1.302	1.232	1.381	7.7
Phenol-d5	2.033	1.859	1.740	1.692	1.597	1.532	1.742	10.5
Nitrobenzene-d5	0.437	0.409	0.391	0.379	0.376	0.355	0.391	7.3
2-Fluorobiphenyl	1.523	1.308	1.159	1.088	1.019	0.920	1.169	18.6
2,4,6-Tribromophenol	0.154	0.162	0.160	0.159	0.157	0.154	0.158	2.0
Terphenyl-d14	0.835	0.783	0.742	0.718	0.715	0.689	0.747	7.2

All other compounds must meet a minimum RRF of 0.010.

Form VI SV-1

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BF052275.D DFTPP Injection Date: 12/24/2011

Instrument ID: BNA_F DFTPP Injection Time: 16:48

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.3
68	Less than 2.0% of mass 69	0.7 (1.6) 1
69	Mass 69 relative abundance	43.5
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	51.5
197	Less than 1.0% of mass 198	0.6
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.6
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	9.7
442	Greater than 40% of mass 198	66.7
443	17.0 - 23.0% of mass 442	13.2 (19.8) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052276.D	12/24/2011	17:14
02	SB-28_0-2MS	C5021-01MS	BF052277.D	12/24/2011	17:43
03	SB-28_0-2MSD	C5021-01MSD	BF052278.D	12/24/2011	18:09
04	PB60067B	PB60067B	BF052301.D	12/25/2011	03:59
05	PB60067BS	PB60067BS	BF052302.D	12/25/2011	04:25

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_F Calibration Date/Time: 12/24/2011 17:14

Lab File ID: BF052276.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.976	0.988		1.2	
Phenol	1.969	1.944		1.3	20.0
bis(2-Chloroethyl)ether	1.543	1.531		0.8	
2-Chlorophenol	1.415	1.414		0.0	
2-Methylphenol	1.096	1.101		0.4	
2,2-oxybis(1-Chloropropane)	2.008	2.005		0.1	
Acetophenone	0.501	0.508		1.3	
3+4-Methylphenols	1.428	1.416		0.9	
n-Nitroso-di-n-propylamine	1.002	1.016	0.050	1.4	
Hexachloroethane	0.571	0.570		0.2	
Nitrobenzene	0.384	0.397		3.3	
Isophorone	0.696	0.711		2.1	
2-Nitrophenol	0.191	0.208		8.9	20.0
2,4-Dimethylphenol	0.333	0.344		3.4	
bis(2-Chloroethoxy)methane	0.465	0.471		1.2	
2,4-Dichlorophenol	0.285	0.295		3.4	20.0
4-Chloroaniline	0.431	0.431		0.1	
Hexachlorobutadiene	0.162	0.164		1.3	20.0
Caprolactam	0.117	0.118		1.2	
4-Chloro-3-methylphenol	0.301	0.314		4.4	20.0
Hexachlorocyclopentadiene	0.269	0.291	0.050	8.0	
2,4,6-Trichlorophenol	0.347	0.355		2.4	20.0
2,4,5-Trichlorophenol	0.373	0.378		1.4	
1,1-Biphenyl	1.458	1.449		0.6	
2-Chloronaphthalene	1.069	1.053		1.5	
2-Nitroaniline	0.378	0.400		5.7	
Dimethylphthalate	1.211	1.205		0.5	
Acenaphthylene	1.676	1.668		0.5	
2,6-Dinitrotoluene	0.293	0.296		1.0	
3-Nitroaniline	0.355	0.362		1.9	
Acenaphthene	1.117	1.102		1.4	20.0
2,4-Dinitrophenol	0.086	0.108	0.050	25.6	
4-Nitrophenol	0.272	0.290	0.050	6.5	
Dibenzofuran	1.493	1.499		0.4	
2,4-Dinitrotoluene	0.348	0.354		1.7	
Diethylphthalate	1.173	1.160		1.1	
4-Chlorophenyl-phenylether	0.573	0.570		0.5	
4-Nitroaniline	0.337	0.345		2.3	
4,6-Dinitro-2-methylphenol	0.096	0.113		17.5	
n-Nitrosodiphenylamine	0.639	0.630		1.4	20.0
4-Bromophenyl-phenylether	0.206	0.205		0.3	

Form VII SV-1

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_F Calibration Date/Time: 12/24/2011 17:14

Lab File ID: BF052276.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.201	0.198		1.5	
Atrazine	0.158	0.173		9.2	
Pentachlorophenol	0.122	0.135		10.8	20.0
Phenanthrene	1.057	1.051		0.6	
Carbazole	1.005	0.999		0.6	
Di-n-butylphthalate	1.140	1.159		1.6	
Butylbenzylphthalate	0.569	0.601		5.6	
3,3-Dichlorobenzidine	0.362	0.371		2.4	
Bis(2-ethylhexyl)phthalate	0.760	0.790		4.0	
Di-n-octyl phthalate	1.327	1.404		5.8	20.0
1,2,4,5-Tetrachlorobenzene	0.501	0.487		2.8	
2,3,4,6-Tetrachlorophenol	0.297	0.297		0.1	
2-Fluorophenol	1.381	1.393		0.8	
Phenol-d5	1.742	1.739		0.2	
Nitrobenzene-d5	0.391	0.402		2.8	
2-Fluorobiphenyl	1.169	1.124		3.9	
2,4,6-Tribromophenol	0.158	0.160		1.2	
Terphenyl-d14	0.747	0.751		0.5	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF122411\
Data File : BF052276.D
Acq On : 24 Dec 2011 17:14
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 25 02:19:24 2011
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Dec 23 02:18:10 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	109	-0.04
2		1,4-Dioxane	40.000	41.271	-3.2	108	-0.03
3		Pyridine	40.000	40.570	-1.4	112	-0.04
4		n-Nitrosodimethylamine	40.000	40.621	-1.6	113	-0.03
5	S	2-Fluorophenol	80.000	80.679	-0.8	109	-0.04
6		Aniline	40.000	39.593	1.0	109	-0.04
7	S	Phenol-d5	80.000	79.836	0.2	109	-0.04
8		2-Chlorophenol	40.000	39.988	0.0	109	-0.05
9		Benzaldehyde	40.000	43.964	-9.9	111	-0.04
10	C	Phenol	40.000	39.491	1.3	108	-0.04
11		bis(2-Chloroethyl)ether	40.000	39.678	0.8	108	-0.04
12	S	2-Chlorophenol-d4	80.000	77.701	2.9	106	-0.04
13		1,3-Dichlorobenzene	40.000	39.582	1.0	107	-0.04
14	C	1,4-Dichlorobenzene	40.000	39.581	1.0	109	-0.04
15	s	1,2-Dichlorobenzene-d4	80.000	77.359	3.3	107	-0.04
16		1,2-Dichlorobenzene	40.000	39.198	2.0	109	-0.04
17		Benzyl Alcohol	40.000	38.976	2.6	107	-0.04
18		2,2'-oxybis(1-Chloropropane	40.000	39.940	0.2	108	-0.04
19		2-Methylphenol	40.000	40.176	-0.4	109	-0.04
20		Hexachloroethane	40.000	39.937	0.2	108	-0.04
21	P	n-Nitroso-di-n-propylamine	40.000	40.563	-1.4	111	-0.04
22		3+4-Methylphenols	40.000	39.653	0.9	108	-0.04
23	I	Naphthalene-d8	20.000	20.000	0.0	106	-0.04
24		Acetophenone	40.000	40.548	-1.4	106	-0.04
25	S	Nitrobenzene-d5	80.000	82.250	-2.8	109	-0.04
26		Nitrobenzene	40.000	41.342	-3.4	110	-0.04
27		Isophorone	40.000	40.864	-2.2	108	-0.04
28	C	2-Nitrophenol	40.000	43.497	-8.7	112	-0.04
29		2,4-Dimethylphenol	40.000	41.341	-3.4	110	-0.04
30		bis(2-Chloroethoxy)methane	40.000	40.461	-1.2	107	-0.04
31	C	2,4-Dichlorophenol	40.000	41.362	-3.4	108	-0.04
32		1,2,4-Trichlorobenzene	40.000	39.934	0.2	107	-0.04
33		Naphthalene	40.000	40.017	-0.0	107	-0.04
34		Benzoic acid	40.000	34.610	13.5	86	-0.03
35		4-Chloroaniline	40.000	39.932	0.2	106	-0.04
36	C	Hexachlorobutadiene	40.000	40.566	-1.4	106	-0.04
37		Caprolactam	40.000	40.447	-1.1	106	-0.04
38	C	4-Chloro-3-methylphenol	40.000	41.721	-4.3	112	-0.04
39		2-Methylnaphthalene	40.000	40.011	-0.0	106	-0.04
40	I	Acenaphthene-d10	20.000	20.000	0.0	106	-0.04
41		1,2,4,5-Tetrachlorobenzene	40.000	38.852	2.9	103	-0.04
42	P	Hexachlorocyclopentadiene	40.000	43.241	-8.1	110	-0.04
43	S	2,4,6-Tribromophenol	80.000	81.158	-1.4	106	-0.04
44	C	2,4,6-Trichlorophenol	40.000	41.011	-2.5	108	-0.04

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF122411\
Data File : BF052276.D
Acq On : 24 Dec 2011 17:14
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 25 02:19:24 2011
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Dec 23 02:18:10 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	40.585	-1.5	106	-0.04
46	S	2-Fluorobiphenyl	80.000	77.095	3.6	103	-0.04
47		1,1'-Biphenyl	40.000	39.749	0.6	106	-0.04
48		2-Chloronaphthalene	40.000	39.376	1.6	105	-0.04
49		2-Nitroaniline	40.000	42.322	-5.8	113	-0.04
50		Acenaphthylene	40.000	39.813	0.5	107	-0.04
51		Dimethylphthalate	40.000	39.774	0.6	105	-0.04
52		2,6-Dinitrotoluene	40.000	40.392	-1.0	106	-0.04
53	C	Acenaphthene	40.000	39.444	1.4	106	-0.04
54		3-Nitroaniline	40.000	40.721	-1.8	108	-0.04
55	P	2,4-Dinitrophenol	40.000	45.198	-13.0	135	-0.04
56		Dibenzofuran	40.000	40.166	-0.4	107	-0.04
57	P	4-Nitrophenol	40.000	42.520	-6.3	111	-0.04
58		2,4-Dinitrotoluene	40.000	40.730	-1.8	106	-0.04
59		Fluorene	40.000	39.709	0.7	106	-0.05
60		2,3,4,6-Tetrachlorophenol	40.000	40.001	-0.0	105	-0.05
61		Diethylphthalate	40.000	39.560	1.1	105	-0.04
62		4-Chlorophenyl-phenylether	40.000	39.787	0.5	106	-0.04
63		4-Nitroaniline	40.000	40.947	-2.4	109	-0.04
64		Azobenzene	40.000	40.593	-1.5	108	-0.05
65	I	Phenanthrene-d10	20.000	20.000	0.0	106	-0.05
66		4,6-Dinitro-2-methylphenol	40.000	42.039	-5.1	115	-0.04
67	c	n-Nitrosodiphenylamine	40.000	39.411	1.5	104	-0.05
68		4-Bromophenyl-phenylether	40.000	39.870	0.3	106	-0.05
69		Hexachlorobenzene	40.000	39.333	1.7	103	-0.05
70		Atrazine	40.000	41.245	-3.1	104	-0.04
71	C	Pentachlorophenol	40.000	44.307	-10.8	111	-0.05
72		Phenanthrene	40.000	39.767	0.6	105	-0.05
73		Anthracene	40.000	39.973	0.1	106	-0.05
74		Carbazole	40.000	39.758	0.6	104	-0.05
75		Di-n-butylphthalate	40.000	40.658	-1.6	105	-0.04
76	C	Fluoranthene	40.000	39.401	1.5	103	-0.05
77	I	Chrysene-d12	20.000	20.000	0.0	99	-0.05
78		Benzidine	40.000	41.800	-4.5	97	-0.05
79		Pyrene	40.000	41.520	-3.8	101	-0.05
80	S	Terphenyl-d14	80.000	80.411	-0.5	100	-0.05
81		Butylbenzylphthalate	40.000	42.225	-5.6	102	-0.05
82		Benzo(a)anthracene	40.000	40.188	-0.5	99	-0.05
83		3,3'-Dichlorobenzidine	40.000	40.943	-2.4	100	-0.05
84		Chrysene	40.000	40.601	-1.5	99	-0.05
85		Bis(2-ethylhexyl)phthalate	40.000	41.588	-4.0	100	-0.04
86	c	Di-n-octyl phthalate	40.000	42.330	-5.8	101	-0.05
87		Indeno(1,2,3-cd)pyrene	40.000	39.664	0.8	97	-0.09

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF122411\
Data File : BF052276.D
Acq On : 24 Dec 2011 17:14
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 25 02:19:24 2011
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Dec 23 02:18:10 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	100	-0.06
89		Benzo(b)fluoranthene	40.000	38.340	4.1	98	-0.05
90		Benzo(k)fluoranthene	40.000	40.879	-2.2	99	-0.05
91	C	Benzo(a)pyrene	40.000	39.860	0.4	98	-0.06
92		Dibenzo(a,h)anthracene	40.000	39.135	2.2	99	-0.09
93		Benzo(g,h,i)perylene	40.000	39.120	2.2	99	-0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BF052351.D DFTPP Injection Date: 12/26/2011

Instrument ID: BNA_F DFTPP Injection Time: 04:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.1
68	Less than 2.0% of mass 69	0.8 (1.9) 1
69	Mass 69 relative abundance	41.2
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	53.2
197	Less than 1.0% of mass 198	0.6
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.3
275	10.0 - 30.0% of mass 198	21
365	Greater than 1% of mass 198	2.4
441	Present, but less than mass 443	10
442	Greater than 40% of mass 198	67.2
443	17.0 - 23.0% of mass 442	13.1 (19.4) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052352.D	12/26/2011	04:42
02	12TP16-0910-04	C5056-04	BF052353.D	12/26/2011	05:08
03	12TP-DUP-01	C5056-05	BF052372.D	12/26/2011	13:15
04	12TP16-0608-03	C5056-03	BF052373.D	12/26/2011	13:40

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_F Calibration Date/Time: 12/26/2011 04:42

Lab File ID: BF052352.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.976	0.980		0.4	
Phenol	1.969	1.973		0.2	20.0
bis(2-Chloroethyl)ether	1.543	1.512		2.0	
2-Chlorophenol	1.415	1.415		0.0	
2-Methylphenol	1.096	1.112		1.5	
2,2-oxybis(1-Chloropropane)	2.008	1.998		0.5	
Acetophenone	0.501	0.505		0.8	
3+4-Methylphenols	1.428	1.440		0.9	
n-Nitroso-di-n-propylamine	1.002	1.027	0.050	2.5	
Hexachloroethane	0.571	0.583		2.1	
Nitrobenzene	0.384	0.391		1.8	
Isophorone	0.696	0.713		2.4	
2-Nitrophenol	0.191	0.204		6.7	20.0
2,4-Dimethylphenol	0.333	0.335		0.5	
bis(2-Chloroethoxy)methane	0.465	0.468		0.6	
2,4-Dichlorophenol	0.285	0.292		2.6	20.0
4-Chloroaniline	0.431	0.424		1.7	
Hexachlorobutadiene	0.162	0.166		2.3	20.0
Caprolactam	0.117	0.117		0.3	
4-Chloro-3-methylphenol	0.301	0.309		2.7	20.0
Hexachlorocyclopentadiene	0.269	0.281	0.050	4.5	
2,4,6-Trichlorophenol	0.347	0.348		0.4	20.0
2,4,5-Trichlorophenol	0.373	0.372		0.2	
1,1-Biphenyl	1.458	1.470		0.8	
2-Chloronaphthalene	1.069	1.067		0.2	
2-Nitroaniline	0.378	0.379		0.2	
Dimethylphthalate	1.211	1.231		1.7	
Acenaphthylene	1.676	1.667		0.5	
2,6-Dinitrotoluene	0.293	0.289		1.4	
3-Nitroaniline	0.355	0.342		3.8	
Acenaphthene	1.117	1.113		0.3	20.0
2,4-Dinitrophenol	0.086	0.150	0.050	74.3	
4-Nitrophenol	0.272	0.264	0.050	2.8	
Dibenzofuran	1.493	1.490		0.2	
2,4-Dinitrotoluene	0.348	0.351		0.8	
Diethylphthalate	1.173	1.171		0.2	
4-Chlorophenyl-phenylether	0.573	0.579		1.1	
4-Nitroaniline	0.337	0.313		7.1	
4,6-Dinitro-2-methylphenol	0.096	0.122		27.0	
n-Nitrosodiphenylamine	0.639	0.649		1.6	20.0
4-Bromophenyl-phenylether	0.206	0.207		0.4	

Form VII SV-1

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_F Calibration Date/Time: 12/26/2011 04:42

Lab File ID: BF052352.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.201	0.207		2.9	
Atrazine	0.158	0.175		10.9	
Pentachlorophenol	0.122	0.135		10.7	20.0
Phenanthrene	1.057	1.053		0.4	
Carbazole	1.005	0.969		3.6	
Di-n-butylphthalate	1.140	1.174		3.0	
Butylbenzylphthalate	0.569	0.593		4.3	
3,3-Dichlorobenzidine	0.362	0.349		3.7	
Bis(2-ethylhexyl)phthalate	0.760	0.781		2.8	
Di-n-octyl phthalate	1.327	1.288		2.9	20.0
1,2,4,5-Tetrachlorobenzene	0.501	0.497		0.8	
2,3,4,6-Tetrachlorophenol	0.297	0.301		1.2	
2-Fluorophenol	1.381	1.366		1.1	
Phenol-d5	1.742	1.721		1.2	
Nitrobenzene-d5	0.391	0.400		2.2	
2-Fluorobiphenyl	1.169	1.166		0.2	
2,4,6-Tribromophenol	0.158	0.158		0.2	
Terphenyl-d14	0.747	0.776		3.9	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF122511\
Data File : BF052352.D
Acq On : 26 Dec 2011 4:42
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 26 06:04:14 2011
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Dec 23 02:18:10 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	88	-0.06
2		1,4-Dioxane	40.000	41.130	-2.8	87	-0.04
3		Pyridine	40.000	35.595	11.0	79	-0.05
4		n-Nitrosodimethylamine	40.000	38.737	3.2	87	-0.04
5	S	2-Fluorophenol	80.000	79.152	1.1	87	-0.05
6		Aniline	40.000	38.903	2.7	86	-0.06
7	S	Phenol-d5	80.000	79.013	1.2	87	-0.06
8		2-Chlorophenol	40.000	39.995	0.0	88	-0.06
9		Benzaldehyde	40.000	43.534	-8.8	89	-0.06
10	C	Phenol	40.000	40.077	-0.2	89	-0.06
11		bis(2-Chloroethyl)ether	40.000	39.188	2.0	86	-0.06
12	S	2-Chlorophenol-d4	80.000	79.353	0.8	88	-0.06
13		1,3-Dichlorobenzene	40.000	39.488	1.3	87	-0.06
14	C	1,4-Dichlorobenzene	40.000	40.295	-0.7	90	-0.06
15	s	1,2-Dichlorobenzene-d4	80.000	80.587	-0.7	90	-0.06
16		1,2-Dichlorobenzene	40.000	39.999	0.0	90	-0.06
17		Benzyl Alcohol	40.000	40.360	-0.9	90	-0.06
18		2,2'-oxybis(1-Chloropropane	40.000	39.797	0.5	87	-0.05
19		2-Methylphenol	40.000	40.585	-1.5	89	-0.06
20		Hexachloroethane	40.000	40.836	-2.1	90	-0.05
21	P	n-Nitroso-di-n-propylamine	40.000	40.965	-2.4	91	-0.05
22		3+4-Methylphenols	40.000	40.348	-0.9	89	-0.05
23	I	Naphthalene-d8	20.000	20.000	0.0	89	-0.05
24		Acetophenone	40.000	40.325	-0.8	88	-0.06
25	S	Nitrobenzene-d5	80.000	81.738	-2.2	91	-0.06
26		Nitrobenzene	40.000	40.718	-1.8	90	-0.06
27		Isophorone	40.000	40.980	-2.4	90	-0.05
28	C	2-Nitrophenol	40.000	42.623	-6.6	92	-0.05
29		2,4-Dimethylphenol	40.000	40.197	-0.5	89	-0.05
30		bis(2-Chloroethoxy)methane	40.000	40.206	-0.5	89	-0.05
31	C	2,4-Dichlorophenol	40.000	41.019	-2.5	90	-0.05
32		1,2,4-Trichlorobenzene	40.000	40.156	-0.4	90	-0.05
33		Naphthalene	40.000	40.389	-1.0	90	-0.05
34		Benzoic acid	40.000	56.252	-40.6#	174	-0.02
35		4-Chloroaniline	40.000	39.311	1.7	88	-0.05
36	C	Hexachlorobutadiene	40.000	40.930	-2.3	89	-0.05
37		Caprolactam	40.000	40.074	-0.2	87	-0.05
38	C	4-Chloro-3-methylphenol	40.000	41.032	-2.6	92	-0.05
39		2-Methylnaphthalene	40.000	40.804	-2.0	91	-0.05
40	I	Acenaphthene-d10	20.000	20.000	0.0	90	-0.06
41		1,2,4,5-Tetrachlorobenzene	40.000	39.639	0.9	89	-0.05
42	P	Hexachlorocyclopentadiene	40.000	41.806	-4.5	90	-0.05
43	S	2,4,6-Tribromophenol	80.000	80.395	-0.5	89	-0.06
44	C	2,4,6-Trichlorophenol	40.000	40.199	-0.5	89	-0.05

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF122511\
Data File : BF052352.D
Acq On : 26 Dec 2011 4:42
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 26 06:04:14 2011
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Dec 23 02:18:10 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.967	0.1	88	-0.06
46	S	2-Fluorobiphenyl	80.000	80.970	-1.2	90	-0.06
47		1,1'-Biphenyl	40.000	40.323	-0.8	91	-0.05
48		2-Chloronaphthalene	40.000	39.929	0.2	90	-0.06
49		2-Nitroaniline	40.000	40.119	-0.3	91	-0.05
50		Acenaphthylene	40.000	39.801	0.5	90	-0.06
51		Dimethylphthalate	40.000	40.660	-1.6	91	-0.05
52		2,6-Dinitrotoluene	40.000	39.428	1.4	88	-0.06
53	C	Acenaphthene	40.000	39.859	0.4	91	-0.06
54		3-Nitroaniline	40.000	38.453	3.9	86	-0.06
55	P	2,4-Dinitrophenol	40.000	54.947	-37.4#	158	-0.06
56		Dibenzofuran	40.000	39.926	0.2	90	-0.06
57	P	4-Nitrophenol	40.000	38.825	2.9	85	-0.06
58		2,4-Dinitrotoluene	40.000	40.367	-0.9	89	-0.06
59		Fluorene	40.000	39.547	1.1	89	-0.06
60		2,3,4,6-Tetrachlorophenol	40.000	40.430	-1.1	89	-0.06
61		Diethylphthalate	40.000	39.922	0.2	90	-0.06
62		4-Chlorophenyl-phenylether	40.000	40.430	-1.1	91	-0.06
63		4-Nitroaniline	40.000	37.195	7.0	83	-0.06
64		Azobenzene	40.000	39.995	0.0	90	-0.06
65	I	Phenanthrene-d10	20.000	20.000	0.0	87	-0.07
66		4,6-Dinitro-2-methylphenol	40.000	44.737	-11.8	102	-0.06
67	c	n-Nitrosodiphenylamine	40.000	40.630	-1.6	88	-0.06
68		4-Bromophenyl-phenylether	40.000	40.112	-0.3	87	-0.07
69		Hexachlorobenzene	40.000	41.081	-2.7	88	-0.06
70		Atrazine	40.000	42.273	-5.7	86	-0.06
71	C	Pentachlorophenol	40.000	44.236	-10.6	91	-0.06
72		Phenanthrene	40.000	39.850	0.4	86	-0.07
73		Anthracene	40.000	40.011	-0.0	87	-0.06
74		Carbazole	40.000	38.567	3.6	82	-0.07
75		Di-n-butylphthalate	40.000	41.188	-3.0	87	-0.06
76	C	Fluoranthene	40.000	37.926	5.2	81	-0.08
77	I	Chrysene-d12	20.000	20.000	0.0	78	-0.08
78		Benzidine	40.000	37.355	6.6	69	-0.07
79		Pyrene	40.000	41.519	-3.8	80	-0.08
80	S	Terphenyl-d14	80.000	83.109	-3.9	82	-0.07
81		Butylbenzylphthalate	40.000	41.677	-4.2	80	-0.07
82		Benzo(a)anthracene	40.000	38.486	3.8	75	-0.08
83		3,3'-Dichlorobenzidine	40.000	38.513	3.7	75	-0.08
84		Chrysene	40.000	41.033	-2.6	79	-0.08
85		Bis(2-ethylhexyl)phthalate	40.000	41.120	-2.8	78	-0.06
86	c	Di-n-octyl phthalate	40.000	38.832	2.9	74	-0.06
87		Indeno(1,2,3-cd)pyrene	40.000	36.268	9.3	71	-0.14

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF122511\
Data File : BF052352.D
Acq On : 26 Dec 2011 4:42
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Dec 26 06:04:14 2011
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Dec 23 02:18:10 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88 I	Perylene-d12	20.000	20.000	0.0	75	-0.09
89	Benzo(b)fluoranthene	40.000	36.042	9.9	70	-0.08
90	Benzo(k)fluoranthene	40.000	43.483	-8.7	79	-0.08
91 C	Benzo(a)pyrene	40.000	40.634	-1.6	75	-0.08
92	Dibenzo(a,h)anthracene	40.000	36.822	7.9	70	-0.14
93	Benzo(g,h,i)perylene	40.000	37.734	5.7	72	-0.16

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name : Ms. Tobrena Skeen
Chemtech Project # C5056
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
12 Solid samples were received on 12/20/2011.
1 Water sample was received on 12/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dioxin, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

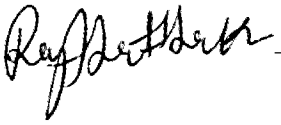
C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP16-0.502-02 [2-Fluorobiphenyl - 43%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5056-01MS} with File ID: BG002561.D recoveries met the requirements for all compounds except for Fluoranthene[160%] .
The MSD recoveries met the acceptable requirements .
The RPD for {C5056-01MSD} with File ID: BG002562.D recoveries did not meet criteria because of matrix interference.
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .
The Continuous Calibration File ID BG002578.D met the requirements except for Benzo(g,h,i)perylene but it is not present in the sample.
The Tuning criteria met requirements.
Samples 12TP16-0608-03, 12TP-DUP-01 was diluted due to bad matrix.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.
Reduce quantity of Samples 12TP16-0608-03 and 12TP-DUP-01 were taken for extraction due to bad matrices.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature____  ____ Kalpana Raythattha
I am approving this document
2012.01.13 16:51:11 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5056-01	12TP16-000.5-01	Nitrobenzene-d5	100	57.72	58		30	150
		2-Fluorobiphenyl	100	45.78	46		45	105
		Terphenyl-d14	100	44.57	45		30	125
C5056-01MS	12TP16-000.5-01MS	Nitrobenzene-d5	10	8.95	90		30	150
		2-Fluorobiphenyl	10	8.05	81		45	105
		Terphenyl-d14	10	7.86	79		30	125
C5056-01MSD	12TP16-000.5-01MSD	Nitrobenzene-d5	10	5.34	53		30	150
		2-Fluorobiphenyl	10	4.93	49		45	105
		Terphenyl-d14	10	4.87	49		30	125
C5056-02	12TP16-0.502-02	Nitrobenzene-d5	100	61.35	61		30	150
		2-Fluorobiphenyl	100	43.05	43	*	45	105
		Terphenyl-d14	100	42.72	43		30	125
C5056-03	12TP16-0608-03	Nitrobenzene-d5	100	90.80	91		30	150
		2-Fluorobiphenyl	100	62.55	63		45	105
		Terphenyl-d14	100	65.70	66		30	125
C5056-04	12TP16-0910-04	Nitrobenzene-d5	100	60.09	60		30	150
		2-Fluorobiphenyl	100	46.33	46		45	105
		Terphenyl-d14	100	46.38	46		30	125
C5056-05	12TP-DUP-01	Nitrobenzene-d5	100	72.10	72		30	150
		2-Fluorobiphenyl	100	52.10	52		45	105
		Terphenyl-d14	100	54.05	54		30	125
PB60071B	PB60071B	Nitrobenzene-d5	10	8.26	83		30	150
		2-Fluorobiphenyl	10	7.36	74		45	105
		Terphenyl-d14	10	7.09	71		30	125
PB60071BS	PB60071BS	Nitrobenzene-d5	10	7.81	78		30	150
		2-Fluorobiphenyl	10	6.86	69		45	105
		Terphenyl-d14	10	6.66	67		30	125

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002560.D Time Analyzed: 11:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	52738	7.92	190010	10.11	125396	13.08
	UPPER LIMIT	105476	8.42	380020	10.61	250792	13.58
	LOWER LIMIT	26369	7.42	95005	9.61	62698	12.58
	EPA SAMPLE NO.						
01	12TP16-000.5-01MS	59196	7.92	212924	10.10	135576	13.08
02	12TP16-000.5-01MSD	66417	7.92	246079	10.10	154140	13.08
03	12TP16-000.5-01	66282	7.92	238736	10.11	148202	13.08
04	12TP16-0910-04	62706	7.93	220727	10.10	135733	13.08
05	PB60071B	59941	7.93	220053	10.11	141094	13.08
06	PB60071BS	66585	7.93	242985	10.10	154772	13.08

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002560.D Time Analyzed: 11:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	209965	15.53	218693	19.9	194754	22.97
	UPPER LIMIT	419930	16.03	437386	20.4	389508	23.47
	LOWER LIMIT	104982.5	15.03	109346.5	19.4	97377	22.47
	EPA SAMPLE NO.						
01	12TP16-000.5-01MS	229403	15.53	243196	19.90	215513	22.97
02	12TP16-000.5-01MSD	264397	15.53	277552	19.90	247448	22.97
03	12TP16-000.5-01	251725	15.53	258332	19.90	239194	22.97
04	12TP16-0910-04	229492	15.53	239582	19.90	224186	22.97
05	PB60071B	237272	15.53	243407	19.90	216458	22.97
06	PB60071BS	264455	15.53	276023	19.90	245236	22.97

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002578.D Time Analyzed: 23:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	51854	7.92	187498	10.11	120659	13.08
	UPPER LIMIT	103708	8.42	374996	10.61	241318	13.58
	LOWER LIMIT	25927	7.42	93749	9.61	60329.5	12.58
	EPA SAMPLE NO.						
01	12TP16-0608-03	60376	7.93	207759	10.10	131904	13.08
02	12TP-DUP-01	66203	7.93	231131	10.11	145493	13.08
03	12TP16-0.502-02	65859	7.92	231634	10.10	142146	13.08

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002578.D Time Analyzed: 23:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	204018	15.53	213640	19.9	188154	22.97
	UPPER LIMIT	408036	16.03	427280	20.4	376308	23.47
	LOWER LIMIT	102009	15.03	106820	19.4	94077	22.47
	EPA SAMPLE NO.						
01	12TP16-0608-03	210702	15.53	220628	19.90	147448	22.98
02	12TP-DUP-01	235707	15.53	243662	19.90	166536	22.98
03	12TP16-0.502-02	239192	15.53	258636	19.90	240346	22.96

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60071B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab File ID: BG002571.D Lab Sample ID: PB60071B

Instrument ID: BNA_G Date Extracted: 12/21/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/31/2011

Level: (low/med) LOW Time Analyzed: 18:38

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12TP-DUP-01	C5056-05	BG002592.D	01/01/2012
12TP16-0608-03	C5056-03	BG002591.D	01/01/2012
12TP16-0.502-02	C5056-02	BG002580.D	01/01/2012
PB60071BS	PB60071BS	BG002572.D	12/31/2011
12TP16-0910-04	C5056-04	BG002567.D	12/31/2011
12TP16-000.5-01	C5056-01	BG002566.D	12/31/2011
12TP16-000.5-01MSD	C5056-01MSD	BG002562.D	12/31/2011
12TP16-000.5-01MS	C5056-01MS	BG002561.D	12/31/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60071B	SDG No.:	C5056
Lab Sample ID:	PB60071B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002571.D	1	12/21/11	12/31/11	PB60071

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.26		30 - 150	83%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.36		45 - 105	74%	SPK: 10
1718-51-0	Terphenyl-d14	7.09		30 - 125	71%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	59941	7.93			
1146-65-2	Naphthalene-d8	220053	10.11			
15067-26-2	Acenaphthene-d10	141094	13.08			
1517-22-2	Phenanthrene-d10	237272	15.53			
1719-03-5	Chrysene-d12	243407	19.9			
1520-96-3	Perylene-d12	216458	22.97			

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60071BS	Naphthalene	330	240	73				51	114	
	2-Methylnaphthalene	330	240	73				54	111	
	Acenaphthylene	330	230	70				54	113	
	Acenaphthene	330	230	70				54	113	
	Fluorene	330	240	73				56	113	
	Phenanthrene	330	250	76				56	113	
	Anthracene	330	250	76				56	113	
	Fluoranthene	330	260	79				54	117	
	Pyrene	330	240	73				58	117	
	Benzo(a)anthracene	330	230	70				57	112	
	Chrysene	330	240	73				59	114	
	Benzo(b)fluoranthene	330	240	73				53	120	
	Benzo(k)fluoranthene	330	250	76				56	117	
	Benzo(a)pyrene	330	250	76				56	117	
	Indeno(1,2,3-cd)pyrene	330	220	67				49	120	
	Dibenz(a,h)anthracene	330	220	67				52	119	
	Benzo(g,h,i)perylene	330	200	61				53	119	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5056-01MS	**Client Sample ID: 12TP16-000.5-01MS**									
Naphthalene	420	0	340	81				23	160	
2-Methylnaphthalene	420	0	340	81				37	139	
Acenaphthylene	420	0	340	81				28	155	
Acenaphthene	420	0	340	81				32	146	
Fluorene	420	2.5	370	88				17	166	
Phenanthrene	420	36	560	125				30	149	
Anthracene	420	2.5	390	92				27	158	
Fluoranthene	420	69	740	160	*			26	155	
Pyrene	420	49	580	126				22	173	
Benzo(a)anthracene	420	20	450	102				27	159	
Chrysene	420	29	470	105				23	166	
Benzo(b)fluoranthene	420	35	520	115				21	171	
Benzo(k)fluoranthene	420	10	420	98				26	165	
Benzo(a)pyrene	420	22	450	102				26	157	
Indeno(1,2,3-cd)pyrene	420	12	340	78				10	188	
Dibenz(a,h)anthracene	420	0	320	76				18	147	
Benzo(g,h,i)perylene	420	12	320	73				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5056-01MSD	**Client Sample ID: 12TP16-000.5-01MSD**									
Naphthalene	420	0	210	50		47	*	23	160	20
2-Methylnaphthalene	420	0	200	48		51	*	37	139	20
Acenaphthylene	420	0	210	50		47	*	28	155	20
Acenaphthene	420	0	210	50		47	*	32	146	20
Fluorene	420	2.5	230	54		48	*	17	166	20
Phenanthrene	420	36	370	80		44	*	30	149	20
Anthracene	420	2.5	240	57		47	*	27	158	20
Fluoranthene	420	69	510	105		42	*	26	155	20
Pyrene	420	49	400	84		40	*	22	173	20
Benzo(a)anthracene	420	20	300	67		41	*	27	159	20
Chrysene	420	29	310	67		44	*	23	166	20
Benzo(b)fluoranthene	420	35	310	65		56	*	21	171	20
Benzo(k)fluoranthene	420	10	280	64		42	*	26	165	20
Benzo(a)pyrene	420	22	290	64		46	*	26	157	20
Indeno(1,2,3-cd)pyrene	420	12	220	50		44	*	10	188	20
Dibenz(a,h)anthracene	420	0	200	48		45	*	18	147	20
Benzo(g,h,i)perylene	420	12	210	47		43	*	10	177	20

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BG002138.D DFTPP Injection Date: 12/12/2011

Instrument ID: BNA_G DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	40.0 - 60.0% of mass 198	44.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	25.2
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	12.8
442	Greater than 40% of mass 198	87.2
443	17.0 - 23.0% of mass 442	16.5 (19) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD025	25 PPM BNA ICC	BG002140.D	12/12/2011	21:33
02	SSTD010	10 PPM BNA ICC	BG002141.D	12/12/2011	22:11
03	SSTD2.5	2.5 PPM BNA ICC	BG002142.D	12/12/2011	22:50
04	SSTD0.5	0.5 PPM BNA ICC	BG002143.D	12/12/2011	23:28
05	SSTD0.1	0.1 PPM BNA ICC	BG002144.D	12/13/2011	00:07

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF2.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BG002559.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_G DFTPP Injection Time: 10:43

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.6
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	42.3
70	Less than 2.0% of mass 69	0.4 (0.8) 1
127	40.0 - 60.0% of mass 198	47.9
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.4
275	10.0 - 30.0% of mass 198	28.6
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	15.7
442	Greater than 40% of mass 198	88.9
443	17.0 - 23.0% of mass 442	18.9 (21.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002560.D	12/31/2011	11:22
02	12TP16-000.5-01MS	C5056-01MS	BG002561.D	12/31/2011	12:02
03	12TP16-000.5-01MSD	C5056-01MSD	BG002562.D	12/31/2011	12:41
04	12TP16-000.5-01	C5056-01	BG002566.D	12/31/2011	15:20
05	12TP16-0910-04	C5056-04	BG002567.D	12/31/2011	16:00
06	PB60071B	PB60071B	BG002571.D	12/31/2011	18:38
07	PB60071BS	PB60071BS	BG002572.D	12/31/2011	19:18

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_G Calibration Date/Time: 12/31/2011 11:22

Lab File ID: BG002560.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.077		1.9	20.0
2-Methylnapthalene	2.867	2.810		2.0	20.0
Acenaphthylene	6.939	6.491		6.4	20.0
Acenaphthene	1.136	1.026		9.7	20.0
Fluorene	1.311	1.333		1.7	20.0
Phenanthrene	4.275	4.366		2.1	20.0
Anthracene	4.258	4.320		1.5	20.0
Fluoranthene	4.390	4.667		6.3	20.0
Pyrene	4.768	4.655		2.4	20.0
Benzo(a)anthracene	4.640	4.388		5.4	20.0
Chrysene	4.416	4.430		0.3	20.0
Benzo(b)fluoranthene	10.733	10.150		5.4	20.0
Benzo(k)fluoranthene	10.683	10.864		1.7	20.0
Benzo(a)pyrene	10.071	9.691		3.8	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.355		17.5	20.0
Dibenzo(a,h)anthracene	0.929	0.763		17.9	20.0
Benzo(g,h,i)perylene	3.949	3.162		19.9	20.0
Nitrobenzene-d5	0.405	0.446		10.2	20.0
2-Fluorobiphenyl	1.475	1.424		3.5	20.0
Terphenyl-d14	0.779	0.716		8.1	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5056 SDG NO.: C5056

Lab File ID: BG002577.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_G DFTPP Injection Time: 22:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	43.8
70	Less than 2.0% of mass 69	0.4 (0.9) 1
127	40.0 - 60.0% of mass 198	45.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	24
365	Greater than 1% of mass 198	2.7
441	Present, but less than mass 443	12
442	Greater than 40% of mass 198	83.6
443	17.0 - 23.0% of mass 442	15 (18) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002578.D	12/31/2011	23:16
02	12TP16-0.502-02	C5056-02	BG002580.D	01/01/2012	00:35
03	12TP16-0608-03	C5056-03	BG002591.D	01/01/2012	07:49
04	12TP-DUP-01	C5056-05	BG002592.D	01/01/2012	08:28

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG No.: C5056

Instrument ID: BNA_G Calibration Date/Time: 12/31/2011 23:16

Lab File ID: BG002578.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.045		1.1	20.0
2-Methylnapthalene	2.867	2.841		0.9	20.0
Acenaphthylene	6.939	6.589		5.1	20.0
Acenaphthene	1.136	1.011		11.0	20.0
Fluorene	1.311	1.352		3.1	20.0
Phenanthrene	4.275	4.337		1.5	20.0
Anthracene	4.258	4.265		0.2	20.0
Fluoranthene	4.390	4.657		6.1	20.0
Pyrene	4.768	4.625		3.0	20.0
Benzo(a)anthracene	4.640	4.360		6.0	20.0
Chrysene	4.416	4.398		0.4	20.0
Benzo(b)fluoranthene	10.733	10.371		3.4	20.0
Benzo(k)fluoranthene	10.683	10.722		0.4	20.0
Benzo(a)pyrene	10.071	9.629		4.4	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.268		19.6	20.0
Dibenzo(a,h)anthracene	0.929	0.753		18.9	20.0
Benzo(g,h,i)perylene	3.949	3.105		21.4	20.0
Nitrobenzene-d5	0.405	0.451		11.3	20.0
2-Fluorobiphenyl	1.475	1.438		2.5	20.0
Terphenyl-d14	0.779	0.709		9.0	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5056
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
12 Solid samples were received on 12/20/2011.
1 Water sample was received on 12/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dioxin, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_G. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5um df, Catalogue #: 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalogue #: 7HM-G017-11The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11 . The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

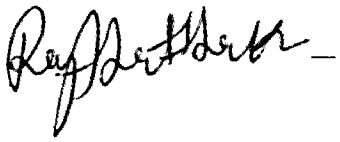
D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP16-0608-03 [Decachlorobiphenyl(1) - 25%, Tetrachloro-m-xylene(1) - 39%, Tetrachloro-m-xylene(2) - 61%], 12TP16-0608-03RE [Decachlorobiphenyl(1) - 23%, Tetrachloro-m-xylene(1) - 45%], 12TP-DUP-01 [Decachlorobiphenyl(1) - 23%, Tetrachloro-m-xylene(1) - 33%, Tetrachloro-m-xylene(2) - 57%], 12TP-DUP-01RE [Decachlorobiphenyl(1) - 20%, Tetrachloro-m-xylene(1) - 41% and Tetrachloro-m-xylene(2) - 69%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PD007307.D met the requirements except for gamma-BHC,Heptachlor,Heptachlor epoxide and Decachlorobiphenyl are failing in 1st

column but passing in 2nd column.The Continuous Calibration File ID PD007319.D met the requirements except for gamma-BHC,Heptachlor and Decachlorobiphenyl are failing in 1st column but passing in 2nd column.The Continuous Calibration File ID PD007341.D met the requirements except for gamma-BHC and Decachlorobiphenyl are failing in 1st column while delta-BHC,Heptachlor and Heptachlor epoxide are failing in 2nd column but passing in 1st column and Aldrin is failing in both columns.The Continuous Calibration File ID PD007348.D met the requirements except for Endosulfan Sulfate,4,4-DDT,Methoxychlor,Endrin ketone and Decachlorobiphenyl are failing in 1st column while Endosulfan II and alpha-Chlordane are failing in 2nd column but passing in 1st column and gamma-BHC is failing in both column.The Continuous Calibration File ID PG003574.D met the requirements except for alpha-BHC and delta-BHC are failing in 1st column but passing in 2nd column.The Continuous Calibration File ID PG003586.D met the requirements except for alpha-BHC,delta-BHC and gamma-BHC are failing in 1st column while Endrin ketone is failing in 2nd column but passing in 1st column.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature___  Kalpana Raythattha
I am approving this document
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CHEMTECH

Surrogate Summary

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD007249.D	PIBLK-PD007249.D	Decachlorobiphenyl	1	20	21.87	109		10	192
		Tetrachloro-m-xylene	1	20	21.83	109		10	172
		Decachlorobiphenyl	2	20	19.84	99		10	192
		Tetrachloro-m-xylene	2	20	19.94	100		10	172
I.BLK-PD007306.D	PIBLK-PD007306.D	Decachlorobiphenyl	1	20	16.13	81		10	192
		Tetrachloro-m-xylene	1	20	21.94	110		10	172
		Decachlorobiphenyl	2	20	19.09	95		10	192
		Tetrachloro-m-xylene	2	20	19.9	100		10	172
C5056-01	12TP16-000.5-01	Decachlorobiphenyl	1	20	16.78	84		55	130
		Tetrachloro-m-xylene	1	20	20.35	102		70	125
		Decachlorobiphenyl	2	20	16.81	84		55	130
		Tetrachloro-m-xylene	2	20	17.92	90		70	125
C5056-02	12TP16-0.502-02	Decachlorobiphenyl	1	20	14.7	74		55	130
		Tetrachloro-m-xylene	1	20	18.86	94		70	125
		Decachlorobiphenyl	2	20	16.06	80		55	130
		Tetrachloro-m-xylene	2	20	17.13	86		70	125
C5056-03	12TP16-0608-03	Decachlorobiphenyl	1	20	5.05	25	*	55	130
		Tetrachloro-m-xylene	1	20	7.7	39	*	70	125
		Decachlorobiphenyl	2	20	14.51	73		55	130
		Tetrachloro-m-xylene	2	20	12.23	61	*	70	125
C5056-05	12TP-DUP-01	Decachlorobiphenyl	1	20	4.58	23	*	55	130
		Tetrachloro-m-xylene	1	20	6.53	33	*	70	125
		Decachlorobiphenyl	2	20	11.7	59		55	130
		Tetrachloro-m-xylene	2	20	11.36	57	*	70	125
I.BLK-PD007318.D	PIBLK-PD007318.D	Decachlorobiphenyl	1	20	11.54	58		10	192
		Tetrachloro-m-xylene	1	20	21.54	108		10	172
		Decachlorobiphenyl	2	20	17.95	90		10	192
		Tetrachloro-m-xylene	2	20	21.42	107		10	172
I.BLK-PD007339.D	PIBLK-PD007339.D	Decachlorobiphenyl	1	20	10.97	55		10	192
		Tetrachloro-m-xylene	1	20	21.58	108		10	172
		Decachlorobiphenyl	2	20	19.77	99		10	192
		Tetrachloro-m-xylene	2	20	22.84	114		10	172
C5056-03RE	12TP16-0608-03RE	Decachlorobiphenyl	1	20	4.53	23	*	55	130
		Tetrachloro-m-xylene	1	20	9.09	45	*	70	125
		Decachlorobiphenyl	2	20	14	70		55	130
		Tetrachloro-m-xylene	2	20	15.14	76		70	125
C5056-05RE	12TP-DUP-01RE	Decachlorobiphenyl	1	20	3.99	20	*	55	130
		Tetrachloro-m-xylene	1	20	8.13	41	*	70	125
		Decachlorobiphenyl	2	20	12.54	63		55	130
		Tetrachloro-m-xylene	2	20	13.84	69	*	70	125
I.BLK-PD007347.D	PIBLK-PD007347.D	Decachlorobiphenyl	1	20	8.79	44		10	192
		Tetrachloro-m-xylene	1	20	18.29	91		10	172
		Decachlorobiphenyl	2	20	16.09	80		10	192
		Tetrachloro-m-xylene	2	20	19.5	98		10	172

CHEMTECH

Surrogate Summary

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PG003560.D	PIBLK-PG003560.D	Decachlorobiphenyl	1	20	19.73	99		10	192
		Tetrachloro-m-xylene	1	20	18.8	94		10	172
		Decachlorobiphenyl	2	20	21.32	107		10	192
		Tetrachloro-m-xylene	2	20	24.26	121		10	172
I.BLK-PG003573.D	PIBLK-PG003573.D	Decachlorobiphenyl	1	20	20.33	102		10	192
		Tetrachloro-m-xylene	1	20	19.27	96		10	172
		Decachlorobiphenyl	2	20	21.94	110		10	192
		Tetrachloro-m-xylene	2	20	23.8	119		10	172
PB60068BL	PB60068BL	Decachlorobiphenyl	1	20	20.19	101		55	130
		Tetrachloro-m-xylene	1	20	19.19	96		70	125
		Decachlorobiphenyl	2	20	22	110		55	130
		Tetrachloro-m-xylene	2	20	23.73	119		70	125
PB60068BS	PB60068BS	Decachlorobiphenyl	1	20	20.14	101		55	130
		Tetrachloro-m-xylene	1	20	19.59	98		70	125
		Decachlorobiphenyl	2	20	22.51	113		55	130
		Tetrachloro-m-xylene	2	20	21.11	106		70	125
C5056-04	12TP16-0910-04	Decachlorobiphenyl	1	20	20.09	100		55	130
		Tetrachloro-m-xylene	1	20	19.1	96		70	125
		Decachlorobiphenyl	2	20	22.52	113		55	130
		Tetrachloro-m-xylene	2	20	23.85	119		70	125
C5056-04MS	12TP16-0910-04MS	Decachlorobiphenyl	1	20	19.6	98		55	130
		Tetrachloro-m-xylene	1	20	18.85	94		70	125
		Decachlorobiphenyl	2	20	21.92	110		55	130
		Tetrachloro-m-xylene	2	20	22.74	114		70	125
C5056-04MSD	12TP16-0910-04MSD	Decachlorobiphenyl	1	20	19.68	98		55	130
		Tetrachloro-m-xylene	1	20	18.77	94		70	125
		Decachlorobiphenyl	2	20	22.14	111		55	130
		Tetrachloro-m-xylene	2	20	23.09	115		70	125
I.BLK-PG003585.D	PIBLK-PG003585.D	Decachlorobiphenyl	1	20	19.53	98		10	192
		Tetrachloro-m-xylene	1	20	18.64	93		10	172
		Decachlorobiphenyl	2	20	21.82	109		10	192
		Tetrachloro-m-xylene	2	20	23.83	119		10	172

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60068BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab Sample ID: PB60068BL Lab File ID: PG003575.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/21/2011

Date Analyzed (1): 12/29/2011 Date Analyzed (2): 12/29/2011

Time Analyzed (1): 19:53 Time Analyzed (2): 19:53

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column (1): ZB-MR1 ID: 0.32 (mm) GC Column (2): ZB-MR2 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
12TP16-000.5-01	C5056-01	PD007308.D	01/04/2012	01/04/2012
12TP16-0.502-02	C5056-02	PD007309.D	01/04/2012	01/04/2012
12TP16-0608-03	C5056-03	PD007310.D	01/04/2012	01/04/2012
12TP-DUP-01	C5056-05	PD007311.D	01/04/2012	01/04/2012
PB60068BS	PB60068BS	PG003576.D	12/29/2011	12/29/2011
12TP16-0910-04	C5056-04	PG003579.D	12/29/2011	12/29/2011
12TP16-0910-04MS	C5056-04MS	PG003580.D	12/29/2011	12/29/2011
12TP16-0910-04MSD	C5056-04MSD	PG003581.D	12/29/2011	12/29/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60068BL	SDG No.:	C5056
Lab Sample ID:	PB60068BL	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003575.D	1	12/21/11	12/29/11	PB60068

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.2		55 - 130	101%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		70 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12TP16-0910-04MS**										
C5056-04MS	alpha-BHC	20.2	0	20	99				60	125	
	beta-BHC	20.2	0	21	104				60	125	
	delta-BHC	20.2	0	20	99				55	130	
	gamma-BHC (Lindane)	20.2	0	19	94				60	125	
	Heptachlor	20.2	0	19	94				50	140	
	Aldrin	20.2	0	19	94				45	140	
	Heptachlor epoxide	20.2	0	19	94				65	130	
	Endosulfan I	20.2	0	19	94				15	135	
	Dieldrin	20.2	0	19	94				65	125	
	4,4-DDE	20.2	0	20	99				70	125	
	Endrin	20.2	0	18	89				60	135	
	Endosulfan II	20.2	0	19	94				35	140	
	4,4-DDD	20.2	0	19	94				30	135	
	Endosulfan sulfate	20.2	0	20	99				60	135	
	4,4-DDT	20.2	0	20	99				45	140	
	Methoxychlor	20.2	0	21	104				55	145	
	Endrin ketone	20.2	0	21	104				65	135	
	Endrin aldehyde	20.2	0	18	89				35	145	
	alpha-Chlordane	20.2	0	19	94				65	120	
	gamma-Chlordane	20.2	0	19	94				65	125	
Client Sample ID:	**12TP16-0910-04MSD**										
C5056-04MSD	alpha-BHC	20.2	0	20	99		0		60	125	20
	beta-BHC	20.2	0	21	104		0		60	125	20
	delta-BHC	20.2	0	20	99		0		55	130	20
	gamma-BHC (Lindane)	20.2	0	19	94		0		60	125	20
	Heptachlor	20.2	0	20	99		5		50	140	20
	Aldrin	20.2	0	19	94		0		45	140	20
	Heptachlor epoxide	20.2	0	19	94		0		65	130	20
	Endosulfan I	20.2	0	19	94		0		15	135	20
	Dieldrin	20.2	0	20	99		5		65	125	20
	4,4-DDE	20.2	0	20	99		0		70	125	20
	Endrin	20.2	0	18	89		0		60	135	20
	Endosulfan II	20.2	0	20	99		5		35	140	20
	4,4-DDD	20.2	0	19	94		0		30	135	20
	Endosulfan sulfate	20.2	0	21	104		5		60	135	20
	4,4-DDT	20.2	0	20	99		0		45	140	20
	Methoxychlor	20.2	0	22	109		5		55	145	20
	Endrin ketone	20.2	0	21	104		0		65	135	20
	Endrin aldehyde	20.2	0	18	89		0		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
C5056-04MSD	alpha-Chlordane	20.2	0	19	94		0		65	120	20
	gamma-Chlordane	20.2	0	19	94		0		65	125	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60068BS	alpha-BHC	16.7	18	108				84	123	
	beta-BHC	16.7	19	114				82	123	
	delta-BHC	16.7	18	108				83	126	
	gamma-BHC (Lindane)	16.7	17	102				83	125	
	Heptachlor	16.7	17	102				83	122	
	Aldrin	16.7	17	102				82	124	
	Heptachlor epoxide	16.7	17	102				83	120	
	Endosulfan I	16.7	17	102				81	124	
	Dieldrin	16.7	17	102				85	121	
	4,4-DDE	16.7	17	102				81	123	
	Endrin	16.7	17	102				76	130	
	Endosulfan II	16.7	17	102				80	125	
	4,4-DDD	16.7	17	102				80	131	
	Endosulfan sulfate	16.7	18	108				81	122	
	4,4-DDT	16.7	18	108				70	129	
	Methoxychlor	16.7	19	114				78	129	
	Endrin ketone	16.7	19	114				77	132	
	Endrin aldehyde	16.7	17	102				79	124	
	alpha-Chlordane	16.7	17	102				84	120	
	gamma-Chlordane	16.7	17	102				83	122	

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5056

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 01/03/2012 01/03/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	01/03/2012	16:42	PD007249.D	8.06	3.33
PEM01	PEM01	01/03/2012	16:55	PD007250.D	8.06	3.33
RESC01	RESCHK	01/03/2012	17:09	PD007251.D	8.06	3.33
100 PPB PEST STD	100 PPB PEST STD	01/03/2012	17:22	PD007252.D	8.06	3.33
75 PPB PEST STD	75 PPB PEST STD	01/03/2012	17:36	PD007253.D	8.06	3.33
50 PPB PEST STD	50 PPB PEST STD	01/03/2012	17:49	PD007254.D	8.06	3.33
25 PPB PEST STD	25 PPB PEST STD	01/03/2012	18:03	PD007255.D	8.06	3.33
5 PPB PEST STD	5 PPB PEST STD	01/03/2012	18:16	PD007256.D	8.06	3.33
TOX 500	TOX	01/03/2012	18:43	PD007258.D	8.06	3.33
CHLOR 500	CHLOR 500	01/03/2012	18:57	PD007259.D	8.06	3.33
PEM02	PEM02	01/04/2012	10:39	PD007295.D	8.06	3.33
PIBLK02	I.BLK02	01/04/2012	13:50	PD007306.D	8.07	3.34
CCAL01	STD 25	01/04/2012	14:04	PD007307.D	8.06	3.33
12TP16-000.5-01	C5056-01	01/04/2012	14:20	PD007308.D	8.06	3.34
12TP16-0.502-02	C5056-02	01/04/2012	14:33	PD007309.D	8.06	3.33
12TP16-0608-03	C5056-03	01/04/2012	14:47	PD007310.D	8.06	3.33
12TP-DUP-01	C5056-05	01/04/2012	15:00	PD007311.D	8.06	3.33
PIBLK03	I.BLK03	01/04/2012	16:35	PD007318.D	8.06	3.33
CCAL02	STD 25	01/04/2012	17:10	PD007319.D	8.07	3.34
PIBLK04	I.BLK04	01/05/2012	13:37	PD007339.D	8.06	3.33
PEM03	PEM03	01/05/2012	13:50	PD007340.D	8.06	3.33
CCAL03	STD 25	01/05/2012	14:04	PD007341.D	8.06	3.33
12TP16-0608-03RE	C5056-03RE	01/05/2012	15:08	PD007345.D	8.06	3.33
12TP-DUP-01RE	C5056-05RE	01/05/2012	15:22	PD007346.D	8.06	3.33
PIBLK05	I.BLK05	01/05/2012	17:10	PD007347.D	8.06	3.33
CCAL04	STD 25	01/05/2012	17:40	PD007348.D	8.06	3.34

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_D
GC Column:	ZB-MR1 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	01/03/2012 01/03/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	01/03/2012	16:42	PD007249.D	9.01	3.92
PEM01	PEM01	01/03/2012	16:55	PD007250.D	9.01	3.92
RESC01	RESCHK	01/03/2012	17:09	PD007251.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	01/03/2012	17:22	PD007252.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	01/03/2012	17:36	PD007253.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	01/03/2012	17:49	PD007254.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	01/03/2012	18:03	PD007255.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	01/03/2012	18:16	PD007256.D	9.01	3.92
TOX 500	TOX	01/03/2012	18:43	PD007258.D	9.01	3.92
CHLOR 500	CHLOR 500	01/03/2012	18:57	PD007259.D	9.01	3.92
PEM02	PEM02	01/04/2012	10:39	PD007295.D	9.01	3.92
PIBLK02	I.BLK02	01/04/2012	13:50	PD007306.D	9.05	3.93
CCAL01	STD 25	01/04/2012	14:04	PD007307.D	9.01	3.92
12TP16-000.5-01	C5056-01	01/04/2012	14:20	PD007308.D	9.03	3.92
12TP16-0.502-02	C5056-02	01/04/2012	14:33	PD007309.D	9.01	3.92
12TP16-0608-03	C5056-03	01/04/2012	14:47	PD007310.D	9.01	3.92
12TP-DUP-01	C5056-05	01/04/2012	15:00	PD007311.D	9.01	3.92
PIBLK03	I.BLK03	01/04/2012	16:35	PD007318.D	9.01	3.92
CCAL02	STD 25	01/04/2012	17:10	PD007319.D	9.05	3.92
PIBLK04	I.BLK04	01/05/2012	13:37	PD007339.D	9.01	3.92
PEM03	PEM03	01/05/2012	13:50	PD007340.D	9.01	3.92
CCAL03	STD 25	01/05/2012	14:04	PD007341.D	9.01	3.92
12TP16-0608-03RE	C5056-03RE	01/05/2012	15:08	PD007345.D	9.01	3.92
12TP-DUP-01RE	C5056-05RE	01/05/2012	15:22	PD007346.D	9.01	3.92
PIBLK05	I.BLK05	01/05/2012	17:10	PD007347.D	9.01	3.92
CCAL04	STD 25	01/05/2012	17:40	PD007348.D	9.03	3.92

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

Instrument ID: ECD_D **Calibration Date(s):** 01/03/2012 01/03/2012

Calibration Times: 17:22 18:16

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PD007256.D **CF 025 =** PD007255.D

CF 050 = PD007254.D **CF 075 =** PD007253.D **CF 100 =** PD007252.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	17811137920	13464865064	12768631526	12239030283	12446727685	13746078496	17
Tetrachloro-m-xylene	16231553020	13498771756	13014837328	12452338709	12948990305	13629298224	11
alpha-BHC	260746457600	226510124360	233867546060	233986650987	236300413230	238282238447	5
beta-BHC	113263931600	93817302880	89685852400	86455814560	89344073030	94513394894	11
delta-BHC	263459364800	228979372840	228543264760	225136364240	237316901290	236687053586	7
gamma-BHC (Lindane)	241281787800	215429223440	159343716500	174990064240	196920517670	197593061930	16
Heptachlor	230180097800	186724587200	191017474240	179440668160	182843626590	194041290798	11
Aldrin	248112250000	206804463520	197755832140	185494248613	188448262770	205323011409	12
Heptachlor epoxide	234192478200	194750169840	179074304600	171678489853	175784354980	191095959495	13
Endosulfan I	236171175200	191140048320	177533598060	167607250293	167940811990	188078576773	15
Dieldrin	257008066000	210828453240	201937599880	194452112747	198680798230	212581406019	12
4,4-DDE	247894641400	204255515800	193119377920	185136684827	193426913000	204766626589	12
Endrin	215964165000	180096778120	167675007960	160349173920	159712921040	176759609208	13
Endosulfan II	234429643200	189290621120	173801358480	166385709813	164933226480	185768111819	16
4,4-DDD	210861886600	175332149200	162676254020	155876693760	155045609360	171958518588	14
Endosulfan sulfate	228866599000	191534540080	177138158080	167704035587	168162806690	186681227887	14
4,4-DDT	215994095000	180121707840	170186083880	163361663320	163864993240	178705708656	12
Methoxychlor	95042066800	87180758680	79570369200	73014026307	70830556600	81127555517	12
Endrin ketone	227762641800	192051446600	179486607400	168435942213	165612481640	186669823931	14
Endrin aldehyde	192744946000	159182143040	145823042180	139043878800	136235138800	154605829764	15
alpha-Chlordane	248734489200	204580110960	195206436160	187489826307	194261837510	206054540027	12
gamma-Chlordane	257804429800	212017929040	206681549840	200110901320	207618319740	216846625948	11

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_D Calibration Date(s): 01/03/2012 01/03/2012

Calibration Times: 17:22 18:16

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: CF 005 = PD007256.D CF 025 = PD007255.D

CF 050 = PD007254.D CF 075 = PD007253.D CF 100 = PD007252.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3324871020	2631425872	2443814712	2375269548	2399137977	2634903826	15
Tetrachloro-m-xylene	4525133240	4012818712	3967485682	3813336041	3938442405	4051443216	7
alpha-BHC	68383274600	63730900640	65149908960	63725295053	65860728360	65370021523	3
beta-BHC	27563573200	24815373840	24443288520	23525573440	24221947990	24913951398	6
delta-BHC	67572327800	61313883760	62069161320	60613217813	63075607520	62928839643	4
gamma-BHC (Lindane)	65152003400	59705931560	60843938960	59318054520	61818770860	61367739860	4
Heptachlor	59989569800	55049088160	54884505220	53077006413	54382486050	55476531129	5
Aldrin	56957819400	52278936080	52127744760	50418528480	51597172630	52676040270	5
Heptachlor epoxide	53020819800	48819379560	47041493020	45400805600	46252274040	48106954404	6
Endosulfan I	48922689400	44949734640	44579120000	43076718133	43847737570	45075199949	5
Dieldrin	51130649800	47720019040	47646335160	46480930560	47580940310	48111774974	4
4,4-DDE	53345878400	47800105680	47874724240	46718050827	47994586380	48746669105	5
Endrin	43708707000	38323945320	38753684920	37918191507	38608757640	39462657277	6
Endosulfan II	46359755400	39630090240	39125049780	38121029853	38792957130	40405776481	8
4,4-DDD	44689718600	38573769040	38038579300	36665600493	37629928300	39119519147	8
Endosulfan sulfate	39501549600	35136552600	34506640400	33411962680	34173776380	35346096332	7
4,4-DDT	41322873000	37761860920	38512155380	37237946413	38203045920	38607576327	4
Methoxychlor	18580710800	17772197240	17103383500	16829614387	17028569760	17462895137	4
Endrin ketone	43406307800	39259249120	38425291900	37528595307	38312397110	39386368247	6
Endrin aldehyde	37564331800	32563381840	32108581920	30849815187	31442178610	32905657871	8
alpha-Chlordane	52872427800	46925177320	46501468440	45075106613	46280554790	47530946993	6
gamma-Chlordane	53864918000	48312183120	47637887180	46398571773	47783902400	48799492495	6

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

Instrument ID: ECD_D **Date(s) Analyzed:** 01/03/2012 01/03/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	4517423000
		2	5.83	5.78	5.88	5023698000
		3	6.42	6.37	6.47	8561700000
		4	6.89	6.84	6.94	6360910000
		5	7.20	7.15	7.25	6291397000

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

Instrument ID: ECD_D **Date(s) Analyzed:** 01/03/2012 01/03/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	555528900
		2	6.85	6.80	6.90	1430318000
		3	7.09	7.04	7.14	2539930000
		4	7.58	7.53	7.63	2573240000
		5	7.94	7.89	7.99	805062700

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD010312\
Data File : PD007251.D
Acq On : 03 Jan 2012 17:09
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD010312.M
Title : GC Extractables
Last Update : Wed Jan 04 04:14:55 2012
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.333	5.250	100.00%
5.250	5.361	99.72%
5.361	5.478	100.00%
5.478	5.604	100.00%
5.604	6.515	100.00%
6.515	6.784	100.00%
6.784	7.007	100.00%
7.007	8.059	100.00%

Signal #2

3.919	6.026	100.00%
6.026	6.147	100.00%
6.147	6.263	100.00%
6.263	6.405	100.00%
6.405	7.181	100.00%
7.181	7.526	100.00%
7.526	7.649	100.00%
7.649	9.009	100.00%

PD010312.M Wed Jan 04 04:47:35 2012 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM01 Date Analyzed: 01/03/2012

Lab Sample No.(PEM): PEM Time Analyzed: 16:55

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.060	7.960	8.160	0.022	0.020	10.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.769	3.720	3.820	0.011	0.010	10.0
beta-BHC	4.296	4.250	4.350	0.012	0.010	20.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.013	0.010	30.0
Endrin	5.861	5.790	5.930	0.051	0.050	2.0
4,4-DDT	6.231	6.160	6.300	0.078	0.100	22.0
Methoxychlor	6.784	6.710	6.850	0.186	0.250	25.6

Client Sample No. (PEM): PEM01 Date Analyzed: 01/03/2012

Lab Sample No.(PEM): PEM Time Analyzed: 16:55

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.302	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.751	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.010	0.010	0.0
Endrin	6.622	6.550	6.690	0.049	0.050	2.0
4,4-DDT	7.058	6.990	7.130	0.101	0.100	1.0
Methoxychlor	7.526	7.460	7.600	0.233	0.250	6.8

Sample: PEM
Data File: PD007250.D **Date Acquired** 1/3/2012 16:55
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	9003435201	9703749606	700314406	**7.22**
Endrin aldehyde	6.30	118804893.5			
Endrin ketone	7.00	581509512.1			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	1935487668	2049638591	114150923	**5.57**
Endrin aldehyde #2	6.95	18942090.83			
Endrin ketone #2	7.65	95208831.98			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.397168E+010	1.41991608E+010	227484664	**1.60**
4,4'-DDE	5.48	120773650.8			
4,4'-DDD	5.99	106711013.1			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	3909910366	3939161531	29251164.9	**0.74**
4,4'-DDE #2	6.26	15085365.53			
4,4'-DDD #2	6.75	14165799.4			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM02 Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:39

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.059	7.960	8.160	0.024	0.020	20.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.025	0.020	25.0
alpha-BHC	3.768	3.720	3.820	0.013	0.010	30.0
beta-BHC	4.296	4.250	4.350	0.014	0.010	40.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.016	0.010	60.0
Endrin	5.859	5.790	5.930	0.056	0.050	12.0
4,4-DDT	6.230	6.160	6.300	0.087	0.100	13.0
Methoxychlor	6.779	6.710	6.850	0.152	0.250	39.2

Client Sample No. (PEM): PEM02 Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:39

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.918	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.301	4.250	4.350	0.010	0.010	0.0
beta-BHC	4.750	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.583	4.530	4.630	0.010	0.010	0.0
Endrin	6.620	6.550	6.690	0.048	0.050	4.0
4,4-DDT	7.057	6.990	7.130	0.098	0.100	2.0
Methoxychlor	7.526	7.460	7.600	0.225	0.250	10.0

Sample: PEM
Data File: PD007295.D **Date Acquired** 1/4/2012 10:39
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	5.86	9858609728	1.08477473E+010	989137610	**9.12**
Endrin aldehyde	6.30	241938203.1			
Endrin ketone	7.00	747199406.8			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	1907824140	2066071382	158247241	**7.66**
Endrin aldehyde #2	6.95	40624204.4			
Endrin ketone #2	7.65	117623036.9			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.554038E+010	1.58927234E+010	352340139	**2.22**
4,4'-DDE	5.48	180236943.8			
4,4'-DDD	5.99	172103195			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	3774150641	3804018294	29867652.8	**0.79**
4,4'-DDE #2	6.26	13515132.47			
4,4'-DDD #2	6.75	16352520.34			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM03 Date Analyzed: 01/05/2012

Lab Sample No.(PEM): PEM Time Analyzed: 13:50

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.060	7.960	8.160	0.014	0.020	30.0
Tetrachloro-m-xylene	3.332	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.768	3.720	3.820	0.011	0.010	10.0
beta-BHC	4.296	4.250	4.350	0.013	0.010	30.0
gamma-BHC (Lindane)	4.046	4.000	4.100	0.013	0.010	30.0
Endrin	5.860	5.790	5.930	0.047	0.050	6.0
4,4-DDT	6.231	6.160	6.300	0.078	0.100	22.0
Methoxychlor	6.783	6.710	6.850	0.155	0.250	38.0

Client Sample No. (PEM): PEM03 Date Analyzed: 01/05/2012

Lab Sample No.(PEM): PEM Time Analyzed: 13:50

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.020	0.020	0.0
Tetrachloro-m-xylene	3.918	3.820	4.020	0.025	0.020	25.0
alpha-BHC	4.301	4.250	4.350	0.012	0.010	20.0
beta-BHC	4.750	4.700	4.800	0.012	0.010	20.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.012	0.010	20.0
Endrin	6.621	6.550	6.690	0.055	0.050	10.0
4,4-DDT	7.057	6.990	7.130	0.109	0.100	9.0
Methoxychlor	7.525	7.460	7.600	0.244	0.250	2.4

Sample: PEM
Data File: PD007340.D **Date Acquired** 1/5/2012 13:50
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	8353885491	8864325548	510440057	**5.76**
Endrin aldehyde	6.31	47121791.77			
Endrin ketone	7.01	463318265.1			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2169499397	2288088101	118588704	**5.18**
Endrin aldehyde #2	6.95	21685689.51			
Endrin ketone #2	7.65	96903014.35			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.391508E+010	1.4107803E+010	192720122	**1.37**
4,4'-DDE	5.48	79159091.59			
4,4'-DDD	5.99	113561030.8			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4223186456	4243042443	19855987	**0.47**
4,4'-DDE #2	6.26	10914252.43			
4,4'-DDD #2	6.75	8941734.619			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL01 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007307.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.769	3.720	3.820	0.027	0.025	8.0
beta-BHC	4.297	4.250	4.350	0.028	0.025	12.0
delta-BHC	4.498	4.450	4.550	0.027	0.025	8.0
gamma-BHC (Lindane)	4.048	4.000	4.100	0.031	0.025	24.0
Heptachlor	4.340	4.290	4.390	0.029	0.025	16.0
Aldrin	4.583	4.530	4.630	0.028	0.025	12.0
Heptachlor epoxide	5.026	4.960	5.100	0.029	0.025	16.0
Endosulfan I	5.361	5.290	5.430	0.027	0.025	8.0
Dieldrin	5.604	5.530	5.670	0.027	0.025	8.0
4,4-DDE	5.478	5.410	5.550	0.026	0.025	4.0
Endrin	5.862	5.790	5.930	0.026	0.025	4.0
Endosulfan II	6.135	6.060	6.200	0.026	0.025	4.0
4,4-DDD	5.993	5.920	6.060	0.026	0.025	4.0
Endosulfan sulfate	6.516	6.440	6.580	0.026	0.025	4.0
4,4-DDT	6.231	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.785	6.710	6.850	0.026	0.025	4.0
Endrin ketone	7.007	6.940	7.080	0.026	0.025	4.0
Endrin aldehyde	6.304	6.230	6.370	0.026	0.025	4.0
alpha-Chlordane	5.309	5.240	5.380	0.027	0.025	8.0
gamma-Chlordane	5.250	5.180	5.320	0.027	0.025	8.0
Decachlorobiphenyl	8.061	7.960	8.160	0.021	0.025	16.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.027	0.025	8.0

only 1 GC

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL01 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007307.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.302	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.966	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.025	0.025	0.0
Heptachlor	5.099	5.050	5.150	0.025	0.025	0.0
Aldrin	5.404	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.790	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.406	6.330	6.470	0.025	0.025	0.0
4,4-DDE	6.265	6.190	6.330	0.024	0.025	4.0
Endrin	6.623	6.550	6.690	0.024	0.025	4.0
Endosulfan II	6.831	6.760	6.900	0.023	0.025	8.0
4,4-DDD	6.757	6.680	6.820	0.024	0.025	4.0
Endosulfan sulfate	7.183	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.060	6.990	7.130	0.023	0.025	8.0
Methoxychlor	7.529	7.460	7.600	0.024	0.025	4.0
Endrin ketone	7.653	7.580	7.720	0.025	0.025	0.0
Endrin aldehyde	6.957	6.880	7.020	0.023	0.025	8.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.014	8.910	9.110	0.024	0.025	4.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL02 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007319.D **Time Analyzed:** 17:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.777	3.720	3.820	0.028	0.025	12.0
beta-BHC	4.306	4.250	4.350	0.027	0.025	8.0
delta-BHC	4.507	4.450	4.550	0.027	0.025	8.0
gamma-BHC (Lindane)	4.057	4.000	4.100	0.031	0.025	24.0
Heptachlor	4.349	4.290	4.390	0.029	0.025	16.0
Aldrin	4.592	4.530	4.630	0.028	0.025	12.0
Heptachlor epoxide	5.036	4.960	5.100	0.028	0.025	12.0
Endosulfan I	5.371	5.290	5.430	0.026	0.025	4.0
Dieldrin	5.613	5.530	5.670	0.025	0.025	0.0
4,4-DDE	5.487	5.410	5.550	0.025	0.025	0.0
Endrin	5.870	5.790	5.930	0.024	0.025	4.0
Endosulfan II	6.143	6.060	6.200	0.024	0.025	4.0
4,4-DDD	6.002	5.920	6.060	0.025	0.025	0.0
Endosulfan sulfate	6.525	6.440	6.580	0.023	0.025	8.0
4,4-DDT	6.240	6.160	6.300	0.023	0.025	8.0
Methoxychlor	6.792	6.710	6.850	0.022	0.025	12.0
Endrin ketone	7.016	6.940	7.080	0.022	0.025	12.0
Endrin aldehyde	6.314	6.230	6.370	0.024	0.025	4.0
alpha-Chlordane	5.318	5.240	5.380	0.026	0.025	4.0
gamma-Chlordane	5.259	5.180	5.320	0.026	0.025	4.0
Decachlorobiphenyl	8.068	7.960	8.160	0.016	0.025	36.0
Tetrachloro-m-xylene	3.341	3.230	3.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL02 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007319.D **Time Analyzed:** 17:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.310	4.250	4.350	0.027	0.025	8.0
beta-BHC	4.765	4.700	4.800	0.027	0.025	8.0
delta-BHC	4.981	4.920	5.020	0.026	0.025	4.0
gamma-BHC (Lindane)	4.595	4.530	4.630	0.027	0.025	8.0
Heptachlor	5.114	5.050	5.150	0.027	0.025	8.0
Aldrin	5.420	5.350	5.450	0.026	0.025	4.0
Heptachlor epoxide	5.810	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.123	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.429	6.330	6.470	0.026	0.025	4.0
4,4-DDE	6.290	6.190	6.330	0.025	0.025	0.0
Endrin	6.646	6.550	6.690	0.022	0.025	12.0
Endosulfan II	6.858	6.760	6.900	0.022	0.025	12.0
4,4-DDD	6.785	6.680	6.820	0.024	0.025	4.0
Endosulfan sulfate	7.210	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.088	6.990	7.130	0.023	0.025	8.0
Methoxychlor	7.560	7.460	7.600	0.023	0.025	8.0
Endrin ketone	7.680	7.580	7.720	0.025	0.025	0.0
Endrin aldehyde	6.983	6.880	7.020	0.025	0.025	0.0
alpha-Chlordane	6.123	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.049	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.046	8.910	9.110	0.023	0.025	8.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007341.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.768	3.720	3.820	0.026	0.025	4.0
beta-BHC	4.295	4.250	4.350	0.027	0.025	8.0
delta-BHC	4.497	4.450	4.550	0.026	0.025	4.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.030	0.025	20.0
Heptachlor	4.337	4.290	4.390	0.028	0.025	12.0
Aldrin	4.583	4.530	4.630	0.029	0.025	16.0
Heptachlor epoxide	5.026	4.960	5.100	0.027	0.025	8.0
Endosulfan I	5.361	5.290	5.430	0.026	0.025	4.0
Dieldrin	5.603	5.530	5.670	0.026	0.025	4.0
4,4-DDE	5.477	5.410	5.550	0.025	0.025	0.0
Endrin	5.860	5.790	5.930	0.026	0.025	4.0
Endosulfan II	6.134	6.060	6.200	0.024	0.025	4.0
4,4-DDD	5.992	5.920	6.060	0.024	0.025	4.0
Endosulfan sulfate	6.515	6.440	6.580	0.023	0.025	8.0
4,4-DDT	6.231	6.160	6.300	0.022	0.025	12.0
Methoxychlor	6.783	6.710	6.850	0.022	0.025	12.0
Endrin ketone	7.007	6.940	7.080	0.022	0.025	12.0
Endrin aldehyde	6.304	6.230	6.370	0.024	0.025	4.0
alpha-Chlordane	5.308	5.240	5.380	0.026	0.025	4.0
gamma-Chlordane	5.249	5.180	5.320	0.026	0.025	4.0
Decachlorobiphenyl	8.060	7.960	8.160	0.016	0.025	36.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007341.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.302	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.751	4.700	4.800	0.028	0.025	12.0
delta-BHC	4.965	4.920	5.020	0.030	0.025	20.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.028	0.025	12.0
Heptachlor	5.097	5.050	5.150	0.029	0.025	16.0
Aldrin	5.404	5.350	5.450	0.029	0.025	16.0
Heptachlor epoxide	5.789	5.720	5.860	0.029	0.025	16.0
Endosulfan I	6.147	6.080	6.220	0.028	0.025	12.0
Dieldrin	6.405	6.330	6.470	0.028	0.025	12.0
4,4-DDE	6.263	6.190	6.330	0.028	0.025	12.0
Endrin	6.621	6.550	6.690	0.028	0.025	12.0
Endosulfan II	6.830	6.760	6.900	0.026	0.025	4.0
4,4-DDD	6.754	6.680	6.820	0.027	0.025	8.0
Endosulfan sulfate	7.181	7.110	7.250	0.027	0.025	8.0
4,4-DDT	7.058	6.990	7.130	0.027	0.025	8.0
Methoxychlor	7.526	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.650	7.580	7.720	0.027	0.025	8.0
Endrin aldehyde	6.955	6.880	7.020	0.028	0.025	12.0
alpha-Chlordane	6.100	6.030	6.170	0.028	0.025	12.0
gamma-Chlordane	6.026	5.960	6.100	0.028	0.025	12.0
Decachlorobiphenyl	9.010	8.910	9.110	0.024	0.025	4.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007348.D **Time Analyzed:** 17:40

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.773	3.720	3.820	0.027	0.025	8.0
beta-BHC	4.301	4.250	4.350	0.027	0.025	8.0
delta-BHC	4.503	4.450	4.550	0.026	0.025	4.0
gamma-BHC (Lindane)	4.052	4.000	4.100	0.030	0.025	20.0
Heptachlor	4.344	4.290	4.390	0.028	0.025	12.0
Aldrin	4.587	4.530	4.630	0.027	0.025	8.0
Heptachlor epoxide	5.031	4.960	5.100	0.027	0.025	8.0
Endosulfan I	5.366	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.609	5.530	5.670	0.024	0.025	4.0
4,4-DDE	5.482	5.410	5.550	0.024	0.025	4.0
Endrin	5.864	5.790	5.930	0.023	0.025	8.0
Endosulfan II	6.139	6.060	6.200	0.022	0.025	12.0
4,4-DDD	5.998	5.920	6.060	0.023	0.025	8.0
Endosulfan sulfate	6.520	6.440	6.580	0.020	0.025	20.0
4,4-DDT	6.235	6.160	6.300	0.020	0.025	20.0
Methoxychlor	6.788	6.710	6.850	0.021	0.025	16.0
Endrin ketone	7.012	6.940	7.080	0.018	0.025	28.0
Endrin aldehyde	6.308	6.230	6.370	0.022	0.025	12.0
alpha-Chlordane	5.312	5.240	5.380	0.025	0.025	0.0
gamma-Chlordane	5.254	5.180	5.320	0.025	0.025	0.0
Decachlorobiphenyl	8.064	7.960	8.160	0.013	0.025	48.0
Tetrachloro-m-xylene	3.337	3.230	3.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007348.D **Time Analyzed:** 17:40

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.305	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.758	4.700	4.800	0.028	0.025	12.0
delta-BHC	4.974	4.920	5.020	0.028	0.025	12.0
gamma-BHC (Lindane)	4.589	4.530	4.630	0.029	0.025	16.0
Heptachlor	5.106	5.050	5.150	0.028	0.025	12.0
Aldrin	5.412	5.350	5.450	0.028	0.025	12.0
Heptachlor epoxide	5.800	5.720	5.860	0.027	0.025	8.0
Endosulfan I	6.157	6.080	6.220	0.027	0.025	8.0
Dieldrin	6.417	6.330	6.470	0.027	0.025	8.0
4,4-DDE	6.276	6.190	6.330	0.023	0.025	8.0
Endrin	6.634	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.844	6.760	6.900	0.020	0.025	20.0
4,4-DDD	6.771	6.680	6.820	0.024	0.025	4.0
Endosulfan sulfate	7.197	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.075	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.544	7.460	7.600	0.023	0.025	8.0
Endrin ketone	7.667	7.580	7.720	0.023	0.025	8.0
Endrin aldehyde	6.970	6.880	7.020	0.026	0.025	4.0
alpha-Chlordane	6.112	6.030	6.170	0.029	0.025	16.0
gamma-Chlordane	6.036	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.030	8.910	9.110	0.023	0.025	8.0
Tetrachloro-m-xylene	3.921	3.820	4.020	0.028	0.025	12.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5056

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK06	I.BLK06	12/29/2011	15:14	PG003560.D	11.38	4.78
PEM04	PEM04	12/29/2011	15:32	PG003561.D	11.38	4.78
RESC01	RESCHK	12/29/2011	15:51	PG003562.D	11.38	4.78
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	16:10	PG003563.D	11.38	4.77
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	16:28	PG003564.D	11.38	4.77
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	16:47	PG003565.D	11.38	4.78
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	17:05	PG003566.D	11.38	4.78
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	17:24	PG003567.D	11.38	4.78
TOX 500	TOX	12/29/2011	18:01	PG003569.D	11.38	4.78
CHLOR 500	CHLOR 500	12/29/2011	18:20	PG003570.D	11.38	4.77
PIBLK07	I.BLK07	12/29/2011	19:16	PG003573.D	11.39	4.78
CCAL05	STD 25	12/29/2011	19:34	PG003574.D	11.38	4.78
PB60068BL	PB60068BL	12/29/2011	19:53	PG003575.D	11.38	4.78
PB60068BS	PB60068BS	12/29/2011	20:11	PG003576.D	11.38	4.78
12TP16-0910-04	C5056-04	12/29/2011	21:07	PG003579.D	11.38	4.78
12TP16-0910-04MS	C5056-04MS	12/29/2011	21:26	PG003580.D	11.38	4.78
12TP16-0910-04MSD	C5056-04MSD	12/29/2011	21:45	PG003581.D	11.38	4.78
PIBLK08	I.BLK08	12/29/2011	22:59	PG003585.D	11.38	4.78
CCAL06	STD 25	12/29/2011	23:18	PG003586.D	11.39	4.78

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5056

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK06	I.BLK06	12/29/2011	15:14	PG003560.D	9.74	4.07
PEM04	PEM04	12/29/2011	15:32	PG003561.D	9.74	4.07
RESC01	RESCHK	12/29/2011	15:51	PG003562.D	9.74	4.07
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	16:10	PG003563.D	9.74	4.07
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	16:28	PG003564.D	9.74	4.07
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	16:47	PG003565.D	9.75	4.07
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	17:05	PG003566.D	9.74	4.07
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	17:24	PG003567.D	9.74	4.07
TOX 500	TOX	12/29/2011	18:01	PG003569.D	9.74	4.07
CHLOR 500	CHLOR 500	12/29/2011	18:20	PG003570.D	9.74	4.07
PIBLK07	I.BLK07	12/29/2011	19:16	PG003573.D	9.75	4.07
CCAL05	STD 25	12/29/2011	19:34	PG003574.D	9.75	4.07
PB60068BL	PB60068BL	12/29/2011	19:53	PG003575.D	9.75	4.07
PB60068BS	PB60068BS	12/29/2011	20:11	PG003576.D	9.74	4.07
12TP16-0910-04	C5056-04	12/29/2011	21:07	PG003579.D	9.74	4.07
12TP16-0910-04MS	C5056-04MS	12/29/2011	21:26	PG003580.D	9.74	4.07
12TP16-0910-04MSD	C5056-04MSD	12/29/2011	21:45	PG003581.D	9.74	4.07
PIBLK08	I.BLK08	12/29/2011	22:59	PG003585.D	9.74	4.07
CCAL06	STD 25	12/29/2011	23:18	PG003586.D	9.74	4.07

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

Instrument ID: ECD_G **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003567.D CF 025 = PG003566.D

CF 050 = PG003565.D CF 075 = PG003564.D CF 100 = PG003563.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	905840	823284	808662	765019	757823	812126	7
Tetrachloro-m-xylene	497100	479668	496794	486461	497615	491528	2
alpha-BHC	4141600	4463520	5350420	5720093	6226790	5180485	17
beta-BHC	2962600	2914240	2615800	2576653	3157190	2845297	9
delta-BHC	4331600	4039000	4654840	4941067	5318720	4657045	11
gamma-BHC (Lindane)	4354800	4736880	5536440	5820293	6234080	5336499	15
Heptachlor	5553000	5488800	5834520	5828787	6089700	5758961	4
Aldrin	5068400	4933280	5322440	5380560	5641950	5269326	5
Heptachlor epoxide	5880000	5547560	5759840	5687693	5826780	5740375	2
Endosulfan I	5239000	5123440	5385640	5353133	5488660	5317975	3
Dieldrin	4720600	4486080	4739820	4764267	4986660	4739485	4
4,4-DDE	4851000	4710840	4933920	4855467	5053790	4881003	3
Endrin	2997200	3004680	3048380	3033387	3136920	3044113	2
Endosulfan II	4978200	4721120	4902360	4833213	4964400	4879859	2
4,4-DDD	3704000	3117960	3294920	3332347	3521370	3394119	7
Endosulfan sulfate	4243800	4154360	4256960	4220840	4309030	4236998	1
4,4-DDT	3737800	3806440	4176260	4249453	4489410	4091873	8
Methoxychlor	2381200	2338600	2444720	2383253	2466510	2402857	2
Endrin ketone	4288000	4212960	4518080	4539747	4729050	4457567	5
Endrin aldehyde	5138800	4711200	4688840	4526293	4543690	4721765	5
alpha-Chlordane	5274000	5153800	5391000	5336613	5438700	5318823	2
gamma-Chlordane	5336000	5098040	5291500	5243213	5330070	5259765	2

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_G Calibration Date(s): 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: CF 005 = PG003567.D CF 025 = PG003566.D

CF 050 = PG003565.D CF 075 = PG003564.D CF 100 = PG003563.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3381660	2810924	2606838	2383196	2280875	2692699	16
Tetrachloro-m-xylene	2660500	2368236	2028354	2107512	2127890	2258498	11
alpha-BHC	33192600	33114720	32708040	31034560	30997110	32209406	3
beta-BHC	16876600	16110480	15543580	14484800	14183730	15439838	7
delta-BHC	30361400	30864800	30912180	29259347	29037680	30087081	3
gamma-BHC (Lindane)	35774200	33908480	33224720	31060067	30673410	32928175	6
Heptachlor	31169200	28995200	28373600	26502080	26312440	28270504	7
Aldrin	33402000	31269280	30504260	28404480	28021500	30320304	7
Heptachlor epoxide	34349200	30484080	29195720	26936413	25916240	29376331	11
Endosulfan I	32175200	28592840	27303660	25419107	24507580	27599677	11
Dieldrin	33001600	29850600	28796400	26955387	26330520	28986901	9
4,4-DDE	31826200	29507040	28816600	27107853	26538190	28759177	7
Endrin	20811600	20475600	20035480	19040813	18892300	19851159	4
Endosulfan II	29545400	26184200	24992020	23210560	21973570	25181150	12
4,4-DDD	22718000	21694080	21516200	20494320	20228310	21330182	5
Endosulfan sulfate	23953200	22008760	21511800	20086827	18876530	21287423	9
4,4-DDT	23094000	22963720	22791420	21584200	20627050	22212078	5
Methoxychlor	11299600	10317880	9909480	10206720	9497210	10246178	7
Endrin ketone	26688200	24093240	23349860	21698787	19550880	23076193	12
Endrin aldehyde	26165400	22545440	21356320	19679013	18516800	21652595	14
alpha-Chlordane	35226400	30968960	29762580	27670333	26931560	30111967	11
gamma-Chlordane	35059000	30922040	29852520	27738613	27017190	30117873	11

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_G Date(s) Analyzed: 12/29/2011 12/29/2011

GC Column: ZB-MR1 ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15466
		2	8.24	8.19	8.29	157526
		3	8.51	8.46	8.56	258706
		4	8.62	8.57	8.67	212526
		5	9.14	9.09	9.19	420676

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_G Date(s) Analyzed: 12/29/2011 12/29/2011

GC Column: ZB-MR2 ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.19	6.14	6.24	114734
		2	7.72	7.67	7.77	2282462
		3	8.02	7.97	8.07	1140404
		4	8.14	8.09	8.19	986690
		5	8.29	8.24	8.34	1897638

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG122911\
Data File : PG003562.D
Acq On : 29 Dec 2011 15:51
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG122911.M
Title : GC Extractables
Last Update : Fri Dec 30 02:01:52 2011
Integrator: ChemStation

RT#1	RT#2	Resolution
4.775	7.289	100.00%
7.289	7.441	100.00%
7.441	7.529	97.74%
7.529	7.735	100.00%
7.735	8.626	100.00%
8.626	8.971	100.00%
8.971	9.246	100.00%
9.246	11.382	100.00%

Signal #2

4.071	6.373	100.00%
6.373	6.517	100.00%
6.517	6.609	100.00%
6.609	6.797	100.00%
6.797	7.832	100.00%
7.832	8.075	100.00%
8.075	8.418	100.00%
8.418	9.744	100.00%

PG122911.M Fri Dec 30 03:12:05 2011 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM04 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:32

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.382	11.280	11.480	0.021	0.020	5.0
Tetrachloro-m-xylene	4.775	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.244	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.771	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.586	5.540	5.640	0.009	0.010	10.0
Endrin	7.992	7.920	8.060	0.056	0.050	12.0
4,4-DDT	8.436	8.370	8.510	0.103	0.100	3.0
Methoxychlor	8.968	8.900	9.040	0.276	0.250	10.4

Client Sample No. (PEM): PEM04 Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:32

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.744	9.640	9.840	0.022	0.020	10.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.602	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.224	5.170	5.270	0.011	0.010	10.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.011	0.010	10.0
Endrin	7.100	7.030	7.170	0.050	0.050	0.0
4,4-DDT	7.475	7.410	7.550	0.090	0.100	10.0
Methoxychlor	8.074	8.010	8.150	0.209	0.250	16.4

Sample: PEM
Data File: PG003561.D **Date Acquired** 12/29/2011 15:32
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.99	171370.39	198440.114	27069.724	**13.64**
Endrin aldehyde	8.36	12603.767			
Endrin ketone	9.25	14465.957			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.10	996608.405	1142905.665	146297.26	**12.80**
Endrin aldehyde #2	7.60	59451.582			
Endrin ketone #2	8.42	86845.678			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.44	423443.969	437741.533	14297.564	**3.27**
4,4'-DDE	7.53	13748.95			
4,4'-DDD	8.09	548.614			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.48	2001916.32	2125953.892	124037.572	**5.83**
4,4'-DDE #2	6.61	107235.811			
4,4'-DDD #2	7.20	16801.761			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PG003574.D **Time Analyzed:** 19:34

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.244	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.771	5.720	5.820	0.025	0.025	0.0
delta-BHC	6.039	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.587	5.540	5.640	0.022	0.025	12.0
Heptachlor	6.207	6.160	6.260	0.024	0.025	4.0
Aldrin	6.572	6.520	6.620	0.023	0.025	8.0
Heptachlor epoxide	7.018	6.950	7.090	0.024	0.025	4.0
Endosulfan I	7.440	7.370	7.510	0.024	0.025	4.0
Dieldrin	7.735	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.530	7.460	7.600	0.024	0.025	4.0
Endrin	7.992	7.920	8.060	0.024	0.025	4.0
Endosulfan II	8.222	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.090	8.020	8.160	0.023	0.025	8.0
Endosulfan sulfate	8.626	8.560	8.700	0.024	0.025	4.0
4,4-DDT	8.436	8.370	8.510	0.023	0.025	8.0
Methoxychlor	8.972	8.900	9.040	0.024	0.025	4.0
Endrin ketone	9.248	9.180	9.320	0.024	0.025	4.0
Endrin aldehyde	8.364	8.290	8.430	0.025	0.025	0.0
alpha-Chlordane	7.375	7.310	7.450	0.024	0.025	4.0
gamma-Chlordane	7.290	7.220	7.360	0.024	0.025	4.0
Decachlorobiphenyl	11.383	11.280	11.480	0.025	0.025	0.0
Tetrachloro-m-xylene	4.775	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PG003574.D **Time Analyzed:** 19:34

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.602	4.550	4.650	0.026	0.025	4.0
beta-BHC	5.223	5.170	5.270	0.027	0.025	8.0
delta-BHC	5.477	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.026	0.025	4.0
Heptachlor	5.300	5.250	5.350	0.026	0.025	4.0
Aldrin	5.599	5.550	5.650	0.026	0.025	4.0
Heptachlor epoxide	6.115	6.040	6.180	0.026	0.025	4.0
Endosulfan I	6.518	6.450	6.590	0.026	0.025	4.0
Dieldrin	6.796	6.730	6.870	0.026	0.025	4.0
4,4-DDE	6.609	6.540	6.680	0.026	0.025	4.0
Endrin	7.101	7.030	7.170	0.025	0.025	0.0
Endosulfan II	7.406	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.200	7.130	7.270	0.025	0.025	0.0
Endosulfan sulfate	7.833	7.760	7.900	0.027	0.025	8.0
4,4-DDT	7.476	7.410	7.550	0.026	0.025	4.0
Methoxychlor	8.077	8.010	8.150	0.027	0.025	8.0
Endrin ketone	8.418	8.350	8.490	0.028	0.025	12.0
Endrin aldehyde	7.596	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.443	6.370	6.510	0.026	0.025	4.0
gamma-Chlordane	6.374	6.300	6.440	0.026	0.025	4.0
Decachlorobiphenyl	9.745	9.640	9.840	0.027	0.025	8.0
Tetrachloro-m-xylene	4.071	3.970	4.170	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PG003586.D **Time Analyzed:** 23:18

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.245	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.772	5.720	5.820	0.026	0.025	4.0
delta-BHC	6.039	5.990	6.090	0.020	0.025	20.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.207	6.160	6.260	0.023	0.025	8.0
Aldrin	6.573	6.520	6.620	0.022	0.025	12.0
Heptachlor epoxide	7.019	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.441	7.370	7.510	0.023	0.025	8.0
Dieldrin	7.735	7.660	7.800	0.022	0.025	12.0
4,4-DDE	7.531	7.460	7.600	0.023	0.025	8.0
Endrin	7.993	7.920	8.060	0.023	0.025	8.0
Endosulfan II	8.224	8.150	8.290	0.023	0.025	8.0
4,4-DDD	8.091	8.020	8.160	0.022	0.025	12.0
Endosulfan sulfate	8.627	8.560	8.700	0.023	0.025	8.0
4,4-DDT	8.436	8.370	8.510	0.022	0.025	12.0
Methoxychlor	8.973	8.900	9.040	0.022	0.025	12.0
Endrin ketone	9.248	9.180	9.320	0.024	0.025	4.0
Endrin aldehyde	8.366	8.290	8.430	0.024	0.025	4.0
alpha-Chlordane	7.376	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.291	7.220	7.360	0.023	0.025	8.0
Decachlorobiphenyl	11.385	11.280	11.480	0.024	0.025	4.0
Tetrachloro-m-xylene	4.776	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL06 **Date Analyzed:** 12/29/2011

Lab Sample No.: STD 25 **Data File :** PG003586.D **Time Analyzed:** 23:18

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.602	4.550	4.650	0.027	0.025	8.0
beta-BHC	5.223	5.170	5.270	0.027	0.025	8.0
delta-BHC	5.476	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.026	0.025	4.0
Heptachlor	5.300	5.250	5.350	0.026	0.025	4.0
Aldrin	5.599	5.550	5.650	0.026	0.025	4.0
Heptachlor epoxide	6.115	6.040	6.180	0.027	0.025	8.0
Endosulfan I	6.517	6.450	6.590	0.026	0.025	4.0
Dieldrin	6.797	6.730	6.870	0.026	0.025	4.0
4,4-DDE	6.610	6.540	6.680	0.026	0.025	4.0
Endrin	7.101	7.030	7.170	0.024	0.025	4.0
Endosulfan II	7.406	7.330	7.470	0.027	0.025	8.0
4,4-DDD	7.200	7.130	7.270	0.025	0.025	0.0
Endosulfan sulfate	7.833	7.760	7.900	0.027	0.025	8.0
4,4-DDT	7.477	7.410	7.550	0.026	0.025	4.0
Methoxychlor	8.078	8.010	8.150	0.026	0.025	4.0
Endrin ketone	8.417	8.350	8.490	0.030	0.025	20.0
Endrin aldehyde	7.596	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.442	6.370	6.510	0.026	0.025	4.0
gamma-Chlordane	6.374	6.300	6.440	0.026	0.025	4.0
Decachlorobiphenyl	9.744	9.640	9.840	0.027	0.025	8.0
Tetrachloro-m-xylene	4.071	3.970	4.170	0.025	0.025	0.0

CHEMTECH

Surrogate Summary

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006006.D	PIBLK-PC006006.D	Tetrachloro-m-xylene	1	20	24.47	122		35	137
		Decachlorobiphenyl	1	20	23.61	118		40	135
		Tetrachloro-m-xylene	2	20	25.07	125		35	137
		Decachlorobiphenyl	2	20	24.18	121		40	135
I.BLK-PC006259.D	PIBLK-PC006259.D	Tetrachloro-m-xylene	1	20	19.21	96		35	137
		Decachlorobiphenyl	1	20	21.8	109		40	135
		Tetrachloro-m-xylene	2	20	21	105		35	137
		Decachlorobiphenyl	2	20	21.5	108		40	135
PB60128BL	PB60128BL	Tetrachloro-m-xylene	1	20	18.26	91		10	166
		Decachlorobiphenyl	1	20	21.03	105		60	125
		Tetrachloro-m-xylene	2	20	19.49	97		10	166
		Decachlorobiphenyl	2	20	20.58	103		60	125
PB60128BS	PB60128BS	Tetrachloro-m-xylene	1	20	19.09	95		10	166
		Decachlorobiphenyl	1	20	19.95	100		60	125
		Tetrachloro-m-xylene	2	20	18.16	91		10	166
		Decachlorobiphenyl	2	20	20	100		60	125
C5056-01	12TP16-000.5-01	Tetrachloro-m-xylene	1	20	13.65	68		10	166
		Decachlorobiphenyl	1	20	13.24	66		60	125
		Tetrachloro-m-xylene	2	20	13.67	68		10	166
		Decachlorobiphenyl	2	20	13.62	68		60	125
C5056-02	12TP16-0.502-02	Tetrachloro-m-xylene	1	20	11.92	60		10	166
		Decachlorobiphenyl	1	20	10.89	54	*	60	125
		Tetrachloro-m-xylene	2	20	12.04	60		10	166
		Decachlorobiphenyl	2	20	10.51	53	*	60	125
C5056-03	12TP16-0608-03	Tetrachloro-m-xylene	1	20	13.46	67		10	166
		Decachlorobiphenyl	1	20	14.57	73		60	125
		Tetrachloro-m-xylene	2	20	16.44	82		10	166
		Decachlorobiphenyl	2	20	8.61	43	*	60	125
C5056-04	12TP16-0910-04	Tetrachloro-m-xylene	1	20	19.49	97		10	166
		Decachlorobiphenyl	1	20	14.01	70		60	125
		Tetrachloro-m-xylene	2	20	18.31	92		10	166
		Decachlorobiphenyl	2	20	10.28	51	*	60	125
C5056-05	12TP-DUP-01	Tetrachloro-m-xylene	1	20	12.36	62		10	166
		Decachlorobiphenyl	1	20	13.4	67		60	125
		Tetrachloro-m-xylene	2	20	15.39	77		10	166
		Decachlorobiphenyl	2	20	8.5	43	*	60	125
I.BLK-PC006270.D	PIBLK-PC006270.D	Tetrachloro-m-xylene	1	20	19.44	97		35	137
		Decachlorobiphenyl	1	20	17.48	87		40	135
		Tetrachloro-m-xylene	2	20	20.78	104		35	137
		Decachlorobiphenyl	2	20	14.46	72		40	135
C5065-04MSD	12TP17-000.5-01MSD	Tetrachloro-m-xylene	1	20	16.83	84		10	166
		Decachlorobiphenyl	1	20	15.42	77		60	125
		Tetrachloro-m-xylene	2	20	17.26	86		10	166
		Decachlorobiphenyl	2	20	14.33	72		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5065-03MS	12TP17-000.5-01MS	Tetrachloro-m-xylene	1	20	18.71	94		10	166
		Decachlorobiphenyl	1	20	15.28	76		60	125
		Tetrachloro-m-xylene	2	20	17.62	88		10	166
		Decachlorobiphenyl	2	20	14.36	72		60	125
I.BLK-PC006282.D	PIBLK-PC006282.D	Tetrachloro-m-xylene	1	20	21.95	110		35	137
		Decachlorobiphenyl	1	20	20.7	104		40	135
		Tetrachloro-m-xylene	2	20	21.06	105		35	137
		Decachlorobiphenyl	2	20	19.52	98		40	135
I.BLK-PC006321.D	PIBLK-PC006321.D	Tetrachloro-m-xylene	1	20	16.74	84		35	137
		Decachlorobiphenyl	1	20	20.79	104		40	135
		Tetrachloro-m-xylene	2	20	18.59	93		35	137
		Decachlorobiphenyl	2	20	16.88	84		40	135
C5056-02RE	12TP16-0.502-02 RE	Tetrachloro-m-xylene	1	20	10.06	50		10	166
		Decachlorobiphenyl	1	20	11.57	58	*	60	125
		Tetrachloro-m-xylene	2	20	11.98	60		10	166
		Decachlorobiphenyl	2	20	9.42	47	*	60	125
I.BLK-PC006334.D	PIBLK-PC006334.D	Tetrachloro-m-xylene	1	20	19.04	95		35	137
		Decachlorobiphenyl	1	20	22.78	114		40	135
		Tetrachloro-m-xylene	2	20	21.69	108		35	137
		Decachlorobiphenyl	2	20	20.86	104		40	135

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60128BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Lab Sample ID: PB60128BL Lab File ID: PC006261.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/22/2011

Date Analyzed (1): 12/23/2011 Date Analyzed (2): 12/23/2011

Time Analyzed (1): 19:13 Time Analyzed (2): 19:13

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60128BS	PB60128BS	PC006262.D	12/23/2011	12/23/2011
12TP16-000.5-01	C5056-01	PC006263.D	12/23/2011	12/23/2011
12TP16-0.502-02	C5056-02	PC006264.D	12/23/2011	12/23/2011
12TP16-0608-03	C5056-03	PC006265.D	12/23/2011	12/23/2011
12TP16-0910-04	C5056-04	PC006266.D	12/23/2011	12/23/2011
12TP-DUP-01	C5056-05	PC006267.D	12/23/2011	12/23/2011
12TP17-000.5-01MSD	C5065-04MSD	PC006276.D	12/23/2011	12/23/2011
12TP17-000.5-01MS	C5065-03MS	PC006277.D	12/23/2011	12/23/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60128BL	SDG No.:	C5056
Lab Sample ID:	PB60128BL	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.01 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006261.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.3		10 - 166	91%	SPK: 20
2051-24-3	Decachlorobiphenyl	21		60 - 125	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12TP17-000.5-01MS**										
C5065-03MS	AR1016	90.0	0	110	122				40	140	
	AR1260	90.0	0	92	102				60	130	
Client Sample ID:	**12TP17-000.5-01MSD**										
C5065-04MSD	AR1016	90.0	0	99	110		10		40	140	20
	AR1260	90.0	0	97	108		6		60	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5056

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60128BS	AR1016	66.6	75	113				53	140	
	AR1260	66.6	67	108				65	130	

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5056

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.58	8.43
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.58	8.42
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.57	8.42
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.58	8.42
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.58	8.42
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.58	8.43
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.58	8.42
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.58	8.42
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.58	8.42
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.58	8.43
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.58	8.42
PIBLK02	I.BLK02	12/23/2011	18:29	PC006259.D	1.59	8.42
CCAL01	1660 250	12/23/2011	18:45	PC006260.D	1.59	8.42
PB60128BL	PB60128BL	12/23/2011	19:13	PC006261.D	1.59	8.43
PB60128BS	PB60128BS	12/23/2011	19:30	PC006262.D	1.59	8.42
12TP16-000.5-01	C5056-01	12/23/2011	19:46	PC006263.D	1.59	8.42
12TP16-0.502-02	C5056-02	12/23/2011	20:02	PC006264.D	1.59	8.42
12TP16-0608-03	C5056-03	12/23/2011	20:18	PC006265.D	1.60	8.44
12TP16-0910-04	C5056-04	12/23/2011	20:35	PC006266.D	1.59	8.43
12TP-DUP-01	C5056-05	12/23/2011	20:51	PC006267.D	1.59	8.44
PIBLK03	I.BLK03	12/23/2011	21:40	PC006270.D	1.59	8.42
CCAL02	1660 250	12/23/2011	21:56	PC006271.D	1.59	8.42
12TP17-000.5-01MSD	C5065-04MSD	12/23/2011	23:17	PC006276.D	1.59	8.42
12TP17-000.5-01MS	C5065-03MS	12/23/2011	23:33	PC006277.D	1.59	8.42
PIBLK04	I.BLK04	12/24/2011	00:54	PC006282.D	1.59	8.42
CCAL03	1660 250	12/24/2011	01:10	PC006283.D	1.59	8.42
PIBLK05	I.BLK05	12/28/2011	12:41	PC006321.D	1.57	8.43
CCAL04	1660 250	12/28/2011	13:22	PC006323.D	1.57	8.43
12TP16-0.502-02 RE	C5056-02RE	12/28/2011	14:51	PC006327.D	1.57	8.43
PIBLK06	I.BLK06	12/28/2011	16:45	PC006334.D	1.57	8.43
CCAL05	1660 250	12/28/2011	17:01	PC006335.D	1.57	8.43

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5056

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.97	9.88
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.97	9.88
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.96	9.88
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.97	9.88
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.97	9.88
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.97	9.88
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.97	9.88
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.97	9.88
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.97	9.88
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.98	9.89
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.97	9.88
PIBLK02	I.BLK02	12/23/2011	18:29	PC006259.D	1.98	9.88
CCAL01	1660 250	12/23/2011	18:45	PC006260.D	1.98	9.88
PB60128BL	PB60128BL	12/23/2011	19:13	PC006261.D	1.99	9.88
PB60128BS	PB60128BS	12/23/2011	19:30	PC006262.D	1.98	9.88
12TP16-000.5-01	C5056-01	12/23/2011	19:46	PC006263.D	1.99	9.88
12TP16-0.502-02	C5056-02	12/23/2011	20:02	PC006264.D	1.98	9.88
12TP16-0608-03	C5056-03	12/23/2011	20:18	PC006265.D	1.99	9.89
12TP16-0910-04	C5056-04	12/23/2011	20:35	PC006266.D	1.99	9.88
12TP-DUP-01	C5056-05	12/23/2011	20:51	PC006267.D	1.99	9.89
PIBLK03	I.BLK03	12/23/2011	21:40	PC006270.D	1.99	9.88
CCAL02	1660 250	12/23/2011	21:56	PC006271.D	1.99	9.88
12TP17-000.5-01MSD	C5065-04MSD	12/23/2011	23:17	PC006276.D	1.99	9.88
12TP17-000.5-01MS	C5065-03MS	12/23/2011	23:33	PC006277.D	1.99	9.88
PIBLK04	I.BLK04	12/24/2011	00:54	PC006282.D	1.98	9.88
CCAL03	1660 250	12/24/2011	01:10	PC006283.D	1.99	9.88
PIBLK05	I.BLK05	12/28/2011	12:41	PC006321.D	1.97	9.89
CCAL04	1660 250	12/28/2011	13:22	PC006323.D	1.97	9.89
12TP16-0.502-02 RE	C5056-02RE	12/28/2011	14:51	PC006327.D	1.97	9.89
PIBLK06	I.BLK06	12/28/2011	16:45	PC006334.D	1.97	9.89
CCAL05	1660 250	12/28/2011	17:01	PC006335.D	1.97	9.89

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_C Calibration Date(s): 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: CF 50 = PC006011.D CF 250 = PC006010.D

CF 500 = PC006009.D CF 750 = PC006008.D CF 1000 = PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1539340	1583428	1652292	1516859	1525454	1563475	4
Decachlorobiphenyl	2753860	2322628	2228812	1984339	1934411	2244810	15
AR1016 (1)	81972	69605	66677	59385	58354	67199	14
AR1016 (2)	119474	139033	138562	120044	124271	128277	8
AR1016 (3)	45572	50213	49382	43690	43986	46569	7
AR1016 (4)	95814	81476	78901	71383	69652	79445	13
AR1016 (5)	63008	59206	58785	53206	52860	57413	8
AR1260 (1)	101772	94032	93196	83493	82614	91021	9
AR1260 (2)	209384	177891	177586	158917	156997	176155	12
AR1260 (3)	161338	151174	155707	141296	141029	150109	6
AR1260 (4)	233482	216564	219776	189635	189204	209732	9
AR1260 (5)	99230	95811	98680	92081	91537	95468	4

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_C Calibration Date(s): 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: CF 50 = PC006011.D CF 250 = PC006010.D

CF 500 = PC006009.D CF 750 = PC006008.D CF 1000 = PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4286580	3835452	3775146	3400877	3401207	3739852	10
Decachlorobiphenyl	6971140	5675536	5299222	4567911	4287308	5360223	20
AR1016 (1)	170044	148835	143778	126098	124730	142697	13
AR1016 (2)	410106	328973	318375	281943	276128	323105	17
AR1016 (3)	180598	137123	144625	129749	128291	144077	15
AR1016 (4)	133338	109270	115039	104717	105265	113526	10
AR1016 (5)	175524	131268	128639	115200	114714	133069	19
AR1260 (1)	280148	237834	225971	198178	193735	227173	15
AR1260 (2)	334588	285589	273392	234251	234942	272552	15
AR1260 (3)	492282	361751	366763	345958	338776	381106	17
AR1260 (4)	616564	523832	498470	440964	429018	501769	15
AR1260 (5)	474756	365290	400652	358039	342462	388240	14

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_C Date(s) Analyzed: 12/13/2011 12/13/2011

GC Column: RTX-CLPest ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.20	1.15	1.25	10802
		2	1.74	1.69	1.79	17204
		3	1.90	1.85	1.95	53471
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.90	1.85	1.95	42188
		2	2.25	2.20	2.30	31833
		3	2.74	2.69	2.79	61113
		4	2.89	2.84	2.94	21823
		5	3.90	3.85	3.95	39339
AR1242	0.5000	1	2.25	2.20	2.30	56293
		2	2.74	2.69	2.79	114860
		3	3.13	3.08	3.18	65688
		4	3.37	3.32	3.42	49772
		5	3.90	3.85	3.95	83942
AR1248	0.5000	1	2.74	2.69	2.79	73698
		2	3.13	3.08	3.18	106133
		3	3.37	3.32	3.42	73441
		4	3.90	3.85	3.95	138267
		5	4.66	4.61	4.71	38608
AR1254	0.5000	1	3.11	3.06	3.16	65083
		2	4.65	4.60	4.70	165431
		3	5.02	4.97	5.07	134662
		4	5.26	5.21	5.31	122909
		5	5.63	5.58	5.68	193414

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

Instrument ID: ECD_C Date(s) Analyzed: 12/13/2011 12/13/2011

GC Column: RTX-CLPest II ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.30	2.25	2.35	40341
		2	2.45	2.40	2.50	25307
		3	2.52	2.47	2.57	102884
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.52	2.47	2.57	95734
		2	3.01	2.96	3.06	78811
		3	3.57	3.52	3.62	159496
		4	3.74	3.69	3.79	72117
		5	4.52	4.47	4.57	59201
AR1242	0.5000	1	3.01	2.96	3.06	144390
		2	3.57	3.52	3.62	284971
		3	3.74	3.69	3.79	130662
		4	4.88	4.83	4.93	99797
		5	4.93	4.88	4.98	133151
AR1248	0.5000	1	3.57	3.52	3.62	189426
		2	4.36	4.31	4.41	227718
		3	4.52	4.47	4.57	179891
		4	4.88	4.83	4.93	165968
		5	4.93	4.88	4.98	218113
AR1254	0.5000	1	5.20	5.15	5.25	277781
		2	5.81	5.76	5.86	403951
		3	6.39	6.34	6.44	181582
		4	6.60	6.55	6.65	366397
		5	6.86	6.81	6.91	453032

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006260.D **Time Analyzed:** 18:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.262	0.250	4.8
AR1016 (2)	2.743	2.680	2.780	0.278	0.250	11.2
AR1016 (3)	2.898	2.840	2.940	0.277	0.250	10.8
AR1016 (4)	3.133	3.070	3.170	0.238	0.250	4.8
AR1016 (5)	3.373	3.320	3.420	0.228	0.250	8.8
AR1260 (1)	4.900	4.840	4.940	0.230	0.250	8.0
AR1260 (2)	5.271	5.220	5.320	0.239	0.250	4.4
AR1260 (3)	5.633	5.580	5.680	0.234	0.250	6.4
AR1260 (4)	6.541	6.490	6.590	0.246	0.250	1.6
AR1260 (5)	6.910	6.860	6.960	0.251	0.250	0.4
Tetrachloro-m-xylene	1.590	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.423	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006260.D **Time Analyzed:** 18:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.011	2.950	3.050	0.285	0.250	14.0
AR1016 (2)	3.575	3.520	3.620	0.252	0.250	0.8
AR1016 (3)	3.747	3.690	3.790	0.274	0.250	9.6
AR1016 (4)	3.878	3.820	3.920	0.256	0.250	2.4
AR1016 (5)	4.522	4.470	4.570	0.242	0.250	3.2
AR1260 (1)	6.081	6.030	6.130	0.259	0.250	3.6
AR1260 (2)	6.387	6.330	6.430	0.260	0.250	4.0
AR1260 (3)	6.861	6.810	6.910	0.258	0.250	3.2
AR1260 (4)	7.765	7.710	7.810	0.253	0.250	1.2
AR1260 (5)	8.259	8.210	8.310	0.264	0.250	5.6
Tetrachloro-m-xylene	1.984	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006271.D **Time Analyzed:** 21:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.237	0.250	5.2
AR1016 (2)	2.744	2.680	2.780	0.250	0.250	0.0
AR1016 (3)	2.896	2.840	2.940	0.269	0.250	7.6
AR1016 (4)	3.135	3.070	3.170	0.249	0.250	0.4
AR1016 (5)	3.373	3.320	3.420	0.240	0.250	4.0
AR1260 (1)	4.900	4.840	4.940	0.224	0.250	10.4
AR1260 (2)	5.270	5.220	5.320	0.236	0.250	5.6
AR1260 (3)	5.632	5.580	5.680	0.224	0.250	10.4
AR1260 (4)	6.541	6.490	6.590	0.229	0.250	8.4
AR1260 (5)	6.910	6.860	6.960	0.208	0.250	16.8
Tetrachloro-m-xylene	1.591	1.530	1.630	0.023	0.025	8.0
Decachlorobiphenyl	8.423	8.320	8.520	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006271.D **Time Analyzed:** 21:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.287	0.250	14.8
AR1016 (2)	3.576	3.520	3.620	0.254	0.250	1.6
AR1016 (3)	3.748	3.690	3.790	0.266	0.250	6.4
AR1016 (4)	3.878	3.820	3.920	0.255	0.250	2.0
AR1016 (5)	4.522	4.470	4.570	0.242	0.250	3.2
AR1260 (1)	6.081	6.030	6.130	0.250	0.250	0.0
AR1260 (2)	6.387	6.330	6.430	0.253	0.250	1.2
AR1260 (3)	6.861	6.810	6.910	0.244	0.250	2.4
AR1260 (4)	7.764	7.710	7.810	0.227	0.250	9.2
AR1260 (5)	8.258	8.210	8.310	0.230	0.250	8.0
Tetrachloro-m-xylene	1.986	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.880	9.780	9.980	0.019	0.025	24.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

GC Column: RTX-CLPest ID: 0.32 (mm) Initi. Calib. Date(s): 12/13/2011 12/13/2011

Client Sample No.: CCAL03 Date Analyzed: 12/24/2011

Lab Sample No.: 1660 250 Data File : PC006283.D Time Analyzed: 01:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.266	0.250	6.4
AR1016 (2)	2.743	2.680	2.780	0.283	0.250	13.2
AR1016 (3)	2.897	2.840	2.940	0.279	0.250	11.6
AR1016 (4)	3.132	3.070	3.170	0.255	0.250	2.0
AR1016 (5)	3.372	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.898	4.840	4.940	0.231	0.250	7.6
AR1260 (2)	5.269	5.220	5.320	0.244	0.250	2.4
AR1260 (3)	5.631	5.580	5.680	0.235	0.250	6.0
AR1260 (4)	6.540	6.490	6.590	0.243	0.250	2.8
AR1260 (5)	6.910	6.860	6.960	0.242	0.250	3.2
Tetrachloro-m-xylene	1.590	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.422	8.320	8.520	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/24/2011

Lab Sample No.: 1660 250 **Data File :** PC006283.D **Time Analyzed:** 01:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.288	0.250	15.2
AR1016 (2)	3.575	3.520	3.620	0.254	0.250	1.6
AR1016 (3)	3.747	3.690	3.790	0.267	0.250	6.8
AR1016 (4)	3.878	3.820	3.920	0.256	0.250	2.4
AR1016 (5)	4.522	4.470	4.570	0.244	0.250	2.4
AR1260 (1)	6.081	6.030	6.130	0.261	0.250	4.4
AR1260 (2)	6.386	6.330	6.430	0.265	0.250	6.0
AR1260 (3)	6.861	6.810	6.910	0.259	0.250	3.6
AR1260 (4)	7.764	7.710	7.810	0.249	0.250	0.4
AR1260 (5)	8.258	8.210	8.310	0.259	0.250	3.6
Tetrachloro-m-xylene	1.985	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5056 SAS No.: C5056 SDG NO.: C5056

GC Column: RTX-CLPest ID: 0.32 (mm) Initi. Calib. Date(s): 12/13/2011 12/13/2011

Client Sample No.: CCAL04 Date Analyzed: 12/28/2011

Lab Sample No.: 1660 250 Data File : PC006323.D Time Analyzed: 13:22

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.248	2.200	2.300	0.237	0.250	5.2
AR1016 (2)	2.737	2.680	2.780	0.239	0.250	4.4
AR1016 (3)	2.891	2.840	2.940	0.244	0.250	2.4
AR1016 (4)	3.127	3.070	3.170	0.227	0.250	9.2
AR1016 (5)	3.368	3.320	3.420	0.205	0.250	18.0
AR1260 (1)	4.903	4.840	4.940	0.212	0.250	15.2
AR1260 (2)	5.274	5.220	5.320	0.214	0.250	14.4
AR1260 (3)	5.636	5.580	5.680	0.221	0.250	11.6
AR1260 (4)	6.549	6.490	6.590	0.225	0.250	10.0
AR1260 (5)	6.919	6.860	6.960	0.215	0.250	14.0
Tetrachloro-m-xylene	1.570	1.530	1.630	0.021	0.025	16.0
Decachlorobiphenyl	8.434	8.320	8.520	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006323.D **Time Analyzed:** 13:22

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.006	2.950	3.050	0.245	0.250	2.0
AR1016 (2)	3.572	3.520	3.620	0.224	0.250	10.4
AR1016 (3)	3.745	3.690	3.790	0.230	0.250	8.0
AR1016 (4)	3.875	3.820	3.920	0.259	0.250	3.6
AR1016 (5)	4.525	4.470	4.570	0.258	0.250	3.2
AR1260 (1)	6.088	6.030	6.130	0.229	0.250	8.4
AR1260 (2)	6.394	6.330	6.430	0.230	0.250	8.0
AR1260 (3)	6.869	6.810	6.910	0.218	0.250	12.8
AR1260 (4)	7.775	7.710	7.810	0.233	0.250	6.8
AR1260 (5)	8.269	8.210	8.310	0.228	0.250	8.8
Tetrachloro-m-xylene	1.970	1.920	2.020	0.023	0.025	8.0
Decachlorobiphenyl	9.892	9.780	9.980	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006335.D **Time Analyzed:** 17:01

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.245	2.200	2.300	0.216	0.250	13.6
AR1016 (2)	2.734	2.680	2.780	0.224	0.250	10.4
AR1016 (3)	2.887	2.840	2.940	0.223	0.250	10.8
AR1016 (4)	3.123	3.070	3.170	0.228	0.250	8.8
AR1016 (5)	3.365	3.320	3.420	0.218	0.250	12.8
AR1260 (1)	4.898	4.840	4.940	0.226	0.250	9.6
AR1260 (2)	5.269	5.220	5.320	0.223	0.250	10.8
AR1260 (3)	5.632	5.580	5.680	0.225	0.250	10.0
AR1260 (4)	6.543	6.490	6.590	0.229	0.250	8.4
AR1260 (5)	6.913	6.860	6.960	0.239	0.250	4.4
Tetrachloro-m-xylene	1.568	1.530	1.630	0.019	0.025	24.0
Decachlorobiphenyl	8.429	8.320	8.520	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG NO.:** C5056

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006335.D **Time Analyzed:** 17:01

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.005	2.950	3.050	0.242	0.250	3.2
AR1016 (2)	3.571	3.520	3.620	0.229	0.250	8.4
AR1016 (3)	3.744	3.690	3.790	0.238	0.250	4.8
AR1016 (4)	3.874	3.820	3.920	0.235	0.250	6.0
AR1016 (5)	4.523	4.470	4.570	0.228	0.250	8.8
AR1260 (1)	6.085	6.030	6.130	0.231	0.250	7.6
AR1260 (2)	6.391	6.330	6.430	0.235	0.250	6.0
AR1260 (3)	6.866	6.810	6.910	0.218	0.250	12.8
AR1260 (4)	7.770	7.710	7.810	0.236	0.250	5.6
AR1260 (5)	8.264	8.210	8.310	0.224	0.250	10.4
Tetrachloro-m-xylene	1.969	1.920	2.020	0.022	0.025	12.0
Decachlorobiphenyl	9.890	9.780	9.980	0.025	0.025	0.0

Tetra Tech **INTERNAL CORRESPONDENCE**

TO:	**A. FREBOWITZ**	**DATE:**	**March 9, 2012**
FROM:	**MEGAN CARSON**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, CYANIDE, ORP, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5056

SAMPLES: 12/Soil/

12TP-DUP-01	12TP02-0405-CS	12TP03-0506-CS
12TP08-0304-CS	12TP09-0304-CS	12TP10-0405-CS
12TP14-0405-CS	12TP15-0304-CS	12TP16-0.502-02
12TP16-000.5-01	12TP16-0608-03	12TP16-0910-04

Overview

The sample set for NASJRB Willow Grove, SDG C5056, consists of twelve (12) soil environmental samples. This SDG contained one field duplicate pair: 12TP-DUP-01/12TP16-0608-03.

Samples 12TP-DUP-01, 12TP16-0.502-02, 12TP16-000.5-01, 12TP16-0608-03, and 12TP16-0910-04 were analyzed for target analyte list (TAL) metals, cyanide, oxygen reduction potential (ORP), and pH. Samples 12TP02-0405-CS, 12TP03-0506-CS, 12TP08-0304-CS, 12TP09-0304-CS, 12TP10-0405-CS, 12TP14-0405-CS, and 12TP15-0304-CS were analyzed for oxygen reduction potential (ORP) and pH only. The samples were collected by Tetra Tech on December 19th, 2011 and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7471A. Cyanide analyses were conducted using method 9012B. pH analyses were conducted using standard method 9045C. ORP analyses were conducted using method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The following contaminants were detected in the method blanks affecting all samples at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	5.09 ug/L	2.54 mg/kg
Antimony	1.17 ug/L	0.58 mg/kg
Barium	0.56 ug/L	0.28 mg/kg
Beryllium	0.21 ug/L	0.1 mg/kg
Cadmium	0.17 ug/L	0.085 mg/kg
Chromium	0.19 ug/L	0.095 mg/kg
Cobalt	0.12 ug/L	0.06 mg/kg
Copper	0.25 ug/L	0.12 mg/kg
Iron	11.2 ug/L	5.6 mg/kg
Lead	0.22 ug/L	0.11 mg/kg
Magnesium	9.1 ug/L	4.5 mg/kg
Manganese	0.63 ug/L	0.31 mg/kg
Nickel	0.14 ug/L	0.07 mg/kg
Potassium	40.7 ug/L	20.3 mg/kg
Silver	0.13 ug/L	0.065 mg/kg
Sodium	69.6 ug/L	34.8 mg/kg
Thallium	0.49 ug/L	0.24 mg/kg
Vanadium	0.28 ug/L	0.14 mg/kg
Zinc	0.32 ug/L	0.16 mg/kg

  An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids, and dilution factors were taken into consideration when evaluating for blank contamination. All samples in the SDG were affected. Positive results less than the blank action level were qualified "B" as a result of blank contamination.

- The CRDL standard analyzed on 1/4/12 had percent recoveries >110% for aluminum, antimony, manganese, nickel, and zinc and a percent recovery < 90% for selenium. All samples were affected. Positive selenium results < 2X LOQ were qualified as estimated (J) due to conflicting directional bias. The non-detected selenium results were qualified as biased low (UL). No other validation action was warranted as sample results were greater than 2X LOQ or qualified for blank contamination.

- The matrix spike and matrix spike duplicate had percent recoveries < 80% for antimony and vanadium (MS) and a percent recovery > 110% for barium (MSD). The post digestion spike had a percent recovery <80% for vanadium. All samples were affected. Positive results were qualified as biased (L) or estimated (J) due to conflicting directional bias. Barium results were not qualified.

- The lab duplicate had a relative percent difference > 35% for cadmium and manganese. All samples were affected. Positive results were qualified as estimated (J).

- The field duplicate pair 12TP-DUP-01/12TP16-0608-03 had a relative percent difference > 50% for antimony and cadmium. All samples were affected. Positive results were qualified as estimated (J).

- The serial dilution had a percent difference > 10% for aluminum, beryllium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. All samples were affected. Positive results were qualified as estimated (J).

- The interfering analyte aluminum was present in samples 12TP16-0.502-02, 12TP16-000.5-01, and 12TP16-0910-04 at concentrations comparable to the concentration of aluminum in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cadmium, copper, manganese, and thallium in the affected samples. Positive cadmium results for 12TP16-0.502-02 and 12TP16-000.5-01 were qualified as estimated (J) due to conflicting directional bias. The positive copper result for 12TP16-0.502-02 was qualified as estimated (J) due to conflicting directional bias. Antimony results were not qualified as sample results were previously qualified for blank contamination.

- The interfering analyte iron was present in samples 12TP16-0.502-02, 12TP16-000.5-01, and 12TP16-0910-04 at concentrations comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cadmium, copper, nickel, silver, lead, and thallium in the affected samples. Positive nickel, cadmium, and copper results for samples 12TP16-0.502-02 and 12TP16-000.5-01 were qualified as estimated (J) due to conflicting directional bias. The positive lead result for sample 12TP16-0910-04 was qualified as biased high (K). The positive cadmium result for sample 12TP16-0910-04 was qualified as estimated (J) due to conflicting directional bias. Antimony, silver, and thallium results were not qualified as sample results were previously qualified for blank contamination.

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

The following samples were analyzed at dilutions:

Sample ID	Dilution Factor	Analytes
12TP-DUP-01	25X	Fe, Pb, Mn
12TP16-0.502-02	25X	Mn
12TP16-0608-03	25X	Fe, Pb, Mn
12TP16-0910-04	25X	Mn

The CRDL standard analyzed on 12/22/11 had a percent recovery >110% for copper and zinc. All samples were affected. No validation action was warranted as sample results were > 2X LOQ.

Executive Summary

Laboratory Performance: Calibration blank contamination resulted in the qualification of sample results. CRDL standard non-compliances resulted in the qualification of sample results. Lab duplicate non-compliances resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike non-compliances resulted in the qualification of sample results. Serial dilution non-compliances resulted in the qualification of sample results. Interference standard non-compliances resulted in the qualification of sample results. Field duplicate non-compliances resulted in the qualification of sample results.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joe Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-0.502-02DL			12TP16-000.5-01			12TP16-0608-03		
SDG: C5056	LAB_ID	C5056-02			C5056-02DL			C5056-01			C5056-03		
FRACTION: M	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.0			82.0			80.0			87.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		10900	J	I				13400	J	I	6210	J	I
ANTIMONY		0.29	B	A				0.33	B	A	35.4	J	DG
ARSENIC		3.6						4.9			7		
BARIUM		104						72			92.9		
BERYLLIUM		0.95	J	I				0.89	J	I	0.43	J	I
CADMIUM		0.13	J	FGK				0.27	J	FGK	34.9	J	FG
CALCIUM		657	J	I				764	J	I	4450	J	I
CHROMIUM		18.5	J	I				21.8	J	I	24.5	J	I
COBALT		7.7	J	I				6.1	J	I	5.3	J	I
COPPER		6.9	J	IK				13.2	J	IK	47.6	J	I
IRON		17900	J	I				22400	J	I			
LEAD		15.8						17.3					
MAGNESIUM		1430	J	I				1850	J	I	2930	J	I
MANGANESE					681	J	FIK	254	J	FI			
MERCURY		0.031						0.032			0.055		
NICKEL		10.4	J	IK				10.3	J	IK	14	J	I
POTASSIUM		565	J	I				706	J	I	664	J	I
SELENIUM		0.23	UL	C				0.11	J	CP	0.12	J	CP
SILVER		0.032	B	A				0.047	B	A	1.1		
SODIUM		54.5	J	I				79.7	J	I	185	J	I
THALLIUM		0.81						0.16	B	A	0.28		
VANADIUM		24.7	J	DI				31.4	J	DI	16.9	J	DI
ZINC		29.9	J	I				36.3	J	I	231	J	I

PROJ_NO: 02014	NSAMPLE	12TP16-0608-03DL			12TP16-0910-04			12TP16-0910-04DL			12TP-DUP-01		
SDG: C5056	LAB_ID	C5056-03DL			C5056-04			C5056-04DL			C5056-05		
FRACTION: M	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			82.5			82.5			88.0		
	DUP_OF										12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					15500	J	I				5300	J	I
ANTIMONY					0.22	B	A				8.9	J	DG
ARSENIC					2.5						5.7		
BARIUM					87.4						108		
BERYLLIUM					0.84	J	I				0.35	J	IK
CADMIUM					0.12	J	FGKP				12.4	J	FG
CALCIUM					367	J	I				3180	J	I
CHROMIUM					17.5	J	I				25.2	J	I
COBALT					9.5	J	I				5.3	J	I
COPPER					26	J	I				68.8	J	I
IRON		23100	J	I	18900	J	I						
LEAD		1940			7.1	K	K						
MAGNESIUM					1170	J	I				2650	J	I
MANGANESE		597	J	FI				1730	J	FI			
MERCURY					0.0055	U					0.033		
NICKEL					11.2	J	IK				17.2	J	IN
POTASSIUM					330	J	I				516	J	I
SELENIUM					0.305	UL	C				0.088	J	CP
SILVER					0.046	B	A				1.4		
SODIUM					62.1	J	I				138	J	I
THALLIUM					0.19	B	A				0.15	B	A
VANADIUM					22.7	J	DI				14	J	DI
ZINC					21.6	J	IK				188	J	I

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01DL		
SDG: C5056	LAB_ID	C5056-05DL		
FRACTION: M	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	88.0		
	DUP_OF	12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD
ALUMINUM				
ANTIMONY				
ARSENIC				
BARIUM				
BERYLLIUM				
CADMIUM				
CALCIUM				
CHROMIUM				
COBALT				
COPPER				
IRON		19300	J	I
LEAD		1490		
MAGNESIUM				
MANGANESE		507	J	FIK
MERCURY				
NICKEL				
POTASSIUM				
SELENIUM				
SILVER				
SODIUM				
THALLIUM				
VANADIUM				
ZINC				

PROJ_NO: 02014	NSAMPLE	12TP02-0405-CS						12TP03-0506-CS					
SDG: C5056	LAB_ID	C5056-07						C5056-06					
FRACTION: MISC	SAMP_DATE	12/19/2011						12/19/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	82.6			100.0			83.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE													
OXIDATION REDUCTION POTENTIAL		226.5						181.3					
PH					7.1						7.03		

PROJ_NO: 02014	NSAMPLE	12TP08-0304-CS						12TP09-0304-CS					
SDG: C5056	LAB_ID	C5056-12						C5056-10					
FRACTION: MISC	SAMP_DATE	12/19/2011						12/19/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	80.2			100.0			81.2			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE													
OXIDATION REDUCTION POTENTIAL		255.3						162.6					
PH					7.02						6.93		

PROJ_NO: 02014	NSAMPLE	12TP10-0405-CS						12TP14-0405-CS					
SDG: C5056	LAB_ID	C5056-11						C5056-08					
FRACTION: MISC	SAMP_DATE	12/19/2011						12/19/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	75.4			100.0			80.5			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE													
OXIDATION REDUCTION POTENTIAL		233.8						206.8					
PH					7.31						7.15		

PROJ_NO: 02014	NSAMPLE	12TP15-0304-CS						12TP16-0.502-02					
SDG: C5056	LAB_ID	C5056-09						C5056-02					
FRACTION: MISC	SAMP_DATE	12/19/2011						12/19/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	78.3			100.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.055	J	P			
OXIDATION REDUCTION POTENTIAL		175.6									328.9		
PH					7.48								

PROJ_NO: 02014	NSAMPLE	12TP16-0.502-02			12TP16-000.5-01								
SDG: C5056	LAB_ID	C5056-02			C5056-01								
FRACTION: MISC	SAMP_DATE	12/19/2011			12/19/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	100.0			80.0			80.0			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.1	J	P						
OXIDATION REDUCTION POTENTIAL								318.5					
PH		4.71									4.41		

PROJ_NO: 02014	NSAMPLE	12TP16-0608-03									12TP16-0910-04		
SDG: C5056	LAB_ID	C5056-03									C5056-04		
FRACTION: MISC	SAMP_DATE	12/19/2011									12/19/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	87.0			87.0			100.0			82.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.048	J	P							0.061	J	P
OXIDATION REDUCTION POTENTIAL					243.7								
PH								5.26					

PROJ_NO: 02014	NSAMPLE	12TP16-0910-04						12TP-DUP-01					
SDG: C5056	LAB_ID	C5056-04						C5056-05					
FRACTION: MISC	SAMP_DATE	12/19/2011						12/19/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	82.5			100.0			88.0			88.0		
	DUP_OF							12TP16-0608-03			12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.064	J	P			
OXIDATION REDUCTION POTENTIAL		352.1									228.1		
PH					4.45								

PROJ_NO: 02014	NSAMPLE	12TP-DUP-01		
SDG: C5056	LAB_ID	C5056-05		
FRACTION: MISC	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	S.U.		
	PCT_SOLIDS	100.0		
	DUP_OF	12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD
CYANIDE				
OXIDATION REDUCTION POTENTIAL				
PH		7.13		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	88

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5300		1	0.53	1.6	mg/Kg	12/21/11	01/04/12	SW6020
7440-36-0	Antimony	8.9	N	1	0.021	0.16	mg/Kg	12/21/11	01/04/12	SW6020
7440-38-2	Arsenic	5.7		1	0.017	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-39-3	Barium	108	N	1	0.006	0.79	mg/Kg	12/21/11	01/04/12	SW6020
7440-41-7	Beryllium	0.35		1	0.006	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-43-9	Cadmium	12.4	*	1	0.007	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-70-2	Calcium	3180		1	0.5	39.5	mg/Kg	12/21/11	01/04/12	SW6020
7440-47-3	Chromium	25.2		1	0.009	0.16	mg/Kg	12/21/11	01/04/12	SW6020
7440-48-4	Cobalt	5.3	*	1	0.005	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-50-8	Copper	68.8		1	0.005	0.16	mg/Kg	12/21/11	01/04/12	SW6020
7439-89-6	Iron	16100	OR	1	0.73	15.8	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	1460	OR	1	0.003	0.08	mg/Kg	12/21/11	01/04/12	SW6020
7439-95-4	Magnesium	2650		1	0.55	39.5	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	428.8	OR*	1	0.004	0.08	mg/Kg	12/21/11	01/04/12	SW6020
7439-97-6	Mercury	0.033	N*	1	0.002	0.01	mg/Kg	12/21/11	12/22/11	SW7471A
7440-02-0	Nickel	17.2		1	0.007	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-09-7	Potassium	516		1	0.71	39.5	mg/Kg	12/21/11	01/04/12	SW6020
7782-49-2	Selenium	0.088	J	1	0.044	0.39	mg/Kg	12/21/11	01/04/12	SW6020
7440-22-4	Silver	1.4		1	0.006	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-23-5	Sodium	138		1	0.97	39.5	mg/Kg	12/21/11	01/04/12	SW6020
7440-28-0	Thallium	0.15		1	0.004	0.079	mg/Kg	12/21/11	01/04/12	SW6020
7440-62-2	Vanadium	14	N	1	0.01	0.39	mg/Kg	12/21/11	01/04/12	SW6020
7440-66-6	Zinc	188		1	0.009	0.16	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Black	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01DL	SDG No.:	C5056
Lab Sample ID:	C5056-05DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	88

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	19300	D	25	18.3	395	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	1490	D	25	0.079	2	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	507	*D	25	0.12	2	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Black	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	82

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10900		1	0.63	1.8	mg/Kg	12/21/11	01/04/12	SW6020
7440-36-0	Antimony	0.29	N	1	0.024	0.18	mg/Kg	12/21/11	01/04/12	SW6020
7440-38-2	Arsenic	3.6		1	0.02	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-39-3	Barium	104	N	1	0.007	0.92	mg/Kg	12/21/11	01/04/12	SW6020
7440-41-7	Beryllium	0.95		1	0.006	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-43-9	Cadmium	0.13	*	1	0.008	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-70-2	Calcium	657		1	0.59	46.2	mg/Kg	12/21/11	01/04/12	SW6020
7440-47-3	Chromium	18.5		1	0.01	0.18	mg/Kg	12/21/11	01/04/12	SW6020
7440-48-4	Cobalt	7.7	*	1	0.006	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-50-8	Copper	6.9		1	0.006	0.18	mg/Kg	12/21/11	01/04/12	SW6020
7439-89-6	Iron	17900		1	0.86	18.5	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	15.8		1	0.004	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7439-95-4	Magnesium	1430		1	0.64	46.2	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	500.7	OR*	1	0.005	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7439-97-6	Mercury	0.031	N*	1	0.002	0.011	mg/Kg	12/21/11	12/22/11	SW7471A
7440-02-0	Nickel	10.4		1	0.008	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-09-7	Potassium	565		1	0.83	46.2	mg/Kg	12/21/11	01/04/12	SW6020
7782-49-2	Selenium	0.23	U	1	0.052	0.46	mg/Kg	12/21/11	01/04/12	SW6020
7440-22-4	Silver	0.032	J	1	0.006	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-23-5	Sodium	54.5		1	1.1	46.2	mg/Kg	12/21/11	01/04/12	SW6020
7440-28-0	Thallium	0.81		1	0.005	0.092	mg/Kg	12/21/11	01/04/12	SW6020
7440-62-2	Vanadium	24.7	N	1	0.012	0.46	mg/Kg	12/21/11	01/04/12	SW6020
7440-66-6	Zinc	29.9		1	0.01	0.18	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02DL	SDG No.:	C5056
Lab Sample ID:	C5056-02DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	82

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-96-5	Manganese	681	*D	25	0.14	2.3	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	80

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	13400		1	0.85	2.5	mg/Kg	12/21/11	01/04/12	SW6020
7440-36-0	Antimony	0.33	N	1	0.033	0.25	mg/Kg	12/21/11	01/04/12	SW6020
7440-38-2	Arsenic	4.9		1	0.028	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-39-3	Barium	72	N	1	0.01	1.2	mg/Kg	12/21/11	01/04/12	SW6020
7440-41-7	Beryllium	0.89		1	0.009	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-43-9	Cadmium	0.27	*	1	0.011	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-70-2	Calcium	764		1	0.79	62.5	mg/Kg	12/21/11	01/04/12	SW6020
7440-47-3	Chromium	21.8		1	0.014	0.25	mg/Kg	12/21/11	01/04/12	SW6020
7440-48-4	Cobalt	6.1	*	1	0.008	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-50-8	Copper	13.2		1	0.008	0.25	mg/Kg	12/21/11	01/04/12	SW6020
7439-89-6	Iron	22400		1	1.2	25	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	17.3		1	0.005	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7439-95-4	Magnesium	1850		1	0.87	62.5	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	254	*	1	0.008	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7439-97-6	Mercury	0.032	N*	1	0.002	0.012	mg/Kg	12/21/11	12/22/11	SW7471A
7440-02-0	Nickel	10.3		1	0.011	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-09-7	Potassium	706		1	1.1	62.5	mg/Kg	12/21/11	01/04/12	SW6020
7782-49-2	Selenium	0.11	J	1	0.07	0.62	mg/Kg	12/21/11	01/04/12	SW6020
7440-22-4	Silver	0.047	J	1	0.009	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-23-5	Sodium	79.7		1	1.5	62.5	mg/Kg	12/21/11	01/04/12	SW6020
7440-28-0	Thallium	0.16		1	0.006	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-62-2	Vanadium	31.4	N	1	0.016	0.62	mg/Kg	12/21/11	01/04/12	SW6020
7440-66-6	Zinc	36.3		1	0.014	0.25	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	87

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	6210		1	0.61	1.8	mg/Kg	12/21/11	01/04/12	SW6020
7440-36-0	Antimony	35.4	N	1	0.023	0.18	mg/Kg	12/21/11	01/04/12	SW6020
7440-38-2	Arsenic	7		1	0.02	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-39-3	Barium	92.9	N	1	0.007	0.9	mg/Kg	12/21/11	01/04/12	SW6020
7440-41-7	Beryllium	0.43		1	0.006	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-43-9	Cadmium	34.9	*	1	0.008	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-70-2	Calcium	4450		1	0.57	44.9	mg/Kg	12/21/11	01/04/12	SW6020
7440-47-3	Chromium	24.5		1	0.01	0.18	mg/Kg	12/21/11	01/04/12	SW6020
7440-48-4	Cobalt	5.3	*	1	0.005	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-50-8	Copper	47.6		1	0.005	0.18	mg/Kg	12/21/11	01/04/12	SW6020
7439-89-6	Iron	19300	OR	1	0.83	17.9	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	1370	OR	1	0.005	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7439-95-4	Magnesium	2930		1	0.62	44.9	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	506.5	OR*	1	0.005	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7439-97-6	Mercury	0.055	N*	1	0.002	0.011	mg/Kg	12/21/11	12/22/11	SW7471A
7440-02-0	Nickel	14		1	0.008	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-09-7	Potassium	664		1	0.81	44.9	mg/Kg	12/21/11	01/04/12	SW6020
7782-49-2	Selenium	0.12	J	1	0.05	0.45	mg/Kg	12/21/11	01/04/12	SW6020
7440-22-4	Silver	1.1		1	0.006	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-23-5	Sodium	185		1	1.1	44.9	mg/Kg	12/21/11	01/04/12	SW6020
7440-28-0	Thallium	0.28		1	0.004	0.09	mg/Kg	12/21/11	01/04/12	SW6020
7440-62-2	Vanadium	16.9	N	1	0.012	0.45	mg/Kg	12/21/11	01/04/12	SW6020
7440-66-6	Zinc	231		1	0.01	0.18	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Black	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03DL	SDG No.:	C5056
Lab Sample ID:	C5056-03DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	87

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	23100	D	25	20.8	449	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	1940	D	25	0.09	2.2	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	597	*D	25	0.13	2.2	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Black	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	15500		1	0.82	2.4	mg/Kg	12/21/11	01/04/12	SW6020
7440-36-0	Antimony	0.22	JN	1	0.032	0.24	mg/Kg	12/21/11	01/04/12	SW6020
7440-38-2	Arsenic	2.5		1	0.027	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-39-3	Barium	87.4	N	1	0.01	1.2	mg/Kg	12/21/11	01/04/12	SW6020
7440-41-7	Beryllium	0.84		1	0.008	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-43-9	Cadmium	0.12	J*	1	0.011	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-70-2	Calcium	367		1	0.77	60.6	mg/Kg	12/21/11	01/04/12	SW6020
7440-47-3	Chromium	17.5		1	0.013	0.24	mg/Kg	12/21/11	01/04/12	SW6020
7440-48-4	Cobalt	9.5	*	1	0.007	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-50-8	Copper	26		1	0.007	0.24	mg/Kg	12/21/11	01/04/12	SW6020
7439-89-6	Iron	18900		1	1.1	24.2	mg/Kg	12/21/11	01/04/12	SW6020
7439-92-1	Lead	7.1		1	0.005	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7439-95-4	Magnesium	1170		1	0.84	60.6	mg/Kg	12/21/11	01/04/12	SW6020
7439-96-5	Manganese	1230	OR*	1	0.007	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7439-97-6	Mercury	0.011	UN*	1	0.002	0.011	mg/Kg	12/21/11	12/22/11	SW7471A
7440-02-0	Nickel	11.2		1	0.011	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-09-7	Potassium	330		1	1.1	60.6	mg/Kg	12/21/11	01/04/12	SW6020
7782-49-2	Selenium	0.305	U	1	0.068	0.61	mg/Kg	12/21/11	01/04/12	SW6020
7440-22-4	Silver	0.046	J	1	0.008	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-23-5	Sodium	62.1		1	1.5	60.6	mg/Kg	12/21/11	01/04/12	SW6020
7440-28-0	Thallium	0.19		1	0.006	0.12	mg/Kg	12/21/11	01/04/12	SW6020
7440-62-2	Vanadium	22.7	N	1	0.016	0.61	mg/Kg	12/21/11	01/04/12	SW6020
7440-66-6	Zinc	21.6		1	0.013	0.24	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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J = Estimated Value
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N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04DL	SDG No.:	C5056
Lab Sample ID:	C5056-04DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-96-5	Manganese	1730	*D	25	0.18	3	mg/Kg	12/21/11	01/04/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP-DUP-01	SDG No.:	C5056
Lab Sample ID:	C5056-05	Matrix:	SOIL
		% Solid:	88

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.064	J	1	0.037	0.283	mg/Kg	12/21/11	12/22/11	9012B
pH	7.13		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	228.1		1	0.114	0.114	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP02-0405-CS	SDG No.:	C5056
Lab Sample ID:	C5056-07	Matrix:	SOIL
		% Solid:	82.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.1		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	226.5		1	0.121	0.121	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP03-0506-CS	SDG No.:	C5056
Lab Sample ID:	C5056-06	Matrix:	SOIL
		% Solid:	83

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.03		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	181.3		1	0.12	0.12	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP08-0304-CS	SDG No.:	C5056
Lab Sample ID:	C5056-12	Matrix:	SOIL
		% Solid:	80.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.02		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	255.3		1	0.125	0.125	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP09-0304-CS	SDG No.:	C5056
Lab Sample ID:	C5056-10	Matrix:	SOIL
		% Solid:	81.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.93		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	162.6		1	0.123	0.123	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP10-0405-CS	SDG No.:	C5056
Lab Sample ID:	C5056-11	Matrix:	SOIL
		% Solid:	75.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.31		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	233.8		1	0.133	0.133	mV	12/23/11	12/23/11	1498

Comments:

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP14-0405-CS	SDG No.:	C5056
Lab Sample ID:	C5056-08	Matrix:	SOIL
		% Solid:	80.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.15		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	206.8		1	0.124	0.124	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP15-0304-CS	SDG No.:	C5056
Lab Sample ID:	C5056-09	Matrix:	SOIL
		% Solid:	78.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.48		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	175.6		1	0.128	0.128	mV	12/23/11	12/23/11	1498

Comments:

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

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B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0.502-02	SDG No.:	C5056
Lab Sample ID:	C5056-02	Matrix:	SOIL
		% Solid:	82

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.055	J	1	0.04	0.305	mg/Kg	12/21/11	12/22/11	9012B
pH	4.71		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	328.9		1	0.122	0.122	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-000.5-01	SDG No.:	C5056
Lab Sample ID:	C5056-01	Matrix:	SOIL
		% Solid:	80

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.1	J	1	0.041	0.312	mg/Kg	12/21/11	12/22/11	9012B
pH	4.41		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	318.5		1	0.125	0.125	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0608-03	SDG No.:	C5056
Lab Sample ID:	C5056-03	Matrix:	SOIL
		% Solid:	87

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.048	J	1	0.038	0.287	mg/Kg	12/21/11	12/22/11	9012B
pH	5.26		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	243.7		1	0.115	0.115	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/19/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/20/11
Client Sample ID:	12TP16-0910-04	SDG No.:	C5056
Lab Sample ID:	C5056-04	Matrix:	SOIL
		% Solid:	82.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.061	J	1	0.04	0.303	mg/Kg	12/21/11	12/22/11	9012B
pH	4.45		1	0	0	pH	12/20/11	12/20/11	9045C
Redox Potential	352.1		1	0.121	0.121	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5056
QUOTE NO.
COC Number 021258

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: C70WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC Encore
2 TCL SVOC/PAH SIM
3 Pest/PCB
4 Metals, Hg, Cn, pH
5 O12P
6 pH, O12P
7
8
9

PRESERVATIVES

COMMENTS

← Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9
1.	12TP16-0005-01	Soil		✓	12/19/11	0915	7	3	1	1	1	1				
2.	12TP16-0520-02	Soil		✓	12/19/11	0935	7	3	1	1	1	1				
3.	12TP16-0608-03	Soil		✓	12/19/11	1020	7	3	1	1	1	1				
4.	12TP16-0910-04	Soil		✓	12/19/11	1210	7	3	1	1	1	1				
5.	12TP-DUP-01	Soil		✓	12/19/11	1200	7	3	1	1	1	1				
6.	12TP03-0506-CS	Soil		✓	12/19/11	1405	1						1			
7.	12TP02-0405-CS	Soil		✓	12/19/11	1415	1						1			
8.	12TP14-0405-CS	Soil		✓	12/19/11	1515	1						1			
9.	12TP15-0304-CS	Soil		✓	12/19/11	1535	1						1			
10.	12TP09-0304-CS	Soil		✓	12/19/11	1550	1						1			

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY:
1. [signature]	12/19/11 1900	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY:
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY:
3. Fedex	12/20/11 9:05	3. RS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant Cooler Temp. 3°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments: Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 072007

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5056
QUOTE NO.
COC Number 021260

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PH 1 ORP
2 TCL VOC 40 ml VOA Vial HCl
3
4
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12TP10-0405-CS	soil		✓	12/19/11	1610	1	(1)									
2.	12TP08-0304-CS	soil		✓	12/19/11	1635	1	(1)									
3.	TB-01-121911	AQ		✓	12/19/11	0800	2		2								
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/19/11 1900	1.
RELINQUISHED BY 2.	DATE/TIME	RECEIVED BY 2.
RELINQUISHED BY 3. Fedex	DATE/TIME 12/20/11 9:05	RECEIVED FOR LAB BY 3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 3°C
Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Rev. 1 of 12/2007

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C5056 METALS

shipped via Federal Express Airbill No 8744 5964 0110

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5056
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
12 Solid samples were received on 12/20/2011.
1 Water sample was received on 12/20/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dioxin, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Samples 12TP16-0.502-02D, 12TP16-0608-03, 12TP16-0910-04 and 12TP-DUP-01 were diluted due to high concentrations for Manganese. Samples 12TP16-0608-03and 12TP-DUP-01 were diluted due to high concentrations for Iron and Lead.
The Blank Spike met criteria for all samples.
The Duplicate(12TP16-000.5-01D) analysis met criteria for all samples except for Cadmium, Cobalt, Manganese.
The Duplicate(12TP16-000.5-01SD) analysis met criteria for all samples except for Manganese.
The Duplicate(SB-28_0-2D) analysis met criteria for all samples except for Mercury.
The Matrix Spike (12TP16-000.5-01S)analysis met criteria for all samples except for Antimony and Vanadium.
The Matrix Spike (SB-28_0-2S)analysis met criteria for all samples except for Mercury.
The Matrix Spike Duplicate(12TP16-000.5-01SD)analysis met criteria for all samples except for Antimony, Barium.
The Matrix Spike Duplicate(SB-28_0-2SD)analysis met criteria for all samples except for Mercury.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution(12TP16-000.5-01L) met criteria for all samples except for Aluminum, Calcium, Chromium, Iron, Cobalt, Copper, Magnesium, Manganese, Vanadium , Potassium, Zinc and Nickel.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5056
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
12 Solid samples were received on 12/20/2011.
1 Water sample was received on 12/20/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dioxin, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide,pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, The analysis of Cyanide was based on method 9012B and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
All The Holding Times were met for all analysis except for pH.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples .
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____ Kalpana Raythattha
I am approving this document
2012.01.13 09:41:16 -05'00'

NASJRB WILLOW GROVE
SOIL DATA
C5056

FRACTION	CHEMICAL	12TP-DUP-01	UNITS	12TP16-0608-03	RPD	D
M	ALUMINUM	5300	MG/KG	6210	15.81	910.00
M	ANTIMONY	8.9	MG/KG	35.4	119.64	26.50
M	ARSENIC	5.7	MG/KG	7	20.47	1.30
M	BARIUM	108	MG/KG	92.9	15.03	15.10
M	BERYLLIUM	0.35	MG/KG	0.43	20.51	0.08
M	CADMIUM	12.4	MG/KG	34.9	95.14	22.50
M	CALCIUM	3180	MG/KG	4450	33.29	1270.00
M	CHROMIUM	25.2	MG/KG	24.5	2.82	0.70
M	COBALT	5.3	MG/KG	5.3	0.00	0.00
M	COPPER	68.8	MG/KG	47.6	36.43	21.20
M	MAGNESIUM	2650	MG/KG	2930	10.04	280.00
M	MERCURY	0.033	MG/KG	0.055	50.00	0.02
M	NICKEL	17.2	MG/KG	14	20.51	3.20
M	POTASSIUM	516	MG/KG	664	25.08	148.00
M	SELENIUM	0.088 J	MG/KG	0.12 J	30.77	0.03
M	SILVER	1.4	MG/KG	1.1	24.00	0.30
M	SODIUM	138	MG/KG	185	29.10	47.00
M	THALLIUM	0.15	MG/KG	0.28	60.47	0.13
M	VANADIUM	14	MG/KG	16.9	18.77	2.90
M	ZINC	188	MG/KG	231	20.53	43.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5056

FRACTION	CHEMICAL	12TP-DUP-01	UNITS	12TP16-0608-03	RPD	D
MISC	CYANIDE	0.064 J	MG/KG	0.048 J	28.57	0.02
~~MISC~~	~~HEXAVALENT CHROMIUM~~	~~1.9 J~~	~~MG/KG~~	~~5.9 J~~	~~102.56~~	~~4.00~~
MISC	OXIDATION REDUCTION POTENTIAL	228.1	MV	243.7	6.61	15.60
MISC	PH	7.13	S.U.	5.26	30.19	1.87

Not included in this datapackage

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

HOLDTIME

SDG C5056

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12TP-DUP-01	C5056-05	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
HG	MG/KG	12TP16-0910-04	C5056-04	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
HG	MG/KG	12TP16-0608-03	C5056-03	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
HG	MG/KG	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
HG	MG/KG	12TP16-0.502-02	C5056-02	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
M	MG/KG	12TP16-0.502-02	C5056-02	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP-DUP-01	C5056-05DL	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP-DUP-01	C5056-05	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP16-0910-04	C5056-04DL	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP16-0910-04	C5056-04	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP16-0608-03	C5056-03DL	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP16-0608-03	C5056-03	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP16-0.502-02	C5056-02DL	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
M	MG/KG	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/21/2011	1/4/2012	2	14	16
CN	MG/KG	12TP16-0910-04	C5056-04	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12TP-DUP-01	C5056-05	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
CN	MG/KG	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
CN	MG/KG	12TP16-0.502-02	C5056-02	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
CN	MG/KG	12TP16-0608-03	C5056-03	NM	12/19/2011	12/21/2011	12/22/2011	2	1	3
ORP	MV	12TP15-0304-CS	C5056-09	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP03-0506-CS	C5056-06	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP02-0405-CS	C5056-07	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP09-0304-CS	C5056-10	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP10-0405-CS	C5056-11	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP14-0405-CS	C5056-08	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP08-0304-CS	C5056-12	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP-DUP-01	C5056-05	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP16-0.502-02	C5056-02	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP16-0608-03	C5056-03	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
ORP	MV	12TP16-0910-04	C5056-04	NM	12/19/2011	12/23/2011	12/23/2011	4	0	4
PH	S.U.	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP-DUP-01	C5056-05	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	S.U.	12TP16-0608-03	C5056-03	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP16-0.502-02	C5056-02	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP15-0304-CS	C5056-09	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP14-0405-CS	C5056-08	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP10-0405-CS	C5056-11	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP09-0304-CS	C5056-10	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP08-0304-CS	C5056-12	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP03-0506-CS	C5056-06	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP02-0405-CS	C5056-07	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
PH	S.U.	12TP16-0910-04	C5056-04	NM	12/19/2011	12/20/2011	12/20/2011	1	0	1
OS	UG/KG	12TP16-0910-04	C5056-04	NM	12/19/2011	12/21/2011	12/26/2011	2	5	7
OS	UG/KG	12TP-DUP-01	C5056-05	NM	12/19/2011	12/21/2011	1/1/2012	2	11	13
OS	UG/KG	12TP16-0.502-02	C5056-02	NM	12/19/2011	12/21/2011	1/1/2012	2	11	13
OS	UG/KG	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/21/2011	12/25/2011	2	4	6
OS	UG/KG	12TP16-000.5-01	C5056-01	NM	12/19/2011	12/21/2011	12/31/2011	2	10	12
OS	UG/KG	12TP16-0608-03	C5056-03	NM	12/19/2011	12/21/2011	1/1/2012	2	11	13
OS	UG/KG	12TP16-0910-04	C5056-04	NM	12/19/2011	12/21/2011	12/31/2011	2	10	12
OS	UG/KG	12TP-DUP-01	C5056-05	NM	12/19/2011	12/21/2011	12/26/2011	2	5	7

CHEMTECH

Metals

- 10 -

METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Instrument ID: CV2 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 01/15/2009
Mercury	253.70	0.0020	0.01	

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Aluminum	27	0.6770	2.00	
Antimony	121	0.0260	0.20	
Arsenic	75	0.0220	0.10	
Barium	137	0.0080	1.00	
Beryllium	9	0.0070	0.10	
Cadmium	111	0.0090	0.10	
Calcium	44	0.6350	50.00	
Chromium	52	0.0110	0.20	
Cobalt	59	0.0060	0.10	
Copper	63	0.0060	0.20	
Iron	57	0.9260	20.00	
Lead	208	0.0040	0.10	

CHEMTECH

Metals

- 10 -

METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

CHEMTECH

Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5056 **SAS No.:** C5056

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60066**						
C5056-01	12TP16-000.5-01	SAM	SOIL	12/21/2011	1.00	100.0	80.00
C5056-01D	12TP16-000.5-01D	DUP	SOIL	12/21/2011	1.00	100.0	80.00
C5056-01S	12TP16-000.5-01S	MS	SOIL	12/21/2011	1.00	100.0	80.00
C5056-01SD	12TP16-000.5-01SD	MSD	SOIL	12/21/2011	1.00	100.0	80.00
C5056-02	12TP16-0.502-02	SAM	SOIL	12/21/2011	1.32	100.0	82.00
C5056-02DL	12TP16-0.502-02DL	SAM	SOIL	12/21/2011	1.32	100.0	82.00
C5056-03	12TP16-0608-03	SAM	SOIL	12/21/2011	1.28	100.0	87.00
C5056-03DL	12TP16-0608-03DL	SAM	SOIL	12/21/2011	1.28	100.0	87.00
C5056-04	12TP16-0910-04	SAM	SOIL	12/21/2011	1.00	100.0	82.50
C5056-04DL	12TP16-0910-04DL	SAM	SOIL	12/21/2011	1.00	100.0	82.50
C5056-05	12TP-DUP-01	SAM	SOIL	12/21/2011	1.44	100.0	88.00
C5056-05DL	12TP-DUP-01DL	SAM	SOIL	12/21/2011	1.44	100.0	88.00
PB60066BL	PB60066BL	MB	SOIL	12/21/2011	1.00	100.0	100.00
PB60066BS	PB60066BS	LCS	SOIL	12/21/2011	1.00	100.0	100.00

CHEMTECH

Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5056 **SAS No.:** C5056

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60077**						
C5021-01D	SB-28_0-2D	DUP	SOIL	12/21/2011	0.60	30.0	80.20
C5021-01S	SB-28_0-2S	MS	SOIL	12/21/2011	0.60	30.0	80.20
C5021-01SD	SB-28_0-2SD	MSD	SOIL	12/21/2011	0.60	30.0	80.20
C5056-01	12TP16-000.5-01	SAM	SOIL	12/21/2011	0.64	30.0	80.00
C5056-02	12TP16-0.502-02	SAM	SOIL	12/21/2011	0.65	30.0	82.00
C5056-03	12TP16-0608-03	SAM	SOIL	12/21/2011	0.63	30.0	87.00
C5056-04	12TP16-0910-04	SAM	SOIL	12/21/2011	0.65	30.0	82.50
C5056-05	12TP-DUP-01	SAM	SOIL	12/21/2011	0.65	30.0	88.00
PB60077BL	PB60077BL	MB	SOIL	12/21/2011	0.60	30.0	100.00
PB60077BS	PB60077BS	LCS	SOIL	12/21/2011	0.60	30.0	100.00

CHEMTECH

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Instrument: CV2

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60077BL		**SOIL**		**Batch Number:**		**PB60077**		**Prep Date:**	**12/21/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	12/22/2011	14:57	LB58532
PB60066BL		**SOIL**		**Batch Number:**		**PB60066**		**Prep Date:**	**12/21/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	01/04/2012	18:14	LB58710
	Antimony	0.026	<0.200	U	0.026	0.200	MS	01/04/2012	18:14	LB58710
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	01/04/2012	18:14	LB58710
	Barium	0.008	<1.000	U	0.008	1.000	MS	01/04/2012	18:14	LB58710
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	01/04/2012	18:14	LB58710
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	01/04/2012	18:14	LB58710
	Calcium	0.635	<50.000	U	0.635	50.000	MS	01/04/2012	18:14	LB58710
	Chromium	0.011	<0.200	U	0.011	0.200	MS	01/04/2012	18:14	LB58710
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	01/04/2012	18:14	LB58710
	Copper	0.006	<0.200	U	0.006	0.200	MS	01/04/2012	18:14	LB58710
	Iron	0.926	<20.000	U	0.926	20.000	MS	01/04/2012	18:14	LB58710
	Lead	0.004	<0.100	U	0.004	0.100	MS	01/04/2012	18:14	LB58710
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	01/04/2012	18:14	LB58710
	Manganese	0.046	<0.100	J	0.006	0.100	MS	01/04/2012	18:14	LB58710
	Nickel	0.009	<0.100	U	0.009	0.100	MS	01/04/2012	18:14	LB58710
	Potassium	3.004	<50.000	J	0.901	50.000	MS	01/04/2012	18:14	LB58710
	Selenium	0.056	<0.500	U	0.056	0.500	MS	01/04/2012	18:14	LB58710
	Silver	0.007	<0.100	U	0.007	0.100	MS	01/04/2012	18:14	LB58710
	Sodium	3.316	<50.000	J	1.225	50.000	MS	01/04/2012	18:14	LB58710
	Thallium	0.005	<0.100	U	0.005	0.100	MS	01/04/2012	18:14	LB58710
	Vanadium	0.013	<0.500	U	0.013	0.500	MS	01/04/2012	18:14	LB58710
	Zinc	0.011	<0.200	U	0.011	0.200	MS	01/04/2012	18:14	LB58710

CHEMTECH

Metals
- 5a -
MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5056-01 **Client ID:** 12TP16-000.5-01S

Percent Solids for Sample: 80 **Spiked ID:** C5056-01S **Percent Solids for Spike Sample:** 80

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	14575.0000		13387.5000		250.00	475.0		MS
Antimony	mg/Kg	80 - 120	69.4125		0.3345		100.00	69.1	N	MS
Arsenic	mg/Kg	80 - 120	91.3125		4.9100		100.00	86.4		MS
Barium	mg/Kg	80 - 120	98.0125		72.0250		25.00	104.0		MS
Beryllium	mg/Kg	80 - 120	22.6375		0.8895		25.00	87.0		MS
Cadmium	mg/Kg	80 - 120	25.7125		0.2691		25.00	101.8		MS
Calcium	mg/Kg	80 - 120	883.1251		763.7500		125.00	95.5		MS
Chromium	mg/Kg	80 - 120	62.4250		21.7625		50.00	81.3		MS
Cobalt	mg/Kg	80 - 120	30.1750		6.1213		25.00	96.2		MS
Copper	mg/Kg	80 - 120	45.1625		13.2125		37.50	85.2		MS
Iron	mg/Kg	80 - 120	21850.0000		22362.5000		375.00	-136.7		MS
Lead	mg/Kg	80 - 120	148.7500		17.2875		125.00	105.2		MS
Magnesium	mg/Kg	80 - 120	2117.5000		1848.7500		250.00	107.5		MS
Manganese	mg/Kg	80 - 120	400.8750		253.5000		25.00	589.5		MS
Nickel	mg/Kg	80 - 120	64.0375		10.2638		62.50	86.0		MS
Potassium	mg/Kg	80 - 120	1726.2500		705.6250		1250.00	81.6		MS
Selenium	mg/Kg	80 - 120	218.1250		0.1056	J	250.00	87.2		MS
Silver	mg/Kg	80 - 120	9.9138		0.0469	J	9.38	105.2		MS
Sodium	mg/Kg	80 - 120	380.8750		79.6875		375.00	80.3		MS
Thallium	mg/Kg	80 - 120	253.3750		0.1621		250.00	101.3		MS
Vanadium	mg/Kg	80 - 120	60.2375		31.3500		37.50	77.0	N	MS
Zinc	mg/Kg	80 - 120	58.3750		36.2625		25.00	88.4		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5056-01 **Client ID:** 12TP16-000.5-01SD

Percent Solids for Sample: 80 **Spiked ID:** C5056-01SD **Percent Solids for Spike Sample:** 80

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	15687.5000		13387.5000		250.00	920.0		MS
Antimony	mg/Kg	80 - 120	72.4625		0.3345		100.00	72.1	N	MS
Arsenic	mg/Kg	80 - 120	93.8500		4.9100		100.00	88.9		MS
Barium	mg/Kg	80 - 120	102.4500		72.0250		25.00	121.7	N	MS
Beryllium	mg/Kg	80 - 120	23.6125		0.8895		25.00	90.9		MS
Cadmium	mg/Kg	80 - 120	25.9250		0.2691		25.00	102.6		MS
Calcium	mg/Kg	80 - 120	877.7500		763.7500		125.00	91.2		MS
Chromium	mg/Kg	80 - 120	65.3500		21.7625		50.00	87.2		MS
Cobalt	mg/Kg	80 - 120	29.2250		6.1213		25.00	92.4		MS
Copper	mg/Kg	80 - 120	47.5375		13.2125		37.50	91.5		MS
Iron	mg/Kg	80 - 120	22512.5000		22362.5000		375.00	40.0		MS
Lead	mg/Kg	80 - 120	151.1250		17.2875		125.00	107.1		MS
Magnesium	mg/Kg	80 - 120	2145.0000		1848.7500		250.00	118.5		MS
Manganese	mg/Kg	80 - 120	319.2500		253.5000		25.00	263.0		MS
Nickel	mg/Kg	80 - 120	66.9000		10.2638		62.50	90.6		MS
Potassium	mg/Kg	80 - 120	1762.5000		705.6250		1250.00	84.6		MS
Selenium	mg/Kg	80 - 120	224.1250		0.1056	J	250.00	89.6		MS
Silver	mg/Kg	80 - 120	10.0425		0.0469	J	9.38	106.6		MS
Sodium	mg/Kg	80 - 120	389.8750		79.6875		375.00	82.7		MS
Thallium	mg/Kg	80 - 120	260.1250		0.1621		250.00	104.0		MS
Vanadium	mg/Kg	80 - 120	62.8500		31.3500		37.50	84.0		MS
Zinc	mg/Kg	80 - 120	59.1625		36.2625		25.00	91.6		MS

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5021-01 **Client ID:** SB-28_0-2S

Percent Solids for Sample: 80.2 **Spiked ID:** C5021-01S **Percent Solids for Spike Sample:** 80.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	34 - 153	0.4994		0.0729		0.25	170.6	N	CV

Not our Sample

CHEMTECH

Metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5021-01 **Client ID:** SB-28_0-2SD

Percent Solids for Sample: 80.2 **Spiked ID:** C5021-01SD **Percent Solids for Spike Sample:** 80.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	34 - 153	0.5037		0.0729		0.25	172.3	N	CV

Not our Sample

CHEMTECH

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: WATER **Level:** LOW **Client ID:** SB-28_0-2A

Sample ID: C5021-01 **Spiked ID:** C5021-01A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	34 – 153	8.39		1.17		4.0	180.5		CV

Not our Sample

CHEMTECH

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: WATER **Level:** LOW **Client ID:** 12TP16-000.5-01A

Sample ID: C5056-01 **Spiked ID:** C5056-01A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	760.80		2.68		80 (800)	947.6 (94.7%)		MS
Barium	ug/L	80 - 120	759.50		576.20		20 (200)	916.5 (91.6%)		MS
Vanadium	ug/L	80 - 120	486.50		250.80		30 (300)	785.7 (78.5%)		MS

Correct spike amounts

CHEMTECH

Metals

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MS/MSD

DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5056-01 **Client ID:** 12TP16-000.5-01SD

Percent Solids for Sample: 80 **Duplicate ID** C5056-01SD **Percent Solids for Spike Sample:** 80

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	14575.0000		15687.5000		7.4		MS
Antimony	mg/Kg	20	69.4125		72.4625		4.3		MS
Arsenic	mg/Kg	20	91.3125		93.8500		2.7		MS
Barium	mg/Kg	20	98.0125		102.4500		4.4		MS
Beryllium	mg/Kg	20	22.6375		23.6125		4.2		MS
Cadmium	mg/Kg	20	25.7125		25.9250		0.8		MS
Calcium	mg/Kg	20	883.1251		877.7500		0.6		MS
Chromium	mg/Kg	20	62.4250		65.3500		4.6		MS
Cobalt	mg/Kg	20	30.1750		29.2250		3.2		MS
Copper	mg/Kg	20	45.1625		47.5375		5.1		MS
Iron	mg/Kg	20	21850.0000		22512.5000		3.0		MS
Lead	mg/Kg	20	148.7500		151.1250		1.6		MS
Magnesium	mg/Kg	20	2117.5000		2145.0000		1.3		MS
Manganese	mg/Kg	20	400.8750		319.2500		22.7	*	MS
Nickel	mg/Kg	20	64.0375		66.9000		4.4		MS
Potassium	mg/Kg	20	1726.2500		1762.5000		2.1		MS
Selenium	mg/Kg	20	218.1250		224.1250		2.7		MS
Silver	mg/Kg	20	9.9138		10.0425		1.3		MS
Sodium	mg/Kg	20	380.8750		389.8750		2.3		MS
Thallium	mg/Kg	20	253.3750		260.1250		2.6		MS
Vanadium	mg/Kg	20	60.2375		62.8500		4.2		MS
Zinc	mg/Kg	20	58.3750		59.1625		1.3		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

MS/MSD

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5021-01 **Client ID:** SB-28_0-2SD

Percent Solids for Sample: 80.2 **Duplicate ID** C5021-01SD **Percent Solids for Spike Sample:** 80.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.4994		0.5037		0.9		CV

Not our sample

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5056-01 **Client ID:** 12TP16-000.5-01D

Percent Solids for Sample: 80 **Duplicate ID** C5056-01D **Percent Solids for Spike Sample:** 80

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	13387.5000		13062.5000		2.5		MS
Antimony	mg/Kg	20	0.3345		0.3544		5.8		MS
Arsenic	mg/Kg	20	4.9100		5.1463		4.7		MS
Barium	mg/Kg	20	72.0250		72.5750		0.8		MS
Beryllium	mg/Kg	20	0.8895		0.8765		1.5		MS
Cadmium	mg/Kg	20	0.2691		0.5561		69.6	*	MS
Calcium	mg/Kg	20	763.7500		735.0000		3.8		MS
Chromium	mg/Kg	20	21.7625		21.5500		1.0		MS
Cobalt	mg/Kg	20	6.1213		7.5388		20.8	*	MS
Copper	mg/Kg	20	13.2125		11.6025		13.0		MS
Iron	mg/Kg	20	22362.5000		20100.0000		10.7		MS
Lead	mg/Kg	20	17.2875		19.0500		9.7		MS
Magnesium	mg/Kg	20	1848.7500		1780.0000		3.8		MS
Manganese	mg/Kg	20	253.5000		385.3750		41.3	*	MS
Nickel	mg/Kg	20	10.2638		10.4138		1.5		MS
Potassium	mg/Kg	20	705.6250		623.6250		12.3		MS
Selenium	mg/Kg	20	0.1056	J	0.0729	J	36.6		MS
Silver	mg/Kg	20	0.0469	J	0.0496	J	5.6		MS
Sodium	mg/Kg	20	79.6875		69.0625		14.3		MS
Thallium	mg/Kg	20	0.1621		0.1539		5.2		MS
Vanadium	mg/Kg	20	31.3500		29.1125		7.4		MS
Zinc	mg/Kg	20	36.2625		36.7750		1.4		MS

RPD > 35%

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Matrix: SOIL **Sample ID:** C5021-01 **Client ID:** SB-28_0-2D

Percent Solids for Sample: 80.2 **Duplicate ID** C5021-01D **Percent Solids for Spike Sample:** 80.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.0729		0.1153		45.1	*	CV

Not our Sample

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60066BS							
Aluminum	mg/Kg	200.0	198.3		99.2	80 - 120	MS
Antimony	mg/Kg	80.0	80.4		100.5	80 - 120	MS
Arsenic	mg/Kg	80.0	81.6		102.0	80 - 120	MS
Barium	mg/Kg	20.0	20.8		104.0	80 - 120	MS
Beryllium	mg/Kg	20.0	19.3		96.5	80 - 120	MS
Cadmium	mg/Kg	20.0	20.7		103.5	80 - 120	MS
Calcium	mg/Kg	100.0	110.5		110.5	80 - 120	MS
Chromium	mg/Kg	40.0	42.5		106.2	80 - 120	MS
Cobalt	mg/Kg	20.0	21.4		107.0	80 - 120	MS
Copper	mg/Kg	30.0	32.7		109.0	80 - 120	MS
Iron	mg/Kg	300.0	326.3		108.8	80 - 120	MS
Lead	mg/Kg	100.0	103.2		103.2	80 - 120	MS
Magnesium	mg/Kg	200.0	195.2		97.6	80 - 120	MS
Manganese	mg/Kg	20.0	21.7		108.5	80 - 120	MS
Nickel	mg/Kg	50.0	53.8		107.6	80 - 120	MS
Potassium	mg/Kg	1000.0	1039.0		103.9	80 - 120	MS
Selenium	mg/Kg	200.0	204.8		102.4	80 - 120	MS
Silver	mg/Kg	7.5	7.9		105.3	80 - 120	MS
Sodium	mg/Kg	300.0	309.6		103.2	80 - 120	MS
Thallium	mg/Kg	200.0	206.6		103.3	80 - 120	MS
Vanadium	mg/Kg	30.0	30.9		103.0	80 - 120	MS
Zinc	mg/Kg	20.0	21.8		109.0	80 - 120	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60077BS							
Mercury	mg/Kg	0.200	0.191		95.5	73 - 121	CV

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

SB-28_0-2L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG No.:** C5056

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Mercury	1.17		0.94	J	19.7		CV

Not our Sample

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12TP16-000.5-01L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG No.:** C5056

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	107100.00		123550.00		15.4		MS
Antimony	2.68		2.90	J	8.2		MS
Arsenic	39.28		42.55		8.3		MS
Barium	576.20		593.50		3.0		MS
Beryllium	7.12		7.97		11.9		MS
Cadmium	2.15		1.86	J	13.5	OK	MS
Calcium	6110.00		7585.00		24.1		MS
Chromium	174.10		211.60		21.5		MS
Cobalt	48.97		58.40		19.3		MS
Copper	105.70		125.85		19.1		MS
Iron	178900.00		220550.00		23.3		MS
Lead	138.30		140.25		1.4		MS
Magnesium	14790.00		16970.00		14.7		MS
Manganese	2028.00		2466.50		21.6		MS
Nickel	82.11		99.40		21.1		MS
Potassium	5645.00		7015.00		24.3		MS
Selenium	0.85	J	3.50	U	100.0	OK	MS
Silver	0.38	J	0.39	J	2.6		MS
Sodium	637.50		854.00	J	34.0		MS
Thallium	1.30		1.36	J	4.6		MS
Vanadium	250.80		296.90		18.4		MS
Zinc	290.10		347.85		19.9		MS

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG No.:** C5056

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58532

Start Date: 12/22/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1415																X									
Std02Rep1	1	1418																X									
Std03Rep1	1	1420																X									
Std04Rep1	1	1422																X									
Std05Rep1	1	1424																X									
Std06Rep1	1	1426																X									
ICV01	1	1429																X									
ICB01	1	1431																X									
CCV01	1	1439																X									
CCB01	1	1441																X									
CRI01	1	1443																X									
PB60077BL	1	1457																X									
PB60077BS	1	1459																X									
CCV02	1	1501																X									
CCB02	1	1503																X									
SB-28 0-2D	1	1520																X									
CCV03	1	1522																X									
CCB03	1	1525																X									
SB-28 0-2L	5	1528																X									
SB-28 0-2S	1	1530																X									
SB-28 0-2SD	1	1532																X									
SB-28 0-2A	1	1534																X									
CCV04	1	1545																X									
CCB04	1	1547																X									
CCV05	1	1608																X									
CCB05	1	1610																X									
CCV06	1	1630																X									
CCB06	1	1632																X									
12TP16-000.5-01	1	1643																X									
12TP16-0.502-02	1	1646																X									
12TP16-0608-03	1	1649																X									
12TP16-0910-04	1	1651																X									
CCV07	1	1653																X									
CCB07	1	1656																X									
12TP-DUP-01	1	1658																X									
CCV08	1	1719																X									
CCB08	1	1722																X									
CCV09	1	1742																X									
CCB09	1	1744																X									
CCV10	1	1803																X									
CCB10	1	1806																X									

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG No.:** C5056

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58532

Start Date: 12/22/2011 **End Date:** 12/22/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV11	1	1827																X									
CCB11	1	1829																X									
CCV12	1	1850																X									
CCB12	1	1852																X									

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5056 **SAS No.:** C5056 **SDG No.:** C5056

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58710

Start Date: 01/04/2012 **End Date:** 01/05/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1345		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1353		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1400		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1408		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1416		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1424		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1432		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1440		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1448		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1456		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1519		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1527		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1535		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1654		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1702		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60066BL	1	1814		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1830		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1838		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60066BS	1	1845		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2005		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2013		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-000.5-01	1	2052		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-000.5-01D	1	2100		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-000.5-01L	5	2108		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	2140		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2148		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-000.5-01S	1	2156		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-000.5-01SD	1	2204		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-000.5-01A	1	2211			X		X																		X		
12TP16-0.502-02	1	2219		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	
12TP16-0608-03	1	2227		X	X	X	X	X	X	X	X	X	X			X			X	X	X	X	X	X	X	X	
12TP16-0.502-02DL	25	2259															X										
12TP16-0608-03DL	25	2307												X	X		X										
CCV06	1	2315		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	2323		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP16-0910-04	1	2331		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	
12TP-DUP-01	1	2339		X	X	X	X	X	X	X	X	X	X			X			X	X	X	X	X	X	X	X	
12TP16-0910-04DL	25	2347															X										
12TP-DUP-01DL	25	2355												X	X		X										
CCV07	1	0050		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.94	4.0	98.5	90 - 110	CV	12/22/2011	14:29	LB58532
CCV01	Mercury	5.03	5.0	100.6	90 - 110	CV	12/22/2011	14:39	LB58532
CCV02	Mercury	5.01	5.0	100.2	90 - 110	CV	12/22/2011	15:01	LB58532
CCV03	Mercury	5.10	5.0	102.0	90 - 110	CV	12/22/2011	15:22	LB58532
CCV04	Mercury	5.07	5.0	101.4	90 - 110	CV	12/22/2011	15:45	LB58532
CCV05	Mercury	5.12	5.0	102.4	90 - 110	CV	12/22/2011	16:08	LB58532
CCV06	Mercury	5.13	5.0	102.6	90 - 110	CV	12/22/2011	16:30	LB58532
CCV07	Mercury	5.07	5.0	101.4	90 - 110	CV	12/22/2011	16:53	LB58532
CCV08	Mercury	4.99	5.0	99.8	90 - 110	CV	12/22/2011	17:19	LB58532
CCV09	Mercury	5.07	5.0	101.4	90 - 110	CV	12/22/2011	17:42	LB58532
CCV10	Mercury	5.03	5.0	100.6	90 - 110	CV	12/22/2011	18:03	LB58532
CCV11	Mercury	5.11	5.0	102.2	90 - 110	CV	12/22/2011	18:27	LB58532
CCV12	Mercury	5.01	5.0	100.2	90 - 110	CV	12/22/2011	18:50	LB58532

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	529.90	504.0	105.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Antimony	191.00	199.0	96.0	90 - 110	MS	01/04/2012	14:32	LB58710
	Arsenic	194.30	200.0	97.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Barium	101.10	99.0	102.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Beryllium	97.26	99.0	98.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Cadmium	97.20	99.0	98.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Calcium	2007.00	2005.0	100.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Chromium	98.88	98.0	100.9	90 - 110	MS	01/04/2012	14:32	LB58710
	Cobalt	100.50	100.0	100.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Copper	103.40	98.0	105.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Iron	1034.00	1016.0	101.8	90 - 110	MS	01/04/2012	14:32	LB58710
	Lead	200.50	200.0	100.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Magnesium	1214.00	1215.0	99.9	90 - 110	MS	01/04/2012	14:32	LB58710
	Manganese	102.80	100.0	102.8	90 - 110	MS	01/04/2012	14:32	LB58710
	Nickel	102.60	101.0	101.6	90 - 110	MS	01/04/2012	14:32	LB58710
	Potassium	2030.00	2004.0	101.3	90 - 110	MS	01/04/2012	14:32	LB58710
	Selenium	194.60	206.0	94.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Silver	99.14	100.0	99.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Sodium	2023.00	2019.0	100.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Thallium	202.00	206.0	98.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Vanadium	97.47	100.0	97.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Zinc	201.70	205.0	98.4	90 - 110	MS	01/04/2012	14:32	LB58710
CCV01	Aluminum	10100.00	10000.0	101.0	90 - 110	MS	01/04/2012	15:19	LB58710
X	Antimony	504.70	500.0	100.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Arsenic	502.60	500.0	100.5	90 - 110	MS	01/04/2012	15:19	LB58710
	Barium	2523.00	2500.0	100.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Beryllium	511.30	500.0	102.3	90 - 110	MS	01/04/2012	15:19	LB58710
	Cadmium	506.10	500.0	101.2	90 - 110	MS	01/04/2012	15:19	LB58710
	Calcium	51370.00	50000.0	102.7	90 - 110	MS	01/04/2012	15:19	LB58710
	Chromium	507.80	500.0	101.6	90 - 110	MS	01/04/2012	15:19	LB58710
	Cobalt	508.50	500.0	101.7	90 - 110	MS	01/04/2012	15:19	LB58710
	Copper	1028.00	1000.0	102.8	90 - 110	MS	01/04/2012	15:19	LB58710
	Iron	25570.00	25000.0	102.3	90 - 110	MS	01/04/2012	15:19	LB58710
	Lead	509.70	500.0	101.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Magnesium	51000.00	50000.0	102.0	90 - 110	MS	01/04/2012	15:19	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Beryllium	519.40	500.0	103.9	90 - 110	MS	01/04/2012	18:30	LB58710
X	Cadmium	514.60	500.0	102.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Calcium	51470.00	50000.0	102.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Chromium	516.70	500.0	103.3	90 - 110	MS	01/04/2012	18:30	LB58710
	Cobalt	520.30	500.0	104.1	90 - 110	MS	01/04/2012	18:30	LB58710
	Copper	1037.00	1000.0	103.7	90 - 110	MS	01/04/2012	18:30	LB58710
	Iron	26100.00	25000.0	104.4	90 - 110	MS	01/04/2012	18:30	LB58710
	Lead	514.00	500.0	102.8	90 - 110	MS	01/04/2012	18:30	LB58710
	Magnesium	50940.00	50000.0	101.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Manganese	1057.00	1000.0	105.7	90 - 110	MS	01/04/2012	18:30	LB58710
	Nickel	517.60	500.0	103.5	90 - 110	MS	01/04/2012	18:30	LB58710
	Potassium	25590.00	25000.0	102.4	90 - 110	MS	01/04/2012	18:30	LB58710
	Selenium	514.00	500.0	102.8	90 - 110	MS	01/04/2012	18:30	LB58710
	Silver	513.00	500.0	102.6	90 - 110	MS	01/04/2012	18:30	LB58710
	Sodium	51640.00	50000.0	103.3	90 - 110	MS	01/04/2012	18:30	LB58710
	Thallium	508.80	500.0	101.8	90 - 110	MS	01/04/2012	18:30	LB58710
	Vanadium	510.00	500.0	102.0	90 - 110	MS	01/04/2012	18:30	LB58710
	Zinc	1053.00	1000.0	105.3	90 - 110	MS	01/04/2012	18:30	LB58710
CCV04	Aluminum	10040.00	10000.0	100.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Antimony	510.60	500.0	102.1	90 - 110	MS	01/04/2012	20:05	LB58710
	Arsenic	504.00	500.0	100.8	90 - 110	MS	01/04/2012	20:05	LB58710
	Barium	2503.00	2500.0	100.1	90 - 110	MS	01/04/2012	20:05	LB58710
	Beryllium	520.30	500.0	104.1	90 - 110	MS	01/04/2012	20:05	LB58710
	Cadmium	513.20	500.0	102.6	90 - 110	MS	01/04/2012	20:05	LB58710
	Calcium	51590.00	50000.0	103.2	90 - 110	MS	01/04/2012	20:05	LB58710
	Chromium	517.60	500.0	103.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Cobalt	513.70	500.0	102.7	90 - 110	MS	01/04/2012	20:05	LB58710
	Copper	1029.00	1000.0	102.9	90 - 110	MS	01/04/2012	20:05	LB58710
	Iron	26010.00	25000.0	104.0	90 - 110	MS	01/04/2012	20:05	LB58710
	Lead	517.10	500.0	103.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Magnesium	51150.00	50000.0	102.3	90 - 110	MS	01/04/2012	20:05	LB58710
	Manganese	1057.00	1000.0	105.7	90 - 110	MS	01/04/2012	20:05	LB58710
	Nickel	511.40	500.0	102.3	90 - 110	MS	01/04/2012	20:05	LB58710
	Potassium	25630.00	25000.0	102.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Selenium	514.40	500.0	102.9	90 - 110	MS	01/04/2012	20:05	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	512.50	500.0	102.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Sodium	52390.00	50000.0	104.8	90 - 110	MS	01/04/2012	20:05	LB58710
	Thallium	512.10	500.0	102.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Vanadium	512.00	500.0	102.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Zinc	1053.00	1000.0	105.3	90 - 110	MS	01/04/2012	20:05	LB58710
CCV05	Aluminum	10160.00	10000.0	101.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Antimony	506.30	500.0	101.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Arsenic	501.50	500.0	100.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Barium	2486.00	2500.0	99.4	90 - 110	MS	01/04/2012	21:40	LB58710
	Beryllium	524.80	500.0	105.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Cadmium	514.90	500.0	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Calcium	51350.00	50000.0	102.7	90 - 110	MS	01/04/2012	21:40	LB58710
	Chromium	515.20	500.0	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Cobalt	519.30	500.0	103.9	90 - 110	MS	01/04/2012	21:40	LB58710
	Copper	1034.00	1000.0	103.4	90 - 110	MS	01/04/2012	21:40	LB58710
	Iron	26010.00	25000.0	104.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Lead	513.00	500.0	102.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Magnesium	51110.00	50000.0	102.2	90 - 110	MS	01/04/2012	21:40	LB58710
	Manganese	1050.00	1000.0	105.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Nickel	516.30	500.0	103.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Potassium	25370.00	25000.0	101.5	90 - 110	MS	01/04/2012	21:40	LB58710
	Selenium	512.90	500.0	102.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Silver	514.90	500.0	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Sodium	51760.00	50000.0	103.5	90 - 110	MS	01/04/2012	21:40	LB58710
	Thallium	509.20	500.0	101.8	90 - 110	MS	01/04/2012	21:40	LB58710
	Vanadium	508.10	500.0	101.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Zinc	1046.00	1000.0	104.6	90 - 110	MS	01/04/2012	21:40	LB58710
CCV06	Aluminum	9930.00	10000.0	99.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Antimony	509.80	500.0	102.0	90 - 110	MS	01/04/2012	23:15	LB58710
	Arsenic	506.20	500.0	101.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Barium	2490.00	2500.0	99.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Beryllium	520.90	500.0	104.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Cadmium	517.80	500.0	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Calcium	51640.00	50000.0	103.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Chromium	518.20	500.0	103.6	90 - 110	MS	01/04/2012	23:15	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	523.00	500.0	104.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Copper	1046.00	1000.0	104.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Iron	26220.00	25000.0	104.9	90 - 110	MS	01/04/2012	23:15	LB58710
	Lead	516.60	500.0	103.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Magnesium	50390.00	50000.0	100.8	90 - 110	MS	01/04/2012	23:15	LB58710
	Manganese	1061.00	1000.0	106.1	90 - 110	MS	01/04/2012	23:15	LB58710
	Nickel	518.10	500.0	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Potassium	25660.00	25000.0	102.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Selenium	517.90	500.0	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Silver	517.20	500.0	103.4	90 - 110	MS	01/04/2012	23:15	LB58710
	Sodium	52140.00	50000.0	104.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Thallium	511.20	500.0	102.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Vanadium	511.50	500.0	102.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Zinc	1062.00	1000.0	106.2	90 - 110	MS	01/04/2012	23:15	LB58710
CCV07	Aluminum	9994.00	10000.0	99.9	90 - 110	MS	01/05/2012	00:50	LB58710
	Antimony	517.30	500.0	103.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Arsenic	501.60	500.0	100.3	90 - 110	MS	01/05/2012	00:50	LB58710
	Barium	2499.00	2500.0	100.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Beryllium	525.50	500.0	105.1	90 - 110	MS	01/05/2012	00:50	LB58710
	Cadmium	517.70	500.0	103.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Calcium	52480.00	50000.0	105.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Chromium	528.90	500.0	105.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Cobalt	524.00	500.0	104.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Copper	1045.00	1000.0	104.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Iron	26530.00	25000.0	106.1	90 - 110	MS	01/05/2012	00:50	LB58710
	Lead	523.30	500.0	104.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Magnesium	50980.00	50000.0	102.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Manganese	1077.00	1000.0	107.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Nickel	520.00	500.0	104.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Potassium	25930.00	25000.0	103.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Selenium	512.90	500.0	102.6	90 - 110	MS	01/05/2012	00:50	LB58710
	Silver	520.00	500.0	104.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Sodium	53320.00	50000.0	106.6	90 - 110	MS	01/05/2012	00:50	LB58710
	Thallium	519.00	500.0	103.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Vanadium	520.70	500.0	104.1	90 - 110	MS	01/05/2012	00:50	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1079.00	1000.0	107.9	90 - 110	MS	01/05/2012	00:50	LB58710
CCV08	Aluminum	10030.00	10000.0	100.3	90 - 110	MS	01/05/2012	02:25	LB58710
X	Antimony	525.40	500.0	105.1	90 - 110	MS	01/05/2012	02:25	LB58710
	Arsenic	511.20	500.0	102.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Barium	2522.00	2500.0	100.9	90 - 110	MS	01/05/2012	02:25	LB58710
	Beryllium	533.70	500.0	106.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Cadmium	528.90	500.0	105.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Calcium	52800.00	50000.0	105.6	90 - 110	MS	01/05/2012	02:25	LB58710
	Chromium	532.60	500.0	106.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Cobalt	533.60	500.0	106.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Copper	1063.00	1000.0	106.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Iron	26880.00	25000.0	107.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Lead	527.60	500.0	105.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Magnesium	51120.00	50000.0	102.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Manganese	1090.00	1000.0	109.0	90 - 110	MS	01/05/2012	02:25	LB58710
	Nickel	526.10	500.0	105.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Potassium	26170.00	25000.0	104.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Selenium	519.00	500.0	103.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Silver	528.90	500.0	105.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Sodium	53740.00	50000.0	107.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Thallium	523.60	500.0	104.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Vanadium	526.70	500.0	105.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Zinc	1085.00	1000.0	108.5	90 - 110	MS	01/05/2012	02:25	LB58710
CCV09	Aluminum	10210.00	10000.0	102.1	90 - 110	MS	01/05/2012	04:01	LB58710
Y	Antimony	510.70	500.0	102.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Arsenic	510.20	500.0	102.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Barium	2476.00	2500.0	99.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Beryllium	529.00	500.0	105.8	90 - 110	MS	01/05/2012	04:01	LB58710
	Cadmium	519.30	500.0	103.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Calcium	52060.00	50000.0	104.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Chromium	524.20	500.0	104.8	90 - 110	MS	01/05/2012	04:01	LB58710
	Cobalt	527.50	500.0	105.5	90 - 110	MS	01/05/2012	04:01	LB58710
	Copper	1053.00	1000.0	105.3	90 - 110	MS	01/05/2012	04:01	LB58710
	Iron	26230.00	25000.0	104.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Lead	521.90	500.0	104.4	90 - 110	MS	01/05/2012	04:01	LB58710

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.19	0.2	95.0	0 - 200	CV	12/22/2011	14:43	LB58532
CRI01	Aluminum	22.77	20	113.8	50 - 150	MS	01/04/2012	15:35	LB58710
	Antimony	2.26	2	113.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Arsenic	0.93	1	93.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Barium	10.03	10	100.3	70 - 130	MS	01/04/2012	15:35	LB58710
	Beryllium	1.08	1	108.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Cadmium	1.07	1	107.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Calcium	494.90	500	99.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Chromium	2.11	2	105.5	70 - 130	MS	01/04/2012	15:35	LB58710
	Cobalt	1.02	1	102.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Copper	2.19	2	109.5	70 - 130	MS	01/04/2012	15:35	LB58710
	Iron	205.20	200	102.6	50 - 150	MS	01/04/2012	15:35	LB58710
	Lead	1.04	1	104.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Magnesium	502.00	500	100.4	50 - 150	MS	01/04/2012	15:35	LB58710
	Manganese	1.38	1	138.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Nickel	1.18	1	118.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Potassium	518.50	500	103.7	50 - 150	MS	01/04/2012	15:35	LB58710
	Selenium	4.43	5	88.6	70 - 130	MS	01/04/2012	15:35	LB58710
	Silver	1.08	1	108.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Sodium	521.10	500	104.2	50 - 150	MS	01/04/2012	15:35	LB58710
	Thallium	1.01	1	101.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Vanadium	4.91	5	98.2	70 - 130	MS	01/04/2012	15:35	LB58710
	Zinc	2.36	2	118.0	50 - 150	MS	01/04/2012	15:35	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	14:31	LB58532
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	14:41	LB58532
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	15:03	LB58532
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	15:25	LB58532
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	15:47	LB58532
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	16:10	LB58532
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	16:32	LB58532
CCB07	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	16:56	LB58532
CCB08	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	17:22	LB58532
CCB09	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	17:44	LB58532
CCB10	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	18:06	LB58532
CCB11	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	18:29	LB58532
CCB12	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/22/2011	18:52	LB58532
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	14:40	LB58710
	Antimony	1.170	+/-2.000	J	0.140	2.000	MS	01/04/2012	14:40	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	14:40	LB58710
	Barium	0.519	+/-10.000	J	0.100	10.000	MS	01/04/2012	14:40	LB58710
	Beryllium	0.218	+/-1.000	J	0.090	1.000	MS	01/04/2012	14:40	LB58710
	Cadmium	0.172	+/-1.000	J	0.130	1.000	MS	01/04/2012	14:40	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	14:40	LB58710
	Chromium	0.199	+/-2.000	J	0.040	2.000	MS	01/04/2012	14:40	LB58710
	Cobalt	0.128	+/-1.000	J	0.050	1.000	MS	01/04/2012	14:40	LB58710
	Copper	0.251	+/-2.000	J	0.040	2.000	MS	01/04/2012	14:40	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	14:40	LB58710
	Lead	0.196	+/-1.000	J	0.040	1.000	MS	01/04/2012	14:40	LB58710
	Magnesium	9.184	+/-500.000	J	4.950	500.000	MS	01/04/2012	14:40	LB58710
	Manganese	0.252	+/-1.000	J	0.050	1.000	MS	01/04/2012	14:40	LB58710
	Nickel	0.141	+/-1.000	J	0.060	1.000	MS	01/04/2012	14:40	LB58710
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/04/2012	14:40	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	14:40	LB58710
	Silver	0.139	+/-1.000	J	0.030	1.000	MS	01/04/2012	14:40	LB58710
	Sodium	5.939	+/-500.000	J	5.320	500.000	MS	01/04/2012	14:40	LB58710
	Thallium	0.216	+/-1.000	J	0.020	1.000	MS	01/04/2012	14:40	LB58710
	Vanadium	0.281	+/-5.000	J	0.150	5.000	MS	01/04/2012	14:40	LB58710
	Zinc	0.326	+/-2.000	J	0.090	2.000	MS	01/04/2012	14:40	LB58710
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	15:27	LB58710
	Antimony	0.804	+/-2.000	J	0.140	2.000	MS	01/04/2012	15:27	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	18:38	LB58710
	Antimony	0.738	+/-2.000	J	0.140	2.000	MS	01/04/2012	18:38	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	18:38	LB58710
	Barium	0.306	+/-10.000	J	0.100	10.000	MS	01/04/2012	18:38	LB58710
	Beryllium	0.106	+/-1.000	J	0.090	1.000	MS	01/04/2012	18:38	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	18:38	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	18:38	LB58710
	Chromium	0.119	+/-2.000	J	0.040	2.000	MS	01/04/2012	18:38	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/04/2012	18:38	LB58710
	Copper	0.066	+/-2.000	J	0.040	2.000	MS	01/04/2012	18:38	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	18:38	LB58710
	Lead	0.048	+/-1.000	J	0.040	1.000	MS	01/04/2012	18:38	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	18:38	LB58710
	Manganese	0.403	+/-1.000	J	0.050	1.000	MS	01/04/2012	18:38	LB58710
	Nickel	0.118	+/-1.000	J	0.060	1.000	MS	01/04/2012	18:38	LB58710
	Potassium	20.820	+/-500.000	J	12.220	500.000	MS	01/04/2012	18:38	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	18:38	LB58710
	Silver	0.032	+/-1.000	J	0.030	1.000	MS	01/04/2012	18:38	LB58710
	Sodium	10.360	+/-500.000	J	5.320	500.000	MS	01/04/2012	18:38	LB58710
	Thallium	0.109	+/-1.000	J	0.020	1.000	MS	01/04/2012	18:38	LB58710
	Vanadium	0.288	+/-5.000	J	0.150	5.000	MS	01/04/2012	18:38	LB58710
	Zinc	0.107	+/-2.000	J	0.090	2.000	MS	01/04/2012	18:38	LB58710
CCB04	Aluminum	5.097	+/-20.000	J	4.970	20.000	MS	01/04/2012	20:13	LB58710
	Antimony	0.900	+/-2.000	J	0.140	2.000	MS	01/04/2012	20:13	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	20:13	LB58710
	Barium	0.565	+/-10.000	J	0.100	10.000	MS	01/04/2012	20:13	LB58710
	Beryllium	0.169	+/-1.000	J	0.090	1.000	MS	01/04/2012	20:13	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	20:13	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	20:13	LB58710
	Chromium	0.173	+/-2.000	J	0.040	2.000	MS	01/04/2012	20:13	LB58710
	Cobalt	0.094	+/-1.000	J	0.050	1.000	MS	01/04/2012	20:13	LB58710
	Copper	0.181	+/-2.000	J	0.040	2.000	MS	01/04/2012	20:13	LB58710
	Iron	11.220	+/-200.000	J	10.280	200.000	MS	01/04/2012	20:13	LB58710
	Lead	0.117	+/-1.000	J	0.040	1.000	MS	01/04/2012	20:13	LB58710
	Magnesium	8.638	+/-500.000	J	4.950	500.000	MS	01/04/2012	20:13	LB58710
	Manganese	0.633	+/-1.000	J	0.050	1.000	MS	01/04/2012	20:13	LB58710
	Nickel	0.095	+/-1.000	J	0.060	1.000	MS	01/04/2012	20:13	LB58710
	Potassium	33.770	+/-500.000	J	12.220	500.000	MS	01/04/2012	20:13	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	20:13	LB58710
	Silver	0.106	+/-1.000	J	0.030	1.000	MS	01/04/2012	20:13	LB58710
	Sodium	32.370	+/-500.000	J	5.320	500.000	MS	01/04/2012	20:13	LB58710
	Thallium	0.197	+/-1.000	J	0.020	1.000	MS	01/04/2012	20:13	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	20:13	LB58710
	Zinc	0.260	+/-2.000	J	0.090	2.000	MS	01/04/2012	20:13	LB58710
CCB05	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	21:48	LB58710
	Antimony	0.787	+/-2.000	J	0.140	2.000	MS	01/04/2012	21:48	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	21:48	LB58710
	Barium	0.380	+/-10.000	J	0.100	10.000	MS	01/04/2012	21:48	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/04/2012	21:48	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	21:48	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	21:48	LB58710
	Chromium	0.120	+/-2.000	J	0.040	2.000	MS	01/04/2012	21:48	LB58710
	Cobalt	0.053	+/-1.000	J	0.050	1.000	MS	01/04/2012	21:48	LB58710
	Copper	0.116	+/-2.000	J	0.040	2.000	MS	01/04/2012	21:48	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	21:48	LB58710
	Lead	0.065	+/-1.000	J	0.040	1.000	MS	01/04/2012	21:48	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	21:48	LB58710
	Manganese	0.575	+/-1.000	J	0.050	1.000	MS	01/04/2012	21:48	LB58710
	Nickel	0.103	+/-1.000	J	0.060	1.000	MS	01/04/2012	21:48	LB58710
	Potassium	30.560	+/-500.000	J	12.220	500.000	MS	01/04/2012	21:48	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	21:48	LB58710
	Silver	0.059	+/-1.000	J	0.030	1.000	MS	01/04/2012	21:48	LB58710
	Sodium	42.010	+/-500.000	J	5.320	500.000	MS	01/04/2012	21:48	LB58710
	Thallium	0.158	+/-1.000	J	0.020	1.000	MS	01/04/2012	21:48	LB58710
	Vanadium	0.224	+/-5.000	J	0.150	5.000	MS	01/04/2012	21:48	LB58710
	Zinc	0.172	+/-2.000	J	0.090	2.000	MS	01/04/2012	21:48	LB58710
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	23:23	LB58710
	Antimony	0.803	+/-2.000	J	0.140	2.000	MS	01/04/2012	23:23	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	23:23	LB58710
	Barium	0.280	+/-10.000	J	0.100	10.000	MS	01/04/2012	23:23	LB58710
	Beryllium	0.092	+/-1.000	J	0.090	1.000	MS	01/04/2012	23:23	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	23:23	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	23:23	LB58710
	Chromium	0.141	+/-2.000	J	0.040	2.000	MS	01/04/2012	23:23	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/04/2012	23:23	LB58710
	Copper	0.129	+/-2.000	J	0.040	2.000	MS	01/04/2012	23:23	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	23:23	LB58710
	Lead	0.223	+/-1.000	J	0.040	1.000	MS	01/04/2012	23:23	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	23:23	LB58710
	Manganese	0.439	+/-1.000	J	0.050	1.000	MS	01/04/2012	23:23	LB58710
	Nickel	0.121	+/-1.000	J	0.060	1.000	MS	01/04/2012	23:23	LB58710
	Potassium	37.570	+/-500.000	J	12.220	500.000	MS	01/04/2012	23:23	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	23:23	LB58710
	Silver	0.058	+/-1.000	J	0.030	1.000	MS	01/04/2012	23:23	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Sodium	68.250	+/-500.000	J	5.320	500.000	MS	01/04/2012	23:23	LB58710
	Thallium	0.498	+/-1.000	J	0.020	1.000	MS	01/04/2012	23:23	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	23:23	LB58710
	Zinc	0.201	+/-2.000	J	0.090	2.000	MS	01/04/2012	23:23	LB58710
CCB07	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	00:58	LB58710
	Antimony	0.897	+/-2.000	J	0.140	2.000	MS	01/05/2012	00:58	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	00:58	LB58710
	Barium	0.247	+/-10.000	J	0.100	10.000	MS	01/05/2012	00:58	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	00:58	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	00:58	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	00:58	LB58710
	Chromium	0.111	+/-2.000	J	0.040	2.000	MS	01/05/2012	00:58	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	00:58	LB58710
	Copper	0.083	+/-2.000	J	0.040	2.000	MS	01/05/2012	00:58	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/05/2012	00:58	LB58710
	Lead	0.193	+/-1.000	J	0.040	1.000	MS	01/05/2012	00:58	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	00:58	LB58710
	Manganese	0.466	+/-1.000	J	0.050	1.000	MS	01/05/2012	00:58	LB58710
	Nickel	0.102	+/-1.000	J	0.060	1.000	MS	01/05/2012	00:58	LB58710
	Potassium	40.710	+/-500.000	J	12.220	500.000	MS	01/05/2012	00:58	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	00:58	LB58710
	Silver	0.035	+/-1.000	J	0.030	1.000	MS	01/05/2012	00:58	LB58710
	Sodium	69.680	+/-500.000	J	5.320	500.000	MS	01/05/2012	00:58	LB58710
	Thallium	0.226	+/-1.000	J	0.020	1.000	MS	01/05/2012	00:58	LB58710
	Vanadium	0.176	+/-5.000	J	0.150	5.000	MS	01/05/2012	00:58	LB58710
	Zinc	0.190	+/-2.000	J	0.090	2.000	MS	01/05/2012	00:58	LB58710
CCB08	Aluminum	14.970	+/-20.000	J	4.970	20.000	MS	01/05/2012	02:33	LB58710
	Antimony	0.797	+/-2.000	J	0.140	2.000	MS	01/05/2012	02:33	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	02:33	LB58710
	Barium	0.266	+/-10.000	J	0.100	10.000	MS	01/05/2012	02:33	LB58710
	Beryllium	0.133	+/-1.000	J	0.090	1.000	MS	01/05/2012	02:33	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	02:33	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	02:33	LB58710
	Chromium	0.121	+/-2.000	J	0.040	2.000	MS	01/05/2012	02:33	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	02:33	LB58710
	Copper	0.105	+/-2.000	J	0.040	2.000	MS	01/05/2012	02:33	LB58710
	Iron	12.020	+/-200.000	J	10.280	200.000	MS	01/05/2012	02:33	LB58710
	Lead	0.197	+/-1.000	J	0.040	1.000	MS	01/05/2012	02:33	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	02:33	LB58710
	Manganese	0.406	+/-1.000	J	0.050	1.000	MS	01/05/2012	02:33	LB58710
	Nickel	0.102	+/-1.000	J	0.060	1.000	MS	01/05/2012	02:33	LB58710
	Potassium	31.560	+/-500.000	J	12.220	500.000	MS	01/05/2012	02:33	LB58710

SDG C5039

Soil

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12TP16-0.502-02	0.29		Fe	96100	1.7	17900	0.32	+BL	na
As		3.6			96100	0.24	17900	0.04	na	na
Ba		104			96100	1.5	17900	0.28	na	na
Be		0.95			96100	0.34	17900	0.06	na	na
Cd		0.13			96100	0.2	17900	0.04	(J)	na
Co		7.7			96100	1.3	17900	0.24	na	na
Cu		6.9			96100	8.2	17900	1.53	(J)	na
Pb		15.8			96100	4.4	17900	0.82	na	na
Mn		681			96100	8.2	17900	1.53	na	na
Ni		10.4			96100	6.1	17900	1.14	(J)	na
Ag		0.046			96100	0.096	17900	0.02	+BL	na
Tl		0.81			96100	0.17	17900	0.03	na	na
V		24.7			96100	0.38	17900	0.07	na	na
Zn		29.9			96100	12.1	17900	2.25	na	na

Sb	12TP16-000.5-01	0.33		Fe	96100	1.7	22400	0.40	+BL	na
As		4.9			96100	0.24	22400	0.06	na	na
Ba		72			96100	1.5	22400	0.35	na	na
Be		0.89			96100	0.34	22400	0.08	na	na
Cd		0.27			96100	0.2	22400	0.05	(J)	na
Co		6.1			96100	1.3	22400	0.30	na	na
Cu		13.2			96100	8.2	22400	1.91	(J)	na
Pb		17.3			96100	4.4	22400	1.03	na	na
Mn		254			96100	8.2	22400	1.91	na	na
Ni		10.3			96100	6.1	22400	1.42	(J)	na
Ag		0.06			96100	0.096	22400	0.02	+BL	na
Tl		0.16			96100	0.17	22400	0.04	(J) BL	na
V		31.4			96100	0.38	22400	0.09	na	na

Zn		36.3			96100	12.1	22400	2.82	na	na

Sb	12TP16-0910-04	0.22		Fe	96100	1.7	18900	0.33	UBC	na
As		2.5			96100	0.24	18900	0.05	na	na
Ba		87.4			96100	1.5	18900	0.30	na	na
Be		0.84			96100	0.34	18900	0.07	na	na
Cd		0.12			96100	0.2	18900	0.04	(J)	na
Co		9.5			96100	1.3	18900	0.26	na	na
Cu		26			96100	8.2	18900	1.61	na	na
Pb		7.1			96100	4.4	18900	0.87	(K)	na
Mn		1730			96100	8.2	18900	1.61	na	na
Ni		11.2			96100	6.1	18900	1.20	(J)	na
Ag		0.06			96100	0.096	18900	0.02	UBC	na
Tl		0.19			96100	0.17	18900	0.03	UBC	na
V		22.7			96100	0.38	18900	0.07	na	na
Zn		21.6			96100	12.1	18900	2.38	J	na

Affected	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12TP16-0.502-02	0.29		Al	97900	1.7	10900	0.1893	J	na
As		3.6		Al	97900	0.24	10900	0.0267	na	na
Ba		104		Al	97900	1.5	10900	0.1670	na	na
Be		0.95		Al	97900	0.34	10900	0.0379	na	na
Cd		0.13		Al	97900	0.2	10900	0.0223	J	na
Co		7.7		Al	97900	1.3	10900	0.1447	na	na
Cu		6.9		Al	97900	8.2	10900	0.9130	J	na
Pb		15.8		Al	97900	4.4	10900	0.4899	na	na
Mn		10.4		Al	97900	8.2	10900	0.9130	na	na
Ni		0.032	J	Al	97900	6.1	10900	0.6792	na	na
Ag		0.81		Al	97900	0.096	10900	0.0107	na	na
Tl		24.7		Al	97900	0.17	10900	0.0189	na	na
V		29.9		Al	97900	0.38	10900	0.0423	na	na
Zn		681		Al	97900	12.1	10900	1.3472	na	na
Sb	12TP16-000.5-01	0.33		Al	97900	1.7	13400	0.2327	J	na
As		4.9		Al	97900	0.24	13400	0.0328	na	na
Ba		72		Al	97900	1.5	13400	0.2053	na	na
Be		0.89		Al	97900	0.34	13400	0.0465	na	na
Cd		0.27		Al	97900	0.2	13400	0.0274	J	na
Co		6.1		Al	97900	1.3	13400	0.1779	na	na
Cu		13.2		Al	97900	8.2	13400	1.1224	na	na
Pb		17.3		Al	97900	4.4	13400	0.6022	na	na
Mn		254		Al	97900	8.2	13400	1.1224	na	na
Ni		10.3		Al	97900	6.1	13400	0.8349	na	na
Ag		0.047	J	Al	97900	0.096	13400	0.0131	na	na
Tl		0.16		Al	97900	0.17	13400	0.0233	J	na
V		31.4		Al	97900	0.38	13400	0.0520	na	na
Zn		36.3		Al	97900	12.1	13400	1.6562	na	na
Sb	12TP16-0910-04	0.22	J	Al	97900	1.7	15500	0.2692	na	na
As		2.5		Al	97900	0.24	15500	0.0380	na	na
Ba		87.4		Al	97900	1.5	15500	0.2375	na	na
Be		0.84		Al	97900	0.34	15500	0.0538	na	na
Cd		0.12	J	Al	97900	0.2	15500	0.0317	na	na
Co		9.5		Al	97900	1.3	15500	0.2058	na	na
Cu		26		Al	97900	8.2	15500	1.2983	na	na
Pb		7.1		Al	97900	4.4	15500	0.6966	na	na
Mn	10.33	~~11.2~~		Al	97900	8.2	15500	~~1.2983~~	J	na
Ni	11.32	~~0.046~~	J	Al	97900	6.1	15500	~~0.9658~~	na	na
Ag	0.46	~~0.19~~		Al	97900	0.096	15500	~~0.0152~~	~~na~~ J	na
Tl	0.19	~~22.7~~		Al	97900	0.17	15500	~~0.0269~~	~~na~~ J	na
V	23.7	~~21.6~~		Al	97900	0.38	15500	~~0.0602~~	na	na
Zn	21.6	~~1730~~		Al	97900	12.1	15500	~~1.9157~~	na	na

Sb, Cd, Cu

Sb, Cd, Tl

Mn

Affected	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12TP-DUP-01	8.9		Fe	96100	1.7	19300	0.3414	na	na
As		5.7		Fe	96100	0.24	19300	0.0482	na	na
Ba		108		Fe	96100	1.5	19300	0.3012	na	na
Be		0.35		Fe	96100	0.34	19300	0.0683	J	na
Cd		12.4		Fe	96100	0.2	19300	0.0402	na	na
Co		5.3		Fe	96100	1.3	19300	0.2611	na	na
Cu		68.8		Fe	96100	8.2	19300	1.6468	na	na
Pb		17.2		Fe	96100	4.4	19300	0.8837	na	na
Mn		1.4		Fe	96100	8.2	19300	1.6468	J	na
Ni		0.15		Fe	96100	6.1	19300	1.2251	J	na
Ag		14		Fe	96100	0.096	19300	0.0193	na	na
Tl		188		Fe	96100	0.17	19300	0.0341	na	na
V		1490		Fe	96100	0.38	19300	0.0763	na	na
Zn		507		Fe	96100	12.1	19300	2.4301	na	na
Sb	12TP16-0.502-02	0.29		Fe	96100	1.7	17900	0.3166	J	na
As		3.6		Fe	96100	0.24	17900	0.0447	na	na
Ba		104		Fe	96100	1.5	17900	0.2794	na	na
Be		0.95		Fe	96100	0.34	17900	0.0633	na	na
Cd		0.13		Fe	96100	0.2	17900	0.0373	J	na
Co		7.7		Fe	96100	1.3	17900	0.2421	na	na
Cu		6.9		Fe	96100	8.2	17900	1.5274	J	na
Pb		15.8		Fe	96100	4.4	17900	0.8196	na	na
Mn		10.4		Fe	96100	8.2	17900	1.5274	J	na
Ni		0.032	J	Fe	96100	6.1	17900	1.1362	na	na
Ag		0.81		Fe	96100	0.096	17900	0.0179	na	na
Tl		24.7		Fe	96100	0.17	17900	0.0317	na	na
V		29.9		Fe	96100	0.38	17900	0.0708	na	na
Zn		681		Fe	96100	12.1	17900	2.2538	na	na
Sb	12TP16-000.5-01	0.33		Fe	96100	1.7	22400	0.3963	J	na
As		4.9		Fe	96100	0.24	22400	0.0559	na	na
Ba		72		Fe	96100	1.5	22400	0.3496	na	na
Be		0.89		Fe	96100	0.34	22400	0.0793	na	na
Cd		0.27		Fe	96100	0.2	22400	0.0466	J	na
Co		6.1		Fe	96100	1.3	22400	0.3030	na	na
Cu		13.2		Fe	96100	8.2	22400	1.9113	J	na
Pb		17.3		Fe	96100	4.4	22400	1.0256	na	na
Mn		254		Fe	96100	8.2	22400	1.9113	na	na
Ni		10.3		Fe	96100	6.1	22400	1.4219	J	na
Ag		0.047	J	Fe	96100	0.096	22400	0.0224	na	na
Tl		0.16		Fe	96100	0.17	22400	0.0396	J	na
V		31.4		Fe	96100	0.38	22400	0.0886	na	na
Zn		36.3		Fe	96100	12.1	22400	2.8204	na	na
Sb	12TP16-0608-03	35.4		Fe	96100	1.7	23100	0.4086	na	na
As		7		Fe	96100	0.24	23100	0.0577	na	na
Ba		92.9		Fe	96100	1.5	23100	0.3606	na	na
Be		0.43		Fe	96100	0.34	23100	0.0817	J	na
Cd		34.9		Fe	96100	0.2	23100	0.0481	na	na
Co		5.3		Fe	96100	1.3	23100	0.3125	na	na
Cu		47.6		Fe	96100	8.2	23100	1.9711	na	na
Pb		14		Fe	96100	4.4	23100	1.0576	na	na
Mn		1.1		Fe	96100	8.2	23100	1.9711	J	na
Ni		0.28		Fe	96100	6.1	23100	1.4663	J	na
Ag		16.9		Fe	96100	0.096	23100	0.0231	na	na
Tl		231		Fe	96100	0.17	23100	0.0409	na	na
V		1940		Fe	96100	0.38	23100	0.0913	na	na
Zn		597		Fe	96100	12.1	23100	2.9085	na	na

Be, Mn, Ni

Sb, Cd, Co, Mn

Sb, Cd, Co, Ni, Tl

Be, Mn, Ni

OK

Sb	12TP16-0910-04	0.22	J	Fe	96100	1.7	18900	0.3343	na	na
As		2.5		Fe	96100	0.24	18900	0.0472	na	na
Ba		87.4		Fe	96100	1.5	18900	0.2950	na	na
Be		0.84		Fe	96100	0.34	18900	0.0669	na	na
Cd		0.12	J	Fe	96100	0.2	18900	0.0393	na	na
Co		9.5		Fe	96100	1.3	18900	0.2557	na	na
Cu		26		Fe	96100	8.2	18900	1.6127	na	na
Pb		7.1		Fe	96100	4.4	18900	0.8653	J	na
Mn		11.2		Fe	96100	8.2	18900	1.6127	J	na
Ni		0.046	J	Fe	96100	6.1	18900	1.1997	na	na
Ag		0.19		Fe	96100	0.096	18900	0.0189	na	na
Tl		22.7		Fe	96100	0.17	18900	0.0334	na	na
V		21.6		Fe	96100	0.38	18900	0.0747	na	na
Zn		1730		Fe	96100	12.1	18900	2.3797	na	na

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5056 **SAS No.:** C5056

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	97900	100000	97.9	80 - 120%	01/04/2012	14:48	LB58710
	Antimony	1.7				01/04/2012	14:48	LB58710
	Arsenic	0.24				01/04/2012	14:48	LB58710
	Barium	1.5				01/04/2012	14:48	LB58710
	Beryllium	0.34				01/04/2012	14:48	LB58710
	Cadmium	0.20				01/04/2012	14:48	LB58710
	Calcium	100000	100000	100.0	80 - 120%	01/04/2012	14:48	LB58710
	Chromium	20.8	21	99.0	80 - 120%	01/04/2012	14:48	LB58710
	Cobalt	1.3				01/04/2012	14:48	LB58710
	Copper	8.2				01/04/2012	14:48	LB58710
	Iron	96100	100000	96.1	80 - 120%	01/04/2012	14:48	LB58710
	Lead	4.4	4	110.0	80 - 120%	01/04/2012	14:48	LB58710
	Magnesium	98700	100000	98.7	80 - 120%	01/04/2012	14:48	LB58710
	Manganese	8.2				01/04/2012	14:48	LB58710
	Nickel	6.1				01/04/2012	14:48	LB58710
	Potassium	99300	100000	99.3	80 - 120%	01/04/2012	14:48	LB58710
	Selenium	-0.17				01/04/2012	14:48	LB58710
	Silver	0.096				01/04/2012	14:48	LB58710
	Sodium	100000	100000	100.0	80 - 120%	01/04/2012	14:48	LB58710
	Thallium	0.17				01/04/2012	14:48	LB58710
	Vanadium	0.38				01/04/2012	14:48	LB58710
	Zinc	12.1				01/04/2012	14:48	LB58710
ICSAB01	Aluminum	96000	100000	96.0	80 - 120%	01/04/2012	14:56	LB58710
	Antimony	21.2	22	96.4	80 - 120%	01/04/2012	14:56	LB58710
	Arsenic	20.8	19	109.5	80 - 120%	01/04/2012	14:56	LB58710
	Barium	21.8	22	99.1	80 - 120%	01/04/2012	14:56	LB58710
	Beryllium	20.3	20	101.5	80 - 120%	01/04/2012	14:56	LB58710
	Cadmium	19.7	20	98.5	80 - 120%	01/04/2012	14:56	LB58710
	Calcium	99000	100000	99.0	80 - 120%	01/04/2012	14:56	LB58710
	Chromium	40.7	40	101.8	80 - 120%	01/04/2012	14:56	LB58710
	Cobalt	21.0	20	105.0	80 - 120%	01/04/2012	14:56	LB58710
	Copper	28.2	25	112.8	80 - 120%	01/04/2012	14:56	LB58710
	Iron	96300	100000	96.3	80 - 120%	01/04/2012	14:56	LB58710
	Lead	24.7	25	98.8	80 - 120%	01/04/2012	14:56	LB58710
	Magnesium	98100	100000	98.1	80 - 120%	01/04/2012	14:56	LB58710
	Manganese	28.8	27	106.7	80 - 120%	01/04/2012	14:56	LB58710
	Nickel	26.0	24	108.3	80 - 120%	01/04/2012	14:56	LB58710
	Potassium	99200	100000	99.2	80 - 120%	01/04/2012	14:56	LB58710
	Selenium	20.2	19	106.3	80 - 120%	01/04/2012	14:56	LB58710
	Silver	19.5	18	108.3	80 - 120%	01/04/2012	14:56	LB58710
	Sodium	101000	100000	101.0	80 - 120%	01/04/2012	14:56	LB58710
	Thallium	19.9	21	94.8	80 - 120%	01/04/2012	14:56	LB58710
	Vanadium	20.1	19	105.8	80 - 120%	01/04/2012	14:56	LB58710
	Zinc	32.7	29	112.8	80 - 120%	01/04/2012	14:56	LB58710

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB58531BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/22/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5056-01
Client ID:	12TP16-000.5-01S	**Percent Solids for Spike Sample:**	80

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.470		0.100	J	2.50	1	95		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Project: CTO WE05 NAS JRB Willow Grove **Sample ID:** C5056-10

Client ID: 12TP09-0304-CSD **Percent Solids for Spike Sample:** 81.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.930		6.940		1	0.1		12/20/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5056-01
Client ID:	12TP16-000.5-01SD	**Percent Solids for Spike Sample:**	80

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.470		0.100	J	2.50	1	95		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5056-01
Client ID:	12TP16-000.5-01D	**Percent Solids for Spike Sample:**	80

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.100	J	0.100	J	1	0		12/22/2011
pH	pH	+/-20	4.410		4.430		1	0.5		12/20/2011
Redox Potential	mV	+/-20	318.5		319.1		1	0.2		12/23/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5056-01
Client ID:	12TP16-000.5-01SD	**Percent Solids for Spike Sample:**	80

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.47	2.470		1	0		12/22/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5056-10
Client ID:	12TP09-0304-CSD	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.930		6.940		1	0.1		12/20/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01SD	**Percent Solids for Spike Sample:**	74.2

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Redox Potential	**mV**	**+/-20**	**339.00**	**340.0**		**1**	**0.3**		**12/23/2011**

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5056

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID LB58531BSS								
Cyanide	mg/Kg	10.00	9.70		97	1	80-110	12/22/2011

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58596
Instrument: ~~Titroline Alpha Titrator~~ pH Meter

Time In:	11:15 AM	Temp In (C):	20.3
Time Out:	12:05 PM	Temp Out (C):	20.3

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ~~ppm/ppb~~ MV	Dil	Analytical Date
1	CAL	CAL	CAL	210.1		12-23-11
2	C5056-01	12TP16-000.5-01	SAM	318.5		
3	C5056-01D	12TP16-000.5-01D	DUP	319.1		
4	C5056-02	12TP16-0.0502-02	SAM	328.9		
5	C5056-03	12TP16-0608-03	SAM	243.7		
6	C5056-04	12TP16-0910-04	SAM	352.1		
7	C5056-05	12TP-DUP-01	SAM	228.1		
8	C5056-06	12TP03-0506-CS	SAM	181.3		
9	C5056-07	12TP02-0405-CS	SAM	226.5		
10	C5056-08	12TP14-0405-CS	SAM	206.8		
11	C5056-09	12TP15-0304-CS	SAM	175.6		
12	C5056-10	12TP09-0304-CS	SAM	162.6		
13	C5056-11	12TP10-0405-CS	SAM	233.8		
14	C5056-12	12TP08-0304-CS	SAM	255.3		
15	C5065-02	12TP17-000.5-01	SAM	338.4		
16	C5065-03	C5065-02MS	MS	339.2		
17	C5065-04	C5065-02MSD	MSD	340.1		
18	C5065-05	12TP17-0.5-02-02	SAM	373.9		
19	C5065-06	12TP18-0506-01	SAM	188.5		
20	C5065-07	12TP18-0607-02	SAM	277.7		
21	C5065-08	12TP12-0203-CS	SAM	236.0		↓

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58596
Instrument: ~~Titrolino Alpha Titrator~~
pH Meter JM 12-28-11

JM

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ppm/ppb	Dil	Analytical Date
1	CAL	CAL	CAL	210.100	1	12/23/11
2	C5056-01	12TP16-000.5-01	SAM	318.500	1	12/23/11
3	C5056-01D	12TP16-000.5-01D	DUP	319.100	1	12/23/11
4	C5056-02	12TP16-0.0502-02	SAM	328.900	1	12/23/11
5	C5056-03	12TP16-0608-03	SAM	243.700	1	12/23/11
6	C5056-04	12TP16-0910-04	SAM	352.100	1	12/23/11
7	C5056-05	12TP-DUP-01	SAM	228.100	1	12/23/11
8	C5056-06	12TP03-0506-CS	SAM	181.300	1	12/23/11
9	C5056-07	12TP02-0405-CS	SAM	226.500	1	12/23/11
10	C5056-08	12TP14-0405-CS	SAM	206.800	1	12/23/11
11	C5056-09	12TP15-0304-CS	SAM	175.600	1	12/23/11
12	C5056-10	12TP09-0304-CS	SAM	162.600	1	12/23/11
13	C5056-11	12TP10-0405-CS	SAM	233.800	1	12/23/11
14	C5056-12	12TP08-0304-CS	SAM	255.300	1	12/23/11
15	C5065-02	12TP17-000.5-01	SAM	338.400	1	12/23/11
16	C5065-03	12TP17-000.5-01S	MS	339.200	1	12/23/11
17	C5065-04	12TP17-000.5-01SD	MSD	340.100	1	12/23/11
18	C5065-05	12TP17-0.5-02-02	SAM	373.900	1	12/23/11
19	C5065-06	12TP18-0506-01	SAM	188.500	1	12/23/11
20	C5065-07	12TP18-0607-02	SAM	277.700	1	12/23/11
21	C5065-08	12TP12-0203-CS	SAM	236.000	1	12/23/11

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: 1b58485
Instrument: pH Meter

REVIEWED BY: MM

TEMP. = 18.6 °C
SLOPE = 98.4

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL 4	CAL	4.01	1	9:55 AM	WATER	12/20/2011
2	CAL 7	CAL	7.00	1	9:59	WATER	12/20/2011
3	CAL 10	CAL	10.04	1	10:03	WATER	12/20/2011
4	ICV 7	ICV	7.01	1	10:07	WATER	12/20/2011
5	CCV 2	CCV	2.02	1	10:11	WATER	12/20/2011
6	C5056-01	SAM	4.41	1	10:15	SOIL	12/20/2011
7	C5056-01D	DUP	4.43	1	10:19	SOIL	12/20/2011
8	C5056-02	SAM	4.71	1	10:23	SOIL	12/20/2011
9	C5056-03	SAM	5.26	1	10:27	SOIL	12/20/2011
10	C5056-04	SAM	4.45	1	10:31	SOIL	12/20/2011
11	C5056-05	SAM	7.13	1	10:35	SOIL	12/20/2011
12	C5056-06	SAM	7.03	1	10:39	SOIL	12/20/2011
13	C5056-07	SAM	7.10	1	10:42	SOIL	12/20/2011
14	C5056-08	SAM	7.15	1	10:46	SOIL	12/20/2011
15	C5056-09	SAM	7.48	1	10:50	SOIL	12/20/2011
16	CCV 2	CCV	2.03	1	10:54	WATER	12/20/2011
17	C5056-10	SAM	6.93	1	10:58	SOIL	12/20/2011
18	C5056-10D	DUP	6.94	1	11:02	SOIL	12/20/2011
19	C5056-11	SAM	7.31	1	11:06	SOIL	12/20/2011
20	C5056-12	SAM	7.02	1	11:10	SOIL	12/20/2011
21	CCV 12	CCV	12.02	1	11:14	WATER	12/20/2011

Calibration Standards	Chemtech Log #
pH 4.00	W1572
pH 7.00	W11498
pH 10.00	W1468
(ICV) pH 7.00	W1286
(CCV) pH 2.00	W1384
(CCV) pH 12.00	W1493

True Value of ICV = 7.0. Control Limits [+/- 0.1].

True Value of CCV = 2, 12. Control Limits [+/- 0.1].

% Recovery Percentage Difference = _____.

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax:

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: 1b58485
Instrument: pH Meter

REVIEW: JM
REVIEWED BY: JM

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL	CAL	4.01	1		WATER	12/20/11
2	CAL	CAL	7.00	1		WATER	12/20/11
3	CAL	CAL	10.04	1		WATER	12/20/11
4	ICV	ICV	7.01	1		WATER	12/20/11
5	CCV	CCV	2.02	1		WATER	12/20/11
6	C5056-01	SAM	4.41	1		SOIL	12/20/11
7	C5056-01D	DUP	4.43	1		SOIL	12/20/11
8	C5056-02	SAM	4.71	1		SOIL	12/20/11
9	C5056-03	SAM	5.26	1		SOIL	12/20/11
10	C5056-04	SAM	4.45	1		SOIL	12/20/11
11	C5056-05	SAM	7.13	1		SOIL	12/20/11
12	C5056-06	SAM	7.03	1		SOIL	12/20/11
13	C5056-07	SAM	7.10	1		SOIL	12/20/11
14	C5056-08	SAM	7.15	1		SOIL	12/20/11
15	C5056-09	SAM	7.48	1		SOIL	12/20/11
16	CCV	CCV	2.03	1		WATER	12/20/11
17	C5056-10	SAM	6.93	1		SOIL	12/20/11
18	C5056-10D	DUP	6.94	1		SOIL	12/20/11
19	C5056-11	SAM	7.31	1		SOIL	12/20/11
20	C5056-12	SAM	7.02	1		SOIL	12/20/11
21	CCV	CCV	12.02	1		WATER	12/20/11

JM 12-21-11

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58485

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	**ICV1**						
pH		pH	7.01	7.00	100	90-110	12/20/2011
Sample ID:	**CCV1**						
pH		pH	2.02	2.00	101	90-110	12/20/2011
Sample ID:	**CCV2**						
pH		pH	2.03	2.00	102	90-110	12/20/2011
Sample ID:	**CCV3**						
pH		pH	12.02	12.00	100	90-110	12/20/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58531

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60117						
Cyanide		mg/L	0.10	0.10	100	85-115	12/22/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	12/22/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.25	0.25	100	90-110	12/22/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.26	0.25	104	90-110	12/22/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5056
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58531

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/22/2011

Tetra Tech, Inc. **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 15, 2012**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC/SVOC/PAH/PEST/PCB**
NAVAL AIR STATION JOINT RESERVER BASE (NASJRB) WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG): C5065

SAMPLES: 4/Soil/VOC/SVOC/PAH/PEST/PCB

12TP17-0.5-02-02 12TP17-000.5-01 12TP18-0506-01
12TP18-0607-02

1/Aqueous/VOC

TB-01-122011

Overview

The sample set for NASJRB Willow Grove, SDG C5065 consisted of four (4) soil environmental samples and one (1) trip blank. The five (5) samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). The four (4) soil samples were analyzed for TCL semi-volatile organic compound (SVOC), polynuclear aromatic hydrocarbons (PAH), pesticides (PEST), and polychlorinated biphenyls (PCBs). No field duplicate pair was included in the sample delivery group (SDG).

The samples were collected by Tetra Tech, Inc. on December 20, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A, and 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method and field blank results, surrogate spike recoveries, blank spike/blank spike duplicate recoveries, matrix spike/matrix spike duplicate results, internal standard recoveries, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major

- The SVOC blank spike sample, PB60132BS, had a %R < 10% for 4-chloroaniline. All SVOC samples were affected. The non-detected results for 4-chloroaniline in the affected samples were qualified as rejected, (UR).

Minor

- The VOC continuing calibration performed on instrument MSVOA_F on 12/25/11 @ 15:10 had a Percent Difference (%D) for methylene chloride and Percent Drifts (%Drifts) for acetone and 2-butanone greater than 20% quality control limit but less than 50%. Samples 12TP17-000.5-01 and 12TP18-0607-02 were affected. No action was taken for methylene chloride and 2-butanone because no positive results were reported for these compounds in the affected samples. The positive result reported for acetone in sample 12TP17-000.5-01 was qualified as estimated, (J).

- The PAH continuing calibration performed on instrument BNA_G on 12/31/11 @ 23:16 had a %D for benzo(g,h,i)perylene greater than 20% but less than 50%. All PAH samples were affected. The positive results reported for this compound in the affected samples were qualified as estimated, (J). No action was taken for non-detected results.

- The SVOC Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses performed on sample 12TP17-000.5-01 yielded Percent Recoveries (%Rs) for 4,6-dinitro-2-methylphenol below the lower quality control limit. Additionally, the Relative Percent Difference (RPD) for 4-chloroaniline was above the 20% quality control limit. No action was taken in the parent sample for 4-chloroaniline because this result was rejected due to a more severe noncompliance. The non-detected result reported for 4,6-dinitro-2-methylphenol in the parent sample was qualified as biased low, (UL).

- Sample 12TP17-000.5-01 had a RPD for 4,4'-DDD was greater than the 40% quality control limit established in method 8180A. The positive result was qualified as estimated, (J).

- Positive results reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The VOC continuing calibration %D for carbon disulfide performed on instrument MSVOA_F on 12/27/11 @ 12:35 were greater than the 20% quality control limit but less than 50%. No action was necessary because no positive results were reported for these compounds in the affected samples.

The PAH surrogate spike compound, 2-fluorobiphenyl, had a %R below the lower quality control limit for sample 12TP17-000.5.-01. No action was taken in the affected sample because only one PAH surrogate was noncompliant.

The PEST %Rs for the surrogate spike compound, decachlorobiphenyl, was below the lower quality control limit on GC column 1 for all the PAH samples. No action was necessary because only one surrogate on one GC column was noncompliant.

The PCB %R for the surrogate spike compound, decachlorobiphenyl, was below the lower quality control limit on GC column 2 for sample12TP17-000.5.-01. No action was necessary because only one surrogate on one GC column was noncompliant.

The VOC blank spike, BSF1225S1, had a %R for 1,1-dichloroethane above the upper quality control limit. No action was necessary because no positive results were reported for this compound in the associated samples.

The VOC Matrix Spike (MS) analysis on sample 12TP17-000.5-01 yielded several %Rs outside the quality control limits. Furthermore, the MS %Rs for 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane were 0%. The MS sample had very low internal standards but the Matrix Spike Duplicate (MSD) sample, the initial analysis of the parent sample, and the reanalysis of the sample had acceptable internal standards indicating the issue was isolated to the MS sample. The MSD had several %Rs that were marginally outside the quality control limits and the associated blank spike had acceptable %Rs for the noncompliant compounds, therefore, no action was taken for the MS/MSD analyses noncompliances.

The SVOC MS/MSD analyses of laboratory sample C5068-11 had several RPDs above the 20% quality control limit. No action was taken because this sample was not part of this SDG.

The MS/MSD performed on sample 12TP17-000.5-01 in the PAH fraction RPDs for several of the PAH compounds exceeded the 30% quality control criterion. No action was taken for the noncompliant RPDs because the %Rs and blank spike %Rs were acceptable.

The PEST MS %Rs for endosulfan sulfate, methoxychlor, and endrin ketone were below the lower quality control limit. In addition, several RPDs were above the 20% quality control criterion. No action was taken because the MSD %Rs and blank spike %Rs were acceptable.

The laboratory reported results for the VOC and SVOC compounds, 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate, methylcyclohexane, 1,1'-biphenyl, 1,2,4,5-tetrachlorobenzene, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde, and caprolactum. These compounds were not part of the project-specific Sampling and Analysis Plan (SAP); therefore, the compounds were not reported in the database and were not included in the data review.

Non-detected results were reported to the laboratory Limit of Detection (LOD).

Executive Summary

Laboratory Performance: Some continuing calibrations had %Ds and %Drifts above the quality control limits in the VOC and PAH fractions. The SVOC blank spike sample had a %R < 10%. The SVOC MS sample had very low internal standard areas. The RPD between GC columns for one pesticide result was greater than 40%. Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated.

Other Factors Affecting Data Quality: Noncompliant surrogate %Rs were noted in the PAH, PEST and PCB fractions. The SVOC MS/MSD had issues due to the isolated low internal standard issues in the MS sample. SVOC, PAH, and PEST MS/MSD analyses had %Rs and RPDs outside the quality control limits.

The data for these analyses were reviewed with reference to Region III modifications to U.S. EPA National Functional Guidelines for Organic Data Validation (Sept. 1994). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	TB-01-122011
SDG: C5065	LAB_ID	C5065-01
FRACTION: OV	SAMP_DATE	12/20/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	100.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	2.5	U	
1,1,2,2-TETRACHLOROETHANE	2.5	U	
1,1,2-TRICHLOROETHANE	2.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	2.5	U	
1,1-DICHLOROETHANE	2.5	U	
1,1-DICHLOROETHENE	2.5	U	
1,2,3-TRICHLOROBENZENE	2.5	U	
1,2,4-TRICHLOROBENZENE	2.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	2.5	U	
1,2-DIBROMOETHANE	2.5	U	
1,2-DICHLOROBENZENE	2.5	U	
1,2-DICHLOROETHANE	2.5	U	
1,2-DICHLOROPROPANE	2.5	U	
1,3-DICHLOROBENZENE	2.5	U	
1,4-DICHLOROBENZENE	2.5	U	
2-BUTANONE	12.5	U	
2-HEXANONE	12.5	U	
4-METHYL-2-PENTANONE	12.5	U	
ACETONE	12.5	U	
BENZENE	2.5	U	
BROMODICHLOROMETHANE	2.5	U	
BROMOFORM	2.5	U	
BROMOMETHANE	2.5	U	
CARBON DISULFIDE	2.5	U	
CARBON TETRACHLORIDE	2.5	U	
CHLOROBENZENE	2.5	U	
CHLORODIBROMOMETHANE	2.5	U	
CHLOROETHANE	2.5	U	
CHLOROFORM	2.5	U	
CHLOROMETHANE	2.5	U	
CIS-1,2-DICHLOROETHENE	2.5	U	
CIS-1,3-DICHLOROPROPENE	2.5	U	
DICHLORODIFLUOROMETHANE	2.5	U	
ETHYLBENZENE	2.5	U	
ISOPROPYLBENZENE	2.5	U	

PROJ_NO: 02014	NSAMPLE	TB-01-122011
SDG: C5065	LAB_ID	C5065-01
FRACTION: OV	SAMP_DATE	12/20/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	100.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
M+P-XYLENES	5	U	
METHYL TERT-BUTYL ETHER	2.5	U	
METHYLENE CHLORIDE	2.5	U	
O-XYLENE	2.5	U	
STYRENE	2.5	U	
TETRACHLOROETHENE	2.5	U	
TOLUENE	2.5	U	
TOTAL XYLENES	7.5	U	
TRANS-1,2-DICHLOROETHENE	2.5	U	
TRANS-1,3-DICHLOROPROPENE	2.5	U	
TRICHLOROETHENE	2.5	U	
TRICHLOROFLUOROMETHANE	2.5	U	
VINYL CHLORIDE	2.5	U	

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-000.5-01			12TP18-0506-01			12TP18-0607-02		
SDG: C5065	LAB_ID	C5065-05			C5065-02			C5065-06			C5065-07		
FRACTION: OV	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			74.0			84.0			81.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,1,2,2-TETRACHLOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,1,2-TRICHLOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,1-DICHLOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,1-DICHLOROETHENE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2,3-TRICHLOROBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2,4-TRICHLOROBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2-DIBROMO-3-CHLOROPROPANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2-DIBROMOETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2-DICHLOROBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2-DICHLOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,2-DICHLOROPROPANE	2.5	U		2.95	U		2.7	U		2.6	U	
1,3-DICHLOROBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
1,4-DICHLOROBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
2-BUTANONE	12.5	U		15	U		7.2	J	P	13	U	
2-HEXANONE	12.5	U		15	U		13.5	U		13	U	
4-METHYL-2-PENTANONE	12.5	U		15	U		13.5	U		13	U	
ACETONE	12.5	U		28	J	CP	56			13	U	
BENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
BROMODICHLOROMETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
BROMOFORM	2.5	U		2.95	U		2.7	U		2.6	U	
BROMOMETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
CARBON DISULFIDE	2.5	U		2.95	U		2.7	U		2.6	U	
CARBON TETRACHLORIDE	2.5	U		2.95	U		2.7	U		2.6	U	
CHLOROBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
CHLORODIBROMOMETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
CHLOROETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
CHLOROFORM	2.5	U		2.95	U		2.7	U		2.6	U	
CHLOROMETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
CIS-1,2-DICHLOROETHENE	2.5	U		2.95	U		2.7	U		2.6	U	
CIS-1,3-DICHLOROPROPENE	2.5	U		2.95	U		2.7	U		2.6	U	
DICHLORODIFLUOROMETHANE	2.5	U		2.95	U		2.7	U		2.6	U	
ETHYLBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	
ISOPROPYLBENZENE	2.5	U		2.95	U		2.7	U		2.6	U	

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-000.5-01			12TP18-0506-01			12TP18-0607-02		
SDG: C5065	LAB_ID	C5065-05			C5065-02			C5065-06			C5065-07		
FRACTION: OV	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			74.0			84.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5	U		6	U		5.5	U		5	U	
METHYL TERT-BUTYL ETHER		2.5	U		2.95	U		2.7	U		2.6	U	
METHYLENE CHLORIDE		2.5	U		2.95	U		2.7	U		2.6	U	
O-XYLENE		2.5	U		2.95	U		2.7	U		2.6	U	
STYRENE		2.5	U		2.95	U		2.7	U		2.6	U	
TETRACHLOROETHENE		2.5	U		2.95	U		2.7	U		2.6	U	
TOLUENE		2.5	U		2.95	U		2.7	U		2.6	U	
TOTAL XYLENES		7.5	U		9	U		8	U		8	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.95	U		2.7	U		2.6	U	
TRANS-1,3-DICHLOROPROPENE		2.5	U		2.95	U		2.7	U		2.6	U	
TRICHLOROETHENE		2.5	U		2.95	U		2.7	U		2.6	U	
TRICHLOROFLUOROMETHANE		2.5	U		2.95	U		2.7	U		2.6	U	
VINYL CHLORIDE		2.5	U		2.95	U		2.7	U		2.6	U	

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-0.5-02-02GR2			12TP17-000.5-01			12TP17-000.5-01GR2		
SDG: C5065	LAB_ID	C5065-05			C5065-05			C5065-02			C5065-02		
FRACTION: OS	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			85.0			74.0			74.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		195	U					225	U				
2,4,5-TRICHLOROPHENOL		195	U					225	U				
2,4,6-TRICHLOROPHENOL		195	U					225	U				
2,4-DICHLOROPHENOL		195	U					225	U				
2,4-DIMETHYLPHENOL		195	U					225	U				
2,4-DINITROPHENOL		195	U					225	U				
2,4-DINITROTOLUENE		195	U					225	U				
2,6-DINITROTOLUENE		195	U					225	U				
2-CHLORONAPHTHALENE		195	U					225	U				
2-CHLOROPHENOL		195	U					225	U				
2-METHYLNAPHTHALENE		1.95	U					2.25	U				
2-METHYLPHENOL		195	U					225	U				
2-NITROANILINE		195	U					225	U				
2-NITROPHENOL		195	U					225	U				
3&4-METHYLPHENOL		195	U					225	U				
3,3'-DICHLOROBENZIDINE		195	U					225	U				
3-NITROANILINE		195	U					225	U				
4,6-DINITRO-2-METHYLPHENOL		195	U					225	UL	D			
4-BROMOPHENYL PHENYL ETHER		195	U					225	U				
4-CHLORO-3-METHYLPHENOL		195	U					225	U				
4-CHLOROANILINE		195	UR	E				225	UR	E			
4-CHLOROPHENYL PHENYL ETHER		195	U					225	U				
4-NITROANILINE		195	U					225	U				
4-NITROPHENOL		195	U					225	U				
ACENAPHTHENE					1.95	U					2.25	U	
ACENAPHTHYLENE					1.95	U					2.25	U	
ANTHRACENE		1.95	U					2.25	U				
BENZO(A)ANTHRACENE		1.95	U					11					
BENZO(A)PYRENE		1.95	U					12					
BENZO(B)FLUORANTHENE		1.95	U					18					
BENZO(G,H,I)PERYLENE		1.95	U					6.3	J	C			
BENZO(K)FLUORANTHENE		1.95	U					6.3					
BIS(2-CHLOROETHOXY)METHANE		195	U					225	U				
BIS(2-CHLOROETHYL)ETHER		195	U					225	U				
BIS(2-ETHYLHEXYL)PHTHALATE		195	U					225	U				

PROJ_NO: 02014	NSAMPLE	12TP18-0506-01			12TP18-0506-01GR2			12TP18-0607-02			12TP18-0607-02GR2		
SDG: C5065	LAB_ID	C5065-06			C5065-06			C5065-07			C5065-07		
FRACTION: OS	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			84.0			81.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		195	U					205	U				
2,4,5-TRICHLOROPHENOL		195	U					205	U				
2,4,6-TRICHLOROPHENOL		195	U					205	U				
2,4-DICHLOROPHENOL		195	U					205	U				
2,4-DIMETHYLPHENOL		195	U					205	U				
2,4-DINITROPHENOL		195	U					205	U				
2,4-DINITROTOLUENE		195	U					205	U				
2,6-DINITROTOLUENE		195	U					205	U				
2-CHLORONAPHTHALENE		195	U					205	U				
2-CHLOROPHENOL		195	U					205	U				
2-METHYLNAPHTHALENE		4						2.05	U				
2-METHYLPHENOL		195	U					205	U				
2-NITROANILINE		195	U					205	U				
2-NITROPHENOL		195	U					205	U				
3&4-METHYLPHENOL		195	U					205	U				
3,3'-DICHLOROBENZIDINE		195	U					205	U				
3-NITROANILINE		195	U					205	U				
4,6-DINITRO-2-METHYLPHENOL		195	U					205	U				
4-BROMOPHENYL PHENYL ETHER		195	U					205	U				
4-CHLORO-3-METHYLPHENOL		195	U					205	U				
4-CHLOROANILINE		195	UR	E				205	UR	E			
4-CHLOROPHENYL PHENYL ETHER		195	U					205	U				
4-NITROANILINE		195	U					205	U				
4-NITROPHENOL		195	U					205	U				
ACENAPHTHENE					3.6	J	P				2.05	U	
ACENAPHTHYLENE					2.4	J	P				2.05	U	
ANTHRACENE		7.5						2.05	U				
BENZO(A)ANTHRACENE		55						5.8					
BENZO(A)PYRENE		120						6.6					
BENZO(B)FLUORANTHENE		150						8.6					
BENZO(G,H,I)PERYLENE		95	J	C				4.5	J	C			
BENZO(K)FLUORANTHENE		49						2.9	J	P			
BIS(2-CHLOROETHOXY)METHANE		195	U					205	U				
BIS(2-CHLOROETHYL)ETHER		195	U					205	U				
BIS(2-ETHYLHEXYL)PHTHALATE		195	U					205	U				

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-0.5-02-02GR2			12TP17-000.5-01			12TP17-000.5-01GR2		
SDG: C5065	LAB_ID	C5065-05			C5065-05			C5065-02			C5065-02		
FRACTION: OS	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			85.0			74.0			74.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		195	U					225	U				
CARBAZOLE		195	U					225	U				
CHRYSENE		1.95	U					15					
DIBENZO(A,H)ANTHRACENE		1.95	U					2.25	U				
DIBENZOFURAN		195	U					225	U				
DIETHYL PHTHALATE		195	U					225	U				
DIMETHYL PHTHALATE		195	U					225	U				
DI-N-BUTYL PHTHALATE		195	U					225	U				
DI-N-OCTYL PHTHALATE		195	U					225	U				
FLUORANTHENE		3.9						37					
FLUORENE		1.95	U					2.25	U				
HEXACHLOROBENZENE		195	U					225	U				
HEXACHLOROBUTADIENE		195	U					225	U				
HEXACHLOROCYCLOPENTADIENE		195	U					225	U				
HEXACHLOROETHANE		195	U					225	U				
INDENO(1,2,3-CD)PYRENE		1.95	U					6.8					
ISOPHORONE		195	U					225	U				
NAPHTHALENE		1.95	U					2.25	U				
NITROBENZENE		195	U					225	U				
N-NITROSO-DI-N-PROPYLAMINE		195	U					225	U				
N-NITROSODIPHENYLAMINE		195	U					225	U				
PENTACHLOROPHENOL		195	U					225	U				
PHENANTHRENE					2.3	J	P				23		
PHENOL		195	U					225	U				
PYRENE		2.7	J	P				27					

PROJ_NO: 02014	NSAMPLE	12TP18-0506-01			12TP18-0506-01GR2			12TP18-0607-02			12TP18-0607-02GR2		
SDG: C5065	LAB_ID	C5065-06			C5065-06			C5065-07			C5065-07		
FRACTION: OS	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	84.0			84.0			81.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		195	U					205	U				
CARBAZOLE		195	U					205	U				
CHRYSENE		81						7.4					
DIBENZO(A,H)ANTHRACENE		5.5						2.05	U				
DIBENZOFURAN		195	U					205	U				
DIETHYL PHTHALATE		195	U					205	U				
DIMETHYL PHTHALATE		195	U					205	U				
DI-N-BUTYL PHTHALATE		195	U					205	U				
DI-N-OCTYL PHTHALATE		195	U					205	U				
FLUORANTHENE		94						8.6					
FLUORENE		4.3						2.05	U				
HEXACHLOROBENZENE		195	U					205	U				
HEXACHLOROBUTADIENE		195	U					205	U				
HEXACHLOROCYCLOPENTADIENE		195	U					205	U				
HEXACHLOROETHANE		195	U					205	U				
INDENO(1,2,3-CD)PYRENE		70						4.1					
ISOPHORONE		195	U					205	U				
NAPHTHALENE		4.7						2.05	U				
NITROBENZENE		195	U					205	U				
N-NITROSO-DI-N-PROPYLAMINE		195	U					205	U				
N-NITROSODIPHENYLAMINE		195	U					205	U				
PENTACHLOROPHENOL		195	U					205	U				
PHENANTHRENE					40						3.7	J	P
PHENOL		195	U					205	U				
PYRENE		83						8.6					

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-000.5-01			12TP18-0506-01			12TP18-0607-02		
SDG: C5065	LAB_ID	C5065-05			C5065-02			C5065-06			C5065-07		
FRACTION: PEST	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			74.2			83.7			81.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.9	J	P	1.4	J	PU	1.1	J	P	1.05	U	
4,4'-DDE		1	U		1.15	U		1	U		1.05	U	
4,4'-DDT		1	U		1.15	U		2.2			1.05	U	
ALDRIN		1	U		1.15	U		1	U		1.05	U	
ALPHA-BHC		1	U		1.15	U		1	U		1.05	U	
ALPHA-CHLORDANE		1	U		1.15	U		1	U		1.05	U	
BETA-BHC		1	U		1.15	U		1	U		1.05	U	
DELTA-BHC		1	U		1.15	U		1	U		1.05	U	
DIELDRIN		1	U		1.15	U		1	U		1.05	U	
ENDOSULFAN I		1	U		1.15	U		1	U		1.05	U	
ENDOSULFAN II		1	U		1.15	U		1	U		1.05	U	
ENDOSULFAN SULFATE		1	U		1.15	U		1	U		1.05	U	
ENDRIN		1	U		1.15	U		1	U		1.05	U	
ENDRIN ALDEHYDE		1	U		1.15	U		1	U		1.05	U	
ENDRIN KETONE		1	U		1.15	U		1	U		1.05	U	
GAMMA-BHC (LINDANE)		1	U		1.15	U		1	U		1.05	U	
GAMMA-CHLORDANE		1	U		1.15	U		1	U		1.05	U	
HEPTACHLOR		1	U		1.15	U		1	U		1.05	U	
HEPTACHLOR EPOXIDE		1	U		1.15	U		1	U		1.05	U	
METHOXYCHLOR		1	U		1.15	U		1	U		1.05	U	
TOXAPHENE		10	U		11.5	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-000.5-01			12TP18-0506-01			12TP18-0607-02		
SDG: C5065	LAB_ID	C5065-05			C5065-02			C5065-06			C5065-07		
FRACTION: PCB	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			74.0			84.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10	U		11.5	U		10	U		10.5	U	
AROCLOR-1221		10	U		11.5	U		10	U		10.5	U	
AROCLOR-1232		10	U		11.5	U		10	U		10.5	U	
AROCLOR-1242		10	U		11.5	U		10	U		10.5	U	
AROCLOR-1248		10	U		11.5	U		10	U		10.5	U	
AROCLOR-1254		10	U		11.5	U		10	U		10.5	U	
AROCLOR-1260		10	U		11.5	U		10	U		10.5	U	

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030361.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.5	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.97	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.95	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	1	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030361.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47		55 - 158	94%	SPK: 50
1868-53-7	Dibromofluoromethane	48.9		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	50.4		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.7		85 - 120	101%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	134600	4.4			
540-36-3	1,4-Difluorobenzene	261307	5.14			
3114-55-4	Chlorobenzene-d5	268479	9.34			
3855-82-1	1,4-Dichlorobenzene-d4	134333	12.25			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030361.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030344.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.95	U	0.77	5.9	ug/Kg
74-87-3	Chloromethane	2.95	U	1	5.9	ug/Kg
75-01-4	Vinyl Chloride	2.95	U	1.5	5.9	ug/Kg
74-83-9	Bromomethane	2.95	U	2.9	5.9	ug/Kg
75-00-3	Chloroethane	2.95	U	1.7	5.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.95	U	1.6	5.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.95	U	1.6	5.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.95	U	1.7	5.9	ug/Kg
67-64-1	Acetone	28	J	3.6	30	ug/Kg
75-15-0	Carbon Disulfide	2.95	U	1.3	5.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.95	U	1.1	5.9	ug/Kg
79-20-9	Methyl Acetate	2.95	U	1.8	5.9	ug/Kg
75-09-2	Methylene Chloride	2.95	U	1.7	5.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.95	U	0.82	5.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.95	U	1.1	5.9	ug/Kg
110-82-7	Cyclohexane	2.95	U	1.2	5.9	ug/Kg
78-93-3	2-Butanone	15	U	3.7	30	ug/Kg
56-23-5	Carbon Tetrachloride	2.95	U	1.2	5.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.95	U	1.1	5.9	ug/Kg
74-97-5	Bromochloromethane	2.95	U	0.93	5.9	ug/Kg
67-66-3	Chloroform	2.95	U	0.87	5.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.95	U	1	5.9	ug/Kg
108-87-2	Methylcyclohexane	2.95	U	1.3	5.9	ug/Kg
71-43-2	Benzene	2.95	U	0.45	5.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.95	U	0.76	5.9	ug/Kg
79-01-6	Trichloroethene	2.95	U	1	5.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.95	U	0.31	5.9	ug/Kg
75-27-4	Bromodichloromethane	2.95	U	0.73	5.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.4	30	ug/Kg
108-88-3	Toluene	2.95	U	0.76	5.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.95	U	0.93	5.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030344.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.95	U	0.85	5.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.95	U	1.1	5.9	ug/Kg
591-78-6	2-Hexanone	15	U	4.6	30	ug/Kg
124-48-1	Dibromochloromethane	2.95	U	0.64	5.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.95	U	0.76	5.9	ug/Kg
127-18-4	Tetrachloroethene	2.95	U	1.2	5.9	ug/Kg
108-90-7	Chlorobenzene	2.95	U	0.59	5.9	ug/Kg
100-41-4	Ethyl Benzene	2.95	U	0.73	5.9	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.85	12	ug/Kg
95-47-6	o-Xylene	2.95	U	0.8	5.9	ug/Kg
100-42-5	Styrene	2.95	U	0.53	5.9	ug/Kg
75-25-2	Bromoform	2.95	U	0.87	5.9	ug/Kg
98-82-8	Isopropylbenzene	2.95	U	0.57	5.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.95	U	0.54	5.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.95	U	0.44	5.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.95	U	0.48	5.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.95	U	0.73	5.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.95	U	1	5.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.95	U	0.83	5.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.95	U	0.59	5.9	ug/Kg
1330-20-7	Total Xylenes	9	U	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46.4		55 - 158	93%	SPK: 50
1868-53-7	Dibromofluoromethane	49.3		53 - 156	99%	SPK: 50
2037-26-5	Toluene-d8	50.6		85 - 115	101%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.9		85 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	71248	4.39			
540-36-3	1,4-Difluorobenzene	128848	5.13			
3114-55-4	Chlorobenzene-d5	129878	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	67363	12.24			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030344.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01RE	SDG No.:	C5065
Lab Sample ID:	C5065-02RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.24 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030360.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.2	U	0.84	6.4	ug/Kg
74-87-3	Chloromethane	3.2	U	1.1	6.4	ug/Kg
75-01-4	Vinyl Chloride	3.2	U	1.6	6.4	ug/Kg
74-83-9	Bromomethane	3.2	U	3.2	6.4	ug/Kg
75-00-3	Chloroethane	3.2	U	1.8	6.4	ug/Kg
75-69-4	Trichlorofluoromethane	3.2	U	1.7	6.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.2	U	1.7	6.4	ug/Kg
75-35-4	1,1-Dichloroethene	3.2	U	1.9	6.4	ug/Kg
67-64-1	Acetone	16	U	3.9	32	ug/Kg
75-15-0	Carbon Disulfide	3.2	U	1.4	6.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.2	U	1.2	6.4	ug/Kg
79-20-9	Methyl Acetate	3.2	U	1.9	6.4	ug/Kg
75-09-2	Methylene Chloride	3.2	U	1.8	6.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.2	U	0.89	6.4	ug/Kg
75-34-3	1,1-Dichloroethane	3.2	U	1.2	6.4	ug/Kg
110-82-7	Cyclohexane	3.2	U	1.3	6.4	ug/Kg
78-93-3	2-Butanone	16	U	4	32	ug/Kg
56-23-5	Carbon Tetrachloride	3.2	U	1.3	6.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.2	U	1.1	6.4	ug/Kg
74-97-5	Bromochloromethane	3.2	U	1	6.4	ug/Kg
67-66-3	Chloroform	3.2	U	0.95	6.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.2	U	1.1	6.4	ug/Kg
108-87-2	Methylcyclohexane	3.2	U	1.4	6.4	ug/Kg
71-43-2	Benzene	3.2	U	0.49	6.4	ug/Kg
107-06-2	1,2-Dichloroethane	3.2	U	0.83	6.4	ug/Kg
79-01-6	Trichloroethene	3.2	U	1.1	6.4	ug/Kg
78-87-5	1,2-Dichloropropane	3.2	U	0.34	6.4	ug/Kg
75-27-4	Bromodichloromethane	3.2	U	0.8	6.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16	U	3.8	32	ug/Kg
108-88-3	Toluene	3.2	U	0.83	6.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.2	U	1	6.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01RE	SDG No.:	C5065
Lab Sample ID:	C5065-02RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.24 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030360.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.2	U	0.93	6.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.2	U	1.2	6.4	ug/Kg
591-78-6	2-Hexanone	16	U	5.1	32	ug/Kg
124-48-1	Dibromochloromethane	3.2	U	0.7	6.4	ug/Kg
106-93-4	1,2-Dibromoethane	3.2	U	0.83	6.4	ug/Kg
127-18-4	Tetrachloroethene	3.2	U	1.3	6.4	ug/Kg
108-90-7	Chlorobenzene	3.2	U	0.64	6.4	ug/Kg
100-41-4	Ethyl Benzene	3.2	U	0.8	6.4	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.93	13	ug/Kg
95-47-6	o-Xylene	3.2	U	0.88	6.4	ug/Kg
100-42-5	Styrene	3.2	U	0.58	6.4	ug/Kg
75-25-2	Bromoform	3.2	U	0.95	6.4	ug/Kg
98-82-8	Isopropylbenzene	3.2	U	0.62	6.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.2	U	0.59	6.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.2	U	0.48	6.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.2	U	0.53	6.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.2	U	0.8	6.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.2	U	1.1	6.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.2	U	0.9	6.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.2	U	0.64	6.4	ug/Kg
1330-20-7	Total Xylenes	9.5	U	1.8	19	ug/Kg
123-91-1	1,4-Dioxane	65	U	130	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	64.3		55 - 158	129%	SPK: 50
1868-53-7	Dibromofluoromethane	56.6		53 - 156	113%	SPK: 50
2037-26-5	Toluene-d8	49.9		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.6	*	85 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	133276	4.4			
540-36-3	1,4-Difluorobenzene	290631	5.14			
3114-55-4	Chlorobenzene-d5	272806	9.34			
3855-82-1	1,4-Dichlorobenzene-d4	105051	12.25			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01RE	SDG No.:	C5065
Lab Sample ID:	C5065-02RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	5.24 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030360.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.48 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030362.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.71	5.4	ug/Kg
74-87-3	Chloromethane	2.7	U	0.93	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
74-83-9	Bromomethane	2.7	U	2.7	5.4	ug/Kg
75-00-3	Chloroethane	2.7	U	1.5	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	56		3.3	27	ug/Kg
75-15-0	Carbon Disulfide	2.7	U	1.2	5.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.7	U	1	5.4	ug/Kg
79-20-9	Methyl Acetate	2.7	U	1.6	5.4	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.75	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
110-82-7	Cyclohexane	2.7	U	1.1	5.4	ug/Kg
78-93-3	2-Butanone	7.2	J	3.4	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.7	U	1.1	5.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.97	5.4	ug/Kg
74-97-5	Bromochloromethane	2.7	U	0.86	5.4	ug/Kg
67-66-3	Chloroform	2.7	U	0.8	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.96	5.4	ug/Kg
108-87-2	Methylcyclohexane	2.7	U	1.2	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.7	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.93	5.4	ug/Kg
78-87-5	1,2-Dichloropropane	2.7	U	0.28	5.4	ug/Kg
75-27-4	Bromodichloromethane	2.7	U	0.67	5.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.2	27	ug/Kg
108-88-3	Toluene	2.7	U	0.7	5.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.7	U	0.86	5.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.48 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030362.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.7	U	0.78	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.98	5.4	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.3	27	ug/Kg
124-48-1	Dibromochloromethane	2.7	U	0.59	5.4	ug/Kg
106-93-4	1,2-Dibromoethane	2.7	U	0.7	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
108-90-7	Chlorobenzene	2.7	U	0.54	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.67	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.78	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.74	5.4	ug/Kg
100-42-5	Styrene	2.7	U	0.49	5.4	ug/Kg
75-25-2	Bromoform	2.7	U	0.8	5.4	ug/Kg
98-82-8	Isopropylbenzene	2.7	U	0.52	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.5	5.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.7	U	0.4	5.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.7	U	0.45	5.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.7	U	0.67	5.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.7	U	0.94	5.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.7	U	0.76	5.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.7	U	0.54	5.4	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.8		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	47.5		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	49.3		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.8		85 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	127947	4.41			
540-36-3	1,4-Difluorobenzene	242929	5.15			
3114-55-4	Chlorobenzene-d5	240332	9.34			
3855-82-1	1,4-Dichlorobenzene-d4	119186	12.25			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.48 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030362.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.88 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030349.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.68	5.2	ug/Kg
74-87-3	Chloromethane	2.6	U	0.9	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
74-83-9	Bromomethane	2.6	U	2.6	5.2	ug/Kg
75-00-3	Chloroethane	2.6	U	1.5	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.6	U	1.1	5.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.6	U	1	5.2	ug/Kg
79-20-9	Methyl Acetate	2.6	U	1.6	5.2	ug/Kg
75-09-2	Methylene Chloride	2.6	U	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.72	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.99	5.2	ug/Kg
110-82-7	Cyclohexane	2.6	U	1.1	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.6	U	1	5.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.93	5.2	ug/Kg
74-97-5	Bromochloromethane	2.6	U	0.83	5.2	ug/Kg
67-66-3	Chloroform	2.6	U	0.78	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.92	5.2	ug/Kg
108-87-2	Methylcyclohexane	2.6	U	1.1	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.4	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.67	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.9	5.2	ug/Kg
78-87-5	1,2-Dichloropropane	2.6	U	0.27	5.2	ug/Kg
75-27-4	Bromodichloromethane	2.6	U	0.65	5.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.6	U	0.67	5.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.6	U	0.83	5.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.88 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030349.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.6	U	0.76	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.94	5.2	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.6	U	0.57	5.2	ug/Kg
106-93-4	1,2-Dibromoethane	2.6	U	0.67	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1.1	5.2	ug/Kg
108-90-7	Chlorobenzene	2.6	U	0.52	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.65	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.76	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.71	5.2	ug/Kg
100-42-5	Styrene	2.6	U	0.47	5.2	ug/Kg
75-25-2	Bromoform	2.6	U	0.78	5.2	ug/Kg
98-82-8	Isopropylbenzene	2.6	U	0.5	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.6	U	0.39	5.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.6	U	0.43	5.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.6	U	0.65	5.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.6	U	0.91	5.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.6	U	0.73	5.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.6	U	0.52	5.2	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	50.9		85 - 115	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	52		85 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	113715	4.4			
540-36-3	1,4-Difluorobenzene	199512	5.14			
3114-55-4	Chlorobenzene-d5	209518	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	109672	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.88 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030349.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	TB-01-122011	SDG No.:	C5065
Lab Sample ID:	C5065-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045040.D	1		12/27/11	VH122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
74-87-3	Chloromethane	2.5	U	0.54	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
74-83-9	Bromomethane	2.5	U	0.62	5	ug/L
75-00-3	Chloroethane	2.5	U	0.66	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	0.45	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-15-0	Carbon Disulfide	2.5	U	0.54	5	ug/L
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.35	5	ug/L
79-20-9	Methyl Acetate	2.5	U	0.83	5	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
110-82-7	Cyclohexane	2.5	U	0.55	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
56-23-5	Carbon Tetrachloride	2.5	U	0.62	5	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
74-97-5	Bromochloromethane	2.5	U	2.2	5	ug/L
67-66-3	Chloroform	2.5	U	0.34	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
108-87-2	Methylcyclohexane	2.5	U	0.68	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
78-87-5	1,2-Dichloropropane	2.5	U	0.46	5	ug/L
75-27-4	Bromodichloromethane	2.5	U	0.36	5	ug/L
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.1	25	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.29	5	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	TB-01-122011	SDG No.:	C5065
Lab Sample ID:	C5065-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045040.D	1		12/27/11	VH122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.31	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
591-78-6	2-Hexanone	12.5	U	1.9	25	ug/L
124-48-1	Dibromochloromethane	2.5	U	0.52	5	ug/L
106-93-4	1,2-Dibromoethane	2.5	U	0.41	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
108-90-7	Chlorobenzene	2.5	U	0.49	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
100-42-5	Styrene	2.5	U	0.36	5	ug/L
75-25-2	Bromoform	2.5	U	0.47	5	ug/L
98-82-8	Isopropylbenzene	2.5	U	0.45	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
541-73-1	1,3-Dichlorobenzene	2.5	U	0.43	5	ug/L
106-46-7	1,4-Dichlorobenzene	2.5	U	0.32	5	ug/L
95-50-1	1,2-Dichlorobenzene	2.5	U	0.45	5	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.46	5	ug/L
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.62	5	ug/L
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.65	5	ug/L
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/L
123-91-1	1,4-Dioxane	50	U	20	100	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.4		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.1		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	59.5		85 - 120	119%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.5		75 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	213641	4.99			
540-36-3	1,4-Difluorobenzene	358002	5.71			
3114-55-4	Chlorobenzene-d5	403477	9.83			
3855-82-1	1,4-Dichlorobenzene-d4	220179	12.55			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	TB-01-122011	SDG No.:	C5065
Lab Sample ID:	C5065-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045040.D	1		12/27/11	VH122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052389.D	1	12/22/11	12/27/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	20	390	ug/Kg
108-95-2	Phenol	195	U	9	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	20	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	17	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	390	QU	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	17	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.5	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	27	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	8.9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	17	390	ug/Kg
131-11-3	Dimethylphthalate	195	U	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	9.9	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052389.D	1	12/22/11	12/27/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	73	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.1	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	51	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	22	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.4	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.6	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.6	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	15	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	390	QU	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	89.6		35 - 105	60%	SPK: 150
13127-88-3	Phenol-d5	96.8		40 - 100	65%	SPK: 150
4165-60-0	Nitrobenzene-d5	66.3		35 - 100	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	61.2		45 - 105	61%	SPK: 100
118-79-6	2,4,6-Tribromophenol	89.5		35 - 125	60%	SPK: 150
1718-51-0	Terphenyl-d14	63.8		30 - 125	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	110644	4.12			
1146-65-2	Naphthalene-d8	415285	5.33			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052389.D	1	12/22/11	12/27/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	213285	6.91			
1517-22-2	Phenanthrene-d10	330816	8.48			
1719-03-5	Chrysene-d12	279969	11.59			
1520-96-3	Perylene-d12	256229	13.19			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074695.D	1	12/22/11	12/28/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	225	U	23	450	ug/Kg
108-95-2	Phenol	225	U	10	450	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	225	U	22	450	ug/Kg
95-57-8	2-Chlorophenol	225	U	24	450	ug/Kg
95-48-7	2-Methylphenol	225	U	24	450	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	225	U	19	450	ug/Kg
98-86-2	Acetophenone	225	U	14	450	ug/Kg
65794-96-9	3+4-Methylphenols	225	U	23	450	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	225	U	23	450	ug/Kg
67-72-1	Hexachloroethane	225	U	20	450	ug/Kg
98-95-3	Nitrobenzene	225	U	17	450	ug/Kg
78-59-1	Isophorone	225	U	15	450	ug/Kg
88-75-5	2-Nitrophenol	225	U	22	450	ug/Kg
105-67-9	2,4-Dimethylphenol	225	U	26	450	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	225	U	26	450	ug/Kg
120-83-2	2,4-Dichlorophenol	225	U	17	450	ug/Kg
106-47-8	4-Chloroaniline	450	QU	32	450	ug/Kg
87-68-3	Hexachlorobutadiene	225	U	16	450	ug/Kg
105-60-2	Caprolactam	225	U	21	450	ug/Kg
59-50-7	4-Chloro-3-methylphenol	225	U	20	450	ug/Kg
77-47-4	Hexachlorocyclopentadiene	225	U	11	450	ug/Kg
88-06-2	2,4,6-Trichlorophenol	225	U	14	450	ug/Kg
95-95-4	2,4,5-Trichlorophenol	225	U	32	450	ug/Kg
92-52-4	1,1-Biphenyl	225	U	17	450	ug/Kg
91-58-7	2-Chloronaphthalene	225	U	10	450	ug/Kg
88-74-4	2-Nitroaniline	225	U	20	450	ug/Kg
131-11-3	Dimethylphthalate	225	U	12	450	ug/Kg
208-96-8	Acenaphthylene	225	U	11	450	ug/Kg
606-20-2	2,6-Dinitrotoluene	225	U	18	450	ug/Kg
99-09-2	3-Nitroaniline	225	U	29	450	ug/Kg
83-32-9	Acenaphthene	225	U	13	450	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074695.D	1	12/22/11	12/28/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	225	U	46	450	ug/Kg
100-02-7	4-Nitrophenol	225	U	84	450	ug/Kg
132-64-9	Dibenzofuran	225	U	18	450	ug/Kg
121-14-2	2,4-Dinitrotoluene	225	U	14	450	ug/Kg
84-66-2	Diethylphthalate	225	U	7	450	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	225	U	24	450	ug/Kg
100-01-6	4-Nitroaniline	225	U	59	450	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	225	U	26	450	ug/Kg
86-30-6	N-Nitrosodiphenylamine	225	U	11	450	ug/Kg
101-55-3	4-Bromophenyl-phenylether	225	U	8.8	450	ug/Kg
118-74-1	Hexachlorobenzene	225	U	18	450	ug/Kg
1912-24-9	Atrazine	225	U	24	450	ug/Kg
87-86-5	Pentachlorophenol	225	U	31	450	ug/Kg
85-01-8	Phenanthrene	225	U	12	450	ug/Kg
86-74-8	Carbazole	225	U	9.9	450	ug/Kg
84-74-2	Di-n-butylphthalate	225	U	35	450	ug/Kg
85-68-7	Butylbenzylphthalate	225	U	22	450	ug/Kg
91-94-1	3,3-Dichlorobenzidine	225	U	29	450	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	225	U	16	450	ug/Kg
117-84-0	Di-n-octyl phthalate	225	U	5.1	450	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	225	U	18	450	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	450	QU	450	450	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	125		35 - 105	84%	SPK: 150
13127-88-3	Phenol-d5	130		40 - 100	87%	SPK: 150
4165-60-0	Nitrobenzene-d5	76.4		35 - 100	76%	SPK: 100
321-60-8	2-Fluorobiphenyl	72.1		45 - 105	72%	SPK: 100
118-79-6	2,4,6-Tribromophenol	127		35 - 125	85%	SPK: 150
1718-51-0	Terphenyl-d14	71.5		30 - 125	71%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	85843	8.65			
1146-65-2	Naphthalene-d8	350705	10.83			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074695.D	1	12/22/11	12/28/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	179434	13.79			
1517-22-2	Phenanthrene-d10	349831	16.27			
1719-03-5	Chrysene-d12	291827	20.73			
1520-96-3	Perylene-d12	263966	24.43			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074699.D	1	12/22/11	12/29/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	21	390	ug/Kg
108-95-2	Phenol	195	U	9.1	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	21	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	18	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	390	QU	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	18	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.6	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	28	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	18	390	ug/Kg
131-11-3	Dimethylphthalate	195	U	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	10	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074699.D	1	12/22/11	12/29/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	73	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.2	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	51	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	23	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.5	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.7	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.7	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	16	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	390	QU	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	118		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	127		40 - 100	85%	SPK: 150
4165-60-0	Nitrobenzene-d5	77.6		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.4		45 - 105	74%	SPK: 100
118-79-6	2,4,6-Tribromophenol	117		35 - 125	79%	SPK: 150
1718-51-0	Terphenyl-d14	74.2		30 - 125	74%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	88630	8.65			
1146-65-2	Naphthalene-d8	354004	10.83			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074699.D	1	12/22/11	12/29/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	192764	13.79			
1517-22-2	Phenanthrene-d10	351701	16.27			
1719-03-5	Chrysene-d12	297709	20.72			
1520-96-3	Perylene-d12	274152	24.43			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052886.D	1	12/22/11	01/12/12	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	410	UQ	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052886.D	1	12/22/11	01/12/12	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	53	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	410	UQ	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	107		35 - 105	72%	SPK: 150
13127-88-3	Phenol-d5	121		40 - 100	81%	SPK: 150
4165-60-0	Nitrobenzene-d5	93.6		35 - 100	94%	SPK: 100
321-60-8	2-Fluorobiphenyl	88.8		45 - 105	89%	SPK: 100
118-79-6	2,4,6-Tribromophenol	88.8		35 - 125	59%	SPK: 150
1718-51-0	Terphenyl-d14	86.2		30 - 125	86%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	105138	4.97			
1146-65-2	Naphthalene-d8	372698	6.12			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF052886.D	1	12/22/11	01/12/12	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	222349	7.85			
1517-22-2	Phenanthrene-d10	362220	9.52			
1719-03-5	Chrysene-d12	321510	12.73			
1520-96-3	Perylene-d12	328569	14.74			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002570.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.47	3.9	ug/Kg
85-01-8	Phenanthrene	2.3	J	0.47	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.47	3.9	ug/Kg
206-44-0	Fluoranthene	3.9		0.47	3.9	ug/Kg
129-00-0	Pyrene	2.7	J	0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	1.95	U	0.47	3.9	ug/Kg
218-01-9	Chrysene	1.95	U	0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.95	U	0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.95	U	0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	1.95	U	0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	66		30 - 150	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.4		45 - 105	51%	SPK: 100
1718-51-0	Terphenyl-d14	47.8		30 - 125	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	59410	7.92			
1146-65-2	Naphthalene-d8	206104	10.1			
15067-26-2	Acenaphthene-d10	123105	13.08			
1517-22-2	Phenanthrene-d10	196076	15.53			
1719-03-5	Chrysene-d12	219805	19.9			
1520-96-3	Perylene-d12	207648	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002570.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002565.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.25	U	0.54	4.5	ug/Kg
91-57-6	2-Methylnaphthalene	2.25	U	0.54	4.5	ug/Kg
208-96-8	Acenaphthylene	2.25	U	0.54	4.5	ug/Kg
83-32-9	Acenaphthene	2.25	U	0.54	4.5	ug/Kg
86-73-7	Fluorene	2.25	U	0.54	4.5	ug/Kg
85-01-8	Phenanthrene	23		0.54	4.5	ug/Kg
120-12-7	Anthracene	2.25	U	0.54	4.5	ug/Kg
206-44-0	Fluoranthene	37		0.54	4.5	ug/Kg
129-00-0	Pyrene	27		0.54	4.5	ug/Kg
56-55-3	Benzo(a)anthracene	11		0.54	4.5	ug/Kg
218-01-9	Chrysene	15		0.54	4.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	18		0.54	4.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	6.3		0.54	4.5	ug/Kg
50-32-8	Benzo(a)pyrene	12		0.54	4.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	6.8		0.54	4.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.25	U	0.54	4.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	6.3		0.54	4.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.3		30 - 150	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	43.6	*	45 - 105	44%	SPK: 100
1718-51-0	Terphenyl-d14	42.6		30 - 125	43%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	70552	7.92			
1146-65-2	Naphthalene-d8	252658	10.1			
15067-26-2	Acenaphthene-d10	156230	13.08			
1517-22-2	Phenanthrene-d10	262236	15.53			
1719-03-5	Chrysene-d12	269302	19.9			
1520-96-3	Perylene-d12	253105	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002565.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002585.D	1	12/22/11	01/01/12	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.7		0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	4		0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	2.4	J	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	3.6	J	0.47	3.9	ug/Kg
86-73-7	Fluorene	4.3		0.47	3.9	ug/Kg
85-01-8	Phenanthrene	40		0.47	3.9	ug/Kg
120-12-7	Anthracene	7.5		0.47	3.9	ug/Kg
206-44-0	Fluoranthene	94		0.47	3.9	ug/Kg
129-00-0	Pyrene	83		0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	55		0.47	3.9	ug/Kg
218-01-9	Chrysene	81		0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	150		0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	49		0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	120		0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	70		0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5.5		0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	95		0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	78.2		30 - 150	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	61		45 - 105	61%	SPK: 100
1718-51-0	Terphenyl-d14	56.8		30 - 125	57%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	56164	7.92			
1146-65-2	Naphthalene-d8	191386	10.11			
15067-26-2	Acenaphthene-d10	116506	13.08			
1517-22-2	Phenanthrene-d10	197857	15.53			
1719-03-5	Chrysene-d12	209879	19.9			
1520-96-3	Perylene-d12	179369	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002585.D	1	12/22/11	01/01/12	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002579.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	3.7	J	0.49	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.49	4.1	ug/Kg
206-44-0	Fluoranthene	8.6		0.49	4.1	ug/Kg
129-00-0	Pyrene	8.6		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	5.8		0.49	4.1	ug/Kg
218-01-9	Chrysene	7.4		0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	8.6		0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.9	J	0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	6.6		0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	4.1		0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	4.5		0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	75		30 - 150	75%	SPK: 100
321-60-8	2-Fluorobiphenyl	58.4		45 - 105	58%	SPK: 100
1718-51-0	Terphenyl-d14	53.8		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	51581	7.93			
1146-65-2	Naphthalene-d8	176245	10.1			
15067-26-2	Acenaphthene-d10	106477	13.08			
1517-22-2	Phenanthrene-d10	176115	15.53			
1719-03-5	Chrysene-d12	193162	19.9			
1520-96-3	Perylene-d12	189999	22.97			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002579.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	15 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007315.D	1	12/22/11	01/04/12	PB60131

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.23	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	2.1		0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	11	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.54	*	55 - 130	43%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.8		70 - 125	99%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	25.8 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007312.D	1	12/22/11	01/04/12	PB60131

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	1.15	U	0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	2.3	JP	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	6.21	*	55 - 130	31%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.6		70 - 125	83%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
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LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	16.3 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007316.D	1	12/22/11	01/04/12	PB60131

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1.1	J	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	2.6		0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	9.69	*	55 - 130	48%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.8		70 - 125	104%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	18.6 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007317.D	1	12/22/11	01/04/12	PB60131

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	10.4	*	55 - 130	52%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.6		70 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	15 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006275.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.8	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.7	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.1		10 - 166	85%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.4		60 - 125	82%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	26 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006274.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.7	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.6	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	10	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.6	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.9	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.9		10 - 166	59%	SPK: 20
2051-24-3	Decachlorobiphenyl	17		60 - 125	85%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	16 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006278.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.8	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.7		10 - 166	99%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.9		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006279.D	1	12/22/11	12/24/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.7		10 - 166	74%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.1		60 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Appendix C

Support Documentation

NASJRB WILLOW GROVE
SDG C5065

SAMPLE IDENTIFICATION	12TP18-0506-01
COMPOUND	BENZO(B)FLUORANTHENE
COMPOUND AREA	1417497
INTERNAL STANDARD AMOUNT (ng)	5
DILUTION FACTOR	1
INTERNAL STANDARD AREA	179369
AVERAGE RRF	10.733
% SOLIDS	0.84
WEIGHT OF SAMPLE (g)	30.11
VOLUME EXTRACT (µl)	1000
VOLUME INJECTED (µl)	1
ng to µg	1000
g to Kg	1000
CONCENTRATION =	145.56 µg/Kg

1417497 x 5ng x 1 x 1000µl 1µg x 1000g/(179369 x 10.733 x 30.11g x 1µl x 0.84 x 1000ng x 1Kg)

Quantitation Report (QT Reviewed)

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG123111\
Data File : BG002585.D
Acq On : 1 Jan 2012 3:52
Operator : HNP
Sample : C5065-06 12TP18-0506.01
Misc : PAH
ALS Vial : 47 Sample Multiplier: 1

Quant Time: Jan 03 16:29:13 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG121211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Dec 28 18:33:42 2011
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.92	152	56164	5.00	ng		-0.05
2) Naphthalene-d8	10.11	136	191386	5.00	ng		-0.05
7) Acenaphthene-d10	13.08	164	116506	5.00	ng		-0.03
12) Phenanthrene-d10	15.53	188	197857	5.00	ng		-0.05
16) Chrysene-d12	19.90	240	209879	5.00	ng		-0.06
23) Perylene-d12	22.97	264	179369	5.00	ng		-0.26
System Monitoring Compounds							
3) Nitrobenzene-d5	8.86	82	1213620	78.20	ng		-0.05
8) 2-Fluorobiphenyl	11.96	172	2096785	61.02	ng		-0.02
18) Terphenyl-d14	18.16	244	1856880	56.76	ng		-0.04
Target Compounds							Qvalue
4) Naphthalene	10.15	128	18254	0.12	ng		99
5) 2-Methylnapthalene	11.32	142	10583	0.10	ng	#	98
6) 1-Methylnapthalene	11.49	142	7318	0.07	ng	#	95
9) Acenaphthylene	12.84	152	9108	0.06	ng	#	83
10) Acenaphthene	13.13	154	2290	0.09	ng		99
11) Fluorene	13.99	166	3361	0.11	ng	#	91
13) Phenanthrene	15.57	178	173088	1.02	ng		98
14) Anthracene	15.66	178	31435m	0.19	ng		
15) Fluoranthene	17.54	202	411100	2.37	ng		100
17) Pyrene	17.91	202	419662	2.10	ng		95
20) Benzo(a)anthracene	19.88	228	273496m	1.40	ng		
21) Chrysene	19.95	228	382597	2.06	ng		97
22) Indeno(1,2,3-cd)pyrene	26.51	276	303590m	1.78	ng		
→ 24) Benzo(b)fluoranthene	22.00	252	1417497m	3.68	ng		
25) Benzo(k)fluoranthene	22.05	252	471930m	1.23	ng		
26) Benzo(a)pyrene	22.81	252	1052912	2.91	ng		97
27) Dibenzo(a,h)anthracene	26.76	278	4650m	0.14	ng		
28) Benzo(g,h,i)perylene	27.61	276	339550m	2.40	ng		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

$\overline{RRF}$ = 10.733

extraction = 30.11 g/1L

% solids = 9.47%

NASJRB WILLOW GROVE
SDG C5146

SAMPLE IDENTIFICATION	12TP18-0506-01
COMPOUND	4,4'-DDT
COMPOUND AREA	1.00E+09
AVERAGE CF	1.78706E+11
DILUTION FACTOR	1
% SOLIDS	0.84
WEIGHT OF SAMPLE (g)	30.08
VOLUME EXTRACT (µl)	10000
VOLUME INJECTED (µl)	1
ng to µg	1000
g to Kg	1000
CONCENTRATION =	2.22 µg/Kg

1000.6E6 Area x 10000µl x 1 x 1000g x 1µg/(178705708656 Area/ng 30.08g x 0.84 X 1µl x 1000ng x 1Kg)

Quantitation Report (Not Reviewed)

Data Path : P:\HPCHEM1\Ecd_D\Data\PD010412\
Data File : PD007316.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 04 Jan 2012 16:08
Operator : JJ
Sample : C5065-06 12TP12 0506-01
Misc :
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jan 05 01:51:06 2012
Quant Method : P:\HPCHEM1\Ecd_D\Method\PD010312.M
Quant Title : GC Extractables
QLast Update : Wed Jan 04 04:14:55 2012
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 2 µl
Signal #1 Phase : ZB-MR2 Signal #2 Phase: ZB-MR1
Signal #1 Info : 30M x 0.32mm x0.2 Signal #2 Info : 30M x 0.32mm x 0.50µm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/ml	ng/ml	
	System Monitoring Compounds							
1)	SA Tetrachlo...	3.333	3.918	2829.0E6	868.4E6	20.757	21.435	
22)	SA Decachlor...	8.059	9.009	1332.6E6	434.6E6	9.694	16.493	#
	Target Compounds							
3)	MA gamma-BHC...	4.060	0.000	859.0E6	0	4.348	N.D.	#
6)	B beta-BHC	4.240f	0.000	370.7E6	0	3.922	N.D.	#
12)	B 4,4'-DDE	5.476	0.000	440.6E6	0	2.152	N.D.	#
16)	A 4,4'-DDD	5.992	6.754	469.3E6	186.9E6	2.729	4.777	#
17)	MA 4,4'-DDT	6.230	7.058	1000.6E6	255.6E6	5.599	6.621	

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

CF = 1787057084.56

% solids = 84.20

extraction = 30.08g / 1ml

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5065
QUOTE NO.
COC Number 021243

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 231 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION
PROJECT NAME: NASJRB Willow Grove
PROJECT NO: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at TetraTech.com
PHONE: 610 382 1170 FAX: 6104919645

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS
1 TCL VOC Encore
2 TCL SVOC / PAH Sim
3 PEST / PCB
4 Metals, Hg, Cn, pH
5 ORP
6 ORP / pH
7 TCL VOC 40 ml VOA Vial HCl
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
KL 12/21 (1)																	← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	T13-01-122011	AQ		✓	12/20/11	0730	2							2			
2. 3. 4.	12TP17-0001.5-01	Soil		✓	12/20/11	0950	16	9	2	2	2	2					Do MS/MSD
5.	12TP17-0.5-02-02	Soil		✓	12/20/11	1020	7	3	1	1	1	1					
6.	~~12TP17-0506-03~~	~~Soil~~		✓	~~12/20/11~~	~~1125~~	~~7~~	~~3~~	~~1~~	~~1~~	~~1~~	~~1~~	CM 12/20/11				
6.	12TP18-0506-01	Soil		✓	12/20/11	1250	7	3	1	1	1	1					
7.	12TP18-0607-02	Soil		✓	12/20/11	1430	7	3	1	1	1	1					
7. 8.	12TP12-0203-CS	Soil		✓	12/20/11	1600	1						1				
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/20/11 1830	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/21/11 9:15	3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

~~SHIPPED VIA FEDERAL EXPRESS~~ Airbill NO 8744 5964 0100

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_F were done using GC column RTX-VMS, which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_H were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied BY OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP17-000.5-01RE [4-Bromofluorobenzene - 83%].
The Internal Standards Areas met the acceptable requirements except for 12TP17-000.5-01MS.
The Retention Times were acceptable for all samples.
The MS {C5065-03MS} with File ID: VF030345.D recoveries met the requirements for all compounds except for 1,1,2,2-Tetrachloroethane[0%], 1,1,2-Trichloroethane[59%], 1,2,3-Trichlorobenzene[13%], 1,2,4-Trichlorobenzene[22%], 1,2-Dibromo-3-Chloropropane[0%], 1,2-Dibromoethane[66%], 1,2-Dichlorobenzene[56%], 1,3-Dichlorobenzene[60%], 1,4-Dichlorobenzene[57%], 1,4-Dioxane[67%], Bromodichloromethane[68%], Bromoform[50%], Chlorobenzene[69%], Chloroethane[162%], cis-1,3-Dichloropropene[53%], Dibromochloromethane[63%], Ethyl Benzene[68%], Isopropylbenzene[68%], m/p-Xylenes[67%], o-Xylene[62%], Styrene[53%], t-1,3-Dichloropropene[62%] and Toluene[68%] .
The MSD {C5065-04MSD} with File ID: VF030346.D recoveries met the acceptable requirements except for 1,2,3-Trichlorobenzene[31%], 1,2,4-Trichlorobenzene[35%],

1,2-Dibromoethane[62%], 1,2-Dichlorobenzene[57%], 1,3-Dichlorobenzene[62%], 1,4-Dichlorobenzene[60%], 1,4-Dioxane[50%], 2-Hexanone[41%], Bromoform[57%], Chlorobenzene[66%], cis-1,3-Dichloropropene[59%], Ethyl Benzene[69%], Isopropylbenzene[74%], m/p-Xylenes[67%], o-Xylene[69%], Styrene[59%], t-1,3-Dichloropropene[59%] and Trichloroethene[69%] .
The RPD for {C5065-04MSD} with File ID: VF030346.D recoveries met criteria except for 1,1,2,2-Tetrachloroethane[200%], 1,2,3-Trichlorobenzene[82%], 1,2,4-Trichlorobenzene[46%], 1,2-Dibromo-3-Chloropropane[200%], 1,4-Dioxane[29%], 2-Butanone[29%], 2-Hexanone[26%], Acetone[63%], Bromochloromethane[25%], Bromomethane[48%], Chloroethane[42%], Methyl Acetate[44%], trans-1,2-Dichloroethene[25%], Trichloroethene[31%] and Trichlorofluoromethane[24%] .
The Blank Spike for {BSF1225S1} with File ID: VF030337.D met requirements for all samples except for 1,1-Dichloroethane[130%] .
The Blank Spike Duplicate met requirements for all samples .The Blank Spike for {BSF1227S1} with File ID: VF030357.D met requirements for all samples except for 1,4-Dioxane[65%] .The Blank Spike for {BSH1227W2} with File ID: VH045030.D met requirements for all samples except for 2-Hexanone[138%], 4-Methyl-2-Pentanone[138%] and Chloromethane[130%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements
The Continuous Calibration File ID VF030335.D met the requirements except for Methyl Acetate,Methylene Chloride,Acetone,2-Butanone
Sample 12TP17-000.5-01 was reanalyzed due continuing calibration failure.
The Continuous Calibration File ID VF030355.D met the requirements except for Vinyl Chloride,Carbon Disulfide and 1,4-Dioxane.
The Continuous Calibration File ID VH045019.D met the requirements except for 1,4-Dioxane .
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.18 08:37:55 -05'00'

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value. This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF1225S1	BSF1225S1	1,2-Dichloroethane-d4	50	54.73	109		55	158
		Dibromofluoromethane	50	56.15	112		53	156
		Toluene-d8	50	55.35	111		85	115
		4-Bromofluorobenzene	50	54.11	108		85	120
BSF1227S1	BSF1227S1	1,2-Dichloroethane-d4	50	50.96	102		55	158
		Dibromofluoromethane	50	55.35	111		53	156
		Toluene-d8	50	56.26	113		85	115
		4-Bromofluorobenzene	50	52.34	105		85	120
BSH1227W2	BSH1227W2	1,2-Dichloroethane-d4	50	49.03	98		70	120
		Dibromofluoromethane	50	45.77	92		85	115
		Toluene-d8	50	46.45	93		85	120
		4-Bromofluorobenzene	50	44.36	89		75	120
C5065-01	TB-01-122011	1,2-Dichloroethane-d4	50	50.41	101		70	120
		Dibromofluoromethane	50	50.09	100		85	115
		Toluene-d8	50	59.5	119		85	120
		4-Bromofluorobenzene	50	53.52	107		75	120
C5065-02	12TP17-000.5-01	1,2-Dichloroethane-d4	50	46.43	93		55	158
		Dibromofluoromethane	50	49.33	99		53	156
		Toluene-d8	50	50.55	101		85	115
		4-Bromofluorobenzene	50	49.94	100		85	120
C5065-02RE	12TP17-000.5-01RE	1,2-Dichloroethane-d4	50	64.29	129		55	158
		Dibromofluoromethane	50	56.6	113		53	156
		Toluene-d8	50	49.92	100		85	115
		4-Bromofluorobenzene	50	41.63	83	*	85	120
C5065-03MS	12TP17-000.5-01MS	1,2-Dichloroethane-d4	50	48.62	97		55	158
		Dibromofluoromethane	50	49.03	98		53	156
		Toluene-d8	50	48.85	98		85	115
		4-Bromofluorobenzene	50	53.26	107		85	120
C5065-04MSD	12TP17-000.5-01MSD	1,2-Dichloroethane-d4	50	43.71	87		55	158
		Dibromofluoromethane	50	48.27	97		53	156
		Toluene-d8	50	51.02	102		85	115
		4-Bromofluorobenzene	50	48.89	98		85	120
C5065-05	12TP17-0.5-02-02	1,2-Dichloroethane-d4	50	47.04	94		55	158
		Dibromofluoromethane	50	48.87	98		53	156
		Toluene-d8	50	50.36	101		85	115
		4-Bromofluorobenzene	50	50.74	101		85	120
C5065-06	12TP18-0506-01	1,2-Dichloroethane-d4	50	43.85	88		55	158
		Dibromofluoromethane	50	47.52	95		53	156
		Toluene-d8	50	49.26	99		85	115
		4-Bromofluorobenzene	50	48.82	98		85	120
C5065-07	12TP18-0607-02	1,2-Dichloroethane-d4	50	43.99	88		55	158
		Dibromofluoromethane	50	48.37	97		53	156
		Toluene-d8	50	50.86	102		85	115
		4-Bromofluorobenzene	50	52.01	104		85	120
VBF1225S1	VBF1225S1	1,2-Dichloroethane-d4	50	43.23	86		55	158
		Dibromofluoromethane	50	47.82	96		53	156
		Toluene-d8	50	50.12	100		85	115
		4-Bromofluorobenzene	50	52.52	105		85	120
VBF1227S1	VBF1227S1	1,2-Dichloroethane-d4	50	49.15	98		55	158
		Dibromofluoromethane	50	54.25	109		53	156
		Toluene-d8	50	55.32	111		85	115
		4-Bromofluorobenzene	50	49.42	99		85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
VBH1227W1	VBH1227W1	1,2-Dichloroethane-d4	50	37.92	76		70	120
		Dibromofluoromethane	50	44.76	90		85	115
		Toluene-d8	50	53.69	107		85	120
		4-Bromofluorobenzene	50	44.9	90		75	120

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030335.D Date Analyzed: 12/25/2011

Instrument ID: MSVOA_F Time Analyzed: 15:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	117617	4.38	216334	5.12	211548	9.32
UPPER LIMIT	235234	4.88	432668	5.62	423096	9.82
LOWER LIMIT	58808.5	3.88	108167	4.62	105774	8.82
EPA SAMPLE NO.						
BSF1225S1	156516	4.38	274695	5.12	262257	9.32
12TP17-000.5-01	71248	4.39	128848	5.13	129878	9.33
12TP17-000.5-01MS	15077 *	4.38	29966 *	5.12	31532 *	9.33
12TP17-000.5-01MSD	97932	4.39	182326	5.13	178652	9.33
12TP18-0607-02	113715	4.40	199512	5.14	209518	9.33
VBF1225S1	130758	4.38	238141	5.12	245851	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030335.D Date Analyzed: 12/25/2011

Instrument ID: MSVOA_F Time Analyzed: 15:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	116794	12.23				
UPPER LIMIT	233588	12.73				
LOWER LIMIT	58397	11.73				
EPA SAMPLE NO.						
BSF1225S1	144413	12.24				
12TP17-000.5-01	67363	12.24				
12TP17-000.5-01MS	16195 *	12.23				
12TP17-000.5-01MSD	87175	12.24				
12TP18-0607-02	109672	12.24				
VBF1225S1	130272	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030355.D Date Analyzed: 12/27/2011

Instrument ID: MSVOA_F Time Analyzed: 12:35

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	158198	4.38	272828	5.12	254680	9.33
UPPER LIMIT	316396	4.88	545656	5.62	509360	9.83
LOWER LIMIT	79099	3.88	136414	4.62	127340	8.83
EPA SAMPLE NO.						
BSF1227S1	159266	4.39	268937	5.13	248341	9.33
12TP17-000.5-01RE	133276	4.40	290631	5.14	272806	9.34
12TP17-0.5-02-02	134600	4.40	261307	5.14	268479	9.34
12TP18-0506-01	127947	4.41	242929	5.15	240332	9.34
VBF1227S1	166331	4.39	283773	5.13	261695	9.33

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030355.D Date Analyzed: 12/27/2011

Instrument ID: MSVOA_F Time Analyzed: 12:35

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	132650	12.24				
UPPER LIMIT	265300	12.74				
LOWER LIMIT	66325	11.74				
EPA SAMPLE NO.						
BSF1227S1	134685	12.25				
12TP17-000.5-01RE	105051	12.25				
12TP17-0.5-02-02	134333	12.25				
12TP18-0506-01	119186	12.25				
VBF1227S1	133863	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VH045019.D Date Analyzed: 12/27/2011

Instrument ID: MSVOAH Time Analyzed: 12:53

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	370232	4.96	541846	5.68	570694	9.80
UPPER LIMIT	740464	5.46	1083692	6.18	1141388	10.3
LOWER LIMIT	185116	4.46	270923	5.18	285347	9.3
EPA SAMPLE NO.						
BSH1227W2	551327	5.00	993753	5.71	1003192	9.83
TB-01-122011	213641	4.99	358002	5.71	403477	9.83
VBH1227W1	291826	4.96	526712	5.68	506204	9.81

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VH045019.D Date Analyzed: 12/27/2011

Instrument ID: MSVOAH Time Analyzed: 12:53

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	402448	12.53				
UPPER LIMIT	804896	13.03				
LOWER LIMIT	201224	12.03				
EPA SAMPLE NO.						
BSH1227W2	593083	12.55				
TB-01-122011	220179	12.55				
VBH1227W1	284172	12.54				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030228.D BFB Injection Date: 12/21/2011

Instrument ID: MSVOA_F BFB Injection Time: 19:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	45
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.3 (0.5) 1
174	50.0 - 100.0% of mass 95	68.2
175	5.0 - 9.0% of mass 174	4.8 (7) 1
176	95.0 - 101.0% of mass 174	64.9 (95.2) 1
177	5.0 - 9.0% of mass 176	4.5 (7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB ICC	VF030230.D	12/21/2011	21:13
VSTD020	20 PPB ICC	VF030231.D	12/21/2011	21:44
VSTD010	10 PPB ICC	VF030232.D	12/21/2011	22:15
VSTD005	5 PPB ICC	VF030233.D	12/21/2011	22:46
VSTD075	75 PPB ICC	VF030234.D	12/21/2011	23:17
VSTD100	100 PPB ICC	VF030235.D	12/21/2011	23:48

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.853	0.726	0.699	0.677	0.651	0.767	0.729	10
Chloromethane	1.128	0.994	0.879	0.908	0.883	0.917	0.951	10.1
Vinyl Chloride	0.587	0.541	0.528	0.512	0.530	0.542	0.54	4.7
Bromomethane	0.414	0.370	0.279	0.287	0.291	0.333	0.329	16.4
Chloroethane	0.227	0.248	0.178	0.151	0.164	0.193	0.193	19.4
Trichlorofluoromethane	0.922	0.830	0.776	0.750	0.685	0.793	0.793	10.1
1,1,2-Trichlorotrifluor<	0.536	0.470	0.466	0.453	0.439	0.456	0.47	7.3
1,1-Dichloroethene	0.412	0.443	0.405	0.400	0.383	0.406	0.408	4.8
Acetone	0.504	0.324	0.352	0.326	0.296	0.522	0.388	25.5
Carbon Disulfide	1.209	1.124	1.057	1.045	1.048	1.070	1.092	5.9
Methyl tert-butyl Ether	1.803	1.676	1.511	1.556	1.470	1.531	1.591	7.9
Methyl Acetate	1.483	1.156	1.131	1.142	1.073	1.175	1.193	12.2
Methylene Chloride	0.558	0.489	0.431	0.469	0.458	0.504	0.485	9.1
trans-1,2-Dichloroethen<	0.444	0.418	0.374	0.379	0.375	0.394	0.397	7.1
1,1-Dichloroethane	0.974	0.855	0.795	0.841	0.802	0.893	0.86	7.7
Cyclohexane	1.051	1.062	0.922	0.964	0.906	1.041	0.991	7
2-Butanone	0.789	0.607	0.604	0.570	0.501	0.728	0.633	16.8
Carbon Tetrachloride	0.526	0.588	0.496	0.517	0.497	0.537	0.527	6.4
cis-1,2-Dichloroethene	0.996	0.874	0.778	0.828	0.791	0.896	0.861	9.4
Bromochloromethane	0.843	0.677	0.636	0.662	0.617	0.717	0.692	11.8
Chloroform	1.442	1.359	1.242	1.316	1.215	1.311	1.314	6.2
1,1,1-Trichloroethane	0.893	0.846	0.765	0.811	0.780	0.853	0.825	5.8
Methylcyclohexane	0.583	0.595	0.521	0.527	0.496	0.569	0.549	7.2
Benzene	1.524	1.520	1.249	1.336	1.253	1.416	1.383	9
1,2-Dichloroethane	0.596	0.631	0.574	0.594	0.546	0.614	0.592	5
Trichloroethene	0.660	0.638	0.548	0.549	0.499	0.592	0.581	10.5
1,2-Dichloropropane	0.446	0.459	0.394	0.411	0.380	0.445	0.422	7.6
Bromodichloromethane	0.614	0.649	0.562	0.602	0.553	0.590	0.595	5.9
4-Methyl-2-Pentanone	0.716	0.668	0.619	0.588	0.522	0.650	0.627	10.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOA_F Calibration Date(s): 12/21/2011 12/21/2011

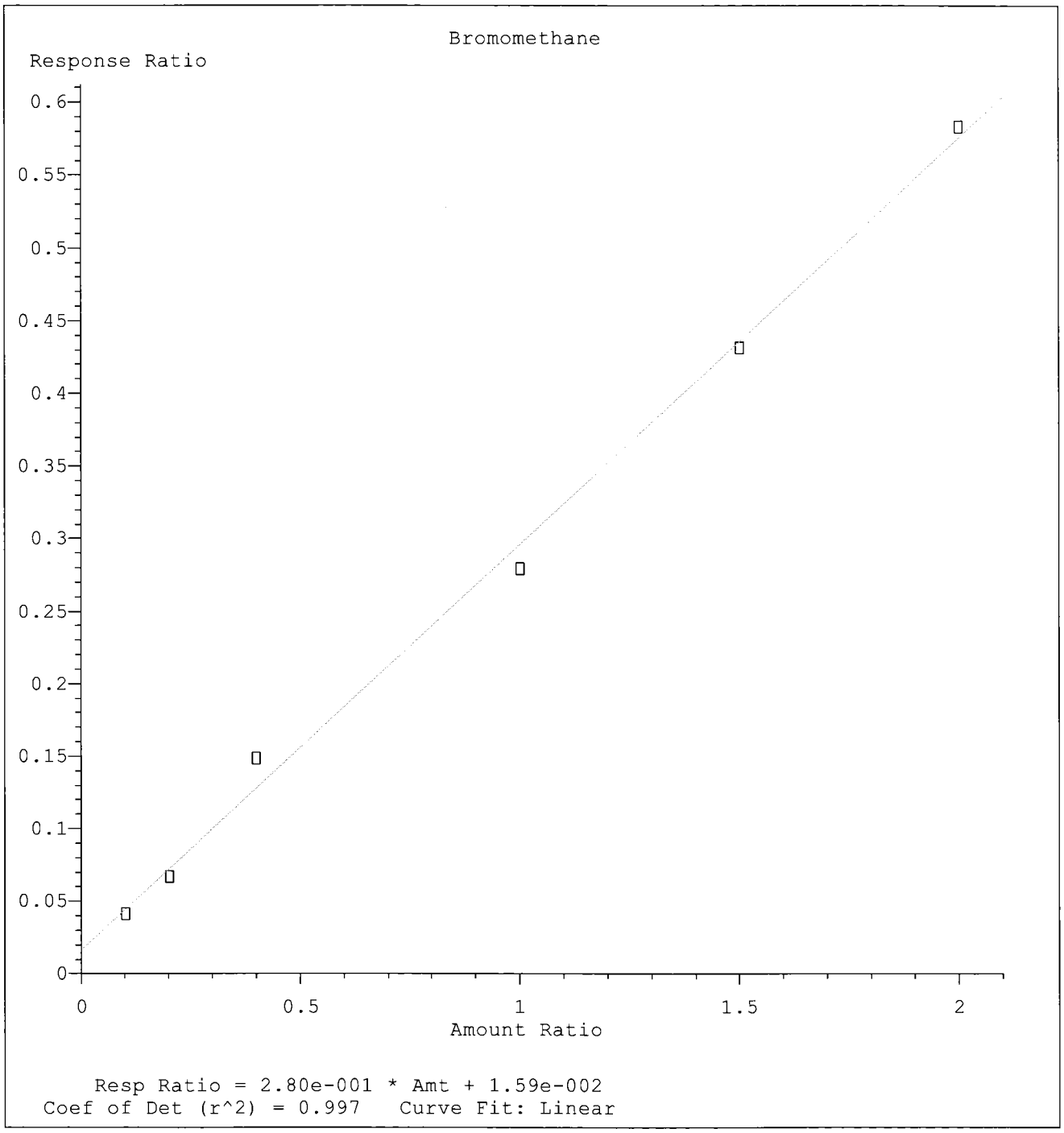
Heated Purge: (Y/N) Y Calibration Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

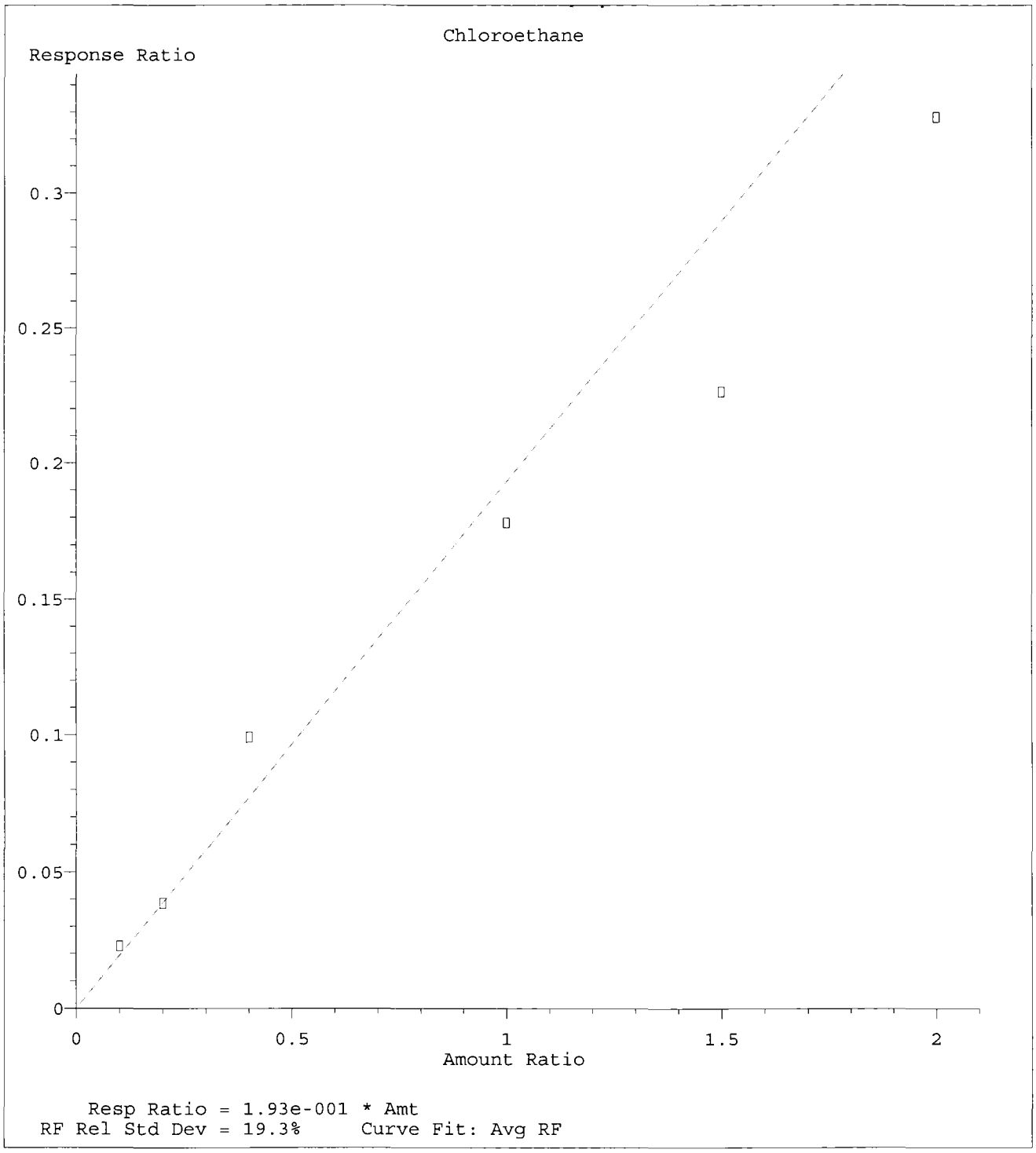
LAB FILE ID: RRF005 = VF030233.D RRF020 = VF030231.D RRF050 = VF030230.D
RRF075 = VF030234.D RRF100 = VF030235.D RRF010 = VF030232.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Toluene	0.933	1.010	0.838	0.853	0.812	0.866	0.885	8.3
t-1,3-Dichloropropene	0.739	0.753	0.647	0.689	0.625	0.700	0.692	7.2
cis-1,3-Dichloropropene	0.773	0.787	0.646	0.693	0.635	0.694	0.705	8.9
1,1,2-Trichloroethane	0.434	0.451	0.371	0.399	0.356	0.415	0.404	9
2-Hexanone	0.636	0.534	0.523	0.496	0.453	0.605	0.541	12.6
Dibromochloromethane	0.443	0.517	0.460	0.482	0.442	0.477	0.47	6
1,2-Dibromoethane	0.493	0.504	0.440	0.460	0.422	0.470	0.465	6.6
Tetrachloroethene	0.645	0.669	0.555	0.545	0.530	0.588	0.589	9.6
Chlorobenzene	1.132	1.180	0.999	1.033	0.989	1.155	1.081	7.8
Ethyl Benzene	1.728	1.960	1.614	1.661	1.614	1.767	1.724	7.6
m/p-Xylenes	0.642	0.712	0.601	0.617	0.588	0.632	0.632	6.9
o-Xylene	0.650	0.708	0.609	0.631	0.611	0.620	0.638	5.9
Styrene	1.092	1.189	1.020	1.068	1.026	1.111	1.084	5.8
Bromoform	0.290	0.361	0.347	0.352	0.339	0.332	0.337	7.4
Isopropylbenzene	3.040	3.264	2.916	3.039	2.926	3.098	3.047	4.2
1,1,2,2-Tetrachloroethar	0.413	0.411	0.392	0.405	0.385	0.371	0.396	4.2
1,3-Dichlorobenzene	1.765	1.758	1.486	1.601	1.518	1.777	1.651	8
1,4-Dichlorobenzene	1.684	1.839	1.574	1.636	1.567	1.742	1.674	6.3
1,2-Dichlorobenzene	1.751	1.783	1.505	1.610	1.531	1.765	1.657	7.5
1,2-Dibromo-3-Chloropro	0.208	0.191	0.187	0.179	0.166	0.158	0.181	9.9
1,2,4-Trichlorobenzene	1.272	1.266	1.092	1.144	1.064	1.217	1.176	7.6
1,2,3-Trichlorobenzene	1.167	1.210	1.000	1.109	1.004	1.194	1.114	8.4
1,2-Dichloroethane-d4	1.017	0.824	0.765	0.748	0.742	0.854	0.825	12.6
Dibromofluoromethane	0.458	0.454	0.383	0.392	0.371	0.410	0.411	9
Toluene-d8	1.166	1.259	1.049	1.083	1.035	1.124	1.119	7.5
4-Bromofluorobenzene	0.565	0.588	0.510	0.518	0.494	0.518	0.532	6.8
1,4-Dioxane	0.007	0.006	0.005	0.005	0.005	0.006	0.006	12.5

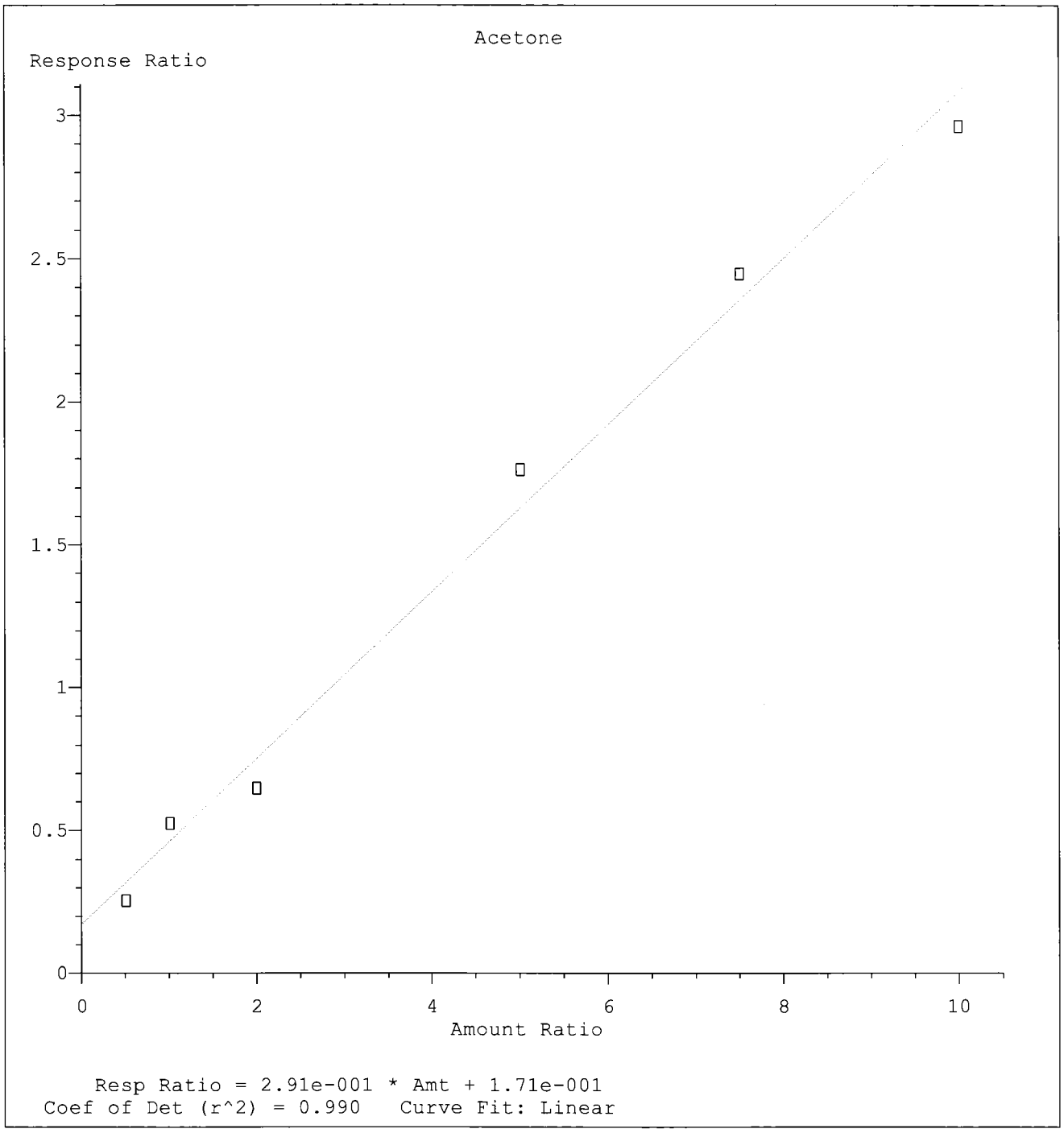
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



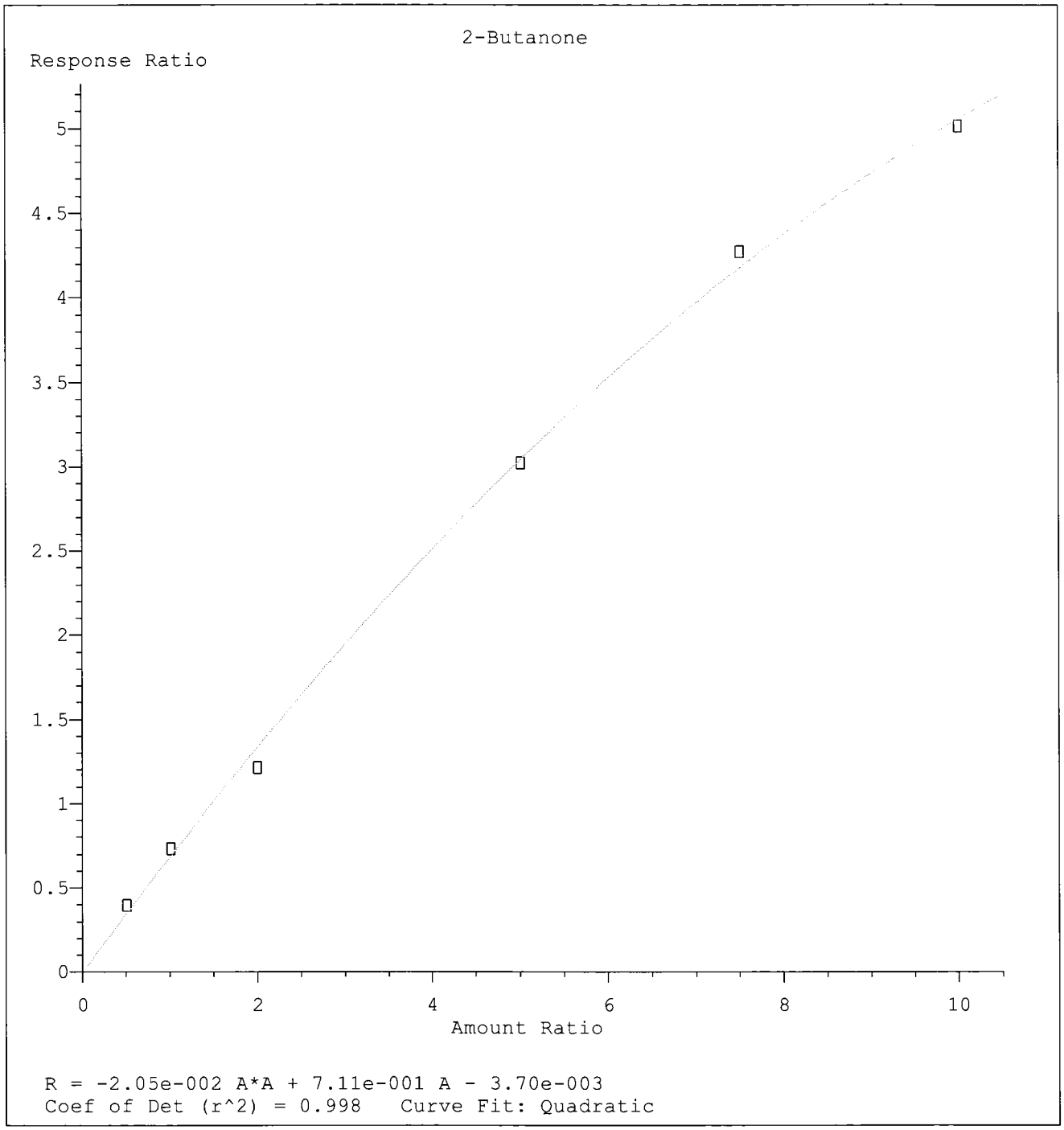
Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Calibration Table Last Updated: Thu Dec 22 02:09:37 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030333.D BFB Injection Date: 12/25/2011

Instrument ID: MSVOA_F BFB Injection Time: 13:32

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.2
75	30.0 - 60.0% of mass 95	50.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.7
173	Less than 2.0% of mass 174	0.2 (0.0) 1
174	50.0 - 100.0% of mass 95	72.5
175	5.0 - 9.0% of mass 174	4.7 (6.4) 1
176	95.0 - 101.0% of mass 174	70.2 (96.7) 1
177	5.0 - 9.0% of mass 176	5.3 (7.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030335.D	12/25/201	15:10
VBF1225S1	VBF1225S1	VF030336.D	12/25/201	15:54
BSF1225S1	BSF1225S1	VF030337.D	12/25/201	16:42
12TP17-000.5-01	C5065-02	VF030344.D	12/25/201	20:44
12TP17-000.5-01MS	C5065-03MS	VF030345.D	12/25/201	21:15
12TP17-000.5-01MSD	C5065-04MSD	VF030346.D	12/25/201	21:47
12TP18-0607-02	C5065-07	VF030349.D	12/25/201	23:20

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOA_F Calibration Date/Time: 12/25/2011 15:10

Lab File ID: VF030335.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.663		-9.05	
Chloromethane	0.951	0.948	0.1	-0.32	
Vinyl Chloride	0.54	0.616		14.07	20
Bromomethane	0.329	0.318		-3.34	
Chloroethane	0.193	0.188		-2.59	
Trichlorofluoromethane	0.793	0.742		-6.43	
1,1,2-Trichlorotrifluoroethane	0.47	0.493		4.89	
1,1-Dichloroethene	0.408	0.463		13.48	20
Acetone	0.388	0.470		21.13	
Carbon Disulfide	1.092	1.288		17.95	
Methyl tert-butyl Ether	1.591	1.897		19.23	
Methyl Acetate	1.193	1.563		31.01	
Methylene Chloride	0.485	0.589		21.44	
trans-1,2-Dichloroethene	0.397	0.433		9.07	
1,1-Dichloroethane	0.86	1.011	0.1	17.56	
Cyclohexane	0.991	0.947		-4.44	
2-Butanone	0.633	0.714		12.8	
Carbon Tetrachloride	0.527	0.488		-7.4	
cis-1,2-Dichloroethene	0.861	0.837		-2.79	
Bromochloromethane	0.692	0.723		4.48	
Chloroform	1.314	1.403		6.77	20
1,1,1-Trichloroethane	0.825	0.804		-2.55	
Methylcyclohexane	0.549	0.501		-8.74	
Benzene	1.383	1.312		-5.13	
1,2-Dichloroethane	0.592	0.592		0	
Trichloroethene	0.581	0.553		-4.82	
1,2-Dichloropropane	0.422	0.423		0.24	20
Bromodichloromethane	0.595	0.595		0	
4-Methyl-2-Pentanone	0.627	0.678		8.13	
Toluene	0.885	0.797		-9.94	20
t-1,3-Dichloropropene	0.692	0.706		2.02	
cis-1,3-Dichloropropene	0.705	0.720		2.13	
1,1,2-Trichloroethane	0.404	0.388		-3.96	
2-Hexanone	0.541	0.551		1.85	
Dibromochloromethane	0.47	0.480		2.13	
1,2-Dibromoethane	0.465	0.446		-4.09	
Tetrachloroethene	0.589	0.526		-10.7	
Chlorobenzene	1.081	0.987	0.3	-8.7	
Ethyl Benzene	1.724	1.608		-6.73	20
m/p-Xylenes	0.632	0.575		-9.02	
o-Xylene	0.638	0.613		-3.92	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOA_F Calibration Date/Time: 12/25/2011 15:10

Lab File ID: VF030335.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.084	1.020		-5.9	
Bromoform	0.337	0.348	0.1	3.26	
Isopropylbenzene	3.047	2.869		-5.84	
1,1,2,2-Tetrachloroethane	0.396	0.428	0.3	8.08	
1,3-Dichlorobenzene	1.651	1.539		-6.78	
1,4-Dichlorobenzene	1.674	1.610		-3.82	
1,2-Dichlorobenzene	1.657	1.554		-6.22	
1,2-Dibromo-3-Chloropropane	0.181	0.182		0.55	
1,2,4-Trichlorobenzene	1.176	1.121		-4.68	
1,2,3-Trichlorobenzene	1.114	1.057		-5.12	
1,2-Dichloroethane-d4	0.825	1.338		62.18	
Dibromofluoromethane	0.411	0.620		50.85	
Toluene-d8	1.119	1.697		51.65	
4-Bromofluorobenzene	0.532	0.789		48.31	
1,4-Dioxane	0.006	0.006		0	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122511\
Data File : VF030335.D
Acq On : 25 Dec 2011 15:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 26 01:48:34 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	91	-0.01
2	T	Dichlorodifluoromethane	50.000	45.499	9.0	86	0.00
3	P	Chloromethane	50.000	49.830	0.3	98	-0.01
4	C	Vinyl Chloride	50.000	57.051	-14.1#	106	-0.01
5	T	Bromomethane	50.000	54.027	-8.1	103	-0.01
6	T	Chloroethane	50.000	48.506	3.0	96	-0.01
7	T	Trichlorofluoromethane	50.000	46.803	6.4	87	-0.01
8	T	Diethyl Ether	50.000	60.875	-21.8#	116	-0.01
9	T	1,1,2-Trichlorotrifluoroeth	50.000	52.441	-4.9	96	-0.02
10	T	Methyl Iodide	50.000	57.009	-14.0	109	-0.02
11	T	Tert butyl alcohol	250.000	329.717	-31.9#	115	-0.02
12	CM	1,1-Dichloroethene	50.000	56.765	-13.5#	104	-0.01
13	T	Acrolein	250.000	298.795	-19.5	98	0.00
14	T	Allyl chloride	50.000	60.619	-21.2#	121	-0.01
15	T	Acrylonitrile	250.000	350.313	-40.1#	130	-0.02
16	T	Acetone	250.000	374.312	-49.7#	121	0.00
17	T	Carbon Disulfide	50.000	58.973	-17.9	111	-0.02
18	T	Methyl Acetate	50.000	65.499	-31.0#	126	-0.01
19	T	Methyl tert-butyl Ether	50.000	59.623	-19.2	114	-0.01
20	T	Methylene Chloride	50.000	60.745	-21.5#	124	-0.04
21	T	trans-1,2-Dichloroethene	50.000	54.511	-9.0	105	-0.01
22	T	Diisopropyl ether	50.000	62.835	-25.7#	125	-0.01
23	T	Vinyl Acetate	250.000	322.516	-29.0#	120	-0.02
24	P	1,1-Dichloroethane	50.000	58.753	-17.5	115	-0.02
25	T	2-Butanone	250.000	304.939	-22.0#	107	-0.02
26	T	2,2-Dichloropropane	50.000	50.985	-2.0	103	-0.02
27	T	cis-1,2-Dichloroethene	50.000	48.633	2.7	98	-0.02
28	T	Bromochloromethane	50.000	52.259	-4.5	103	-0.01
29	C	Chloroform	50.000	53.365	-6.7#	103	-0.02
30	T	Cyclohexane	50.000	47.770	4.5	93	-0.03
31	T	1,1,1-Trichloroethane	50.000	48.721	2.6	95	-0.02
32	S	1,2-Dichloroethane-d4	50.000	81.120	-62.2#	159	-0.02
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	96	-0.01
34	S	Dibromofluoromethane	50.000	75.371	-50.7#	156	-0.01
35	T	1,1-Dichloropropene	50.000	46.125	7.8	95	-0.01
36	T	Ethyl Acetate	50.000	52.846	-5.7	103	-0.02
37	T	Carbon Tetrachloride	50.000	46.280	7.4	95	-0.01
38	T	Methylcyclohexane	50.000	45.681	8.6	93	-0.01
39	TM	Benzene	50.000	47.434	5.1	101	-0.01
40	T	Methacrylonitrile	50.000	53.651	-7.3	109	-0.03
41	TM	1,2-Dichloroethane	50.000	49.993	0.0	99	-0.01
42	T	Isopropyl Acetate	50.000	55.912	-11.8	110	-0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122511\
Data File : VF030335.D
Acq On : 25 Dec 2011 15:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 26 01:48:34 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
43	TM	Trichloroethene	50.000	47.601	4.8	97	-0.02
44	C	1,2-Dichloropropane	50.000	50.060	-0.1#	103	-0.02
45	T	Dibromomethane	50.000	48.404	3.2	98	-0.02
46	T	Bromodichloromethane	50.000	49.987	0.0	102	-0.02
47	T	Methyl methacrylate	50.000	50.111	-0.2	103	-0.02
48	T	1,4-Dioxane	1000.000	1046.927	-4.7	118	-0.03
49	S	Toluene-d8	50.000	75.822	-51.6#	156	-0.01
50	T	4-Methyl-2-Pentanone	250.000	270.238	-8.1	105	-0.02
51	CM	Toluene	50.000	45.026	9.9#	92	-0.01
52	T	t-1,3-Dichloropropene	50.000	50.976	-2.0	105	-0.01
53	T	cis-1,3-Dichloropropene	50.000	51.050	-2.1	107	-0.01
54	T	1,1,2-Trichloroethane	50.000	48.006	4.0	101	-0.02
55	T	Ethyl methacrylate	50.000	52.309	-4.6	100	-0.01
56	T	1,3-Dichloropropane	50.000	49.940	0.1	103	-0.02
57	T	2-Chloroethyl Vinyl ether	250.000	260.111	-4.0	105	-0.01
58	T	2-Hexanone	250.000	254.713	-1.9	102	-0.01
59	T	Dibromochloromethane	50.000	50.986	-2.0	100	-0.02
60	T	1,2-Dibromoethane	50.000	47.993	4.0	98	-0.01
61	S	4-Bromofluorobenzene	50.000	74.118	-48.2#	149	-0.01
62	I	Chlorobenzene-d5	50.000	50.000	0.0	97	-0.02
63	T	Tetrachloroethene	50.000	44.645	10.7	92	-0.01
64	PM	Chlorobenzene	50.000	45.642	8.7	96	-0.01
65	T	1,1,1,2-Tetrachloroethane	50.000	47.512	5.0	99	-0.02
66	C	Ethyl Benzene	50.000	46.640	6.7#	97	-0.01
67	T	m/p-Xylenes	100.000	91.012	9.0	93	-0.02
68	T	o-Xylene	50.000	48.042	3.9	98	-0.02
69	T	Styrene	50.000	47.015	6.0	97	-0.01
70	P	Bromoform	50.000	51.653	-3.3	98	-0.01
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	95	-0.01
72	T	Isopropylbenzene	50.000	47.080	5.8	94	-0.01
73	T	N-amyl acetate	50.000	51.354	-2.7	100	-0.01
74	P	1,1,2,2-Tetrachloroethane	50.000	54.024	-8.0	104	-0.01
75	T	1,2,3-Trichloropropane	50.000	50.503	-1.0	101	-0.01
76	T	Bromobenzene	50.000	46.282	7.4	95	-0.01
77	T	n-propylbenzene	50.000	45.801	8.4	92	-0.01
78	T	2-Chlorotoluene	50.000	47.336	5.3	98	-0.01
79	T	1,3,5-Trimethylbenzene	50.000	46.330	7.3	92	-0.01
80	T	trans-1,4-Dichloro-2-butene	50.000	53.421	-6.8	101	-0.01
81	T	4-Chlorotoluene	50.000	47.745	4.5	97	-0.01
82	T	tert-Butylbenzene	50.000	45.480	9.0	93	-0.01
83	T	1,2,4-Trimethylbenzene	50.000	48.227	3.5	97	-0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF122511\
Data File : VF030335.D
Acq On : 25 Dec 2011 15:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 26 01:48:34 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
84	T	sec-Butylbenzene	50.000	46.123	7.8	92	-0.01
85	T	p-Isopropyltoluene	50.000	46.350	7.3	93	-0.01
86	T	1,3-Dichlorobenzene	50.000	46.619	6.8	99	-0.01
87	T	1,4-Dichlorobenzene	50.000	48.117	3.8	98	-0.01
88	T	n-Butylbenzene	50.000	46.963	6.1	92	0.00
89	T	Hexachloroethane	50.000	46.971	6.1	95	-0.01
90	T	1,2-Dichlorobenzene	50.000	46.873	6.3	98	-0.01
91	T	1,2-Dibromo-3-Chloropropane	50.000	50.098	-0.2	93	-0.01
92	T	1,2,4-Trichlorobenzene	50.000	47.669	4.7	98	-0.01
93	T	Hexachlorobutadiene	50.000	43.391	13.2	91	-0.01
94	T	Naphthalene	50.000	48.169	3.7	99	-0.01
95	T	1,2,3-Trichlorobenzene	50.000	47.445	5.1	101	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1225S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030336.D Lab Sample ID: VBF1225S1

Date Analyzed: 12/25/2011 Time Analyzed: 15:54

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1225S1	BSF1225S1	VF030337.D	12/25/2011
12TP17-000.5-01	C5065-02	VF030344.D	12/25/2011
12TP17-000.5-01MS	C5065-03MS	VF030345.D	12/25/2011
12TP17-000.5-01MSD	C5065-04MSD	VF030346.D	12/25/2011
12TP18-0607-02	C5065-07	VF030349.D	12/25/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1225S1	SDG No.:	C5065
Lab Sample ID:	VBF1225S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030336.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1225S1	SDG No.:	C5065
Lab Sample ID:	VBF1225S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030336.D	1		12/25/11	VF122511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.2		55 - 158	86%	SPK: 50
1868-53-7	Dibromofluoromethane	47.8		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	50.1		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.5		85 - 120	105%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	130758	4.38			
540-36-3	1,4-Difluorobenzene	238141	5.12			
3114-55-4	Chlorobenzene-d5	245851	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	130272	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5065 SAS No : C5065 SDG No: C5065

Matrix Spike - EPA Sample No : BSF1225S1 Analytical Method: EPA SW846 8260 Datafile : VF030337.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		21	105	(47-135)
Chloromethane	20		22	110	(56-130)
Vinyl Chloride	20		25	125	(60-125)
Bromomethane	20		20	100	(45-158)
Chloroethane	20		24	120	(42-155)
Trichlorofluoromethane	20		22	110	(55-146)
1,1,2-Trichlorotrifluoroethane	20		25	125	(65-134)
1,1-Dichloroethene	20		25	125	(65-135)
Acetone	100		110	110	(57-148)
Carbon Disulfide	20		26	130	(60-138)
Methyl tert-butyl Ether	20		25	125	(70-131)
Methyl Acetate	20		26	130	(44-187)
Methylene Chloride	20		25	125	(63-140)
trans-1,2-Dichloroethene	20		24	120	(73-130)
1,1-Dichloroethane	20		26	130*	(75-125)
Cyclohexane	20		23	115	(66-132)
2-Butanone	100		110	110	(52-153)
Carbon Tetrachloride	20		22	110	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		24	120	(75-125)
1,1,1-Trichloroethane	20		23	115	(75-128)
Methylcyclohexane	20		22	110	(71-124)
Benzene	20		22	110	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		22	110	(77-120)
1,2-Dichloropropane	20		23	115	(76-120)
Bromodichloromethane	20		23	115	(77-124)
4-Methyl-2-Pentanone	100		110	110	(70-141)
Toluene	20		22	110	(78-121)
t-1,3-Dichloropropene	20		22	110	(76-125)
cis-1,3-Dichloropropene	20		23	115	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		110	110	(55-145)
Dibromochloromethane	20		22	110	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5065 SAS No : C5065 SDG No: C5065

Matrix Spike - EPA Sample No : BSF1225S1 Analytical Method: EPA SW846 8260 Datafile : VF030337.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		21	105	(65-140)
Chlorobenzene	20		22	110	(79-120)
Ethyl Benzene	20		22	110	(77-120)
m/p-Xylenes	40		44	110	(80-120)
o-Xylene	20		21	105	(78-119)
Styrene	20		21	105	(80-119)
Bromoform	20		21	105	(71-125)
Isopropylbenzene	20		23	115	(77-124)
1,1,2,2-Tetrachloroethane	20		23	115	(77-130)
1,3-Dichlorobenzene	20		22	110	(82-121)
1,4-Dichlorobenzene	20		22	110	(82-118)
1,2-Dichlorobenzene	20		21	105	(81-120)
1,2-Dibromo-3-Chloropropane	20		21	105	(66-132)
1,2,4-Trichlorobenzene	20		22	110	(71-124)
1,2,3-Trichlorobenzene	20		21	105	(74-123)
1,4-Dioxane	400		420	105	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5065 **SAS No :** C5065 **SDG No:** C5065

Matrix Spike - EPA Sample No : C5065-03 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030345.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	68	0	63	93	(42-135)
Chloromethane	68	0	59	87	(50-130)
Vinyl Chloride	68	0	73	107	(60-125)
Bromomethane	68	0	77	113	(40-154)
Chloroethane	68	0	110	162*	(40-155)
Trichlorofluoromethane	68	0	79	116	(46-159)
1,1,2-Trichlorotrifluoroethane	68	0	71	104	(59-140)
1,1-Dichloroethene	68	0	76	112	(65-135)
Acetone	338	28	240	63	(31-158)
Carbon Disulfide	68	0	75	110	(45-144)
Methyl tert-butyl Ether	68	0	66	97	(56-146)
Methyl Acetate	68	0	100	147	(16-205)
Methylene Chloride	68	0	79	116	(55-140)
trans-1,2-Dichloroethene	68	0	81	119	(65-135)
1,1-Dichloroethane	68	0	75	110	(75-125)
Cyclohexane	68	0	56	82	(51-136)
2-Butanone	338	0	200	59	(40-157)
Carbon Tetrachloride	68	0	47	69	(65-135)
cis-1,2-Dichloroethene	68	0	59	87	(65-125)
Bromochloromethane	68	0	76	112	(70-125)
Chloroform	68	0	64	94	(70-125)
1,1,1-Trichloroethane	68	0	72	106	(70-135)
Methylcyclohexane	68	0	40	59	(43-133)
Benzene	68	0	51	75	(75-125)
1,2-Dichloroethane	68	0	50	74	(70-135)
Trichloroethene	68	0	64	94	(75-125)
1,2-Dichloropropane	68	0	53	78	(70-120)
Bromodichloromethane	68	0	46	68*	(70-130)
4-Methyl-2-Pentanone	338	0	220	65	(53-145)
Toluene	68	0	46	68*	(70-125)
t-1,3-Dichloropropene	68	0	42	62*	(65-125)
cis-1,3-Dichloropropene	68	0	36	53*	(70-125)
1,1,2-Trichloroethane	68	0	40	59*	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5065 **SAS No :** C5065 **SDG No:** C5065

Matrix Spike - EPA Sample No : C5065-03 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030345.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	338	0	180	53	(45-145)
Dibromochloromethane	68	0	43	63*	(65-130)
1,2-Dibromoethane	68	0	45	66*	(70-125)
Tetrachloroethene	68	0	46	68	(65-140)
Chlorobenzene	68	0	47	69*	(75-125)
Ethyl Benzene	68	0	46	68*	(75-125)
m/p-Xylenes	135	0	90	67*	(80-125)
o-Xylene	68	0	42	62*	(75-125)
Styrene	68	0	36	53*	(75-125)
Bromoform	68	0	34	50*	(62-135)
Isopropylbenzene	68	0	46	68*	(75-130)
1,1,2,2-Tetrachloroethane	68	0	0	0*	(55-130)
1,3-Dichlorobenzene	68	0	41	60*	(70-125)
1,4-Dichlorobenzene	68	0	39	57*	(70-124)
1,2-Dichlorobenzene	68	0	38	56*	(75-120)
1,2-Dibromo-3-Chloropropane	68	0	0	0*	(44-135)
1,2,4-Trichlorobenzene	68	0	15	22*	(65-130)
1,2,3-Trichlorobenzene	68	0	8.5	13*	(60-135)
1,4-Dioxane	1351	0	900	67*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 23 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5065 **SAS No :** C5065 **SDG No:** C5065

Matrix Spike - EPA Sample No : C5065-04 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030346.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD % (ug/Kg)	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	68	54	79	16	20	(42-135)
Chloromethane	68	56	82	6	20	(50-130)
Vinyl Chloride	68	67	99	8	20	(60-125)
Bromomethane	68	47	69	48*	20	(40-154)
Chloroethane	68	72	106	42*	20	(40-155)
Trichlorofluoromethane	68	62	91	24*	20	(46-159)
1,1,2-Trichlorotrifluoroethane	68	63	93	11	20	(59-140)
1,1-Dichloroethene	68	66	97	14	20	(65-135)
Acetone	338	140	33	63*	20	(31-158)
Carbon Disulfide	68	64	94	16	20	(45-144)
Methyl tert-butyl Ether	68	58	85	13	20	(56-146)
Methyl Acetate	68	64	94	44*	20	(16-205)
Methylene Chloride	68	72	106	9	20	(55-140)
trans-1,2-Dichloroethene	68	63	93	25*	20	(65-135)
1,1-Dichloroethane	68	69	101	9	20	(75-125)
Cyclohexane	68	54	79	4	20	(51-136)
2-Butanone	338	150	44	29*	20	(40-157)
Carbon Tetrachloride	68	54	79	14	20	(65-135)
cis-1,2-Dichloroethene	68	57	84	4	20	(65-125)
Bromochloromethane	68	59	87	25*	20	(70-125)
Chloroform	68	62	91	3	20	(70-125)
1,1,1-Trichloroethane	68	62	91	15	20	(70-135)
Methylcyclohexane	68	41	60	2	20	(43-133)
Benzene	68	55	81	8	20	(75-125)
1,2-Dichloroethane	68	50	74	0	20	(70-135)
Trichloroethene	68	47	69*	31*	20	(75-125)
1,2-Dichloropropane	68	55	81	4	20	(70-120)
Bromodichloromethane	68	53	78	14	20	(70-130)
4-Methyl-2-Pentanone	338	190	56	15	20	(53-145)
Toluene	68	50	74	8	20	(70-125)
t-1,3-Dichloropropene	68	40	59*	5	20	(65-125)
cis-1,3-Dichloropropene	68	40	59*	11	20	(70-125)
1,1,2-Trichloroethane	68	47	69	16	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5065 **SAS No :** C5065 **SDG No:** C5065

Matrix Spike - EPA Sample No : C5065-04 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030346.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
2-Hexanone	338	140	41*	26*	20	(45-145)
Dibromochloromethane	68	47	69	9	20	(65-130)
1,2-Dibromoethane	68	42	62*	6	20	(70-125)
Tetrachloroethene	68	44	65	5	20	(65-140)
Chlorobenzene	68	45	66*	4	20	(75-125)
Ethyl Benzene	68	47	69*	1	20	(75-125)
m/p-Xylenes	135	90	67*	0	20	(80-125)
o-Xylene	68	47	69*	11	20	(75-125)
Styrene	68	40	59*	11	20	(75-125)
Bromoform	68	39	57*	13	20	(62-135)
Isopropylbenzene	68	50	74*	8	20	(75-130)
1,1,2,2-Tetrachloroethane	68	50	74	200*	20	(55-130)
1,3-Dichlorobenzene	68	42	62*	3	20	(70-125)
1,4-Dichlorobenzene	68	41	60*	5	20	(70-124)
1,2-Dichlorobenzene	68	39	57*	2	20	(75-120)
1,2-Dibromo-3-Chloropropane	68	35	51	200*	20	(44-135)
1,2,4-Trichlorobenzene	68	24	35*	46*	20	(65-130)
1,2,3-Trichlorobenzene	68	21	31*	82*	20	(60-135)
1,4-Dioxane	1351	670	50*	29*	20	(70-130)

RPD : 15 Out of 52 outside limits

Spike Recovery : 18 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030353.D BFB Injection Date: 12/27/2011

Instrument ID: MSVOA_F BFB Injection Time: 10:49

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.3
75	30.0 - 60.0% of mass 95	50.5
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.3 (0.0) 1
174	50.0 - 100.0% of mass 95	69.8
175	5.0 - 9.0% of mass 174	5.3 (7.5) 1
176	95.0 - 101.0% of mass 174	69.3 (99.3) 1
177	5.0 - 9.0% of mass 176	4.9 (7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030355.D	12/27/201	12:35
VBF1227S1	VBF1227S1	VF030356.D	12/27/201	13:19
BSF1227S1	BSF1227S1	VF030357.D	12/27/201	14:02
12TP17-000.5-01RE	C5065-02RE	VF030360.D	12/27/201	15:34
12TP17-0.5-02-02	C5065-05	VF030361.D	12/27/201	16:05
12TP18-0506-01	C5065-06	VF030362.D	12/27/201	16:37

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOA_F Calibration Date/Time: 12/27/2011 12:35

Lab File ID: VF030355.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.729	0.673		-7.68	
Chloromethane	0.951	0.981	0.1	3.15	
Vinyl Chloride	0.54	0.649		20.19	20
Bromomethane	0.329	0.310		-5.78	
Chloroethane	0.193	0.213		10.36	
Trichlorofluoromethane	0.793	0.879		10.84	
1,1,2-Trichlorotrifluoroethane	0.47	0.558		18.72	
1,1-Dichloroethene	0.408	0.482		18.14	20
Acetone	0.388	0.358		-7.73	
Carbon Disulfide	1.092	1.376		26.01	
Methyl tert-butyl Ether	1.591	1.602		0.69	
Methyl Acetate	1.193	1.180		-1.09	
Methylene Chloride	0.485	0.549		13.2	
trans-1,2-Dichloroethene	0.397	0.466		17.38	
1,1-Dichloroethane	0.86	1.007	0.1	17.09	
Cyclohexane	0.991	1.042		5.15	
2-Butanone	0.633	0.527		-16.75	
Carbon Tetrachloride	0.527	0.552		4.74	
cis-1,2-Dichloroethene	0.861	0.818		-4.99	
Bromochloromethane	0.692	0.665		-3.9	
Chloroform	1.314	1.338		1.83	20
1,1,1-Trichloroethane	0.825	0.856		3.76	
Methylcyclohexane	0.549	0.564		2.73	
Benzene	1.383	1.401		1.3	
1,2-Dichloroethane	0.592	0.567		-4.22	
Trichloroethene	0.581	0.537		-7.57	
1,2-Dichloropropane	0.422	0.420		-0.47	20
Bromodichloromethane	0.595	0.592		-0.5	
4-Methyl-2-Pentanone	0.627	0.520		-17.07	
Toluene	0.885	0.865		-2.26	20
t-1,3-Dichloropropene	0.692	0.672		-2.89	
cis-1,3-Dichloropropene	0.705	0.721		2.27	
1,1,2-Trichloroethane	0.404	0.362		-10.4	
2-Hexanone	0.541	0.441		-18.48	
Dibromochloromethane	0.47	0.438		-6.81	
1,2-Dibromoethane	0.465	0.412		-11.4	
Tetrachloroethene	0.589	0.572		-2.89	
Chlorobenzene	1.081	1.053	0.3	-2.59	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOA_F Calibration Date/Time: 12/27/2011 12:35

Lab File ID: VF030355.D Init. Calib. Date(s): 12/21/2011 12/21/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 21:13 23:48

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Ethyl Benzene	1.724	1.767		2.49	20
m/p-Xylenes	0.632	0.658		4.11	
o-Xylene	0.638	0.666		4.39	
Styrene	1.084	1.087		0.28	
Bromoform	0.337	0.304	0.1	-9.79	
Isopropylbenzene	3.047	3.423		12.34	
1,1,2,2-Tetrachloroethane	0.396	0.392	0.3	-1.01	
1,3-Dichlorobenzene	1.651	1.683		1.94	
1,4-Dichlorobenzene	1.674	1.720		2.75	
1,2-Dichlorobenzene	1.657	1.585		-4.35	
1,2-Dibromo-3-Chloropropane	0.181	0.149		-17.68	
1,2,4-Trichlorobenzene	1.176	1.120		-4.76	
1,2,3-Trichlorobenzene	1.114	1.026		-7.9	
1,2-Dichloroethane-d4	0.825	0.868		5.21	
Dibromofluoromethane	0.411	0.457		11.19	
Toluene-d8	1.119	1.303		16.44	
4-Bromofluorobenzene	0.532	0.559		5.08	
1,4-Dioxane	0.006	0.004		-33.33	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122711\
Data File : VF030355.D
Acq On : 27 Dec 2011 12:35
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 27 13:30:36 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	122	0.00
2	T	Dichlorodifluoromethane	50.000	46.130	7.7	117	0.00
3	P	Chloromethane	50.000	51.584	-3.2	136	0.00
4	C	Vinyl Chloride	50.000	60.105	-20.2#	150	-0.02
5	T	Bromomethane	50.000	52.552	-5.1	136	-0.02
6	T	Chloroethane	50.000	55.136	-10.3	146	0.00
7	T	Trichlorofluoromethane	50.000	55.431	-10.9	138	-0.02
8	T	Diethyl Ether	50.000	53.152	-6.3	136	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	59.294	-18.6	146	-0.02
10	T	Methyl Iodide	50.000	55.459	-10.9	143	-0.03
11	T	Tert butyl alcohol	250.000	207.034	17.2	97	-0.02
12	CM	1,1-Dichloroethene	50.000	59.024	-18.0#	146	-0.02
13	T	Acrolein	250.000	307.325	-22.9#	134	-0.02
14	T	Allyl chloride	50.000	61.771	-23.5#	166	0.00
15	T	Acrylonitrile	250.000	265.997	-6.4	133	-0.02
16	T	Acetone	250.000	278.112	-11.2	124	-0.02
17	T	Carbon Disulfide	50.000	63.016	-26.0#	159	-0.04
18	T	Methyl Acetate	50.000	49.452	1.1	127	0.00
19	T	Methyl tert-butyl Ether	50.000	50.340	-0.7	130	0.00
20	T	Methylene Chloride	50.000	56.627	-13.3	156	-0.04
21	T	trans-1,2-Dichloroethene	50.000	58.636	-17.3	152	0.00
22	T	Diisopropyl ether	50.000	59.103	-18.2	158	0.00
23	T	Vinyl Acetate	250.000	265.027	-6.0	133	-0.02
24	P	1,1-Dichloroethane	50.000	58.570	-17.1	155	-0.02
25	T	2-Butanone	250.000	211.372	15.5	107	-0.02
26	T	2,2-Dichloropropane	50.000	51.613	-3.2	140	-0.02
27	T	cis-1,2-Dichloroethene	50.000	47.545	4.9	128	-0.02
28	T	Bromochloromethane	50.000	48.061	3.9	128	0.00
29	C	Chloroform	50.000	50.890	-1.8#	132	-0.02
30	T	Cyclohexane	50.000	52.568	-5.1	138	-0.02
31	T	1,1,1-Trichloroethane	50.000	51.887	-3.8	137	0.00
32	S	1,2-Dichloroethane-d4	50.000	52.602	-5.2	139	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	121	0.00
34	S	Dibromofluoromethane	50.000	55.584	-11.2	145	0.00
35	T	1,1-Dichloropropene	50.000	50.761	-1.5	132	0.00
36	T	Ethyl Acetate	50.000	40.849	18.3	105	-0.02
37	T	Carbon Tetrachloride	50.000	52.337	-4.7	135	0.00
38	T	Methylcyclohexane	50.000	51.363	-2.7	131	0.00
39	TM	Benzene	50.000	50.657	-1.3	136	0.00
40	T	Methacrylonitrile	50.000	46.121	7.8	118	-0.02
41	TM	1,2-Dichloroethane	50.000	47.880	4.2	120	0.00
42	T	Isopropyl Acetate	50.000	43.692	12.6	109	0.00
43	TM	Trichloroethene	50.000	46.221	7.6	119	0.00
44	C	1,2-Dichloropropane	50.000	49.730	0.5#	130	0.00
45	T	Dibromomethane	50.000	45.451	9.1	116	-0.02

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122711\
Data File : VF030355.D
Acq On : 27 Dec 2011 12:35
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 27 13:30:36 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	49.764	0.5	128	0.00
47	T	Methyl methacrylate	50.000	41.081	17.8	106	0.00
48	T	1,4-Dioxane	1000.000	682.689	31.7#	97	-0.02
49	S	Toluene-d8	50.000	58.213	-16.4	151	0.00
50	T	4-Methyl-2-Pentanone	250.000	207.266	17.1	102	0.00
51	CM	Toluene	50.000	48.860	2.3#	125	0.00
52	T	t-1,3-Dichloropropene	50.000	48.541	2.9	126	0.00
53	T	cis-1,3-Dichloropropene	50.000	51.155	-2.3	136	0.00
54	T	1,1,2-Trichloroethane	50.000	44.722	10.6	118	0.00
55	T	Ethyl methacrylate	50.000	44.615	10.8	108	0.00
56	T	1,3-Dichloropropane	50.000	46.092	7.8	120	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	208.000	16.8	106	0.00
58	T	2-Hexanone	250.000	203.668	18.5	102	0.00
59	T	Dibromochloromethane	50.000	46.581	6.8	116	0.00
60	T	1,2-Dibromoethane	50.000	44.292	11.4	114	0.00
61	S	4-Bromofluorobenzene	50.000	52.487	-5.0	133	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	117	0.00
63	T	Tetrachloroethene	50.000	48.608	2.8	121	0.00
64	PM	Chlorobenzene	50.000	48.713	2.6	124	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	51.141	-2.3	128	0.00
66	C	Ethyl Benzene	50.000	51.231	-2.5#	128	0.00
67	T	m/p-Xylenes	100.000	104.181	-4.2	128	0.00
68	T	o-Xylene	50.000	52.197	-4.4	128	0.00
69	T	Styrene	50.000	50.099	-0.2	125	0.00
70	P	Bromoform	50.000	45.148	9.7	103	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	108	0.00
72	T	Isopropylbenzene	50.000	56.175	-12.3	127	0.00
73	T	N-amyl acetate	50.000	47.264	5.5	104	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	49.433	1.1	108	0.00
75	T	1,2,3-Trichloropropane	50.000	44.869	10.3	102	0.00
76	T	Bromobenzene	50.000	49.723	0.6	116	0.00
77	T	n-propylbenzene	50.000	55.663	-11.3	127	0.00
78	T	2-Chlorotoluene	50.000	53.047	-6.1	124	0.00
79	T	1,3,5-Trimethylbenzene	50.000	54.919	-9.8	124	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	48.671	2.7	104	0.00
81	T	4-Chlorotoluene	50.000	53.505	-7.0	124	0.00
82	T	tert-Butylbenzene	50.000	54.964	-9.9	128	0.00
83	T	1,2,4-Trimethylbenzene	50.000	55.060	-10.1	125	0.00
84	T	sec-Butylbenzene	50.000	54.641	-9.3	123	0.00
85	T	p-Isopropyltoluene	50.000	54.796	-9.6	125	0.00
86	T	1,3-Dichlorobenzene	50.000	50.986	-2.0	123	0.00
87	T	1,4-Dichlorobenzene	50.000	51.404	-2.8	118	0.00
88	T	n-Butylbenzene	50.000	55.896	-11.8	125	0.00
89	T	1,2-Dichloroethane	50.000	55.240	-10.5	127	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF122711\
Data File : VF030355.D
Acq On : 27 Dec 2011 12:35
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 27 13:30:36 2011
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F122111S.M
Quant Title : SW846 8260
QLast Update : Thu Dec 22 02:09:37 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	47.801	4.4	114	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	41.028	17.9	86	0.00
92	T	1,2,4-Trichlorobenzene	50.000	47.644	4.7	111	0.00
93	T	Hexachlorobutadiene	50.000	52.000	-4.0	124	0.00
94	T	Naphthalene	50.000	42.290	15.4	98	0.00
95	T	1,2,3-Trichlorobenzene	50.000	46.062	7.9	111	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF1227S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VF030356.D Lab Sample ID: VBF1227S1

Date Analyzed: 12/27/2011 Time Analyzed: 13:19

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF1227S1	BSF1227S1	VF030357.D	12/27/2011
12TP17-000.5-01RE	C5065-02RE	VF030360.D	12/27/2011
12TP17-0.5-02-02	C5065-05	VF030361.D	12/27/2011
12TP18-0506-01	C5065-06	VF030362.D	12/27/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1227S1	SDG No.:	C5065
Lab Sample ID:	VBF1227S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030356.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF1227S1	SDG No.:	C5065
Lab Sample ID:	VBF1227S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030356.D	1		12/27/11	VF122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.2		55 - 158	98%	SPK: 50
1868-53-7	Dibromofluoromethane	54.2		53 - 156	109%	SPK: 50
2037-26-5	Toluene-d8	55.3		85 - 115	111%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.4		85 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	166331	4.39			
540-36-3	1,4-Difluorobenzene	283773	5.13			
3114-55-4	Chlorobenzene-d5	261695	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	133863	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5065 SAS No : C5065 SDG No: C5065

Matrix Spike - EPA Sample No : BSF1227S1 Analytical Method: EPA SW846 8260 Datafile : VF030357.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		17	85	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		19	95	(45-158)
Chloroethane	20		22	110	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		22	110	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		84	84	(57-148)
Carbon Disulfide	20		24	120	(60-138)
Methyl tert-butyl Ether	20		19	95	(70-131)
Methyl Acetate	20		18	90	(44-187)
Methylene Chloride	20		21	105	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		76	76	(52-153)
Carbon Tetrachloride	20		20	100	(74-122)
cis-1,2-Dichloroethene	20		18	90	(75-125)
Bromochloromethane	20		20	100	(74-125)
Chloroform	20		19	95	(75-125)
1,1,1-Trichloroethane	20		19	95	(75-128)
Methylcyclohexane	20		20	100	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		18	90	(75-132)
Trichloroethene	20		19	95	(77-120)
1,2-Dichloropropane	20		20	100	(76-120)
Bromodichloromethane	20		19	95	(77-124)
4-Methyl-2-Pentanone	100		83	83	(70-141)
Toluene	20		19	95	(78-121)
t-1,3-Dichloropropene	20		18	90	(76-125)
cis-1,3-Dichloropropene	20		19	95	(79-122)
1,1,2-Trichloroethane	20		17	85	(76-125)
2-Hexanone	100		73	73	(55-145)
Dibromochloromethane	20		17	85	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5065 SAS No : C5065 SDG No: C5065

Matrix Spike - EPA Sample No : BSF1227S1 Analytical Method: EPA SW846 8260 Datafile : VF030357.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		17	85	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		19	95	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		19	95	(80-119)
Bromoform	20		17	85	(71-125)
Isopropylbenzene	20		20	100	(77-124)
1,1,2,2-Tetrachloroethane	20		19	95	(77-130)
1,3-Dichlorobenzene	20		19	95	(82-121)
1,4-Dichlorobenzene	20		19	95	(82-118)
1,2-Dichlorobenzene	20		18	90	(81-120)
1,2-Dibromo-3-Chloropropane	20		15	75	(66-132)
1,2,4-Trichlorobenzene	20		18	90	(71-124)
1,2,3-Trichlorobenzene	20		17	85	(74-123)
1,4-Dioxane	400		260	65*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VH044919.D BFB Injection Date: 12/20/2011

Instrument ID: MSVOAH BFB Injection Time: 17:17

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.4
75	30.0 - 60.0% of mass 95	58.1
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	0.6 (0.7) 1
174	50.0 - 100.0% of mass 95	90
175	5.0 - 9.0% of mass 174	6.1 (6.8) 1
176	95.0 - 101.0% of mass 174	86 (95.5) 1
177	5.0 - 9.0% of mass 176	5.5 (6.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD005	5 PPB ICC	VH044920.D	12/20/2011	17:58
VSTD010	10 PPB ICC	VH044921.D	12/20/2011	18:24
VSTD020	20 PPB ICC	VH044922.D	12/20/2011	18:49
VSTD050	50 PPB ICC	VH044923.D	12/20/2011	19:14
VSTD100	100 PPB ICC	VH044924.D	12/20/2011	19:39
VSTD150	150 PPB ICC	VH044925.D	12/20/2011	20:05

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOAH Calibration Date(s): 12/20/2011 12/20/2011

Heated Purge: (Y/N) N Calibration Time(s): 17:58 20:05

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VH044920.D RRF020 = VH044922.D RRF050 = VH044923.D
RRF100 = VH044924.D RRF150 = VH044925.D RRF010 = VH044921.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF150	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.971	0.903	0.877	0.909	0.901	0.880	0.907	3.7
Chloromethane	0.846	0.756	0.790	0.816	0.861	0.832	0.817	4.7
Vinyl Chloride	0.822	0.760	0.735	0.761	0.791	0.715	0.764	5
Bromomethane	0.539	0.519	0.477	0.484	0.501	0.534	0.509	5
Chloroethane	0.321	0.345	0.330	0.332	0.354	0.348	0.338	3.7
Trichlorofluoromethane	1.271	1.362	1.288	1.263	1.304	1.398	1.314	4.1
1,1,2-Trichlorotrifluor‹	0.604	0.575	0.544	0.558	0.548	0.543	0.562	4.2
1,1-Dichloroethene	0.407	0.490	0.423	0.450	0.455	0.454	0.446	6.5
Acetone	0.184	0.227	0.224	0.231	0.235	0.239	0.223	8.9
Carbon Disulfide	1.820	1.674	1.586	1.597	1.622	1.833	1.688	6.6
Methyl tert-butyl Ether	1.913	1.779	1.888	1.872	1.915	1.920	1.881	2.8
Methyl Acetate	1.326	1.323	1.274	1.344	1.378	1.388	1.339	3.1
Methylene Chloride	0.530	0.516	0.547	0.524	0.544	0.580	0.54	4.2
trans-1,2-Dichloroethen‹	0.474	0.443	0.455	0.450	0.457	0.476	0.459	2.9
1,1-Dichloroethane	1.260	1.134	1.198	1.204	1.263	1.227	1.214	4
Cyclohexane	0.649	0.695	0.674	0.701	0.711	0.727	0.693	4
2-Butanone	0.525	0.415	0.405	0.415	0.425	0.420	0.434	10.3
Carbon Tetrachloride	0.593	0.576	0.593	0.564	0.580	0.603	0.585	2.4
cis-1,2-Dichloroethene	0.588	0.534	0.577	0.589	0.613	0.577	0.58	4.5
Bromochloromethane	0.314	0.281	0.255	0.273	0.264	0.281	0.278	7.2
Chloroform	1.237	1.281	1.300	1.337	1.381	1.403	1.323	4.7
1,1,1-Trichloroethane	1.202	1.194	1.158	1.187	1.202	1.213	1.193	1.6
Methylcyclohexane	0.424	0.366	0.353	0.358	0.359	0.376	0.373	7.1
Benzene	0.963	1.020	1.003	1.005	1.016	1.067	1.012	3.3
1,2-Dichloroethane	0.819	0.786	0.815	0.768	0.794	0.903	0.814	5.9
Trichloroethene	0.400	0.368	0.353	0.346	0.352	0.380	0.367	5.6
1,2-Dichloropropane	0.334	0.410	0.428	0.420	0.426	0.444	0.41	9.5
Bromodichloromethane	0.682	0.654	0.694	0.709	0.730	0.707	0.696	3.7
4-Methyl-2-Pentanone	0.462	0.486	0.478	0.470	0.463	0.545	0.484	6.4
Toluene	0.825	0.824	0.839	0.818	0.821	0.854	0.83	1.7
t-1,3-Dichloropropene	0.722	0.726	0.735	0.712	0.738	0.793	0.737	3.9

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOAH Calibration Date(s): 12/20/2011 12/20/2011

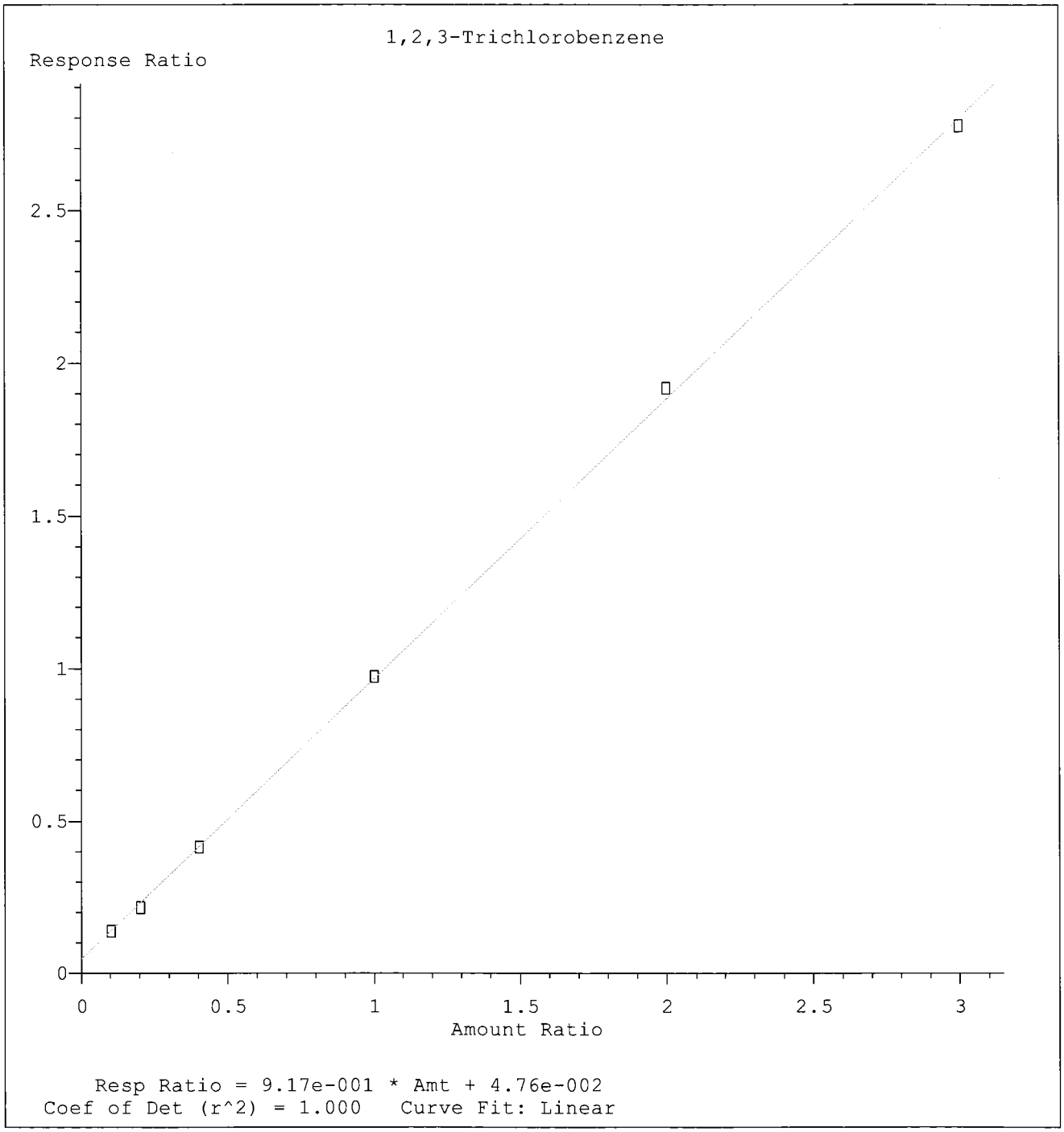
Heated Purge: (Y/N) N Calibration Time(s): 17:58 20:05

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VH044920.D RRF020 = VH044922.D RRF050 = VH044923.D
RRF100 = VH044924.D RRF150 = VH044925.D RRF010 = VH044921.D

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF150	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.746	0.726	0.751	0.717	0.709	0.831	0.747	5.9
1,1,2-Trichloroethane	0.319	0.353	0.360	0.330	0.345	0.373	0.347	5.7
2-Hexanone	0.271	0.357	0.361	0.332	0.322	0.362	0.334	10.5
Dibromochloromethane	0.431	0.446	0.473	0.456	0.475	0.470	0.458	3.8
1,2-Dibromoethane	0.387	0.371	0.400	0.370	0.396	0.407	0.388	4
Tetrachloroethene	0.325	0.337	0.351	0.351	0.373	0.364	0.35	5
Chlorobenzene	1.060	1.001	0.955	0.973	0.938	1.098	1.004	6.3
Ethyl Benzene	0.473	0.497	0.464	0.459	0.444	0.542	0.48	7.3
m/p-Xylenes	0.569	0.591	0.576	0.550	0.532	0.635	0.575	6.2
o-Xylene	0.587	0.625	0.642	0.591	0.592	0.637	0.612	4.1
Styrene	1.035	1.056	1.044	0.963	0.958	1.127	1.03	6.1
Bromoform	0.316	0.315	0.344	0.337	0.336	0.344	0.332	4
Isopropylbenzene	2.940	2.800	2.775	2.615	2.574	2.812	2.753	4.9
1,1,2,2-Tetrachloroethar	1.055	0.992	1.029	0.971	0.910	1.060	1.003	5.7
1,3-Dichlorobenzene	1.713	1.546	1.549	1.434	1.356	1.671	1.545	8.8
1,4-Dichlorobenzene	1.847	1.585	1.572	1.523	1.438	1.826	1.632	10.2
1,2-Dichlorobenzene	1.706	1.557	1.515	1.523	1.434	1.715	1.575	7.1
1,2-Dibromo-3-Chloropro	0.176	0.220	0.221	0.233	0.220	0.209	0.213	9.2
1,2,4-Trichlorobenzene	1.404	1.051	1.017	1.024	0.986	1.189	1.112	14.4
1,2,3-Trichlorobenzene	1.363	1.037	0.970	0.959	0.924	1.081	1.056	15.2
1,2-Dichloroethane-d4	1.004	1.070	0.983	1.028	0.993	1.295	1.062	11.1
Dibromofluoromethane	0.424	0.386	0.358	0.345	0.353	0.423	0.381	9.2
Toluene-d8	1.188	1.150	1.069	1.084	1.075	1.383	1.158	10.4
4-Bromofluorobenzene	0.585	0.538	0.544	0.498	0.516	0.692	0.562	12.5
1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	6.9

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



Method Name: W:\HPCHEM1\MSVOA_H\METHOD\82H122011W.M
Calibration Table Last Updated: Tue Dec 20 20:32:47 2011

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VH045018.D BFB Injection Date: 12/27/2011

Instrument ID: MSVOAH BFB Injection Time: 12:07

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.3
75	30.0 - 60.0% of mass 95	55.5
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.1
173	Less than 2.0% of mass 174	0.2 (0.2) 1
174	50.0 - 100.0% of mass 95	80.3
175	5.0 - 9.0% of mass 174	5.6 (7) 1
176	95.0 - 101.0% of mass 174	77.3 (96.3) 1
177	5.0 - 9.0% of mass 176	5.4 (7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VH045019.D	12/27/2011	12:53
VBH1227W1	VBH1227W1	VH045021.D	12/27/2011	15:02
BSH1227W2	BSH1227W2	VH045030.D	12/27/2011	19:09
TB-01-122011	C5065-01	VH045040.D	12/27/2011	23:21

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOAH Calibration Date/Time: 12/27/2011 12:53

Lab File ID: VH045019.D Init. Calib. Date(s): 12/20/2011 12/20/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 17:58 20:05

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.907	0.850		-6.28	
Chloromethane	0.817	0.945	0.1	15.67	
Vinyl Chloride	0.764	0.863		12.96	20
Bromomethane	0.509	0.509		0	
Chloroethane	0.338	0.356		5.33	
Trichlorofluoromethane	1.314	1.336		1.67	
1,1,2-Trichlorotrifluoroethane	0.562	0.622		10.68	
1,1-Dichloroethene	0.446	0.469		5.16	20
Acetone	0.223	0.180		-19.28	
Carbon Disulfide	1.688	1.607		-4.8	
Methyl tert-butyl Ether	1.881	1.941		3.19	
Methyl Acetate	1.339	1.156		-13.67	
Methylene Chloride	0.54	0.608		12.59	
trans-1,2-Dichloroethene	0.459	0.478		4.14	
1,1-Dichloroethane	1.214	1.258	0.1	3.62	
Cyclohexane	0.693	0.808		16.59	
2-Butanone	0.434	0.438		0.92	
Carbon Tetrachloride	0.585	0.634		8.38	
cis-1,2-Dichloroethene	0.58	0.573		-1.21	
Bromochloromethane	0.278	0.271		-2.52	
Chloroform	1.323	1.262		-4.61	20
1,1,1-Trichloroethane	1.193	1.074		-9.97	
Methylcyclohexane	0.373	0.388		4.02	
Benzene	1.012	1.152		13.83	
1,2-Dichloroethane	0.814	0.790		-2.95	
Trichloroethene	0.367	0.341		-7.08	
1,2-Dichloropropane	0.41	0.418		1.95	20
Bromodichloromethane	0.696	0.648		-6.9	
4-Methyl-2-Pentanone	0.484	0.418		-13.64	
Toluene	0.83	0.763		-8.07	20
t-1,3-Dichloropropene	0.737	0.719		-2.44	
cis-1,3-Dichloropropene	0.747	0.688		-7.9	
1,1,2-Trichloroethane	0.347	0.324		-6.63	
2-Hexanone	0.334	0.275		-17.66	
Dibromochloromethane	0.458	0.487		6.33	
1,2-Dibromoethane	0.388	0.374		-3.61	
Tetrachloroethene	0.35	0.294		-16	
Chlorobenzene	1.004	0.946	0.3	-5.78	
Ethyl Benzene	0.48	0.434		-9.58	20
m/p-Xylenes	0.575	0.540		-6.09	
o-Xylene	0.612	0.586		-4.25	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: MSVOAH Calibration Date/Time: 12/27/2011 12:53

Lab File ID: VH045019.D Init. Calib. Date(s): 12/20/2011 12/20/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 17:58 20:05

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.03	0.975		-5.34	
Bromoform	0.332	0.329	0.1	-0.9	
Isopropylbenzene	2.753	2.557		-7.12	
1,1,2,2-Tetrachloroethane	1.003	0.818	0.3	-18.44	
1,3-Dichlorobenzene	1.545	1.495		-3.24	
1,4-Dichlorobenzene	1.632	1.521		-6.8	
1,2-Dichlorobenzene	1.575	1.460		-7.3	
1,2-Dibromo-3-Chloropropane	0.213	0.184		-13.62	
1,2,4-Trichlorobenzene	1.112	1.010		-9.17	
1,2,3-Trichlorobenzene	1.056	0.915		-13.35	
1,2-Dichloroethane-d4	1.062	0.884		-16.76	
Dibromofluoromethane	0.381	0.395		3.67	
Toluene-d8	1.158	1.062		-8.29	
4-Bromofluorobenzene	0.562	0.570		1.42	
1,4-Dioxane	0.003	0.002		-33.33	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_H\Data\VH122711\
Data File : VH045019.D
Acq On : 27 Dec 2011 12:53
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL MSVOA_H
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 27 13:43:05 2011
Quant Method : W:\HPCHEM1\MSVOA_H\METHOD\82H122011W.M
Quant Title : SW846 8260
QLast Update : Tue Dec 20 20:32:47 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	116	0.01
2	T	Dichlorodifluoromethane	50.000	46.871	6.3	112	0.01
3	P	Chloromethane	50.000	57.855	-15.7	139	0.02
4	CM	Vinyl Chloride	50.000	56.477	-13.0#	136	0.00
5	T	Bromomethane	50.000	49.979	0.0	124	0.02
6	T	Chloroethane	50.000	52.617	-5.2	125	0.00
7	T	Trichlorofluoromethane	50.000	50.815	-1.6	120	0.00
8	T	Tert butyl alcohol	250.000	212.121	15.2	94	-0.02
9	T	Diethyl Ether	50.000	52.838	-5.7	132	0.00
10	T	Diisopropyl ether	50.000	55.706	-11.4	135	0.00
11	CM	1,1-Dichloroethene	50.000	52.534	-5.1#	129	0.00
12	T	Methyl Iodide	50.000	55.575	-11.2	136	0.00
13	T	Acrolein	250.000	180.743	27.7#	82	0.00
14	T	1,1,2-Trichlorotrifluoroeth	50.000	55.297	-10.6	132	0.02
15	T	Acrylonitrile	250.000	256.420	-2.6	121	0.00
16	T	Allyl Chloride	50.000	55.203	-10.4	143	0.00
17	T	Acetone	250.000	201.887	19.2	93	0.00
18	T	Carbon Disulfide	50.000	47.598	4.8	117	0.00
19	T	Methyl Acetate	50.000	43.183	13.6	105	0.00
20	T	Methyl tert-butyl Ether	50.000	51.593	-3.2	119	0.01
21	T	Methylene Chloride	50.000	56.247	-12.5	129	0.00
22	T	trans-1,2-Dichloroethene	50.000	51.995	-4.0	122	0.00
23	T	Vinyl Acetate	250.000	243.515	2.6	113	0.00
24	P	1,1-Dichloroethane	50.000	51.793	-3.6	122	0.00
25	TM	2-Butanone	250.000	252.085	-0.8	125	0.02
26	T	2,2-Dichloropropane	50.000	53.304	-6.6	133	0.00
27	T	cis-1,2-Dichloroethene	50.000	49.412	1.2	115	0.01
28	T	Bromochloromethane	50.000	48.839	2.3	123	0.01
29	CM	Chloroform	50.000	47.708	4.6#	113	0.01
30	T	Cyclohexane	50.000	58.337	-16.7	139	0.00
31	T	1,1,1-Trichloroethane	50.000	45.031	9.9	107	0.00
32	S	1,2-Dichloroethane-d4	50.000	41.621	16.8	104	0.01
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	104	0.00
34	S	Dibromofluoromethane	50.000	51.834	-3.7	115	0.00
35	T	1,1-Dichloropropene	50.000	51.587	-3.2	106	0.00
36		Ethyl acetate	50.000	48.310	3.4	107	0.00
37	TM	Carbon Tetrachloride	50.000	54.202	-8.4	111	0.01
38	TM	Benzene	50.000	56.884	-13.8	119	0.00
39	T	Methacrylonitrile	50.000	54.397	-8.8	116	0.00
40	TM	1,2-Dichloroethane	50.000	48.550	2.9	101	0.00
41	T	Isopropyl Acetate	50.000	42.234	15.5	84	0.00
42	TM	Trichloroethene	50.000	46.455	7.1	100	0.00
43	T	Methylcyclohexane	50.000	51.991	-4.0	114	0.03
44	C	1,2-Dichloropropane	50.000	50.913	-1.8#	101	0.00
45	T	Dibromomethane	50.000	44.362	11.3	91	0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_H\Data\VH122711\
Data File : VH045019.D
Acq On : 27 Dec 2011 12:53
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL MSVOA_H
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 27 13:43:05 2011
Quant Method : W:\HPCHEM1\MSVOA_H\METHOD\82H122011W.M
Quant Title : SW846 8260
QLast Update : Tue Dec 20 20:32:47 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	46.551	6.9	97	0.01
47	S	Toluene-d8	50.000	45.849	8.3	103	0.01
48	T	4-Methyl-2-Pentanone	250.000	215.778	13.7	91	0.00
49	CM	Toluene	50.000	45.988	8.0#	95	0.02
50	T	t-1,3-Dichloropropene	50.000	48.723	2.6	102	0.00
51	T	Methyl Methacrylate	50.000	41.792	16.4	80	0.01
52	T	1,4-Dioxane	1000.000	691.349	30.9#	74	0.00
53	T	cis-1,3-Dichloropropene	50.000	46.060	7.9	95	0.00
54	T	1,1,2-Trichloroethane	50.000	46.772	6.5	93	0.00
55	T	Ethyl Methacrylate	50.000	45.710	8.6	92	0.00
56	T	1,3-Dichloropropane	50.000	47.082	5.8	101	0.01
57	T	2-Chloroethyl Vinyl ether	250.000	230.484	7.8	94	0.00
58	T	2-Hexanone	250.000	206.011	17.6	79	0.00
59	T	Dibromochloromethane	50.000	53.131	-6.3	107	0.01
60	T	1,2-Dibromoethane	50.000	48.183	3.6	97	0.00
61	S	4-Bromofluorobenzene	50.000	50.670	-1.3	109	0.01
62	I	Chlorobenzene-d5	50.000	50.000	0.0	109	0.01
63	TM	Tetrachloroethene	50.000	41.984	16.0	91	0.00
64	PM	Chlorobenzene	50.000	47.094	5.8	108	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	48.161	3.7	104	0.01
66	C	Ethyl Benzene	50.000	45.235	9.5#	102	0.01
67	T	m/p-Xylenes	100.000	93.805	6.2	102	0.01
68	T	o-Xylene	50.000	47.880	4.2	99	0.01
69	T	Styrene	50.000	47.318	5.4	102	0.00
70	P	Bromoform	50.000	49.616	0.8	104	0.01
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	132	0.00
72	T	Isopropylbenzene	50.000	46.455	7.1	121	0.00
73	T	n-Amyl Acetate	50.000	40.213	19.6	106	0.01
74	P	1,1,2,2-Tetrachloroethane	50.000	40.800	18.4	105	0.00
75	T	1,2,3-Trichloropropane	50.000	38.339	23.3#	100	0.00
76	T	Bromobenzene	50.000	43.606	12.8	115	0.00
77	T	n-propylbenzene	50.000	46.491	7.0	130	0.00
78	T	2-Chlorotoluene	50.000	45.112	9.8	118	0.00
79	T	1,3,5-Trimethylbenzene	50.000	48.350	3.3	127	0.00
80	T	trans-1,4-Dichloro-2-Butene	50.000	42.090	15.8	106	0.01
81	T	4-Chlorotoluene	50.000	46.429	7.1	121	0.01
82	T	tert-Butylbenzene	50.000	48.918	2.2	134	0.00
83	T	1,2,4-Trimethylbenzene	50.000	48.020	4.0	129	0.00
84	T	sec-Butylbenzene	50.000	51.913	-3.8	140	0.00
85	T	p-Isopropyltoluene	50.000	48.912	2.2	130	0.00
86	T	1,3-Dichlorobenzene	50.000	48.372	3.3	127	0.01
87	T	1,4-Dichlorobenzene	50.000	46.615	6.8	127	0.00
88	T	n-Butylbenzene	50.000	55.529	-11.1	152	0.01
89	T	1,2-Dichloroethane	50.000	51.135	-2.3	134	0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_H\Data\VH122711\
Data File : VH045019.D
Acq On : 27 Dec 2011 12:53
Operator : PS
Sample : 50 PPB CCC
Misc : 5mL MSVOA_H
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 27 13:43:05 2011
Quant Method : W:\HPCHEM1\MSVOA_H\METHOD\82H122011W.M
Quant Title : SW846 8260
QLast Update : Tue Dec 20 20:32:47 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	46.336	7.3	127	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	43.096	13.8	109	0.01
92	T	1,2,4-Trichlorobenzene	50.000	45.421	9.2	131	0.02
93	T	Hexachlorobutadiene	50.000	63.933	-27.9#	169	0.00
94	T	Naphthalene	50.000	41.357	17.3	110	0.01
95	T	1,2,3-Trichlorobenzene	50.000	47.302	5.4	124	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBH1227W1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: VH045021.D Lab Sample ID: VBH1227W1

Date Analyzed: 12/27/2011 Time Analyzed: 15:02

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAH

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSH1227W2	BSH1227W2	VH045030.D	12/27/2011
TB-01-122011	C5065-01	VH045040.D	12/27/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBH1227W1	SDG No.:	C5065
Lab Sample ID:	VBH1227W1	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045021.D	1		12/27/11	VH122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
74-87-3	Chloromethane	2.5	U	0.54	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
74-83-9	Bromomethane	2.5	U	0.62	5	ug/L
75-00-3	Chloroethane	2.5	U	0.66	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	0.45	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-15-0	Carbon Disulfide	2.5	U	0.54	5	ug/L
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.35	5	ug/L
79-20-9	Methyl Acetate	2.5	U	0.83	5	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
110-82-7	Cyclohexane	2.5	U	0.55	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
56-23-5	Carbon Tetrachloride	2.5	U	0.62	5	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
74-97-5	Bromochloromethane	2.5	U	2.2	5	ug/L
67-66-3	Chloroform	2.5	U	0.34	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
108-87-2	Methylcyclohexane	2.5	U	0.68	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
78-87-5	1,2-Dichloropropane	2.5	U	0.46	5	ug/L
75-27-4	Bromodichloromethane	2.5	U	0.36	5	ug/L
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.1	25	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.29	5	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBH1227W1	SDG No.:	C5065
Lab Sample ID:	VBH1227W1	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045021.D	1		12/27/11	VH122711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.31	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
591-78-6	2-Hexanone	12.5	U	1.9	25	ug/L
124-48-1	Dibromochloromethane	2.5	U	0.52	5	ug/L
106-93-4	1,2-Dibromoethane	2.5	U	0.41	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
108-90-7	Chlorobenzene	2.5	U	0.49	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
100-42-5	Styrene	2.5	U	0.36	5	ug/L
75-25-2	Bromoform	2.5	U	0.47	5	ug/L
98-82-8	Isopropylbenzene	2.5	U	0.45	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
541-73-1	1,3-Dichlorobenzene	2.5	U	0.43	5	ug/L
106-46-7	1,4-Dichlorobenzene	2.5	U	0.32	5	ug/L
95-50-1	1,2-Dichlorobenzene	2.5	U	0.45	5	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.46	5	ug/L
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.62	5	ug/L
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.65	5	ug/L
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/L
123-91-1	1,4-Dioxane	50	U	20	100	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	37.9		70 - 120	76%	SPK: 50
1868-53-7	Dibromofluoromethane	44.8		85 - 115	90%	SPK: 50
2037-26-5	Toluene-d8	53.7		85 - 120	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.9		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	291826	4.96			
540-36-3	1,4-Difluorobenzene	526712	5.68			
3114-55-4	Chlorobenzene-d5	506204	9.81			
3855-82-1	1,4-Dichlorobenzene-d4	284172	12.54			

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5065 SAS No : C5065 SDG No: C5065

Matrix Spike - EPA Sample No : BSH1227W2 Analytical Method: EPA SW846 8260 Datafile : VH045030.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(35-124)
Chloromethane	20		27	135*	(40-125)
Vinyl Chloride	20		24	120	(50-144)
Bromomethane	20		21	105	(44-145)
Chloroethane	20		27	135	(60-135)
Trichlorofluoromethane	20		21	105	(60-137)
1,1,2-Trichlorotrifluoroethane	20		24	120	(52-142)
1,1-Dichloroethene	20		24	120	(70-130)
Acetone	100		130	130	(50-140)
Carbon Disulfide	20		21	105	(36-155)
Methyl tert-butyl Ether	20		23	115	(65-125)
Methyl Acetate	20		25	125	(51-158)
Methylene Chloride	20		22	110	(61-138)
trans-1,2-Dichloroethene	20		24	120	(60-137)
1,1-Dichloroethane	20		25	125	(70-135)
Cyclohexane	20		25	125	(56-141)
2-Butanone	100		110	110	(56-150)
Carbon Tetrachloride	20		20	100	(65-138)
cis-1,2-Dichloroethene	20		24	120	(70-125)
Bromochloromethane	20		23	115	(65-130)
Chloroform	20		24	120	(67-135)
1,1,1-Trichloroethane	20		22	110	(65-130)
Methylcyclohexane	20		23	115	(56-137)
Benzene	20		23	115	(80-120)
1,2-Dichloroethane	20		20	100	(70-130)
Trichloroethene	20		22	110	(70-125)
1,2-Dichloropropane	20		24	120	(75-125)
Bromodichloromethane	20		21	105	(75-120)
4-Methyl-2-Pentanone	100		140	140*	(63-135)
Toluene	20		21	105	(75-120)
t-1,3-Dichloropropene	20		22	110	(66-135)
cis-1,3-Dichloropropene	20		22	110	(70-130)
1,1,2-Trichloroethane	20		24	120	(75-125)
2-Hexanone	100		140	140*	(56-130)
Dibromochloromethane	20		23	115	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5065 SAS No : C5065 SDG No: C5065

Matrix Spike - EPA Sample No : BSH1227W2 Analytical Method: EPA SW846 8260 Datafile : VH045030.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		22	110	(80-120)
Tetrachloroethene	20		17	85	(45-178)
Chlorobenzene	20		21	105	(80-120)
Ethyl Benzene	20		22	110	(75-125)
m/p-Xylenes	40		44	110	(75-130)
o-Xylene	20		22	110	(80-120)
Styrene	20		22	110	(65-135)
Bromoform	20		21	105	(70-130)
Isopropylbenzene	20		23	115	(75-125)
1,1,2,2-Tetrachloroethane	20		23	115	(65-130)
1,3-Dichlorobenzene	20		21	105	(75-125)
1,4-Dichlorobenzene	20		20	100	(75-125)
1,2-Dichlorobenzene	20		20	100	(70-120)
1,2-Dibromo-3-Chloropropane	20		23	115	(54-130)
1,2,4-Trichlorobenzene	20		21	105	(65-133)
1,2,3-Trichlorobenzene	20		19	95	(60-135)
1,4-Dioxane	400		350	88	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 3 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The samples were analyzed on instrument BNA_F using GC Column RTX-5 SILMS which is 20 meters, 0.18 mm ID, 0.36 um df, Catalog # 42704.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5065-03MS} with File ID: BE074696.D recoveries met the requirements for all compounds except for 4,6-Dinitro-2-methylphenol[29%] and Atrazine[0%] .
The MSD {C5068-12MSD} with File ID: BE074694.D recoveries met the acceptable requirements except for Atrazine[0%] .The MSD {C5065-04MSD} with File ID: BE074697.D recoveries met the acceptable requirements except for 4,6-Dinitro-2-methylphenol[27%] .
The RPD for {C5068-12MSD} with File ID: BE074694.D recoveries met criteria except for 2,3,4,6-Tetrachlorophenol[21%], 3,3-Dichlorobenzidine[23%], 3-Nitroaniline[21%], 4-Chloroaniline[23%], Atrazine[200%] and Caprolactam[22%] .
The Blank Spike for {PB60132BS} with File ID: BE074656.D met requirements for all samples except for 2,3,4,6-Tetrachlorophenol[65%], 4-Chloroaniline[8%] but they were not detected in any Samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.

The highest concentration of Bezaldehyde is 60 ppb in the Initial Calibration on instrument F dated 01/11/2011
The Continuous Calibration File ID BE074686.D met the requirements except for Benzaldehyde but it was not detected in any Samples.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.18 08:34:56 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
C5065-02	12TP17-000.5-01	2-Fluorophenol	150	125.92	84		35	105
		Phenol-d5	150	130.47	87		40	100
		Nitrobenzene-d5	100	76.45	76		35	100
		2-Fluorobiphenyl	100	72.07	72		45	105
		2,4,6-Tribromophenol	150	127.64	85		35	125
		Terphenyl-d14	100	71.46	71		30	125
C5065-03MS	12TP17-000.5-01MS	2-Fluorophenol	150	143.94	96		35	105
		Phenol-d5	150	146.48	98		40	100
		Nitrobenzene-d5	100	93.73	94		35	100
		2-Fluorobiphenyl	100	75.98	76		45	105
		2,4,6-Tribromophenol	150	135.87	91		35	125
		Terphenyl-d14	100	74.76	75		30	125
C5065-04MSD	12TP17-000.5-01MSD	2-Fluorophenol	150	126.39	84		35	105
		Phenol-d5	150	129.52	86		40	100
		Nitrobenzene-d5	100	82.30	82		35	100
		2-Fluorobiphenyl	100	67.25	67		45	105
		2,4,6-Tribromophenol	150	119.86	80		35	125
		Terphenyl-d14	100	63.43	63		30	125
C5065-05	12TP17-0.5-02-02	2-Fluorophenol	150	89.65	60		35	105
		Phenol-d5	150	96.78	65		40	100
		Nitrobenzene-d5	100	66.28	66		35	100
		2-Fluorobiphenyl	100	61.15	61		45	105
		2,4,6-Tribromophenol	150	89.50	60		35	125
		Terphenyl-d14	100	63.80	64		30	125
C5065-06	12TP18-0506-01	2-Fluorophenol	150	118.39	79		35	105
		Phenol-d5	150	127.83	85		40	100
		Nitrobenzene-d5	100	77.56	78		35	100
		2-Fluorobiphenyl	100	74.41	74		45	105
		2,4,6-Tribromophenol	150	117.76	79		35	125
		Terphenyl-d14	100	74.25	74		30	125
C5065-07	12TP18-0607-02	2-Fluorophenol	150	107.30	72		35	105
		Phenol-d5	150	121.85	81		40	100
		Nitrobenzene-d5	100	93.56	94		35	100
		2-Fluorobiphenyl	100	88.82	89		45	105
		2,4,6-Tribromophenol	150	88.77	59		35	125
		Terphenyl-d14	100	86.20	86		30	125
C5068-11MS	SS-01MS	2-Fluorophenol	150	121.65	81		35	105
		Phenol-d5	150	124.30	83		40	100
		Nitrobenzene-d5	100	78.59	79		35	100
		2-Fluorobiphenyl	100	70.54	71		45	105
		2,4,6-Tribromophenol	150	111.97	75		35	125
		Terphenyl-d14	100	69.34	69		30	125
C5068-12MSD	SS-01MSD	2-Fluorophenol	150	140.00	93		35	105
		Phenol-d5	150	142.06	95		40	100
		Nitrobenzene-d5	100	90.74	91		35	100
		2-Fluorobiphenyl	100	82.69	83		45	105
		2,4,6-Tribromophenol	150	140.22	93		35	125
		Terphenyl-d14	100	81.63	82		30	125
PB60132B	PB60132B	2-Fluorophenol	150	112.12	75		35	105
		Phenol-d5	150	112.14	75		40	100
		Nitrobenzene-d5	100	68.78	69		35	100
		2-Fluorobiphenyl	100	72.87	73		45	100

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
PB60132B	PB60132B	2,4,6-Tribromophenol	150	101.55	68		35	125
		Terphenyl-d14	100	71.89	72		30	125
PB60132BS	PB60132BS	2-Fluorophenol	150	107.17	71		35	105
		Phenol-d5	150	105.68	70		40	100
		Nitrobenzene-d5	100	74.38	74		35	100
		2-Fluorobiphenyl	100	74.63	75		45	105
		2,4,6-Tribromophenol	150	99.95	67		35	125
		Terphenyl-d14	100	73.60	74		30	125

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 12/27/2011

Lab File ID: BE074655.D Time Analyzed: 14:31

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	80772	8.66	333662	10.83	174983	13.8
	UPPER LIMIT	161544	9.16	667324	11.33	349966	14.3
	LOWER LIMIT	40386	8.16	166831	10.33	87491.5	13.3
	EPA SAMPLE NO.						
01	PB60132BS	100866	8.66	363223	10.83	171467	13.80
02	PB60132B	81239	8.66	315476	10.83	152178	13.80

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 12/27/2011

Lab File ID: BE074655.D Time Analyzed: 14:31

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	320228	16.28	295992	20.73	254697	24.45
	UPPER LIMIT	640456	16.78	591984	21.23	509394	24.95
	LOWER LIMIT	160114	15.78	147996	20.23	127348.5	23.95
	EPA SAMPLE NO.						
01	PB60132BS	266507	16.27	203059	20.73	164250	24.44
02	PB60132B	263225	16.27	208786	20.73	191903	24.44

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 12/28/2011

Lab File ID: BE074686.D Time Analyzed: 17:25

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	62635	8.65	251759	10.83	132162	13.79
	UPPER LIMIT	125270	9.15	503518	11.33	264324	14.29
	LOWER LIMIT	31317.5	8.15	125879.5	10.33	66081	13.29
	EPA SAMPLE NO.						
01	12TP18-0506-01	88630	8.65	354004	10.83	192764	13.79
02	SS-01MS	84458	8.65	336907	10.83	175217	13.79
03	SS-01MSD	85315	8.65	338716	10.83	176663	13.79
04	12TP17-000.5-01	85843	8.65	350705	10.83	179434	13.79
05	12TP17-000.5-01MS	87689	8.65	348127	10.83	181728	13.79
06	12TP17-000.5-01MSD	91469	8.65	364557	10.83	190963	13.79

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 12/28/2011

Lab File ID: BE074686.D Time Analyzed: 17:25

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	243808	16.27	225464	20.73	188398	24.43
	UPPER LIMIT	487616	16.77	450928	21.23	376796	24.93
	LOWER LIMIT	121904	15.77	112732	20.23	94199	23.93
	EPA SAMPLE NO.						
01	12TP18-0506-01	351701	16.27	297709	20.72	274152	24.43
02	SS-01MS	314690	16.27	267526	20.73	240921	24.44
03	SS-01MSD	326852	16.27	271297	20.73	245953	24.44
04	12TP17-000.5-01	349831	16.27	291827	20.73	263966	24.43
05	12TP17-000.5-01MS	332835	16.27	293454	20.73	266975	24.43
06	12TP17-000.5-01MSD	352612	16.27	318397	20.73	279368	24.43

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 12/27/2011

Lab File ID: BF052380.D Time Analyzed: 13:32

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	102416	4.13	371648	5.33	189405	6.92
	UPPER LIMIT	204832	4.63	743296	5.83	378810	7.42
	LOWER LIMIT	51208	3.63	185824	4.83	94702.5	6.42
	EPA SAMPLE NO.						
01	12TP17-0.5-02-02	110644	4.12	415285	5.33	213285	6.91

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 12/27/2011

Lab File ID: BF052380.D Time Analyzed: 13:32

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	313675	8.48	258013	11.59	264621	13.19
	UPPER LIMIT	627350	8.98	516026	12.09	529242	13.69
	LOWER LIMIT	156837.5	7.98	129006.5	11.09	132310.5	12.69
	EPA SAMPLE NO.						
01	12TP17-0.5-02-02	330816	8.48	279969	11.59	256229	13.19

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 01/11/2012

Lab File ID: BF052871.D Time Analyzed: 20:33

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	102208	4.97	356895	6.12	203459	7.85
	UPPER LIMIT	204416	5.47	713790	6.62	406918	8.35
	LOWER LIMIT	51104	4.47	178447.5	5.62	101729.5	7.35
	EPA SAMPLE NO.						
01	12TP18-0607-02	105138	4.97	372698	6.12	222349	7.85

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD040 Date Analyzed: 01/11/2012

Lab File ID: BF052871.D Time Analyzed: 20:33

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	359059	9.52	316343	12.73	314415	14.74
	UPPER LIMIT	718118	10.02	632686	13.23	628830	15.24
	LOWER LIMIT	179529.5	9.02	158171.5	12.23	157207.5	14.24
	EPA SAMPLE NO.						
01	12TP18-0607-02	362220	9.52	321510	12.73	328569	14.74

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60132B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: BE074657.D Lab Sample ID: PB60132B

Instrument ID: BNA_E Date Extracted: 12/22/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/27/2011

Level: (low/med) LOW Time Analyzed: 16:00

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12TP18-0607-02	C5065-07	BF052886.D	01/12/2012
12TP18-0506-01	C5065-06	BE074699.D	12/29/2011
12TP17-000.5-01MSD	C5065-04MSD	BE074697.D	12/29/2011
12TP17-000.5-01MS	C5065-03MS	BE074696.D	12/29/2011
12TP17-000.5-01	C5065-02	BE074695.D	12/28/2011
SS-01MSD	C5068-12MSD	BE074694.D	12/28/2011
SS-01MS	C5068-11MS	BE074693.D	12/28/2011
12TP17-0.5-02-02	C5065-05	BF052389.D	12/27/2011
PB60132BS	PB60132BS	BE074656.D	12/27/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60132B	SDG No.:	C5065
Lab Sample ID:	PB60132B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074657.D	1	12/22/11	12/27/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	24	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	16	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60132B	SDG No.:	C5065
Lab Sample ID:	PB60132B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074657.D	1	12/22/11	12/27/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	330	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	112		35 - 105	75%	SPK: 150
13127-88-3	Phenol-d5	112		40 - 100	75%	SPK: 150
4165-60-0	Nitrobenzene-d5	68.8		35 - 100	69%	SPK: 100
321-60-8	2-Fluorobiphenyl	72.9		45 - 105	73%	SPK: 100
118-79-6	2,4,6-Tribromophenol	101		35 - 125	68%	SPK: 150
1718-51-0	Terphenyl-d14	71.9		30 - 125	72%	SPK: 100
INTERNAL STANDARDS						
3[illegible]	1,4-Dichlorobenzene-d4	81239	8.66			
1146-65-2	Naphthalene-d8	315476	10.83			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60132B	SDG No.:	C5065
Lab Sample ID:	PB60132B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074657.D	1	12/22/11	12/27/11	PB60132

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	152178	13.8			
1517-22-2	Phenanthrene-d10	263225	16.27			
1719-03-5	Chrysene-d12	208786	20.73			
1520-96-3	Perylene-d12	191903	24.44			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60132BS	Benzaldehyde	1700	580	34				10	161	
	Phenol	1700	1200	71				51	100	
	bis(2-Chloroethyl)ether	1700	1200	71				48	105	
	2-Chlorophenol	1700	1100	65				53	105	
	2-Methylphenol	1700	1100	65				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1200	71				45	115	
	Acetophenone	1700	1200	71				51	114	
	3+4-Methylphenols	1700	1100	65				54	105	
	N-Nitroso-di-n-propylamine	1700	1200	71				51	114	
	Hexachloroethane	1700	1200	71				44	110	
	Nitrobenzene	1700	1300	76				49	114	
	Isophorone	1700	1300	76				52	110	
	2-Nitrophenol	1700	1200	71				51	110	
	2,4-Dimethylphenol	1700	1200	71				46	105	
	bis(2-Chloroethoxy)methane	1700	1300	76				52	110	
	2,4-Dichlorophenol	1700	1200	71				53	110	
	4-Chloroaniline	1700	140	8		*		25	115	
	Hexachlorobutadiene	1700	1300	76				47	115	
	Caprolactam	1700	970	57				45	115	
	4-Chloro-3-methylphenol	1700	1100	65				56	111	
	Hexachlorocyclopentadiene	3300	2900	88				43	112	
	2,4,6-Trichlorophenol	1700	1200	71				53	110	
	2,4,5-Trichlorophenol	1700	1200	71				53	110	
	1,1-Biphenyl	1700	1300	76				55	109	
	2-Chloronaphthalene	1700	1300	76				55	105	
	2-Nitroaniline	1700	1300	76				53	118	
	Dimethylphthalate	1700	1200	71				57	110	
	Acenaphthylene	1700	1300	76				54	105	
	2,6-Dinitrotoluene	1700	1200	71				55	110	
	3-Nitroaniline	1700	440	26				25	110	
	Acenaphthene	1700	1300	76				54	110	
	2,4-Dinitrophenol	3300	1800	55				15	130	
	4-Nitrophenol	3300	2200	67				44	115	
	Dibenzofuran	1700	1200	71				59	105	
	2,4-Dinitrotoluene	1700	1200	71				55	115	
	Diethylphthalate	1700	1100	65				56	111	
	4-Chlorophenyl-phenylether	1700	1200	71				56	110	
	4-Nitroaniline	1700	940	55				46	113	
	4,6-Dinitro-2-methylphenol	1700	1100	65				39	126	
	N-Nitrosodiphenylamine	1700	1300	76				54	115	
	4-Bromophenyl-phenylether	1700	1300	76				51	115	
	Hexachlorobenzene	1700	1300	76				52	117	
	Atrazine	1700	1400	82				40	127	
	Pentachlorophenol	3300	2500	76				47	116	
	Phenanthrene	1700	1300	76				56	110	
	Carbazole	1700	1200	71				54	117	

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Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60132BS	Di-n-butylphthalate	1700	1200	71				58	110	
	Butylbenzylphthalate	1700	1200	71				57	122	
	3,3-Dichlorobenzidine	1700	670	39				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1200	71				60	119	
	Di-n-octyl phthalate	1700	1200	71				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	1300	76				70	130	
	2,3,4,6-Tetrachlorophenol	1700	1100	65		*		70	130	

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5065-03MS	**Client Sample ID: 12TP17-000.5-01MS**									
Benzaldehyde	2300	0	1400	61				10	161	
Phenol	2300	0	2300	100				43	100	
bis(2-Chloroethyl)ether	2300	0	2300	100				43	105	
2-Chlorophenol	2300	0	2200	96				45	105	
2-Methylphenol	2300	0	2200	96				44	105	
2,2-oxybis(1-Chloropropane)	2300	0	2300	100				36	115	
Acetophenone	2300	0	2100	91				48	131	
3+4-Methylphenols	2300	0	2200	96				44	105	
N-Nitroso-di-n-propylamine	2300	0	2200	96				41	115	
Hexachloroethane	2300	0	2200	96				35	110	
Nitrobenzene	2300	0	2300	100				40	115	
Isophorone	2300	0	2300	100				45	110	
2-Nitrophenol	2300	0	2100	91				40	110	
2,4-Dimethylphenol	2300	0	2100	91				35	105	
bis(2-Chloroethoxy)methane	2300	0	2300	100				45	110	
2,4-Dichlorophenol	2300	0	2200	96				45	110	
4-Chloroaniline	2300	0	1300	57				10	160	
Hexachlorobutadiene	2300	0	2100	91				40	115	
Caprolactam	2300	0	2200	96				24	145	
4-Chloro-3-methylphenol	2300	0	2200	96				45	115	
Hexachlorocyclopentadiene	4500	0	3100	69				10	128	
2,4,6-Trichlorophenol	2300	0	2300	100				45	110	
2,4,5-Trichlorophenol	2300	0	2300	100				50	110	
1,1-Biphenyl	2300	0	2100	91				47	131	
2-Chloronaphthalene	2300	0	2200	96				45	105	
2-Nitroaniline	2300	0	2500	109				45	120	
Dimethylphthalate	2300	0	2200	96				51	110	
Acenaphthylene	2300	0	2200	96				45	105	
2,6-Dinitrotoluene	2300	0	2200	96				50	110	
3-Nitroaniline	2300	0	2000	87				25	110	
Acenaphthene	2300	0	2100	91				45	110	
2,4-Dinitrophenol	4500	0	900	20				15	130	
4-Nitrophenol	4500	0	4900	109				15	140	
Dibenzofuran	2300	0	2100	91				50	105	
2,4-Dinitrotoluene	2300	0	2300	100				50	115	
Diethylphthalate	2300	0	2200	96				50	115	
4-Chlorophenyl-phenylether	2300	0	2100	91				45	110	
4-Nitroaniline	2300	0	2100	91				35	115	
4,6-Dinitro-2-methylphenol	2300	0	670	29	*			30	135	
N-Nitrosodiphenylamine	2300	0	2100	91				50	115	
4-Bromophenyl-phenylether	2300	0	2200	96				45	115	
Hexachlorobenzene	2300	0	2100	91				45	120	
Atrazine	2300	0	0	0	*			38	135	
Pentachlorophenol	4500	0	5100	113				25	120	
Phenanthrene	2300	0	2200	96				50	110	
Carbazole	2300	0	2200	96				45	115	
Di-n-butylphthalate	2300	0	2300	100				55	110	
Butylbenzylphthalate	2300	0	2400	104				50	125	

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
3,3-Dichlorobenzidine	2300	0	2000	87				10	126	
bis(2-Ethylhexyl)phthalate	2300	0	2400	104				45	125	
Di-n-octyl phthalate	2300	0	2600	113				40	130	
1,2,4,5-Tetrachlorobenzene	2300	0	2100	91				70	130	
2,3,4,6-Tetrachlorophenol	2300	0	2400	104				70	130	

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5065-04MSD	**Client Sample ID: 12TP17-000.5-01MSD**									
Benzaldehyde	2300	0	1200	52		16		10	161	20
Phenol	2300	0	2000	87		14		43	100	20
bis(2-Chloroethyl)ether	2300	0	2000	87		14		43	105	20
2-Chlorophenol	2300	0	1900	83		15		45	105	20
2-Methylphenol	2300	0	1900	83		15		44	105	20
2,2-oxybis(1-Chloropropane)	2300	0	2000	87		14		36	115	20
Acetophenone	2300	0	1900	83		9		48	131	20
3+4-Methylphenols	2300	0	1900	83		15		44	105	20
N-Nitroso-di-n-propylamine	2300	0	1900	83		15		41	115	20
Hexachloroethane	2300	0	1900	83		15		35	110	20
Nitrobenzene	2300	0	2000	87		14		40	115	20
Isophorone	2300	0	2000	87		14		45	110	20
2-Nitrophenol	2300	0	1800	78		15		40	110	20
2,4-Dimethylphenol	2300	0	1900	83		9		35	105	20
bis(2-Chloroethoxy)methane	2300	0	1900	83		19		45	110	20
2,4-Dichlorophenol	2300	0	1900	83		15		45	110	20
4-Chloroaniline	2300	0	970	42		30	*	10	160	20
Hexachlorobutadiene	2300	0	1900	83		9		40	115	20
Caprolactam	2300	0	1900	83		15		24	145	20
4-Chloro-3-methylphenol	2300	0	1900	83		15		45	115	20
Hexachlorocyclopentadiene	4500	0	2600	58		17		10	128	20
2,4,6-Trichlorophenol	2300	0	2000	87		14		45	110	20
2,4,5-Trichlorophenol	2300	0	2000	87		14		50	110	20
1,1-Biphenyl	2300	0	1800	78		15		47	131	20
2-Chloronaphthalene	2300	0	1900	83		15		45	105	20
2-Nitroaniline	2300	0	2200	96		13		45	120	20
Dimethylphthalate	2300	0	1900	83		15		51	110	20
Acenaphthylene	2300	0	2000	87		10		45	105	20
2,6-Dinitrotoluene	2300	0	1900	83		15		50	110	20
3-Nitroaniline	2300	0	1700	74		16		25	110	20
Acenaphthene	2300	0	1800	78		15		45	110	20
2,4-Dinitrophenol	4500	0	830	18		11		15	130	20
4-Nitrophenol	4500	0	4200	93		16		15	140	20
Dibenzofuran	2300	0	1900	83		9		50	105	20
2,4-Dinitrotoluene	2300	0	2000	87		14		50	115	20
Diethylphthalate	2300	0	1900	83		15		50	115	20
4-Chlorophenyl-phenylether	2300	0	1800	78		15		45	110	20
4-Nitroaniline	2300	0	1800	78		15		35	115	20
4,6-Dinitro-2-methylphenol	2300	0	610	27	*	7		30	135	20
N-Nitrosodiphenylamine	2300	0	1900	83		9		50	115	20
4-Bromophenyl-phenylether	2300	0	1900	83		15		45	115	20
Hexachlorobenzene	2300	0	1800	78		15		45	120	20
Atrazine	2300	0	2500	109		200	*	38	135	20
Pentachlorophenol	4500	0	4400	98		14		25	120	20
Phenanthrene	2300	0	1900	83		15		50	110	20
Carbazole	2300	0	1900	83		15		45	115	20
Di-n-butylphthalate	2300	0	2000	87		14		55	110	20
Butylbenzylphthalate	2300	0	2000	87		18		50	125	20

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2300	0	1700	74		16		10	126	20
bis(2-Ethylhexyl)phthalate	2300	0	2000	87		18		45	125	20
Di-n-octyl phthalate	2300	0	2200	96		16		40	130	20
1,2,4,5-Tetrachlorobenzene	2300	0	1800	78		15		70	130	20
2,3,4,6-Tetrachlorophenol	2300	0	2100	91		13		70	130	20

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Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5068-11MS	**Client Sample ID: SS-01MS**									
Benzaldehyde	4800	0	2200	46				10	161	
Phenol	4800	0	4100	85				43	100	
bis(2-Chloroethyl)ether	4800	0	4400	92				43	105	
2-Chlorophenol	4800	0	3900	81				45	105	
2-Methylphenol	4800	0	4000	83				44	105	
2,2-oxybis(1-Chloropropane)	4800	0	4100	85				36	115	
Acetophenone	4800	0	3800	79				48	131	
3+4-Methylphenols	4800	0	4000	83				44	105	
N-Nitroso-di-n-propylamine	4800	0	4000	83				41	115	
Hexachloroethane	4800	0	3800	79				35	110	
Nitrobenzene	4800	0	4000	83				40	115	
Isophorone	4800	0	4100	85				45	110	
2-Nitrophenol	4800	0	4000	83				40	110	
2,4-Dimethylphenol	4800	0	3700	77				35	105	
bis(2-Chloroethoxy)methane	4800	0	4000	83				45	110	
2,4-Dichlorophenol	4800	0	3800	79				45	110	
4-Chloroaniline	4800	0	2200	46				10	160	
Hexachlorobutadiene	4800	0	3700	77				40	115	
Caprolactam	4800	0	3600	75				24	145	
4-Chloro-3-methylphenol	4800	0	3800	79				45	115	
Hexachlorocyclopentadiene	9500	0	6000	63				10	128	
2,4,6-Trichlorophenol	4800	0	3900	81				45	110	
2,4,5-Trichlorophenol	4800	0	3900	81				50	110	
1,1-Biphenyl	4800	0	3700	77				47	131	
2-Chloronaphthalene	4800	0	3800	79				45	105	
2-Nitroaniline	4800	0	4400	92				45	120	
Dimethylphthalate	4800	0	3900	81				51	110	
Acenaphthylene	4800	0	3800	79				45	105	
2,6-Dinitrotoluene	4800	0	3900	81				50	110	
3-Nitroaniline	4800	0	2600	54				25	110	
Acenaphthene	4800	0	3700	77				45	110	
2,4-Dinitrophenol	9500	0	3300	35				15	130	
4-Nitrophenol	9500	0	8400	88				15	140	
Dibenzofuran	4800	0	3700	77				50	105	
2,4-Dinitrotoluene	4800	0	4000	83				50	115	
Diethylphthalate	4800	0	3700	77				50	115	
4-Chlorophenyl-phenylether	4800	0	3700	77				45	110	
4-Nitroaniline	4800	0	3000	63				35	115	
4,6-Dinitro-2-methylphenol	4800	0	2100	44				30	135	
N-Nitrosodiphenylamine	4800	0	3700	77				50	115	
4-Bromophenyl-phenylether	4800	0	3800	79				45	115	
Hexachlorobenzene	4800	0	3600	75				45	120	
Atrazine	4800	0	4900	102				38	135	
Pentachlorophenol	9500	0	9200	97				25	120	
Phenanthrene	4800	0	3800	79				50	110	
Carbazole	4800	0	3800	79				45	115	
Di-n-butylphthalate	4800	0	4100	85				55	110	
Butylbenzylphthalate	4800	0	4200	88				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
3,3-Dichlorobenzidine	4800	0	1100	23				10	126	
bis(2-Ethylhexyl)phthalate	4800	0	4400	92				45	125	
Di-n-octyl phthalate	4800	0	4600	96				40	130	
1,2,4,5-Tetrachlorobenzene	4800	0	3700	77				70	130	
2,3,4,6-Tetrachlorophenol	4800	0	4000	83				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5068-12MSD	**Client Sample ID: SS-01MSD**									
Benzaldehyde	4800	0	2600	54		16		10	161	20
Phenol	4800	0	4600	96		12		43	100	20
bis(2-Chloroethyl)ether	4800	0	4900	102		10		43	105	20
2-Chlorophenol	4800	0	4400	92		13		45	105	20
2-Methylphenol	4800	0	4600	96		15		44	105	20
2,2-oxybis(1-Chloropropane)	4800	0	4700	98		14		36	115	20
Acetophenone	4800	0	4400	92		15		48	131	20
3+4-Methylphenols	4800	0	4500	94		12		44	105	20
N-Nitroso-di-n-propylamine	4800	0	4600	96		15		41	115	20
Hexachloroethane	4800	0	4300	90		13		35	110	20
Nitrobenzene	4800	0	4600	96		15		40	115	20
Isophorone	4800	0	4700	98		14		45	110	20
2-Nitrophenol	4800	0	4500	94		12		40	110	20
2,4-Dimethylphenol	4800	0	4400	92		18		35	105	20
bis(2-Chloroethoxy)methane	4800	0	4500	94		12		45	110	20
2,4-Dichlorophenol	4800	0	4500	94		17		45	110	20
4-Chloroaniline	4800	0	2800	58		23	*	10	160	20
Hexachlorobutadiene	4800	0	4400	92		18		40	115	20
Caprolactam	4800	0	4500	94		22	*	24	145	20
4-Chloro-3-methylphenol	4800	0	4500	94		17		45	115	20
Hexachlorocyclopentadiene	9500	0	5900	62		2		10	128	20
2,4,6-Trichlorophenol	4800	0	4600	96		17		45	110	20
2,4,5-Trichlorophenol	4800	0	4700	98		19		50	110	20
1,1-Biphenyl	4800	0	4300	90		16		47	131	20
2-Chloronaphthalene	4800	0	4400	92		15		45	105	20
2-Nitroaniline	4800	0	5200	108		16		45	120	20
Dimethylphthalate	4800	0	4500	94		15		51	110	20
Acenaphthylene	4800	0	4500	94		17		45	105	20
2,6-Dinitrotoluene	4800	0	4700	98		19		50	110	20
3-Nitroaniline	4800	0	3200	67		21	*	25	110	20
Acenaphthene	4800	0	4300	90		16		45	110	20
2,4-Dinitrophenol	9500	0	2900	31		12		15	130	20
4-Nitrophenol	9500	0	10000	105		18		15	140	20
Dibenzofuran	4800	0	4300	90		16		50	105	20
2,4-Dinitrotoluene	4800	0	4700	98		17		50	115	20
Diethylphthalate	4800	0	4400	92		18		50	115	20
4-Chlorophenyl-phenylether	4800	0	4400	92		18		45	110	20
4-Nitroaniline	4800	0	3600	75		17		35	115	20
4,6-Dinitro-2-methylphenol	4800	0	1800	38		15		30	135	20
N-Nitrosodiphenylamine	4800	0	4300	90		16		50	115	20
4-Bromophenyl-phenylether	4800	0	4300	90		13		45	115	20
Hexachlorobenzene	4800	0	4300	90		18		45	120	20
Atrazine	4800	0	0	0	*	200	*	38	135	20
Pentachlorophenol	9500	0	10000	105		8		25	120	20
Phenanthrene	4800	0	4300	90		13		50	110	20
Carbazole	4800	0	4300	90		13		45	115	20
Di-n-butylphthalate	4800	0	4600	96		12		55	110	20
Butylbenzylphthalate	4800	0	4900	102		15		50	125	20

not in this SDG

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	4800	0	1400	29		23	*	10	126	20
bis(2-Ethylhexyl)phthalate	4800	0	5000	104		12		45	125	20
Di-n-octyl phthalate	4800	0	5300	110		14		40	130	20
1,2,4,5-Tetrachlorobenzene	4800	0	4300	90		16		70	130	20
2,3,4,6-Tetrachlorophenol	4800	0	4900	102		21	*	70	130	20

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BE074508.D DFTPP Injection Date: 12/21/2011

Instrument ID: BNA_E DFTPP Injection Time: 15:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.5
68	Less than 2.0% of mass 69	0.5 (1.1) 1
69	Mass 69 relative abundance	44.2
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	53.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	18.1
365	Greater than 1% of mass 198	2.3
441	Present, but less than mass 443	7.7
442	Greater than 40% of mass 198	49.7
443	17.0 - 23.0% of mass 442	9.5 (19.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074509.D	12/21/2011	16:07
02	SSTD025	25 ng BNA ICC	BE074510.D	12/21/2011	16:52
03	SSTD040	40 ng BNA ICC	BE074511.D	12/21/2011	17:37
04	SSTD050	50 ng BNA ICC	BE074512.D	12/21/2011	18:22
05	SSTD060	60 ng BNA ICC	BE074513.D	12/21/2011	19:03
06	SSTD080	80 ng BNA ICC	BE074514.D	12/21/2011	19:48

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_E Calibration Date(s): 12/21/2011 12/21/2011

Calibration Time(s): 16:07 19:48

LAB FILE ID: RRF010 = BE074509.D RRF025 = BE074510.D RRF040 = BE074511.D
RRF050 = BE074512.D RRF060 = BE074513.D RRF080 = BE074514.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.224	0.935	0.907	0.867	0.806	0.766	0.918	17.7
Phenol	1.959	1.750	1.945	1.903	1.837	1.813	1.868	4.4
bis(2-Chloroethyl)ether	1.560	1.494	1.547	1.516	1.476	1.446	1.507	2.9
2-Chlorophenol	1.479	1.396	1.450	1.417	1.376	1.387	1.417	2.8
2-Methylphenol	1.206	1.177	1.229	1.235	1.196	1.186	1.205	1.9
2,2-oxybis(1-Chloropropane)	2.625	2.480	2.556	2.519	2.431	2.419	2.505	3.1
Acetophenone	0.544	0.529	0.515	0.503	0.514	0.502	0.518	3.1
3+4-Methylphenols	1.554	1.566	1.662	1.625	1.604	1.567	1.596	2.6
n-Nitroso-di-n-propylamine	1.088	1.094	1.130	1.111	1.062	1.061	1.091	2.5
Hexachloroethane	0.613	0.570	0.585	0.588	0.561	0.563	0.580	3.4
Nitrobenzene	0.416	0.414	0.393	0.395	0.393	0.393	0.401	2.7
Isophorone	0.721	0.716	0.712	0.712	0.711	0.702	0.712	0.8
2-Nitrophenol	0.164	0.181	0.184	0.186	0.189	0.191	0.183	5.3
2,4-Dimethylphenol	0.336	0.322	0.320	0.318	0.317	0.314	0.321	2.4
bis(2-Chloroethoxy)methane	0.469	0.457	0.451	0.436	0.435	0.430	0.446	3.4
2,4-Dichlorophenol	0.276	0.272	0.266	0.276	0.271	0.272	0.272	1.3
4-Chloroaniline	0.441	0.448	0.438	0.443	0.433	0.434	0.439	1.2
Hexachlorobutadiene	0.149	0.139	0.141	0.139	0.141	0.145	0.142	2.6
Caprolactam	0.119	0.117	0.124	0.126	0.125	0.126	0.123	3.0
4-Chloro-3-methylphenol	0.336	0.309	0.333	0.330	0.337	0.330	0.329	3.2
Hexachlorocyclopentadiene	0.220	0.236	0.246	0.246	0.254	0.261	0.244	5.9
2,4,6-Trichlorophenol	0.340	0.337	0.340	0.336	0.341	0.341	0.339	0.7
2,4,5-Trichlorophenol	0.357	0.364	0.377	0.369	0.370	0.372	0.368	1.9
1,1-Biphenyl	1.675	1.589	1.559	1.556	1.529	1.505	1.569	3.8
2-Chloronaphthalene	1.234	1.155	1.160	1.141	1.141	1.125	1.159	3.3
2-Nitroaniline	0.349	0.372	0.392	0.393	0.400	0.392	0.383	5.0
Dimethylphthalate	1.373	1.352	1.337	1.317	1.316	1.294	1.332	2.1
Acenaphthylene	2.026	1.919	1.944	1.919	1.934	1.896	1.940	2.3
2,6-Dinitrotoluene	0.271	0.296	0.305	0.302	0.307	0.306	0.298	4.6
3-Nitroaniline	0.367	0.369	0.378	0.377	0.386	0.381	0.376	1.9
Acenaphthene	1.298	1.230	1.218	1.199	1.208	1.190	1.224	3.2
2,4-Dinitrophenol	0.067	0.092	0.115	0.127	0.131	0.146	0.113	25.6
4-Nitrophenol	0.253	0.290	0.303	0.309	0.307	0.311	0.295	7.5
Dibenzofuran	1.858	1.784	1.745	1.704	1.710	1.674	1.746	3.8

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

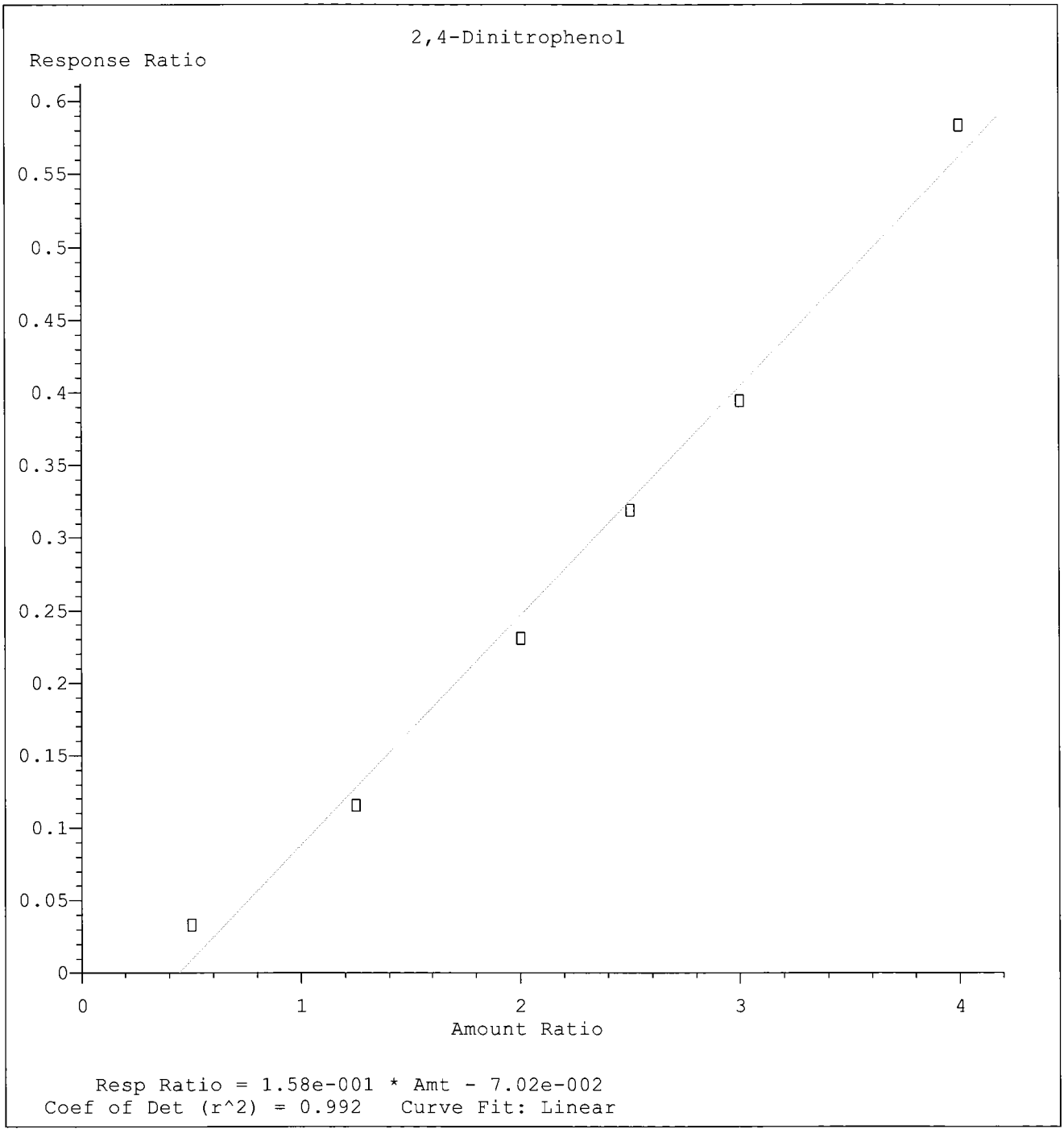
Instrument ID: BNA_E Calibration Date(s): 12/21/2011 12/21/2011

Calibration Time(s): 16:07 19:48

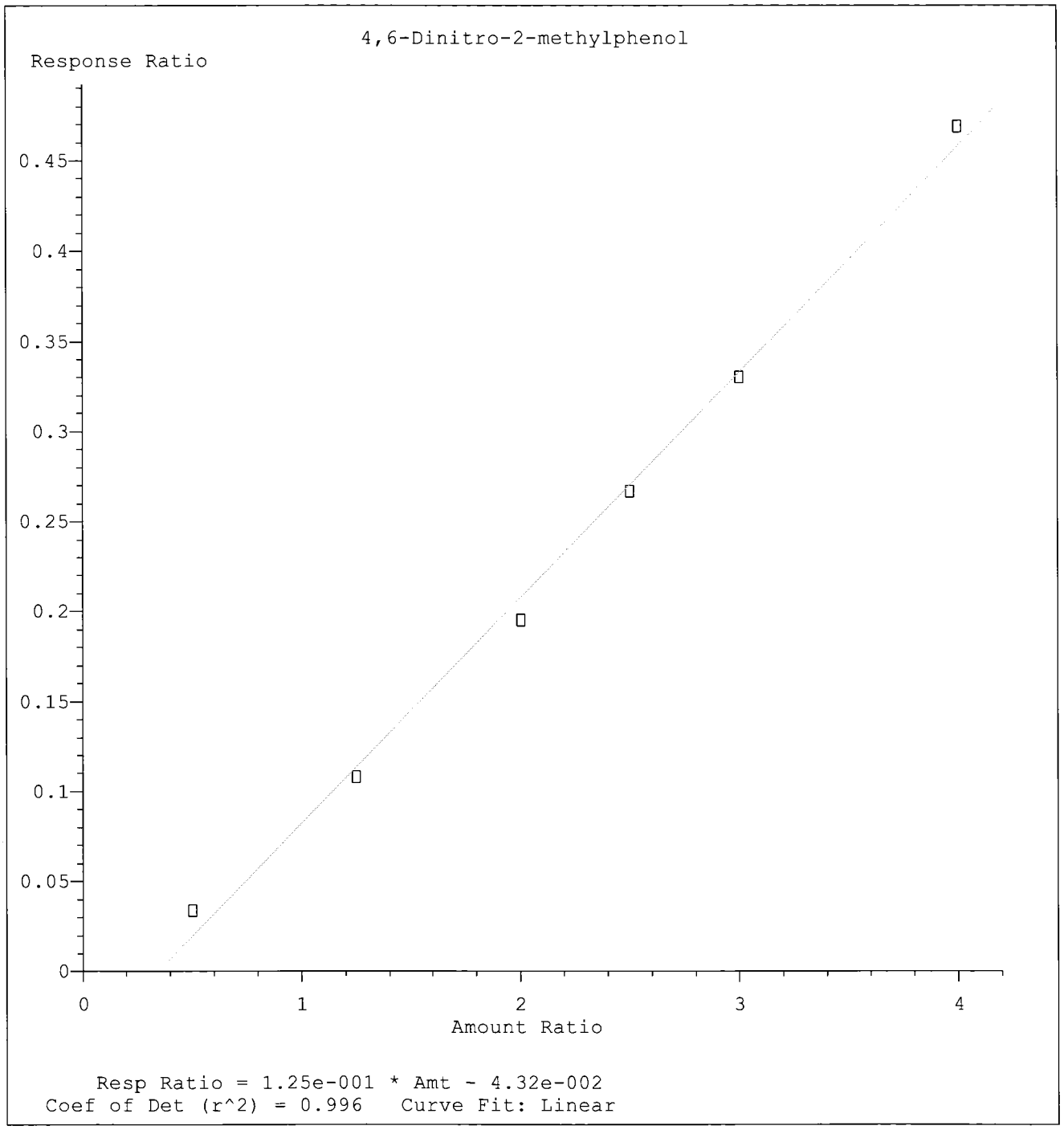
LAB FILE ID: RRF010 = BE074509.D RRF025 = BE074510.D RRF040 = BE074511.D
RRF050 = BE074512.D RRF060 = BE074513.D RRF080 = BE074514.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.358	0.375	0.389	0.400	0.400	0.402	0.387	4.5
Diethylphthalate	1.499	1.432	1.440	1.414	1.409	1.387	1.430	2.7
4-Chlorophenyl-phenylether	0.662	0.620	0.633	0.620	0.628	0.606	0.628	3.0
4-Nitroaniline	0.381	0.386	0.399	0.386	0.392	0.386	0.388	1.6
4,6-Dinitro-2-methylphenol	0.067	0.086	0.097	0.107	0.110	0.117	0.097	18.9
n-Nitrosodiphenylamine	0.666	0.679	0.640	0.655	0.659	0.643	0.657	2.2
4-Bromophenyl-phenylether	0.170	0.173	0.167	0.165	0.171	0.167	0.169	1.8
Hexachlorobenzene	0.183	0.186	0.171	0.173	0.168	0.172	0.176	4.1
Atrazine	0.182	0.178	0.159	0.143	0.129	0.106	0.149	19.7
Pentachlorophenol	0.075	0.093	0.097	0.104	0.104	0.109	0.097	12.7
Phenanthrene	1.118	1.080	1.040	1.052	1.046	1.021	1.059	3.2
Carbazole	1.123	1.105	1.089	1.100	1.082	1.065	1.094	1.8
Di-n-butylphthalate	1.242	1.275	1.271	1.294	1.300	1.283	1.278	1.6
Butylbenzylphthalate	0.635	0.626	0.661	0.658	0.661	0.654	0.649	2.3
3,3-Dichlorobenzidine	0.362	0.385	0.377	0.382	0.385	0.383	0.379	2.3
Bis(2-ethylhexyl)phthalate	0.897	0.871	0.919	0.921	0.921	0.908	0.906	2.2
Di-n-octyl phthalate	1.408	1.291	1.503	1.510	1.550	1.555	1.470	6.9
1,2,4,5-Tetrachlorobenzene	0.498	0.493	0.471	0.470	0.462	0.460	0.476	3.3
2,3,4,6-Tetrachlorophenol	0.241	0.272	0.264	0.262	0.270	0.274	0.264	4.7
2-Fluorophenol	1.448	1.308	1.408	1.408	1.349	1.339	1.377	3.8
Phenol-d5	1.829	1.606	1.760	1.755	1.663	1.633	1.708	5.1
Nitrobenzene-d5	0.422	0.412	0.407	0.405	0.403	0.398	0.408	2.0
2-Fluorobiphenyl	1.548	1.438	1.402	1.373	1.364	1.316	1.407	5.7
2,4,6-Tribromophenol	0.130	0.132	0.134	0.132	0.132	0.134	0.132	1.1
Terphenyl-d14	0.843	0.830	0.775	0.780	0.769	0.756	0.792	4.5

All other compounds must meet a minimum RRF of 0.010.



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE122111.M
Calibration Table Last Updated: Thu Dec 22 02:58:40 2011



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE122111.M
Calibration Table Last Updated: Thu Dec 22 02:59:15 2011

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BE074654.D DFTPP Injection Date: 12/27/2011

Instrument ID: BNA_E DFTPP Injection Time: 13:46

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	51.3
68	Less than 2.0% of mass 69	0.6 (1.3) 1
69	Mass 69 relative abundance	45.6
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	51.7
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.3
275	10.0 - 30.0% of mass 198	19.7
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	10.5
442	Greater than 40% of mass 198	62
443	17.0 - 23.0% of mass 442	12.3 (19.9) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074655.D	12/27/2011	14:31
02	PB60132BS	PB60132BS	BE074656.D	12/27/2011	15:16
03	PB60132B	PB60132B	BE074657.D	12/27/2011	16:00

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_E Calibration Date/Time: 12/27/2011 14:31

Lab File ID: BE074655.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.918	0.996		8.5	
Phenol	1.868	2.049		9.7	20.0
bis(2-Chloroethyl)ether	1.507	1.641		8.9	
2-Chlorophenol	1.417	1.499		5.8	
2-Methylphenol	1.205	1.293		7.3	
2,2-oxybis(1-Chloropropane)	2.505	2.799		11.7	
Acetophenone	0.518	0.526		1.6	
3+4-Methylphenols	1.596	1.704		6.7	
n-Nitroso-di-n-propylamine	1.091	1.207	0.050	10.6	
Hexachloroethane	0.580	0.605		4.4	
Nitrobenzene	0.401	0.423		5.5	
Isophorone	0.712	0.740		4.0	
2-Nitrophenol	0.183	0.192		5.2	20.0
2,4-Dimethylphenol	0.321	0.324		0.8	
bis(2-Chloroethoxy)methane	0.446	0.473		6.0	
2,4-Dichlorophenol	0.272	0.277		2.0	20.0
4-Chloroaniline	0.439	0.451		2.7	
Hexachlorobutadiene	0.142	0.139		2.5	20.0
Caprolactam	0.123	0.127		3.2	
4-Chloro-3-methylphenol	0.329	0.339		3.0	20.0
Hexachlorocyclopentadiene	0.244	0.240	0.050	1.7	
2,4,6-Trichlorophenol	0.339	0.342		0.8	20.0
2,4,5-Trichlorophenol	0.368	0.380		3.1	
1,1-Biphenyl	1.569	1.585		1.0	
2-Chloronaphthalene	1.159	1.187		2.4	
2-Nitroaniline	0.383	0.436		13.8	
Dimethylphthalate	1.332	1.362		2.2	
Acenaphthylene	1.940	1.998		3.0	
2,6-Dinitrotoluene	0.298	0.314		5.2	
3-Nitroaniline	0.376	0.394		4.8	
Acenaphthene	1.224	1.242		1.5	20.0
2,4-Dinitrophenol	0.113	0.092	0.050	18.8	
4-Nitrophenol	0.295	0.320	0.050	8.5	
Dibenzofuran	1.746	1.780		1.9	
2,4-Dinitrotoluene	0.387	0.424		9.5	
Diethylphthalate	1.430	1.436		0.4	
4-Chlorophenyl-phenylether	0.628	0.634		1.0	
4-Nitroaniline	0.388	0.414		6.7	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_E Calibration Date/Time: 12/27/2011 14:31

Lab File ID: BE074655.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.097	0.096		1.4	
n-Nitrosodiphenylamine	0.657	0.671		2.1	20.0
4-Bromophenyl-phenylether	0.169	0.171		1.2	
Hexachlorobenzene	0.176	0.174		1.3	
Atrazine	0.149	0.168		12.6	
Pentachlorophenol	0.097	0.095		1.6	20.0
Phenanthrene	1.059	1.091		3.0	
Carbazole	1.094	1.152		5.3	
Di-n-butylphthalate	1.278	1.336		4.5	
Butylbenzylphthalate	0.649	0.650		0.2	
3,3-Dichlorobenzidine	0.379	0.382		0.8	
Bis(2-ethylhexyl)phthalate	0.906	0.905		0.1	
Di-n-octyl phthalate	1.470	1.508		2.6	20.0
1,2,4,5-Tetrachlorobenzene	0.476	0.489		2.7	
2,3,4,6-Tetrachlorophenol	0.264	0.269		1.8	
2-Fluorophenol	1.377	1.500		8.9	
Phenol-d5	1.708	1.875		9.8	
Nitrobenzene-d5	0.408	0.432		6.0	
2-Fluorobiphenyl	1.407	1.436		2.1	
2,4,6-Tribromophenol	0.132	0.136		2.7	
Terphenyl-d14	0.792	0.751		5.2	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122711\
Data File : BE074655.D
Acq On : 27 Dec 2011 14:31
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 02:18:44 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	116	-0.02
2		1,4-Dioxane	40.000	45.544	-13.9	132	-0.04
3		Pyridine	40.000	44.867	-12.2	126	-0.04
4		n-Nitrosodimethylamine	40.000	45.047	-12.6	129	-0.03
5	S	2-Fluorophenol	80.000	87.174	-9.0	123	-0.02
6		Aniline	40.000	44.728	-11.8	124	-0.02
7	S	Phenol-d5	80.000	87.857	-9.8	124	-0.02
8		2-Chlorophenol	40.000	42.301	-5.8	120	-0.02
9		Benzaldehyde	40.000	47.520	-18.8	127	-0.02
10	C	Phenol	40.000	43.882	-9.7	122	-0.02
11		bis(2-Chloroethyl)ether	40.000	43.573	-8.9	123	-0.02
12	S	2-Chlorophenol-d4	80.000	84.658	-5.8	120	-0.02
13		1,3-Dichlorobenzene	40.000	42.537	-6.3	121	-0.02
14	C	1,4-Dichlorobenzene	40.000	41.698	-4.2	121	-0.02
15	s	1,2-Dichlorobenzene-d4	80.000	84.030	-5.0	121	-0.02
16		1,2-Dichlorobenzene	40.000	41.820	-4.6	118	-0.02
17		Benzyl Alcohol	40.000	43.225	-8.1	121	-0.02
18		2,2'-oxybis(1-Chloropropane	40.000	44.693	-11.7	127	-0.02
19		2-Methylphenol	40.000	42.935	-7.3	122	-0.02
20		Hexachloroethane	40.000	41.763	-4.4	120	-0.02
21	P	n-Nitroso-di-n-propylamine	40.000	44.240	-10.6	124	-0.02
22		3+4-Methylphenols	40.000	42.690	-6.7	119	-0.02
23	I	Naphthalene-d8	20.000	20.000	0.0	117	-0.02
24		Acetophenone	40.000	40.649	-1.6	119	-0.02
25	S	Nitrobenzene-d5	80.000	84.821	-6.0	124	-0.02
26		Nitrobenzene	40.000	42.234	-5.6	126	-0.02
27		Isophorone	40.000	41.577	-3.9	121	-0.02
28	C	2-Nitrophenol	40.000	42.182	-5.5	122	-0.02
29		2,4-Dimethylphenol	40.000	40.279	-0.7	118	-0.02
30		bis(2-Chloroethoxy)methane	40.000	42.366	-5.9	122	-0.02
31	C	2,4-Dichlorophenol	40.000	40.784	-2.0	122	-0.02
32		1,2,4-Trichlorobenzene	40.000	40.291	-0.7	119	-0.02
33		Naphthalene	40.000	40.176	-0.4	118	-0.02
34		Benzoic acid	40.000	35.881	10.3	105	-0.02
35		4-Chloroaniline	40.000	41.053	-2.6	120	-0.02
36	C	Hexachlorobutadiene	40.000	38.928	2.7	115	-0.02
37		Caprolactam	40.000	41.317	-3.3	119	-0.02
38	C	4-Chloro-3-methylphenol	40.000	41.156	-2.9	119	-0.02
39		2-Methylnaphthalene	40.000	39.893	0.3	116	-0.02
40	I	Acenaphthene-d10	20.000	20.000	0.0	113	-0.02
41		1,2,4,5-Tetrachlorobenzene	40.000	41.094	-2.7	118	-0.02
42	P	Hexachlorocyclopentadiene	40.000	39.351	1.6	111	-0.02
43	S	2,4,6-Tribromophenol	80.000	81.870	-2.3	115	-0.02
44	C	2,4,5-Trichlorophenol	40.000	40.275	-0.7	114	-0.02

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122711\
Data File : BE074655.D
Acq On : 27 Dec 2011 14:31
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 02:18:44 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	41.249	-3.1	114	-0.02
46	S	2-Fluorobiphenyl	80.000	81.680	-2.1	116	-0.02
47		1,1'-Biphenyl	40.000	40.406	-1.0	115	-0.02
48		2-Chloronaphthalene	40.000	40.946	-2.4	116	-0.02
49		2-Nitroaniline	40.000	45.503	-13.8	126	-0.02
50		Acenaphthylene	40.000	41.196	-3.0	116	-0.02
51		Dimethylphthalate	40.000	40.905	-2.3	115	-0.02
52		2,6-Dinitrotoluene	40.000	42.104	-5.3	117	-0.02
53	C	Acenaphthene	40.000	40.607	-1.5	116	-0.02
54		3-Nitroaniline	40.000	41.891	-4.7	118	-0.02
55	P	2,4-Dinitrophenol	40.000	32.067	19.8	90	-0.02
56		Dibenzofuran	40.000	40.779	-1.9	116	-0.02
57	P	4-Nitrophenol	40.000	43.340	-8.4	120	-0.02
58		2,4-Dinitrotoluene	40.000	43.753	-9.4	123	-0.02
59		Fluorene	40.000	41.146	-2.9	116	-0.02
60		2,3,4,6-Tetrachlorophenol	40.000	40.744	-1.9	115	-0.02
61		Diethylphthalate	40.000	40.174	-0.4	113	-0.02
62		4-Chlorophenyl-phenylether	40.000	40.396	-1.0	114	-0.02
63		4-Nitroaniline	40.000	42.675	-6.7	118	-0.02
64		Azobenzene	40.000	43.665	-9.2	123	-0.02
65	I	Phenanthrene-d10	20.000	20.000	0.0	112	-0.02
66		4,6-Dinitro-2-methylphenol	40.000	37.392	6.5	110	-0.02
67	c	n-Nitrosodiphenylamine	40.000	40.854	-2.1	117	-0.02
68		4-Bromophenyl-phenylether	40.000	40.472	-1.2	114	-0.02
69		Hexachlorobenzene	40.000	39.558	1.1	114	-0.02
70		Atrazine	40.000	44.568	-11.4	118	-0.02
71	C	Pentachlorophenol	40.000	39.481	1.3	110	-0.02
72		Phenanthrene	40.000	41.174	-2.9	117	-0.02
73		Anthracene	40.000	40.818	-2.0	115	-0.02
74		Carbazole	40.000	42.133	-5.3	118	-0.02
75		Di-n-butylphthalate	40.000	41.819	-4.5	117	-0.02
76	C	Fluoranthene	40.000	41.858	-4.6	120	-0.02
77	I	Chrysene-d12	20.000	20.000	0.0	122	-0.04
78		Benzidine	40.000	40.613	-1.5	115	-0.02
79		Pyrene	40.000	38.467	3.8	117	-0.02
80	S	Terphenyl-d14	80.000	75.815	5.2	118	-0.02
81		Butylbenzylphthalate	40.000	40.057	-0.1	120	-0.02
82		Benzo(a)anthracene	40.000	39.664	0.8	122	-0.02
83		3,3'-Dichlorobenzidine	40.000	40.324	-0.8	123	-0.03
84		Chrysene	40.000	39.916	0.2	122	-0.03
85		Bis(2-ethylhexyl)phthalate	40.000	39.953	0.1	120	-0.02
86	c	Di-n-octyl phthalate	40.000	41.044	-2.6	122	-0.04
87		Indeno(1,2,3-cd)pyrene	40.000	42.000	-5.0	151	-0.08

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122711\
Data File : BE074655.D
Acq On : 27 Dec 2011 14:31
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 02:18:44 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	123	-0.05
89		Benzo(b)fluoranthene	40.000	39.622	0.9	122	-0.04
90		Benzo(k)fluoranthene	40.000	40.399	-1.0	123	-0.04
91	C	Benzo(a)pyrene	40.000	40.494	-1.2	123	-0.05
92		Dibenzo(a,h)anthracene	40.000	43.110	-7.8	152	-0.09
93		Benzo(g,h,i)perylene	40.000	42.963	-7.4	152	-0.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BE074685.D DFTPP Injection Date: 12/28/2011

Instrument ID: BNA_E DFTPP Injection Time: 16:44

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	49.4
68	Less than 2.0% of mass 69	0.8 (1.8) 1
69	Mass 69 relative abundance	42.5
70	Less than 2.0% of mass 69	0.2 (0.6) 1
127	40.0 - 60.0% of mass 198	51.1
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	18.8
365	Greater than 1% of mass 198	2.4
441	Present, but less than mass 443	10.1
442	Greater than 40% of mass 198	60.2
443	17.0 - 23.0% of mass 442	10.4 (17.3) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074686.D	12/28/2011	17:25
02	SS-01MS	C5068-11MS	BE074693.D	12/28/2011	22:30
03	SS-01MSD	C5068-12MSD	BE074694.D	12/28/2011	23:12
04	12TP17-000.5-01	C5065-02	BE074695.D	12/28/2011	23:56
05	12TP17-000.5-01MS	C5065-03MS	BE074696.D	12/29/2011	00:38
06	12TP17-000.5-01MSD	C5065-04MSD	BE074697.D	12/29/2011	01:20
07	12TP18-0506-01	C5065-06	BE074699.D	12/29/2011	02:46

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_E Calibration Date/Time: 12/28/2011 17:25

Lab File ID: BE074686.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.918	1.032		12.5	
Phenol	1.868	1.987		6.4	20.0
bis(2-Chloroethyl)ether	1.507	1.614		7.1	
2-Chlorophenol	1.417	1.437		1.4	
2-Methylphenol	1.205	1.247		3.4	
2,2-oxybis(1-Chloropropane)	2.505	2.671		6.6	
Acetophenone	0.518	0.526		1.6	
3+4-Methylphenols	1.596	1.622		1.6	
n-Nitroso-di-n-propylamine	1.091	1.178	0.050	8.0	
Hexachloroethane	0.580	0.569		1.8	
Nitrobenzene	0.401	0.417		4.0	
Isophorone	0.712	0.738		3.6	
2-Nitrophenol	0.183	0.181		1.3	20.0
2,4-Dimethylphenol	0.321	0.313		2.5	
bis(2-Chloroethoxy)methane	0.446	0.460		3.2	
2,4-Dichlorophenol	0.272	0.269		1.0	20.0
4-Chloroaniline	0.439	0.447		1.7	
Hexachlorobutadiene	0.142	0.137		3.8	20.0
Caprolactam	0.123	0.122		1.0	
4-Chloro-3-methylphenol	0.329	0.327		0.6	20.0
Hexachlorocyclopentadiene	0.244	0.226	0.050	7.4	
2,4,6-Trichlorophenol	0.339	0.337		0.7	20.0
2,4,5-Trichlorophenol	0.368	0.361		1.8	
1,1-Biphenyl	1.569	1.590		1.4	
2-Chloronaphthalene	1.159	1.160		0.1	
2-Nitroaniline	0.383	0.425		10.9	
Dimethylphthalate	1.332	1.342		0.7	
Acenaphthylene	1.940	1.950		0.5	
2,6-Dinitrotoluene	0.298	0.313		5.0	
3-Nitroaniline	0.376	0.399		6.1	
Acenaphthene	1.224	1.240		1.3	20.0
2,4-Dinitrophenol	0.113	0.108	0.050	4.2	
4-Nitrophenol	0.295	0.303	0.050	2.6	
Dibenzofuran	1.746	1.778		1.8	
2,4-Dinitrotoluene	0.387	0.411		6.3	
Diethylphthalate	1.430	1.413		1.2	
4-Chlorophenyl-phenylether	0.628	0.624		0.6	
4-Nitroaniline	0.388	0.405		4.5	
4,6-Dinitro-2-methylphenol	0.097	0.099		2.3	
n-Nitrosodiphenylamine	0.657	0.659		0.2	20.0
4-Bromophenyl-phenylether	0.169	0.167		1.4	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_E Calibration Date/Time: 12/28/2011 17:25

Lab File ID: BE074686.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.176	0.170		3.2	
Atrazine	0.149	0.154		3.1	
Pentachlorophenol	0.097	0.090		7.7	20.0
Phenanthrene	1.059	1.078		1.8	
Carbazole	1.094	1.105		1.0	
Di-n-butylphthalate	1.278	1.279		0.1	
Butylbenzylphthalate	0.649	0.605		6.8	
3,3-Dichlorobenzidine	0.379	0.364		3.9	
Bis(2-ethylhexyl)phthalate	0.906	0.866		4.4	
Di-n-octyl phthalate	1.470	1.404		4.5	20.0
1,2,4,5-Tetrachlorobenzene	0.476	0.474		0.4	
2,3,4,6-Tetrachlorophenol	0.264	0.273		3.4	
2-Fluorophenol	1.377	1.402		1.8	
Phenol-d5	1.708	1.819		6.5	
Nitrobenzene-d5	0.408	0.429		5.0	
2-Fluorobiphenyl	1.407	1.436		2.1	
2,4,6-Tribromophenol	0.132	0.131		0.7	
Terphenyl-d14	0.792	0.743		6.2	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122811\
Data File : BE074686.D
Acq On : 28 Dec 2011 17:25
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 29 01:06:15 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	90	-0.02
2		1,4-Dioxane	40.000	43.617	-9.0	98	-0.04
3		Pyridine	40.000	43.137	-7.8	94	-0.04
4		n-Nitrosodimethylamine	40.000	41.907	-4.8	93	-0.04
5	S	2-Fluorophenol	80.000	81.455	-1.8	89	-0.03
6		Aniline	40.000	42.999	-7.5	92	-0.02
7	S	Phenol-d5	80.000	85.203	-6.5	93	-0.02
8		2-Chlorophenol	40.000	40.552	-1.4	89	-0.02
9		Benzaldehyde	40.000	49.580	-23.9	102	-0.02
10	C	Phenol	40.000	42.551	-6.4	92	-0.02
11		bis(2-Chloroethyl)ether	40.000	42.851	-7.1	94	-0.02
12	S	2-Chlorophenol-d4	80.000	81.178	-1.5	89	-0.02
13		1,3-Dichlorobenzene	40.000	39.801	0.5	88	-0.02
14	C	1,4-Dichlorobenzene	40.000	40.126	-0.3	90	-0.02
15	s	1,2-Dichlorobenzene-d4	80.000	81.887	-2.4	92	-0.03
16		1,2-Dichlorobenzene	40.000	40.656	-1.6	89	-0.02
17		Benzyl Alcohol	40.000	40.822	-2.1	89	-0.03
18		2,2'-oxybis(1-Chloropropane	40.000	42.653	-6.6	94	-0.02
19		2-Methylphenol	40.000	41.385	-3.5	91	-0.02
20		Hexachloroethane	40.000	39.277	1.8	87	-0.02
21	P	n-Nitroso-di-n-propylamine	40.000	43.192	-8.0	94	-0.02
22		3+4-Methylphenols	40.000	40.638	-1.6	88	-0.02
23	I	Naphthalene-d8	20.000	20.000	0.0	88	-0.02
24		Acetophenone	40.000	40.631	-1.6	90	-0.03
25	S	Nitrobenzene-d5	80.000	84.081	-5.1	93	-0.02
26		Nitrobenzene	40.000	41.637	-4.1	94	-0.03
27		Isophorone	40.000	41.431	-3.6	91	-0.02
28	C	2-Nitrophenol	40.000	39.582	1.0	87	-0.02
29		2,4-Dimethylphenol	40.000	38.974	2.6	86	-0.02
30		bis(2-Chloroethoxy)methane	40.000	41.241	-3.1	90	-0.02
31	C	2,4-Dichlorophenol	40.000	39.580	1.1	89	-0.03
32		1,2,4-Trichlorobenzene	40.000	39.235	1.9	88	-0.02
33		Naphthalene	40.000	40.304	-0.8	90	-0.02
34		Benzoic acid	40.000	34.622	13.4	76	-0.02
35		4-Chloroaniline	40.000	40.647	-1.6	90	-0.02
36	C	Hexachlorobutadiene	40.000	38.380	4.0	86	-0.02
37		Caprolactam	40.000	39.611	1.0	86	-0.03
38	C	4-Chloro-3-methylphenol	40.000	39.729	0.7	86	-0.02
39		2-Methylnaphthalene	40.000	39.603	1.0	87	-0.02
40	I	Acenaphthene-d10	20.000	20.000	0.0	86	-0.03
41		1,2,4,5-Tetrachlorobenzene	40.000	39.877	0.3	86	-0.02
42	P	Hexachlorocyclopentadiene	40.000	37.082	7.3	79	-0.02
43	S	2,4,6-Tribromophenol	80.000	79.217	1.0	84	-0.03
44	C	2,4,5-Trichlorophenol	40.000	39.706	0.7	85	-0.02

Data Path : Z:\HPCHEM1\BNA E\Data\BE122811\
Data File : BE074686.D
Acq On : 28 Dec 2011 17:25
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 29 01:06:15 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.274	1.8	82	-0.02
46	S	2-Fluorobiphenyl	80.000	81.663	-2.1	88	-0.02
47		1,1'-Biphenyl	40.000	40.551	-1.4	87	-0.02
48		2-Chloronaphthalene	40.000	40.006	-0.0	86	-0.02
49		2-Nitroaniline	40.000	44.358	-10.9	93	-0.02
50		Acenaphthylene	40.000	40.206	-0.5	86	-0.02
51		Dimethylphthalate	40.000	40.300	-0.7	86	-0.02
52		2,6-Dinitrotoluene	40.000	42.024	-5.1	88	-0.02
53	C	Acenaphthene	40.000	40.519	-1.3	87	-0.02
54		3-Nitroaniline	40.000	42.416	-6.0	90	-0.02
55	P	2,4-Dinitrophenol	40.000	36.222	9.4	80	-0.02
56		Dibenzofuran	40.000	40.734	-1.8	87	-0.02
57	P	4-Nitrophenol	40.000	40.983	-2.5	86	-0.02
58		2,4-Dinitrotoluene	40.000	42.474	-6.2	91	-0.02
59		Fluorene	40.000	40.543	-1.4	86	-0.02
60		2,3,4,6-Tetrachlorophenol	40.000	41.357	-3.4	89	-0.02
61		Diethylphthalate	40.000	39.527	1.2	84	-0.02
62		4-Chlorophenyl-phenylether	40.000	39.747	0.6	84	-0.02
63		4-Nitroaniline	40.000	41.782	-4.5	87	-0.02
64		Azobenzene	40.000	43.803	-9.5	93	-0.02
65	I	Phenanthrene-d10	20.000	20.000	0.0	85	-0.02
66		4,6-Dinitro-2-methylphenol	40.000	38.547	3.6	87	-0.02
67	c	n-Nitrosodiphenylamine	40.000	40.110	-0.3	88	-0.02
68		4-Bromophenyl-phenylether	40.000	39.442	1.4	85	-0.02
69		Hexachlorobenzene	40.000	38.794	3.0	85	-0.02
70		Atrazine	40.000	39.047	2.4	82	-0.02
71	C	Pentachlorophenol	40.000	37.017	7.5	79	-0.02
72		Phenanthrene	40.000	40.707	-1.8	88	-0.02
73		Anthracene	40.000	40.432	-1.1	87	-0.03
74		Carbazole	40.000	40.391	-1.0	86	-0.02
75		Di-n-butylphthalate	40.000	40.035	-0.1	86	-0.02
76	C	Fluoranthene	40.000	40.770	-1.9	89	-0.02
77	I	Chrysene-d12	20.000	20.000	0.0	93	-0.04
78		Benzidine	40.000	44.207	-10.5	95	-0.03
79		Pyrene	40.000	38.216	4.5	89	-0.02
80	S	Terphenyl-d14	80.000	75.013	6.2	89	-0.02
81		Butylbenzylphthalate	40.000	37.273	6.8	85	-0.02
82		Benzo(a)anthracene	40.000	38.667	3.3	90	-0.03
83		3,3'-Dichlorobenzidine	40.000	38.440	3.9	90	-0.03
84		Chrysene	40.000	39.095	2.3	91	-0.04
85		Bis(2-ethylhexyl)phthalate	40.000	38.231	4.4	87	-0.02
86	c	Di-n-octyl phthalate	40.000	38.207	4.5	87	-0.04
87		Indeno(1,2,3-cd)pyrene	40.000	39.505	1.2	108	-0.11

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA E\Data\BE122811\
Data File : BE074686.D
Acq On : 28 Dec 2011 17:25
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 29 01:06:15 2011
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE122111.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Dec 22 03:00:48 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88 I	Perylene-d12	20.000	20.000	0.0	91	-0.07
89	Benzo(b)fluoranthene	40.000	39.254	1.9	90	-0.05
90	Benzo(k)fluoranthene	40.000	38.787	3.0	87	-0.05
91 C	Benzo(a)pyrene	40.000	39.471	1.3	88	-0.07
92	Dibenzo(a,h)anthracene	40.000	40.829	-2.1	106	-0.12
93	Benzo(g,h,i)perylene	40.000	41.882	-4.7	110	-0.13

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BF052190.D DFTPP Injection Date: 12/22/2011

Instrument ID: BNA_F DFTPP Injection Time: 16:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.8
68	Less than 2.0% of mass 69	0.5 (1.2) 1
69	Mass 69 relative abundance	41.4
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.9
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	2.9
441	Present, but less than mass 443	10
442	Greater than 40% of mass 198	71.9
443	17.0 - 23.0% of mass 442	14.1 (19.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BF052191.D	12/22/2011	17:20
02	SSTD025	25 ng BNA ICC	BF052192.D	12/22/2011	17:46
03	SSTD040	40 ng BNA ICC	BF052193.D	12/22/2011	18:12
04	SSTD050	50 ng BNA ICC	BF052194.D	12/22/2011	18:39
05	SSTD060	60 ng BNA ICC	BF052195.D	12/22/2011	19:05
06	SSTD080	80 ng BNA ICC	BF052196.D	12/22/2011	19:31

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date(s): 12/22/2011 12/22/2011

Calibration Time(s): 17:20 19:31

LAB FILE ID: RRF010 = BF052191.D RRF025 = BF052192.D RRF040 = BF052193.D
RRF050 = BF052194.D RRF060 = BF052195.D RRF080 = BF052196.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.279	1.051	0.967	0.909	0.847	0.799	0.976	17.7
Phenol	2.296	2.077	1.961	1.910	1.811	1.760	1.969	9.9
bis(2-Chloroethyl)ether	1.713	1.612	1.550	1.527	1.450	1.409	1.543	7.1
2-Chlorophenol	1.600	1.479	1.418	1.388	1.331	1.272	1.415	8.2
2-Methylphenol	1.231	1.140	1.102	1.064	1.036	1.002	1.096	7.5
2,2-oxybis(1-Chloropropane)	2.373	2.150	2.018	1.944	1.841	1.722	2.008	11.5
Acetophenone	0.554	0.517	0.508	0.488	0.481	0.457	0.501	6.7
3+4-Methylphenols	1.631	1.506	1.431	1.391	1.333	1.276	1.428	8.9
n-Nitroso-di-n-propylamine	1.124	1.045	1.001	0.971	0.949	0.923	1.002	7.3
Hexachloroethane	0.613	0.606	0.573	0.562	0.545	0.527	0.571	5.9
Nitrobenzene	0.422	0.403	0.384	0.370	0.368	0.355	0.384	6.5
Isophorone	0.747	0.707	0.701	0.678	0.681	0.660	0.696	4.4
2-Nitrophenol	0.175	0.192	0.197	0.194	0.198	0.192	0.191	4.3
2,4-Dimethylphenol	0.349	0.344	0.333	0.330	0.331	0.312	0.333	3.9
bis(2-Chloroethoxy)methane	0.514	0.485	0.469	0.446	0.451	0.427	0.465	6.7
2,4-Dichlorophenol	0.300	0.296	0.290	0.282	0.279	0.264	0.285	4.6
4-Chloroaniline	0.476	0.454	0.431	0.423	0.416	0.388	0.431	7.1
Hexachlorobutadiene	0.170	0.170	0.165	0.160	0.156	0.150	0.162	5.1
Caprolactam	0.108	0.109	0.119	0.118	0.123	0.124	0.117	5.9
4-Chloro-3-methylphenol	0.314	0.309	0.300	0.296	0.302	0.288	0.301	3.1
Hexachlorocyclopentadiene	0.239	0.267	0.281	0.278	0.275	0.273	0.269	5.7
2,4,6-Trichlorophenol	0.355	0.359	0.350	0.345	0.346	0.326	0.347	3.4
2,4,5-Trichlorophenol	0.382	0.384	0.381	0.374	0.364	0.351	0.373	3.5
1,1-Biphenyl	1.747	1.561	1.452	1.421	1.342	1.228	1.458	12.3
2-Chloronaphthalene	1.265	1.144	1.063	1.021	0.999	0.922	1.069	11.3
2-Nitroaniline	0.373	0.381	0.376	0.384	0.385	0.368	0.378	1.8
Dimethylphthalate	1.324	1.262	1.218	1.190	1.150	1.124	1.211	6.1
Acenaphthylene	1.970	1.778	1.657	1.621	1.563	1.465	1.676	10.6
2,6-Dinitrotoluene	0.297	0.297	0.296	0.295	0.288	0.285	0.293	1.8
3-Nitroaniline	0.351	0.350	0.357	0.356	0.361	0.358	0.355	1.3
Acenaphthene	1.270	1.173	1.103	1.090	1.061	1.006	1.117	8.3
2,4-Dinitrophenol	0.017	0.052	0.085	0.102	0.121	0.139	0.086	52.6
4-Nitrophenol	0.227	0.260	0.278	0.276	0.289	0.306	0.272	9.9
Dibenzofuran	1.732	1.590	1.488	1.428	1.403	1.319	1.493	9.9
2,4-Dinitrotoluene	0.345	0.349	0.355	0.346	0.347	0.343	0.348	1.2
Diethylphthalate	1.266	1.189	1.173	1.167	1.137	1.106	1.173	4.6

All other compounds must meet a minimum RRF of 0.010.

Form VI SV-1

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date(s): 12/22/2011 12/22/2011

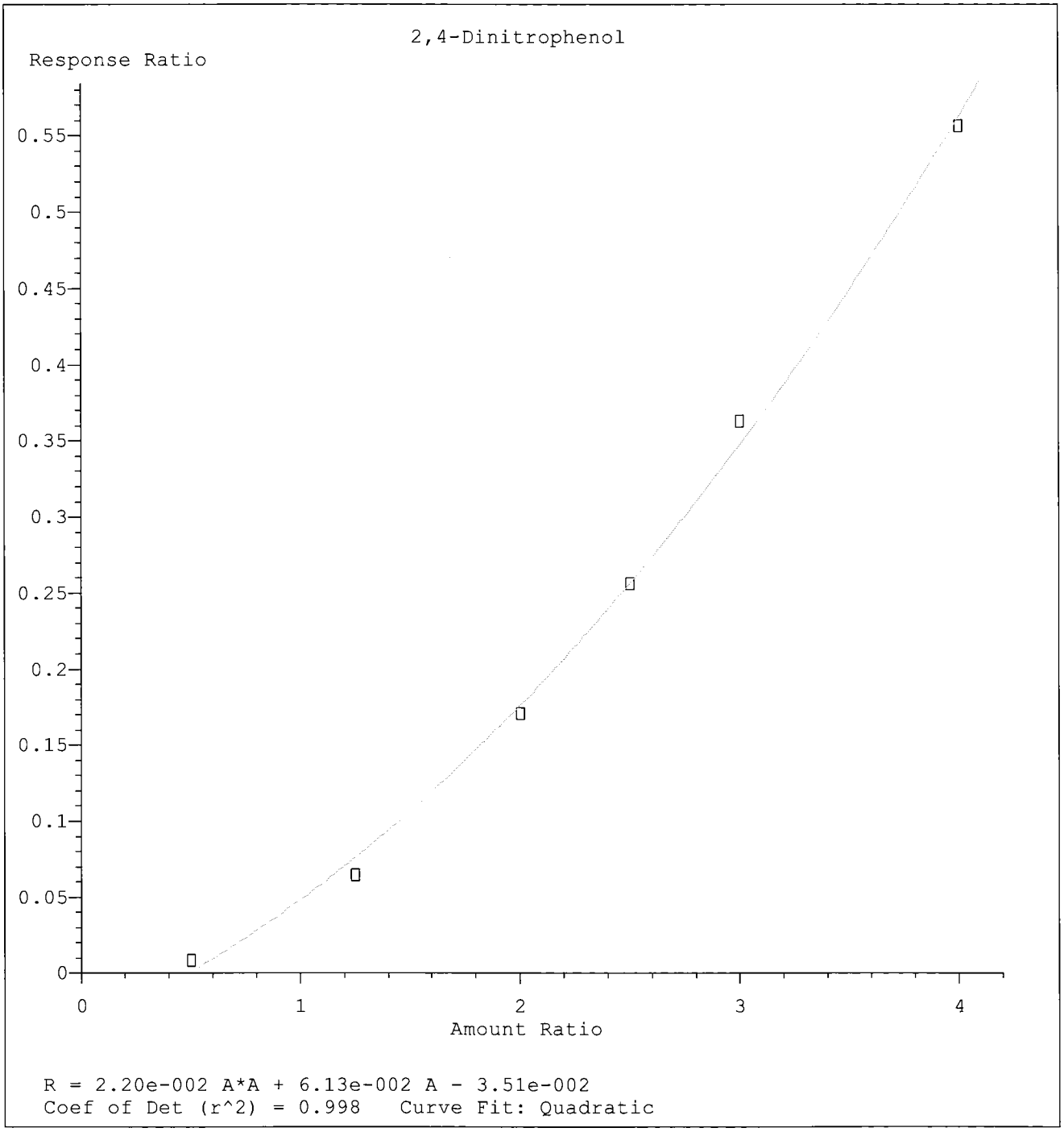
Calibration Time(s): 17:20 19:31

LAB FILE ID: RRF010 = BF052191.D RRF025 = BF052192.D RRF040 = BF052193.D
RRF050 = BF052194.D RRF060 = BF052195.D RRF080 = BF052196.D

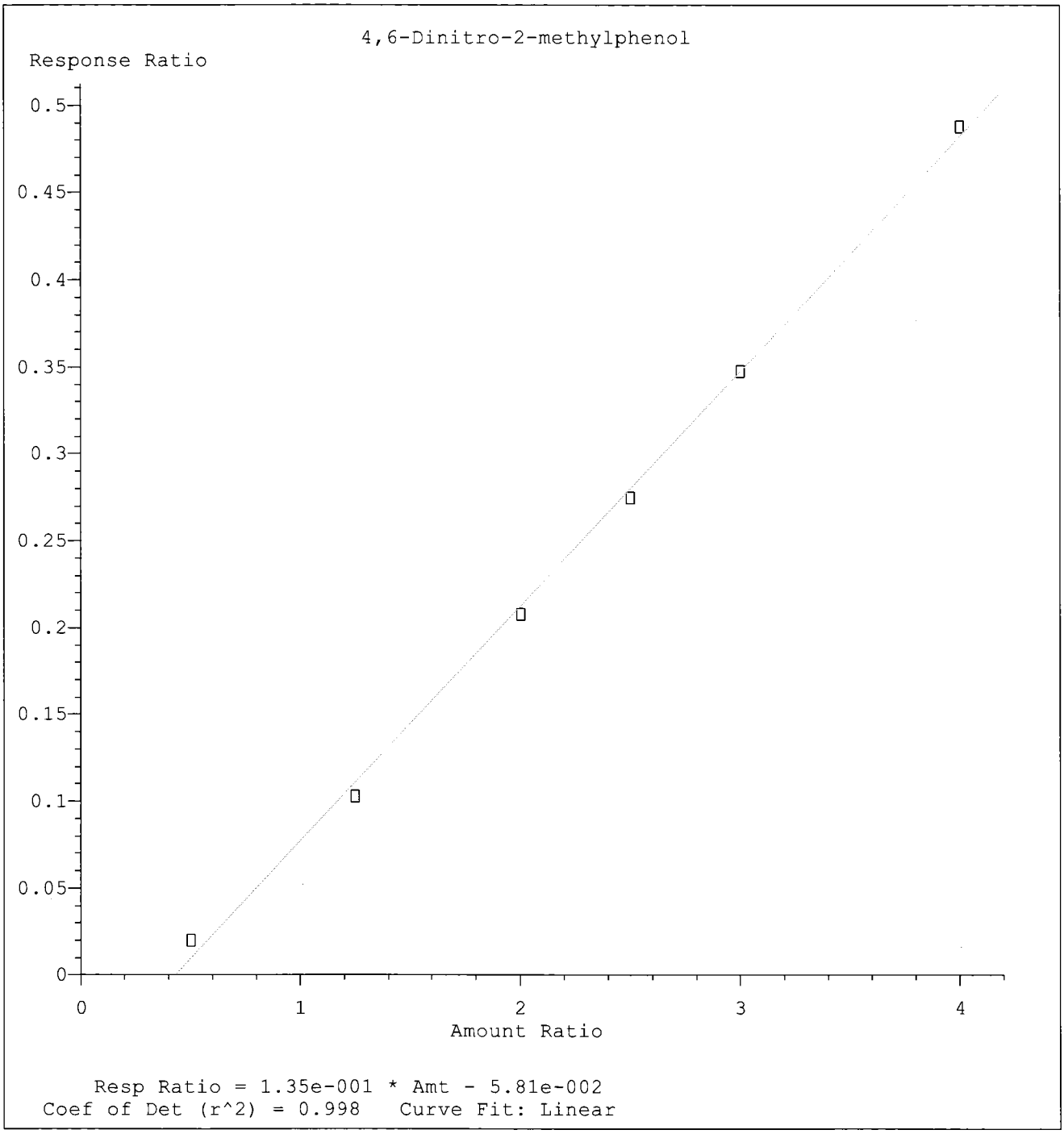
COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.651	0.607	0.571	0.560	0.542	0.510	0.573	8.7
4-Nitroaniline	0.322	0.325	0.338	0.345	0.342	0.348	0.337	3.2
4,6-Dinitro-2-methylphenol	0.040	0.082	0.104	0.110	0.116	0.122	0.096	31.8
n-Nitrosodiphenylamine	0.729	0.690	0.643	0.616	0.596	0.561	0.639	9.7
4-Bromophenyl-phenylether	0.223	0.216	0.206	0.200	0.201	0.193	0.206	5.4
Hexachlorobenzene	0.222	0.211	0.205	0.195	0.191	0.184	0.201	6.9
Atrazine	0.189	0.193	0.177	0.149	0.136	0.107	0.158	21.5
Pentachlorophenol	0.103	0.114	0.129	0.127	0.130	0.130	0.122	9.2
Phenanthrene	1.225	1.130	1.066	1.014	0.985	0.924	1.057	10.2
Carbazole	1.108	1.057	1.024	0.989	0.947	0.906	1.005	7.3
Di-n-butylphthalate	1.213	1.195	1.172	1.117	1.107	1.036	1.140	5.8
Butylbenzylphthalate	0.511	0.554	0.581	0.580	0.595	0.596	0.569	5.7
3,3-Dichlorobenzidine	0.375	0.370	0.365	0.359	0.356	0.348	0.362	2.7
Bis(2-ethylhexyl)phthalate	0.701	0.757	0.782	0.773	0.783	0.766	0.760	4.0
Di-n-octyl phthalate	1.139	1.302	1.369	1.376	1.398	1.378	1.327	7.4
1,2,4,5-Tetrachlorobenzene	0.592	0.531	0.503	0.486	0.458	0.438	0.501	11.0
2,3,4,6-Tetrachlorophenol	0.302	0.298	0.303	0.297	0.292	0.292	0.297	1.5
2-Fluorophenol	1.529	1.462	1.390	1.370	1.302	1.232	1.381	7.7
Phenol-d5	2.033	1.859	1.740	1.692	1.597	1.532	1.742	10.5
Nitrobenzene-d5	0.437	0.409	0.391	0.379	0.376	0.355	0.391	7.3
2-Fluorobiphenyl	1.523	1.308	1.159	1.088	1.019	0.920	1.169	18.6
2,4,6-Tribromophenol	0.154	0.162	0.160	0.159	0.157	0.154	0.158	2.0
Terphenyl-d14	0.835	0.783	0.742	0.718	0.715	0.689	0.747	7.2

All other compounds must meet a minimum RRF of 0.010.

Form VI SV-1



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Calibration Table Last Updated: Fri Dec 23 02:16:39 2011



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF122211.M
Calibration Table Last Updated: Fri Dec 23 02:17:47 2011

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BF052379.D DFTPP Injection Date: 12/27/2011

Instrument ID: BNA_F DFTPP Injection Time: 13:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.7
68	Less than 2.0% of mass 69	0.6 (1.5) 1
69	Mass 69 relative abundance	38.2
70	Less than 2.0% of mass 69	0.2 (0.6) 1
127	40.0 - 60.0% of mass 198	49.5
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.2
275	10.0 - 30.0% of mass 198	20.3
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	11.2
442	Greater than 40% of mass 198	73.9
443	17.0 - 23.0% of mass 442	14.6 (19.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052380.D	12/27/2011	13:32
02	12TP17-0.5-02-02	C5065-05	BF052389.D	12/27/2011	17:27

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date/Time: 12/27/2011 13:32

Lab File ID: BF052380.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.976	0.983		0.7	
Phenol	1.969	1.991		1.1	20.0
bis(2-Chloroethyl)ether	1.543	1.543		0.0	
2-Chlorophenol	1.415	1.441		1.8	
2-Methylphenol	1.096	1.138		3.8	
2,2-oxybis(1-Chloropropane)	2.008	2.062		2.7	
Acetophenone	0.501	0.506		0.9	
3+4-Methylphenols	1.428	1.470		2.9	
n-Nitroso-di-n-propylamine	1.002	1.050	0.050	4.7	
Hexachloroethane	0.571	0.598		4.7	
Nitrobenzene	0.384	0.395		2.8	
Isophorone	0.696	0.720		3.4	
2-Nitrophenol	0.191	0.216		12.9	20.0
2,4-Dimethylphenol	0.333	0.346		4.0	
bis(2-Chloroethoxy)methane	0.465	0.467		0.4	
2,4-Dichlorophenol	0.285	0.297		4.2	20.0
4-Chloroaniline	0.431	0.444		3.0	
Hexachlorobutadiene	0.162	0.165		2.1	20.0
Caprolactam	0.117	0.117		0.1	
4-Chloro-3-methylphenol	0.301	0.320		6.4	20.0
Hexachlorocyclopentadiene	0.269	0.299	0.050	11.3	
2,4,6-Trichlorophenol	0.347	0.351		1.3	20.0
2,4,5-Trichlorophenol	0.373	0.372		0.2	
1,1-Biphenyl	1.458	1.432		1.8	
2-Chloronaphthalene	1.069	1.056		1.2	
2-Nitroaniline	0.378	0.404		6.9	
Dimethylphthalate	1.211	1.205		0.5	
Acenaphthylene	1.676	1.658		1.1	
2,6-Dinitrotoluene	0.293	0.295		0.7	
3-Nitroaniline	0.355	0.364		2.4	
Acenaphthene	1.117	1.093		2.1	20.0
2,4-Dinitrophenol	0.086	0.088	0.050	2.5	
4-Nitrophenol	0.272	0.265	0.050	2.6	
Dibenzofuran	1.493	1.489		0.3	
2,4-Dinitrotoluene	0.348	0.358		3.0	
Diethylphthalate	1.173	1.163		0.8	
4-Chlorophenyl-phenylether	0.573	0.572		0.2	
4-Nitroaniline	0.337	0.345		2.3	
4,6-Dinitro-2-methylphenol	0.096	0.106		10.6	
n-Nitrosodiphenylamine	0.639	0.638		0.2	20.0
4-Bromophenyl-phenylether	0.206	0.205		0.3	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date/Time: 12/27/2011 13:32

Lab File ID: BF052380.D Init. Calib. Date(s): 12/22/2011 12/22/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 17:20 19:31

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.201	0.197		2.0	
Atrazine	0.158	0.180		13.8	
Pentachlorophenol	0.122	0.137		12.4	20.0
Phenanthrene	1.057	1.032		2.3	
Carbazole	1.005	0.983		2.2	
Di-n-butylphthalate	1.140	1.161		1.8	
Butylbenzylphthalate	0.569	0.619		8.9	
3,3-Dichlorobenzidine	0.362	0.378		4.3	
Bis(2-ethylhexyl)phthalate	0.760	0.822		8.1	
Di-n-octyl phthalate	1.327	1.469		10.7	20.0
1,2,4,5-Tetrachlorobenzene	0.501	0.483		3.7	
2,3,4,6-Tetrachlorophenol	0.297	0.294		1.2	
2-Fluorophenol	1.381	1.398		1.2	
Phenol-d5	1.742	1.725		1.0	
Nitrobenzene-d5	0.391	0.400		2.3	
2-Fluorobiphenyl	1.169	1.123		4.0	
2,4,6-Tribromophenol	0.158	0.163		3.4	
Terphenyl-d14	0.747	0.758		1.4	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052380.D
Acq On : 27 Dec 2011 13:32
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 01:01:56 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	102	0.00
2		1,4-Dioxane	40.000	41.906	-4.8	103	0.02
3		Pyridine	40.000	41.691	-4.2	108	0.00
4		n-Nitrosodimethylamine	40.000	40.749	-1.9	106	0.02
5	S	2-Fluorophenol	80.000	80.981	-1.2	103	0.00
6		Aniline	40.000	40.622	-1.6	105	0.00
7	S	Phenol-d5	80.000	79.221	1.0	101	0.00
8		2-Chlorophenol	40.000	40.737	-1.8	104	0.00
9		Benzaldehyde	40.000	43.685	-9.2	104	0.00
10	C	Phenol	40.000	40.450	-1.1	104	0.00
11		bis(2-Chloroethyl)ether	40.000	39.985	0.0	102	0.00
12	S	2-Chlorophenol-d4	80.000	80.515	-0.6	103	0.00
13		1,3-Dichlorobenzene	40.000	40.660	-1.6	103	0.00
14	C	1,4-Dichlorobenzene	40.000	40.838	-2.1	106	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	79.897	0.1	104	0.00
16		1,2-Dichlorobenzene	40.000	40.109	-0.3	104	0.00
17		Benzyl Alcohol	40.000	40.821	-2.1	106	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	41.079	-2.7	105	0.00
19		2-Methylphenol	40.000	41.527	-3.8	106	0.00
20		Hexachloroethane	40.000	41.892	-4.7	107	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	41.882	-4.7	107	0.00
22		3+4-Methylphenols	40.000	41.173	-2.9	105	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	104	0.00
24		Acetophenone	40.000	40.393	-1.0	103	0.00
25	S	Nitrobenzene-d5	80.000	81.842	-2.3	106	0.00
26		Nitrobenzene	40.000	41.118	-2.8	107	0.00
27		Isophorone	40.000	41.364	-3.4	106	0.00
28	C	2-Nitrophenol	40.000	45.132	-12.8	114	0.00
29		2,4-Dimethylphenol	40.000	41.594	-4.0	108	0.01
30		bis(2-Chloroethoxy)methane	40.000	40.140	-0.4	103	0.00
31	C	2,4-Dichlorophenol	40.000	41.660	-4.1	106	0.00
32		1,2,4-Trichlorobenzene	40.000	40.299	-0.7	105	0.00
33		Naphthalene	40.000	40.104	-0.3	105	0.00
34		Benzoic acid	40.000	30.882	22.8	67	0.00
35		4-Chloroaniline	40.000	41.187	-3.0	107	0.01
36	C	Hexachlorobutadiene	40.000	40.851	-2.1	104	0.00
37		Caprolactam	40.000	39.949	0.1	102	0.00
38	C	4-Chloro-3-methylphenol	40.000	42.502	-6.3	111	0.01
39		2-Methylnaphthalene	40.000	40.466	-1.2	105	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	106	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	38.510	3.7	101	0.00
42	P	Hexachlorocyclopentadiene	40.000	44.542	-11.4	113	0.00
43	S	2,4,6-Tribromophenol	80.000	82.906	-3.6	108	0.00
44	C	2,4,6-Trichlorophenol	40.000	40.551	-1.4	106	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052380.D
Acq On : 27 Dec 2011 13:32
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 01:01:56 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.956	0.1	103	0.00
46	S	2-Fluorobiphenyl	80.000	77.009	3.7	102	0.00
47		1,1'-Biphenyl	40.000	39.269	1.8	104	0.00
48		2-Chloronaphthalene	40.000	39.502	1.2	105	0.00
49		2-Nitroaniline	40.000	42.780	-7.0	113	0.00
50		Acenaphthylene	40.000	39.582	1.0	106	0.00
51		Dimethylphthalate	40.000	39.799	0.5	104	0.00
52		2,6-Dinitrotoluene	40.000	40.264	-0.7	105	0.00
53	C	Acenaphthene	40.000	39.143	2.1	105	0.00
54		3-Nitroaniline	40.000	40.920	-2.3	108	0.00
55	P	2,4-Dinitrophenol	40.000	40.071	-0.2	109	0.00
56		Dibenzofuran	40.000	39.877	0.3	106	0.00
57	P	4-Nitrophenol	40.000	38.903	2.7	100	0.00
58		2,4-Dinitrotoluene	40.000	41.234	-3.1	107	0.00
59		Fluorene	40.000	39.390	1.5	104	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	39.486	1.3	102	-0.01
61		Diethylphthalate	40.000	39.662	0.8	105	0.00
62		4-Chlorophenyl-phenylether	40.000	39.909	0.2	106	0.00
63		4-Nitroaniline	40.000	40.977	-2.4	108	0.00
64		Azobenzene	40.000	40.148	-0.4	106	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	105	-0.02
66		4,6-Dinitro-2-methylphenol	40.000	40.055	-0.1	108	0.00
67	c	n-Nitrosodiphenylamine	40.000	39.888	0.3	105	0.00
68		4-Bromophenyl-phenylether	40.000	39.835	0.4	105	-0.01
69		Hexachlorobenzene	40.000	39.111	2.2	101	-0.01
70		Atrazine	40.000	44.166	-10.4	107	0.00
71	C	Pentachlorophenol	40.000	44.919	-12.3	112	-0.01
72		Phenanthrene	40.000	39.064	2.3	102	-0.02
73		Anthracene	40.000	39.200	2.0	103	-0.01
74		Carbazole	40.000	39.122	2.2	101	-0.02
75		Di-n-butylphthalate	40.000	40.727	-1.8	104	-0.01
76	C	Fluoranthene	40.000	38.269	4.3	99	-0.02
77	I	Chrysene-d12	20.000	20.000	0.0	95	-0.02
78		Benzidine	40.000	43.385	-8.5	97	-0.02
79		Pyrene	40.000	41.422	-3.6	97	-0.02
80	S	Terphenyl-d14	80.000	81.174	-1.5	97	-0.02
81		Butylbenzylphthalate	40.000	43.513	-8.8	101	-0.02
82		Benzo(a)anthracene	40.000	40.733	-1.8	96	-0.02
83		3,3'-Dichlorobenzidine	40.000	41.693	-4.2	98	-0.02
84		Chrysene	40.000	40.338	-0.8	95	-0.02
85		Bis(2-ethylhexyl)phthalate	40.000	43.251	-8.1	100	-0.01
86	c	Di-n-octyl phthalate	40.000	44.279	-10.7	102	-0.01
87		Indeno(1,2,3-cd)pyrene	40.000	40.060	-0.2	95	-0.11

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\Data\BF122711\
Data File : BF052380.D
Acq On : 27 Dec 2011 13:32
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 01:01:56 2011
Quant Method : Z:\HPCHEM1\BNA_F\Method\8270-BF122211.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Dec 27 13:56:00 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	99	-0.03
89		Benzo(b)fluoranthene	40.000	40.054	-0.1	101	-0.02
90		Benzo(k)fluoranthene	40.000	38.563	3.6	92	-0.02
91	C	Benzo(a)pyrene	40.000	39.996	0.0	97	-0.03
92		Dibenzo(a,h)anthracene	40.000	39.829	0.4	99	-0.10
93		Benzo(g,h,i)perylene	40.000	38.693	3.3	96	-0.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BF052861.D DFTPP Injection Date: 01/11/2012

Instrument ID: BNA_F DFTPP Injection Time: 15:35

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	40.1
68	Less than 2.0% of mass 69	0.6 (1.3) 1
69	Mass 69 relative abundance	47.3
70	Less than 2.0% of mass 69	0.2 (0.3) 1
127	40.0 - 60.0% of mass 198	50.9
197	Less than 1.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	24.3
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	9.4
442	Greater than 40% of mass 198	66.6
443	17.0 - 23.0% of mass 442	13.1 (19.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BF052863.D	01/11/2012	16:39
02	SSTD025	25 ng BNA ICC	BF052864.D	01/11/2012	17:08
03	SSTD040	40 ng BNA ICC	BF052865.D	01/11/2012	17:38
04	SSTD050	50 ng BNA ICC	BF052866.D	01/11/2012	18:07
05	SSTD060	60 ng BNA ICC	BF052867.D	01/11/2012	18:36
06	SSTD080	80 ng BNA ICC	BF052868.D	01/11/2012	19:06

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date(s): 01/11/2012 01/11/2012

Calibration Time(s): 16:39 19:06

LAB FILE ID: RRF010 = BF052863.D RRF025 = BF052864.D RRF040 = BF052865.D
RRF050 = BF052866.D RRF060 = BF052867.D RRF080 = BF052868.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.336	1.340	1.255	1.085	0.929		1.189	15.0
Phenol	1.962	1.874	1.812	1.750	1.701	1.672	1.795	6.1
bis(2-Chloroethyl)ether	1.513	1.479	1.449	1.413	1.367	1.343	1.427	4.6
2-Chlorophenol	1.449	1.390	1.357	1.292	1.233	1.224	1.324	6.8
2-Methylphenol	1.161	1.120	1.109	1.076	1.054	1.051	1.095	3.9
2,2-oxybis(1-Chloropropane)	2.060	1.973	1.904	1.823	1.761	1.705	1.871	7.1
Acetophenone	0.540	0.514	0.502	0.493	0.471	0.455	0.496	6.1
3+4-Methylphenols	1.526	1.514	1.481	1.436	1.394	1.363	1.452	4.5
n-Nitroso-di-n-propylamine	1.152	1.132	1.092	1.058	1.012	0.984	1.072	6.2
Hexachloroethane	0.595	0.570	0.550	0.549	0.532	0.525	0.554	4.7
Nitrobenzene	0.451	0.429	0.419	0.415	0.402	0.388	0.417	5.2
Isophorone	0.768	0.751	0.737	0.728	0.702	0.692	0.730	4.0
2-Nitrophenol	0.195	0.205	0.205	0.208	0.206	0.206	0.204	2.2
2,4-Dimethylphenol	0.359	0.363	0.340	0.339	0.332	0.328	0.344	4.2
bis(2-Chloroethoxy)methane	0.476	0.464	0.458	0.455	0.440	0.425	0.453	4.0
2,4-Dichlorophenol	0.321	0.314	0.313	0.310	0.298	0.299	0.309	2.9
4-Chloroaniline	0.453	0.451	0.437	0.430	0.422	0.410	0.434	3.8
Hexachlorobutadiene	0.177	0.174	0.173	0.172	0.163	0.163	0.170	3.5
Caprolactam	0.119	0.124	0.126	0.125	0.129	0.128	0.125	2.9
4-Chloro-3-methylphenol	0.330	0.327	0.326	0.325	0.321	0.317	0.324	1.4
Hexachlorocyclopentadiene	0.304	0.307	0.309	0.314	0.302	0.300	0.306	1.7
2,4,6-Trichlorophenol	0.367	0.384	0.377	0.371	0.366	0.364	0.372	2.1
2,4,5-Trichlorophenol	0.401	0.400	0.399	0.394	0.390	0.388	0.395	1.4
1,1-Biphenyl	1.592	1.521	1.450	1.401	1.340	1.286	1.432	7.9
2-Chloronaphthalene	1.159	1.116	1.099	1.051	1.009	0.987	1.070	6.2
2-Nitroaniline	0.374	0.383	0.390	0.385	0.377	0.381	0.382	1.5
Dimethylphthalate	1.345	1.282	1.251	1.209	1.181	1.153	1.237	5.7
Acenaphthylene	1.861	1.772	1.705	1.655	1.564	1.512	1.678	7.7
2,6-Dinitrotoluene	0.297	0.299	0.302	0.299	0.297	0.295	0.298	0.8
3-Nitroaniline	0.345	0.349	0.353	0.351	0.358	0.358	0.352	1.4
Acenaphthene	1.169	1.145	1.135	1.114	1.088	1.067	1.120	3.4
2,4-Dinitrophenol	0.047	0.075	0.094	0.106	0.116	0.135	0.096	32.4
4-Nitrophenol	0.257	0.278	0.288	0.286	0.291	0.292	0.282	4.7
Dibenzofuran	1.700	1.601	1.571	1.507	1.441	1.396	1.536	7.2
2,4-Dinitrotoluene	0.365	0.381	0.387	0.385	0.386	0.389	0.382	2.4
Diethylphthalate	1.268	1.248	1.229	1.189	1.165	1.149	1.208	3.9

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

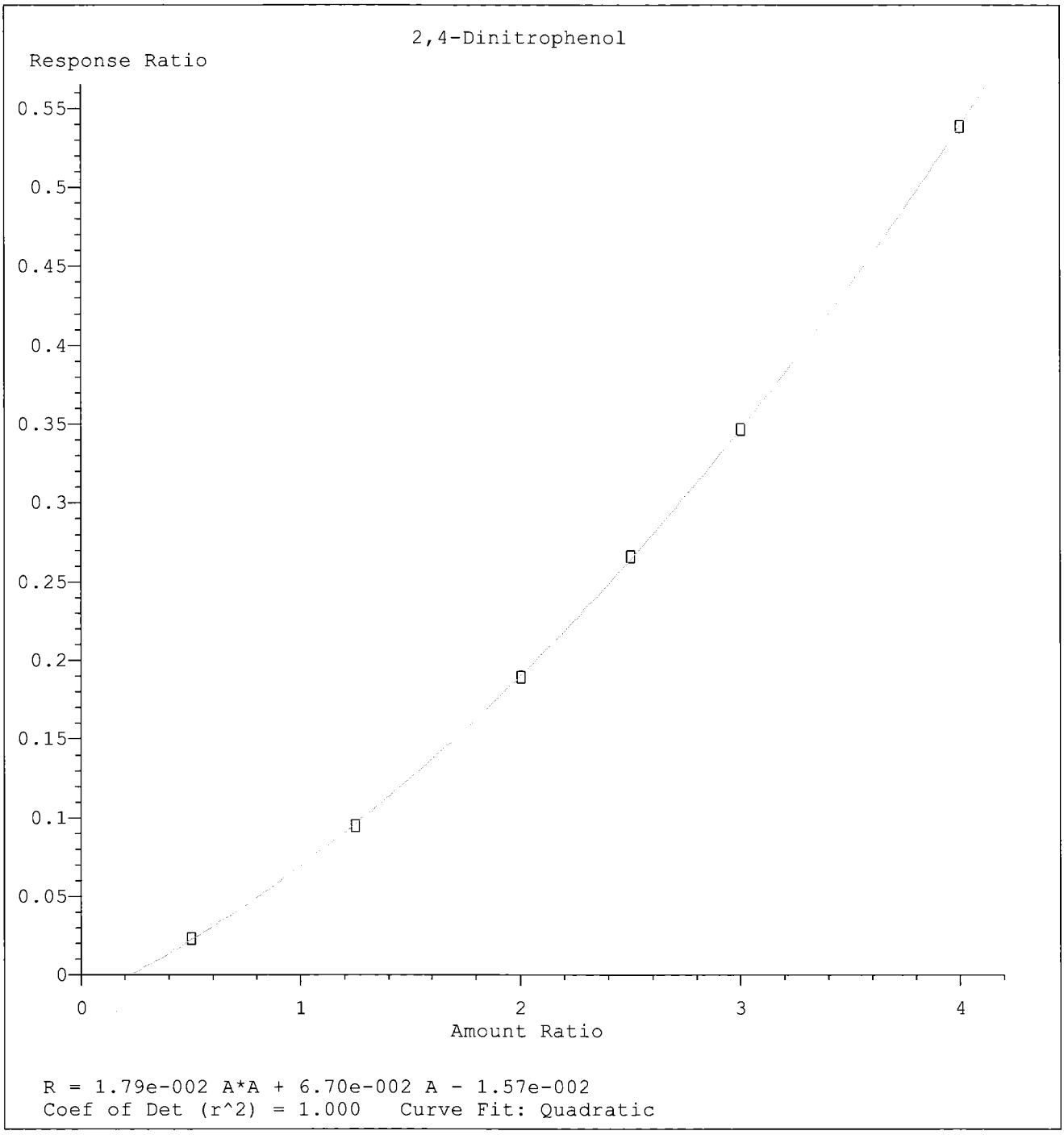
Instrument ID: BNA_F Calibration Date(s): 01/11/2012 01/11/2012

Calibration Time(s): 16:39 19:06

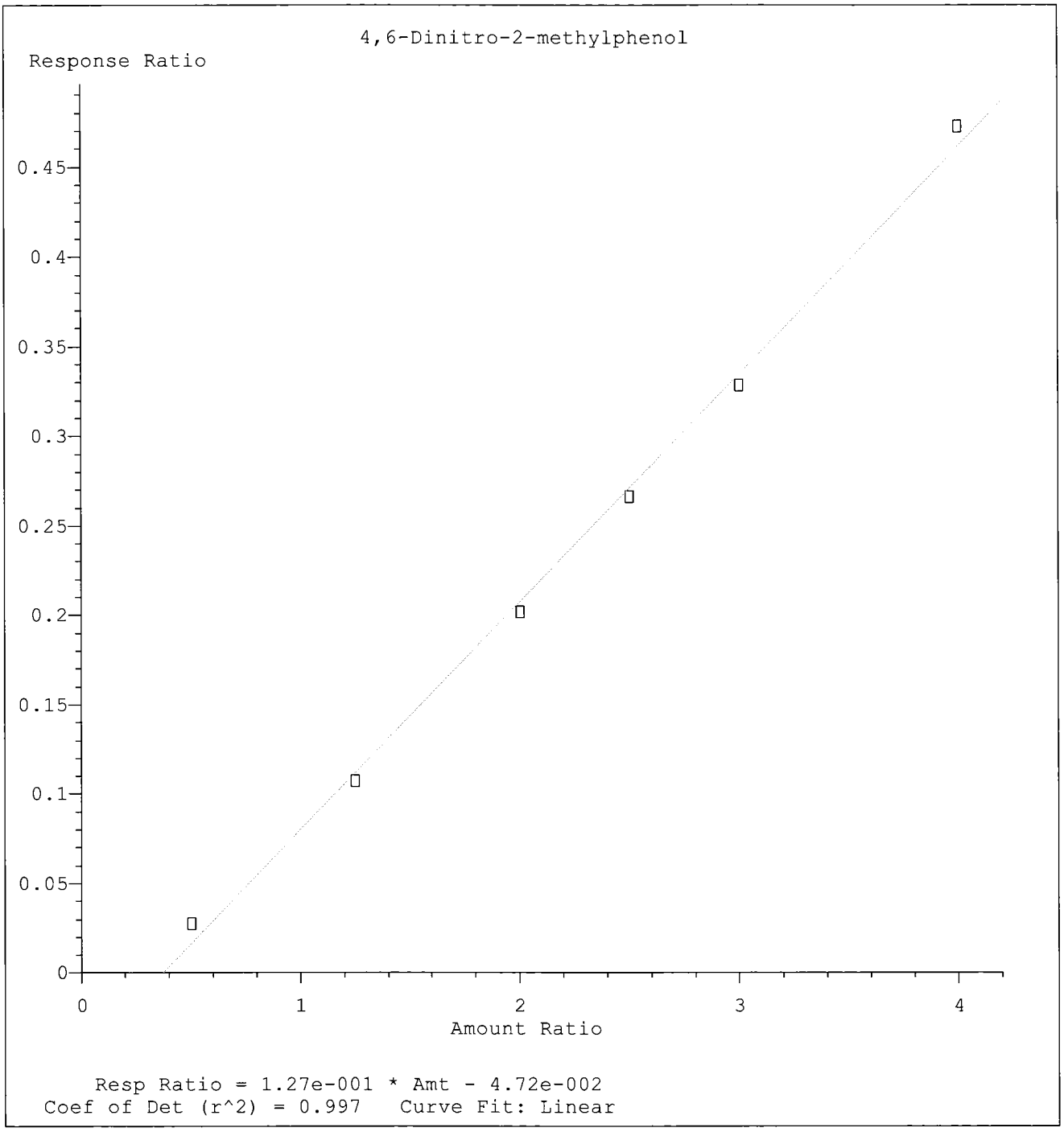
LAB FILE ID: RRF010 = BF052863.D RRF025 = BF052864.D RRF040 = BF052865.D
RRF050 = BF052866.D RRF060 = BF052867.D RRF080 = BF052868.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.646	0.632	0.626	0.602	0.599	0.580	0.614	4.0
4-Nitroaniline	0.337	0.343	0.347	0.340	0.348	0.347	0.344	1.3
4,6-Dinitro-2-methylphenol	0.055	0.086	0.101	0.106	0.109	0.118	0.096	23.9
n-Nitrosodiphenylamine	0.676	0.641	0.628	0.617	0.590	0.581	0.622	5.6
4-Bromophenyl-phenylether	0.215	0.210	0.206	0.204	0.198	0.198	0.205	3.3
Hexachlorobenzene	0.244	0.231	0.228	0.223	0.214	0.211	0.225	5.4
Atrazine	0.201	0.205	0.204	0.198	0.194	0.188	0.198	3.2
Pentachlorophenol	0.096	0.119	0.136	0.139	0.141	0.145	0.129	14.4
Phenanthrene	1.094	1.040	1.015	0.970	0.932	0.899	0.992	7.3
Carbazole	1.047	1.015	0.993	0.951	0.919	0.890	0.969	6.2
Di-n-butylphthalate	1.217	1.180	1.164	1.123	1.084	1.040	1.135	5.8
Butylbenzylphthalate	0.570	0.574	0.587	0.581	0.582	0.580	0.579	1.1
3,3-Dichlorobenzidine	0.459	0.456	0.451	0.437	0.421	0.396	0.437	5.6
Bis(2-ethylhexyl)phthalate	0.757	0.735	0.726	0.715	0.698	0.686	0.720	3.5
Di-n-octyl phthalate	1.316	1.304	1.324	1.316	1.310	1.283	1.309	1.1
1,2,4,5-Tetrachlorobenzene	0.560	0.544	0.528	0.521	0.488	0.485	0.521	5.7
2,3,4,6-Tetrachlorophenol	0.297	0.304	0.307	0.300	0.300	0.300	0.301	1.3
2-Fluorophenol	1.430	1.421	1.404	1.346	1.303	1.277	1.364	4.7
Phenol-d5	1.835	1.804	1.741	1.675	1.641	1.590	1.714	5.6
Nitrobenzene-d5	0.437	0.418	0.400	0.395	0.374	0.361	0.397	7.0
2-Fluorobiphenyl	1.417	1.295	1.200	1.117	1.035	0.960	1.171	14.4
2,4,6-Tribromophenol	0.186	0.186	0.184	0.180	0.177	0.171	0.181	3.3
Terphenyl-d14	0.832	0.778	0.738	0.718	0.684	0.648	0.733	9.0

All other compounds must meet a minimum RRF of 0.010.



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF011112.M
Calibration Table Last Updated: Thu Jan 12 03:51:53 2012



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF011112.M
Calibration Table Last Updated: Thu Jan 12 03:52:23 2012

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BF052870.D DFTPP Injection Date: 01/11/2012

Instrument ID: BNA_F DFTPP Injection Time: 20:04

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.9
68	Less than 2.0% of mass 69	0.7 (1.6) 1
69	Mass 69 relative abundance	43.4
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	48.5
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	23.9
365	Greater than 1% of mass 198	2.9
441	Present, but less than mass 443	10.8
442	Greater than 40% of mass 198	75.2
443	17.0 - 23.0% of mass 442	14.9 (19.8) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF052871.D	01/11/2012	20:33
02	12TP18-0607-02	C5065-07	BF052886.D	01/12/2012	03:49

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date/Time: 01/11/2012 20:33

Lab File ID: BF052871.D Init. Calib. Date(s): 01/11/2012 01/11/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:06

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.189	1.260		6.0	
Phenol	1.795	1.789		0.3	20.0
bis(2-Chloroethyl)ether	1.427	1.427		0.0	
2-Chlorophenol	1.324	1.325		0.1	
2-Methylphenol	1.095	1.091		0.3	
2,2-oxybis(1-Chloropropane)	1.871	1.848		1.2	
Acetophenone	0.496	0.506		1.9	
3+4-Methylphenols	1.452	1.470		1.2	
n-Nitroso-di-n-propylamine	1.072	1.078	0.050	0.6	
Hexachloroethane	0.554	0.555		0.2	
Nitrobenzene	0.417	0.418		0.3	
Isophorone	0.730	0.735		0.7	
2-Nitrophenol	0.204	0.206		1.2	20.0
2,4-Dimethylphenol	0.344	0.343		0.4	
bis(2-Chloroethoxy)methane	0.453	0.456		0.7	
2,4-Dichlorophenol	0.309	0.307		0.6	20.0
4-Chloroaniline	0.434	0.435		0.3	
Hexachlorobutadiene	0.170	0.169		0.4	20.0
Caprolactam	0.125	0.126		0.8	
4-Chloro-3-methylphenol	0.324	0.329		1.4	20.0
Hexachlorocyclopentadiene	0.306	0.296	0.050	3.1	
2,4,6-Trichlorophenol	0.372	0.371		0.4	20.0
2,4,5-Trichlorophenol	0.395	0.391		1.0	
1,1-Biphenyl	1.432	1.448		1.1	
2-Chloronaphthalene	1.070	1.065		0.5	
2-Nitroaniline	0.382	0.383		0.2	
Dimethylphthalate	1.237	1.226		0.9	
Acenaphthylene	1.678	1.683		0.3	
2,6-Dinitrotoluene	0.298	0.294		1.5	
3-Nitroaniline	0.352	0.350		0.4	
Acenaphthene	1.120	1.123		0.3	20.0
2,4-Dinitrophenol	0.096	0.086	0.050	10.7	
4-Nitrophenol	0.282	0.283	0.050	0.5	
Dibenzofuran	1.536	1.546		0.7	
2,4-Dinitrotoluene	0.382	0.380		0.5	
Diethylphthalate	1.208	1.204		0.3	
4-Chlorophenyl-phenylether	0.614	0.619		0.8	
4-Nitroaniline	0.344	0.339		1.3	
4,6-Dinitro-2-methylphenol	0.096	0.095		1.4	
n-Nitrosodiphenylamine	0.622	0.615		1.1	20.0
4-Bromophenyl-phenylether	0.205	0.202		1.6	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_F Calibration Date/Time: 01/11/2012 20:33

Lab File ID: BF052871.D Init. Calib. Date(s): 01/11/2012 01/11/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:06

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.225	0.223		0.9	
Atrazine	0.198	0.199		0.6	
Pentachlorophenol	0.129	0.142		10.1	20.0
Phenanthrene	0.992	0.997		0.5	
Carbazole	0.969	0.982		1.3	
Di-n-butylphthalate	1.135	1.141		0.5	
Butylbenzylphthalate	0.579	0.590		1.9	
3,3-Dichlorobenzidine	0.437	0.457		4.7	
Bis(2-ethylhexyl)phthalate	0.720	0.728		1.1	
Di-n-octyl phthalate	1.309	1.317		0.6	20.0
1,2,4,5-Tetrachlorobenzene	0.521	0.527		1.2	
2,3,4,6-Tetrachlorophenol	0.301	0.300		0.2	
2-Fluorophenol	1.364	1.384		1.4	
Phenol-d5	1.714	1.725		0.7	
Nitrobenzene-d5	0.397	0.403		1.4	
2-Fluorobiphenyl	1.171	1.183		1.0	
2,4,6-Tribromophenol	0.181	0.184		1.5	
Terphenyl-d14	0.733	0.748		2.0	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF011112\
Data File : BF052871.D
Acq On : 11 Jan 2012 20:33
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 12 05:02:36 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF011112.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 03:57:09 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	103	0.00
2		1,4-Dioxane	40.000	40.527	-1.3	103	0.00
3		Pyridine	40.000	41.274	-3.2	102	0.00
4		n-Nitrosodimethylamine	40.000	40.659	-1.6	101	0.00
5	S	2-Fluorophenol	80.000	81.179	-1.5	101	0.00
6		Aniline	40.000	40.005	-0.0	101	0.00
7	S	Phenol-d5	80.000	80.507	-0.6	102	0.00
8		2-Chlorophenol	40.000	40.012	-0.0	100	0.00
9		Benzaldehyde	40.000	42.386	-6.0	103	0.00
10	C	Phenol	40.000	39.872	0.3	101	0.00
11		bis(2-Chloroethyl)ether	40.000	39.978	0.1	101	0.00
12	S	2-Chlorophenol-d4	80.000	80.846	-1.1	102	0.00
13		1,3-Dichlorobenzene	40.000	40.269	-0.7	102	0.00
14	C	1,4-Dichlorobenzene	40.000	40.581	-1.5	102	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	80.552	-0.7	102	0.00
16		1,2-Dichlorobenzene	40.000	40.233	-0.6	101	0.00
17		Benzyl Alcohol	40.000	38.643	3.4	99	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	39.521	1.2	100	0.00
19		2-Methylphenol	40.000	39.869	0.3	101	0.00
20		Hexachloroethane	40.000	40.105	-0.3	104	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	40.244	-0.6	101	0.00
22		3+4-Methylphenols	40.000	40.479	-1.2	102	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	101	0.00
24		Acetophenone	40.000	40.787	-2.0	101	0.00
25	S	Nitrobenzene-d5	80.000	81.097	-1.4	101	0.00
26		Nitrobenzene	40.000	40.096	-0.2	100	0.00
27		Isophorone	40.000	40.278	-0.7	100	0.00
28	C	2-Nitrophenol	40.000	40.461	-1.2	101	0.00
29		2,4-Dimethylphenol	40.000	39.905	0.2	102	0.00
30		bis(2-Chloroethoxy)methane	40.000	40.299	-0.7	100	0.00
31	C	2,4-Dichlorophenol	40.000	39.750	0.6	99	0.00
32		1,2,4-Trichlorobenzene	40.000	40.465	-1.2	101	0.00
33		Naphthalene	40.000	41.116	-2.8	101	0.00
34		Benzoic acid	40.000	44.414	-11.0	124	0.00
35		4-Chloroaniline	40.000	40.112	-0.3	100	0.00
36	C	Hexachlorobutadiene	40.000	39.761	0.6	98	0.00
37		Caprolactam	40.000	40.285	-0.7	101	0.00
38	C	4-Chloro-3-methylphenol	40.000	40.542	-1.4	102	0.00
39		2-Methylnaphthalene	40.000	40.424	-1.1	100	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	102	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	40.491	-1.2	102	0.00
42	P	Hexachlorocyclopentadiene	40.000	38.740	3.1	98	0.00
43	S	2,4,6-Tribromophenol	80.000	81.285	-1.6	102	0.00
44	C	2,4,5-Trichlorophenol	40.000	39.901	0.2	101	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF011112\
Data File : BF052871.D
Acq On : 11 Jan 2012 20:33
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 12 05:02:36 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF011112.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 03:57:09 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.573	1.1	100	0.00
46	S	2-Fluorobiphenyl	80.000	80.813	-1.0	101	0.00
47		1,1'-Biphenyl	40.000	40.461	-1.2	102	0.00
48		2-Chloronaphthalene	40.000	39.781	0.5	99	0.00
49		2-Nitroaniline	40.000	40.128	-0.3	101	0.00
50		Acenaphthylene	40.000	40.112	-0.3	101	0.00
51		Dimethylphthalate	40.000	39.658	0.9	100	0.00
52		2,6-Dinitrotoluene	40.000	39.378	1.6	99	0.00
53	C	Acenaphthene	40.000	40.116	-0.3	101	0.00
54		3-Nitroaniline	40.000	39.813	0.5	102	0.00
55	P	2,4-Dinitrophenol	40.000	37.279	6.8	93	0.00
56		Dibenzofuran	40.000	40.259	-0.6	101	0.00
57	P	4-Nitrophenol	40.000	40.231	-0.6	101	0.00
58		2,4-Dinitrotoluene	40.000	39.797	0.5	101	0.00
59		Fluorene	40.000	39.954	0.1	100	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	39.866	0.3	100	0.00
61		Diethylphthalate	40.000	39.860	0.4	100	0.00
62		4-Chlorophenyl-phenylether	40.000	40.320	-0.8	101	0.00
63		4-Nitroaniline	40.000	39.523	1.2	100	0.00
64		Azobenzene	40.000	39.974	0.1	101	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	102	0.00
66		4,6-Dinitro-2-methylphenol	40.000	37.184	7.0	96	0.00
67	c	n-Nitrosodiphenylamine	40.000	39.550	1.1	100	0.00
68		4-Bromophenyl-phenylether	40.000	39.352	1.6	100	0.00
69		Hexachlorobenzene	40.000	39.656	0.9	100	0.00
70		Atrazine	40.000	40.150	-0.4	100	0.00
71	C	Pentachlorophenol	40.000	43.927	-9.8	107	0.00
72		Phenanthrene	40.000	40.232	-0.6	100	0.00
73		Anthracene	40.000	40.090	-0.2	101	0.00
74		Carbazole	40.000	40.518	-1.3	101	0.00
75		Di-n-butylphthalate	40.000	40.222	-0.6	100	0.00
76	C	Fluoranthene	40.000	40.251	-0.6	101	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	100	0.00
78		Benzidine	40.000	44.279	-10.7	103	0.00
79		Pyrene	40.000	40.796	-2.0	101	0.00
80	S	Terphenyl-d14	80.000	81.638	-2.0	102	0.00
81		Butylbenzylphthalate	40.000	40.755	-1.9	101	0.00
82		Benzo(a)anthracene	40.000	40.576	-1.4	101	0.00
83		3,3'-Dichlorobenzidine	40.000	41.896	-4.7	102	0.00
84		Chrysene	40.000	40.809	-2.0	102	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	40.478	-1.2	101	0.00
86	c	Di-n-octyl phthalate	40.000	40.260	-0.6	100	0.00
87		Indeno(1,2,3-cd)pyrene	40.000	40.322	-0.8	101	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF011112\
Data File : BF052871.D
Acq On : 11 Jan 2012 20:33
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 12 05:02:36 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF011112.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 03:57:09 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	101	0.00
89		Benzo(b)fluoranthene	40.000	39.727	0.7	101	0.00
90		Benzo(k)fluoranthene	40.000	41.118	-2.8	102	0.00
91	C	Benzo(a)pyrene	40.000	40.225	-0.6	102	0.00
92		Dibenzo(a,h)anthracene	40.000	40.070	-0.2	101	0.00
93		Benzo(g,h,i)perylene	40.000	39.682	0.8	101	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60132**

Analytical Method: 8270C **Extraction Date:** 12/22/2011-14:28 **Concentration Date:** 12/23/11

Lab Sample ID	Client Sample ID	Test	(g) mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60132BL	PB60132BL	SVOCMS Group1	30.02	NA	RO	DF	1	
PB60132BS	PB60132BS	SVOCMS Group1	30.00					
C5000-05	OU2-IDW-BX11-121411	SVOCMS Group1	30.05					YELLOW Ext
C5065-02	12TP17-000.5-01	SVOCMS Group1	30.02					
C5065-03	C5065-02MS	SVOCMS Group1	30.06					
C5065-04	C5065-02MSD	SVOCMS Group1	30.03					
C5065-05	12TP17-0.5-02-02	SVOCMS Group1	30.08					
C5065-06	12TP18-0506-01	SVOCMS Group1	30.11					
C5065-07	12TP18-0607-02	SVOCMS Group1	30.05					
C5068-01	SB-37-55.5-57.5	SVOCMS Group1	30.10					CL 12/23/11
C5068-02	SB-37-61.5-63.5	SVOCMS Group1	30.07					
C5068-03	SB-37-64-66	SVOCMS Group1	30.04					
C5068-10	SS-01	SVOCMS Group1	30.06					
C5068-11	C5068-10MS	SVOCMS Group1	30.02					
C5068-12	C5068-10MSD	SVOCMS Group1	30.04					
C5068-13	SS-01D	SVOCMS Group1	30.06					
C5068-14	SS-22-56-58	SVOCMS Group1	30.03					
C5068-15	SS-22-63-65	SVOCMS Group1	30.05					
C5084-01	WC-1	SVOC-PAH	30.06					
C5087-01	SAMPLE86-5	SVOC-Chemtech Full -25	10.05					SEDIMENT DARK BROWN
C5087-02	SAMPLE86-6	SVOC-Chemtech Full -25	10.02					

* Extracts relinquished on the same date as received.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP17-000.5-01 [2-Fluorobiphenyl - 44%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD for {C5065-04MSD} with File ID: BG002564.D recoveries met criteria except for Acenaphthene[30%], Benzo(a)anthracene[22%], Benzo(b)fluoranthene[24%], Chrysene[23%], Fluoranthene[23%], Phenanthrene[23%] and Pyrene[22%] .
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID BG002578.D met the requirements except for Benzo(g,h,i)perylene. This compound is failed marginally.
The Tuning criteria met requirements.

E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.18 08:36:27 -05'00'

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60133**

Analytical Method: 8270 Modified **Extraction Date:** 12/22/2011-14:28 **Concentration Date:** 12/23/11

Lab Sample ID	Client Sample ID	Test	(g)/mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60133BL	PB60133BL	SVOCMS Group2	30.03	NA	JD	[illegible]	1	
PB60133BS	PB60133BS	SVOCMS Group2	30.01					
C5065-02	12TP17-000.5-01	SVOCMS Group2	30.02					HOLD 5x
C5065-03	C5065-02MS	SVOCMS Group2	30.04					
C5065-04	C5065-02MSD	SVOCMS Group2	30.00					
C5065-05	12TP17-0.5-02-02	SVOCMS Group2	30.08					
C5065-06	12TP18-0506-01	SVOCMS Group2	30.11					
C5065-07	12TP18-0607-02	SVOCMS Group2	30.05	↓	↓	↓	↓	↓

12/23/11

* Extracts relinquished on the same date as received.

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5065-02	12TP17-000.5-01	Nitrobenzene-d5	100	60.33	60		30	150
		2-Fluorobiphenyl	100	43.57	44	*	45	105
		Terphenyl-d14	100	42.57	43		30	125
C5065-03MS	12TP17-000.5-01MS	Nitrobenzene-d5	10	7.36	74		30	150
		2-Fluorobiphenyl	10	6.45	65		45	105
		Terphenyl-d14	10	6.23	62		30	125
C5065-04MSD	12TP17-000.5-01MSD	Nitrobenzene-d5	10	8.98	90		30	150
		2-Fluorobiphenyl	10	8.04	80		45	105
		Terphenyl-d14	10	7.68	77		30	125
C5065-05	12TP17-0.5-02-02	Nitrobenzene-d5	100	65.99	66		30	150
		2-Fluorobiphenyl	100	51.42	51		45	105
		Terphenyl-d14	100	47.78	48		30	125
C5065-06	12TP18-0506-01	Nitrobenzene-d5	100	78.20	78		30	150
		2-Fluorobiphenyl	100	61.02	61		45	105
		Terphenyl-d14	100	56.76	57		30	125
C5065-07	12TP18-0607-02	Nitrobenzene-d5	100	75.02	75		30	150
		2-Fluorobiphenyl	100	58.37	58		45	105
		Terphenyl-d14	100	53.78	54		30	125
PB60133B	PB60133B	Nitrobenzene-d5	10	8.87	89		30	150
		2-Fluorobiphenyl	10	7.81	78		45	105
		Terphenyl-d14	10	7.52	75		30	125
PB60133BS	PB60133BS	Nitrobenzene-d5	10	8.43	84		30	150
		2-Fluorobiphenyl	10	7.55	76		45	105
		Terphenyl-d14	10	6.93	69		30	125

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002560.D Time Analyzed: 11:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	52738	7.92	190010	10.11	125396	13.08
	UPPER LIMIT	105476	8.42	380020	10.61	250792	13.58
	LOWER LIMIT	26369	7.42	95005	9.61	62698	12.58
	EPA SAMPLE NO.						
01	12TP17-000.5-01MS	70163	7.93	256809	10.11	162492	13.08
02	12TP17-000.5-01MSD	58819	7.93	215945	10.11	135751	13.08
03	12TP17-000.5-01	70552	7.92	252658	10.10	156230	13.08
04	12TP17-0.5-02-02	59410	7.92	206104	10.10	123105	13.08
05	PB60133B	58280	7.93	214880	10.10	136336	13.08
06	PB60133BS	54207	7.92	198055	10.10	124848	13.08

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002560.D Time Analyzed: 11:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	209965	15.53	218693	19.9	194754	22.97
	UPPER LIMIT	419930	16.03	437386	20.4	389508	23.47
	LOWER LIMIT	104982.5	15.03	109346.5	19.4	97377	22.47
	EPA SAMPLE NO.						
01	12TP17-000.5-01MS	272700	15.53	282206	19.90	256865	22.97
02	12TP17-000.5-01MSD	231940	15.53	239008	19.90	215219	22.97
03	12TP17-000.5-01	262236	15.53	269302	19.90	253105	22.97
04	12TP17-0.5-02-02	196076	15.53	219805	19.90	207648	22.97
05	PB60133B	230646	15.53	234684	19.90	204834	22.97
06	PB60133BS	212118	15.53	223231	19.90	195557	22.97

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002578.D Time Analyzed: 23:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	51854	7.92	187498	10.11	120659	13.08
	UPPER LIMIT	103708	8.42	374996	10.61	241318	13.58
	LOWER LIMIT	25927	7.42	93749	9.61	60329.5	12.58
	EPA SAMPLE NO.						
01	12TP18-0506-01	56164	7.92	191386	10.11	116506	13.08
02	12TP18-0607-02	51581	7.93	176245	10.10	106477	13.08

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

EPA Sample No.: SSTD2.5 Date Analyzed: 12/31/2011

Lab File ID: BG002578.D Time Analyzed: 23:16

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	204018	15.53	213640	19.9	188154	22.97
	UPPER LIMIT	408036	16.03	427280	20.4	376308	23.47
	LOWER LIMIT	102009	15.03	106820	19.4	94077	22.47
	EPA SAMPLE NO.						
01	12TP18-0506-01	197857	15.53	209879	19.90	179369	22.97
02	12TP18-0607-02	176115	15.53	193162	19.90	189999	22.97

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60133B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab File ID: BG002573.D Lab Sample ID: PB60133B

Instrument ID: BNA_G Date Extracted: 12/22/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/31/2011

Level: (low/med) LOW Time Analyzed: 19:58

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12TP18-0506-01	C5065-06	BG002585.D	01/01/2012
12TP18-0607-02	C5065-07	BG002579.D	12/31/2011
PB60133BS	PB60133BS	BG002574.D	12/31/2011
12TP17-0.5-02-02	C5065-05	BG002570.D	12/31/2011
12TP17-000.5-01	C5065-02	BG002565.D	12/31/2011
12TP17-000.5-01MSD	C5065-04MSD	BG002564.D	12/31/2011
12TP17-000.5-01MS	C5065-03MS	BG002563.D	12/31/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60133B	SDG No.:	C5065
Lab Sample ID:	PB60133B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002573.D	1	12/22/11	12/31/11	PB60133

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.87		30 - 150	89%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.81		45 - 105	78%	SPK: 10
1718-51-0	Terphenyl-d14	7.52		30 - 125	75%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	58280	7.93			
1146-65-2	Naphthalene-d8	214880	10.1			
15067-26-2	Acenaphthene-d10	136336	13.08			
1517-22-2	Phenanthrene-d10	230646	15.53			
1719-03-5	Chrysene-d12	234684	19.9			
1520-96-3	Perylene-d12	204834	22.97			

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60133BS	Naphthalene	330	260	79				51	114	
	2-Methylnaphthalene	330	250	76				54	111	
	Acenaphthylene	330	260	79				54	113	
	Acenaphthene	330	260	79				54	113	
	Fluorene	330	270	82				56	113	
	Phenanthrene	330	270	82				56	113	
	Anthracene	330	270	82				56	113	
	Fluoranthene	330	290	88				54	117	
	Pyrene	330	260	79				58	117	
	Benzo(a)anthracene	330	250	76				57	112	
	Chrysene	330	260	79				59	114	
	Benzo(b)fluoranthene	330	260	79				53	120	
	Benzo(k)fluoranthene	330	270	82				56	117	
	Benzo(a)pyrene	330	270	82				56	117	
	Indeno(1,2,3-cd)pyrene	330	230	70				49	120	
	Dibenz(a,h)anthracene	330	240	73				52	119	
	Benzo(g,h,i)perylene	330	220	67				53	119	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5065-03MS	**Client Sample ID: 12TP17-000.5-01MS**									
Naphthalene	450	0	310	69				23	160	
2-Methylnaphthalene	450	0	300	67				37	139	
Acenaphthylene	450	0	300	67				28	155	
Acenaphthene	450	0	280	62				32	146	
Fluorene	450	0	310	69				17	166	
Phenanthrene	450	23	330	68				30	149	
Anthracene	450	0	320	71				27	158	
Fluoranthene	450	37	380	76				26	155	
Pyrene	450	27	340	70				22	173	
Benzo(a)anthracene	450	11	310	66				27	159	
Chrysene	450	15	320	68				23	166	
Benzo(b)fluoranthene	450	18	320	67				21	171	
Benzo(k)fluoranthene	450	6.3	330	72				26	165	
Benzo(a)pyrene	450	12	330	71				26	157	
Indeno(1,2,3-cd)pyrene	450	6.8	270	58				10	188	
Dibenz(a,h)anthracene	450	0	260	58				18	147	
Benzo(g,h,i)perylene	450	6.3	250	54				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5065-04MSD	**Client Sample ID: 12TP17-000.5-01MSD**									
Naphthalene	450	0	370	82		17		23	160	20
2-Methylnaphthalene	450	0	350	78		15		37	139	20
Acenaphthylene	450	0	360	80		18		28	155	20
Acenaphthene	450	0	380	84		30	*	32	146	20
Fluorene	450	0	380	84		20		17	166	20
Phenanthrene	450	23	410	86		23	*	30	149	20
Anthracene	450	0	390	87		20		27	158	20
Fluoranthene	450	37	470	96		23	*	26	155	20
Pyrene	450	27	420	87		22	*	22	173	20
Benzo(a)anthracene	450	11	380	82		22	*	27	159	20
Chrysene	450	15	400	86		23	*	23	166	20
Benzo(b)fluoranthene	450	18	400	85		24	*	21	171	20
Benzo(k)fluoranthene	450	6.3	400	87		19		26	165	20
Benzo(a)pyrene	450	12	400	86		19		26	157	20
Indeno(1,2,3-cd)pyrene	450	6.8	320	70		19		10	188	20
Dibenz(a,h)anthracene	450	0	320	71		20		18	147	20
Benzo(g,h,i)perylene	450	6.3	300	65		18		10	177	20

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BG002138.D DFTPP Injection Date: 12/12/2011

Instrument ID: BNA_G DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	40.9
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	40.0 - 60.0% of mass 198	44.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	25.2
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	12.8
442	Greater than 40% of mass 198	87.2
443	17.0 - 23.0% of mass 442	16.5 (19) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD025	25 PPM BNA ICC	BG002140.D	12/12/2011	21:33
02	SSTD010	10 PPM BNA ICC	BG002141.D	12/12/2011	22:11
03	SSTD2.5	2.5 PPM BNA ICC	BG002142.D	12/12/2011	22:50
04	SSTD0.5	0.5 PPM BNA ICC	BG002143.D	12/12/2011	23:28
05	SSTD0.1	0.1 PPM BNA ICC	BG002144.D	12/13/2011	00:07

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_G Calibration Date(s): 12/12/2011 12/13/2011

Calibration Time(s): 21:33 00:07

LAB FILE ID: RRF0.1 = BG002144.D RRF0.5 = BG002143.D RRF2.5 = BG002142.D
RRF010 = BG002141.D RRF025 = BG002140.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.181	4.422	4.053	3.787	3.565		4.001	8.4
2-Methylnapthalene	2.921	3.170	2.923	2.731	2.591		2.867	7.7
Acenaphthylene	7.173	7.472	7.109	6.648	6.292		6.939	6.7
Acenaphthene	1.305	1.184	1.104	1.045	1.041		1.136	9.8
Fluorene	1.385	1.461	1.302	1.222	1.185		1.311	8.7
Phenanthrene	4.645	4.636	4.284	4.008	3.803		4.275	8.8
Anthracene	4.352	4.539	4.337	4.134	3.927		4.258	5.5
Fluoranthene	4.656	4.812	3.997	4.338	4.146		4.390	7.8
Pyrene	4.833	4.992	5.279	4.426	4.307		4.768	8.4
Benzo(a)anthracene	5.251	4.901	4.493	4.320	4.232		4.640	9.2
Chrysene	4.619	4.752	4.374	4.192	4.142		4.416	6.0
Benzo(b)fluoranthene	11.172	11.447	10.414	10.308	10.323		10.733	5.0
Benzo(k)fluoranthene	10.814	11.335	10.363	10.563	10.338		10.683	3.9
Benzo(a)pyrene	10.230	10.436	9.890	9.849	9.952		10.071	2.5
Indeno(1,2,3-cd)pyrene	3.543	3.844	4.268	4.133	4.530		4.064	9.4
Dibenzo(a,h)anthracene	0.795	0.903	0.995	0.951	1.001		0.929	9.1
Benzo(g,h,i)perylene	3.766	3.923	4.165	3.859	4.033		3.949	3.9
Nitrobenzene-d5	0.374	0.435	0.415	0.402	0.401		0.405	5.5
2-Fluorobiphenyl	1.516	1.592	1.534	1.392	1.340		1.475	7.1
Terphenyl-d14	0.812	0.813	0.845	0.723	0.703		0.779	8.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BG002559.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_G DFTPP Injection Time: 10:43

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.6
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	42.3
70	Less than 2.0% of mass 69	0.4 (0.8) 1
127	40.0 - 60.0% of mass 198	47.9
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.4
275	10.0 - 30.0% of mass 198	28.6
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	15.7
442	Greater than 40% of mass 198	88.9
443	17.0 - 23.0% of mass 442	18.9 (21.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002560.D	12/31/2011	11:22
02	12TP17-000.5-01MS	C5065-03MS	BG002563.D	12/31/2011	13:21
03	12TP17-000.5-01MSD	C5065-04MSD	BG002564.D	12/31/2011	14:01
04	12TP17-000.5-01	C5065-02	BG002565.D	12/31/2011	14:40
05	12TP17-0.5-02-02	C5065-05	BG002570.D	12/31/2011	17:59
06	PB60133B	PB60133B	BG002573.D	12/31/2011	19:58
07	PB60133BS	PB60133BS	BG002574.D	12/31/2011	20:37

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_G Calibration Date/Time: 12/31/2011 11:22

Lab File ID: BG002560.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.077		1.9	20.0
2-Methylnapthalene	2.867	2.810		2.0	20.0
Acenaphthylene	6.939	6.491		6.4	20.0
Acenaphthene	1.136	1.026		9.7	20.0
Fluorene	1.311	1.333		1.7	20.0
Phenanthrene	4.275	4.366		2.1	20.0
Anthracene	4.258	4.320		1.5	20.0
Fluoranthene	4.390	4.667		6.3	20.0
Pyrene	4.768	4.655		2.4	20.0
Benzo(a)anthracene	4.640	4.388		5.4	20.0
Chrysene	4.416	4.430		0.3	20.0
Benzo(b)fluoranthene	10.733	10.150		5.4	20.0
Benzo(k)fluoranthene	10.683	10.864		1.7	20.0
Benzo(a)pyrene	10.071	9.691		3.8	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.355		17.5	20.0
Dibenzo(a,h)anthracene	0.929	0.763		17.9	20.0
Benzo(g,h,i)perylene	3.949	3.162		19.9	20.0
Nitrobenzene-d5	0.405	0.446		10.2	20.0
2-Fluorobiphenyl	1.475	1.424		3.5	20.0
Terphenyl-d14	0.779	0.716		8.1	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5065 SDG NO.: C5065

Lab File ID: BG002577.D DFTPP Injection Date: 12/31/2011

Instrument ID: BNA_G DFTPP Injection Time: 22:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	43.8
70	Less than 2.0% of mass 69	0.4 (0.9) 1
127	40.0 - 60.0% of mass 198	45.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	24
365	Greater than 1% of mass 198	2.7
441	Present, but less than mass 443	12
442	Greater than 40% of mass 198	83.6
443	17.0 - 23.0% of mass 442	15 (18) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002578.D	12/31/2011	23:16
02	12TP18-0607-02	C5065-07	BG002579.D	12/31/2011	23:55
03	12TP18-0506-01	C5065-06	BG002585.D	01/01/2012	03:52

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG No.: C5065

Instrument ID: BNA_G Calibration Date/Time: 12/31/2011 23:16

Lab File ID: BG002578.D Init. Calib. Date(s): 12/12/2011 12/13/2011

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 21:33 00:07

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.001	4.045		1.1	20.0
2-Methylnapthalene	2.867	2.841		0.9	20.0
Acenaphthylene	6.939	6.589		5.1	20.0
Acenaphthene	1.136	1.011		11.0	20.0
Fluorene	1.311	1.352		3.1	20.0
Phenanthrene	4.275	4.337		1.5	20.0
Anthracene	4.258	4.265		0.2	20.0
Fluoranthene	4.390	4.657		6.1	20.0
Pyrene	4.768	4.625		3.0	20.0
Benzo(a)anthracene	4.640	4.360		6.0	20.0
Chrysene	4.416	4.398		0.4	20.0
Benzo(b)fluoranthene	10.733	10.371		3.4	20.0
Benzo(k)fluoranthene	10.683	10.722		0.4	20.0
Benzo(a)pyrene	10.071	9.629		4.4	20.0
Indeno(1,2,3-cd)pyrene	4.064	3.268		19.6	20.0
Dibenzo(a,h)anthracene	0.929	0.753		18.9	20.0
Benzo(g,h,i)perylene	3.949	3.105		21.4	20.0
Nitrobenzene-d5	0.405	0.451		11.3	20.0
2-Fluorobiphenyl	1.475	1.438		2.5	20.0
Terphenyl-d14	0.779	0.709		9.0	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_G. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5um df, Catalogue #: 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalogue #: 7HM-G017-11The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11 . The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP17-000.5-01 [Decachlorobiphenyl(1) - 31%], 12TP17-000.5-01MS [Decachlorobiphenyl(1) - 30%], 12TP17-000.5-01MSD [Decachlorobiphenyl(1) - 35%], 12TP17-0.5-02-02 [Decachlorobiphenyl(1) - 43%], 12TP18-0506-01 [Decachlorobiphenyl(1) - 48%] and 12TP18-0607-02 [Decachlorobiphenyl(1) - 52%].
The Retention Times were acceptable for all samples.
The MS recoveries for {C5065-03MS} with File ID: PD007313.D met requirements for all samples except for Endosulfan sulfate[24%], Methoxychlor[27%] and Endrin ketone[49%] .
The MSD {C5065-04MSD} with File ID: PD007314.D recoveries met requirements for all samples except for Endosulfan sulfate[63%] .
The RPD for {C5065-04MSD} with File ID: PD007314.D recoveries met criteria except for 4,4-DDD[77%], Endosulfan II[32%] .
The Blank Spike met requirements for all samples .

The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PD007307.D met the requirements except for gamma-BHC is failing in 1st column but passing in 2nd column.
The Continuous Calibration File ID PD007319.D met the requirements except for gamma-BHC and Decachlorobiphenyl are failing in 1st column but passing in 2nd column.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.18 08:33:30 -05'00'

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60131**

Analytical Method: 8081A **Extraction Date:** 12/22/2011-14:27 **Concentration Date:** 12/23/11

Lab Sample ID	Client Sample ID	Test	g/mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60131BL	PB60131BL	PESTICIDE Group1	30.01	NA			10	
PB60131BS	PB60131BS	PESTICIDE Group1	30.03					
C5065-02	12TP17-000.5-01	PESTICIDE Group1	30.06					YELLOW Ext
C5065-03	C5065-02MS	PESTICIDE Group1	30.08					
C5065-04	C5065-02MSD	PESTICIDE Group1	30.04					
C5065-05	12TP17-0.5-02-02	PESTICIDE Group1	30.07					
C5065-06	12TP18-0506-01	PESTICIDE Group1	30.08					
C5065-07	12TP18-0607-02	PESTICIDE Group1	30.11					
C5087-01	SAMPLE86-5	Pesticide-TCL	10.06					SAMPLE EXTRACTION DARK BROWN
C5087-02	SAMPLE86-6	Pesticide-TCL	10.03					
C5087-03	SAMPLE86-7	Pesticide-TCL	10.05					
C5087-04	SAMPLE86-1	Pesticide-TCL	10.02					

12/23/11 TB

C5065 Pest

* Extracts relinquished on the same date as received.

CHEMTECH

Surrogate Summary

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD007249.D	PIBLK-PD007249.D	Decachlorobiphenyl	1	20	21.87	109		10	192
		Tetrachloro-m-xylene	1	20	21.83	109		10	172
		Decachlorobiphenyl	2	20	19.84	99		10	192
		Tetrachloro-m-xylene	2	20	19.94	100		10	172
I.BLK-PD007306.D	PIBLK-PD007306.D	Decachlorobiphenyl	1	20	16.13	81		10	192
		Tetrachloro-m-xylene	1	20	21.94	110		10	172
		Decachlorobiphenyl	2	20	19.09	95		10	192
		Tetrachloro-m-xylene	2	20	19.9	100		10	172
C5065-02	12TP17-000.5-01	Decachlorobiphenyl	1	20	6.21	31	*	55	130
		Tetrachloro-m-xylene	1	20	16.61	83		70	125
		Decachlorobiphenyl	2	20	11.44	57		55	130
		Tetrachloro-m-xylene	2	20	18.3	92		70	125
C5065-03MS	12TP17-000.5-01MS	Decachlorobiphenyl	1	20	6.03	30	*	55	130
		Tetrachloro-m-xylene	1	20	17.89	89		70	125
		Decachlorobiphenyl	2	20	14.65	73		55	130
		Tetrachloro-m-xylene	2	20	19.36	97		70	125
C5065-04MSD	12TP17-000.5-01MSD	Decachlorobiphenyl	1	20	7.07	35	*	55	130
		Tetrachloro-m-xylene	1	20	19.82	99		70	125
		Decachlorobiphenyl	2	20	13.96	70		55	130
		Tetrachloro-m-xylene	2	20	20.82	104		70	125
C5065-05	12TP17-0.5-02-02	Decachlorobiphenyl	1	20	8.54	43	*	55	130
		Tetrachloro-m-xylene	1	20	19.82	99		70	125
		Decachlorobiphenyl	2	20	14.92	75		55	130
		Tetrachloro-m-xylene	2	20	20.61	103		70	125
C5065-06	12TP18-0506-01	Decachlorobiphenyl	1	20	9.69	48	*	55	130
		Tetrachloro-m-xylene	1	20	20.76	104		70	125
		Decachlorobiphenyl	2	20	16.49	82		55	130
		Tetrachloro-m-xylene	2	20	21.43	107		70	125
C5065-07	12TP18-0607-02	Decachlorobiphenyl	1	20	10.36	52	*	55	130
		Tetrachloro-m-xylene	1	20	19.57	98		70	125
		Decachlorobiphenyl	2	20	16.55	83		55	130
		Tetrachloro-m-xylene	2	20	20.73	104		70	125
I.BLK-PD007318.D	PIBLK-PD007318.D	Decachlorobiphenyl	1	20	11.54	58		10	192
		Tetrachloro-m-xylene	1	20	21.54	108		10	172
		Decachlorobiphenyl	2	20	17.95	90		10	192
		Tetrachloro-m-xylene	2	20	21.42	107		10	172
I.BLK-PG003475.D	PIBLK-PG003475.D	Decachlorobiphenyl	1	20	19.53	98		10	192
		Tetrachloro-m-xylene	1	20	17.56	88		10	172
		Decachlorobiphenyl	2	20	20.01	100		10	192
		Tetrachloro-m-xylene	2	20	19.02	95		10	172
I.BLK-PG003488.D	PIBLK-PG003488.D	Decachlorobiphenyl	1	20	20.26	101		10	192
		Tetrachloro-m-xylene	1	20	18.49	92		10	172
		Decachlorobiphenyl	2	20	22.87	114		10	192
		Tetrachloro-m-xylene	2	20	21.73	109		10	172

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60131BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab Sample ID: PB60131BL Lab File ID: PG003492.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/22/2011

Date Analyzed (1): 12/28/2011 Date Analyzed (2): 12/28/2011

Time Analyzed (1): 00:09 Time Analyzed (2): 00:09

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column (1): ZB-MR1 ID: 0.32 (mm) GC Column (2): ZB-MR2 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
12TP17-000.5-01	C5065-02	PD007312.D	01/04/2012	01/04/2012
12TP17-000.5-01MS	C5065-03MS	PD007313.D	01/04/2012	01/04/2012
12TP17-000.5-01MSD	C5065-04MSD	PD007314.D	01/04/2012	01/04/2012
12TP17-0.5-02-02	C5065-05	PD007315.D	01/04/2012	01/04/2012
12TP18-0506-01	C5065-06	PD007316.D	01/04/2012	01/04/2012
12TP18-0607-02	C5065-07	PD007317.D	01/04/2012	01/04/2012
PB60131BS	PB60131BS	PG003493.D	12/28/2011	12/28/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60131BL	SDG No.:	C5065
Lab Sample ID:	PB60131BL	Matrix:	SOIL
Analytical Method:	SW8081B	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.01 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003492.D	1	12/22/11	12/28/11	PB60131

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20		55 - 130	100%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.3		70 - 125	92%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60131BS	alpha-BHC	16.7	19	114				84	123	
	beta-BHC	16.7	19	114				82	123	
	delta-BHC	16.7	20	120				83	126	
	gamma-BHC (Lindane)	16.7	19	114				83	125	
	Heptachlor	16.7	18	108				83	122	
	Aldrin	16.7	19	114				82	124	
	Heptachlor epoxide	16.7	19	114				83	120	
	Endosulfan I	16.7	19	114				81	124	
	Dieldrin	16.7	18	108				85	121	
	4,4-DDE	16.7	19	114				81	123	
	Endrin	16.7	16	96				76	130	
	Endosulfan II	16.7	19	114				80	125	
	4,4-DDD	16.7	18	108				80	131	
	Endosulfan sulfate	16.7	18	108				81	122	
	4,4-DDT	16.7	18	108				70	129	
	Methoxychlor	16.7	18	108				78	129	
	Endrin ketone	16.7	19	114				77	132	
	Endrin aldehyde	16.7	18	108				79	124	
	alpha-Chlordane	16.7	19	114				84	120	
	gamma-Chlordane	16.7	19	114				83	122	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12TP17-000.5-01MS**										
C5065-03MS	alpha-BHC	22.4	0	22	98				60	125	
	beta-BHC	22.4	0	19	85				60	125	
	delta-BHC	22.4	0	15	67				55	130	
	gamma-BHC (Lindane)	22.4	0	22	98				60	125	
	Heptachlor	22.4	0	22	98				50	140	
	Aldrin	22.4	0	21	94				45	140	
	Heptachlor epoxide	22.4	0	21	94				65	130	
	Endosulfan I	22.4	0	19	85				15	135	
	Dieldrin	22.4	0	18	80				65	125	
	4,4-DDE	22.4	0	19	85				70	125	
	Endrin	22.4	0	16	71				60	135	
	Endosulfan II	22.4	0	8.7	39				35	140	
	4,4-DDD	22.4	2.3	42	177				30	135	
	Endosulfan sulfate	22.4	0	8.2	37	*			60	135	
	4,4-DDT	22.4	0	20	89				45	140	
	Methoxychlor	22.4	0	10	45	*			55	145	
	Endrin ketone	22.4	0	11	49	*			65	135	
	Endrin aldehyde	22.4	0	10	45				35	145	
	alpha-Chlordane	22.4	0	20	89				65	120	
	gamma-Chlordane	22.4	0	20	89				65	125	
Client Sample ID:	**12TP17-000.5-01MSD**										
C5065-04MSD	alpha-BHC	22.4	0	24	107		9		60	125	20
	beta-BHC	22.4	0	22	98		14		60	125	20
	delta-BHC	22.4	0	18	80		18		55	130	20
	gamma-BHC (Lindane)	22.4	0	25	112		13		60	125	20
	Heptachlor	22.4	0	23	103		5		50	140	20
	Aldrin	22.4	0	21	94		0		45	140	20
	Heptachlor epoxide	22.4	0	24	107		13		65	130	20
	Endosulfan I	22.4	0	23	103		19		15	135	20
	Dieldrin	22.4	0	19	85		6		65	125	20
	4,4-DDE	22.4	0	21	94		10		70	125	20
	Endrin	22.4	0	22	98		32		60	135	20
	Endosulfan II	22.4	0	12	54		32	*	35	140	20
	4,4-DDD	22.4	2.3	20	79	✓	77	*	30	135	20
	Endosulfan sulfate	22.4	0	14	63	*	52		60	135	20
	4,4-DDT	22.4	0	19	85	OK	5		45	140	20
	Methoxychlor	22.4	0	16	71		45		55	145	20
	Endrin ketone	22.4	0	16	71		37		65	135	20
	Endrin aldehyde	22.4	0	15	67		39		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
C5065-04MSD	alpha-Chlordane	22.4	0	22	98		10		65	120	20
	gamma-Chlordane	22.4	0	23	103		15		65	125	20

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12TP17-0.5-02-02

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab Sample ID: C5065-05 Date(s) Analyzed: 01/04/2012 01/04/2012

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column: (1): ZB-MR2 ID: 0.32 (mm) GC Column:(2): ZB-MR1 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
4,4-DDD	1	5.99	5.92	6.06	1.9	10.0
	2	6.75	6.68	6.82	2.1	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12TP17-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab Sample ID: C5065-02 Date(s) Analyzed: 01/04/2012 01/04/2012

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column: (1): ZB-MR2 ID: 0.32 (mm) GC Column:(2): ZB-MR1 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
4,4-DDD	1	5.99	5.92	6.06	1.4	48.6
	2	6.75	6.68	6.82	2.3	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12TP18-0506-01

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab Sample ID: C5065-06 Date(s) Analyzed: 01/04/2012 01/04/2012

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column: (1): ZB-MR2 ID: 0.32 (mm) GC Column:(2): ZB-MR1 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
4,4-DDD	1	5.99	5.92	6.06	1.1	0.0
	2	6.75	6.68	6.82	1.1	
4,4-DDT	1	6.23	6.16	6.30	2.2	16.7
	(2)	7.06	6.99	7.13	2.6	

CHEMTECH

Surrogate Summary

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
PB60131BL	PB60131BL	Decachlorobiphenyl	1	20	20.04	100		55	130
		Tetrachloro-m-xylene	1	20	18.34	92		70	125
		Decachlorobiphenyl	2	20	23.26	116		55	130
		Tetrachloro-m-xylene	2	20	22.01	110		70	125
PB60131BS	PB60131BS	Decachlorobiphenyl	1	20	19.49	97		55	130
		Tetrachloro-m-xylene	1	20	20.59	103		70	125
		Decachlorobiphenyl	2	20	22.86	114		55	130
		Tetrachloro-m-xylene	2	20	18.61	93		70	125
I.BLK-PG003500.D	PIBLK-PG003500.D	Decachlorobiphenyl	1	20	20.51	103		10	192
		Tetrachloro-m-xylene	1	20	18.88	94		10	172
		Decachlorobiphenyl	2	20	24.15	121		10	192
		Tetrachloro-m-xylene	2	20	22.92	115		10	172

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_G
GC Column:	ZB-MR2 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	12/27/2011 12/27/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	LBLK04	12/27/2011	18:57	PG003475.D	9.75	4.07
PEM03	PEM03	12/27/2011	19:15	PG003476.D	9.75	4.08
RESC01	RESCHK	12/27/2011	19:34	PG003477.D	9.75	4.07
100 PPB PEST STD	100 PPB PEST STD	12/27/2011	19:52	PG003478.D	9.75	4.08
75 PPB PEST STD	75 PPB PEST STD	12/27/2011	20:11	PG003479.D	9.75	4.07
50 PPB PEST STD	50 PPB PEST STD	12/27/2011	20:29	PG003480.D	9.75	4.08
25 PPB PEST STD	25 PPB PEST STD	12/27/2011	20:47	PG003481.D	9.75	4.08
5 PPB PEST STD	5 PPB PEST STD	12/27/2011	21:05	PG003482.D	9.75	4.08
TOX 500	TOX	12/27/2011	21:42	PG003484.D	9.75	4.08
CHLOR 500	CHLOR 500	12/27/2011	22:00	PG003485.D	9.75	4.08
PIBLK05	LBLK05	12/27/2011	22:56	PG003488.D	9.76	4.08
CCAL03	STD 25	12/27/2011	23:14	PG003489.D	9.76	4.08
PB60131BL	PB60131BL	12/28/2011	00:09	PG003492.D	9.76	4.08
PB60131BS	PB60131BS	12/28/2011	00:27	PG003493.D	9.76	4.07
PIBLK06	LBLK06	12/28/2011	02:37	PG003500.D	9.76	4.08
CCAL04	STD 25	12/28/2011	02:56	PG003501.D	9.76	4.08

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_G

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/27/2011 12/27/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	12/27/2011	18:57	PG003475.D	11.40	4.78
PEM03	PEM03	12/27/2011	19:15	PG003476.D	11.39	4.78
RESC01	RESCHK	12/27/2011	19:34	PG003477.D	11.39	4.78
100 PPB PEST STD	100 PPB PEST STD	12/27/2011	19:52	PG003478.D	11.39	4.78
75 PPB PEST STD	75 PPB PEST STD	12/27/2011	20:11	PG003479.D	11.39	4.78
50 PPB PEST STD	50 PPB PEST STD	12/27/2011	20:29	PG003480.D	11.40	4.78
25 PPB PEST STD	25 PPB PEST STD	12/27/2011	20:47	PG003481.D	11.40	4.78
5 PPB PEST STD	5 PPB PEST STD	12/27/2011	21:05	PG003482.D	11.40	4.78
TOX 500	TOX	12/27/2011	21:42	PG003484.D	11.40	4.78
CHLOR 500	CHLOR 500	12/27/2011	22:00	PG003485.D	11.40	4.78
PIBLK05	I.BLK05	12/27/2011	22:56	PG003488.D	11.40	4.78
CCAL03	STD 25	12/27/2011	23:14	PG003489.D	11.40	4.78
PB60131BL	PB60131BL	12/28/2011	00:09	PG003492.D	11.40	4.78
PB60131BS	PB60131BS	12/28/2011	00:27	PG003493.D	11.40	4.78
PIBLK06	I.BLK06	12/28/2011	02:37	PG003500.D	11.40	4.78
CCAL04	STD 25	12/28/2011	02:56	PG003501.D	11.40	4.78

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_G **Calibration Date(s):** 12/27/2011 12/27/2011

Calibration Times: 19:52 21:05

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003482.D CF 025 = PG003481.D

CF 050 = PG003480.D CF 075 = PG003479.D CF 100 = PG003478.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	858000	810136	793386	761013	761919	796891	5
Tetrachloro-m-xylene	509640	506848	521608	516464	524143	515741	1
alpha-BHC	4069400	4236840	4777260	5087693	5463650	4726969	12
beta-BHC	3098400	2865520	2942460	2914280	2940910	2952314	3
delta-BHC	2778200	2603920	2885160	3026947	3244110	2907667	8
gamma-BHC (Lindane)	4174200	4267720	4825000	5109013	5438550	4762897	11
Heptachlor	5382400	4945240	5141420	5181027	5417580	5213533	4
Aldrin	5118200	4924480	5187340	5283733	5516440	5206039	4
Heptachlor epoxide	6860800	5650200	5676240	5615067	5689620	5898385	9
Endosulfan I	5004600	5129400	5350220	5395907	5575300	5291085	4
Dieldrin	5510200	4535960	4630240	4679640	4901770	4851562	8
4,4-DDE	5037400	5073160	5258540	5300707	5499100	5233781	4
Endrin	3682600	3328640	3245880	3231107	3375600	3372765	5
Endosulfan II	4360200	4408200	4564860	4565160	4682690	4516222	3
4,4-DDD	3398400	3124240	3285540	3303227	3439400	3310161	4
Endosulfan sulfate	3211000	3273640	3362960	3342827	3429110	3323907	3
4,4-DDT	3858800	3198480	3289520	3364173	3555390	3453273	8
Methoxychlor	1927000	2060920	2132880	2112720	2203650	2087434	5
Endrin ketone	2640200	2625440	2768040	2830387	2916120	2756037	5
Endrin aldehyde	4760600	4362240	4371660	4265560	4273750	4406762	5
alpha-Chlordane	4948400	5181160	5379600	5377560	5507780	5278900	4
gamma-Chlordane	5274800	5206520	5359720	5358667	5495430	5339027	2

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_G **Calibration Date(s):** 12/27/2011 12/27/2011

Calibration Times: 19:52 21:05

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003482.D CF 025 = PG003481.D

CF 050 = PG003480.D CF 075 = PG003479.D CF 100 = PG003478.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	2932840	2499932	2350314	2193904	2112091	2417816	13
Tetrachloro-m-xylene	2194540	2044904	1916840	1811919	1809851	1955611	8
alpha-BHC	22035800	22686680	23076800	22402947	22093750	22459195	2
beta-BHC	14784400	13251520	12566520	11932707	11598710	12826771	10
delta-BHC	13966200	14044920	14902700	14802533	14800200	14503311	3
gamma-BHC (Lindane)	25390400	23102320	22990720	22258093	21840700	23116447	6
Heptachlor	26929000	22470800	21964860	21235373	21025930	22725193	11
Aldrin	29047200	25045840	24719800	23847973	23433260	25218815	9
Heptachlor epoxide	25687000	23952080	23567900	22659267	21864350	23546119	6
Endosulfan I	26624800	23522080	22697660	21596347	20985830	23085343	10
Dieldrin	30855000	24346560	23575280	22585773	22102800	24693083	14
4,4-DDE	27875000	24990520	24486160	23439187	22853710	24728915	8
Endrin	22638000	18259440	17649880	17080893	16759590	18477561	13
Endosulfan II	20211600	19754440	19494520	18625827	18111190	19239515	4
4,4-DDD	17244200	17488000	17595160	17094733	16716650	17227749	2
Endosulfan sulfate	14746200	13604360	13601740	13210600	13095910	13651762	5
4,4-DDT	16506000	14242880	14442500	14068520	13965850	14645150	7
Methoxychlor	8168400	7872840	7712100	7316400	7267900	7667528	5
Endrin ketone	14309200	13557720	13513480	12949507	12736140	13413209	5
Endrin aldehyde	18966800	17427320	16969880	15555880	15026200	16789216	9
alpha-Chlordane	26859400	24899280	24104160	23107307	22551070	24304243	7
gamma-Chlordane	27056200	24973520	24185680	23142867	22558780	24383409	7

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Instrument ID: ECD_G Date(s) Analyzed: 12/27/2011 12/27/2011

GC Column: ZB-MR1 ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.02	6.97	7.07	56754
		2	8.25	8.20	8.30	151012
		3	8.51	8.46	8.56	244654
		4	8.63	8.58	8.68	189376
		5	9.15	9.10	9.20	252502

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_G **Date(s) Analyzed:** 12/27/2011 12/27/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.19	6.14	6.24	254626
		2	7.73	7.68	7.78	1639704
		3	8.03	7.97	8.08	440004
		4	8.15	8.10	8.20	554872
		5	8.29	8.24	8.34	1074786

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG122711\
Data File : PG003477.D
Acq On : 27 Dec 2011 19:34
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG122711.M
Title : GC Extractables
Last Update : Wed Dec 28 02:22:02 2011
Integrator: ChemStation

RT#1	RT#2	Resolution
4.780	7.296	100.00%
7.296	7.446	100.00%
7.446	7.534	97.96%
7.534	7.741	100.00%
7.741	8.639	100.00%
8.639	8.977	100.00%
8.977	9.254	100.00%
9.254	11.394	100.00%

Signal #2

4.074	6.378	100.00%
6.378	6.522	100.00%
6.522	6.613	100.00%
6.613	6.801	100.00%
6.801	7.817	100.00%
7.817	8.081	100.00%
8.081	8.423	100.00%
8.423	9.752	100.00%

PG122711.M Wed Dec 28 03:58:30 2011 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 12/27/2011 12/27/2011

Client Sample No. (PEM): PEM03 Date Analyzed: 12/27/2011

Lab Sample No.(PEM): PEM Time Analyzed: 19:15

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.393	11.290	11.490	0.020	0.020	0.0
Tetrachloro-m-xylene	4.778	4.680	4.880	0.020	0.020	0.0
alpha-BHC	5.245	5.200	5.300	0.006	0.010	40.0
beta-BHC	5.776	5.730	5.830	0.009	0.010	10.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.008	0.010	20.0
Endrin	7.997	7.930	8.070	0.054	0.050	8.0
4,4-DDT	8.439	8.370	8.510	0.101	0.100	1.0
Methoxychlor	8.976	8.910	9.050	0.291	0.250	16.4

Client Sample No. (PEM): PEM03 Date Analyzed: 12/27/2011

Lab Sample No.(PEM): PEM Time Analyzed: 19:15

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.752	9.650	9.850	0.020	0.020	0.0
Tetrachloro-m-xylene	4.075	3.980	4.180	0.019	0.020	5.0
alpha-BHC	4.605	4.560	4.660	0.008	0.010	20.0
beta-BHC	5.227	5.180	5.280	0.009	0.010	10.0
gamma-BHC (Lindane)	4.946	4.900	5.000	0.009	0.010	10.0
Endrin	7.106	7.040	7.180	0.044	0.050	12.0
4,4-DDT	7.479	7.410	7.550	0.099	0.100	1.0
Methoxychlor	8.078	8.010	8.150	0.250	0.250	0.0

Sample: PEM
Data File: PG003476.D **Date Acquired** 12/27/2011 19:15
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	8.00	181568.245	191927.556	10359.311	**5.40**
Endrin aldehyde	8.37	4795.745			
Endrin ketone	9.25	5563.566			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.11	815349.945	858476.247	43126.302	**5.02**
Endrin aldehyde #2	7.60	15950.99			
Endrin ketone #2	8.42	27175.312			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.44	347224.784	399801.393	52576.609	**13.15**
4,4'-DDE	7.53	48277.488			
4,4'-DDD	8.09	4299.121			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.48	1449722.416	1704518.402	254795.986	**14.95**
4,4'-DDE #2	6.61	226200.149			
4,4'-DDD #2	7.20	28595.837			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/27/2011 12/27/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/27/2011

Lab Sample No.: STD 25 **Data File :** PG003489.D **Time Analyzed:** 23:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.250	5.200	5.300	0.020	0.025	20.0
beta-BHC	5.779	5.730	5.830	0.024	0.025	4.0
delta-BHC	6.043	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.592	5.540	5.640	0.020	0.025	20.0
Heptachlor	6.213	6.160	6.260	0.022	0.025	12.0
Aldrin	6.579	6.530	6.630	0.022	0.025	12.0
Heptachlor epoxide	7.025	6.950	7.090	0.022	0.025	12.0
Endosulfan I	7.448	7.380	7.520	0.023	0.025	8.0
Dieldrin	7.742	7.670	7.810	0.021	0.025	16.0
4,4-DDE	7.536	7.460	7.600	0.023	0.025	8.0
Endrin	7.999	7.930	8.070	0.022	0.025	12.0
Endosulfan II	8.230	8.160	8.300	0.023	0.025	8.0
4,4-DDD	8.096	8.020	8.160	0.021	0.025	16.0
Endosulfan sulfate	8.641	8.570	8.710	0.023	0.025	8.0
4,4-DDT	8.443	8.370	8.510	0.022	0.025	12.0
Methoxychlor	8.979	8.910	9.050	0.024	0.025	4.0
Endrin ketone	9.256	9.180	9.320	0.022	0.025	12.0
Endrin aldehyde	8.372	8.300	8.440	0.024	0.025	4.0
alpha-Chlordane	7.382	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.297	7.230	7.370	0.023	0.025	8.0
Decachlorobiphenyl	11.397	11.290	11.490	0.025	0.025	0.0
Tetrachloro-m-xylene	4.780	4.680	4.880	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/27/2011 12/27/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/27/2011

Lab Sample No.: STD 25 **Data File :** PG003489.D **Time Analyzed:** 23:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.608	4.560	4.660	0.027	0.025	8.0
beta-BHC	5.229	5.180	5.280	0.028	0.025	12.0
delta-BHC	5.481	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.948	4.900	5.000	0.026	0.025	4.0
Heptachlor	5.306	5.250	5.350	0.026	0.025	4.0
Aldrin	5.606	5.550	5.650	0.026	0.025	4.0
Heptachlor epoxide	6.121	6.050	6.190	0.028	0.025	12.0
Endosulfan I	6.524	6.450	6.590	0.027	0.025	8.0
Dieldrin	6.804	6.730	6.870	0.026	0.025	4.0
4,4-DDE	6.616	6.540	6.680	0.028	0.025	12.0
Endrin	7.108	7.040	7.180	0.024	0.025	4.0
Endosulfan II	7.413	7.340	7.480	0.028	0.025	12.0
4,4-DDD	7.206	7.130	7.270	0.026	0.025	4.0
Endosulfan sulfate	7.821	7.760	7.900	0.026	0.025	4.0
4,4-DDT	7.483	7.410	7.550	0.026	0.025	4.0
Methoxychlor	8.084	8.010	8.150	0.027	0.025	8.0
Endrin ketone	8.426	8.350	8.490	0.026	0.025	4.0
Endrin aldehyde	7.603	7.530	7.670	0.028	0.025	12.0
alpha-Chlordane	6.449	6.380	6.520	0.028	0.025	12.0
gamma-Chlordane	6.381	6.310	6.450	0.028	0.025	12.0
Decachlorobiphenyl	9.756	9.650	9.850	0.027	0.025	8.0
Tetrachloro-m-xylene	4.076	3.980	4.180	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/27/2011 12/27/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/28/2011

Lab Sample No.: STD 25 **Data File :** PG003501.D **Time Analyzed:** 02:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.250	5.200	5.300	0.020	0.025	20.0
beta-BHC	5.779	5.730	5.830	0.024	0.025	4.0
delta-BHC	6.044	5.990	6.090	0.022	0.025	12.0
gamma-BHC (Lindane)	5.593	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.213	6.160	6.260	0.022	0.025	12.0
Aldrin	6.579	6.530	6.630	0.022	0.025	12.0
Heptachlor epoxide	7.025	6.950	7.090	0.022	0.025	12.0
Endosulfan I	7.448	7.380	7.520	0.023	0.025	8.0
Dieldrin	7.743	7.670	7.810	0.022	0.025	12.0
4,4-DDE	7.537	7.460	7.600	0.023	0.025	8.0
Endrin	8.000	7.930	8.070	0.021	0.025	16.0
Endosulfan II	8.230	8.160	8.300	0.024	0.025	4.0
4,4-DDD	8.097	8.020	8.160	0.022	0.025	12.0
Endosulfan sulfate	8.642	8.570	8.710	0.023	0.025	8.0
4,4-DDT	8.444	8.370	8.510	0.022	0.025	12.0
Methoxychlor	8.980	8.910	9.050	0.024	0.025	4.0
Endrin ketone	9.257	9.180	9.320	0.023	0.025	8.0
Endrin aldehyde	8.372	8.300	8.440	0.025	0.025	0.0
alpha-Chlordane	7.383	7.310	7.450	0.024	0.025	4.0
gamma-Chlordane	7.298	7.230	7.370	0.024	0.025	4.0
Decachlorobiphenyl	11.399	11.290	11.490	0.025	0.025	0.0
Tetrachloro-m-xylene	4.780	4.680	4.880	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/27/2011 12/27/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/28/2011

Lab Sample No.: STD 25 **Data File :** PG003501.D **Time Analyzed:** 02:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.607	4.560	4.660	0.028	0.025	12.0
beta-BHC	5.228	5.180	5.280	0.029	0.025	16.0
delta-BHC	5.481	5.430	5.530	0.028	0.025	12.0
gamma-BHC (Lindane)	4.948	4.900	5.000	0.028	0.025	12.0
Heptachlor	5.306	5.250	5.350	0.027	0.025	8.0
Aldrin	5.605	5.550	5.650	0.028	0.025	12.0
Heptachlor epoxide	6.121	6.050	6.190	0.030	0.025	20.0
Endosulfan I	6.524	6.450	6.590	0.029	0.025	16.0
Dieldrin	6.803	6.730	6.870	0.027	0.025	8.0
4,4-DDE	6.616	6.540	6.680	0.029	0.025	16.0
Endrin	7.108	7.040	7.180	0.023	0.025	8.0
Endosulfan II	7.412	7.340	7.480	0.029	0.025	16.0
4,4-DDD	7.207	7.130	7.270	0.026	0.025	4.0
Endosulfan sulfate	7.823	7.760	7.900	0.027	0.025	8.0
4,4-DDT	7.483	7.410	7.550	0.027	0.025	8.0
Methoxychlor	8.084	8.010	8.150	0.028	0.025	12.0
Endrin ketone	8.425	8.350	8.490	0.028	0.025	12.0
Endrin aldehyde	7.603	7.530	7.670	0.030	0.025	20.0
alpha-Chlordane	6.449	6.380	6.520	0.030	0.025	20.0
gamma-Chlordane	6.380	6.310	6.450	0.029	0.025	16.0
Decachlorobiphenyl	9.756	9.650	9.850	0.029	0.025	16.0
Tetrachloro-m-xylene	4.075	3.980	4.180	0.029	0.025	16.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_D

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 01/03/2012 01/03/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	01/03/2012	16:42	PD007249.D	9.01	3.92
PEM01	PEM01	01/03/2012	16:55	PD007250.D	9.01	3.92
RESC01	RESCHK	01/03/2012	17:09	PD007251.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	01/03/2012	17:22	PD007252.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	01/03/2012	17:36	PD007253.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	01/03/2012	17:49	PD007254.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	01/03/2012	18:03	PD007255.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	01/03/2012	18:16	PD007256.D	9.01	3.92
TOX 500	TOX	01/03/2012	18:43	PD007258.D	9.01	3.92
CHLOR 500	CHLOR 500	01/03/2012	18:57	PD007259.D	9.01	3.92
PEM02	PEM02	01/04/2012	10:39	PD007295.D	9.01	3.92
PIBLK02	I.BLK02	01/04/2012	13:50	PD007306.D	9.05	3.93
CCAL01	STD 25	01/04/2012	14:04	PD007307.D	9.01	3.92
12TP17-000.5-01	C5065-02	01/04/2012	15:14	PD007312.D	9.01	3.92
12TP17-000.5-01MS	C5065-03MS	01/04/2012	15:27	PD007313.D	9.01	3.92
12TP17-000.5-01MSD	C5065-04MSD	01/04/2012	15:41	PD007314.D	9.01	3.92
12TP17-0.5-02-02	C5065-05	01/04/2012	15:54	PD007315.D	9.01	3.92
12TP18-0506-01	C5065-06	01/04/2012	16:08	PD007316.D	9.01	3.92
12TP18-0607-02	C5065-07	01/04/2012	16:21	PD007317.D	9.01	3.92
PIBLK03	I.BLK03	01/04/2012	16:35	PD007318.D	9.01	3.92
CCAL02	STD 25	01/04/2012	17:10	PD007319.D	9.05	3.92

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_D

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 01/03/2012 01/03/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	01/03/2012	16:42	PD007249.D	8.06	3.33
PEM01	PEM01	01/03/2012	16:55	PD007250.D	8.06	3.33
RESC01	RESCHK	01/03/2012	17:09	PD007251.D	8.06	3.33
100 PPB PEST STD	100 PPB PEST STD	01/03/2012	17:22	PD007252.D	8.06	3.33
75 PPB PEST STD	75 PPB PEST STD	01/03/2012	17:36	PD007253.D	8.06	3.33
50 PPB PEST STD	50 PPB PEST STD	01/03/2012	17:49	PD007254.D	8.06	3.33
25 PPB PEST STD	25 PPB PEST STD	01/03/2012	18:03	PD007255.D	8.06	3.33
5 PPB PEST STD	5 PPB PEST STD	01/03/2012	18:16	PD007256.D	8.06	3.33
TOX 500	TOX	01/03/2012	18:43	PD007258.D	8.06	3.33
CHLOR 500	CHLOR 500	01/03/2012	18:57	PD007259.D	8.06	3.33
PEM02	PEM02	01/04/2012	10:39	PD007295.D	8.06	3.33
PIBLK02	I.BLK02	01/04/2012	13:50	PD007306.D	8.07	3.34
CCAL01	STD 25	01/04/2012	14:04	PD007307.D	8.06	3.33
12TP17-000.5-01	C5065-02	01/04/2012	15:14	PD007312.D	8.06	3.33
12TP17-000.5-01MS	C5065-03MS	01/04/2012	15:27	PD007313.D	8.06	3.33
12TP17-000.5-01MSD	C5065-04MSD	01/04/2012	15:41	PD007314.D	8.06	3.33
12TP17-0.5-02-02	C5065-05	01/04/2012	15:54	PD007315.D	8.06	3.33
12TP18-0506-01	C5065-06	01/04/2012	16:08	PD007316.D	8.06	3.33
12TP18-0607-02	C5065-07	01/04/2012	16:21	PD007317.D	8.06	3.33
PIBLK03	I.BLK03	01/04/2012	16:35	PD007318.D	8.06	3.33
CCAL02	STD 25	01/04/2012	17:10	PD007319.D	8.07	3.34

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_D **Calibration Date(s):** 01/03/2012 01/03/2012

Calibration Times: 17:22 18:16

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007256.D CF 025 = PD007255.D

CF 050 = PD007254.D CF 075 = PD007253.D CF 100 = PD007252.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	17811137920	13464865064	12768631526	12239030283	12446727685	13746078496	17
Tetrachloro-m-xylene	16231553020	13498771756	13014837328	12452338709	12948990305	13629298224	11
alpha-BHC	260746457600	226510124360	233867546060	233986650987	236300413230	238282238447	5
beta-BHC	113263931600	93817302880	89685852400	86455814560	89344073030	94513394894	11
delta-BHC	263459364800	228979372840	228543264760	225136364240	237316901290	236687053586	7
gamma-BHC (Lindane)	241281787800	215429223440	159343716500	174990064240	196920517670	197593061930	16
Heptachlor	230180097800	186724587200	191017474240	179440668160	182843626590	194041290798	11
Aldrin	248112250000	206804463520	197755832140	185494248613	188448262770	205323011409	12
Heptachlor epoxide	234192478200	194750169840	179074304600	171678489853	175784354980	191095959495	13
Endosulfan I	236171175200	191140048320	177533598060	167607250293	167940811990	188078576773	15
Dieldrin	257008066000	210828453240	201937599880	194452112747	198680798230	212581406019	12
4,4-DDE	247894641400	204255515800	193119377920	185136684827	193426913000	204766626589	12
Endrin	215964165000	180096778120	167675007960	160349173920	159712921040	176759609208	13
Endosulfan II	234429643200	189290621120	173801358480	166385709813	164933226480	185768111819	16
4,4-DDD	210861886600	175332149200	162676254020	155876693760	155045609360	171958518588	14
Endosulfan sulfate	228866599000	191534540080	177138158080	167704035587	168162806690	186681227887	14
4,4-DDT	215994095000	180121707840	170186083880	163361663320	163864993240	178705708656	12
Methoxychlor	95042066800	87180758680	79570369200	73014026307	70830556600	81127555517	12
Endrin ketone	227762641800	192051446600	179486607400	168435942213	165612481640	186669823931	14
Endrin aldehyde	192744946000	159182143040	145823042180	139043878800	136235138800	154605829764	15
alpha-Chlordane	248734489200	204580110960	195206436160	187489826307	194261837510	206054540027	12
gamma-Chlordane	257804429800	212017929040	206681549840	200110901320	207618319740	216846625948	11

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_D **Calibration Date(s):** 01/03/2012 01/03/2012

Calibration Times: 17:22 18:16

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007256.D CF 025 = PD007255.D

CF 050 = PD007254.D CF 075 = PD007253.D CF 100 = PD007252.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3324871020	2631425872	2443814712	2375269548	2399137977	2634903826	15
Tetrachloro-m-xylene	4525133240	4012818712	3967485682	3813336041	3938442405	4051443216	7
alpha-BHC	68383274600	63730900640	65149908960	63725295053	65860728360	65370021523	3
beta-BHC	27563573200	24815373840	24443288520	23525573440	24221947990	24913951398	6
delta-BHC	67572327800	61313883760	62069161320	60613217813	63075607520	62928839643	4
gamma-BHC (Lindane)	65152003400	59705931560	60843938960	59318054520	61818770860	61367739860	4
Heptachlor	59989569800	55049088160	54884505220	53077006413	54382486050	55476531129	5
Aldrin	56957819400	52278936080	52127744760	50418528480	51597172630	52676040270	5
Heptachlor epoxide	53020819800	48819379560	47041493020	45400805600	46252274040	48106954404	6
Endosulfan I	48922689400	44949734640	44579120000	43076718133	43847737570	45075199949	5
Dieldrin	51130649800	47720019040	47646335160	46480930560	47580940310	48111774974	4
4,4-DDE	53345878400	47800105680	47874724240	46718050827	47994586380	48746669105	5
Endrin	43708707000	38323945320	38753684920	37918191507	38608757640	39462657277	6
Endosulfan II	46359755400	39630090240	39125049780	38121029853	38792957130	40405776481	8
4,4-DDD	44689718600	38573769040	38038579300	36665600493	37629928300	39119519147	8
Endosulfan sulfate	39501549600	35136552600	34506640400	33411962680	34173776380	35346096332	7
4,4-DDT	41322873000	37761860920	38512155380	37237946413	38203045920	38607576327	4
Methoxychlor	18580710800	17772197240	17103383500	16829614387	17028569760	17462895137	4
Endrin ketone	43406307800	39259249120	38425291900	37528595307	38312397110	39386368247	6
Endrin aldehyde	37564331800	32563381840	32108581920	30849815187	31442178610	32905657871	8
alpha-Chlordane	52872427800	46925177320	46501468440	45075106613	46280554790	47530946993	6
gamma-Chlordane	53864918000	48312183120	47637887180	46398571773	47783902400	48799492495	6

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_D **Date(s) Analyzed:** 01/03/2012 01/03/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	4517423000
		2	5.83	5.78	5.88	5023698000
		3	6.42	6.37	6.47	8561700000
		4	6.89	6.84	6.94	6360910000
		5	7.20	7.15	7.25	6291397000

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Instrument ID: ECD_D Date(s) Analyzed: 01/03/2012 01/03/2012

GC Column: ZB-MR1 ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	555528900
		2	6.85	6.80	6.90	1430318000
		3	7.09	7.04	7.14	2539930000
		4	7.58	7.53	7.63	2573240000
		5	7.94	7.89	7.99	805062700

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD010312\
Data File : PD007251.D
Acq On : 03 Jan 2012 17:09
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD010312.M
Title : GC Extractables
Last Update : Wed Jan 04 04:14:55 2012
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.333	5.250	100.00%
5.250	5.361	99.72%
5.361	5.478	100.00%
5.478	5.604	100.00%
5.604	6.515	100.00%
6.515	6.784	100.00%
6.784	7.007	100.00%
7.007	8.059	100.00%

Signal #2

3.919	6.026	100.00%
6.026	6.147	100.00%
6.147	6.263	100.00%
6.263	6.405	100.00%
6.405	7.181	100.00%
7.181	7.526	100.00%
7.526	7.649	100.00%
7.649	9.009	100.00%

PD010312.M Wed Jan 04 04:47:35 2012 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM01 Date Analyzed: 01/03/2012

Lab Sample No.(PEM): PEM Time Analyzed: 16:55

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.060	7.960	8.160	0.022	0.020	10.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.769	3.720	3.820	0.011	0.010	10.0
beta-BHC	4.296	4.250	4.350	0.012	0.010	20.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.013	0.010	30.0
Endrin	5.861	5.790	5.930	0.051	0.050	2.0
4,4-DDT	6.231	6.160	6.300	0.078	0.100	22.0
Methoxychlor	6.784	6.710	6.850	0.186	0.250	25.6

Client Sample No. (PEM): PEM01 Date Analyzed: 01/03/2012

Lab Sample No.(PEM): PEM Time Analyzed: 16:55

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.302	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.751	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.010	0.010	0.0
Endrin	6.622	6.550	6.690	0.049	0.050	2.0
4,4-DDT	7.058	6.990	7.130	0.101	0.100	1.0
Methoxychlor	7.526	7.460	7.600	0.233	0.250	6.8

Sample: PEM
Data File: PD007250.D **Date Acquired** 1/3/2012 16:55
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	5.86	9003435201	9703749606	700314406	**7.22**
Endrin aldehyde	6.30	118804893.5			
Endrin ketone	7.00	581509512.1			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	1935487668	2049638591	114150923	**5.57**
Endrin aldehyde #2	6.95	18942090.83			
Endrin ketone #2	7.65	95208831.98			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.397168E+010	1.41991608E+010	227484664	**1.60**
4,4'-DDE	5.48	120773650.8			
4,4'-DDD	5.99	106711013.1			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	3909910366	3939161531	29251164.9	**0.74**
4,4'-DDE #2	6.26	15085365.53			
4,4'-DDD #2	6.75	14165799.4			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM02 Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:39

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.059	7.960	8.160	0.024	0.020	20.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.025	0.020	25.0
alpha-BHC	3.768	3.720	3.820	0.013	0.010	30.0
beta-BHC	4.296	4.250	4.350	0.014	0.010	40.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.016	0.010	60.0
Endrin	5.859	5.790	5.930	0.056	0.050	12.0
4,4-DDT	6.230	6.160	6.300	0.087	0.100	13.0
Methoxychlor	6.779	6.710	6.850	0.152	0.250	39.2

Client Sample No. (PEM): PEM02 Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:39

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.918	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.301	4.250	4.350	0.010	0.010	0.0
beta-BHC	4.750	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.583	4.530	4.630	0.010	0.010	0.0
Endrin	6.620	6.550	6.690	0.048	0.050	4.0
4,4-DDT	7.057	6.990	7.130	0.098	0.100	2.0
Methoxychlor	7.526	7.460	7.600	0.225	0.250	10.0

Sample: PEM
Data File: PD007295.D **Date Acquired** 1/4/2012 10:39
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	9858609728	1.08477473E+010	989137610	**9.12**
Endrin aldehyde	6.30	241938203.1			
Endrin ketone	7.00	747199406.8			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	1907824140	2066071382	158247241	**7.66**
Endrin aldehyde #2	6.95	40624204.4			
Endrin ketone #2	7.65	117623036.9			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.554038E+010	1.58927234E+010	352340139	**2.22**
4,4'-DDE	5.48	180236943.8			
4,4'-DDD	5.99	172103195			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	3774150641	3804018294	29867652.8	**0.79**
4,4'-DDE #2	6.26	13515132.47			
4,4'-DDD #2	6.75	16352520.34			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL01 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007307.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.769	3.720	3.820	0.027	0.025	8.0
beta-BHC	4.297	4.250	4.350	0.028	0.025	12.0
delta-BHC	4.498	4.450	4.550	0.027	0.025	8.0
gamma-BHC (Lindane)	4.048	4.000	4.100	0.031	0.025	24.0
Heptachlor	4.340	4.290	4.390	0.029	0.025	16.0
Aldrin	4.583	4.530	4.630	0.028	0.025	12.0
Heptachlor epoxide	5.026	4.960	5.100	0.029	0.025	16.0
Endosulfan I	5.361	5.290	5.430	0.027	0.025	8.0
Dieldrin	5.604	5.530	5.670	0.027	0.025	8.0
4,4-DDE	5.478	5.410	5.550	0.026	0.025	4.0
Endrin	5.862	5.790	5.930	0.026	0.025	4.0
Endosulfan II	6.135	6.060	6.200	0.026	0.025	4.0
4,4-DDD	5.993	5.920	6.060	0.026	0.025	4.0
Endosulfan sulfate	6.516	6.440	6.580	0.026	0.025	4.0
4,4-DDT	6.231	6.160	6.300	0.025	0.025	0.0
Methoxychlor	6.785	6.710	6.850	0.026	0.025	4.0
Endrin ketone	7.007	6.940	7.080	0.026	0.025	4.0
Endrin aldehyde	6.304	6.230	6.370	0.026	0.025	4.0
alpha-Chlordane	5.309	5.240	5.380	0.027	0.025	8.0
gamma-Chlordane	5.250	5.180	5.320	0.027	0.025	8.0
Decachlorobiphenyl	8.061	7.960	8.160	0.021	0.025	16.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL01 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007307.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.302	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.751	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.966	4.920	5.020	0.025	0.025	0.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.025	0.025	0.0
Heptachlor	5.099	5.050	5.150	0.025	0.025	0.0
Aldrin	5.404	5.350	5.450	0.025	0.025	0.0
Heptachlor epoxide	5.790	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.147	6.080	6.220	0.025	0.025	0.0
Dieldrin	6.406	6.330	6.470	0.025	0.025	0.0
4,4-DDE	6.265	6.190	6.330	0.024	0.025	4.0
Endrin	6.623	6.550	6.690	0.024	0.025	4.0
Endosulfan II	6.831	6.760	6.900	0.023	0.025	8.0
4,4-DDD	6.757	6.680	6.820	0.024	0.025	4.0
Endosulfan sulfate	7.183	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.060	6.990	7.130	0.023	0.025	8.0
Methoxychlor	7.529	7.460	7.600	0.024	0.025	4.0
Endrin ketone	7.653	7.580	7.720	0.025	0.025	0.0
Endrin aldehyde	6.957	6.880	7.020	0.023	0.025	8.0
alpha-Chlordane	6.101	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.027	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.014	8.910	9.110	0.024	0.025	4.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL02 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007319.D **Time Analyzed:** 17:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.777	3.720	3.820	0.028	0.025	12.0
beta-BHC	4.306	4.250	4.350	0.027	0.025	8.0
delta-BHC	4.507	4.450	4.550	0.027	0.025	8.0
gamma-BHC (Lindane)	4.057	4.000	4.100	0.031	0.025	24.0
Heptachlor	4.349	4.290	4.390	0.029	0.025	16.0
Aldrin	4.592	4.530	4.630	0.028	0.025	12.0
Heptachlor epoxide	5.036	4.960	5.100	0.028	0.025	12.0
Endosulfan I	5.371	5.290	5.430	0.026	0.025	4.0
Dieldrin	5.613	5.530	5.670	0.025	0.025	0.0
4,4-DDE	5.487	5.410	5.550	0.025	0.025	0.0
Endrin	5.870	5.790	5.930	0.024	0.025	4.0
Endosulfan II	6.143	6.060	6.200	0.024	0.025	4.0
4,4-DDD	6.002	5.920	6.060	0.025	0.025	0.0
Endosulfan sulfate	6.525	6.440	6.580	0.023	0.025	8.0
4,4-DDT	6.240	6.160	6.300	0.023	0.025	8.0
Methoxychlor	6.792	6.710	6.850	0.022	0.025	12.0
Endrin ketone	7.016	6.940	7.080	0.022	0.025	12.0
Endrin aldehyde	6.314	6.230	6.370	0.024	0.025	4.0
alpha-Chlordane	5.318	5.240	5.380	0.026	0.025	4.0
gamma-Chlordane	5.259	5.180	5.320	0.026	0.025	4.0
Decachlorobiphenyl	8.068	7.960	8.160	0.016	0.025	36.0
Tetrachloro-m-xylene	3.341	3.230	3.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL02 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PD007319.D **Time Analyzed:** 17:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.310	4.250	4.350	0.027	0.025	8.0
beta-BHC	4.765	4.700	4.800	0.027	0.025	8.0
delta-BHC	4.981	4.920	5.020	0.026	0.025	4.0
gamma-BHC (Lindane)	4.595	4.530	4.630	0.027	0.025	8.0
Heptachlor	5.114	5.050	5.150	0.027	0.025	8.0
Aldrin	5.420	5.350	5.450	0.026	0.025	4.0
Heptachlor epoxide	5.810	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.123	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.429	6.330	6.470	0.026	0.025	4.0
4,4-DDE	6.290	6.190	6.330	0.025	0.025	0.0
Endrin	6.646	6.550	6.690	0.022	0.025	12.0
Endosulfan II	6.858	6.760	6.900	0.022	0.025	12.0
4,4-DDD	6.785	6.680	6.820	0.024	0.025	4.0
Endosulfan sulfate	7.210	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.088	6.990	7.130	0.023	0.025	8.0
Methoxychlor	7.560	7.460	7.600	0.023	0.025	8.0
Endrin ketone	7.680	7.580	7.720	0.025	0.025	0.0
Endrin aldehyde	6.983	6.880	7.020	0.025	0.025	0.0
alpha-Chlordane	6.123	6.030	6.170	0.025	0.025	0.0
gamma-Chlordane	6.049	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.046	8.910	9.110	0.023	0.025	8.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.027	0.025	8.0

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: PCB

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12TP17-000.5-01 [Decachlorobiphenyl(2) - 56%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PC006271.D met the requirements except for Decachlorobiphenyl is failing in 2nd column but passing in 1st column.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.18 08:32:24 -05'00'

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60128**

Analytical Method: 8082 **Extraction Date:** 12/22/2011-14:06 **Concentration Date:** 12/23/11

Lab Sample ID	Client Sample ID	Test	g/Y mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60128BL	PB60128BL	PCB	30.01	NA	RL	BF	10	
PB60128BS	PB60128BS	PCB	30.03					
C5056-01	12TP16-000.5-01	PCB	30.05					YELLOW 2x
C5056-02	12TP16-0.0502-02	PCB	30.06					
C5056-03	12TP16-0608-03	PCB	10.04					SAMPLE NEAR DARK BROWN 2x
C5056-04	12TP16-0910-04	PCB	30.05					YELLOW 2x
C5056-05	12TP-DUP-01	PCB	10.06					DARK BROWN EXT
C5062-06	SB-11(7.5-8.0)	PCB	30.11					YELLOW 2x
C5062-07	SB-12(1-1.5)	PCB	30.06					
C5062-08	SB-14(2.5-3.0)	PCB	30.04					
C5062-09	SB-15(3.0-3.5)	PCB	30.02					
C5065-02	12TP17-000.5-01	PCB	30.06					
C5065-03	C5065-02MS	PCB	30.04					
C5065-04	C5065-02MSD	PCB	30.02					
C5065-05	12TP17-0.5-02-02	PCB	30.07					
C5065-06	12TP18-0506-01	PCB	30.08					
C5065-07	12TP18-0607-02	PCB	30.11					
C5084-01	WC-1	PCB	30.04					
C5087-01	SAMPLE86-5	PCB	10.06					SAMPLE NEAR DARK BROWN 2x
C5087-02	SAMPLE86-6	PCB	10.03					
C5087-03	SAMPLE86-7	PCB	10.05					
~~C5065 PCB~~	↓	↓	10.02	↓		↓		470

* Extracts relinquished on the same date as received.

12/23/11 12/22/11

CHEMTECH

Surrogate Summary

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006006.D	PIBLK-PC006006.D	Tetrachloro-m-xylene	1	20	24.47	122		35	137
		Decachlorobiphenyl	1	20	23.61	118		40	135
		Tetrachloro-m-xylene	2	20	25.07	125		35	137
		Decachlorobiphenyl	2	20	24.18	121		40	135
I.BLK-PC006259.D	PIBLK-PC006259.D	Tetrachloro-m-xylene	1	20	19.21	96		35	137
		Decachlorobiphenyl	1	20	21.8	109		40	135
		Tetrachloro-m-xylene	2	20	21	105		35	137
		Decachlorobiphenyl	2	20	21.5	108		40	135
PB60128BL	PB60128BL	Tetrachloro-m-xylene	1	20	18.26	91		10	166
		Decachlorobiphenyl	1	20	21.03	105		60	125
		Tetrachloro-m-xylene	2	20	19.49	97		10	166
		Decachlorobiphenyl	2	20	20.58	103		60	125
PB60128BS	PB60128BS	Tetrachloro-m-xylene	1	20	19.09	95		10	166
		Decachlorobiphenyl	1	20	19.95	100		60	125
		Tetrachloro-m-xylene	2	20	18.16	91		10	166
		Decachlorobiphenyl	2	20	20	100		60	125
I.BLK-PC006270.D	PIBLK-PC006270.D	Tetrachloro-m-xylene	1	20	19.44	97		35	137
		Decachlorobiphenyl	1	20	17.48	87		40	135
		Tetrachloro-m-xylene	2	20	20.78	104		35	137
		Decachlorobiphenyl	2	20	14.46	72		40	135
C5065-02	12TP17-000.5-01	Tetrachloro-m-xylene	1	20	11.87	59		10	166
		Decachlorobiphenyl	1	20	16.95	85		60	125
		Tetrachloro-m-xylene	2	20	14.02	70		10	166
		Decachlorobiphenyl	2	20	11.11	56	*	60	125
C5065-05	12TP17-0.5-02-02	Tetrachloro-m-xylene	1	20	17.07	85		10	166
		Decachlorobiphenyl	1	20	16.35	82		60	125
		Tetrachloro-m-xylene	2	20	18.41	92		10	166
		Decachlorobiphenyl	2	20	14.4	72		60	125
C5065-04MSD	12TP17-000.5-01MSD	Tetrachloro-m-xylene	1	20	16.83	84		10	166
		Decachlorobiphenyl	1	20	15.42	77		60	125
		Tetrachloro-m-xylene	2	20	17.26	86		10	166
		Decachlorobiphenyl	2	20	14.33	72		60	125
C5065-03MS	12TP17-000.5-01MS	Tetrachloro-m-xylene	1	20	18.71	94		10	166
		Decachlorobiphenyl	1	20	15.28	76		60	125
		Tetrachloro-m-xylene	2	20	17.62	88		10	166
		Decachlorobiphenyl	2	20	14.36	72		60	125
C5065-06	12TP18-0506-01	Tetrachloro-m-xylene	1	20	19.71	99		10	166
		Decachlorobiphenyl	1	20	17.88	89		60	125
		Tetrachloro-m-xylene	2	20	19.01	95		10	166
		Decachlorobiphenyl	2	20	16.77	84		60	125
C5065-07	12TP18-0607-02	Tetrachloro-m-xylene	1	20	14.71	74		10	166
		Decachlorobiphenyl	1	20	16.07	80		60	125
		Tetrachloro-m-xylene	2	20	15.83	79		10	166
		Decachlorobiphenyl	2	20	14.58	73		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006282.D	PIBLK-PC006282.D	Tetrachloro-m-xylene	1	20	21.95	110		35	137
		Decachlorobiphenyl	1	20	20.7	104		40	135
		Tetrachloro-m-xylene	2	20	21.06	105		35	137
		Decachlorobiphenyl	2	20	19.52	98		40	135

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60128BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Lab Sample ID: PB60128BL Lab File ID: PC006261.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/22/2011

Date Analyzed (1): 12/23/2011 Date Analyzed (2): 12/23/2011

Time Analyzed (1): 19:13 Time Analyzed (2): 19:13

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60128BS	PB60128BS	PC006262.D	12/23/2011	12/23/2011
12TP17-000.5-01	C5065-02	PC006274.D	12/23/2011	12/23/2011
12TP17-0.5-02-02	C5065-05	PC006275.D	12/23/2011	12/23/2011
12TP17-000.5-01MSD	C5065-04MSD	PC006276.D	12/23/2011	12/23/2011
12TP17-000.5-01MS	C5065-03MS	PC006277.D	12/23/2011	12/23/2011
12TP18-0506-01	C5065-06	PC006278.D	12/23/2011	12/23/2011
12TP18-0607-02	C5065-07	PC006279.D	12/24/2011	12/24/2011

COMMENTS:

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12TP17-000.5-01MS**										
C5065-03MS	AR1016	90.0	0	110	122				40	140	
	AR1260	90.0	0	92	102				60	130	
Client Sample ID:	**12TP17-000.5-01MSD**										
C5065-04MSD	AR1016	90.0	0	99	110		10		40	140	20
	AR1260	90.0	0	97	108		6		60	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5065

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60128BS	AR1016	66.6	75	113				53	140	
	AR1260	66.6	67	108				65	130	

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60128BL	SDG No.:	C5065
Lab Sample ID:	PB60128BL	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.01 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006261.D	1	12/22/11	12/23/11	PB60128

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.3		10 - 166	91%	SPK: 20
2051-24-3	Decachlorobiphenyl	21		60 - 125	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_C

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.58	8.43
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.58	8.42
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.57	8.42
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.58	8.42
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.58	8.42
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.58	8.43
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.58	8.42
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.58	8.42
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.58	8.42
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.58	8.43
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.58	8.42
PIBLK02	I.BLK02	12/23/2011	18:29	PC006259.D	1.59	8.42
CCAL01	1660 250	12/23/2011	18:45	PC006260.D	1.59	8.42
PB60128BL	PB60128BL	12/23/2011	19:13	PC006261.D	1.59	8.43
PB60128BS	PB60128BS	12/23/2011	19:30	PC006262.D	1.59	8.42
PIBLK03	I.BLK03	12/23/2011	21:40	PC006270.D	1.59	8.42
CCAL02	1660 250	12/23/2011	21:56	PC006271.D	1.59	8.42
12TP17-000.5-01	C5065-02	12/23/2011	22:44	PC006274.D	1.58	8.42
12TP17-0.5-02-02	C5065-05	12/23/2011	23:01	PC006275.D	1.59	8.42
12TP17-000.5-01MSD	C5065-04MSD	12/23/2011	23:17	PC006276.D	1.59	8.42
12TP17-000.5-01MS	C5065-03MS	12/23/2011	23:33	PC006277.D	1.59	8.42
12TP18-0506-01	C5065-06	12/23/2011	23:49	PC006278.D	1.59	8.42
12TP18-0607-02	C5065-07	12/24/2011	00:05	PC006279.D	1.59	8.42
PIBLK04	I.BLK04	12/24/2011	00:54	PC006282.D	1.59	8.42
CCAL03	1660 250	12/24/2011	01:10	PC006283.D	1.59	8.42

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_C
GC Column:	RTX-CLPest II ID: 0.32 (mm)	**Inst. Calib. Date(s):**	12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.97	9.88
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.97	9.88
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.96	9.88
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.97	9.88
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.97	9.88
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.97	9.88
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.97	9.88
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.97	9.88
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.97	9.88
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.98	9.89
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.97	9.88
PIBLK02	I.BLK02	12/23/2011	18:29	PC006259.D	1.98	9.88
CCAL01	1660 250	12/23/2011	18:45	PC006260.D	1.98	9.88
PB60128BL	PB60128BL	12/23/2011	19:13	PC006261.D	1.99	9.88
PB60128BS	PB60128BS	12/23/2011	19:30	PC006262.D	1.98	9.88
PIBLK03	I.BLK03	12/23/2011	21:40	PC006270.D	1.99	9.88
CCAL02	1660 250	12/23/2011	21:56	PC006271.D	1.99	9.88
12TP17-000.5-01	C5065-02	12/23/2011	22:44	PC006274.D	1.98	9.88
12TP17-0.5-02-02	C5065-05	12/23/2011	23:01	PC006275.D	1.99	9.88
12TP17-000.5-01MSD	C5065-04MSD	12/23/2011	23:17	PC006276.D	1.99	9.88
12TP17-000.5-01MS	C5065-03MS	12/23/2011	23:33	PC006277.D	1.99	9.88
12TP18-0506-01	C5065-06	12/23/2011	23:49	PC006278.D	1.99	9.88
12TP18-0607-02	C5065-07	12/24/2011	00:05	PC006279.D	1.98	9.88
PIBLK04	I.BLK04	12/24/2011	00:54	PC006282.D	1.98	9.88
CCAL03	1660 250	12/24/2011	01:10	PC006283.D	1.99	9.88

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1539340	1583428	1652292	1516859	1525454	1563475	4
Decachlorobiphenyl	2753860	2322628	2228812	1984339	1934411	2244810	15
AR1016 (1)	81972	69605	66677	59385	58354	67199	14
AR1016 (2)	119474	139033	138562	120044	124271	128277	8
AR1016 (3)	45572	50213	49382	43690	43986	46569	7
AR1016 (4)	95814	81476	78901	71383	69652	79445	13
AR1016 (5)	63008	59206	58785	53206	52860	57413	8
AR1260 (1)	101772	94032	93196	83493	82614	91021	9
AR1260 (2)	209384	177891	177586	158917	156997	176155	12
AR1260 (3)	161338	151174	155707	141296	141029	150109	6
AR1260 (4)	233482	216564	219776	189635	189204	209732	9
AR1260 (5)	99230	95811	98680	92081	91537	95468	4

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4286580	3835452	3775146	3400877	3401207	3739852	10
Decachlorobiphenyl	6971140	5675536	5299222	4567911	4287308	5360223	20
AR1016 (1)	170044	148835	143778	126098	124730	142697	13
AR1016 (2)	410106	328973	318375	281943	276128	323105	17
AR1016 (3)	180598	137123	144625	129749	128291	144077	15
AR1016 (4)	133338	109270	115039	104717	105265	113526	10
AR1016 (5)	175524	131268	128639	115200	114714	133069	19
AR1260 (1)	280148	237834	225971	198178	193735	227173	15
AR1260 (2)	334588	285589	273392	234251	234942	272552	15
AR1260 (3)	492282	361751	366763	345958	338776	381106	17
AR1260 (4)	616564	523832	498470	440964	429018	501769	15
AR1260 (5)	474756	365290	400652	358039	342462	388240	14

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

Instrument ID: ECD_C Date(s) Analyzed: 12/13/2011 12/13/2011

GC Column: RTX-CLPest ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.20	1.15	1.25	10802
		2	1.74	1.69	1.79	17204
		3	1.90	1.85	1.95	53471
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.90	1.85	1.95	42188
		2	2.25	2.20	2.30	31833
		3	2.74	2.69	2.79	61113
		4	2.89	2.84	2.94	21823
		5	3.90	3.85	3.95	39339
AR1242	0.5000	1	2.25	2.20	2.30	56293
		2	2.74	2.69	2.79	114860
		3	3.13	3.08	3.18	65688
		4	3.37	3.32	3.42	49772
		5	3.90	3.85	3.95	83942
AR1248	0.5000	1	2.74	2.69	2.79	73698
		2	3.13	3.08	3.18	106133
		3	3.37	3.32	3.42	73441
		4	3.90	3.85	3.95	138267
		5	4.66	4.61	4.71	38608
AR1254	0.5000	1	3.11	3.06	3.16	65083
		2	4.65	4.60	4.70	165431
		3	5.02	4.97	5.07	134662
		4	5.26	5.21	5.31	122909
		5	5.63	5.58	5.68	193414

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.30	2.25	2.35	40341
		2	2.45	2.40	2.50	25307
		3	2.52	2.47	2.57	102884
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.52	2.47	2.57	95734
		2	3.01	2.96	3.06	78811
		3	3.57	3.52	3.62	159496
		4	3.74	3.69	3.79	72117
		5	4.52	4.47	4.57	59201
AR1242	0.5000	1	3.01	2.96	3.06	144390
		2	3.57	3.52	3.62	284971
		3	3.74	3.69	3.79	130662
		4	4.88	4.83	4.93	99797
		5	4.93	4.88	4.98	133151
AR1248	0.5000	1	3.57	3.52	3.62	189426
		2	4.36	4.31	4.41	227718
		3	4.52	4.47	4.57	179891
		4	4.88	4.83	4.93	165968
		5	4.93	4.88	4.98	218113
AR1254	0.5000	1	5.20	5.15	5.25	277781
		2	5.81	5.76	5.86	403951
		3	6.39	6.34	6.44	181582
		4	6.60	6.55	6.65	366397
		5	6.86	6.81	6.91	453032

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006260.D **Time Analyzed:** 18:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.262	0.250	4.8
AR1016 (2)	2.743	2.680	2.780	0.278	0.250	11.2
AR1016 (3)	2.898	2.840	2.940	0.277	0.250	10.8
AR1016 (4)	3.133	3.070	3.170	0.238	0.250	4.8
AR1016 (5)	3.373	3.320	3.420	0.228	0.250	8.8
AR1260 (1)	4.900	4.840	4.940	0.230	0.250	8.0
AR1260 (2)	5.271	5.220	5.320	0.239	0.250	4.4
AR1260 (3)	5.633	5.580	5.680	0.234	0.250	6.4
AR1260 (4)	6.541	6.490	6.590	0.246	0.250	1.6
AR1260 (5)	6.910	6.860	6.960	0.251	0.250	0.4
Tetrachloro-m-xylene	1.590	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.423	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5065 SAS No.: C5065 SDG NO.: C5065

GC Column: RTX-CLPest II ID: 0.32 (mm) Initi. Calib. Date(s): 12/13/2011 12/13/2011

Client Sample No.: CCAL01 Date Analyzed: 12/23/2011

Lab Sample No.: 1660 250 Data File : PC006260.D Time Analyzed: 18:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.011	2.950	3.050	0.285	0.250	14.0
AR1016 (2)	3.575	3.520	3.620	0.252	0.250	0.8
AR1016 (3)	3.747	3.690	3.790	0.274	0.250	9.6
AR1016 (4)	3.878	3.820	3.920	0.256	0.250	2.4
AR1016 (5)	4.522	4.470	4.570	0.242	0.250	3.2
AR1260 (1)	6.081	6.030	6.130	0.259	0.250	3.6
AR1260 (2)	6.387	6.330	6.430	0.260	0.250	4.0
AR1260 (3)	6.861	6.810	6.910	0.258	0.250	3.2
AR1260 (4)	7.765	7.710	7.810	0.253	0.250	1.2
AR1260 (5)	8.259	8.210	8.310	0.264	0.250	5.6
Tetrachloro-m-xylene	1.984	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006271.D **Time Analyzed:** 21:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.237	0.250	5.2
AR1016 (2)	2.744	2.680	2.780	0.250	0.250	0.0
AR1016 (3)	2.896	2.840	2.940	0.269	0.250	7.6
AR1016 (4)	3.135	3.070	3.170	0.249	0.250	0.4
AR1016 (5)	3.373	3.320	3.420	0.240	0.250	4.0
AR1260 (1)	4.900	4.840	4.940	0.224	0.250	10.4
AR1260 (2)	5.270	5.220	5.320	0.236	0.250	5.6
AR1260 (3)	5.632	5.580	5.680	0.224	0.250	10.4
AR1260 (4)	6.541	6.490	6.590	0.229	0.250	8.4
AR1260 (5)	6.910	6.860	6.960	0.208	0.250	16.8
Tetrachloro-m-xylene	1.591	1.530	1.630	0.023	0.025	8.0
Decachlorobiphenyl	8.423	8.320	8.520	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/23/2011

Lab Sample No.: 1660 250 **Data File :** PC006271.D **Time Analyzed:** 21:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.287	0.250	14.8
AR1016 (2)	3.576	3.520	3.620	0.254	0.250	1.6
AR1016 (3)	3.748	3.690	3.790	0.266	0.250	6.4
AR1016 (4)	3.878	3.820	3.920	0.255	0.250	2.0
AR1016 (5)	4.522	4.470	4.570	0.242	0.250	3.2
AR1260 (1)	6.081	6.030	6.130	0.250	0.250	0.0
AR1260 (2)	6.387	6.330	6.430	0.253	0.250	1.2
AR1260 (3)	6.861	6.810	6.910	0.244	0.250	2.4
AR1260 (4)	7.764	7.710	7.810	0.227	0.250	9.2
AR1260 (5)	8.258	8.210	8.310	0.230	0.250	8.0
Tetrachloro-m-xylene	1.986	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.880	9.780	9.980	0.019	0.025	24.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/24/2011

Lab Sample No.: 1660 250 **Data File :** PC006283.D **Time Analyzed:** 01:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.260	2.200	2.300	0.266	0.250	6.4
AR1016 (2)	2.743	2.680	2.780	0.283	0.250	13.2
AR1016 (3)	2.897	2.840	2.940	0.279	0.250	11.6
AR1016 (4)	3.132	3.070	3.170	0.255	0.250	2.0
AR1016 (5)	3.372	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.898	4.840	4.940	0.231	0.250	7.6
AR1260 (2)	5.269	5.220	5.320	0.244	0.250	2.4
AR1260 (3)	5.631	5.580	5.680	0.235	0.250	6.0
AR1260 (4)	6.540	6.490	6.590	0.243	0.250	2.8
AR1260 (5)	6.910	6.860	6.960	0.242	0.250	3.2
Tetrachloro-m-xylene	1.590	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.422	8.320	8.520	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG NO.:** C5065

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/24/2011

Lab Sample No.: 1660 250 **Data File :** PC006283.D **Time Analyzed:** 01:10

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.012	2.950	3.050	0.288	0.250	15.2
AR1016 (2)	3.575	3.520	3.620	0.254	0.250	1.6
AR1016 (3)	3.747	3.690	3.790	0.267	0.250	6.8
AR1016 (4)	3.878	3.820	3.920	0.256	0.250	2.4
AR1016 (5)	4.522	4.470	4.570	0.244	0.250	2.4
AR1260 (1)	6.081	6.030	6.130	0.261	0.250	4.4
AR1260 (2)	6.386	6.330	6.430	0.265	0.250	6.0
AR1260 (3)	6.861	6.810	6.910	0.259	0.250	3.6
AR1260 (4)	7.764	7.710	7.810	0.249	0.250	0.4
AR1260 (5)	8.258	8.210	8.310	0.259	0.250	3.6
Tetrachloro-m-xylene	1.985	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.881	9.780	9.980	0.023	0.025	8.0

HOLDTIME

SDG C5065

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
HG	MG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
HG	MG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
HG	MG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
M	MG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0607-02	C5065-07DL	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0506-01	C5065-06DL	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP17-0.5-02-02	C5065-05DL	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
CN	MG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8
CN	MG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8
CN	MG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8
CN	MG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	12TP12-0203-CS	C5065-08	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP18-0607-02	C5065-07	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP18-0506-01	C5065-06	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
PH	S.U.	12TP18-0607-02	C5065-07	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP12-0203-CS	C5065-08	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP18-0506-01	C5065-06	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
OS	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	12/29/2011	2	7	9
OS	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/31/2011	2	9	11
OS	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/31/2011	2	9	11
OS	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	1/1/2012	2	10	12
OS	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	12/31/2011	2	9	11
OS	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	1/12/2012	2	21	23
OS	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/28/2011	2	6	8
OS	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/27/2011	2	5	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/27/2011	12/27/2011	7	0	7
OV	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/25/2011	12/25/2011	5	0	5
OV	UG/KG	12TP17-000.5-01	C5065-02RE	NM	12/20/2011	12/27/2011	12/27/2011	7	0	7
OV	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/25/2011	12/25/2011	5	0	5
OV	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/27/2011	12/27/2011	7	0	7
OV	UG/L	TB-01-122011	C5065-01	NM	12/20/2011	12/27/2011	12/27/2011	7	0	7
PCB	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
PCB	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
PCB	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
PCB	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	12/24/2011	2	2	4
PEST	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	1/4/2012	2	13	15
PEST	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	1/4/2012	2	13	15
PEST	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	1/4/2012	2	13	15
PEST	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	1/4/2012	2	13	15

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **March 8, 2012**

FROM: **MEGAN CARSON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5065

SAMPLES: 5/Soil/

12TP12-0203-CS	12TP17-0.5-02-02	12TP17-000.5-01
12TP18-0506-01	12TP18-0607-02	

Overview

The sample set for NASJRB Willow Grove, SDG C5065, consists of five (5) soil environmental samples. This SDG contained no field duplicate pairs.

All samples (except 12TP12-0203-CS) in the SDG were analyzed TAL metals, cyanide, oxygen reduction potential (ORP) and pH. Sample 12TP12-0203-CS was analyzed for oxygen reduction potential (ORP) and pH only. The samples were collected by Tetra Tech on December 20th, 2011 and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7471A. Cyanide analyses were conducted using method 9012B. pH analyses were conducted using standard method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The following contaminants were detected in preparation and calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Vanadium (1)	0.028 mg/kg	0.14 mg/kg
Aluminum (2)	14.97 ug/L	7.48 mg/kg
Antimony (2)	1.17 ug/L	0.58 mg/kg
Barium (2)	0.55 ug/L	0.27 mg/kg
Beryllium (2)	0.218 ug/L	0.11 mg/kg

Cadmium [2]	0.17 ug/L	0.085 mg/kg
Chromium [2]	0.19 ug/L	0.095 mg/kg
Cobalt [2]	0.12 ug/L	0.06 mg/kg
Copper [2]	0.25 ug/L	1.25 mg/kg
Iron [2]	15.9 ug/L	7.95 mg/kg
Lead [2]	0.22 ug/L	0.11 mg/kg
Magnesium [2]	6.55 ug/L	3.27 mg/kg
Manganese [2]	0.49 ug/L	0.24 mg/kg
Nickel [2]	0.18 ug/L	0.09 mg/kg
Potassium [2]	40.7 ug/L	20.35 mg/kg
Silver [2]	0.13 ug/L	0.065 mg/kg
Sodium [2]	69.6 ug/L	34.8 mg/kg
Zinc [2]	0.32 ug/L	0.16 mg/kg

[1] Maximum concentration found in a preparation blank affecting samples in batch PB60139.
[2] Maximum concentration found in a calibration blank affecting samples analyzed on 1/05/12.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. All samples in the SDG were affected. Positive results less than the blank action level were qualified "B" as a result of blank contamination.

- The CRDL standard analyzed on 1/04/12 had a percent recovery >110% for aluminum, antimony, manganese, nickel, and zinc and a percent recovery < 90% for selenium. All samples in the SDG were affected. The positive result for selenium was qualified as estimated (J) due to conflicting directional bias. Non-detected selenium results were qualified as biased low (UL). Antimony results were qualified for blank contamination or were > 2X LOQ. No other validation action was taken as sample results were > 2X LOQ.

- The matrix spike and matrix spike duplicate had a percent recovery < 80% for antimony. All samples were affected. The positive antimony result for sample 12TP18-0506-01 was qualified as biased low (L). All other results were qualified as a result of blank contamination.

- The serial dilution had a percent difference > 10% for aluminum, calcium, chromium, cobalt copper, iron, manganese, nickel, potassium, vanadium, and zinc. All samples were affected. Positive results were qualified as estimated (J).

- The following samples had percent recoveries <70% for internal standards:

Sample ID	Internal	Analytes affected
12TP17-000.5-01	Rhodium	V, Cr, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba
12TP17-0.5-02-02	Rhodium, Bismuth	V, Cr, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba, Tl, Pb
12TP18-0506-01	Rhodium	V, Cr, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba
12TP18-0607-02	Rhodium, Bismuth	V, Cr, Mn, Co, Ni, Cu, Zn, As, Se, Cd, Ag, Sb, Ba, Tl, Pb
12TP17-0.5-02-02DL	Scandium, Rhodium	Fe
12TP18-0506-01DL	Scandium, Rhodium	Ca, Fe, Mn
12TP18-0607-02DL	Scandium, Rhodium	Fe

Positive results were qualified as biased low (L) or estimated (J) due to conflicting directional bias. Non-detected results were qualified as biased low (UL).

- The interfering analyte aluminum was present in samples 12TP17-0.5-02-02, 12TP17-000.5-01, and 12TP18-0607-02 at concentrations comparable to the concentration of aluminum in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, cobalt, copper, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cadmium, copper, and thallium in the affected sample. The cadmium results for samples 12TP17-0.5-02-02 and 12TP18-0607-02 were qualified as estimated (J) due to conflicting directional bias. The copper result for 12TP18-0607-02 was qualified as estimated (J) due to conflicting directional bias. The thallium result for sample 12TP17-000.5-01 was qualified as biased high (K). The antimony results were qualified as a result of blank contamination.

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

Executive Summary

Laboratory Performance: Preparation and calibration blank contamination resulted in the qualification of sample results. CRDL standard non-compliances resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike/matrix spike duplicate non-compliances resulted in the qualification of sample results. Serial dilution non-compliances resulted in the qualification of sample results. Internal standard non-compliances resulted in the qualification of results for several samples.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson
Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-0.5-02-02DL			12TP17-000.5-01			12TP18-0506-01		
SDG: C5065	LAB_ID	C5065-05			C5065-05DL			C5065-02			C5065-06		
FRACTION: M	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.0			85.0			74.2			83.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		12200	J	I				15300	J	I	9490	J	I
ANTIMONY		0.26	B	A				0.44	B	A	5.8	L	DN
ARSENIC		2.3	L	N				5.2	L	N	16.8	J	N
BARIUM		106	L	N				67.7	L	N	113	L	N
BERYLLIUM		1.1						0.84			0.54		
CADMIUM		0.16	J	KN				0.44	L	N	1.4	L	N
CALCIUM		618	J	I				761	J	I			
CHROMIUM		22.2	J	IN				20.8	J	IN	31.3	J	IN
COBALT		7.7	J	IN				5.6	J	IN	7.9	J	IN
COPPER		19.9	J	IN				15.1	J	IN	144	J	IN
IRON					29600	J	IN	18900	J	I			
LEAD		9.9	L	N				21.8			379		
MAGNESIUM		1860						1710			3200		
MANGANESE		377	J	IN				219	J	IN			
MERCURY		0.007	J	P				0.049			0.027		
NICKEL		12.3	J	IN				10	J	IN	15.2	J	IN
POTASSIUM		900	J	I				638	J	I	652	J	I
SELENIUM		0.26	UL	CN				0.13	J	CNP	0.25	UL	CN
SILVER		0.028	B	A				0.043	B	A	0.35	L	N
SODIUM		69.7						48.6	J	P	146		
THALLIUM		0.67	L	N				0.19	K	K	0.3		
VANADIUM		27.9	J	IN				29.8	J	IN	18.7	J	IN
ZINC		24.9	J	IN				40.4	J	IN	390	J	IN

PROJ_NO: 02014	NSAMPLE	12TP18-0506-01DL			12TP18-0607-02			12TP18-0607-02DL		
SDG: C5065	LAB_ID	C5065-06DL			C5065-07			C5065-07DL		
FRACTION: M	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.7			81.4			81.4		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					16100	J	I			
ANTIMONY					0.24	B	A			
ARSENIC					6	L	N			
BARIUM					45.3	L	N			
BERYLLIUM					0.59					
CADMIUM					0.13	J	KN			
CALCIUM		34500	J	IN	613	J	I			
CHROMIUM					23.3	J	IN			
COBALT					7.3	J	IN			
COPPER					12.1	J	IKN			
IRON		53400	J	IN				33200	J	IN
LEAD					11.6	L	N			
MAGNESIUM					2380					
MANGANESE		671	J	IN	265	J	IN			
MERCURY					0.036					
NICKEL					11.7	J	IN			
POTASSIUM					828	J	I			
SELENIUM					0.275	UL	CN			
SILVER					0.026	B	A			
SODIUM					70.4					
THALLIUM					0.32	L	N			
VANADIUM					36.3	J	IN			
ZINC					31.3	J	IN			

PROJ_NO: 02014	NSAMPLE	12TP12-0203-CS						12TP17-0.5-02-02					
SDG: C5065	LAB_ID	C5065-08						C5065-05					
FRACTION: MISC	SAMP_DATE	12/20/2011						12/20/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	80.0			100.0			85.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.1465	U				
OXIDATION REDUCTION POTENTIAL		236									373.9		
PH					6.36								

PROJ_NO: 02014	NSAMPLE	12TP17-0.5-02-02			12TP17-000.5-01								
SDG: C5065	LAB_ID	C5065-05			C5065-02								
FRACTION: MISC	SAMP_DATE	12/20/2011			12/20/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	100.0			74.2			74.2			100.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.046	J	P						
OXIDATION REDUCTION POTENTIAL								338.4					
PH		4.52									4.62		

PROJ_NO: 02014	NSAMPLE	12TP18-0506-01									12TP18-0607-02		
SDG: C5065	LAB_ID	C5065-06									C5065-07		
FRACTION: MISC	SAMP_DATE	12/20/2011									12/20/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	83.7			83.7			100.0			81.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.149	U								0.1535	U	
OXIDATION REDUCTION POTENTIAL					188.5								
PH								6.47					

PROJ_NO: 02014	NSAMPLE	12TP18-0607-02					
SDG: C5065	LAB_ID	C5065-07					
FRACTION: MISC	SAMP_DATE	12/20/2011					
MEDIA: SOIL	QC_TYPE	NM					
	UNITS	MV			S.U.		
	PCT_SOLIDS	81.4			100.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE							
OXIDATION REDUCTION POTENTIAL		277.7					
PH					6.3		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	85

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	12200		1	0.7	2.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-36-0	Antimony	0.26	N	1	0.027	0.21	mg/Kg	12/22/11	01/05/12	SW6020
7440-38-2	Arsenic	2.3		1	0.023	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-39-3	Barium	106		1	0.008	1	mg/Kg	12/22/11	01/05/12	SW6020
7440-41-7	Beryllium	1.1		1	0.007	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-43-9	Cadmium	0.16	*	1	0.009	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-70-2	Calcium	618		1	0.66	51.6	mg/Kg	12/22/11	01/05/12	SW6020
7440-47-3	Chromium	22.2		1	0.011	0.21	mg/Kg	12/22/11	01/05/12	SW6020
7440-48-4	Cobalt	7.7		1	0.006	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-50-8	Copper	19.9		1	0.006	0.21	mg/Kg	12/22/11	01/05/12	SW6020
7439-89-6	Iron	21900	OR	1	0.96	20.6	mg/Kg	12/22/11	01/05/12	SW6020
7439-92-1	Lead	9.9		1	0.004	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7439-95-4	Magnesium	1860		1	0.72	51.6	mg/Kg	12/22/11	01/05/12	SW6020
7439-96-5	Manganese	377	*	1	0.006	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7439-97-6	Mercury	0.007	J	1	0.002	0.011	mg/Kg	12/22/11	12/23/11	SW7471A
7440-02-0	Nickel	12.3		1	0.009	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-09-7	Potassium	900		1	0.93	51.6	mg/Kg	12/22/11	01/05/12	SW6020
7782-49-2	Selenium	0.26	U	1	0.058	0.52	mg/Kg	12/22/11	01/05/12	SW6020
7440-22-4	Silver	0.028	J	1	0.007	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-23-5	Sodium	69.7		1	1.3	51.6	mg/Kg	12/22/11	01/05/12	SW6020
7440-28-0	Thallium	0.67		1	0.005	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-62-2	Vanadium	27.9	N	1	0.013	0.52	mg/Kg	12/22/11	01/05/12	SW6020
7440-66-6	Zinc	24.9		1	0.011	0.21	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02DL	SDG No.:	C5065
Lab Sample ID:	C5065-05DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	85

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	29600	D	25	23.9	516	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	74.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	15300		1	0.91	2.7	mg/Kg	12/22/11	01/05/12	SW6020
7440-36-0	Antimony	0.44	N	1	0.035	0.27	mg/Kg	12/22/11	01/05/12	SW6020
7440-38-2	Arsenic	5.2		1	0.03	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-39-3	Barium	67.7		1	0.011	1.3	mg/Kg	12/22/11	01/05/12	SW6020
7440-41-7	Beryllium	0.84		1	0.009	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-43-9	Cadmium	0.44	*	1	0.012	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-70-2	Calcium	761		1	0.86	67.4	mg/Kg	12/22/11	01/05/12	SW6020
7440-47-3	Chromium	20.8		1	0.015	0.27	mg/Kg	12/22/11	01/05/12	SW6020
7440-48-4	Cobalt	5.6		1	0.008	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-50-8	Copper	15.1		1	0.008	0.27	mg/Kg	12/22/11	01/05/12	SW6020
7439-89-6	Iron	18900		1	1.2	27	mg/Kg	12/22/11	01/05/12	SW6020
7439-92-1	Lead	21.8		1	0.005	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7439-95-4	Magnesium	1710		1	0.93	67.4	mg/Kg	12/22/11	01/05/12	SW6020
7439-96-5	Manganese	219	*	1	0.008	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7439-97-6	Mercury	0.049		1	0.003	0.013	mg/Kg	12/22/11	12/23/11	SW7471A
7440-02-0	Nickel	10		1	0.012	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-09-7	Potassium	638		1	1.2	67.4	mg/Kg	12/22/11	01/05/12	SW6020
7782-49-2	Selenium	0.13	J	1	0.075	0.67	mg/Kg	12/22/11	01/05/12	SW6020
7440-22-4	Silver	0.043	J	1	0.009	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-23-5	Sodium	48.6	J	1	1.7	67.4	mg/Kg	12/22/11	01/05/12	SW6020
7440-28-0	Thallium	0.19		1	0.007	0.13	mg/Kg	12/22/11	01/05/12	SW6020
7440-62-2	Vanadium	29.8	N	1	0.018	0.67	mg/Kg	12/22/11	01/05/12	SW6020
7440-66-6	Zinc	40.4		1	0.015	0.27	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9490		1	0.68	2	mg/Kg	12/22/11	01/05/12	SW6020
7440-36-0	Antimony	5.8	N	1	0.026	0.2	mg/Kg	12/22/11	01/05/12	SW6020
7440-38-2	Arsenic	16.8		1	0.022	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-39-3	Barium	113		1	0.008	1	mg/Kg	12/22/11	01/05/12	SW6020
7440-41-7	Beryllium	0.54		1	0.007	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-43-9	Cadmium	1.4	*	1	0.009	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-70-2	Calcium	29100	OR	1	0.63	50.19	mg/Kg	12/22/11	01/05/12	SW6020
7440-47-3	Chromium	31.3		1	0.011	0.2	mg/Kg	12/22/11	01/05/12	SW6020
7440-48-4	Cobalt	7.9		1	0.006	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-50-8	Copper	144		1	0.006	0.2	mg/Kg	12/22/11	01/05/12	SW6020
7439-89-6	Iron	45600	OR	1	0.93	20.07	mg/Kg	12/22/11	01/05/12	SW6020
7439-92-1	Lead	379		1	0.004	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7439-95-4	Magnesium	3200		1	0.7	50.2	mg/Kg	12/22/11	01/05/12	SW6020
7439-96-5	Manganese	569.8	OR*	1	0.006	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7439-97-6	Mercury	0.027		1	0.002	0.011	mg/Kg	12/22/11	12/23/11	SW7471A
7440-02-0	Nickel	15.2		1	0.009	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-09-7	Potassium	652		1	0.9	50.2	mg/Kg	12/22/11	01/05/12	SW6020
7782-49-2	Selenium	0.25	U	1	0.056	0.5	mg/Kg	12/22/11	01/05/12	SW6020
7440-22-4	Silver	0.35		1	0.007	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-23-5	Sodium	146		1	1.2	50.2	mg/Kg	12/22/11	01/05/12	SW6020
7440-28-0	Thallium	0.3		1	0.005	0.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-62-2	Vanadium	18.7	N	1	0.013	0.5	mg/Kg	12/22/11	01/05/12	SW6020
7440-66-6	Zinc	390		1	0.011	0.2	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01DL	SDG No.:	C5065
Lab Sample ID:	C5065-06DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	83.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7440-70-2	Calcium	34500	D	25	15.9	1250	mg/Kg	12/22/11	01/05/12	SW6020
7439-89-6	Iron	53400	D	25	23.2	502	mg/Kg	12/22/11	01/05/12	SW6020
7439-96-5	Manganese	671	*D	25	0.15	2.5	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	16100		1	0.74	2.2	mg/Kg	12/22/11	01/05/12	SW6020
7440-36-0	Antimony	0.24	N	1	0.029	0.22	mg/Kg	12/22/11	01/05/12	SW6020
7440-38-2	Arsenic	6		1	0.024	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-39-3	Barium	45.3		1	0.009	1.1	mg/Kg	12/22/11	01/05/12	SW6020
7440-41-7	Beryllium	0.59		1	0.008	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-43-9	Cadmium	0.13	*	1	0.01	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-70-2	Calcium	613		1	0.7	54.8	mg/Kg	12/22/11	01/05/12	SW6020
7440-47-3	Chromium	23.3		1	0.012	0.22	mg/Kg	12/22/11	01/05/12	SW6020
7440-48-4	Cobalt	7.3		1	0.007	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-50-8	Copper	12.1		1	0.007	0.22	mg/Kg	12/22/11	01/05/12	SW6020
7439-89-6	Iron	24500	OR	1	1.01	21.9	mg/Kg	12/22/11	01/05/12	SW6020
7439-92-1	Lead	11.6		1	0.004	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7439-95-4	Magnesium	2380		1	0.76	54.8	mg/Kg	12/22/11	01/05/12	SW6020
7439-96-5	Manganese	265	*	1	0.007	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7439-97-6	Mercury	0.036		1	0.002	0.011	mg/Kg	12/22/11	12/23/11	SW7471A
7440-02-0	Nickel	11.7		1	0.01	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-09-7	Potassium	828		1	0.99	54.8	mg/Kg	12/22/11	01/05/12	SW6020
7782-49-2	Selenium	0.275	U	1	0.061	0.55	mg/Kg	12/22/11	01/05/12	SW6020
7440-22-4	Silver	0.026	J	1	0.008	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-23-5	Sodium	70.4		1	1.3	54.8	mg/Kg	12/22/11	01/05/12	SW6020
7440-28-0	Thallium	0.32		1	0.006	0.11	mg/Kg	12/22/11	01/05/12	SW6020
7440-62-2	Vanadium	36.3	N	1	0.014	0.55	mg/Kg	12/22/11	01/05/12	SW6020
7440-66-6	Zinc	31.3		1	0.012	0.22	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02DL	SDG No.:	C5065
Lab Sample ID:	C5065-07DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	33200	D	25	25.4	548	mg/Kg	12/22/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP12-0203-CS	SDG No.:	C5065
Lab Sample ID:	C5065-08	Matrix:	SOIL
		% Solid:	100

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.36		1	0	0	pH	12/21/11	12/21/11	9045C
Redox Potential	236		1	0.125	0.125	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-0.5-02-02	SDG No.:	C5065
Lab Sample ID:	C5065-05	Matrix:	SOIL
		% Solid:	85

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.147	U	1	0.039	0.293	mg/Kg	12/23/11	12/28/11	9012B
pH	4.52		1	0	0	pH	12/21/11	12/21/11	9045C
Redox Potential	373.9		1	0.118	0.118	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP17-000.5-01	SDG No.:	C5065
Lab Sample ID:	C5065-02	Matrix:	SOIL
		% Solid:	74.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.046	J	1	0.044	0.337	mg/Kg	12/23/11	12/28/11	9012B
pH	4.62		1	0	0	pH	12/21/11	12/21/11	9045C
Redox Potential	338.4		1	0.135	0.135	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0506-01	SDG No.:	C5065
Lab Sample ID:	C5065-06	Matrix:	SOIL
		% Solid:	83.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.149	U	1	0.039	0.298	mg/Kg	12/23/11	12/28/11	9012B
pH	6.47		1	0	0	pH	12/21/11	12/21/11	9045C
Redox Potential	188.5		1	0.119	0.119	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/20/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/21/11
Client Sample ID:	12TP18-0607-02	SDG No.:	C5065
Lab Sample ID:	C5065-07	Matrix:	SOIL
		% Solid:	81.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.154	U	1	0.041	0.307	mg/Kg	12/23/11	12/28/11	9012B
pH	6.3		1	0	0	pH	12/21/11	12/21/11	9045C
Redox Potential	277.7		1	0.123	0.123	mV	12/23/11	12/23/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5065
QUOTE NO.
COC Number 021243

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 231 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at TetraTech.com
PHONE: 610 382 1170 FAX: 6104919645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC Encore
2 TCL SVOC / PAH Sim
3 Pest-1/PCB
4 Metals, Hg, Cr, Pb
5 ORP
6 ORP / pH
7 TCL VOC 40 ml VOA Vial HCl
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
KR 12/21/11																	← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	T13-01-122011	Aq		✓	12/20/11	0730	2							2			
2. 3. 4.	12TP17-0001.5-01	Soil		✓	12/20/11	0950	16	9	2	2	2	2					Do MS/MSD
3. 5.	12TP17-0.5-02-02	Soil		✓	12/20/11	1020	7	3	1	1	1	1					
4.	~~12TP17-0506-03~~	Soil		✓	12/20/11	1125	7	3	1	1	1	1	CM 12/20/11				
5. 6.	12TP18-0506-01	Soil		✓	12/20/11	1250	7	3	1	1	1	1					
6. 7.	12TP18-0607-02	Soil		✓	12/20/11	1430	7	3	1	1	1	1					
7. 8.	12TP12-0203-CS	Soil		✓	12/20/11	1600	1						1				
8.																	
9.																	
TO																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/20/11 1830	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex	12/21/11 9:15	3. [signature]

C5065 wetchem

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO 49

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Samples 12TP17-0.5-02-02 & 12TP18-0607-02 were diluted for Iron due to High Concentration, Sample 12TP18-0506-01 were diluted for Calcium, Iron & Manganese due to High Concentration.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Cadmium and Manganese.
The Matrix Spike analysis met criteria for all samples except for Antimony.
The Matrix Spike Duplicate analysis met criteria for all samples except for Antimony and Vanadium.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met criteria for all samples except for Aluminum, Chromium, Iron, Manganese, Zinc and Nickel.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.18 08:31:13 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5065
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
7 Solid samples were received on 12/21/2011.
1 Water sample was received on 12/21/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide,pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, The analysis of Cyanide was based on method 9012B and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were met for all analysis except for PH
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Cyanide and result is below CRQL
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.18 08:30:06 -05'00'

C5065-06X25 01/05/2012 02:41:52 AM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	70%	0.251	8.722	0.000	131.700	1447.000	1450.000	1454.000	4300.000
2	02:44:09	72%	0.440	5.887	0.000	129.200	1409.000	1417.000	1422.000	4246.000
3	02:45:17	71%	0.190	5.594	0.000	127.500	1445.000	1427.000	1428.000	4316.000
x		71%	0.294	6.734	0.000	129.500	1434.000	1431.000	1435.000	4287.000
%RSD		1	44.390	25.650	0.000	1.618	1.496	1.164	1.192	0.854

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	331.000	143.000	0.000	0.000	352.700	13900.000	13740.000	63%	153.100
2	02:44:09	318.400	145.500	0.000	0.000	352.100	13590.000	13730.000	63%	149.800
3	02:45:17	333.100	149.800	0.000	0.000	351.600	13880.000	13790.000	63%	150.900
x		327.500	146.100	0.000	0.000	352.100	13790.000	13760.000	63%	151.200
%RSD		2.433	2.350	0.000	0.000	0.148	1.285	0.248	0	1.091

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	8.712	14.630	24.480	21800.000	266.700	21780.000	21270.000	3.618	7.705
2	02:44:09	9.420	14.570	28.950	21830.000	267.700	21650.000	21100.000	3.835	7.150
3	02:45:17	9.040	14.690	33.350	22070.000	268.200	21810.000	21410.000	3.780	7.525
x		9.057	14.630	28.930	21900.000	267.500	21750.000	21260.000	3.744	7.460
%RSD		3.913	0.410	15.320	0.685	0.289	0.381	0.727	3.018	3.795

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	66.790	67.440	185.500	7.069	0.740	0.158	-0.443	0.737	1.097
2	02:44:09	66.810	65.890	183.600	7.269	-0.729	0.163	0.142	-0.725	7.561
3	02:45:17	65.950	67.190	187.600	7.158	-0.394	0.209	1.108	-0.393	4.261
x		66.520	66.840	185.600	7.165	-0.128	0.176	0.269	-0.127	4.306
%RSD		0.740	1.246	1.084	1.397	602.800	15.910	291.300	604.800	75.070

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	3.178	1.161	1.596	1.286	1.181	0.008	62%	1.465	0.138
2	02:44:09	2.626	1.189	1.716	1.161	1.165	0.002	63%	-0.624	0.144
3	02:45:17	2.437	1.120	1.467	1.079	1.045	0.013	63%	-0.126	0.165
x		2.747	1.157	1.593	1.175	1.130	0.008	63%	0.238	0.149
%RSD		14.020	3.023	7.832	8.864	6.580	72.330	1	457.400	9.463

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	-0.264	1.455	0.158	0.500	99.090	2.715	44.710	44.510	65%
2	02:44:09	0.903	-0.632	0.132	0.468	97.400	2.511	42.230	44.960	66%
3	02:45:17	0.684	-0.132	0.116	0.393	99.800	2.504	43.990	45.290	65%
x		0.441	0.230	0.135	0.454	98.760	2.577	43.640	44.920	65%
%RSD		140.700	473.200	15.860	12.140	1.249	4.656	2.918	0.869	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:43:00	65%	0.453	0.478	151.900	139.700	146.300	67%	0.442
2	02:44:09	66%	0.443	0.399	150.400	138.500	145.000	68%	0.450
3	02:45:17	66%	0.423	0.408	154.300	142.300	149.100	67%	0.471
x		66%	0.439	0.428	152.200	140.200	146.800	67%	0.455
%RSD		0	3.516	10.020	1.315	1.407	1.456	1	3.341

$$\frac{21900\,\mu g}{L} \times \frac{0.1\,L}{1.19\,g} \times \frac{1000\,g}{1\,Kg} \times \frac{1\,mg}{1000\,\mu g} \times \frac{1}{0.837} = 54968.22\,mg/kg$$

reportadas $53400\,\frac{mg}{Kg}$

SDG C5065

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
HG	MG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
HG	MG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
HG	MG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/23/2011	2	1	3
M	MG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0607-02	C5065-07DL	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0506-01	C5065-06DL	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP17-0.5-02-02	C5065-05DL	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
M	MG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	1/5/2012	2	14	16
CN	MG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8
CN	MG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8
CN	MG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8
CN	MG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/23/2011	12/28/2011	3	5	8

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	12TP12-0203-CS	C5065-08	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP18-0607-02	C5065-07	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP18-0506-01	C5065-06	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
ORP	MV	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/23/2011	12/23/2011	3	0	3
PH	S.U.	12TP18-0607-02	C5065-07	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP12-0203-CS	C5065-08	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
PH	S.U.	12TP18-0506-01	C5065-06	NM	12/20/2011	12/21/2011	12/21/2011	1	0	1
OS	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	12/29/2011	2	7	9
OS	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/31/2011	2	9	11
OS	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/31/2011	2	9	11
OS	UG/KG	12TP18-0506-01	C5065-06	NM	12/20/2011	12/22/2011	1/1/2012	2	10	12
OS	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	12/31/2011	2	9	11
OS	UG/KG	12TP18-0607-02	C5065-07	NM	12/20/2011	12/22/2011	1/12/2012	2	21	23
OS	UG/KG	12TP17-000.5-01	C5065-02	NM	12/20/2011	12/22/2011	12/28/2011	2	6	8
OS	UG/KG	12TP17-0.5-02-02	C5065-05	NM	12/20/2011	12/22/2011	12/27/2011	2	5	7

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG No.:** C5065

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58559

Start Date: 12/23/2011 **End Date:** 12/23/2011

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1140																X									
Std02Rep1	1	1143																X									
Std03Rep1	1	1145																X									
Std04Rep1	1	1148																X									
Std05Rep1	1	1150																X									
Std06Rep1	1	1152																X									
ICV01	1	1155																X									
ICB01	1	1157																X									
CCV01	1	1159																X									
CCB01	1	1201																X									
CRI01	1	1204																X									
CCV02	1	1224																X									
CCB02	1	1226																X									
CCV03	1	1247																X									
CCB03	1	1249																X									
PB60126BL	1	1255																X									
PB60126BS	1	1258																X									
CCV04	1	1310																X									
CCB04	1	1312																X									
CCV05	1	1400																X									
CCB05	1	1412																X									
12TP17-000.5-01	1	1423																X									
12TP17-000.5-01D	1	1425																X									
CCV06	1	1427																X									
CCB06	1	1429																X									
12TP17-000.5-01L	5	1431																X									
12TP17-000.5-01S	1	1433																X									
12TP17-000.5-01SD	1	1435																X									
12TP17-000.5-01A	1	1438																									
12TP17-0.5-02-02	1	1440																X									
12TP18-0506-01	1	1442																X									
12TP18-0607-02	1	1444																X									
CCV07	1	1448																X									
CCB07	1	1450																X									
CCV08	1	1459																X									
CCB08	1	1502																X									
CCV09	1	1515																X									
CCB09	1	1517																X									
CCV10	1	1537																X									
CCB10	1	1541																X									
CCV11	1	1601																X									

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG No.:** C5065

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58559

Start Date: 12/23/2011 **End Date:** 12/23/2011

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB11	1	1603																X								
CCV12	1	1624																X								
CCB12	1	1627																X								

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG No.:** C5065

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58710

Start Date: 01/04/2012 **End Date:** 01/05/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1345		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1353		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1400		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1408		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1416		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1424		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1432		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1440		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1448		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1456		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1519		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1527		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1535		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1654		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1702		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60139BL	1	1822		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1830		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1838		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60139BS	1	1853		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2005		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2013		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	2140		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2148		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV06	1	2315		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	2323		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-000.5-01	1	0002		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-000.5-01D	1	0010		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-000.5-01L	5	0018		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV07	1	0050		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-000.5-01S	1	0106		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-000.5-01SD	1	0114		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-000.5-01A	1	0122			X																				X		
12TP17-0.5-02-02	1	0130		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP18-0506-01	1	0138		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP18-0607-02	1	0146		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP17-0.5-02-02DL	25	0217												X													
CCV08	1	0225		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB08	1	0233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12TP18-0506-01DL	25	0241								X				X			X										
12TP18-0607-02DL	25	0249												X													

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG No.:** C5065

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58710

Start Date: 01/04/2012 **End Date:** 01/05/2012

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV09	1	0401		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB09	1	0409		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV10	1	0537		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB10	1	0545		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV11	1	0712		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB11	1	0720		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV12	1	0824		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB12	1	0832		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

Affected	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12TP17-0.5-02-02	0.26		Al	97900	1.7	12200	0.2118	[redacted]	na
As		2.3		Al	97900	0.24	12200	0.0299	na	na
Ba		106		Al	97900	1.5	12200	0.1869	na	na
Be		1.1		Al	97900	0.34	12200	0.0424	na	na
Cd		0.16		Al	97900	0.2	12200	0.0249	[redacted] ✓	na
Co		7.7		Al	97900	1.3	12200	0.1620	na	na
Cu		19.9		Al	97900	8.2	12200	1.0219	na	na
Mn		377		Al	97900	8.2	12200	1.0219	na	na
Ni		12.3		Al	97900	6.1	12200	0.7602	na	na
Ag		0.028	J	Al	97900	0.096	12200	0.0120	na	na
Tl		0.67		Al	97900	0.17	12200	0.0212	na	na
V		27.9		Al	97900	0.38	12200	0.0474	na	na
Zn		24.9		Al	97900	12.1	12200	1.5079	na	na
Sb	12TP17-000.5-01	0.44		Al	97900	1.7	15300	0.2657	[redacted]	na
As		5.2		Al	97900	0.24	15300	0.0375	na	na
Ba		67.7		Al	97900	1.5	15300	0.2344	na	na
Be		0.84		Al	97900	0.34	15300	0.0531	na	na
Cd		0.44		Al	97900	0.2	15300	0.0313	na	na
Co		5.6		Al	97900	1.3	15300	0.2032	na	na
Cu		15.1		Al	97900	8.2	15300	1.2815	na	na
Mn		219		Al	97900	8.2	15300	1.2815	na	na
Ni		10		Al	97900	6.1	15300	0.9533	na	na
Ag		0.043	J	Al	97900	0.096	15300	0.0150	na	na
Tl		0.19		Al	97900	0.17	15300	0.0266	[redacted] ✓	na
V		29.8		Al	97900	0.38	15300	0.0594	na	na
Zn		40.4		Al	97900	12.1	15300	1.8910	na	na
Sb	12TP18-0607-02	0.24		Al	97900	1.7	16100	0.2796	[redacted]	na
As		6		Al	97900	0.24	16100	0.0395	na	na
Ba		45.3		Al	97900	1.5	16100	0.2467	na	na
Be		0.59		Al	97900	0.34	16100	0.0559	na	na
Cd		0.13		Al	97900	0.2	16100	0.0329	[redacted] ✓	na
Co		7.3		Al	97900	1.3	16100	0.2138	na	na
Cu		12.1		Al	97900	8.2	16100	1.3485	[redacted] ✓	na
Mn		265		Al	97900	8.2	16100	1.3485	na	na
Ni		11.7		Al	97900	6.1	16100	1.0032	na	na
Ag		0.026	J	Al	97900	0.096	16100	0.0158	na	na
Tl		0.32		Al	97900	0.17	16100	0.0280	na	na
V		36.3		Al	97900	0.38	16100	0.0625	na	na
Zn		31.3		Al	97900	12.1	16100	1.9899	na	na

CHEMTECH

Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Instrument ID: CV2 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 01/15/2009
Mercury	253.70	0.0020	0.01	

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Aluminum	27	0.6770	2.00	
Antimony	121	0.0260	0.20	
Arsenic	75	0.0220	0.10	
Barium	137	0.0080	1.00	
Beryllium	9	0.0070	0.10	
Cadmium	111	0.0090	0.10	
Calcium	44	0.6350	50.00	
Chromium	52	0.0110	0.20	
Cobalt	59	0.0060	0.10	
Copper	63	0.0060	0.20	
Iron	57	0.9260	20.00	
Lead	208	0.0040	0.10	

CHEMTECH

Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5065 **SAS No.:** C5065

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60139**						
C5065-02	12TP17-000.5-01	SAM	SOIL	12/22/2011	1.00	100.0	74.20
C5065-02D	12TP17-000.5-01D	DUP	SOIL	12/22/2011	1.00	100.0	74.20
C5065-03S	12TP17-000.5-01S	MS	SOIL	12/22/2011	1.00	100.0	74.20
C5065-04SD	12TP17-000.5-01SD	MSD	SOIL	12/22/2011	1.00	100.0	74.20
C5065-05	12TP17-0.5-02-02	SAM	SOIL	12/22/2011	1.14	100.0	85.00
C5065-05DL	12TP17-0.5-02-02DL	SAM	SOIL	12/22/2011	1.14	100.0	85.00
C5065-06	12TP18-0506-01	SAM	SOIL	12/22/2011	1.19	100.0	83.70
C5065-06DL	12TP18-0506-01DL	SAM	SOIL	12/22/2011	1.19	100.0	83.70
C5065-07	12TP18-0607-02	SAM	SOIL	12/22/2011	1.12	100.0	81.40
C5065-07DL	12TP18-0607-02DL	SAM	SOIL	12/22/2011	1.12	100.0	81.40
PB60139BL	PB60139BL	MB	SOIL	12/22/2011	1.00	100.0	100.00
PB60139BS	PB60139BS	LCS	SOIL	12/22/2011	1.00	100.0	100.00

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5065 **SAS No.:** C5065

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60126**						
C5065-02	12TP17-000.5-01	SAM	SOIL	12/22/2011	0.60	30.0	74.20
C5065-02D	12TP17-000.5-01D	DUP	SOIL	12/22/2011	0.60	30.0	74.20
C5065-03S	12TP17-000.5-01S	MS	SOIL	12/22/2011	0.60	30.0	74.20
C5065-04SD	12TP17-000.5-01SD	MSD	SOIL	12/22/2011	0.60	30.0	74.20
C5065-05	12TP17-0.5-02-02	SAM	SOIL	12/22/2011	0.63	30.0	85.00
C5065-06	12TP18-0506-01	SAM	SOIL	12/22/2011	0.64	30.0	83.70
C5065-07	12TP18-0607-02	SAM	SOIL	12/22/2011	0.66	30.0	81.40
PB60126BL	PB60126BL	MB	SOIL	12/22/2011	0.60	30.0	100.00
PB60126BS	PB60126BS	LCS	SOIL	12/22/2011	0.60	30.0	100.00

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Instrument: CV2

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60126BL		**SOIL**		**Batch Number:**		**PB60126**		**Prep Date:**	**12/22/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	12/23/2011	12:55	LB58559
PB60139BL		**SOIL**		**Batch Number:**		**PB60139**		**Prep Date:**	**12/22/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	01/04/2012	18:22	LB58710
	Antimony	0.026	<0.200	U	0.026	0.200	MS	01/04/2012	18:22	LB58710
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	01/04/2012	18:22	LB58710
	Barium	0.008	<1.000	U	0.008	1.000	MS	01/04/2012	18:22	LB58710
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	01/04/2012	18:22	LB58710
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	01/04/2012	18:22	LB58710
	Calcium	0.635	<50.000	U	0.635	50.000	MS	01/04/2012	18:22	LB58710
	Chromium	0.011	<0.200	U	0.011	0.200	MS	01/04/2012	18:22	LB58710
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	01/04/2012	18:22	LB58710
	Copper	0.006	<0.200	U	0.006	0.200	MS	01/04/2012	18:22	LB58710
	Iron	0.926	<20.000	U	0.926	20.000	MS	01/04/2012	18:22	LB58710
	Lead	0.004	<0.100	U	0.004	0.100	MS	01/04/2012	18:22	LB58710
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	01/04/2012	18:22	LB58710
	Manganese	0.034	<0.100	J	0.006	0.100	MS	01/04/2012	18:22	LB58710
	Nickel	0.009	<0.100	U	0.009	0.100	MS	01/04/2012	18:22	LB58710
	Potassium	3.803	<50.000	J	0.901	50.000	MS	01/04/2012	18:22	LB58710
	Selenium	0.056	<0.500	U	0.056	0.500	MS	01/04/2012	18:22	LB58710
	Silver	0.007	<0.100	U	0.007	0.100	MS	01/04/2012	18:22	LB58710
	Sodium	3.900	<50.000	J	1.225	50.000	MS	01/04/2012	18:22	LB58710
	Thallium	0.005	<0.100	U	0.005	0.100	MS	01/04/2012	18:22	LB58710
	Vanadium	0.028	<0.500	J	0.013	0.500	MS	01/04/2012	18:22	LB58710
	Zinc	0.011	<0.200	U	0.011	0.200	MS	01/04/2012	18:22	LB58710

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Matrix: SOIL **Sample ID:** C5065-02 **Client ID:** 12TP17-000.5-01S

Percent Solids for Sample: 74.2 **Spiked ID:** C5065-03S **Percent Solids for Spike Sample:** 74.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	17075.4700		15269.5400		269.54	670.0		MS
Antimony	mg/Kg	80 - 120	85.6334		0.4402		107.82	79.0	N	MS
Arsenic	mg/Kg	80 - 120	97.9111		5.1590		107.82	86.0		MS
Barium	mg/Kg	80 - 120	95.1617		67.6685		26.95	102.0		MS
Beryllium	mg/Kg	80 - 120	24.9191		0.8450		26.95	89.3		MS
Cadmium	mg/Kg	80 - 120	27.0081		0.4420		26.95	98.6		MS
Calcium	mg/Kg	80 - 120	863.4771		761.0513		134.77	76.0		MS
Chromium	mg/Kg	80 - 120	66.7116		20.8491		53.91	85.1		MS
Cobalt	mg/Kg	80 - 120	29.2588		5.5553		26.95	88.0		MS
Copper	mg/Kg	80 - 120	51.3612		15.1213		40.43	89.6		MS
Iron	mg/Kg	80 - 120	18908.3600		18935.3100		404.31	-6.7		MS
Lead	mg/Kg	80 - 120	157.9515		21.8194		134.77	101.0		MS
Magnesium	mg/Kg	80 - 120	1920.4850		1712.9380		269.54	77.0		MS
Manganese	mg/Kg	80 - 120	250.1348		219.0027		26.95	115.5		MS
Nickel	mg/Kg	80 - 120	69.2588		10.0310		67.39	87.9		MS
Mercury	mg/Kg	34 - 153	0.2803		0.0493		0.27	85.6		CV
Potassium	mg/Kg	80 - 120	1789.7580		638.1402		1347.71	85.4		MS
Selenium	mg/Kg	80 - 120	237.6011		0.1342	J	269.54	88.1		MS
Silver	mg/Kg	80 - 120	10.2857		0.0425	J	10.11	101.3		MS
Sodium	mg/Kg	80 - 120	388.9488		48.5984	J	404.31	84.2		MS
Thallium	mg/Kg	80 - 120	271.6981		0.1937		269.54	100.7		MS
Vanadium	mg/Kg	80 - 120	63.0997		29.8248		40.43	82.3		MS
Zinc	mg/Kg	80 - 120	63.2884		40.4313		26.95	84.8		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Matrix: SOIL **Sample ID:** C5065-02 **Client ID:** 12TP17-000.5-01SD

Percent Solids for Sample: 74.2 **Spiked ID:** C5065-04SD **Percent Solids for Spike Sample:** 74.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	16266.8500		15269.5400		269.54	370.0		MS
Antimony	mg/Kg	80 - 120	86.4421		0.4402		107.82	79.8	N	MS
Arsenic	mg/Kg	80 - 120	97.7224		5.1590		107.82	85.8		MS
Barium	mg/Kg	80 - 120	91.5364		67.6685		26.95	88.6		MS
Beryllium	mg/Kg	80 - 120	24.6631		0.8450		26.95	88.4		MS
Cadmium	mg/Kg	80 - 120	27.2237		0.4420		26.95	99.4		MS
Calcium	mg/Kg	80 - 120	848.7872		761.0513		134.77	65.1		MS
Chromium	mg/Kg	80 - 120	66.7520		20.8491		53.91	85.1		MS
Cobalt	mg/Kg	80 - 120	29.2049		5.5553		26.95	87.8		MS
Copper	mg/Kg	80 - 120	50.4987		15.1213		40.43	87.5		MS
Iron	mg/Kg	80 - 120	18045.8200		18935.3100		404.31	-220.0		MS
Lead	mg/Kg	80 - 120	164.1510		21.8194		134.77	105.6		MS
Magnesium	mg/Kg	80 - 120	1824.7980		1712.9380		269.54	41.5		MS
Manganese	mg/Kg	80 - 120	252.9650		219.0027		26.95	126.0		MS
Nickel	mg/Kg	80 - 120	68.8275		10.0310		67.39	87.2		MS
Mercury	mg/Kg	34 - 153	0.2911		0.0493		0.27	89.6		CV
Potassium	mg/Kg	80 - 120	1797.8440		638.1402		1347.71	86.0		MS
Selenium	mg/Kg	80 - 120	233.6927		0.1342	J	269.54	86.7		MS
Silver	mg/Kg	80 - 120	10.3531		0.0425	J	10.11	102.0		MS
Sodium	mg/Kg	80 - 120	398.6523		48.5984	J	404.31	86.6		MS
Thallium	mg/Kg	80 - 120	273.0458		0.1937		269.54	101.2		MS
Vanadium	mg/Kg	80 - 120	62.0890		29.8248		40.43	79.8 GK	N	MS
Zinc	mg/Kg	80 - 120	62.5607		40.4313		26.95	82.1		MS

CHEMTECH

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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Matrix: WATER **Level:** LOW **Client ID:** 12TP17-000.5-01A

Sample ID: C5065-02 **Spiked ID:** C5065-02A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	774.70		0.14	U	800.0	96.8		MS
Vanadium	ug/L	80 - 120	464.10		221.30		300.0	80.9		MS

CHEMTECH

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Matrix: SOIL **Sample ID:** C5065-02 **Client ID:** 12TP17-000.5-01D

Percent Solids for Sample: 74.2 **Duplicate ID** C5065-02D **Percent Solids for Spike Sample:** 74.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	15269.5400		14555.2600		4.8		MS
Antimony	mg/Kg	20	0.4402		0.4419		0.4		MS
Arsenic	mg/Kg	20	5.1590		4.7884		7.5		MS
Barium	mg/Kg	20	67.6685		64.2318		5.2		MS
Beryllium	mg/Kg	20	0.8450		0.8050		4.8		MS
Cadmium	mg/Kg	20	0.4420		0.3189		32.4	*	MS
Calcium	mg/Kg	20	761.0513		765.0944		0.5		MS
Chromium	mg/Kg	20	20.8491		19.8383		5.0		MS
Cobalt	mg/Kg	20	5.5553		6.2965		12.5		MS
Copper	mg/Kg	20	15.1213		14.8922		1.5		MS
Iron	mg/Kg	20	18935.3100		18099.7300		4.5		MS
Lead	mg/Kg	20	21.8194		21.2534		2.6		MS
Magnesium	mg/Kg	20	1712.9380		1640.1620		4.3		MS
Manganese	mg/Kg	20	219.0027		268.0593		20.1	*	MS
Nickel	mg/Kg	20	10.0310		9.4744		5.7		MS
Mercury	mg/Kg	20	0.0493		0.0529		7.0		CV
Potassium	mg/Kg	20	638.1402		630.3235		1.2		MS
Selenium	mg/Kg	20	0.1342	J	0.0755	U	200.0		MS
Silver	mg/Kg	20	0.0425	J	0.0425	J	0.0		MS
Sodium	mg/Kg	20	48.5984	J	48.1671	J	0.9		MS
Thallium	mg/Kg	20	0.1937		0.1809		6.8		MS
Vanadium	mg/Kg	20	29.8248		28.3288		5.1		MS
Zinc	mg/Kg	20	40.4313		39.1240		3.3		MS

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A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Matrix: SOIL **Sample ID:** C5065-02 **Client ID:** 12TP17-000.5-01SD

Percent Solids for Sample: 74.2 **Duplicate ID** C5065-04SD **Percent Solids for Spike Sample:** 74.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	17075.4700		16266.8500		4.9		MS
Antimony	mg/Kg	20	85.6334		86.4421		0.9		MS
Arsenic	mg/Kg	20	97.9111		97.7224		0.2		MS
Barium	mg/Kg	20	95.1617		91.5364		3.9		MS
Beryllium	mg/Kg	20	24.9191		24.6631		1.0		MS
Cadmium	mg/Kg	20	27.0081		27.2237		0.8		MS
Calcium	mg/Kg	20	863.4771		848.7872		1.7		MS
Chromium	mg/Kg	20	66.7116		66.7520		0.1		MS
Cobalt	mg/Kg	20	29.2588		29.2049		0.2		MS
Copper	mg/Kg	20	51.3612		50.4987		1.7		MS
Iron	mg/Kg	20	18908.3600		18045.8200		4.7		MS
Lead	mg/Kg	20	157.9515		164.1510		3.8		MS
Magnesium	mg/Kg	20	1920.4850		1824.7980		5.1		MS
Manganese	mg/Kg	20	250.1348		252.9650		1.1		MS
Nickel	mg/Kg	20	69.2588		68.8275		0.6		MS
Mercury	mg/Kg	20	0.2803		0.2911		3.8		CV
Potassium	mg/Kg	20	1789.7580		1797.8440		0.5		MS
Selenium	mg/Kg	20	237.6011		233.6927		1.7		MS
Silver	mg/Kg	20	10.2857		10.3531		0.7		MS
Sodium	mg/Kg	20	388.9488		398.6523		2.5		MS
Thallium	mg/Kg	20	271.6981		273.0458		0.5		MS
Vanadium	mg/Kg	20	63.0997		62.0890		1.6		MS
Zinc	mg/Kg	20	63.2884		62.5607		1.2		MS

A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60126BS							
Mercury	mg/Kg	0.200	0.192		96.0	73 - 121	CV

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60139BS							
Aluminum	mg/Kg	200	192.8		96.4	80 - 120	MS
Antimony	mg/Kg	80	80.3		100.4	80 - 120	MS
Arsenic	mg/Kg	80	81.0		101.2	80 - 120	MS
Barium	mg/Kg	20	20.5		102.5	80 - 120	MS
Beryllium	mg/Kg	20	18.8		94.0	80 - 120	MS
Cadmium	mg/Kg	20	20.7		103.5	80 - 120	MS
Calcium	mg/Kg	100	108.8		108.8	80 - 120	MS
Chromium	mg/Kg	40	41.9		104.8	80 - 120	MS
Cobalt	mg/Kg	20	20.8		104.0	80 - 120	MS
Copper	mg/Kg	30	32.0		106.7	80 - 120	MS
Iron	mg/Kg	300	320.0		106.7	80 - 120	MS
Lead	mg/Kg	100	102.0		102.0	80 - 120	MS
Magnesium	mg/Kg	200	190.9		95.4	80 - 120	MS
Manganese	mg/Kg	20	21.4		107.0	80 - 120	MS
Nickel	mg/Kg	50	52.2		104.4	80 - 120	MS
Potassium	mg/Kg	1000	1019.0		101.9	80 - 120	MS
Selenium	mg/Kg	200	201.2		100.6	80 - 120	MS
Silver	mg/Kg	7.5	7.8		104.0	80 - 120	MS
Sodium	mg/Kg	300	307.4		102.5	80 - 120	MS
Thallium	mg/Kg	200	202.6		101.3	80 - 120	MS
Vanadium	mg/Kg	30	30.7		102.3	80 - 120	MS
Zinc	mg/Kg	20	21.6		108.0	80 - 120	MS

CHEMTECH

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ICP SERIAL DILUTIONS

SAMPLE NO.

12TP17-000.5-01L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5065 **SAS No.:** C5065 **SDG No.:** C5065

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	15269.54		17392.19		13.9		MS
Antimony	0.44		0.51	J	15.9		MS
Arsenic	5.16		5.24		1.6		MS
Barium	67.67		69.00		2.0		MS
Beryllium	0.85		0.91		7.1		MS
Cadmium	0.44		0.44	J	0.0		MS
Calcium	761.05		935.31		22.9		MS
Chromium	20.85		24.60		18.0		MS
Cobalt	5.56		6.59		18.5		MS
Copper	15.12		17.75		17.4		MS
Iron	18935.31		22749.33		20.1		MS
Lead	21.82		22.17		1.6		MS
Magnesium	1712.94		1898.92		10.9		MS
Manganese	219.00		259.16		18.3		MS
Nickel	10.03		12.13		20.9		MS
Mercury	0.73		0.56	J	23.3		CV
Potassium	638.14		785.04		23.0		MS
Selenium	0.13	J	0.38	U	100.0		MS
Silver	0.04	J	0.05	U	100.0		MS
Sodium	48.60	J	83.29	J	71.4		MS
Thallium	0.19		0.26	J	36.8		MS
Vanadium	29.82		34.31		15.1		MS
Zinc	40.43		47.77		18.2		MS

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.92	4.0	98.0	90 - 110	CV	12/23/2011	11:55	LB58559
CCV01	Mercury	4.95	5.0	99.0	90 - 110	CV	12/23/2011	11:59	LB58559
CCV02	Mercury	5.18	5.0	103.6	90 - 110	CV	12/23/2011	12:24	LB58559
CCV03	Mercury	5.17	5.0	103.4	90 - 110	CV	12/23/2011	12:47	LB58559
CCV04	Mercury	4.71	5.0	94.2	90 - 110	CV	12/23/2011	13:10	LB58559
CCV05	Mercury	5.44	5.0	108.8	90 - 110	CV	12/23/2011	14:00	LB58559
CCV06	Mercury	5.13	5.0	102.6	90 - 110	CV	12/23/2011	14:27	LB58559
CCV07	Mercury	5.20	5.0	104.0	90 - 110	CV	12/23/2011	14:48	LB58559
CCV08	Mercury	5.19	5.0	103.8	90 - 110	CV	12/23/2011	14:59	LB58559
CCV09	Mercury	5.17	5.0	103.4	90 - 110	CV	12/23/2011	15:15	LB58559
CCV10	Mercury	5.11	5.0	102.2	90 - 110	CV	12/23/2011	15:37	LB58559
CCV11	Mercury	5.09	5.0	101.8	90 - 110	CV	12/23/2011	16:01	LB58559
CCV12	Mercury	5.07	5.0	101.4	90 - 110	CV	12/23/2011	16:24	LB58559

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	529.90	504	105.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Antimony	191.00	199	96.0	90 - 110	MS	01/04/2012	14:32	LB58710
	Arsenic	194.30	200	97.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Barium	101.10	99	102.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Beryllium	97.26	99	98.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Cadmium	97.20	99	98.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Calcium	2007.00	2005	100.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Chromium	98.88	98	100.9	90 - 110	MS	01/04/2012	14:32	LB58710
	Cobalt	100.50	100	100.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Copper	103.40	98	105.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Iron	1034.00	1016	101.8	90 - 110	MS	01/04/2012	14:32	LB58710
	Lead	200.50	200	100.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Magnesium	1214.00	1215	99.9	90 - 110	MS	01/04/2012	14:32	LB58710
	Manganese	102.80	100	102.8	90 - 110	MS	01/04/2012	14:32	LB58710
	Nickel	102.60	101	101.6	90 - 110	MS	01/04/2012	14:32	LB58710
	Potassium	2030.00	2004	101.3	90 - 110	MS	01/04/2012	14:32	LB58710
	Selenium	194.60	206	94.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Silver	99.14	100	99.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Sodium	2023.00	2019	100.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Thallium	202.00	206	98.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Vanadium	97.47	100	97.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Zinc	201.70	205	98.4	90 - 110	MS	01/04/2012	14:32	LB58710
CCV01	Aluminum	10100.00	10000	101.0	90 - 110	MS	01/04/2012	15:19	LB58710
X	Antimony	504.70	500	100.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Arsenic	502.60	500	100.5	90 - 110	MS	01/04/2012	15:19	LB58710
	Barium	2523.00	2500	100.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Beryllium	511.30	500	102.3	90 - 110	MS	01/04/2012	15:19	LB58710
	Cadmium	506.10	500	101.2	90 - 110	MS	01/04/2012	15:19	LB58710
	Calcium	51370.00	50000	102.7	90 - 110	MS	01/04/2012	15:19	LB58710
	Chromium	507.80	500	101.6	90 - 110	MS	01/04/2012	15:19	LB58710
	Cobalt	508.50	500	101.7	90 - 110	MS	01/04/2012	15:19	LB58710
	Copper	1028.00	1000	102.8	90 - 110	MS	01/04/2012	15:19	LB58710
	Iron	25570.00	25000	102.3	90 - 110	MS	01/04/2012	15:19	LB58710
	Lead	509.70	500	101.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Magnesium	51000.00	50000	102.0	90 - 110	MS	01/04/2012	15:19	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	512.50	500	102.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Sodium	52390.00	50000	104.8	90 - 110	MS	01/04/2012	20:05	LB58710
X	Thallium	512.10	500	102.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Vanadium	512.00	500	102.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Zinc	1053.00	1000	105.3	90 - 110	MS	01/04/2012	20:05	LB58710
CCV05	Aluminum	10160.00	10000	101.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Antimony	506.30	500	101.3	90 - 110	MS	01/04/2012	21:40	LB58710
X	Arsenic	501.50	500	100.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Barium	2486.00	2500	99.4	90 - 110	MS	01/04/2012	21:40	LB58710
	Beryllium	524.80	500	105.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Cadmium	514.90	500	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Calcium	51350.00	50000	102.7	90 - 110	MS	01/04/2012	21:40	LB58710
	Chromium	515.20	500	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Cobalt	519.30	500	103.9	90 - 110	MS	01/04/2012	21:40	LB58710
	Copper	1034.00	1000	103.4	90 - 110	MS	01/04/2012	21:40	LB58710
	Iron	26010.00	25000	104.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Lead	513.00	500	102.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Magnesium	51110.00	50000	102.2	90 - 110	MS	01/04/2012	21:40	LB58710
	Manganese	1050.00	1000	105.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Nickel	516.30	500	103.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Potassium	25370.00	25000	101.5	90 - 110	MS	01/04/2012	21:40	LB58710
	Selenium	512.90	500	102.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Silver	514.90	500	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Sodium	51760.00	50000	103.5	90 - 110	MS	01/04/2012	21:40	LB58710
	Thallium	509.20	500	101.8	90 - 110	MS	01/04/2012	21:40	LB58710
	Vanadium	508.10	500	101.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Zinc	1046.00	1000	104.6	90 - 110	MS	01/04/2012	21:40	LB58710
CCV06	Aluminum	9930.00	10000	99.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Antimony	509.80	500	102.0	90 - 110	MS	01/04/2012	23:15	LB58710
	Arsenic	506.20	500	101.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Barium	2490.00	2500	99.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Beryllium	520.90	500	104.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Cadmium	517.80	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Calcium	51640.00	50000	103.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Chromium	518.20	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	523.00	500	104.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Copper	1046.00	1000	104.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Iron	26220.00	25000	104.9	90 - 110	MS	01/04/2012	23:15	LB58710
	Lead	516.60	500	103.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Magnesium	50390.00	50000	100.8	90 - 110	MS	01/04/2012	23:15	LB58710
	Manganese	1061.00	1000	106.1	90 - 110	MS	01/04/2012	23:15	LB58710
	Nickel	518.10	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Potassium	25660.00	25000	102.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Selenium	517.90	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Silver	517.20	500	103.4	90 - 110	MS	01/04/2012	23:15	LB58710
	Sodium	52140.00	50000	104.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Thallium	511.20	500	102.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Vanadium	511.50	500	102.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Zinc	1062.00	1000	106.2	90 - 110	MS	01/04/2012	23:15	LB58710
CCV07	Aluminum	9994.00	10000	99.9	90 - 110	MS	01/05/2012	00:50	LB58710
	Antimony	517.30	500	103.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Arsenic	501.60	500	100.3	90 - 110	MS	01/05/2012	00:50	LB58710
	Barium	2499.00	2500	100.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Beryllium	525.50	500	105.1	90 - 110	MS	01/05/2012	00:50	LB58710
	Cadmium	517.70	500	103.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Calcium	52480.00	50000	105.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Chromium	528.90	500	105.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Cobalt	524.00	500	104.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Copper	1045.00	1000	104.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Iron	26530.00	25000	106.1	90 - 110	MS	01/05/2012	00:50	LB58710
	Lead	523.30	500	104.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Magnesium	50980.00	50000	102.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Manganese	1077.00	1000	107.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Nickel	520.00	500	104.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Potassium	25930.00	25000	103.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Selenium	512.90	500	102.6	90 - 110	MS	01/05/2012	00:50	LB58710
	Silver	520.00	500	104.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Sodium	53320.00	50000	106.6	90 - 110	MS	01/05/2012	00:50	LB58710
	Thallium	519.00	500	103.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Vanadium	520.70	500	104.1	90 - 110	MS	01/05/2012	00:50	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1079.00	1000	107.9	90 - 110	MS	01/05/2012	00:50	LB58710
CCV08	Aluminum	10030.00	10000	100.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Antimony	525.40	500	105.1	90 - 110	MS	01/05/2012	02:25	LB58710
	Arsenic	511.20	500	102.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Barium	2522.00	2500	100.9	90 - 110	MS	01/05/2012	02:25	LB58710
	Beryllium	533.70	500	106.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Cadmium	528.90	500	105.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Calcium	52800.00	50000	105.6	90 - 110	MS	01/05/2012	02:25	LB58710
	Chromium	532.60	500	106.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Cobalt	533.60	500	106.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Copper	1063.00	1000	106.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Iron	26880.00	25000	107.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Lead	527.60	500	105.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Magnesium	51120.00	50000	102.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Manganese	1090.00	1000	109.0	90 - 110	MS	01/05/2012	02:25	LB58710
	Nickel	526.10	500	105.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Potassium	26170.00	25000	104.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Selenium	519.00	500	103.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Silver	528.90	500	105.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Sodium	53740.00	50000	107.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Thallium	523.60	500	104.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Vanadium	526.70	500	105.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Zinc	1085.00	1000	108.5	90 - 110	MS	01/05/2012	02:25	LB58710
CCV09	Aluminum	10210.00	10000	102.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Antimony	510.70	500	102.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Arsenic	510.20	500	102.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Barium	2476.00	2500	99.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Beryllium	529.00	500	105.8	90 - 110	MS	01/05/2012	04:01	LB58710
	Cadmium	519.30	500	103.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Calcium	52060.00	50000	104.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Chromium	524.20	500	104.8	90 - 110	MS	01/05/2012	04:01	LB58710
	Cobalt	527.50	500	105.5	90 - 110	MS	01/05/2012	04:01	LB58710
	Copper	1053.00	1000	105.3	90 - 110	MS	01/05/2012	04:01	LB58710
	Iron	26230.00	25000	104.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Lead	521.90	500	104.4	90 - 110	MS	01/05/2012	04:01	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Magnesium	51430.00	50000	102.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Manganese	1065.00	1000	106.5	90 - 110	MS	01/05/2012	04:01	LB58710
	Nickel	524.40	500	104.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Potassium	25890.00	25000	103.6	90 - 110	MS	01/05/2012	04:01	LB58710
	Selenium	521.50	500	104.3	90 - 110	MS	01/05/2012	04:01	LB58710
	Silver	518.10	500	103.6	90 - 110	MS	01/05/2012	04:01	LB58710
	Sodium	52040.00	50000	104.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Thallium	517.00	500	103.4	90 - 110	MS	01/05/2012	04:01	LB58710
	Vanadium	520.00	500	104.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Zinc	1061.00	1000	106.1	90 - 110	MS	01/05/2012	04:01	LB58710
CCV10	Aluminum	10010.00	10000	100.1	90 - 110	MS	01/05/2012	05:37	LB58710
X	Antimony	516.90	500	103.4	90 - 110	MS	01/05/2012	05:37	LB58710
	Arsenic	505.90	500	101.2	90 - 110	MS	01/05/2012	05:37	LB58710
	Barium	2483.00	2500	99.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Beryllium	528.10	500	105.6	90 - 110	MS	01/05/2012	05:37	LB58710
	Cadmium	522.10	500	104.4	90 - 110	MS	01/05/2012	05:37	LB58710
	Calcium	51560.00	50000	103.1	90 - 110	MS	01/05/2012	05:37	LB58710
	Chromium	518.30	500	103.7	90 - 110	MS	01/05/2012	05:37	LB58710
	Cobalt	524.70	500	104.9	90 - 110	MS	01/05/2012	05:37	LB58710
	Copper	1048.00	1000	104.8	90 - 110	MS	01/05/2012	05:37	LB58710
	Iron	26190.00	25000	104.8	90 - 110	MS	01/05/2012	05:37	LB58710
	Lead	520.80	500	104.2	90 - 110	MS	01/05/2012	05:37	LB58710
	Magnesium	50880.00	50000	101.8	90 - 110	MS	01/05/2012	05:37	LB58710
	Manganese	1059.00	1000	105.9	90 - 110	MS	01/05/2012	05:37	LB58710
	Nickel	521.70	500	104.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Potassium	25520.00	25000	102.1	90 - 110	MS	01/05/2012	05:37	LB58710
	Selenium	511.80	500	102.4	90 - 110	MS	01/05/2012	05:37	LB58710
	Silver	526.10	500	105.2	90 - 110	MS	01/05/2012	05:37	LB58710
	Sodium	52150.00	50000	104.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Thallium	516.70	500	103.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Vanadium	511.50	500	102.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Zinc	1059.00	1000	105.9	90 - 110	MS	01/05/2012	05:37	LB58710
CCV11	Aluminum	10160.00	10000	101.6	90 - 110	MS	01/05/2012	07:12	LB58710
X	Antimony	516.20	500	103.2	90 - 110	MS	01/05/2012	07:12	LB58710
	Arsenic	507.30	500	101.5	90 - 110	MS	01/05/2012	07:12	LB58710

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.19	0.2	95.0	0 - 200	CV	12/23/2011	12:04	LB58559
CRI01	Aluminum	22.77	20	113.8	50 - 150	MS	01/04/2012	15:35	LB58710
	Antimony	2.26	2	113.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Arsenic	0.93	1	93.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Barium	10.03	10	100.3	70 - 130	MS	01/04/2012	15:35	LB58710
	Beryllium	1.08	1	108.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Cadmium	1.07	1	107.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Calcium	494.90	500	99.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Chromium	2.11	2	105.5	70 - 130	MS	01/04/2012	15:35	LB58710
	Cobalt	1.02	1	102.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Copper	2.19	2	109.5	70 - 130	MS	01/04/2012	15:35	LB58710
	Iron	205.20	200	102.6	50 - 150	MS	01/04/2012	15:35	LB58710
	Lead	1.04	1	104.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Magnesium	502.00	500	100.4	50 - 150	MS	01/04/2012	15:35	LB58710
	Manganese	1.38	1	138.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Nickel	1.18	1	118.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Potassium	518.50	500	103.7	50 - 150	MS	01/04/2012	15:35	LB58710
	Selenium	4.43	5	88.6	70 - 130	MS	01/04/2012	15:35	LB58710
	Silver	1.08	1	108.0	70 - 130	MS	01/04/2012	15:35	LB58710
	Sodium	521.10	500	104.2	50 - 150	MS	01/04/2012	15:35	LB58710
	Thallium	1.01	1	101.0	50 - 150	MS	01/04/2012	15:35	LB58710
	Vanadium	4.91	5	98.2	70 - 130	MS	01/04/2012	15:35	LB58710
	Zinc	2.36	2	118.0	50 - 150	MS	01/04/2012	15:35	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	11:57	LB58559
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	12:01	LB58559
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	12:26	LB58559
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	12:49	LB58559
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	13:12	LB58559
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	14:12	LB58559
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	14:29	LB58559
CCB07	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	14:50	LB58559
CCB08	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	15:02	LB58559
CCB09	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	15:17	LB58559
CCB10	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	15:41	LB58559
CCB11	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	16:03	LB58559
CCB12	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/23/2011	16:27	LB58559
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	14:40	LB58710
	Antimony	1.170	+/-2.000	J	0.140	2.000	MS	01/04/2012	14:40	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	14:40	LB58710
	Barium	0.519	+/-10.000	J	0.100	10.000	MS	01/04/2012	14:40	LB58710
	Beryllium	0.218	+/-1.000	J	0.090	1.000	MS	01/04/2012	14:40	LB58710
	Cadmium	0.172	+/-1.000	J	0.130	1.000	MS	01/04/2012	14:40	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	14:40	LB58710
	Chromium	0.199	+/-2.000	J	0.040	2.000	MS	01/04/2012	14:40	LB58710
	Cobalt	0.128	+/-1.000	J	0.050	1.000	MS	01/04/2012	14:40	LB58710
	Copper	0.251	+/-2.000	J	0.040	2.000	MS	01/04/2012	14:40	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	14:40	LB58710
	Lead	0.196	+/-1.000	J	0.040	1.000	MS	01/04/2012	14:40	LB58710
	Magnesium	9.184	+/-500.000	J	4.950	500.000	MS	01/04/2012	14:40	LB58710
	Manganese	0.252	+/-1.000	J	0.050	1.000	MS	01/04/2012	14:40	LB58710
	Nickel	0.141	+/-1.000	J	0.060	1.000	MS	01/04/2012	14:40	LB58710
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/04/2012	14:40	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	14:40	LB58710
	Silver	0.139	+/-1.000	J	0.030	1.000	MS	01/04/2012	14:40	LB58710
	Sodium	5.939	+/-500.000	J	5.320	500.000	MS	01/04/2012	14:40	LB58710
	Thallium	0.216	+/-1.000	J	0.020	1.000	MS	01/04/2012	14:40	LB58710
	Vanadium	0.281	+/-5.000	J	0.150	5.000	MS	01/04/2012	14:40	LB58710
	Zinc	0.326	+/-2.000	J	0.090	2.000	MS	01/04/2012	14:40	LB58710
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	15:27	LB58710
	Antimony	0.804	+/-2.000	J	0.140	2.000	MS	01/04/2012	15:27	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	20:13	LB58710
	Zinc	0.260	+/-2.000	J	0.090	2.000	MS	01/04/2012	20:13	LB58710
CCB05	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	21:48	LB58710
	Antimony	0.787	+/-2.000	J	0.140	2.000	MS	01/04/2012	21:48	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	21:48	LB58710
	Barium	0.380	+/-10.000	J	0.100	10.000	MS	01/04/2012	21:48	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/04/2012	21:48	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	21:48	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	21:48	LB58710
	Chromium	0.120	+/-2.000	J	0.040	2.000	MS	01/04/2012	21:48	LB58710
	Cobalt	0.053	+/-1.000	J	0.050	1.000	MS	01/04/2012	21:48	LB58710
	Copper	0.116	+/-2.000	J	0.040	2.000	MS	01/04/2012	21:48	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	21:48	LB58710
	Lead	0.065	+/-1.000	J	0.040	1.000	MS	01/04/2012	21:48	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	21:48	LB58710
	Manganese	0.575	+/-1.000	J	0.050	1.000	MS	01/04/2012	21:48	LB58710
	Nickel	0.103	+/-1.000	J	0.060	1.000	MS	01/04/2012	21:48	LB58710
	Potassium	30.560	+/-500.000	J	12.220	500.000	MS	01/04/2012	21:48	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	21:48	LB58710
	Silver	0.059	+/-1.000	J	0.030	1.000	MS	01/04/2012	21:48	LB58710
	Sodium	42.010	+/-500.000	J	5.320	500.000	MS	01/04/2012	21:48	LB58710
	Thallium	0.158	+/-1.000	J	0.020	1.000	MS	01/04/2012	21:48	LB58710
	Vanadium	0.224	+/-5.000	J	0.150	5.000	MS	01/04/2012	21:48	LB58710
	Zinc	0.172	+/-2.000	J	0.090	2.000	MS	01/04/2012	21:48	LB58710
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	23:23	LB58710
	Antimony	0.803	+/-2.000	J	0.140	2.000	MS	01/04/2012	23:23	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	23:23	LB58710
	Barium	0.280	+/-10.000	J	0.100	10.000	MS	01/04/2012	23:23	LB58710
	Beryllium	0.092	+/-1.000	J	0.090	1.000	MS	01/04/2012	23:23	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	23:23	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	23:23	LB58710
	Chromium	0.141	+/-2.000	J	0.040	2.000	MS	01/04/2012	23:23	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/04/2012	23:23	LB58710
	Copper	0.129	+/-2.000	J	0.040	2.000	MS	01/04/2012	23:23	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	23:23	LB58710
	Lead	0.223	+/-1.000	J	0.040	1.000	MS	01/04/2012	23:23	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	23:23	LB58710
	Manganese	0.499	+/-1.000	J	0.050	1.000	MS	01/04/2012	23:23	LB58710
	Nickel	0.121	+/-1.000	J	0.060	1.000	MS	01/04/2012	23:23	LB58710
	Potassium	37.570	+/-500.000	J	12.220	500.000	MS	01/04/2012	23:23	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	23:23	LB58710
	Silver	0.058	+/-1.000	J	0.030	1.000	MS	01/04/2012	23:23	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Sodium	68.250	+/-500.000	J	5.320	500.000	MS	01/04/2012	23:23	LB58710
	Thallium	0.498	+/-1.000	J	0.020	1.000	MS	01/04/2012	23:23	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	23:23	LB58710
	Zinc	0.201	+/-2.000	J	0.090	2.000	MS	01/04/2012	23:23	LB58710
CCB07	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	00:58	LB58710
	Antimony	0.897	+/-2.000	J	0.140	2.000	MS	01/05/2012	00:58	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	00:58	LB58710
	Barium	0.247	+/-10.000	J	0.100	10.000	MS	01/05/2012	00:58	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	00:58	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	00:58	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	00:58	LB58710
	Chromium	0.111	+/-2.000	J	0.040	2.000	MS	01/05/2012	00:58	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	00:58	LB58710
	Copper	0.083	+/-2.000	J	0.040	2.000	MS	01/05/2012	00:58	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/05/2012	00:58	LB58710
	Lead	0.193	+/-1.000	J	0.040	1.000	MS	01/05/2012	00:58	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	00:58	LB58710
	Manganese	0.466	+/-1.000	J	0.050	1.000	MS	01/05/2012	00:58	LB58710
	Nickel	0.102	+/-1.000	J	0.060	1.000	MS	01/05/2012	00:58	LB58710
	Potassium	40.710	+/-500.000	J	12.220	500.000	MS	01/05/2012	00:58	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	00:58	LB58710
	Silver	0.035	+/-1.000	J	0.030	1.000	MS	01/05/2012	00:58	LB58710
	Sodium	69.680	+/-500.000	J	5.320	500.000	MS	01/05/2012	00:58	LB58710
	Thallium	0.226	+/-1.000	J	0.020	1.000	MS	01/05/2012	00:58	LB58710
	Vanadium	0.176	+/-5.000	J	0.150	5.000	MS	01/05/2012	00:58	LB58710
	Zinc	0.190	+/-2.000	J	0.090	2.000	MS	01/05/2012	00:58	LB58710
CCB08	Aluminum	14.970	+/-20.000	J	4.970	20.000	MS	01/05/2012	02:33	LB58710
	Antimony	0.797	+/-2.000	J	0.140	2.000	MS	01/05/2012	02:33	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	02:33	LB58710
	Barium	0.266	+/-10.000	J	0.100	10.000	MS	01/05/2012	02:33	LB58710
	Beryllium	0.133	+/-1.000	J	0.090	1.000	MS	01/05/2012	02:33	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	02:33	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	02:33	LB58710
	Chromium	0.121	+/-2.000	J	0.040	2.000	MS	01/05/2012	02:33	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	02:33	LB58710
	Copper	0.105	+/-2.000	J	0.040	2.000	MS	01/05/2012	02:33	LB58710
	Iron	12.020	+/-200.000	J	10.280	200.000	MS	01/05/2012	02:33	LB58710
	Lead	0.197	+/-1.000	J	0.040	1.000	MS	01/05/2012	02:33	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	02:33	LB58710
	Manganese	0.406	+/-1.000	J	0.050	1.000	MS	01/05/2012	02:33	LB58710
	Nickel	0.102	+/-1.000	J	0.060	1.000	MS	01/05/2012	02:33	LB58710
	Potassium	31.560	+/-500.000	J	12.220	500.000	MS	01/05/2012	02:33	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB08	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	02:33	LB58710
	Silver	0.034	+/-1.000	J	0.030	1.000	MS	01/05/2012	02:33	LB58710
	Sodium	56.480	+/-500.000	J	5.320	500.000	MS	01/05/2012	02:33	LB58710
	Thallium	0.529	+/-1.000	J	0.020	1.000	MS	01/05/2012	02:33	LB58710
	Vanadium	0.152	+/-5.000	J	0.150	5.000	MS	01/05/2012	02:33	LB58710
	Zinc	0.246	+/-2.000	J	0.090	2.000	MS	01/05/2012	02:33	LB58710
CCB09	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	04:09	LB58710
	Antimony	0.824	+/-2.000	J	0.140	2.000	MS	01/05/2012	04:09	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	04:09	LB58710
	Barium	0.554	+/-10.000	J	0.100	10.000	MS	01/05/2012	04:09	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	04:09	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	04:09	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	04:09	LB58710
	Chromium	0.161	+/-2.000	J	0.040	2.000	MS	01/05/2012	04:09	LB58710
	Cobalt	0.060	+/-1.000	J	0.050	1.000	MS	01/05/2012	04:09	LB58710
	Copper	0.156	+/-2.000	J	0.040	2.000	MS	01/05/2012	04:09	LB58710
	Iron	15.900	+/-200.000	J	10.280	200.000	MS	01/05/2012	04:09	LB58710
	Lead	0.203	+/-1.000	J	0.040	1.000	MS	01/05/2012	04:09	LB58710
	Magnesium	6.553	+/-500.000	J	4.950	500.000	MS	01/05/2012	04:09	LB58710
	Manganese	0.490	+/-1.000	J	0.050	1.000	MS	01/05/2012	04:09	LB58710
	Nickel	0.181	+/-1.000	J	0.060	1.000	MS	01/05/2012	04:09	LB58710
	Potassium	38.720	+/-500.000	J	12.220	500.000	MS	01/05/2012	04:09	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	04:09	LB58710
	Silver	0.094	+/-1.000	J	0.030	1.000	MS	01/05/2012	04:09	LB58710
	Sodium	66.900	+/-500.000	J	5.320	500.000	MS	01/05/2012	04:09	LB58710
	Thallium	0.310	+/-1.000	J	0.020	1.000	MS	01/05/2012	04:09	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	04:09	LB58710
	Zinc	0.267	+/-2.000	J	0.090	2.000	MS	01/05/2012	04:09	LB58710
CCB10	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	05:45	LB58710
	Antimony	0.890	+/-2.000	J	0.140	2.000	MS	01/05/2012	05:45	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	05:45	LB58710
	Barium	0.520	+/-10.000	J	0.100	10.000	MS	01/05/2012	05:45	LB58710
	Beryllium	0.127	+/-1.000	J	0.090	1.000	MS	01/05/2012	05:45	LB58710
	Cadmium	0.141	+/-1.000	J	0.130	1.000	MS	01/05/2012	05:45	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	05:45	LB58710
	Chromium	0.166	+/-2.000	J	0.040	2.000	MS	01/05/2012	05:45	LB58710
	Cobalt	0.104	+/-1.000	J	0.050	1.000	MS	01/05/2012	05:45	LB58710
	Copper	0.196	+/-2.000	J	0.040	2.000	MS	01/05/2012	05:45	LB58710
	Iron	13.210	+/-200.000	J	10.280	200.000	MS	01/05/2012	05:45	LB58710
	Lead	0.201	+/-1.000	J	0.040	1.000	MS	01/05/2012	05:45	LB58710
	Magnesium	8.633	+/-500.000	J	4.950	500.000	MS	01/05/2012	05:45	LB58710
	Manganese	0.530	+/-1.000	J	0.050	1.000	MS	01/05/2012	05:45	LB58710

CHEMTECH

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INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5065 **SAS No.:** C5065

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	97900	100000	97.9	80 - 120%	01/04/2012	14:48	LB58710
	Antimony	1.7				01/04/2012	14:48	LB58710
	Arsenic	0.24				01/04/2012	14:48	LB58710
	Barium	1.5				01/04/2012	14:48	LB58710
	Beryllium	0.34				01/04/2012	14:48	LB58710
	Cadmium	0.20				01/04/2012	14:48	LB58710
	Calcium	100000	100000	100.0	80 - 120%	01/04/2012	14:48	LB58710
	Chromium	20.8	21	99.0	80 - 120%	01/04/2012	14:48	LB58710
	Cobalt	1.3				01/04/2012	14:48	LB58710
	Copper	8.2				01/04/2012	14:48	LB58710
	Iron	96100	100000	96.1	80 - 120%	01/04/2012	14:48	LB58710
	Lead	4.4	4	110.0	80 - 120%	01/04/2012	14:48	LB58710
	Magnesium	98700	100000	98.7	80 - 120%	01/04/2012	14:48	LB58710
	Manganese	8.2				01/04/2012	14:48	LB58710
	Nickel	6.1				01/04/2012	14:48	LB58710
	Potassium	99300	100000	99.3	80 - 120%	01/04/2012	14:48	LB58710
	Selenium	-0.17				01/04/2012	14:48	LB58710
	Silver	0.096				01/04/2012	14:48	LB58710
	Sodium	100000	100000	100.0	80 - 120%	01/04/2012	14:48	LB58710
	Thallium	0.17				01/04/2012	14:48	LB58710
	Vanadium	0.38				01/04/2012	14:48	LB58710
	Zinc	12.1				01/04/2012	14:48	LB58710
ICSAB01	Aluminum	96000	100000	96.0	80 - 120%	01/04/2012	14:56	LB58710
	Antimony	21.2	22	96.4	80 - 120%	01/04/2012	14:56	LB58710
	Arsenic	20.8	19	109.5	80 - 120%	01/04/2012	14:56	LB58710
	Barium	21.8	22	99.1	80 - 120%	01/04/2012	14:56	LB58710
	Beryllium	20.3	20	101.5	80 - 120%	01/04/2012	14:56	LB58710
	Cadmium	19.7	20	98.5	80 - 120%	01/04/2012	14:56	LB58710
	Calcium	99000	100000	99.0	80 - 120%	01/04/2012	14:56	LB58710
	Chromium	40.7	40	101.8	80 - 120%	01/04/2012	14:56	LB58710
	Cobalt	21.0	20	105.0	80 - 120%	01/04/2012	14:56	LB58710
	Copper	28.2	25	112.8	80 - 120%	01/04/2012	14:56	LB58710
	Iron	96300	100000	96.3	80 - 120%	01/04/2012	14:56	LB58710
	Lead	24.7	25	98.8	80 - 120%	01/04/2012	14:56	LB58710
	Magnesium	98100	100000	98.1	80 - 120%	01/04/2012	14:56	LB58710
	Manganese	28.8	27	106.7	80 - 120%	01/04/2012	14:56	LB58710
	Nickel	26.0	24	108.3	80 - 120%	01/04/2012	14:56	LB58710
	Potassium	99200	100000	99.2	80 - 120%	01/04/2012	14:56	LB58710
	Selenium	20.2	19	106.3	80 - 120%	01/04/2012	14:56	LB58710
	Silver	19.5	18	108.3	80 - 120%	01/04/2012	14:56	LB58710
	Sodium	101000	100000	101.0	80 - 120%	01/04/2012	14:56	LB58710
	Thallium	19.9	21	94.8	80 - 120%	01/04/2012	14:56	LB58710
	Vanadium	20.1	19	105.8	80 - 120%	01/04/2012	14:56	LB58710
	Zinc	32.7	29	112.8	80 - 120%	01/04/2012	14:56	LB58710

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58541

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.02	7.00	100	90-110	12/21/2011
Sample ID:	CCV1						
pH		pH	2.02	2.00	101	90-110	12/21/2011
Sample ID:	CCV2						
pH		pH	12.04	12.00	100	90-110	12/21/2011

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Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58615

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60184						
Cyanide		mg/L	0.10	0.10	100	85-115	12/28/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	12/28/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.26	0.25	104	90-110	12/28/2011

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Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58615

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: **LB58615BLS**						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/28/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01S	**Percent Solids for Spike Sample:**	**74.2**

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	**mg/Kg**	**48-158**	**2.510**		**0.046**	**J**	**2.69**	**1**	**92**		**12/28/2011**

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01SD	**Percent Solids for Spike Sample:**	74.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.520		0.046	J	2.69	1	92		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01D	**Percent Solids for Spike Sample:**	74.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.046	J	0.044	U	1	200.0		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	4.620		4.630		1	0.2		12/21/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01SD	**Percent Solids for Spike Sample:**	74.2

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Redox Potential	**mV**	**+/-20**	**339.00**	**340.0**		**1**	**0.3**		**12/23/2011**

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	4.620		4.640		1	0.4		12/21/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5065
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5065-02
Client ID:	12TP17-000.5-01SD	**Percent Solids for Spike Sample:**	74.2

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.51	2.520		1	0.4		12/28/2011

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5065

Project: CTO WE05 NAS JRB Willow Grove

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	LB58615BSS								
Cyanide		mg/Kg	10.00	9.50		95	1	80-110	12/28/2011

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58596
Instrument: ~~Titroline Alpha Titrator~~ pH Meter

Time In:	11:15 AM	Temp In (C):	20.3
Time Out:	12:05 PM	Temp Out (C):	20.3

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ~~ppm/ppb~~ mV	Dil	Analytical Date
1	CAL	CAL	CAL	210.1		12-23-11
2	C5056-01	12TP16-000.5-01	SAM	318.5		
3	C5056-01D	12TP16-000.5-01D	DUP	319.1		
4	C5056-02	12TP16-0.0502-02	SAM	328.9		
5	C5056-03	12TP16-0608-03	SAM	243.7		
6	C5056-04	12TP16-0910-04	SAM	352.1		
7	C5056-05	12TP-DUP-01	SAM	228.1		
8	C5056-06	12TP03-0506-CS	SAM	181.3		
9	C5056-07	12TP02-0405-CS	SAM	226.5		
10	C5056-08	12TP14-0405-CS	SAM	206.8		
11	C5056-09	12TP15-0304-CS	SAM	175.6		
12	C5056-10	12TP09-0304-CS	SAM	162.6		
13	C5056-11	12TP10-0405-CS	SAM	233.8		
14	C5056-12	12TP08-0304-CS	SAM	255.3		
15	C5065-02	12TP17-000.5-01	SAM	338.4		
16	C5065-03	C5065-02MS	MS	339.2		
17	C5065-04	C5065-02MSD	MSD	340.1		
18	C5065-05	12TP17-0.5-02-02	SAM	373.9		
19	C5065-06	12TP18-0506-01	SAM	188.5		
20	C5065-07	12TP18-0607-02	SAM	277.7		
21	C5065-08	12TP12-0203-CS	SAM	236.0		↓

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58596
Instrument: ~~Titrolino Alpha Titrator~~ pH Meter JM 12-28-11

JM

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ppm/ppb	Dil	Analytical Date
1	CAL	CAL	CAL	210.100	1	12/23/11
2	C5056-01	12TP16-000.5-01	SAM	318.500	1	12/23/11
3	C5056-01D	12TP16-000.5-01D	DUP	319.100	1	12/23/11
4	C5056-02	12TP16-0.0502-02	SAM	328.900	1	12/23/11
5	C5056-03	12TP16-0608-03	SAM	243.700	1	12/23/11
6	C5056-04	12TP16-0910-04	SAM	352.100	1	12/23/11
7	C5056-05	12TP-DUP-01	SAM	228.100	1	12/23/11
8	C5056-06	12TP03-0506-CS	SAM	181.300	1	12/23/11
9	C5056-07	12TP02-0405-CS	SAM	226.500	1	12/23/11
10	C5056-08	12TP14-0405-CS	SAM	206.800	1	12/23/11
11	C5056-09	12TP15-0304-CS	SAM	175.600	1	12/23/11
12	C5056-10	12TP09-0304-CS	SAM	162.600	1	12/23/11
13	C5056-11	12TP10-0405-CS	SAM	233.800	1	12/23/11
14	C5056-12	12TP08-0304-CS	SAM	255.300	1	12/23/11
15	C5065-02	12TP17-000.5-01	SAM	338.400	1	12/23/11
16	C5065-03	12TP17-000.5-01S	MS	339.200	1	12/23/11
17	C5065-04	12TP17-000.5-01SD	MSD	340.100	1	12/23/11
18	C5065-05	12TP17-0.5-02-02	SAM	373.900	1	12/23/11
19	C5065-06	12TP18-0506-01	SAM	188.500	1	12/23/11
20	C5065-07	12TP18-0607-02	SAM	277.700	1	12/23/11
21	C5065-08	12TP12-0203-CS	SAM	236.000	1	12/23/11

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: 1b58541
Instrument: pH Meter

REVIEWED BY: JA

TEMP. = 19.5 °C
SLOPE = 98.4

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL 4	CAL	4.01	1	11:50 AM	WATER	12/21/2011
2	CAL 7	CAL	7.01	1	11:54	WATER	12/21/2011
3	CAL 10	CAL	10.04	1	11:58	WATER	12/21/2011
4	ICV 7	ICV	7.02	1	12:02 PM	WATER	12/21/2011
5	CCV 2	CCV	2.02	1	12:06	WATER	12/21/2011
6	C5065-02	SAM	4.62	1	12:10	SOIL	12/21/2011
7	C5065-03D	~~MSD~~ Dup JA 12-22-11	4.63	1	12:14	SOIL	12/21/2011
8	C5065-04D	~~MSD~~ Dup	4.64	1	12:18	SOIL	12/21/2011
9	C5065-05	SAM	4.52	1	12:22	SOIL	12/21/2011
10	C5065-06	SAM	6.47	1	12:26	SOIL	12/21/2011
11	C5065-07	SAM	6.30	1	12:30	SOIL	12/21/2011
12	C5065-08	SAM	6.36	1	12:34	SOIL	12/21/2011
13	CCV 12	CCV	12.04	1	12:38	WATER	12/21/2011

Calibration Standards	Chemtech Log #
pH 4.00	W1572
pH 7.00	W1498
pH 10.00	W1468
(ICV) pH 7.00	W1286
(CCV) pH 2.00	W1384
(CCV) pH 12.00	W1493

True Value of ICV = 7.0. Control Limits [+/- 0.1].

True Value of CCV = 12. Control Limits [+/- 0.1].

% Recovery Percentage Difference = _____.

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax:

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: 1b58541
Instrument: pH Meter

REVIEW: JM
REVIEWED BY: [illegible]

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL	CAL	4.01	1		WATER	12/21/11
2	CAL	CAL	7.01	1		WATER	12/21/11
3	CAL	CAL	10.04	1		WATER	12/21/11
4	ICV	ICV	7.02	1		WATER	12/21/11
5	CCV	CCV	2.02	1		WATER	12/21/11
6	C5065-02	SAM	4.62	1		SOIL	12/21/11
7	C5065-03D	~~MSD~~ dup JM	4.63	1		SOIL	12/21/11
8	C5065-04D	~~MSD~~ dup 12-28-11	4.64	1		SOIL	12/21/11
9	C5065-05	SAM	4.52	1		SOIL	12/21/11
10	C5065-06	SAM	6.47	1		SOIL	12/21/11
11	C5065-07	SAM	6.30	1		SOIL	12/21/11
12	C5065-08	SAM	6.36	1		SOIL	12/21/11
13	CCV	CCV	12.04	1		WATER	12/21/11

JM 12-23-11

M-PERCENT SOLIDS-05

CHEMTECH

PERCENT SOLIDS

ANALYST: Ry

DATE: 12-23-11

QC: L558553

Lab ID	Client ID	Dish #	Dish Weight (g)	Dish Wt. + Sample (g)	Dish Wt.+ Dry Sample (g)	% Solids
C5065-02	12TP17-000.5-01	1	1.18	9.56	7.4	74.2
C5065-03	C5065-02MS	2	1.18	9.56	7.4	74.2
C5065-04	C5065-02MSD	3	1.18	9.56	7.4	74.2
C5065-05	12TP17-0.5-02-02	4	1.18	9.63	8.36	85.0
C5065-06	12TP18-0506-01	5	1.17	9.65	8.27	83.7
C5065-07	12TP18-0607-02	6	1.18	9.75	8.16	81.4
C5065-08	12TP12-0203-CS	7	1.17	9.81	8.08	80.0
C5068-01	SB-37-55.5-57.5	8	1.19	9.73	8.65	87.4
C5068-02	SB-37-61.5-63.5	9	1.19	9.66	8.4	85.1
C5068-03	SB-37-64-66	10	1.18	9.83	8.91	89.4
C5068-10	SS-01	11	1.17	9.74	4.2	35.4
C5068-11	C5068-10MS	12	1.17	9.74	4.2	35.4
C5068-12	C5068-10MSD	13	1.17	9.74	4.2	35.4
C5068-13	SS-01D	14	1.19	9.6	3.56	28.2
C5068-14	SS-22-56-58	15	1.19	9.74	8.11	80.9
C5068-15	SS-22-63-65	16	1.18	9.72	8.26	82.9
C5077-01	B183-SSS-1(0-0.5)	17	1.18	9.54	9.33	97.5
C5077-02	B183-SSS-2(0-0.5)	18	1.19	9.62	9.41	97.5
C5077-03	B183-SSS-3(0-0.5)	19	1.19	9.81	9.65	98.1
C5077-04	B183-SSS-4(0-0.5)	20	1.19	9.67	9.47	97.6
C5077-05	B183-FD1	21	1.18	9.67	9.54	98.5
C5077-07	C5077-02MS	22	1.19	9.62	9.41	97.5
C5077-08	C5077-02MSD	23	1.19	9.62	9.41	97.5
C5080-01	QUANTICO-F-S	24		OIL / WIPE	SAMPLE	100.0
C5083-01	NOKESVILLEF-S	25		OIL	SAMPLE	100.0
C5084-01	WC-1	26	1.19	9.67	8.6	87.4
C5087-01	SAMPLE86-5	27	1.19	9.83	9.01	90.5
C5087-02	SAMPLE86-6	28	1.18	9.76	8.86	89.5
C5087-03	SAMPLE86-7	29	1.19	9.72	8.92	90.6
C5087-04	SAMPLE86-1	30	1.17	9.71	8.94	91.0
C5093-01	UBZ3-SO-22-4-5	31	1.18	9.8	8.88	89.3
C5093-02	UBZ3-SO-37-3-4	32	1.18	9.57	8.55	87.8
C5093-03	UBZ3-SO-37-12-13	33	1.19	9.79	8.87	89.3
C5093-04	UBZ3-SO-22-2-3	34	1.19	9.77	8.45	84.6

12/23/11 AP

*T1: 1.00 g = 1.00 g

*T2: 10.00 g = 10.00 g

OVEN TEMP: 110 C

TIME IN: 12-22-11 19:30

TIME OUT:

OVEN TEMP: 105 C

TIME OUT: 12-23-11 9:30

CHEMTECH **PERCENT SOLIDS** ANALYST: PJ
DATE: 12-23-11

QC: LB58553

Lab ID	Client ID	Dish #	Dish Weight (g)	Dish Wt. + Sample (g)	Dish Wt.+ Dry Sample (g)	% Solids
C5093-05	UBZ3-SO-36-8-9	35	1.19	9.74	8.86	89.7
C5093-06	UBZ3-SO-36-14-15	36	1.18	9.57	8.67	89.3
C5093-07	UBZ3-SO-15-8-9	37	1.17	9.63	9.12	94.0
C5093-08	UBZ3-SO-15-12-13	38	1.18	9.76	8.53	85.7
C5093-12	BZ3-SO-14-4-5	39	1.16	9.81	8.76	87.9
C5093-13	UBZ2-SO-43-9-10	40	1.17	9.69	8.78	89.3
C5093-14	UBZ2-SO-DUP5	41	1.19	9.6	8.68	89.1
C5093-15	UBZ2-SO-43-13-14	42	1.16	9.65	8.7	88.8
C5093-16	UBZ2-SO-42-5-6	43	1.16	9.84	9.12	91.7
C5093-17	UBZ2-SO-42-7-8	44	1.19	9.68	8.99	91.9
C5093-18	BZ3-SO-6-7-8	45	1.19	9.57	8.37	85.7
C5093-19	C5093-18MS	46	1.19	9.57	8.37	85.7
C5093-20	C5093-18MSD	47	1.19	9.57	8.37	85.7
C5093-21	BZ3-SO-6-0.5-1.5	48	1.19	9.8	8.62	86.3
C5093-22	BZ2-SO-6-13-14	49	1.17	9.56	8.65	89.2
C5093-23	BZ2-SO-6-3-4	50	1.17	9.59	8.7	89.4
C5093-24	UBZ3-SO-14-38-39	51	1.18	9.68	7.84	78.4
C5104-01	AAX0073	52	1.19	9.56	6.89	68.1
C5104-02	AAX0074	53	1.19	9.73	7.87	78.2
C5104-03	AAX0075	54	1.19	9.64	7.38	73.3
C5104-04	AAX0076	55	1.19	9.8	8.28	82.3
C5104-05	AAX0077	56	1.18	9.67	8.19	82.6
C5104-06	AAX0078	57	1.19	9.8	8.02	79.3
C5104-07	AAX0079	58	1.17	9.61	7.39	73.7
C5104-08	AAX0080	59	1.17	9.59	7.01	69.4
C5104-09	AAX0081	60	1.17	9.63	7.81	78.5
C5104-10	AAX0081MS	61	1.17	9.63	7.81	78.5
C5104-11	AAX0081MSD	62	1.17	9.63	7.81	78.5
C5104-12	AAX0082	63	1.17	9.61	7.77	78.2
C5104-13	AAX0083	64	1.16	9.75	8.2	82.0
C5104-14	AAX0084	65	1.19	9.66	5.92	55.8
C5104-15	AAX0085	66	1.16	9.54	8.03	82.0
C5104-16	AAX0086	67	1.17	9.8	8.13	80.6
C5104-17	AAX0087	68	1.18	9.58	8.01	81.3

OVEN TEMP: 110 C
TIME IN: 12-22-11 19:30
TIME OUT:

OVEN TEMP: 105 C
TIME OUT: 12-23-11 9:30

Apr 12/23/11

CHEMTECH

PERCENT SOLIDS

ANALYST: [signature]
DATE: 12-23-4

QC: L358553

Lab ID	Client ID	Dish #	Dish Weight (g)	Dish Wt. + Sample (g)	Dish Wt.+ Dry Sample (g)	% Solids
C5104-18	AAX0088	69	1.17	9.73	8.18	81.9
C5104-19	AAX0089	70	1.16	9.67	7.97	80.0
C5068-10D	SS-01D	11D	1.17	9.77	4.31	36.5
C5087-04D	SAMPLE86-1D	30D	1.17	9.74	9.05	91.9
C5093-18D	BZ3-SO-6-7-8D	45D	1.19	9.6	8.48	86.7
C5104-19D	AAX0089D	70D	1.16	9.7	8.08	81.0
BLANK	DISH	B1	1.19	1.19	1.19	0.0
BLANK	DISH	B2	1.16	1.16	1.16	0.0
BLANK	DISH	B3	1.17	1.17	1.17	0.0
BLANK	DISH	B4	1.18	1.18	1.18	0.0

OVEN TEMP: 110C
TIME IN: 12-22-4 19:30
TIME OUT: [illegible]

OVEN TEMP: 105C
TIME OUT: 12-23-4 9:30

12/23/11 AL.

M-PERCENT SOLIDS-02 (ILM05.4)

CHEMTECH

PERCENT SOLIDS

ANALYST: TB

DATE: 12-23 - 11

QC: LB58553

Lab ID	Client ID	Dish #	Dish Weight (g)	Dish Wt. + Sample (g)	Dish Wt.+ Dry Sample (g)	% Solids
C5094-01	MB9RQ7	1	1.19	9.8	8.62	86.3
C5094-02	MB9RR0	2	1.19	9.73	8.5	85.6
C5094-03	MB9S11	3	1.19	9.85	8.36	82.8
C5094-04	MB9S14	4	1.16	9.71	8.37	84.3
C5094-05	MB9S17	5	1.17	9.68	8.47	85.8
C5094-06	MB9SM1	6	1.17	9.64	8.38	85.1
C5094-07	MB9SM1D	7	1.18	9.7	8.41	84.9
C5094-08	MB9SM1S	8	NR	NR	NR	NR
BLANK	DISH	B1	1.16	1.16	1.16	0.0

OVEN TEMP: 110C

TIME IN: 12-22-11 19:30

TIME OUT: ———

OVEN TEMP: 105 C

TIME OUT: 12-23-11 9:30

12/23/11 A.B.

TO: A. FREBOWITZ **DATE:** MARCH 12, 2012

FROM: EDWARD SEDLMYER **COPIES:** DV FILE

SUBJECT: **ORGANIC AND INORGANIC DATA VALIDATION - VOC / SVOC / PEST / PCB / METALS / CYANIDE / ORP / pH**
NASJRB WILLOW GROVE
SDG C5128

SAMPLES: 11/Soil/VOC/SVOC/PEST/PCB/METALS/CYANIDE/ORP/pH

12SB-DUP-06	12SB20-0304-03	12SB21-0.502-02
12SB21-000.5-01	12SB21-0304-03	12SB23-0.502-02
12SB23-000.5-01	12SB23-0304-03	12SB30-0.502-02
12SB30-000.5-01	12SB30-0304-03	

2/Soil/ORP/pH

03SB28-115215-01 03TP36-0708-01

1/Aqueous/VOC

TB-01-122211

Overview

The sample set for NASJRB Willow Grove, SDG C5128 consists of eleven (11) soil environmental samples and one (1) trip blank. One field duplicate pair was included in this SDG: 12SB20-0304-03 / 12SB-DUP-06. Samples were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides (PEST), polychlorinated biphenyls (PCBs), metals, cyanide, oxidation reduction potential (ORP) and pH, as stated above.

The samples were collected by Tetra Tech on December 22, 2011 and analyzed by Chemtech Laboratories. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A, 8082, 6020A, 7471A, 9012B, 9045C, and EPA Standard Method 1498 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, ICP interference results, laboratory duplicate results, ICP serial dilution results, field duplicate results, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major

- None.

Minor

- The following compound was detected in the trip blank at the maximum concentration indicated below:

Compound	Concentration	Action Level
Chloromethane	1.1 ug/L	5.5 ug/kg

An action level of 5 the maximum contaminant concentration was established for chloromethane to evaluate laboratory contamination. Dilution factors, percent solids, and sample aliquots were taken into consideration during the application of all action levels. No action was taken on this basis because chloromethane was not detected in the associated samples.

- The VOC initial calibration performed on 01/04/12 on instrument MSVOA_F exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for chloroethane, trichlorofluoromethane, acetone, trans-1,2-dichloroethene, trans-1,3-dichloropropene, 1,1,2-trichloroethane, chlorodibromomethane, styrene, bromoform, and 1,2-dibromo-3-chloropropane. The positive acetone results for samples 12SB20-0304-03, 12SB21-0.502-02, 12SB23-0.502-02, and 12SB30-000.5-01 have been qualified as estimated (J). No action was taken on the nondetected results for the remaining compounds.

- The surrogate 1,2-dichloroethane-d4 had a percent recovery greater than the quality control limit for sample TB-01-122211. The positive result for chloromethane has been qualified as estimated (J). No action was taken on the nondetected results.

- The laboratory control sample (LCS) associated with batch VG122511 had percent recoveries (%Rs) for chloromethane, trichlorofluoromethane, acetone, 1,1,1-trichloroethane, 1,2-dichloroethane greater than the laboratory quality control limit. The positive chloromethane result for sample TB-01-122211 has been qualified as estimated (J). No action was taken on the nondetected results.

- The laboratory control sample (LCS) associated with batch PB60240 had a %R for 4-chloroaniline less than the laboratory quality control limit. The nondetected 4-chloroaniline results for all samples have been qualified as estimated (UJ).

- The SVOC SIM initial calibration performed on 01/03/12 on instrument BNA_G exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for naphthalene, acenaphthene, phenanthrene, fluoranthene, benzo(a)anthracene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene. The positive results for the aforementioned compounds in samples 12SB30-304-03, 12SB30-0.502-02, 12SB30-000.5-01, 12SB23-000.5-01, 12SB21-000.5-01, 12SB20-0304-03, and 12SB-DUP-06 have been qualified as estimated (J). No action was taken on the nondetected results.

- Field duplicate imprecision (RPD > 50% was noted for acetone and aroclor-1260 for sample pair 12SB20-0304-03 / 12SB-DUP-06. The positive and nondetected results reported for acetone and aroclor-1260 in the sample pair 12SB20-0304-03 / 12SB-DUP-06 were qualified as estimated, (J) and (UJ), respectively.

- The percent difference between columns exceeded 40% for the following compound. The positive result was reported as estimated (J), for the compound below:

Sample	Compound	%D
12SB21-000.5-01	Dieldrin	51.2%

- The contract required detection limit (CRDL) percent recovery for selenium on 01/04/2012 at 15:35 was < 90% quality control limit affecting all samples. The positive results < 2X CRDL reported for selenium were qualified as estimated, (J), as a result of conflicting noncompliances. The nondetected results reported for selenium were qualified as biased low, (UJ), as a result of conflicting noncompliances.

- The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	14.97 ug/L	7.485 mg/kg
Antimony	0.953 ug/L	0.477 mg/kg
Beryllium	0.133 ug/L	0.0665 mg/kg
Barium	0.554 ug/L	0.277 mg/kg
Cadmium	0.141 ug/L	0.0705 mg/kg
Chromium	0.166 ug/L	0.083 mg/kg
Cobalt	0.104 ug/L	0.052 mg/kg
Copper	0.196 ug/L	0.098 mg/kg
Iron	28.21 ug/L	14.1 mg/kg
Lead	0.,203 ug/L	0.102 mg/kg
Magnesium	8.633 ug/L	4.32 mg/kg
Manganese	0.530 ug/L	0.265 mg/kg
Nickel	0.181 ug/L	0.0905 mg/kg
Potassium	40.250 ug/L	20.125 mg/kg
Silver	0.111 ug/L	0.0555 mg/kg
Sodium	76.080 ug/L	38.04 mg/kg
Thallium	0.663 ug/L	0.3315 mg/kg
Vanadium	0.214 ug/L	0.107 mg/kg
Zinc	0.314 ug/L	0.157 mg/Kg
Iron[(1)]	1.768 mg/kg	8.84 mg/kg
Lead[(1)]	0.012 mg/kg	0.06 mg/kg
Manganese[(1)]	0.032 mg/kg	0.16 mg/kg
Potassium[(1)]	3.434 mg/kg	17.17 mg/kg
Sodium[(1)]	6.289 mg/kg	31.45 mg/kg
Thallium[(1)]	0.029 mg/kg	0.145 mg/kg

1 - Maximum concentration present in preparation blank affecting all samples.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. The positive results less than the blank action level reported for antimony, cadmium, silver, sodium, and thallium qualified (B) as a result of laboratory blank contamination.

- The matrix spike and/or matrix spike duplicate percent recoveries for antimony, arsenic, beryllium, chromium, cobalt, copper, nickel, potassium, selenium and vanadium were < 80% quality control limit affecting the total metals analysis. The positive results reported for the

aforementioned analytes were qualified as estimated, (J), as a result of conflicting noncompliances.

- The ICP serial dilutions were > 10% quality control limit (sample results > 50X MDL) for calcium, chromium, cobalt, copper, magnesium, manganese, nickel, potassium, vanadium, and zinc. The positive results reported for calcium, chromium, cobalt, copper, magnesium, manganese, nickel, potassium, vanadium, and zinc were qualified as estimated, (J).

- The ICP internal standard recoveries for rhodium-103 and bismuth-209 were < 70% quality control limit affecting sample 12SB30-000.5-01. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, cadmium, barium, and lead in the affected sample were qualified as estimated, (J). No action was taken on the antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB30-0.502-02. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, barium, and lead in the affected sample were qualified as estimated, (J). The nondetected result reported for selenium in the affected sample was qualified as estimated (UJ), as a result of conflicting noncompliances. No action was taken on the cadmium, antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103 and bismuth-209 were < 70% quality control limit affecting sample 12SB30-0304-03. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, barium, and lead in the affected sample were qualified as estimated, (J). The nondetected result reported for selenium in the affected sample was qualified as estimated (UJ), as a result of conflicting noncompliances. No action was taken on the cadmium, antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103 and bismuth-209 were < 70% quality control limit affecting sample 12SB23-000.5-01. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, cadmium, silver, barium, and lead in the affected sample were qualified as estimated, (J). No action was taken on the antimony and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB23-0304-03. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, cadmium, barium, and lead in the affected sample were qualified as estimated, (J). The nondetected result reported for selenium in the affected sample was qualified as estimated (UJ), as a result of conflicting noncompliances. No action was taken on the antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB21-000.5-01. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, cadmium, silver, barium, and lead in the affected sample was

qualified as estimated, (J). No action was taken on the antimony and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB21-0.502-02. The positive results reported for vanadium, chromium, iron, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, barium, and lead in the affected sample was qualified as estimated, (J). No action was taken on the cadmium, antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB21-0304-03. The positive results reported for vanadium, chromium, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, barium, and lead in the affected sample was qualified as estimated, (J). No action was taken on the cadmium, antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recovery for scandium-45 was < 70% quality control limit affecting the dilution of sample 12SB23-0304-03. The positive result reported for iron in the affected sample was qualified as estimated, (J).

- The ICP internal standard recovery for scandium-45 was < 70% quality control limit affecting the dilution of sample 12SB21-000.5-01. The positive result reported for manganese in the affected sample was qualified as estimated, (J).

- The ICP internal standard recovery for scandium-45 was < 70% quality control limit affecting the dilution of sample 12SB21-0304-03. The positive result reported for iron in the affected sample was qualified as estimated, (J).

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB23-0.502-02. The positive results reported for vanadium, chromium, manganese, cobalt, nickel, copper, zinc, arsenic, selenium, cadmium, barium, and lead in the affected sample were qualified as estimated, (J). No action was taken on the antimony, silver, and thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB20-0304-03. The positive results reported for vanadium, chromium, manganese, cobalt, nickel, copper, zinc, arsenic, cadmium, silver, antimony, barium, and lead in the affected sample were qualified as estimated, (J). The nondetected result reported for selenium in the affected sample was qualified as estimated (UJ), as a result of conflicting noncompliances. No action was taken on the thallium result because thallium was previously qualified due to blank contamination.

- The ICP internal standard recoveries for rhodium-103, terbium-159, holmium-165, and bismuth-209 were < 70% quality control limit affecting sample 12SB-DUP-06. The positive results reported for vanadium, chromium, manganese, cobalt, nickel, copper, zinc, arsenic, cadmium, silver, antimony, barium, thallium, and lead in the affected sample was qualified as estimated, (J). The nondetected result reported for selenium in the affected sample was qualified as estimated (UJ), as a result of conflicting noncompliances. No action was taken on the thallium results because they were previously qualified due to blank contamination.

- The ICP internal standard recovery for scandium-45 was < 70% quality control limit affecting the dilution of sample 12SB23-0.502-02. The positive result reported for iron in the affected sample was qualified as estimated, (J).

- The ICP internal standard recovery for scandium-45 was < 70% quality control limit affecting the dilution of sample 12SB20-0304-03. The positive result reported for iron in the affected sample was qualified as estimated, (J).

- The ICP internal standard recovery for scandium-45 and rhodium-103 were < 70% quality control limit affecting the dilution of sample 12SB-DUP-06. The positive results reported for iron, manganese, and barium in the affected sample were qualified as estimated, (J).

- Field duplicate imprecision (RPD > 50% was noted for antimony, barium, cadmium, copper, lead, manganese, silver, and zinc for sample pair 12SB20-0304-03 / 12SB-DUP-06. The positive results reported for antimony, barium, cadmium, copper, lead, manganese, silver, and zinc were qualified as estimated, (J).

- The interfering analyte iron was present in sample 12SB-DUP-06 at a concentration comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for beryllium, nickel, and thallium in the affected sample. The positive result reported for nickel was qualified as estimated, (J), as a result of conflicting noncompliances. The positive result reported for beryllium was qualified as biased high, (K). No validation action was warranted for thallium as the sample result was qualified for blank contamination.

- The interfering analytes aluminum and iron were present in sample 12SB21-0.502-02 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cadmium, cobalt, copper, nickel, silver, and thallium in the affected sample. The positive results reported for cobalt, copper and nickel were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony, cadmium, silver, and thallium as the sample results were qualified for blank contamination.

- The interfering analytes aluminum and iron were present in sample 12SB21-0304-03 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, cadmium, cobalt, copper, nickel, silver, thallium, and zinc in the affected sample. The positive results reported for beryllium, cobalt, copper, nickel, and zinc were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony, cadmium, sliver, and thallium as the sample results were qualified for blank contamination.

- The interfering analytes iron and aluminum were present in sample 12SB23-0.502-02 at concentrations comparable to the concentrations of iron and aluminum in the interference

check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, cadmium, cobalt, copper, nickel, silver, thallium, and zinc in the affected sample. The positive results reported for beryllium, cadmium, cobalt, copper, nickel, and zinc were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony, sliver, and thallium as the sample results were qualified for blank contamination.

- The interfering analytes aluminum and iron were present in sample 12SB30-0.502-02 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, cadmium, copper, nickel, silver, and thallium in the affected sample. The positive results reported for beryllium, copper and nickel were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony, cadmium, sliver, and thallium as the sample results were qualified for blank contamination.

- The interfering analyte iron was present in sample 12SB20-0304-03 at a concentration comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, cobalt and nickel in the affected sample. The positive results reported for antimony, beryllium, copper and nickel were qualified as estimated, (J), as a result of conflicting noncompliances.

- The interfering analytes aluminum and iron were present in sample 12SB21-000.5-01 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cobalt, nickel and thallium in the affected sample. The positive results reported for cobalt and nickel were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony and thallium as the sample results were qualified for blank contamination.

- The interfering analytes aluminum and iron were present in sample 12SB23-000.5-01 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cobalt and thallium in the affected sample. The positive result reported for cobalt was qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony and thallium as the sample results were qualified for blank contamination.

- The interfering analytes aluminum and iron were present in sample 12SB23-0304-03 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, beryllium, cadmium, cobalt, copper, lead, nickel, silver, thallium and zinc in the affected sample. The positive results reported for beryllium, cadmium, cobalt, copper, lead, nickel and zinc were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony, silver and thallium as the sample results were qualified for blank contamination.

- The interfering analytes aluminum and iron were present in sample 12SB30-000.5-01 at a concentration comparable to the concentrations of aluminum and iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cadmium, cobalt, copper, silver and thallium in the affected sample. The positive results reported for cadmium, cobalt, copper and silver were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony and thallium as the sample results were qualified for blank contamination.

- The interfering analyte iron was present in sample 12SB30-0304-03 at a concentration comparable to the concentration of iron in the interference check sample (ICS) solution. Several analytes namely, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, silver, thallium, vanadium, and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the instrument detection limit (IDL). Interference effects exist for antimony, cadmium, cobalt, copper, nickel, silver and thallium in the affected sample. The positive results reported for cobalt, copper and nickel were qualified as estimated, (J), as a result of conflicting noncompliances. No validation action was warranted for antimony, cadmium, silver and thallium as the sample results were qualified for blank contamination.

- Positive results less than the reporting limit (RL) and greater than the method detection limit (MDL) were qualified as estimated, (J), due to uncertainty near the detection limit.

Notes

The VOC initial calibration performed on 12/30/11 on instrument MSVOA_F exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for chloroethane, 2-butanone, trans-1,3-dichloropropene, 1,1,2-trichloroethane, chlorodibromomethane, 1,2-dibromoethane, styrene, bromoform, 1,1,2,2-tetrachloroethane, and 1,2-dibromo-3-chloropropane. No action was taken on this basis because all results for the aforementioned compounds were non-detected.

VOC continuing calibration percent differences (% Ds) were greater than the quality control limit of 20% but less than 50% for vinyl chloride, chloroethane, trichlorofluoromethane, 1,1,2-trichlorotripluoroethane, 1,1-dichloroethene, carbon disulfide, and isopropylbenzene for instrument MSVOA_F on 01/03/12 @ 13:26. All associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

VOC continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for chloroethane, trichlorofluoromethane, 1,1,2-trichlorotripluoroethane, and 1,1-dichloroethene for

instrument MSVOA_F on 01/05/12 @ 16:17. All associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

The VOC initial calibration performed on 12/25/11 on instrument MSVOAG exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for dichlorodifluoromethane. No action was taken on this basis because all results for dichlorodifluoromethane were non-detected.

VOC continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for dichlorodifluoromethane, trichlorofluoromethane, acetone, 2-butanone, carbon tetrachloride, chloroform, 1,1,1-trichloroethane, 1,2-dichloroethane, and 1,2-dibromo-3-chloropropane for instrument MSVOAG on 12/31/12 @ 03:17. The associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

The SVOC surrogate 2-fluorobiphenyl had a percent recovery less than the quality control limit for sample 12SB23-000.5-01. No action was taken on this basis because only one surrogate per fraction was outside of criteria.

The SVOC initial calibration performed on 12/21/11 on instrument BNA_E exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for 2,4-dinitrophenol and atrazine. No action was taken on this basis because all results for the aforementioned compounds were non-detected.

The SVOC initial calibration performed on 12/30/11 on instrument BNA_E exceeded the 15% percent relative standard deviation (but was <50%) quality control limit for benzaldehyde, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol. No action was taken on this basis because all results for the aforementioned compounds were non-detected.

The SVOC matrix spike / matrix spike duplicate (MS/MSD) performed on sample 12SB30-0.502-02 had a %R for 1,2,4,5-tetrachlorophenol less than the quality control limit in the MS. In addition, the relative percent differences (RPDs) exceeded the quality control limit for all compounds except bis(2-chloroethyl)ether, 4-chloroaniline, and 1,1-biphenyl. No action was taken on this basis because the MSD had acceptable recoveries for all compounds and 1,2,4,5-tetrachlorophenol was not detected in sample 12SB30-0.502-02.

The SVOC SIM surrogate 2-fluorobiphenyl had percent recoveries less than the quality control limit for samples 12SB30-000.5-01, 12SB30-0.502-02, and 12SB23-000.5-01. No action was taken on this basis because only one surrogate per fraction was outside of criteria.

The SVOC SIM matrix spike / matrix spike duplicate (MS/MSD) performed on sample 12SB30-0304-03 had RPDs that exceeded the quality control limit for all compounds. No action was taken on this basis because the MS and MSD had acceptable recoveries for all compounds.

The PEST surrogate decachlorobiphenyl had a percent recovery less than the quality control limit for sample 12SB23-000.5-01 on the primary column. No action was taken on this basis because all other surrogate recoveries were acceptable on the primary and secondary columns.

PEST continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for gamma-BHC, 4,4'-DDT, and methoxychlor for instrument ECD_D on 01/03/12 @ 16:55 on the primary column. The associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

PEST continuing calibration % Ds were greater than the quality control limit of 20% but less than 50% for beta-BHC, gamma-BHC, 4,4'-DDT, and methoxychlor for instrument ECD_D on 01/05/12 @ 13:50 on the primary column. The associated sample results were non-detects for the aforementioned compounds and no data qualification was necessary.

PEST continuing calibration % D was greater than the quality control limit of 20% but less than 50% for endrin ketone for instrument ECD_D on 01/05/12 @ 17:40 on the primary column. The associated sample results were non-detects for endrin ketone and no data qualification was necessary.

PEST continuing calibration % D was greater than the quality control limit of 20% but less than 50% for methoxychlor for instrument ECD_G on 01/04/12 @ 17:00 on the secondary column. The associated sample results were non-detects for methoxychlor and no data qualification was necessary.

The PCB surrogate decachlorobiphenyl had a percent recovery less than the quality control limit for sample 12SB23-000.5-01 on the secondary column. No action was taken on this basis because all other surrogate recoveries were acceptable on the primary and secondary columns.

The CRDL percent recovery for aluminum, antimony, manganese, nickel, and zinc on 01/04/2012 at 15:35 was > 110% quality control limit affecting all samples. No validation actions were required because all sample results were either > 2X CRDL or were qualified as a result of blank contamination.

Sample 12SB23-000.5-01 was analyzed at a 5 times dilution for the SVOC SIM analysis due to high concentrations of several PAHs. This accounts for the elevated detection limits for the nondetected compounds.

Samples 12SB-DUP-06, 12SB20-0304-03, 12SB21-000.5-01, 12SB21-0304-03, 12SB23-0.502-02, and 12SB23-0304-03 were analyzed at dilutions for the metals analysis due to high concentrations of several analytes. The dilutions were used to report only the analytes that exceeded the linear range of the instrument. All other results were reported from the undiluted analysis.

The laboratory included the compounds 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate, and methyl cyclohexane in the VOC analysis. These compounds were not listed in the associated project QAPP and have been removed from the database by the data validator.

The laboratory included the compounds 1,1-biphenyl, 1,2,4,5-tetrachlorobenzene, acetophenone, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde and caprolactam in the SVOC analysis. These compounds were not listed in the associated project QAPP and have been removed from the database by the data validator.

Laboratory results were reported to the limit of detection (LOD).

Executive Summary

Laboratory Performance: Initial calibration noncompliances in the VOC and SVOC SIM fractions resulted in qualification of the data. Surrogate recovery noncompliances in the VOC fraction resulted in the qualification of data for one sample. LCS recovery noncompliances in the VOC and SVOC fractions resulted in the qualification of data. Percent differences between columns resulted in the qualification of one dieldrin result. Blank contamination for the VOC and metals fractions resulted in the qualification of data. CRDL recovery noncompliance resulted in the qualification of data for the selenium results. Matrix spike recovery noncompliances resulted in the qualification of data in the metals fraction. ICP serial dilution noncompliances resulted in the qualification of metals results. ICP internal standard recovery noncompliances resulted in the qualification of metals results. ICP interference resulted in the qualification of metals results.

Other Factors Affecting Data Quality: Field duplicate precision noncompliances resulted in the qualification of data in the VOC, PCB, and metals fractions. Positive results less than the reporting limit (RL) and greater than the method detection limit (MDL) were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation" (April 1993), the "National Functional guidelines for Organic Data Review" (September 1994), and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009). The text of this report has been formulated to address only those problem areas affecting data quality.

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Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	TB-01-122211
SDG: C5128	LAB_ID	C5128-01
FRACTION: OV	SAMP_DATE	12/22/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.5	U	
1,1,2,2-TETRACHLOROETHANE	0.5	U	
1,1,2-TRICHLOROETHANE	0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U	
1,1-DICHLOROETHANE	0.5	U	
1,1-DICHLOROETHENE	0.5	U	
1,2,3-TRICHLOROBENZENE	0.5	U	
1,2,4-TRICHLOROBENZENE	0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U	
1,2-DIBROMOETHANE	0.5	U	
1,2-DICHLOROBENZENE	0.5	U	
1,2-DICHLOROETHANE	0.5	U	
1,2-DICHLOROPROPANE	0.5	U	
1,3-DICHLOROBENZENE	0.5	U	
1,4-DICHLOROBENZENE	0.5	U	
2-BUTANONE	2.5	U	
2-HEXANONE	2.5	U	
4-METHYL-2-PENTANONE	2.5	U	
ACETONE	2.5	U	
BENZENE	0.5	U	
BROMODICHLOROMETHANE	0.5	U	
BROMOFORM	0.5	U	
BROMOMETHANE	0.5	U	
CARBON DISULFIDE	0.5	U	
CARBON TETRACHLORIDE	0.5	U	
CHLOROBENZENE	0.5	U	
CHLORODIBROMOMETHANE	0.5	U	
CHLOROETHANE	0.5	U	
CHLOROFORM	0.5	U	
CHLOROMETHANE	1.1	J	ER
CIS-1,2-DICHLOROETHENE	0.5	U	
CIS-1,3-DICHLOROPROPENE	0.5	U	
DICHLORODIFLUOROMETHANE	0.5	U	
ETHYLBENZENE	0.5	U	
ISOPROPYLBENZENE	0.5	U	

PROJ_NO: 02014	NSAMPLE	TB-01-122211		
SDG: C5128	LAB_ID	C5128-01		
FRACTION: OV	SAMP_DATE	12/22/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
M+P-XYLENES		1	U	
METHYL TERT-BUTYL ETHER		0.5	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
STYRENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TOTAL XYLENES		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB21-0.502-02			12SB21-000.5-01			12SB21-0304-03		
SDG: C5128	LAB_ID	C5128-13			C5128-11			C5128-10			C5128-12		
FRACTION: OV	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			79.0			70.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,1,2,2-TETRACHLOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,1,2-TRICHLOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,1-DICHLOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,1-DICHLOROETHENE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2,3-TRICHLOROBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2,4-TRICHLOROBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2-DIBROMOETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2-DICHLOROBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2-DICHLOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,2-DICHLOROPROPANE		2.55	U		2.85	U		3.45	U		2.75	U	
1,3-DICHLOROBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
1,4-DICHLOROBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
2-BUTANONE		13	U		14.5	U		17	U		14	U	
2-HEXANONE		13	U		14.5	U		17	U		14	U	
4-METHYL-2-PENTANONE		13	U		14.5	U		17	U		14	U	
ACETONE		54	J	CG	49	J	C	17	U		14	U	
BENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
BROMODICHLOROMETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
BROMOFORM		2.55	U		2.85	U		3.45	U		2.75	U	
BROMOMETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
CARBON DISULFIDE		2.55	U		2.85	U		3.45	U		2.75	U	
CARBON TETRACHLORIDE		2.55	U		2.85	U		3.45	U		2.75	U	
CHLOROBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
CHLORODIBROMOMETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
CHLOROETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
CHLOROFORM		2.55	U		2.85	U		3.45	U		2.75	U	
CHLOROMETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
CIS-1,2-DICHLOROETHENE		2.55	U		2.85	U		3.45	U		2.75	U	
CIS-1,3-DICHLOROPROPENE		2.55	U		2.85	U		3.45	U		2.75	U	
DICHLORODIFLUOROMETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
ETHYLBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	
ISOPROPYLBENZENE		2.55	U		2.85	U		3.45	U		2.75	U	

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-000.5-01			12SB23-0304-03			12SB30-0.502-02		
SDG: C5128	LAB_ID	C5128-08			C5128-07			C5128-09			C5128-05		
FRACTION: OV	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			75.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,1,2,2-TETRACHLOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,1,2-TRICHLOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,1-DICHLOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,1-DICHLOROETHENE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2,3-TRICHLOROBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2,4-TRICHLOROBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2-DIBROMOETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2-DICHLOROBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2-DICHLOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,2-DICHLOROPROPANE		2.95	U		3.1	U		2.65	U		2.55	U	
1,3-DICHLOROBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
1,4-DICHLOROBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
2-BUTANONE		14.5	U		15.5	U		13	U		13	U	
2-HEXANONE		14.5	U		15.5	U		13	U		13	U	
4-METHYL-2-PENTANONE		14.5	U		15.5	U		13	U		13	U	
ACETONE		150	J	C	15.5	U		13	U		13	U	
BENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
BROMODICHLOROMETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
BROMOFORM		2.95	U		3.1	U		2.65	U		2.55	U	
BROMOMETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
CARBON DISULFIDE		2.95	U		3.1	U		2.65	U		2.55	U	
CARBON TETRACHLORIDE		2.95	U		3.1	U		2.65	U		2.55	U	
CHLOROBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
CHLORODIBROMOMETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
CHLOROETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
CHLOROFORM		2.95	U		3.1	U		2.65	U		2.55	U	
CHLOROMETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
CIS-1,2-DICHLOROETHENE		2.95	U		3.1	U		2.65	U		2.55	U	
CIS-1,3-DICHLOROPROPENE		2.95	U		3.1	U		2.65	U		2.55	U	
DICHLORODIFLUOROMETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
ETHYLBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	
ISOPROPYLBENZENE		2.95	U		3.1	U		2.65	U		2.55	U	

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01			12SB30-0304-03			12SB-DUP-06		
SDG: C5128	LAB_ID	C5128-04			C5128-06			C5128-14		
FRACTION: OV	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			85.0			82.0		
	DUP_OF							12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.85	U		2.5	U		2.65	U	
1,1,2,2-TETRACHLOROETHANE		2.85	U		2.5	U		2.65	U	
1,1,2-TRICHLOROETHANE		2.85	U		2.5	U		2.65	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.85	U		2.5	U		2.65	U	
1,1-DICHLOROETHANE		2.85	U		2.5	U		2.65	U	
1,1-DICHLOROETHENE		2.85	U		2.5	U		2.65	U	
1,2,3-TRICHLOROBENZENE		2.85	U		2.5	U		2.65	U	
1,2,4-TRICHLOROBENZENE		2.85	U		2.5	U		2.65	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.85	U		2.5	U		2.65	U	
1,2-DIBROMOETHANE		2.85	U		2.5	U		2.65	U	
1,2-DICHLOROBENZENE		2.85	U		2.5	U		2.65	U	
1,2-DICHLOROETHANE		2.85	U		2.5	U		2.65	U	
1,2-DICHLOROPROPANE		2.85	U		2.5	U		2.65	U	
1,3-DICHLOROBENZENE		2.85	U		2.5	U		2.65	U	
1,4-DICHLOROBENZENE		2.85	U		2.5	U		2.65	U	
2-BUTANONE		14.5	U		12.5	U		13	U	
2-HEXANONE		14.5	U		12.5	U		13	U	
4-METHYL-2-PENTANONE		14.5	U		12.5	U		13	U	
ACETONE		55	J	C	12.5	U		22	J	GP
BENZENE		2.85	U		2.5	U		2.65	U	
BROMODICHLOROMETHANE		2.85	U		2.5	U		2.65	U	
BROMOFORM		2.85	U		2.5	U		2.65	U	
BROMOMETHANE		2.85	U		2.5	U		2.65	U	
CARBON DISULFIDE		2.85	U		2.5	U		2.65	U	
CARBON TETRACHLORIDE		2.85	U		2.5	U		2.65	U	
CHLOROBENZENE		2.85	U		2.5	U		2.65	U	
CHLORODIBROMOMETHANE		2.85	U		2.5	U		2.65	U	
CHLOROETHANE		2.85	U		2.5	U		2.65	U	
CHLOROFORM		2.85	U		2.5	U		2.65	U	
CHLOROMETHANE		2.85	U		2.5	U		2.65	U	
CIS-1,2-DICHLOROETHENE		2.85	U		2.5	U		2.65	U	
CIS-1,3-DICHLOROPROPENE		2.85	U		2.5	U		2.65	U	
DICHLORODIFLUOROMETHANE		2.85	U		2.5	U		2.65	U	
ETHYLBENZENE		2.85	U		2.5	U		2.65	U	
ISOPROPYLBENZENE		2.85	U		2.5	U		2.65	U	

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB21-0.502-02			12SB21-000.5-01			12SB21-0304-03		
SDG: C5128	LAB_ID	C5128-13			C5128-11			C5128-10			C5128-12		
FRACTION: OV	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			79.0			70.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5	U		5.5	U		7	U		5.5	U	
METHYL TERT-BUTYL ETHER		2.55	U		2.85	U		3.45	U		2.75	U	
METHYLENE CHLORIDE		2.55	U		2.85	U		3.45	U		2.75	U	
O-XYLENE		2.55	U		2.85	U		3.45	U		2.75	U	
STYRENE		2.55	U		2.85	U		3.45	U		2.75	U	
TETRACHLOROETHENE		2.55	U		2.85	U		3.45	U		2.75	U	
TOLUENE		2.55	U		2.85	U		3.45	U		2.75	U	
TOTAL XYLENES		7.5	U		8.5	U		10.5	U		8.5	U	
TRANS-1,2-DICHLOROETHENE		2.55	U		2.85	U		3.45	U		2.75	U	
TRANS-1,3-DICHLOROPROPENE		2.55	U		2.85	U		3.45	U		2.75	U	
TRICHLOROETHENE		2.55	U		2.85	U		3.45	U		2.75	U	
TRICHLOROFLUOROMETHANE		2.55	U		2.85	U		3.45	U		2.75	U	
VINYL CHLORIDE		2.55	U		2.85	U		3.45	U		2.75	U	

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-000.5-01			12SB23-0304-03			12SB30-0.502-02		
SDG: C5128	LAB_ID	C5128-08			C5128-07			C5128-09			C5128-05		
FRACTION: OV	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			75.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		6	U		6	U		5.5	U		5	U	
METHYL TERT-BUTYL ETHER		2.95	U		3.1	U		2.65	U		2.55	U	
METHYLENE CHLORIDE		2.95	U		3.1	U		2.65	U		2.55	U	
O-XYLENE		2.95	U		3.1	U		2.65	U		2.55	U	
STYRENE		2.95	U		3.1	U		2.65	U		2.55	U	
TETRACHLOROETHENE		2.95	U		3.1	U		2.65	U		2.55	U	
TOLUENE		2.95	U		3.1	U		2.65	U		2.55	U	
TOTAL XYLENES		9	U		9.5	U		8	U		7.5	U	
TRANS-1,2-DICHLOROETHENE		2.95	U		3.1	U		2.65	U		2.55	U	
TRANS-1,3-DICHLOROPROPENE		2.95	U		3.1	U		2.65	U		2.55	U	
TRICHLOROETHENE		2.95	U		3.1	U		2.65	U		2.55	U	
TRICHLOROFLUOROMETHANE		2.95	U		3.1	U		2.65	U		2.55	U	
VINYL CHLORIDE		2.95	U		3.1	U		2.65	U		2.55	U	

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01			12SB30-0304-03			12SB-DUP-06		
SDG: C5128	LAB_ID	C5128-04			C5128-06			C5128-14		
FRACTION: OV	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			85.0			82.0		
	DUP_OF							12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5.5	U		5	U		5.5	U	
METHYL TERT-BUTYL ETHER		2.85	U		2.5	U		2.65	U	
METHYLENE CHLORIDE		2.85	U		2.5	U		2.65	U	
O-XYLENE		2.85	U		2.5	U		2.65	U	
STYRENE		2.85	U		2.5	U		2.65	U	
TETRACHLOROETHENE		2.85	U		2.5	U		2.65	U	
TOLUENE		2.85	U		2.5	U		2.65	U	
TOTAL XYLENES		8.5	U		7.5	U		8	U	
TRANS-1,2-DICHLOROETHENE		2.85	U		2.5	U		2.65	U	
TRANS-1,3-DICHLOROPROPENE		2.85	U		2.5	U		2.65	U	
TRICHLOROETHENE		2.85	U		2.5	U		2.65	U	
TRICHLOROFLUOROMETHANE		2.85	U		2.5	U		2.65	U	
VINYL CHLORIDE		2.85	U		2.5	U		2.65	U	

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB20-0304-03GR2			12SB21-0.502-02			12SB21-0.502-02GR2		
SDG: C5128	LAB_ID	C5128-13			C5128-13			C5128-11			C5128-11		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			79.0			79.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)	200	U					210	U				
2,4,5-TRICHLOROPHENOL	200	U					210	U				
2,4,6-TRICHLOROPHENOL	200	U					210	U				
2,4-DICHLOROPHENOL	200	U					210	U				
2,4-DIMETHYLPHENOL	200	U					210	U				
2,4-DINITROPHENOL	200	U					210	U				
2,4-DINITROTOLUENE	200	U					210	U				
2,6-DINITROTOLUENE	200	U					210	U				
2-CHLORONAPHTHALENE	200	U					210	U				
2-CHLOROPHENOL	200	U					210	U				
2-METHYLNAPHTHALENE	2	U					2.1	U				
2-METHYLPHENOL	200	U					210	U				
2-NITROANILINE	200	U					210	U				
2-NITROPHENOL	200	U					210	U				
3&4-METHYLPHENOL	200	U					210	U				
3,3'-DICHLOROBENZIDINE	200	U					210	U				
3-NITROANILINE	200	U					210	U				
4,6-DINITRO-2-METHYLPHENOL	200	U					210	U				
4-BROMOPHENYL PHENYL ETHER	200	U					210	U				
4-CHLORO-3-METHYLPHENOL	200	U					210	U				
4-CHLOROANILINE	200	UJ	E				210	UJ	E			
4-CHLOROPHENYL PHENYL ETHER	200	U					210	U				
4-NITROANILINE	200	U					210	U				
4-NITROPHENOL	200	U					210	U				
ACENAPHTHENE				2	U					2.1	U	
ACENAPHTHYLENE				2	U					2.1	U	
ANTHRACENE	2	U					2.1	U				
BENZO(A)ANTHRACENE	2	U					2.1	U				
BENZO(A)PYRENE	2	U					2.1	U				
BENZO(B)FLUORANTHENE	2	U					2.1	U				
BENZO(G,H,I)PERYLENE	2	U					2.1	U				
BENZO(K)FLUORANTHENE	2	U					2.1	U				
BIS(2-CHLOROETHOXY)METHANE	200	U					210	U				
BIS(2-CHLOROETHYL)ETHER	200	U					210	U				
BIS(2-ETHYLHEXYL)PHTHALATE	200	U					210	U				

PROJ_NO: 02014	NSAMPLE	12SB21-000.5-01			12SB21-000.5-01GR2			12SB21-0304-03			12SB21-0304-03GR2		
SDG: C5128	LAB_ID	C5128-10			C5128-10			C5128-12			C5128-12		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			70.0			79.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		235	U					210	U				
2,4,5-TRICHLOROPHENOL		235	U					210	U				
2,4,6-TRICHLOROPHENOL		235	U					210	U				
2,4-DICHLOROPHENOL		235	U					210	U				
2,4-DIMETHYLPHENOL		235	U					210	U				
2,4-DINITROPHENOL		235	U					210	U				
2,4-DINITROTOLUENE		235	U					210	U				
2,6-DINITROTOLUENE		235	U					210	U				
2-CHLORONAPHTHALENE		235	U					210	U				
2-CHLOROPHENOL		235	U					210	U				
2-METHYLNAPHTHALENE		34						2.1	U				
2-METHYLPHENOL		235	U					210	U				
2-NITROANILINE		235	U					210	U				
2-NITROPHENOL		235	U					210	U				
3&4-METHYLPHENOL		235	U					210	U				
3,3'-DICHLOROBENZIDINE		235	U					210	U				
3-NITROANILINE		235	U					210	U				
4,6-DINITRO-2-METHYLPHENOL		235	U					210	U				
4-BROMOPHENYL PHENYL ETHER		235	U					210	U				
4-CHLORO-3-METHYLPHENOL		235	U					210	U				
4-CHLOROANILINE		235	UJ	E				210	UJ	E			
4-CHLOROPHENYL PHENYL ETHER		235	U					210	U				
4-NITROANILINE		235	U					210	U				
4-NITROPHENOL		235	U					210	U				
ACENAPHTHENE					2.35	U					2.1	U	
ACENAPHTHYLENE					2.35	U					2.1	U	
ANTHRACENE		4.3	J	P				2.1	U				
BENZO(A)ANTHRACENE		7.1	J	C				2.1	U				
BENZO(A)PYRENE		23						2.1	U				
BENZO(B)FLUORANTHENE		35						2.1	U				
BENZO(G,H,I)PERYLENE		2.35	U					2.1	U				
BENZO(K)FLUORANTHENE		12						2.1	U				
BIS(2-CHLOROETHOXY)METHANE		235	U					210	U				
BIS(2-CHLOROETHYL)ETHER		235	U					210	U				
BIS(2-ETHYLHEXYL)PHTHALATE		235	U					210	U				

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-0.502-02GR2			12SB23-000.5-01			12SB23-000.5-01GR2		
SDG: C5128	LAB_ID	C5128-08			C5128-08			C5128-07			C5128-07		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			79.0			75.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		210	U					1100	U				
2,4,5-TRICHLOROPHENOL		210	U					1100	U				
2,4,6-TRICHLOROPHENOL		210	U					1100	U				
2,4-DICHLOROPHENOL		210	U					1100	U				
2,4-DIMETHYLPHENOL		210	U					1100	U				
2,4-DINITROPHENOL		210	U					1100	U				
2,4-DINITROTOLUENE		210	U					1100	U				
2,6-DINITROTOLUENE		210	U					1100	U				
2-CHLORONAPHTHALENE		210	U					1100	U				
2-CHLOROPHENOL		210	U					1100	U				
2-METHYLNAPHTHALENE		2.1	U					18	J	P			
2-METHYLPHENOL		210	U					1100	U				
2-NITROANILINE		210	U					1100	U				
2-NITROPHENOL		210	U					1100	U				
3&4-METHYLPHENOL		210	U					1100	U				
3,3'-DICHLOROBENZIDINE		210	U					1100	U				
3-NITROANILINE		210	U					1100	U				
4,6-DINITRO-2-METHYLPHENOL		210	U					1100	U				
4-BROMOPHENYL PHENYL ETHER		210	U					1100	U				
4-CHLORO-3-METHYLPHENOL		210	U					1100	U				
4-CHLOROANILINE		210	UJ	E				1100	UJ	E			
4-CHLOROPHENYL PHENYL ETHER		210	U					1100	U				
4-NITROANILINE		210	U					1100	U				
4-NITROPHENOL		210	U					1100	U				
ACENAPHTHENE					2.1	U					11	U	
ACENAPHTHYLENE					2.1	U					11	U	
ANTHRACENE		2.1	U					13	J	P			
BENZO(A)ANTHRACENE		2.1	U					11	U				
BENZO(A)PYRENE		2.1	U					64					
BENZO(B)FLUORANTHENE		2.1	U					91					
BENZO(G,H,I)PERYLENE		2.1	U					11	U				
BENZO(K)FLUORANTHENE		2.1	U					33					
BIS(2-CHLOROETHOXY)METHANE		210	U					1100	U				
BIS(2-CHLOROETHYL)ETHER		210	U					1100	U				
BIS(2-ETHYLHEXYL)PHTHALATE		210	U					1100	U				

PROJ_NO: 02014	NSAMPLE	12SB23-0304-03			12SB23-0304-03GR2			12SB30-0.502-02			12SB30-0.502-02GR2		
SDG: C5128	LAB_ID	C5128-09			C5128-09			C5128-05			C5128-05		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					200	U				
2,4,5-TRICHLOROPHENOL		205	U					200	U				
2,4,6-TRICHLOROPHENOL		205	U					200	U				
2,4-DICHLOROPHENOL		205	U					200	U				
2,4-DIMETHYLPHENOL		205	U					200	U				
2,4-DINITROPHENOL		205	U					200	U				
2,4-DINITROTOLUENE		205	U					200	U				
2,6-DINITROTOLUENE		205	U					200	U				
2-CHLORONAPHTHALENE		205	U					200	U				
2-CHLOROPHENOL		205	U					200	U				
2-METHYLNAPHTHALENE		2.05	U					2	U				
2-METHYLPHENOL		205	U					200	U				
2-NITROANILINE		205	U					200	U				
2-NITROPHENOL		205	U					200	U				
3&4-METHYLPHENOL		205	U					200	U				
3,3'-DICHLOROBENZIDINE		205	U					200	U				
3-NITROANILINE		205	U					200	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					200	U				
4-BROMOPHENYL PHENYL ETHER		205	U					200	U				
4-CHLORO-3-METHYLPHENOL		205	U					200	U				
4-CHLOROANILINE		205	UJ	E				200	UJ	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					200	U				
4-NITROANILINE		205	U					200	U				
4-NITROPHENOL		205	U					200	U				
ACENAPHTHENE					2.05	U					2	U	
ACENAPHTHYLENE					2.05	U					2	U	
ANTHRACENE		2.05	U					2	U				
BENZO(A)ANTHRACENE		2.05	U					2	U				
BENZO(A)PYRENE		2.05	U					2	U				
BENZO(B)FLUORANTHENE		2.05	U					2	U				
BENZO(G,H,I)PERYLENE		2.05	U					2	U				
BENZO(K)FLUORANTHENE		2.05	U					2	U				
BIS(2-CHLOROETHOXY)METHANE		205	U					200	U				
BIS(2-CHLOROETHYL)ETHER		205	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					200	U				

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01			12SB30-000.5-01GR2			12SB30-0304-03			12SB30-0304-03GR2		
SDG: C5128	LAB_ID	C5128-04			C5128-04			C5128-06			C5128-06		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			85.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					195	U				
2,4,5-TRICHLOROPHENOL		205	U					195	U				
2,4,6-TRICHLOROPHENOL		205	U					195	U				
2,4-DICHLOROPHENOL		205	U					195	U				
2,4-DIMETHYLPHENOL		205	U					195	U				
2,4-DINITROPHENOL		205	U					195	U				
2,4-DINITROTOLUENE		205	U					195	U				
2,6-DINITROTOLUENE		205	U					195	U				
2-CHLORONAPHTHALENE		205	U					195	U				
2-CHLOROPHENOL		205	U					195	U				
2-METHYLNAPHTHALENE		4.6						1.95	U				
2-METHYLPHENOL		205	U					195	U				
2-NITROANILINE		205	U					195	U				
2-NITROPHENOL		205	U					195	U				
3&4-METHYLPHENOL		205	U					195	U				
3,3'-DICHLOROBENZIDINE		205	U					195	U				
3-NITROANILINE		205	U					195	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					195	U				
4-BROMOPHENYL PHENYL ETHER		205	U					195	U				
4-CHLORO-3-METHYLPHENOL		205	U					195	U				
4-CHLOROANILINE		205	UJ	E				195	UJ	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					195	U				
4-NITROANILINE		205	U					195	U				
4-NITROPHENOL		205	U					195	U				
ACENAPHTHENE					2.05	U					1.95	U	
ACENAPHTHYLENE					22	J	C				1.95	U	
ANTHRACENE		30						1.95	U				
BENZO(A)ANTHRACENE		250	J	C				1.95	U				
BENZO(A)PYRENE		220						5.1					
BENZO(B)FLUORANTHENE		290						4.3					
BENZO(G,H,I)PERYLENE		150	J	C				1.95	U				
BENZO(K)FLUORANTHENE		110						3.5	J	P			
BIS(2-CHLOROETHOXY)METHANE		205	U					195	U				
BIS(2-CHLOROETHYL)ETHER		205	U					195	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					195	U				

PROJ_NO: 02014	NSAMPLE	12SB-DUP-06			12SB-DUP-06GR2		
SDG: C5128	LAB_ID	C5128-14			C5128-14		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0		
	DUP_OF	12SB20-0304-03			12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		200	U				
2,4,5-TRICHLOROPHENOL		200	U				
2,4,6-TRICHLOROPHENOL		200	U				
2,4-DICHLOROPHENOL		200	U				
2,4-DIMETHYLPHENOL		200	U				
2,4-DINITROPHENOL		200	U				
2,4-DINITROTOLUENE		200	U				
2,6-DINITROTOLUENE		200	U				
2-CHLORONAPHTHALENE		200	U				
2-CHLOROPHENOL		200	U				
2-METHYLNAPHTHALENE		2	U				
2-METHYLPHENOL		200	U				
2-NITROANILINE		200	U				
2-NITROPHENOL		200	U				
3&4-METHYLPHENOL		200	U				
3,3'-DICHLOROBENZIDINE		200	U				
3-NITROANILINE		200	U				
4,6-DINITRO-2-METHYLPHENOL		200	U				
4-BROMOPHENYL PHENYL ETHER		200	U				
4-CHLORO-3-METHYLPHENOL		200	U				
4-CHLOROANILINE		200	UJ	E			
4-CHLOROPHENYL PHENYL ETHER		200	U				
4-NITROANILINE		200	U				
4-NITROPHENOL		200	U				
ACENAPHTHENE					2	U	
ACENAPHTHYLENE					2	U	
ANTHRACENE		2	U				
BENZO(A)ANTHRACENE		2	U				
BENZO(A)PYRENE		2	U				
BENZO(B)FLUORANTHENE		2	U				
BENZO(G,H,I)PERYLENE		2	U				
BENZO(K)FLUORANTHENE		2	U				
BIS(2-CHLOROETHOXY)METHANE		200	U				
BIS(2-CHLOROETHYL)ETHER		200	U				
BIS(2-ETHYLHEXYL)PHTHALATE		200	U				

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB20-0304-03GR2			12SB21-0.502-02			12SB21-0.502-02GR2		
SDG: C5128	LAB_ID	C5128-13			C5128-13			C5128-11			C5128-11		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0			79.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		200	U					210	U				
CARBAZOLE		200	U					210	U				
CHRYSENE		2	U					2.1	U				
DIBENZO(A,H)ANTHRACENE		2	U					2.1	U				
DIBENZOFURAN		200	U					210	U				
DIETHYL PHTHALATE		200	U					210	U				
DIMETHYL PHTHALATE		200	U					210	U				
DI-N-BUTYL PHTHALATE		200	U					210	U				
DI-N-OCTYL PHTHALATE		200	U					210	U				
FLUORANTHENE		2	U					2.1	U				
FLUORENE		2	U					2.1	U				
HEXACHLOROBENZENE		200	U					210	U				
HEXACHLOROBUTADIENE		200	U					210	U				
HEXACHLOROCYCLOPENTADIENE		200	U					210	U				
HEXACHLOROETHANE		200	U					210	U				
INDENO(1,2,3-CD)PYRENE		2	U					2.1	U				
ISOPHORONE		200	U					210	U				
NAPHTHALENE		2	U					2.1	U				
NITROBENZENE		200	U					210	U				
N-NITROSO-DI-N-PROPYLAMINE		200	U					210	U				
N-NITROSODIPHENYLAMINE		200	U					210	U				
PENTACHLOROPHENOL		200	U					210	U				
PHENANTHRENE					2	U					2.1	U	
PHENOL		200	U					210	U				
PYRENE		2	U					2.1	U				

PROJ_NO: 02014	NSAMPLE	12SB21-000.5-01			12SB21-000.5-01GR2			12SB21-0304-03			12SB21-0304-03GR2		
SDG: C5128	LAB_ID	C5128-10			C5128-10			C5128-12			C5128-12		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	70.0			70.0			79.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		235	U					210	U				
CARBAZOLE		235	U					210	U				
CHRYSENE		35						2.1	U				
DIBENZO(A,H)ANTHRACENE		5.7						2.1	U				
DIBENZOFURAN		235	U					210	U				
DIETHYL PHTHALATE		235	U					210	U				
DIMETHYL PHTHALATE		235	U					210	U				
DI-N-BUTYL PHTHALATE		235	U					210	U				
DI-N-OCTYL PHTHALATE		235	U					210	U				
FLUORANTHENE		52	J	C				2.1	U				
FLUORENE		4.3	J	P				2.1	U				
HEXACHLOROBENZENE		235	U					210	U				
HEXACHLOROBUTADIENE		235	U					210	U				
HEXACHLOROCYCLOPENTADIENE		235	U					210	U				
HEXACHLOROETHANE		235	U					210	U				
INDENO(1,2,3-CD)PYRENE		2.35	U					2.1	U				
ISOPHORONE		235	U					210	U				
NAPHTHALENE		2.35	U					2.1	U				
NITROBENZENE		235	U					210	U				
N-NITROSO-DI-N-PROPYLAMINE		235	U					210	U				
N-NITROSODIPHENYLAMINE		235	U					210	U				
PENTACHLOROPHENOL		235	U					210	U				
PHENANTHRENE					57	J	C				2.1	U	
PHENOL		235	U					210	U				
PYRENE		49						2.1	U				

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-0.502-02GR2			12SB23-000.5-01			12SB23-000.5-01GR2		
SDG: C5128	LAB_ID	C5128-08			C5128-08			C5128-07			C5128-07		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			79.0			75.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		210	U					1100	U				
CARBAZOLE		210	U					1100	U				
CHRYSENE		2.1	U					82					
DIBENZO(A,H)ANTHRACENE		2.1	U					18	J	P			
DIBENZOFURAN		210	U					1100	U				
DIETHYL PHTHALATE		210	U					1100	U				
DIMETHYL PHTHALATE		210	U					1100	U				
DI-N-BUTYL PHTHALATE		210	U					1100	U				
DI-N-OCTYL PHTHALATE		210	U					1100	U				
FLUORANTHENE		2.5	J	P				53	J	C			
FLUORENE		2.1	U					11	U				
HEXACHLOROBENZENE		210	U					1100	U				
HEXACHLOROBUTADIENE		210	U					1100	U				
HEXACHLOROCYCLOPENTADIENE		210	U					1100	U				
HEXACHLOROETHANE		210	U					1100	U				
INDENO(1,2,3-CD)PYRENE		2.1	U					11	U				
ISOPHORONE		210	U					1100	U				
NAPHTHALENE		2.1	U					11	U				
NITROBENZENE		210	U					1100	U				
N-NITROSO-DI-N-PROPYLAMINE		210	U					1100	U				
N-NITROSODIPHENYLAMINE		210	U					1100	U				
PENTACHLOROPHENOL		210	U					1100	U				
PHENANTHRENE					2.5	J	P				11	U	
PHENOL		210	U					1100	U				
PYRENE		2.1	J	P				120					

PROJ_NO: 02014	NSAMPLE	12SB23-0304-03			12SB23-0304-03GR2			12SB30-0.502-02			12SB30-0.502-02GR2		
SDG: C5128	LAB_ID	C5128-09			C5128-09			C5128-05			C5128-05		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					200	U				
CARBAZOLE		205	U					200	U				
CHRYSENE		2.05	U					2	U				
DIBENZO(A,H)ANTHRACENE		2.05	U					2	U				
DIBENZOFURAN		205	U					200	U				
DIETHYL PHTHALATE		205	U					200	U				
DIMETHYL PHTHALATE		205	U					200	U				
DI-N-BUTYL PHTHALATE		205	U					200	U				
DI-N-OCTYL PHTHALATE		205	U					200	U				
FLUORANTHENE		2.05	U					2	U				
FLUORENE		2.05	U					2	U				
HEXACHLOROBENZENE		205	U					200	U				
HEXACHLOROBUTADIENE		205	U					200	U				
HEXACHLOROCYCLOPENTADIENE		205	U					200	U				
HEXACHLOROETHANE		205	U					200	U				
INDENO(1,2,3-CD)PYRENE		2.05	U					2	U				
ISOPHORONE		205	U					200	U				
NAPHTHALENE		2.05	U					2	U				
NITROBENZENE		205	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					200	U				
N-NITROSODIPHENYLAMINE		205	U					200	U				
PENTACHLOROPHENOL		205	U					200	U				
PHENANTHRENE					2.05	U					2	U	
PHENOL		205	U					200	U				
PYRENE		2.05	U					2	U				

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01			12SB30-000.5-01GR2			12SB30-0304-03			12SB30-0304-03GR2		
SDG: C5128	LAB_ID	C5128-04			C5128-04			C5128-06			C5128-06		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			85.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					195	U				
CARBAZOLE		205	U					195	U				
CHRYSENE		250						1.95	U				
DIBENZO(A,H)ANTHRACENE		40						7.4					
DIBENZOFURAN		205	U					195	U				
DIETHYL PHTHALATE		205	U					195	U				
DIMETHYL PHTHALATE		205	U					195	U				
DI-N-BUTYL PHTHALATE		205	U					195	U				
DI-N-OCTYL PHTHALATE		205	U					195	U				
FLUORANTHENE		530	J	C				1.95	U				
FLUORENE		7.9						1.95	U				
HEXACHLOROBENZENE		205	U					195	U				
HEXACHLOROBUTADIENE		205	U					195	U				
HEXACHLOROCYCLOPENTADIENE		205	U					195	U				
HEXACHLOROETHANE		205	U					195	U				
INDENO(1,2,3-CD)PYRENE		130	J	C				1.95	U				
ISOPHORONE		205	U					195	U				
NAPHTHALENE		2.05	U					1.95	U				
NITROBENZENE		205	U					195	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					195	U				
N-NITROSODIPHENYLAMINE		205	U					195	U				
PENTACHLOROPHENOL		205	U					195	U				
PHENANTHRENE					190	J	C				1.95	U	
PHENOL		205	U					195	U				
PYRENE		390						1.95	U				

PROJ_NO: 02014	NSAMPLE	12SB-DUP-06			12SB-DUP-06GR2		
SDG: C5128	LAB_ID	C5128-14			C5128-14		
FRACTION: OS	SAMP_DATE	12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	82.0			82.0		
	DUP_OF	12SB20-0304-03			12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		200	U				
CARBAZOLE		200	U				
CHRYSENE		2	U				
DIBENZO(A,H)ANTHRACENE		2	U				
DIBENZOFURAN		200	U				
DIETHYL PHTHALATE		200	U				
DIMETHYL PHTHALATE		200	U				
DI-N-BUTYL PHTHALATE		200	U				
DI-N-OCTYL PHTHALATE		200	U				
FLUORANTHENE		2	U				
FLUORENE		2	U				
HEXACHLOROBENZENE		200	U				
HEXACHLOROBUTADIENE		200	U				
HEXACHLOROCYCLOPENTADIENE		200	U				
HEXACHLOROETHANE		200	U				
INDENO(1,2,3-CD)PYRENE		2	U				
ISOPHORONE		200	U				
NAPHTHALENE		2	U				
NITROBENZENE		200	U				
N-NITROSO-DI-N-PROPYLAMINE		200	U				
N-NITROSODIPHENYLAMINE		200	U				
PENTACHLOROPHENOL		200	U				
PHENANTHRENE					2	U	
PHENOL		200	U				
PYRENE		2	J	P			

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB21-0.502-02			12SB21-000.5-01			12SB21-0304-03		
SDG: C5128	LAB_ID	C5128-13			C5128-11			C5128-10			C5128-12		
FRACTION: PEST	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.1			79.4			69.6			78.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.05	U		1.2	U		1.1	U	
4,4'-DDE		1.05	U		1.05	U		1.2	U		1.1	U	
4,4'-DDT		1.05	U		1.05	U		1.2	U		1.1	U	
ALDRIN		1.05	U		1.05	U		1.2	U		1.1	U	
ALPHA-BHC		1.05	U		1.05	U		1.2	U		1.1	U	
ALPHA-CHLORDANE		1.05	U		1.05	U		1.2	U		1.1	U	
BETA-BHC		1.05	U		1.05	U		1.2	U		1.1	U	
DELTA-BHC		1.05	U		1.05	U		1.2	U		1.1	U	
DIELDRIN		1.05	U		1.05	U		2.7	J	PU	1.1	U	
ENDOSULFAN I		1.05	U		1.05	U		1.2	U		1.1	U	
ENDOSULFAN II		1.05	U		1.05	U		1.2	U		1.1	U	
ENDOSULFAN SULFATE		1.05	U		1.05	U		1.2	U		1.1	U	
ENDRIN		1.05	U		1.05	U		1.2	U		1.1	U	
ENDRIN ALDEHYDE		1.05	U		1.05	U		1.2	U		1.1	U	
ENDRIN KETONE		1.05	U		1.05	U		1.2	U		1.1	U	
GAMMA-BHC (LINDANE)		1.05	U		1.05	U		1.2	U		1.1	U	
GAMMA-CHLORDANE		1.05	U		1.05	U		1.2	U		1.1	U	
HEPTACHLOR		1.05	U		1.05	U		1.2	U		1.1	U	
HEPTACHLOR EPOXIDE		1.05	U		1.05	U		1.2	U		1.1	U	
METHOXYCHLOR		1.05	U		1.05	U		1.2	U		1.1	U	
TOXAPHENE		10.5	U		10.5	U		12	U		11	U	

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-000.5-01			12SB23-0304-03			12SB30-0.502-02		
SDG: C5128	LAB_ID	C5128-08			C5128-07			C5128-09			C5128-05		
FRACTION: PEST	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.6			75.4			80.1			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.1	U		1.1	U		1.05	U		1.05	U	
4,4'-DDE		1.1	U		1.1	U		1.05	U		1.05	U	
4,4'-DDT		1.1	U		1.1	U		1.05	U		1.05	U	
ALDRIN		1.1	U		1.1	U		1.05	U		1.05	U	
ALPHA-BHC		1.1	U		1.1	U		1.05	U		1.05	U	
ALPHA-CHLORDANE		1.1	U		1.1	U		1.05	U		1.05	U	
BETA-BHC		1.1	U		1.1	U		1.05	U		1.05	U	
DELTA-BHC		1.1	U		1.1	U		1.05	U		1.05	U	
DIELDRIN		1.1	U		1.1	U		1.05	U		1.05	U	
ENDOSULFAN I		1.1	U		1.1	U		1.05	U		1.05	U	
ENDOSULFAN II		1.1	U		1.1	U		1.05	U		1.05	U	
ENDOSULFAN SULFATE		1.1	U		1.1	U		1.05	U		1.05	U	
ENDRIN		1.1	U		1.1	U		1.05	U		1.05	U	
ENDRIN ALDEHYDE		1.1	U		1.1	U		1.05	U		1.05	U	
ENDRIN KETONE		1.1	U		1.1	U		1.05	U		1.05	U	
GAMMA-BHC (LINDANE)		1.1	U		1.1	U		1.05	U		1.05	U	
GAMMA-CHLORDANE		1.1	U		1.1	U		1.05	U		1.05	U	
HEPTACHLOR		1.1	U		1.1	U		1.05	U		1.05	U	
HEPTACHLOR EPOXIDE		1.1	U		1.1	U		1.05	U		1.05	U	
METHOXYCHLOR		1.1	U		1.1	U		1.05	U		1.05	U	
TOXAPHENE		11	U		11	U		10.5	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01			12SB30-0304-03			12SB-DUP-06		
SDG: C5128	LAB_ID	C5128-04			C5128-06			C5128-14		
FRACTION: PEST	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.7			84.5			82.4		
	DUP_OF							12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1	U		1.05	U	
4,4'-DDE		1.05	U		1	U		1.05	U	
4,4'-DDT		1.05	U		1	U		1.05	U	
ALDRIN		1.05	U		1	U		1.05	U	
ALPHA-BHC		1.05	U		1	U		1.05	U	
ALPHA-CHLORDANE		1.05	U		1	U		1.05	U	
BETA-BHC		1.05	U		1	U		1.05	U	
DELTA-BHC		1.05	U		1	U		1.05	U	
DIELDRIN		11			1	U		1.05	U	
ENDOSULFAN I		1.05	U		1	U		1.05	U	
ENDOSULFAN II		1.05	U		1	U		1.05	U	
ENDOSULFAN SULFATE		1.05	U		1	U		1.05	U	
ENDRIN		1.05	U		1	U		1.05	U	
ENDRIN ALDEHYDE		1.05	U		1	U		1.05	U	
ENDRIN KETONE		1.05	U		1	U		1.05	U	
GAMMA-BHC (LINDANE)		1.05	U		1	U		1.05	U	
GAMMA-CHLORDANE		1.05	U		1	U		1.05	U	
HEPTACHLOR		1.05	U		1	U		1.05	U	
HEPTACHLOR EPOXIDE		1.05	U		1	U		1.05	U	
METHOXYCHLOR		1.05	U		1	U		1.05	U	
TOXAPHENE		10.5	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB21-0.502-02			12SB21-000.5-01			12SB21-0304-03		
SDG: C5128	LAB_ID	C5128-13			C5128-11			C5128-10			C5128-12		
FRACTION: PCB	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.0			79.0			70.0			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		10.5	U		12	U		10.5	U	
AROCLOR-1221		10.5	U		10.5	U		12	U		10.5	U	
AROCLOR-1232		10.5	U		10.5	U		12	U		10.5	U	
AROCLOR-1242		10.5	U		10.5	U		12	U		10.5	U	
AROCLOR-1248		10.5	U		10.5	U		12	U		10.5	U	
AROCLOR-1254		10.5	U		10.5	U		12	U		10.5	U	
AROCLOR-1260		10.5	UJ	G	10.5	U		12	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-000.5-01			12SB23-0304-03			12SB30-0.502-02		
SDG: C5128	LAB_ID	C5128-08			C5128-07			C5128-09			C5128-05		
FRACTION: PCB	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			75.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1221		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1232		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1242		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1248		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1254		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1260		10.5	U		11.5	U		10.5	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01			12SB30-0304-03			12SB-DUP-06		
SDG: C5128	LAB_ID	C5128-04			C5128-06			C5128-14		
FRACTION: PCB	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			84.0			82.0		
	DUP_OF							12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		10	U		10.5	U	
AROCLOR-1221		10.5	U		10	U		10.5	U	
AROCLOR-1232		10.5	U		10	U		10.5	U	
AROCLOR-1242		10.5	U		10	U		10.5	U	
AROCLOR-1248		10.5	U		10	U		10.5	U	
AROCLOR-1254		10.5	U		10	U		10.5	U	
AROCLOR-1260		10.5	U		10	U		350	J	G

PROJ_NO: 02014	NSAMPLE	03SB28-115215-01						03TP36-0708-01					
SDG: C5128	LAB_ID	C5128-03						C5128-02					
FRACTION: MISC	SAMP_DATE	12/22/2011						12/22/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	82.8			82.8			81.5			81.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE													
OXIDATION REDUCTION POTENTIAL		378.1						262.4					
PH					5.29						7.08		

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03						12SB21-0.502-02					
SDG: C5128	LAB_ID	C5128-13						C5128-11					
FRACTION: MISC	SAMP_DATE	12/22/2011						12/22/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			MV		
	PCT_SOLIDS	82.1			82.1			79.4			79.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.1525	U					0.1575	U				
OXIDATION REDUCTION POTENTIAL											382.4		
PH					4.89								

PROJ_NO: 02014	NSAMPLE	12SB21-0.502-02			12SB21-000.5-01								
SDG: C5128	LAB_ID	C5128-11			C5128-10								
FRACTION: MISC	SAMP_DATE	12/22/2011			12/22/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	79.4			69.6			69.6			69.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.113	J	P						
OXIDATION REDUCTION POTENTIAL								330.9					
PH		5.1									5.82		

PROJ_NO: 02014	NSAMPLE	12SB21-0304-03									12SB23-0.502-02		
SDG: C5128	LAB_ID	C5128-12									C5128-08		
FRACTION: MISC	SAMP_DATE	12/22/2011									12/22/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	78.8			78.8			78.8			78.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.1585	U								0.159	U	
OXIDATION REDUCTION POTENTIAL					381.9								
PH								5.1					

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02			12SB23-000.5-01						12SB23-0304-03		
SDG: C5128	LAB_ID	C5128-08			C5128-07						C5128-09		
FRACTION: MISC	SAMP_DATE	12/22/2011			12/22/2011						12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	78.6			75.4			75.4			80.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.166	U					0.156	U	
OXIDATION REDUCTION POTENTIAL													
PH		4.87						7.19					

PROJ_NO: 02014	NSAMPLE	12SB23-0304-03			12SB30-0.502-02								
SDG: C5128	LAB_ID	C5128-09			C5128-05								
FRACTION: MISC	SAMP_DATE	12/22/2011			12/22/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	80.1			81.7			81.7			81.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.153	U							
OXIDATION REDUCTION POTENTIAL								289.2					
PH		5.01									6.34		

PROJ_NO: 02014	NSAMPLE	12SB30-000.5-01									12SB30-0304-03		
SDG: C5128	LAB_ID	C5128-04									C5128-06		
FRACTION: MISC	SAMP_DATE	12/22/2011									12/22/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	79.7			79.7			79.7			84.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.157	U								0.148	U	
OXIDATION REDUCTION POTENTIAL					270.9								
PH								7.15					

PROJ_NO: 02014	NSAMPLE	12SB30-0304-03						12SB-DUP-06					
SDG: C5128	LAB_ID	C5128-06						C5128-14					
FRACTION: MISC	SAMP_DATE	12/22/2011						12/22/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	84.5			84.5			82.4			82.4		
	DUP_OF							12SB20-0304-03			12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.1515	U				
OXIDATION REDUCTION POTENTIAL		369.6											
PH					5.35						4.94		

PROJ_NO: 02014	NSAMPLE	12SB20-0304-03			12SB20-0304-03DL			12SB21-0.502-02			12SB21-000.5-01		
SDG: C5128	LAB_ID	C5128-13			C5128-13DL			C5128-11			C5128-10		
FRACTION: M	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.1			82.1			79.4			69.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9080						13600			11500		
ANTIMONY		2	J	DGKN				0.23	B	A	0.76	B	A
ARSENIC		3.1	J	DN				5.1	J	DN	7.5	J	DN
BARIUM		123	J	GN				83.5	J	GN	91.8	J	GN
BERYLLIUM		0.75	J	DK				0.75	J	D	0.9	J	D
CADMIUM		1.9	J	GN				0.08	B	A	0.57	J	GN
CALCIUM		404	J	I				478	J	I	1000	J	I
CHROMIUM		22.8	J	DIN				19.7	J	DIN	18.3	J	DIN
COBALT		5.5	J	DIKN				5.9	J	DIKN	7.6	J	DIKN
COPPER		22.9	J	DGIN				7.9	J	DGKIN	18.1	J	DGIN
IRON					23800	J	N	20700	J	N	18400	J	N
LEAD		64.1	J	GN				10.6	J	GN	47.2	J	GN
MAGNESIUM		1240	J	I				1640	J	I	1600	J	I
MANGANESE		384	J	GIN				201	J	GIN			
MERCURY		0.046						0.017			0.082		
NICKEL		13.1	J	DIKN				9.9	J	DKIN	10.7	J	DIKN
POTASSIUM		461	J	DI				507	J	DI	637	J	DI
SELENIUM		0.2	UJ	CDN				0.16	J	CDNP	0.36	J	CDNP
SILVER		0.25	J	GN				0.055	B	A	0.22	J	GN
SODIUM		45.5	B	A				40.2	B	A	41.7	B	A
THALLIUM		0.51	B	A				0.17	B	A	0.21	B	A
VANADIUM		23.8	J	DIN				29	J	DIN	28.7	J	DIN
ZINC		139	J	GIN				32.5	J	GIN	61.1	J	GIN

PROJ_NO: 02014	NSAMPLE	12SB21-000.5-01DL			12SB21-0304-03			12SB21-0304-03DL			12SB23-0.502-02		
SDG: C5128	LAB_ID	C5128-10DL			C5128-12			C5128-12DL			C5128-08		
FRACTION: M	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	69.6			78.8			78.8			78.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					11900						16700		
ANTIMONY					0.23	B	A				0.33	B	A
ARSENIC					7.1	J	DN				5.2	J	DN
BARIUM					44.9	J	GN				61.7	J	GN
BERYLLIUM					0.58	J	DK				0.7	J	DK
CADMIUM					0.09	B	A				0.14	J	GKN
CALCIUM					474	J	I				607	J	I
CHROMIUM					17.1	J	DIN				23.7	J	DIN
COBALT					7.4	J	DIKN				5.7	J	DIKN
COPPER					9.7	J	DGIKN				9.6	J	DGKIN
IRON								37500	J	N			
LEAD					12	J	GN				12	J	GN
MAGNESIUM					1650	J	I				1840	J	I
MANGANESE		803	J	GIN	191	J	GIN				106	J	GIN
MERCURY					0.03						0.02		
NICKEL					8.4	J	DIKN				10.8	J	DKIN
POTASSIUM					674	J	DI				766	J	DI
SELENIUM					0.057	J	CDNP				0.17	J	CDNP
SILVER					0.047	B	A				0.065	B	A
SODIUM					36.5	B	A				40.3	B	A
THALLIUM					0.18	B	A				0.22	B	A
VANADIUM					27.5	J	DIN				34.4	J	DIN
ZINC					33	J	GIKN				31.8	J	GKIN

PROJ_NO: 02014	NSAMPLE	12SB23-0.502-02DL			12SB23-000.5-01			12SB23-0304-03			12SB23-0304-03DL		
SDG: C5128	LAB_ID	C5128-08DL			C5128-07			C5128-09			C5128-09DL		
FRACTION: M	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	78.6			75.4			80.1			80.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					11000			14000					
ANTIMONY					0.82	B	A	0.33	B	A			
ARSENIC					4.8	J	DN	3.4	J	DN			
BARIUM					78.3	J	GN	50.5	J	GN			
BERYLLIUM					0.92	J	D	0.85	J	DK			
CADMIUM					0.45	J	GN	0.12	J	GKN			
CALCIUM					3120	J	I	591	J	I			
CHROMIUM					18.4	J	DIN	20.4	J	DIN			
COBALT					6.4	J	DIKN	6.5	J	DIKN			
COPPER					14.5	J	DGIN	8.4	J	DGIKN			
IRON		37000	J	N	16200	J	N				33200	J	N
LEAD					37.2	J	GN	13.5	J	GKN			
MAGNESIUM					2820	J	I	2590	J	I			
MANGANESE					397	J	GIN	146	J	GIN			
MERCURY					0.111			0.018					
NICKEL					11	J	DIN	10.5	J	DIKN			
POTASSIUM					1020	J	DI	1180	J	DI			
SELENIUM					0.27	J	CDNP	0.255	UJ	CDN			
SILVER					0.44	J	GN	0.05	B	A			
SODIUM					65.9	B	A	52.2	B	A			
THALLIUM					0.23	B	A	0.2	B	A			
VANADIUM					27.3	J	DIN	30.2	J	DIN			
ZINC					66.6	J	GIN	29.5	J	GIKN			

PROJ_NO: 02014	NSAMPLE	12SB30-0.502-02			12SB30-000.5-01			12SB30-0304-03			12SB-DUP-06		
SDG: C5128	LAB_ID	C5128-05			C5128-04			C5128-06			C5128-14		
FRACTION: M	SAMP_DATE	12/22/2011			12/22/2011			12/22/2011			12/22/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.7			79.7			84.5			82.4		
	DUP_OF										12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11700			10800			8770			9720		
ANTIMONY		0.17	B	A	0.35	B	A	0.14	B	A	5.9	J	DGN
ARSENIC		3.5	J	DN	4.9	J	DN	2.6	J	DN	3.9	J	DN
BARIUM		45.3	J	GN	74.5	J	GN	57.9	J	GN			
BERYLLIUM		0.47	J	DK	0.76	J	D	0.76	J	D	0.75	J	DK
CADMIUM		0.082	B	A	0.21	J	GKN	0.097	B	A	4	J	GN
CALCIUM		668	J	I	5570	J	I	479	J	I	464	J	I
CHROMIUM		19.4	J	DIN	17.4	J	DIN	17.5	J	DIN	22.6	J	DIN
COBALT		3.5	J	DIN	6	J	DIKN	5.7	J	DIKN	7.9	J	DIN
COPPER		6.9	J	DGKIN	13.6	J	DGIKN	7.2	J	DGIKN	99.2	J	DGIN
IRON		17100	J	N	16400	J	N	14800	J	N			
LEAD		8.5	J	GN	35.3	J	GN	7.7	J	GN	261	J	GN
MAGNESIUM		1730	J	I	4490	J	I	1630	J	I	1380	J	I
MANGANESE		106	J	GIN	360	J	GIN	165	J	GIN			
MERCURY		0.013			0.044			0.004	J	P	0.055		
NICKEL		8	J	DKIN	10.7	J	DIN	8.1	J	DIKN	14.6	J	DKIN
POTASSIUM		549	J	DI	816	J	DI	573	J	DI	526	J	DI
SELENIUM		0.24	UJ	CDN	0.21	J	CDNP	0.24	UJ	CDN	0.215	UJ	CDN
SILVER		0.048	B	A	0.093	J	GKPN	0.0475	B	A	1.4	J	GN
SODIUM		50.4	B	A	57.6	B	A	53.8	B	A	49.3	B	A
THALLIUM		0.16	B	A	0.24	B	A	0.13	B	A	0.27	B	A
VANADIUM		28.2	J	DIN	25.6	J	DIN	24.6	J	DIN	24.8	J	DIN
ZINC		22	J	GIN	47.9	J	GIN	20.9	J	GIN	292	J	GIN

PROJ_NO: 02014	NSAMPLE	12SB-DUP-06DL		
SDG: C5128	LAB_ID	C5128-14DL		
FRACTION: M	SAMP_DATE	12/22/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	82.4		
	DUP_OF	12SB20-0304-03		
PARAMETER		RESULT	VQL	QLCD
ALUMINUM				
ANTIMONY				
ARSENIC				
BARIUM		804	J	GN
BERYLLIUM				
CADMIUM				
CALCIUM				
CHROMIUM				
COBALT				
COPPER				
IRON		29300	J	N
LEAD				
MAGNESIUM				
MANGANESE		783	J	GIN
MERCURY				
NICKEL				
POTASSIUM				
SELENIUM				
SILVER				
SODIUM				
THALLIUM				
VANADIUM				
ZINC				

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030495.D	1		01/03/12	VF010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.91	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	22	J	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	1	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.84	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.91	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.28	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.66	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.84	5.3	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030495.D	1		01/03/12	VF010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.68	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.66	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.48	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.66	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	39.6		55 - 158	79%	SPK: 50
1868-53-7	Dibromofluoromethane	45.9		53 - 156	92%	SPK: 50
2037-26-5	Toluene-d8	48.6		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.9		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	109055	4.36			
540-36-3	1,4-Difluorobenzene	195772	5.11			
3114-55-4	Chlorobenzene-d5	196682	9.31			
3855-82-1	1,4-Dichlorobenzene-d4	102911	12.22			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.76 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030495.D	1		01/03/12	VF010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030579.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	54		3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.98	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.5	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.96	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.91	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.63	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030579.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.74	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.92	5.1	ug/Kg
591-78-6	2-Hexanone	13	U	4	26	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.65	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.7	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.76	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.63	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.89	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.72	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.6		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	46.1		53 - 156	92%	SPK: 50
2037-26-5	Toluene-d8	47.3		85 - 115	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.8		85 - 120	106%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	96511	4.39			
540-36-3	1,4-Difluorobenzene	177165	5.13			
3114-55-4	Chlorobenzene-d5	181150	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	93617	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030579.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.53 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030577.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
74-87-3	Chloromethane	2.85	U	0.98	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
74-83-9	Bromomethane	2.85	U	2.8	5.7	ug/Kg
75-00-3	Chloroethane	2.85	U	1.6	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	49		3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.85	U	1.2	5.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.85	U	1.1	5.7	ug/Kg
79-20-9	Methyl Acetate	2.85	U	1.7	5.7	ug/Kg
75-09-2	Methylene Chloride	2.85	U	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.79	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
110-82-7	Cyclohexane	2.85	U	1.2	5.7	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.85	U	1.1	5.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
74-97-5	Bromochloromethane	2.85	U	0.9	5.7	ug/Kg
67-66-3	Chloroform	2.85	U	0.85	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
108-87-2	Methylcyclohexane	2.85	U	1.2	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.73	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.98	5.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.85	U	0.3	5.7	ug/Kg
75-27-4	Bromodichloromethane	2.85	U	0.71	5.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.3	29	ug/Kg
108-88-3	Toluene	2.85	U	0.73	5.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.85	U	0.9	5.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.53 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030577.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.85	U	0.82	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.5	29	ug/Kg
124-48-1	Dibromochloromethane	2.85	U	0.62	5.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.85	U	0.73	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.2	5.7	ug/Kg
108-90-7	Chlorobenzene	2.85	U	0.57	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.71	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.82	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.78	5.7	ug/Kg
100-42-5	Styrene	2.85	U	0.52	5.7	ug/Kg
75-25-2	Bromoform	2.85	U	0.85	5.7	ug/Kg
98-82-8	Isopropylbenzene	2.85	U	0.55	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.53	5.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.85	U	0.42	5.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.85	U	0.47	5.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.85	U	0.71	5.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.85	U	1	5.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.85	U	0.8	5.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.85	U	0.57	5.7	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	40.8		55 - 158	82%	SPK: 50
1868-53-7	Dibromofluoromethane	45.2		53 - 156	90%	SPK: 50
2037-26-5	Toluene-d8	48.3		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.4		85 - 120	111%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	102436	4.38			
540-36-3	1,4-Difluorobenzene	186211	5.13			
3114-55-4	Chlorobenzene-d5	186603	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	98875	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.53 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030577.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030576.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.45	U	0.89	6.9	ug/Kg
74-87-3	Chloromethane	3.45	U	1.2	6.9	ug/Kg
75-01-4	Vinyl Chloride	3.45	U	1.7	6.9	ug/Kg
74-83-9	Bromomethane	3.45	U	3.4	6.9	ug/Kg
75-00-3	Chloroethane	3.45	U	1.9	6.9	ug/Kg
75-69-4	Trichlorofluoromethane	3.45	U	1.8	6.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.45	U	1.8	6.9	ug/Kg
75-35-4	1,1-Dichloroethene	3.45	U	2	6.9	ug/Kg
67-64-1	Acetone	17	U	4.2	34	ug/Kg
75-15-0	Carbon Disulfide	3.45	U	1.5	6.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.45	U	1.3	6.9	ug/Kg
79-20-9	Methyl Acetate	3.45	U	2.1	6.9	ug/Kg
75-09-2	Methylene Chloride	3.45	U	2	6.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.45	U	0.95	6.9	ug/Kg
75-34-3	1,1-Dichloroethane	3.45	U	1.3	6.9	ug/Kg
110-82-7	Cyclohexane	3.45	U	1.4	6.9	ug/Kg
78-93-3	2-Butanone	17	U	4.3	34	ug/Kg
56-23-5	Carbon Tetrachloride	3.45	U	1.4	6.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.45	U	1.2	6.9	ug/Kg
74-97-5	Bromochloromethane	3.45	U	1.1	6.9	ug/Kg
67-66-3	Chloroform	3.45	U	1	6.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
108-87-2	Methylcyclohexane	3.45	U	1.5	6.9	ug/Kg
71-43-2	Benzene	3.45	U	0.52	6.9	ug/Kg
107-06-2	1,2-Dichloroethane	3.45	U	0.88	6.9	ug/Kg
79-01-6	Trichloroethene	3.45	U	1.2	6.9	ug/Kg
78-87-5	1,2-Dichloropropane	3.45	U	0.36	6.9	ug/Kg
75-27-4	Bromodichloromethane	3.45	U	0.85	6.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17	U	4	34	ug/Kg
108-88-3	Toluene	3.45	U	0.88	6.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.45	U	1.1	6.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030576.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.45	U	0.99	6.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.45	U	1.2	6.9	ug/Kg
591-78-6	2-Hexanone	17	U	5.4	34	ug/Kg
124-48-1	Dibromochloromethane	3.45	U	0.74	6.9	ug/Kg
106-93-4	1,2-Dibromoethane	3.45	U	0.88	6.9	ug/Kg
127-18-4	Tetrachloroethene	3.45	U	1.4	6.9	ug/Kg
108-90-7	Chlorobenzene	3.45	U	0.69	6.9	ug/Kg
100-41-4	Ethyl Benzene	3.45	U	0.85	6.9	ug/Kg
179601-23-1	m/p-Xylenes	7	U	0.99	14	ug/Kg
95-47-6	o-Xylene	3.45	U	0.94	6.9	ug/Kg
100-42-5	Styrene	3.45	U	0.62	6.9	ug/Kg
75-25-2	Bromoform	3.45	U	1	6.9	ug/Kg
98-82-8	Isopropylbenzene	3.45	U	0.66	6.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.45	U	0.63	6.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.45	U	0.51	6.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.45	U	0.56	6.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.45	U	0.85	6.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.45	U	1.2	6.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.45	U	0.96	6.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.45	U	0.69	6.9	ug/Kg
1330-20-7	Total Xylenes	10.5	U	1.9	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.1		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	47.1		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	47.3		85 - 115	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.9		85 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	102304	4.38			
540-36-3	1,4-Difluorobenzene	183281	5.13			
3114-55-4	Chlorobenzene-d5	171707	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	69807	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	30
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030576.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030578.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.75	U	0.72	5.5	ug/Kg
74-87-3	Chloromethane	2.75	U	0.95	5.5	ug/Kg
75-01-4	Vinyl Chloride	2.75	U	1.4	5.5	ug/Kg
74-83-9	Bromomethane	2.75	U	2.7	5.5	ug/Kg
75-00-3	Chloroethane	2.75	U	1.5	5.5	ug/Kg
75-69-4	Trichlorofluoromethane	2.75	U	1.5	5.5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.75	U	1.5	5.5	ug/Kg
75-35-4	1,1-Dichloroethene	2.75	U	1.6	5.5	ug/Kg
67-64-1	Acetone	14	U	3.3	28	ug/Kg
75-15-0	Carbon Disulfide	2.75	U	1.2	5.5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.75	U	1.1	5.5	ug/Kg
79-20-9	Methyl Acetate	2.75	U	1.7	5.5	ug/Kg
75-09-2	Methylene Chloride	2.75	U	1.6	5.5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.75	U	0.76	5.5	ug/Kg
75-34-3	1,1-Dichloroethane	2.75	U	1	5.5	ug/Kg
110-82-7	Cyclohexane	2.75	U	1.1	5.5	ug/Kg
78-93-3	2-Butanone	14	U	3.4	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.75	U	1.1	5.5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.75	U	0.98	5.5	ug/Kg
74-97-5	Bromochloromethane	2.75	U	0.87	5.5	ug/Kg
67-66-3	Chloroform	2.75	U	0.82	5.5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.75	U	0.97	5.5	ug/Kg
108-87-2	Methylcyclohexane	2.75	U	1.2	5.5	ug/Kg
71-43-2	Benzene	2.75	U	0.42	5.5	ug/Kg
107-06-2	1,2-Dichloroethane	2.75	U	0.71	5.5	ug/Kg
79-01-6	Trichloroethene	2.75	U	0.95	5.5	ug/Kg
78-87-5	1,2-Dichloropropane	2.75	U	0.29	5.5	ug/Kg
75-27-4	Bromodichloromethane	2.75	U	0.69	5.5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.2	28	ug/Kg
108-88-3	Toluene	2.75	U	0.71	5.5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.75	U	0.87	5.5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030578.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.75	U	0.8	5.5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.75	U	1	5.5	ug/Kg
591-78-6	2-Hexanone	14	U	4.3	28	ug/Kg
124-48-1	Dibromochloromethane	2.75	U	0.6	5.5	ug/Kg
106-93-4	1,2-Dibromoethane	2.75	U	0.71	5.5	ug/Kg
127-18-4	Tetrachloroethene	2.75	U	1.1	5.5	ug/Kg
108-90-7	Chlorobenzene	2.75	U	0.55	5.5	ug/Kg
100-41-4	Ethyl Benzene	2.75	U	0.69	5.5	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.8	11	ug/Kg
95-47-6	o-Xylene	2.75	U	0.75	5.5	ug/Kg
100-42-5	Styrene	2.75	U	0.5	5.5	ug/Kg
75-25-2	Bromoform	2.75	U	0.82	5.5	ug/Kg
98-82-8	Isopropylbenzene	2.75	U	0.53	5.5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.75	U	0.51	5.5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.75	U	0.41	5.5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.75	U	0.45	5.5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.75	U	0.69	5.5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.75	U	0.96	5.5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.75	U	0.77	5.5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.75	U	0.55	5.5	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.5	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.1		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	46.7		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	48.3		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.4		85 - 120	105%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	91062	4.38			
540-36-3	1,4-Difluorobenzene	165827	5.12			
3114-55-4	Chlorobenzene-d5	168894	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	89794	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030578.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.39 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030565.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.95	U	0.76	5.9	ug/Kg
74-87-3	Chloromethane	2.95	U	1	5.9	ug/Kg
75-01-4	Vinyl Chloride	2.95	U	1.4	5.9	ug/Kg
74-83-9	Bromomethane	2.95	U	2.9	5.9	ug/Kg
75-00-3	Chloroethane	2.95	U	1.6	5.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.95	U	1.5	5.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.95	U	1.6	5.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.95	U	1.7	5.9	ug/Kg
67-64-1	Acetone	150		3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.95	U	1.2	5.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.95	U	1.1	5.9	ug/Kg
79-20-9	Methyl Acetate	2.95	U	1.8	5.9	ug/Kg
75-09-2	Methylene Chloride	2.95	U	1.7	5.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.95	U	0.81	5.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.95	U	1.1	5.9	ug/Kg
110-82-7	Cyclohexane	2.95	U	1.2	5.9	ug/Kg
78-93-3	2-Butanone	14.5	U	3.7	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.95	U	1.2	5.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.95	U	1	5.9	ug/Kg
74-97-5	Bromochloromethane	2.95	U	0.93	5.9	ug/Kg
67-66-3	Chloroform	2.95	U	0.87	5.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.95	U	1	5.9	ug/Kg
108-87-2	Methylcyclohexane	2.95	U	1.2	5.9	ug/Kg
71-43-2	Benzene	2.95	U	0.45	5.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.95	U	0.75	5.9	ug/Kg
79-01-6	Trichloroethene	2.95	U	1	5.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.95	U	0.31	5.9	ug/Kg
75-27-4	Bromodichloromethane	2.95	U	0.73	5.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.4	29	ug/Kg
108-88-3	Toluene	2.95	U	0.75	5.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.95	U	0.93	5.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.39 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030565.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.95	U	0.85	5.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.95	U	1.1	5.9	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.6	29	ug/Kg
124-48-1	Dibromochloromethane	2.95	U	0.63	5.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.95	U	0.75	5.9	ug/Kg
127-18-4	Tetrachloroethene	2.95	U	1.2	5.9	ug/Kg
108-90-7	Chlorobenzene	2.95	U	0.59	5.9	ug/Kg
100-41-4	Ethyl Benzene	2.95	U	0.73	5.9	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.85	12	ug/Kg
95-47-6	o-Xylene	2.95	U	0.8	5.9	ug/Kg
100-42-5	Styrene	2.95	U	0.53	5.9	ug/Kg
75-25-2	Bromoform	2.95	U	0.87	5.9	ug/Kg
98-82-8	Isopropylbenzene	2.95	U	0.56	5.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.95	U	0.54	5.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.95	U	0.43	5.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.95	U	0.48	5.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.95	U	0.73	5.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.95	U	1	5.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.95	U	0.82	5.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.95	U	0.59	5.9	ug/Kg
1330-20-7	Total Xylenes	9	U	1.6	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.3		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	48.6		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.8		85 - 120	106%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	89846	4.38			
540-36-3	1,4-Difluorobenzene	165688	5.12			
3114-55-4	Chlorobenzene-d5	169793	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	84732	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.39 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030565.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.37 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030564.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.1	U	0.81	6.2	ug/Kg
74-87-3	Chloromethane	3.1	U	1.1	6.2	ug/Kg
75-01-4	Vinyl Chloride	3.1	U	1.5	6.2	ug/Kg
74-83-9	Bromomethane	3.1	U	3	6.2	ug/Kg
75-00-3	Chloroethane	3.1	U	1.7	6.2	ug/Kg
75-69-4	Trichlorofluoromethane	3.1	U	1.6	6.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.1	U	1.7	6.2	ug/Kg
75-35-4	1,1-Dichloroethene	3.1	U	1.8	6.2	ug/Kg
67-64-1	Acetone	15.5	U	3.7	31	ug/Kg
75-15-0	Carbon Disulfide	3.1	U	1.3	6.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.1	U	1.2	6.2	ug/Kg
79-20-9	Methyl Acetate	3.1	U	1.9	6.2	ug/Kg
75-09-2	Methylene Chloride	3.1	U	1.8	6.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.1	U	0.86	6.2	ug/Kg
75-34-3	1,1-Dichloroethane	3.1	U	1.2	6.2	ug/Kg
110-82-7	Cyclohexane	3.1	U	1.3	6.2	ug/Kg
78-93-3	2-Butanone	15.5	U	3.9	31	ug/Kg
56-23-5	Carbon Tetrachloride	3.1	U	1.2	6.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.1	U	1.1	6.2	ug/Kg
74-97-5	Bromochloromethane	3.1	U	0.98	6.2	ug/Kg
67-66-3	Chloroform	3.1	U	0.92	6.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.1	U	1.1	6.2	ug/Kg
108-87-2	Methylcyclohexane	3.1	U	1.3	6.2	ug/Kg
71-43-2	Benzene	3.1	U	0.47	6.2	ug/Kg
107-06-2	1,2-Dichloroethane	3.1	U	0.79	6.2	ug/Kg
79-01-6	Trichloroethene	3.1	U	1.1	6.2	ug/Kg
78-87-5	1,2-Dichloropropane	3.1	U	0.32	6.2	ug/Kg
75-27-4	Bromodichloromethane	3.1	U	0.77	6.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15.5	U	3.6	31	ug/Kg
108-88-3	Toluene	3.1	U	0.79	6.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.1	U	0.98	6.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.37 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030564.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.1	U	0.89	6.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.1	U	1.1	6.2	ug/Kg
591-78-6	2-Hexanone	15.5	U	4.9	31	ug/Kg
124-48-1	Dibromochloromethane	3.1	U	0.67	6.2	ug/Kg
106-93-4	1,2-Dibromoethane	3.1	U	0.79	6.2	ug/Kg
127-18-4	Tetrachloroethene	3.1	U	1.3	6.2	ug/Kg
108-90-7	Chlorobenzene	3.1	U	0.62	6.2	ug/Kg
100-41-4	Ethyl Benzene	3.1	U	0.77	6.2	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.89	12	ug/Kg
95-47-6	o-Xylene	3.1	U	0.84	6.2	ug/Kg
100-42-5	Styrene	3.1	U	0.56	6.2	ug/Kg
75-25-2	Bromoform	3.1	U	0.92	6.2	ug/Kg
98-82-8	Isopropylbenzene	3.1	U	0.6	6.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.1	U	0.57	6.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.1	U	0.46	6.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.1	U	0.51	6.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.1	U	0.77	6.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.1	U	1.1	6.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.1	U	0.87	6.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.1	U	0.62	6.2	ug/Kg
1330-20-7	Total Xylenes	9.5	U	1.7	19	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.2		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	48.4		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.3		85 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	88985	4.39			
540-36-3	1,4-Difluorobenzene	162199	5.14			
3114-55-4	Chlorobenzene-d5	153889	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	56003	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.37 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030564.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030566.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.91	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	0.99	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.83	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.91	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.27	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.65	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.83	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030566.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.68	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.65	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.48	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.65	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.5		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	45.6		53 - 156	91%	SPK: 50
2037-26-5	Toluene-d8	47.3		85 - 115	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.3		85 - 120	113%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	89158	4.38			
540-36-3	1,4-Difluorobenzene	163434	5.12			
3114-55-4	Chlorobenzene-d5	170104	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	97204	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030566.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030562.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
74-87-3	Chloromethane	2.55	U	0.88	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
74-83-9	Bromomethane	2.55	U	2.5	5.1	ug/Kg
75-00-3	Chloroethane	2.55	U	1.4	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.55	U	1.1	5.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.55	U	0.99	5.1	ug/Kg
79-20-9	Methyl Acetate	2.55	U	1.6	5.1	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.96	5.1	ug/Kg
110-82-7	Cyclohexane	2.55	U	1	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.55	U	1	5.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.91	5.1	ug/Kg
74-97-5	Bromochloromethane	2.55	U	0.81	5.1	ug/Kg
67-66-3	Chloroform	2.55	U	0.76	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
108-87-2	Methylcyclohexane	2.55	U	1.1	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.66	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
78-87-5	1,2-Dichloropropane	2.55	U	0.27	5.1	ug/Kg
75-27-4	Bromodichloromethane	2.55	U	0.64	5.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.55	U	0.66	5.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.55	U	0.81	5.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030562.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.55	U	0.74	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.92	5.1	ug/Kg
591-78-6	2-Hexanone	13	U	4	26	ug/Kg
124-48-1	Dibromochloromethane	2.55	U	0.55	5.1	ug/Kg
106-93-4	1,2-Dibromoethane	2.55	U	0.66	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
108-90-7	Chlorobenzene	2.55	U	0.51	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.64	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.7	5.1	ug/Kg
100-42-5	Styrene	2.55	U	0.46	5.1	ug/Kg
75-25-2	Bromoform	2.55	U	0.76	5.1	ug/Kg
98-82-8	Isopropylbenzene	2.55	U	0.49	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.55	U	0.38	5.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.55	U	0.42	5.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.55	U	0.64	5.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.55	U	0.89	5.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.55	U	0.72	5.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.55	U	0.51	5.1	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.6		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	46.7		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	48.6		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.6		85 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	91390	4.38			
540-36-3	1,4-Difluorobenzene	166545	5.13			
3114-55-4	Chlorobenzene-d5	175279	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	94237	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030562.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.48 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030561.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
74-87-3	Chloromethane	2.85	U	0.98	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
74-83-9	Bromomethane	2.85	U	2.8	5.7	ug/Kg
75-00-3	Chloroethane	2.85	U	1.6	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	55		3.4	29	ug/Kg
75-15-0	Carbon Disulfide	2.85	U	1.2	5.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.85	U	1.1	5.7	ug/Kg
79-20-9	Methyl Acetate	2.85	U	1.7	5.7	ug/Kg
75-09-2	Methylene Chloride	2.85	U	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.79	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
110-82-7	Cyclohexane	2.85	U	1.2	5.7	ug/Kg
78-93-3	2-Butanone	14.5	U	3.5	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.85	U	1.1	5.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
74-97-5	Bromochloromethane	2.85	U	0.9	5.7	ug/Kg
67-66-3	Chloroform	2.85	U	0.84	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
108-87-2	Methylcyclohexane	2.85	U	1.2	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.73	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.98	5.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.85	U	0.3	5.7	ug/Kg
75-27-4	Bromodichloromethane	2.85	U	0.71	5.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.3	29	ug/Kg
108-88-3	Toluene	2.85	U	0.73	5.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.85	U	0.9	5.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.48 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030561.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.85	U	0.82	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.5	29	ug/Kg
124-48-1	Dibromochloromethane	2.85	U	0.62	5.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.85	U	0.73	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.2	5.7	ug/Kg
108-90-7	Chlorobenzene	2.85	U	0.57	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.71	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.82	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.78	5.7	ug/Kg
100-42-5	Styrene	2.85	U	0.51	5.7	ug/Kg
75-25-2	Bromoform	2.85	U	0.84	5.7	ug/Kg
98-82-8	Isopropylbenzene	2.85	U	0.55	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.52	5.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.85	U	0.42	5.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.85	U	0.47	5.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.85	U	0.71	5.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.85	U	0.99	5.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.85	U	0.8	5.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.85	U	0.57	5.7	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	48.7		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	48		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	95920	4.38			
540-36-3	1,4-Difluorobenzene	170592	5.12			
3114-55-4	Chlorobenzene-d5	168630	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	73824	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.48 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030561.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030563.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.5	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.97	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.95	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	1	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030563.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.4		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	49.5		53 - 156	99%	SPK: 50
2037-26-5	Toluene-d8	49.1		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.8		85 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	92173	4.38			
540-36-3	1,4-Difluorobenzene	169239	5.13			
3114-55-4	Chlorobenzene-d5	177380	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	94212	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030563.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	TB-01-122211	SDG No.:	C5128
Lab Sample ID:	C5128-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039966.D	1		12/31/11	VG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	1.1		0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	TB-01-122211	SDG No.:	C5128
Lab Sample ID:	C5128-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039966.D	1		12/31/11	VG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	70.6		61 - 141	141%	SPK: 50
1868-53-7	Dibromofluoromethane	54.6		69 - 133	109%	SPK: 50
2037-26-5	Toluene-d8	44.4		65 - 126	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	53		58 - 135	106%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	425764	3.92			
540-36-3	1,4-Difluorobenzene	770023	4.73			
3114-55-4	Chlorobenzene-d5	713250	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	311106	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	TB-01-122211	SDG No.:	C5128
Lab Sample ID:	C5128-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039966.D	1		12/31/11	VG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074803.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.8	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074803.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	103		35 - 105	69%	SPK: 150
13127-88-3	Phenol-d5	104		40 - 100	70%	SPK: 150
4165-60-0	Nitrobenzene-d5	61.3		35 - 100	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	63.1		45 - 105	63%	SPK: 100
118-79-6	2,4,6-Tribromophenol	104		35 - 125	70%	SPK: 150
1718-51-0	Terphenyl-d14	64.7		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	161500	8.64			
1146-65-2	Naphthalene-d8	647098	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074803.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	363623	13.77			
1517-22-2	Phenanthrene-d10	660746	16.25			
1719-03-5	Chrysene-d12	625693	20.7			
1520-96-3	Perylene-d12	573103	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074806.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074806.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	91.3		35 - 105	61%	SPK: 150
13127-88-3	Phenol-d5	93.4		40 - 100	62%	SPK: 150
4165-60-0	Nitrobenzene-d5	53.8		35 - 100	54%	SPK: 100
321-60-8	2-Fluorobiphenyl	56.7		45 - 105	57%	SPK: 100
118-79-6	2,4,6-Tribromophenol	93.6		35 - 125	62%	SPK: 150
1718-51-0	Terphenyl-d14	58		30 - 125	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	166048	8.63			
1146-65-2	Naphthalene-d8	670094	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074806.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	376506	13.77			
1517-22-2	Phenanthrene-d10	676500	16.25			
1719-03-5	Chrysene-d12	654559	20.7			
1520-96-3	Perylene-d12	601564	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074807.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	210	U	22	420	ug/Kg
108-95-2	Phenol	210	U	9.7	420	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	210	U	20	420	ug/Kg
95-57-8	2-Chlorophenol	210	U	22	420	ug/Kg
95-48-7	2-Methylphenol	210	U	23	420	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	210	U	17	420	ug/Kg
98-86-2	Acetophenone	210	U	13	420	ug/Kg
65794-96-9	3+4-Methylphenols	210	U	22	420	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	210	U	21	420	ug/Kg
67-72-1	Hexachloroethane	210	U	19	420	ug/Kg
98-95-3	Nitrobenzene	210	U	16	420	ug/Kg
78-59-1	Isophorone	210	U	14	420	ug/Kg
88-75-5	2-Nitrophenol	210	U	20	420	ug/Kg
105-67-9	2,4-Dimethylphenol	210	U	24	420	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	210	U	24	420	ug/Kg
120-83-2	2,4-Dichlorophenol	210	U	16	420	ug/Kg
106-47-8	4-Chloroaniline	210	U	30	420	ug/Kg
87-68-3	Hexachlorobutadiene	210	U	15	420	ug/Kg
105-60-2	Caprolactam	210	U	20	420	ug/Kg
59-50-7	4-Chloro-3-methylphenol	210	U	19	420	ug/Kg
77-47-4	Hexachlorocyclopentadiene	210	U	10	420	ug/Kg
88-06-2	2,4,6-Trichlorophenol	210	U	13	420	ug/Kg
95-95-4	2,4,5-Trichlorophenol	210	U	30	420	ug/Kg
92-52-4	1,1-Biphenyl	210	U	16	420	ug/Kg
91-58-7	2-Chloronaphthalene	210	U	9.6	420	ug/Kg
88-74-4	2-Nitroaniline	210	U	19	420	ug/Kg
131-11-3	Dimethylphthalate	210	U	11	420	ug/Kg
208-96-8	Acenaphthylene	210	U	11	420	ug/Kg
606-20-2	2,6-Dinitrotoluene	210	U	17	420	ug/Kg
99-09-2	3-Nitroaniline	210	U	27	420	ug/Kg
83-32-9	Acenaphthene	210	U	12	420	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074807.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	210	U	43	420	ug/Kg
100-02-7	4-Nitrophenol	210	U	78	420	ug/Kg
132-64-9	Dibenzofuran	210	U	16	420	ug/Kg
121-14-2	2,4-Dinitrotoluene	210	U	13	420	ug/Kg
84-66-2	Diethylphthalate	210	U	6.6	420	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	210	U	23	420	ug/Kg
100-01-6	4-Nitroaniline	210	U	55	420	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	210	U	24	420	ug/Kg
86-30-6	N-Nitrosodiphenylamine	210	U	10	420	ug/Kg
101-55-3	4-Bromophenyl-phenylether	210	U	8.2	420	ug/Kg
118-74-1	Hexachlorobenzene	210	U	17	420	ug/Kg
1912-24-9	Atrazine	210	U	22	420	ug/Kg
87-86-5	Pentachlorophenol	210	U	29	420	ug/Kg
85-01-8	Phenanthrene	210	U	11	420	ug/Kg
86-74-8	Carbazole	210	U	9.2	420	ug/Kg
84-74-2	Di-n-butylphthalate	210	U	33	420	ug/Kg
85-68-7	Butylbenzylphthalate	210	U	20	420	ug/Kg
91-94-1	3,3-Dichlorobenzidine	210	U	27	420	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	210	U	15	420	ug/Kg
117-84-0	Di-n-octyl phthalate	210	U	4.8	420	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U	17	420	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	210	U	420	420	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	82.9		35 - 105	55%	SPK: 150
13127-88-3	Phenol-d5	82.9		40 - 100	55%	SPK: 150
4165-60-0	Nitrobenzene-d5	50.1		35 - 100	50%	SPK: 100
321-60-8	2-Fluorobiphenyl	52.4		45 - 105	52%	SPK: 100
118-79-6	2,4,6-Tribromophenol	86.7		35 - 125	58%	SPK: 150
1718-51-0	Terphenyl-d14	53.9		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	179217	8.63			
1146-65-2	Naphthalene-d8	701303	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074807.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	395424	13.77			
1517-22-2	Phenanthrene-d10	712594	16.25			
1719-03-5	Chrysene-d12	681026	20.7			
1520-96-3	Perylene-d12	642208	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074808.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	235	U	25	470	ug/Kg
108-95-2	Phenol	235	U	11	470	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	235	U	23	470	ug/Kg
95-57-8	2-Chlorophenol	235	U	25	470	ug/Kg
95-48-7	2-Methylphenol	235	U	26	470	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	235	U	20	470	ug/Kg
98-86-2	Acetophenone	235	U	15	470	ug/Kg
65794-96-9	3+4-Methylphenols	235	U	25	470	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	235	U	24	470	ug/Kg
67-72-1	Hexachloroethane	235	U	21	470	ug/Kg
98-95-3	Nitrobenzene	235	U	18	470	ug/Kg
78-59-1	Isophorone	235	U	16	470	ug/Kg
88-75-5	2-Nitrophenol	235	U	23	470	ug/Kg
105-67-9	2,4-Dimethylphenol	235	U	27	470	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	235	U	27	470	ug/Kg
120-83-2	2,4-Dichlorophenol	235	U	18	470	ug/Kg
106-47-8	4-Chloroaniline	235	U	34	470	ug/Kg
87-68-3	Hexachlorobutadiene	235	U	17	470	ug/Kg
105-60-2	Caprolactam	235	U	22	470	ug/Kg
59-50-7	4-Chloro-3-methylphenol	235	U	21	470	ug/Kg
77-47-4	Hexachlorocyclopentadiene	235	U	12	470	ug/Kg
88-06-2	2,4,6-Trichlorophenol	235	U	15	470	ug/Kg
95-95-4	2,4,5-Trichlorophenol	235	U	33	470	ug/Kg
92-52-4	1,1-Biphenyl	235	U	18	470	ug/Kg
91-58-7	2-Chloronaphthalene	235	U	11	470	ug/Kg
88-74-4	2-Nitroaniline	235	U	21	470	ug/Kg
131-11-3	Dimethylphthalate	235	U	13	470	ug/Kg
208-96-8	Acenaphthylene	235	U	12	470	ug/Kg
606-20-2	2,6-Dinitrotoluene	235	U	19	470	ug/Kg
99-09-2	3-Nitroaniline	235	U	31	470	ug/Kg
83-32-9	Acenaphthene	235	U	13	470	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074808.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	235	U	48	470	ug/Kg
100-02-7	4-Nitrophenol	235	U	88	470	ug/Kg
132-64-9	Dibenzofuran	235	U	19	470	ug/Kg
121-14-2	2,4-Dinitrotoluene	235	U	14	470	ug/Kg
84-66-2	Diethylphthalate	235	U	7.4	470	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	235	U	26	470	ug/Kg
100-01-6	4-Nitroaniline	235	U	62	470	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	235	U	27	470	ug/Kg
86-30-6	N-Nitrosodiphenylamine	235	U	11	470	ug/Kg
101-55-3	4-Bromophenyl-phenylether	235	U	9.3	470	ug/Kg
118-74-1	Hexachlorobenzene	235	U	19	470	ug/Kg
1912-24-9	Atrazine	235	U	25	470	ug/Kg
87-86-5	Pentachlorophenol	235	U	33	470	ug/Kg
85-01-8	Phenanthrene	235	U	13	470	ug/Kg
86-74-8	Carbazole	235	U	10	470	ug/Kg
84-74-2	Di-n-butylphthalate	235	U	37	470	ug/Kg
85-68-7	Butylbenzylphthalate	235	U	23	470	ug/Kg
91-94-1	3,3-Dichlorobenzidine	235	U	31	470	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	235	U	17	470	ug/Kg
117-84-0	Di-n-octyl phthalate	235	U	5.4	470	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	235	U	19	470	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	235	U	470	470	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	120		35 - 105	81%	SPK: 150
13127-88-3	Phenol-d5	124		40 - 100	83%	SPK: 150
4165-60-0	Nitrobenzene-d5	72.9		35 - 100	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.3		45 - 105	74%	SPK: 100
118-79-6	2,4,6-Tribromophenol	127		35 - 125	85%	SPK: 150
1718-51-0	Terphenyl-d14	73.2		30 - 125	73%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	149371	8.64			
1146-65-2	Naphthalene-d8	609281	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074808.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	348253	13.77			
1517-22-2	Phenanthrene-d10	624268	16.24			
1719-03-5	Chrysene-d12	606162	20.7			
1520-96-3	Perylene-d12	558201	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074805.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	210	U	22	420	ug/Kg
108-95-2	Phenol	210	U	9.7	420	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	210	U	20	420	ug/Kg
95-57-8	2-Chlorophenol	210	U	22	420	ug/Kg
95-48-7	2-Methylphenol	210	U	23	420	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	210	U	17	420	ug/Kg
98-86-2	Acetophenone	210	U	13	420	ug/Kg
65794-96-9	3+4-Methylphenols	210	U	22	420	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	210	U	21	420	ug/Kg
67-72-1	Hexachloroethane	210	U	19	420	ug/Kg
98-95-3	Nitrobenzene	210	U	16	420	ug/Kg
78-59-1	Isophorone	210	U	14	420	ug/Kg
88-75-5	2-Nitrophenol	210	U	20	420	ug/Kg
105-67-9	2,4-Dimethylphenol	210	U	24	420	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	210	U	24	420	ug/Kg
120-83-2	2,4-Dichlorophenol	210	U	16	420	ug/Kg
106-47-8	4-Chloroaniline	210	U	30	420	ug/Kg
87-68-3	Hexachlorobutadiene	210	U	15	420	ug/Kg
105-60-2	Caprolactam	210	U	20	420	ug/Kg
59-50-7	4-Chloro-3-methylphenol	210	U	19	420	ug/Kg
77-47-4	Hexachlorocyclopentadiene	210	U	10	420	ug/Kg
88-06-2	2,4,6-Trichlorophenol	210	U	13	420	ug/Kg
95-95-4	2,4,5-Trichlorophenol	210	U	30	420	ug/Kg
92-52-4	1,1-Biphenyl	210	U	16	420	ug/Kg
91-58-7	2-Chloronaphthalene	210	U	9.6	420	ug/Kg
88-74-4	2-Nitroaniline	210	U	19	420	ug/Kg
131-11-3	Dimethylphthalate	210	U	11	420	ug/Kg
208-96-8	Acenaphthylene	210	U	11	420	ug/Kg
606-20-2	2,6-Dinitrotoluene	210	U	17	420	ug/Kg
99-09-2	3-Nitroaniline	210	U	27	420	ug/Kg
83-32-9	Acenaphthene	210	U	12	420	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074805.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	210	U	43	420	ug/Kg
100-02-7	4-Nitrophenol	210	U	78	420	ug/Kg
132-64-9	Dibenzofuran	210	U	16	420	ug/Kg
121-14-2	2,4-Dinitrotoluene	210	U	13	420	ug/Kg
84-66-2	Diethylphthalate	210	U	6.6	420	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	210	U	23	420	ug/Kg
100-01-6	4-Nitroaniline	210	U	55	420	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	210	U	24	420	ug/Kg
86-30-6	N-Nitrosodiphenylamine	210	U	10	420	ug/Kg
101-55-3	4-Bromophenyl-phenylether	210	U	8.2	420	ug/Kg
118-74-1	Hexachlorobenzene	210	U	17	420	ug/Kg
1912-24-9	Atrazine	210	U	22	420	ug/Kg
87-86-5	Pentachlorophenol	210	U	29	420	ug/Kg
85-01-8	Phenanthrene	210	U	11	420	ug/Kg
86-74-8	Carbazole	210	U	9.2	420	ug/Kg
84-74-2	Di-n-butylphthalate	210	U	33	420	ug/Kg
85-68-7	Butylbenzylphthalate	210	U	20	420	ug/Kg
91-94-1	3,3-Dichlorobenzidine	210	U	27	420	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	210	U	15	420	ug/Kg
117-84-0	Di-n-octyl phthalate	210	U	4.8	420	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U	17	420	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	210	U	420	420	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	89		35 - 105	59%	SPK: 150
13127-88-3	Phenol-d5	88.8		40 - 100	59%	SPK: 150
4165-60-0	Nitrobenzene-d5	52.8		35 - 100	53%	SPK: 100
321-60-8	2-Fluorobiphenyl	54		45 - 105	54%	SPK: 100
118-79-6	2,4,6-Tribromophenol	92.7		35 - 125	62%	SPK: 150
1718-51-0	Terphenyl-d14	55.3		30 - 125	55%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	170239	8.64			
1146-65-2	Naphthalene-d8	680857	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074805.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	380326	13.77			
1517-22-2	Phenanthrene-d10	688567	16.25			
1719-03-5	Chrysene-d12	663232	20.7			
1520-96-3	Perylene-d12	621110	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074810.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	210	U	22	420	ug/Kg
108-95-2	Phenol	210	U	9.7	420	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	210	U	20	420	ug/Kg
95-57-8	2-Chlorophenol	210	U	22	420	ug/Kg
95-48-7	2-Methylphenol	210	U	23	420	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	210	U	17	420	ug/Kg
98-86-2	Acetophenone	210	U	13	420	ug/Kg
65794-96-9	3+4-Methylphenols	210	U	22	420	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	210	U	21	420	ug/Kg
67-72-1	Hexachloroethane	210	U	19	420	ug/Kg
98-95-3	Nitrobenzene	210	U	16	420	ug/Kg
78-59-1	Isophorone	210	U	14	420	ug/Kg
88-75-5	2-Nitrophenol	210	U	20	420	ug/Kg
105-67-9	2,4-Dimethylphenol	210	U	24	420	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	210	U	24	420	ug/Kg
120-83-2	2,4-Dichlorophenol	210	U	16	420	ug/Kg
106-47-8	4-Chloroaniline	210	U	30	420	ug/Kg
87-68-3	Hexachlorobutadiene	210	U	15	420	ug/Kg
105-60-2	Caprolactam	210	U	20	420	ug/Kg
59-50-7	4-Chloro-3-methylphenol	210	U	19	420	ug/Kg
77-47-4	Hexachlorocyclopentadiene	210	U	10	420	ug/Kg
88-06-2	2,4,6-Trichlorophenol	210	U	13	420	ug/Kg
95-95-4	2,4,5-Trichlorophenol	210	U	30	420	ug/Kg
92-52-4	1,1-Biphenyl	210	U	16	420	ug/Kg
91-58-7	2-Chloronaphthalene	210	U	9.6	420	ug/Kg
88-74-4	2-Nitroaniline	210	U	19	420	ug/Kg
131-11-3	Dimethylphthalate	210	U	11	420	ug/Kg
208-96-8	Acenaphthylene	210	U	11	420	ug/Kg
606-20-2	2,6-Dinitrotoluene	210	U	17	420	ug/Kg
99-09-2	3-Nitroaniline	210	U	27	420	ug/Kg
83-32-9	Acenaphthene	210	U	12	420	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074810.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	210	U	43	420	ug/Kg
100-02-7	4-Nitrophenol	210	U	78	420	ug/Kg
132-64-9	Dibenzofuran	210	U	16	420	ug/Kg
121-14-2	2,4-Dinitrotoluene	210	U	13	420	ug/Kg
84-66-2	Diethylphthalate	210	U	6.6	420	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	210	U	23	420	ug/Kg
100-01-6	4-Nitroaniline	210	U	55	420	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	210	U	24	420	ug/Kg
86-30-6	N-Nitrosodiphenylamine	210	U	10	420	ug/Kg
101-55-3	4-Bromophenyl-phenylether	210	U	8.2	420	ug/Kg
118-74-1	Hexachlorobenzene	210	U	17	420	ug/Kg
1912-24-9	Atrazine	210	U	22	420	ug/Kg
87-86-5	Pentachlorophenol	210	U	29	420	ug/Kg
85-01-8	Phenanthrene	210	U	11	420	ug/Kg
86-74-8	Carbazole	210	U	9.2	420	ug/Kg
84-74-2	Di-n-butylphthalate	210	U	33	420	ug/Kg
85-68-7	Butylbenzylphthalate	210	U	20	420	ug/Kg
91-94-1	3,3-Dichlorobenzidine	210	U	27	420	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	210	U	15	420	ug/Kg
117-84-0	Di-n-octyl phthalate	210	U	4.8	420	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U	17	420	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	210	U	420	420	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	100		35 - 105	67%	SPK: 150
13127-88-3	Phenol-d5	102		40 - 100	68%	SPK: 150
4165-60-0	Nitrobenzene-d5	60.9		35 - 100	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	59.1		45 - 105	59%	SPK: 100
118-79-6	2,4,6-Tribromophenol	97.5		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	63.7		30 - 125	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	152654	8.64			
1146-65-2	Naphthalene-d8	607708	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074810.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	346199	13.77			
1517-22-2	Phenanthrene-d10	616147	16.25			
1719-03-5	Chrysene-d12	598720	20.69			
1520-96-3	Perylene-d12	555861	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074813.D	5	12/28/11	01/04/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	1100	U	120	2200	ug/Kg
108-95-2	Phenol	1100	U	51	2200	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	1100	U	110	2200	ug/Kg
95-57-8	2-Chlorophenol	1100	U	120	2200	ug/Kg
95-48-7	2-Methylphenol	1100	U	120	2200	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	1100	U	92	2200	ug/Kg
98-86-2	Acetophenone	1100	U	68	2200	ug/Kg
65794-96-9	3+4-Methylphenols	1100	U	120	2200	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	1100	U	110	2200	ug/Kg
67-72-1	Hexachloroethane	1100	U	99	2200	ug/Kg
98-95-3	Nitrobenzene	1100	U	84	2200	ug/Kg
78-59-1	Isophorone	1100	U	73	2200	ug/Kg
88-75-5	2-Nitrophenol	1100	U	110	2200	ug/Kg
105-67-9	2,4-Dimethylphenol	1100	U	130	2200	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	1100	U	130	2200	ug/Kg
120-83-2	2,4-Dichlorophenol	1100	U	84	2200	ug/Kg
106-47-8	4-Chloroaniline	1100	U	160	2200	ug/Kg
87-68-3	Hexachlorobutadiene	1100	U	81	2200	ug/Kg
105-60-2	Caprolactam	1100	U	100	2200	ug/Kg
59-50-7	4-Chloro-3-methylphenol	1100	U	98	2200	ug/Kg
77-47-4	Hexachlorocyclopentadiene	1100	U	54	2200	ug/Kg
88-06-2	2,4,6-Trichlorophenol	1100	U	68	2200	ug/Kg
95-95-4	2,4,5-Trichlorophenol	1100	U	160	2200	ug/Kg
92-52-4	1,1-Biphenyl	1100	U	84	2200	ug/Kg
91-58-7	2-Chloronaphthalene	1100	U	51	2200	ug/Kg
88-74-4	2-Nitroaniline	1100	U	98	2200	ug/Kg
131-11-3	Dimethylphthalate	1100	U	60	2200	ug/Kg
208-96-8	Acenaphthylene	1100	U	56	2200	ug/Kg
606-20-2	2,6-Dinitrotoluene	1100	U	90	2200	ug/Kg
99-09-2	3-Nitroaniline	1100	U	140	2200	ug/Kg
83-32-9	Acenaphthene	1100	U	63	2200	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074813.D	5	12/28/11	01/04/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	1100	U	230	2200	ug/Kg
100-02-7	4-Nitrophenol	1100	U	410	2200	ug/Kg
132-64-9	Dibenzofuran	1100	U	86	2200	ug/Kg
121-14-2	2,4-Dinitrotoluene	1100	U	67	2200	ug/Kg
84-66-2	Diethylphthalate	1100	U	35	2200	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	1100	U	120	2200	ug/Kg
100-01-6	4-Nitroaniline	1100	U	290	2200	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	1100	U	130	2200	ug/Kg
86-30-6	N-Nitrosodiphenylamine	1100	U	53	2200	ug/Kg
101-55-3	4-Bromophenyl-phenylether	1100	U	43	2200	ug/Kg
118-74-1	Hexachlorobenzene	1100	U	90	2200	ug/Kg
1912-24-9	Atrazine	1100	U	120	2200	ug/Kg
87-86-5	Pentachlorophenol	1100	U	150	2200	ug/Kg
85-01-8	Phenanthrene	1100	U	60	2200	ug/Kg
86-74-8	Carbazole	1100	U	49	2200	ug/Kg
84-74-2	Di-n-butylphthalate	1100	U	170	2200	ug/Kg
85-68-7	Butylbenzylphthalate	1100	U	110	2200	ug/Kg
91-94-1	3,3-Dichlorobenzidine	1100	U	140	2200	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	1100	U	79	2200	ug/Kg
117-84-0	Di-n-octyl phthalate	1100	U	25	2200	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	1100	U	87	2200	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	1100	U	2200	2200	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	70.1		35 - 105	47%	SPK: 150
13127-88-3	Phenol-d5	71.8		40 - 100	48%	SPK: 150
4165-60-0	Nitrobenzene-d5	42.2		35 - 100	42%	SPK: 100
321-60-8	2-Fluorobiphenyl	35.9	*	45 - 105	36%	SPK: 100
118-79-6	2,4,6-Tribromophenol	60		35 - 125	40%	SPK: 150
1718-51-0	Terphenyl-d14	37.2		30 - 125	37%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	191355	8.63			
1146-65-2	Naphthalene-d8	763261	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074813.D	5	12/28/11	01/04/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	418709	13.77			
1517-22-2	Phenanthrene-d10	720512	16.25			
1719-03-5	Chrysene-d12	689099	20.7			
1520-96-3	Perylene-d12	665436	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074809.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074809.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	106		35 - 105	71%	SPK: 150
13127-88-3	Phenol-d5	108		40 - 100	72%	SPK: 150
4165-60-0	Nitrobenzene-d5	64		35 - 100	64%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.9		45 - 105	66%	SPK: 100
118-79-6	2,4,6-Tribromophenol	110		35 - 125	73%	SPK: 150
1718-51-0	Terphenyl-d14	65.9		30 - 125	66%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	155524	8.63			
1146-65-2	Naphthalene-d8	623158	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074809.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	352325	13.77			
1517-22-2	Phenanthrene-d10	635044	16.25			
1719-03-5	Chrysene-d12	620727	20.69			
1520-96-3	Perylene-d12	561454	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074714.D	1	12/28/11	12/29/11	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.3	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074714.D	1	12/28/11	12/29/11	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	200	U	11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	110		35 - 105	74%	SPK: 150
13127-88-3	Phenol-d5	118		40 - 100	79%	SPK: 150
4165-60-0	Nitrobenzene-d5	69.5		35 - 100	70%	SPK: 100
321-60-8	2-Fluorobiphenyl	59.3		45 - 105	59%	SPK: 100
118-79-6	2,4,6-Tribromophenol	97.4		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	60.5		30 - 125	61%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	81643	8.65			
1146-65-2	Naphthalene-d8	333388	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074714.D	1	12/28/11	12/29/11	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	179990	13.79			
1517-22-2	Phenanthrene-d10	336370	16.26			
1719-03-5	Chrysene-d12	297492	20.71			
1520-96-3	Perylene-d12	259617	24.41			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074812.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074812.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	103		35 - 105	69%	SPK: 150
13127-88-3	Phenol-d5	106		40 - 100	71%	SPK: 150
4165-60-0	Nitrobenzene-d5	61.1		35 - 100	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	56.8		45 - 105	57%	SPK: 100
118-79-6	2,4,6-Tribromophenol	101		35 - 125	68%	SPK: 150
1718-51-0	Terphenyl-d14	58.3		30 - 125	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	177587	8.64			
1146-65-2	Naphthalene-d8	724187	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074812.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	401369	13.77			
1517-22-2	Phenanthrene-d10	712350	16.24			
1719-03-5	Chrysene-d12	686464	20.69			
1520-96-3	Perylene-d12	648099	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074811.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	20	390	ug/Kg
108-95-2	Phenol	195	U	9	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	20	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	17	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	17	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.5	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	27	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	8.9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	17	390	ug/Kg
131-11-3	Dimethylphthalate	195	U	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	9.9	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074811.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	73	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.1	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	51	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	22	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.4	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.6	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.6	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	15	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	107		35 - 105	72%	SPK: 150
13127-88-3	Phenol-d5	109		40 - 100	73%	SPK: 150
4165-60-0	Nitrobenzene-d5	64.6		35 - 100	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	63		45 - 105	63%	SPK: 100
118-79-6	2,4,6-Tribromophenol	105		35 - 125	70%	SPK: 150
1718-51-0	Terphenyl-d14	63.7		30 - 125	64%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	164463	8.64			
1146-65-2	Naphthalene-d8	658560	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074811.D	1	12/28/11	01/03/12	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	369072	13.77			
1517-22-2	Phenanthrene-d10	668766	16.25			
1719-03-5	Chrysene-d12	647024	20.69			
1520-96-3	Perylene-d12	592760	24.38			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002649.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	2	U	0.49	4	ug/Kg
85-01-8	Phenanthrene	2	U	0.49	4	ug/Kg
120-12-7	Anthracene	2	U	0.49	4	ug/Kg
206-44-0	Fluoranthene	2	U	0.49	4	ug/Kg
129-00-0	Pyrene	2	J	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.49	4	ug/Kg
218-01-9	Chrysene	2	U	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2	U	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	61.9		30 - 150	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	47.2		45 - 105	47%	SPK: 100
1718-51-0	Terphenyl-d14	60.3		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	180403	7.88			
1146-65-2	Naphthalene-d8	602362	10.06			
15067-26-2	Acenaphthene-d10	359146	13.03			
1517-22-2	Phenanthrene-d10	663831	15.48			
1719-03-5	Chrysene-d12	623135	19.85			
1520-96-3	Perylene-d12	554738	22.88			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002649.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002648.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	2	U	0.49	4	ug/Kg
85-01-8	Phenanthrene	2	U	0.49	4	ug/Kg
120-12-7	Anthracene	2	U	0.49	4	ug/Kg
206-44-0	Fluoranthene	2	U	0.49	4	ug/Kg
129-00-0	Pyrene	2	U	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.49	4	ug/Kg
218-01-9	Chrysene	2	U	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2	U	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	65.8		30 - 150	66%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.3		45 - 105	51%	SPK: 100
1718-51-0	Terphenyl-d14	62.2		30 - 125	62%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	158141	7.88			
1146-65-2	Naphthalene-d8	535873	10.07			
15067-26-2	Acenaphthene-d10	316801	13.03			
1517-22-2	Phenanthrene-d10	583553	15.48			
1719-03-5	Chrysene-d12	566927	19.85			
1520-96-3	Perylene-d12	501649	22.88			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002648.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002669.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.5	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.5	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.5	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.5	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.5	4.2	ug/Kg
85-01-8	Phenanthrene	2.1	U	0.5	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.5	4.2	ug/Kg
206-44-0	Fluoranthene	2.1	U	0.5	4.2	ug/Kg
129-00-0	Pyrene	2.1	U	0.5	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.5	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.5	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.5	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.5	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.5	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.5	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.5	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.5	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	65.1		30 - 150	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	53.3		45 - 105	53%	SPK: 100
1718-51-0	Terphenyl-d14	68.6		30 - 125	69%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	147884	7.86			
1146-65-2	Naphthalene-d8	491257	10.05			
15067-26-2	Acenaphthene-d10	296447	13.02			
1517-22-2	Phenanthrene-d10	555023	15.46			
1719-03-5	Chrysene-d12	519268	19.83			
1520-96-3	Perylene-d12	465944	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002669.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002647.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.35	U	0.57	4.7	ug/Kg
91-57-6	2-Methylnaphthalene	34		0.57	4.7	ug/Kg
208-96-8	Acenaphthylene	2.35	U	0.57	4.7	ug/Kg
83-32-9	Acenaphthene	2.35	U	0.57	4.7	ug/Kg
86-73-7	Fluorene	4.3	J	0.57	4.7	ug/Kg
85-01-8	Phenanthrene	57		0.57	4.7	ug/Kg
120-12-7	Anthracene	4.3	J	0.57	4.7	ug/Kg
206-44-0	Fluoranthene	52		0.57	4.7	ug/Kg
129-00-0	Pyrene	49		0.57	4.7	ug/Kg
56-55-3	Benzo(a)anthracene	7.1		0.57	4.7	ug/Kg
218-01-9	Chrysene	35		0.57	4.7	ug/Kg
205-99-2	Benzo(b)fluoranthene	35		0.57	4.7	ug/Kg
207-08-9	Benzo(k)fluoranthene	12		0.57	4.7	ug/Kg
50-32-8	Benzo(a)pyrene	23		0.57	4.7	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.35	U	0.57	4.7	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5.7		0.57	4.7	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.35	U	0.57	4.7	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.1		30 - 150	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	47.3		45 - 105	47%	SPK: 100
1718-51-0	Terphenyl-d14	57.9		30 - 125	58%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	157685	7.88			
1146-65-2	Naphthalene-d8	538788	10.07			
15067-26-2	Acenaphthene-d10	318757	13.03			
1517-22-2	Phenanthrene-d10	580272	15.48			
1719-03-5	Chrysene-d12	547783	19.85			
1520-96-3	Perylene-d12	488335	22.88			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	30
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002647.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002670.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.51	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.51	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.51	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.51	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.51	4.2	ug/Kg
85-01-8	Phenanthrene	2.1	U	0.51	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.51	4.2	ug/Kg
206-44-0	Fluoranthene	2.1	U	0.51	4.2	ug/Kg
129-00-0	Pyrene	2.1	U	0.51	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.51	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.51	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.51	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.51	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.51	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.51	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.51	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.51	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	57		30 - 150	57%	SPK: 100
321-60-8	2-Fluorobiphenyl	48.6		45 - 105	49%	SPK: 100
1718-51-0	Terphenyl-d14	59.8		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	162623	7.86			
1146-65-2	Naphthalene-d8	545692	10.05			
15067-26-2	Acenaphthene-d10	318038	13.02			
1517-22-2	Phenanthrene-d10	613628	15.46			
1719-03-5	Chrysene-d12	575377	19.82			
1520-96-3	Perylene-d12	518464	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002670.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002667.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.51	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.51	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.51	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.51	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.51	4.2	ug/Kg
85-01-8	Phenanthrene	2.5	J	0.51	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.51	4.2	ug/Kg
206-44-0	Fluoranthene	2.5	J	0.51	4.2	ug/Kg
129-00-0	Pyrene	2.1	J	0.51	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.51	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.51	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.51	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.51	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.51	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.51	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.51	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.51	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	61.9		30 - 150	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	50		45 - 105	50%	SPK: 100
1718-51-0	Terphenyl-d14	65.2		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	159771	7.86			
1146-65-2	Naphthalene-d8	533041	10.05			
15067-26-2	Acenaphthene-d10	314606	13.02			
1517-22-2	Phenanthrene-d10	597644	15.46			
1719-03-5	Chrysene-d12	552605	19.82			
1520-96-3	Perylene-d12	496120	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002667.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002646.D	5	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	11	U	2.7	22	ug/Kg
91-57-6	2-Methylnaphthalene	18	J	2.7	22	ug/Kg
208-96-8	Acenaphthylene	11	U	2.7	22	ug/Kg
83-32-9	Acenaphthene	11	U	2.7	22	ug/Kg
86-73-7	Fluorene	11	U	2.7	22	ug/Kg
85-01-8	Phenanthrene	11	U	2.7	22	ug/Kg
120-12-7	Anthracene	13	J	2.7	22	ug/Kg
206-44-0	Fluoranthene	53		2.7	22	ug/Kg
129-00-0	Pyrene	120		2.7	22	ug/Kg
56-55-3	Benzo(a)anthracene	11	U	2.7	22	ug/Kg
218-01-9	Chrysene	82		2.7	22	ug/Kg
205-99-2	Benzo(b)fluoranthene	91		2.7	22	ug/Kg
207-08-9	Benzo(k)fluoranthene	33		2.7	22	ug/Kg
50-32-8	Benzo(a)pyrene	64		2.7	22	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	11	U	2.7	22	ug/Kg
53-70-3	Dibenz(a,h)anthracene	18	J	2.7	22	ug/Kg
191-24-2	Benzo(g,h,i)perylene	11	U	2.7	22	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	58		30 - 150	58%	SPK: 100
321-60-8	2-Fluorobiphenyl	42.6	*	45 - 105	43%	SPK: 100
1718-51-0	Terphenyl-d14	46.8		30 - 125	47%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	194128	7.88			
1146-65-2	Naphthalene-d8	669017	10.07			
15067-26-2	Acenaphthene-d10	391068	13.03			
1517-22-2	Phenanthrene-d10	731637	15.48			
1719-03-5	Chrysene-d12	705164	19.85			
1520-96-3	Perylene-d12	611598	22.88			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002646.D	5	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002668.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	2.05	U	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	2.05	U	0.5	4.1	ug/Kg
129-00-0	Pyrene	2.05	U	0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	57		30 - 150	57%	SPK: 100
321-60-8	2-Fluorobiphenyl	48.4		45 - 105	48%	SPK: 100
1718-51-0	Terphenyl-d14	59.9		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	168516	7.86			
1146-65-2	Naphthalene-d8	565545	10.05			
15067-26-2	Acenaphthene-d10	330990	13.02			
1517-22-2	Phenanthrene-d10	637793	15.46			
1719-03-5	Chrysene-d12	596180	19.83			
1520-96-3	Perylene-d12	535952	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002668.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002617.D	1	12/28/11	01/04/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.49	4	ug/Kg
208-96-8	Acenaphthylene	2	U	0.49	4	ug/Kg
83-32-9	Acenaphthene	2	U	0.49	4	ug/Kg
86-73-7	Fluorene	2	U	0.49	4	ug/Kg
85-01-8	Phenanthrene	2	U	0.49	4	ug/Kg
120-12-7	Anthracene	2	U	0.49	4	ug/Kg
206-44-0	Fluoranthene	2	U	0.49	4	ug/Kg
129-00-0	Pyrene	2	U	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	2	U	0.49	4	ug/Kg
218-01-9	Chrysene	2	U	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2	U	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2	U	0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	2	U	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2	U	0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2	U	0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2	U	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	54.3		30 - 150	54%	SPK: 100
321-60-8	2-Fluorobiphenyl	40.7	*	45 - 105	41%	SPK: 100
1718-51-0	Terphenyl-d14	51.3		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	196896	7.9			
1146-65-2	Naphthalene-d8	690875	10.09			
15067-26-2	Acenaphthene-d10	409631	13.06			
1517-22-2	Phenanthrene-d10	766555	15.51			
1719-03-5	Chrysene-d12	701282	19.88			
1520-96-3	Perylene-d12	650181	22.93			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002617.D	1	12/28/11	01/04/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002645.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	4.6		0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	22		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	7.9		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	190		0.5	4.1	ug/Kg
120-12-7	Anthracene	30		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	530		0.5	4.1	ug/Kg
129-00-0	Pyrene	390		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	250		0.5	4.1	ug/Kg
218-01-9	Chrysene	250		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	290		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	110		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	220		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	130		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	40		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	150		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.9		30 - 150	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	43.4	*	45 - 105	43%	SPK: 100
1718-51-0	Terphenyl-d14	54.6		30 - 125	55%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	199022	7.88			
1146-65-2	Naphthalene-d8	662209	10.07			
15067-26-2	Acenaphthene-d10	391340	13.03			
1517-22-2	Phenanthrene-d10	721939	15.48			
1719-03-5	Chrysene-d12	677097	19.85			
1520-96-3	Perylene-d12	585669	22.88			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002645.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002612.D	1	12/28/11	01/04/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.47	3.9	ug/Kg
85-01-8	Phenanthrene	1.95	U	0.47	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.47	3.9	ug/Kg
206-44-0	Fluoranthene	1.95	U	0.47	3.9	ug/Kg
129-00-0	Pyrene	1.95	U	0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	1.95	U	0.47	3.9	ug/Kg
218-01-9	Chrysene	1.95	U	0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	4.3		0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	3.5	J	0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	5.1		0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	7.4		0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	65.3		30 - 150	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	50.9		45 - 105	51%	SPK: 100
1718-51-0	Terphenyl-d14	64.5		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	159805	7.9			
1146-65-2	Naphthalene-d8	562817	10.09			
15067-26-2	Acenaphthene-d10	339279	13.06			
1517-22-2	Phenanthrene-d10	636051	15.51			
1719-03-5	Chrysene-d12	578201	19.88			
1520-96-3	Perylene-d12	555501	22.93			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002612.D	1	12/28/11	01/04/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	c5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	17.6 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003712.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	22.5		55 - 130	113%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.4		70 - 125	102%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	c5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	17.9 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003711.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	21.2		55 - 130	106%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.1		70 - 125	101%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	c5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.6 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003709.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.2		55 - 130	101%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.6		70 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	c5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	30.4 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003708.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.19	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.26	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.23	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	2.7	P	0.19	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.29	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.26	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.19	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.19	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.2		55 - 130	96%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.5		70 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	c5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	21.2 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003710.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.1	U	0.16	2.2	ug/Kg
319-85-7	beta-BHC	1.1	U	0.23	2.2	ug/Kg
319-86-8	delta-BHC	1.1	U	0.13	2.2	ug/Kg
58-89-9	gamma-BHC	1.1	U	0.19	2.2	ug/Kg
76-44-8	Heptachlor	1.1	U	0.18	2.2	ug/Kg
309-00-2	Aldrin	1.1	U	0.13	2.2	ug/Kg
1024-57-3	Heptachlor epoxide	1.1	U	0.2	2.2	ug/Kg
959-98-8	Endosulfan I	1.1	U	0.19	2.2	ug/Kg
60-57-1	Dieldrin	1.1	U	0.16	2.2	ug/Kg
72-55-9	4,4-DDE	1.1	U	0.25	2.2	ug/Kg
72-20-8	Endrin	1.1	U	0.23	2.2	ug/Kg
33213-65-9	Endosulfan II	1.1	U	0.18	2.2	ug/Kg
72-54-8	4,4-DDD	1.1	U	0.22	2.2	ug/Kg
1031-07-8	Endosulfan Sulfate	1.1	U	0.19	2.2	ug/Kg
50-29-3	4,4-DDT	1.1	U	0.18	2.2	ug/Kg
72-43-5	Methoxychlor	1.1	U	0.22	2.2	ug/Kg
53494-70-5	Endrin ketone	1.1	U	0.16	2.2	ug/Kg
7421-93-4	Endrin aldehyde	1.1	U	0.19	2.2	ug/Kg
5103-71-9	alpha-Chlordane	1.1	U	0.18	2.2	ug/Kg
5103-74-2	gamma-Chlordane	1.1	U	0.16	2.2	ug/Kg
8001-35-2	Toxaphene	11	U	12	22	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.9		55 - 130	99%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.6		70 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	c5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	21.4 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003706.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.1	U	0.16	2.2	ug/Kg
319-85-7	beta-BHC	1.1	U	0.23	2.2	ug/Kg
319-86-8	delta-BHC	1.1	U	0.13	2.2	ug/Kg
58-89-9	gamma-BHC	1.1	U	0.19	2.2	ug/Kg
76-44-8	Heptachlor	1.1	U	0.18	2.2	ug/Kg
309-00-2	Aldrin	1.1	U	0.13	2.2	ug/Kg
1024-57-3	Heptachlor epoxide	1.1	U	0.2	2.2	ug/Kg
959-98-8	Endosulfan I	1.1	U	0.19	2.2	ug/Kg
60-57-1	Dieldrin	1.1	U	0.16	2.2	ug/Kg
72-55-9	4,4-DDE	1.1	U	0.25	2.2	ug/Kg
72-20-8	Endrin	1.1	U	0.23	2.2	ug/Kg
33213-65-9	Endosulfan II	1.1	U	0.18	2.2	ug/Kg
72-54-8	4,4-DDD	1.1	U	0.22	2.2	ug/Kg
1031-07-8	Endosulfan Sulfate	1.1	U	0.19	2.2	ug/Kg
50-29-3	4,4-DDT	1.1	U	0.18	2.2	ug/Kg
72-43-5	Methoxychlor	1.1	U	0.22	2.2	ug/Kg
53494-70-5	Endrin ketone	1.1	U	0.16	2.2	ug/Kg
7421-93-4	Endrin aldehyde	1.1	U	0.19	2.2	ug/Kg
5103-71-9	alpha-Chlordane	1.1	U	0.18	2.2	ug/Kg
5103-74-2	gamma-Chlordane	1.1	U	0.16	2.2	ug/Kg
8001-35-2	Toxaphene	11	U	12	22	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.3		55 - 130	72%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.5		70 - 125	92%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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E = Value Exceeds Calibration Range
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	c5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	24.6 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007342.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.1	U	0.17	2.2	ug/Kg
319-85-7	beta-BHC	1.1	U	0.24	2.2	ug/Kg
319-86-8	delta-BHC	1.1	U	0.13	2.2	ug/Kg
58-89-9	gamma-BHC	1.1	U	0.2	2.2	ug/Kg
76-44-8	Heptachlor	1.1	U	0.19	2.2	ug/Kg
309-00-2	Aldrin	1.1	U	0.13	2.2	ug/Kg
1024-57-3	Heptachlor epoxide	1.1	U	0.21	2.2	ug/Kg
959-98-8	Endosulfan I	1.1	U	0.2	2.2	ug/Kg
60-57-1	Dieldrin	1.1	U	0.17	2.2	ug/Kg
72-55-9	4,4-DDE	1.1	U	0.26	2.2	ug/Kg
72-20-8	Endrin	1.1	U	0.24	2.2	ug/Kg
33213-65-9	Endosulfan II	1.1	U	0.19	2.2	ug/Kg
72-54-8	4,4-DDD	1.1	U	0.22	2.2	ug/Kg
1031-07-8	Endosulfan Sulfate	1.1	U	0.2	2.2	ug/Kg
50-29-3	4,4-DDT	1.1	U	0.19	2.2	ug/Kg
72-43-5	Methoxychlor	1.1	U	0.22	2.2	ug/Kg
53494-70-5	Endrin ketone	1.1	U	0.17	2.2	ug/Kg
7421-93-4	Endrin aldehyde	1.1	U	0.2	2.2	ug/Kg
5103-71-9	alpha-Chlordane	1.1	U	0.19	2.2	ug/Kg
5103-74-2	gamma-Chlordane	1.1	U	0.17	2.2	ug/Kg
8001-35-2	Toxaphene	11	U	13	22	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.73	*	55 - 130	44%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.5		70 - 125	103%	SPK: 20

U = Not Detected
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	c5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	19.9 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003707.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	21		55 - 130	105%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.8		70 - 125	99%	SPK: 20

U = Not Detected
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	c5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	18.3 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003704.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.7		55 - 130	83%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.2		70 - 125	86%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	c5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.3 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003703.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	11		0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16		55 - 130	80%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.8		70 - 125	84%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	c5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	15.5 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003705.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.17	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.17	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.17	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.17	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.8		55 - 130	89%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.4		70 - 125	87%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006361.D	1	12/28/11	12/29/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	350		5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.2		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	20.4		60 - 125	102%	SPK: 20

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
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J = Estimated Value
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N = Presumptive Evidence of a Compound
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006358.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.9		10 - 166	80%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.7		60 - 125	99%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	21 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006356.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.4	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.3	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.4	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.3	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.3	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.2	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.3		10 - 166	76%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.7		60 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	30 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006355.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	11	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.4	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.6		10 - 166	73%	SPK: 20
2051-24-3	Decachlorobiphenyl	19		60 - 125	95%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	21 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006357.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.4	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.3	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.4	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.3	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.3	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.2	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	13.9		10 - 166	69%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.4		60 - 125	82%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	21 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006423.D	1	12/28/11	01/04/12	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.4	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.3	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.4	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.3	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.3	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.2	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.4		10 - 166	97%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.5		60 - 125	78%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	25 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006352.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.6	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.5	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	9.9	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.5	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.8	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.3		10 - 166	72%	SPK: 20
2051-24-3	Decachlorobiphenyl	13.6		60 - 125	68%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006354.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16		10 - 166	80%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.6		60 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006350.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.7		10 - 166	74%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.2		60 - 125	81%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006349.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.4		10 - 166	72%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.2		60 - 125	76%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	16 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006351.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.9	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.8	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.8	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.9	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.2		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.9		60 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9720		1	0.58	1.7	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	5.9	N	1	0.022	0.17	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	3.9	N	1	0.019	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	742.1	OR	1	0.007	0.861	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.75	N	1	0.006	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	4		1	0.008	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	464		1	0.55	43	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	22.6	N	1	0.01	0.17	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	7.9	N	1	0.005	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	99.2	N	1	0.005	0.17	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	20700	OR*	1	0.797	17.214	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	261		1	0.003	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1380		1	0.6	43	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	564.5	OR	1	0.005	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.055		1	0.002	0.011	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	14.6	N	1	0.008	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	526	N	1	0.78	43	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.215	UN	1	0.048	0.43	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	1.4		1	0.006	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	49.3		1	1.1	43	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.27	*	1	0.004	0.086	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	24.8	N	1	0.011	0.43	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	292	N	1	0.01	0.17	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06DL	SDG No.:	C5128
Lab Sample ID:	C5128-14DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7440-39-3	Barium	804	D	25	0.17	21.5	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	29300	*D	25	19.9	430	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	783	D	25	0.13	2.2	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9080		1	0.54	1.6	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	2	N	1	0.021	0.16	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	3.1	N	1	0.018	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	123		1	0.006	0.8	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.75	N	1	0.006	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	1.9		1	0.007	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	404		1	0.51	39.8	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	22.8	N	1	0.009	0.16	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	5.5	N	1	0.005	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	22.9	N	1	0.005	0.16	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	167000	OR*	1	0.737	15.922	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	64.1		1	0.003	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1240		1	0.55	39.8	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	384		1	0.005	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.046		1	0.002	0.012	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	13.1	N	1	0.007	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	461	N	1	0.72	39.8	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.2	UN	1	0.045	0.4	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.25		1	0.006	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	45.5		1	0.98	39.8	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.51	*	1	0.004	0.08	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	23.8	N	1	0.01	0.4	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	139	N	1	0.009	0.16	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03DL	SDG No.:	C5128
Lab Sample ID:	C5128-13DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	23800	*D	25	18.4	398	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	13600		1	0.76	2.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.23	N	1	0.029	0.22	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	5.1	N	1	0.025	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	83.5		1	0.009	1.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.75	N	1	0.008	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.08	J	1	0.01	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	478		1	0.71	56.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	19.7	N	1	0.012	0.22	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	5.9	N	1	0.007	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	7.9	N	1	0.007	0.22	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	20700	*	1	1	22.5	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	10.6		1	0.004	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1640		1	0.78	56.2	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	201		1	0.007	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.017		1	0.002	0.011	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	9.9	N	1	0.01	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	507	N	1	1	56.2	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.16	JN	1	0.063	0.56	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.034	J	1	0.008	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	40.2	J	1	1.4	56.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.17	*	1	0.006	0.11	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	29	N	1	0.015	0.56	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	32.5	N	1	0.012	0.22	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
Level (low/med):	low	% Solid:	69.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11500		1	0.68	2	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.76	N	1	0.026	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	7.5	N	1	0.022	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	91.8		1	0.008	1	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.9	N	1	0.007	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.57		1	0.009	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	1000		1	0.64	50.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	18.3	N	1	0.011	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	7.6	N	1	0.006	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	18.1	N	1	0.006	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	18400	*	1	0.93	20.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	47.2		1	0.004	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1600		1	0.7	50.2	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	554	OR	1	0.006	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.082		1	0.003	0.013	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	10.7	N	1	0.009	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	637	N	1	0.91	50.2	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.36	JN	1	0.056	0.5	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.22		1	0.007	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	41.7	J	1	1.2	50.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.21	*	1	0.005	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	28.7	N	1	0.013	0.5	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	61.1	N	1	0.011	0.2	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01DL	SDG No.:	C5128
Lab Sample ID:	C5128-10DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	69.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-96-5	Manganese	803	D	25	0.15	2.5	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

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B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	78.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11900		1	0.64	1.9	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.23	N	1	0.024	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	7.1	N	1	0.021	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	44.9		1	0.008	0.94	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.58	N	1	0.007	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.09	J	1	0.008	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	474		1	0.6	47	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	17.1	N	1	0.01	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	7.4	N	1	0.006	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	9.7	N	1	0.006	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	22700	OR*	1	0.87	18.801	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	12		1	0.004	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1650		1	0.65	47	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	191		1	0.006	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.03		1	0.002	0.012	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	8.4	N	1	0.008	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	674	N	1	0.85	47	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.057	JN	1	0.053	0.47	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.027	J	1	0.007	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	36.5	J	1	1.2	47	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.18	*	1	0.005	0.094	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	27.5	N	1	0.012	0.47	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	33	N	1	0.01	0.19	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
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E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03DL	SDG No.:	C5128
Lab Sample ID:	C5128-12DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	78.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	37500	*D	25	21.8	470	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
Level (low/med):	low	% Solid:	78.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	16700		1	0.86	2.5	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.33	N	1	0.033	0.25	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	5.2	N	1	0.028	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	61.7		1	0.01	1.3	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.7	N	1	0.009	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.14		1	0.011	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	607		1	0.81	63.6	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	23.7	N	1	0.014	0.25	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	5.7	N	1	0.008	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	9.6	N	1	0.008	0.25	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	26100	OR*	1	1.178	25.445	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	12		1	0.005	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1840		1	0.88	63.6	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	106		1	0.008	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.02		1	0.002	0.011	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	10.8	N	1	0.011	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	766	N	1	1.1	63.6	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.17	JN	1	0.071	0.64	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.043	J	1	0.009	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	40.3	J	1	1.6	63.6	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.22	*	1	0.006	0.13	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	34.4	N	1	0.017	0.64	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	31.8	N	1	0.014	0.25	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
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D = Dilution

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B = Analyte Found in Associated Method Blank
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02DL	SDG No.:	C5128
Lab Sample ID:	C5128-08DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	78.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	37000	*D	25	29.5	636	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11000		1	0.6	1.8	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.82	N	1	0.023	0.18	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	4.8	N	1	0.019	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	78.3		1	0.007	0.88	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.92	N	1	0.006	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.45		1	0.008	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	3120		1	0.56	44.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	18.4	N	1	0.01	0.18	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	6.4	N	1	0.005	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	14.5	N	1	0.005	0.18	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	16200	*	1	0.82	17.7	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	37.2		1	0.004	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	2820		1	0.61	44.2	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	397		1	0.005	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.111		1	0.003	0.013	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	11	N	1	0.008	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	1020	N	1	0.8	44.2	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.27	JN	1	0.05	0.44	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.44		1	0.006	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	65.9		1	1.1	44.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.23	*	1	0.004	0.088	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	27.3	N	1	0.011	0.44	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	66.6	N	1	0.01	0.18	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	14000		1	0.69	2	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.33	N	1	0.026	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	3.4	N	1	0.022	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	50.5		1	0.008	1	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.85	N	1	0.007	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.12		1	0.009	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	591		1	0.64	50.7	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	20.4	N	1	0.011	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	6.5	N	1	0.006	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	8.4	N	1	0.006	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	24000	OR*	1	0.94	20.3	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	13.5		1	0.004	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	2590		1	0.7	50.7	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	146		1	0.006	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.018		1	0.002	0.012	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	10.5	N	1	0.009	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	1180	N	1	0.91	50.7	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.255	UN	1	0.057	0.51	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.029	J	1	0.007	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	52.2		1	1.2	50.7	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.2	*	1	0.005	0.1	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	30.2	N	1	0.013	0.51	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	29.5	N	1	0.011	0.2	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03DL	SDG No.:	C5128
Lab Sample ID:	C5128-09DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-89-6	Iron	33200	*D	25	23.5	507	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11700		1	0.65	1.9	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.17	JN	1	0.025	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	3.5	N	1	0.021	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	45.3		1	0.008	0.96	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.47	N	1	0.007	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.082	J	1	0.009	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	668		1	0.61	47.8	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	19.4	N	1	0.011	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	3.5	N	1	0.006	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	6.9	N	1	0.006	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	17100	*	1	0.89	19.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	8.5		1	0.004	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1730		1	0.66	47.8	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	106		1	0.006	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.013		1	0.002	0.011	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	8	N	1	0.009	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	549	N	1	0.86	47.8	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.24	UN	1	0.053	0.48	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.023	J	1	0.007	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	50.4		1	1.2	47.8	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.16	*	1	0.005	0.096	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	28.2	N	1	0.012	0.48	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	22	N	1	0.011	0.19	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10800		1	0.67	2	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.35	N	1	0.026	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	4.9	N	1	0.022	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	74.5		1	0.008	0.99	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.76	N	1	0.007	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.21		1	0.009	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	5570		1	0.63	49.4	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	17.4	N	1	0.011	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	6	N	1	0.006	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	13.6	N	1	0.006	0.2	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	16400	*	1	0.91	19.8	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	35.3		1	0.004	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	4490		1	0.68	49.4	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	360		1	0.006	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.044		1	0.002	0.012	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	10.7	N	1	0.009	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	816	N	1	0.89	49.4	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.21	JN	1	0.055	0.49	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.093	J	1	0.007	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	57.6		1	1.2	49.4	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.24	*	1	0.005	0.099	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	25.6	N	1	0.013	0.49	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	47.9	N	1	0.011	0.2	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	84.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8770		1	0.65	1.9	mg/Kg	12/28/11	01/05/12	SW6020
7440-36-0	Antimony	0.14	JN	1	0.025	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7440-38-2	Arsenic	2.6	N	1	0.021	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-39-3	Barium	57.9		1	0.008	0.95	mg/Kg	12/28/11	01/05/12	SW6020
7440-41-7	Beryllium	0.76	N	1	0.007	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-43-9	Cadmium	0.097		1	0.009	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-70-2	Calcium	479		1	0.61	47.7	mg/Kg	12/28/11	01/05/12	SW6020
7440-47-3	Chromium	17.5	N	1	0.011	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7440-48-4	Cobalt	5.7	N	1	0.006	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-50-8	Copper	7.2	N	1	0.006	0.19	mg/Kg	12/28/11	01/05/12	SW6020
7439-89-6	Iron	14800	*	1	0.88	19.1	mg/Kg	12/28/11	01/05/12	SW6020
7439-92-1	Lead	7.7		1	0.004	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7439-95-4	Magnesium	1630		1	0.66	47.7	mg/Kg	12/28/11	01/05/12	SW6020
7439-96-5	Manganese	165		1	0.006	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7439-97-6	Mercury	0.004	J	1	0.002	0.011	mg/Kg	12/29/11	12/30/11	SW7471A
7440-02-0	Nickel	8.1	N	1	0.009	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-09-7	Potassium	573	N	1	0.86	47.7	mg/Kg	12/28/11	01/05/12	SW6020
7782-49-2	Selenium	0.24	UN	1	0.053	0.48	mg/Kg	12/28/11	01/05/12	SW6020
7440-22-4	Silver	0.018	J	1	0.007	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-23-5	Sodium	53.8		1	1.2	47.7	mg/Kg	12/28/11	01/05/12	SW6020
7440-28-0	Thallium	0.13	*	1	0.005	0.095	mg/Kg	12/28/11	01/05/12	SW6020
7440-62-2	Vanadium	24.6	N	1	0.012	0.48	mg/Kg	12/28/11	01/05/12	SW6020
7440-66-6	Zinc	20.9	N	1	0.011	0.19	mg/Kg	12/28/11	01/05/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB28-115215-01	SDG No.:	C5128
Lab Sample ID:	C5128-03	Matrix:	SOIL
		% Solid:	82.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	5.29		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	378.1		1	0.121	0.121	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
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LOD = Limit of Detection
D = Dilution

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N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP36-0708-01	SDG No.:	C5128
Lab Sample ID:	C5128-02	Matrix:	SOIL
		% Solid:	81.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.08		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	262.4		1	0.123	0.123	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB-DUP-06	SDG No.:	C5128
Lab Sample ID:	C5128-14	Matrix:	SOIL
		% Solid:	82.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.303	U	1	0.04	0.303	mg/Kg	12/28/11	12/28/11	9012B
pH	4.94		1	0	0	pH	12/23/11	12/23/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB20-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-13	Matrix:	SOIL
		% Solid:	82.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.305	U	1	0.04	0.305	mg/Kg	12/28/11	12/28/11	9012B
pH	4.89		1	0	0	pH	12/23/11	12/23/11	9045C

Comments:

U = Not Detected
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MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-11	Matrix:	SOIL
		% Solid:	79.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.315	U	1	0.042	0.315	mg/Kg	12/28/11	12/28/11	9012B
pH	5.1		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	382.4		1	0.126	0.126	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-10	Matrix:	SOIL
		% Solid:	69.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.113	J	1	0.047	0.359	mg/Kg	12/28/11	12/28/11	9012B
pH	5.82		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	330.9		1	0.144	0.144	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB21-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-12	Matrix:	SOIL
		% Solid:	78.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.317	U	1	0.042	0.317	mg/Kg	12/28/11	12/28/11	9012B
pH	5.1		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	381.9		1	0.127	0.127	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-08	Matrix:	SOIL
		% Solid:	78.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.318	U	1	0.042	0.318	mg/Kg	12/28/11	12/28/11	9012B
pH	4.87		1	0	0	pH	12/23/11	12/23/11	9045C

Comments:

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-07	Matrix:	SOIL
		% Solid:	75.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.332	U	1	0.044	0.332	mg/Kg	12/28/11	12/28/11	9012B
pH	7.19		1	0	0	pH	12/23/11	12/23/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB23-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-09	Matrix:	SOIL
		% Solid:	80.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.312	U	1	0.041	0.312	mg/Kg	12/28/11	12/28/11	9012B
pH	5.01		1	0	0	pH	12/23/11	12/23/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0.502-02	SDG No.:	C5128
Lab Sample ID:	C5128-05	Matrix:	SOIL
		% Solid:	81.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.306	U	1	0.04	0.306	mg/Kg	12/28/11	12/28/11	9012B
pH	6.34		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	289.2		1	0.122	0.122	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
		% Solid:	79.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.314	U	1	0.041	0.314	mg/Kg	12/28/11	12/28/11	9012B
pH	7.15		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	270.9		1	0.125	0.125	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-0304-03	SDG No.:	C5128
Lab Sample ID:	C5128-06	Matrix:	SOIL
		% Solid:	84.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.296	U	1	0.039	0.296	mg/Kg	12/28/11	12/28/11	9012B
pH	5.35		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	369.6		1	0.118	0.118	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

Appendix C

Support Documentation

HOLD TIME

SDG C5128

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
HG	MG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/29/2011	12/30/2011	7	1	8
M	MG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB20-0304-03	C5128-13DL	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB21-0304-03	C5128-12DL	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB23-0304-03	C5128-09DL	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB-DUP-06	C5128-14DL	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB23-0.502-02	C5128-08DL	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
M	MG/KG	12SB21-000.5-01	C5128-10DL	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
CN	MG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
CN	MG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	03SB28-115215-01	C5128-03	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
ORP	MV	03TP36-0708-01	C5128-02	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PH	PH	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB23-0304-03	C5128-09	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB20-0304-03	C5128-13	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	PH	03TP36-0708-01	C5128-02	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB21-0304-03	C5128-12	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB30-0304-03	C5128-06	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	03SB28-115215-01	C5128-03	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
PH	PH	12SB-DUP-06	C5128-14	NM	12/22/2011	12/23/2011	12/23/2011	1	0	1
OS	UG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	1/4/2012	6	7	13
OS	UG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	1/4/2012	6	7	13
OS	UG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	12/29/2011	6	1	7
OS	UG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/28/2011	1/4/2012	6	7	13
OS	UG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	1/3/2012	6	6	12
OS	UG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OS	UG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
OV	UG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	1/3/2012	1/3/2012	12	0	12
OV	UG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	1/5/2012	1/5/2012	14	0	14
OV	UG/L	TB-01-122211	C5128-01	NM	12/22/2011	12/31/2011	12/31/2011	9	0	9
PCB	UG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/28/2011	12/29/2011	6	1	7
PCB	UG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/28/2011	1/4/2012	6	7	13
PCB	UG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6
PCB	UG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	12/28/2011	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/KG	12SB21-000.5-01	C5128-10	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB-DUP-06	C5128-14	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB30-0304-03	C5128-06	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB30-000.5-01	C5128-04	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB30-0.502-02	C5128-05	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB23-0304-03	C5128-09	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB23-000.5-01	C5128-07	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB21-0304-03	C5128-12	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB21-0.502-02	C5128-11	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB20-0304-03	C5128-13	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14
PEST	UG/KG	12SB23-0.502-02	C5128-08	NM	12/22/2011	12/28/2011	1/5/2012	6	8	14

NASJRB WILLOW GROVE
SOIL DATA
C5128

FRACTION	CHEMICAL	12SB20-0304-03	UNITS	12SB-DUP-06	RPD	D	
M	ALUMINUM	9080	MG/KG	9720	6.81	640.00	
M	ANTIMONY	2 J	MG/KG	5.9 J	98.73	3.90	J
M	ARSENIC	3.1	MG/KG	3.9	22.86	0.80	
M	BARIUM	123 J	MG/KG	ND	200.00	123.00	
M	BERYLLIUM	0.75	MG/KG	0.75 K	0.00	0.00	
M	CADMIUM	1.9 J	MG/KG	4 J	71.19	2.10	J
M	CALCIUM	404 J	MG/KG	464 J	13.82	60.00	
M	CHROMIUM	22.8 J	MG/KG	22.6 J	0.88	0.20	
M	COBALT	5.5 J	MG/KG	7.9 J	35.82	2.40	
M	COPPER	22.9 J	MG/KG	99.2 J	124.98	76.30	J
M	LEAD	64.1 J	MG/KG	261 J	121.13	196.90	J
M	MAGNESIUM	1240 J	MG/KG	1380 J	10.69	140.00	
M	MANGANESE	384 J	MG/KG	ND	200.00	384.00	
M	MERCURY	0.046	MG/KG	0.055	17.82	0.01	
M	NICKEL	13.1 J	MG/KG	14.6 J	10.83	1.50	
M	POTASSIUM	461 J	MG/KG	526 J	13.17	65.00	
M	SILVER	0.25 J	MG/KG	1.4 J	139.39	1.15	J
M	SODIUM	45.5 B	MG/KG	49.3 B	8.02	3.80	
M	THALLIUM	0.51 B	MG/KG	0.27 B	61.54	0.24	O.K. Blank Contam.
M	VANADIUM	23.8 J	MG/KG	24.8 J	4.12	1.00	
M	ZINC	139 J	MG/KG	292 J	71.00	153.00	J
MISC	PH	4.89	S.U.	4.94	1.02	0.05	
OS	PYRENE	ND	UG/KG	2 J	200.00	2.00	O.K. < 2xRL
OV	ACETONE	54 J	UG/KG	22 J	84.21	32.00	J
PCB	AROCLOR-1260	ND	UG/KG	350	200.00	350.00	J

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5128

FRACTION	CHEMICAL	12SB20-0304-03DL	UNITS	12SB-DUP-06DL	RPD	D
M	BARIUM	~~ND~~ 123	MG/KG	804 J	~~200.00~~ 147	~~804.00~~ 631 J
M	IRON	23800 J	MG/KG	29300 J	20.72	5500.00
M	MANGANESE	~~ND~~ 354	MG/KG	783 J	~~200.00~~ 68.4	~~783.00~~ 399 J

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

ANALYTICAL RESULTS
SUMMARY

PROJECT NAME : CTO WE05 NAS JRB WILLOW GROVE

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : **C5128**
ATTENTION : **Andy Frebowitz**

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C5128

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C5128-01	TB-01-122211
C5128-02	03TP36-0708-01
C5128-03	03SB28-1.52.5-01
C5128-04	12SB30-000.5-01
C5128-05	12SB30-0.502-02
C5128-06	12SB30-0304-03
C5128-07	12SB23-000.5-01
C5128-08	12SB23-0.502-02
C5128-09	12SB23-0304-03
C5128-10	12SB21-000.5-01
C5128-11	12SB21-0.502-02
C5128-12	12SB21-0304-03
C5128-13	12SB20-0304-03
C5128-14	12SB-DUP-06

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.20 15:58:22 -05'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

I Hildred V. Reyes, as the designated Quality Assurance Officer, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Hildred V Reyes Title: QA/QC Supervisor Date: 1/20/12

C5128

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5128
QUOTE NO.
COC Number 021251

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO. 112 WE05 LOCATION: Sites 3/12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 40 ml VOA Vials
2 DRO/PRO
3 TCL VOC 5 gram Encore
4 SVOC/PAH Sim
5 PCB's/PCB's
6 Metals, Cr, Hg, Pb
7 DRO
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	TB-01-122211	Aq		✓	12/22/11	0700	2	2									
2.	03TP36-0705-01	Soil		✓	12/22/11	0900	1		1								
3.	03SB28-1152.5-01	Soil		✓	12/22/11	0925	1		1								
4.	125B30-0005-01	Soil		✓	12/22/11	1110	7			3	1	1	1	1			
5.	125B30-0.502-02	Soil		✓	12/22/11	1130	7			3	1	1	1	1			
6.	125B30-0304-03	Soil		✓	12/22/11	1150	7			3	1	1	1	1			
7.	125B23-0005-01	Soil		✓	12/22/11	1315	6			3	1	1	1				
8.	125B23-0.502-02	Soil		✓	12/22/11	1325	6			3	1	1	1				
9.	125B23-0304-03	Soil		✓	12/22/11	1335	6			3	1	1	1				
10.	125B21-0005-01	Soil		✓	12/22/11	1450	7			3	1	1	1	1			

PRESERVATIVES: ← Specify Preservatives
A – HCl B – HNO_3 C – H_2SO_4 D – NaOH E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/22/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	12/23/11 9:35	3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 3°C
Ice in Cooler?: Y

Page 2 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5128
QUOTE NO.
COC Number 021232

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: ETO WE06 LOCATION: Sites 3/12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 5 gram Encore
2 TCL SVOC / PAH SIM
3 PEST / PCB
4 Metals, Ca, Hg, Pit
5 6 7 8 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	125B21-0502-02	Soil		✓	12/22/11	1505	7	3	1	1	1	1					
2.	125B21-0304-03	Soil		✓	12/22/11	1520	7	3	1	1	1	1					
3.	125B20-0304-03	Soil		✓	12/22/11	1550	6	3	1	1	1						
4.	125B-DUP-06	Soil		✓	12/22/11	1200	6	3	1	1	1						
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

← Specify Preservatives
A - HCl B - HNO_3
C - H_2SO_4 D - NaOH
E - ICE F - Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/22/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/23/11 9:35	3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 3°C
Ice in Cooler?: Y

Page 2 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5128
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_F were done using GC column RTX-VMS, which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for BSG1230W4 [1,2-Dichloroethane-d4 - 136%], TB-01-122211 MS [1,2-Dichloroethane-d4 - 141%], MW-6S(ON)MS [1,2-Dichloroethane-d4 - 144%, Toluene-d8 - 82%], MW-6S(ON)MSD [1,2-Dichloroethane-d4 - 170%, Dibromofluoromethane - 118%] and VBG1230W2 [1,2-Dichloroethane-d4 - 140%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5148-06MS} with File ID: VG039978.D recoveries met the requirements for all compounds except for 1,1,1-Trichloroethane[146%], 1,1-Dichloroethane[140%], 1,2-Dibromo-3-Chloropropane[144%], 1,2-Dichloroethane[168%], 2-Butanone[152%], 2-Hexanone[140%], 4-Methyl-2-Pentanone[140%], Acetone[180%], Bromochloromethane[138%], Bromodichloromethane[122%], Chloroform[144%], Chloromethane[140%], Methyl tert-butyl Ether[138%] and Trichlorofluoromethane[168%] .
The MS {C5135-12MS} with File ID: VF030500.D recoveries met the requirements for all compounds except for 1,4-Dioxane[64%] .

The MSD {C5148-07MSD} with File ID: VG039979.D recoveries met the acceptable requirements except for 1,1,1-Trichloroethane[158%], 1,1,2,2-Tetrachloroethane[144%], 1,1-Dichloroethane[154%], 1,2-Dibromo-3-Chloropropane[188%], 1,2-Dichloroethane[184%], 1,2-Dichloropropane[126%], 2-Butanone[168%], 2-Hexanone[156%], 4-Methyl-2-Pentanone[148%], Acetone[216%], Bromochloromethane[168%], Bromodichloromethane[134%], Bromomethane[164%], Chloroethane[162%], Chloroform[166%], Chloromethane[174%], cis-1,2-Dichloroethene[126%], Methyl tert-butyl Ether[164%] and Trichlorofluoromethane[172%] .
The RPD for {C5148-07MSD} with File ID: VG039979.D recoveries met criteria except for 1,1,2,2-Tetrachloroethane[22%], 1,2-Dibromo-3-Chloropropane[27%], Chloromethane[22%], Methylcyclohexane[34%] and Vinyl chloride[22%] .
The RPD for {C5135-13MSD} with File ID: VF030501.D recoveries met criteria except for 1,4-Dioxane[23%], 2-Butanone[25%], 2-Hexanone[26%], Acetone[25%] and Methyl Acetate[30%] .
The Blank Spike for {BSG1230W4} with File ID: VG039962.D met requirements for all samples except for 1,1,1-Trichloroethane[135%], 1,2-Dichloroethane[155%], Acetone[150%], Chloromethane[130%] and Trichlorofluoromethane[145%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration File ID VF030483.D met the requirements except for Vinyl Chloride, Trichlorofluoromethane, 1,1,2-Trichlorotrifluoroethane, 1,1-Dichloroethene, Carbon Disulfide, Isopropylbenzene and Chloroethane but they were not detected in any samples.
The Continuous Calibration File ID VF030569.D met the requirements except for 1,1,2-Trichlorotrifluoroethane, 1,1-Dichloroethene and cis-1,2-Dichloroethene but they were not detected in any samples.
The Continuous Calibration File ID VG039958.D met the requirements except for Dichlorodifluoromethane, Trichlorofluoromethane, Acetone, Methyl Acetate, 2-Butanone, Bromochloromethane, Chloroform, 1,1,1-Trichloroethane, 1,2-Dichloroethane-d4, Carbon Tetrachloride,1,2-Dichloroethane, Tetrachloroethene and 1,2-Dibromo-3-Chloropropane but they were not detected in any samples.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

CHEMTECH

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.20 15:58:02 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # MS. Tobrena Skeen
Chemtech Project # C5128
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB23-000.5-01 [2-Fluorobiphenyl - 36%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5128-05MS} with File ID: BE074712.D recoveries met the requirements for all compounds except for 1,2,4,5-Tetrachlorobenzene[65%] .
The MSD recoveries met the acceptable requirements .
The RPD for {C5128-05MSD} with File ID: BE074713.D recoveries did not meet criteria except for 1,1-Biphenyl, 4-Chloroaniline and bis(2-Chloroethyl)ether .
The Blank Spike for {PB60240BS} with File ID: BE074723.D met requirements for all samples except for 4-Chloroaniline[14%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification file ID : {BE074750.D} met the requirements except for Benzaldehyde.
The Continuous Calibration met the requirements .
The Tuning criteria met requirements.
Samples 12SB23-000.5-01 was diluted due to bad matrix.

CHEMTECH

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.20 15:57:47 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # MS Tobrena Skeen
Chemtech Project # C5128
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124. The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB30-000.5-01 [2-Fluorobiphenyl - 43%], 12SB30-0.502-02 [2-Fluorobiphenyl - 41%] and 12SB23-000.5-01 [2-Fluorobiphenyl - 43%] due to the sample matrix of the samples.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD for {C5128-06MSD} with File ID: BG002614.D recoveries met criteria except for 2-Methylnaphthalene[29%], Acenaphthene[29%], Acenaphthylene[27%], Anthracene[28%], Benzo(a)anthracene[28%], Benzo(a)pyrene[35%], Benzo(b)fluoranthene[26%], Benzo(g,h,i)perylene[28%], Benzo(k)fluoranthene[29%], Chrysene[27%], Dibenz(a,h)anthracene[24%], Fluoranthene[28%], Fluorene[27%], Indeno(1,2,3-cd)pyrene[26%], Naphthalene[31%], Phenanthrene[28%] and Pyrene[26%] due to the sample matrix.
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration met the requirements.
The Tuning criteria met requirements.

Samples 12SB23-000.5-01 was diluted due to bad matrix.

E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature___ Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.20 15:57:36 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager: Ms Tobrena Skeen
Chemtech Project # C5128
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_G. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5um df, Catalogue #: 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalogue #: 7HM-G017-11The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11 . The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB23-000.5-01 [Decachlorobiphenyl(1) - 44%], 12SB23-000.5-01MS [Decachlorobiphenyl(1) - 36%] and 12SB23-000.5-01MSD [Decachlorobiphenyl(1) - 33%].
The Retention Times were acceptable for all samples.
The MS {C5128-07MS} with File ID: PD007228.D recoveries met the requirements.
The MSD {C5128-07MSD} with File ID: PD007344.D recoveries met the acceptable requirements except for Endosulfan sulfate[77%], Endrin ketone[82%] .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PD007212.D met the requirements except for g Endosulfan II on the second column .

The Continuous Calibration File ID PD007223.D met the requirements except for Endosulfan II on the second column .
The Continuous Calibration File ID PD007341.D met the requirements except for Decachlorobiphenyl on the first column.
The Continuous Calibration File ID PD007348.D met the requirements except for Decachlorobiphenyl on the first column.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

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Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.20 15:57:25 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager: Ms Tobrena Skeen
Chemtech Project # C5128
Test Name: PCB

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB23-000.5-01 [Decachlorobiphenyl(2) - 55%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PC006335.D met the requirements except for Tetrachloro-m-xylene on the first column. The second column met the requirement therefore no further corrective action was taken.

E. Additional Comments:

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F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

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Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.20 15:57:12 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager: Ms Tobrena Skeen
Chemtech Project # C5128
Test Name: Metals ICP-TAL,Mercury

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Metals ICP-TAL,Mercury.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471A.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Samples 12SB23-0.502-02DL, 12SB23-0304-03DL, 12SB21-000.5-01DL, 12SB21-0304-03DL, 12SB20-0304-03DL and 12SB-DUP-06DL were diluted due to high concentrations for Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium and Zinc .
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Thallium and Iron.
The Matrix Spike analysis met criteria for all samples except for Antimony, Arsenic, Barium, Beryllium, Calcium, Chromium, Cobalt, Copper, Nickel, Potassium, Selenium, Vanadium, Zinc and Magnesium.
The Matrix Spike Duplicate analysis met criteria for all samples except for Antimony, Arsenic, Barium, Barium, Calcium, Chromium, Chromium, Cobalt, Nickel, Potassium, Sodium, Sodium, Vanadium, Zinc and Zinc.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met criteria for all samples except for Calcium, Chromium, Magnesium, Cobalt, Copper, Manganese, Nickel, Potassium, Vanadium and Zinc.

E. Additional Comments:
CRI01 met requirements except Manganese.

CHEMTECH

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Signature Mildred V. Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.20 15:56:27 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager Ms. Tobrena Skeen
Chemtech Project # C5128
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
13 Solid samples were received on 12/23/2011.
1 Water sample was received on 12/23/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide, pH, Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, The analysis of Cyanide was based on method 9012B and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.20 15:50:46 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF0103S1	BSF0103S1	1,2-Dichloroethane-d4	50	46.55	93		55	158
		Dibromofluoromethane	50	50.14	100		53	156
		Toluene-d8	50	49.35	99		85	115
		4-Bromofluorobenzene	50	44.77	90		85	120
BSF0104S3	BSF0104S3	1,2-Dichloroethane-d4	50	55.43	111		55	158
		Dibromofluoromethane	50	51.02	102		53	156
		Toluene-d8	50	48.81	98		85	115
		4-Bromofluorobenzene	50	49.23	98		85	120
BSF0105S1	BSF0105S1	1,2-Dichloroethane-d4	50	49.54	99		55	158
		Dibromofluoromethane	50	48.81	98		53	156
		Toluene-d8	50	49.34	99		85	115
		4-Bromofluorobenzene	50	49.24	98		85	120
BSG1230W4	BSG1230W4	1,2-Dichloroethane-d4	50	67.88	136	*	70	120
		Dibromofluoromethane	50	51.92	104		85	115
		Toluene-d8	50	43.51	87		85	120
		4-Bromofluorobenzene	50	47.26	95		75	120
C5128-01	TB-01-122211	1,2-Dichloroethane-d4	50	70.55	141	*	70	120
		Dibromofluoromethane	50	54.57	109		85	115
		Toluene-d8	50	44.43	89		85	120
		4-Bromofluorobenzene	50	52.96	106		75	120
C5128-04	12SB30-000.5-01	1,2-Dichloroethane-d4	50	42.04	84		55	158
		Dibromofluoromethane	50	47.2	94		53	156
		Toluene-d8	50	48.73	97		85	115
		4-Bromofluorobenzene	50	48	96		85	120
C5128-05	12SB30-0.502-02	1,2-Dichloroethane-d4	50	42.61	85		55	158
		Dibromofluoromethane	50	46.66	93		53	156
		Toluene-d8	50	48.59	97		85	115
		4-Bromofluorobenzene	50	54.59	109		85	120
C5128-06	12SB30-0304-03	1,2-Dichloroethane-d4	50	44.35	89		55	158
		Dibromofluoromethane	50	49.48	99		53	156
		Toluene-d8	50	49.09	98		85	115
		4-Bromofluorobenzene	50	54.84	110		85	120
C5128-07	12SB23-000.5-01	1,2-Dichloroethane-d4	50	44.16	88		55	158
		Dibromofluoromethane	50	48.17	96		53	156
		Toluene-d8	50	48.44	97		85	115
		4-Bromofluorobenzene	50	43.31	87		85	120
C5128-08	12SB23-0.502-02	1,2-Dichloroethane-d4	50	44.28	89		55	158
		Dibromofluoromethane	50	47.18	94		53	156
		Toluene-d8	50	48.65	97		85	115
		4-Bromofluorobenzene	50	52.8	106		85	120
C5128-09	12SB23-0304-03	1,2-Dichloroethane-d4	50	44.48	89		55	158
		Dibromofluoromethane	50	45.63	91		53	156
		Toluene-d8	50	47.28	95		85	115
		4-Bromofluorobenzene	50	56.33	113		85	120
C5128-10	12SB21-000.5-01	1,2-Dichloroethane-d4	50	42.12	84		55	158
		Dibromofluoromethane	50	47.1	94		53	156
		Toluene-d8	50	47.31	95		85	115
		4-Bromofluorobenzene	50	43.86	88		85	120
C5128-11	12SB21-0.502-02	1,2-Dichloroethane-d4	50	40.79	82		55	158
		Dibromofluoromethane	50	45.18	90		53	156
		Toluene-d8	50	48.27	97		85	115
		4-Bromofluorobenzene	50	55.36	111		85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5128-12	12SB21-0304-03	1,2-Dichloroethane-d4	50	42.09	84		55	158
		Dibromofluoromethane	50	46.72	93		53	156
		Toluene-d8	50	48.3	97		85	115
		4-Bromofluorobenzene	50	52.37	105		85	120
C5128-13	12SB20-0304-03	1,2-Dichloroethane-d4	50	41.63	83		55	158
		Dibromofluoromethane	50	46.13	92		53	156
		Toluene-d8	50	47.31	95		85	115
		4-Bromofluorobenzene	50	52.83	106		85	120
C5128-14	12SB-DUP-06	1,2-Dichloroethane-d4	50	39.6	79		55	158
		Dibromofluoromethane	50	45.86	92		53	156
		Toluene-d8	50	48.64	97		85	115
		4-Bromofluorobenzene	50	47.9	96		85	120
C5135-12MS	UBZ2-SO-34-5-6MS	1,2-Dichloroethane-d4	50	49.03	98		55	158
		Dibromofluoromethane	50	47.46	95		53	156
		Toluene-d8	50	46.09	92		85	115
		4-Bromofluorobenzene	50	44.37	89		85	120
C5135-13MSD	UBZ2-SO-34-5-6MSD	1,2-Dichloroethane-d4	50	53.32	107		55	158
		Dibromofluoromethane	50	53.75	108		53	156
		Toluene-d8	50	49.46	99		85	115
		4-Bromofluorobenzene	50	46.61	93		85	120
C5148-06MS	MW-6S(ON)MS	1,2-Dichloroethane-d4	50	71.98	144	*	70	120
		Dibromofluoromethane	50	51.8	104		85	115
		Toluene-d8	50	40.85	82	*	85	120
		4-Bromofluorobenzene	50	46.38	93		75	120
C5148-07MSD	MW-6S(ON)MSD	1,2-Dichloroethane-d4	50	84.89	170	*	70	120
		Dibromofluoromethane	50	58.81	118	*	85	115
		Toluene-d8	50	43.38	87		85	120
		4-Bromofluorobenzene	50	47.26	95		75	120
VBF0103S1	VBF0103S1	1,2-Dichloroethane-d4	50	41.92	84		55	158
		Dibromofluoromethane	50	47.52	95		53	156
		Toluene-d8	50	46.77	94		85	115
		4-Bromofluorobenzene	50	43.17	86		85	120
VBF0104S2	VBF0104S2	1,2-Dichloroethane-d4	50	51.29	103		55	158
		Dibromofluoromethane	50	52.74	105		53	156
		Toluene-d8	50	49.44	99		85	115
		4-Bromofluorobenzene	50	49.16	98		85	120
VBF0105S1	VBF0105S1	1,2-Dichloroethane-d4	50	47.01	94		55	158
		Dibromofluoromethane	50	48.53	97		53	156
		Toluene-d8	50	47.04	94		85	115
		4-Bromofluorobenzene	50	44.85	90		85	120
VBG1230W2	VBG1230W2	1,2-Dichloroethane-d4	50	69.81	140	*	70	120
		Dibromofluoromethane	50	57.42	115		85	115
		Toluene-d8	50	46.38	93		85	120
		4-Bromofluorobenzene	50	48.97	98		75	120

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030420.D BFB Injection Date: 12/30/2011

Instrument ID: MSVOA_F BFB Injection Time: 14:58

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.5
75	30.0 - 60.0% of mass 95	46.9
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	80.3
175	5.0 - 9.0% of mass 174	5.6 (6.9) 1
176	95.0 - 101.0% of mass 174	76.5 (95.2) 1
177	5.0 - 9.0% of mass 176	5.6 (7.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD005	5 PPB ICC	VF030421.D	12/30/2011	15:52
VSTD010	10 PPB ICC	VF030422.D	12/30/2011	16:23
VSTD020	20 PPB ICC	VF030423.D	12/30/2011	16:54
VSTD050	50 PPB ICC	VF030424.D	12/30/2011	17:25
VSTD075	75 PPB ICC	VF030425.D	12/30/2011	17:56
VSTD100	100 PPB ICC	VF030426.D	12/30/2011	18:27

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date(s): 12/30/2011 12/30/2011

Heated Purge: (Y/N) Y Calibration Time(s): 15:52 18:27

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030421.D RRF020 = VF030423.D RRF050 = VF030424.D
RRF075 = VF030425.D RRF100 = VF030426.D RRF010 = VF030422.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.635	0.778	0.763	0.724	0.789	0.648	0.723	9.3
Chloromethane	0.887	1.045	1.090	1.028	1.154	0.869	1.012	11.1
Vinyl Chloride	0.505	0.642	0.640	0.636	0.679	0.528	0.605	11.6
Bromomethane	0.299	0.352	0.332	0.317	0.340	0.284	0.321	8
Chloroethane	0.151	0.243	0.210	0.170	0.177	0.154	0.184	19.4
Trichlorofluoromethane	0.557	0.830	0.827	0.739	0.720	0.663	0.723	14.3
1,1,2-Trichlorotrifluoroethane	0.411	0.522	0.502	0.465	0.486	0.414	0.467	9.9
1,1-Dichloroethene	0.382	0.472	0.446	0.425	0.461	0.369	0.426	9.9
Acetone	0.332	0.477	0.432	0.371	0.414	0.345	0.395	14.1
Carbon Disulfide	1.143	1.376	1.353	1.267	1.311	1.082	1.255	9.4
Methyl tert-butyl Ether	1.428	1.772	1.733	1.625	1.767	1.420	1.624	10.1
Methyl Acetate	1.100	1.486	1.337	1.250	1.459	1.079	1.285	13.5
Methylene Chloride	0.437	0.595	0.571	0.509	0.568	0.451	0.522	12.8
trans-1,2-Dichloroethene	0.397	0.482	0.472	0.429	0.467	0.386	0.439	9.4
1,1-Dichloroethane	0.833	1.022	0.993	0.874	0.971	0.800	0.915	10.1
Cyclohexane	0.842	1.051	1.031	0.973	1.040	0.904	0.974	8.7
2-Butanone	0.548	0.758	0.666	0.596	0.654	0.471	0.616	16.3
Carbon Tetrachloride	0.379	0.485	0.482	0.447	0.471	0.383	0.441	11
cis-1,2-Dichloroethene	0.595	0.812	0.812	0.724	0.798	0.627	0.728	13.3
Bromochloromethane	0.703	0.752	0.766	0.693	0.732	0.808	0.742	5.7
Chloroform	1.054	1.409	1.375	1.247	1.325	1.083	1.249	12
1,1,1-Trichloroethane	0.696	0.840	0.825	0.736	0.778	0.658	0.756	9.5
Methylcyclohexane	0.447	0.533	0.515	0.492	0.516	0.436	0.49	8.1
Benzene	1.141	1.418	1.334	1.257	1.322	1.122	1.266	9.2
1,2-Dichloroethane	0.462	0.622	0.591	0.547	0.565	0.472	0.543	11.8
Trichloroethene	0.399	0.565	0.516	0.488	0.503	0.458	0.488	11.5
1,2-Dichloropropane	0.313	0.427	0.415	0.406	0.413	0.359	0.389	11.3
Bromodichloromethane	0.444	0.592	0.573	0.545	0.575	0.455	0.531	12.3
4-Methyl-2-Pentanone	0.496	0.669	0.582	0.563	0.600	0.451	0.56	13.8

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date(s): 12/30/2011 12/30/2011

Heated Purge: (Y/N) Y Calibration Time(s): 15:52 18:27

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030421.D RRF020 = VF030423.D RRF050 = VF030424.D
RRF075 = VF030425.D RRF100 = VF030426.D RRF010 = VF030422.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Toluene	0.578	0.826	0.813	0.776	0.792	0.712	0.75	12.4
t-1,3-Dichloropropene	0.514	0.702	0.671	0.644	0.676	0.483	0.615	15.1
cis-1,3-Dichloropropene	0.515	0.717	0.693	0.657	0.682	0.524	0.631	14.1
1,1,2-Trichloroethane	0.262	0.394	0.373	0.358	0.382	0.290	0.343	15.8
2-Hexanone	0.425	0.577	0.499	0.469	0.487	0.369	0.471	14.9
Dibromochloromethane	0.294	0.474	0.455	0.440	0.474	0.347	0.414	18.3
1,2-Dibromoethane	0.290	0.451	0.428	0.409	0.442	0.340	0.393	16.4
Tetrachloroethene	0.418	0.548	0.519	0.477	0.508	0.450	0.487	9.8
Chlorobenzene	0.826	1.074	0.961	0.922	0.981	0.824	0.931	10.3
Ethyl Benzene	1.270	1.670	1.581	1.481	1.570	1.322	1.482	10.6
m/p-Xylenes	0.448	0.611	0.576	0.546	0.575	0.484	0.54	11.5
o-Xylene	0.429	0.621	0.603	0.563	0.605	0.471	0.548	14.6
Styrene	0.679	1.049	1.018	0.963	1.029	0.781	0.92	16.6
Bromoform	0.211	0.339	0.326	0.308	0.344	0.224	0.292	20.3
Isopropylbenzene	2.180	2.815	2.758	2.735	2.935	2.185	2.601	12.8
1,1,2,2-Tetrachloroethane	0.274	0.368	0.349	0.392	0.429	0.277	0.348	17.9
1,3-Dichlorobenzene	1.167	1.574	1.450	1.459	1.559	1.232	1.407	12.1
1,4-Dichlorobenzene	1.273	1.601	1.503	1.514	1.574	1.293	1.46	9.7
1,2-Dichlorobenzene	1.150	1.585	1.468	1.461	1.588	1.214	1.411	13.2
1,2-Dibromo-3-Chloropropane	0.121	0.159	0.153	0.169	0.181	0.101	0.148	20.5
1,2,4-Trichlorobenzene	0.857	1.084	1.070	1.035	1.058	0.800	0.984	12.5
1,2,3-Trichlorobenzene	0.796	1.083	1.063	0.988	1.033	0.819	0.964	13
1,2-Dichloroethane-d4	0.923	0.999	0.920	0.884	0.905	0.846	0.913	5.6
Dibromofluoromethane	0.410	0.478	0.433	0.422	0.420	0.427	0.432	5.5
Toluene-d8	1.132	1.234	1.168	1.144	1.139	1.103	1.153	3.9
4-Bromofluorobenzene	0.542	0.576	0.544	0.536	0.534	0.514	0.541	3.7
1,4-Dioxane	0.003	0.004	0.005	0.005	0.005	0.003	0.004	23.4

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030482.D BFB Injection Date: 01/03/2012

Instrument ID: MSVOA_F BFB Injection Time: 11:45

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.2
75	30.0 - 60.0% of mass 95	47.6
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	71.8
175	5.0 - 9.0% of mass 174	5.5 (7.6) 1
176	95.0 - 101.0% of mass 174	69.2 (96.4) 1
177	5.0 - 9.0% of mass 176	5.3 (7.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030483.D	01/03/2012	13:26
VBF0103S1	VBF0103S1	VF030484.D	01/03/2012	14:13
BSF0103S1	BSF0103S1	VF030485.D	01/03/2012	15:02
12SB-DUP-06	C5128-14	VF030495.D	01/03/2012	20:16
UBZ2-SO-34-5-6MS	C5135-12MS	VF030500.D	01/03/2012	22:51
UBZ2-SO-34-5-6MSD	C5135-13MSD	VF030501.D	01/03/2012	23:21

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date/Time: 01/03/2012 13:26

Lab File ID: VF030483.D Init. Calib. Date(s): 12/30/2011 12/30/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 15:52 18:27

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.723	0.822		13.69	
Chloromethane	1.012	1.155	0.1	14.13	
Vinyl Chloride	0.605	0.768		26.94	20
Bromomethane	0.321	0.335		4.36	
Chloroethane	0.184	0.243		32.07	
Trichlorofluoromethane	0.723	0.928		28.35	
1,1,2-Trichlorotrifluoroethane	0.467	0.573		22.7	
1,1-Dichloroethene	0.426	0.525		23.24	20
Acetone	0.395	0.388		-1.77	
Carbon Disulfide	1.255	1.673		33.31	
Methyl tert-butyl Ether	1.624	1.673		3.02	
Methyl Acetate	1.285	1.240		-3.5	
Methylene Chloride	0.522	0.618		18.39	
trans-1,2-Dichloroethene	0.439	0.513		16.86	
1,1-Dichloroethane	0.915	1.068	0.1	16.72	
Cyclohexane	0.974	1.057		8.52	
2-Butanone	0.616	0.526		-14.61	
Carbon Tetrachloride	0.441	0.525		19.05	
cis-1,2-Dichloroethene	0.728	0.762		4.67	
Bromochloromethane	0.742	0.707		-4.72	
Chloroform	1.249	1.258		0.72	20
1,1,1-Trichloroethane	0.756	0.845		11.77	
Methylcyclohexane	0.49	0.548		11.84	
Benzene	1.266	1.356		7.11	
1,2-Dichloroethane	0.543	0.529		-2.58	
Trichloroethene	0.488	0.506		3.69	
1,2-Dichloropropane	0.389	0.406		4.37	20
Bromodichloromethane	0.531	0.565		6.4	
4-Methyl-2-Pentanone	0.56	0.482		-13.93	
Toluene	0.75	0.813		8.4	20
t-1,3-Dichloropropene	0.615	0.627		1.95	
cis-1,3-Dichloropropene	0.631	0.679		7.61	
1,1,2-Trichloroethane	0.343	0.327		-4.66	
2-Hexanone	0.471	0.378		-19.75	
Dibromochloromethane	0.414	0.415		0.24	
1,2-Dibromoethane	0.393	0.369		-6.11	
Tetrachloroethene	0.487	0.519		6.57	
Chlorobenzene	0.931	0.982	0.3	5.48	
Ethyl Benzene	1.482	1.637		10.46	20
m/p-Xylenes	0.54	0.591		9.44	
o-Xylene	0.548	0.603		10.04	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date/Time: 01/03/2012 13:26

Lab File ID: VF030483.D Init. Calib. Date(s): 12/30/2011 12/30/2011

Heated Purge: (Y/N) Y Init. Calib. Time(s): 15:52 18:27

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.92	0.978		6.3	
Bromoform	0.292	0.299	0.1	2.4	
Isopropylbenzene	2.601	3.132		20.42	
1,1,2,2-Tetrachloroethane	0.348	0.356	0.3	2.3	
1,3-Dichlorobenzene	1.407	1.544		9.74	
1,4-Dichlorobenzene	1.46	1.614		10.55	
1,2-Dichlorobenzene	1.411	1.511		7.09	
1,2-Dibromo-3-Chloropropane	0.148	0.147		-0.68	
1,2,4-Trichlorobenzene	0.984	1.070		8.74	
1,2,3-Trichlorobenzene	0.964	0.982		1.87	
1,2-Dichloroethane-d4	0.913	0.841		-7.89	
Dibromofluoromethane	0.432	0.431		-0.23	
Toluene-d8	1.153	1.171		1.56	
4-Bromofluorobenzene	0.541	0.503		-7.02	
1,4-Dioxane	0.004	0.004		0	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0103S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030484.D Lab Sample ID: VBF0103S1

Date Analyzed: 01/03/2012 Time Analyzed: 14:13

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0103S1	BSF0103S1	VF030485.D	01/03/2012
12SB-DUP-06	C5128-14	VF030495.D	01/03/2012
UBZ2-SO-34-5-6MS	C5135-12MS	VF030500.D	01/03/2012
UBZ2-SO-34-5-6MSD	C5135-13MSD	VF030501.D	01/03/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0103S1	SDG No.:	C5128
Lab Sample ID:	VBF0103S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030484.D	1		01/03/12	VF010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0103S1	SDG No.:	C5128
Lab Sample ID:	VBF0103S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030484.D	1		01/03/12	VF010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.9		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	47.5		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	46.8		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.2		85 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	169642	4.37			
540-36-3	1,4-Difluorobenzene	288873	5.11			
3114-55-4	Chlorobenzene-d5	262945	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	134869	12.23			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0103S1	SDG No.:	C5128
Lab Sample ID:	VBF0103S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030484.D	1		01/03/12	VF010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSF0103S1 Analytical Method: EPA SW846 8260 Datafile : VF030485.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(47-135)
Chloromethane	20		20	100	(56-130)
Vinyl Chloride	20		24	120	(60-125)
Bromomethane	20		21	105	(45-158)
Chloroethane	20		30	150	(42-155)
Trichlorofluoromethane	20		24	120	(55-146)
1,1,2-Trichlorotrifluoroethane	20		22	110	(65-134)
1,1-Dichloroethene	20		24	120	(65-135)
Acetone	100		90	90	(57-148)
Carbon Disulfide	20		25	125	(60-138)
Methyl tert-butyl Ether	20		20	100	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		23	115	(63-140)
trans-1,2-Dichloroethene	20		23	115	(73-130)
1,1-Dichloroethane	20		23	115	(75-125)
Cyclohexane	20		21	105	(66-132)
2-Butanone	100		87	87	(52-153)
Carbon Tetrachloride	20		23	115	(74-122)
cis-1,2-Dichloroethene	20		20	100	(75-125)
Bromochloromethane	20		21	105	(74-125)
Chloroform	20		19	95	(75-125)
1,1,1-Trichloroethane	20		20	100	(75-128)
Methylcyclohexane	20		21	105	(71-124)
Benzene	20		21	105	(79-122)
1,2-Dichloroethane	20		19	95	(75-132)
Trichloroethene	20		20	100	(77-120)
1,2-Dichloropropane	20		20	100	(76-120)
Bromodichloromethane	20		20	100	(77-124)
4-Methyl-2-Pentanone	100		91	91	(70-141)
Toluene	20		21	105	(78-121)
t-1,3-Dichloropropene	20		19	95	(76-125)
cis-1,3-Dichloropropene	20		21	105	(79-122)
1,1,2-Trichloroethane	20		19	95	(76-125)
2-Hexanone	100		84	84	(55-145)
Dibromochloromethane	20		18	90	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSF0103S1 Analytical Method: EPA SW846 8260 Datafile : VF030485.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		18	90	(76-125)
Tetrachloroethene	20		22	110	(65-140)
Chlorobenzene	20		21	105	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		42	105	(80-120)
o-Xylene	20		21	105	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		18	90	(71-125)
Isopropylbenzene	20		21	105	(77-124)
1,1,2,2-Tetrachloroethane	20		21	105	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		19	95	(71-124)
1,2,3-Trichlorobenzene	20		17	85	(74-123)
1,4-Dioxane	400		320	80	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

Not tetra tech sample

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5135-12 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030500.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	55	0	50	91	(42-135)
Chloromethane	55	0	52	95	(50-130)
Vinyl Chloride	55	0	57	104	(60-125)
Bromomethane	55	0	49	89	(40-154)
Chloroethane	55	0	63	115	(40-155)
Trichlorofluoromethane	55	0	55	100	(46-159)
1,1,2-Trichlorotrifluoroethane	55	0	56	102	(59-140)
1,1-Dichloroethene	55	0	58	105	(65-135)
Acetone	275	5.8	220	78	(31-158)
Carbon Disulfide	55	0	58	105	(45-144)
Methyl tert-butyl Ether	55	0	51	93	(56-146)
Methyl Acetate	55	0	59	107	(16-205)
Methylene Chloride	55	0	57	104	(55-140)
trans-1,2-Dichloroethene	55	0	55	100	(65-135)
1,1-Dichloroethane	55	0	56	102	(75-125)
Cyclohexane	55	0	48	87	(51-136)
2-Butanone	275	0	210	76	(40-157)
Carbon Tetrachloride	55	0	52	95	(65-135)
cis-1,2-Dichloroethene	55	0	48	87	(65-125)
Bromochloromethane	55	0	47	85	(70-125)
Chloroform	55	0	52	95	(70-125)
1,1,1-Trichloroethane	55	0	52	95	(70-135)
Methylcyclohexane	55	0	47	85	(43-133)
Benzene	55	0	50	91	(75-125)
1,2-Dichloroethane	55	0	49	89	(70-135)
Trichloroethene	55	0	47	85	(75-125)
1,2-Dichloropropane	55	0	49	89	(70-120)
Bromodichloromethane	55	0	50	91	(70-130)
4-Methyl-2-Pentanone	275	0	220	80	(53-145)
Toluene	55	0	47	85	(70-125)
t-1,3-Dichloropropene	55	0	45	82	(65-125)
cis-1,3-Dichloropropene	55	0	49	89	(70-125)
1,1,2-Trichloroethane	55	0	43	78	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5135-12 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030500.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	275	0	200	73	(45-145)
Dibromochloromethane	55	0	43	78	(65-130)
1,2-Dibromoethane	55	0	43	78	(70-125)
Tetrachloroethene	55	0	49	89	(65-140)
Chlorobenzene	55	0	47	85	(75-125)
Ethyl Benzene	55	0	49	89	(75-125)
m/p-Xylenes	110	0	97	88	(80-125)
o-Xylene	55	0	49	89	(75-125)
Styrene	55	0	45	82	(75-125)
Bromoform	55	0	42	76	(62-135)
Isopropylbenzene	55	0	51	93	(75-130)
1,1,2,2-Tetrachloroethane	55	0	43	78	(55-130)
1,3-Dichlorobenzene	55	0	49	89	(70-125)
1,4-Dichlorobenzene	55	0	48	87	(70-124)
1,2-Dichlorobenzene	55	0	49	89	(75-120)
1,2-Dibromo-3-Chloropropane	55	0	41	75	(44-135)
1,2,4-Trichlorobenzene	55	0	46	84	(65-130)
1,2,3-Trichlorobenzene	55	0	46	84	(60-135)
1,4-Dioxane	1099	0	700	64*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5135-13 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030501.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	55	54	98	7	20	(42-135)
Chloromethane	55	61	111	16	20	(50-130)
Vinyl Chloride	55	66	120	14	20	(60-125)
Bromomethane	55	60	109	20	20	(40-154)
Chloroethane	55	68	124	8	20	(40-155)
Trichlorofluoromethane	55	63	115	14	20	(46-159)
1,1,2-Trichlorotrifluoroethane	55	59	107	5	20	(59-140)
1,1-Dichloroethene	55	63	115	9	20	(65-135)
Acetone	275	280	100	25*	20	(31-158)
Carbon Disulfide	55	66	120	13	20	(45-144)
Methyl tert-butyl Ether	55	59	107	14	20	(56-146)
Methyl Acetate	55	80	145	30*	20	(16-205)
Methylene Chloride	55	63	115	10	20	(55-140)
trans-1,2-Dichloroethene	55	60	109	9	20	(65-135)
1,1-Dichloroethane	55	61	111	8	20	(75-125)
Cyclohexane	55	53	96	10	20	(51-136)
2-Butanone	275	270	98	25*	20	(40-157)
Carbon Tetrachloride	55	54	98	3	20	(65-135)
cis-1,2-Dichloroethene	55	52	95	9	20	(65-125)
Bromochloromethane	55	53	96	12	20	(70-125)
Chloroform	55	55	100	5	20	(70-125)
1,1,1-Trichloroethane	55	56	102	7	20	(70-135)
Methylcyclohexane	55	49	89	5	20	(43-133)
Benzene	55	52	95	4	20	(75-125)
1,2-Dichloroethane	55	51	93	4	20	(70-135)
Trichloroethene	55	49	89	5	20	(75-125)
1,2-Dichloropropane	55	52	95	7	20	(70-120)
Bromodichloromethane	55	51	93	2	20	(70-130)
4-Methyl-2-Pentanone	275	270	98	20	20	(53-145)
Toluene	55	50	91	7	20	(70-125)
t-1,3-Dichloropropene	55	46	84	2	20	(65-125)
cis-1,3-Dichloropropene	55	49	89	0	20	(70-125)
1,1,2-Trichloroethane	55	45	82	5	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5135-13 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030501.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
2-Hexanone	275	260	95	26*	20	(45-145)
Dibromochloromethane	55	45	82	5	20	(65-130)
1,2-Dibromoethane	55	46	84	7	20	(70-125)
Tetrachloroethene	55	50	91	2	20	(65-140)
Chlorobenzene	55	49	89	5	20	(75-125)
Ethyl Benzene	55	51	93	4	20	(75-125)
m/p-Xylenes	110	98	89	1	20	(80-125)
o-Xylene	55	50	91	2	20	(75-125)
Styrene	55	47	85	4	20	(75-125)
Bromoform	55	47	85	11	20	(62-135)
Isopropylbenzene	55	55	100	7	20	(75-130)
1,1,2,2-Tetrachloroethane	55	51	93	18	20	(55-130)
1,3-Dichlorobenzene	55	52	95	7	20	(70-125)
1,4-Dichlorobenzene	55	52	95	9	20	(70-124)
1,2-Dichlorobenzene	55	51	93	4	20	(75-120)
1,2-Dibromo-3-Chloropropane	55	48	87	15	20	(44-135)
1,2,4-Trichlorobenzene	55	49	89	6	20	(65-130)
1,2,3-Trichlorobenzene	55	48	87	4	20	(60-135)
1,4-Dioxane	1099	890	81	23*	20	(70-130)

RPD : 5 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030522.D BFB Injection Date: 01/04/2012

Instrument ID: MSVOA_F BFB Injection Time: 15:16

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.3
75	30.0 - 60.0% of mass 95	48.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	72.6
175	5.0 - 9.0% of mass 174	5.4 (7.5) 1
176	95.0 - 101.0% of mass 174	71.7 (98.7) 1
177	5.0 - 9.0% of mass 176	5.1 (7.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD020	20 PPB ICC	VF030525.D	01/04/2012	16:57
VSTD050	50 PPB ICC	VF030526.D	01/04/2012	17:28
VSTD075	75 PPB ICC	VF030527.D	01/04/2012	17:59
VSTD010	10 PPB ICC	VF030528.D	01/04/2012	18:29
VSTD005	5 PPB ICC	VF030529.D	01/04/2012	19:00
VSTD100	100 PPB ICC	VF030530.D	01/04/2012	19:30

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Calibration Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030529.D RRF020 = VF030525.D RRF050 = VF030526.D
RRF075 = VF030527.D RRF100 = VF030530.D RRF010 = VF030528.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.638	0.731	0.747	0.766	0.729	0.679	0.715	6.6
Chloromethane	1.137	1.154	1.272	1.280	1.232	1.041	1.186	7.8
Vinyl Chloride	0.662	0.785	0.835	0.855	0.812	0.611	0.76	13.1
Bromomethane	0.349	0.379	0.388	0.410	0.362	0.289	0.363	11.5
Chloroethane	0.171	0.331	0.247	0.218	0.197	0.184	0.225	26
Trichlorofluoromethane	0.623	0.930	0.965	0.929	0.855	0.705	0.835	16.7
1,1,2-Trichlorotrifluoroethane	0.427	0.588	0.594	0.600	0.546	0.481	0.539	13.2
1,1-Dichloroethene	0.465	0.545	0.561	0.541	0.519	0.493	0.521	6.9
Acetone	0.355	0.395	0.491	0.489	0.410	0.291	0.405	19.1
Carbon Disulfide	1.454	1.791	1.847	1.757	1.658	1.277	1.631	13.6
Methyl tert-butyl Ether	1.543	1.790	2.044	2.093	1.883	1.452	1.801	14.5
Methyl Acetate	1.246	1.490	1.719	1.871	1.587	1.255	1.528	16.4
Methylene Chloride	0.674	0.705	0.752	0.724	0.702	0.578	0.689	8.8
trans-1,2-Dichloroethene	0.396	0.547	0.575	0.592	0.555	0.424	0.515	16.2
1,1-Dichloroethane	0.996	1.242	1.279	1.256	1.204	0.889	1.144	14.2
Cyclohexane	0.958	1.118	1.217	1.204	1.168	0.925	1.098	11.5
2-Butanone	0.576	0.624	0.724	0.759	0.647	0.515	0.641	14.1
Carbon Tetrachloride	0.408	0.519	0.532	0.521	0.501	0.406	0.481	12.1
cis-1,2-Dichloroethene	0.603	0.782	0.822	0.825	0.827	0.629	0.748	13.9
Bromochloromethane	0.962	0.931	0.880	0.826	0.833	0.823	0.876	6.8
Chloroform	1.147	1.413	1.490	1.414	1.460	1.143	1.344	11.7
1,1,1-Trichloroethane	0.678	0.865	0.900	0.915	0.896	0.644	0.816	14.9
Methylcyclohexane	0.479	0.568	0.551	0.569	0.547	0.506	0.537	6.8
Benzene	1.253	1.457	1.456	1.470	1.463	1.238	1.389	8
1,2-Dichloroethane	0.477	0.573	0.635	0.623	0.597	0.493	0.566	11.8
Trichloroethene	0.402	0.510	0.509	0.530	0.503	0.447	0.483	10
1,2-Dichloropropane	0.339	0.422	0.449	0.450	0.461	0.381	0.417	11.5
Bromodichloromethane	0.451	0.554	0.607	0.619	0.610	0.461	0.55	13.9
4-Methyl-2-Pentanone	0.524	0.503	0.616	0.649	0.557	0.491	0.557	11.4
Toluene	0.621	0.829	0.861	0.838	0.850	0.727	0.788	12
t-1,3-Dichloropropene	0.473	0.599	0.692	0.686	0.674	0.497	0.603	16.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Calibration Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030529.D RRF020 = VF030525.D RRF050 = VF030526.D
RRF075 = VF030527.D RRF100 = VF030530.D RRF010 = VF030528.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.564	0.681	0.744	0.738	0.732	0.541	0.666	13.7
1,1,2-Trichloroethane	0.246	0.319	0.370	0.362	0.350	0.283	0.322	15.2
2-Hexanone	0.410	0.400	0.474	0.488	0.438	0.402	0.435	8.8
Dibromochloromethane	0.273	0.382	0.445	0.461	0.436	0.316	0.386	19.9
1,2-Dibromoethane	0.312	0.369	0.416	0.430	0.402	0.314	0.374	13.7
Tetrachloroethene	0.471	0.541	0.580	0.550	0.542	0.499	0.53	7.4
Chlorobenzene	0.884	1.008	1.049	1.031	1.027	0.887	0.981	7.6
Ethyl Benzene	1.337	1.675	1.751	1.692	1.699	1.416	1.595	10.8
m/p-Xylenes	0.498	0.594	0.633	0.621	0.620	0.510	0.579	10.3
o-Xylene	0.462	0.619	0.659	0.642	0.629	0.519	0.588	13.4
Styrene	0.675	0.977	1.074	1.071	1.063	0.813	0.945	17.6
Bromoform	0.209	0.270	0.320	0.336	0.310	0.230	0.279	18.4
Isopropylbenzene	2.372	2.920	3.232	3.170	3.156	2.617	2.911	12
1,1,2,2-Tetrachloroethane	0.340	0.344	0.401	0.432	0.373	0.313	0.367	11.9
1,3-Dichlorobenzene	1.311	1.525	1.637	1.647	1.574	1.347	1.507	9.6
1,4-Dichlorobenzene	1.457	1.626	1.695	1.655	1.594	1.448	1.579	6.6
1,2-Dichlorobenzene	1.277	1.471	1.611	1.586	1.558	1.355	1.476	9.2
1,2-Dibromo-3-Chloropropane	0.135	0.128	0.158	0.173	0.146	0.108	0.141	16.4
1,2,4-Trichlorobenzene	0.895	1.020	1.131	1.133	1.061	0.847	1.014	11.8
1,2,3-Trichlorobenzene	0.825	0.948	1.060	1.036	0.962	0.800	0.939	11.3
1,2-Dichloroethane-d4	1.032	0.892	0.930	0.947	0.884	0.862	0.925	6.6
Dibromofluoromethane	0.484	0.458	0.433	0.435	0.418	0.430	0.443	5.4
Toluene-d8	1.256	1.110	1.141	1.134	1.110	1.163	1.153	4.7
4-Bromofluorobenzene	0.526	0.503	0.493	0.488	0.493	0.493	0.499	2.8
1,4-Dioxane	0.003	0.004	0.004	0.005	0.004	0.003	0.004	21.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030544.D BFB Injection Date: 01/05/2012

Instrument ID: MSVOA_F BFB Injection Time: 02:40

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.1
75	30.0 - 60.0% of mass 95	45.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	76.3
175	5.0 - 9.0% of mass 174	4.7 (6.1) 1
176	95.0 - 101.0% of mass 174	73.7 (96.6) 1
177	5.0 - 9.0% of mass 176	4.4 (6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030545.D	01/05/2012	03:10
VBF0104S2	VBF0104S2	VF030546.D	01/05/2012	03:41
BSF0104S3	BSF0104S3	VF030547.D	01/05/2012	04:11
12SB30-000.5-01	C5128-04	VF030561.D	01/05/2012	11:27
12SB30-0.502-02	C5128-05	VF030562.D	01/05/2012	11:58
12SB30-0304-03	C5128-06	VF030563.D	01/05/2012	12:44
12SB23-000.5-01	C5128-07	VF030564.D	01/05/2012	13:15
12SB23-0.502-02	C5128-08	VF030565.D	01/05/2012	13:47
12SB23-0304-03	C5128-09	VF030566.D	01/05/2012	14:18

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 03:10

Lab File ID: VF030545.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.715	0.723		1.12	
Chloromethane	1.186	1.245	0.1	4.97	
Vinyl Chloride	0.76	0.816		7.37	20
Bromomethane	0.363	0.409		12.67	
Chloroethane	0.225	0.271		20.44	
Trichlorofluoromethane	0.835	0.948		13.53	
1,1,2-Trichlorotrifluoroethane	0.539	0.591		9.65	
1,1-Dichloroethene	0.521	0.567		8.83	20
Acetone	0.405	0.415		2.47	
Carbon Disulfide	1.631	1.695		3.92	
Methyl tert-butyl Ether	1.801	2.037		13.1	
Methyl Acetate	1.528	1.630		6.68	
Methylene Chloride	0.689	0.766		11.18	
trans-1,2-Dichloroethene	0.515	0.595		15.53	
1,1-Dichloroethane	1.144	1.300	0.1	13.64	
Cyclohexane	1.098	1.188		8.2	
2-Butanone	0.641	0.652		1.72	
Carbon Tetrachloride	0.481	0.506		5.2	
cis-1,2-Dichloroethene	0.748	0.880		17.65	
Bromochloromethane	0.876	0.906		3.42	
Chloroform	1.344	1.574		17.11	20
1,1,1-Trichloroethane	0.816	0.891		9.19	
Methylcyclohexane	0.537	0.517		-3.72	
Benzene	1.389	1.466		5.54	
1,2-Dichloroethane	0.566	0.624		10.25	
Trichloroethene	0.483	0.534		10.56	
1,2-Dichloropropane	0.417	0.459		10.07	20
Bromodichloromethane	0.55	0.601		9.27	
4-Methyl-2-Pentanone	0.557	0.545		-2.15	
Toluene	0.788	0.833		5.71	20
t-1,3-Dichloropropene	0.603	0.642		6.47	
cis-1,3-Dichloropropene	0.666	0.716		7.51	
1,1,2-Trichloroethane	0.322	0.361		12.11	
2-Hexanone	0.435	0.426		-2.07	
Dibromochloromethane	0.386	0.441		14.25	
1,2-Dibromoethane	0.374	0.390		4.28	
Tetrachloroethene	0.53	0.543		2.45	
Chlorobenzene	0.981	1.035	0.3	5.5	
Ethyl Benzene	1.595	1.708		7.08	20
m/p-Xylenes	0.579	0.608		5.01	
o-Xylene	0.588	0.621		5.61	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 03:10

Lab File ID: VF030545.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.052		11.32	
Bromoform	0.279	0.297	0.1	6.45	
Isopropylbenzene	2.911	3.196		9.79	
1,1,2,2-Tetrachloroethane	0.367	0.349	0.3	-4.9	
1,3-Dichlorobenzene	1.507	1.630		8.16	
1,4-Dichlorobenzene	1.579	1.661		5.19	
1,2-Dichlorobenzene	1.476	1.600		8.4	
1,2-Dibromo-3-Chloropropane	0.141	0.146		3.55	
1,2,4-Trichlorobenzene	1.014	1.069		5.42	
1,2,3-Trichlorobenzene	0.939	0.992		5.64	
1,2-Dichloroethane-d4	0.925	0.966		4.43	
Dibromofluoromethane	0.443	0.444		0.23	
Toluene-d8	1.153	1.136		-1.47	
4-Bromofluorobenzene	0.499	0.492		-1.4	
1,4-Dioxane	0.004	0.003		-25	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0104S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030546.D Lab Sample ID: VBF0104S2

Date Analyzed: 01/05/2012 Time Analyzed: 03:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0104S3	BSF0104S3	VF030547.D	01/05/2012
12SB30-000.5-01	C5128-04	VF030561.D	01/05/2012
12SB30-0.502-02	C5128-05	VF030562.D	01/05/2012
12SB30-0304-03	C5128-06	VF030563.D	01/05/2012
12SB23-000.5-01	C5128-07	VF030564.D	01/05/2012
12SB23-0.502-02	C5128-08	VF030565.D	01/05/2012
12SB23-0304-03	C5128-09	VF030566.D	01/05/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S2	SDG No.:	C5128
Lab Sample ID:	VBF0104S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030546.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S2	SDG No.:	C5128
Lab Sample ID:	VBF0104S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030546.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.3		55 - 158	103%	SPK: 50
1868-53-7	Dibromofluoromethane	52.7		53 - 156	105%	SPK: 50
2037-26-5	Toluene-d8	49.4		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.2		85 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	116839	4.37			
540-36-3	1,4-Difluorobenzene	212752	5.12			
3114-55-4	Chlorobenzene-d5	203144	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	100297	12.24			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S2	SDG No.:	C5128
Lab Sample ID:	VBF0104S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030546.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSF0104S3 Analytical Method: EPA SW846 8260 Datafile : VF030547.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(47-135)
Chloromethane	20		20	100	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		24	120	(45-158)
Chloroethane	20		24	120	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		21	105	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		100	100	(57-148)
Carbon Disulfide	20		22	110	(60-138)
Methyl tert-butyl Ether	20		23	115	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		23	115	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		110	110	(52-153)
Carbon Tetrachloride	20		19	95	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		24	120	(74-125)
Chloroform	20		23	115	(75-125)
1,1,1-Trichloroethane	20		22	110	(75-128)
Methylcyclohexane	20		18	90	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		22	110	(76-120)
Bromodichloromethane	20		21	105	(77-124)
4-Methyl-2-Pentanone	100		100	100	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		20	100	(79-122)
1,1,2-Trichloroethane	20		20	100	(76-125)
2-Hexanone	100		110	110	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSF0104S3 Analytical Method: EPA SW846 8260 Datafile : VF030547.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		19	95	(65-140)
Chlorobenzene	20		21	105	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		19	95	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		20	100	(71-125)
Isopropylbenzene	20		20	100	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		20	100	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		18	90	(71-124)
1,2,3-Trichlorobenzene	20		20	100	(74-123)
1,4-Dioxane	400		400	100	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030567.D BFB Injection Date: 01/05/2012

Instrument ID: MSVOA_F BFB Injection Time: 14:48

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.8
75	30.0 - 60.0% of mass 95	45.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	5.7
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	77.4
175	5.0 - 9.0% of mass 174	4.6 (6) 1
176	95.0 - 101.0% of mass 174	74.3 (96) 1
177	5.0 - 9.0% of mass 176	5.6 (7.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030569.D	01/05/2012	16:17
VBF0105S1	VBF0105S1	VF030570.D	01/05/2012	16:59
BSF0105S1	BSF0105S1	VF030571.D	01/05/2012	17:38
12SB21-000.5-01	C5128-10	VF030576.D	01/05/2012	20:11
12SB21-0.502-02	C5128-11	VF030577.D	01/05/2012	20:42
12SB21-0304-03	C5128-12	VF030578.D	01/05/2012	21:14
12SB20-0304-03	C5128-13	VF030579.D	01/05/2012	21:45

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 16:17

Lab File ID: VF030569.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.715	0.806		12.73	
Chloromethane	1.186	1.264	0.1	6.58	
Vinyl Chloride	0.76	0.912		20	20
Bromomethane	0.363	0.387		6.61	
Chloroethane	0.225	0.283		25.78	
Trichlorofluoromethane	0.835	1.038		24.31	
1,1,2-Trichlorotrifluoroethane	0.539	0.669		24.12	
1,1-Dichloroethene	0.521	0.641		23.03	20
Acetone	0.405	0.478		18.02	
Carbon Disulfide	1.631	1.925		18.03	
Methyl tert-butyl Ether	1.801	2.022		12.27	
Methyl Acetate	1.528	1.698		11.13	
Methylene Chloride	0.689	0.745		8.13	
trans-1,2-Dichloroethene	0.515	0.615		19.42	
1,1-Dichloroethane	1.144	1.354	0.1	18.36	
Cyclohexane	1.098	1.198		9.11	
2-Butanone	0.641	0.629		-1.87	
Carbon Tetrachloride	0.481	0.568		18.09	
cis-1,2-Dichloroethene	0.748	0.799		6.82	
Bromochloromethane	0.876	0.816		-6.85	
Chloroform	1.344	1.400		4.17	20
1,1,1-Trichloroethane	0.816	0.898		10.05	
Methylcyclohexane	0.537	0.596		10.99	
Benzene	1.389	1.470		5.83	
1,2-Dichloroethane	0.566	0.632		11.66	
Trichloroethene	0.483	0.532		10.14	
1,2-Dichloropropane	0.417	0.440		5.52	20
Bromodichloromethane	0.55	0.610		10.91	
4-Methyl-2-Pentanone	0.557	0.567		1.8	
Toluene	0.788	0.836		6.09	20
t-1,3-Dichloropropene	0.603	0.672		11.44	
cis-1,3-Dichloropropene	0.666	0.747		12.16	
1,1,2-Trichloroethane	0.322	0.347		7.76	
2-Hexanone	0.435	0.439		0.92	
Dibromochloromethane	0.386	0.444		15.03	
1,2-Dibromoethane	0.374	0.394		5.35	
Tetrachloroethene	0.53	0.577		8.87	
Chlorobenzene	0.981	1.060	0.3	8.05	
Ethyl Benzene	1.595	1.808		13.35	20
m/p-Xylenes	0.579	0.643		11.05	
o-Xylene	0.588	0.651		10.71	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 16:17

Lab File ID: VF030569.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.070		13.23	
Bromoform	0.279	0.306	0.1	9.68	
Isopropylbenzene	2.911	3.213		10.37	
1,1,2,2-Tetrachloroethane	0.367	0.372	0.3	1.36	
1,3-Dichlorobenzene	1.507	1.626		7.9	
1,4-Dichlorobenzene	1.579	1.658		5	
1,2-Dichlorobenzene	1.476	1.580		7.05	
1,2-Dibromo-3-Chloropropane	0.141	0.145		2.84	
1,2,4-Trichlorobenzene	1.014	1.135		11.93	
1,2,3-Trichlorobenzene	0.939	1.033		10.01	
1,2-Dichloroethane-d4	0.925	0.848		-8.32	
Dibromofluoromethane	0.443	0.410		-7.45	
Toluene-d8	1.153	1.072		-7.03	
4-Bromofluorobenzene	0.499	0.467		-6.41	
1,4-Dioxane	0.004	0.004		0	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0105S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030570.D Lab Sample ID: VBF0105S1

Date Analyzed: 01/05/2012 Time Analyzed: 16:59

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0105S1	BSF0105S1	VF030571.D	01/05/2012
12SB21-000.5-01	C5128-10	VF030576.D	01/05/2012
12SB21-0.502-02	C5128-11	VF030577.D	01/05/2012
12SB21-0304-03	C5128-12	VF030578.D	01/05/2012
12SB20-0304-03	C5128-13	VF030579.D	01/05/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S1	SDG No.:	C5128
Lab Sample ID:	VBF0105S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030570.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S1	SDG No.:	C5128
Lab Sample ID:	VBF0105S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030570.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47		55 - 158	94%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	47		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.8		85 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	134068	4.39			
540-36-3	1,4-Difluorobenzene	232349	5.13			
3114-55-4	Chlorobenzene-d5	202346	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	105306	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S1	SDG No.:	C5128
Lab Sample ID:	VBF0105S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030570.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSF0105S1 Analytical Method: EPA SW846 8260 Datafile : VF030571.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		22	110	(45-158)
Chloroethane	20		23	115	(42-155)
Trichlorofluoromethane	20		22	110	(55-146)
1,1,2-Trichlorotrifluoroethane	20		22	110	(65-134)
1,1-Dichloroethene	20		21	105	(65-135)
Acetone	100		97	97	(57-148)
Carbon Disulfide	20		23	115	(60-138)
Methyl tert-butyl Ether	20		21	105	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		22	110	(63-140)
trans-1,2-Dichloroethene	20		22	110	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		100	100	(52-153)
Carbon Tetrachloride	20		22	110	(74-122)
cis-1,2-Dichloroethene	20		20	100	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		20	100	(75-125)
1,1,1-Trichloroethane	20		22	110	(75-128)
Methylcyclohexane	20		21	105	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		21	105	(76-120)
Bromodichloromethane	20		21	105	(77-124)
4-Methyl-2-Pentanone	100		100	100	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		20	100	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		100	100	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSF0105S1 Analytical Method: EPA SW846 8260 Datafile : VF030571.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		20	100	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		42	105	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		21	105	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		20	100	(71-124)
1,2,3-Trichlorobenzene	20		19	95	(74-123)
1,4-Dioxane	400		380	95	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VG039817.D BFB Injection Date: 12/25/2011

Instrument ID: MSVOAG BFB Injection Time: 19:04

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	42.2
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	76
175	5.0 - 9.0% of mass 174	6.4 (8.4) 1
176	95.0 - 101.0% of mass 174	74.8 (98.4) 1
177	5.0 - 9.0% of mass 176	4.9 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD001	1 PPB ICC	VG039818.D	12/25/2011	19:38
VSTD005	5 PPB ICC	VG039819.D	12/25/2011	20:23
VSTD020	20 PPB ICC	VG039820.D	12/25/2011	20:52
VSTD050	50 PPB ICC	VG039821.D	12/25/2011	21:21
VSTD100	100 PPB ICC	VG039822.D	12/25/2011	21:50

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOAG Calibration Date(s): 12/25/2011 12/25/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:38 21:50

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039819.D RRF001 = VG039818.D RRF020 = VG039820.D
RRF050 = VG039821.D RRF100 = VG039822.D RRF =

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.353	0.439	0.575	0.570	0.555		0.498	19.8
Chloromethane	0.841	0.944	1.090	0.996	1.006		0.975	9.4
Vinyl Chloride	0.669	0.718	0.796	0.753	0.746		0.736	6.3
Bromomethane	0.456	0.542	0.558	0.494	0.503		0.511	8
Chloroethane	0.328	0.355	0.423	0.383	0.380		0.374	9.5
Trichlorofluoromethane	0.712	0.650	0.893	0.880	0.856		0.798	13.8
1,1,2-Trichlorotrifluoroethane	0.445	0.460	0.562	0.519	0.494		0.496	9.5
1,1-Dichloroethene	0.481	0.615	0.628	0.600	0.581		0.581	10.1
Acetone	0.149	0.166	0.174	0.175	0.176		0.168	6.6
Carbon Disulfide	1.542	1.673	1.741	1.850	1.798		1.721	7
Methyl tert-butyl Ether	1.326	1.740	1.665	1.594	1.605		1.586	9.9
Methyl Acetate	0.977	1.080	1.143	1.068	1.066		1.067	5.6
Methylene Chloride	0.608	0.743	0.711	0.677	0.691		0.686	7.3
trans-1,2-Dichloroethene	0.598	0.653	0.650	0.620	0.627		0.63	3.6
1,1-Dichloroethane	1.086	1.189	1.307	1.219	1.222		1.205	6.6
Cyclohexane	0.821	1.096	0.978	0.996	0.915		0.961	10.6
2-Butanone	0.299	0.408	0.353	0.342	0.338		0.348	11.3
Carbon Tetrachloride	0.431	0.433	0.496	0.477	0.449		0.457	6.2
cis-1,2-Dichloroethene	0.650	0.854	0.777	0.752	0.752		0.757	9.7
Bromochloromethane	0.652	0.695	0.556	0.518	0.512		0.586	14.1
Chloroform	1.093	1.124	1.219	1.189	1.221		1.169	5
1,1,1-Trichloroethane	0.828	0.977	0.943	0.913	0.914		0.915	6.1
Methylcyclohexane	0.427	0.603	0.529	0.502	0.450		0.502	13.8
Benzene	1.135	1.170	1.341	1.270	1.213		1.226	6.7
1,2-Dichloroethane	0.398	0.502	0.493	0.481	0.474		0.47	8.8
Trichloroethene	0.328	0.361	0.366	0.355	0.342		0.35	4.4
1,2-Dichloropropane	0.315	0.379	0.359	0.345	0.338		0.347	6.8
Bromodichloromethane	0.452	0.582	0.512	0.503	0.491		0.508	9.3
4-Methyl-2-Pentanone	0.371	0.423	0.424	0.378	0.356		0.391	8
Toluene	0.671	0.770	0.815	0.768	0.737		0.752	7.1
t-1,3-Dichloropropene	0.453	0.493	0.555	0.513	0.519		0.507	7.4

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOAG Calibration Date(s): 12/25/2011 12/25/2011

Heated Purge: (Y/N) N Calibration Time(s): 19:38 21:50

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG039819.D RRF001 = VG039818.D RRF020 = VG039820.D
RRF050 = VG039821.D RRF100 = VG039822.D RRF =

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.477	0.564	0.585	0.551	0.547		0.545	7.4
1,1,2-Trichloroethane	0.270	0.291	0.320	0.300	0.293		0.295	6
2-Hexanone	0.270	0.288	0.311	0.284	0.269		0.285	5.9
Dibromochloromethane	0.293	0.333	0.357	0.350	0.344		0.335	7.5
1,2-Dibromoethane	0.308	0.315	0.379	0.339	0.344		0.337	8.4
Tetrachloroethene	0.238	0.282	0.327	0.315	0.289		0.29	11.8
Chlorobenzene	0.842	1.005	1.040	0.997	0.963		0.969	7.9
Ethyl Benzene	1.492	1.730	1.732	1.680	1.536		1.634	6.9
m/p-Xylenes	0.591	0.664	0.683	0.664	0.620		0.644	5.9
o-Xylene	0.609	0.669	0.729	0.687	0.632		0.665	7.1
Styrene	1.005	1.096	1.184	1.092	1.009		1.077	6.8
Bromoform	0.182	0.201	0.227	0.244	0.237		0.218	11.8
Isopropylbenzene	3.399	3.822	3.849	3.726	3.547		3.668	5.2
1,1,2,2-Tetrachloroethane	0.872	1.131	0.961	0.968	0.921		0.971	10
1,3-Dichlorobenzene	1.439	1.498	1.687	1.582	1.589		1.559	6.1
1,4-Dichlorobenzene	1.279	1.496	1.578	1.544	1.526		1.485	8
1,2-Dichlorobenzene	1.253	1.317	1.462	1.383	1.374		1.358	5.8
1,2-Dibromo-3-Chloropropane	0.114	0.117	0.134	0.138	0.142		0.129	9.6
1,2,4-Trichlorobenzene	0.714	0.753	0.851	0.811	0.835		0.793	7.3
1,2,3-Trichlorobenzene	0.590	0.650	0.735	0.695	0.733		0.681	9
1,2-Dichloroethane-d4	0.800	0.836	0.751	0.702	0.706		0.759	7.7
Dibromofluoromethane	0.439	0.476	0.448	0.416	0.400		0.436	6.7
Toluene-d8	1.226	1.324	1.237	1.143	1.061		1.198	8.4
4-Bromofluorobenzene	0.489	0.615	0.526	0.468	0.429		0.505	14
1,4-Dioxane	0.002	0.002	0.003	0.003	0.003		0.003	23.6

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VG039957.D BFB Injection Date: 12/31/2011

Instrument ID: MSVOAG BFB Injection Time: 01:50

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.6
75	30.0 - 60.0% of mass 95	52.1
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	65.5
175	5.0 - 9.0% of mass 174	5.2 (7.9) 1
176	95.0 - 101.0% of mass 174	65.1 (99.5) 1
177	5.0 - 9.0% of mass 176	4.3 (6.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VG039958.D	12/31/2011	03:17
VBG1230W2	VBG1230W2	VG039960.D	12/31/2011	04:44
BSG1230W4	BSG1230W4	VG039962.D	12/31/2011	05:42
TB-01-122211	C5128-01	VG039966.D	12/31/2011	07:38
MW-6S(ON)MS	C5148-06MS	VG039978.D	12/31/2011	13:26
MW-6S(ON)MSD	C5148-07MSD	VG039979.D	12/31/2011	13:55

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOAG Calibration Date/Time: 12/31/2011 03:17

Lab File ID: VG039958.D Init. Calib. Date(s): 12/25/2011 12/25/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:38 21:50

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.498	0.663		33.13	
Chloromethane	0.975	1.087	0.1	11.49	
Vinyl Chloride	0.736	0.748		1.63	20
Bromomethane	0.511	0.562		9.98	
Chloroethane	0.374	0.398		6.42	
Trichlorofluoromethane	0.798	1.100		37.84	
1,1,2-Trichlorotrifluoroethane	0.496	0.512		3.23	
1,1-Dichloroethene	0.581	0.584		0.52	20
Acetone	0.168	0.245		45.83	
Carbon Disulfide	1.721	1.909		10.92	
Methyl tert-butyl Ether	1.586	1.781		12.3	
Methyl Acetate	1.067	1.332		24.84	
Methylene Chloride	0.686	0.683		-0.44	
trans-1,2-Dichloroethene	0.63	0.630		0	
1,1-Dichloroethane	1.205	1.384	0.1	14.85	
Cyclohexane	0.961	1.028		6.97	
2-Butanone	0.348	0.424		21.84	
Carbon Tetrachloride	0.457	0.561		22.76	
cis-1,2-Dichloroethene	0.757	0.719		-5.02	
Bromochloromethane	0.586	0.760		29.69	
Chloroform	1.169	1.439		23.1	20
1,1,1-Trichloroethane	0.915	1.135		24.04	
Methylcyclohexane	0.502	0.463		-7.77	
Benzene	1.226	1.178		-3.92	
1,2-Dichloroethane	0.47	0.664		41.28	
Trichloroethene	0.35	0.321		-8.29	
1,2-Dichloropropane	0.347	0.349		0.58	20
Bromodichloromethane	0.508	0.558		9.84	
4-Methyl-2-Pentanone	0.391	0.449		14.83	
Toluene	0.752	0.674		-10.37	20
t-1,3-Dichloropropene	0.507	0.516		1.78	
cis-1,3-Dichloropropene	0.545	0.506		-7.16	
1,1,2-Trichloroethane	0.295	0.268		-9.15	
2-Hexanone	0.285	0.330		15.79	
Dibromochloromethane	0.335	0.324		-3.28	
1,2-Dibromoethane	0.337	0.326		-3.26	
Tetrachloroethene	0.29	0.415		43.1	
Chlorobenzene	0.969	0.916	0.3	-5.47	
Ethyl Benzene	1.634	1.650		0.98	20
m/p-Xylenes	0.644	0.596		-7.45	
o-Xylene	0.665	0.634		-4.66	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: MSVOAG Calibration Date/Time: 12/31/2011 03:17

Lab File ID: VG039958.D Init. Calib. Date(s): 12/25/2011 12/25/2011

Heated Purge: (Y/N) N Init. Calib. Time(s): 19:38 21:50

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.077	1.005		-6.69	
Bromoform	0.218	0.208	0.1	-4.59	
Isopropylbenzene	3.668	3.809		3.84	
1,1,2,2-Tetrachloroethane	0.971	0.925	0.3	-4.74	
1,3-Dichlorobenzene	1.559	1.516		-2.76	
1,4-Dichlorobenzene	1.485	1.463		-1.48	
1,2-Dichlorobenzene	1.358	1.330		-2.06	
1,2-Dibromo-3-Chloropropane	0.129	0.156		20.93	
1,2,4-Trichlorobenzene	0.793	0.759		-4.29	
1,2,3-Trichlorobenzene	0.681	0.676		-0.73	
1,2-Dichloroethane-d4	0.759	1.072		41.24 O.K.	
Dibromofluoromethane	0.436	0.471		8.03	
Toluene-d8	1.198	1.097		-8.43	
4-Bromofluorobenzene	0.505	0.487		-3.56	
1,4-Dioxane	0.003	0.003		0	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG1230W2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VG039960.D Lab Sample ID: VBG1230W2

Date Analyzed: 12/31/2011 Time Analyzed: 04:44

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG1230W4	BSG1230W4	VG039962.D	12/31/2011
TB-01-122211	C5128-01	VG039966.D	12/31/2011
MW-6S(ON)MS	C5148-06MS	VG039978.D	12/31/2011
MW-6S(ON)MSD	C5148-07MSD	VG039979.D	12/31/2011

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1230W2	SDG No.:	C5128
Lab Sample ID:	VBG1230W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039960.D	1		12/31/11	VG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1230W2	SDG No.:	C5128
Lab Sample ID:	VBG1230W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039960.D	1		12/31/11	VG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	69.8	*	70 - 120	140%	SPK: 50
1868-53-7	Dibromofluoromethane	57.4		85 - 115	115%	SPK: 50
2037-26-5	Toluene-d8	46.4		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	49		75 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	537018	3.92			
540-36-3	1,4-Difluorobenzene	935568	4.73			
3114-55-4	Chlorobenzene-d5	815685	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	343713	13.41			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG1230W2	SDG No.:	C5128
Lab Sample ID:	VBG1230W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039960.D	1		12/31/11	VG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSG1230W4 Analytical Method: EPA SW846 8260 Datafile : VG039962.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		24	120	(35-124)
Chloromethane	20		26	130*	(40-125)
Vinyl Chloride	20		23	115	(50-144)
Bromomethane	20		23	115	(44-145)
Chloroethane	20		24	120	(60-135)
Trichlorofluoromethane	20		29	145*	(60-137)
1,1,2-Trichlorotrifluoroethane	20		22	110	(52-142)
1,1-Dichloroethene	20		22	110	(70-130)
Acetone	100		150	150*	(50-140)
Carbon Disulfide	20		25	125	(36-155)
Methyl tert-butyl Ether	20		25	125	(65-125)
Methyl Acetate	20		30	150	(51-158)
Methylene Chloride	20		22	110	(61-138)
trans-1,2-Dichloroethene	20		22	110	(60-137)
1,1-Dichloroethane	20		26	130	(70-135)
Cyclohexane	20		23	115	(56-141)
2-Butanone	100		130	130	(56-150)
Carbon Tetrachloride	20		26	130	(65-138)
cis-1,2-Dichloroethene	20		21	105	(70-125)
Bromochloromethane	20		24	120	(65-130)
Chloroform	20		26	130	(67-135)
1,1,1-Trichloroethane	20		27	135*	(65-130)
Methylcyclohexane	20		18	90	(56-137)
Benzene	20		20	100	(80-120)
1,2-Dichloroethane	20		31	155*	(70-130)
Trichloroethene	20		20	100	(70-125)
1,2-Dichloropropane	20		23	115	(75-125)
Bromodichloromethane	20		23	115	(75-120)
4-Methyl-2-Pentanone	100		130	130	(63-135)
Toluene	20		19	95	(75-120)
t-1,3-Dichloropropene	20		21	105	(66-135)
cis-1,3-Dichloropropene	20		20	100	(70-130)
1,1,2-Trichloroethane	20		21	105	(75-125)
2-Hexanone	100		130	130	(56-130)
Dibromochloromethane	20		20	100	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5128 SAS No : C5128 SDG No: C5128

Matrix Spike - EPA Sample No : BSG1230W4 Analytical Method: EPA SW846 8260 Datafile : VG039962.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(80-120)
Tetrachloroethene	20		30	150	(45-178)
Chlorobenzene	20		20	100	(80-120)
Ethyl Benzene	20		22	110	(75-125)
m/p-Xylenes	40		41	103	(75-130)
o-Xylene	20		20	100	(80-120)
Styrene	20		20	100	(65-135)
Bromoform	20		19	95	(70-130)
Isopropylbenzene	20		23	115	(75-125)
1,1,2,2-Tetrachloroethane	20		22	110	(65-130)
1,3-Dichlorobenzene	20		21	105	(75-125)
1,4-Dichlorobenzene	20		20	100	(75-125)
1,2-Dichlorobenzene	20		21	105	(70-120)
1,2-Dibromo-3-Chloropropane	20		24	120	(54-130)
1,2,4-Trichlorobenzene	20		21	105	(65-133)
1,2,3-Trichlorobenzene	20		22	110	(60-135)
1,4-Dioxane	400		410	103	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 5 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

Not used Not a Tetra Tech sample

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5148-06 **Analytical Method:** EPA SW846 8260 **Datafile :** VG039978.D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	50	0	72	144	(30-155)
Chloromethane	50	0	70	140*	(40-125)
Vinyl Chloride	50	0	57	114	(50-145)
Bromomethane	50	0	68	136	(34-145)
Chloroethane	50	0	67	134	(60-135)
Trichlorofluoromethane	50	0	84	168*	(60-145)
1,1,2-Trichlorotrifluoroethane	50	0	65	130	(47-152)
1,1-Dichloroethene	50	0	60	120	(70-130)
Acetone	250	0	450	180*	(40-140)
Carbon Disulfide	50	0	44	88	(35-160)
Methyl tert-butyl Ether	50	0	69	138*	(65-125)
Methyl Acetate	50	0	68	136	(29-176)
Methylene Chloride	50	0	56	112	(55-140)
trans-1,2-Dichloroethene	50	0	57	114	(60-140)
1,1-Dichloroethane	50	0	70	140*	(70-135)
Cyclohexane	50	0	62	124	(42-159)
2-Butanone	250	0	380	152*	(47-150)
Carbon Tetrachloride	50	0	66	132	(65-140)
cis-1,2-Dichloroethene	50	2	56	108	(70-125)
Bromochloromethane	50	0	69	138*	(66-130)
Chloroform	50	0	72	144*	(65-135)
1,1,1-Trichloroethane	50	0	73	146*	(65-130)
Methylcyclohexane	50	0	51	102	(41-152)
Benzene	50	0	54	108	(80-120)
1,2-Dichloroethane	50	0	84	168*	(70-130)
Trichloroethene	50	1.2	53	104	(70-125)
1,2-Dichloropropane	50	0	58	116	(75-125)
Bromodichloromethane	50	0	61	122*	(75-120)
4-Methyl-2-Pentanone	250	0	350	140*	(60-135)
Toluene	50	0	47	94	(75-120)
t-1,3-Dichloropropene	50	0	53	106	(55-140)
cis-1,3-Dichloropropene	50	0	48	96	(70-130)
1,1,2-Trichloroethane	50	0	52	104	(75-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5148-06 **Analytical Method:** EPA SW846 8260 **Datafile :** VG039978.D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMITS REC
2-Hexanone	250	0	350	140*	(55-130)
Dibromochloromethane	50	0	50	100	(60-135)
1,2-Dibromoethane	50	0	56	112	(80-120)
Tetrachloroethene	50	1.2	55	108	(45-148)
Chlorobenzene	50	0	54	108	(80-120)
Ethyl Benzene	50	0	56	112	(75-125)
m/p-Xylenes	100	0	99	99	(75-130)
o-Xylene	50	0	50	100	(80-120)
Styrene	50	0	42	84	(65-135)
Bromoform	50	0	45	90	(70-130)
Isopropylbenzene	50	0	58	116	(75-125)
1,1,2,2-Tetrachloroethane	50	0	58	116	(65-130)
1,3-Dichlorobenzene	50	0	53	106	(75-125)
1,4-Dichlorobenzene	50	0	53	106	(75-125)
1,2-Dichlorobenzene	50	0	54	108	(70-120)
1,2-Dibromo-3-Chloropropane	50	0	72	144*	(50-130)
1,2,4-Trichlorobenzene	50	0	54	108	(65-135)
1,2,3-Trichlorobenzene	50	0	56	112	(55-137)
1,4-Dioxane	1000	0	1100	110	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 14 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5148-07 **Analytical Method:** EPA SW846 8260 **Datafile :** VG039979.D

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % (ug/L)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	50	67	134	7	20	(30-155)
Chloromethane	50	87	174*	22*	20	(40-125)
Vinyl Chloride	50	71	142	22*	20	(50-145)
Bromomethane	50	82	164*	19	20	(34-145)
Chloroethane	50	81	162*	19	20	(60-135)
Trichlorofluoromethane	50	86	172*	2	20	(60-145)
1,1,2-Trichlorotrifluoroethane	50	60	120	8	20	(47-152)
1,1-Dichloroethene	50	65	130	8	20	(70-130)
Acetone	250	540	216*	18	20	(40-140)
Carbon Disulfide	50	49	98	11	20	(35-160)
Methyl tert-butyl Ether	50	82	164*	17	20	(65-125)
Methyl Acetate	50	82	164	19	20	(29-176)
Methylene Chloride	50	65	130	15	20	(55-140)
trans-1,2-Dichloroethene	50	65	130	13	20	(60-140)
1,1-Dichloroethane	50	77	154*	10	20	(70-135)
Cyclohexane	50	53	106	16	20	(42-159)
2-Butanone	250	420	168*	10	20	(47-150)
Carbon Tetrachloride	50	65	130	2	20	(65-140)
cis-1,2-Dichloroethene	50	65	126*	15	20	(70-125)
Bromochloromethane	50	84	168*	20	20	(66-130)
Chloroform	50	83	166*	14	20	(65-135)
1,1,1-Trichloroethane	50	79	158*	8	20	(65-130)
Methylcyclohexane	50	36	72	34*	20	(41-152)
Benzene	50	59	118	9	20	(80-120)
1,2-Dichloroethane	50	92	184*	9	20	(70-130)
Trichloroethene	50	53	104	0	20	(70-125)
1,2-Dichloropropane	50	63	126*	8	20	(75-125)
Bromodichloromethane	50	67	134*	9	20	(75-120)
4-Methyl-2-Pentanone	250	370	148*	6	20	(60-135)
Toluene	50	47	94	0	20	(75-120)
t-1,3-Dichloropropene	50	55	110	4	20	(55-140)
cis-1,3-Dichloropropene	50	50	100	4	20	(70-130)
1,1,2-Trichloroethane	50	57	114	9	20	(75-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5128 **SAS No :** C5128 **SDG No:** C5128

Matrix Spike - EPA Sample No : C5148-07 **Analytical Method:** EPA SW846 8260 **Datafile :** VG039979.D

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % (ug/L)	MSD %	QC LIMITS RPD	QC LIMITS REC
2-Hexanone	250	390	156*	11	20	(55-130)
Dibromochloromethane	50	53	106	6	20	(60-135)
1,2-Dibromoethane	50	59	118	5	20	(80-120)
Tetrachloroethene	50	54	106	2	20	(45-148)
Chlorobenzene	50	56	112	4	20	(80-120)
Ethyl Benzene	50	56	112	0	20	(75-125)
m/p-Xylenes	100	96	96	3	20	(75-130)
o-Xylene	50	52	104	4	20	(80-120)
Styrene	50	43	86	2	20	(65-135)
Bromoform	50	53	106	16	20	(70-130)
Isopropylbenzene	50	57	114	2	20	(75-125)
1,1,2,2-Tetrachloroethane	50	72	144*	22*	20	(65-130)
1,3-Dichlorobenzene	50	56	112	6	20	(75-125)
1,4-Dichlorobenzene	50	58	116	9	20	(75-125)
1,2-Dichlorobenzene	50	60	120	11	20	(70-120)
1,2-Dibromo-3-Chloropropane	50	94	188*	27*	20	(50-130)
1,2,4-Trichlorobenzene	50	59	118	9	20	(65-135)
1,2,3-Trichlorobenzene	50	62	124	10	20	(55-137)
1,4-Dioxane	1000	1300	130	17	20	(70-130)

RPD : 5 Out of 52 outside limits

Spike Recovery : 19 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030483.D Date Analyzed: 01/03/2012

Instrument ID: MSVOA_F Time Analyzed: 13:26

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	152332	4.37	270398	5.11	252934	9.31
UPPER LIMIT	304664	4.87	540796	5.61	505868	9.81
LOWER LIMIT	76166	3.87	135199	4.61	126467	8.81
EPA SAMPLE NO.						
BSF0103S1	156249	4.37	269923	5.11	242854	9.31
12SB-DUP-06	109055	4.36	195772	5.11	196682	9.31
UBZ2-SO-34-5-6MS	106235	4.36	193589	5.11	180078	9.30
UBZ2-SO-34-5-6MSD	107415	4.36	203302	5.11	186600	9.31
VBF0103S1	169642	4.37	288873	5.11	262945	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030483.D Date Analyzed: 01/03/2012

Instrument ID: MSVOA_F Time Analyzed: 13:26

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	131664	12.22				
UPPER LIMIT	263328	12.72				
LOWER LIMIT	65832	11.72				
EPA SAMPLE NO.						
BSF0103S1	132993	12.22				
12SB-DUP-06	102911	12.22				
UBZ2-SO-34-5-6MS	95108	12.22				
UBZ2-SO-34-5-6MSD	95063	12.22				
VBF0103S1	134869	12.23				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030545.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 03:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	113505	4.38	219502	5.12	201134	9.33
UPPER LIMIT	227010	4.88	439004	5.62	402268	9.83
LOWER LIMIT	56752.5	3.88	109751	4.62	100567	8.83
EPA SAMPLE NO.						
BSF0104S3	110542	4.39	213126	5.13	196192	9.33
12SB30-000.5-01	95920	4.38	170592	5.12	168630	9.32
12SB30-0.502-02	91390	4.38	166545	5.13	175279	9.33
12SB30-0304-03	92173	4.38	169239	5.13	177380	9.33
12SB23-000.5-01	88985	4.39	162199	5.14	153889	9.32
12SB23-0.502-02	89846	4.38	165688	5.12	169793	9.33
12SB23-0304-03	89158	4.38	163434	5.12	170104	9.33
VBF0104S2	116839	4.37	212752	5.12	203144	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030545.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 03:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	100994	12.23				
UPPER LIMIT	201988	12.73				
LOWER LIMIT	50497	11.73				
EPA SAMPLE NO.						
BSF0104S3	101031	12.23				
12SB30-000.5-01	73824	12.23				
12SB30-0.502-02	94237	12.24				
12SB30-0304-03	94212	12.24				
12SB23-000.5-01	56003	12.24				
12SB23-0.502-02	84732	12.24				
12SB23-0304-03	97204	12.23				
VBF0104S2	100297	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030569.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 16:17

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	130478	4.39	224699	5.13	201375	9.32
UPPER LIMIT	260956	4.89	449398	5.63	402750	9.82
LOWER LIMIT	65239	3.89	112349.5	4.63	100687.5	8.82
EPA SAMPLE NO.						
BSF0105S1	124929	4.39	213434	5.13	190713	9.32
12SB21-000.5-01	102304	4.38	183281	5.13	171707	9.33
12SB21-0.502-02	102436	4.38	186211	5.13	186603	9.32
12SB21-0304-03	91062	4.38	165827	5.12	168894	9.32
12SB20-0304-03	96511	4.39	177165	5.13	181150	9.32
VBF0105S1	134068	4.39	232349	5.13	202346	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VF030569.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 16:17

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	108795	12.24				
UPPER LIMIT	217590	12.74				
LOWER LIMIT	54397.5	11.74				
EPA SAMPLE NO.						
BSF0105S1	101150	12.24				
12SB21-000.5-01	69807	12.23				
12SB21-0.502-02	98875	12.24				
12SB21-0304-03	89794	12.24				
12SB20-0304-03	93617	12.24				
VBF0105S1	105306	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VG039958.D Date Analyzed: 12/31/2011

Instrument ID: MSVOAG Time Analyzed: 03:17

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	490682	3.92	867119	4.73	751833	9.70
UPPER LIMIT	981364	4.42	1734238	5.23	1503666	10.2
LOWER LIMIT	245341	3.42	433559.5	4.23	375916.5	9.2
EPA SAMPLE NO.						
BSG1230W4	503559	3.92	900307	4.73	775572	9.70
TB-01-122211	425764	3.92	770023	4.73	713250	9.70
MW-6S(ON)MS	421979	3.91	778172	4.73	659796	9.69
MW-6S(ON)MSD	376888	3.91	719947	4.73	570753	9.69
VBG1230W2	537018	3.92	935568	4.73	815685	9.70

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: VG039958.D Date Analyzed: 12/31/2011

Instrument ID: MSVOAG Time Analyzed: 03:17

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	338033	13.41				
UPPER LIMIT	676066	13.91				
LOWER LIMIT	169016.5	12.91				
EPA SAMPLE NO.						
BSG1230W4	353098	13.41				
TB-01-122211	311106	13.41				
MW-6S(ON)MS	303851	13.40				
MW-6S(ON)MSD	251855	13.40				
VBG1230W2	343713	13.41				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
C5128-04	12SB30-000.5-01	2-Fluorophenol	150	103.71	69		35	105
		Phenol-d5	150	106.37	71		40	100
		Nitrobenzene-d5	100	61.10	61		35	100
		2-Fluorobiphenyl	100	56.81	57		45	105
		2,4,6-Tribromophenol	150	101.66	68		35	125
		Terphenyl-d14	100	58.30	58		30	125
C5128-05	12SB30-0.502-02	2-Fluorophenol	150	110.87	74		35	105
		Phenol-d5	150	118.84	79		40	100
		Nitrobenzene-d5	100	69.50	70		35	100
		2-Fluorobiphenyl	100	59.32	59		45	105
		2,4,6-Tribromophenol	150	97.38	65		35	125
		Terphenyl-d14	100	60.53	61		30	125
C5128-05MS	12SB30-0.502-02MS	2-Fluorophenol	150	111.47	74		35	105
		Phenol-d5	150	117.13	78		40	100
		Nitrobenzene-d5	100	71.40	71		35	100
		2-Fluorobiphenyl	100	62.73	63		45	105
		2,4,6-Tribromophenol	150	104.34	70		35	125
		Terphenyl-d14	100	64.09	64		30	125
C5128-05MSD	12SB30-0.502-02MSD	2-Fluorophenol	150	138.16	92		35	105
		Phenol-d5	150	145.97	97		40	100
		Nitrobenzene-d5	100	88.99	89		35	100
		2-Fluorobiphenyl	100	77.12	77		45	105
		2,4,6-Tribromophenol	150	132.21	88		35	125
		Terphenyl-d14	100	79.82	80		30	125
C5128-06	12SB30-0304-03	2-Fluorophenol	150	107.65	72		35	105
		Phenol-d5	150	109.93	73		40	100
		Nitrobenzene-d5	100	64.59	65		35	100
		2-Fluorobiphenyl	100	62.99	63		45	105
		2,4,6-Tribromophenol	150	105.70	70		35	125
		Terphenyl-d14	100	63.71	64		30	125
C5128-07	12SB23-000.5-01	2-Fluorophenol	150	70.10	47		35	105
		Phenol-d5	150	71.75	48		40	100
		Nitrobenzene-d5	100	42.20	42		35	100
		2-Fluorobiphenyl	100	35.90	36	*	45	105
		2,4,6-Tribromophenol	150	60.00	40		35	125
		Terphenyl-d14	100	37.25	37		30	125
C5128-08	12SB23-0.502-02	2-Fluorophenol	150	99.96	67		35	105
		Phenol-d5	150	102.19	68		40	100
		Nitrobenzene-d5	100	60.90	61		35	100
		2-Fluorobiphenyl	100	59.09	59		45	105
		2,4,6-Tribromophenol	150	97.47	65		35	125
		Terphenyl-d14	100	63.73	64		30	125
C5128-09	12SB23-0304-03	2-Fluorophenol	150	106.45	71		35	105
		Phenol-d5	150	108.51	72		40	100
		Nitrobenzene-d5	100	64.05	64		35	100
		2-Fluorobiphenyl	100	65.89	66		45	105
		2,4,6-Tribromophenol	150	110.00	73		35	125
		Terphenyl-d14	100	65.94	66		30	125
C5128-10	12SB21-000.5-01	2-Fluorophenol	150	120.83	81		35	105
		Phenol-d5	150	124.86	83		40	100
		Nitrobenzene-d5	100	72.92	73		35	100
		2-Fluorobiphenyl	100	74.32	74		45	105

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5128-10	12SB21-000.5-01	2,4,6-Tribromophenol	150	127.40	85		35	125
		Terphenyl-d14	100	73.22	73		30	125
C5128-11	12SB21-0.502-02	2-Fluorophenol	150	82.94	55		35	105
		Phenol-d5	150	82.92	55		40	100
		Nitrobenzene-d5	100	50.11	50		35	100
		2-Fluorobiphenyl	100	52.37	52		45	105
		2,4,6-Tribromophenol	150	86.69	58		35	125
		Terphenyl-d14	100	53.91	54		30	125
C5128-12	12SB21-0304-03	2-Fluorophenol	150	89.00	59		35	105
		Phenol-d5	150	88.82	59		40	100
		Nitrobenzene-d5	100	52.81	53		35	100
		2-Fluorobiphenyl	100	54.00	54		45	105
		2,4,6-Tribromophenol	150	92.74	62		35	125
		Terphenyl-d14	100	55.31	55		30	125
C5128-13	12SB20-0304-03	2-Fluorophenol	150	91.30	61		35	105
		Phenol-d5	150	93.43	62		40	100
		Nitrobenzene-d5	100	53.84	54		35	100
		2-Fluorobiphenyl	100	56.72	57		45	105
		2,4,6-Tribromophenol	150	93.56	62		35	125
		Terphenyl-d14	100	57.95	58		30	125
C5128-14	12SB-DUP-06	2-Fluorophenol	150	103.70	69		35	105
		Phenol-d5	150	104.75	70		40	100
		Nitrobenzene-d5	100	61.31	61		35	100
		2-Fluorobiphenyl	100	63.06	63		45	105
		2,4,6-Tribromophenol	150	104.90	70		35	125
		Terphenyl-d14	100	64.71	65		30	125
PB60240B	PB60240B	2-Fluorophenol	150	134.23	89		35	105
		Phenol-d5	150	135.77	91		40	100
		Nitrobenzene-d5	100	84.34	84		35	100
		2-Fluorobiphenyl	100	85.29	85		45	105
		2,4,6-Tribromophenol	150	132.37	88		35	125
		Terphenyl-d14	100	85.13	85		30	125
PB60240BS	PB60240BS	2-Fluorophenol	150	118.30	79		35	105
		Phenol-d5	150	122.59	82		40	100
		Nitrobenzene-d5	100	74.12	74		35	100
		2-Fluorobiphenyl	100	70.23	70		45	105
		2,4,6-Tribromophenol	150	112.23	75		35	125
		Terphenyl-d14	100	67.45	67		30	125

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BE074508.D DFTPP Injection Date: 12/21/2011

Instrument ID: BNA_E DFTPP Injection Time: 15:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.5
68	Less than 2.0% of mass 69	0.5 (1.1) 1
69	Mass 69 relative abundance	44.2
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	53.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	18.1
365	Greater than 1% of mass 198	2.3
441	Present, but less than mass 443	7.7
442	Greater than 40% of mass 198	49.7
443	17.0 - 23.0% of mass 442	9.5 (19.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074509.D	12/21/2011	16:07
02	SSTD025	25 ng BNA ICC	BE074510.D	12/21/2011	16:52
03	SSTD040	40 ng BNA ICC	BE074511.D	12/21/2011	17:37
04	SSTD050	50 ng BNA ICC	BE074512.D	12/21/2011	18:22
05	SSTD060	60 ng BNA ICC	BE074513.D	12/21/2011	19:03
06	SSTD080	80 ng BNA ICC	BE074514.D	12/21/2011	19:48

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date(s): 12/21/2011 12/21/2011

Calibration Time(s): 16:07 19:48

LAB FILE ID: RRF010 = BE074509.D RRF025 = BE074510.D RRF040 = BE074511.D
RRF050 = BE074512.D RRF060 = BE074513.D RRF080 = BE074514.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.224	0.935	0.907	0.867	0.806	0.766	0.918	17.7
Phenol	1.959	1.750	1.945	1.903	1.837	1.813	1.868	4.4
bis(2-Chloroethyl)ether	1.560	1.494	1.547	1.516	1.476	1.446	1.507	2.9
2-Chlorophenol	1.479	1.396	1.450	1.417	1.376	1.387	1.417	2.8
2-Methylphenol	1.206	1.177	1.229	1.235	1.196	1.186	1.205	1.9
2,2-oxybis(1-Chloropropane)	2.625	2.480	2.556	2.519	2.431	2.419	2.505	3.1
Acetophenone	0.544	0.529	0.515	0.503	0.514	0.502	0.518	3.1
3+4-Methylphenols	1.554	1.566	1.662	1.625	1.604	1.567	1.596	2.6
n-Nitroso-di-n-propylamine	1.088	1.094	1.130	1.111	1.062	1.061	1.091	2.5
Hexachloroethane	0.613	0.570	0.585	0.588	0.561	0.563	0.580	3.4
Nitrobenzene	0.416	0.414	0.393	0.395	0.393	0.393	0.401	2.7
Isophorone	0.721	0.716	0.712	0.712	0.711	0.702	0.712	0.8
2-Nitrophenol	0.164	0.181	0.184	0.186	0.189	0.191	0.183	5.3
2,4-Dimethylphenol	0.336	0.322	0.320	0.318	0.317	0.314	0.321	2.4
bis(2-Chloroethoxy)methane	0.469	0.457	0.451	0.436	0.435	0.430	0.446	3.4
2,4-Dichlorophenol	0.276	0.272	0.266	0.276	0.271	0.272	0.272	1.3
4-Chloroaniline	0.441	0.448	0.438	0.443	0.433	0.434	0.439	1.2
Hexachlorobutadiene	0.149	0.139	0.141	0.139	0.141	0.145	0.142	2.6
Caprolactam	0.119	0.117	0.124	0.126	0.125	0.126	0.123	3.0
4-Chloro-3-methylphenol	0.336	0.309	0.333	0.330	0.337	0.330	0.329	3.2
Hexachlorocyclopentadiene	0.220	0.236	0.246	0.246	0.254	0.261	0.244	5.9
2,4,6-Trichlorophenol	0.340	0.337	0.340	0.336	0.341	0.341	0.339	0.7
2,4,5-Trichlorophenol	0.357	0.364	0.377	0.369	0.370	0.372	0.368	1.9
1,1-Biphenyl	1.675	1.589	1.559	1.556	1.529	1.505	1.569	3.8
2-Chloronaphthalene	1.234	1.155	1.160	1.141	1.141	1.125	1.159	3.3
2-Nitroaniline	0.349	0.372	0.392	0.393	0.400	0.392	0.383	5.0
Dimethylphthalate	1.373	1.352	1.337	1.317	1.316	1.294	1.332	2.1
Acenaphthylene	2.026	1.919	1.944	1.919	1.934	1.896	1.940	2.3
2,6-Dinitrotoluene	0.271	0.296	0.305	0.302	0.307	0.306	0.298	4.6
3-Nitroaniline	0.367	0.369	0.378	0.377	0.386	0.381	0.376	1.9
Acenaphthene	1.298	1.230	1.218	1.199	1.208	1.190	1.224	3.2
2,4-Dinitrophenol	0.067	0.092	0.115	0.127	0.131	0.146	0.113	25.6
4-Nitrophenol	0.253	0.290	0.303	0.309	0.307	0.311	0.295	7.5
Dibenzofuran	1.858	1.784	1.745	1.704	1.710	1.674	1.746	3.8

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date(s): 12/21/2011 12/21/2011

Calibration Time(s): 16:07 19:48

LAB FILE ID: RRF010 = BE074509.D RRF025 = BE074510.D RRF040 = BE074511.D
RRF050 = BE074512.D RRF060 = BE074513.D RRF080 = BE074514.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.358	0.375	0.389	0.400	0.400	0.402	0.387	4.5
Diethylphthalate	1.499	1.432	1.440	1.414	1.409	1.387	1.430	2.7
4-Chlorophenyl-phenylether	0.662	0.620	0.633	0.620	0.628	0.606	0.628	3.0
4-Nitroaniline	0.381	0.386	0.399	0.386	0.392	0.386	0.388	1.6
4,6-Dinitro-2-methylphenol	0.067	0.086	0.097	0.107	0.110	0.117	0.097	18.9
n-Nitrosodiphenylamine	0.666	0.679	0.640	0.655	0.659	0.643	0.657	2.2
4-Bromophenyl-phenylether	0.170	0.173	0.167	0.165	0.171	0.167	0.169	1.8
Hexachlorobenzene	0.183	0.186	0.171	0.173	0.168	0.172	0.176	4.1
Atrazine	0.182	0.178	0.159	0.143	0.129	0.106	0.149	19.7
Pentachlorophenol	0.075	0.093	0.097	0.104	0.104	0.109	0.097	12.7
Phenanthrene	1.118	1.080	1.040	1.052	1.046	1.021	1.059	3.2
Carbazole	1.123	1.105	1.089	1.100	1.082	1.065	1.094	1.8
Di-n-butylphthalate	1.242	1.275	1.271	1.294	1.300	1.283	1.278	1.6
Butylbenzylphthalate	0.635	0.626	0.661	0.658	0.661	0.654	0.649	2.3
3,3-Dichlorobenzidine	0.362	0.385	0.377	0.382	0.385	0.383	0.379	2.3
Bis(2-ethylhexyl)phthalate	0.897	0.871	0.919	0.921	0.921	0.908	0.906	2.2
Di-n-octyl phthalate	1.408	1.291	1.503	1.510	1.550	1.555	1.470	6.9
1,2,4,5-Tetrachlorobenzene	0.498	0.493	0.471	0.470	0.462	0.460	0.476	3.3
2,3,4,6-Tetrachlorophenol	0.241	0.272	0.264	0.262	0.270	0.274	0.264	4.7
2-Fluorophenol	1.448	1.308	1.408	1.408	1.349	1.339	1.377	3.8
Phenol-d5	1.829	1.606	1.760	1.755	1.663	1.633	1.708	5.1
Nitrobenzene-d5	0.422	0.412	0.407	0.405	0.403	0.398	0.408	2.0
2-Fluorobiphenyl	1.548	1.438	1.402	1.373	1.364	1.316	1.407	5.7
2,4,6-Tribromophenol	0.130	0.132	0.134	0.132	0.132	0.134	0.132	1.1
Terphenyl-d14	0.843	0.830	0.775	0.780	0.769	0.756	0.792	4.5

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BE074710.D DFTPP Injection Date: 12/29/2011

Instrument ID: BNA_E DFTPP Injection Time: 17:03

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	50.3
68	Less than 2.0% of mass 69	0.4 (1) 1
69	Mass 69 relative abundance	42.2
70	Less than 2.0% of mass 69	0.4 (0.9) 1
127	40.0 - 60.0% of mass 198	50.1
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.2
365	Greater than 1% of mass 198	2.2
441	Present, but less than mass 443	9.8
442	Greater than 40% of mass 198	58
443	17.0 - 23.0% of mass 442	10.9 (18.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074711.D	12/29/2011	17:45
02	12SB30-0.502-02MS	C5128-05MS	BE074712.D	12/29/2011	18:29
03	12SB30-0.502-02MSD	C5128-05MSD	BE074713.D	12/29/2011	19:11
04	12SB30-0.502-02	C5128-05	BE074714.D	12/29/2011	19:56
05	PB60240B	PB60240B	BE074722.D	12/30/2011	01:36
06	PB60240BS	PB60240BS	BE074723.D	12/30/2011	02:18

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date/Time: 12/29/2011 17:45

Lab File ID: BE074711.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.918	0.973		6.0	
Phenol	1.868	2.026		8.4	20.0
bis(2-Chloroethyl)ether	1.507	1.640		8.8	
2-Chlorophenol	1.417	1.493		5.3	
2-Methylphenol	1.205	1.306		8.4	
2,2-oxybis(1-Chloropropane)	2.505	2.710		8.2	
Acetophenone	0.518	0.521		0.5	
3+4-Methylphenols	1.596	1.672		4.8	
n-Nitroso-di-n-propylamine	1.091	1.168	0.050	7.1	
Hexachloroethane	0.580	0.597		2.9	
Nitrobenzene	0.401	0.416		3.8	
Isophorone	0.712	0.740		3.9	
2-Nitrophenol	0.183	0.193		5.7	20.0
2,4-Dimethylphenol	0.321	0.318		0.9	
bis(2-Chloroethoxy)methane	0.446	0.464		4.1	
2,4-Dichlorophenol	0.272	0.274		0.6	20.0
4-Chloroaniline	0.439	0.443		0.9	
Hexachlorobutadiene	0.142	0.137		3.6	20.0
Caprolactam	0.123	0.128		3.9	
4-Chloro-3-methylphenol	0.329	0.335		1.7	20.0
Hexachlorocyclopentadiene	0.244	0.226	0.050	7.2	
2,4,6-Trichlorophenol	0.339	0.336		0.8	20.0
2,4,5-Trichlorophenol	0.368	0.369		0.2	
1,1-Biphenyl	1.569	1.566		0.2	
2-Chloronaphthalene	1.159	1.147		1.0	
2-Nitroaniline	0.383	0.427		11.6	
Dimethylphthalate	1.332	1.334		0.1	
Acenaphthylene	1.940	1.940		0.0	
2,6-Dinitrotoluene	0.298	0.308		3.4	
3-Nitroaniline	0.376	0.399		6.2	
Acenaphthene	1.224	1.218		0.5	20.0
2,4-Dinitrophenol	0.113	0.129	0.050	14.3	
4-Nitrophenol	0.295	0.311	0.050	5.5	
Dibenzofuran	1.746	1.736		0.6	
2,4-Dinitrotoluene	0.387	0.412		6.5	
Diethylphthalate	1.430	1.417		0.9	
4-Chlorophenyl-phenylether	0.628	0.612		2.5	
4-Nitroaniline	0.388	0.406		4.7	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date/Time: 12/29/2011 17:45

Lab File ID: BE074711.D Init. Calib. Date(s): 12/21/2011 12/21/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:07 19:48

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.097	0.114		17.7	
n-Nitrosodiphenylamine	0.657	0.657		0.1	20.0
4-Bromophenyl-phenylether	0.169	0.165		2.4	
Hexachlorobenzene	0.176	0.170		3.3	
Atrazine	0.149	0.155		3.8	
Pentachlorophenol	0.097	0.098		1.3	20.0
Phenanthrene	1.059	1.067		0.8	
Carbazole	1.094	1.101		0.7	
Di-n-butylphthalate	1.278	1.300		1.7	
Butylbenzylphthalate	0.649	0.644		0.7	
3,3-Dichlorobenzidine	0.379	0.387		2.1	
Bis(2-ethylhexyl)phthalate	0.906	0.915		1.0	
Di-n-octyl phthalate	1.470	1.533		4.3	20.0
1,2,4,5-Tetrachlorobenzene	0.476	0.462		2.9	
2,3,4,6-Tetrachlorophenol	0.264	0.265		0.2	
2-Fluorophenol	1.377	1.443		4.8	
Phenol-d5	1.708	1.838		7.6	
Nitrobenzene-d5	0.408	0.424		4.0	
2-Fluorobiphenyl	1.407	1.377		2.1	
2,4,6-Tribromophenol	0.132	0.128		3.1	
Terphenyl-d14	0.792	0.745		5.9	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BE074743.D DFTPP Injection Date: 12/30/2011

Instrument ID: BNA_E DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.7
68	Less than 2.0% of mass 69	0.5 (1.2) 1
69	Mass 69 relative abundance	39.7
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.3
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	9.2
442	Greater than 40% of mass 198	57.9
443	17.0 - 23.0% of mass 442	11.8 (20.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074744.D	12/30/2011	21:01
02	SSTD025	25 ng BNA ICC	BE074745.D	12/30/2011	21:46
03	SSTD040	40 ng BNA ICC	BE074746.D	12/30/2011	22:27
04	SSTD050	50 ng BNA ICC	BE074747.D	12/30/2011	23:12
05	SSTD060	60 ng BNA ICC	BE074748.D	12/30/2011	23:54
06	SSTD080	80 ng BNA ICC	BE074749.D	12/31/2011	00:39

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date(s): 12/30/2011 12/31/2011

Calibration Time(s): 21:01 00:39

LAB FILE ID: RRF010 = BE074744.D RRF025 = BE074745.D RRF040 = BE074746.D
RRF050 = BE074747.D RRF060 = BE074748.D RRF080 = BE074749.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	0.955	0.941	0.780	0.731	0.649	0.540	0.766	21.2
Phenol	1.705	1.836	1.811	1.872	1.933	1.913	1.845	4.5
bis(2-Chloroethyl)ether	1.407	1.432	1.416	1.451	1.486	1.484	1.446	2.3
2-Chlorophenol	1.405	1.469	1.448	1.495	1.502	1.488	1.468	2.5
2-Methylphenol	1.061	1.117	1.110	1.173	1.178	1.183	1.137	4.3
2,2-oxybis(1-Chloropropane)	2.015	2.141	2.101	2.210	2.201	2.216	2.147	3.7
Acetophenone	0.456	0.481	0.465	0.490	0.479	0.485	0.476	2.7
3+4-Methylphenols	1.374	1.514	1.481	1.553	1.572	1.556	1.509	4.9
n-Nitroso-di-n-propylamine	0.926	0.986	0.999	1.076	1.069	1.068	1.021	5.9
Hexachloroethane	0.498	0.534	0.521	0.550	0.553	0.548	0.534	4.0
Nitrobenzene	0.329	0.351	0.341	0.369	0.355	0.363	0.352	4.2
Isophorone	0.567	0.629	0.623	0.659	0.644	0.663	0.631	5.5
2-Nitrophenol	0.168	0.184	0.181	0.194	0.192	0.198	0.186	5.9
2,4-Dimethylphenol	0.296	0.319	0.307	0.324	0.322	0.328	0.316	3.8
bis(2-Chloroethoxy)methane	0.412	0.425	0.415	0.433	0.428	0.431	0.424	2.0
2,4-Dichlorophenol	0.269	0.291	0.281	0.299	0.295	0.295	0.288	3.9
4-Chloroaniline	0.413	0.447	0.430	0.453	0.444	0.444	0.439	3.3
Hexachlorobutadiene	0.145	0.150	0.142	0.149	0.144	0.148	0.147	2.1
Caprolactam	0.094	0.110	0.113	0.119	0.119	0.121	0.113	9.0
4-Chloro-3-methylphenol	0.264	0.291	0.284	0.303	0.300	0.302	0.291	5.1
Hexachlorocyclopentadiene	0.169	0.217	0.221	0.239	0.248	0.253	0.224	13.7
2,4,6-Trichlorophenol	0.312	0.344	0.338	0.349	0.357	0.353	0.342	4.8
2,4,5-Trichlorophenol	0.349	0.368	0.369	0.380	0.384	0.387	0.373	3.8
1,1-Biphenyl	1.550	1.586	1.544	1.592	1.602	1.579	1.576	1.5
2-Chloronaphthalene	1.118	1.191	1.144	1.158	1.179	1.149	1.157	2.3
2-Nitroaniline	0.279	0.325	0.328	0.346	0.355	0.358	0.332	8.8
Dimethylphthalate	1.251	1.317	1.271	1.297	1.302	1.300	1.290	1.9
Acenaphthylene	1.741	1.829	1.813	1.848	1.874	1.858	1.827	2.6
2,6-Dinitrotoluene	0.282	0.297	0.298	0.312	0.313	0.310	0.302	4.1
3-Nitroaniline	0.315	0.357	0.359	0.373	0.376	0.382	0.360	6.8
Acenaphthene	1.147	1.213	1.179	1.209	1.232	1.226	1.201	2.7
2,4-Dinitrophenol	0.036	0.072	0.095	0.111	0.124	0.140	0.096	39.3
4-Nitrophenol	0.211	0.267	0.280	0.294	0.301	0.311	0.277	13.1
Dibenzofuran	1.655	1.703	1.629	1.651	1.672	1.645	1.659	1.5
2,4-Dinitrotoluene	0.328	0.383	0.380	0.403	0.400	0.412	0.384	7.8
Diethylphthalate	1.196	1.265	1.249	1.269	1.280	1.260	1.253	2.4

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date(s): 12/30/2011 12/31/2011

Calibration Time(s): 21:01 00:39

LAB FILE ID: RRF010 = BE074744.D RRF025 = BE074745.D RRF040 = BE074746.D
RRF050 = BE074747.D RRF060 = BE074748.D RRF080 = BE074749.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.599	0.609	0.590	0.601	0.597	0.598	0.599	1.1
4-Nitroaniline	0.332	0.370	0.373	0.390	0.396	0.392	0.376	6.3
4,6-Dinitro-2-methylphenol	0.053	0.085	0.103	0.110	0.117	0.128	0.099	27.1
n-Nitrosodiphenylamine	0.636	0.663	0.663	0.684	0.682	0.679	0.668	2.7
4-Bromophenyl-phenylether	0.178	0.184	0.182	0.186	0.188	0.189	0.185	2.3
Hexachlorobenzene	0.194	0.202	0.195	0.199	0.198	0.196	0.197	1.4
Atrazine	0.163	0.184	0.186	0.193	0.196	0.197	0.186	6.7
Pentachlorophenol	0.078	0.096	0.104	0.113	0.118	0.124	0.105	16.0
Phenanthrene	1.126	1.126	1.133	1.132	1.142	1.131	1.132	0.5
Carbazole	1.032	1.095	1.088	1.109	1.122	1.107	1.092	2.9
Di-n-butylphthalate	1.051	1.186	1.209	1.241	1.242	1.246	1.196	6.3
Butylbenzylphthalate	0.455	0.522	0.531	0.553	0.554	0.571	0.531	7.8
3,3-Dichlorobenzidine	0.335	0.381	0.378	0.380	0.371	0.368	0.369	4.7
Bis(2-ethylhexyl)phthalate	0.643	0.737	0.737	0.782	0.765	0.785	0.742	7.1
Di-n-octyl phthalate	0.989	1.174	1.202	1.281	1.265	1.312	1.204	9.7
1,2,4,5-Tetrachlorobenzene	0.507	0.512	0.496	0.504	0.502	0.490	0.502	1.5
2,3,4,6-Tetrachlorophenol	0.248	0.273	0.275	0.288	0.296	0.301	0.280	6.9
2-Fluorophenol	1.237	1.315	1.294	1.343	1.354	1.359	1.317	3.5
Phenol-d5	1.596	1.717	1.666	1.745	1.757	1.773	1.709	3.9
Nitrobenzene-d5	0.341	0.367	0.358	0.380	0.374	0.380	0.367	4.2
2-Fluorobiphenyl	1.402	1.429	1.367	1.379	1.377	1.325	1.380	2.5
2,4,6-Tribromophenol	0.128	0.144	0.141	0.146	0.148	0.147	0.143	5.3
Terphenyl-d14	0.757	0.774	0.746	0.746	0.729	0.690	0.740	3.9

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BE074801.D DFTPP Injection Date: 01/03/2012

Instrument ID: BNA_E DFTPP Injection Time: 15:26

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.5
68	Less than 2.0% of mass 69	0.4 (1.2) 1
69	Mass 69 relative abundance	36.3
70	Less than 2.0% of mass 69	0.1 (0.4) 1
127	40.0 - 60.0% of mass 198	47.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 30.0% of mass 198	19.2
365	Greater than 1% of mass 198	2
441	Present, but less than mass 443	10.3
442	Greater than 40% of mass 198	64
443	17.0 - 23.0% of mass 442	12.7 (19.9) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074802.D	01/03/2012	16:11
02	12SB-DUP-06	C5128-14	BE074803.D	01/03/2012	16:56
03	12SB21-0304-03	C5128-12	BE074805.D	01/03/2012	18:22
04	12SB20-0304-03	C5128-13	BE074806.D	01/03/2012	19:04
05	12SB21-0.502-02	C5128-11	BE074807.D	01/03/2012	19:49
06	12SB21-000.5-01	C5128-10	BE074808.D	01/03/2012	20:30
07	12SB23-0304-03	C5128-09	BE074809.D	01/03/2012	21:12
08	12SB23-0.502-02	C5128-08	BE074810.D	01/03/2012	21:57
09	12SB30-0304-03	C5128-06	BE074811.D	01/03/2012	22:39
10	12SB30-000.5-01	C5128-04	BE074812.D	01/03/2012	23:21
11	12SB23-000.5-01	C5128-07	BE074813.D	01/04/2012	00:05

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date/Time: 01/03/2012 16:11

Lab File ID: BE074802.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.766	0.741		3.3	
Phenol	1.845	1.806		2.1	20.0
bis(2-Chloroethyl)ether	1.446	1.407		2.7	
2-Chlorophenol	1.468	1.412		3.8	
2-Methylphenol	1.137	1.116		1.8	
2,2-oxybis(1-Chloropropane)	2.147	2.123		1.1	
Acetophenone	0.476	0.467		2.0	
3+4-Methylphenols	1.509	1.485		1.6	
n-Nitroso-di-n-propylamine	1.021	1.005	0.050	1.6	
Hexachloroethane	0.534	0.516		3.4	
Nitrobenzene	0.352	0.344		2.3	
Isophorone	0.631	0.624		1.2	
2-Nitrophenol	0.186	0.189		1.5	20.0
2,4-Dimethylphenol	0.316	0.308		2.4	
bis(2-Chloroethoxy)methane	0.424	0.410		3.2	
2,4-Dichlorophenol	0.288	0.286		0.5	20.0
4-Chloroaniline	0.439	0.432		1.7	
Hexachlorobutadiene	0.147	0.145		1.5	20.0
Caprolactam	0.113	0.117		3.1	
4-Chloro-3-methylphenol	0.291	0.289		0.8	20.0
Hexachlorocyclopentadiene	0.224	0.226	0.050	1.1	
2,4,6-Trichlorophenol	0.342	0.337		1.5	20.0
2,4,5-Trichlorophenol	0.373	0.370		0.7	
1,1-Biphenyl	1.576	1.518		3.7	
2-Chloronaphthalene	1.157	1.118		3.4	
2-Nitroaniline	0.332	0.330		0.7	
Dimethylphthalate	1.290	1.264		2.0	
Acenaphthylene	1.827	1.788		2.1	
2,6-Dinitrotoluene	0.302	0.301		0.2	
3-Nitroaniline	0.360	0.368		2.1	
Acenaphthene	1.201	1.164		3.1	20.0
2,4-Dinitrophenol	0.096	0.080	0.050	16.3	
4-Nitrophenol	0.277	0.290	0.050	4.6	
Dibenzofuran	1.659	1.617		2.5	
2,4-Dinitrotoluene	0.384	0.381		0.8	
Diethylphthalate	1.253	1.232		1.7	
4-Chlorophenyl-phenylether	0.599	0.586		2.2	
4-Nitroaniline	0.376	0.380		0.9	
4,6-Dinitro-2-methylphenol	0.099	0.085		13.8	
n-Nitrosodiphenylamine	0.668	0.644		3.7	20.0
4-Bromophenyl-phenylether	0.185	0.181		2.2	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_E Calibration Date/Time: 01/03/2012 16:11

Lab File ID: BE074802.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.197	0.196		0.5	
Atrazine	0.186	0.171		7.9	
Pentachlorophenol	0.105	0.105		0.3	20.0
Phenanthrene	1.132	1.100		2.9	
Carbazole	1.092	1.060		2.9	
Di-n-butylphthalate	1.196	1.178		1.5	
Butylbenzylphthalate	0.531	0.531		0.0	
3,3-Dichlorobenzidine	0.369	0.375		1.6	
Bis(2-ethylhexyl)phthalate	0.742	0.745		0.4	
Di-n-octyl phthalate	1.204	1.231		2.2	20.0
1,2,4,5-Tetrachlorobenzene	0.502	0.483		3.7	
2,3,4,6-Tetrachlorophenol	0.280	0.286		2.1	
2-Fluorophenol	1.317	1.285		2.4	
Phenol-d5	1.709	1.665		2.6	
Nitrobenzene-d5	0.367	0.358		2.3	
2-Fluorobiphenyl	1.380	1.335		3.3	
2,4,6-Tribromophenol	0.143	0.150		5.0	
Terphenyl-d14	0.740	0.724		2.2	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60240B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: BE074722.D Lab Sample ID: PB60240B

Instrument ID: BNA_E Date Extracted: 12/28/2011

Matrix: (soil/water) SOIL Date Analyzed: 12/30/2011

Level: (low/med) LOW Time Analyzed: 01:36

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
PB60240BS	PB60240BS	BE074723.D	12/30/2011
12SB23-000.5-01	C5128-07	BE074813.D	01/04/2012
12SB30-000.5-01	C5128-04	BE074812.D	01/03/2012
12SB30-0.502-02	C5128-05	BE074714.D	12/29/2011
12SB30-0304-03	C5128-06	BE074811.D	01/03/2012
12SB23-0.502-02	C5128-08	BE074810.D	01/03/2012
12SB30-0.502-02MSD	C5128-05MSD	BE074713.D	12/29/2011
12SB23-0304-03	C5128-09	BE074809.D	01/03/2012
12SB30-0.502-02MS	C5128-05MS	BE074712.D	12/29/2011
12SB21-000.5-01	C5128-10	BE074808.D	01/03/2012
12SB21-0.502-02	C5128-11	BE074807.D	01/03/2012
12SB20-0304-03	C5128-13	BE074806.D	01/03/2012
12SB21-0304-03	C5128-12	BE074805.D	01/03/2012
12SB-DUP-06	C5128-14	BE074803.D	01/03/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60240B	SDG No.:	C5128
Lab Sample ID:	PB60240B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074722.D	1	12/28/11	12/30/11	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	24	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	16	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60240B	SDG No.:	C5128
Lab Sample ID:	PB60240B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074722.D	1	12/28/11	12/30/11	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	165	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	134		35 - 105	89%	SPK: 150
13127-88-3	Phenol-d5	135		40 - 100	91%	SPK: 150
4165-60-0	Nitrobenzene-d5	84.3		35 - 100	84%	SPK: 100
321-60-8	2-Fluorobiphenyl	85.3		45 - 105	85%	SPK: 100
118-79-6	2,4,6-Tribromophenol	132		35 - 125	88%	SPK: 150
1718-51-0	Terphenyl-d14	85.1		30 - 125	85%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	91447	8.65			
1146-65-2	Naphthalene-d8	351531	10.82			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60240B	SDG No.:	C5128
Lab Sample ID:	PB60240B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074722.D	1	12/28/11	12/30/11	PB60240

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	180822	13.79			
1517-22-2	Phenanthrene-d10	341033	16.26			
1719-03-5	Chrysene-d12	298215	20.71			
1520-96-3	Perylene-d12	253044	24.42			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60240BS	Benzaldehyde	1700	370	22				10	161	
	Phenol	1700	1400	82				51	100	
	bis(2-Chloroethyl)ether	1700	1300	76				48	105	
	2-Chlorophenol	1700	1300	76				53	105	
	2-Methylphenol	1700	1300	76				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1400	82				45	115	
	Acetophenone	1700	1200	71				51	114	
	3+4-Methylphenols	1700	1300	76				54	105	
	N-Nitroso-di-n-propylamine	1700	1300	76				51	114	
	Hexachloroethane	1700	1200	71				44	110	
	Nitrobenzene	1700	1300	76				49	114	
	Isophorone	1700	1300	76				52	110	
	2-Nitrophenol	1700	1200	71				51	110	
	2,4-Dimethylphenol	1700	1300	76				46	105	
	bis(2-Chloroethoxy)methane	1700	1300	76				52	110	
	2,4-Dichlorophenol	1700	1300	76				53	110	
	4-Chloroaniline	1700	240	14		*		25	115	
	Hexachlorobutadiene	1700	1200	71				47	115	
	Caprolactam	1700	1200	71				45	115	
	4-Chloro-3-methylphenol	1700	1300	76				56	111	
	Hexachlorocyclopentadiene	3300	2500	76				43	112	
	2,4,6-Trichlorophenol	1700	1200	71				53	110	
	2,4,5-Trichlorophenol	1700	1200	71				53	110	
	1,1-Biphenyl	1700	1200	71				55	109	
	2-Chloronaphthalene	1700	1200	71				55	105	
	2-Nitroaniline	1700	1400	82				53	118	
	Dimethylphthalate	1700	1200	71				57	110	
	Acenaphthylene	1700	1300	76				54	105	
	2,6-Dinitrotoluene	1700	1300	76				55	110	
	3-Nitroaniline	1700	420	25				25	110	
	Acenaphthene	1700	1300	76				54	110	
	2,4-Dinitrophenol	3300	2300	70				15	130	
	4-Nitrophenol	3300	2600	79				44	115	
	Dibenzofuran	1700	1200	71				59	105	
	2,4-Dinitrotoluene	1700	1300	76				55	115	
	Diethylphthalate	1700	1200	71				56	111	
	4-Chlorophenyl-phenylether	1700	1200	71				56	110	
	4-Nitroaniline	1700	1100	65				46	113	
	4,6-Dinitro-2-methylphenol	1700	1300	76				39	126	
	N-Nitrosodiphenylamine	1700	1200	71				54	115	
	4-Bromophenyl-phenylether	1700	1200	71				51	115	
	Hexachlorobenzene	1700	1200	71				52	117	
	Atrazine	1700	1500	88				40	127	
	Pentachlorophenol	3300	2600	79				47	116	
	Phenanthrene	1700	1200	71				56	110	
	Carbazole	1700	1200	71				54	117	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60240BS	Di-n-butylphthalate	1700	1200	71				58	110	
	Butylbenzylphthalate	1700	1200	71				57	122	
	3,3-Dichlorobenzidine	1700	550	32				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1200	71				60	119	
	Di-n-octyl phthalate	1700	1300	76				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	1200	71				70	130	
	2,3,4,6-Tetrachlorophenol	1700	1300	76				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5128-05MS	**Client Sample ID: 12SB30-0.502-02MS**									
Benzaldehyde	2000	0	440	22				10	161	
Phenol	2000	0	1600	80				43	100	
bis(2-Chloroethyl)ether	2000	0	1600	80				43	105	
2-Chlorophenol	2000	0	1500	75				45	105	
2-Methylphenol	2000	0	1500	75				44	105	
2,2-oxybis(1-Chloropropane)	2000	0	1500	75				36	115	
Acetophenone	2000	0	1400	70				48	131	
3+4-Methylphenols	2000	0	1500	75				44	105	
N-Nitroso-di-n-propylamine	2000	0	1600	80				41	115	
Hexachloroethane	2000	0	1400	70				35	110	
Nitrobenzene	2000	0	1500	75				40	115	
Isophorone	2000	0	1500	75				45	110	
2-Nitrophenol	2000	0	1500	75				40	110	
2,4-Dimethylphenol	2000	0	1400	70				35	105	
bis(2-Chloroethoxy)methane	2000	0	1500	75				45	110	
2,4-Dichlorophenol	2000	0	1400	70				45	110	
4-Chloroaniline	2000	0	850	43				10	160	
Hexachlorobutadiene	2000	0	1400	70				40	115	
Caprolactam	2000	0	1300	65				24	145	
4-Chloro-3-methylphenol	2000	0	1500	75				45	115	
Hexachlorocyclopentadiene	4100	0	2800	68				10	128	
2,4,6-Trichlorophenol	2000	0	1500	75				45	110	
2,4,5-Trichlorophenol	2000	0	1400	70				50	110	
1,1-Biphenyl	2000	0	1400	70				47	131	
2-Chloronaphthalene	2000	0	1400	70				45	105	
2-Nitroaniline	2000	0	1600	80				45	120	
Dimethylphthalate	2000	0	1500	75				51	110	
Acenaphthylene	2000	0	1500	75				45	105	
2,6-Dinitrotoluene	2000	0	1500	75				50	110	
3-Nitroaniline	2000	0	1100	55				25	110	
Acenaphthene	2000	0	1500	75				45	110	
2,4-Dinitrophenol	4100	0	2500	61				15	130	
4-Nitrophenol	4100	0	3000	73				15	140	
Dibenzofuran	2000	0	1400	70				50	105	
2,4-Dinitrotoluene	2000	0	1500	75				50	115	
Diethylphthalate	2000	0	1400	70				50	115	
4-Chlorophenyl-phenylether	2000	0	1400	70				45	110	
4-Nitroaniline	2000	0	1400	70				35	115	
4,6-Dinitro-2-methylphenol	2000	0	1500	75				30	135	
N-Nitrosodiphenylamine	2000	0	1400	70				50	115	
4-Bromophenyl-phenylether	2000	0	1400	70				45	115	
Hexachlorobenzene	2000	0	1400	70				45	120	
Atrazine	2000	0	1700	85				38	135	
Pentachlorophenol	4100	0	2800	68				25	120	
Phenanthrene	2000	0	1400	70				50	110	
Carbazole	2000	0	1400	70				45	115	
Di-n-butylphthalate	2000	0	1500	75				55	110	
Butylbenzylphthalate	2000	0	1500	75				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2000	0	840	42				10	126	
bis(2-Ethylhexyl)phthalate	2000	0	1500	75				45	125	
Di-n-octyl phthalate	2000	0	1500	75				40	130	
1,2,4,5-Tetrachlorobenzene	2000	0	1300	65	*			70	130	
2,3,4,6-Tetrachlorophenol	2000	0	1500	75				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5128-05MSD	**Client Sample ID: 12SB30-0.502-02MSD**									
Benzaldehyde	2000	0	670	34	43	*		10	161	20
Phenol	2000	0	2000	100	22	*		43	100	20
bis(2-Chloroethyl)ether	2000	0	1900	95	17			43	105	20
2-Chlorophenol	2000	0	1900	95	24	*		45	105	20
2-Methylphenol	2000	0	2000	100	29	*		44	105	20
2,2-oxybis(1-Chloropropane)	2000	0	2000	100	29	*		36	115	20
Acetophenone	2000	0	1800	90	25	*		48	131	20
3+4-Methylphenols	2000	0	1900	95	24	*		44	105	20
N-Nitroso-di-n-propylamine	2000	0	2000	100	22	*		41	115	20
Hexachloroethane	2000	0	1800	90	25	*		35	110	20
Nitrobenzene	2000	0	1900	95	24	*		40	115	20
Isophorone	2000	0	1900	95	24	*		45	110	20
2-Nitrophenol	2000	0	1900	95	24	*		40	110	20
2,4-Dimethylphenol	2000	0	1800	90	25	*		35	105	20
bis(2-Chloroethoxy)methane	2000	0	1900	95	24	*		45	110	20
2,4-Dichlorophenol	2000	0	1900	95	30	*		45	110	20
4-Chloroaniline	2000	0	1000	50	15			10	160	20
Hexachlorobutadiene	2000	0	1800	90	25	*		40	115	20
Caprolactam	2000	0	1900	95	38	*		24	145	20
4-Chloro-3-methylphenol	2000	0	1900	95	24	*		45	115	20
Hexachlorocyclopentadiene	4100	0	3600	88	26	*		10	128	20
2,4,6-Trichlorophenol	2000	0	1900	95	24	*		45	110	20
2,4,5-Trichlorophenol	2000	0	1800	90	25	*		50	110	20
1,1-Biphenyl	2000	0	1700	85	19			47	131	20
2-Chloronaphthalene	2000	0	1800	90	25	*		45	105	20
2-Nitroaniline	2000	0	2100	105	27	*		45	120	20
Dimethylphthalate	2000	0	1900	95	24	*		51	110	20
Acenaphthylene	2000	0	1900	95	24	*		45	105	20
2,6-Dinitrotoluene	2000	0	2000	100	29	*		50	110	20
3-Nitroaniline	2000	0	1400	70	24	*		25	110	20
Acenaphthene	2000	0	1900	95	24	*		45	110	20
2,4-Dinitrophenol	4100	0	3700	90	38	*		15	130	20
4-Nitrophenol	4100	0	3900	95	26	*		15	140	20
Dibenzofuran	2000	0	1800	90	25	*		50	105	20
2,4-Dinitrotoluene	2000	0	2000	100	29	*		50	115	20
Diethylphthalate	2000	0	1800	90	25	*		50	115	20
4-Chlorophenyl-phenylether	2000	0	1800	90	25	*		45	110	20
4-Nitroaniline	2000	0	1800	90	25	*		35	115	20
4,6-Dinitro-2-methylphenol	2000	0	2000	100	29	*		30	135	20
N-Nitrosodiphenylamine	2000	0	1800	90	25	*		50	115	20
4-Bromophenyl-phenylether	2000	0	1800	90	25	*		45	115	20
Hexachlorobenzene	2000	0	1800	90	25	*		45	120	20
Atrazine	2000	0	2600	130	42	*		38	135	20
Pentachlorophenol	4100	0	3900	95	33	*		25	120	20
Phenanthrene	2000	0	1800	90	25	*		50	110	20
Carbazole	2000	0	1800	90	25	*		45	115	20
Di-n-butylphthalate	2000	0	1900	95	24	*		55	110	20
Butylbenzylphthalate	2000	0	2000	100	29	*		50	125	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2000	0	1200	60		35	*	10	126	20
bis(2-Ethylhexyl)phthalate	2000	0	1900	95		24	*	45	125	20
Di-n-octyl phthalate	2000	0	2000	100		29	*	40	130	20
1,2,4,5-Tetrachlorobenzene	2000	0	1700	85		27	*	70	130	20
2,3,4,6-Tetrachlorophenol	2000	0	1900	95		24	*	70	130	20

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD040 Date Analyzed: 12/29/2011

Lab File ID: BE074711.D Time Analyzed: 17:45

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	86475	8.65	356001	10.82	189879	13.79
	UPPER LIMIT	172950	9.15	712002	11.32	379758	14.29
	LOWER LIMIT	43237.5	8.15	178000.5	10.32	94939.5	13.29
	EPA SAMPLE NO.						
01	12SB30-0.502-02MS	93198	8.65	385626	10.82	208075	13.78
02	12SB30-0.502-02MSD	99581	8.65	409095	10.82	225970	13.78
03	12SB30-0.502-02	81643	8.65	333388	10.82	179990	13.79
04	PB60240B	91447	8.65	351531	10.82	180822	13.79
05	PB60240BS	90546	8.65	369609	10.82	202577	13.79

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD040 Date Analyzed: 12/29/2011

Lab File ID: BE074711.D Time Analyzed: 17:45

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	346954	16.26	311461	20.71	269888	24.42
	UPPER LIMIT	693908	16.76	622922	21.21	539776	24.92
	LOWER LIMIT	173477	15.76	155730.5	20.21	134944	23.92
	EPA SAMPLE NO.						
01	12SB30-0.502-02MS	380965	16.26	328924	20.72	287531	24.42
02	12SB30-0.502-02MSD	409292	16.26	349624	20.72	315955	24.41
03	12SB30-0.502-02	336370	16.26	297492	20.71	259617	24.41
04	PB60240B	341033	16.26	298215	20.71	253044	24.42
05	PB60240BS	371463	16.26	325600	20.72	289650	24.42

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD040 Date Analyzed: 01/03/2012

Lab File ID: BE074802.D Time Analyzed: 16:11

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	154977	8.63	627901	10.81	352501	13.78
	UPPER LIMIT	309954	9.13	1255802	11.31	705002	14.28
	LOWER LIMIT	77488.5	8.13	313950.5	10.31	176250.5	13.28
	EPA SAMPLE NO.						
01	12SB-DUP-06	161500	8.64	647098	10.81	363623	13.77
02	12SB21-0304-03	170239	8.64	680857	10.81	380326	13.77
03	12SB20-0304-03	166048	8.63	670094	10.81	376506	13.77
04	12SB21-0.502-02	179217	8.63	701303	10.81	395424	13.77
05	12SB21-000.5-01	149371	8.64	609281	10.81	348253	13.77
06	12SB23-0304-03	155524	8.63	623158	10.81	352325	13.77
07	12SB23-0.502-02	152654	8.64	607708	10.81	346199	13.77
08	12SB30-0304-03	164463	8.64	658560	10.81	369072	13.77
09	12SB30-000.5-01	177587	8.64	724187	10.81	401369	13.77
10	12SB23-000.5-01	191355	8.63	763261	10.81	418709	13.77

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD040 Date Analyzed: 01/03/2012

Lab File ID: BE074802.D Time Analyzed: 16:11

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	622288	16.25	605794	20.7	543745	24.39
	UPPER LIMIT	1244576	16.75	1211588	21.2	1087490	24.89
	LOWER LIMIT	311144	15.75	302897	20.2	271872.5	23.89
	EPA SAMPLE NO.						
01	12SB-DUP-06	660746	16.25	625693	20.70	573103	24.38
02	12SB21-0304-03	688567	16.25	663232	20.70	621110	24.38
03	12SB20-0304-03	676500	16.25	654559	20.70	601564	24.38
04	12SB21-0.502-02	712594	16.25	681026	20.70	642208	24.38
05	12SB21-000.5-01	624268	16.24	606162	20.70	558201	24.38
06	12SB23-0304-03	635044	16.25	620727	20.69	561454	24.38
07	12SB23-0.502-02	616147	16.25	598720	20.69	555861	24.38
08	12SB30-0304-03	668766	16.25	647024	20.69	592760	24.38
09	12SB30-000.5-01	712350	16.24	686464	20.69	648099	24.38
10	12SB23-000.5-01	720512	16.25	689099	20.70	665436	24.38

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5128-04	12SB30-000.5-01	Nitrobenzene-d5	100	60.93	61		30	150
		2-Fluorobiphenyl	100	43.41	43	*	45	105
		Terphenyl-d14	100	54.58	55		30	125
C5128-05	12SB30-0.502-02	Nitrobenzene-d5	100	54.27	54		30	150
		2-Fluorobiphenyl	100	40.67	41	*	45	105
		Terphenyl-d14	100	51.29	51		30	125
C5128-06	12SB30-0304-03	Nitrobenzene-d5	100	65.31	65		30	150
		2-Fluorobiphenyl	100	50.93	51		45	105
		Terphenyl-d14	100	64.53	65		30	125
C5128-06MS	12SB30-0304-03MS	Nitrobenzene-d5	10	7.36	74		30	150
		2-Fluorobiphenyl	10	7.63	76		45	105
		Terphenyl-d14	10	9.20	92		30	125
C5128-06MSD	12SB30-0304-03MSD	Nitrobenzene-d5	10	9.94	99		30	150
		2-Fluorobiphenyl	10	10.01	100		45	105
		Terphenyl-d14	10	12.03	120		30	125
C5128-07	12SB23-000.5-01	Nitrobenzene-d5	100	57.95	58		30	150
		2-Fluorobiphenyl	100	42.55	43	*	45	105
		Terphenyl-d14	100	46.80	47		30	125
C5128-08	12SB23-0.502-02	Nitrobenzene-d5	100	61.90	62		30	150
		2-Fluorobiphenyl	100	49.95	50		45	105
		Terphenyl-d14	100	65.22	65		30	125
C5128-09	12SB23-0304-03	Nitrobenzene-d5	100	56.98	57		30	150
		2-Fluorobiphenyl	100	48.35	48		45	105
		Terphenyl-d14	100	59.92	60		30	125
C5128-10	12SB21-000.5-01	Nitrobenzene-d5	100	60.10	60		30	150
		2-Fluorobiphenyl	100	47.33	47		45	105
		Terphenyl-d14	100	57.86	58		30	125
C5128-11	12SB21-0.502-02	Nitrobenzene-d5	100	65.09	65		30	150
		2-Fluorobiphenyl	100	53.26	53		45	105
		Terphenyl-d14	100	68.58	69		30	125
C5128-12	12SB21-0304-03	Nitrobenzene-d5	100	56.98	57		30	150
		2-Fluorobiphenyl	100	48.61	49		45	105
		Terphenyl-d14	100	59.83	60		30	125
C5128-13	12SB20-0304-03	Nitrobenzene-d5	100	65.79	66		30	150
		2-Fluorobiphenyl	100	51.32	51		45	105
		Terphenyl-d14	100	62.21	62		30	125
C5128-14	12SB-DUP-06	Nitrobenzene-d5	100	61.94	62		30	150
		2-Fluorobiphenyl	100	47.25	47		45	105
		Terphenyl-d14	100	60.27	60		30	125
PB60239B	PB60239B	Nitrobenzene-d5	10	9.30	93		30	150
		2-Fluorobiphenyl	10	9.28	93		45	105
		Terphenyl-d14	10	11.14	111		30	125
PB60239BS	PB60239BS	Nitrobenzene-d5	10	6.31	63		30	150
		2-Fluorobiphenyl	10	6.27	63		45	105
		Terphenyl-d14	10	7.06	71		30	125

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BG002600.D DFTPP Injection Date: 01/03/2012

Instrument ID: BNA_G DFTPP Injection Time: 19:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	48.3
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	44.4
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	45.1
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	23.3
365	Greater than 1% of mass 198	1.5
441	Present, but less than mass 443	11.3
442	Greater than 40% of mass 198	65.8
443	17.0 - 23.0% of mass 442	11.7 (17.8) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002601.D	01/03/2012	20:36
02	SSTD0.5	0.5 PPM BNA ICC	BG002602.D	01/03/2012	21:15
03	SSTD2.5	2.5 PPM BNA ICC	BG002603.D	01/03/2012	21:54
04	SSTD010	10 PPM BNA ICC	BG002604.D	01/03/2012	22:34
05	SSTD025	25 PPM BNA ICC	BG002605.D	01/03/2012	23:13
06	12SB30-0304-03	C5128-06	BG002612.D	01/04/2012	03:46
07	12SB30-0304-03MS	C5128-06MS	BG002613.D	01/04/2012	04:24
08	12SB30-0304-03MSD	C5128-06MSD	BG002614.D	01/04/2012	05:03
09	PB60239BS	PB60239BS	BG002615.D	01/04/2012	05:42
10	PB60239B	PB60239B	BG002616.D	01/04/2012	06:21
11	12SB30-0.502-02	C5128-05	BG002617.D	01/04/2012	07:00

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_G Calibration Date(s): 01/03/2012 01/03/2012

Calibration Time(s): 20:36 23:13

LAB FILE ID: RRF0.1 = BG002601.D RRF0.5 = BG002602.D RRF2.5 = BG002603.D
RRF010 = BG002604.D RRF025 = BG002605.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	5.057	4.934	4.144	3.905	3.483		4.305	15.7
2-Methylnapthalene	3.268	3.305	2.834	2.706	2.453		2.913	12.6
Acenaphthylene	7.999	8.139	6.750	6.547	5.777		7.043	14.3
Acenaphthene	1.509	1.375	1.145	1.103	1.055		1.237	15.8
Fluorene	1.599	1.646	1.372	1.316	1.153		1.417	14.4
Phenanthrene	5.411	5.289	4.458	4.196	3.669		4.604	16.0
Anthracene	5.174	5.125	4.459	4.228	3.684		4.534	13.9
Fluoranthene	5.915	5.800	5.001	4.748	4.023		5.098	15.3
Pyrene	6.152	6.214	5.225	5.051	4.430		5.414	14.1
Benzo(a)anthracene	6.117	5.606	4.684	4.503	4.077		4.998	16.8
Chrysene	5.576	5.370	4.560	4.319	3.955		4.756	14.6
Benzo(b)fluoranthene	13.409	12.568	10.980	10.797	10.850		11.721	10.2
Benzo(k)fluoranthene	12.879	12.924	11.277	11.092	10.441		11.723	9.6
Benzo(a)pyrene	12.705	12.161	10.612	10.460	10.299		11.247	9.8
Indeno(1,2,3-cd)pyrene	4.899	4.730	4.179	4.047	3.265		4.224	15.3
Dibenzo(a,h)anthracene	1.091	1.127	1.014	0.967	0.774		0.995	13.9
Benzo(g,h,i)perylene	4.822	4.807	4.186	3.695	3.002		4.103	18.9
Nitrobenzene-d5	0.494	0.495	0.419	0.415	0.409		0.446	9.8
2-Fluorobiphenyl	1.669	1.688	1.427	1.378	1.259		1.484	12.7
Terphenyl-d14	1.063	0.908	0.727	0.716	0.659		0.815	20.5

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BG002643.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_G DFTPP Injection Time: 01:45

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.7
68	Less than 2.0% of mass 69	0.3 (0.5) 1
69	Mass 69 relative abundance	53.3
70	Less than 2.0% of mass 69	0.4 (0.7) 1
127	40.0 - 60.0% of mass 198	46.6
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	25.8
365	Greater than 1% of mass 198	3.2
441	Present, but less than mass 443	9.4
442	Greater than 40% of mass 198	63.3
443	17.0 - 23.0% of mass 442	12.7 (20.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002644.D	01/05/2012	02:24
02	12SB30-000.5-01	C5128-04	BG002645.D	01/05/2012	03:03
03	12SB23-000.5-01	C5128-07	BG002646.D	01/05/2012	03:42
04	12SB21-000.5-01	C5128-10	BG002647.D	01/05/2012	04:21
05	12SB20-0304-03	C5128-13	BG002648.D	01/05/2012	05:00
06	12SB-DUP-06	C5128-14	BG002649.D	01/05/2012	05:39

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_G Calibration Date/Time: 01/05/2012 02:24

Lab File ID: BG002644.D Init. Calib. Date(s): 01/03/2012 01/03/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 20:36 23:13

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.305	4.209		2.2	20.0
2-Methylnapthalene	2.913	2.773		4.8	20.0
Acenaphthylene	7.043	6.711		4.7	20.0
Acenaphthene	1.237	1.150		7.0	20.0
Fluorene	1.417	1.374		3.0	20.0
Phenanthrene	4.604	4.479		2.7	20.0
Anthracene	4.534	4.447		1.9	20.0
Fluoranthene	5.098	4.996		2.0	20.0
Pyrene	5.414	5.048		6.8	20.0
Benzo(a)anthracene	4.998	4.515		9.7	20.0
Chrysene	4.756	4.525		4.9	20.0
Benzo(b)fluoranthene	11.721	10.533		10.1	20.0
Benzo(k)fluoranthene	11.723	11.559		1.4	20.0
Benzo(a)pyrene	11.247	10.177		9.5	20.0
Indeno(1,2,3-cd)pyrene	4.224	3.846		8.9	20.0
Dibenzo(a,h)anthracene	0.995	0.983		1.2	20.0
Benzo(g,h,i)perylene	4.103	4.109		0.1	20.0
Nitrobenzene-d5	0.446	0.445		0.1	20.0
2-Fluorobiphenyl	1.484	1.437		3.2	20.0
Terphenyl-d14	0.815	0.710		12.9	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BG002656.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_G DFTPP Injection Time: 12:56

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.6
68	Less than 2.0% of mass 69	1 (1.9) 1
69	Mass 69 relative abundance	50.3
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	45.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	5.6
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1% of mass 198	1.5
441	Present, but less than mass 443	7.5
442	Greater than 40% of mass 198	58.3
443	17.0 - 23.0% of mass 442	11.4 (19.6) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002658.D	01/05/2012	14:21
02	SSTD0.5	0.5 PPM BNA ICC	BG002659.D	01/05/2012	15:03
03	SSTD2.5	2.5 PPM BNA ICC	BG002660.D	01/05/2012	15:43
04	SSTD025	25 PPM BNA ICC	BG002662.D	01/05/2012	17:02
05	SSTD010	10 PPM BNA ICC	BG002663.D	01/05/2012	17:50

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_G Calibration Date(s): 01/05/2012 01/05/2012

Calibration Time(s): 14:21 17:50

LAB FILE ID: RRF0.1 = BG002658.D RRF0.5 = BG002659.D RRF2.5 = BG002660.D
RRF010 = BG002663.D RRF025 = BG002662.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	5.021	4.952	4.307	4.369	3.500		4.430	13.9
2-Methylnapthalene	3.216	3.271	2.950	2.973	2.436		2.969	11.1
Acenaphthylene	8.165	7.883	7.101	7.405	5.917		7.294	12.0
Acenaphthene	1.515	1.347	1.220	1.293	1.114		1.298	11.5
Fluorene	1.553	1.628	1.425	1.428	1.169		1.441	12.1
Phenanthrene	5.334	5.244	4.583	4.696	3.710		4.713	13.8
Anthracene	5.026	5.124	4.558	4.758	3.760		4.645	11.7
Fluoranthene	5.763	5.638	5.033	5.260	4.099		5.159	12.8
Pyrene	6.085	5.984	5.316	5.444	4.447		5.455	12.0
Benzo(a)anthracene	6.227	5.493	4.774	4.894	4.156		5.109	15.4
Chrysene	5.731	5.404	4.666	4.766	4.013		4.916	13.7
Benzo(b)fluoranthene	13.232	12.833	11.426	12.324	11.173		12.197	7.3
Benzo(k)fluoranthene	13.493	12.451	11.312	12.193	11.061		12.102	8.0
Benzo(a)pyrene	12.627	11.897	10.755	11.550	10.515		11.469	7.5
Indeno(1,2,3-cd)pyrene	4.447	4.302	4.045	3.966	3.189		3.990	12.2
Dibenzo(a,h)anthracene	1.037	0.979	0.966	0.969	0.781		0.946	10.2
Benzo(g,h,i)perylene	4.597	4.349	4.045	3.764	3.104		3.972	14.5
Nitrobenzene-d5	0.528	0.514	0.454	0.489	0.427		0.482	8.6
2-Fluorobiphenyl	1.797	1.698	1.498	1.536	1.282		1.562	12.7
Terphenyl-d14	1.299	0.906	0.751	0.773	0.663		0.878	28.5

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5128 SDG NO.: C5128

Lab File ID: BG002665.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_G DFTPP Injection Time: 19:09

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.2
68	Less than 2.0% of mass 69	0.8 (1.6) 1
69	Mass 69 relative abundance	50.1
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	43.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	22.4
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	9.2
442	Greater than 40% of mass 198	67.7
443	17.0 - 23.0% of mass 442	13.2 (19.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002666.D	01/05/2012	19:49
02	12SB23-0.502-02	C5128-08	BG002667.D	01/05/2012	20:30
03	12SB23-0304-03	C5128-09	BG002668.D	01/05/2012	21:10
04	12SB21-0.502-02	C5128-11	BG002669.D	01/05/2012	21:49
05	12SB21-0304-03	C5128-12	BG002670.D	01/05/2012	22:28

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG No.: C5128

Instrument ID: BNA_G Calibration Date/Time: 01/05/2012 19:49

Lab File ID: BG002666.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:21 17:50

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.430	4.243		4.2	20.0
2-Methylnapthalene	2.969	2.834		4.6	20.0
Acenaphthylene	7.294	6.834		6.3	20.0
Acenaphthene	1.298	1.178		9.3	20.0
Fluorene	1.441	1.373		4.7	20.0
Phenanthrene	4.713	4.463		5.3	20.0
Anthracene	4.645	4.466		3.8	20.0
Fluoranthene	5.159	4.923		4.6	20.0
Pyrene	5.455	5.106		6.4	20.0
Benzo(a)anthracene	5.109	4.560		10.7	20.0
Chrysene	4.916	4.538		7.7	20.0
Benzo(b)fluoranthene	12.197	10.512		13.8	20.0
Benzo(k)fluoranthene	12.102	11.389		5.9	20.0
Benzo(a)pyrene	11.469	10.246		10.7	20.0
Indeno(1,2,3-cd)pyrene	3.990	3.855		3.4	20.0
Dibenzo(a,h)anthracene	0.946	0.926		2.1	20.0
Benzo(g,h,i)perylene	3.972	3.881		2.3	20.0
Nitrobenzene-d5	0.482	0.445		7.6	20.0
2-Fluorobiphenyl	1.562	1.430		8.4	20.0
Terphenyl-d14	0.878	0.723		17.6	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60239B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab File ID: BG002616.D Lab Sample ID: PB60239B

Instrument ID: BNA_G Date Extracted: 12/28/2011

Matrix: (soil/water) SOIL Date Analyzed: 01/04/2012

Level: (low/med) LOW Time Analyzed: 06:21

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB-DUP-06	C5128-14	BG002649.D	01/05/2012
12SB20-0304-03	C5128-13	BG002648.D	01/05/2012
12SB21-000.5-01	C5128-10	BG002647.D	01/05/2012
12SB23-000.5-01	C5128-07	BG002646.D	01/05/2012
12SB30-000.5-01	C5128-04	BG002645.D	01/05/2012
12SB30-0.502-02	C5128-05	BG002617.D	01/04/2012
PB60239BS	PB60239BS	BG002615.D	01/04/2012
12SB21-0304-03	C5128-12	BG002670.D	01/05/2012
12SB21-0.502-02	C5128-11	BG002669.D	01/05/2012
12SB30-0304-03MSD	C5128-06MSD	BG002614.D	01/04/2012
12SB30-0304-03MS	C5128-06MS	BG002613.D	01/04/2012
12SB23-0304-03	C5128-09	BG002668.D	01/05/2012
12SB23-0.502-02	C5128-08	BG002667.D	01/05/2012
12SB30-0304-03	C5128-06	BG002612.D	01/04/2012

COMMENTS:

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60239B	SDG No.:	C5128
Lab Sample ID:	PB60239B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002616.D	1	12/28/11	01/04/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	9.3		30 - 150	93%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.28		45 - 105	93%	SPK: 10
1718-51-0	Terphenyl-d14	11.1		30 - 125	111%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	162460	7.91			
1146-65-2	Naphthalene-d8	595938	10.09			
15067-26-2	Acenaphthene-d10	357673	13.06			
1517-22-2	Phenanthrene-d10	679652	15.51			
1719-03-5	Chrysene-d12	644437	19.88			
1520-96-3	Perylene-d12	578012	22.93			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60239B	SDG No.:	C5128
Lab Sample ID:	PB60239B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002616.D	1	12/28/11	01/04/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60239BS	Naphthalene	330	260	79				51	114	
	2-Methylnaphthalene	330	220	67				54	111	
	Acenaphthylene	330	220	67				54	113	
	Acenaphthene	330	250	76				54	113	
	Fluorene	330	220	67				56	113	
	Phenanthrene	330	260	79				56	113	
	Anthracene	330	230	70				56	113	
	Fluoranthene	330	260	79				54	117	
	Pyrene	330	220	67				58	117	
	Benzo(a)anthracene	330	250	76				57	112	
	Chrysene	330	220	67				59	114	
	Benzo(b)fluoranthene	330	220	67				53	120	
	Benzo(k)fluoranthene	330	220	67				56	117	
	Benzo(a)pyrene	330	220	67				56	117	
	Indeno(1,2,3-cd)pyrene	330	290	88				49	120	
	Dibenz(a,h)anthracene	330	240	73				52	119	
	Benzo(g,h,i)perylene	330	300	91				53	119	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5128-06MS	**Client Sample ID: 12SB30-0304-03MS**									
Naphthalene	390	0	350	90				23	160	
2-Methylnaphthalene	390	0	300	77				37	139	
Acenaphthylene	390	0	320	82				28	155	
Acenaphthene	390	0	360	92				32	146	
Fluorene	390	0	320	82				17	166	
Phenanthrene	390	0	390	100				30	149	
Anthracene	390	0	330	85				27	158	
Fluoranthene	390	0	400	103				26	155	
Pyrene	390	0	330	85				22	173	
Benzo(a)anthracene	390	0	380	97				27	159	
Chrysene	390	0	320	82				23	166	
Benzo(b)fluoranthene	390	4.3	330	84				21	171	
Benzo(k)fluoranthene	390	3.5	330	84				26	165	
Benzo(a)pyrene	390	5.1	290	73				26	157	
Indeno(1,2,3-cd)pyrene	390	0	410	105				10	188	
Dibenz(a,h)anthracene	390	7.4	340	85				18	147	
Benzo(g,h,i)perylene	390	0	390	100				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5128-06MSD	**Client Sample ID: 12SB30-0304-03MSD**									
Naphthalene	390	0	480	123		31	*	23	160	20
2-Methylnaphthalene	390	0	400	103		29	*	37	139	20
Acenaphthylene	390	0	420	108		27	*	28	155	20
Acenaphthene	390	0	480	123		29	*	32	146	20
Fluorene	390	0	420	108		27	*	17	166	20
Phenanthrene	390	0	520	133		28	*	30	149	20
Anthracene	390	0	440	113		28	*	27	158	20
Fluoranthene	390	0	530	136		28	*	26	155	20
Pyrene	390	0	430	110		26	*	22	173	20
Benzo(a)anthracene	390	0	500	128		28	*	27	159	20
Chrysene	390	0	420	108		27	*	23	166	20
Benzo(b)fluoranthene	390	4.3	430	109		26	*	21	171	20
Benzo(k)fluoranthene	390	3.5	440	112		29	*	26	165	20
Benzo(a)pyrene	390	5.1	410	104		35	*	26	157	20
Indeno(1,2,3-cd)pyrene	390	0	530	136		26	*	10	188	20
Dibenz(a,h)anthracene	390	7.4	430	108		24	*	18	147	20
Benzo(g,h,i)perylene	390	0	520	133		28	*	10	177	20

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002644.D Time Analyzed: 02:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	166606	7.88	586824	10.07	370629	13.03
	UPPER LIMIT	333212	8.38	1173648	10.57	741258	13.53
	LOWER LIMIT	83303	7.38	293412	9.57	185314.5	12.53
	EPA SAMPLE NO.						
01	12SB30-000.5-01	199022	7.88	662209	10.07	391340	13.03
02	12SB23-000.5-01	194128	7.88	669017	10.07	391068	13.03
03	12SB21-000.5-01	157685	7.88	538788	10.07	318757	13.03
04	12SB20-0304-03	158141	7.88	535873	10.07	316801	13.03
05	12SB-DUP-06	180403	7.88	602362	10.06	359146	13.03

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002666.D Time Analyzed: 19:49

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	171159	7.86	599968	10.04	380513	13.02
	UPPER LIMIT	342318	8.36000	1199936	10.54	761026	13.52
	LOWER LIMIT	85579.5	7.36	299984	9.54	190256.5	12.52
	EPA SAMPLE NO.						
01	12SB23-0.502-02	159771	7.86	533041	10.05	314606	13.02
02	12SB23-0304-03	168516	7.86	565545	10.05	330990	13.02
03	12SB21-0.502-02	147884	7.86	491257	10.05	296447	13.02
04	12SB21-0304-03	162623	7.86	545692	10.05	318038	13.02

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD2.5 Date Analyzed: 01/03/2012

Lab File ID: BG002603.D Time Analyzed: 21:54

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	182010	7.9	684319	10.09	439216	13.06
	UPPER LIMIT	364020	8.4	1368638	10.59	878432	13.56
	LOWER LIMIT	91005	7.4	342159.5	9.59	219608	12.56
	EPA SAMPLE NO.						
01	12SB30-0304-03	159805	7.90	562817	10.09	339279	13.06
02	12SB30-0304-03MS	163478	7.91	600975	10.09	360455	13.06
03	12SB30-0304-03MSD	141730	7.91	520017	10.09	319074	13.06
04	PB60239BS	162397	7.90	599775	10.09	365866	13.06
05	PB60239B	162460	7.91	595938	10.09	357673	13.06
06	12SB30-0.502-02	196896	7.90	690875	10.09	409631	13.06

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002644.D Time Analyzed: 02:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	716863	15.48	740338	19.85	598575	22.88
	UPPER LIMIT	1433726	15.98	1480676	20.35	1197150	23.38
	LOWER LIMIT	358431.5	14.98	370169	19.35	299287.5	22.38
	EPA SAMPLE NO.						
01	12SB30-000.5-01	721939	15.48	677097	19.85	585669	22.88
02	12SB23-000.5-01	731637	15.48	705164	19.85	611598	22.88
03	12SB21-000.5-01	580272	15.48	547783	19.85	488335	22.88
04	12SB20-0304-03	583553	15.48	566927	19.85	501649	22.88
05	12SB-DUP-06	663831	15.48	623135	19.85	554738	22.88

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002666.D Time Analyzed: 19:49

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	732887	15.46	738664	19.82	624104	22.84
	UPPER LIMIT	1465774	15.96	1477328	20.32	1248208	23.34
	LOWER LIMIT	366443.5	14.96	369332	19.32	312052	22.34
	EPA SAMPLE NO.						
01	12SB23-0.502-02	597644	15.46	552605	19.82	496120	22.84
02	12SB23-0304-03	637793	15.46	596180	19.83	535952	22.84
03	12SB21-0.502-02	555023	15.46	519268	19.83	465944	22.84
04	12SB21-0304-03	613628	15.46	575377	19.82	518464	22.84

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

EPA Sample No.: SSTD2.5 Date Analyzed: 01/03/2012

Lab File ID: BG002603.D Time Analyzed: 21:54

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	860759	15.51	860078	19.89	726416	22.94
	UPPER LIMIT	1721518	16.01	1720156	20.39	1452832	23.44
	LOWER LIMIT	430379.5	15.01	430039	19.39	363208	22.44
	EPA SAMPLE NO.						
01	12SB30-0304-03	636051	15.51	578201	19.88	555501	22.93
02	12SB30-0304-03MS	677466	15.51	647167	19.89	571991	22.93
03	12SB30-0304-03MSD	590139	15.51	571048	19.89	499811	22.93
04	PB60239BS	680556	15.51	660818	19.88	577439	22.93
05	PB60239B	679652	15.51	644437	19.88	578012	22.93
06	12SB30-0.502-02	766555	15.51	701282	19.88	650181	22.93

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	C5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002645.D	1	12/28/11	01/05/12	PB60239

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	4.6		0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	22		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	7.9		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	190		0.5	4.1	ug/Kg
120-12-7	Anthracene	30		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	530		0.5	4.1	ug/Kg
129-00-0	Pyrene	390		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	250		0.5	4.1	ug/Kg
218-01-9	Chrysene	250		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	290		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	110		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	220		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	130		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	40		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	150		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.9		30 - 150	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	43.4	*	45 - 105	43%	SPK: 100
1718-51-0	Terphenyl-d14	54.6		30 - 125	55%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	199022	7.88			
1146-65-2	Naphthalene-d8	662209	10.07			
15067-26-2	Acenaphthene-d10	391340	13.03			
1517-22-2	Phenanthrene-d10	721939	15.48			
1719-03-5	Chrysene-d12	677097	19.85			
1520-96-3	Perylene-d12	585669	22.88			

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA G\DATA\BG010412\
Data File : BG002645.D
Acq On : 5 Jan 2012 3:03
Operator : HNP
Sample : C5128-04
Misc : PAH
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 05 04:18:59 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG010312.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 04 04:56:04 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.88	152	199022m	5.00	ng	-0.02
2) Naphthalene-d8	10.07	136	662209m	5.00	ng	-0.02
7) Acenaphthene-d10	13.03	164	391340m	5.00	ng	-0.03
12) Phenanthrene-d10	15.48	188	721939m	5.00	ng	-0.03
16) Chrysene-d12	19.85	240	677097m	5.00	ng	-0.03
23) Perylene-d12	22.88	264	585669m	5.00	ng	-0.06
System Monitoring Compounds						
3) Nitrobenzene-d5	8.82	82	3602973m	60.93	ng	-0.03
8) 2-Fluorobiphenyl	11.91	172	5042330m	43.41	ng	-0.03
18) Terphenyl-d14	18.12	244	4887850m	54.58	ng	-0.02
Target Compounds						Qvalue
5) 2-Methylnapthalene	11.28	142	43937m	0.11	ng	
6) 1-Methylnapthalene	11.44	142	22678m	0.06	ng	
9) Acenaphthylene	12.79	152	298720m	0.54	ng	
11) Fluorene	13.94	166	21183m	0.19	ng	
13) Phenanthrene	15.52	178	2614147m	4.48	ng	
14) Anthracene	15.60	178	464346m	0.71	ng	
15) Fluoranthene	17.49	202	7735929m	12.79	ng	
17) Pyrene	17.86	202	6935299m	9.46	ng	
20) Benzo(a)anthracene	19.83	228	3505039m	6.01	ng	
21) Chrysene	19.89	228	3864912m	6.00	ng	
22) Indeno(1,2,3-cd)pyrene	26.36	276	1714532m	3.21	ng	
24) Benzo(b)fluoranthene	21.92	252	9623265m	7.01	ng	
25) Benzo(k)fluoranthene	21.98	252	3553054m	2.59	ng	
26) Benzo(a)pyrene	22.73	252	7099389m	5.39	ng	
27) Dibenzo(a,h)anthracene	26.43	278	113114m	0.97	ng	
28) Benzo(g,h,i)perylene	27.44	276	1537541m	3.62	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

SAMPLE ID 12SB30-000.5-01

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST / IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF
677097	1	6935299 / 5	1000	5.4140
		% Solids	**Sample Volume (Grams)**	
		0.8	30.08	

Pyrene = 390 ug/kg

CONCENTRATION PPB

393.10

CHEMTECH

Surrogate Summary

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD007129.D	PIBLK-PD007129.D	Decachlorobiphenyl	1	20	22.6	113		10	192
		Tetrachloro-m-xylene	1	20	26.36	132		10	172
		Decachlorobiphenyl	2	20	20.04	100		10	192
		Tetrachloro-m-xylene	2	20	19.88	99		10	172
I.BLK-PD007210.D	PIBLK-PD007210.D	Decachlorobiphenyl	1	20	16.99	85		10	192
		Tetrachloro-m-xylene	1	20	18.85	94		10	172
		Decachlorobiphenyl	2	20	19.45	97		10	192
		Tetrachloro-m-xylene	2	20	19.12	96		10	172
PB60241BL	PB60241BL	Decachlorobiphenyl	1	20	17.72	89		55	130
		Tetrachloro-m-xylene	1	20	15.93	80		70	125
		Decachlorobiphenyl	2	20	20.35	102		55	130
		Tetrachloro-m-xylene	2	20	18.56	93		70	125
PB60241BS	PB60241BS	Decachlorobiphenyl	1	20	17.93	90		55	130
		Tetrachloro-m-xylene	1	20	16.43	82		70	125
		Decachlorobiphenyl	2	20	20.71	104		55	130
		Tetrachloro-m-xylene	2	20	19.89	99		70	125
I.BLK-PD007222.D	PIBLK-PD007222.D	Decachlorobiphenyl	1	20	16.67	83		10	192
		Tetrachloro-m-xylene	1	20	14.64	73		10	172
		Decachlorobiphenyl	2	20	20.5	103		10	192
		Tetrachloro-m-xylene	2	20	19.66	98		10	172
I.BLK-PD007249.D	PIBLK-PD007249.D	Decachlorobiphenyl	1	20	21.87	109		10	192
		Tetrachloro-m-xylene	1	20	21.83	109		10	172
		Decachlorobiphenyl	2	20	19.84	99		10	192
		Tetrachloro-m-xylene	2	20	19.94	100		10	172
I.BLK-PD007339.D	PIBLK-PD007339.D	Decachlorobiphenyl	1	20	10.97	55		10	192
		Tetrachloro-m-xylene	1	20	21.58	108		10	172
		Decachlorobiphenyl	2	20	19.77	99		10	192
		Tetrachloro-m-xylene	2	20	22.84	114		10	172
C5128-07	12SB23-000.5-01	Decachlorobiphenyl	1	20	8.73	44	*	55	130
		Tetrachloro-m-xylene	1	20	20.53	103		70	125
		Decachlorobiphenyl	2	20	15.39	77		55	130
		Tetrachloro-m-xylene	2	20	21.07	105		70	125
C5128-07MS	12SB23-000.5-01MS	Decachlorobiphenyl	1	20	7.12	36	*	55	130
		Tetrachloro-m-xylene	1	20	21.75	109		70	125
		Decachlorobiphenyl	2	20	15.08	75		55	130
		Tetrachloro-m-xylene	2	20	21.91	110		70	125
C5128-07MSD	12SB23-000.5-01MSD	Decachlorobiphenyl	1	20	6.56	33	*	55	130
		Tetrachloro-m-xylene	1	20	21.54	108		70	125
		Decachlorobiphenyl	2	20	14.88	74		55	130
		Tetrachloro-m-xylene	2	20	22.4	112		70	125
I.BLK-PD007347.D	PIBLK-PD007347.D	Decachlorobiphenyl	1	20	8.79	44		10	192
		Tetrachloro-m-xylene	1	20	18.29	91		10	172
		Decachlorobiphenyl	2	20	16.09	80		10	192
		Tetrachloro-m-xylene	2	20	19.5	98		10	172

CHEMTECH

Surrogate Summary

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PG003676.D	PIBLK-PG003676.D	Decachlorobiphenyl	1	20	20.49	102		10	192
		Tetrachloro-m-xylene	1	20	18.95	95		10	172
		Decachlorobiphenyl	2	20	21.94	110		10	192
		Tetrachloro-m-xylene	2	20	21.53	108		10	172
I.BLK-PG003701.D	PIBLK-PG003701.D	Decachlorobiphenyl	1	20	19.38	97		10	192
		Tetrachloro-m-xylene	1	20	18.22	91		10	172
		Decachlorobiphenyl	2	20	19.86	99		10	192
		Tetrachloro-m-xylene	2	20	20.42	102		10	172
C5128-04	12SB30-000.5-01	Decachlorobiphenyl	1	20	16.01	80		55	130
		Tetrachloro-m-xylene	1	20	16.77	84		70	125
		Decachlorobiphenyl	2	20	16.28	81		55	130
		Tetrachloro-m-xylene	2	20	17.85	89		70	125
C5128-05	12SB30-0.502-02	Decachlorobiphenyl	1	20	16.69	83		55	130
		Tetrachloro-m-xylene	1	20	17.21	86		70	125
		Decachlorobiphenyl	2	20	16.56	83		55	130
		Tetrachloro-m-xylene	2	20	18.36	92		70	125
C5128-06	12SB30-0304-03	Decachlorobiphenyl	1	20	17.83	89		55	130
		Tetrachloro-m-xylene	1	20	17.41	87		70	125
		Decachlorobiphenyl	2	20	17.61	88		55	130
		Tetrachloro-m-xylene	2	20	19	95		70	125
C5128-08	12SB23-0.502-02	Decachlorobiphenyl	1	20	14.34	72		55	130
		Tetrachloro-m-xylene	1	20	18.46	92		70	125
		Decachlorobiphenyl	2	20	15.13	76		55	130
		Tetrachloro-m-xylene	2	20	19.53	98		70	125
C5128-09	12SB23-0304-03	Decachlorobiphenyl	1	20	21.01	105		55	130
		Tetrachloro-m-xylene	1	20	19.79	99		70	125
		Decachlorobiphenyl	2	20	21.07	105		55	130
		Tetrachloro-m-xylene	2	20	20.75	104		70	125
C5128-10	12SB21-000.5-01	Decachlorobiphenyl	1	20	19.23	96		55	130
		Tetrachloro-m-xylene	1	20	18.52	93		70	125
		Decachlorobiphenyl	2	20	19.66	98		55	130
		Tetrachloro-m-xylene	2	20	19.18	96		70	125
C5128-11	12SB21-0.502-02	Decachlorobiphenyl	1	20	20.18	101		55	130
		Tetrachloro-m-xylene	1	20	18.64	93		70	125
		Decachlorobiphenyl	2	20	20.39	102		55	130
		Tetrachloro-m-xylene	2	20	20.01	100		70	125
C5128-12	12SB21-0304-03	Decachlorobiphenyl	1	20	19.86	99		55	130
		Tetrachloro-m-xylene	1	20	19.59	98		70	125
		Decachlorobiphenyl	2	20	20.25	101		55	130
		Tetrachloro-m-xylene	2	20	20.75	104		70	125
C5128-13	12SB20-0304-03	Decachlorobiphenyl	1	20	21.15	106		55	130
		Tetrachloro-m-xylene	1	20	20.1	101		70	125
		Decachlorobiphenyl	2	20	21.55	108		55	130
		Tetrachloro-m-xylene	2	20	20.95	105		70	125

CHEMTECH

Surrogate Summary

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5128-14	12SB-DUP-06	Decachlorobiphenyl	1	20	22.51	113		55	130
		Tetrachloro-m-xylene	1	20	20.35	102		70	125
		Decachlorobiphenyl	2	20	22.68	113		55	130
		Tetrachloro-m-xylene	2	20	21.06	105		70	125
I.BLK-PG003713.D	PIBLK-PG003713.D	Decachlorobiphenyl	1	20	18.28	91		10	192
		Tetrachloro-m-xylene	1	20	19.24	96		10	172
		Decachlorobiphenyl	2	20	21.21	106		10	192
		Tetrachloro-m-xylene	2	20	21.01	105		10	172

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60241BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab Sample ID: PB60241BL Lab File ID: PD007213.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/28/2011

Date Analyzed (1): 12/30/2011 Date Analyzed (2): 12/30/2011

Time Analyzed (1): 12:25 Time Analyzed (2): 12:25

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column (1): ZB-MR2 ID: 0.32 (mm) GC Column (2): ZB-MR1 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60241BS	PB60241BS	PD007214.D	12/30/2011	12/30/2011
12SB23-000.5-01	C5128-07	PD007342.D	01/05/2012	01/05/2012
12SB23-000.5-01MS	C5128-07MS	PD007343.D	01/05/2012	01/05/2012
12SB23-000.5-01MSD	C5128-07MSD	PD007344.D	01/05/2012	01/05/2012
12SB30-000.5-01	C5128-04	PG003703.D	01/05/2012	01/05/2012
12SB30-0.502-02	C5128-05	PG003704.D	01/05/2012	01/05/2012
12SB30-0304-03	C5128-06	PG003705.D	01/05/2012	01/05/2012
12SB23-0.502-02	C5128-08	PG003706.D	01/05/2012	01/05/2012
12SB23-0304-03	C5128-09	PG003707.D	01/05/2012	01/05/2012
12SB21-000.5-01	C5128-10	PG003708.D	01/05/2012	01/05/2012
12SB21-0.502-02	C5128-11	PG003709.D	01/05/2012	01/05/2012
12SB21-0304-03	C5128-12	PG003710.D	01/05/2012	01/05/2012
12SB20-0304-03	C5128-13	PG003711.D	01/05/2012	01/05/2012
12SB-DUP-06	C5128-14	PG003712.D	01/05/2012	01/05/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60241BL	SDG No.:	c5128
Lab Sample ID:	PB60241BL	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD007213.D	1	12/28/11	12/30/11	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.7		55 - 130	89%	SPK: 20
877-09-8	Tetrachloro-m-xylene	15.9		70 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60241BS	alpha-BHC	16.7	16	96				84	123	
	beta-BHC	16.7	16	96				82	123	
	delta-BHC	16.7	16	96				83	126	
	gamma-BHC (Lindane)	16.7	17	102				83	125	
	Heptachlor	16.7	16	96				83	122	
	Aldrin	16.7	16	96				82	124	
	Heptachlor epoxide	16.7	16	96				83	120	
	Endosulfan I	16.7	16	96				81	124	
	Dieldrin	16.7	16	96				85	121	
	4,4-DDE	16.7	16	96				81	123	
	Endrin	16.7	15	90				76	130	
	Endosulfan II	16.7	14	84				80	125	
	4,4-DDD	16.7	16	96				80	131	
	Endosulfan sulfate	16.7	16	96				81	122	
	4,4-DDT	16.7	15	90				70	129	
	Methoxychlor	16.7	15	90				78	129	
	Endrin ketone	16.7	17	102				77	132	
	Endrin aldehyde	16.7	16	96				79	124	
	alpha-Chlordane	16.7	16	96				84	120	
	gamma-Chlordane	16.7	16	96				83	122	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12SB23-000.5-01MS**										
C5128-07MS	alpha-BHC	22.1	0	25	113				60	125	
	beta-BHC	22.1	0	22	100				60	125	
	delta-BHC	22.1	0	20	90				55	130	
	gamma-BHC (Lindane)	22.1	0	25	113				60	125	
	Heptachlor	22.1	0	23	104				50	140	
	Aldrin	22.1	0	23	104				45	140	
	Heptachlor epoxide	22.1	0	21	95				65	130	
	Endosulfan I	22.1	0	23	104				15	135	
	Dieldrin	22.1	0	32	145				65	125	
	4,4-DDE	22.1	0	20	90				70	125	
	Endrin	22.1	0	22	100				60	135	
	Endosulfan II	22.1	0	14	63				35	140	
	4,4-DDD	22.1	0	20	90				30	135	
	Endosulfan sulfate	22.1	0	17	77				60	135	
	4,4-DDT	22.1	0	21	95				45	140	
	Methoxychlor	22.1	0	18	81				55	145	
	Endrin ketone	22.1	0	18	81				65	135	
	Endrin aldehyde	22.1	0	19	86				35	145	
	alpha-Chlordane	22.1	0	23	104				65	120	
	gamma-Chlordane	22.1	0	22	100				65	125	
Client Sample ID:	**12SB23-000.5-01MSD**										
C5128-07MSD	alpha-BHC	22.0	0	26	118		4		60	125	20
	beta-BHC	22.0	0	22	100		0		60	125	20
	delta-BHC	22.0	0	20	91		1		55	130	20
	gamma-BHC (Lindane)	22.0	0	25	114		1		60	125	20
	Heptachlor	22.0	0	27	123		17		50	140	20
	Aldrin	22.0	0	23	105		1		45	140	20
	Heptachlor epoxide	22.0	0	22	100		5		65	130	20
	Endosulfan I	22.0	0	23	105		1		15	135	20
	Dieldrin	22.0	0	32	145		0		65	125	20
	4,4-DDE	22.0	0	20	91		1		70	125	20
	Endrin	22.0	0	22	100		0		60	135	20
	Endosulfan II	22.0	0	13	59		7		35	140	20
	4,4-DDD	22.0	0	21	95	O.K.	5		30	135	20
	Endosulfan sulfate	22.0	0	17	77	*	0		60	135	20
	4,4-DDT	22.0	0	21	95		0		45	140	20
	Methoxychlor	22.0	0	17	77	O.K.	5		55	145	20
	Endrin ketone	22.0	0	18	82	*	1		65	135	20
	Endrin aldehyde	22.0	0	18	82		5		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
C5128-07MSD	alpha-Chlordane	22.0	0	23	105		1		65	120	20
	gamma-Chlordane	22.0	0	22	100		0		65	125	20

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_D
GC Column:	ZB-MR2 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/29/2011	13:55	PD007129.D	8.06	3.34
PEM01	PEM01	12/29/2011	14:08	PD007130.D	8.06	3.33
RESC01	RESCHK	12/29/2011	14:21	PD007131.D	8.06	3.34
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	14:35	PD007132.D	8.06	3.34
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	14:48	PD007133.D	8.06	3.34
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	15:02	PD007134.D	8.06	3.34
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	15:15	PD007135.D	8.06	3.34
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	15:29	PD007136.D	8.06	3.34
TOX 500	TOX	12/29/2011	15:56	PD007138.D	8.06	3.34
CHLOR 500	CHLOR 500	12/29/2011	16:09	PD007139.D	8.06	3.34
PIBLK02	I.BLK02	12/30/2011	11:19	PD007210.D	8.06	3.34
PEM02	PEM02	12/30/2011	11:33	PD007211.D	8.06	3.34
CCAL01	STD 25	12/30/2011	12:04	PD007212.D	8.07	3.34
PB60241BL	PB60241BL	12/30/2011	12:25	PD007213.D	8.07	3.34
PB60241BS	PB60241BS	12/30/2011	12:38	PD007214.D	8.06	3.34
PIBLK03	I.BLK03	12/30/2011	14:26	PD007222.D	8.06	3.34
CCAL02	STD 25	12/30/2011	14:58	PD007223.D	8.07	3.34

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007136.D CF 025 = PD007135.D

CF 050 = PD007134.D CF 075 = PD007133.D CF 100 = PD007132.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	18179417820	15194947796	14135404650	13590500057	13618967345	14943847534	13
Tetrachloro-m-xylene	20394322940	18257858588	17838857876	17076299929	19014005771	18516269021	7
alpha-BHC	348690445400	327207932840	268570974720	316396179400	298371411540	311847388780	10
beta-BHC	149560382600	130098167920	122732780180	117830452373	123459905230	128736337661	10
delta-BHC	350767916200	314652339560	317578071520	267536243347	290345512390	308176016603	10
gamma-BHC (Lindane)	379680953000	339605512280	321477736420	308843730853	293221439580	328565874427	10
Heptachlor	305210699000	273008714960	259697950540	245713832133	256144856400	267955210607	9
Aldrin	325170495400	291415544520	271099204680	255850825667	264458591560	281598932365	10
Heptachlor epoxide	306294969200	308047133080	253318588660	238798735907	235104180040	268312721377	13
Endosulfan I	313812178800	263074982520	240949262620	224883145947	223563945910	253256703159	15
Dieldrin	343535852600	290505026600	274957161920	261853114880	267770709870	287724373174	11
4,4-DDE	322768782600	293297436520	264272919200	251996479027	259908500720	278448823613	11
Endrin	288726386800	239909025000	222394335180	209149893680	208292576440	233694443420	14
Endosulfan II	301418073200	243140959280	221769729280	205934254520	205664899480	235585583152	17
4,4-DDD	288388685400	234331789360	215628987840	200124881133	197630394420	227220947631	16
Endosulfan sulfate	286123685800	228083958600	211101033360	200118295200	197027425890	224490879770	16
4,4-DDT	252534064800	219993734960	204992621300	195100386480	193981877550	213320537018	11
Methoxychlor	127604340000	106285058160	94928729460	87918470053	83920035450	100131326625	18
Endrin ketone	262418290000	227760199840	209044903160	196712933080	192071840660	217601633348	13
Endrin aldehyde	245079304000	198892099960	180633205300	170226334973	162702133670	191506615581	17
alpha-Chlordane	339321852200	286858306840	269600600000	256666749093	271844087470	284858319121	11
gamma-Chlordane	352416859600	312538160200	294031078080	281244573627	290156038480	306077341997	9

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 12:04 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.07	8.06	7.96	8.16	-0.01
Tetrachloro-m-xylene	3.34	3.33	3.23	3.43	-0.01
alpha-BHC	3.78	3.77	3.72	3.82	-0.01
beta-BHC	4.31	4.30	4.25	4.35	-0.01
delta-BHC	4.51	4.50	4.45	4.55	-0.01
gamma-BHC (Lindane)	4.06	4.05	4.00	4.10	-0.01
Heptachlor	4.35	4.34	4.29	4.39	-0.01
Aldrin	4.59	4.58	4.53	4.63	-0.01
Heptachlor epoxide	5.04	5.03	4.96	5.10	-0.01
Endosulfan I	5.37	5.36	5.29	5.43	-0.01
Dieldrin	5.61	5.61	5.54	5.68	0.00
4,4-DDE	5.49	5.48	5.41	5.55	-0.01
Endrin	5.87	5.86	5.79	5.93	-0.01
Endosulfan II	6.14	6.14	6.07	6.21	0.00
4,4-DDD	6.00	6.00	5.93	6.07	0.00
Endosulfan sulfate	6.53	6.52	6.45	6.59	-0.01
4,4-DDT	6.24	6.23	6.16	6.30	-0.01
Methoxychlor	6.79	6.79	6.72	6.86	0.00
Endrin ketone	7.02	7.01	6.94	7.08	-0.01
Endrin aldehyde	6.31	6.31	6.24	6.38	0.00
alpha-Chlordane	5.32	5.31	5.24	5.38	-0.01
gamma-Chlordane	5.26	5.25	5.18	5.32	-0.01

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	6212066000
		2	5.84	5.79	5.89	6359210000
		3	6.42	6.37	6.47	2018680000
		4	6.90	6.85	6.95	8587220000
		5	7.20	7.15	7.25	6033186000

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD123011\
Data File : PD007131.D
Acq On : 29 Dec 2011 14:21
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD123011.M
Title : GC Extractables
Last Update : Fri Dec 30 04:35:25 2011
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.335	5.251	100.00%
5.251	5.364	99.81%
5.364	5.480	100.00%
5.480	5.606	100.00%
5.606	6.518	100.00%
6.518	6.787	100.00%
6.787	7.010	100.00%
7.010	8.063	100.00%

ignal #2

3.920	6.027	100.00%
6.027	6.148	100.00%
6.148	6.264	100.00%
6.264	6.406	100.00%
6.406	7.183	100.00%
7.183	7.527	100.00%
7.527	7.652	100.00%
7.652	9.010	100.00%

)123011.M Fri Dec 30 05:51:17 2011 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM - PD007130.D Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 14:08

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.063	7.960	8.160	0.022	0.020	10.0
Tetrachloro-m-xylene	3.334	3.230	3.430	0.023	0.020	15.0
alpha-BHC	3.770	3.720	3.820	0.013	0.010	30.0
beta-BHC	4.298	4.250	4.350	0.014	0.010	40.0
gamma-BHC (Lindane)	4.049	4.000	4.100	0.013	0.010	30.0
Endrin	5.863	5.790	5.930	0.055	0.050	10.0
4,4-DDT	6.234	6.160	6.300	0.077	0.100	23.0
Methoxychlor	6.777	6.720	6.860	0.155	0.250	38.0

Client Sample No. (PEM): PEM - PD007130.D Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 14:08

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.011	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.920	3.820	4.020	0.022	0.020	10.0
alpha-BHC	4.303	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.752	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.011	0.010	10.0
Endrin	6.622	6.550	6.690	0.050	0.050	0.0
4,4-DDT	7.059	6.990	7.130	0.104	0.100	4.0
Methoxychlor	7.527	7.460	7.600	0.237	0.250	5.2

Not associated with any samples

Sample: PEM
Data File: PD007130.D **Date Acquired** 12/29/2011 14:08
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	1.294258E+010	1.39800018E+010	1037426503	**7.42**
Endrin aldehyde	6.31	217459860.1			
Endrin ketone	7.01	819966643.2			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2301303483	2436650115	135346633	**5.55**
Endrin aldehyde #2	6.96	26430248.3			
Endrin ketone #2	7.65	108916384.5			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.644099E+010	1.69593478E+010	518359588	**3.06**
4,4'-DDE	5.48	186431473.3			
4,4'-DDD	6.00	331928114.3			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4333734184	4371014680	37280495.9	**0.85**
4,4'-DDE #2	6.26	18659211.13			
4,4'-DDD #2	6.75	18621284.8			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM - PD007211.D Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:33

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.061	7.960	8.160	0.018	0.020	10.0
Tetrachloro-m-xylene	3.335	3.230	3.430	0.018	0.020	10.0
alpha-BHC	3.770	3.720	3.820	0.009	0.010	10.0
beta-BHC	4.298	4.250	4.350	0.010	0.010	0.0
gamma-BHC (Lindane)	4.049	4.000	4.100	0.010	0.010	0.0
Endrin	5.861	5.790	5.930	0.039	0.050	22.0
4,4-DDT	6.231	6.160	6.300	0.079	0.100	21.0
Methoxychlor	6.784	6.720	6.860	0.139	0.250	44.4

Client Sample No. (PEM): PEM - PD007211.D Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:33

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.011	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.020	0.020	0.0
alpha-BHC	4.303	4.250	4.350	0.009	0.010	10.0
beta-BHC	4.752	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.585	4.540	4.640	0.010	0.010	0.0
Endrin	6.623	6.550	6.690	0.045	0.050	10.0
4,4-DDT	7.059	6.990	7.130	0.097	0.100	3.0
Methoxychlor	7.527	7.460	7.600	0.218	0.250	12.8

Not associated with any samples

Sample: PEM
Data File: PD007211.D **Date Acquired** 12/30/2011 11:33
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	9069713427	9976524655	906811229	**9.09**
Endrin aldehyde	6.31	149782907.3			
Endrin ketone	7.01	757028321.4			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2082864206	2283654991	200790785	**8.79**
Endrin aldehyde #2	6.95	37387901.44			
Endrin ketone #2	7.65	163402884			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.684013E+010	1.73160734E+010	475943420	**2.75**
4,4'-DDE	5.48	232462655.2			
4,4'-DDD	5.99	243480765			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4008449403	4052240646	43791243	**1.08**
4,4'-DDE #2	6.26	11517315.66			
4,4'-DDD #2	6.75	32273927.29			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007212.D **Time Analyzed:** 12:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.777	3.720	3.820	0.023	0.025	8.0
beta-BHC	4.306	4.250	4.350	0.022	0.025	12.0
delta-BHC	4.508	4.450	4.550	0.023	0.025	8.0
gamma-BHC (Lindane)	4.058	4.000	4.100	0.020	0.025	20.0
Heptachlor	4.349	4.290	4.390	0.022	0.025	12.0
Aldrin	4.592	4.530	4.630	0.023	0.025	8.0
Heptachlor epoxide	5.036	4.960	5.100	0.022	0.025	12.0
Endosulfan I	5.371	5.290	5.430	0.022	0.025	12.0
Dieldrin	5.613	5.540	5.680	0.022	0.025	12.0
4,4-DDE	5.488	5.410	5.550	0.022	0.025	12.0
Endrin	5.870	5.790	5.930	0.023	0.025	8.0
Endosulfan II	6.144	6.070	6.210	0.022	0.025	12.0
4,4-DDD	6.002	5.930	6.070	0.022	0.025	12.0
Endosulfan sulfate	6.525	6.450	6.590	0.023	0.025	8.0
4,4-DDT	6.240	6.160	6.300	0.022	0.025	12.0
Methoxychlor	6.793	6.720	6.860	0.021	0.025	16.0
Endrin ketone	7.017	6.940	7.080	0.024	0.025	4.0
Endrin aldehyde	6.314	6.240	6.380	0.023	0.025	8.0
alpha-Chlordane	5.318	5.240	5.380	0.021	0.025	16.0
gamma-Chlordane	5.259	5.180	5.320	0.021	0.025	16.0
Decachlorobiphenyl	8.070	7.960	8.160	0.023	0.025	8.0
Tetrachloro-m-xylene	3.341	3.230	3.430	0.022	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007223.D **Time Analyzed:** 14:58

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.777	3.720	3.820	0.021	0.025	16.0
beta-BHC	4.305	4.250	4.350	0.021	0.025	16.0
delta-BHC	4.506	4.450	4.550	0.021	0.025	16.0
gamma-BHC (Lindane)	4.056	4.000	4.100	0.020	0.025	20.0
Heptachlor	4.348	4.290	4.390	0.022	0.025	12.0
Aldrin	4.591	4.530	4.630	0.021	0.025	16.0
Heptachlor epoxide	5.034	4.960	5.100	0.021	0.025	16.0
Endosulfan I	5.370	5.290	5.430	0.022	0.025	12.0
Dieldrin	5.613	5.540	5.680	0.021	0.025	16.0
4,4-DDE	5.487	5.410	5.550	0.021	0.025	16.0
Endrin	5.869	5.790	5.930	0.022	0.025	12.0
Endosulfan II	6.143	6.070	6.210	0.022	0.025	12.0
4,4-DDD	6.001	5.930	6.070	0.022	0.025	12.0
Endosulfan sulfate	6.524	6.450	6.590	0.022	0.025	12.0
4,4-DDT	6.240	6.160	6.300	0.021	0.025	16.0
Methoxychlor	6.792	6.720	6.860	0.022	0.025	12.0
Endrin ketone	7.015	6.940	7.080	0.024	0.025	4.0
Endrin aldehyde	6.313	6.240	6.380	0.022	0.025	12.0
alpha-Chlordane	5.317	5.240	5.380	0.021	0.025	16.0
gamma-Chlordane	5.258	5.180	5.320	0.020	0.025	20.0
Decachlorobiphenyl	8.069	7.960	8.160	0.024	0.025	4.0
Tetrachloro-m-xylene	3.341	3.230	3.430	0.021	0.025	16.0

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_D
GC Column:	ZB-MR1 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/29/2011	13:55	PD007129.D	9.01	3.92
PEM01	PEM01	12/29/2011	14:08	PD007130.D	9.01	3.92
RESC01	RESCHK	12/29/2011	14:21	PD007131.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	14:35	PD007132.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	14:48	PD007133.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	15:02	PD007134.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	15:15	PD007135.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	15:29	PD007136.D	9.01	3.92
TOX 500	TOX	12/29/2011	15:56	PD007138.D	9.01	3.92
CHLOR 500	CHLOR 500	12/29/2011	16:09	PD007139.D	9.01	3.92
PIBLK02	I.BLK02	12/30/2011	11:19	PD007210.D	9.02	3.92
PEM02	PEM02	12/30/2011	11:33	PD007211.D	9.01	3.92
CCAL01	STD 25	12/30/2011	12:04	PD007212.D	9.04	3.92
PB60241BL	PB60241BL	12/30/2011	12:25	PD007213.D	9.05	3.93
PB60241BS	PB60241BS	12/30/2011	12:38	PD007214.D	9.02	3.92
PIBLK03	I.BLK03	12/30/2011	14:26	PD007222.D	9.01	3.92
CCAL02	STD 25	12/30/2011	14:58	PD007223.D	9.03	3.92

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007136.D CF 025 = PD007135.D

CF 050 = PD007134.D CF 075 = PD007133.D CF 100 = PD007132.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	2830559580	2576868092	2476147302	2382805400	2426775204	2538631116	7
Tetrachloro-m-xylene	5175091560	4948301884	4892105406	4733555568	4832289344	4916268752	3
alpha-BHC	85712462000	80174255160	80436772960	78720909373	81345919460	81278063791	3
beta-BHC	32321218200	30104854440	29454427900	28500597507	28552057800	29786631169	5
delta-BHC	81028752600	73476843520	73190917320	71928928627	73884555650	74701999543	5
gamma-BHC (Lindane)	79084411600	74697166320	74824075740	73702709067	75840530810	75629778707	3
Heptachlor	74446579200	69453087200	68254067700	66012098080	66602560680	68953678572	5
Aldrin	70513195600	65564881440	64241148760	62505547400	63055775850	65176109810	5
Heptachlor epoxide	64867990200	61312820760	56354767700	54481105507	54480316780	58299400189	8
Endosulfan I	60852500400	53789938840	51942826580	50309198987	50441814360	53467255833	8
Dieldrin	62037717600	56116553080	55104273300	53738726013	53990280910	56197510181	6
4,4-DDE	64508380800	56204410640	54759614080	53662990427	54304155100	56687910209	8
Endrin	47589985600	48953718120	46938833020	44013557987	43994933240	46298205593	5
Endosulfan II	46889749400	43769668480	44942819760	41781347747	41800865880	43836890253	5
4,4-DDD	48998178400	49048419840	46046604760	42944700733	42924709430	45992522633	7
Endosulfan sulfate	44201752600	38819636160	37578081720	36887686133	37077304790	38912892281	8
4,4-DDT	44786656400	41180858080	40611194320	40365005347	40635061760	41515755181	4
Methoxychlor	20889640800	18804165760	17983039380	17647999893	17642962790	18593561725	7
Endrin ketone	44883229200	41144744840	40173444160	39072625347	39341088510	40923026411	6
Endrin aldehyde	41268976600	36644526400	35179480220	34582126600	34769392230	36488900410	8
alpha-Chlordane	61091529200	55778358880	54500811940	53340908587	53709796430	55684281007	6
gamma-Chlordane	64015185200	57531846840	56137126620	54950543600	55640523260	57655045104	6

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	752569400
		2	6.85	6.80	6.90	1658150000
		3	7.09	7.04	7.14	2775068000
		4	7.58	7.53	7.63	2626631000
		5	7.94	7.89	7.99	828090200

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 12:04 **Initial Calibration Time(s):** 14:35 15:29

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.04	9.01	8.91	9.11	-0.03
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.31	4.30	4.25	4.35	-0.01
beta-BHC	4.76	4.75	4.70	4.80	-0.01
delta-BHC	4.98	4.97	4.92	5.02	-0.01
gamma-BHC (Lindane)	4.59	4.59	4.54	4.64	0.00
Heptachlor	5.11	5.10	5.05	5.15	-0.01
Aldrin	5.42	5.40	5.35	5.45	-0.02
Heptachlor epoxide	5.81	5.79	5.72	5.86	-0.02
Endosulfan I	6.17	6.15	6.08	6.22	-0.02
Dieldrin	6.43	6.41	6.34	6.48	-0.02
4,4-DDE	6.29	6.26	6.19	6.33	-0.02
Endrin	6.64	6.62	6.55	6.69	-0.02
Endosulfan II	6.85	6.83	6.76	6.90	-0.02
4,4-DDD	6.78	6.76	6.69	6.83	-0.02
Endosulfan sulfate	7.21	7.18	7.11	7.25	-0.03
4,4-DDT	7.08	7.06	6.99	7.13	-0.02
Methoxychlor	7.55	7.53	7.46	7.60	-0.02
Endrin ketone	7.68	7.65	7.58	7.72	-0.03
Endrin aldehyde	6.98	6.96	6.89	7.03	-0.02
alpha-Chlordane	6.12	6.10	6.03	6.17	-0.02
gamma-Chlordane	6.05	6.03	5.96	6.10	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007212.D **Time Analyzed:** 12:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.310	4.250	4.350	0.027	0.025	8.0
beta-BHC	4.763	4.700	4.800	0.026	0.025	4.0
delta-BHC	4.979	4.920	5.020	0.026	0.025	4.0
gamma-BHC (Lindane)	4.594	4.540	4.640	0.026	0.025	4.0
Heptachlor	5.111	5.050	5.150	0.026	0.025	4.0
Aldrin	5.418	5.350	5.450	0.026	0.025	4.0
Heptachlor epoxide	5.807	5.720	5.860	0.026	0.025	4.0
Endosulfan I	6.166	6.080	6.220	0.026	0.025	4.0
Dieldrin	6.425	6.340	6.480	0.026	0.025	4.0
4,4-DDE	6.285	6.190	6.330	0.026	0.025	4.0
Endrin	6.643	6.550	6.690	0.024	0.025	4.0
Endosulfan II	6.853	6.760	6.900	0.019	0.025	24.0
4,4-DDD	6.779	6.690	6.830	0.025	0.025	0.0
Endosulfan sulfate	7.205	7.110	7.250	0.026	0.025	4.0
4,4-DDT	7.084	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.554	7.460	7.600	0.025	0.025	0.0
Endrin ketone	7.675	7.580	7.720	0.028	0.025	12.0
Endrin aldehyde	6.978	6.890	7.030	0.026	0.025	4.0
alpha-Chlordane	6.119	6.030	6.170	0.026	0.025	4.0
gamma-Chlordane	6.045	5.960	6.100	0.026	0.025	4.0
Decachlorobiphenyl	9.040	8.910	9.110	0.028	0.025	12.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.026	0.025	4.0

Not associated with any samples

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PD007223.D **Time Analyzed:** 14:58

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.310	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.761	4.700	4.800	0.028	0.025	12.0
delta-BHC	4.977	4.920	5.020	0.027	0.025	8.0
gamma-BHC (Lindane)	4.592	4.540	4.640	0.028	0.025	12.0
Heptachlor	5.110	5.050	5.150	0.027	0.025	8.0
Aldrin	5.416	5.350	5.450	0.028	0.025	12.0
Heptachlor epoxide	5.805	5.720	5.860	0.028	0.025	12.0
Endosulfan I	6.163	6.080	6.220	0.027	0.025	8.0
Dieldrin	6.423	6.340	6.480	0.028	0.025	12.0
4,4-DDE	6.283	6.190	6.330	0.027	0.025	8.0
Endrin	6.640	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.851	6.760	6.900	0.019	0.025	<24.0
4,4-DDD	6.777	6.690	6.830	0.027	0.025	8.0
Endosulfan sulfate	7.203	7.110	7.250	0.027	0.025	8.0
4,4-DDT	7.081	6.990	7.130	0.027	0.025	8.0
Methoxychlor	7.550	7.460	7.600	0.027	0.025	8.0
Endrin ketone	7.672	7.580	7.720	0.029	0.025	16.0
Endrin aldehyde	6.976	6.890	7.030	0.028	0.025	12.0
alpha-Chlordane	6.117	6.030	6.170	0.027	0.025	8.0
gamma-Chlordane	6.043	5.960	6.100	0.027	0.025	8.0
Decachlorobiphenyl	9.034	8.910	9.110	0.029	0.025	16.0
Tetrachloro-m-xylene	3.924	3.820	4.020	0.028	0.025	12.0

Not associated with any samples

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_D

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 01/03/2012 01/03/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	01/03/2012	16:42	PD007249.D	8.06	3.33
PEM03	PEM03	01/03/2012	16:55	PD007250.D	8.06	3.33
RESC01	RESCHK	01/03/2012	17:09	PD007251.D	8.06	3.33
100 PPB PEST STD	100 PPB PEST STD	01/03/2012	17:22	PD007252.D	8.06	3.33
75 PPB PEST STD	75 PPB PEST STD	01/03/2012	17:36	PD007253.D	8.06	3.33
50 PPB PEST STD	50 PPB PEST STD	01/03/2012	17:49	PD007254.D	8.06	3.33
25 PPB PEST STD	25 PPB PEST STD	01/03/2012	18:03	PD007255.D	8.06	3.33
5 PPB PEST STD	5 PPB PEST STD	01/03/2012	18:16	PD007256.D	8.06	3.33
TOX 500	TOX	01/03/2012	18:43	PD007258.D	8.06	3.33
CHLOR 500	CHLOR 500	01/03/2012	18:57	PD007259.D	8.06	3.33
PIBLK05	I.BLK05	01/05/2012	13:37	PD007339.D	8.06	3.33
PEM04	PEM04	01/05/2012	13:50	PD007340.D	8.06	3.33
CCAL03	STD 25	01/05/2012	14:04	PD007341.D	8.06	3.33
12SB23-000.5-01	C5128-07	01/05/2012	14:27	PD007342.D	8.07	3.34
12SB23-000.5-01MS	C5128-07MS	01/05/2012	14:41	PD007343.D	8.06	3.33
12SB23-000.5-01MSD	C5128-07MSD	01/05/2012	14:55	PD007344.D	8.06	3.33
PIBLK06	I.BLK06	01/05/2012	17:10	PD007347.D	8.06	3.33
CCAL04	STD 25	01/05/2012	17:40	PD007348.D	8.06	3.34

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Calibration Date(s):** 01/03/2012 01/03/2012

Calibration Times: 17:22 18:16

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PD007256.D CF 025 = PD007255.D

CF 050 = PD007254.D CF 075 = PD007253.D CF 100 = PD007252.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	17811137920	13464865064	12768631526	12239030283	12446727685	13746078496	17
Tetrachloro-m-xylene	16231553020	13498771756	13014837328	12452338709	12948990305	13629298224	11
alpha-BHC	260746457600	226510124360	233867546060	233986650987	236300413230	238282238447	5
beta-BHC	113263931600	93817302880	89685852400	86455814560	89344073030	94513394894	11
delta-BHC	263459364800	228979372840	228543264760	225136364240	237316901290	236687053586	7
gamma-BHC (Lindane)	241281787800	215429223440	159343716500	174990064240	196920517670	197593061930	16
Heptachlor	230180097800	186724587200	191017474240	179440668160	182843626590	194041290798	11
Aldrin	248112250000	206804463520	197755832140	185494248613	188448262770	205323011409	12
Heptachlor epoxide	234192478200	194750169840	179074304600	171678489853	175784354980	191095959495	13
Endosulfan I	236171175200	191140048320	177533598060	167607250293	167940811990	188078576773	15
Dieldrin	257008066000	210828453240	201937599880	194452112747	198680798230	212581406019	12
4,4-DDE	247894641400	204255515800	193119377920	185136684827	193426913000	204766626589	12
Endrin	215964165000	180096778120	167675007960	160349173920	159712921040	176759609208	13
Endosulfan II	234429643200	189290621120	173801358480	166385709813	164933226480	185768111819	16
4,4-DDD	210861886600	175332149200	162676254020	155876693760	155045609360	171958518588	14
Endosulfan sulfate	228866599000	191534540080	177138158080	167704035587	168162806690	186681227887	14
4,4-DDT	215994095000	180121707840	170186083880	163361663320	163864993240	178705708656	12
Methoxychlor	95042066800	87180758680	79570369200	73014026307	70830556600	81127555517	12
Endrin ketone	227762641800	192051446600	179486607400	168435942213	165612481640	186669823931	14
Endrin aldehyde	192744946000	159182143040	145823042180	139043878800	136235138800	154605829764	15
alpha-Chlordane	248734489200	204580110960	195206436160	187489826307	194261837510	206054540027	12
gamma-Chlordane	257804429800	212017929040	206681549840	200110901320	207618319740	216846625948	11

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Continuing Calib Date: 01/05/2012 **Initial Calibration Date(s):** 01/03/2012 01/03/2012

Continuing Calib Time: 14:04 **Initial Calibration Time(s):** 17:22 18:16

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.06	8.06	7.96	8.16	0.00
Tetrachloro-m-xylene	3.33	3.33	3.23	3.43	0.00
alpha-BHC	3.77	3.77	3.72	3.82	0.00
beta-BHC	4.30	4.30	4.25	4.35	0.01
delta-BHC	4.50	4.50	4.45	4.55	0.00
gamma-BHC (Lindane)	4.05	4.05	4.00	4.10	0.00
Heptachlor	4.34	4.34	4.29	4.39	0.00
Aldrin	4.58	4.58	4.53	4.63	0.00
Heptachlor epoxide	5.03	5.03	4.96	5.10	0.00
Endosulfan I	5.36	5.36	5.29	5.43	0.00
Dieldrin	5.60	5.60	5.53	5.67	0.00
4,4-DDE	5.48	5.48	5.41	5.55	0.00
Endrin	5.86	5.86	5.79	5.93	0.00
Endosulfan II	6.13	6.13	6.06	6.20	0.00
4,4-DDD	5.99	5.99	5.92	6.06	0.00
Endosulfan sulfate	6.52	6.51	6.44	6.58	0.00
4,4-DDT	6.23	6.23	6.16	6.30	0.00
Methoxychlor	6.78	6.78	6.71	6.85	0.00
Endrin ketone	7.01	7.01	6.94	7.08	0.00
Endrin aldehyde	6.30	6.30	6.23	6.37	0.00
alpha-Chlordane	5.31	5.31	5.24	5.38	0.00
gamma-Chlordane	5.25	5.25	5.18	5.32	0.00

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Date(s) Analyzed:** 01/03/2012 01/03/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.57	5.52	5.62	4517423000
		2	5.83	5.78	5.88	5023698000
		3	6.42	6.37	6.47	8561700000
		4	6.89	6.84	6.94	6360910000
		5	7.20	7.15	7.25	6291397000

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD010312\
Data File : PD007251.D
Acq On : 03 Jan 2012 17:09
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD010312.M
Title : GC Extractables
Last Update : Wed Jan 04 04:14:55 2012
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.333	5.250	100.00%
5.250	5.361	99.72%
5.361	5.478	100.00%
5.478	5.604	100.00%
5.604	6.515	100.00%
6.515	6.784	100.00%
6.784	7.007	100.00%
7.007	8.059	100.00%

ignal #2

3.919	6.026	100.00%
6.026	6.147	100.00%
6.147	6.263	100.00%
6.263	6.405	100.00%
6.405	7.181	100.00%
7.181	7.526	100.00%
7.526	7.649	100.00%
7.649	9.009	100.00%

)010312.M Wed Jan 04 04:47:35 2012 GC/MS

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM - PD007250.D Date Analyzed: 01/03/2012

Lab Sample No.(PEM): PEM Time Analyzed: 16:55

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.060	7.960	8.160	0.022	0.020	10.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.769	3.720	3.820	0.011	0.010	10.0
beta-BHC	4.296	4.250	4.350	0.012	0.010	20.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.013	0.010	30.0
Endrin	5.861	5.790	5.930	0.051	0.050	2.0
4,4-DDT	6.231	6.160	6.300	0.078	0.100	22.0
Methoxychlor	6.784	6.710	6.850	0.186	0.250	25.6

Client Sample No. (PEM): PEM - PD007250.D Date Analyzed: 01/03/2012

Lab Sample No.(PEM): PEM Time Analyzed: 16:55

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.021	0.020	5.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.302	4.250	4.350	0.011	0.010	10.0
beta-BHC	4.751	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.010	0.010	0.0
Endrin	6.622	6.550	6.690	0.049	0.050	2.0
4,4-DDT	7.058	6.990	7.130	0.101	0.100	1.0
Methoxychlor	7.526	7.460	7.600	0.233	0.250	6.8

Sample: PEM
Data File: PD007250.D **Date Acquired** 1/3/2012 16:55
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	9003435201	9703749606	700314406	**7.22**
Endrin aldehyde	6.30	118804893.5			
Endrin ketone	7.00	581509512.1			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	1935487668	2049638591	114150923	**5.57**
Endrin aldehyde #2	6.95	18942090.83			
Endrin ketone #2	7.65	95208831.98			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.397168E+010	1.41991608E+010	227484664	**1.60**
4,4'-DDE	5.48	120773650.8			
4,4'-DDD	5.99	106711013.1			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	3909910366	3939161531	29251164.9	**0.74**
4,4'-DDE #2	6.26	15085365.53			
4,4'-DDD #2	6.75	14165799.4			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 01/03/2012 01/03/2012

Client Sample No. (PEM): PEM - PD007340.D Date Analyzed: 01/05/2012

Lab Sample No.(PEM): PEM Time Analyzed: 13:50

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.060	7.960	8.160	0.014	0.020	30.0
Tetrachloro-m-xylene	3.332	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.768	3.720	3.820	0.011	0.010	10.0
beta-BHC	4.296	4.250	4.350	0.013	0.010	30.0
gamma-BHC (Lindane)	4.046	4.000	4.100	0.013	0.010	30.0
Endrin	5.860	5.790	5.930	0.047	0.050	6.0
4,4-DDT	6.231	6.160	6.300	0.078	0.100	22.0
Methoxychlor	6.783	6.710	6.850	0.155	0.250	38.0

Client Sample No. (PEM): PEM - PD007340.D Date Analyzed: 01/05/2012

Lab Sample No.(PEM): PEM Time Analyzed: 13:50

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.009	8.910	9.110	0.020	0.020	0.0
Tetrachloro-m-xylene	3.918	3.820	4.020	0.025	0.020	25.0
alpha-BHC	4.301	4.250	4.350	0.012	0.010	20.0
beta-BHC	4.750	4.700	4.800	0.012	0.010	20.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.012	0.010	20.0
Endrin	6.621	6.550	6.690	0.055	0.050	10.0
4,4-DDT	7.057	6.990	7.130	0.109	0.100	9.0
Methoxychlor	7.525	7.460	7.600	0.244	0.250	2.4

Sample: PEM
Data File: PD007340.D **Date Acquired** 1/5/2012 13:50
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	8353885491	8864325548	510440057	**5.76**
Endrin aldehyde	6.31	47121791.77			
Endrin ketone	7.01	463318265.1			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.62	2169499397	2288088101	118588704	**5.18**
Endrin aldehyde #2	6.95	21685689.51			
Endrin ketone #2	7.65	96903014.35			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.391508E+010	1.4107803E+010	192720122	**1.37**
4,4'-DDE	5.48	79159091.59			
4,4'-DDD	5.99	113561030.8			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.06	4223186456	4243042443	19855987	**0.47**
4,4'-DDE #2	6.26	10914252.43			
4,4'-DDD #2	6.75	8941734.619			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007341.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.768	3.720	3.820	0.026	0.025	4.0
beta-BHC	4.295	4.250	4.350	0.027	0.025	8.0
delta-BHC	4.497	4.450	4.550	0.026	0.025	4.0
gamma-BHC (Lindane)	4.047	4.000	4.100	0.030	0.025	20.0
Heptachlor	4.337	4.290	4.390	0.028	0.025	12.0
Aldrin	4.583	4.530	4.630	0.029	0.025	16.0
Heptachlor epoxide	5.026	4.960	5.100	0.027	0.025	8.0
Endosulfan I	5.361	5.290	5.430	0.026	0.025	4.0
Dieldrin	5.603	5.530	5.670	0.026	0.025	4.0
4,4-DDE	5.477	5.410	5.550	0.025	0.025	0.0
Endrin	5.860	5.790	5.930	0.026	0.025	4.0
Endosulfan II	6.134	6.060	6.200	0.024	0.025	4.0
4,4-DDD	5.992	5.920	6.060	0.024	0.025	4.0
Endosulfan sulfate	6.515	6.440	6.580	0.023	0.025	8.0
4,4-DDT	6.231	6.160	6.300	0.022	0.025	12.0
Methoxychlor	6.783	6.710	6.850	0.022	0.025	12.0
Endrin ketone	7.007	6.940	7.080	0.022	0.025	12.0
Endrin aldehyde	6.304	6.230	6.370	0.024	0.025	4.0
alpha-Chlordane	5.308	5.240	5.380	0.026	0.025	4.0
gamma-Chlordane	5.249	5.180	5.320	0.026	0.025	4.0
Decachlorobiphenyl	8.060	7.960	8.160	0.016	0.025	36.0
Tetrachloro-m-xylene	3.333	3.230	3.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007348.D **Time Analyzed:** 17:40

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.773	3.720	3.820	0.027	0.025	8.0
beta-BHC	4.301	4.250	4.350	0.027	0.025	8.0
delta-BHC	4.503	4.450	4.550	0.026	0.025	4.0
gamma-BHC (Lindane)	4.052	4.000	4.100	0.030	0.025	20.0
Heptachlor	4.344	4.290	4.390	0.028	0.025	12.0
Aldrin	4.587	4.530	4.630	0.027	0.025	8.0
Heptachlor epoxide	5.031	4.960	5.100	0.027	0.025	8.0
Endosulfan I	5.366	5.290	5.430	0.025	0.025	0.0
Dieldrin	5.609	5.530	5.670	0.024	0.025	4.0
4,4-DDE	5.482	5.410	5.550	0.024	0.025	4.0
Endrin	5.864	5.790	5.930	0.023	0.025	8.0
Endosulfan II	6.139	6.060	6.200	0.022	0.025	12.0
4,4-DDD	5.998	5.920	6.060	0.023	0.025	8.0
Endosulfan sulfate	6.520	6.440	6.580	0.020	0.025	20.0
4,4-DDT	6.235	6.160	6.300	0.020	0.025	20.0
Methoxychlor	6.788	6.710	6.850	0.021	0.025	16.0
Endrin ketone	7.012	6.940	7.080	0.018	0.025	28.0
Endrin aldehyde	6.308	6.230	6.370	0.022	0.025	12.0
alpha-Chlordane	5.312	5.240	5.380	0.025	0.025	0.0
gamma-Chlordane	5.254	5.180	5.320	0.025	0.025	0.0
Decachlorobiphenyl	8.064	7.960	8.160	0.013	0.025	48.0
Tetrachloro-m-xylene	3.337	3.230	3.430	0.027	0.025	8.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_D

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 01/03/2012 01/03/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	01/03/2012	16:42	PD007249.D	9.01	3.92
PEM03	PEM03	01/03/2012	16:55	PD007250.D	9.01	3.92
RESC01	RESCHK	01/03/2012	17:09	PD007251.D	9.01	3.92
100 PPB PEST STD	100 PPB PEST STD	01/03/2012	17:22	PD007252.D	9.01	3.92
75 PPB PEST STD	75 PPB PEST STD	01/03/2012	17:36	PD007253.D	9.01	3.92
50 PPB PEST STD	50 PPB PEST STD	01/03/2012	17:49	PD007254.D	9.01	3.92
25 PPB PEST STD	25 PPB PEST STD	01/03/2012	18:03	PD007255.D	9.01	3.92
5 PPB PEST STD	5 PPB PEST STD	01/03/2012	18:16	PD007256.D	9.01	3.92
TOX 500	TOX	01/03/2012	18:43	PD007258.D	9.01	3.92
CHLOR 500	CHLOR 500	01/03/2012	18:57	PD007259.D	9.01	3.92
PIBLK05	I.BLK05	01/05/2012	13:37	PD007339.D	9.01	3.92
PEM04	PEM04	01/05/2012	13:50	PD007340.D	9.01	3.92
CCAL03	STD 25	01/05/2012	14:04	PD007341.D	9.01	3.92
12SB23-000.5-01	C5128-07	01/05/2012	14:27	PD007342.D	9.05	3.92
12SB23-000.5-01MS	C5128-07MS	01/05/2012	14:41	PD007343.D	9.02	3.92
12SB23-000.5-01MSD	C5128-07MSD	01/05/2012	14:55	PD007344.D	9.01	3.92
PIBLK06	I.BLK06	01/05/2012	17:10	PD007347.D	9.01	3.92
CCAL04	STD 25	01/05/2012	17:40	PD007348.D	9.03	3.92

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Calibration Date(s):** 01/03/2012 01/03/2012

Calibration Times: 17:22 18:16

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PD007256.D **CF 025 =** PD007255.D

CF 050 = PD007254.D **CF 075 =** PD007253.D **CF 100 =** PD007252.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3324871020	2631425872	2443814712	2375269548	2399137977	2634903826	15
Tetrachloro-m-xylene	4525133240	4012818712	3967485682	3813336041	3938442405	4051443216	7
alpha-BHC	68383274600	63730900640	65149908960	63725295053	65860728360	65370021523	3
beta-BHC	27563573200	24815373840	24443288520	23525573440	24221947990	24913951398	6
delta-BHC	67572327800	61313883760	62069161320	60613217813	63075607520	62928839643	4
gamma-BHC (Lindane)	65152003400	59705931560	60843938960	59318054520	61818770860	61367739860	4
Heptachlor	59989569800	55049088160	54884505220	53077006413	54382486050	55476531129	5
Aldrin	56957819400	52278936080	52127744760	50418528480	51597172630	52676040270	5
Heptachlor epoxide	53020819800	48819379560	47041493020	45400805600	46252274040	48106954404	6
Endosulfan I	48922689400	44949734640	44579120000	43076718133	43847737570	45075199949	5
Dieldrin	51130649800	47720019040	47646335160	46480930560	47580940310	48111774974	4
4,4-DDE	53345878400	47800105680	47874724240	46718050827	47994586380	48746669105	5
Endrin	43708707000	38323945320	38753684920	37918191507	38608757640	39462657277	6
Endosulfan II	46359755400	39630090240	39125049780	38121029853	38792957130	40405776481	8
4,4-DDD	44689718600	38573769040	38038579300	36665600493	37629928300	39119519147	8
Endosulfan sulfate	39501549600	35136552600	34506640400	33411962680	34173776380	35346096332	7
4,4-DDT	41322873000	37761860920	38512155380	37237946413	38203045920	38607576327	4
Methoxychlor	18580710800	17772197240	17103383500	16829614387	17028569760	17462895137	4
Endrin ketone	43406307800	39259249120	38425291900	37528595307	38312397110	39386368247	6
Endrin aldehyde	37564331800	32563381840	32108581920	30849815187	31442178610	32905657871	8
alpha-Chlordane	52872427800	46925177320	46501468440	45075106613	46280554790	47530946993	6
gamma-Chlordane	53864918000	48312183120	47637887180	46398571773	47783902400	48799492495	6

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Continuing Calib Date: 01/05/2012 **Initial Calibration Date(s):** 01/03/2012 01/03/2012

Continuing Calib Time: 14:04 **Initial Calibration Time(s):** 17:22 18:16

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.01	9.01	8.91	9.11	0.00
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.97	4.97	4.92	5.02	0.00
gamma-BHC (Lindane)	4.58	4.58	4.53	4.63	0.00
Heptachlor	5.10	5.10	5.05	5.15	0.00
Aldrin	5.40	5.40	5.35	5.45	0.00
Heptachlor epoxide	5.79	5.79	5.72	5.86	0.00
Endosulfan I	6.15	6.15	6.08	6.22	0.00
Dieldrin	6.41	6.40	6.33	6.47	-0.01
4,4-DDE	6.26	6.26	6.19	6.33	0.00
Endrin	6.62	6.62	6.55	6.69	0.00
Endosulfan II	6.83	6.83	6.76	6.90	0.00
4,4-DDD	6.75	6.75	6.68	6.82	0.00
Endosulfan sulfate	7.18	7.18	7.11	7.25	0.00
4,4-DDT	7.06	7.06	6.99	7.13	0.00
Methoxychlor	7.53	7.53	7.46	7.60	0.00
Endrin ketone	7.65	7.65	7.58	7.72	0.00
Endrin aldehyde	6.96	6.95	6.88	7.02	-0.01
alpha-Chlordane	6.10	6.10	6.03	6.17	0.00
gamma-Chlordane	6.03	6.03	5.96	6.10	0.00

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_D **Date(s) Analyzed:** 01/03/2012 01/03/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.31	6.26	6.36	555528900
		2	6.85	6.80	6.90	1430318000
		3	7.09	7.04	7.14	2539930000
		4	7.58	7.53	7.63	2573240000
		5	7.94	7.89	7.99	805062700

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007341.D **Time Analyzed:** 14:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.302	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.751	4.700	4.800	0.028	0.025	12.0
delta-BHC	4.965	4.920	5.020	0.030	0.025	20.0
gamma-BHC (Lindane)	4.584	4.530	4.630	0.028	0.025	12.0
Heptachlor	5.097	5.050	5.150	0.029	0.025	16.0
Aldrin	5.404	5.350	5.450	0.029	0.025	16.0
Heptachlor epoxide	5.789	5.720	5.860	0.029	0.025	16.0
Endosulfan I	6.147	6.080	6.220	0.028	0.025	12.0
Dieldrin	6.405	6.330	6.470	0.028	0.025	12.0
4,4-DDE	6.263	6.190	6.330	0.028	0.025	12.0
Endrin	6.621	6.550	6.690	0.028	0.025	12.0
Endosulfan II	6.830	6.760	6.900	0.026	0.025	4.0
4,4-DDD	6.754	6.680	6.820	0.027	0.025	8.0
Endosulfan sulfate	7.181	7.110	7.250	0.027	0.025	8.0
4,4-DDT	7.058	6.990	7.130	0.027	0.025	8.0
Methoxychlor	7.526	7.460	7.600	0.026	0.025	4.0
Endrin ketone	7.650	7.580	7.720	0.027	0.025	8.0
Endrin aldehyde	6.955	6.880	7.020	0.028	0.025	12.0
alpha-Chlordane	6.100	6.030	6.170	0.028	0.025	12.0
gamma-Chlordane	6.026	5.960	6.100	0.028	0.025	12.0
Decachlorobiphenyl	9.010	8.910	9.110	0.024	0.025	4.0
Tetrachloro-m-xylene	3.919	3.820	4.020	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/03/2012 01/03/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PD007348.D **Time Analyzed:** 17:40

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.305	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.758	4.700	4.800	0.028	0.025	12.0
delta-BHC	4.974	4.920	5.020	0.028	0.025	12.0
gamma-BHC (Lindane)	4.589	4.530	4.630	0.029	0.025	16.0
Heptachlor	5.106	5.050	5.150	0.028	0.025	12.0
Aldrin	5.412	5.350	5.450	0.028	0.025	12.0
Heptachlor epoxide	5.800	5.720	5.860	0.027	0.025	8.0
Endosulfan I	6.157	6.080	6.220	0.027	0.025	8.0
Dieldrin	6.417	6.330	6.470	0.027	0.025	8.0
4,4-DDE	6.276	6.190	6.330	0.023	0.025	8.0
Endrin	6.634	6.550	6.690	0.026	0.025	4.0
Endosulfan II	6.844	6.760	6.900	0.020	0.025	20.0
4,4-DDD	6.771	6.680	6.820	0.024	0.025	4.0
Endosulfan sulfate	7.197	7.110	7.250	0.024	0.025	4.0
4,4-DDT	7.075	6.990	7.130	0.024	0.025	4.0
Methoxychlor	7.544	7.460	7.600	0.023	0.025	8.0
Endrin ketone	7.667	7.580	7.720	0.023	0.025	8.0
Endrin aldehyde	6.970	6.880	7.020	0.026	0.025	4.0
alpha-Chlordane	6.112	6.030	6.170	0.029	0.025	16.0
gamma-Chlordane	6.036	5.960	6.100	0.025	0.025	0.0
Decachlorobiphenyl	9.030	8.910	9.110	0.023	0.025	8.0
Tetrachloro-m-xylene	3.921	3.820	4.020	0.028	0.025	12.0

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_G
GC Column:	ZB-MR1 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	01/04/2012 01/04/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK07	I.BLK07	01/04/2012	16:42	PG003676.D	11.37	4.77
PEM05	PEM05	01/04/2012	17:00	PG003677.D	11.37	4.77
RESC01	RESCHK	01/04/2012	17:19	PG003678.D	11.37	4.77
100 PPB PEST STD	100 PPB PEST STD	01/04/2012	17:38	PG003679.D	11.37	4.77
75 PPB PEST STD	75 PPB PEST STD	01/04/2012	17:57	PG003680.D	11.37	4.77
50 PPB PEST STD	50 PPB PEST STD	01/04/2012	18:15	PG003681.D	11.37	4.77
25 PPB PEST STD	25 PPB PEST STD	01/04/2012	18:34	PG003682.D	11.37	4.77
5 PPB PEST STD	5 PPB PEST STD	01/04/2012	18:53	PG003683.D	11.37	4.77
TOX 500	TOX	01/04/2012	19:30	PG003685.D	11.37	4.77
CHLOR 500	CHLOR 500	01/04/2012	19:49	PG003686.D	11.37	4.77
PIBLK08	I.BLK08	01/05/2012	00:27	PG003701.D	11.37	4.77
CCAL05	STD 25	01/05/2012	00:45	PG003702.D	11.37	4.77
12SB30-000.5-01	C5128-04	01/05/2012	01:04	PG003703.D	11.37	4.77
12SB30-0.502-02	C5128-05	01/05/2012	01:23	PG003704.D	11.37	4.77
12SB30-0304-03	C5128-06	01/05/2012	01:42	PG003705.D	11.37	4.77
12SB23-0.502-02	C5128-08	01/05/2012	02:00	PG003706.D	11.37	4.77
12SB23-0304-03	C5128-09	01/05/2012	02:18	PG003707.D	11.37	4.77
12SB21-000.5-01	C5128-10	01/05/2012	02:37	PG003708.D	11.37	4.77
12SB21-0.502-02	C5128-11	01/05/2012	02:56	PG003709.D	11.37	4.77
12SB21-0304-03	C5128-12	01/05/2012	03:14	PG003710.D	11.37	4.77
12SB20-0304-03	C5128-13	01/05/2012	03:32	PG003711.D	11.37	4.77
12SB-DUP-06	C5128-14	01/05/2012	03:51	PG003712.D	11.37	4.77
PIBLK09	I.BLK09	01/05/2012	04:09	PG003713.D	11.37	4.77
CCAL06	STD 25	01/05/2012	04:28	PG003714.D	11.37	4.77

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PG003683.D **CF 025 =** PG003682.D

CF 050 = PG003681.D **CF 075 =** PG003680.D **CF 100 =** PG003679.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	872680	788584	791650	758260	731283	788491	7
Tetrachloro-m-xylene	488400	431820	463322	465617	457516	461335	4
alpha-BHC	3616600	3992240	4920260	5366987	5593780	4697973	18
beta-BHC	2732600	2679760	2899460	2953400	2928540	2838752	4
delta-BHC	3654600	3626360	4337860	4718160	4881680	4243732	14
gamma-BHC (Lindane)	3800200	4245640	5078580	5457013	5613550	4838997	16
Heptachlor	5157000	5193680	5665780	5732053	5696510	5489005	5
Aldrin	4295400	4397960	4828700	4949760	4990260	4692416	7
Heptachlor epoxide	5251000	5042200	5344820	5356760	5296850	5258326	2
Endosulfan I	4777600	4815240	5143480	5245653	5237330	5043861	5
Dieldrin	4288200	4126320	4434380	4513880	4533960	4379348	4
4,4-DDE	4321400	4388680	4574000	4769120	4773530	4565346	5
Endrin	2515800	2612560	2845540	2857147	2795140	2725237	6
Endosulfan II	4541000	4372040	4646600	4642813	4596740	4559839	2
4,4-DDD	3082800	2865280	3044960	3077747	3203130	3054783	4
Endosulfan sulfate	4280800	4119240	4424000	4372547	4307540	4300825	3
4,4-DDT	3221200	3376640	3752040	3939040	3993490	3656482	9
Methoxychlor	2083800	2083600	2337620	2322240	2302070	2225866	6
Endrin ketone	4391600	4347280	4816280	4904773	4933120	4678611	6
Endrin aldehyde	4831400	4428320	4449080	4333120	4236320	4455648	5
alpha-Chlordane	4835400	4822200	5174180	5195707	5160440	5037585	4
gamma-Chlordane	4990800	4868240	5164760	5178200	5140440	5068488	3

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Continuing Calib Date: 01/05/2012 **Initial Calibration Date(s):** 01/04/2012 01/04/2012

Continuing Calib Time: 00:45 **Initial Calibration Time(s):** 17:38 18:53

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.57	6.57	6.52	6.62	0.00
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.43	7.43	7.36	7.50	0.00
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.52	7.52	7.45	7.59	0.00
Endrin	7.99	7.99	7.92	8.06	0.00
Endosulfan II	8.22	8.22	8.15	8.29	0.00
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.97	8.96	8.89	9.03	-0.01
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.28	7.28	7.21	7.35	0.00

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_G **Date(s) Analyzed:** 01/04/2012 01/04/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15392
		2	8.24	8.18	8.29	137762
		3	8.50	8.45	8.55	221576
		4	8.62	8.57	8.67	184822
		5	9.13	9.08	9.18	353008

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/04/2012 01/04/2012

Client Sample No. (PEM): PEM - PG003677.D Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:00

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.370	11.270	11.470	0.021	0.020	5.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.239	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.768	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.010	0.010	0.0
Endrin	7.986	7.920	8.060	0.057	0.050	14.0
4,4-DDT	8.430	8.360	8.500	0.107	0.100	7.0
Methoxychlor	8.963	8.890	9.030	0.278	0.250	11.2

Client Sample No. (PEM): PEM - PG003677.D Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:00

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.730	9.630	9.830	0.022	0.020	10.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.596	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.216	5.170	5.270	0.011	0.010	10.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.011	0.010	10.0
Endrin	7.092	7.020	7.160	0.051	0.050	2.0
4,4-DDT	7.467	7.400	7.540	0.090	0.100	10.0
Methoxychlor	8.065	8.000	8.140	0.195	0.250	22.0

Sample: PEM
Data File: PG003677.D **Date Acquired** 1/4/2012 17:00
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.99	156154.622	182233.275	26078.653	**14.31**
Endrin aldehyde	8.36	10497.762			
Endrin ketone	9.24	15580.891			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	1006367.247	1163425.977	157058.73	**13.50**
Endrin aldehyde #2	7.59	54067.978			
Endrin ketone #2	8.41	102990.752			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	392018.346	399566.865	7548.519	**1.89**
4,4'-DDE	7.52	6594.612			
4,4'-DDD	8.08	953.907			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2081016.734	2173036.74	92020.006	**4.23**
4,4'-DDE #2	6.60	56328.294			
4,4'-DDD #2	7.19	35691.712			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003702.D **Time Analyzed:** 00:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.240	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.769	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.034	5.980	6.080	0.022	0.025	12.0
gamma-BHC (Lindane)	5.582	5.530	5.630	0.022	0.025	12.0
Heptachlor	6.202	6.150	6.250	0.022	0.025	12.0
Aldrin	6.567	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.012	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.434	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.729	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.524	7.450	7.590	0.024	0.025	4.0
Endrin	7.986	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.216	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.083	8.010	8.150	0.023	0.025	8.0
Endosulfan sulfate	8.617	8.550	8.690	0.024	0.025	4.0
4,4-DDT	8.429	8.360	8.500	0.020	0.025	20.0
Methoxychlor	8.965	8.890	9.030	0.021	0.025	16.0
Endrin ketone	9.240	9.170	9.310	0.025	0.025	0.0
Endrin aldehyde	8.357	8.290	8.430	0.026	0.025	4.0
alpha-Chlordane	7.369	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.284	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.370	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL06 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003714.D **Time Analyzed:** 04:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.240	5.190	5.290	0.022	0.025	12.0
beta-BHC	5.769	5.720	5.820	0.024	0.025	4.0
delta-BHC	6.034	5.980	6.080	0.022	0.025	12.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.022	0.025	12.0
Heptachlor	6.202	6.150	6.250	0.022	0.025	12.0
Aldrin	6.567	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.012	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.435	7.360	7.500	0.022	0.025	12.0
Dieldrin	7.730	7.660	7.800	0.024	0.025	4.0
4,4-DDE	7.524	7.450	7.590	0.022	0.025	12.0
Endrin	7.985	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.216	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.084	8.010	8.150	0.020	0.025	20.0
Endosulfan sulfate	8.618	8.550	8.690	0.026	0.025	4.0
4,4-DDT	8.430	8.360	8.500	0.022	0.025	12.0
Methoxychlor	8.963	8.890	9.030	0.021	0.025	16.0
Endrin ketone	9.239	9.170	9.310	0.025	0.025	0.0
Endrin aldehyde	8.358	8.290	8.430	0.028	0.025	12.0
alpha-Chlordane	7.370	7.300	7.440	0.023	0.025	8.0
gamma-Chlordane	7.284	7.210	7.350	0.023	0.025	8.0
Decachlorobiphenyl	11.373	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.024	0.025	4.0

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_G
GC Column:	ZB-MR2 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	01/04/2012 01/04/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK07	I.BLK07	01/04/2012	16:42	PG003676.D	9.73	4.07
PEM05	PEM05	01/04/2012	17:00	PG003677.D	9.73	4.07
RESC01	RESCHK	01/04/2012	17:19	PG003678.D	9.73	4.07
100 PPB PEST STD	100 PPB PEST STD	01/04/2012	17:38	PG003679.D	9.73	4.07
75 PPB PEST STD	75 PPB PEST STD	01/04/2012	17:57	PG003680.D	9.73	4.07
50 PPB PEST STD	50 PPB PEST STD	01/04/2012	18:15	PG003681.D	9.73	4.07
25 PPB PEST STD	25 PPB PEST STD	01/04/2012	18:34	PG003682.D	9.73	4.07
5 PPB PEST STD	5 PPB PEST STD	01/04/2012	18:53	PG003683.D	9.73	4.07
TOX 500	TOX	01/04/2012	19:30	PG003685.D	9.73	4.07
CHLOR 500	CHLOR 500	01/04/2012	19:49	PG003686.D	9.73	4.07
PIBLK08	I.BLK08	01/05/2012	00:27	PG003701.D	9.73	4.07
CCAL05	STD 25	01/05/2012	00:45	PG003702.D	9.73	4.07
12SB30-000.5-01	C5128-04	01/05/2012	01:04	PG003703.D	9.73	4.07
12SB30-0.502-02	C5128-05	01/05/2012	01:23	PG003704.D	9.73	4.07
12SB30-0304-03	C5128-06	01/05/2012	01:42	PG003705.D	9.73	4.07
12SB23-0.502-02	C5128-08	01/05/2012	02:00	PG003706.D	9.73	4.07
12SB23-0304-03	C5128-09	01/05/2012	02:18	PG003707.D	9.73	4.07
12SB21-000.5-01	C5128-10	01/05/2012	02:37	PG003708.D	9.73	4.07
12SB21-0.502-02	C5128-11	01/05/2012	02:56	PG003709.D	9.73	4.07
12SB21-0304-03	C5128-12	01/05/2012	03:14	PG003710.D	9.73	4.07
12SB20-0304-03	C5128-13	01/05/2012	03:32	PG003711.D	9.73	4.07
12SB-DUP-06	C5128-14	01/05/2012	03:51	PG003712.D	9.73	4.07
PIBLK09	I.BLK09	01/05/2012	04:09	PG003713.D	9.73	4.07
CCAL06	STD 25	01/05/2012	04:28	PG003714.D	9.73	4.07

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003683.D CF 025 = PG003682.D

CF 050 = PG003681.D CF 075 = PG003680.D CF 100 = PG003679.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3754220	3097484	2592194	2646860	2488814	2915914	18
Tetrachloro-m-xylene	2925800	2504324	2402422	2269932	2138297	2448155	12
alpha-BHC	36842400	36033680	36198640	34891653	33424570	35478189	4
beta-BHC	18203400	16977160	16529640	15691813	14699460	16420295	8
delta-BHC	33959600	33665080	34155300	33059520	31418310	33251562	3
gamma-BHC (Lindane)	38081200	35829320	35676700	34337560	32565510	35298058	6
Heptachlor	34913000	31980320	31467740	29878707	28090020	31265957	8
Aldrin	34660200	32501200	32124300	30450627	28813270	31709919	7
Heptachlor epoxide	35822600	31882680	31094880	29228000	27142120	31034056	10
Endosulfan I	33536400	30057400	29124220	27339413	25459850	29103457	10
Dieldrin	34891400	31607000	30950400	29394947	27638770	30896503	9
4,4-DDE	34332600	31510360	31062180	29193200	27680450	30755758	8
Endrin	19579800	20209880	20940060	19562747	18128020	19684101	5
Endosulfan II	31663000	28139040	27169060	25543720	23792980	27261560	11
4,4-DDD	24910400	24382160	24595480	23505373	21604910	23799665	6
Endosulfan sulfate	28797800	25780880	24974860	23477973	22130090	25032321	10
4,4-DDT	23190800	23503200	24063700	23194733	21970390	23184565	3
Methoxychlor	12365400	11543560	11423820	10907693	10590880	11366271	6
Endrin ketone	31788800	28867200	27880480	25128160	24435290	27619986	11
Endrin aldehyde	28623800	24651800	23167020	21717760	20389830	23710042	13
alpha-Chlordane	36838000	32710880	31903280	30180533	28334560	31993451	10
gamma-Chlordane	36756800	32659280	31851080	30330320	28440010	32007498	10

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Continuing Calib Date: 01/05/2012 **Initial Calibration Date(s):** 01/04/2012 01/04/2012

Continuing Calib Time: 00:45 **Initial Calibration Time(s):** 17:38 18:53

GC Column: ZB-MR2 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.00
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.83	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.00
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.44	6.44	6.37	6.51	0.00
gamma-Chlordane	6.37	6.37	6.30	6.44	0.00

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_G **Date(s) Analyzed:** 01/04/2012 01/04/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.18	6.13	6.23	156582
		2	7.71	7.66	7.76	2395532
		3	8.01	7.96	8.06	1173182
		4	8.13	8.08	8.18	1057432
		5	8.28	8.23	8.33	1989258

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG010412\
Data File : PG003678.D
Acq On : 4 Jan 2012 17:19
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG010412.M
Title : GC Extractables
Last Update : Thu Jan 05 04:44:06 2012
Integrator: ChemStation

RT#1	RT#2	Resolution
4.771	7.285	100.00%
7.285	7.435	100.00%
7.435	7.525	98.04%
7.525	7.729	100.00%
7.729	8.619	100.00%
8.619	8.964	100.00%
8.964	9.239	100.00%
9.239	11.371	100.00%

ignal #2

4.066	6.367	100.00%
6.367	6.510	99.74%
6.510	6.602	99.71%
6.602	6.790	100.00%
6.790	7.825	100.00%
7.825	8.068	100.00%
8.068	8.409	100.00%
8.409	9.733	100.00%

G010412.M Thu Jan 05 05:09:21 2012 GC/MS

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003702.D **Time Analyzed:** 00:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.597	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.218	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.025	0.025	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.294	5.240	5.340	0.024	0.025	4.0
Aldrin	5.593	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.108	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.025	0.025	0.0
4,4-DDE	6.603	6.530	6.670	0.023	0.025	8.0
Endrin	7.093	7.020	7.160	0.024	0.025	4.0
Endosulfan II	7.397	7.330	7.470	0.025	0.025	0.0
4,4-DDD	7.191	7.120	7.260	0.029	0.025	16.0
Endosulfan sulfate	7.825	7.750	7.890	0.025	0.025	0.0
4,4-DDT	7.468	7.400	7.540	0.022	0.025	12.0
Methoxychlor	8.068	8.000	8.140	0.022	0.025	12.0
Endrin ketone	8.408	8.340	8.480	0.027	0.025	8.0
Endrin aldehyde	7.588	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.436	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.366	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.730	9.630	9.830	0.026	0.025	4.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL06 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003714.D **Time Analyzed:** 04:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.597	4.550	4.650	0.026	0.025	4.0
beta-BHC	5.218	5.170	5.270	0.026	0.025	4.0
delta-BHC	5.470	5.420	5.520	0.026	0.025	4.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.026	0.025	4.0
Heptachlor	5.294	5.240	5.340	0.024	0.025	4.0
Aldrin	5.593	5.540	5.640	0.026	0.025	4.0
Heptachlor epoxide	6.108	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.026	0.025	4.0
Dieldrin	6.790	6.720	6.860	0.026	0.025	4.0
4,4-DDE	6.603	6.530	6.670	0.025	0.025	0.0
Endrin	7.094	7.020	7.160	0.023	0.025	8.0
Endosulfan II	7.398	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.190	7.120	7.260	0.026	0.025	4.0
Endosulfan sulfate	7.825	7.750	7.890	0.026	0.025	4.0
4,4-DDT	7.469	7.400	7.540	0.022	0.025	12.0
Methoxychlor	8.068	8.000	8.140	0.021	0.025	16.0
Endrin ketone	8.409	8.340	8.480	0.028	0.025	12.0
Endrin aldehyde	7.588	7.520	7.660	0.028	0.025	12.0
alpha-Chlordane	6.436	6.370	6.510	0.026	0.025	4.0
gamma-Chlordane	6.366	6.300	6.440	0.026	0.025	4.0
Decachlorobiphenyl	9.732	9.630	9.830	0.027	0.025	8.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.026	0.025	4.0

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB30-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab Sample ID: C5128-04 Date(s) Analyzed: 01/05/2012 01/05/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	9.5	14.6
	2	6.79	6.72	6.86	11	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB21-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab Sample ID: C5128-10 Date(s) Analyzed: 01/05/2012 01/05/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	1.6	51.2
	2	6.79	6.72	6.86	2.7	

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/22/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	12SB30-000.5-01	SDG No.:	c5128
Lab Sample ID:	C5128-04	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.3 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003703.D	1	12/28/11	01/05/12	PB60241

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	11		0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16		55 - 130	80%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.8		70 - 125	84%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Data Path : P:\HPCHEM1\Ecd_G\Data\PG010412\
Data File : PG003703.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 5 Jan 2012 1:04
Operator : JJ
Sample : C5128-04
Misc :
ALS Vial : 30 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jan 05 05:20:53 2012
Quant Method : P:\HPCHEM1\Ecd_G\Method\PG010412.M
Quant Title : GC Extractables
QLast Update : Thu Jan 05 04:44:06 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 µl
Signal #1 Phase : ZB-MR1 Signal #2 Phase: ZB-MR2
Signal #1 Info : 30M x 0.32mm x0.5 Signal #2 Info : 30M x 0.32mm x0.25µm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/ml	ng/ml
	System Monitoring Compounds						
.)	SA Tetrachlo...	4.769	4.066	77369	436958	16.771m	17.848
2)	SA Decachlor...	11.371	9.730	126209	474759	16.006	16.282m
	Target Compounds						
3)	MA Dieldrin	7.729	6.789	99552	781646	22.732	25.299

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

SDG C5128F0966

SAMPLE CALC	SAMPLE ID	12SB30-000.5-01				
CF	Correction factor	COMPOUND OF INTEREST AREA	Vol. of extract (UL)	Sample Wt. in grams (G)	Percent Solids	CONCENTRATION PPB
30896503	1	781646	10000	30.07	0.797	10.5562

Dieldrin = 11.0 ug/kg

CHEMTECH

Surrogate Summary

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006006.D	PIBLK-PC006006.D	Tetrachloro-m-xylene	1	20	24.47	122		35	137
		Decachlorobiphenyl	1	20	23.61	118		40	135
		Tetrachloro-m-xylene	2	20	25.07	125		35	137
		Decachlorobiphenyl	2	20	24.18	121		40	135
I.BLK-PC006334.D	PIBLK-PC006334.D	Tetrachloro-m-xylene	1	20	19.04	95		35	137
		Decachlorobiphenyl	1	20	22.78	114		40	135
		Tetrachloro-m-xylene	2	20	21.69	108		35	137
		Decachlorobiphenyl	2	20	20.86	104		40	135
PB60242BL	PB60242BL	Tetrachloro-m-xylene	1	20	15.37	77		10	166
		Decachlorobiphenyl	1	20	19.21	96		60	125
		Tetrachloro-m-xylene	2	20	17.98	90		10	166
		Decachlorobiphenyl	2	20	16.61	83		60	125
PB60242BS	PB60242BS	Tetrachloro-m-xylene	1	20	16.27	81		10	166
		Decachlorobiphenyl	1	20	20.01	100		60	125
		Tetrachloro-m-xylene	2	20	18.62	93		10	166
		Decachlorobiphenyl	2	20	17.62	88		60	125
I.BLK-PC006346.D	PIBLK-PC006346.D	Tetrachloro-m-xylene	1	20	19.69	98		35	137
		Decachlorobiphenyl	1	20	22.89	114		40	135
		Tetrachloro-m-xylene	2	20	21.84	109		35	137
		Decachlorobiphenyl	2	20	21.94	110		40	135
C5128-04	12SB30-000.5-01	Tetrachloro-m-xylene	1	20	14.41	72		10	166
		Decachlorobiphenyl	1	20	15.23	76		60	125
		Tetrachloro-m-xylene	2	20	16.55	83		10	166
		Decachlorobiphenyl	2	20	13.18	66		60	125
C5128-05	12SB30-0.502-02	Tetrachloro-m-xylene	1	20	14.73	74		10	166
		Decachlorobiphenyl	1	20	16.19	81		60	125
		Tetrachloro-m-xylene	2	20	17.27	86		10	166
		Decachlorobiphenyl	2	20	14.24	71		60	125
C5128-06	12SB30-0304-03	Tetrachloro-m-xylene	1	20	16.24	81		10	166
		Decachlorobiphenyl	1	20	18.86	94		60	125
		Tetrachloro-m-xylene	2	20	18.44	92		10	166
		Decachlorobiphenyl	2	20	16.44	82		60	125
C5128-07	12SB23-000.5-01	Tetrachloro-m-xylene	1	20	14.32	72		10	166
		Decachlorobiphenyl	1	20	13.55	68		60	125
		Tetrachloro-m-xylene	2	20	18.21	91		10	166
		Decachlorobiphenyl	2	20	10.91	55	*	60	125
C5128-09	12SB23-0304-03	Tetrachloro-m-xylene	1	20	16.02	80		10	166
		Decachlorobiphenyl	1	20	18.6	93		60	125
		Tetrachloro-m-xylene	2	20	18.05	90		10	166
		Decachlorobiphenyl	2	20	15.21	76		60	125
C5128-10	12SB21-000.5-01	Tetrachloro-m-xylene	1	20	14.65	73		10	166
		Decachlorobiphenyl	1	20	18.98	95		60	125
		Tetrachloro-m-xylene	2	20	16.75	84		10	166
		Decachlorobiphenyl	2	20	14.9	75		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5128-11	12SB21-0.502-02	Tetrachloro-m-xylene	1	20	15.28	76		10	166
		Decachlorobiphenyl	1	20	18.7	94		60	125
		Tetrachloro-m-xylene	2	20	17.5	88		10	166
		Decachlorobiphenyl	2	20	16.2	81		60	125
C5128-12	12SB21-0304-03	Tetrachloro-m-xylene	1	20	13.87	69		10	166
		Decachlorobiphenyl	1	20	16.37	82		60	125
		Tetrachloro-m-xylene	2	20	16.08	80		10	166
		Decachlorobiphenyl	2	20	14.61	73		60	125
C5128-13	12SB20-0304-03	Tetrachloro-m-xylene	1	20	15.94	80		10	166
		Decachlorobiphenyl	1	20	19.71	99		60	125
		Tetrachloro-m-xylene	2	20	18.43	92		10	166
		Decachlorobiphenyl	2	20	18.75	94		60	125
I.BLK-PC006359.D	PIBLK-PC006359.D	Tetrachloro-m-xylene	1	20	19.73	99		35	137
		Decachlorobiphenyl	1	20	22.63	113		40	135
		Tetrachloro-m-xylene	2	20	21.45	107		35	137
		Decachlorobiphenyl	2	20	20.4	102		40	135
C5128-14	12SB-DUP-06	Tetrachloro-m-xylene	1	20	16.2	81		10	166
		Decachlorobiphenyl	1	20	20.41	102		60	125
		Tetrachloro-m-xylene	2	20	18.33	92		10	166
		Decachlorobiphenyl	2	20	18.77	94		60	125
C5128-04MS	12SB30-000.5-01MS	Tetrachloro-m-xylene	1	20	13.96	70		10	166
		Decachlorobiphenyl	1	20	13.69	68		60	125
		Tetrachloro-m-xylene	2	20	15.81	79		10	166
		Decachlorobiphenyl	2	20	13.65	68		60	125
C5128-04MSD	12SB30-000.5-01MSD	Tetrachloro-m-xylene	1	20	14.47	72		10	166
		Decachlorobiphenyl	1	20	15.32	77		60	125
		Tetrachloro-m-xylene	2	20	16.24	81		10	166
		Decachlorobiphenyl	2	20	15.11	76		60	125
I.BLK-PC006365.D	PIBLK-PC006365.D	Tetrachloro-m-xylene	1	20	19.45	97		35	137
		Decachlorobiphenyl	1	20	22.44	112		40	135
		Tetrachloro-m-xylene	2	20	21.64	108		35	137
		Decachlorobiphenyl	2	20	21.89	109		40	135
I.BLK-PC006419.D	PIBLK-PC006419.D	Tetrachloro-m-xylene	1	20	20.55	103		35	137
		Decachlorobiphenyl	1	20	21.03	105		40	135
		Tetrachloro-m-xylene	2	20	19.95	100		35	137
		Decachlorobiphenyl	2	20	22.73	114		40	135
C5128-08	12SB23-0.502-02	Tetrachloro-m-xylene	1	20	19.44	97		10	166
		Decachlorobiphenyl	1	20	15.52	78		60	125
		Tetrachloro-m-xylene	2	20	20.04	100		10	166
		Decachlorobiphenyl	2	20	16.04	80		60	125
I.BLK-PC006425.D	PIBLK-PC006425.D	Tetrachloro-m-xylene	1	20	20.85	104		35	137
		Decachlorobiphenyl	1	20	21.64	108		40	135
		Tetrachloro-m-xylene	2	20	21.54	108		35	137
		Decachlorobiphenyl	2	20	22.87	114		40	135

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60242BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab Sample ID: PB60242BL Lab File ID: PC006342.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/28/2011

Date Analyzed (1): 12/28/2011 Date Analyzed (2): 12/28/2011

Time Analyzed (1): 18:55 Time Analyzed (2): 18:55

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60242BS	PB60242BS	PC006343.D	12/28/2011	12/28/2011
12SB30-000.5-01	C5128-04	PC006349.D	12/28/2011	12/28/2011
12SB30-0.502-02	C5128-05	PC006350.D	12/28/2011	12/28/2011
12SB30-0304-03	C5128-06	PC006351.D	12/28/2011	12/28/2011
12SB23-000.5-01	C5128-07	PC006352.D	12/28/2011	12/28/2011
12SB23-0304-03	C5128-09	PC006354.D	12/28/2011	12/28/2011
12SB21-000.5-01	C5128-10	PC006355.D	12/28/2011	12/28/2011
12SB21-0.502-02	C5128-11	PC006356.D	12/28/2011	12/28/2011
12SB21-0304-03	C5128-12	PC006357.D	12/28/2011	12/28/2011
12SB20-0304-03	C5128-13	PC006358.D	12/28/2011	12/28/2011
12SB-DUP-06	C5128-14	PC006361.D	12/29/2011	12/29/2011
12SB30-000.5-01MS	C5128-04MS	PC006363.D	12/29/2011	12/29/2011
12SB30-000.5-01MSD	C5128-04MSD	PC006364.D	12/29/2011	12/29/2011
12SB23-0.502-02	C5128-08	PC006423.D	01/04/2012	01/04/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.		Date Collected:		
Project:	CTO WE05 NAS JRB Willow Grove		Date Received:		
Client Sample ID:	PB60242BL		SDG No.:	C5128	
Lab Sample ID:	PB60242BL		Matrix:	SOIL	
Analytical Method:	SW8082		% Moisture:	0	Decanted:
Sample Wt/Vol:	30 Units:	g	Final Vol:	10000	uL
Soil Aliquot Vol:		uL	Test:	PCB	
Extraction Type:			Injection Volume	1	
GPC Factor :	1.0	PH :			

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006342.D	1	12/28/11	12/28/11	PB60242

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.4		10 - 166	77%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.2		60 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60242BS	AR1016	66.6	73	110				53	140	
	AR1260	66.6	72	108				65	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5128

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12SB30-000.5-01MS**										
C5128-04MS	AR1016	83.0	0	110	133				40	140	
	AR1260	83.0	0	97	117				60	130	
Client Sample ID:	**12SB30-000.5-01MSD**										
C5128-04MSD	AR1016	83.1	0	100	105		10		40	140	20
	AR1260	83.1	0	88	106		10		60	130	20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/13/11
Client Sample ID:	PlBLK-PC006006.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006006.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006006.D	1		12/13/11	PC121311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	24.5		35 - 137	122%	SPK: 20
2051-24-3	Decachlorobiphenyl	23.6		40 - 135	118%	SPK: 20

U = Not Detected
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E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PC006419.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006419.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006419.D	1		01/04/12	PC010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	20.6		35 - 137	103%	SPK: 20
2051-24-3	Decachlorobiphenyl	21		40 - 135	105%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/28/11
Client Sample ID:	PIBLK-PC006334.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006334.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006334.D	1		12/28/11	PC122811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19		35 - 137	95%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.8		40 - 135	114%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PC006425.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006425.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006425.D	1		01/04/12	PC010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	20.8		35 - 137	104%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.6		40 - 135	108%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/28/11
Client Sample ID:	PIBLK-PC006346.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006346.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006346.D	1		12/28/11	PC122811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.7		35 - 137	98%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.9		40 - 135	114%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/28/11
Client Sample ID:	PIBLK-PC006359.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006359.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006359.D	1		12/28/11	PC122811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.7		35 - 137	99%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.6		40 - 135	113%	SPK: 20

U = Not Detected
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LOD = Limit of Detection
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J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	PIBLK-PC006365.D	SDG No.:	C5128
Lab Sample ID:	I.BLK-PC006365.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006365.D	1		12/29/11	PC122811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.4		35 - 137	97%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.4		40 - 135	112%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_C

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.58	8.43
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.58	8.42
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.57	8.42
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.58	8.42
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.58	8.42
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.58	8.43
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.58	8.42
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.58	8.42
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.58	8.42
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.58	8.43
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.58	8.42
PIBLK02	I.BLK02	12/28/2011	16:45	PC006334.D	1.57	8.43
CCAL01	1660 250	12/28/2011	17:01	PC006335.D	1.57	8.43
PB60242BL	PB60242BL	12/28/2011	18:55	PC006342.D	1.57	8.43
PB60242BS	PB60242BS	12/28/2011	19:11	PC006343.D	1.57	8.43
PIBLK03	I.BLK03	12/28/2011	20:00	PC006346.D	1.57	8.43
CCAL02	1660 250	12/28/2011	20:16	PC006347.D	1.57	8.43
12SB30-000.5-01	C5128-04	12/28/2011	20:48	PC006349.D	1.57	8.43
12SB30-0.502-02	C5128-05	12/28/2011	21:04	PC006350.D	1.57	8.43
12SB30-0304-03	C5128-06	12/28/2011	21:21	PC006351.D	1.57	8.43
12SB23-000.5-01	C5128-07	12/28/2011	21:37	PC006352.D	1.57	8.43
12SB23-0304-03	C5128-09	12/28/2011	22:09	PC006354.D	1.57	8.43
12SB21-000.5-01	C5128-10	12/28/2011	22:25	PC006355.D	1.57	8.43
12SB21-0.502-02	C5128-11	12/28/2011	22:42	PC006356.D	1.57	8.43
12SB21-0304-03	C5128-12	12/28/2011	22:58	PC006357.D	1.57	8.43
12SB20-0304-03	C5128-13	12/28/2011	23:14	PC006358.D	1.57	8.43
PIBLK04	I.BLK04	12/28/2011	23:30	PC006359.D	1.57	8.43
CCAL03	1660 250	12/28/2011	23:46	PC006360.D	1.57	8.43
12SB-DUP-06	C5128-14	12/29/2011	00:03	PC006361.D	1.57	8.43
12SB30-000.5-01MS	C5128-04MS	12/29/2011	00:35	PC006363.D	1.57	8.43
12SB30-000.5-01MSD	C5128-04MSD	12/29/2011	00:51	PC006364.D	1.57	8.43
PIBLK05	I.BLK05	12/29/2011	01:07	PC006365.D	1.57	8.43
CCAL04	1660 250	12/29/2011	01:24	PC006366.D	1.56	8.43
PIBLK06	I.BLK06	01/04/2012	14:08	PC006419.D	1.58	8.42
CCAL05	1660 250	01/04/2012	15:35	PC006420.D	1.58	8.43
12SB23-0.502-02	C5128-08	01/04/2012	16:37	PC006423.D	1.58	8.43
PIBLK07	I.BLK07	01/04/2012	17:33	PC006425.D	1.58	8.43
CCAL06	1660 250	01/04/2012	17:49	PC006426.D	1.58	8.43

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1539340	1583428	1652292	1516859	1525454	1563475	4
Decachlorobiphenyl	2753860	2322628	2228812	1984339	1934411	2244810	15
AR1016 (1)	81972	69605	66677	59385	58354	67199	14
AR1016 (2)	119474	139033	138562	120044	124271	128277	8
AR1016 (3)	45572	50213	49382	43690	43986	46569	7
AR1016 (4)	95814	81476	78901	71383	69652	79445	13
AR1016 (5)	63008	59206	58785	53206	52860	57413	8
AR1260 (1)	101772	94032	93196	83493	82614	91021	9
AR1260 (2)	209384	177891	177586	158917	156997	176155	12
AR1260 (3)	161338	151174	155707	141296	141029	150109	6
AR1260 (4)	233482	216564	219776	189635	189204	209732	9
AR1260 (5)	99230	95811	98680	92081	91537	95468	4

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006011.D RT 250 = PC006010.D

RT 500 = PC006009.D RT 750 = PC006008.D RT 1000 = PC006007.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.58	1.58	1.58	1.57	1.58	1.58	1.53	1.63
Decachlorobiphenyl		8.43	8.42	8.42	8.42	8.42	8.42	8.32	8.52
AR1016	(1)	2.25	2.25	2.25	2.24	2.25	2.25	2.20	2.30
AR1016	(2)	2.74	2.74	2.74	2.73	2.73	2.73	2.68	2.78
AR1016	(3)	2.89	2.89	2.89	2.88	2.89	2.89	2.84	2.94
AR1016	(4)	3.13	3.13	3.13	3.12	3.12	3.12	3.07	3.17
AR1016	(5)	3.37	3.37	3.37	3.36	3.36	3.37	3.32	3.42
AR1260	(1)	4.90	4.90	4.89	4.89	4.89	4.89	4.84	4.94
AR1260	(2)	5.27	5.27	5.27	5.26	5.26	5.27	5.22	5.32
AR1260	(3)	5.63	5.63	5.63	5.63	5.63	5.63	5.58	5.68
AR1260	(4)	6.54	6.54	6.54	6.54	6.54	6.54	6.49	6.59
AR1260	(5)	6.91	6.91	6.91	6.91	6.91	6.91	6.86	6.96

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest **ID:** 0.32 **(mm)** **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006335.D **Time Analyzed:** 17:01

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.245	2.200	2.300	0.216	0.250	13.6
AR1016 (2)	2.734	2.680	2.780	0.224	0.250	10.4
AR1016 (3)	2.887	2.840	2.940	0.223	0.250	10.8
AR1016 (4)	3.123	3.070	3.170	0.228	0.250	8.8
AR1016 (5)	3.365	3.320	3.420	0.218	0.250	12.8
AR1260 (1)	4.898	4.840	4.940	0.226	0.250	9.6
AR1260 (2)	5.269	5.220	5.320	0.223	0.250	10.8
AR1260 (3)	5.632	5.580	5.680	0.225	0.250	10.0
AR1260 (4)	6.543	6.490	6.590	0.229	0.250	8.4
AR1260 (5)	6.913	6.860	6.960	0.239	0.250	4.4
Tetrachloro-m-xylene	1.568	1.530	1.630	0.019	0.025	24.0
Decachlorobiphenyl	8.429	8.320	8.520	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006347.D **Time Analyzed:** 20:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.247	2.200	2.300	0.222	0.250	11.2
AR1016 (2)	2.734	2.680	2.780	0.256	0.250	2.4
AR1016 (3)	2.888	2.840	2.940	0.267	0.250	6.8
AR1016 (4)	3.125	3.070	3.170	0.249	0.250	0.4
AR1016 (5)	3.367	3.320	3.420	0.229	0.250	8.4
AR1260 (1)	4.897	4.840	4.940	0.232	0.250	7.2
AR1260 (2)	5.269	5.220	5.320	0.232	0.250	7.2
AR1260 (3)	5.631	5.580	5.680	0.235	0.250	6.0
AR1260 (4)	6.544	6.490	6.590	0.223	0.250	10.8
AR1260 (5)	6.914	6.860	6.960	0.228	0.250	8.8
Tetrachloro-m-xylene	1.570	1.530	1.630	0.022	0.025	12.0
Decachlorobiphenyl	8.428	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006360.D **Time Analyzed:** 23:46

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.248	2.200	2.300	0.228	0.250	8.8
AR1016 (2)	2.735	2.680	2.780	0.262	0.250	4.8
AR1016 (3)	2.889	2.840	2.940	0.275	0.250	10.0
AR1016 (4)	3.126	3.070	3.170	0.267	0.250	6.8
AR1016 (5)	3.368	3.320	3.420	0.234	0.250	6.4
AR1260 (1)	4.900	4.840	4.940	0.232	0.250	7.2
AR1260 (2)	5.271	5.220	5.320	0.231	0.250	7.6
AR1260 (3)	5.633	5.580	5.680	0.230	0.250	8.0
AR1260 (4)	6.543	6.490	6.590	0.237	0.250	5.2
AR1260 (5)	6.914	6.860	6.960	0.231	0.250	7.6
Tetrachloro-m-xylene	1.571	1.530	1.630	0.022	0.025	12.0
Decachlorobiphenyl	8.428	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/29/2011

Lab Sample No.: 1660 250 **Data File :** PC006366.D **Time Analyzed:** 01:24

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.240	2.200	2.300	0.228	0.250	8.8
AR1016 (2)	2.728	2.680	2.780	0.263	0.250	5.2
AR1016 (3)	2.883	2.840	2.940	0.277	0.250	10.8
AR1016 (4)	3.121	3.070	3.170	0.258	0.250	3.2
AR1016 (5)	3.363	3.320	3.420	0.237	0.250	5.2
AR1260 (1)	4.897	4.840	4.940	0.233	0.250	6.8
AR1260 (2)	5.268	5.220	5.320	0.232	0.250	7.2
AR1260 (3)	5.631	5.580	5.680	0.231	0.250	7.6
AR1260 (4)	6.542	6.490	6.590	0.228	0.250	8.8
AR1260 (5)	6.913	6.860	6.960	0.234	0.250	6.4
Tetrachloro-m-xylene	1.560	1.530	1.630	0.022	0.025	12.0
Decachlorobiphenyl	8.427	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006420.D **Time Analyzed:** 15:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.256	2.200	2.300	0.261	0.250	4.4
AR1016 (2)	2.742	2.680	2.780	0.281	0.250	12.4
AR1016 (3)	2.896	2.840	2.940	0.290	0.250	16.0
AR1016 (4)	3.132	3.070	3.170	0.263	0.250	5.2
AR1016 (5)	3.373	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.906	4.840	4.940	0.267	0.250	6.8
AR1260 (2)	5.277	5.220	5.320	0.259	0.250	3.6
AR1260 (3)	5.640	5.580	5.680	0.251	0.250	0.4
AR1260 (4)	6.550	6.490	6.590	0.254	0.250	1.6
AR1260 (5)	6.921	6.860	6.960	0.236	0.250	5.6
Tetrachloro-m-xylene	1.580	1.530	1.630	0.025	0.025	0.0
Decachlorobiphenyl	8.432	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest **ID:** 0.32 **(mm)** **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL06 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006426.D **Time Analyzed:** 17:49

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.252	2.200	2.300	0.265	0.250	6.0
AR1016 (2)	2.738	2.680	2.780	0.279	0.250	11.6
AR1016 (3)	2.892	2.840	2.940	0.286	0.250	14.4
AR1016 (4)	3.127	3.070	3.170	0.277	0.250	10.8
AR1016 (5)	3.368	3.320	3.420	0.245	0.250	2.0
AR1260 (1)	4.900	4.840	4.940	0.280	0.250	12.0
AR1260 (2)	5.272	5.220	5.320	0.270	0.250	8.0
AR1260 (3)	5.635	5.580	5.680	0.262	0.250	4.8
AR1260 (4)	6.544	6.490	6.590	0.263	0.250	5.2
AR1260 (5)	6.916	6.860	6.960	0.236	0.250	5.6
Tetrachloro-m-xylene	1.576	1.530	1.630	0.025	0.025	0.0
Decachlorobiphenyl	8.427	8.320	8.520	0.026	0.025	4.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Project: CTO WE05 NAS JRB Willow Grove **Instrument ID:** ECD_C

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Inst. Calib. Date(s):** 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.97	9.88
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.97	9.88
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.96	9.88
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.97	9.88
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.97	9.88
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.97	9.88
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.97	9.88
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.97	9.88
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.97	9.88
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.98	9.89
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.97	9.88
PIBLK02	I.BLK02	12/28/2011	16:45	PC006334.D	1.97	9.89
CCAL01	1660 250	12/28/2011	17:01	PC006335.D	1.97	9.89
PB60242BL	PB60242BL	12/28/2011	18:55	PC006342.D	1.97	9.89
PB60242BS	PB60242BS	12/28/2011	19:11	PC006343.D	1.97	9.89
PIBLK03	I.BLK03	12/28/2011	20:00	PC006346.D	1.97	9.89
CCAL02	1660 250	12/28/2011	20:16	PC006347.D	1.97	9.89
12SB30-000.5-01	C5128-04	12/28/2011	20:48	PC006349.D	1.97	9.89
12SB30-0.502-02	C5128-05	12/28/2011	21:04	PC006350.D	1.97	9.89
12SB30-0304-03	C5128-06	12/28/2011	21:21	PC006351.D	1.97	9.89
12SB23-000.5-01	C5128-07	12/28/2011	21:37	PC006352.D	1.97	9.89
12SB23-0304-03	C5128-09	12/28/2011	22:09	PC006354.D	1.97	9.89
12SB21-000.5-01	C5128-10	12/28/2011	22:25	PC006355.D	1.97	9.89
12SB21-0.502-02	C5128-11	12/28/2011	22:42	PC006356.D	1.97	9.89
12SB21-0304-03	C5128-12	12/28/2011	22:58	PC006357.D	1.97	9.89
12SB20-0304-03	C5128-13	12/28/2011	23:14	PC006358.D	1.97	9.89
PIBLK04	I.BLK04	12/28/2011	23:30	PC006359.D	1.97	9.89
CCAL03	1660 250	12/28/2011	23:46	PC006360.D	1.97	9.89
12SB-DUP-06	C5128-14	12/29/2011	00:03	PC006361.D	1.97	9.89
12SB30-000.5-01MS	C5128-04MS	12/29/2011	00:35	PC006363.D	1.97	9.89
12SB30-000.5-01MSD	C5128-04MSD	12/29/2011	00:51	PC006364.D	1.97	9.89
PIBLK05	I.BLK05	12/29/2011	01:07	PC006365.D	1.97	9.89
CCAL04	1660 250	12/29/2011	01:24	PC006366.D	1.96	9.89
PIBLK06	I.BLK06	01/04/2012	14:08	PC006419.D	1.97	9.88
CCAL05	1660 250	01/04/2012	15:35	PC006420.D	1.98	9.89
12SB23-0.502-02	C5128-08	01/04/2012	16:37	PC006423.D	1.97	9.88
PIBLK07	I.BLK07	01/04/2012	17:33	PC006425.D	1.97	9.89
CCAL06	1660 250	01/04/2012	17:49	PC006426.D	1.97	9.88

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4286580	3835452	3775146	3400877	3401207	3739852	10
Decachlorobiphenyl	6971140	5675536	5299222	4567911	4287308	5360223	20
AR1016 (1)	170044	148835	143778	126098	124730	142697	13
AR1016 (2)	410106	328973	318375	281943	276128	323105	17
AR1016 (3)	180598	137123	144625	129749	128291	144077	15
AR1016 (4)	133338	109270	115039	104717	105265	113526	10
AR1016 (5)	175524	131268	128639	115200	114714	133069	19
AR1260 (1)	280148	237834	225971	198178	193735	227173	15
AR1260 (2)	334588	285589	273392	234251	234942	272552	15
AR1260 (3)	492282	361751	366763	345958	338776	381106	17
AR1260 (4)	616564	523832	498470	440964	429018	501769	15
AR1260 (5)	474756	365290	400652	358039	342462	388240	14

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006011.D RT 250 = PC006010.D

RT 500 = PC006009.D RT 750 = PC006008.D RT 1000 = PC006007.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.97	1.97	1.97	1.96	1.97	1.97	1.92	2.02
Decachlorobiphenyl		9.88	9.88	9.88	9.88	9.88	9.88	9.78	9.98
AR1016	(1)	3.01	3.01	3.00	3.00	3.00	3.00	2.95	3.05
AR1016	(2)	3.57	3.57	3.57	3.56	3.57	3.57	3.52	3.62
AR1016	(3)	3.74	3.74	3.74	3.74	3.74	3.74	3.69	3.79
AR1016	(4)	3.87	3.87	3.87	3.87	3.87	3.87	3.82	3.92
AR1016	(5)	4.52	4.52	4.52	4.52	4.52	4.52	4.47	4.57
AR1260	(1)	6.08	6.08	6.08	6.08	6.08	6.08	6.03	6.13
AR1260	(2)	6.39	6.39	6.38	6.38	6.38	6.38	6.33	6.43
AR1260	(3)	6.86	6.86	6.86	6.86	6.86	6.86	6.81	6.91
AR1260	(4)	7.77	7.76	7.76	7.76	7.76	7.76	7.71	7.81
AR1260	(5)	8.26	8.26	8.26	8.26	8.26	8.26	8.21	8.31

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)** **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006335.D **Time Analyzed:** 17:01

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.005	2.950	3.050	0.242	0.250	3.2
AR1016 (2)	3.571	3.520	3.620	0.229	0.250	8.4
AR1016 (3)	3.744	3.690	3.790	0.238	0.250	4.8
AR1016 (4)	3.874	3.820	3.920	0.235	0.250	6.0
AR1016 (5)	4.523	4.470	4.570	0.228	0.250	8.8
AR1260 (1)	6.085	6.030	6.130	0.231	0.250	7.6
AR1260 (2)	6.391	6.330	6.430	0.235	0.250	6.0
AR1260 (3)	6.866	6.810	6.910	0.218	0.250	12.8
AR1260 (4)	7.770	7.710	7.810	0.236	0.250	5.6
AR1260 (5)	8.264	8.210	8.310	0.224	0.250	10.4
Tetrachloro-m-xylene	1.969	1.920	2.020	0.022	0.025	12.0
Decachlorobiphenyl	9.890	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006347.D **Time Analyzed:** 20:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.005	2.950	3.050	0.277	0.250	10.8
AR1016 (2)	3.571	3.520	3.620	0.252	0.250	0.8
AR1016 (3)	3.744	3.690	3.790	0.268	0.250	7.2
AR1016 (4)	3.874	3.820	3.920	0.264	0.250	5.6
AR1016 (5)	4.522	4.470	4.570	0.265	0.250	6.0
AR1260 (1)	6.086	6.030	6.130	0.236	0.250	5.6
AR1260 (2)	6.391	6.330	6.430	0.239	0.250	4.4
AR1260 (3)	6.866	6.810	6.910	0.239	0.250	4.4
AR1260 (4)	7.771	7.710	7.810	0.255	0.250	2.0
AR1260 (5)	8.265	8.210	8.310	0.251	0.250	0.4
Tetrachloro-m-xylene	1.969	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.888	9.780	9.980	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/28/2011

Lab Sample No.: 1660 250 **Data File :** PC006360.D **Time Analyzed:** 23:46

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.005	2.950	3.050	0.274	0.250	9.6
AR1016 (2)	3.570	3.520	3.620	0.243	0.250	2.8
AR1016 (3)	3.744	3.690	3.790	0.251	0.250	0.4
AR1016 (4)	3.874	3.820	3.920	0.239	0.250	4.4
AR1016 (5)	4.522	4.470	4.570	0.236	0.250	5.6
AR1260 (1)	6.084	6.030	6.130	0.237	0.250	5.2
AR1260 (2)	6.390	6.330	6.430	0.237	0.250	5.2
AR1260 (3)	6.865	6.810	6.910	0.238	0.250	4.8
AR1260 (4)	7.769	7.710	7.810	0.255	0.250	2.0
AR1260 (5)	8.264	8.210	8.310	0.252	0.250	0.8
Tetrachloro-m-xylene	1.968	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.887	9.780	9.980	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/29/2011

Lab Sample No.: 1660 250 **Data File :** PC006366.D **Time Analyzed:** 01:24

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.000	2.950	3.050	0.281	0.250	12.4
AR1016 (2)	3.567	3.520	3.620	0.252	0.250	0.8
AR1016 (3)	3.740	3.690	3.790	0.276	0.250	10.4
AR1016 (4)	3.871	3.820	3.920	0.267	0.250	6.8
AR1016 (5)	4.520	4.470	4.570	0.262	0.250	4.8
AR1260 (1)	6.084	6.030	6.130	0.239	0.250	4.4
AR1260 (2)	6.389	6.330	6.430	0.239	0.250	4.4
AR1260 (3)	6.865	6.810	6.910	0.236	0.250	5.6
AR1260 (4)	7.770	7.710	7.810	0.245	0.250	2.0
AR1260 (5)	8.264	8.210	8.310	0.234	0.250	6.4
Tetrachloro-m-xylene	1.960	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.887	9.780	9.980	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006420.D **Time Analyzed:** 15:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.009	2.950	3.050	0.266	0.250	6.4
AR1016 (2)	3.574	3.520	3.620	0.249	0.250	0.4
AR1016 (3)	3.747	3.690	3.790	0.275	0.250	10.0
AR1016 (4)	3.877	3.820	3.920	0.288	0.250	15.2
AR1016 (5)	4.524	4.470	4.570	0.252	0.250	0.8
AR1260 (1)	6.088	6.030	6.130	0.258	0.250	3.2
AR1260 (2)	6.394	6.330	6.430	0.261	0.250	4.4
AR1260 (3)	6.868	6.810	6.910	0.260	0.250	4.0
AR1260 (4)	7.772	7.710	7.810	0.278	0.250	11.2
AR1260 (5)	8.266	8.210	8.310	0.268	0.250	7.2
Tetrachloro-m-xylene	1.976	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.887	9.780	9.980	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG NO.:** C5128

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL06 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006426.D **Time Analyzed:** 17:49

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.005	2.950	3.050	0.284	0.250	13.6
AR1016 (2)	3.573	3.520	3.620	0.262	0.250	4.8
AR1016 (3)	3.746	3.690	3.790	0.278	0.250	11.2
AR1016 (4)	3.876	3.820	3.920	0.278	0.250	11.2
AR1016 (5)	4.523	4.470	4.570	0.280	0.250	12.0
AR1260 (1)	6.084	6.030	6.130	0.266	0.250	6.4
AR1260 (2)	6.390	6.330	6.430	0.265	0.250	6.0
AR1260 (3)	6.865	6.810	6.910	0.264	0.250	5.6
AR1260 (4)	7.769	7.710	7.810	0.278	0.250	11.2
AR1260 (5)	8.262	8.210	8.310	0.262	0.250	4.8
Tetrachloro-m-xylene	1.973	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.884	9.780	9.980	0.027	0.025	8.0

CHEMTECH

IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

12SB-DUP-06

Contract: TETR06

Lab Code: CHEM Case No.: C5128 SAS No.: C5128 SDG NO.: C5128

Lab Sample ID: C5128-14 Date(s) Analyzed: 12/29/2011 12/29/2011

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column: (1): RTX-CLPest ID: 0.32 (mm) GC Column:(2): RTX-CLPest II ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%RPD
AR1260	1	4.90	4.84	4.94	188.43		
	2	5.27	5.22	5.32	251.51		
	3	5.63	5.58	5.68	204.64		
COLUMN 1	4	6.54	6.49	6.59	581.53		
	5	6.91	6.86	6.96	388.00	320.00	
	1	6.08	6.03	6.13	184.86		
	2	6.39	6.33	6.43	259.05		
	3	6.86	6.81	6.91	196.32		
	4	7.77	7.71	7.81	562.67		
COLUMN 2	5	8.26	8.21	8.31	531.55	350.00	9.40

CHEMTECH

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	529.90	504	105.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Antimony	191.00	199	96.0	90 - 110	MS	01/04/2012	14:32	LB58710
	Arsenic	194.30	200	97.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Barium	101.10	99	102.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Beryllium	97.26	99	98.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Cadmium	97.20	99	98.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Calcium	2007.00	2005	100.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Chromium	98.88	98	100.9	90 - 110	MS	01/04/2012	14:32	LB58710
	Cobalt	100.50	100	100.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Copper	103.40	98	105.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Iron	1034.00	1016	101.8	90 - 110	MS	01/04/2012	14:32	LB58710
	Lead	200.50	200	100.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Magnesium	1214.00	1215	99.9	90 - 110	MS	01/04/2012	14:32	LB58710
	Manganese	102.80	100	102.8	90 - 110	MS	01/04/2012	14:32	LB58710
	Nickel	102.60	101	101.6	90 - 110	MS	01/04/2012	14:32	LB58710
	Potassium	2030.00	2004	101.3	90 - 110	MS	01/04/2012	14:32	LB58710
	Selenium	194.60	206	94.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Silver	99.14	100	99.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Sodium	2023.00	2019	100.2	90 - 110	MS	01/04/2012	14:32	LB58710
	Thallium	202.00	206	98.1	90 - 110	MS	01/04/2012	14:32	LB58710
	Vanadium	97.47	100	97.5	90 - 110	MS	01/04/2012	14:32	LB58710
	Zinc	201.70	205	98.4	90 - 110	MS	01/04/2012	14:32	LB58710
CCV01	Aluminum	10100.00	10000	101.0	90 - 110	MS	01/04/2012	15:19	LB58710
	Antimony	504.70	500	100.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Arsenic	502.60	500	100.5	90 - 110	MS	01/04/2012	15:19	LB58710
	Barium	2523.00	2500	100.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Beryllium	511.30	500	102.3	90 - 110	MS	01/04/2012	15:19	LB58710
	Cadmium	506.10	500	101.2	90 - 110	MS	01/04/2012	15:19	LB58710
	Calcium	51370.00	50000	102.7	90 - 110	MS	01/04/2012	15:19	LB58710
	Chromium	507.80	500	101.6	90 - 110	MS	01/04/2012	15:19	LB58710
	Cobalt	508.50	500	101.7	90 - 110	MS	01/04/2012	15:19	LB58710
	Copper	1028.00	1000	102.8	90 - 110	MS	01/04/2012	15:19	LB58710
	Iron	25570.00	25000	102.3	90 - 110	MS	01/04/2012	15:19	LB58710
	Lead	509.70	500	101.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Magnesium	51000.00	50000	102.0	90 - 110	MS	01/04/2012	15:19	LB58710

CHEMTECH

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Manganese	1032.00	1000	103.2	90 - 110	MS	01/04/2012	15:19	LB58710
	Nickel	510.30	500	102.1	90 - 110	MS	01/04/2012	15:19	LB58710
	Potassium	25620.00	25000	102.5	90 - 110	MS	01/04/2012	15:19	LB58710
	Selenium	502.10	500	100.4	90 - 110	MS	01/04/2012	15:19	LB58710
	Silver	509.60	500	101.9	90 - 110	MS	01/04/2012	15:19	LB58710
	Sodium	51780.00	50000	103.6	90 - 110	MS	01/04/2012	15:19	LB58710
	Thallium	507.80	500	101.6	90 - 110	MS	01/04/2012	15:19	LB58710
	Vanadium	504.20	500	100.8	90 - 110	MS	01/04/2012	15:19	LB58710
	Zinc	1039.00	1000	103.9	90 - 110	MS	01/04/2012	15:19	LB58710
CCV02	Aluminum	9905.00	10000	99.0	90 - 110	MS	01/04/2012	16:54	LB58710
	Antimony	509.20	500	101.8	90 - 110	MS	01/04/2012	16:54	LB58710
	Arsenic	504.10	500	100.8	90 - 110	MS	01/04/2012	16:54	LB58710
	Barium	2495.00	2500	99.8	90 - 110	MS	01/04/2012	16:54	LB58710
	Beryllium	513.80	500	102.8	90 - 110	MS	01/04/2012	16:54	LB58710
	Cadmium	511.30	500	102.3	90 - 110	MS	01/04/2012	16:54	LB58710
	Calcium	51470.00	50000	102.9	90 - 110	MS	01/04/2012	16:54	LB58710
	Chromium	515.00	500	103.0	90 - 110	MS	01/04/2012	16:54	LB58710
	Cobalt	512.40	500	102.5	90 - 110	MS	01/04/2012	16:54	LB58710
	Copper	1030.00	1000	103.0	90 - 110	MS	01/04/2012	16:54	LB58710
	Iron	25810.00	25000	103.2	90 - 110	MS	01/04/2012	16:54	LB58710
	Lead	512.90	500	102.6	90 - 110	MS	01/04/2012	16:54	LB58710
	Magnesium	50540.00	50000	101.1	90 - 110	MS	01/04/2012	16:54	LB58710
	Manganese	1049.00	1000	104.9	90 - 110	MS	01/04/2012	16:54	LB58710
	Nickel	508.70	500	101.7	90 - 110	MS	01/04/2012	16:54	LB58710
	Potassium	25460.00	25000	101.8	90 - 110	MS	01/04/2012	16:54	LB58710
	Selenium	510.80	500	102.2	90 - 110	MS	01/04/2012	16:54	LB58710
	Silver	509.50	500	101.9	90 - 110	MS	01/04/2012	16:54	LB58710
	Sodium	51520.00	50000	103.0	90 - 110	MS	01/04/2012	16:54	LB58710
	Thallium	510.10	500	102.0	90 - 110	MS	01/04/2012	16:54	LB58710
	Vanadium	510.50	500	102.1	90 - 110	MS	01/04/2012	16:54	LB58710
	Zinc	1049.00	1000	104.9	90 - 110	MS	01/04/2012	16:54	LB58710
CCV03	Aluminum	10060.00	10000	100.6	90 - 110	MS	01/04/2012	18:30	LB58710
	Antimony	511.60	500	102.3	90 - 110	MS	01/04/2012	18:30	LB58710
	Arsenic	506.80	500	101.4	90 - 110	MS	01/04/2012	18:30	LB58710
	Barium	2520.00	2500	100.8	90 - 110	MS	01/04/2012	18:30	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Beryllium	519.40	500	103.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Cadmium	514.60	500	102.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Calcium	51470.00	50000	102.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Chromium	516.70	500	103.3	90 - 110	MS	01/04/2012	18:30	LB58710
	Cobalt	520.30	500	104.1	90 - 110	MS	01/04/2012	18:30	LB58710
	Copper	1037.00	1000	103.7	90 - 110	MS	01/04/2012	18:30	LB58710
	Iron	26100.00	25000	104.4	90 - 110	MS	01/04/2012	18:30	LB58710
	Lead	514.00	500	102.8	90 - 110	MS	01/04/2012	18:30	LB58710
	Magnesium	50940.00	50000	101.9	90 - 110	MS	01/04/2012	18:30	LB58710
	Manganese	1057.00	1000	105.7	90 - 110	MS	01/04/2012	18:30	LB58710
	Nickel	517.60	500	103.5	90 - 110	MS	01/04/2012	18:30	LB58710
	Potassium	25590.00	25000	102.4	90 - 110	MS	01/04/2012	18:30	LB58710
	Selenium	514.00	500	102.8	90 - 110	MS	01/04/2012	18:30	LB58710
	Silver	513.00	500	102.6	90 - 110	MS	01/04/2012	18:30	LB58710
	Sodium	51640.00	50000	103.3	90 - 110	MS	01/04/2012	18:30	LB58710
	Thallium	508.80	500	101.8	90 - 110	MS	01/04/2012	18:30	LB58710
	Vanadium	510.00	500	102.0	90 - 110	MS	01/04/2012	18:30	LB58710
	Zinc	1053.00	1000	105.3	90 - 110	MS	01/04/2012	18:30	LB58710
CCV04	Aluminum	10040.00	10000	100.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Antimony	510.60	500	102.1	90 - 110	MS	01/04/2012	20:05	LB58710
	Arsenic	504.00	500	100.8	90 - 110	MS	01/04/2012	20:05	LB58710
	Barium	2503.00	2500	100.1	90 - 110	MS	01/04/2012	20:05	LB58710
	Beryllium	520.30	500	104.1	90 - 110	MS	01/04/2012	20:05	LB58710
	Cadmium	513.20	500	102.6	90 - 110	MS	01/04/2012	20:05	LB58710
	Calcium	51590.00	50000	103.2	90 - 110	MS	01/04/2012	20:05	LB58710
	Chromium	517.60	500	103.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Cobalt	513.70	500	102.7	90 - 110	MS	01/04/2012	20:05	LB58710
	Copper	1029.00	1000	102.9	90 - 110	MS	01/04/2012	20:05	LB58710
	Iron	26010.00	25000	104.0	90 - 110	MS	01/04/2012	20:05	LB58710
	Lead	517.10	500	103.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Magnesium	51150.00	50000	102.3	90 - 110	MS	01/04/2012	20:05	LB58710
	Manganese	1057.00	1000	105.7	90 - 110	MS	01/04/2012	20:05	LB58710
	Nickel	511.40	500	102.3	90 - 110	MS	01/04/2012	20:05	LB58710
	Potassium	25630.00	25000	102.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Selenium	514.40	500	102.9	90 - 110	MS	01/04/2012	20:05	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	512.50	500	102.5	90 - 110	MS	01/04/2012	20:05	LB58710
	Sodium	52390.00	50000	104.8	90 - 110	MS	01/04/2012	20:05	LB58710
	Thallium	512.10	500	102.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Vanadium	512.00	500	102.4	90 - 110	MS	01/04/2012	20:05	LB58710
	Zinc	1053.00	1000	105.3	90 - 110	MS	01/04/2012	20:05	LB58710
CCV05	Aluminum	10160.00	10000	101.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Antimony	506.30	500	101.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Arsenic	501.50	500	100.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Barium	2486.00	2500	99.4	90 - 110	MS	01/04/2012	21:40	LB58710
	Beryllium	524.80	500	105.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Cadmium	514.90	500	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Calcium	51350.00	50000	102.7	90 - 110	MS	01/04/2012	21:40	LB58710
	Chromium	515.20	500	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Cobalt	519.30	500	103.9	90 - 110	MS	01/04/2012	21:40	LB58710
	Copper	1034.00	1000	103.4	90 - 110	MS	01/04/2012	21:40	LB58710
	Iron	26010.00	25000	104.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Lead	513.00	500	102.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Magnesium	51110.00	50000	102.2	90 - 110	MS	01/04/2012	21:40	LB58710
	Manganese	1050.00	1000	105.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Nickel	516.30	500	103.3	90 - 110	MS	01/04/2012	21:40	LB58710
	Potassium	25370.00	25000	101.5	90 - 110	MS	01/04/2012	21:40	LB58710
	Selenium	512.90	500	102.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Silver	514.90	500	103.0	90 - 110	MS	01/04/2012	21:40	LB58710
	Sodium	51760.00	50000	103.5	90 - 110	MS	01/04/2012	21:40	LB58710
	Thallium	509.20	500	101.8	90 - 110	MS	01/04/2012	21:40	LB58710
	Vanadium	508.10	500	101.6	90 - 110	MS	01/04/2012	21:40	LB58710
	Zinc	1046.00	1000	104.6	90 - 110	MS	01/04/2012	21:40	LB58710
CCV06	Aluminum	9930.00	10000	99.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Antimony	509.80	500	102.0	90 - 110	MS	01/04/2012	23:15	LB58710
	Arsenic	506.20	500	101.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Barium	2490.00	2500	99.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Beryllium	520.90	500	104.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Cadmium	517.80	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Calcium	51640.00	50000	103.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Chromium	518.20	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	523.00	500	104.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Copper	1046.00	1000	104.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Iron	26220.00	25000	104.9	90 - 110	MS	01/04/2012	23:15	LB58710
	Lead	516.60	500	103.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Magnesium	50390.00	50000	100.8	90 - 110	MS	01/04/2012	23:15	LB58710
	Manganese	1061.00	1000	106.1	90 - 110	MS	01/04/2012	23:15	LB58710
	Nickel	518.10	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Potassium	25660.00	25000	102.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Selenium	517.90	500	103.6	90 - 110	MS	01/04/2012	23:15	LB58710
	Silver	517.20	500	103.4	90 - 110	MS	01/04/2012	23:15	LB58710
	Sodium	52140.00	50000	104.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Thallium	511.20	500	102.2	90 - 110	MS	01/04/2012	23:15	LB58710
	Vanadium	511.50	500	102.3	90 - 110	MS	01/04/2012	23:15	LB58710
	Zinc	1062.00	1000	106.2	90 - 110	MS	01/04/2012	23:15	LB58710
CCV07	Aluminum	9994.00	10000	99.9	90 - 110	MS	01/05/2012	00:50	LB58710
	Antimony	517.30	500	103.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Arsenic	501.60	500	100.3	90 - 110	MS	01/05/2012	00:50	LB58710
	Barium	2499.00	2500	100.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Beryllium	525.50	500	105.1	90 - 110	MS	01/05/2012	00:50	LB58710
	Cadmium	517.70	500	103.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Calcium	52480.00	50000	105.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Chromium	528.90	500	105.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Cobalt	524.00	500	104.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Copper	1045.00	1000	104.5	90 - 110	MS	01/05/2012	00:50	LB58710
	Iron	26530.00	25000	106.1	90 - 110	MS	01/05/2012	00:50	LB58710
	Lead	523.30	500	104.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Magnesium	50980.00	50000	102.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Manganese	1077.00	1000	107.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Nickel	520.00	500	104.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Potassium	25930.00	25000	103.7	90 - 110	MS	01/05/2012	00:50	LB58710
	Selenium	512.90	500	102.6	90 - 110	MS	01/05/2012	00:50	LB58710
	Silver	520.00	500	104.0	90 - 110	MS	01/05/2012	00:50	LB58710
	Sodium	53320.00	50000	106.6	90 - 110	MS	01/05/2012	00:50	LB58710
	Thallium	519.00	500	103.8	90 - 110	MS	01/05/2012	00:50	LB58710
	Vanadium	520.70	500	104.1	90 - 110	MS	01/05/2012	00:50	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1079.00	1000	107.9	90 - 110	MS	01/05/2012	00:50	LB58710
CCV08	Aluminum	10030.00	10000	100.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Antimony	525.40	500	105.1	90 - 110	MS	01/05/2012	02:25	LB58710
	Arsenic	511.20	500	102.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Barium	2522.00	2500	100.9	90 - 110	MS	01/05/2012	02:25	LB58710
	Beryllium	533.70	500	106.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Cadmium	528.90	500	105.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Calcium	52800.00	50000	105.6	90 - 110	MS	01/05/2012	02:25	LB58710
	Chromium	532.60	500	106.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Cobalt	533.60	500	106.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Copper	1063.00	1000	106.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Iron	26880.00	25000	107.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Lead	527.60	500	105.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Magnesium	51120.00	50000	102.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Manganese	1090.00	1000	109.0	90 - 110	MS	01/05/2012	02:25	LB58710
	Nickel	526.10	500	105.2	90 - 110	MS	01/05/2012	02:25	LB58710
	Potassium	26170.00	25000	104.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Selenium	519.00	500	103.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Silver	528.90	500	105.8	90 - 110	MS	01/05/2012	02:25	LB58710
	Sodium	53740.00	50000	107.5	90 - 110	MS	01/05/2012	02:25	LB58710
	Thallium	523.60	500	104.7	90 - 110	MS	01/05/2012	02:25	LB58710
	Vanadium	526.70	500	105.3	90 - 110	MS	01/05/2012	02:25	LB58710
	Zinc	1085.00	1000	108.5	90 - 110	MS	01/05/2012	02:25	LB58710
CCV09	Aluminum	10210.00	10000	102.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Antimony	510.70	500	102.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Arsenic	510.20	500	102.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Barium	2476.00	2500	99.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Beryllium	529.00	500	105.8	90 - 110	MS	01/05/2012	04:01	LB58710
	Cadmium	519.30	500	103.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Calcium	52060.00	50000	104.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Chromium	524.20	500	104.8	90 - 110	MS	01/05/2012	04:01	LB58710
	Cobalt	527.50	500	105.5	90 - 110	MS	01/05/2012	04:01	LB58710
	Copper	1053.00	1000	105.3	90 - 110	MS	01/05/2012	04:01	LB58710
	Iron	26230.00	25000	104.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Lead	521.90	500	104.4	90 - 110	MS	01/05/2012	04:01	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Magnesium	51430.00	50000	102.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Manganese	1065.00	1000	106.5	90 - 110	MS	01/05/2012	04:01	LB58710
	Nickel	524.40	500	104.9	90 - 110	MS	01/05/2012	04:01	LB58710
	Potassium	25890.00	25000	103.6	90 - 110	MS	01/05/2012	04:01	LB58710
	Selenium	521.50	500	104.3	90 - 110	MS	01/05/2012	04:01	LB58710
	Silver	518.10	500	103.6	90 - 110	MS	01/05/2012	04:01	LB58710
	Sodium	52040.00	50000	104.1	90 - 110	MS	01/05/2012	04:01	LB58710
	Thallium	517.00	500	103.4	90 - 110	MS	01/05/2012	04:01	LB58710
	Vanadium	520.00	500	104.0	90 - 110	MS	01/05/2012	04:01	LB58710
	Zinc	1061.00	1000	106.1	90 - 110	MS	01/05/2012	04:01	LB58710
CCV10	Aluminum	10010.00	10000	100.1	90 - 110	MS	01/05/2012	05:37	LB58710
	Antimony	516.90	500	103.4	90 - 110	MS	01/05/2012	05:37	LB58710
	Arsenic	505.90	500	101.2	90 - 110	MS	01/05/2012	05:37	LB58710
	Barium	2483.00	2500	99.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Beryllium	528.10	500	105.6	90 - 110	MS	01/05/2012	05:37	LB58710
	Cadmium	522.10	500	104.4	90 - 110	MS	01/05/2012	05:37	LB58710
	Calcium	51560.00	50000	103.1	90 - 110	MS	01/05/2012	05:37	LB58710
	Chromium	518.30	500	103.7	90 - 110	MS	01/05/2012	05:37	LB58710
	Cobalt	524.70	500	104.9	90 - 110	MS	01/05/2012	05:37	LB58710
	Copper	1048.00	1000	104.8	90 - 110	MS	01/05/2012	05:37	LB58710
	Iron	26190.00	25000	104.8	90 - 110	MS	01/05/2012	05:37	LB58710
	Lead	520.80	500	104.2	90 - 110	MS	01/05/2012	05:37	LB58710
	Magnesium	50880.00	50000	101.8	90 - 110	MS	01/05/2012	05:37	LB58710
	Manganese	1059.00	1000	105.9	90 - 110	MS	01/05/2012	05:37	LB58710
	Nickel	521.70	500	104.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Potassium	25520.00	25000	102.1	90 - 110	MS	01/05/2012	05:37	LB58710
	Selenium	511.80	500	102.4	90 - 110	MS	01/05/2012	05:37	LB58710
	Silver	526.10	500	105.2	90 - 110	MS	01/05/2012	05:37	LB58710
	Sodium	52150.00	50000	104.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Thallium	516.70	500	103.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Vanadium	511.50	500	102.3	90 - 110	MS	01/05/2012	05:37	LB58710
	Zinc	1059.00	1000	105.9	90 - 110	MS	01/05/2012	05:37	LB58710
CCV11	Aluminum	10160.00	10000	101.6	90 - 110	MS	01/05/2012	07:12	LB58710
	Antimony	516.20	500	103.2	90 - 110	MS	01/05/2012	07:12	LB58710
	Arsenic	507.30	500	101.5	90 - 110	MS	01/05/2012	07:12	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV11	Barium	2496.00	2500	99.8	90 - 110	MS	01/05/2012	07:12	LB58710
	Beryllium	531.10	500	106.2	90 - 110	MS	01/05/2012	07:12	LB58710
	Cadmium	522.00	500	104.4	90 - 110	MS	01/05/2012	07:12	LB58710
	Calcium	52410.00	50000	104.8	90 - 110	MS	01/05/2012	07:12	LB58710
	Chromium	529.80	500	106.0	90 - 110	MS	01/05/2012	07:12	LB58710
	Cobalt	532.30	500	106.5	90 - 110	MS	01/05/2012	07:12	LB58710
	Copper	1066.00	1000	106.6	90 - 110	MS	01/05/2012	07:12	LB58710
	Iron	26730.00	25000	106.9	90 - 110	MS	01/05/2012	07:12	LB58710
	Lead	525.70	500	105.1	90 - 110	MS	01/05/2012	07:12	LB58710
	Magnesium	51210.00	50000	102.4	90 - 110	MS	01/05/2012	07:12	LB58710
	Manganese	1082.00	1000	108.2	90 - 110	MS	01/05/2012	07:12	LB58710
	Nickel	529.70	500	105.9	90 - 110	MS	01/05/2012	07:12	LB58710
	Potassium	26090.00	25000	104.4	90 - 110	MS	01/05/2012	07:12	LB58710
	Selenium	512.50	500	102.5	90 - 110	MS	01/05/2012	07:12	LB58710
	Silver	522.30	500	104.5	90 - 110	MS	01/05/2012	07:12	LB58710
	Sodium	52860.00	50000	105.7	90 - 110	MS	01/05/2012	07:12	LB58710
	Thallium	522.30	500	104.5	90 - 110	MS	01/05/2012	07:12	LB58710
	Vanadium	521.30	500	104.3	90 - 110	MS	01/05/2012	07:12	LB58710
	Zinc	1077.00	1000	107.7	90 - 110	MS	01/05/2012	07:12	LB58710
CCV12	Aluminum	10150.00	10000	101.5	90 - 110	MS	01/05/2012	08:24	LB58710
	Antimony	511.70	500	102.3	90 - 110	MS	01/05/2012	08:24	LB58710
	Arsenic	510.00	500	102.0	90 - 110	MS	01/05/2012	08:24	LB58710
	Barium	2503.00	2500	100.1	90 - 110	MS	01/05/2012	08:24	LB58710
	Beryllium	528.40	500	105.7	90 - 110	MS	01/05/2012	08:24	LB58710
	Cadmium	518.60	500	103.7	90 - 110	MS	01/05/2012	08:24	LB58710
	Calcium	52530.00	50000	105.1	90 - 110	MS	01/05/2012	08:24	LB58710
	Chromium	526.50	500	105.3	90 - 110	MS	01/05/2012	08:24	LB58710
	Cobalt	529.60	500	105.9	90 - 110	MS	01/05/2012	08:24	LB58710
	Copper	1059.00	1000	105.9	90 - 110	MS	01/05/2012	08:24	LB58710
	Iron	26550.00	25000	106.2	90 - 110	MS	01/05/2012	08:24	LB58710
	Lead	521.80	500	104.4	90 - 110	MS	01/05/2012	08:24	LB58710
	Magnesium	51420.00	50000	102.8	90 - 110	MS	01/05/2012	08:24	LB58710
	Manganese	1067.00	1000	106.7	90 - 110	MS	01/05/2012	08:24	LB58710
	Nickel	525.10	500	105.0	90 - 110	MS	01/05/2012	08:24	LB58710
	Potassium	26030.00	25000	104.1	90 - 110	MS	01/05/2012	08:24	LB58710

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV12	Selenium	506.70	500	101.3	90 - 110	MS	01/05/2012	08:24	LB58710
	Silver	519.40	500	103.9	90 - 110	MS	01/05/2012	08:24	LB58710
	Sodium	52810.00	50000	105.6	90 - 110	MS	01/05/2012	08:24	LB58710
	Thallium	519.30	500	103.9	90 - 110	MS	01/05/2012	08:24	LB58710
	Vanadium	522.70	500	104.5	90 - 110	MS	01/05/2012	08:24	LB58710
	Zinc	1065.00	1000	106.5	90 - 110	MS	01/05/2012	08:24	LB58710

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source:

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.17	0.2	85.0	0 - 200	CV	12/30/2011	18:25	LB58657
CRI01	Aluminum	22.77	20	113.8	80 - 120	MS	01/04/2012	15:35	LB58710
	Antimony	2.26	2	113.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Arsenic	0.93	1	93.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Barium	10.03	10	100.3	80 - 120	MS	01/04/2012	15:35	LB58710
	Beryllium	1.08	1	108.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Cadmium	1.07	1	107.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Calcium	494.90	500	99.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Chromium	2.11	2	105.5	80 - 120	MS	01/04/2012	15:35	LB58710
	Cobalt	1.02	1	102.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Copper	2.19	2	109.5	80 - 120	MS	01/04/2012	15:35	LB58710
	Iron	205.20	200	102.6	80 - 120	MS	01/04/2012	15:35	LB58710
	Lead	1.04	1	104.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Magnesium	502.00	500	100.4	80 - 120	MS	01/04/2012	15:35	LB58710
	Manganese	1.38	1	138.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Nickel	1.18	1	118.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Potassium	518.50	500	103.7	80 - 120	MS	01/04/2012	15:35	LB58710
	Selenium	4.43	5	88.6	80 - 120	MS	01/04/2012	15:35	LB58710
	Silver	1.08	1	108.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Sodium	521.10	500	104.2	80 - 120	MS	01/04/2012	15:35	LB58710
	Thallium	1.01	1	101.0	80 - 120	MS	01/04/2012	15:35	LB58710
	Vanadium	4.91	5	98.2	80 - 120	MS	01/04/2012	15:35	LB58710
	Zinc	2.36	2	118.0	80 - 120	MS	01/04/2012	15:35	LB58710

CHEMTECH

Metals
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INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	97900	100000	97.9	80 - 120%	01/04/2012	14:48	LB58710
	Antimony	1.7				01/04/2012	14:48	LB58710
	Arsenic	0.24				01/04/2012	14:48	LB58710
	Barium	1.5				01/04/2012	14:48	LB58710
	Beryllium	0.34				01/04/2012	14:48	LB58710
	Cadmium	0.20				01/04/2012	14:48	LB58710
	Calcium	100000	100000	100.0	80 - 120%	01/04/2012	14:48	LB58710
	Chromium	20.8	21	99.0	80 - 120%	01/04/2012	14:48	LB58710
	Cobalt	1.3				01/04/2012	14:48	LB58710
	Copper	8.2				01/04/2012	14:48	LB58710
	Iron	96100	100000	96.1	80 - 120%	01/04/2012	14:48	LB58710
	Lead	4.4	4	110.0	80 - 120%	01/04/2012	14:48	LB58710
	Magnesium	98700	100000	98.7	80 - 120%	01/04/2012	14:48	LB58710
	Manganese	8.2				01/04/2012	14:48	LB58710
	Nickel	6.1				01/04/2012	14:48	LB58710
	Potassium	99300	100000	99.3	80 - 120%	01/04/2012	14:48	LB58710
	Selenium	-0.17				01/04/2012	14:48	LB58710
	Silver	0.096				01/04/2012	14:48	LB58710
	Sodium	100000	100000	100.0	80 - 120%	01/04/2012	14:48	LB58710
	Thallium	0.17				01/04/2012	14:48	LB58710
	Vanadium	0.38				01/04/2012	14:48	LB58710
	Zinc	12.1				01/04/2012	14:48	LB58710
ICSAB01	Aluminum	96000	100000	96.0	80 - 120%	01/04/2012	14:56	LB58710
	Antimony	21.2	22	96.4	80 - 120%	01/04/2012	14:56	LB58710
	Arsenic	20.8	19	109.5	80 - 120%	01/04/2012	14:56	LB58710
	Barium	21.8	22	99.1	80 - 120%	01/04/2012	14:56	LB58710
	Beryllium	20.3	20	101.5	80 - 120%	01/04/2012	14:56	LB58710
	Cadmium	19.7	20	98.5	80 - 120%	01/04/2012	14:56	LB58710
	Calcium	99000	100000	99.0	80 - 120%	01/04/2012	14:56	LB58710
	Chromium	40.7	40	101.8	80 - 120%	01/04/2012	14:56	LB58710
	Cobalt	21.0	20	105.0	80 - 120%	01/04/2012	14:56	LB58710
	Copper	28.2	25	112.8	80 - 120%	01/04/2012	14:56	LB58710
	Iron	96300	100000	96.3	80 - 120%	01/04/2012	14:56	LB58710
	Lead	24.7	25	98.8	80 - 120%	01/04/2012	14:56	LB58710
	Magnesium	98100	100000	98.1	80 - 120%	01/04/2012	14:56	LB58710
	Manganese	28.8	27	106.7	80 - 120%	01/04/2012	14:56	LB58710
	Nickel	26.0	24	108.3	80 - 120%	01/04/2012	14:56	LB58710
	Potassium	99200	100000	99.2	80 - 120%	01/04/2012	14:56	LB58710
	Selenium	20.2	19	106.3	80 - 120%	01/04/2012	14:56	LB58710
	Silver	19.5	18	108.3	80 - 120%	01/04/2012	14:56	LB58710
	Sodium	101000	100000	101.0	80 - 120%	01/04/2012	14:56	LB58710
	Thallium	19.9	21	94.8	80 - 120%	01/04/2012	14:56	LB58710
	Vanadium	20.1	19	105.8	80 - 120%	01/04/2012	14:56	LB58710
	Zinc	32.7	29	112.8	80 - 120%	01/04/2012	14:56	LB58710

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG No.:** C5128

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58657

Start Date: 12/30/2011 **End Date:** 12/30/2011

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1801																X								
Std02Rep1	1	1804																X								
Std03Rep1	1	1807																X								
Std04Rep1	1	1809																X								
Std05Rep1	1	1811																X								
Std06Rep1	1	1813																X								
ICV01	1	1816																X								
ICB01	1	1818																X								
CCV01	1	1820																X								
CCB01	1	1822																X								
CRI01	1	1825																X								
PB60302BL	1	1832																X								
PB60302BS	1	1834																X								
CCV02	1	1844																X								
CCB02	1	1846																X								
12SB30-000.5-01	1	1852																X								
12SB30-0.502-02	1	1854																X								
12SB30-0304-03	1	1856																X								
12SB23-000.5-01	1	1858																X								
12SB23-0.502-02	1	1900																X								
12SB23-0304-03	1	1902																X								
CCV03	1	1904																X								
CCB03	1	1907																X								
12SB21-000.5-01	1	1909																X								
12SB21-0.502-02	1	1911																X								
12SB21-0304-03	1	1914																X								
12SB20-0304-03	1	1916																X								
12SB-DUP-06	1	1918																X								
CCV04	1	1927																X								
CCB04	1	1929																X								
CCV05	1	1947																X								
CCB05	1	1950																X								
UBZ2-SO-28-11-12D	1	2002																X								
UBZ2-SO-28-11-12L	5	2008																X								
UBZ2-SO-28-11-12S	1	2010																X								
CCV06	1	2013																X								
CCB06	1	2015																X								
UBZ2-SO-28-11-12SD	1	2017																X								
UBZ2-SO-28-11-12A	1	2019																								
CCV07	1	2032																X								
CCB07	1	2034																X								

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG No.:** C5128

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58710

Start Date: 01/04/2012 **End Date:** 01/05/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1345		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1353		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1400		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1408		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1416		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1424		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1432		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1440		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1448		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1456		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1519		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1527		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1535		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1654		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1702		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1830		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1838		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2005		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2013		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	2140		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2148		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV06	1	2315		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	2323		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV07	1	0050		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV08	1	0225		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB08	1	0233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60238BL	1	0257		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60238BS	1	0305		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB30-000.5-01	1	0313		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB30-0.502-02	1	0321		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB30-0304-03	1	0329		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV09	1	0401		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB09	1	0409		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-000.5-01	1	0417		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0304-03	1	0425		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB21-000.5-01	1	0433		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB21-0.502-02	1	0441		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB21-0304-03	1	0449		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0304-03DL	25	0505												X													
12SB21-000.5-01DL	25	0513															X										

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG No.:** C5128

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58710

Start Date: 01/04/2012 **End Date:** 01/05/2012

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB21-0304-03DL	25	0529												X												
CCV10	1	0537		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB10	1	0545		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02	1	0553		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02D	1	0601		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02L	5	0609		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02S	1	0617		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02SD	1	0625		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02A	1	0633			X	X		X			X	X	X						X	X	X				X	X	
12SB20-0304-03	1	0640		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB-DUP-06	1	0648		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02DL	25	0656												X													
12SB23-0.502-02D	25	0705												X													
CCV11	1	0712		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB11	1	0720		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB23-0.502-02L	125	0728												X													
12SB23-0.502-02SD	25	0744												X													
12SB23-0.502-02A	25	0752																									
12SB20-0304-03DL	25	0800												X													
12SB-DUP-06DL	25	0808					X							X			X										
CCV12	1	0824		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB12	1	0832		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.84	4.0	96.0	90 - 110	CV	12/30/2011	18:16	LB58657
CCV01	Mercury	4.98	5.0	99.6	90 - 110	CV	12/30/2011	18:20	LB58657
CCV02	Mercury	4.96	5.0	99.2	90 - 110	CV	12/30/2011	18:44	LB58657
CCV03	Mercury	4.95	5.0	99.0	90 - 110	CV	12/30/2011	19:04	LB58657
CCV04	Mercury	4.93	5.0	98.6	90 - 110	CV	12/30/2011	19:27	LB58657
CCV05	Mercury	4.85	5.0	97.0	90 - 110	CV	12/30/2011	19:47	LB58657
CCV06	Mercury	5.04	5.0	100.8	90 - 110	CV	12/30/2011	20:13	LB58657
CCV07	Mercury	4.94	5.0	98.8	90 - 110	CV	12/30/2011	20:32	LB58657

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	18:18	LB58657
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	18:22	LB58657
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	18:46	LB58657
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	19:07	LB58657
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	19:29	LB58657
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	19:50	LB58657
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	20:15	LB58657
CCB07	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	12/30/2011	20:34	LB58657
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	14:40	LB58710
	Antimony	1.170	+/-2.000	J	0.140	2.000	MS	01/04/2012	14:40	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	14:40	LB58710
	Barium	0.519	+/-10.000	J	0.100	10.000	MS	01/04/2012	14:40	LB58710
	Beryllium	0.218	+/-1.000	J	0.090	1.000	MS	01/04/2012	14:40	LB58710
	Cadmium	0.172	+/-1.000	J	0.130	1.000	MS	01/04/2012	14:40	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	14:40	LB58710
	Chromium	0.199	+/-2.000	J	0.040	2.000	MS	01/04/2012	14:40	LB58710
	Cobalt	0.128	+/-1.000	J	0.050	1.000	MS	01/04/2012	14:40	LB58710
	Copper	0.251	+/-2.000	J	0.040	2.000	MS	01/04/2012	14:40	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	14:40	LB58710
	Lead	0.196	+/-1.000	J	0.040	1.000	MS	01/04/2012	14:40	LB58710
	Magnesium	9.184	+/-500.000	J	4.950	500.000	MS	01/04/2012	14:40	LB58710
	Manganese	0.252	+/-1.000	J	0.050	1.000	MS	01/04/2012	14:40	LB58710
	Nickel	0.141	+/-1.000	J	0.060	1.000	MS	01/04/2012	14:40	LB58710
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/04/2012	14:40	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	14:40	LB58710
	Silver	0.139	+/-1.000	J	0.030	1.000	MS	01/04/2012	14:40	LB58710
	Sodium	5.939	+/-500.000	J	5.320	500.000	MS	01/04/2012	14:40	LB58710
	Thallium	0.216	+/-1.000	J	0.020	1.000	MS	01/04/2012	14:40	LB58710
	Vanadium	0.281	+/-5.000	J	0.150	5.000	MS	01/04/2012	14:40	LB58710
	Zinc	0.326	+/-2.000	J	0.090	2.000	MS	01/04/2012	14:40	LB58710
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	15:27	LB58710
	Antimony	0.804	+/-2.000	J	0.140	2.000	MS	01/04/2012	15:27	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	15:27	LB58710
	Barium	0.325	+/-10.000	J	0.100	10.000	MS	01/04/2012	15:27	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/04/2012	15:27	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	15:27	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	15:27	LB58710
	Chromium	0.105	+/-2.000	J	0.040	2.000	MS	01/04/2012	15:27	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Cobalt	0.052	+/-1.000	J	0.050	1.000	MS	01/04/2012	15:27	LB58710
	Copper	0.134	+/-2.000	J	0.040	2.000	MS	01/04/2012	15:27	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	15:27	LB58710
	Lead	0.058	+/-1.000	J	0.040	1.000	MS	01/04/2012	15:27	LB58710
	Magnesium	5.250	+/-500.000	J	4.950	500.000	MS	01/04/2012	15:27	LB58710
	Manganese	0.111	+/-1.000	J	0.050	1.000	MS	01/04/2012	15:27	LB58710
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/04/2012	15:27	LB58710
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/04/2012	15:27	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	15:27	LB58710
	Silver	0.058	+/-1.000	J	0.030	1.000	MS	01/04/2012	15:27	LB58710
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/04/2012	15:27	LB58710
	Thallium	0.088	+/-1.000	J	0.020	1.000	MS	01/04/2012	15:27	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	15:27	LB58710
	Zinc	0.196	+/-2.000	J	0.090	2.000	MS	01/04/2012	15:27	LB58710
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	17:02	LB58710
	Antimony	0.754	+/-2.000	J	0.140	2.000	MS	01/04/2012	17:02	LB58710
	Arsenic	0.278	+/-1.000	J	0.180	1.000	MS	01/04/2012	17:02	LB58710
	Barium	0.363	+/-10.000	J	0.100	10.000	MS	01/04/2012	17:02	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/04/2012	17:02	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	17:02	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	17:02	LB58710
	Chromium	0.138	+/-2.000	J	0.040	2.000	MS	01/04/2012	17:02	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/04/2012	17:02	LB58710
	Copper	0.084	+/-2.000	J	0.040	2.000	MS	01/04/2012	17:02	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	17:02	LB58710
	Lead	0.059	+/-1.000	J	0.040	1.000	MS	01/04/2012	17:02	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	17:02	LB58710
	Manganese	0.332	+/-1.000	J	0.050	1.000	MS	01/04/2012	17:02	LB58710
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/04/2012	17:02	LB58710
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/04/2012	17:02	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	17:02	LB58710
	Silver	0.061	+/-1.000	J	0.030	1.000	MS	01/04/2012	17:02	LB58710
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/04/2012	17:02	LB58710
	Thallium	0.141	+/-1.000	J	0.020	1.000	MS	01/04/2012	17:02	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	17:02	LB58710
	Zinc	0.207	+/-2.000	J	0.090	2.000	MS	01/04/2012	17:02	LB58710
CCB03	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	18:38	LB58710
	Antimony	0.738	+/-2.000	J	0.140	2.000	MS	01/04/2012	18:38	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	18:38	LB58710
	Barium	0.306	+/-10.000	J	0.100	10.000	MS	01/04/2012	18:38	LB58710
	Beryllium	0.106	+/-1.000	J	0.090	1.000	MS	01/04/2012	18:38	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	18:38	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	18:38	LB58710
	Chromium	0.119	+/-2.000	J	0.040	2.000	MS	01/04/2012	18:38	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/04/2012	18:38	LB58710
	Copper	0.066	+/-2.000	J	0.040	2.000	MS	01/04/2012	18:38	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	18:38	LB58710
	Lead	0.048	+/-1.000	J	0.040	1.000	MS	01/04/2012	18:38	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	18:38	LB58710
	Manganese	0.403	+/-1.000	J	0.050	1.000	MS	01/04/2012	18:38	LB58710
	Nickel	0.118	+/-1.000	J	0.060	1.000	MS	01/04/2012	18:38	LB58710
	Potassium	20.820	+/-500.000	J	12.220	500.000	MS	01/04/2012	18:38	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	18:38	LB58710
	Silver	0.032	+/-1.000	J	0.030	1.000	MS	01/04/2012	18:38	LB58710
	Sodium	10.360	+/-500.000	J	5.320	500.000	MS	01/04/2012	18:38	LB58710
	Thallium	0.109	+/-1.000	J	0.020	1.000	MS	01/04/2012	18:38	LB58710
	Vanadium	0.288	+/-5.000	J	0.150	5.000	MS	01/04/2012	18:38	LB58710
	Zinc	0.107	+/-2.000	J	0.090	2.000	MS	01/04/2012	18:38	LB58710
CCB04	Aluminum	5.097	+/-20.000	J	4.970	20.000	MS	01/04/2012	20:13	LB58710
	Antimony	0.900	+/-2.000	J	0.140	2.000	MS	01/04/2012	20:13	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	20:13	LB58710
	Barium	0.565	+/-10.000	J	0.100	10.000	MS	01/04/2012	20:13	LB58710
	Beryllium	0.169	+/-1.000	J	0.090	1.000	MS	01/04/2012	20:13	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	20:13	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	20:13	LB58710
	Chromium	0.173	+/-2.000	J	0.040	2.000	MS	01/04/2012	20:13	LB58710
	Cobalt	0.094	+/-1.000	J	0.050	1.000	MS	01/04/2012	20:13	LB58710
	Copper	0.181	+/-2.000	J	0.040	2.000	MS	01/04/2012	20:13	LB58710
	Iron	11.220	+/-200.000	J	10.280	200.000	MS	01/04/2012	20:13	LB58710
	Lead	0.117	+/-1.000	J	0.040	1.000	MS	01/04/2012	20:13	LB58710
	Magnesium	8.638	+/-500.000	J	4.950	500.000	MS	01/04/2012	20:13	LB58710
	Manganese	0.633	+/-1.000	J	0.050	1.000	MS	01/04/2012	20:13	LB58710
	Nickel	0.095	+/-1.000	J	0.060	1.000	MS	01/04/2012	20:13	LB58710
	Potassium	33.770	+/-500.000	J	12.220	500.000	MS	01/04/2012	20:13	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	20:13	LB58710
	Silver	0.106	+/-1.000	J	0.030	1.000	MS	01/04/2012	20:13	LB58710
	Sodium	32.370	+/-500.000	J	5.320	500.000	MS	01/04/2012	20:13	LB58710
	Thallium	0.197	+/-1.000	J	0.020	1.000	MS	01/04/2012	20:13	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	20:13	LB58710
	Zinc	0.260	+/-2.000	J	0.090	2.000	MS	01/04/2012	20:13	LB58710
CCB05	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	21:48	LB58710
	Antimony	0.787	+/-2.000	J	0.140	2.000	MS	01/04/2012	21:48	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	21:48	LB58710
	Barium	0.380	+/-10.000	J	0.100	10.000	MS	01/04/2012	21:48	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB05	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/04/2012	21:48	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	21:48	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	21:48	LB58710
	Chromium	0.120	+/-2.000	J	0.040	2.000	MS	01/04/2012	21:48	LB58710
	Cobalt	0.053	+/-1.000	J	0.050	1.000	MS	01/04/2012	21:48	LB58710
	Copper	0.116	+/-2.000	J	0.040	2.000	MS	01/04/2012	21:48	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	21:48	LB58710
	Lead	0.065	+/-1.000	J	0.040	1.000	MS	01/04/2012	21:48	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	21:48	LB58710
	Manganese	0.575	+/-1.000	J	0.050	1.000	MS	01/04/2012	21:48	LB58710
	Nickel	0.103	+/-1.000	J	0.060	1.000	MS	01/04/2012	21:48	LB58710
	Potassium	30.560	+/-500.000	J	12.220	500.000	MS	01/04/2012	21:48	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	21:48	LB58710
	Silver	0.059	+/-1.000	J	0.030	1.000	MS	01/04/2012	21:48	LB58710
	Sodium	42.010	+/-500.000	J	5.320	500.000	MS	01/04/2012	21:48	LB58710
	Thallium	0.158	+/-1.000	J	0.020	1.000	MS	01/04/2012	21:48	LB58710
	Vanadium	0.224	+/-5.000	J	0.150	5.000	MS	01/04/2012	21:48	LB58710
	Zinc	0.172	+/-2.000	J	0.090	2.000	MS	01/04/2012	21:48	LB58710
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/04/2012	23:23	LB58710
	Antimony	0.803	+/-2.000	J	0.140	2.000	MS	01/04/2012	23:23	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/04/2012	23:23	LB58710
	Barium	0.280	+/-10.000	J	0.100	10.000	MS	01/04/2012	23:23	LB58710
	Beryllium	0.092	+/-1.000	J	0.090	1.000	MS	01/04/2012	23:23	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/04/2012	23:23	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/04/2012	23:23	LB58710
	Chromium	0.141	+/-2.000	J	0.040	2.000	MS	01/04/2012	23:23	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/04/2012	23:23	LB58710
	Copper	0.129	+/-2.000	J	0.040	2.000	MS	01/04/2012	23:23	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/04/2012	23:23	LB58710
	Lead	0.223	+/-1.000	J	0.040	1.000	MS	01/04/2012	23:23	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/04/2012	23:23	LB58710
	Manganese	0.439	+/-1.000	J	0.050	1.000	MS	01/04/2012	23:23	LB58710
	Nickel	0.121	+/-1.000	J	0.060	1.000	MS	01/04/2012	23:23	LB58710
	Potassium	37.570	+/-500.000	J	12.220	500.000	MS	01/04/2012	23:23	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/04/2012	23:23	LB58710
	Silver	0.058	+/-1.000	J	0.030	1.000	MS	01/04/2012	23:23	LB58710
	Sodium	68.250	+/-500.000	J	5.320	500.000	MS	01/04/2012	23:23	LB58710
	Thallium	0.498	+/-1.000	J	0.020	1.000	MS	01/04/2012	23:23	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/04/2012	23:23	LB58710
	Zinc	0.201	+/-2.000	J	0.090	2.000	MS	01/04/2012	23:23	LB58710
CCB07	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	00:58	LB58710
	Antimony	0.897	+/-2.000	J	0.140	2.000	MS	01/05/2012	00:58	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB07	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	00:58	LB58710
	Barium	0.247	+/-10.000	J	0.100	10.000	MS	01/05/2012	00:58	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	00:58	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	00:58	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	00:58	LB58710
	Chromium	0.111	+/-2.000	J	0.040	2.000	MS	01/05/2012	00:58	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	00:58	LB58710
	Copper	0.083	+/-2.000	J	0.040	2.000	MS	01/05/2012	00:58	LB58710
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/05/2012	00:58	LB58710
	Lead	0.193	+/-1.000	J	0.040	1.000	MS	01/05/2012	00:58	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	00:58	LB58710
	Manganese	0.466	+/-1.000	J	0.050	1.000	MS	01/05/2012	00:58	LB58710
	Nickel	0.102	+/-1.000	J	0.060	1.000	MS	01/05/2012	00:58	LB58710
	Potassium	40.710	+/-500.000	J	12.220	500.000	MS	01/05/2012	00:58	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	00:58	LB58710
	Silver	0.035	+/-1.000	J	0.030	1.000	MS	01/05/2012	00:58	LB58710
	Sodium	69.680	+/-500.000	J	5.320	500.000	MS	01/05/2012	00:58	LB58710
	Thallium	0.226	+/-1.000	J	0.020	1.000	MS	01/05/2012	00:58	LB58710
	Vanadium	0.176	+/-5.000	J	0.150	5.000	MS	01/05/2012	00:58	LB58710
	Zinc	0.190	+/-2.000	J	0.090	2.000	MS	01/05/2012	00:58	LB58710
CCB08	Aluminum	14.970	+/-20.000	J	4.970	20.000	MS	01/05/2012	02:33	LB58710
	Antimony	0.797	+/-2.000	J	0.140	2.000	MS	01/05/2012	02:33	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	02:33	LB58710
	Barium	0.266	+/-10.000	J	0.100	10.000	MS	01/05/2012	02:33	LB58710
	Beryllium	0.133	+/-1.000	J	0.090	1.000	MS	01/05/2012	02:33	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	02:33	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	02:33	LB58710
	Chromium	0.121	+/-2.000	J	0.040	2.000	MS	01/05/2012	02:33	LB58710
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	02:33	LB58710
	Copper	0.105	+/-2.000	J	0.040	2.000	MS	01/05/2012	02:33	LB58710
	Iron	12.020	+/-200.000	J	10.280	200.000	MS	01/05/2012	02:33	LB58710
	Lead	0.197	+/-1.000	J	0.040	1.000	MS	01/05/2012	02:33	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	02:33	LB58710
	Manganese	0.406	+/-1.000	J	0.050	1.000	MS	01/05/2012	02:33	LB58710
	Nickel	0.102	+/-1.000	J	0.060	1.000	MS	01/05/2012	02:33	LB58710
	Potassium	31.560	+/-500.000	J	12.220	500.000	MS	01/05/2012	02:33	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	02:33	LB58710
	Silver	0.034	+/-1.000	J	0.030	1.000	MS	01/05/2012	02:33	LB58710
	Sodium	56.480	+/-500.000	J	5.320	500.000	MS	01/05/2012	02:33	LB58710
	Thallium	0.529	+/-1.000	J	0.020	1.000	MS	01/05/2012	02:33	LB58710
	Vanadium	0.152	+/-5.000	J	0.150	5.000	MS	01/05/2012	02:33	LB58710
	Zinc	0.246	+/-2.000	J	0.090	2.000	MS	01/05/2012	02:33	LB58710

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB09	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	04:09	LB58710
	Antimony	0.824	+/-2.000	J	0.140	2.000	MS	01/05/2012	04:09	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	04:09	LB58710
	Barium	0.554	+/-10.000	J	0.100	10.000	MS	01/05/2012	04:09	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	04:09	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	04:09	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	04:09	LB58710
	Chromium	0.161	+/-2.000	J	0.040	2.000	MS	01/05/2012	04:09	LB58710
	Cobalt	0.060	+/-1.000	J	0.050	1.000	MS	01/05/2012	04:09	LB58710
	Copper	0.156	+/-2.000	J	0.040	2.000	MS	01/05/2012	04:09	LB58710
	Iron	15.900	+/-200.000	J	10.280	200.000	MS	01/05/2012	04:09	LB58710
	Lead	0.203	+/-1.000	J	0.040	1.000	MS	01/05/2012	04:09	LB58710
	Magnesium	6.553	+/-500.000	J	4.950	500.000	MS	01/05/2012	04:09	LB58710
	Manganese	0.490	+/-1.000	J	0.050	1.000	MS	01/05/2012	04:09	LB58710
	Nickel	0.181	+/-1.000	J	0.060	1.000	MS	01/05/2012	04:09	LB58710
	Potassium	38.720	+/-500.000	J	12.220	500.000	MS	01/05/2012	04:09	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	04:09	LB58710
	Silver	0.094	+/-1.000	J	0.030	1.000	MS	01/05/2012	04:09	LB58710
	Sodium	66.900	+/-500.000	J	5.320	500.000	MS	01/05/2012	04:09	LB58710
	Thallium	0.310	+/-1.000	J	0.020	1.000	MS	01/05/2012	04:09	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	04:09	LB58710
	Zinc	0.267	+/-2.000	J	0.090	2.000	MS	01/05/2012	04:09	LB58710
CCB10	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	05:45	LB58710
	Antimony	0.890	+/-2.000	J	0.140	2.000	MS	01/05/2012	05:45	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	05:45	LB58710
	Barium	0.520	+/-10.000	J	0.100	10.000	MS	01/05/2012	05:45	LB58710
	Beryllium	0.127	+/-1.000	J	0.090	1.000	MS	01/05/2012	05:45	LB58710
	Cadmium	0.141	+/-1.000	J	0.130	1.000	MS	01/05/2012	05:45	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	05:45	LB58710
	Chromium	0.166	+/-2.000	J	0.040	2.000	MS	01/05/2012	05:45	LB58710
	Cobalt	0.104	+/-1.000	J	0.050	1.000	MS	01/05/2012	05:45	LB58710
	Copper	0.196	+/-2.000	J	0.040	2.000	MS	01/05/2012	05:45	LB58710
	Iron	13.210	+/-200.000	J	10.280	200.000	MS	01/05/2012	05:45	LB58710
	Lead	0.201	+/-1.000	J	0.040	1.000	MS	01/05/2012	05:45	LB58710
	Magnesium	8.633	+/-500.000	J	4.950	500.000	MS	01/05/2012	05:45	LB58710
	Manganese	0.530	+/-1.000	J	0.050	1.000	MS	01/05/2012	05:45	LB58710
	Nickel	0.143	+/-1.000	J	0.060	1.000	MS	01/05/2012	05:45	LB58710
	Potassium	40.250	+/-500.000	J	12.220	500.000	MS	01/05/2012	05:45	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	05:45	LB58710
	Silver	0.111	+/-1.000	J	0.030	1.000	MS	01/05/2012	05:45	LB58710
	Sodium	76.080	+/-500.000	J	5.320	500.000	MS	01/05/2012	05:45	LB58710
	Thallium	0.274	+/-1.000	J	0.020	1.000	MS	01/05/2012	05:45	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB10	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	05:45	LB58710
	Zinc	0.232	+/-2.000	J	0.090	2.000	MS	01/05/2012	05:45	LB58710
CCB11	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	07:20	LB58710
	Antimony	0.953	+/-2.000	J	0.140	2.000	MS	01/05/2012	07:20	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	07:20	LB58710
	Barium	0.462	+/-10.000	J	0.100	10.000	MS	01/05/2012	07:20	LB58710
	Beryllium	0.104	+/-1.000	J	0.090	1.000	MS	01/05/2012	07:20	LB58710
	Cadmium	0.132	+/-1.000	J	0.130	1.000	MS	01/05/2012	07:20	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	07:20	LB58710
	Chromium	0.122	+/-2.000	J	0.040	2.000	MS	01/05/2012	07:20	LB58710
	Cobalt	0.081	+/-1.000	J	0.050	1.000	MS	01/05/2012	07:20	LB58710
	Copper	0.133	+/-2.000	J	0.040	2.000	MS	01/05/2012	07:20	LB58710
	Iron	27.290	+/-200.000	J	10.280	200.000	MS	01/05/2012	07:20	LB58710
	Lead	0.188	+/-1.000	J	0.040	1.000	MS	01/05/2012	07:20	LB58710
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	07:20	LB58710
	Manganese	0.497	+/-1.000	J	0.050	1.000	MS	01/05/2012	07:20	LB58710
	Nickel	0.161	+/-1.000	J	0.060	1.000	MS	01/05/2012	07:20	LB58710
	Potassium	29.880	+/-500.000	J	12.220	500.000	MS	01/05/2012	07:20	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	07:20	LB58710
	Silver	0.068	+/-1.000	J	0.030	1.000	MS	01/05/2012	07:20	LB58710
	Sodium	65.540	+/-500.000	J	5.320	500.000	MS	01/05/2012	07:20	LB58710
	Thallium	0.663	+/-1.000	J	0.020	1.000	MS	01/05/2012	07:20	LB58710
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	07:20	LB58710
	Zinc	0.304	+/-2.000	J	0.090	2.000	MS	01/05/2012	07:20	LB58710
CCB12	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	08:32	LB58710
	Antimony	0.753	+/-2.000	J	0.140	2.000	MS	01/05/2012	08:32	LB58710
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	08:32	LB58710
	Barium	0.487	+/-10.000	J	0.100	10.000	MS	01/05/2012	08:32	LB58710
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	08:32	LB58710
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	08:32	LB58710
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	08:32	LB58710
	Chromium	0.108	+/-2.000	J	0.040	2.000	MS	01/05/2012	08:32	LB58710
	Cobalt	0.077	+/-1.000	J	0.050	1.000	MS	01/05/2012	08:32	LB58710
	Copper	0.135	+/-2.000	J	0.040	2.000	MS	01/05/2012	08:32	LB58710
	Iron	28.210	+/-200.000	J	10.280	200.000	MS	01/05/2012	08:32	LB58710
	Lead	0.174	+/-1.000	J	0.040	1.000	MS	01/05/2012	08:32	LB58710
	Magnesium	5.725	+/-500.000	J	4.950	500.000	MS	01/05/2012	08:32	LB58710
	Manganese	0.441	+/-1.000	J	0.050	1.000	MS	01/05/2012	08:32	LB58710
	Nickel	0.169	+/-1.000	J	0.060	1.000	MS	01/05/2012	08:32	LB58710
	Potassium	30.610	+/-500.000	J	12.220	500.000	MS	01/05/2012	08:32	LB58710
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	08:32	LB58710
	Silver	0.072	+/-1.000	J	0.030	1.000	MS	01/05/2012	08:32	LB58710

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB12	Sodium	53.870	+/-500.000	J	5.320	500.000	MS	01/05/2012	08:32	LB58710
	Thallium	0.406	+/-1.000	J	0.020	1.000	MS	01/05/2012	08:32	LB58710
	Vanadium	0.214	+/-5.000	J	0.150	5.000	MS	01/05/2012	08:32	LB58710
	Zinc	0.314	+/-2.000	J	0.090	2.000	MS	01/05/2012	08:32	LB58710

CHEMTECH

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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Instrument: CV2

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60302BL		**SOIL**		**Batch Number:**		**PB60302**		**Prep Date:**	**12/29/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	12/30/2011	18:32	LB58657
PB60238BL		**SOIL**		**Batch Number:**		**PB60238**		**Prep Date:**	**12/28/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	01/05/2012	02:57	LB58710
	Antimony	0.026	<0.200	U	0.026	0.200	MS	01/05/2012	02:57	LB58710
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	01/05/2012	02:57	LB58710
	Barium	0.008	<1.000	U	0.008	1.000	MS	01/05/2012	02:57	LB58710
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	01/05/2012	02:57	LB58710
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	01/05/2012	02:57	LB58710
	Calcium	0.635	<50.000	U	0.635	50.000	MS	01/05/2012	02:57	LB58710
	Chromium	0.011	<0.200	U	0.011	0.200	MS	01/05/2012	02:57	LB58710
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	01/05/2012	02:57	LB58710
	Copper	0.006	<0.200	U	0.006	0.200	MS	01/05/2012	02:57	LB58710
	Iron	1.768	<20.000	J	0.926	20.000	MS	01/05/2012	02:57	LB58710
	Lead	0.012	<0.100	J	0.004	0.100	MS	01/05/2012	02:57	LB58710
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	01/05/2012	02:57	LB58710
	Manganese	0.032	<0.100	J	0.006	0.100	MS	01/05/2012	02:57	LB58710
	Nickel	0.009	<0.100	U	0.009	0.100	MS	01/05/2012	02:57	LB58710
	Potassium	3.434	<50.000	J	0.901	50.000	MS	01/05/2012	02:57	LB58710
	Selenium	0.056	<0.500	U	0.056	0.500	MS	01/05/2012	02:57	LB58710
	Silver	0.007	<0.100	U	0.007	0.100	MS	01/05/2012	02:57	LB58710
	Sodium	6.289	<50.000	J	1.225	50.000	MS	01/05/2012	02:57	LB58710
	Thallium	0.029	<0.100	J	0.005	0.100	MS	01/05/2012	02:57	LB58710
	Vanadium	0.013	<0.500	U	0.013	0.500	MS	01/05/2012	02:57	LB58710
	Zinc	0.011	<0.200	U	0.011	0.200	MS	01/05/2012	02:57	LB58710

Cu 49
V 51 Cr 52 Co 59 Cu 63 Fe 57 Mn 55
As-75 Ni 60 Se 82 Ag 107 Zn 66
Ba -137
Cd - 111

Pb 208
Tl 205

Zn		33			96100	12.1	37500	4.72	J	na

Sb	12SB23-0.502-02	0.33		Fe	96100	1.7	37000	0.65	J	na
As		5.2			96100	0.24	37000	0.09	na	na
Ba		61.7			96100	1.5	37000	0.58	na	na
Be		0.7			96100	0.34	37000	0.13	J	na
Cd		0.14			96100	0.2	37000	0.08	J	na
Co		5.7			96100	1.3	37000	0.50	na	na
Cu		9.6			96100	8.2	37000	3.16	J	na
Mn		106			96100	8.2	37000	3.16	na	na
Ni		10.8			96100	6.1	37000	2.35	J	na
Ag		0.043			96100	0.096	37000	0.04	J	na
Tl		0.22			96100	0.17	37000	0.07	J	na
V-		34.4			96100	0.38	37000	0.15	na	na
Zn		31.8			96100	12.1	37000	4.66	J	na

Sb	12SB30-0.502-02	0.17		Fe	96100	1.7	17100	0.30	J	na
As		3.5			96100	0.24	17100	0.04	na	na
Ba		45.3			96100	1.5	17100	0.27	na	na
Be		0.47			96100	0.34	17100	0.06	J	na
Cd		0.082			96100	0.2	17100	0.04	J	na
Co		3.5			96100	1.3	17100	0.23	na	na
Cu		6.9			96100	8.2	17100	1.46	J	na
Mn		106			96100	8.2	17100	1.46	na	na
Ni		8			96100	6.1	17100	1.09	J	na
Ag		0.023			96100	0.096	17100	0.02	J	na
Tl		0.16			96100	0.17	17100	0.03	J	na
V-		28.2			96100	0.38	17100	0.07	na	na
Zn		22			96100	12.1	17100	2.15	na	na

Sb	12SB23-0.502-02	0.33		Al	97900	1.7	16700	0.29	J	na
As		5.2			97900	0.24	16700	0.04	na	na
Ba		61.7			97900	1.5	16700	0.26	na	na
Be		0.7			97900	0.34	16700	0.06	na	na
Cd		0.14			97900	0.2	16700	0.03	J	na
Co		5.7			97900	1.3	16700	0.22	na	na
Cu		9.6			97900	8.2	16700	1.40	J	na
Mn		106			97900	8.2	16700	1.40	na	na
Ni		10.8			97900	6.1	16700	1.04	na	na
Ag		0.043			97900	0.096	16700	0.02	J	na
Tl		0.22			97900	0.17	16700	0.03	J	na
V-		34.4			97900	0.38	16700	0.06	na	na
Zn		31.8			97900	12.1	16700	2.06	na	na

SDG C5128 Willow Grove

Soil

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Sb	12SB-DUP-06	5.9		Fe	96100	1.7	29300	0.52	na	na
As		3.9			96100	0.24	29300	0.07	na	na
Ba		804			96100	1.5	29300	0.46	na	na
Be		0.75			96100	0.34	29300	0.10	J	na
Cd		4			96100	0.2	29300	0.06	na	na
Co		7.9			96100	1.3	29300	0.40	na	na
Cu		99.2			96100	8.2	29300	2.50	na	na
Mn		783			96100	8.2	29300	2.50	na	na
Ni		14.6			96100	6.1	29300	1.86	J	na
Ag		1.4			96100	0.096	29300	0.03	na	na
Tl		0.27			96100	0.17	29300	0.05	J	na
V-		24.8			96100	0.38	29300	0.12	na	na
Zn		292			96100	12.1	29300	3.69	na	na
Sb	12SB21-0.502-02	0.23		Fe	96100	1.7	20700	0.37	J	na
As		5.1			96100	0.24	20700	0.05	na	na
Ba		83.5			96100	1.5	20700	0.32	na	na
Be		0.75			96100	0.34	20700	0.07	na	na
Cd		0.08			96100	0.2	20700	0.04	J	na
Co		5.9			96100	1.3	20700	0.28	na	na
Cu		7.9			96100	8.2	20700	1.77	J	na
Mn		201			96100	8.2	20700	1.77	na	na
Ni		9.9			96100	6.1	20700	1.31	J	na
Ag		0.034			96100	0.096	20700	0.02	J	na
Tl		0.17			96100	0.17	20700	0.04	J	na
V-		29			96100	0.38	20700	0.08	na	na
Zn		32.5			96100	12.1	20700	2.61	na	na
Sb	12SB21-0304-03	0.23		Fe	96100	1.7	37500	0.66	J	na
As		7.1			96100	0.24	37500	0.09	na	na
Ba		44.9			96100	1.5	37500	0.59	na	na
Be		0.58			96100	0.34	37500	0.13	J	na
Cd		0.09			96100	0.2	37500	0.08	J	na
Co		7.4			96100	1.3	37500	0.51	na	na
Cu		9.7			96100	8.2	37500	3.20	J	na
Mn		191			96100	8.2	37500	3.20	na	na
Ni		8.4			96100	6.1	37500	2.38	J	na
Ag		0.027			96100	0.096	37500	0.04	J	na
Tl		0.18			96100	0.17	37500	0.07	J	na
V-		27.5			96100	0.38	37500	0.15	na	na

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Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB20-0304-03	2		Fe	96100	1.7	23800	0.42	J	na
Arsenic		3.1		Fe	96100	0.24	23800	0.06	na	na
Barium		123		Fe	96100	1.5	23800	0.37	na	na
Be		0.75		Fe	96100	0.34	23800	0.08	J	na
Cadmium		1.9		Fe	96100	0.2	23800	0.05	na	na
Chromium		22.8		Fe	96100	1.3	23800	0.32	na	na
Co		5.5		Fe	96100	8.2	23800	2.03	J	na
Copper		22.9		Fe	96100	8.2	23800	2.03	na	na
Lead		64.1		Fe	96100	4.4	23800	1.09	na	na
Manganese		384		Fe	96100	8.2	23800	2.03	na	na
Ni		13.1		Fe	96100	6.1	23800	1.51	J	na
Ag		0.25		Fe	96100	0.096	23800	0.02	na	na
Tl		0.51		Fe	96100	0.17	23800	0.04	na	na
V		23.8		Fe	96100	0.38	23800	0.09	na	na
Zn		139		Fe	96100	12.1	23800	3.00	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB21-000.5-01	0.76		Fe	96100	1.7	18400	0.33	J	na
Arsenic		7.5		Fe	96100	0.24	18400	0.05	na	na
Barium		91.8		Fe	96100	1.5	18400	0.29	na	na
Be		0.9		Fe	96100	0.34	18400	0.07	na	na
Cadmium		0.57		Fe	96100	0.2	18400	0.04	na	na
Chromium		18.3		Fe	96100	1.3	18400	0.25	na	na
Co		7.6		Fe	96100	8.2	18400	1.57	J	na
Copper		18.1		Fe	96100	8.2	18400	1.57	na	na
Lead		47.2		Fe	96100	4.4	18400	0.84	na	na
Manganese		803		Fe	96100	8.2	18400	1.57	na	na
Ni		10.7		Fe	96100	6.1	18400	1.17	J	na
Ag		0.22		Fe	96100	0.096	18400	0.02	na	na
Tl		0.21		Fe	96100	0.17	18400	0.03	J	na
V		28.7		Fe	96100	0.38	18400	0.07	na	na
Zn		61.1		Fe	96100	12.1	18400	2.32	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB23-000.5-01	0.82		Fe	96100	1.7	16200	0.29	J	na
Arsenic		4.8		Fe	96100	0.24	16200	0.04	na	na
Barium		78.3		Fe	96100	1.5	16200	0.25	na	na
Be		0.92		Fe	96100	0.34	16200	0.06	na	na
Cadmium		0.45		Fe	96100	0.2	16200	0.03	na	na
Chromium		18.4		Fe	96100	1.3	16200	0.22	na	na
Co		6.4		Fe	96100	8.2	16200	1.38	J	na
Copper		14.5		Fe	96100	8.2	16200	1.38	na	na
Lead		37.2		Fe	96100	4.4	16200	0.74	na	na
Manganese		397		Fe	96100	8.2	16200	1.38	na	na
Ni		11		Fe	96100	6.1	16200	1.03	na	na
Ag		0.44		Fe	96100	0.096	16200	0.02	na	na
Tl		0.23		Fe	96100	0.17	16200	0.03	J	na
V		27.3		Fe	96100	0.38	16200	0.06	na	na
Zn		66.6		Fe	96100	12.1	16200	2.04	na	na
Analyte		Result			level in ICS	ICS	Level	Interference	Action	Action
Antimony	12SB23-0304-03	0.33		Fe	96100	1.7	33200	0.59	J	na
Arsenic		3.4		Fe	96100	0.24	33200	0.08	na	na
Barium		50.5		Fe	96100	1.5	33200	0.52	na	na
Be		0.85		Fe	96100	0.34	33200	0.12	J	na
Cadmium		0.12		Fe	96100	0.2	33200	0.07	J	na
Chromium		20.4		Fe	96100	1.3	33200	0.45	na	na
Co		6.5		Fe	96100	8.2	33200	2.83	J	na
Copper		8.4		Fe	96100	8.2	33200	2.83	J	na
Lead		13.5		Fe	96100	4.4	33200	1.52	J	na
Manganese		146		Fe	96100	8.2	33200	2.83	na	na
Ni		10.5		Fe	96100	6.1	33200	2.11	J	na
Ag		0.05		Fe	96100	0.096	33200	0.03	J	na
Tl		0.2		Fe	96100	0.17	33200	0.06	J	na
V		30.2		Fe	96100	0.38	33200	0.13	na	na
Zn		29.5		Fe	96100	12.1	33200	4.18	J	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB30-000.5-01	0.35		Fe	96100	1.7	16400	0.29	J	na
Arsenic		4.9		Fe	96100	0.24	16400	0.04	na	na
Barium		74.5		Fe	96100	1.5	16400	0.26	na	na
Be		0.76		Fe	96100	0.34	16400	0.06	na	na
Cadmium		0.21		Fe	96100	0.2	16400	0.03	J	na
Chromium		17.4		Fe	96100	1.3	16400	0.22	na	na
Co		6		Fe	96100	8.2	16400	1.40	J	na
Copper		13.6		Fe	96100	8.2	16400	1.40	J	na
Lead		35.3		Fe	96100	4.4	16400	0.75	na	na
Manganese		360		Fe	96100	8.2	16400	1.40	na	na
Ni		10.7		Fe	96100	6.1	16400	1.04	na	na
Ag		0.093		Fe	96100	0.096	16400	0.02	J	na
Tl		0.24		Fe	96100	0.17	16400	0.03	J	na
V		25.6		Fe	96100	0.38	16400	0.06	na	na
Zn		47.9		Fe	96100	12.1	16400	2.06	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB30-0304-03	0.14		Fe	96100	1.7	14800	0.26	J	na
Arsenic		2.6		Fe	96100	0.24	14800	0.04	na	na
Barium		57.9		Fe	96100	1.5	14800	0.23	na	na
Be		0.76		Fe	96100	0.34	14800	0.05	na	na
Cadmium		0.097		Fe	96100	0.2	14800	0.03	J	na
Chromium		17.5		Fe	96100	1.3	14800	0.20	na	na
Co		5.7		Fe	96100	8.2	14800	1.26	J	na
Copper		7.2		Fe	96100	8.2	14800	1.26	J	na
Lead		7.7		Fe	96100	4.4	14800	0.68	na	na
Manganese		165		Fe	96100	8.2	14800	1.26	na	na
Ni		8.1		Fe	96100	6.1	14800	0.94	J	na
Ag		0.0475		Fe	96100	0.096	14800	0.01	J	na
Tl		0.13		Fe	96100	0.17	14800	0.03	J	na
V		24.6		Fe	96100	0.38	14800	0.06	na	na
Zn		20.9		Fe	96100	12.1	14800	1.86	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB21-0.502-02	0.23		Al	97900	1.7	13600	0.24	J	na
Arsenic		5.1		Al	97900	0.24	13600	0.03	na	na
Barium		83.5		Al	97900	1.5	13600	0.21	na	na
Be		0.75		Al	97900	0.34	13600	0.05	na	na
Cadmium		0.08		Al	97900	0.2	13600	0.03	J	na
Chromium		19.7		Al	97900	1.3	13600	0.18	na	na
Co		5.9		Al	97900	8.2	13600	1.14	J	na
Copper		7.9		Al	97900	8.2	13600	1.14	J	na
Lead		10.6		Al	97900	4.4	13600	0.61	na	na
Manganese		201		Al	97900	8.2	13600	1.14	na	na
Ni		9.9		Al	97900	6.1	13600	0.85	na	na
Ag		0.055		Al	97900	0.096	13600	0.01	J	na
Tl		0.17		Al	97900	0.17	13600	0.02	J	na
V		29		Al	97900	0.38	13600	0.05	na	na
Zn		32.5		Al	97900	12.1	13600	1.68	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB21-000.5-01	0.76		Al	97900	1.7	11500	0.20	J	na
Arsenic		7.5		Al	97900	0.24	11500	0.03	na	na
Barium		91.8		Al	97900	1.5	11500	0.18	na	na
Be		0.9		Al	97900	0.34	11500	0.04	na	na
Cadmium		0.57		Al	97900	0.2	11500	0.02	na	na
Chromium		18.3		Al	97900	1.3	11500	0.15	na	na
Co		7.6		Al	97900	8.2	11500	0.96	J	na
Copper		18.1		Al	97900	8.2	11500	0.96	na	na
Lead		47.2		Al	97900	4.4	11500	0.52	na	na
Manganese		803		Al	97900	8.2	11500	0.96	na	na
Ni		10.7		Al	97900	6.1	11500	0.72	na	na
Ag		0.22		Al	97900	0.096	11500	0.01	na	na
Tl		0.21		Al	97900	0.17	11500	0.02	na	na
V		28.7		Al	97900	0.38	11500	0.04	na	na
Zn		61.1		Al	97900	12.1	11500	1.42	na	na
Analyte		Result			level in ICS	ICS	Level	Interference	Action	Action
Antimony	12SB21-0304-03	0.23		Al	97900	1.7	11900	0.21	J	na
Arsenic		7.1		Al	97900	0.24	11900	0.03	na	na
Barium		44.9		Al	97900	1.5	11900	0.18	na	na
Be		0.58		Al	97900	0.34	11900	0.04	na	na
Cadmium		0.09		Al	97900	0.2	11900	0.02	J	na
Chromium		17.1		Al	97900	1.3	11900	0.16	na	na
Co		7.4		Al	97900	8.2	11500	0.96	J	na
Copper		9.7		Al	97900	8.2	11900	1.00	J	na
Lead		12		Al	97900	4.4	11900	0.53	na	na
Manganese		191		Al	97900	8.2	11900	1.00	na	na
Ni		8.4		Al	97900	6.1	11900	0.74	na	na
Ag		0.047		Al	97900	0.096	11900	0.01	J	na
Tl		0.18		Al	97900	0.17	11900	0.02	J	na
V		27.5		Al	97900	0.38	11900	0.05	na	na
Zn		33		Al	97900	12.1	11900	1.47	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB23-0.502-02	0.33		Al	97900	1.7	16700	0.29	J	na
Arsenic		5.2		Al	97900	0.24	16700	0.04	na	na
Barium		61.7		Al	97900	1.5	16700	0.26	na	na
Be		0.7		Al	97900	0.34	16700	0.06	na	na
Cadmium		0.14		Al	97900	0.2	16700	0.03	J	na
Chromium		23.7		Al	97900	1.3	16700	0.22	na	na
Co		5.7		Al	97900	8.2	16700	1.40	J	na
Copper		9.6		Al	97900	8.2	16700	1.40	J	na
Lead		12		Al	97900	4.4	16700	0.75	na	na
Manganese		106		Al	97900	8.2	16700	1.40	na	na
Ni		10.8		Al	97900	6.1	16700	1.04	na	na
Ag		0.065		Al	97900	0.096	16700	0.02	J	na
Tl		0.22		Al	97900	0.17	16700	0.03	J	na
V		34.4		Al	97900	0.38	16700	0.06	na	na
Zn		31.8		Al	97900	12.1	16700	2.06	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB23-000.5-01	0.82		Al	97900	1.7	11000	0.19	J	na
Arsenic		4.8		Al	97900	0.24	11000	0.03	na	na
Barium		78.3		Al	97900	1.5	11000	0.17	na	na
Be		0.92		Al	97900	0.34	11000	0.04	na	na
Cadmium		0.45		Al	97900	0.2	11000	0.02	na	na
Chromium		18.4		Al	97900	1.3	11000	0.15	na	na
Co		6.4		Al	97900	8.2	11000	0.92	J	na
Copper		14.5		Al	97900	8.2	11000	0.92	na	na
Lead		37.2		Al	97900	4.4	11000	0.49	na	na
Manganese		397		Al	97900	8.2	11000	0.92	na	na
Ni		11		Al	97900	6.1	11000	0.69	na	na
Ag		0.44		Al	97900	0.096	11000	0.01	na	na
Tl		0.23		Al	97900	0.17	11000	0.02	na	na
V		27.3		Al	97900	0.38	11000	0.04	na	na
Zn		66.6		Al	97900	12.1	11000	1.36	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB23-0304-03	0.33		Al	97900	1.7	14000	0.24	J	na
Arsenic		3.4		Al	97900	0.24	14000	0.03	na	na
Barium		50.5		Al	97900	1.5	14000	0.21	na	na
Be		0.85		Al	97900	0.34	14000	0.05	na	na
Cadmium		0.12		Al	97900	0.2	14000	0.03	J	na
Chromium		20.4		Al	97900	1.3	14000	0.19	na	na
Co		6.5		Al	97900	8.2	14000	1.17	J	na
Copper		8.4		Al	97900	8.2	14000	1.17	J	na
Lead		13.5		Al	97900	4.4	14000	0.63	na	na
Manganese		146		Al	97900	8.2	14000	1.17	na	na
Ni		10.5		Al	97900	6.1	14000	0.87	na	na
Ag		0.05		Al	97900	0.096	14000	0.01	J	na
Tl		0.2		Al	97900	0.17	14000	0.02	J	na
V		30.2		Al	97900	0.38	14000	0.05	na	na
Zn		29.5		Al	97900	12.1	14000	1.73	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Antimony	12SB30-0.502-02	0.17		Al	97900	1.7	11700	0.20	J	na
Arsenic		3.5		Al	97900	0.24	11700	0.03	na	na
Barium		45.3		Al	97900	1.5	11700	0.18	na	na
Be		0.47		Al	97900	0.34	11700	0.04	na	na
Cadmium		0.082		Al	97900	0.2	11700	0.02	J	na
Chromium		19.4		Al	97900	1.3	11700	0.16	na	na
Co		3.5		Al	97900	8.2	11700	0.98	J	na
Copper		6.9		Al	97900	8.2	11700	0.98	J	na
Lead		8.5		Al	97900	4.4	11700	0.53	na	na
Manganese		106		Al	97900	8.2	11700	0.98	na	na
Ni		8		Al	97900	6.1	11700	0.73	na	na
Ag		0.048		Al	97900	0.096	11700	0.01	J	na
Tl		0.16		Al	97900	0.17	11700	0.02	J	na
V		28.2		Al	97900	0.38	11700	0.05	na	na
Zn		22		Al	97900	12.1	11700	1.45	na	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action

Antimony	12SB30-000.5-01	0.35		Al	97900	1.7	10800	0.19	J	na
Arsenic		4.9		Al	97900	0.24	10800	0.03	na	na
Barium		74.5		Al	97900	1.5	10800	0.17	na	na
Be		0.76		Al	97900	0.34	10800	0.04	na	na
Cadmium		0.21		Al	97900	0.2	10800	0.02	J	na
Chromium		17.4		Al	97900	1.3	10800	0.14	na	na
Co		6		Al	97900	8.2	10800	0.90	J	na
Copper		13.6		Al	97900	8.2	10800	0.90	na	na
Lead		35.3		Al	97900	4.4	10800	0.49	na	na
Manganese		360		Al	97900	8.2	10800	0.90	na	na
Ni		10.7		Al	97900	6.1	10800	0.67	na	na
Ag		0.093		Al	97900	0.096	10800	0.01	J	na
Tl		0.24		Al	97900	0.17	10800	0.02	na	na
V		25.6		Al	97900	0.38	10800	0.04	na	na
Zn		47.9		Al	97900	12.1	10800	1.33	na	na

CHEMTECH

Metals
- 5a -
MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5128-08 **Client ID:** 12SB23-0.502-02S

Percent Solids for Sample: 78.6 **Spiked ID:** C5128-08S **Percent Solids for Spike Sample:** 78.6

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	16552.1600		16653.9500		254.45	-40.0		MS
Antimony	mg/Kg	80 - 120	66.2977		0.3302		101.78	64.8	N	MS
Arsenic	mg/Kg	80 - 120	83.0916		5.1679		101.78	76.6	N	MS
Barium	mg/Kg	80 - 120	82.0611		61.6667		25.45	80.1		MS
Beryllium	mg/Kg	80 - 120	20.1781		0.6955		25.45	76.6	N	MS
Cadmium	mg/Kg	80 - 120	22.9644		0.1387		25.45	89.7		MS
Calcium	mg/Kg	80 - 120	657.5064		607.1247		127.23	39.6		MS
Chromium	mg/Kg	80 - 120	56.5394		23.7277		50.89	64.5	N	MS
Cobalt	mg/Kg	80 - 120	24.1603		5.6552		25.45	72.7	N	MS
Copper	mg/Kg	80 - 120	38.1425		9.5865		38.17	74.8	N	MS
Iron	mg/Kg	80 - 120	24198.4700		26119.5900		381.68	-503.3		MS
Lead	mg/Kg	80 - 120	131.5522		11.9657		127.23	94.0		MS
Magnesium	mg/Kg	80 - 120	1950.3820		1842.2390		254.45	42.5		MS
Manganese	mg/Kg	80 - 120	126.0433		105.5344		25.45	80.6		MS
Nickel	mg/Kg	80 - 120	57.1374		10.8422		63.61	72.8	N	MS
Potassium	mg/Kg	80 - 120	1778.6260		766.2850		1272.27	79.6	N	MS
Selenium	mg/Kg	80 - 120	202.0356		0.1650	J	254.45	79.3	N	MS
Silver	mg/Kg	80 - 120	9.5700		0.0434	J	9.54	99.9		MS
Sodium	mg/Kg	80 - 120	355.8524		40.3053	J	381.68	82.7		MS
Thallium	mg/Kg	80 - 120	245.5471		0.2186		254.45	96.4		MS
Vanadium	mg/Kg	80 - 120	58.0280		34.4402		38.17	61.8	N	MS
Zinc	mg/Kg	80 - 120	51.8575		31.7812		25.45	78.9	N	MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5128-08 **Client ID:** 12SB23-0.502-02SD

Percent Solids for Sample: 78.6 **Spiked ID:** C5128-08SD **Percent Solids for Spike Sample:** 78.6

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	17849.8700		16653.9500		254.45	470.0		MS
Antimony	mg/Kg	80 - 120	72.4046		0.3302		101.78	70.8	N	MS
Arsenic	mg/Kg	80 - 120	86.5267		5.1679		101.78	79.9	N	MS
Barium	mg/Kg	80 - 120	89.9110		61.6667		25.45	111.0		MS
Beryllium	mg/Kg	80 - 120	21.4122		0.6955		25.45	81.4		MS
Cadmium	mg/Kg	80 - 120	24.4275		0.1387		25.45	95.4		MS
Calcium	mg/Kg	80 - 120	695.1654		607.1247		127.23	69.2		MS
Chromium	mg/Kg	80 - 120	61.6412		23.7277		50.89	74.5	N	MS
Cobalt	mg/Kg	80 - 120	25.5471		5.6552		25.45	78.2	N	MS
Copper	mg/Kg	80 - 120	40.4835		9.5865		38.17	80.9		MS
Iron	mg/Kg	80 - 120	35591.6000		37022.9000		381.68	-375.0		MS
Lead	mg/Kg	80 - 120	137.1501		11.9657		127.23	98.4		MS
Magnesium	mg/Kg	80 - 120	2080.1530		1842.2390		254.45	93.5		MS
Manganese	mg/Kg	80 - 120	131.5522		105.5344		25.45	102.2		MS
Nickel	mg/Kg	80 - 120	61.4504		10.8422		63.61	79.6	N	MS
Potassium	mg/Kg	80 - 120	1790.0760		766.2850		1272.27	80.5		MS
Selenium	mg/Kg	80 - 120	208.1425		0.1650	J	254.45	81.7		MS
Silver	mg/Kg	80 - 120	9.7977		0.0434	J	9.54	102.2		MS
Sodium	mg/Kg	80 - 120	370.3562		40.3053	J	381.68	86.5		MS
Thallium	mg/Kg	80 - 120	253.0534		0.2186		254.45	99.4		MS
Vanadium	mg/Kg	80 - 120	62.6463		34.4402		38.17	73.9	N	MS
Zinc	mg/Kg	80 - 120	54.6565		31.7812		25.45	89.9		MS

CHEMTECH

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5128-08 **Client ID:** 12SB23-0.502-02SD

Percent Solids for Sample: 78.6 **Duplicate ID** C5128-08SD **Percent Solids for Spike Sample:** 78.6

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M	
Aluminum	mg/Kg	20	16552.1600		17849.8700		7.5		MS	
Antimony	mg/Kg	20	66.2977		72.4046		8.8		MS	
Arsenic	mg/Kg	20	83.0916		86.5267		4.1		MS	
Barium	mg/Kg	20	82.0611		89.9110		9.1		MS	
Beryllium	mg/Kg	20	20.1781		21.4122		5.9		MS	
Cadmium	mg/Kg	20	22.9644		24.4275		6.2		MS	
Calcium	mg/Kg	20	657.5064		695.1654		5.6		MS	
Chromium	mg/Kg	20	56.5394		61.6412		8.6		MS	
Cobalt	mg/Kg	20	24.1603		25.5471		5.6		MS	
Copper	mg/Kg	20	38.1425		40.4835		6.0		MS	
Iron	mg/Kg	20	~~24198.4700~~	~~J~~	35591.6000		~~5.7~~ ~~38.1~~	*	MS	Correct
Lead	mg/Kg	20	131.5522		137.1501		4.2		MS	
Magnesium	mg/Kg	20	1950.3820		2080.1530		6.4		MS	
Manganese	mg/Kg	20	126.0433		131.5522		4.3		MS	
Nickel	mg/Kg	20	57.1374		61.4504		7.3		MS	
Potassium	mg/Kg	20	1778.6260		1790.0760		0.6		MS	
Selenium	mg/Kg	20	202.0356		208.1425		3.0		MS	
Silver	mg/Kg	20	9.5700		9.7977		2.4		MS	
Sodium	mg/Kg	20	355.8524		370.3562		4.0		MS	
Thallium	mg/Kg	20	245.5471		253.0534		3.0		MS	
Vanadium	mg/Kg	20	58.0280		62.6463		7.7		MS	
Zinc	mg/Kg	20	51.8575		54.6565		5.3		MS	

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5135-16 **Client ID:** UBZ2-SO-28-11-12S

Percent Solids for Sample: 92.1 **Spiked ID:** C5135-17S **Percent Solids for Spike Sample:** 92.1

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	34 - 153	0.2172		0.0045	J	0.22	96.7		CV

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5135-16 **Client ID:** UBZ2-SO-28-11-12SD

Percent Solids for Sample: 92.1 **Spiked ID:** C5135-18SD **Percent Solids for Spike Sample:** 92.1

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	34 - 153	0.2096		0.0045	J	0.22	93.2		CV

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: WATER **Level:** LOW **Client ID:** 12SB23-0.502-02A

Sample ID: C5128-08 **Spiked ID:** C5128-08A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	779.10		2.60		80.0	970.6		MS
Arsenic	ug/L	80 - 120	738.50		40.62		800.0	87.2		MS
Beryllium	ug/L	80 - 120	186.80		5.47		200.0	90.7		MS
Chromium	ug/L	80 - 120	513.40		186.50		40.0	817.2		MS
Cobalt	ug/L	80 - 120	216.60		44.45		20.0	860.8		MS
Copper	ug/L	80 - 120	341.30		75.35		30.0	886.5		MS
Nickel	ug/L	80 - 120	516.50		85.22		50.0	862.6		MS
Potassium	ug/L	80 - 120	13760.00		6023.00		1000.0	773.7		MS
Selenium	ug/L	80 - 120	1736.00		1.30	J	200.0	867.4		MS
Vanadium	ug/L	80 - 120	503.30		270.70		30.0	775.3		MS
Zinc	ug/L	80 - 120	421.50		249.80		20.0	858.5		MS

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5128-08 **Client ID:** 12SB23-0.502-02D

Percent Solids for Sample: 78.6 **Duplicate ID** C5128-08D **Percent Solids for Spike Sample:** 78.6

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	16653.9500		16755.7300		0.6		MS
Antimony	mg/Kg	20	0.3302		0.2949		11.3		MS
Arsenic	mg/Kg	20	5.1679		5.0407		2.5		MS
Barium	mg/Kg	20	61.6667		63.2443		2.5		MS
Beryllium	mg/Kg	20	0.6955		0.7616		9.1		MS
Cadmium	mg/Kg	20	0.1387		0.1198	J	14.6		MS
Calcium	mg/Kg	20	607.1247		615.3944		1.4		MS
Chromium	mg/Kg	20	23.7277		24.0331		1.3		MS
Cobalt	mg/Kg	20	5.6552		5.7926		2.4		MS
Copper	mg/Kg	20	9.5865		9.5636		0.2		MS
Iron	mg/Kg	20	37022.9000		36132.3200		2.4		MS
Lead	mg/Kg	20	11.9657		12.3690		3.3		MS
Magnesium	mg/Kg	20	1842.2390		1870.2290		1.5		MS
Manganese	mg/Kg	20	105.5344		115.4198		8.9		MS
Nickel	mg/Kg	20	10.8422		10.8970		0.5		MS
Potassium	mg/Kg	20	766.2850		757.8881		1.1		MS
Selenium	mg/Kg	20	0.1650	J	0.0947	J	54.1		MS
Silver	mg/Kg	20	0.0434	J	0.0372	J	15.4		MS
Sodium	mg/Kg	20	40.3053	J	44.3130	J	9.5		MS
Thallium	mg/Kg	20	0.2186		0.1760		21.6	*	MS
Vanadium	mg/Kg	20	34.4402		35.0636		1.8		MS
Zinc	mg/Kg	20	31.7812		32.1501		1.2		MS

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"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5135-16 **Client ID:** UBZ2-SO-28-11-12D

Percent Solids for Sample: 92.1 **Duplicate ID** C5135-16D **Percent Solids for Spike Sample:** 92.1

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.0045	J	0.0046	J	2.2		CV

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Matrix: SOIL **Sample ID:** C5135-16 **Client ID:** UBZ2-SO-28-11-12SD

Percent Solids for Sample: 92.1 **Duplicate ID** C5135-18SD **Percent Solids for Spike Sample:** 92.1

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.2172		0.2096		3.6		CV

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60238BS							
Aluminum	mg/Kg	200	195.4		97.7	80 - 120	MS
Antimony	mg/Kg	80	82.1		102.6	80 - 120	MS
Arsenic	mg/Kg	80	81.3		101.6	80 - 120	MS
Barium	mg/Kg	20	20.7		103.5	80 - 120	MS
Beryllium	mg/Kg	20	19.2		96.0	80 - 120	MS
Cadmium	mg/Kg	20	21.0		105.0	80 - 120	MS
Calcium	mg/Kg	100	111.6		111.6	80 - 120	MS
Chromium	mg/Kg	40	42.8		107.0	80 - 120	MS
Cobalt	mg/Kg	20	21.6		108.0	80 - 120	MS
Copper	mg/Kg	30	32.9		109.7	80 - 120	MS
Iron	mg/Kg	300	329.8		109.9	80 - 120	MS
Lead	mg/Kg	100	104.5		104.5	80 - 120	MS
Magnesium	mg/Kg	200	192.9		96.4	80 - 120	MS
Manganese	mg/Kg	20	22.0		110.0	80 - 120	MS
Nickel	mg/Kg	50	54.0		108.0	80 - 120	MS
Potassium	mg/Kg	1000	1038.0		103.8	80 - 120	MS
Selenium	mg/Kg	200	204.4		102.2	80 - 120	MS
Silver	mg/Kg	7.5	8.1		108.0	80 - 120	MS
Sodium	mg/Kg	300	313.2		104.4	80 - 120	MS
Thallium	mg/Kg	200	211.9		106.0	80 - 120	MS
Vanadium	mg/Kg	30	31.3		104.3	80 - 120	MS
Zinc	mg/Kg	20	22.4		112.0	80 - 120	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60302BS							
Mercury	mg/Kg	0.200	0.194		97.0	73 - 121	CV

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB23-0.502-02L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG No.:** C5128

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	16653.95		18486.01		11.0		MS
Antimony	0.33		0.29	J	12.1		MS
Arsenic	5.17		5.31		2.7		MS
Barium	61.67		62.47		1.3		MS
Beryllium	0.70		0.83		18.6		MS
Cadmium	0.14		0.11	J	21.4		MS
Calcium	607.12		767.81		26.5	J	MS
Chromium	23.73		28.42		19.8	J	MS
Cobalt	5.66		6.65		17.5	J	MS
Copper	9.59		11.11		15.8	J	MS
Iron	37022.90		36514.00		1.4		MS
Lead	11.97		12.02		0.4		MS
Magnesium	1842.24		2043.89		10.9	J	MS
Manganese	105.53		127.48		20.8	J	MS
Nickel	10.84		12.74		17.5	J	MS
Potassium	766.29		965.65		26.0	J	MS
Selenium	0.17	J	0.36	U	100.0		MS
Silver	0.04	J	0.05	J	25.0		MS
Sodium	40.31	J	69.59	J	72.6		MS
Thallium	0.22		0.22	J	0.0		MS
Vanadium	34.44		41.69		21.1	J	MS
Zinc	31.78		36.97		16.3	J	MS

CHEMTECH

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ICP SERIAL DILUTIONS

SAMPLE NO.

UBZ2-SO-28-11-12L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5128 **SAS No.:** C5128 **SDG No.:** C5128

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Mercury	0.09	U	0.46	U			CV

CHEMTECH

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Instrument ID: CV2 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 01/15/2009
Mercury	253.70	0.0020	0.010	

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Aluminum	27	0.6770	2.00	
Antimony	121	0.0260	0.20	
Arsenic	75	0.0220	0.10	
Barium	137	0.0080	1.00	
Beryllium	9	0.0070	0.10	
Cadmium	111	0.0090	0.10	
Calcium	44	0.6350	50.00	
Chromium	52	0.0110	0.20	
Cobalt	59	0.0060	0.10	
Copper	63	0.0060	0.20	
Iron	57	0.9260	20.00	
Lead	208	0.0040	0.10	

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For:				

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LINEAR RANGES

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5128 **SAS No.:** C5128

Instrument ID: P6 **Date:** 07/18/2011

Analyte	Integration Time (sec)	LDR ug/L
Aluminum	0.01	200000
Antimony	0.1	1000
Arsenic	0.001	5000
Barium	0.1	5000
Beryllium	0.1	1000
Cadmium	0.1	1000
Calcium	0.001	200000
Chromium	0.1	1000
Cobalt	0.1	1000
Copper	0.1	5000
Iron	0.001	200000
Lead	0.1	5000
Magnesium	0.001	200000
Manganese	0.1	5000
Nickel	0.1	1000
Potassium	0.001	200000
Selenium	0.1	3000
Silver	0.1	1000
Sodium	0.001	200000
Thallium	0.1	3000
Vanadium	0.1	1000
Zinc	0.1	5000

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5128 **SAS No.:** C5128

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60238**						
C5128-04	12SB30-000.5-01	SAM	SOIL	12/28/2011	1.27	100.0	79.70
C5128-05	12SB30-0.502-02	SAM	SOIL	12/28/2011	1.28	100.0	81.70
C5128-06	12SB30-0304-03	SAM	SOIL	12/28/2011	1.24	100.0	84.50
C5128-07	12SB23-000.5-01	SAM	SOIL	12/28/2011	1.50	100.0	75.40
C5128-08	12SB23-0.502-02	SAM	SOIL	12/28/2011	1.00	100.0	78.60
C5128-08D	12SB23-0.502-02D	DUP	SOIL	12/28/2011	1.00	100.0	78.60
C5128-08DL	12SB23-0.502-02DL	SAM	SOIL	12/28/2011	1.00	100.0	78.60
C5128-08S	12SB23-0.502-02S	MS	SOIL	12/28/2011	1.00	100.0	78.60
C5128-08SD	12SB23-0.502-02SD	MSD	SOIL	12/28/2011	1.00	100.0	78.60
C5128-09	12SB23-0304-03	SAM	SOIL	12/28/2011	1.23	100.0	80.10
C5128-09DL	12SB23-0304-03DL	SAM	SOIL	12/28/2011	1.23	100.0	80.10
C5128-10	12SB21-000.5-01	SAM	SOIL	12/28/2011	1.43	100.0	69.60
C5128-10DL	12SB21-000.5-01DL	SAM	SOIL	12/28/2011	1.43	100.0	69.60
C5128-11	12SB21-0.502-02	SAM	SOIL	12/28/2011	1.12	100.0	79.40
C5128-12	12SB21-0304-03	SAM	SOIL	12/28/2011	1.35	100.0	78.80
C5128-12DL	12SB21-0304-03DL	SAM	SOIL	12/28/2011	1.35	100.0	78.80
C5128-13	12SB20-0304-03	SAM	SOIL	12/28/2011	1.53	100.0	82.10
C5128-13DL	12SB20-0304-03DL	SAM	SOIL	12/28/2011	1.53	100.0	82.10
C5128-14	12SB-DUP-06	SAM	SOIL	12/28/2011	1.41	100.0	82.40
C5128-14DL	12SB-DUP-06DL	SAM	SOIL	12/28/2011	1.41	100.0	82.40
PB60238BL	PB60238BL	MB	SOIL	12/28/2011	1.00	100.0	100.00
PB60238BS	PB60238BS	LCS	SOIL	12/28/2011	1.00	100.0	100.00

CHEMTECH

Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5128 **SAS No.:** C5128

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60302**						
C5128-04	12SB30-000.5-01	SAM	SOIL	12/29/2011	0.65	30.0	79.70
C5128-05	12SB30-0.502-02	SAM	SOIL	12/29/2011	0.65	30.0	81.70
C5128-06	12SB30-0304-03	SAM	SOIL	12/29/2011	0.66	30.0	84.50
C5128-07	12SB23-000.5-01	SAM	SOIL	12/29/2011	0.63	30.0	75.40
C5128-08	12SB23-0.502-02	SAM	SOIL	12/29/2011	0.68	30.0	78.60
C5128-09	12SB23-0304-03	SAM	SOIL	12/29/2011	0.65	30.0	80.10
C5128-10	12SB21-000.5-01	SAM	SOIL	12/29/2011	0.66	30.0	69.60
C5128-11	12SB21-0.502-02	SAM	SOIL	12/29/2011	0.66	30.0	79.40
C5128-12	12SB21-0304-03	SAM	SOIL	12/29/2011	0.63	30.0	78.80
C5128-13	12SB20-0304-03	SAM	SOIL	12/29/2011	0.63	30.0	82.10
C5128-14	12SB-DUP-06	SAM	SOIL	12/29/2011	0.64	30.0	82.40
C5135-16D	UBZ2-SO-28-11-12D	DUP	SOIL	12/29/2011	0.60	30.0	92.10
C5135-17S	UBZ2-SO-28-11-12S	MS	SOIL	12/29/2011	0.60	30.0	92.10
C5135-18SD	UBZ2-SO-28-11-12SD	MSD	SOIL	12/29/2011	0.60	30.0	92.10
PB60302BL	PB60302BL	MB	SOIL	12/29/2011	0.60	30.0	100.00
PB60302BS	PB60302BS	LCS	SOIL	12/29/2011	0.60	30.0	100.00

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58608

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.02	7.00	100	90-110	12/23/2011
Sample ID:	CCV1						
pH		pH	2.02	2.00	101	90-110	12/23/2011
Sample ID:	CCV2						
pH		pH	2.01	2.00	101	90-110	12/23/2011
Sample ID:	CCV3						
pH		pH	12.03	12.00	100	90-110	12/23/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	lb58627

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60253						
Cyanide		mg/L	0.10	0.10	100	85-115	12/28/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.25	0.25	100	90-110	12/28/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.25	0.25	100	90-110	12/28/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.25	0.25	100	90-110	12/28/2011
Sample ID:	CCV4						
Cyanide		mg/L	0.25	0.25	100	90-110	12/28/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	lb58627

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011
Sample ID:	CCB4						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/28/2011

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB58627BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/28/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5128-04
Client ID:	12SB30-000.5-01S	**Percent Solids for Spike Sample:**	79.7

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.570		0.041	U	2.51	1	102		12/28/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5128-04
Client ID:	12SB30-000.5-01SD	**Percent Solids for Spike Sample:**	79.7

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.560		0.041	U	2.51	1	101		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5128-02
Client ID:	03TP36-0708-01D	**Percent Solids for Spike Sample:**	81.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	7.08		7.100		1	0.3		12/23/2011
Redox Potential	mV	+/-20	262.4		261.7		1	0.3		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5128-04
Client ID:	12SB30-000.5-01D	**Percent Solids for Spike Sample:**	79.7

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.041	U	0.041	U	1	0		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5128-04
Client ID:	12SB30-000.5-01SD	**Percent Solids for Spike Sample:**	79.7

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.570	2.560		1	0.4		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5128
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5128-11
Client ID:	12SB21-0.502-02D	**Percent Solids for Spike Sample:**	79.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	5.10		5.110		1	0.2		12/23/2011

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5128

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID LB58627BSS								
Cyanide	mg/Kg	10.00	9.49		95	1	80-110	12/28/2011

Tetra Tech **INTERNAL CORRESPONDENCE**

TO:	**A. FREBOWITZ**	**DATE:**	**March 8, 2012**
FROM:	**MEGAN CARSON**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –ORP, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5129

SAMPLES: 18/Soil/

03SB27-1.52.5-01	03SB29-022.5-01	03SB30-0304-01
03SB31-0506-01	03SB32-0405-01	03SB33-0304-01
03SB34-0405-01	03TP31-0708-01	03TP32-0809-01
03TP33-0607-01	03TP34-0405-01	03TP35-0304-01
03TP37-0304-01	03TP38-0304-01	03TP39-0607-01
03TP40-0304-01	03TP41-0304-01	03TP42-0506-01

Overview

The sample set for NASJRB Willow Grove, SDG C5129, consists of eighteen (18) soil environmental samples. This SDG contained no field duplicate pairs.

All samples in the SDG were analyzed for oxygen reduction potential (ORP) and pH. The samples were collected by Tetra Tech on December 21th, 2011 and analyzed by Chemtech. ORP analyses were conducted using method 1498. pH analyses were conducted using standard method 9045C.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, initial and continuing calibration data, laboratory method / preparation blank analyses, laboratory duplicate results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- No minor problems were noted.

Notes

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	03SB27-1.52.5-01						03SB29-022.5-01					
SDG: C5129	LAB_ID	C5129-18						C5129-14					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	80.6			80.6			85.3			85.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		213.6						289.5					
PH					7.29						7.03		

PROJ_NO: 02014	NSAMPLE	03SB30-0304-01						03SB31-0506-01					
SDG: C5129	LAB_ID	C5129-03						C5129-13					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	79.3			79.3			81.9			81.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		320.9						373.7					
PH					5.89						5.26		

PROJ_NO: 02014	NSAMPLE	03SB32-0405-01						03SB33-0304-01					
SDG: C5129	LAB_ID	C5129-15						C5129-16					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	81.1			81.1			82.6			82.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		367.4						291.1					
PH					5.66						6.68		

PROJ_NO: 02014	NSAMPLE	03SB34-0405-01						03TP31-0708-01					
SDG: C5129	LAB_ID	C5129-17						C5129-05					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	80.4			80.4			75.6			75.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		218.4						207.9					
PH					6.88						7.58		

PROJ_NO: 02014	NSAMPLE	03TP32-0809-01						03TP33-0607-01					
SDG: C5129	LAB_ID	C5129-06						C5129-07					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	78.7			78.7			67.3			67.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		224.4						242.3					
PH					7.45						6.97		

PROJ_NO: 02014	NSAMPLE	03TP34-0405-01						03TP35-0304-01					
SDG: C5129	LAB_ID	C5129-04						C5129-12					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	74.8			74.8			80.8			80.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		186.5						241.8					
PH					7.48						7.41		

PROJ_NO: 02014	NSAMPLE	03TP37-0304-01						03TP38-0304-01					
SDG: C5129	LAB_ID	C5129-08						C5129-09					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	82.3			82.3			80.2			80.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		308.1						264.1					
PH					5.83						6.88		

PROJ_NO: 02014	NSAMPLE	03TP39-0607-01						03TP40-0304-01					
SDG: C5129	LAB_ID	C5129-10						C5129-01					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	80.8			80.8			82.5			82.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		243.2						274.1					
PH					7.34						6.68		

PROJ_NO: 02014	NSAMPLE	03TP41-0304-01						03TP42-0506-01					
SDG: C5129	LAB_ID	C5129-02						C5129-11					
FRACTION: MISC	SAMP_DATE	12/21/2011						12/21/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MV			S.U.		
	PCT_SOLIDS	75.8			75.8			70.1			70.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
OXIDATION REDUCTION POTENTIAL		274.7						240.6					
PH					6.47						7.23		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB27-1.52.5-01	SDG No.:	C5129
Lab Sample ID:	C5129-18	Matrix:	SOIL
		% Solid:	80.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.29		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	213.6		1	0.124	0.124	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB29-022.5-01	SDG No.:	C5129
Lab Sample ID:	C5129-14	Matrix:	SOIL
		% Solid:	85.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.03		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	289.5		1	0.117	0.117	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB30-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-03	Matrix:	SOIL
		% Solid:	79.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	5.89		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	320.9		1	0.126	0.126	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB31-0506-01	SDG No.:	C5129
Lab Sample ID:	C5129-13	Matrix:	SOIL
		% Solid:	81.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	5.26		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	373.7		1	0.122	0.122	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB32-0405-01	SDG No.:	C5129
Lab Sample ID:	C5129-15	Matrix:	SOIL
		% Solid:	81.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	5.66		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	367.4		1	0.123	0.123	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB33-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-16	Matrix:	SOIL
		% Solid:	82.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.68		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	291.1		1	0.121	0.121	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03SB34-0405-01	SDG No.:	C5129
Lab Sample ID:	C5129-17	Matrix:	SOIL
		% Solid:	80.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.88		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	218.4		1	0.124	0.124	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP31-0708-01	SDG No.:	C5129
Lab Sample ID:	C5129-05	Matrix:	SOIL
		% Solid:	75.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.58		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	207.9		1	0.132	0.132	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP32-0809-01	SDG No.:	C5129
Lab Sample ID:	C5129-06	Matrix:	SOIL
		% Solid:	78.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.45		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	224.4		1	0.127	0.127	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP33-0607-01	SDG No.:	C5129
Lab Sample ID:	C5129-07	Matrix:	SOIL
		% Solid:	67.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.97		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	242.3		1	0.149	0.149	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP34-0405-01	SDG No.:	C5129
Lab Sample ID:	C5129-04	Matrix:	SOIL
		% Solid:	74.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.48		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	186.5		1	0.134	0.134	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP35-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-12	Matrix:	SOIL
		% Solid:	80.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.41		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	241.8		1	0.124	0.124	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP37-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-08	Matrix:	SOIL
		% Solid:	82.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	5.83		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	308.1		1	0.122	0.122	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP38-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-09	Matrix:	SOIL
		% Solid:	80.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.88		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	264.1		1	0.125	0.125	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP39-0607-01	SDG No.:	C5129
Lab Sample ID:	C5129-10	Matrix:	SOIL
		% Solid:	80.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.34		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	243.2		1	0.124	0.124	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP40-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-01	Matrix:	SOIL
		% Solid:	82.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.68		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	274.1		1	0.121	0.121	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP41-0304-01	SDG No.:	C5129
Lab Sample ID:	C5129-02	Matrix:	SOIL
		% Solid:	75.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	6.47		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	274.7		1	0.132	0.132	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/21/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/23/11
Client Sample ID:	03TP42-0506-01	SDG No.:	C5129
Lab Sample ID:	C5129-11	Matrix:	SOIL
		% Solid:	70.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	7.23		1	0	0	pH	12/23/11	12/23/11	9045C
Redox Potential	240.6		1	0.143	0.143	mV	12/28/11	12/28/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5129
QUOTE NO.
COC Number 021246

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION
PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 3
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 4919645

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS
ORP / pH

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	03TP40-0304-01	Soil		✓	12/21/11	0855	1	1									
2.	03TP41-0304-01	Soil		✓	12/21/11	0920	1	1									
3.	03SB30-0304-01	Soil		✓	12/21/11	0950	1	1									
4.	03TP34-0405-01	Soil		✓	12/21/11	1015	1	1									
5.	03TP31-0708-01	Soil		✓	12/21/11	1125	1	1									
6.	03TP32-0809-01	Soil		✓	12/21/11	1135	1	1									
7.	03TP33-0607-01	Soil		✓	12/21/11	1155	1	1									
8.	03TP37-0304-01	Soil		✓	12/21/11	1225	1	1									
9.	03TP38-0304-01	Soil		✓	12/21/11	1240	1	1									
10.	03TP39-0607-01	Soil		✓	12/21/11	1325	1	1									

PRESERVATIVES: 1 2 3 4 5 6 7 8 9

COMMENTS — Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/21/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/23/11 9:35	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 3C
Ice in Cooler?: Y

Page 3 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5129
QUOTE NO.
COC Number 021247

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frchowitz
PHONE: 610 382 1170 FAX: 6104914645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO: 210 WE05 LOCATION: Site 3
PROJECT MANAGER: Andy Frchowitz
e-mail: andy.frchowitz@tetratech.com
PHONE: 610 382 1170 FAX: 6104919645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

012P/PH

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
11.	03TP42-0506-01	Soil		V	12/21/11	1400	1	1									
12.	03TP35-0304-01	Soil		V	12/21/11	1430	1	1									
13.	03SB31-0506-01	Soil		V	12/21/11	1500	1	1									
14.	03SB29-0225-01	Soil		V	12/21/11	1515	1	1									
15.	03SB32-0405-01	Soil		V	12/21/11	1530	1	1									
16.	03SB33-0304-01	Soil		V	12/21/11	1550	1	1									
17.	03SB34-0405-01	Soil		V	12/21/11	1615	1	1									
18.	03SB27-1.5-2.5-01	Soil		V	12/21/11	1645	1	1									
19.	03SB-DUP-01	Soil		V	12/21/11	1200	1	1									
20.	03SB-DUP-02	Soil		V	12/21/11	1300	1	1									

COMMENTS: ← Specify Preservatives
A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1 [signature]	12/22/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	12/23/11 935	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 3°C
Ice in Cooler?: Y

Page 4 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 3/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

Shipped via Federal Express Airbill NO 8740 5946 0062

C5129GENCHEM

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen,
Chemtech Project # C5129
Test Name: pH,Redox Potential

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 12/23/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: pH and Redox Potential. This data package contains results for pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498 and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The samples were received for PH out of holding time.
The holding tine met requirements for all samples for Redox Potential.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature___ Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.18 08:51:00 -05'00'

From: Frebowitz, Andy [Andy.Frebowitz@tetratech.com]
Sent: Wednesday, December 28, 2011 6:27 PM
To: Elizabeth Griffiths
Subject: RE: C5129-Issue

Hi Elizabeth-

Those two samples were never collected for duplicate analysis for ORP. We did not plan to have duplicate ORP samples. We did collect these duplicates for other analysis for another lab and I think the sampling guys just copied the information from that COC to this one. Anyway, these two samples should not be on the COC.

Andy

From: Elizabeth Griffiths [mailto:egriffiths@chemtech.net]
Sent: Tuesday, December 27, 2011 5:31 PM
To: Frebowitz, Andy
Subject: FW: C5129-Issue

HI Andy,

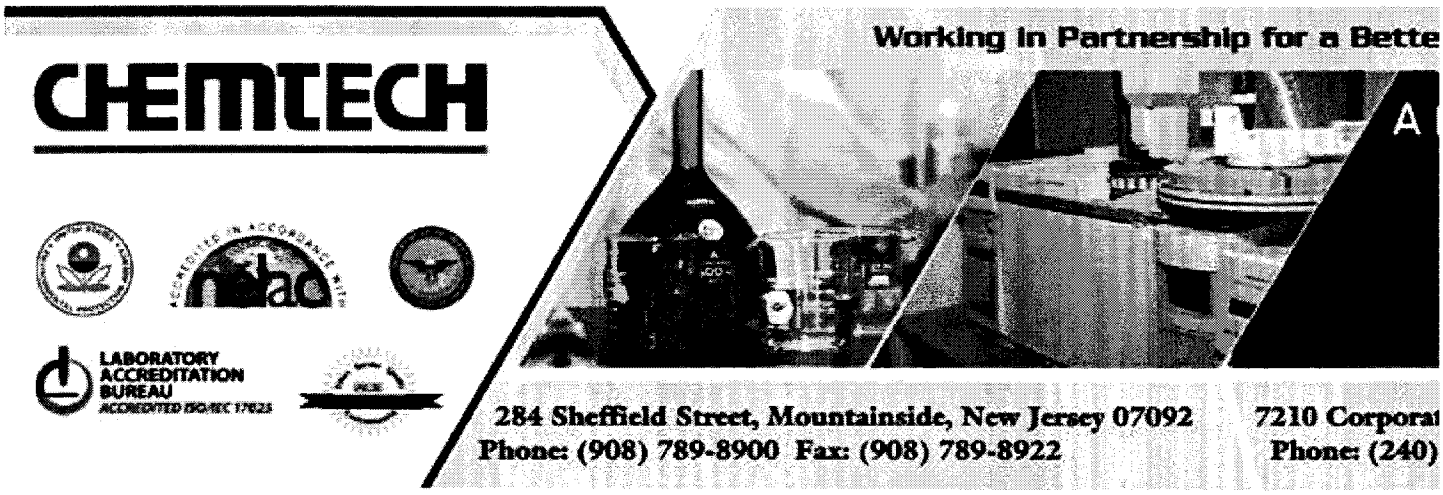
Two of the samples were not received.

Please see screen shot below and let me know!

Thanks so much,

Elizabeth

Elizabeth Griffiths
Project Manager
CHEMTECH
284 Sheffield St | Mountainside, NJ 07092
7210 Corporate Court | Frederick, MD 21703
NJ Direct: 908-728-3145 | MD Direct: 240-215-4321
egriffiths@chemtech.net| www.chemtech.net



HOLDTIME

SDG C5129

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	03TP32-0809-01	C5129-06	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03SB27-1.52.5-01	C5129-18	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP40-0304-01	C5129-01	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP39-0607-01	C5129-10	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP38-0304-01	C5129-09	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP37-0304-01	C5129-08	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP35-0304-01	C5129-12	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP41-0304-01	C5129-02	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP33-0607-01	C5129-07	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP42-0506-01	C5129-11	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP31-0708-01	C5129-05	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03SB34-0405-01	C5129-17	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03SB33-0304-01	C5129-16	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03SB32-0405-01	C5129-15	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03SB31-0506-01	C5129-13	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
ORP	MV	03SB30-0304-01	C5129-03	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03SB29-022.5-01	C5129-14	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
ORP	MV	03TP34-0405-01	C5129-04	NM	12/21/2011	12/28/2011	12/28/2011	7	0	7
PH	S.U.	03TP32-0809-01	C5129-06	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP41-0304-01	C5129-02	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP40-0304-01	C5129-01	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP39-0607-01	C5129-10	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP38-0304-01	C5129-09	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP37-0304-01	C5129-08	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP35-0304-01	C5129-12	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03SB27-1.52.5-01	C5129-18	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP33-0607-01	C5129-07	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP42-0506-01	C5129-11	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP31-0708-01	C5129-05	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03SB34-0405-01	C5129-17	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03SB33-0304-01	C5129-16	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03SB32-0405-01	C5129-15	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03SB31-0506-01	C5129-13	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	S.U.	03SB30-0304-01	C5129-03	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03SB29-022.5-01	C5129-14	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2
PH	S.U.	03TP34-0405-01	C5129-04	NM	12/21/2011	12/23/2011	12/23/2011	2	0	2

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5129
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58609

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.01	7.00	100	90-110	12/23/2011
Sample ID:	CCV1						
pH		pH	2.02	2.00	101	90-110	12/23/2011
Sample ID:	CCV2						
pH		pH	2.02	2.00	101	90-110	12/23/2011
Sample ID:	CCV3						
pH		pH	12.03	12.00	100	90-110	12/23/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5129
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5129-01
Client ID:	03TP40-0304-01D	**Percent Solids for Spike Sample:**	82.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.68		6.670		1	0.2		12/23/2011
Redox Potential	mV	+/-20	274.1		273.7		1	0.2		12/28/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5129
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5129-10
Client ID:	03TP39-0607-01D	**Percent Solids for Spike Sample:**	80.8

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	7.34		7.320		1	0.3		12/23/2011

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58611
Instrument: pH Meter

JM

Temperature 22.4°C

Seq	Lab ID	Client ID	Sample Type	Inst Conc. mV	Dil	Analytical Date
1	CAL	CAL	CAL	210.3		12/28/11
2	C5129-01	03TP40-0304-01	SAM	274.1		12/28/11
3	C5129-01D	03TP40-0304-01D	DUP	273.7		12/28/11
4	C5129-02	03TP41-0304-01	SAM	274.7		12/28/11
5	C5129-03	03SB30-0304-01	SAM	320.9		12/28/11
6	C5129-04	03TP34-0405-01	SAM	186.5		12/28/11
7	C5129-05	03TP31-0708-01	SAM	207.9		12/28/11
8	C5129-06	03TP32-0809-01	SAM	224.4		12/28/11
9	C5129-07	03TP33-0607-01	SAM	242.3		12/28/11
10	C5129-08	03TP37-0304-01	SAM	308.1		12/28/11
11	C5129-09	03TP38-0304-01	SAM	264.1		12/28/11
12	C5129-10	03TP39-0607-01	SAM	243.2		12/28/11
13	C5129-11	03TP42-0506-01	SAM	240.6		12/28/11
14	C5129-12	03TP35-0304-01	SAM	241.8		12/28/11
15	C5129-13	03SB31-0506-01	SAM	373.7		12/28/11
16	C5129-14	03SB29-022.5-01	SAM	289.5		12/28/11
17	C5129-15	03SB32-0405-01	SAM	367.4		12/28/11
18	C5129-16	03SB33-0304-01	SAM	291.1		12/28/11
19	C5129-17	03SB34-0405-01	SAM	218.4		12/28/11
20	C5129-18	03SB27-1.52.5-01	SAM	213.6		12/28/11

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 1498 Redox Potential
Parameter: Redox Potential
Run Number: 1b58611
Instrument: pH Meter

JM

Seq	Lab ID	Client ID	Sample Type	Inst Conc. ~~ppm/ppb~~ mV	Dil	Analytical Date
1	CAL	CAL	CAL	210.300	1	12/28/11
2	C5129-01	03TP40-0304-01	SAM	274.100	1	12/28/11
3	C5129-01D	03TP40-0304-01D	DUP	273.700	1	12/28/11
4	C5129-02	03TP41-0304-01	SAM	274.700	1	12/28/11
5	C5129-03	03SB30-0304-01	SAM	320.900	1	12/28/11
6	C5129-04	03TP34-0405-01	SAM	186.500	1	12/28/11
7	C5129-05	03TP31-0708-01	SAM	207.900	1	12/28/11
8	C5129-06	03TP32-0809-01	SAM	224.400	1	12/28/11
9	C5129-07	03TP33-0607-01	SAM	242.300	1	12/28/11
10	C5129-08	03TP37-0304-01	SAM	308.100	1	12/28/11
11	C5129-09	03TP38-0304-01	SAM	264.100	1	12/28/11
12	C5129-10	03TP39-0607-01	SAM	243.200	1	12/28/11
13	C5129-11	03TP42-0506-01	SAM	240.600	1	12/28/11
14	C5129-12	03TP35-0304-01	SAM	241.800	1	12/28/11
15	C5129-13	03SB31-0506-01	SAM	373.700	1	12/28/11
16	C5129-14	03SB29-022.5-01	SAM	289.500	1	12/28/11
17	C5129-15	03SB32-0405-01	SAM	367.400	1	12/28/11
18	C5129-16	03SB33-0304-01	SAM	291.100	1	12/28/11
19	C5129-17	03SB34-0405-01	SAM	218.400	1	12/28/11
20	C5129-18	03SB27-1.52.5-01	SAM	213.600	1	12/28/11

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-892

Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: lb58609
Instrument: pH Meter

REVIEWED BY: JA

TEMP. = 20.4 °C
SLOPE = 99.5

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL 4	CAL	4.00	1	1248 PM	WATER	12/23/2011
2	CAL 7	CAL	7.00	1	1252	WATER	12/23/2011
3	CAL 10	CAL	10.04	1	1256	WATER	12/23/2011
4	ICV 7	ICV	7.01	1	100	WATER	12/23/2011
5	CCV 2	CCV	2.02	1	104	WATER	12/23/2011
6	C5129-01	SAM	6.68	1	108	SOIL	12/23/2011
7	C5129-01D	DUP	6.67	1	112	SOIL	12/23/2011
8	C5129-02	SAM	6.47	1	116	SOIL	12/23/2011
9	C5129-03	SAM	5.89	1	120	SOIL	12/23/2011
10	C5129-04	SAM	7.48	1	124	SOIL	12/23/2011
11	C5129-05	SAM	7.58	1	128	SOIL	12/23/2011
12	C5129-06	SAM	7.45	1	132	SOIL	12/23/2011
13	C5129-07	SAM	6.97	1	136	SOIL	12/23/2011
14	C5129-08	SAM	5.83	1	140	SOIL	12/23/2011
15	C5129-09	SAM	6.88	1	144	SOIL	12/23/2011
16	CCV 2	CCV	2.02	1	148	WATER	12/23/2011
17	C5129-10	SAM	7.34	1	153	SOIL	12/23/2011
18	C5129-10D	DUP	7.32	1	157	SOIL	12/23/2011
19	C5129-11	SAM	7.23	1	201	SOIL	12/23/2011
20	C5129-12	SAM	7.41	1	205	SOIL	12/23/2011
21	C5129-13	SAM	5.26	1	209	SOIL	12/23/2011
22	C5129-14	SAM	7.03	1	213	SOIL	12/23/2011
23	C5129-15	SAM	5.66	1	217	SOIL	12/23/2011
24	C5129-16	SAM	6.68	1	221	SOIL	12/23/2011
25	C5129-17	SAM	6.88	1	225	SOIL	12/23/2011
26	C5129-18	SAM	7.29	1	229	SOIL	12/23/2011
27	CCV 12	CCV	12.03	1	233	WATER	12/23/2011

Calibration Standards	Chemtech Log #
pH 4.00	W1572
pH 7.00	W1498
pH 10.00	W1468
(ICV) pH 7.00	W1286
(CCV) pH 2.00	W1384
(CCV) pH 12.00	W1493

True Value of ICV = 7.0 Control Limits [+/- 0.1].

True Value of CCV = 2, 12 Control Limits [+/- 0.1].

% Recovery Percentage Difference = 0.2, 0.3

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Analytical Summary Report

Analysis Method: 9045C pH
Parameter: pH
Run Number: 1b58609
Instrument: pH Meter

REVIEW: NP
REVIEWED BY: JM

Seq	Lab ID	Sample Type	Result pH	Dil	Time	Matrix	Analytical Date
1	CAL	CAL	4.00	1		WATER	12/23/11
2	CAL	CAL	7.00	1		WATER	12/23/11
3	CAL	CAL	10.04	1		WATER	12/23/11
4	ICV	ICV	7.01	1		WATER	12/23/11
5	CCV	CCV	2.02	1		WATER	12/23/11
6	C5129-01	SAM	6.68	1		SOIL	12/23/11
7	C5129-01D	DUP	6.67	1		SOIL	12/23/11
8	C5129-02	SAM	6.47	1		SOIL	12/23/11
9	C5129-03	SAM	5.89	1		SOIL	12/23/11
10	C5129-04	SAM	7.48	1		SOIL	12/23/11
11	C5129-05	SAM	7.58	1		SOIL	12/23/11
12	C5129-06	SAM	7.45	1		SOIL	12/23/11
13	C5129-07	SAM	6.97	1		SOIL	12/23/11
14	C5129-08	SAM	5.83	1		SOIL	12/23/11
15	C5129-09	SAM	6.88	1		SOIL	12/23/11
16	CCV	CCV	2.02	1		WATER	12/23/11
17	C5129-10	SAM	7.34	1		SOIL	12/23/11
18	C5129-10D	DUP	7.32	1		SOIL	12/23/11
19	C5129-11	SAM	7.23	1		SOIL	12/23/11
20	C5129-12	SAM	7.41	1		SOIL	12/23/11
21	C5129-13	SAM	5.26	1		SOIL	12/23/11
22	C5129-14	SAM	7.03	1		SOIL	12/23/11
23	C5129-15	SAM	5.66	1		SOIL	12/23/11
24	C5129-16	SAM	6.68	1		SOIL	12/23/11
25	C5129-17	SAM	6.88	1		SOIL	12/23/11
26	C5129-18	SAM	7.29	1		SOIL	12/23/11
27	CCV	CCV	12.03	1		WATER	12/23/11

JM 12-28-11

Tetra Tech, Inc. **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 15, 2012**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC/SVOC/PAH/PEST/PCB**
NAVAL AIR STATION JOINT RESERVER BASE (NASJRB) WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG): C5146

SAMPLES: 18/Soil/VOC/SVOC/PAH/PEST/PCB

12SB-DUP-08	12SB06-0.502-02	12SB06-000.5-01
12SB06-0304-03	12SB07-0.502-02	12SB07-000.5-01
12SB07-0304-03	12SB08-0.502-02	12SB08-000.5-01
12SB08-0304-03	12SB12-0.502-02	12SB12-000.5-01
12SB12-0304-03	12SB17-0.502-02	12SB17-000.5-01
12SB17-0304-03	12SB27-0.502-02	12SB27-000.5-01

1/Aqueous/VOC

TB-01-122811

Overview

The sample set for NASJRB Willow Grove, SDG C5146 consisted of eighteen (18) soil environmental samples and one (1) trip blank. The nineteen (19) samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). The eighteen (18) soil samples were analyzed for TCL semi-volatile organic compound (SVOC), polynuclear aromatic hydrocarbons (PAH), pesticides (PEST), and polychlorinated biphenyls (PCBs). One field duplicate pair included in the sample delivery group (SDG): 12SB-DUP-08/12SB06-000.5-01.

The samples were collected by Tetra Tech, Inc. on December 28, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A, and 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method and field blank results, surrogate spike recoveries, blank spike/blank spike duplicate recoveries, matrix spike/matrix spike duplicate results, internal standard recoveries, field duplicate precision, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The VOC continuing calibration performed on instrument MSVOAH on 01/04/12 @ 05:42 had a Percent Difference (%D) for tetrachloroethene greater than the 20% quality control limit but also greater than 50%. The non-detected result reported for this compound in the affected sample, TB-01-122811, was qualified as estimated, (UJ).

- The PEST Continuing Calibration Verification (CCV) on 01/07/12 @ 04:45 had %Ds on both GC columns for endrin ketone which exceeded the 20% quality control limit. Samples 12SB-DUP-08, 12SB06-0.502-02, 12SB06-000.5-01, 12SB06-0304-03, 12SB12-0304-03, 12SB17-0.502-02, 12SB17-000.5-01, 12SB17-0304-03, 12SB27-0.502-02, and 12SB27-000.5-01 were affected. Only non-detected result were reported for this compound in the affected samples and these non-detects were qualified as estimated, (UJ).

- The VOC Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses performed on sample 12SB12-000.5-01 yielded Percent Recoveries (%Rs) for 1,2,4-trichlorobenzene and 1,2,3-trichlorobenzene below the lower quality control limits. In addition the %Rs for vinyl chloride, isopropylbenzene, and 1,1,2,2-tetrachloroethane above the upper quality control limits and Relative Percent Differences (RPDs) for chloroethane and acetone were greater than the 20% quality control limit. No action was taken for vinyl chloride, isopropylbenzene, 1,1,2,2-tetrachloroethane, chloroethane, and acetone because no positive results were reported for these compounds in the parent sample and the blank spike %Rs were acceptable. The non-detected results reported for 1,2,4- trichlorobenzene and 1,2,3-trichlorobenzene were qualified as biased low, (UL), in the parent sample.

- The SVOC blank spike sample had a %R for 4-chloroaniline below the lower quality control limit. In addition, the %R for hexachlorocyclopentadiene had a %R above the upper quality control limit. All SVOC samples were affected. No action was taken for hexachlorocyclopentadiene because no positive results were reported for this compound in the affected samples. The non-detected results for 4-chloroaniline in the affected samples were qualified as biased low, (UL).

- Positive results reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The VOC continuing calibration %Ds for 1,1,2-trichlorotrifluorethane and 1,1-dichloroethane performed on instrument MSVOA_F on 01/05/12 @ 08:10 were greater than the 20% quality control limit but less than 50%. No action was necessary because no positive results were reported for these compounds in the affected samples.

The VOC continuing calibration %D for 1,1-dichloroethane and Percent Drifts (%Drifts) for chloroethane and 1,2-dibromo-3-chloropropane performed on instrument MSVOA_F on 01/06/12 @ 03:56 were greater than the 20% quality control limit but less than 50%. No action was necessary because no positive results were reported for these compounds in the affected samples.

The VOC continuing calibration performed on instrument MSVOAH on 01/04/12 @ 05:42 had %Ds for bromomethane, chloroethane, 1,1-dichloroethene, acetone, methyl tert-butyl ether, 4-methyl-2-pentanone, and 2-hexanone greater than the 20% quality control limit but less than 50%. No action was necessary in the affected sample, TB-01-122811, because no positive results were reported for these compounds.

The acid fraction surrogate spike compounds, 2-fluorophenol and phenol-d5, and the base/neutral compounds, nitrobenzene-d5 and 2-fluorbiphenyl, had %Rs above the upper quality control limits in sample 12SB08-0304-03. The sample was not re-extracted, but it was reanalyzed, yielding similar results. The results from the initial analysis were used in the data validation. No action was necessary because no positive results were reported for the target compounds in either the acid fraction or base/neutral fraction.

The PAH surrogate spike compound, 2-fluorobiphenyl, had %Rs below the lower quality control limit for all

the environmental soil samples, with the exception of sample, 12SB27-000.5-01. No action was taken in the affected samples because only one PAH surrogate was noncompliant.

Some samples had surrogate spike %Rs below the lower quality control limits in the PEST fraction. No action was necessary because each sample only had one surrogate on one GC column that was noncompliant.

The aqueous VOC MS/MSD analyses were not performed on the aqueous sample from this SDG; therefore, no action was taken in the aqueous sample for the %R noncompliances.

The PAH compounds, acenaphthene, acenaphthylene, 2-methylnaphthalene, fluorene, and naphthalene, were detected in the environmental sample, 12SB06-000.5-01, and not in the associated field duplicate sample, 12SB-DUP-08. In addition, benzo(a)pyrene was detected in 12SB-DUP-08 but not in 12SB06-000.5-01. No action was taken for field duplicate imprecision because the differences between the positive and non-detected results were less than 2X the LOQ.

The greater of the two concentrations was reported for positive pesticides results.

The laboratory reported results for the VOC and SVOC compounds, 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate, methylcyclohexane, 1,1'-biphenyl, 1,2,4,5-tetrachlorobenzene, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde, and caprolactum. These compounds were not part of the project-specific Sampling and Analysis Plan (SAP); therefore, the compounds were not reported in the database and were not included in the data review.

Non-detected results were reported to the laboratory Limit of Detection (LOD).

Executive Summary

Laboratory Performance: Some continuing calibrations had %Ds and %Drifts above the quality control limits in the VOC and SVOC fractions. The PEST fraction had a CCV %Ds for endrin ketone above the quality control limit on both GC columns. The SVOC blank spike sample had a %R outside the quality control limit for one compound. Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated.

Other Factors Affecting Data Quality: Surrogate %Rs were high for one sample in the SVOC acid and base/neutral fractions. Some PAH and PEST surrogates were noncompliant but no qualification was necessary. The VOC MS/MSD had %Rs and/or RPDs outside the quality control limits.

The data for these analyses were reviewed with reference to Region III modifications to U.S. EPA National Functional Guidelines for Organic Data Validation (Sept. 1994). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	TB-01-122811
SDG: C5146	LAB_ID	C5146-21
FRACTION: OV	SAMP_DATE	12/28/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	2.5	U	
1,1,2,2-TETRACHLOROETHANE	2.5	U	
1,1,2-TRICHLOROETHANE	2.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	2.5	U	
1,1-DICHLOROETHANE	2.5	U	
1,1-DICHLOROETHENE	2.5	U	
1,2,3-TRICHLOROBENZENE	2.5	U	
1,2,4-TRICHLOROBENZENE	2.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	2.5	U	
1,2-DIBROMOETHANE	2.5	U	
1,2-DICHLOROBENZENE	2.5	U	
1,2-DICHLOROETHANE	2.5	U	
1,2-DICHLOROPROPANE	2.5	U	
1,3-DICHLOROBENZENE	2.5	U	
1,4-DICHLOROBENZENE	2.5	U	
2-BUTANONE	12.5	U	
2-HEXANONE	12.5	U	
4-METHYL-2-PENTANONE	12.5	U	
ACETONE	12.5	U	
BENZENE	2.5	U	
BROMODICHLOROMETHANE	2.5	U	
BROMOFORM	2.5	U	
BROMOMETHANE	2.5	U	
CARBON DISULFIDE	2.5	U	
CARBON TETRACHLORIDE	2.5	U	
CHLOROBENZENE	2.5	U	
CHLORODIBROMOMETHANE	2.5	U	
CHLOROETHANE	2.5	U	
CHLOROFORM	2.5	U	
CHLOROMETHANE	2.5	U	
CIS-1,2-DICHLOROETHENE	2.5	U	
CIS-1,3-DICHLOROPROPENE	2.5	U	
DICHLORODIFLUOROMETHANE	2.5	U	
ETHYLBENZENE	2.5	U	
ISOPROPYLBENZENE	2.5	U	

PROJ_NO: 02014	NSAMPLE	TB-01-122811
SDG: C5146	LAB_ID	C5146-21
FRACTION: OV	SAMP_DATE	12/28/2011
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
M+P-XYLENES	5	U	
METHYL TERT-BUTYL ETHER	2.5	U	
METHYLENE CHLORIDE	2.5	U	
O-XYLENE	2.5	U	
STYRENE	2.5	U	
TETRACHLOROETHENE	2.5	UJ	C
TOLUENE	2.5	U	
TOTAL XYLENES	7.5	U	
TRANS-1,2-DICHLOROETHENE	2.5	U	
TRANS-1,3-DICHLOROPROPENE	2.5	U	
TRICHLOROETHENE	2.5	U	
TRICHLOROFLUOROMETHANE	2.5	U	
VINYL CHLORIDE	2.5	U	

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-000.5-01			12SB06-0304-03			12SB07-0.502-02		
SDG: C5146	LAB_ID	C5146-13			C5146-12			C5146-14			C5146-02		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			71.0			85.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,1,2,2-TETRACHLOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,1,2-TRICHLOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,1-DICHLOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,1-DICHLOROETHENE		2.75	U		3.2	U		2.35	U		3	U	
1,2,3-TRICHLOROBENZENE		2.75	U		3.2	U		2.35	U		3	U	
1,2,4-TRICHLOROBENZENE		2.75	U		3.2	U		2.35	U		3	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.75	U		3.2	U		2.35	U		3	U	
1,2-DIBROMOETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,2-DICHLOROBENZENE		2.75	U		3.2	U		2.35	U		3	U	
1,2-DICHLOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
1,2-DICHLOROPROPANE		2.75	U		3.2	U		2.35	U		3	U	
1,3-DICHLOROBENZENE		2.75	U		3.2	U		2.35	U		3	U	
1,4-DICHLOROBENZENE		2.75	U		3.2	U		2.35	U		3	U	
2-BUTANONE		14	U		16	U		12	U		15	U	
2-HEXANONE		14	U		16	U		12	U		15	U	
4-METHYL-2-PENTANONE		14	U		16	U		12	U		15	U	
ACETONE		51			50			12	U		180		
BENZENE		2.75	U		3.2	U		2.35	U		3	U	
BROMODICHLOROMETHANE		2.75	U		3.2	U		2.35	U		3	U	
BROMOFORM		2.75	U		3.2	U		2.35	U		3	U	
BROMOMETHANE		2.75	U		3.2	U		2.35	U		3	U	
CARBON DISULFIDE		2.75	U		3.2	U		2.35	U		3	U	
CARBON TETRACHLORIDE		2.75	U		3.2	U		2.35	U		3	U	
CHLOROBENZENE		2.75	U		3.2	U		2.35	U		3	U	
CHLORODIBROMOMETHANE		2.75	U		3.2	U		2.35	U		3	U	
CHLOROETHANE		2.75	U		3.2	U		2.35	U		3	U	
CHLOROFORM		2.75	U		3.2	U		2.35	U		3	U	
CHLOROMETHANE		2.75	U		3.2	U		2.35	U		3	U	
CIS-1,2-DICHLOROETHENE		2.75	U		3.2	U		2.35	U		3	U	
CIS-1,3-DICHLOROPROPENE		2.75	U		3.2	U		2.35	U		3	U	
DICHLORODIFLUOROMETHANE		2.75	U		3.2	U		2.35	U		3	U	
ETHYLBENZENE		2.75	U		3.2	U		2.35	U		3	U	
ISOPROPYLBENZENE		2.75	U		3.2	U		2.35	U		3	U	

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-0304-03			12SB08-0.502-02			12SB08-000.5-01		
SDG: C5146	LAB_ID	C5146-01			C5146-03			C5146-05			C5146-04		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			81.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,1,2,2-TETRACHLOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,1,2-TRICHLOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,1-DICHLOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,1-DICHLOROETHENE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2,3-TRICHLOROBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2,4-TRICHLOROBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2-DIBROMOETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2-DICHLOROBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2-DICHLOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,2-DICHLOROPROPANE		2.95	U		2.95	U		2.6	U		3.25	U	
1,3-DICHLOROBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
1,4-DICHLOROBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
2-BUTANONE		14.5	U		14.5	U		13	U		13	J	P
2-HEXANONE		14.5	U		14.5	U		13	U		16	U	
4-METHYL-2-PENTANONE		14.5	U		14.5	U		13	U		16	U	
ACETONE		36			14.5	U		13	U		210		
BENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
BROMODICHLOROMETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
BROMOFORM		2.95	U		2.95	U		2.6	U		3.25	U	
BROMOMETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
CARBON DISULFIDE		2.95	U		2.95	U		2.6	U		3.25	U	
CARBON TETRACHLORIDE		2.95	U		2.95	U		2.6	U		3.25	U	
CHLOROBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
CHLORODIBROMOMETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
CHLOROETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
CHLOROFORM		2.95	U		2.95	U		2.6	U		3.25	U	
CHLOROMETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
CIS-1,2-DICHLOROETHENE		2.95	U		2.95	U		2.6	U		3.25	U	
CIS-1,3-DICHLOROPROPENE		2.95	U		2.95	U		2.6	U		3.25	U	
DICHLORODIFLUOROMETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
ETHYLBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	
ISOPROPYLBENZENE		2.95	U		2.95	U		2.6	U		3.25	U	

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB12-0.502-02			12SB12-000.5-01			12SB12-0304-03		
SDG: C5146	LAB_ID	C5146-06			C5146-10			C5146-07			C5146-11		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			72.0			76.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,1,2,2-TETRACHLOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,1,2-TRICHLOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,1-DICHLOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,1-DICHLOROETHENE		2.65	U		2.75	U		3.6	U		2.9	U	
1,2,3-TRICHLOROBENZENE		2.65	U		2.75	U		3.6	UL	D	2.9	U	
1,2,4-TRICHLOROBENZENE		2.65	U		2.75	U		3.6	UL	D	2.9	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,2-DIBROMOETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,2-DICHLOROBENZENE		2.65	U		2.75	U		3.6	U		2.9	U	
1,2-DICHLOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,2-DICHLOROPROPANE		2.65	U		2.75	U		3.6	U		2.9	U	
1,3-DICHLOROBENZENE		2.65	U		2.75	U		3.6	U		2.9	U	
1,4-DICHLOROBENZENE		2.65	U		2.75	U		3.6	U		2.9	U	
2-BUTANONE		13	U		13.5	U		18	U		14.5	U	
2-HEXANONE		13	U		13.5	U		18	U		14.5	U	
4-METHYL-2-PENTANONE		13	U		13.5	U		18	U		14.5	U	
ACETONE		13	U		13.5	U		18	U		14.5	U	
BENZENE		2.65	U		2.75	U		3.6	U		2.9	U	
BROMODICHLOROMETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
BROMOFORM		2.65	U		2.75	U		3.6	U		2.9	U	
BROMOMETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
CARBON DISULFIDE		2.65	U		2.75	U		3.6	U		2.9	U	
CARBON TETRACHLORIDE		2.65	U		2.75	U		3.6	U		2.9	U	
CHLOROBENZENE		2.65	U		2.75	U		3.6	U		2.9	U	
CHLORODIBROMOMETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
CHLOROETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
CHLOROFORM		2.65	U		2.75	U		3.6	U		2.9	U	
CHLOROMETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
CIS-1,2-DICHLOROETHENE		2.65	U		2.75	U		3.6	U		2.9	U	
CIS-1,3-DICHLOROPROPENE		2.65	U		2.75	U		3.6	U		2.9	U	
DICHLORODIFLUOROMETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
ETHYLBENZENE		2.65	U		2.75	U		3.6	U		2.9	U	
ISOPROPYLBENZENE		2.65	U		2.75	U		3.6	U		2.9	U	

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-000.5-01			12SB17-0304-03			12SB27-0.502-02		
SDG: C5146	LAB_ID	C5146-16			C5146-15			C5146-17			C5146-19		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			75.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,1,2,2-TETRACHLOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,1,2-TRICHLOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,1-DICHLOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,1-DICHLOROETHENE		2.85	U		3	U		2.65	U		2.65	U	
1,2,3-TRICHLOROBENZENE		2.85	U		3	U		2.65	U		2.65	U	
1,2,4-TRICHLOROBENZENE		2.85	U		3	U		2.65	U		2.65	U	
1,2-DIBROMO-3-CHLOROPROPANE		2.85	U		3	U		2.65	U		2.65	U	
1,2-DIBROMOETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,2-DICHLOROBENZENE		2.85	U		3	U		2.65	U		2.65	U	
1,2-DICHLOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
1,2-DICHLOROPROPANE		2.85	U		3	U		2.65	U		2.65	U	
1,3-DICHLOROBENZENE		2.85	U		3	U		2.65	U		2.65	U	
1,4-DICHLOROBENZENE		2.85	U		3	U		2.65	U		2.65	U	
2-BUTANONE		14	U		15	U		13.5	U		13.5	U	
2-HEXANONE		14	U		15	U		13.5	U		13.5	U	
4-METHYL-2-PENTANONE		14	U		15	U		13.5	U		13.5	U	
ACETONE		14	U		73			13.5	U		36		
BENZENE		2.85	U		3	U		2.65	U		2.65	U	
BROMODICHLOROMETHANE		2.85	U		3	U		2.65	U		2.65	U	
BROMOFORM		2.85	U		3	U		2.65	U		2.65	U	
BROMOMETHANE		2.85	U		3	U		2.65	U		2.65	U	
CARBON DISULFIDE		2.85	U		3	U		2.65	U		2.65	U	
CARBON TETRACHLORIDE		2.85	U		3	U		2.65	U		2.65	U	
CHLOROBENZENE		2.85	U		3	U		2.65	U		2.65	U	
CHLORODIBROMOMETHANE		2.85	U		3	U		2.65	U		2.65	U	
CHLOROETHANE		2.85	U		3	U		2.65	U		2.65	U	
CHLOROFORM		2.85	U		3	U		2.65	U		2.65	U	
CHLOROMETHANE		2.85	U		3	U		2.65	U		2.65	U	
CIS-1,2-DICHLOROETHENE		2.85	U		3	U		2.65	U		2.65	U	
CIS-1,3-DICHLOROPROPENE		2.85	U		3	U		2.65	U		2.65	U	
DICHLORODIFLUOROMETHANE		2.85	U		3	U		2.65	U		2.65	U	
ETHYLBENZENE		2.85	U		3	U		2.65	U		2.65	U	
ISOPROPYLBENZENE		2.85	U		3	U		2.65	U		2.65	U	

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB-DUP-08		
SDG: C5146	LAB_ID	C5146-18			C5146-20		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.0			72.0		
	DUP_OF				12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		3.55	U		3.3	U	
1,1,2,2-TETRACHLOROETHANE		3.55	U		3.3	U	
1,1,2-TRICHLOROETHANE		3.55	U		3.3	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		3.55	U		3.3	U	
1,1-DICHLOROETHANE		3.55	U		3.3	U	
1,1-DICHLOROETHENE		3.55	U		3.3	U	
1,2,3-TRICHLOROBENZENE		3.55	U		3.3	U	
1,2,4-TRICHLOROBENZENE		3.55	U		3.3	U	
1,2-DIBROMO-3-CHLOROPROPANE		3.55	U		3.3	U	
1,2-DIBROMOETHANE		3.55	U		3.3	U	
1,2-DICHLOROBENZENE		3.55	U		3.3	U	
1,2-DICHLOROETHANE		3.55	U		3.3	U	
1,2-DICHLOROPROPANE		3.55	U		3.3	U	
1,3-DICHLOROBENZENE		3.55	U		3.3	U	
1,4-DICHLOROBENZENE		3.55	U		3.3	U	
2-BUTANONE		17.5	U		16.5	U	
2-HEXANONE		17.5	U		16.5	U	
4-METHYL-2-PENTANONE		17.5	U		16.5	U	
ACETONE		17.5	U		52		
BENZENE		3.55	U		3.3	U	
BROMODICHLOROMETHANE		3.55	U		3.3	U	
BROMOFORM		3.55	U		3.3	U	
BROMOMETHANE		3.55	U		3.3	U	
CARBON DISULFIDE		3.55	U		3.3	U	
CARBON TETRACHLORIDE		3.55	U		3.3	U	
CHLOROBENZENE		3.55	U		3.3	U	
CHLORODIBROMOMETHANE		3.55	U		3.3	U	
CHLOROETHANE		3.55	U		3.3	U	
CHLOROFORM		3.55	U		3.3	U	
CHLOROMETHANE		3.55	U		3.3	U	
CIS-1,2-DICHLOROETHENE		3.55	U		3.3	U	
CIS-1,3-DICHLOROPROPENE		3.55	U		3.3	U	
DICHLORODIFLUOROMETHANE		3.55	U		3.3	U	
ETHYLBENZENE		3.55	U		3.3	U	
ISOPROPYLBENZENE		3.55	U		3.3	U	

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-000.5-01			12SB06-0304-03			12SB07-0.502-02		
SDG: C5146	LAB_ID	C5146-13			C5146-12			C5146-14			C5146-02		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			71.0			85.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5.5	U		6.5	U		4.75	U		6	U	
METHYL TERT-BUTYL ETHER		2.75	U		3.2	U		2.35	U		3	U	
METHYLENE CHLORIDE		2.75	U		3.2	U		2.35	U		3	U	
O-XYLENE		2.75	U		3.2	U		2.35	U		3	U	
STYRENE		2.75	U		3.2	U		2.35	U		3	U	
TETRACHLOROETHENE		2.75	U		3.2	U		2.35	U		3	U	
TOLUENE		2.75	U		3.2	U		2.35	U		3	U	
TOTAL XYLENES		8.5	U		9.5	U		7	U		9	U	
TRANS-1,2-DICHLOROETHENE		2.75	U		3.2	U		2.35	U		3	U	
TRANS-1,3-DICHLOROPROPENE		2.75	U		3.2	U		2.35	U		3	U	
TRICHLOROETHENE		2.75	U		3.2	U		2.35	U		3	U	
TRICHLOROFLUOROMETHANE		2.75	U		3.2	U		2.35	U		3	U	
VINYL CHLORIDE		2.75	U		3.2	U		2.35	U		3	U	

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-0304-03			12SB08-0.502-02			12SB08-000.5-01		
SDG: C5146	LAB_ID	C5146-01			C5146-03			C5146-05			C5146-04		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			81.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		6	U		6	U		5	U		6.5	U	
METHYL TERT-BUTYL ETHER		2.95	U		2.95	U		2.6	U		3.25	U	
METHYLENE CHLORIDE		2.95	U		2.95	U		2.6	U		3.25	U	
O-XYLENE		2.95	U		2.95	U		2.6	U		3.25	U	
STYRENE		2.95	U		2.95	U		2.6	U		3.25	U	
TETRACHLOROETHENE		2.95	U		2.95	U		2.6	U		3.25	U	
TOLUENE		2.95	U		2.95	U		2.6	U		3.25	U	
TOTAL XYLENES		9	U		9	U		8	U		9.5	U	
TRANS-1,2-DICHLOROETHENE		2.95	U		2.95	U		2.6	U		3.25	U	
TRANS-1,3-DICHLOROPROPENE		2.95	U		2.95	U		2.6	U		3.25	U	
TRICHLOROETHENE		2.95	U		2.95	U		2.6	U		3.25	U	
TRICHLOROFLUOROMETHANE		2.95	U		2.95	U		2.6	U		3.25	U	
VINYL CHLORIDE		2.95	U		2.95	U		2.6	U		3.25	U	

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB12-0.502-02			12SB12-000.5-01			12SB12-0304-03		
SDG: C5146	LAB_ID	C5146-06			C5146-10			C5146-07			C5146-11		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			72.0			76.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5.5	U		5.5	U		7	U		6	U	
METHYL TERT-BUTYL ETHER		2.65	U		2.75	U		3.6	U		2.9	U	
METHYLENE CHLORIDE		2.65	U		2.75	U		3.6	U		2.9	U	
O-XYLENE		2.65	U		2.75	U		3.6	U		2.9	U	
STYRENE		2.65	U		2.75	U		3.6	U		2.9	U	
TETRACHLOROETHENE		2.65	U		2.75	U		3.6	U		2.9	U	
TOLUENE		2.65	U		2.75	U		3.6	U		2.9	U	
TOTAL XYLENES		8	U		8	U		10.5	U		8.5	U	
TRANS-1,2-DICHLOROETHENE		2.65	U		2.75	U		3.6	U		2.9	U	
TRANS-1,3-DICHLOROPROPENE		2.65	U		2.75	U		3.6	U		2.9	U	
TRICHLOROETHENE		2.65	U		2.75	U		3.6	U		2.9	U	
TRICHLOROFLUOROMETHANE		2.65	U		2.75	U		3.6	U		2.9	U	
VINYL CHLORIDE		2.65	U		2.75	U		3.6	U		2.9	U	

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-000.5-01			12SB17-0304-03			12SB27-0.502-02		
SDG: C5146	LAB_ID	C5146-16			C5146-15			C5146-17			C5146-19		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			75.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		5.5	U		6	U		5.5	U		5.5	U	
METHYL TERT-BUTYL ETHER		2.85	U		3	U		2.65	U		2.65	U	
METHYLENE CHLORIDE		2.85	U		3	U		2.65	U		2.65	U	
O-XYLENE		2.85	U		3	U		2.65	U		2.65	U	
STYRENE		2.85	U		3	U		2.65	U		2.65	U	
TETRACHLOROETHENE		2.85	U		3	U		2.65	U		2.65	U	
TOLUENE		2.85	U		3	U		2.65	U		2.65	U	
TOTAL XYLENES		8.5	U		9	U		8	U		8	U	
TRANS-1,2-DICHLOROETHENE		2.85	U		3	U		2.65	U		2.65	U	
TRANS-1,3-DICHLOROPROPENE		2.85	U		3	U		2.65	U		2.65	U	
TRICHLOROETHENE		2.85	U		3	U		2.65	U		2.65	U	
TRICHLOROFLUOROMETHANE		2.85	U		3	U		2.65	U		2.65	U	
VINYL CHLORIDE		2.85	U		3	U		2.65	U		2.65	U	

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB-DUP-08		
SDG: C5146	LAB_ID	C5146-18			C5146-20		
FRACTION: OV	SAMP_DATE	12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.0			72.0		
	DUP_OF				12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		7	U		6.5	U	
METHYL TERT-BUTYL ETHER		3.55	U		3.3	U	
METHYLENE CHLORIDE		3.55	U		3.3	U	
O-XYLENE		3.55	U		3.3	U	
STYRENE		3.55	U		3.3	U	
TETRACHLOROETHENE		3.55	U		3.3	U	
TOLUENE		3.55	U		3.3	U	
TOTAL XYLENES		10.5	U		10	U	
TRANS-1,2-DICHLOROETHENE		3.55	U		3.3	U	
TRANS-1,3-DICHLOROPROPENE		3.55	U		3.3	U	
TRICHLOROETHENE		3.55	U		3.3	U	
TRICHLOROFLUOROMETHANE		3.55	U		3.3	U	
VINYL CHLORIDE		3.55	U		3.3	U	

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-0.502-02GR2			12SB06-000.5-01			12SB06-000.5-01GR2		
SDG: C5146	LAB_ID	C5146-13			C5146-13			C5146-12			C5146-12		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			78.0			71.0			71.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,2'-OXYBIS(1-CHLOROPROPANE)	210	U					230	U					
2,4,5-TRICHLOROPHENOL	210	U					230	U					
2,4,6-TRICHLOROPHENOL	210	U					230	U					
2,4-DICHLOROPHENOL	210	U					230	U					
2,4-DIMETHYLPHENOL	210	U					230	U					
2,4-DINITROPHENOL	210	U					230	U					
2,4-DINITROTOLUENE	210	U					230	U					
2,6-DINITROTOLUENE	210	U					230	U					
2-CHLORONAPHTHALENE	210	U					230	U					
2-CHLOROPHENOL	210	U					230	U					
2-METHYLNAPHTHALENE	6.4						7.5						
2-METHYLPHENOL	210	U					230	U					
2-NITROANILINE	210	U					230	U					
2-NITROPHENOL	210	U					230	U					
3&4-METHYLPHENOL	210	U					230	U					
3,3'-DICHLOROBENZIDINE	210	U					230	U					
3-NITROANILINE	210	U					230	U					
4,6-DINITRO-2-METHYLPHENOL	210	U					230	U					
4-BROMOPHENYL PHENYL ETHER	210	U					230	U					
4-CHLORO-3-METHYLPHENOL	210	U					230	U					
4-CHLOROANILINE	210	UL	E				230	UL	E				
4-CHLOROPHENYL PHENYL ETHER	210	U					230	U					
4-NITROANILINE	210	U					230	U					
4-NITROPHENOL	210	U					230	U					
ACENAPHTHENE				3	J	P				6.1			
ACENAPHTHYLENE				3	J	P				5.6			
ANTHRACENE	2.1	U					2.3	U					
BENZO(A)ANTHRACENE	2.1	U					2.3	U					
BENZO(A)PYRENE	2.1	U					2.3	U					
BENZO(B)FLUORANTHENE	2.1	U					2.8	J	P				
BENZO(G,H,I)PERYLENE	2.1	U					2.3	U					
BENZO(K)FLUORANTHENE	2.1	U					2.3	U					
BIS(2-CHLOROETHOXY)METHANE	210	U					230	U					
BIS(2-CHLOROETHYL)ETHER	210	U					230	U					
BIS(2-ETHYLHEXYL)PHTHALATE	210	U					230	U					

PROJ_NO: 02014	NSAMPLE	12SB06-0304-03			12SB06-0304-03GR2			12SB07-0.502-02			12SB07-0.502-02GR2		
SDG: C5146	LAB_ID	C5146-14			C5146-14			C5146-02			C5146-02		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			85.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		195	U					205	U				
2,4,5-TRICHLOROPHENOL		195	U					205	U				
2,4,6-TRICHLOROPHENOL		195	U					205	U				
2,4-DICHLOROPHENOL		195	U					205	U				
2,4-DIMETHYLPHENOL		195	U					205	U				
2,4-DINITROPHENOL		195	U					205	U				
2,4-DINITROTOLUENE		195	U					205	U				
2,6-DINITROTOLUENE		195	U					205	U				
2-CHLORONAPHTHALENE		195	U					205	U				
2-CHLOROPHENOL		195	U					205	U				
2-METHYLNAPHTHALENE		1.95	U					2.05	U				
2-METHYLPHENOL		195	U					205	U				
2-NITROANILINE		195	U					205	U				
2-NITROPHENOL		195	U					205	U				
3&4-METHYLPHENOL		195	U					205	U				
3,3'-DICHLOROBENZIDINE		195	U					205	U				
3-NITROANILINE		195	U					205	U				
4,6-DINITRO-2-METHYLPHENOL		195	U					205	U				
4-BROMOPHENYL PHENYL ETHER		195	U					205	U				
4-CHLORO-3-METHYLPHENOL		195	U					205	U				
4-CHLOROANILINE		195	UL	E				205	UL	E			
4-CHLOROPHENYL PHENYL ETHER		195	U					205	U				
4-NITROANILINE		195	U					205	U				
4-NITROPHENOL		195	U					205	U				
ACENAPHTHENE					1.95	U					2.05	U	
ACENAPHTHYLENE					1.95	U					2.05	U	
ANTHRACENE		1.95	U					3.3	J	P			
BENZO(A)ANTHRACENE		1.95	U					2.05	U				
BENZO(A)PYRENE		1.95	U					7.1					
BENZO(B)FLUORANTHENE		1.95	U					8.3					
BENZO(G,H,I)PERYLENE		1.95	U					3.7	J	P			
BENZO(K)FLUORANTHENE		1.95	U					2.9	J	P			
BIS(2-CHLOROETHOXY)METHANE		195	U					205	U				
BIS(2-CHLOROETHYL)ETHER		195	U					205	U				
BIS(2-ETHYLHEXYL)PHTHALATE		195	U					205	U				

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-000.5-01GR2			12SB07-0304-03			12SB07-0304-03GR2		
SDG: C5146	LAB_ID	C5146-01			C5146-01			C5146-03			C5146-03		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			75.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		220	U					220	U				
2,4,5-TRICHLOROPHENOL		220	U					220	U				
2,4,6-TRICHLOROPHENOL		220	U					220	U				
2,4-DICHLOROPHENOL		220	U					220	U				
2,4-DIMETHYLPHENOL		220	U					220	U				
2,4-DINITROPHENOL		220	U					220	U				
2,4-DINITROTOLUENE		220	U					220	U				
2,6-DINITROTOLUENE		220	U					220	U				
2-CHLORONAPHTHALENE		220	U					220	U				
2-CHLOROPHENOL		220	U					220	U				
2-METHYLNAPHTHALENE		2.2	U					2.2	U				
2-METHYLPHENOL		220	U					220	U				
2-NITROANILINE		220	U					220	U				
2-NITROPHENOL		220	U					220	U				
3&4-METHYLPHENOL		220	U					220	U				
3,3'-DICHLOROBENZIDINE		220	U					220	U				
3-NITROANILINE		220	U					220	U				
4,6-DINITRO-2-METHYLPHENOL		220	U					220	U				
4-BROMOPHENYL PHENYL ETHER		220	U					220	U				
4-CHLORO-3-METHYLPHENOL		220	U					220	U				
4-CHLOROANILINE		220	UL	E				220	UL	E			
4-CHLOROPHENYL PHENYL ETHER		220	U					220	U				
4-NITROANILINE		220	U					220	U				
4-NITROPHENOL		220	U					220	U				
ACENAPHTHENE					2.2	J	P				2.2	U	
ACENAPHTHYLENE					2.2	U					2.2	U	
ANTHRACENE		18						2.2	U				
BENZO(A)ANTHRACENE		50						2.2	U				
BENZO(A)PYRENE		36						2.2	U				
BENZO(B)FLUORANTHENE		49						2.2	U				
BENZO(G,H,I)PERYLENE		16						2.2	U				
BENZO(K)FLUORANTHENE		19						2.2	U				
BIS(2-CHLOROETHOXY)METHANE		220	U					220	U				
BIS(2-CHLOROETHYL)ETHER		220	U					220	U				
BIS(2-ETHYLHEXYL)PHTHALATE		220	U					220	U				

PROJ_NO: 02014	NSAMPLE	12SB08-0.502-02			12SB08-0.502-02GR2			12SB08-000.5-01			12SB08-000.5-01GR2		
SDG: C5146	LAB_ID	C5146-05			C5146-05			C5146-04			C5146-04		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			72.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					230	U				
2,4,5-TRICHLOROPHENOL		205	U					230	U				
2,4,6-TRICHLOROPHENOL		205	U					230	U				
2,4-DICHLOROPHENOL		205	U					230	U				
2,4-DIMETHYLPHENOL		205	U					230	U				
2,4-DINITROPHENOL		205	U					230	U				
2,4-DINITROTOLUENE		205	U					230	U				
2,6-DINITROTOLUENE		205	U					230	U				
2-CHLORONAPHTHALENE		205	U					230	U				
2-CHLOROPHENOL		205	U					230	U				
2-METHYLNAPHTHALENE		2.05	U					2.3	U				
2-METHYLPHENOL		205	U					230	U				
2-NITROANILINE		205	U					230	U				
2-NITROPHENOL		205	U					230	U				
3&4-METHYLPHENOL		205	U					230	U				
3,3'-DICHLOROBENZIDINE		205	U					230	U				
3-NITROANILINE		205	U					230	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					230	U				
4-BROMOPHENYL PHENYL ETHER		205	U					230	U				
4-CHLORO-3-METHYLPHENOL		205	U					230	U				
4-CHLOROANILINE		205	UL	E				230	UL	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					230	U				
4-NITROANILINE		205	U					230	U				
4-NITROPHENOL		205	U					230	U				
ACENAPHTHENE					2.05	U					2.3	U	
ACENAPHTHYLENE					2.05	U					2.3	U	
ANTHRACENE		2.05	U					2.3	U				
BENZO(A)ANTHRACENE		2.05	U					2.3	U				
BENZO(A)PYRENE		2.05	U					2.3	J	P			
BENZO(B)FLUORANTHENE		2.05	U					4.2	J	P			
BENZO(G,H,I)PERYLENE		2.05	U					2.3	U				
BENZO(K)FLUORANTHENE		2.05	U					2.3	U				
BIS(2-CHLOROETHOXY)METHANE		205	U					230	U				
BIS(2-CHLOROETHYL)ETHER		205	U					230	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					230	U				

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB08-0304-03GR2			12SB12-0.502-02			12SB12-0.502-02GR2		
SDG: C5146	LAB_ID	C5146-06			C5146-06			C5146-10			C5146-10		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		205	U					205	U				
2,4,5-TRICHLOROPHENOL		205	U					205	U				
2,4,6-TRICHLOROPHENOL		205	U					205	U				
2,4-DICHLOROPHENOL		205	U					205	U				
2,4-DIMETHYLPHENOL		205	U					205	U				
2,4-DINITROPHENOL		205	U					205	U				
2,4-DINITROTOLUENE		205	U					205	U				
2,6-DINITROTOLUENE		205	U					205	U				
2-CHLORONAPHTHALENE		205	U					205	U				
2-CHLOROPHENOL		205	U					205	U				
2-METHYLNAPHTHALENE		2.05	U					2.9	J	P			
2-METHYLPHENOL		205	U					205	U				
2-NITROANILINE		205	U					205	U				
2-NITROPHENOL		205	U					205	U				
3&4-METHYLPHENOL		205	U					205	U				
3,3'-DICHLOROBENZIDINE		205	U					205	U				
3-NITROANILINE		205	U					205	U				
4,6-DINITRO-2-METHYLPHENOL		205	U					205	U				
4-BROMOPHENYL PHENYL ETHER		205	U					205	U				
4-CHLORO-3-METHYLPHENOL		205	U					205	U				
4-CHLOROANILINE		205	UL	E				205	UL	E			
4-CHLOROPHENYL PHENYL ETHER		205	U					205	U				
4-NITROANILINE		205	U					205	U				
4-NITROPHENOL		205	U					205	U				
ACENAPHTHENE					2.05	U					2.05	U	
ACENAPHTHYLENE					2.05	U					2.05	U	
ANTHRACENE		2.05	U					2.05	U				
BENZO(A)ANTHRACENE		2.05	U					2.05	U				
BENZO(A)PYRENE		2.05	U					2.05	U				
BENZO(B)FLUORANTHENE		2.05	U					3.3	J	P			
BENZO(G,H,I)PERYLENE		2.05	U					2.05	U				
BENZO(K)FLUORANTHENE		2.05	U					2.05	U				
BIS(2-CHLOROETHOXY)METHANE		205	U					205	U				
BIS(2-CHLOROETHYL)ETHER		205	U					205	U				
BIS(2-ETHYLHEXYL)PHTHALATE		205	U					205	U				

PROJ_NO: 02014	NSAMPLE	12SB12-000.5-01			12SB12-000.5-01GR2			12SB12-0304-03			12SB12-0304-03GR2		
SDG: C5146	LAB_ID	C5146-07			C5146-07			C5146-11			C5146-11		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	72.0			72.0			76.0			76.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		230	U					215	U				
2,4,5-TRICHLOROPHENOL		230	U					215	U				
2,4,6-TRICHLOROPHENOL		230	U					215	U				
2,4-DICHLOROPHENOL		230	U					215	U				
2,4-DIMETHYLPHENOL		230	U					215	U				
2,4-DINITROPHENOL		230	U					215	U				
2,4-DINITROTOLUENE		230	U					215	U				
2,6-DINITROTOLUENE		230	U					215	U				
2-CHLORONAPHTHALENE		230	U					215	U				
2-CHLOROPHENOL		230	U					215	U				
2-METHYLNAPHTHALENE		2.3	U					3.1	J	P			
2-METHYLPHENOL		230	U					215	U				
2-NITROANILINE		230	U					215	U				
2-NITROPHENOL		230	U					215	U				
3&4-METHYLPHENOL		230	U					215	U				
3,3'-DICHLOROBENZIDINE		230	U					215	U				
3-NITROANILINE		230	U					215	U				
4,6-DINITRO-2-METHYLPHENOL		230	U					215	U				
4-BROMOPHENYL PHENYL ETHER		230	U					215	U				
4-CHLORO-3-METHYLPHENOL		230	U					215	U				
4-CHLOROANILINE		230	UL	E				215	UL	E			
4-CHLOROPHENYL PHENYL ETHER		230	U					215	U				
4-NITROANILINE		230	U					215	U				
4-NITROPHENOL		230	U					215	U				
ACENAPHTHENE					2.3	U					3.1	J	P
ACENAPHTHYLENE					2.3	U					3.5	J	P
ANTHRACENE		2.3	J	P				6.1					
BENZO(A)ANTHRACENE		14						24					
BENZO(A)PYRENE		14						23					
BENZO(B)FLUORANTHENE		20						30					
BENZO(G,H,I)PERYLENE		7.9						14					
BENZO(K)FLUORANTHENE		7.9						12					
BIS(2-CHLOROETHOXY)METHANE		230	U					215	U				
BIS(2-CHLOROETHYL)ETHER		230	U					215	U				
BIS(2-ETHYLHEXYL)PHTHALATE		230	U					215	U				

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-0.502-02GR2			12SB17-000.5-01			12SB17-000.5-01GR2		
SDG: C5146	LAB_ID	C5146-16			C5146-16			C5146-15			C5146-15		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			79.0			75.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		210	U					220	U				
2,4,5-TRICHLOROPHENOL		210	U					220	U				
2,4,6-TRICHLOROPHENOL		210	U					220	U				
2,4-DICHLOROPHENOL		210	U					220	U				
2,4-DIMETHYLPHENOL		210	U					220	U				
2,4-DINITROPHENOL		210	U					220	U				
2,4-DINITROTOLUENE		210	U					220	U				
2,6-DINITROTOLUENE		210	U					220	U				
2-CHLORONAPHTHALENE		210	U					220	U				
2-CHLOROPHENOL		210	U					220	U				
2-METHYLNAPHTHALENE		2.1	U					2.2	U				
2-METHYLPHENOL		210	U					220	U				
2-NITROANILINE		210	U					220	U				
2-NITROPHENOL		210	U					220	U				
3&4-METHYLPHENOL		210	U					220	U				
3,3'-DICHLOROBENZIDINE		210	U					220	U				
3-NITROANILINE		210	U					220	U				
4,6-DINITRO-2-METHYLPHENOL		210	U					220	U				
4-BROMOPHENYL PHENYL ETHER		210	U					220	U				
4-CHLORO-3-METHYLPHENOL		210	U					220	U				
4-CHLOROANILINE		210	UL	E				220	UL	E			
4-CHLOROPHENYL PHENYL ETHER		210	U					220	U				
4-NITROANILINE		210	U					220	U				
4-NITROPHENOL		210	U					220	U				
ACENAPHTHENE					2.1	U					2.2	U	
ACENAPHTHYLENE					2.1	U					2.2	U	
ANTHRACENE		2.1	U					2.2	U				
BENZO(A)ANTHRACENE		2.1	U					4	J	P			
BENZO(A)PYRENE		2.1	U					4.9					
BENZO(B)FLUORANTHENE		2.1	U					8					
BENZO(G,H,I)PERYLENE		2.1	U					5.8					
BENZO(K)FLUORANTHENE		2.1	U					3.1	J	P			
BIS(2-CHLOROETHOXY)METHANE		210	U					220	U				
BIS(2-CHLOROETHYL)ETHER		210	U					220	U				
BIS(2-ETHYLHEXYL)PHTHALATE		210	U					220	U				

PROJ_NO: 02014	NSAMPLE	12SB17-0304-03			12SB17-0304-03GR2			12SB27-0.502-02			12SB27-0.502-02GR2		
SDG: C5146	LAB_ID	C5146-17			C5146-17			C5146-19			C5146-19		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			82.0			82.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)	205	U					200	U				
2,4,5-TRICHLOROPHENOL	205	U					200	U				
2,4,6-TRICHLOROPHENOL	205	U					200	U				
2,4-DICHLOROPHENOL	205	U					200	U				
2,4-DIMETHYLPHENOL	205	U					200	U				
2,4-DINITROPHENOL	205	U					200	U				
2,4-DINITROTOLUENE	205	U					200	U				
2,6-DINITROTOLUENE	205	U					200	U				
2-CHLORONAPHTHALENE	205	U					200	U				
2-CHLOROPHENOL	205	U					200	U				
2-METHYLNAPHTHALENE	2.05	U					9.7					
2-METHYLPHENOL	205	U					200	U				
2-NITROANILINE	205	U					200	U				
2-NITROPHENOL	205	U					200	U				
3&4-METHYLPHENOL	205	U					200	U				
3,3'-DICHLOROBENZIDINE	205	U					200	U				
3-NITROANILINE	205	U					200	U				
4,6-DINITRO-2-METHYLPHENOL	205	U					200	U				
4-BROMOPHENYL PHENYL ETHER	205	U					200	U				
4-CHLORO-3-METHYLPHENOL	205	U					200	U				
4-CHLOROANILINE	205	UL	E				200	UL	E			
4-CHLOROPHENYL PHENYL ETHER	205	U					200	U				
4-NITROANILINE	205	U					200	U				
4-NITROPHENOL	205	U					200	U				
ACENAPHTHENE				2.05	U					11		
ACENAPHTHYLENE				2.05	U					12		
ANTHRACENE	2.05	U					35					
BENZO(A)ANTHRACENE	2.05	U					200					
BENZO(A)PYRENE	2.05	U					230					
BENZO(B)FLUORANTHENE	2.05	U					340					
BENZO(G,H,I)PERYLENE	2.05	U					140					
BENZO(K)FLUORANTHENE	2.05	U					120					
BIS(2-CHLOROETHOXY)METHANE	205	U					200	U				
BIS(2-CHLOROETHYL)ETHER	205	U					200	U				
BIS(2-ETHYLHEXYL)PHTHALATE	205	U					200	U				

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB27-000.5-01GR2			12SB-DUP-08			12SB-DUP-08GR2		
SDG: C5146	LAB_ID	C5146-18			C5146-18			C5146-20			C5146-20		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.0			74.0			72.0			72.0		
	DUP_OF							12SB06-000.5-01			12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		220	U					230	U				
2,4,5-TRICHLOROPHENOL		220	U					230	U				
2,4,6-TRICHLOROPHENOL		220	U					230	U				
2,4-DICHLOROPHENOL		220	U					230	U				
2,4-DIMETHYLPHENOL		220	U					230	U				
2,4-DINITROPHENOL		220	U					230	U				
2,4-DINITROTOLUENE		220	U					230	U				
2,6-DINITROTOLUENE		220	U					230	U				
2-CHLORONAPHTHALENE		220	U					230	U				
2-CHLOROPHENOL		220	U					230	U				
2-METHYLNAPHTHALENE		18						2.3	U				
2-METHYLPHENOL		220	U					230	U				
2-NITROANILINE		220	U					230	U				
2-NITROPHENOL		220	U					230	U				
3&4-METHYLPHENOL		220	U					230	U				
3,3'-DICHLOROBENZIDINE		220	U					230	U				
3-NITROANILINE		220	U					230	U				
4,6-DINITRO-2-METHYLPHENOL		220	U					230	U				
4-BROMOPHENYL PHENYL ETHER		220	U					230	U				
4-CHLORO-3-METHYLPHENOL		220	U					230	U				
4-CHLOROANILINE		220	UL	E				230	UL	E			
4-CHLOROPHENYL PHENYL ETHER		220	U					230	U				
4-NITROANILINE		220	U					230	U				
4-NITROPHENOL		220	U					230	U				
ACENAPHTHENE					5.8						2.3	U	
ACENAPHTHYLENE					7.2						2.3	U	
ANTHRACENE		16						2.3	U				
BENZO(A)ANTHRACENE		88						2.3	U				
BENZO(A)PYRENE		98						2.8	J	P			
BENZO(B)FLUORANTHENE		150						4.6					
BENZO(G,H,I)PERYLENE		58						2.3	U				
BENZO(K)FLUORANTHENE		52						2.3	U				
BIS(2-CHLOROETHOXY)METHANE		220	U					230	U				
BIS(2-CHLOROETHYL)ETHER		220	U					230	U				
BIS(2-ETHYLHEXYL)PHTHALATE		220	U					230	U				

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-0.502-02GR2			12SB06-000.5-01			12SB06-000.5-01GR2		
SDG: C5146	LAB_ID	C5146-13			C5146-13			C5146-12			C5146-12		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			78.0			71.0			71.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		210	U					230	U				
CARBAZOLE		210	U					230	U				
CHRYSENE		2.1	U					2.3	J	P			
DIBENZO(A,H)ANTHRACENE		2.1	U					2.3	U				
DIBENZOFURAN		210	U					230	U				
DIETHYL PHTHALATE		210	U					230	U				
DIMETHYL PHTHALATE		210	U					230	U				
DI-N-BUTYL PHTHALATE		210	U					230	U				
DI-N-OCTYL PHTHALATE		210	U					230	U				
FLUORANTHENE		2.1	U					6.1					
FLUORENE		2.1	U					4.2	J	P			
HEXACHLOROBENZENE		210	U					230	U				
HEXACHLOROBUTADIENE		210	U					230	U				
HEXACHLOROCYCLOPENTADIENE		210	U					230	U				
HEXACHLOROETHANE		210	U					230	U				
INDENO(1,2,3-CD)PYRENE		2.1	U					2.3	U				
ISOPHORONE		210	U					230	U				
NAPHTHALENE		9						8.9					
NITROBENZENE		210	U					230	U				
N-NITROSO-DI-N-PROPYLAMINE		210	U					230	U				
N-NITROSODIPHENYLAMINE		210	U					230	U				
PENTACHLOROPHENOL		210	U					230	U				
PHENANTHRENE					2.1	U					5.2		
PHENOL		210	U					230	U				
PYRENE		2.1	U					5.2					

PROJ_NO: 02014	NSAMPLE	12SB06-0304-03			12SB06-0304-03GR2			12SB07-0.502-02			12SB07-0.502-02GR2		
SDG: C5146	LAB_ID	C5146-14			C5146-14			C5146-02			C5146-02		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.0			85.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		195	U					205	U				
CARBAZOLE		195	U					205	U				
CHRYSENE		1.95	U					10					
DIBENZO(A,H)ANTHRACENE		1.95	U					2.05	U				
DIBENZOFURAN		195	U					205	U				
DIETHYL PHTHALATE		195	U					205	U				
DIMETHYL PHTHALATE		195	U					205	U				
DI-N-BUTYL PHTHALATE		195	U					205	U				
DI-N-OCTYL PHTHALATE		195	U					205	U				
FLUORANTHENE		1.95	U					19					
FLUORENE		1.95	U					2.05	U				
HEXACHLOROBENZENE		195	U					205	U				
HEXACHLOROBUTADIENE		195	U					205	U				
HEXACHLOROCYCLOPENTADIENE		195	U					205	U				
HEXACHLOROETHANE		195	U					205	U				
INDENO(1,2,3-CD)PYRENE		1.95	U					3.3	J	P			
ISOPHORONE		195	U					205	U				
NAPHTHALENE		1.95	U					2.05	U				
NITROBENZENE		195	U					205	U				
N-NITROSO-DI-N-PROPYLAMINE		195	U					205	U				
N-NITROSODIPHENYLAMINE		195	U					205	U				
PENTACHLOROPHENOL		195	U					205	U				
PHENANTHRENE					1.95	U					11		
PHENOL		195	U					205	U				
PYRENE		1.95	U					18					

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-000.5-01GR2			12SB07-0304-03			12SB07-0304-03GR2		
SDG: C5146	LAB_ID	C5146-01			C5146-01			C5146-03			C5146-03		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			75.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		220	U					220	U				
CARBAZOLE		220	U					220	U				
CHRYSENE		51						2.2	U				
DIBENZO(A,H)ANTHRACENE		4.9						2.2	U				
DIBENZOFURAN		220	U					220	U				
DIETHYL PHTHALATE		220	U					220	U				
DIMETHYL PHTHALATE		220	U					220	U				
DI-N-BUTYL PHTHALATE		220	U					220	U				
DI-N-OCTYL PHTHALATE		220	U					220	U				
FLUORANTHENE		120						2.2	U				
FLUORENE		4.9						2.2	U				
HEXACHLOROBENZENE		220	U					220	U				
HEXACHLOROBUTADIENE		220	U					220	U				
HEXACHLOROCYCLOPENTADIENE		220	U					220	U				
HEXACHLOROETHANE		220	U					220	U				
INDENO(1,2,3-CD)PYRENE		19						2.2	U				
ISOPHORONE		220	U					220	U				
NAPHTHALENE		2.2	U					2.2	U				
NITROBENZENE		220	U					220	U				
N-NITROSO-DI-N-PROPYLAMINE		220	U					220	U				
N-NITROSODIPHENYLAMINE		220	U					220	U				
PENTACHLOROPHENOL		220	U					220	U				
PHENANTHRENE					73						2.2	U	
PHENOL		220	U					220	U				
PYRENE		91						2.2	U				

PROJ_NO: 02014	NSAMPLE	12SB08-0.502-02			12SB08-0.502-02GR2			12SB08-000.5-01			12SB08-000.5-01GR2		
SDG: C5146	LAB_ID	C5146-05			C5146-05			C5146-04			C5146-04		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			72.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					230	U				
CARBAZOLE		205	U					230	U				
CHRYSENE		2.05	U					3.2	J	P			
DIBENZO(A,H)ANTHRACENE		2.05	U					2.3	U				
DIBENZOFURAN		205	U					230	U				
DIETHYL PHTHALATE		205	U					230	U				
DIMETHYL PHTHALATE		205	U					230	U				
DI-N-BUTYL PHTHALATE		205	U					230	U				
DI-N-OCTYL PHTHALATE		205	U					230	U				
FLUORANTHENE		3.3	J	P				6.5					
FLUORENE		2.05	U					2.3	U				
HEXACHLOROBENZENE		205	U					230	U				
HEXACHLOROBUTADIENE		205	U					230	U				
HEXACHLOROCYCLOPENTADIENE		205	U					230	U				
HEXACHLOROETHANE		205	U					230	U				
INDENO(1,2,3-CD)PYRENE		2.05	U					2.3	U				
ISOPHORONE		205	U					230	U				
NAPHTHALENE		2.05	U					2.3	U				
NITROBENZENE		205	U					230	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					230	U				
N-NITROSODIPHENYLAMINE		205	U					230	U				
PENTACHLOROPHENOL		205	U					230	U				
PHENANTHRENE					2.5	J	P				3.7	J	P
PHENOL		205	U					230	U				
PYRENE		2.5	J	P				5.1					

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB08-0304-03GR2			12SB12-0.502-02			12SB12-0.502-02GR2		
SDG: C5146	LAB_ID	C5146-06			C5146-06			C5146-10			C5146-10		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			80.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					205	U				
CARBAZOLE		205	U					205	U				
CHRYSENE		2.05	U					2.9	J	P			
DIBENZO(A,H)ANTHRACENE		2.05	U					2.05	U				
DIBENZOFURAN		205	U					205	U				
DIETHYL PHTHALATE		205	U					205	U				
DIMETHYL PHTHALATE		205	U					205	U				
DI-N-BUTYL PHTHALATE		205	U					205	U				
DI-N-OCTYL PHTHALATE		205	U					205	U				
FLUORANTHENE		3.3	J	P				5.8					
FLUORENE		2.05	U					2.05	U				
HEXACHLOROBENZENE		205	U					205	U				
HEXACHLOROBUTADIENE		205	U					205	U				
HEXACHLOROCYCLOPENTADIENE		205	U					205	U				
HEXACHLOROETHANE		205	U					205	U				
INDENO(1,2,3-CD)PYRENE		2.05	U					2.05	U				
ISOPHORONE		205	U					205	U				
NAPHTHALENE		2.05	U					3.7	J	P			
NITROBENZENE		205	U					205	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					205	U				
N-NITROSODIPHENYLAMINE		205	U					205	U				
PENTACHLOROPHENOL		205	U					205	U				
PHENANTHRENE					2.9	J	P				3.7	J	P
PHENOL		205	U					205	U				
PYRENE		2.5	J	P				5					

PROJ_NO: 02014	NSAMPLE	12SB12-000.5-01			12SB12-000.5-01GR2			12SB12-0304-03			12SB12-0304-03GR2		
SDG: C5146	LAB_ID	C5146-07			C5146-07			C5146-11			C5146-11		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	72.0			72.0			76.0			76.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		230	U					215	U				
CARBAZOLE		230	U					215	U				
CHRYSENE		17						25					
DIBENZO(A,H)ANTHRACENE		2.3	U					3.9	J	P			
DIBENZOFURAN		230	U					215	U				
DIETHYL PHTHALATE		230	U					215	U				
DIMETHYL PHTHALATE		230	U					215	U				
DI-N-BUTYL PHTHALATE		230	U					215	U				
DI-N-OCTYL PHTHALATE		230	U					215	U				
FLUORANTHENE		38						59					
FLUORENE		2.3	U					3.5	J	P			
HEXACHLOROBENZENE		230	U					215	U				
HEXACHLOROBUTADIENE		230	U					215	U				
HEXACHLOROCYCLOPENTADIENE		230	U					215	U				
HEXACHLOROETHANE		230	U					215	U				
INDENO(1,2,3-CD)PYRENE		8.3						16					
ISOPHORONE		230	U					215	U				
NAPHTHALENE		2.3	U					4.4					
NITROBENZENE		230	U					215	U				
N-NITROSO-DI-N-PROPYLAMINE		230	U					215	U				
N-NITROSODIPHENYLAMINE		230	U					215	U				
PENTACHLOROPHENOL		230	U					215	U				
PHENANTHRENE					23						35		
PHENOL		230	U					215	U				
PYRENE		30						45					

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-0.502-02GR2			12SB17-000.5-01			12SB17-000.5-01GR2		
SDG: C5146	LAB_ID	C5146-16			C5146-16			C5146-15			C5146-15		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			79.0			75.0			75.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		210	U					220	U				
CARBAZOLE		210	U					220	U				
CHRYSENE		2.1	U					6.7					
DIBENZO(A,H)ANTHRACENE		2.1	U					2.2	U				
DIBENZOFURAN		210	U					220	U				
DIETHYL PHTHALATE		210	U					220	U				
DIMETHYL PHTHALATE		210	U					220	U				
DI-N-BUTYL PHTHALATE		210	U					220	U				
DI-N-OCTYL PHTHALATE		210	U					220	U				
FLUORANTHENE		2.1	U					14					
FLUORENE		2.1	U					2.2	U				
HEXACHLOROBENZENE		210	U					220	U				
HEXACHLOROBUTADIENE		210	U					220	U				
HEXACHLOROCYCLOPENTADIENE		210	U					220	U				
HEXACHLOROETHANE		210	U					220	U				
INDENO(1,2,3-CD)PYRENE		2.1	U					4.9					
ISOPHORONE		210	U					220	U				
NAPHTHALENE		2.1	U					2.2	U				
NITROBENZENE		210	U					220	U				
N-NITROSO-DI-N-PROPYLAMINE		210	U					220	U				
N-NITROSODIPHENYLAMINE		210	U					220	U				
PENTACHLOROPHENOL		210	U					220	U				
PHENANTHRENE					2.1	U					10		
PHENOL		210	U					220	U				
PYRENE		2.1	U					11					

PROJ_NO: 02014	NSAMPLE	12SB17-0304-03			12SB17-0304-03GR2			12SB27-0.502-02			12SB27-0.502-02GR2		
SDG: C5146	LAB_ID	C5146-17			C5146-17			C5146-19			C5146-19		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			82.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		205	U					200	U				
CARBAZOLE		205	U					200	U				
CHRYSENE		2.05	U					260					
DIBENZO(A,H)ANTHRACENE		2.05	U					41					
DIBENZOFURAN		205	U					200	U				
DIETHYL PHTHALATE		205	U					200	U				
DIMETHYL PHTHALATE		205	U					200	U				
DI-N-BUTYL PHTHALATE		205	U					200	U				
DI-N-OCTYL PHTHALATE		205	U					200	U				
FLUORANTHENE		2.05	U					540					
FLUORENE		2.05	U					24					
HEXACHLOROBENZENE		205	U					200	U				
HEXACHLOROBUTADIENE		205	U					200	U				
HEXACHLOROCYCLOPENTADIENE		205	U					200	U				
HEXACHLOROETHANE		205	U					200	U				
INDENO(1,2,3-CD)PYRENE		2.05	U					140					
ISOPHORONE		205	U					200	U				
NAPHTHALENE		2.05	U					8.5					
NITROBENZENE		205	U					200	U				
N-NITROSO-DI-N-PROPYLAMINE		205	U					200	U				
N-NITROSODIPHENYLAMINE		205	U					200	U				
PENTACHLOROPHENOL		205	U					200	U				
PHENANTHRENE					2.05	U					340		
PHENOL		205	U					200	U				
PYRENE		2.05	U					430					

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB27-000.5-01GR2			12SB-DUP-08			12SB-DUP-08GR2		
SDG: C5146	LAB_ID	C5146-18			C5146-18			C5146-20			C5146-20		
FRACTION: OS	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.0			74.0			72.0			72.0		
	DUP_OF							12SB06-000.5-01			12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		220	U					230	U				
CARBAZOLE		220	U					230	U				
CHRYSENE		120						3.7	J	P			
DIBENZO(A,H)ANTHRACENE		16						2.3	U				
DIBENZOFURAN		220	U					230	U				
DIETHYL PHTHALATE		220	U					230	U				
DIMETHYL PHTHALATE		220	U					230	U				
DI-N-BUTYL PHTHALATE		220	U					230	U				
DI-N-OCTYL PHTHALATE		220	U					230	U				
FLUORANTHENE		280						8.8					
FLUORENE		12						2.3	U				
HEXACHLOROBENZENE		220	U					230	U				
HEXACHLOROBUTADIENE		220	U					230	U				
HEXACHLOROCYCLOPENTADIENE		220	U					230	U				
HEXACHLOROETHANE		220	U					230	U				
INDENO(1,2,3-CD)PYRENE		64						2.3	U				
ISOPHORONE		220	U					230	U				
NAPHTHALENE		13						2.3	U				
NITROBENZENE		220	U					230	U				
N-NITROSO-DI-N-PROPYLAMINE		220	U					230	U				
N-NITROSODIPHENYLAMINE		220	U					230	U				
PENTACHLOROPHENOL		220	U					230	U				
PHENANTHRENE					180						6.5		
PHENOL		220	U					230	U				
PYRENE		210						6.9					

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-000.5-01			12SB06-0304-03			12SB07-0.502-02		
SDG: C5146	LAB_ID	C5146-13			C5146-12			C5146-14			C5146-02		
FRACTION: PEST	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	77.6			71.3			84.7			79.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.1	U		1.2	U		1	U		1.05	U	
4,4'-DDE		1.1	U		1.2	U		1	U		1.05	U	
4,4'-DDT		1.1	U		1.2	U		1	U		1.05	U	
ALDRIN		1.1	U		1.2	U		1	U		1.05	U	
ALPHA-BHC		1.1	U		1.2	U		1	U		1.05	U	
ALPHA-CHLORDANE		1.1	U		1.2	U		1	U		1.05	U	
BETA-BHC		1.1	U		1.2	U		1	U		1.05	U	
DELTA-BHC		1.1	U		1.2	U		1	U		1.05	U	
DIELDRIN		1.1	U		1.2	U		1	U		1.05	U	
ENDOSULFAN I		1.1	U		1.2	U		1	U		1.05	U	
ENDOSULFAN II		1.1	U		1.2	U		1	U		1.05	U	
ENDOSULFAN SULFATE		1.1	U		1.2	U		1	U		1.05	U	
ENDRIN		1.1	U		1.2	U		1	U		1.05	U	
ENDRIN ALDEHYDE		1.1	U		1.2	U		1	U		1.05	U	
ENDRIN KETONE		1.1	UJ	C	1.2	UJ	C	1	UJ	C	1.05	U	
GAMMA-BHC (LINDANE)		1.1	U		1.2	U		1	U		1.05	U	
GAMMA-CHLORDANE		1.1	U		1.2	U		1	U		1.05	U	
HEPTACHLOR		1.1	U		1.2	U		1	U		1.05	U	
HEPTACHLOR EPOXIDE		1.1	U		1.2	U		1	U		1.05	U	
METHOXYCHLOR		1.1	U		1.2	U		1	U		1.05	U	
TOXAPHENE		11	U		12	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-0304-03			12SB08-0.502-02			12SB08-000.5-01		
SDG: C5146	LAB_ID	C5146-01			C5146-03			C5146-05			C5146-04		
FRACTION: PEST	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.4			75.3			81.4			72.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.15	U		1.15	U		1.05	U		1.2	U	
4,4'-DDE		1.15	U		1.15	U		1.05	U		1.2	U	
4,4'-DDT		1.15	U		1.15	U		1.05	U		1.2	U	
ALDRIN		1.15	U		1.15	U		1.05	U		1.2	U	
ALPHA-BHC		1.15	U		1.15	U		1.05	U		1.2	U	
ALPHA-CHLORDANE		1.15	U		1.15	U		1.05	U		1.2	U	
BETA-BHC		1.15	U		1.15	U		1.05	U		1.2	U	
DELTA-BHC		1.15	U		1.15	U		1.05	U		1.2	U	
DIELDRIN		1.15	U		1.15	U		1.05	U		1.2	U	
ENDOSULFAN I		1.15	U		1.15	U		1.05	U		1.2	U	
ENDOSULFAN II		1.15	U		1.15	U		1.05	U		1.2	U	
ENDOSULFAN SULFATE		1.15	U		1.15	U		1.05	U		1.2	U	
ENDRIN		1.15	U		1.15	U		1.05	U		1.2	U	
ENDRIN ALDEHYDE		1.15	U		1.15	U		1.05	U		1.2	U	
ENDRIN KETONE		1.15	U		1.15	U		1.05	U		1.2	U	
GAMMA-BHC (LINDANE)		1.15	U		1.15	U		1.05	U		1.2	U	
GAMMA-CHLORDANE		1.15	U		1.15	U		1.05	U		1.2	U	
HEPTACHLOR		1.15	U		1.15	U		1.05	U		1.2	U	
HEPTACHLOR EPOXIDE		1.15	U		1.15	U		1.05	U		1.2	U	
METHOXYCHLOR		1.15	U		1.15	U		1.05	U		1.2	U	
TOXAPHENE		11.5	U		11.5	U		10.5	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB12-0.502-02			12SB12-000.5-01			12SB12-0304-03		
SDG: C5146	LAB_ID	C5146-06			C5146-10			C5146-07			C5146-11		
FRACTION: PEST	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.8			79.7						75.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.05	U		1.2	U		1.1	U	
4,4'-DDE		1.05	U		1.05	U		1.2	U		1.1	U	
4,4'-DDT		1.05	U		1.05	U		1.2	U		1.1	U	
ALDRIN		1.05	U		1.05	U		1.2	U		1.1	U	
ALPHA-BHC		1.05	U		1.05	U		1.2	U		1.1	U	
ALPHA-CHLORDANE		1.05	U		1.05	U		1.2	U		1.1	U	
BETA-BHC		1.05	U		1.05	U		1.2	U		1.1	U	
DELTA-BHC		1.05	U		1.05	U		1.2	U		1.1	U	
DIELDRIN		1.05	U		1.05	U		1.2	U		1.1	U	
ENDOSULFAN I		1.05	U		1.05	U		1.2	U		1.1	U	
ENDOSULFAN II		1.05	U		1.05	U		1.2	U		1.1	U	
ENDOSULFAN SULFATE		1.05	U		1.05	U		1.2	U		1.1	U	
ENDRIN		1.05	U		1.05	U		1.2	U		1.1	U	
ENDRIN ALDEHYDE		1.05	U		1.05	U		1.2	U		1.1	U	
ENDRIN KETONE		1.05	U		1.05	U		1.2	U		1.1	UJ	C
GAMMA-BHC (LINDANE)		1.05	U		1.05	U		1.2	U		1.1	U	
GAMMA-CHLORDANE		1.05	U		1.05	U		1.2	U		1.1	U	
HEPTACHLOR		1.05	U		1.05	U		1.2	U		1.1	U	
HEPTACHLOR EPOXIDE		1.05	U		1.05	U		1.2	U		1.1	U	
METHOXYCHLOR		1.05	U		1.05	U		1.2	U		1.1	U	
TOXAPHENE		10.5	U		10.5	U		12	U		11	U	

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-000.5-01			12SB17-0304-03			12SB27-0.502-02		
SDG: C5146	LAB_ID	C5146-16			C5146-15			C5146-17			C5146-19		
FRACTION: PEST	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.4			75.2			80.3			82.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.05	U		1.15	U		1.05	U		1.05	U	
4,4'-DDE		1.05	U		3.4			1.05	U		1.05	U	
4,4'-DDT		1.05	U		1.15	U		1.05	U		1.05	U	
ALDRIN		1.05	U		1.15	U		1.05	U		1.05	U	
ALPHA-BHC		1.05	U		1.15	U		1.05	U		1.05	U	
ALPHA-CHLORDANE		1.05	U		1.15	U		1.05	U		1.05	U	
BETA-BHC		1.05	U		1.15	U		1.05	U		1.05	U	
DELTA-BHC		1.05	U		1.15	U		1.05	U		1.05	U	
DIELDRIN		1.05	U		1.15	U		1.05	U		8.6		
ENDOSULFAN I		1.05	U		1.15	U		1.05	U		1.05	U	
ENDOSULFAN II		1.05	U		1.15	U		1.05	U		1.05	U	
ENDOSULFAN SULFATE		1.05	U		1.15	U		1.05	U		1.05	U	
ENDRIN		1.05	U		1.15	U		1.05	U		1.05	U	
ENDRIN ALDEHYDE		1.05	U		1.15	U		1.05	U		1.05	U	
ENDRIN KETONE		1.05	UJ	C	1.15	UJ	C	1.05	UJ	C	1.05	UJ	C
GAMMA-BHC (LINDANE)		1.05	U		1.15	U		1.05	U		1.05	U	
GAMMA-CHLORDANE		1.05	U		1.15	U		1.05	U		1.05	U	
HEPTACHLOR		1.05	U		1.15	U		1.05	U		1.05	U	
HEPTACHLOR EPOXIDE		1.05	U		1.15	U		1.05	U		1.05	U	
METHOXYCHLOR		1.05	U		1.15	U		1.05	U		1.05	U	
TOXAPHENE		10.5	U		11.5	U		10.5	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB-DUP-08		
SDG: C5146	LAB_ID	C5146-18			C5146-20		
FRACTION: PEST	SAMP_DATE	12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.2			72.4		
	DUP_OF				12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.15	U		1.15	U	
4,4'-DDE		1.15	U		1.15	U	
4,4'-DDT		1.15	U		1.15	U	
ALDRIN		1.15	U		1.15	U	
ALPHA-BHC		1.15	U		1.15	U	
ALPHA-CHLORDANE		1.15	U		1.15	U	
BETA-BHC		1.15	U		1.15	U	
DELTA-BHC		1.15	U		1.15	U	
DIELDRIN		25			1.15	U	
ENDOSULFAN I		1.15	U		1.15	U	
ENDOSULFAN II		1.15	U		1.15	U	
ENDOSULFAN SULFATE		1.15	U		1.15	U	
ENDRIN		1.15	U		1.15	U	
ENDRIN ALDEHYDE		1.15	U		1.15	U	
ENDRIN KETONE		1.15	UJ	C	1.15	UJ	C
GAMMA-BHC (LINDANE)		1.15	U		1.15	U	
GAMMA-CHLORDANE		1.15	U		1.15	U	
HEPTACHLOR		1.15	U		1.15	U	
HEPTACHLOR EPOXIDE		1.15	U		1.15	U	
METHOXYCHLOR		1.15	U		1.15	U	
TOXAPHENE		11.5	U		11.5	U	

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-000.5-01			12SB06-0304-03			12SB07-0.502-02		
SDG: C5146	LAB_ID	C5146-13			C5146-12			C5146-14			C5146-02		
FRACTION: PCB	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	78.0			71.0			85.0			80.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		11	U		12	U		10	U		10.5	U	
AROCLOR-1221		11	U		12	U		10	U		10.5	U	
AROCLOR-1232		11	U		12	U		10	U		10.5	U	
AROCLOR-1242		11	U		12	U		10	U		10.5	U	
AROCLOR-1248		11	U		12	U		10	U		10.5	U	
AROCLOR-1254		11	U		12	U		10	U		10.5	U	
AROCLOR-1260		11	U		12	U		10	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-0304-03			12SB08-0.502-02			12SB08-000.5-01		
SDG: C5146	LAB_ID	C5146-01			C5146-03			C5146-05			C5146-04		
FRACTION: PCB	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			75.0			81.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		11.5	U		11.5	U		10.5	U		12	U	
AROCLOR-1221		11.5	U		11.5	U		10.5	U		12	U	
AROCLOR-1232		11.5	U		11.5	U		10.5	U		12	U	
AROCLOR-1242		11.5	U		11.5	U		10.5	U		12	U	
AROCLOR-1248		11.5	U		11.5	U		10.5	U		12	U	
AROCLOR-1254		11.5	U		11.5	U		10.5	U		12	U	
AROCLOR-1260		11.5	U		11.5	U		10.5	U		12	U	

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB12-0.502-02			12SB12-000.5-01			12SB12-0304-03		
SDG: C5146	LAB_ID	C5146-06			C5146-10			C5146-07			C5146-11		
FRACTION: PCB	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			71.0			76.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		10.5	U		12	U		11	U	
AROCLOR-1221		10.5	U		10.5	U		12	U		11	U	
AROCLOR-1232		10.5	U		10.5	U		12	U		11	U	
AROCLOR-1242		10.5	U		10.5	U		12	U		11	U	
AROCLOR-1248		10.5	U		10.5	U		12	U		11	U	
AROCLOR-1254		10.5	U		10.5	U		12	U		11	U	
AROCLOR-1260		10.5	U		10.5	U		12	U		11	U	

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-000.5-01			12SB17-0304-03			12SB27-0.502-02		
SDG: C5146	LAB_ID	C5146-16			C5146-15			C5146-17			C5146-19		
FRACTION: PCB	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	79.0			75.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1221		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1232		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1242		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1248		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1254		10.5	U		11.5	U		10.5	U		10.5	U	
AROCLOR-1260		10.5	U		11.5	U		10.5	U		10.5	U	

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB-DUP-08		
SDG: C5146	LAB_ID	C5146-18			C5146-20		
FRACTION: PCB	SAMP_DATE	12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.0			72.0		
	DUP_OF				12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		11.5	U		12	U	
AROCLOR-1221		11.5	U		12	U	
AROCLOR-1232		11.5	U		12	U	
AROCLOR-1242		11.5	U		12	U	
AROCLOR-1248		11.5	U		12	U	
AROCLOR-1254		11.5	U		12	U	
AROCLOR-1260		11.5	U		12	U	

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.24 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030596.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.3	U	0.86	6.6	ug/Kg
74-87-3	Chloromethane	3.3	U	1.1	6.6	ug/Kg
75-01-4	Vinyl Chloride	3.3	U	1.6	6.6	ug/Kg
74-83-9	Bromomethane	3.3	U	3.2	6.6	ug/Kg
75-00-3	Chloroethane	3.3	U	1.9	6.6	ug/Kg
75-69-4	Trichlorofluoromethane	3.3	U	1.7	6.6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.3	U	1.8	6.6	ug/Kg
75-35-4	1,1-Dichloroethene	3.3	U	1.9	6.6	ug/Kg
67-64-1	Acetone	52		4	33	ug/Kg
75-15-0	Carbon Disulfide	3.3	U	1.4	6.6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.3	U	1.3	6.6	ug/Kg
79-20-9	Methyl Acetate	3.3	U	2	6.6	ug/Kg
75-09-2	Methylene Chloride	3.3	U	1.9	6.6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.3	U	0.91	6.6	ug/Kg
75-34-3	1,1-Dichloroethane	3.3	U	1.2	6.6	ug/Kg
110-82-7	Cyclohexane	3.3	U	1.3	6.6	ug/Kg
78-93-3	2-Butanone	16.5	U	4.1	33	ug/Kg
56-23-5	Carbon Tetrachloride	3.3	U	1.3	6.6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.3	U	1.2	6.6	ug/Kg
74-97-5	Bromochloromethane	3.3	U	1	6.6	ug/Kg
67-66-3	Chloroform	3.3	U	0.98	6.6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.3	U	1.2	6.6	ug/Kg
108-87-2	Methylcyclohexane	3.3	U	1.4	6.6	ug/Kg
71-43-2	Benzene	3.3	U	0.5	6.6	ug/Kg
107-06-2	1,2-Dichloroethane	3.3	U	0.85	6.6	ug/Kg
79-01-6	Trichloroethene	3.3	U	1.1	6.6	ug/Kg
78-87-5	1,2-Dichloropropane	3.3	U	0.34	6.6	ug/Kg
75-27-4	Bromodichloromethane	3.3	U	0.82	6.6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16.5	U	3.9	33	ug/Kg
108-88-3	Toluene	3.3	U	0.85	6.6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.3	U	1	6.6	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.24 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030596.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.3	U	0.95	6.6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.3	U	1.2	6.6	ug/Kg
591-78-6	2-Hexanone	16.5	U	5.2	33	ug/Kg
124-48-1	Dibromochloromethane	3.3	U	0.72	6.6	ug/Kg
106-93-4	1,2-Dibromoethane	3.3	U	0.85	6.6	ug/Kg
127-18-4	Tetrachloroethene	3.3	U	1.3	6.6	ug/Kg
108-90-7	Chlorobenzene	3.3	U	0.66	6.6	ug/Kg
100-41-4	Ethyl Benzene	3.3	U	0.82	6.6	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.95	13	ug/Kg
95-47-6	o-Xylene	3.3	U	0.9	6.6	ug/Kg
100-42-5	Styrene	3.3	U	0.6	6.6	ug/Kg
75-25-2	Bromoform	3.3	U	0.98	6.6	ug/Kg
98-82-8	Isopropylbenzene	3.3	U	0.64	6.6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.3	U	0.61	6.6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.3	U	0.49	6.6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.3	U	0.54	6.6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.3	U	0.82	6.6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.3	U	1.2	6.6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.3	U	0.93	6.6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.3	U	0.66	6.6	ug/Kg
1330-20-7	Total Xylenes	10	U	1.9	20	ug/Kg
123-91-1	1,4-Dioxane	65	U	130	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.8		55 - 158	90%	SPK: 50
1868-53-7	Dibromofluoromethane	45.7		53 - 156	91%	SPK: 50
2037-26-5	Toluene-d8	46.3		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.4		85 - 120	97%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	75664	4.39			
540-36-3	1,4-Difluorobenzene	139092	5.13			
3114-55-4	Chlorobenzene-d5	134896	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	62275	12.24			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	22
Sample Wt/Vol:	5.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030558.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.75	U	0.72	5.5	ug/Kg
74-87-3	Chloromethane	2.75	U	0.95	5.5	ug/Kg
75-01-4	Vinyl Chloride	2.75	U	1.4	5.5	ug/Kg
74-83-9	Bromomethane	2.75	U	2.7	5.5	ug/Kg
75-00-3	Chloroethane	2.75	U	1.5	5.5	ug/Kg
75-69-4	Trichlorofluoromethane	2.75	U	1.5	5.5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.75	U	1.5	5.5	ug/Kg
75-35-4	1,1-Dichloroethene	2.75	U	1.6	5.5	ug/Kg
67-64-1	Acetone	51		3.3	28	ug/Kg
75-15-0	Carbon Disulfide	2.75	U	1.2	5.5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.75	U	1.1	5.5	ug/Kg
79-20-9	Methyl Acetate	2.75	U	1.7	5.5	ug/Kg
75-09-2	Methylene Chloride	2.75	U	1.6	5.5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.75	U	0.76	5.5	ug/Kg
75-34-3	1,1-Dichloroethane	2.75	U	1	5.5	ug/Kg
110-82-7	Cyclohexane	2.75	U	1.1	5.5	ug/Kg
78-93-3	2-Butanone	14	U	3.4	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.75	U	1.1	5.5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.75	U	0.99	5.5	ug/Kg
74-97-5	Bromochloromethane	2.75	U	0.87	5.5	ug/Kg
67-66-3	Chloroform	2.75	U	0.82	5.5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.75	U	0.97	5.5	ug/Kg
108-87-2	Methylcyclohexane	2.75	U	1.2	5.5	ug/Kg
71-43-2	Benzene	2.75	U	0.42	5.5	ug/Kg
107-06-2	1,2-Dichloroethane	2.75	U	0.71	5.5	ug/Kg
79-01-6	Trichloroethene	2.75	U	0.95	5.5	ug/Kg
78-87-5	1,2-Dichloropropane	2.75	U	0.29	5.5	ug/Kg
75-27-4	Bromodichloromethane	2.75	U	0.69	5.5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.2	28	ug/Kg
108-88-3	Toluene	2.75	U	0.71	5.5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.75	U	0.87	5.5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	22
Sample Wt/Vol:	5.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030558.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.75	U	0.8	5.5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.75	U	1	5.5	ug/Kg
591-78-6	2-Hexanone	14	U	4.3	28	ug/Kg
124-48-1	Dibromochloromethane	2.75	U	0.6	5.5	ug/Kg
106-93-4	1,2-Dibromoethane	2.75	U	0.71	5.5	ug/Kg
127-18-4	Tetrachloroethene	2.75	U	1.1	5.5	ug/Kg
108-90-7	Chlorobenzene	2.75	U	0.55	5.5	ug/Kg
100-41-4	Ethyl Benzene	2.75	U	0.69	5.5	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.8	11	ug/Kg
95-47-6	o-Xylene	2.75	U	0.75	5.5	ug/Kg
100-42-5	Styrene	2.75	U	0.5	5.5	ug/Kg
75-25-2	Bromoform	2.75	U	0.82	5.5	ug/Kg
98-82-8	Isopropylbenzene	2.75	U	0.53	5.5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.75	U	0.51	5.5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.75	U	0.41	5.5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.75	U	0.45	5.5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.75	U	0.69	5.5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.75	U	0.96	5.5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.75	U	0.77	5.5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.75	U	0.55	5.5	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.5	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.2		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	49		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.1		85 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	93891	4.38			
540-36-3	1,4-Difluorobenzene	169910	5.12			
3114-55-4	Chlorobenzene-d5	176820	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	96334	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.54 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030557.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.2	U	0.83	6.4	ug/Kg
74-87-3	Chloromethane	3.2	U	1.1	6.4	ug/Kg
75-01-4	Vinyl Chloride	3.2	U	1.6	6.4	ug/Kg
74-83-9	Bromomethane	3.2	U	3.1	6.4	ug/Kg
75-00-3	Chloroethane	3.2	U	1.8	6.4	ug/Kg
75-69-4	Trichlorofluoromethane	3.2	U	1.7	6.4	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.2	U	1.7	6.4	ug/Kg
75-35-4	1,1-Dichloroethene	3.2	U	1.9	6.4	ug/Kg
67-64-1	Acetone	50		3.8	32	ug/Kg
75-15-0	Carbon Disulfide	3.2	U	1.3	6.4	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.2	U	1.2	6.4	ug/Kg
79-20-9	Methyl Acetate	3.2	U	1.9	6.4	ug/Kg
75-09-2	Methylene Chloride	3.2	U	1.8	6.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.2	U	0.88	6.4	ug/Kg
75-34-3	1,1-Dichloroethane	3.2	U	1.2	6.4	ug/Kg
110-82-7	Cyclohexane	3.2	U	1.3	6.4	ug/Kg
78-93-3	2-Butanone	16	U	4	32	ug/Kg
56-23-5	Carbon Tetrachloride	3.2	U	1.3	6.4	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.2	U	1.1	6.4	ug/Kg
74-97-5	Bromochloromethane	3.2	U	1	6.4	ug/Kg
67-66-3	Chloroform	3.2	U	0.94	6.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.2	U	1.1	6.4	ug/Kg
108-87-2	Methylcyclohexane	3.2	U	1.3	6.4	ug/Kg
71-43-2	Benzene	3.2	U	0.48	6.4	ug/Kg
107-06-2	1,2-Dichloroethane	3.2	U	0.81	6.4	ug/Kg
79-01-6	Trichloroethene	3.2	U	1.1	6.4	ug/Kg
78-87-5	1,2-Dichloropropane	3.2	U	0.33	6.4	ug/Kg
75-27-4	Bromodichloromethane	3.2	U	0.79	6.4	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16	U	3.7	32	ug/Kg
108-88-3	Toluene	3.2	U	0.81	6.4	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.2	U	1	6.4	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	29
Sample Wt/Vol:	5.54 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030557.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.2	U	0.92	6.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.2	U	1.1	6.4	ug/Kg
591-78-6	2-Hexanone	16	U	5	32	ug/Kg
124-48-1	Dibromochloromethane	3.2	U	0.69	6.4	ug/Kg
106-93-4	1,2-Dibromoethane	3.2	U	0.81	6.4	ug/Kg
127-18-4	Tetrachloroethene	3.2	U	1.3	6.4	ug/Kg
108-90-7	Chlorobenzene	3.2	U	0.64	6.4	ug/Kg
100-41-4	Ethyl Benzene	3.2	U	0.79	6.4	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.92	13	ug/Kg
95-47-6	o-Xylene	3.2	U	0.86	6.4	ug/Kg
100-42-5	Styrene	3.2	U	0.57	6.4	ug/Kg
75-25-2	Bromoform	3.2	U	0.94	6.4	ug/Kg
98-82-8	Isopropylbenzene	3.2	U	0.61	6.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.2	U	0.58	6.4	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.2	U	0.47	6.4	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.2	U	0.52	6.4	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.2	U	0.79	6.4	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.2	U	1.1	6.4	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.2	U	0.89	6.4	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.2	U	0.64	6.4	ug/Kg
1330-20-7	Total Xylenes	9.5	U	1.8	19	ug/Kg
123-91-1	1,4-Dioxane	65	U	130	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	40.4		55 - 158	81%	SPK: 50
1868-53-7	Dibromofluoromethane	46.9		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	47.7		85 - 115	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.5		85 - 120	97%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	96759	4.39			
540-36-3	1,4-Difluorobenzene	171920	5.13			
3114-55-4	Chlorobenzene-d5	169939	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	75204	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	6.21 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030559.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.35	U	0.62	4.7	ug/Kg
74-87-3	Chloromethane	2.35	U	0.81	4.7	ug/Kg
75-01-4	Vinyl Chloride	2.35	U	1.2	4.7	ug/Kg
74-83-9	Bromomethane	2.35	U	2.3	4.7	ug/Kg
75-00-3	Chloroethane	2.35	U	1.3	4.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.35	U	1.3	4.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.35	U	1.3	4.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.35	U	1.4	4.7	ug/Kg
67-64-1	Acetone	12	U	2.9	24	ug/Kg
75-15-0	Carbon Disulfide	2.35	U	1	4.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.35	U	0.91	4.7	ug/Kg
79-20-9	Methyl Acetate	2.35	U	1.4	4.7	ug/Kg
75-09-2	Methylene Chloride	2.35	U	1.3	4.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.35	U	0.65	4.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.35	U	0.89	4.7	ug/Kg
110-82-7	Cyclohexane	2.35	U	0.96	4.7	ug/Kg
78-93-3	2-Butanone	12	U	2.9	24	ug/Kg
56-23-5	Carbon Tetrachloride	2.35	U	0.94	4.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.35	U	0.84	4.7	ug/Kg
74-97-5	Bromochloromethane	2.35	U	0.75	4.7	ug/Kg
67-66-3	Chloroform	2.35	U	0.7	4.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.35	U	0.83	4.7	ug/Kg
108-87-2	Methylcyclohexane	2.35	U	1	4.7	ug/Kg
71-43-2	Benzene	2.35	U	0.36	4.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.35	U	0.61	4.7	ug/Kg
79-01-6	Trichloroethene	2.35	U	0.81	4.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.35	U	0.25	4.7	ug/Kg
75-27-4	Bromodichloromethane	2.35	U	0.59	4.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12	U	2.8	24	ug/Kg
108-88-3	Toluene	2.35	U	0.61	4.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.35	U	0.75	4.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	15
Sample Wt/Vol:	6.21 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030559.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.35	U	0.68	4.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.35	U	0.85	4.7	ug/Kg
591-78-6	2-Hexanone	12	U	3.7	24	ug/Kg
124-48-1	Dibromochloromethane	2.35	U	0.51	4.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.35	U	0.61	4.7	ug/Kg
127-18-4	Tetrachloroethene	2.35	U	0.96	4.7	ug/Kg
108-90-7	Chlorobenzene	2.35	U	0.47	4.7	ug/Kg
100-41-4	Ethyl Benzene	2.35	U	0.59	4.7	ug/Kg
179601-23-1	m/p-Xylenes	4.75	U	0.68	9.5	ug/Kg
95-47-6	o-Xylene	2.35	U	0.64	4.7	ug/Kg
100-42-5	Styrene	2.35	U	0.43	4.7	ug/Kg
75-25-2	Bromoform	2.35	U	0.7	4.7	ug/Kg
98-82-8	Isopropylbenzene	2.35	U	0.45	4.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.35	U	0.44	4.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.35	U	0.35	4.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.35	U	0.39	4.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.35	U	0.59	4.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.35	U	0.82	4.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.35	U	0.66	4.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.35	U	0.47	4.7	ug/Kg
1330-20-7	Total Xylenes	7	U	1.3	14	ug/Kg
123-91-1	1,4-Dioxane	47.5	U	95	95	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.7		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	45.6		53 - 156	91%	SPK: 50
2037-26-5	Toluene-d8	48.4		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.3		85 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	97973	4.38			
540-36-3	1,4-Difluorobenzene	177064	5.13			
3114-55-4	Chlorobenzene-d5	184900	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	100962	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030580.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3	U	0.78	6	ug/Kg
74-87-3	Chloromethane	3	U	1	6	ug/Kg
75-01-4	Vinyl Chloride	3	U	1.5	6	ug/Kg
74-83-9	Bromomethane	3	U	3	6	ug/Kg
75-00-3	Chloroethane	3	U	1.7	6	ug/Kg
75-69-4	Trichlorofluoromethane	3	U	1.6	6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3	U	1.6	6	ug/Kg
75-35-4	1,1-Dichloroethene	3	U	1.8	6	ug/Kg
67-64-1	Acetone	180		3.6	30	ug/Kg
75-15-0	Carbon Disulfide	3	U	1.3	6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3	U	1.2	6	ug/Kg
79-20-9	Methyl Acetate	3	U	1.8	6	ug/Kg
75-09-2	Methylene Chloride	3	U	1.7	6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3	U	0.83	6	ug/Kg
75-34-3	1,1-Dichloroethane	3	U	1.1	6	ug/Kg
110-82-7	Cyclohexane	3	U	1.2	6	ug/Kg
78-93-3	2-Butanone	15	U	3.7	30	ug/Kg
56-23-5	Carbon Tetrachloride	3	U	1.2	6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3	U	1.1	6	ug/Kg
74-97-5	Bromochloromethane	3	U	0.95	6	ug/Kg
67-66-3	Chloroform	3	U	0.89	6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3	U	1.1	6	ug/Kg
108-87-2	Methylcyclohexane	3	U	1.3	6	ug/Kg
71-43-2	Benzene	3	U	0.46	6	ug/Kg
107-06-2	1,2-Dichloroethane	3	U	0.77	6	ug/Kg
79-01-6	Trichloroethene	3	U	1	6	ug/Kg
78-87-5	1,2-Dichloropropane	3	U	0.31	6	ug/Kg
75-27-4	Bromodichloromethane	3	U	0.75	6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.5	30	ug/Kg
108-88-3	Toluene	3	U	0.77	6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3	U	0.95	6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.19 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030580.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3	U	0.87	6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3	U	1.1	6	ug/Kg
591-78-6	2-Hexanone	15	U	4.7	30	ug/Kg
124-48-1	Dibromochloromethane	3	U	0.65	6	ug/Kg
106-93-4	1,2-Dibromoethane	3	U	0.77	6	ug/Kg
127-18-4	Tetrachloroethene	3	U	1.2	6	ug/Kg
108-90-7	Chlorobenzene	3	U	0.6	6	ug/Kg
100-41-4	Ethyl Benzene	3	U	0.75	6	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.87	12	ug/Kg
95-47-6	o-Xylene	3	U	0.82	6	ug/Kg
100-42-5	Styrene	3	U	0.54	6	ug/Kg
75-25-2	Bromoform	3	U	0.89	6	ug/Kg
98-82-8	Isopropylbenzene	3	U	0.58	6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3	U	0.55	6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3	U	0.45	6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3	U	0.49	6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3	U	0.75	6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3	U	1	6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3	U	0.84	6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3	U	0.6	6	ug/Kg
1330-20-7	Total Xylenes	9	U	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.8		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	47.1		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	48.5		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.2		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	93340	4.39			
540-36-3	1,4-Difluorobenzene	163149	5.13			
3114-55-4	Chlorobenzene-d5	161130	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	66443	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030549.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.95	U	0.76	5.9	ug/Kg
74-87-3	Chloromethane	2.95	U	1	5.9	ug/Kg
75-01-4	Vinyl Chloride	2.95	U	1.4	5.9	ug/Kg
74-83-9	Bromomethane	2.95	U	2.9	5.9	ug/Kg
75-00-3	Chloroethane	2.95	U	1.6	5.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.95	U	1.5	5.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.95	U	1.6	5.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.95	U	1.7	5.9	ug/Kg
67-64-1	Acetone	36		3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.95	U	1.2	5.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.95	U	1.1	5.9	ug/Kg
79-20-9	Methyl Acetate	2.95	U	1.8	5.9	ug/Kg
75-09-2	Methylene Chloride	2.95	U	1.7	5.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.95	U	0.81	5.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.95	U	1.1	5.9	ug/Kg
110-82-7	Cyclohexane	2.95	U	1.2	5.9	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.95	U	1.2	5.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.95	U	1	5.9	ug/Kg
74-97-5	Bromochloromethane	2.95	U	0.93	5.9	ug/Kg
67-66-3	Chloroform	2.95	U	0.87	5.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.95	U	1	5.9	ug/Kg
108-87-2	Methylcyclohexane	2.95	U	1.2	5.9	ug/Kg
71-43-2	Benzene	2.95	U	0.45	5.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.95	U	0.75	5.9	ug/Kg
79-01-6	Trichloroethene	2.95	U	1	5.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.95	U	0.3	5.9	ug/Kg
75-27-4	Bromodichloromethane	2.95	U	0.73	5.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.4	29	ug/Kg
108-88-3	Toluene	2.95	U	0.75	5.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.95	U	0.93	5.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030549.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.95	U	0.84	5.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.95	U	1.1	5.9	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.6	29	ug/Kg
124-48-1	Dibromochloromethane	2.95	U	0.63	5.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.95	U	0.75	5.9	ug/Kg
127-18-4	Tetrachloroethene	2.95	U	1.2	5.9	ug/Kg
108-90-7	Chlorobenzene	2.95	U	0.59	5.9	ug/Kg
100-41-4	Ethyl Benzene	2.95	U	0.73	5.9	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.84	12	ug/Kg
95-47-6	o-Xylene	2.95	U	0.8	5.9	ug/Kg
100-42-5	Styrene	2.95	U	0.53	5.9	ug/Kg
75-25-2	Bromoform	2.95	U	0.87	5.9	ug/Kg
98-82-8	Isopropylbenzene	2.95	U	0.56	5.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.95	U	0.54	5.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.95	U	0.43	5.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.95	U	0.48	5.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.95	U	0.73	5.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.95	U	1	5.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.95	U	0.82	5.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.95	U	0.59	5.9	ug/Kg
1330-20-7	Total Xylenes	9	U	1.6	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.5		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	44.7		53 - 156	89%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.7		85 - 120	95%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	108723	4.38			
540-36-3	1,4-Difluorobenzene	196656	5.12			
3114-55-4	Chlorobenzene-d5	189386	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	83965	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030551.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.95	U	0.76	5.9	ug/Kg
74-87-3	Chloromethane	2.95	U	1	5.9	ug/Kg
75-01-4	Vinyl Chloride	2.95	U	1.4	5.9	ug/Kg
74-83-9	Bromomethane	2.95	U	2.9	5.9	ug/Kg
75-00-3	Chloroethane	2.95	U	1.6	5.9	ug/Kg
75-69-4	Trichlorofluoromethane	2.95	U	1.5	5.9	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.95	U	1.6	5.9	ug/Kg
75-35-4	1,1-Dichloroethene	2.95	U	1.7	5.9	ug/Kg
67-64-1	Acetone	14.5	U	3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.95	U	1.2	5.9	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.95	U	1.1	5.9	ug/Kg
79-20-9	Methyl Acetate	2.95	U	1.8	5.9	ug/Kg
75-09-2	Methylene Chloride	2.95	U	1.7	5.9	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.95	U	0.81	5.9	ug/Kg
75-34-3	1,1-Dichloroethane	2.95	U	1.1	5.9	ug/Kg
110-82-7	Cyclohexane	2.95	U	1.2	5.9	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.95	U	1.2	5.9	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.95	U	1	5.9	ug/Kg
74-97-5	Bromochloromethane	2.95	U	0.93	5.9	ug/Kg
67-66-3	Chloroform	2.95	U	0.87	5.9	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.95	U	1	5.9	ug/Kg
108-87-2	Methylcyclohexane	2.95	U	1.2	5.9	ug/Kg
71-43-2	Benzene	2.95	U	0.45	5.9	ug/Kg
107-06-2	1,2-Dichloroethane	2.95	U	0.75	5.9	ug/Kg
79-01-6	Trichloroethene	2.95	U	1	5.9	ug/Kg
78-87-5	1,2-Dichloropropane	2.95	U	0.3	5.9	ug/Kg
75-27-4	Bromodichloromethane	2.95	U	0.73	5.9	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.4	29	ug/Kg
108-88-3	Toluene	2.95	U	0.75	5.9	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.95	U	0.93	5.9	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.69 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030551.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.95	U	0.84	5.9	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.95	U	1.1	5.9	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.6	29	ug/Kg
124-48-1	Dibromochloromethane	2.95	U	0.63	5.9	ug/Kg
106-93-4	1,2-Dibromoethane	2.95	U	0.75	5.9	ug/Kg
127-18-4	Tetrachloroethene	2.95	U	1.2	5.9	ug/Kg
108-90-7	Chlorobenzene	2.95	U	0.59	5.9	ug/Kg
100-41-4	Ethyl Benzene	2.95	U	0.73	5.9	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.84	12	ug/Kg
95-47-6	o-Xylene	2.95	U	0.8	5.9	ug/Kg
100-42-5	Styrene	2.95	U	0.53	5.9	ug/Kg
75-25-2	Bromoform	2.95	U	0.87	5.9	ug/Kg
98-82-8	Isopropylbenzene	2.95	U	0.56	5.9	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.95	U	0.54	5.9	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.95	U	0.43	5.9	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.95	U	0.48	5.9	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.95	U	0.73	5.9	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.95	U	1	5.9	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.95	U	0.82	5.9	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.95	U	0.59	5.9	ug/Kg
1330-20-7	Total Xylenes	9	U	1.6	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41		55 - 158	82%	SPK: 50
1868-53-7	Dibromofluoromethane	45.1		53 - 156	90%	SPK: 50
2037-26-5	Toluene-d8	48.3		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.8		85 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	101172	4.39			
540-36-3	1,4-Difluorobenzene	186183	5.13			
3114-55-4	Chlorobenzene-d5	184603	9.33			
3855-82-1	1,4-Dichlorobenzene-d4	92200	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030553.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.68	5.2	ug/Kg
74-87-3	Chloromethane	2.6	U	0.9	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
74-83-9	Bromomethane	2.6	U	2.6	5.2	ug/Kg
75-00-3	Chloroethane	2.6	U	1.5	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-15-0	Carbon Disulfide	2.6	U	1.1	5.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.6	U	1	5.2	ug/Kg
79-20-9	Methyl Acetate	2.6	U	1.6	5.2	ug/Kg
75-09-2	Methylene Chloride	2.6	U	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.72	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.98	5.2	ug/Kg
110-82-7	Cyclohexane	2.6	U	1.1	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.6	U	1	5.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.93	5.2	ug/Kg
74-97-5	Bromochloromethane	2.6	U	0.82	5.2	ug/Kg
67-66-3	Chloroform	2.6	U	0.77	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.92	5.2	ug/Kg
108-87-2	Methylcyclohexane	2.6	U	1.1	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.4	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.67	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.9	5.2	ug/Kg
78-87-5	1,2-Dichloropropane	2.6	U	0.27	5.2	ug/Kg
75-27-4	Bromodichloromethane	2.6	U	0.65	5.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3	26	ug/Kg
108-88-3	Toluene	2.6	U	0.67	5.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.6	U	0.82	5.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	19
Sample Wt/Vol:	5.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030553.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.6	U	0.75	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.94	5.2	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.6	U	0.56	5.2	ug/Kg
106-93-4	1,2-Dibromoethane	2.6	U	0.67	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1.1	5.2	ug/Kg
108-90-7	Chlorobenzene	2.6	U	0.52	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.65	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.75	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.71	5.2	ug/Kg
100-42-5	Styrene	2.6	U	0.47	5.2	ug/Kg
75-25-2	Bromoform	2.6	U	0.77	5.2	ug/Kg
98-82-8	Isopropylbenzene	2.6	U	0.5	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.6	U	0.39	5.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.6	U	0.43	5.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.6	U	0.65	5.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.6	U	0.91	5.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.6	U	0.73	5.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.6	U	0.52	5.2	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	48.9		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	49.8		85 - 115	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	56		85 - 120	112%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	96508	4.38			
540-36-3	1,4-Difluorobenzene	171969	5.13			
3114-55-4	Chlorobenzene-d5	183225	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	96916	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.37 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030552.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.25	U	0.84	6.5	ug/Kg
74-87-3	Chloromethane	3.25	U	1.1	6.5	ug/Kg
75-01-4	Vinyl Chloride	3.25	U	1.6	6.5	ug/Kg
74-83-9	Bromomethane	3.25	U	3.2	6.5	ug/Kg
75-00-3	Chloroethane	3.25	U	1.8	6.5	ug/Kg
75-69-4	Trichlorofluoromethane	3.25	U	1.7	6.5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.25	U	1.7	6.5	ug/Kg
75-35-4	1,1-Dichloroethene	3.25	U	1.9	6.5	ug/Kg
67-64-1	Acetone	210		3.9	32	ug/Kg
75-15-0	Carbon Disulfide	3.25	U	1.4	6.5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.25	U	1.2	6.5	ug/Kg
79-20-9	Methyl Acetate	3.25	U	2	6.5	ug/Kg
75-09-2	Methylene Chloride	3.25	U	1.8	6.5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.25	U	0.89	6.5	ug/Kg
75-34-3	1,1-Dichloroethane	3.25	U	1.2	6.5	ug/Kg
110-82-7	Cyclohexane	3.25	U	1.3	6.5	ug/Kg
78-93-3	2-Butanone	13	J	4	32	ug/Kg
56-23-5	Carbon Tetrachloride	3.25	U	1.3	6.5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.25	U	1.2	6.5	ug/Kg
74-97-5	Bromochloromethane	3.25	U	1	6.5	ug/Kg
67-66-3	Chloroform	3.25	U	0.96	6.5	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.25	U	1.1	6.5	ug/Kg
108-87-2	Methylcyclohexane	3.25	U	1.4	6.5	ug/Kg
71-43-2	Benzene	3.25	U	0.49	6.5	ug/Kg
107-06-2	1,2-Dichloroethane	3.25	U	0.83	6.5	ug/Kg
79-01-6	Trichloroethene	3.25	U	1.1	6.5	ug/Kg
78-87-5	1,2-Dichloropropane	3.25	U	0.34	6.5	ug/Kg
75-27-4	Bromodichloromethane	3.25	U	0.8	6.5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	16	U	3.8	32	ug/Kg
108-88-3	Toluene	3.25	U	0.83	6.5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.25	U	1	6.5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	5.37 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030552.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.25	U	0.93	6.5	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.25	U	1.2	6.5	ug/Kg
591-78-6	2-Hexanone	16	U	5.1	32	ug/Kg
124-48-1	Dibromochloromethane	3.25	U	0.7	6.5	ug/Kg
106-93-4	1,2-Dibromoethane	3.25	U	0.83	6.5	ug/Kg
127-18-4	Tetrachloroethene	3.25	U	1.3	6.5	ug/Kg
108-90-7	Chlorobenzene	3.25	U	0.65	6.5	ug/Kg
100-41-4	Ethyl Benzene	3.25	U	0.8	6.5	ug/Kg
179601-23-1	m/p-Xylenes	6.5	U	0.93	13	ug/Kg
95-47-6	o-Xylene	3.25	U	0.88	6.5	ug/Kg
100-42-5	Styrene	3.25	U	0.58	6.5	ug/Kg
75-25-2	Bromoform	3.25	U	0.96	6.5	ug/Kg
98-82-8	Isopropylbenzene	3.25	U	0.62	6.5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.25	U	0.59	6.5	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.25	U	0.48	6.5	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.25	U	0.53	6.5	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.25	U	0.8	6.5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.25	U	1.1	6.5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.25	U	0.91	6.5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.25	U	0.65	6.5	ug/Kg
1330-20-7	Total Xylenes	9.5	U	1.8	19	ug/Kg
123-91-1	1,4-Dioxane	65	U	130	130	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.9		55 - 158	84%	SPK: 50
1868-53-7	Dibromofluoromethane	46.2		53 - 156	92%	SPK: 50
2037-26-5	Toluene-d8	47.3		85 - 115	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.8		85 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	88576	4.38			
540-36-3	1,4-Difluorobenzene	162837	5.13			
3114-55-4	Chlorobenzene-d5	158665	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	65782	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030554.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.68	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.9	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.5	5.3	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	0.99	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.83	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.78	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.67	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.9	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.27	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.65	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13	U	3.1	26	ug/Kg
108-88-3	Toluene	2.65	U	0.67	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.83	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.94 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030554.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.76	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
591-78-6	2-Hexanone	13	U	4.1	26	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.67	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.65	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.47	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.78	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.48	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.43	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.65	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.92	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.1		55 - 158	88%	SPK: 50
1868-53-7	Dibromofluoromethane	45.3		53 - 156	91%	SPK: 50
2037-26-5	Toluene-d8	46.9		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.2		85 - 120	112%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	100336	4.39			
540-36-3	1,4-Difluorobenzene	184683	5.13			
3114-55-4	Chlorobenzene-d5	192759	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	104196	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.7 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030555.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.75	U	0.71	5.5	ug/Kg
74-87-3	Chloromethane	2.75	U	0.94	5.5	ug/Kg
75-01-4	Vinyl Chloride	2.75	U	1.3	5.5	ug/Kg
74-83-9	Bromomethane	2.75	U	2.7	5.5	ug/Kg
75-00-3	Chloroethane	2.75	U	1.5	5.5	ug/Kg
75-69-4	Trichlorofluoromethane	2.75	U	1.4	5.5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.75	U	1.5	5.5	ug/Kg
75-35-4	1,1-Dichloroethene	2.75	U	1.6	5.5	ug/Kg
67-64-1	Acetone	13.5	U	3.3	27	ug/Kg
75-15-0	Carbon Disulfide	2.75	U	1.2	5.5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.75	U	1.1	5.5	ug/Kg
79-20-9	Methyl Acetate	2.75	U	1.7	5.5	ug/Kg
75-09-2	Methylene Chloride	2.75	U	1.6	5.5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.75	U	0.76	5.5	ug/Kg
75-34-3	1,1-Dichloroethane	2.75	U	1	5.5	ug/Kg
110-82-7	Cyclohexane	2.75	U	1.1	5.5	ug/Kg
78-93-3	2-Butanone	13.5	U	3.4	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.75	U	1.1	5.5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.75	U	0.98	5.5	ug/Kg
74-97-5	Bromochloromethane	2.75	U	0.87	5.5	ug/Kg
67-66-3	Chloroform	2.75	U	0.81	5.5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.75	U	0.96	5.5	ug/Kg
108-87-2	Methylcyclohexane	2.75	U	1.2	5.5	ug/Kg
71-43-2	Benzene	2.75	U	0.42	5.5	ug/Kg
107-06-2	1,2-Dichloroethane	2.75	U	0.7	5.5	ug/Kg
79-01-6	Trichloroethene	2.75	U	0.94	5.5	ug/Kg
78-87-5	1,2-Dichloropropane	2.75	U	0.29	5.5	ug/Kg
75-27-4	Bromodichloromethane	2.75	U	0.68	5.5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.2	27	ug/Kg
108-88-3	Toluene	2.75	U	0.7	5.5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.75	U	0.87	5.5	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.7 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030555.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.75	U	0.79	5.5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.75	U	0.99	5.5	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.3	27	ug/Kg
124-48-1	Dibromochloromethane	2.75	U	0.59	5.5	ug/Kg
106-93-4	1,2-Dibromoethane	2.75	U	0.7	5.5	ug/Kg
127-18-4	Tetrachloroethene	2.75	U	1.1	5.5	ug/Kg
108-90-7	Chlorobenzene	2.75	U	0.55	5.5	ug/Kg
100-41-4	Ethyl Benzene	2.75	U	0.68	5.5	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.79	11	ug/Kg
95-47-6	o-Xylene	2.75	U	0.75	5.5	ug/Kg
100-42-5	Styrene	2.75	U	0.49	5.5	ug/Kg
75-25-2	Bromoform	2.75	U	0.81	5.5	ug/Kg
98-82-8	Isopropylbenzene	2.75	U	0.53	5.5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.75	U	0.5	5.5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.75	U	0.41	5.5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.75	U	0.45	5.5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.75	U	0.68	5.5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.75	U	0.95	5.5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.75	U	0.77	5.5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.75	U	0.55	5.5	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.5		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	45		53 - 156	90%	SPK: 50
2037-26-5	Toluene-d8	46.4		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.9		85 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	96022	4.39			
540-36-3	1,4-Difluorobenzene	184773	5.13			
3114-55-4	Chlorobenzene-d5	180299	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	88506	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	4.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030581.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.6	U	0.93	7.2	ug/Kg
74-87-3	Chloromethane	3.6	U	1.2	7.2	ug/Kg
75-01-4	Vinyl Chloride	3.6	U	1.8	7.2	ug/Kg
74-83-9	Bromomethane	3.6	U	3.5	7.2	ug/Kg
75-00-3	Chloroethane	3.6	U	2	7.2	ug/Kg
75-69-4	Trichlorofluoromethane	3.6	U	1.9	7.2	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.6	U	1.9	7.2	ug/Kg
75-35-4	1,1-Dichloroethene	3.6	U	2.1	7.2	ug/Kg
67-64-1	Acetone	18	U	4.3	36	ug/Kg
75-15-0	Carbon Disulfide	3.6	U	1.5	7.2	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.6	U	1.4	7.2	ug/Kg
79-20-9	Methyl Acetate	3.6	U	2.2	7.2	ug/Kg
75-09-2	Methylene Chloride	3.6	U	2	7.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.6	U	0.99	7.2	ug/Kg
75-34-3	1,1-Dichloroethane	3.6	U	1.3	7.2	ug/Kg
110-82-7	Cyclohexane	3.6	U	1.4	7.2	ug/Kg
78-93-3	2-Butanone	18	U	4.5	36	ug/Kg
56-23-5	Carbon Tetrachloride	3.6	U	1.4	7.2	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.6	U	1.3	7.2	ug/Kg
74-97-5	Bromochloromethane	3.6	U	1.1	7.2	ug/Kg
67-66-3	Chloroform	3.6	U	1.1	7.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.6	U	1.3	7.2	ug/Kg
108-87-2	Methylcyclohexane	3.6	U	1.5	7.2	ug/Kg
71-43-2	Benzene	3.6	U	0.54	7.2	ug/Kg
107-06-2	1,2-Dichloroethane	3.6	U	0.92	7.2	ug/Kg
79-01-6	Trichloroethene	3.6	U	1.2	7.2	ug/Kg
78-87-5	1,2-Dichloropropane	3.6	U	0.37	7.2	ug/Kg
75-27-4	Bromodichloromethane	3.6	U	0.89	7.2	ug/Kg
108-10-1	4-Methyl-2-Pentanone	18	U	4.2	36	ug/Kg
108-88-3	Toluene	3.6	U	0.92	7.2	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.6	U	1.1	7.2	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	28
Sample Wt/Vol:	4.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030581.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.6	U	1	7.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.6	U	1.3	7.2	ug/Kg
591-78-6	2-Hexanone	18	U	5.6	36	ug/Kg
124-48-1	Dibromochloromethane	3.6	U	0.77	7.2	ug/Kg
106-93-4	1,2-Dibromoethane	3.6	U	0.92	7.2	ug/Kg
127-18-4	Tetrachloroethene	3.6	U	1.4	7.2	ug/Kg
108-90-7	Chlorobenzene	3.6	U	0.72	7.2	ug/Kg
100-41-4	Ethyl Benzene	3.6	U	0.89	7.2	ug/Kg
179601-23-1	m/p-Xylenes	7	U	1	14	ug/Kg
95-47-6	o-Xylene	3.6	U	0.97	7.2	ug/Kg
100-42-5	Styrene	3.6	U	0.64	7.2	ug/Kg
75-25-2	Bromoform	3.6	U	1.1	7.2	ug/Kg
98-82-8	Isopropylbenzene	3.6	U	0.69	7.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.6	U	0.66	7.2	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.6	U	0.53	7.2	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.6	U	0.59	7.2	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.6	U	0.89	7.2	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.6	U	1.2	7.2	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.6	U	1	7.2	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.6	U	0.72	7.2	ug/Kg
1330-20-7	Total Xylenes	10.5	U	2	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.6		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	46.5		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	47		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.5		85 - 120	93%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	92364	4.38			
540-36-3	1,4-Difluorobenzene	173230	5.13			
3114-55-4	Chlorobenzene-d5	168960	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	70698	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	24
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030556.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.9	U	0.75	5.8	ug/Kg
74-87-3	Chloromethane	2.9	U	0.99	5.8	ug/Kg
75-01-4	Vinyl Chloride	2.9	U	1.4	5.8	ug/Kg
74-83-9	Bromomethane	2.9	U	2.8	5.8	ug/Kg
75-00-3	Chloroethane	2.9	U	1.6	5.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.9	U	1.5	5.8	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.9	U	1.5	5.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.9	U	1.7	5.8	ug/Kg
67-64-1	Acetone	14.5	U	3.5	29	ug/Kg
75-15-0	Carbon Disulfide	2.9	U	1.2	5.8	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.9	U	1.1	5.8	ug/Kg
79-20-9	Methyl Acetate	2.9	U	1.7	5.8	ug/Kg
75-09-2	Methylene Chloride	2.9	U	1.6	5.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.9	U	0.79	5.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.9	U	1.1	5.8	ug/Kg
110-82-7	Cyclohexane	2.9	U	1.2	5.8	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
56-23-5	Carbon Tetrachloride	2.9	U	1.1	5.8	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.9	U	1	5.8	ug/Kg
74-97-5	Bromochloromethane	2.9	U	0.91	5.8	ug/Kg
67-66-3	Chloroform	2.9	U	0.85	5.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.9	U	1	5.8	ug/Kg
108-87-2	Methylcyclohexane	2.9	U	1.2	5.8	ug/Kg
71-43-2	Benzene	2.9	U	0.44	5.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.9	U	0.74	5.8	ug/Kg
79-01-6	Trichloroethene	2.9	U	0.99	5.8	ug/Kg
78-87-5	1,2-Dichloropropane	2.9	U	0.3	5.8	ug/Kg
75-27-4	Bromodichloromethane	2.9	U	0.71	5.8	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14.5	U	3.4	29	ug/Kg
108-88-3	Toluene	2.9	U	0.74	5.8	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.9	U	0.91	5.8	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	24
Sample Wt/Vol:	5.72 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030556.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.9	U	0.83	5.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.9	U	1	5.8	ug/Kg
591-78-6	2-Hexanone	14.5	U	4.5	29	ug/Kg
124-48-1	Dibromochloromethane	2.9	U	0.62	5.8	ug/Kg
106-93-4	1,2-Dibromoethane	2.9	U	0.74	5.8	ug/Kg
127-18-4	Tetrachloroethene	2.9	U	1.2	5.8	ug/Kg
108-90-7	Chlorobenzene	2.9	U	0.58	5.8	ug/Kg
100-41-4	Ethyl Benzene	2.9	U	0.71	5.8	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.83	12	ug/Kg
95-47-6	o-Xylene	2.9	U	0.78	5.8	ug/Kg
100-42-5	Styrene	2.9	U	0.52	5.8	ug/Kg
75-25-2	Bromoform	2.9	U	0.85	5.8	ug/Kg
98-82-8	Isopropylbenzene	2.9	U	0.55	5.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.9	U	0.53	5.8	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.9	U	0.43	5.8	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.9	U	0.47	5.8	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.9	U	0.71	5.8	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.9	U	1	5.8	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.9	U	0.81	5.8	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.9	U	0.58	5.8	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.4		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	45.6		53 - 156	91%	SPK: 50
2037-26-5	Toluene-d8	46.4		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.6		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	89142	4.38			
540-36-3	1,4-Difluorobenzene	166646	5.13			
3114-55-4	Chlorobenzene-d5	157756	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	68466	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.59 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030585.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
74-87-3	Chloromethane	2.85	U	0.97	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
74-83-9	Bromomethane	2.85	U	2.8	5.7	ug/Kg
75-00-3	Chloroethane	2.85	U	1.6	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	14	U	3.4	28	ug/Kg
75-15-0	Carbon Disulfide	2.85	U	1.2	5.7	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.85	U	1.1	5.7	ug/Kg
79-20-9	Methyl Acetate	2.85	U	1.7	5.7	ug/Kg
75-09-2	Methylene Chloride	2.85	U	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.78	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
110-82-7	Cyclohexane	2.85	U	1.1	5.7	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
56-23-5	Carbon Tetrachloride	2.85	U	1.1	5.7	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
74-97-5	Bromochloromethane	2.85	U	0.89	5.7	ug/Kg
67-66-3	Chloroform	2.85	U	0.84	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
108-87-2	Methylcyclohexane	2.85	U	1.2	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.72	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.97	5.7	ug/Kg
78-87-5	1,2-Dichloropropane	2.85	U	0.29	5.7	ug/Kg
75-27-4	Bromodichloromethane	2.85	U	0.7	5.7	ug/Kg
108-10-1	4-Methyl-2-Pentanone	14	U	3.3	28	ug/Kg
108-88-3	Toluene	2.85	U	0.72	5.7	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.85	U	0.89	5.7	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	21
Sample Wt/Vol:	5.59 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030585.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.85	U	0.82	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
591-78-6	2-Hexanone	14	U	4.4	28	ug/Kg
124-48-1	Dibromochloromethane	2.85	U	0.61	5.7	ug/Kg
106-93-4	1,2-Dibromoethane	2.85	U	0.72	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.1	5.7	ug/Kg
108-90-7	Chlorobenzene	2.85	U	0.57	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.7	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.82	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.77	5.7	ug/Kg
100-42-5	Styrene	2.85	U	0.51	5.7	ug/Kg
75-25-2	Bromoform	2.85	U	0.84	5.7	ug/Kg
98-82-8	Isopropylbenzene	2.85	U	0.54	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.52	5.7	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.85	U	0.42	5.7	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.85	U	0.46	5.7	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.85	U	0.7	5.7	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.85	U	0.99	5.7	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.85	U	0.79	5.7	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.85	U	0.57	5.7	ug/Kg
1330-20-7	Total Xylenes	8.5	U	1.6	17	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46.5		55 - 158	93%	SPK: 50
1868-53-7	Dibromofluoromethane	45.9		53 - 156	92%	SPK: 50
2037-26-5	Toluene-d8	49		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.2		85 - 120	112%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	89431	4.38			
540-36-3	1,4-Difluorobenzene	166552	5.12			
3114-55-4	Chlorobenzene-d5	176127	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	94117	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.52 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030560.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3	U	0.79	6	ug/Kg
74-87-3	Chloromethane	3	U	1	6	ug/Kg
75-01-4	Vinyl Chloride	3	U	1.5	6	ug/Kg
74-83-9	Bromomethane	3	U	3	6	ug/Kg
75-00-3	Chloroethane	3	U	1.7	6	ug/Kg
75-69-4	Trichlorofluoromethane	3	U	1.6	6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3	U	1.6	6	ug/Kg
75-35-4	1,1-Dichloroethene	3	U	1.8	6	ug/Kg
67-64-1	Acetone	73		3.6	30	ug/Kg
75-15-0	Carbon Disulfide	3	U	1.3	6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3	U	1.2	6	ug/Kg
79-20-9	Methyl Acetate	3	U	1.8	6	ug/Kg
75-09-2	Methylene Chloride	3	U	1.7	6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3	U	0.83	6	ug/Kg
75-34-3	1,1-Dichloroethane	3	U	1.1	6	ug/Kg
110-82-7	Cyclohexane	3	U	1.2	6	ug/Kg
78-93-3	2-Butanone	15	U	3.8	30	ug/Kg
56-23-5	Carbon Tetrachloride	3	U	1.2	6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3	U	1.1	6	ug/Kg
74-97-5	Bromochloromethane	3	U	0.95	6	ug/Kg
67-66-3	Chloroform	3	U	0.89	6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3	U	1.1	6	ug/Kg
108-87-2	Methylcyclohexane	3	U	1.3	6	ug/Kg
71-43-2	Benzene	3	U	0.46	6	ug/Kg
107-06-2	1,2-Dichloroethane	3	U	0.77	6	ug/Kg
79-01-6	Trichloroethene	3	U	1	6	ug/Kg
78-87-5	1,2-Dichloropropane	3	U	0.31	6	ug/Kg
75-27-4	Bromodichloromethane	3	U	0.75	6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.5	30	ug/Kg
108-88-3	Toluene	3	U	0.77	6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3	U	0.95	6	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	25
Sample Wt/Vol:	5.52 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030560.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3	U	0.87	6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3	U	1.1	6	ug/Kg
591-78-6	2-Hexanone	15	U	4.7	30	ug/Kg
124-48-1	Dibromochloromethane	3	U	0.65	6	ug/Kg
106-93-4	1,2-Dibromoethane	3	U	0.77	6	ug/Kg
127-18-4	Tetrachloroethene	3	U	1.2	6	ug/Kg
108-90-7	Chlorobenzene	3	U	0.6	6	ug/Kg
100-41-4	Ethyl Benzene	3	U	0.75	6	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.87	12	ug/Kg
95-47-6	o-Xylene	3	U	0.82	6	ug/Kg
100-42-5	Styrene	3	U	0.54	6	ug/Kg
75-25-2	Bromoform	3	U	0.89	6	ug/Kg
98-82-8	Isopropylbenzene	3	U	0.58	6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3	U	0.56	6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3	U	0.45	6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3	U	0.5	6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3	U	0.75	6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3	U	1.1	6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3	U	0.85	6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3	U	0.6	6	ug/Kg
1330-20-7	Total Xylenes	9	U	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	60	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.4		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	50.1		53 - 156	100%	SPK: 50
2037-26-5	Toluene-d8	49.4		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.2		85 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	92440	4.38			
540-36-3	1,4-Difluorobenzene	162974	5.12			
3114-55-4	Chlorobenzene-d5	166796	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	80901	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030586.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.92	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	13.5	U	3.2	27	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.74	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	1	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1.1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.95	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.84	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.79	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.94	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.41	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.92	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.28	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.66	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.1	27	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.84	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	20
Sample Wt/Vol:	5.85 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030586.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.77	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.96	5.3	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.2	27	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.58	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.68	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.66	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.73	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.48	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.79	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.4	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.44	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.66	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.93	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.75	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.3		55 - 158	89%	SPK: 50
1868-53-7	Dibromofluoromethane	47		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	48.1		85 - 115	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.5		85 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	90990	4.39			
540-36-3	1,4-Difluorobenzene	169390	5.12			
3114-55-4	Chlorobenzene-d5	173064	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	96547	12.23			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.73 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030595.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
74-87-3	Chloromethane	2.65	U	0.92	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
74-83-9	Bromomethane	2.65	U	2.6	5.3	ug/Kg
75-00-3	Chloroethane	2.65	U	1.5	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	36		3.2	27	ug/Kg
75-15-0	Carbon Disulfide	2.65	U	1.1	5.3	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.65	U	1	5.3	ug/Kg
79-20-9	Methyl Acetate	2.65	U	1.6	5.3	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	1	5.3	ug/Kg
110-82-7	Cyclohexane	2.65	U	1.1	5.3	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
56-23-5	Carbon Tetrachloride	2.65	U	1.1	5.3	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.95	5.3	ug/Kg
74-97-5	Bromochloromethane	2.65	U	0.84	5.3	ug/Kg
67-66-3	Chloroform	2.65	U	0.79	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.94	5.3	ug/Kg
108-87-2	Methylcyclohexane	2.65	U	1.1	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.92	5.3	ug/Kg
78-87-5	1,2-Dichloropropane	2.65	U	0.28	5.3	ug/Kg
75-27-4	Bromodichloromethane	2.65	U	0.66	5.3	ug/Kg
108-10-1	4-Methyl-2-Pentanone	13.5	U	3.1	27	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.65	U	0.84	5.3	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	18
Sample Wt/Vol:	5.73 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030595.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.65	U	0.77	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.96	5.3	ug/Kg
591-78-6	2-Hexanone	13.5	U	4.2	27	ug/Kg
124-48-1	Dibromochloromethane	2.65	U	0.57	5.3	ug/Kg
106-93-4	1,2-Dibromoethane	2.65	U	0.68	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
108-90-7	Chlorobenzene	2.65	U	0.53	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.66	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
100-42-5	Styrene	2.65	U	0.48	5.3	ug/Kg
75-25-2	Bromoform	2.65	U	0.79	5.3	ug/Kg
98-82-8	Isopropylbenzene	2.65	U	0.51	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.65	U	0.39	5.3	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.65	U	0.44	5.3	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.65	U	0.66	5.3	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.65	U	0.93	5.3	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.65	U	0.74	5.3	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.65	U	0.53	5.3	ug/Kg
1330-20-7	Total Xylenes	8	U	1.5	16	ug/Kg
123-91-1	1,4-Dioxane	55	U	110	110	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46		55 - 158	92%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	47.9		85 - 115	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.1		85 - 120	108%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	87503	4.39			
540-36-3	1,4-Difluorobenzene	163634	5.13			
3114-55-4	Chlorobenzene-d5	162632	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	89822	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	4.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030587.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3.55	U	0.92	7.1	ug/Kg
74-87-3	Chloromethane	3.55	U	1.2	7.1	ug/Kg
75-01-4	Vinyl Chloride	3.55	U	1.7	7.1	ug/Kg
74-83-9	Bromomethane	3.55	U	3.5	7.1	ug/Kg
75-00-3	Chloroethane	3.55	U	2	7.1	ug/Kg
75-69-4	Trichlorofluoromethane	3.55	U	1.9	7.1	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3.55	U	1.9	7.1	ug/Kg
75-35-4	1,1-Dichloroethene	3.55	U	2.1	7.1	ug/Kg
67-64-1	Acetone	17.5	U	4.3	35	ug/Kg
75-15-0	Carbon Disulfide	3.55	U	1.5	7.1	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3.55	U	1.4	7.1	ug/Kg
79-20-9	Methyl Acetate	3.55	U	2.1	7.1	ug/Kg
75-09-2	Methylene Chloride	3.55	U	2	7.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3.55	U	0.97	7.1	ug/Kg
75-34-3	1,1-Dichloroethane	3.55	U	1.3	7.1	ug/Kg
110-82-7	Cyclohexane	3.55	U	1.4	7.1	ug/Kg
78-93-3	2-Butanone	17.5	U	4.4	35	ug/Kg
56-23-5	Carbon Tetrachloride	3.55	U	1.4	7.1	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3.55	U	1.3	7.1	ug/Kg
74-97-5	Bromochloromethane	3.55	U	1.1	7.1	ug/Kg
67-66-3	Chloroform	3.55	U	1	7.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	3.55	U	1.2	7.1	ug/Kg
108-87-2	Methylcyclohexane	3.55	U	1.5	7.1	ug/Kg
71-43-2	Benzene	3.55	U	0.54	7.1	ug/Kg
107-06-2	1,2-Dichloroethane	3.55	U	0.9	7.1	ug/Kg
79-01-6	Trichloroethene	3.55	U	1.2	7.1	ug/Kg
78-87-5	1,2-Dichloropropane	3.55	U	0.37	7.1	ug/Kg
75-27-4	Bromodichloromethane	3.55	U	0.87	7.1	ug/Kg
108-10-1	4-Methyl-2-Pentanone	17.5	U	4.1	35	ug/Kg
108-88-3	Toluene	3.55	U	0.9	7.1	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3.55	U	1.1	7.1	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	26
Sample Wt/Vol:	4.79 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030587.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3.55	U	1	7.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	3.55	U	1.3	7.1	ug/Kg
591-78-6	2-Hexanone	17.5	U	5.5	35	ug/Kg
124-48-1	Dibromochloromethane	3.55	U	0.76	7.1	ug/Kg
106-93-4	1,2-Dibromoethane	3.55	U	0.9	7.1	ug/Kg
127-18-4	Tetrachloroethene	3.55	U	1.4	7.1	ug/Kg
108-90-7	Chlorobenzene	3.55	U	0.71	7.1	ug/Kg
100-41-4	Ethyl Benzene	3.55	U	0.87	7.1	ug/Kg
179601-23-1	m/p-Xylenes	7	U	1	14	ug/Kg
95-47-6	o-Xylene	3.55	U	0.96	7.1	ug/Kg
100-42-5	Styrene	3.55	U	0.63	7.1	ug/Kg
75-25-2	Bromoform	3.55	U	1	7.1	ug/Kg
98-82-8	Isopropylbenzene	3.55	U	0.68	7.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3.55	U	0.65	7.1	ug/Kg
541-73-1	1,3-Dichlorobenzene	3.55	U	0.52	7.1	ug/Kg
106-46-7	1,4-Dichlorobenzene	3.55	U	0.58	7.1	ug/Kg
95-50-1	1,2-Dichlorobenzene	3.55	U	0.87	7.1	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3.55	U	1.2	7.1	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3.55	U	0.99	7.1	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3.55	U	0.71	7.1	ug/Kg
1330-20-7	Total Xylenes	10.5	U	2	21	ug/Kg
123-91-1	1,4-Dioxane	70	U	140	140	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.3		55 - 158	87%	SPK: 50
1868-53-7	Dibromofluoromethane	46.5		53 - 156	93%	SPK: 50
2037-26-5	Toluene-d8	46.8		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	43		85 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	87441	4.39			
540-36-3	1,4-Difluorobenzene	160670	5.13			
3114-55-4	Chlorobenzene-d5	145218	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	57213	12.24			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	TB-01-122811	SDG No.:	C5146
Lab Sample ID:	C5146-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045182.D	1		01/04/12	VH010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
74-87-3	Chloromethane	2.5	U	0.54	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
74-83-9	Bromomethane	2.5	U	0.62	5	ug/L
75-00-3	Chloroethane	2.5	U	0.66	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	0.45	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-15-0	Carbon Disulfide	2.5	U	0.54	5	ug/L
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.35	5	ug/L
79-20-9	Methyl Acetate	2.5	U	0.83	5	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
110-82-7	Cyclohexane	2.5	U	0.55	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
56-23-5	Carbon Tetrachloride	2.5	U	0.62	5	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
74-97-5	Bromochloromethane	2.5	U	2.2	5	ug/L
67-66-3	Chloroform	2.5	U	0.34	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
108-87-2	Methylcyclohexane	2.5	U	0.68	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
78-87-5	1,2-Dichloropropane	2.5	U	0.46	5	ug/L
75-27-4	Bromodichloromethane	2.5	U	0.36	5	ug/L
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.1	25	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.29	5	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	TB-01-122811	SDG No.:	C5146
Lab Sample ID:	C5146-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045182.D	1		01/04/12	VH010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.31	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
591-78-6	2-Hexanone	12.5	U	1.9	25	ug/L
124-48-1	Dibromochloromethane	2.5	U	0.52	5	ug/L
106-93-4	1,2-Dibromoethane	2.5	U	0.41	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
108-90-7	Chlorobenzene	2.5	U	0.49	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
100-42-5	Styrene	2.5	U	0.36	5	ug/L
75-25-2	Bromoform	2.5	U	0.47	5	ug/L
98-82-8	Isopropylbenzene	2.5	U	0.45	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
541-73-1	1,3-Dichlorobenzene	2.5	U	0.43	5	ug/L
106-46-7	1,4-Dichlorobenzene	2.5	U	0.32	5	ug/L
95-50-1	1,2-Dichlorobenzene	2.5	U	0.45	5	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.46	5	ug/L
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.62	5	ug/L
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.65	5	ug/L
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/L
123-91-1	1,4-Dioxane	50	U	20	100	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.1		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	51.5		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	51.7		85 - 120	103%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.8		75 - 120	108%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	532496	4.95			
540-36-3	1,4-Difluorobenzene	872768	5.66			
3114-55-4	Chlorobenzene-d5	821748	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	545626	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075011.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	24	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	23	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	17	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	22	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	26	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	21	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	32	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	17	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	230	U	12	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075011.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	47	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	86	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.2	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	60	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	26	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	24	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	12	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	36	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	16	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	119		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	120		40 - 100	81%	SPK: 150
4165-60-0	Nitrobenzene-d5	75.9		35 - 100	76%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.1		45 - 105	74%	SPK: 100
118-79-6	2,4,6-Tribromophenol	107		35 - 125	72%	SPK: 150
1718-51-0	Terphenyl-d14	74.8		30 - 125	75%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	130953	8.6			
1146-65-2	Naphthalene-d8	517363	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075011.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	277559	13.74			
1517-22-2	Phenanthrene-d10	489411	16.22			
1719-03-5	Chrysene-d12	445278	20.65			
1520-96-3	Perylene-d12	391336	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	22
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075030.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	210	U	22	420	ug/Kg
108-95-2	Phenol	210	U	9.9	420	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	210	U	20	420	ug/Kg
95-57-8	2-Chlorophenol	210	U	23	420	ug/Kg
95-48-7	2-Methylphenol	210	U	23	420	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	210	U	18	420	ug/Kg
98-86-2	Acetophenone	210	U	13	420	ug/Kg
65794-96-9	3+4-Methylphenols	210	U	22	420	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	210	U	22	420	ug/Kg
67-72-1	Hexachloroethane	210	U	19	420	ug/Kg
98-95-3	Nitrobenzene	210	U	16	420	ug/Kg
78-59-1	Isophorone	210	U	14	420	ug/Kg
88-75-5	2-Nitrophenol	210	U	21	420	ug/Kg
105-67-9	2,4-Dimethylphenol	210	U	24	420	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	210	U	25	420	ug/Kg
120-83-2	2,4-Dichlorophenol	210	U	16	420	ug/Kg
106-47-8	4-Chloroaniline	210	U	30	420	ug/Kg
87-68-3	Hexachlorobutadiene	210	U	15	420	ug/Kg
105-60-2	Caprolactam	210	U	20	420	ug/Kg
59-50-7	4-Chloro-3-methylphenol	210	U	19	420	ug/Kg
77-47-4	Hexachlorocyclopentadiene	210	U	10	420	ug/Kg
88-06-2	2,4,6-Trichlorophenol	210	U	13	420	ug/Kg
95-95-4	2,4,5-Trichlorophenol	210	U	30	420	ug/Kg
92-52-4	1,1-Biphenyl	210	U	16	420	ug/Kg
91-58-7	2-Chloronaphthalene	210	U	9.7	420	ug/Kg
88-74-4	2-Nitroaniline	210	U	19	420	ug/Kg
131-11-3	Dimethylphthalate	210	U	12	420	ug/Kg
208-96-8	Acenaphthylene	210	U	11	420	ug/Kg
606-20-2	2,6-Dinitrotoluene	210	U	17	420	ug/Kg
99-09-2	3-Nitroaniline	210	U	27	420	ug/Kg
83-32-9	Acenaphthene	210	U	12	420	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	22
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075030.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	210	U	43	420	ug/Kg
100-02-7	4-Nitrophenol	210	U	79	420	ug/Kg
132-64-9	Dibenzofuran	210	U	17	420	ug/Kg
121-14-2	2,4-Dinitrotoluene	210	U	13	420	ug/Kg
84-66-2	Diethylphthalate	210	U	6.7	420	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	210	U	23	420	ug/Kg
100-01-6	4-Nitroaniline	210	U	56	420	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	210	U	24	420	ug/Kg
86-30-6	N-Nitrosodiphenylamine	210	U	10	420	ug/Kg
101-55-3	4-Bromophenyl-phenylether	210	U	8.3	420	ug/Kg
118-74-1	Hexachlorobenzene	210	U	17	420	ug/Kg
1912-24-9	Atrazine	210	U	23	420	ug/Kg
87-86-5	Pentachlorophenol	210	U	29	420	ug/Kg
85-01-8	Phenanthrene	210	U	12	420	ug/Kg
86-74-8	Carbazole	210	U	9.3	420	ug/Kg
84-74-2	Di-n-butylphthalate	210	U	34	420	ug/Kg
85-68-7	Butylbenzylphthalate	210	U	20	420	ug/Kg
91-94-1	3,3-Dichlorobenzidine	210	U	27	420	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	210	U	15	420	ug/Kg
117-84-0	Di-n-octyl phthalate	210	U	4.9	420	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U	17	420	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	210	U	420	420	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	132		35 - 105	88%	SPK: 150
13127-88-3	Phenol-d5	132		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	86.2		35 - 100	86%	SPK: 100
321-60-8	2-Fluorobiphenyl	89.8		45 - 105	90%	SPK: 100
118-79-6	2,4,6-Tribromophenol	126		35 - 125	84%	SPK: 150
1718-51-0	Terphenyl-d14	87.8		30 - 125	88%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	134007	8.6			
1146-65-2	Naphthalene-d8	518476	10.77			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	22
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075030.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	268422	13.74			
1517-22-2	Phenanthrene-d10	483916	16.21			
1719-03-5	Chrysene-d12	450213	20.65			
1520-96-3	Perylene-d12	412735	24.29			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074988.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	25	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	24	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	18	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	23	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	27	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	22	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	33	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	18	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	230	U	13	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074988.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	48	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	87	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.3	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	61	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	27	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9.1	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	25	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	13	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	37	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	17	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	115		35 - 105	77%	SPK: 150
13127-88-3	Phenol-d5	116		40 - 100	78%	SPK: 150
4165-60-0	Nitrobenzene-d5	72.3		35 - 100	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	67.7		45 - 105	68%	SPK: 100
118-79-6	2,4,6-Tribromophenol	99.6		35 - 125	66%	SPK: 150
1718-51-0	Terphenyl-d14	65.1		30 - 125	65%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	125285	8.6			
1146-65-2	Naphthalene-d8	493901	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074988.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	268134	13.74			
1517-22-2	Phenanthrene-d10	467976	16.21			
1719-03-5	Chrysene-d12	428918	20.66			
1520-96-3	Perylene-d12	379118	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075031.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	195	U	20	390	ug/Kg
108-95-2	Phenol	195	U	9	390	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	195	U	19	390	ug/Kg
95-57-8	2-Chlorophenol	195	U	21	390	ug/Kg
95-48-7	2-Methylphenol	195	U	21	390	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	195	U	16	390	ug/Kg
98-86-2	Acetophenone	195	U	12	390	ug/Kg
65794-96-9	3+4-Methylphenols	195	U	20	390	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	195	U	20	390	ug/Kg
67-72-1	Hexachloroethane	195	U	17	390	ug/Kg
98-95-3	Nitrobenzene	195	U	15	390	ug/Kg
78-59-1	Isophorone	195	U	13	390	ug/Kg
88-75-5	2-Nitrophenol	195	U	19	390	ug/Kg
105-67-9	2,4-Dimethylphenol	195	U	22	390	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	195	U	23	390	ug/Kg
120-83-2	2,4-Dichlorophenol	195	U	15	390	ug/Kg
106-47-8	4-Chloroaniline	195	U	28	390	ug/Kg
87-68-3	Hexachlorobutadiene	195	U	14	390	ug/Kg
105-60-2	Caprolactam	195	U	18	390	ug/Kg
59-50-7	4-Chloro-3-methylphenol	195	U	17	390	ug/Kg
77-47-4	Hexachlorocyclopentadiene	195	U	9.5	390	ug/Kg
88-06-2	2,4,6-Trichlorophenol	195	U	12	390	ug/Kg
95-95-4	2,4,5-Trichlorophenol	195	U	27	390	ug/Kg
92-52-4	1,1-Biphenyl	195	U	15	390	ug/Kg
91-58-7	2-Chloronaphthalene	195	U	8.9	390	ug/Kg
88-74-4	2-Nitroaniline	195	U	17	390	ug/Kg
131-11-3	Dimethylphthalate	195	U	11	390	ug/Kg
208-96-8	Acenaphthylene	195	U	9.9	390	ug/Kg
606-20-2	2,6-Dinitrotoluene	195	U	16	390	ug/Kg
99-09-2	3-Nitroaniline	195	U	25	390	ug/Kg
83-32-9	Acenaphthene	195	U	11	390	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075031.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	195	U	40	390	ug/Kg
100-02-7	4-Nitrophenol	195	U	73	390	ug/Kg
132-64-9	Dibenzofuran	195	U	15	390	ug/Kg
121-14-2	2,4-Dinitrotoluene	195	U	12	390	ug/Kg
84-66-2	Diethylphthalate	195	U	6.1	390	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	195	U	21	390	ug/Kg
100-01-6	4-Nitroaniline	195	U	51	390	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	195	U	22	390	ug/Kg
86-30-6	N-Nitrosodiphenylamine	195	U	9.4	390	ug/Kg
101-55-3	4-Bromophenyl-phenylether	195	U	7.6	390	ug/Kg
118-74-1	Hexachlorobenzene	195	U	16	390	ug/Kg
1912-24-9	Atrazine	195	U	21	390	ug/Kg
87-86-5	Pentachlorophenol	195	U	27	390	ug/Kg
85-01-8	Phenanthrene	195	U	11	390	ug/Kg
86-74-8	Carbazole	195	U	8.6	390	ug/Kg
84-74-2	Di-n-butylphthalate	195	U	31	390	ug/Kg
85-68-7	Butylbenzylphthalate	195	U	19	390	ug/Kg
91-94-1	3,3-Dichlorobenzidine	195	U	25	390	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	195	U	14	390	ug/Kg
117-84-0	Di-n-octyl phthalate	195	U	4.5	390	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	195	U	15	390	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	195	U	390	390	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	110		35 - 105	74%	SPK: 150
13127-88-3	Phenol-d5	111		40 - 100	74%	SPK: 150
4165-60-0	Nitrobenzene-d5	72.7		35 - 100	73%	SPK: 100
321-60-8	2-Fluorobiphenyl	78.8		45 - 105	79%	SPK: 100
118-79-6	2,4,6-Tribromophenol	106		35 - 125	71%	SPK: 150
1718-51-0	Terphenyl-d14	77.1		30 - 125	77%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	132700	8.6			
1146-65-2	Naphthalene-d8	508650	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075031.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	264049	13.74			
1517-22-2	Phenanthrene-d10	478739	16.21			
1719-03-5	Chrysene-d12	457133	20.65			
1520-96-3	Perylene-d12	415375	24.28			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075010.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075010.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	102		35 - 105	69%	SPK: 150
13127-88-3	Phenol-d5	104		40 - 100	69%	SPK: 150
4165-60-0	Nitrobenzene-d5	65.2		35 - 100	65%	SPK: 100
321-60-8	2-Fluorobiphenyl	66.4		45 - 105	66%	SPK: 100
118-79-6	2,4,6-Tribromophenol	93.6		35 - 125	62%	SPK: 150
1718-51-0	Terphenyl-d14	71.9		30 - 125	72%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	123506	8.6			
1146-65-2	Naphthalene-d8	484088	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075010.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	259986	13.74			
1517-22-2	Phenanthrene-d10	455735	16.22			
1719-03-5	Chrysene-d12	422056	20.65			
1520-96-3	Perylene-d12	374762	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075008.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	220	U	23	440	ug/Kg
108-95-2	Phenol	220	U	10	440	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	220	U	21	440	ug/Kg
95-57-8	2-Chlorophenol	220	U	23	440	ug/Kg
95-48-7	2-Methylphenol	220	U	24	440	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	220	U	18	440	ug/Kg
98-86-2	Acetophenone	220	U	14	440	ug/Kg
65794-96-9	3+4-Methylphenols	220	U	23	440	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	220	U	22	440	ug/Kg
67-72-1	Hexachloroethane	220	U	20	440	ug/Kg
98-95-3	Nitrobenzene	220	U	17	440	ug/Kg
78-59-1	Isophorone	220	U	15	440	ug/Kg
88-75-5	2-Nitrophenol	220	U	21	440	ug/Kg
105-67-9	2,4-Dimethylphenol	220	U	25	440	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	220	U	26	440	ug/Kg
120-83-2	2,4-Dichlorophenol	220	U	17	440	ug/Kg
106-47-8	4-Chloroaniline	220	U	31	440	ug/Kg
87-68-3	Hexachlorobutadiene	220	U	16	440	ug/Kg
105-60-2	Caprolactam	220	U	21	440	ug/Kg
59-50-7	4-Chloro-3-methylphenol	220	U	20	440	ug/Kg
77-47-4	Hexachlorocyclopentadiene	220	U	11	440	ug/Kg
88-06-2	2,4,6-Trichlorophenol	220	U	14	440	ug/Kg
95-95-4	2,4,5-Trichlorophenol	220	U	31	440	ug/Kg
92-52-4	1,1-Biphenyl	220	U	17	440	ug/Kg
91-58-7	2-Chloronaphthalene	220	U	10	440	ug/Kg
88-74-4	2-Nitroaniline	220	U	20	440	ug/Kg
131-11-3	Dimethylphthalate	220	U	12	440	ug/Kg
208-96-8	Acenaphthylene	220	U	11	440	ug/Kg
606-20-2	2,6-Dinitrotoluene	220	U	18	440	ug/Kg
99-09-2	3-Nitroaniline	220	U	28	440	ug/Kg
83-32-9	Acenaphthene	220	U	13	440	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075008.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	220	U	45	440	ug/Kg
100-02-7	4-Nitrophenol	220	U	82	440	ug/Kg
132-64-9	Dibenzofuran	220	U	17	440	ug/Kg
121-14-2	2,4-Dinitrotoluene	220	U	13	440	ug/Kg
84-66-2	Diethylphthalate	220	U	6.9	440	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	220	U	24	440	ug/Kg
100-01-6	4-Nitroaniline	220	U	58	440	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	220	U	25	440	ug/Kg
86-30-6	N-Nitrosodiphenylamine	220	U	11	440	ug/Kg
101-55-3	4-Bromophenyl-phenylether	220	U	8.7	440	ug/Kg
118-74-1	Hexachlorobenzene	220	U	18	440	ug/Kg
1912-24-9	Atrazine	220	U	23	440	ug/Kg
87-86-5	Pentachlorophenol	220	U	30	440	ug/Kg
85-01-8	Phenanthrene	220	U	12	440	ug/Kg
86-74-8	Carbazole	220	U	9.7	440	ug/Kg
84-74-2	Di-n-butylphthalate	220	U	35	440	ug/Kg
85-68-7	Butylbenzylphthalate	220	U	21	440	ug/Kg
91-94-1	3,3-Dichlorobenzidine	220	U	28	440	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	220	U	16	440	ug/Kg
117-84-0	Di-n-octyl phthalate	220	U	5.1	440	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	220	U	17	440	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	220	U	440	440	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	111		35 - 105	74%	SPK: 150
13127-88-3	Phenol-d5	112		40 - 100	75%	SPK: 150
4165-60-0	Nitrobenzene-d5	72.1		35 - 100	72%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.2		45 - 105	69%	SPK: 100
118-79-6	2,4,6-Tribromophenol	97		35 - 125	65%	SPK: 150
1718-51-0	Terphenyl-d14	72.1		30 - 125	72%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	149606	8.61			
1146-65-2	Naphthalene-d8	589172	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075008.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	320938	13.74			
1517-22-2	Phenanthrene-d10	561071	16.21			
1719-03-5	Chrysene-d12	509884	20.66			
1520-96-3	Perylene-d12	439170	24.31			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074980.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	220	U	23	440	ug/Kg
108-95-2	Phenol	220	U	10	440	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	220	U	21	440	ug/Kg
95-57-8	2-Chlorophenol	220	U	23	440	ug/Kg
95-48-7	2-Methylphenol	220	U	24	440	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	220	U	18	440	ug/Kg
98-86-2	Acetophenone	220	U	14	440	ug/Kg
65794-96-9	3+4-Methylphenols	220	U	23	440	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	220	U	22	440	ug/Kg
67-72-1	Hexachloroethane	220	U	20	440	ug/Kg
98-95-3	Nitrobenzene	220	U	17	440	ug/Kg
78-59-1	Isophorone	220	U	15	440	ug/Kg
88-75-5	2-Nitrophenol	220	U	21	440	ug/Kg
105-67-9	2,4-Dimethylphenol	220	U	25	440	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	220	U	26	440	ug/Kg
120-83-2	2,4-Dichlorophenol	220	U	17	440	ug/Kg
106-47-8	4-Chloroaniline	220	U	31	440	ug/Kg
87-68-3	Hexachlorobutadiene	220	U	16	440	ug/Kg
105-60-2	Caprolactam	220	U	21	440	ug/Kg
59-50-7	4-Chloro-3-methylphenol	220	U	20	440	ug/Kg
77-47-4	Hexachlorocyclopentadiene	220	U	11	440	ug/Kg
88-06-2	2,4,6-Trichlorophenol	220	U	14	440	ug/Kg
95-95-4	2,4,5-Trichlorophenol	220	U	31	440	ug/Kg
92-52-4	1,1-Biphenyl	220	U	17	440	ug/Kg
91-58-7	2-Chloronaphthalene	220	U	10	440	ug/Kg
88-74-4	2-Nitroaniline	220	U	20	440	ug/Kg
131-11-3	Dimethylphthalate	220	U	12	440	ug/Kg
208-96-8	Acenaphthylene	220	U	11	440	ug/Kg
606-20-2	2,6-Dinitrotoluene	220	U	18	440	ug/Kg
99-09-2	3-Nitroaniline	220	U	29	440	ug/Kg
83-32-9	Acenaphthene	220	U	13	440	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074980.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	220	U	45	440	ug/Kg
100-02-7	4-Nitrophenol	220	U	82	440	ug/Kg
132-64-9	Dibenzofuran	220	U	17	440	ug/Kg
121-14-2	2,4-Dinitrotoluene	220	U	13	440	ug/Kg
84-66-2	Diethylphthalate	220	U	6.9	440	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	220	U	24	440	ug/Kg
100-01-6	4-Nitroaniline	220	U	58	440	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	220	U	25	440	ug/Kg
86-30-6	N-Nitrosodiphenylamine	220	U	11	440	ug/Kg
101-55-3	4-Bromophenyl-phenylether	220	U	8.7	440	ug/Kg
118-74-1	Hexachlorobenzene	220	U	18	440	ug/Kg
1912-24-9	Atrazine	220	U	23	440	ug/Kg
87-86-5	Pentachlorophenol	220	U	30	440	ug/Kg
85-01-8	Phenanthrene	220	U	12	440	ug/Kg
86-74-8	Carbazole	220	U	9.7	440	ug/Kg
84-74-2	Di-n-butylphthalate	220	U	35	440	ug/Kg
85-68-7	Butylbenzylphthalate	220	U	21	440	ug/Kg
91-94-1	3,3-Dichlorobenzidine	220	U	29	440	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	220	U	16	440	ug/Kg
117-84-0	Di-n-octyl phthalate	220	U	5.1	440	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	220	U	17	440	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	220	U	440	440	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	145		35 - 105	97%	SPK: 150
13127-88-3	Phenol-d5	148		40 - 100	99%	SPK: 150
4165-60-0	Nitrobenzene-d5	93.1		35 - 100	93%	SPK: 100
321-60-8	2-Fluorobiphenyl	96.5		45 - 105	96%	SPK: 100
118-79-6	2,4,6-Tribromophenol	136		35 - 125	91%	SPK: 150
1718-51-0	Terphenyl-d14	99.4		30 - 125	99%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	108778	8.6			
1146-65-2	Naphthalene-d8	429955	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074980.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	231375	13.74			
1517-22-2	Phenanthrene-d10	417153	16.22			
1719-03-5	Chrysene-d12	389299	20.65			
1520-96-3	Perylene-d12	339783	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074981.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	170	J	21	410	ug/Kg
108-95-2	Phenol	205	U	9.5	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	22	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	21	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	18	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	23	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.4	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	26	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074981.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	76	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	12	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.4	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	22	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	9.9	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	32	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	26	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	105		35 - 105	70%	SPK: 150
13127-88-3	Phenol-d5	108		40 - 100	73%	SPK: 150
4165-60-0	Nitrobenzene-d5	69.1		35 - 100	69%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.6		45 - 105	75%	SPK: 100
118-79-6	2,4,6-Tribromophenol	101		35 - 125	68%	SPK: 150
1718-51-0	Terphenyl-d14	77.2		30 - 125	77%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	126982	8.6			
1146-65-2	Naphthalene-d8	507355	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074981.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	274036	13.74			
1517-22-2	Phenanthrene-d10	482300	16.21			
1719-03-5	Chrysene-d12	448621	20.66			
1520-96-3	Perylene-d12	394661	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075009.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	24	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	23	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	17	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	22	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	26	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	21	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	20	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	32	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	17	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	20	460	ug/Kg
131-11-3	Dimethylphthalate	230	U	12	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075009.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	47	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	86	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.2	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	60	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	26	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	24	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	12	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	36	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	16	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	119		35 - 105	80%	SPK: 150
13127-88-3	Phenol-d5	123		40 - 100	82%	SPK: 150
4165-60-0	Nitrobenzene-d5	76.7		35 - 100	77%	SPK: 100
321-60-8	2-Fluorobiphenyl	72.3		45 - 105	72%	SPK: 100
118-79-6	2,4,6-Tribromophenol	105		35 - 125	71%	SPK: 150
1718-51-0	Terphenyl-d14	77.9		30 - 125	78%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	132770	8.6			
1146-65-2	Naphthalene-d8	519798	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075009.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	275876	13.74			
1517-22-2	Phenanthrene-d10	481593	16.21			
1719-03-5	Chrysene-d12	444117	20.65			
1520-96-3	Perylene-d12	390528	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074982.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074982.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	165	*	35 - 105	110%	SPK: 150
13127-88-3	Phenol-d5	168	*	40 - 100	112%	SPK: 150
4165-60-0	Nitrobenzene-d5	108	*	35 - 100	108%	SPK: 100
321-60-8	2-Fluorobiphenyl	109	*	45 - 105	109%	SPK: 100
118-79-6	2,4,6-Tribromophenol	159		35 - 125	106%	SPK: 150
1718-51-0	Terphenyl-d14	112		30 - 125	112%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	118608	8.6			
1146-65-2	Naphthalene-d8	462503	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074982.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	250947	13.74			
1517-22-2	Phenanthrene-d10	447729	16.21			
1719-03-5	Chrysene-d12	413915	20.66			
1520-96-3	Perylene-d12	378653	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03RE	SDG No.:	C5146
Lab Sample ID:	C5146-06RE	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075032.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03RE	SDG No.:	C5146
Lab Sample ID:	C5146-06RE	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075032.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	165	*	35 - 105	110%	SPK: 150
13127-88-3	Phenol-d5	165	*	40 - 100	110%	SPK: 150
4165-60-0	Nitrobenzene-d5	110	*	35 - 100	110%	SPK: 100
321-60-8	2-Fluorobiphenyl	108	*	45 - 105	109%	SPK: 100
118-79-6	2,4,6-Tribromophenol	159		35 - 125	107%	SPK: 150
1718-51-0	Terphenyl-d14	111		30 - 125	112%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	124551	8.6			
1146-65-2	Naphthalene-d8	477687	10.77			
15067-26-2	Acenaphthene-d10	257952	13.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03RE	SDG No.:	C5146
Lab Sample ID:	C5146-06RE	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075032.D	1	12/29/11	01/13/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	450433	16.21			
1719-03-5	Chrysene-d12	430951	20.65			
1520-96-3	Perylene-d12	387209	24.29			
TENTATIVE IDENTIFIED COMPOUNDS						
131-11-3	Dimethylphthalate					
131-11-3	Dimethyl phthalate					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074983.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074983.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	108		35 - 105	72%	SPK: 150
13127-88-3	Phenol-d5	108		40 - 100	73%	SPK: 150
4165-60-0	Nitrobenzene-d5	67.6		35 - 100	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.4		45 - 105	69%	SPK: 100
118-79-6	2,4,6-Tribromophenol	98.5		35 - 125	66%	SPK: 150
1718-51-0	Terphenyl-d14	71.7		30 - 125	72%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	115912	8.61			
1146-65-2	Naphthalene-d8	458823	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074983.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	247935	13.74			
1517-22-2	Phenanthrene-d10	444244	16.21			
1719-03-5	Chrysene-d12	407625	20.66			
1520-96-3	Perylene-d12	357721	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075013.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	230	U	24	460	ug/Kg
108-95-2	Phenol	230	U	11	460	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	230	U	22	460	ug/Kg
95-57-8	2-Chlorophenol	230	U	24	460	ug/Kg
95-48-7	2-Methylphenol	230	U	25	460	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	230	U	19	460	ug/Kg
98-86-2	Acetophenone	230	U	14	460	ug/Kg
65794-96-9	3+4-Methylphenols	230	U	24	460	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	230	U	23	460	ug/Kg
67-72-1	Hexachloroethane	230	U	21	460	ug/Kg
98-95-3	Nitrobenzene	230	U	17	460	ug/Kg
78-59-1	Isophorone	230	U	15	460	ug/Kg
88-75-5	2-Nitrophenol	230	U	22	460	ug/Kg
105-67-9	2,4-Dimethylphenol	230	U	26	460	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	230	U	27	460	ug/Kg
120-83-2	2,4-Dichlorophenol	230	U	18	460	ug/Kg
106-47-8	4-Chloroaniline	230	U	33	460	ug/Kg
87-68-3	Hexachlorobutadiene	230	U	17	460	ug/Kg
105-60-2	Caprolactam	230	U	21	460	ug/Kg
59-50-7	4-Chloro-3-methylphenol	230	U	21	460	ug/Kg
77-47-4	Hexachlorocyclopentadiene	230	U	11	460	ug/Kg
88-06-2	2,4,6-Trichlorophenol	230	U	14	460	ug/Kg
95-95-4	2,4,5-Trichlorophenol	230	U	32	460	ug/Kg
92-52-4	1,1-Biphenyl	230	U	17	460	ug/Kg
91-58-7	2-Chloronaphthalene	230	U	11	460	ug/Kg
88-74-4	2-Nitroaniline	230	U	21	460	ug/Kg
131-11-3	Dimethylphthalate	230	U	12	460	ug/Kg
208-96-8	Acenaphthylene	230	U	12	460	ug/Kg
606-20-2	2,6-Dinitrotoluene	230	U	19	460	ug/Kg
99-09-2	3-Nitroaniline	230	U	30	460	ug/Kg
83-32-9	Acenaphthene	230	U	13	460	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075013.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	230	U	47	460	ug/Kg
100-02-7	4-Nitrophenol	230	U	86	460	ug/Kg
132-64-9	Dibenzofuran	230	U	18	460	ug/Kg
121-14-2	2,4-Dinitrotoluene	230	U	14	460	ug/Kg
84-66-2	Diethylphthalate	230	U	7.2	460	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	230	U	25	460	ug/Kg
100-01-6	4-Nitroaniline	230	U	60	460	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	230	U	26	460	ug/Kg
86-30-6	N-Nitrosodiphenylamine	230	U	11	460	ug/Kg
101-55-3	4-Bromophenyl-phenylether	230	U	9	460	ug/Kg
118-74-1	Hexachlorobenzene	230	U	19	460	ug/Kg
1912-24-9	Atrazine	230	U	24	460	ug/Kg
87-86-5	Pentachlorophenol	230	U	32	460	ug/Kg
85-01-8	Phenanthrene	230	U	12	460	ug/Kg
86-74-8	Carbazole	230	U	10	460	ug/Kg
84-74-2	Di-n-butylphthalate	230	U	36	460	ug/Kg
85-68-7	Butylbenzylphthalate	230	U	22	460	ug/Kg
91-94-1	3,3-Dichlorobenzidine	230	U	30	460	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	230	U	16	460	ug/Kg
117-84-0	Di-n-octyl phthalate	230	U	5.3	460	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	230	U	18	460	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	230	U	460	460	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	129		35 - 105	86%	SPK: 150
13127-88-3	Phenol-d5	131		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	83.3		35 - 100	83%	SPK: 100
321-60-8	2-Fluorobiphenyl	84.5		45 - 105	85%	SPK: 100
118-79-6	2,4,6-Tribromophenol	119		35 - 125	80%	SPK: 150
1718-51-0	Terphenyl-d14	87.7		30 - 125	88%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	141927	8.6			
1146-65-2	Naphthalene-d8	572524	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075013.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	306750	13.74			
1517-22-2	Phenanthrene-d10	531640	16.21			
1719-03-5	Chrysene-d12	486493	20.65			
1520-96-3	Perylene-d12	435209	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075018.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	215	U	23	430	ug/Kg
108-95-2	Phenol	215	U	10	430	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	215	U	21	430	ug/Kg
95-57-8	2-Chlorophenol	215	U	23	430	ug/Kg
95-48-7	2-Methylphenol	215	U	24	430	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	215	U	18	430	ug/Kg
98-86-2	Acetophenone	215	U	13	430	ug/Kg
65794-96-9	3+4-Methylphenols	215	U	23	430	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	215	U	22	430	ug/Kg
67-72-1	Hexachloroethane	215	U	20	430	ug/Kg
98-95-3	Nitrobenzene	215	U	17	430	ug/Kg
78-59-1	Isophorone	215	U	14	430	ug/Kg
88-75-5	2-Nitrophenol	215	U	21	430	ug/Kg
105-67-9	2,4-Dimethylphenol	215	U	25	430	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	215	U	25	430	ug/Kg
120-83-2	2,4-Dichlorophenol	215	U	17	430	ug/Kg
106-47-8	4-Chloroaniline	215	U	31	430	ug/Kg
87-68-3	Hexachlorobutadiene	215	U	16	430	ug/Kg
105-60-2	Caprolactam	215	U	20	430	ug/Kg
59-50-7	4-Chloro-3-methylphenol	215	U	19	430	ug/Kg
77-47-4	Hexachlorocyclopentadiene	215	U	11	430	ug/Kg
88-06-2	2,4,6-Trichlorophenol	215	U	13	430	ug/Kg
95-95-4	2,4,5-Trichlorophenol	215	U	31	430	ug/Kg
92-52-4	1,1-Biphenyl	215	U	17	430	ug/Kg
91-58-7	2-Chloronaphthalene	215	U	10	430	ug/Kg
88-74-4	2-Nitroaniline	215	U	19	430	ug/Kg
131-11-3	Dimethylphthalate	215	U	12	430	ug/Kg
208-96-8	Acenaphthylene	215	U	11	430	ug/Kg
606-20-2	2,6-Dinitrotoluene	215	U	18	430	ug/Kg
99-09-2	3-Nitroaniline	215	U	28	430	ug/Kg
83-32-9	Acenaphthene	215	U	12	430	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075018.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	215	U	44	430	ug/Kg
100-02-7	4-Nitrophenol	215	U	81	430	ug/Kg
132-64-9	Dibenzofuran	215	U	17	430	ug/Kg
121-14-2	2,4-Dinitrotoluene	215	U	13	430	ug/Kg
84-66-2	Diethylphthalate	215	U	6.8	430	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	215	U	24	430	ug/Kg
100-01-6	4-Nitroaniline	215	U	57	430	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	215	U	25	430	ug/Kg
86-30-6	N-Nitrosodiphenylamine	215	U	10	430	ug/Kg
101-55-3	4-Bromophenyl-phenylether	215	U	8.5	430	ug/Kg
118-74-1	Hexachlorobenzene	215	U	18	430	ug/Kg
1912-24-9	Atrazine	215	U	23	430	ug/Kg
87-86-5	Pentachlorophenol	215	U	30	430	ug/Kg
85-01-8	Phenanthrene	215	U	12	430	ug/Kg
86-74-8	Carbazole	215	U	9.6	430	ug/Kg
84-74-2	Di-n-butylphthalate	215	U	34	430	ug/Kg
85-68-7	Butylbenzylphthalate	215	U	21	430	ug/Kg
91-94-1	3,3-Dichlorobenzidine	215	U	28	430	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	215	U	15	430	ug/Kg
117-84-0	Di-n-octyl phthalate	215	U	5	430	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	215	U	17	430	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	215	U	430	430	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	157		35 - 105	105%	SPK: 150
13127-88-3	Phenol-d5	158	*	40 - 100	106%	SPK: 150
4165-60-0	Nitrobenzene-d5	99.9		35 - 100	100%	SPK: 100
321-60-8	2-Fluorobiphenyl	104		45 - 105	104%	SPK: 100
118-79-6	2,4,6-Tribromophenol	146		35 - 125	97%	SPK: 150
1718-51-0	Terphenyl-d14	105		30 - 125	105%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	130929	8.61			
1146-65-2	Naphthalene-d8	527810	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075018.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	274931	13.74			
1517-22-2	Phenanthrene-d10	474741	16.22			
1719-03-5	Chrysene-d12	433866	20.66			
1520-96-3	Perylene-d12	388073	24.31			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074987.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	210	U	22	420	ug/Kg
108-95-2	Phenol	210	U	9.7	420	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	210	U	20	420	ug/Kg
95-57-8	2-Chlorophenol	210	U	22	420	ug/Kg
95-48-7	2-Methylphenol	210	U	23	420	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	210	U	17	420	ug/Kg
98-86-2	Acetophenone	210	U	13	420	ug/Kg
65794-96-9	3+4-Methylphenols	210	U	22	420	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	210	U	21	420	ug/Kg
67-72-1	Hexachloroethane	210	U	19	420	ug/Kg
98-95-3	Nitrobenzene	210	U	16	420	ug/Kg
78-59-1	Isophorone	210	U	14	420	ug/Kg
88-75-5	2-Nitrophenol	210	U	20	420	ug/Kg
105-67-9	2,4-Dimethylphenol	210	U	24	420	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	210	U	24	420	ug/Kg
120-83-2	2,4-Dichlorophenol	210	U	16	420	ug/Kg
106-47-8	4-Chloroaniline	210	U	30	420	ug/Kg
87-68-3	Hexachlorobutadiene	210	U	15	420	ug/Kg
105-60-2	Caprolactam	210	U	20	420	ug/Kg
59-50-7	4-Chloro-3-methylphenol	210	U	19	420	ug/Kg
77-47-4	Hexachlorocyclopentadiene	210	U	10	420	ug/Kg
88-06-2	2,4,6-Trichlorophenol	210	U	13	420	ug/Kg
95-95-4	2,4,5-Trichlorophenol	210	U	30	420	ug/Kg
92-52-4	1,1-Biphenyl	210	U	16	420	ug/Kg
91-58-7	2-Chloronaphthalene	210	U	9.6	420	ug/Kg
88-74-4	2-Nitroaniline	210	U	19	420	ug/Kg
131-11-3	Dimethylphthalate	210	U	11	420	ug/Kg
208-96-8	Acenaphthylene	210	U	11	420	ug/Kg
606-20-2	2,6-Dinitrotoluene	210	U	17	420	ug/Kg
99-09-2	3-Nitroaniline	210	U	27	420	ug/Kg
83-32-9	Acenaphthene	210	U	12	420	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074987.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	210	U	43	420	ug/Kg
100-02-7	4-Nitrophenol	210	U	78	420	ug/Kg
132-64-9	Dibenzofuran	210	U	16	420	ug/Kg
121-14-2	2,4-Dinitrotoluene	210	U	13	420	ug/Kg
84-66-2	Diethylphthalate	210	U	6.6	420	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	210	U	23	420	ug/Kg
100-01-6	4-Nitroaniline	210	U	55	420	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	210	U	24	420	ug/Kg
86-30-6	N-Nitrosodiphenylamine	210	U	10	420	ug/Kg
101-55-3	4-Bromophenyl-phenylether	210	U	8.2	420	ug/Kg
118-74-1	Hexachlorobenzene	210	U	17	420	ug/Kg
1912-24-9	Atrazine	210	U	22	420	ug/Kg
87-86-5	Pentachlorophenol	210	U	29	420	ug/Kg
85-01-8	Phenanthrene	210	U	11	420	ug/Kg
86-74-8	Carbazole	210	U	9.2	420	ug/Kg
84-74-2	Di-n-butylphthalate	210	U	33	420	ug/Kg
85-68-7	Butylbenzylphthalate	210	U	20	420	ug/Kg
91-94-1	3,3-Dichlorobenzidine	210	U	27	420	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	210	U	15	420	ug/Kg
117-84-0	Di-n-octyl phthalate	210	U	4.8	420	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U	17	420	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	210	U	420	420	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	115		35 - 105	77%	SPK: 150
13127-88-3	Phenol-d5	117		40 - 100	79%	SPK: 150
4165-60-0	Nitrobenzene-d5	74		35 - 100	74%	SPK: 100
321-60-8	2-Fluorobiphenyl	80.6		45 - 105	81%	SPK: 100
118-79-6	2,4,6-Tribromophenol	109		35 - 125	73%	SPK: 150
1718-51-0	Terphenyl-d14	80.3		30 - 125	80%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	115109	8.61			
1146-65-2	Naphthalene-d8	453562	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074987.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	244411	13.74			
1517-22-2	Phenanthrene-d10	433048	16.22			
1719-03-5	Chrysene-d12	404778	20.65			
1520-96-3	Perylene-d12	352076	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075019.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	220	U	23	440	ug/Kg
108-95-2	Phenol	220	U	10	440	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	220	U	21	440	ug/Kg
95-57-8	2-Chlorophenol	220	U	23	440	ug/Kg
95-48-7	2-Methylphenol	220	U	24	440	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	220	U	18	440	ug/Kg
98-86-2	Acetophenone	220	U	14	440	ug/Kg
65794-96-9	3+4-Methylphenols	220	U	23	440	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	220	U	22	440	ug/Kg
67-72-1	Hexachloroethane	220	U	20	440	ug/Kg
98-95-3	Nitrobenzene	220	U	17	440	ug/Kg
78-59-1	Isophorone	220	U	15	440	ug/Kg
88-75-5	2-Nitrophenol	220	U	21	440	ug/Kg
105-67-9	2,4-Dimethylphenol	220	U	25	440	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	220	U	26	440	ug/Kg
120-83-2	2,4-Dichlorophenol	220	U	17	440	ug/Kg
106-47-8	4-Chloroaniline	220	U	31	440	ug/Kg
87-68-3	Hexachlorobutadiene	220	U	16	440	ug/Kg
105-60-2	Caprolactam	220	U	21	440	ug/Kg
59-50-7	4-Chloro-3-methylphenol	220	U	20	440	ug/Kg
77-47-4	Hexachlorocyclopentadiene	220	U	11	440	ug/Kg
88-06-2	2,4,6-Trichlorophenol	220	U	14	440	ug/Kg
95-95-4	2,4,5-Trichlorophenol	220	U	31	440	ug/Kg
92-52-4	1,1-Biphenyl	220	U	17	440	ug/Kg
91-58-7	2-Chloronaphthalene	220	U	10	440	ug/Kg
88-74-4	2-Nitroaniline	220	U	20	440	ug/Kg
131-11-3	Dimethylphthalate	220	U	12	440	ug/Kg
208-96-8	Acenaphthylene	220	U	11	440	ug/Kg
606-20-2	2,6-Dinitrotoluene	220	U	18	440	ug/Kg
99-09-2	3-Nitroaniline	220	U	29	440	ug/Kg
83-32-9	Acenaphthene	220	U	13	440	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075019.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	220	U	45	440	ug/Kg
100-02-7	4-Nitrophenol	220	U	82	440	ug/Kg
132-64-9	Dibenzofuran	220	U	17	440	ug/Kg
121-14-2	2,4-Dinitrotoluene	220	U	13	440	ug/Kg
84-66-2	Diethylphthalate	220	U	6.9	440	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	220	U	24	440	ug/Kg
100-01-6	4-Nitroaniline	220	U	58	440	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	220	U	25	440	ug/Kg
86-30-6	N-Nitrosodiphenylamine	220	U	11	440	ug/Kg
101-55-3	4-Bromophenyl-phenylether	220	U	8.7	440	ug/Kg
118-74-1	Hexachlorobenzene	220	U	18	440	ug/Kg
1912-24-9	Atrazine	220	U	23	440	ug/Kg
87-86-5	Pentachlorophenol	220	U	30	440	ug/Kg
85-01-8	Phenanthrene	220	U	12	440	ug/Kg
86-74-8	Carbazole	220	U	9.7	440	ug/Kg
84-74-2	Di-n-butylphthalate	220	U	35	440	ug/Kg
85-68-7	Butylbenzylphthalate	220	U	21	440	ug/Kg
91-94-1	3,3-Dichlorobenzidine	220	U	29	440	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	220	U	16	440	ug/Kg
117-84-0	Di-n-octyl phthalate	220	U	5.1	440	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	220	U	17	440	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	220	U	440	440	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	144		35 - 105	97%	SPK: 150
13127-88-3	Phenol-d5	144		40 - 100	96%	SPK: 150
4165-60-0	Nitrobenzene-d5	92.6		35 - 100	93%	SPK: 100
321-60-8	2-Fluorobiphenyl	99.4		45 - 105	99%	SPK: 100
118-79-6	2,4,6-Tribromophenol	137		35 - 125	92%	SPK: 150
1718-51-0	Terphenyl-d14	98.3		30 - 125	98%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	118618	8.6			
1146-65-2	Naphthalene-d8	468342	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075019.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	244416	13.74			
1517-22-2	Phenanthrene-d10	437583	16.21			
1719-03-5	Chrysene-d12	399426	20.66			
1520-96-3	Perylene-d12	357396	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074986.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	205	U	22	410	ug/Kg
108-95-2	Phenol	205	U	9.6	410	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	205	U	20	410	ug/Kg
95-57-8	2-Chlorophenol	205	U	22	410	ug/Kg
95-48-7	2-Methylphenol	205	U	23	410	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	205	U	17	410	ug/Kg
98-86-2	Acetophenone	205	U	13	410	ug/Kg
65794-96-9	3+4-Methylphenols	205	U	22	410	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	205	U	21	410	ug/Kg
67-72-1	Hexachloroethane	205	U	19	410	ug/Kg
98-95-3	Nitrobenzene	205	U	16	410	ug/Kg
78-59-1	Isophorone	205	U	14	410	ug/Kg
88-75-5	2-Nitrophenol	205	U	20	410	ug/Kg
105-67-9	2,4-Dimethylphenol	205	U	24	410	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	205	U	24	410	ug/Kg
120-83-2	2,4-Dichlorophenol	205	U	16	410	ug/Kg
106-47-8	4-Chloroaniline	205	U	29	410	ug/Kg
87-68-3	Hexachlorobutadiene	205	U	15	410	ug/Kg
105-60-2	Caprolactam	205	U	19	410	ug/Kg
59-50-7	4-Chloro-3-methylphenol	205	U	18	410	ug/Kg
77-47-4	Hexachlorocyclopentadiene	205	U	10	410	ug/Kg
88-06-2	2,4,6-Trichlorophenol	205	U	13	410	ug/Kg
95-95-4	2,4,5-Trichlorophenol	205	U	29	410	ug/Kg
92-52-4	1,1-Biphenyl	205	U	16	410	ug/Kg
91-58-7	2-Chloronaphthalene	205	U	9.5	410	ug/Kg
88-74-4	2-Nitroaniline	205	U	18	410	ug/Kg
131-11-3	Dimethylphthalate	205	U	11	410	ug/Kg
208-96-8	Acenaphthylene	205	U	10	410	ug/Kg
606-20-2	2,6-Dinitrotoluene	205	U	17	410	ug/Kg
99-09-2	3-Nitroaniline	205	U	27	410	ug/Kg
83-32-9	Acenaphthene	205	U	12	410	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074986.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	205	U	42	410	ug/Kg
100-02-7	4-Nitrophenol	205	U	77	410	ug/Kg
132-64-9	Dibenzofuran	205	U	16	410	ug/Kg
121-14-2	2,4-Dinitrotoluene	205	U	13	410	ug/Kg
84-66-2	Diethylphthalate	205	U	6.5	410	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	205	U	23	410	ug/Kg
100-01-6	4-Nitroaniline	205	U	54	410	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	205	U	24	410	ug/Kg
86-30-6	N-Nitrosodiphenylamine	205	U	10	410	ug/Kg
101-55-3	4-Bromophenyl-phenylether	205	U	8.1	410	ug/Kg
118-74-1	Hexachlorobenzene	205	U	17	410	ug/Kg
1912-24-9	Atrazine	205	U	22	410	ug/Kg
87-86-5	Pentachlorophenol	205	U	28	410	ug/Kg
85-01-8	Phenanthrene	205	U	11	410	ug/Kg
86-74-8	Carbazole	205	U	9.1	410	ug/Kg
84-74-2	Di-n-butylphthalate	205	U	33	410	ug/Kg
85-68-7	Butylbenzylphthalate	205	U	20	410	ug/Kg
91-94-1	3,3-Dichlorobenzidine	205	U	27	410	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	205	U	15	410	ug/Kg
117-84-0	Di-n-octyl phthalate	205	U	4.7	410	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	205	U	16	410	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	205	U	410	410	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	102		35 - 105	68%	SPK: 150
13127-88-3	Phenol-d5	102		40 - 100	68%	SPK: 150
4165-60-0	Nitrobenzene-d5	63.2		35 - 100	63%	SPK: 100
321-60-8	2-Fluorobiphenyl	70.9		45 - 105	71%	SPK: 100
118-79-6	2,4,6-Tribromophenol	93.7		35 - 125	62%	SPK: 150
1718-51-0	Terphenyl-d14	72.9		30 - 125	73%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	123068	8.61			
1146-65-2	Naphthalene-d8	494106	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074986.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	259975	13.74			
1517-22-2	Phenanthrene-d10	463308	16.21			
1719-03-5	Chrysene-d12	422080	20.65			
1520-96-3	Perylene-d12	372373	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075016.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	200	U	21	400	ug/Kg
108-95-2	Phenol	200	U	9.4	400	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	200	U	19	400	ug/Kg
95-57-8	2-Chlorophenol	200	U	21	400	ug/Kg
95-48-7	2-Methylphenol	200	U	22	400	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	200	U	17	400	ug/Kg
98-86-2	Acetophenone	200	U	12	400	ug/Kg
65794-96-9	3+4-Methylphenols	200	U	21	400	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	200	U	20	400	ug/Kg
67-72-1	Hexachloroethane	200	U	18	400	ug/Kg
98-95-3	Nitrobenzene	200	U	15	400	ug/Kg
78-59-1	Isophorone	200	U	13	400	ug/Kg
88-75-5	2-Nitrophenol	200	U	20	400	ug/Kg
105-67-9	2,4-Dimethylphenol	200	U	23	400	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	200	U	23	400	ug/Kg
120-83-2	2,4-Dichlorophenol	200	U	15	400	ug/Kg
106-47-8	4-Chloroaniline	200	U	29	400	ug/Kg
87-68-3	Hexachlorobutadiene	200	U	15	400	ug/Kg
105-60-2	Caprolactam	200	U	19	400	ug/Kg
59-50-7	4-Chloro-3-methylphenol	200	U	18	400	ug/Kg
77-47-4	Hexachlorocyclopentadiene	200	U	9.9	400	ug/Kg
88-06-2	2,4,6-Trichlorophenol	200	U	12	400	ug/Kg
95-95-4	2,4,5-Trichlorophenol	200	U	28	400	ug/Kg
92-52-4	1,1-Biphenyl	200	U	15	400	ug/Kg
91-58-7	2-Chloronaphthalene	200	U	9.2	400	ug/Kg
88-74-4	2-Nitroaniline	200	U	18	400	ug/Kg
131-11-3	Dimethylphthalate	200	U	11	400	ug/Kg
208-96-8	Acenaphthylene	200	U	10	400	ug/Kg
606-20-2	2,6-Dinitrotoluene	200	U	17	400	ug/Kg
99-09-2	3-Nitroaniline	200	U	26	400	ug/Kg
83-32-9	Acenaphthene	200	U	11	400	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075016.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	200	U	41	400	ug/Kg
100-02-7	4-Nitrophenol	200	U	75	400	ug/Kg
132-64-9	Dibenzofuran	200	U	16	400	ug/Kg
121-14-2	2,4-Dinitrotoluene	200	U	12	400	ug/Kg
84-66-2	Diethylphthalate	200	U	6.3	400	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	200	U	22	400	ug/Kg
100-01-6	4-Nitroaniline	200	U	53	400	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	200	U	23	400	ug/Kg
86-30-6	N-Nitrosodiphenylamine	200	U	9.7	400	ug/Kg
101-55-3	4-Bromophenyl-phenylether	200	U	7.9	400	ug/Kg
118-74-1	Hexachlorobenzene	200	U	17	400	ug/Kg
1912-24-9	Atrazine	200	U	21	400	ug/Kg
87-86-5	Pentachlorophenol	200	U	28	400	ug/Kg
85-01-8	Phenanthrene	630		11	400	ug/Kg
86-74-8	Carbazole	200	U	8.9	400	ug/Kg
84-74-2	Di-n-butylphthalate	200	U	32	400	ug/Kg
85-68-7	Butylbenzylphthalate	200	U	19	400	ug/Kg
91-94-1	3,3-Dichlorobenzidine	200	U	26	400	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	200	U	14	400	ug/Kg
117-84-0	Di-n-octyl phthalate	200	U	4.6	400	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U	16	400	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	200	U	400	400	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	135		35 - 105	90%	SPK: 150
13127-88-3	Phenol-d5	141		40 - 100	94%	SPK: 150
4165-60-0	Nitrobenzene-d5	92.1		35 - 100	92%	SPK: 100
321-60-8	2-Fluorobiphenyl	90.2		45 - 105	90%	SPK: 100
118-79-6	2,4,6-Tribromophenol	130		35 - 125	87%	SPK: 150
1718-51-0	Terphenyl-d14	93.7		30 - 125	94%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	120589	8.6			
1146-65-2	Naphthalene-d8	482342	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075016.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	259482	13.74			
1517-22-2	Phenanthrene-d10	459377	16.22			
1719-03-5	Chrysene-d12	425127	20.66			
1520-96-3	Perylene-d12	379821	24.31			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075017.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	220	U	23	440	ug/Kg
108-95-2	Phenol	220	U	10	440	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	220	U	22	440	ug/Kg
95-57-8	2-Chlorophenol	220	U	24	440	ug/Kg
95-48-7	2-Methylphenol	220	U	24	440	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	220	U	19	440	ug/Kg
98-86-2	Acetophenone	220	U	14	440	ug/Kg
65794-96-9	3+4-Methylphenols	220	U	23	440	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	220	U	23	440	ug/Kg
67-72-1	Hexachloroethane	220	U	20	440	ug/Kg
98-95-3	Nitrobenzene	220	U	17	440	ug/Kg
78-59-1	Isophorone	220	U	15	440	ug/Kg
88-75-5	2-Nitrophenol	220	U	22	440	ug/Kg
105-67-9	2,4-Dimethylphenol	220	U	25	440	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	220	U	26	440	ug/Kg
120-83-2	2,4-Dichlorophenol	220	U	17	440	ug/Kg
106-47-8	4-Chloroaniline	220	U	32	440	ug/Kg
87-68-3	Hexachlorobutadiene	220	U	16	440	ug/Kg
105-60-2	Caprolactam	220	U	21	440	ug/Kg
59-50-7	4-Chloro-3-methylphenol	220	U	20	440	ug/Kg
77-47-4	Hexachlorocyclopentadiene	220	U	11	440	ug/Kg
88-06-2	2,4,6-Trichlorophenol	220	U	14	440	ug/Kg
95-95-4	2,4,5-Trichlorophenol	220	U	32	440	ug/Kg
92-52-4	1,1-Biphenyl	220	U	17	440	ug/Kg
91-58-7	2-Chloronaphthalene	220	U	10	440	ug/Kg
88-74-4	2-Nitroaniline	220	U	20	440	ug/Kg
131-11-3	Dimethylphthalate	220	U	12	440	ug/Kg
208-96-8	Acenaphthylene	220	U	11	440	ug/Kg
606-20-2	2,6-Dinitrotoluene	220	U	18	440	ug/Kg
99-09-2	3-Nitroaniline	220	U	29	440	ug/Kg
83-32-9	Acenaphthene	220	U	13	440	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075017.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	220	U	46	440	ug/Kg
100-02-7	4-Nitrophenol	220	U	83	440	ug/Kg
132-64-9	Dibenzofuran	220	U	18	440	ug/Kg
121-14-2	2,4-Dinitrotoluene	220	U	14	440	ug/Kg
84-66-2	Diethylphthalate	220	U	7	440	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	220	U	24	440	ug/Kg
100-01-6	4-Nitroaniline	220	U	58	440	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	220	U	26	440	ug/Kg
86-30-6	N-Nitrosodiphenylamine	220	U	11	440	ug/Kg
101-55-3	4-Bromophenyl-phenylether	220	U	8.8	440	ug/Kg
118-74-1	Hexachlorobenzene	220	U	18	440	ug/Kg
1912-24-9	Atrazine	220	U	24	440	ug/Kg
87-86-5	Pentachlorophenol	220	U	31	440	ug/Kg
85-01-8	Phenanthrene	220	J	12	440	ug/Kg
86-74-8	Carbazole	220	U	9.8	440	ug/Kg
84-74-2	Di-n-butylphthalate	220	U	35	440	ug/Kg
85-68-7	Butylbenzylphthalate	220	U	22	440	ug/Kg
91-94-1	3,3-Dichlorobenzidine	220	U	29	440	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	220	U	16	440	ug/Kg
117-84-0	Di-n-octyl phthalate	220	U	5.1	440	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	220	U	18	440	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	220	U	440	440	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	118		35 - 105	79%	SPK: 150
13127-88-3	Phenol-d5	121		40 - 100	81%	SPK: 150
4165-60-0	Nitrobenzene-d5	78.5		35 - 100	78%	SPK: 100
321-60-8	2-Fluorobiphenyl	82.8		45 - 105	83%	SPK: 100
118-79-6	2,4,6-Tribromophenol	118		35 - 125	79%	SPK: 150
1718-51-0	Terphenyl-d14	85.2		30 - 125	85%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	128668	8.61			
1146-65-2	Naphthalene-d8	506793	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE075017.D	1	12/29/11	01/12/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	273631	13.74			
1517-22-2	Phenanthrene-d10	491912	16.21			
1719-03-5	Chrysene-d12	446278	20.66			
1520-96-3	Perylene-d12	397555	24.31			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002695.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.3	U	0.55	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	2.3	U	0.55	4.6	ug/Kg
208-96-8	Acenaphthylene	2.3	U	0.55	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.55	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.55	4.6	ug/Kg
85-01-8	Phenanthrene	6.5		0.55	4.6	ug/Kg
120-12-7	Anthracene	2.3	U	0.55	4.6	ug/Kg
206-44-0	Fluoranthene	8.8		0.55	4.6	ug/Kg
129-00-0	Pyrene	6.9		0.55	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	2.3	U	0.55	4.6	ug/Kg
218-01-9	Chrysene	3.7	J	0.55	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	4.6		0.55	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.3	U	0.55	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	2.8	J	0.55	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.3	U	0.55	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.55	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.3	U	0.55	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	50.8		30 - 150	51%	SPK: 100
321-60-8	2-Fluorobiphenyl	39.3	*	45 - 105	39%	SPK: 100
1718-51-0	Terphenyl-d14	48.4		30 - 125	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	182442	7.85			
1146-65-2	Naphthalene-d8	635041	10.03			
15067-26-2	Acenaphthene-d10	388230	13			
1517-22-2	Phenanthrene-d10	750003	15.45			
1719-03-5	Chrysene-d12	705819	19.82			
1520-96-3	Perylene-d12	636288	22.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	22
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002676.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	9		0.51	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	6.4		0.51	4.2	ug/Kg
208-96-8	Acenaphthylene	3	J	0.51	4.2	ug/Kg
83-32-9	Acenaphthene	3	J	0.51	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.51	4.2	ug/Kg
85-01-8	Phenanthrene	2.1	U	0.51	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.51	4.2	ug/Kg
206-44-0	Fluoranthene	2.1	U	0.51	4.2	ug/Kg
129-00-0	Pyrene	2.1	U	0.51	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.51	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.51	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.51	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.51	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.51	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.51	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.51	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.51	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	52.8		30 - 150	53%	SPK: 100
321-60-8	2-Fluorobiphenyl	41.6	*	45 - 105	42%	SPK: 100
1718-51-0	Terphenyl-d14	52.7		30 - 125	53%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	188329	7.86			
1146-65-2	Naphthalene-d8	641247	10.05			
15067-26-2	Acenaphthene-d10	389656	13.02			
1517-22-2	Phenanthrene-d10	726616	15.46			
1719-03-5	Chrysene-d12	677319	19.82			
1520-96-3	Perylene-d12	610204	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002675.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	8.9		0.56	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	7.5		0.56	4.6	ug/Kg
208-96-8	Acenaphthylene	5.6		0.56	4.6	ug/Kg
83-32-9	Acenaphthene	6.1		0.56	4.6	ug/Kg
86-73-7	Fluorene	4.2	J	0.56	4.6	ug/Kg
85-01-8	Phenanthrene	5.2		0.56	4.6	ug/Kg
120-12-7	Anthracene	2.3	U	0.56	4.6	ug/Kg
206-44-0	Fluoranthene	6.1		0.56	4.6	ug/Kg
129-00-0	Pyrene	5.2		0.56	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	2.3	U	0.56	4.6	ug/Kg
218-01-9	Chrysene	2.3	J	0.56	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.8	J	0.56	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.3	U	0.56	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	2.3	U	0.56	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.3	U	0.56	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.56	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.3	U	0.56	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	44.8		30 - 150	45%	SPK: 100
321-60-8	2-Fluorobiphenyl	33.9	*	45 - 105	34%	SPK: 100
1718-51-0	Terphenyl-d14	40		30 - 125	40%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	209143	7.86			
1146-65-2	Naphthalene-d8	713502	10.04			
15067-26-2	Acenaphthene-d10	424016	13.02			
1517-22-2	Phenanthrene-d10	797861	15.46			
1719-03-5	Chrysene-d12	747852	19.83			
1520-96-3	Perylene-d12	680109	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002677.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	1.95	U	0.47	3.9	ug/Kg
85-01-8	Phenanthrene	1.95	U	0.47	3.9	ug/Kg
120-12-7	Anthracene	1.95	U	0.47	3.9	ug/Kg
206-44-0	Fluoranthene	1.95	U	0.47	3.9	ug/Kg
129-00-0	Pyrene	1.95	U	0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	1.95	U	0.47	3.9	ug/Kg
218-01-9	Chrysene	1.95	U	0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.95	U	0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.95	U	0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	1.95	U	0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.95	U	0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.95	U	0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.95	U	0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	51.5		30 - 150	51%	SPK: 100
321-60-8	2-Fluorobiphenyl	42.3	*	45 - 105	42%	SPK: 100
1718-51-0	Terphenyl-d14	53.8		30 - 125	54%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	178786	7.87			
1146-65-2	Naphthalene-d8	608307	10.04			
15067-26-2	Acenaphthene-d10	365950	13.02			
1517-22-2	Phenanthrene-d10	683681	15.46			
1719-03-5	Chrysene-d12	640974	19.83			
1520-96-3	Perylene-d12	572132	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002693.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	11		0.5	4.1	ug/Kg
120-12-7	Anthracene	3.3	J	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	19		0.5	4.1	ug/Kg
129-00-0	Pyrene	18		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	10		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	8.3		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.9	J	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	7.1		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	3.3	J	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	3.7	J	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	46.3		30 - 150	46%	SPK: 100
321-60-8	2-Fluorobiphenyl	36.4	*	45 - 105	36%	SPK: 100
1718-51-0	Terphenyl-d14	44.9		30 - 125	45%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	172009	7.84			
1146-65-2	Naphthalene-d8	598256	10.03			
15067-26-2	Acenaphthene-d10	372281	13			
1517-22-2	Phenanthrene-d10	727274	15.45			
1719-03-5	Chrysene-d12	722669	19.82			
1520-96-3	Perylene-d12	625389	22.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002747.D	1	12/29/11	01/11/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.2	U	0.53	4.4	ug/Kg
91-57-6	2-Methylnaphthalene	2.2	U	0.53	4.4	ug/Kg
208-96-8	Acenaphthylene	2.2	U	0.53	4.4	ug/Kg
83-32-9	Acenaphthene	2.2	J	0.53	4.4	ug/Kg
86-73-7	Fluorene	4.9		0.53	4.4	ug/Kg
85-01-8	Phenanthrene	73		0.53	4.4	ug/Kg
120-12-7	Anthracene	18		0.53	4.4	ug/Kg
206-44-0	Fluoranthene	120		0.53	4.4	ug/Kg
129-00-0	Pyrene	91		0.53	4.4	ug/Kg
56-55-3	Benzo(a)anthracene	50		0.53	4.4	ug/Kg
218-01-9	Chrysene	51		0.53	4.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	49		0.53	4.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	19		0.53	4.4	ug/Kg
50-32-8	Benzo(a)pyrene	36		0.53	4.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	19		0.53	4.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	4.9		0.53	4.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	16		0.53	4.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60.5		30 - 150	61%	SPK: 100
321-60-8	2-Fluorobiphenyl	40.2	*	45 - 105	40%	SPK: 100
1718-51-0	Terphenyl-d14	51.4		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	151845	7.82			
1146-65-2	Naphthalene-d8	551944	10			
15067-26-2	Acenaphthene-d10	362272	12.97			
1517-22-2	Phenanthrene-d10	603838	15.42			
1719-03-5	Chrysene-d12	587650	19.78			
1520-96-3	Perylene-d12	553927	22.76			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002671.D	1	12/29/11	01/05/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.2	U	0.53	4.4	ug/Kg
91-57-6	2-Methylnaphthalene	2.2	U	0.53	4.4	ug/Kg
208-96-8	Acenaphthylene	2.2	U	0.53	4.4	ug/Kg
83-32-9	Acenaphthene	2.2	U	0.53	4.4	ug/Kg
86-73-7	Fluorene	2.2	U	0.53	4.4	ug/Kg
85-01-8	Phenanthrene	2.2	U	0.53	4.4	ug/Kg
120-12-7	Anthracene	2.2	U	0.53	4.4	ug/Kg
206-44-0	Fluoranthene	2.2	U	0.53	4.4	ug/Kg
129-00-0	Pyrene	2.2	U	0.53	4.4	ug/Kg
56-55-3	Benzo(a)anthracene	2.2	U	0.53	4.4	ug/Kg
218-01-9	Chrysene	2.2	U	0.53	4.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.2	U	0.53	4.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.2	U	0.53	4.4	ug/Kg
50-32-8	Benzo(a)pyrene	2.2	U	0.53	4.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.2	U	0.53	4.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.2	U	0.53	4.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.2	U	0.53	4.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	55.2		30 - 150	55%	SPK: 100
321-60-8	2-Fluorobiphenyl	44.4	*	45 - 105	44%	SPK: 100
1718-51-0	Terphenyl-d14	56.6		30 - 125	57%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	155795	7.86			
1146-65-2	Naphthalene-d8	535770	10.05			
15067-26-2	Acenaphthene-d10	326376	13.02			
1517-22-2	Phenanthrene-d10	627038	15.46			
1719-03-5	Chrysene-d12	585242	19.83			
1520-96-3	Perylene-d12	534559	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002672.D	1	12/29/11	01/05/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	2.5	J	0.49	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.49	4.1	ug/Kg
206-44-0	Fluoranthene	3.3	J	0.49	4.1	ug/Kg
129-00-0	Pyrene	2.5	J	0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.49	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	46.2		30 - 150	46%	SPK: 100
321-60-8	2-Fluorobiphenyl	37.7	*	45 - 105	38%	SPK: 100
1718-51-0	Terphenyl-d14	48		30 - 125	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	196570	7.86			
1146-65-2	Naphthalene-d8	675068	10.05			
15067-26-2	Acenaphthene-d10	410311	13.02			
1517-22-2	Phenanthrene-d10	775060	15.46			
1719-03-5	Chrysene-d12	723975	19.82			
1520-96-3	Perylene-d12	653386	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002694.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.3	U	0.55	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	2.3	U	0.55	4.6	ug/Kg
208-96-8	Acenaphthylene	2.3	U	0.55	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.55	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.55	4.6	ug/Kg
85-01-8	Phenanthrene	3.7	J	0.55	4.6	ug/Kg
120-12-7	Anthracene	2.3	U	0.55	4.6	ug/Kg
206-44-0	Fluoranthene	6.5		0.55	4.6	ug/Kg
129-00-0	Pyrene	5.1		0.55	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	2.3	U	0.55	4.6	ug/Kg
218-01-9	Chrysene	3.2	J	0.55	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	4.2	J	0.55	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.3	U	0.55	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	2.3	J	0.55	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.3	U	0.55	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.55	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.3	U	0.55	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	50.6		30 - 150	51%	SPK: 100
321-60-8	2-Fluorobiphenyl	37.2	*	45 - 105	37%	SPK: 100
1718-51-0	Terphenyl-d14	47.6		30 - 125	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	182991	7.84			
1146-65-2	Naphthalene-d8	637839	10.03			
15067-26-2	Acenaphthene-d10	397480	13			
1517-22-2	Phenanthrene-d10	764223	15.45			
1719-03-5	Chrysene-d12	731492	19.82			
1520-96-3	Perylene-d12	655391	22.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002673.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	2.9	J	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	3.3	J	0.5	4.1	ug/Kg
129-00-0	Pyrene	2.5	J	0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	45.6		30 - 150	46%	SPK: 100
321-60-8	2-Fluorobiphenyl	38.2	*	45 - 105	38%	SPK: 100
1718-51-0	Terphenyl-d14	48		30 - 125	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	142523	7.86			
1146-65-2	Naphthalene-d8	500913	10.05			
15067-26-2	Acenaphthene-d10	307138	13.02			
1517-22-2	Phenanthrene-d10	589144	15.46			
1719-03-5	Chrysene-d12	551273	19.82			
1520-96-3	Perylene-d12	484044	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002674.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	3.7	J	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.9	J	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	3.7	J	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	5.8		0.5	4.1	ug/Kg
129-00-0	Pyrene	5		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.9	J	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	3.3	J	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	50.6		30 - 150	51%	SPK: 100
321-60-8	2-Fluorobiphenyl	41.4	*	45 - 105	41%	SPK: 100
1718-51-0	Terphenyl-d14	51.5		30 - 125	52%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	166497	7.86			
1146-65-2	Naphthalene-d8	569234	10.05			
15067-26-2	Acenaphthene-d10	336449	13.02			
1517-22-2	Phenanthrene-d10	643879	15.46			
1719-03-5	Chrysene-d12	601655	19.83			
1520-96-3	Perylene-d12	540608	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002748.D	1	12/29/11	01/11/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.3	U	0.55	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	2.3	U	0.55	4.6	ug/Kg
208-96-8	Acenaphthylene	2.3	U	0.55	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.55	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.55	4.6	ug/Kg
85-01-8	Phenanthrene	23		0.55	4.6	ug/Kg
120-12-7	Anthracene	2.3	J	0.55	4.6	ug/Kg
206-44-0	Fluoranthene	38		0.55	4.6	ug/Kg
129-00-0	Pyrene	30		0.55	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	14		0.55	4.6	ug/Kg
218-01-9	Chrysene	17		0.55	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	20		0.55	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	7.9		0.55	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	14		0.55	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	8.3		0.55	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.3	U	0.55	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	7.9		0.55	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	52.4		30 - 150	52%	SPK: 100
321-60-8	2-Fluorobiphenyl	36.8	*	45 - 105	37%	SPK: 100
1718-51-0	Terphenyl-d14	47.6		30 - 125	48%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	168374	7.83			
1146-65-2	Naphthalene-d8	617389	10			
15067-26-2	Acenaphthene-d10	407635	12.97			
1517-22-2	Phenanthrene-d10	675958	15.42			
1719-03-5	Chrysene-d12	652149	19.78			
1520-96-3	Perylene-d12	597809	22.75			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002751.D	1	12/29/11	01/11/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.4		0.52	4.3	ug/Kg
91-57-6	2-Methylnaphthalene	3.1	J	0.52	4.3	ug/Kg
208-96-8	Acenaphthylene	3.5	J	0.52	4.3	ug/Kg
83-32-9	Acenaphthene	3.1	J	0.52	4.3	ug/Kg
86-73-7	Fluorene	3.5	J	0.52	4.3	ug/Kg
85-01-8	Phenanthrene	35		0.52	4.3	ug/Kg
120-12-7	Anthracene	6.1		0.52	4.3	ug/Kg
206-44-0	Fluoranthene	59		0.52	4.3	ug/Kg
129-00-0	Pyrene	45		0.52	4.3	ug/Kg
56-55-3	Benzo(a)anthracene	24		0.52	4.3	ug/Kg
218-01-9	Chrysene	25		0.52	4.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	30		0.52	4.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	12		0.52	4.3	ug/Kg
50-32-8	Benzo(a)pyrene	23		0.52	4.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	16		0.52	4.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	3.9	J	0.52	4.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	14		0.52	4.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	52.1		30 - 150	52%	SPK: 100
321-60-8	2-Fluorobiphenyl	36	*	45 - 105	36%	SPK: 100
1718-51-0	Terphenyl-d14	46.2		30 - 125	46%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	169764	7.82			
1146-65-2	Naphthalene-d8	616521	10			
15067-26-2	Acenaphthene-d10	406830	12.97			
1517-22-2	Phenanthrene-d10	687848	15.42			
1719-03-5	Chrysene-d12	662477	19.78			
1520-96-3	Perylene-d12	616776	22.75			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002678.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.5	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.5	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.5	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.5	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.5	4.2	ug/Kg
85-01-8	Phenanthrene	2.1	U	0.5	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.5	4.2	ug/Kg
206-44-0	Fluoranthene	2.1	U	0.5	4.2	ug/Kg
129-00-0	Pyrene	2.1	U	0.5	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.5	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.5	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.5	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.5	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.5	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.5	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.5	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.5	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	50		30 - 150	50%	SPK: 100
321-60-8	2-Fluorobiphenyl	41.6	*	45 - 105	42%	SPK: 100
1718-51-0	Terphenyl-d14	50.9		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	173875	7.86			
1146-65-2	Naphthalene-d8	591185	10.05			
15067-26-2	Acenaphthene-d10	354233	13.02			
1517-22-2	Phenanthrene-d10	669783	15.46			
1719-03-5	Chrysene-d12	627307	19.82			
1520-96-3	Perylene-d12	556736	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	25
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002757.D	1	12/29/11	01/11/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.2	U	0.53	4.4	ug/Kg
91-57-6	2-Methylnaphthalene	2.2	U	0.53	4.4	ug/Kg
208-96-8	Acenaphthylene	2.2	U	0.53	4.4	ug/Kg
83-32-9	Acenaphthene	2.2	U	0.53	4.4	ug/Kg
86-73-7	Fluorene	2.2	U	0.53	4.4	ug/Kg
85-01-8	Phenanthrene	10		0.53	4.4	ug/Kg
120-12-7	Anthracene	2.2	U	0.53	4.4	ug/Kg
206-44-0	Fluoranthene	14		0.53	4.4	ug/Kg
129-00-0	Pyrene	11		0.53	4.4	ug/Kg
56-55-3	Benzo(a)anthracene	4	J	0.53	4.4	ug/Kg
218-01-9	Chrysene	6.7		0.53	4.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	8		0.53	4.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	3.1	J	0.53	4.4	ug/Kg
50-32-8	Benzo(a)pyrene	4.9		0.53	4.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	4.9		0.53	4.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.2	U	0.53	4.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	5.8		0.53	4.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	46.5		30 - 150	47%	SPK: 100
321-60-8	2-Fluorobiphenyl	39.5	*	45 - 105	39%	SPK: 100
1718-51-0	Terphenyl-d14	49.5		30 - 125	49%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	146280	7.8			
1146-65-2	Naphthalene-d8	607550	9.98			
15067-26-2	Acenaphthene-d10	415097	12.96			
1517-22-2	Phenanthrene-d10	715314	15.4			
1719-03-5	Chrysene-d12	653880	19.76			
1520-96-3	Perylene-d12	624108	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002681.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	2.05	U	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	2.05	U	0.5	4.1	ug/Kg
129-00-0	Pyrene	2.05	U	0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	48.8		30 - 150	49%	SPK: 100
321-60-8	2-Fluorobiphenyl	40.8	*	45 - 105	41%	SPK: 100
1718-51-0	Terphenyl-d14	50.7		30 - 125	51%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	176109	7.86			
1146-65-2	Naphthalene-d8	598542	10.04			
15067-26-2	Acenaphthene-d10	358253	13.02			
1517-22-2	Phenanthrene-d10	675776	15.46			
1719-03-5	Chrysene-d12	629771	19.83			
1520-96-3	Perylene-d12	562589	22.84			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002758.D	1	12/29/11	01/11/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	8.5		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	9.7		0.49	4	ug/Kg
208-96-8	Acenaphthylene	12		0.49	4	ug/Kg
83-32-9	Acenaphthene	11		0.49	4	ug/Kg
86-73-7	Fluorene	24		0.49	4	ug/Kg
85-01-8	Phenanthrene	340		0.49	4	ug/Kg
120-12-7	Anthracene	35		0.49	4	ug/Kg
206-44-0	Fluoranthene	540		0.49	4	ug/Kg
129-00-0	Pyrene	430		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	200		0.49	4	ug/Kg
218-01-9	Chrysene	260		0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	340		0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	120		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	230		0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	140		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	41		0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	140		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	43.5		30 - 150	43%	SPK: 100
321-60-8	2-Fluorobiphenyl	38.4	*	45 - 105	38%	SPK: 100
1718-51-0	Terphenyl-d14	45.2		30 - 125	45%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	142974	7.8			
1146-65-2	Naphthalene-d8	599148	9.98			
15067-26-2	Acenaphthene-d10	403868	12.96			
1517-22-2	Phenanthrene-d10	690166	15.4			
1719-03-5	Chrysene-d12	639225	19.76			
1520-96-3	Perylene-d12	556268	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002759.D	1	12/29/11	01/11/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	13		0.54	4.4	ug/Kg
91-57-6	2-Methylnaphthalene	18		0.54	4.4	ug/Kg
208-96-8	Acenaphthylene	7.2		0.54	4.4	ug/Kg
83-32-9	Acenaphthene	5.8		0.54	4.4	ug/Kg
86-73-7	Fluorene	12		0.54	4.4	ug/Kg
85-01-8	Phenanthrene	180		0.54	4.4	ug/Kg
120-12-7	Anthracene	16		0.54	4.4	ug/Kg
206-44-0	Fluoranthene	280		0.54	4.4	ug/Kg
129-00-0	Pyrene	210		0.54	4.4	ug/Kg
56-55-3	Benzo(a)anthracene	88		0.54	4.4	ug/Kg
218-01-9	Chrysene	120		0.54	4.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	150		0.54	4.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	52		0.54	4.4	ug/Kg
50-32-8	Benzo(a)pyrene	98		0.54	4.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	64		0.54	4.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	16		0.54	4.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	58		0.54	4.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	55.7		30 - 150	56%	SPK: 100
321-60-8	2-Fluorobiphenyl	50.4		45 - 105	50%	SPK: 100
1718-51-0	Terphenyl-d14	59.8		30 - 125	60%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	110933	7.8			
1146-65-2	Naphthalene-d8	467283	9.98			
15067-26-2	Acenaphthene-d10	314842	12.94			
1517-22-2	Phenanthrene-d10	533274	15.4			
1719-03-5	Chrysene-d12	507495	19.76			
1520-96-3	Perylene-d12	463343	22.71			

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	27.6 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003759.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.18	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.25	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.14	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.21	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.14	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.21	2.3	ug/Kg
60-57-1	Dieldrin	1.15	U	0.18	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.28	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.25	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.21	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.18	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.21	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.18	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.5		55 - 130	82%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.9		70 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	22.4 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003752.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.1	U	0.17	2.2	ug/Kg
319-85-7	beta-BHC	1.1	U	0.23	2.2	ug/Kg
319-86-8	delta-BHC	1.1	U	0.13	2.2	ug/Kg
58-89-9	gamma-BHC	1.1	U	0.19	2.2	ug/Kg
76-44-8	Heptachlor	1.1	U	0.18	2.2	ug/Kg
309-00-2	Aldrin	1.1	U	0.13	2.2	ug/Kg
1024-57-3	Heptachlor epoxide	1.1	U	0.21	2.2	ug/Kg
959-98-8	Endosulfan I	1.1	U	0.19	2.2	ug/Kg
60-57-1	Dieldrin	1.1	U	0.17	2.2	ug/Kg
72-55-9	4,4-DDE	1.1	U	0.26	2.2	ug/Kg
72-20-8	Endrin	1.1	U	0.23	2.2	ug/Kg
33213-65-9	Endosulfan II	1.1	U	0.18	2.2	ug/Kg
72-54-8	4,4-DDD	1.1	U	0.22	2.2	ug/Kg
1031-07-8	Endosulfan Sulfate	1.1	U	0.19	2.2	ug/Kg
50-29-3	4,4-DDT	1.1	U	0.18	2.2	ug/Kg
72-43-5	Methoxychlor	1.1	U	0.22	2.2	ug/Kg
53494-70-5	Endrin ketone	1.1	U	0.17	2.2	ug/Kg
7421-93-4	Endrin aldehyde	1.1	U	0.19	2.2	ug/Kg
5103-71-9	alpha-Chlordane	1.1	U	0.18	2.2	ug/Kg
5103-74-2	gamma-Chlordane	1.1	U	0.17	2.2	ug/Kg
8001-35-2	Toxaphene	11	U	13	22	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17		55 - 130	85%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.9		70 - 125	84%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	28.7 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003751.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	15.9		55 - 130	80%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17		70 - 125	85%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	15.3 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003753.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1	U	0.15	2	ug/Kg
319-85-7	beta-BHC	1	U	0.21	2	ug/Kg
319-86-8	delta-BHC	1	U	0.12	2	ug/Kg
58-89-9	gamma-BHC	1	U	0.18	2	ug/Kg
76-44-8	Heptachlor	1	U	0.16	2	ug/Kg
309-00-2	Aldrin	1	U	0.12	2	ug/Kg
1024-57-3	Heptachlor epoxide	1	U	0.19	2	ug/Kg
959-98-8	Endosulfan I	1	U	0.18	2	ug/Kg
60-57-1	Dieldrin	1	U	0.15	2	ug/Kg
72-55-9	4,4-DDE	1	U	0.24	2	ug/Kg
72-20-8	Endrin	1	U	0.21	2	ug/Kg
33213-65-9	Endosulfan II	1	U	0.16	2	ug/Kg
72-54-8	4,4-DDD	1	U	0.2	2	ug/Kg
1031-07-8	Endosulfan Sulfate	1	U	0.18	2	ug/Kg
50-29-3	4,4-DDT	1	U	0.16	2	ug/Kg
72-43-5	Methoxychlor	1	U	0.2	2	ug/Kg
53494-70-5	Endrin ketone	1	U	0.15	2	ug/Kg
7421-93-4	Endrin aldehyde	1	U	0.18	2	ug/Kg
5103-71-9	alpha-Chlordane	1	U	0.16	2	ug/Kg
5103-74-2	gamma-Chlordane	1	U	0.15	2	ug/Kg
8001-35-2	Toxaphene	10	U	12	20	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.6		55 - 130	98%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.4		70 - 125	92%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.3 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003741.D	1	12/29/11	01/06/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.1		55 - 130	86%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.7		70 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	24.6 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003740.D	1	12/29/11	01/06/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.21	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	1.15	U	0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.26	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.3		55 - 130	92%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18		70 - 125	90%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	24.7 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003742.D	1	12/29/11	01/06/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.21	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	1.15	U	0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	13.1		55 - 130	66%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.7		70 - 125	74%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	18.6 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003744.D	1	12/29/11	01/06/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.1		55 - 130	90%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.1		70 - 125	90%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	27.9 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003743.D	1	12/29/11	01/06/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.19	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.19	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.19	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.19	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.4		55 - 130	82%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17		70 - 125	85%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.2 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003745.D	1	12/29/11	01/06/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.2		55 - 130	81%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.7		70 - 125	83%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
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J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.3 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003747.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	14.4		55 - 130	72%	SPK: 20
877-09-8	Tetrachloro-m-xylene	15.8		70 - 125	79%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
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LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
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D = Dilution
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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	28.5 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003746.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.2	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	1.2	U	0.18	2.4	ug/Kg
72-55-9	4,4-DDE	1.2	U	0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.2	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	1.2	U	0.2	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.2	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	10.6	*	55 - 130	53%	SPK: 20
877-09-8	Tetrachloro-m-xylene	14.4		70 - 125	72%	SPK: 20

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MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	24.3 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003750.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.1	U	0.17	2.2	ug/Kg
319-85-7	beta-BHC	1.1	U	0.24	2.2	ug/Kg
319-86-8	delta-BHC	1.1	U	0.13	2.2	ug/Kg
58-89-9	gamma-BHC	1.1	U	0.2	2.2	ug/Kg
76-44-8	Heptachlor	1.1	U	0.18	2.2	ug/Kg
309-00-2	Aldrin	1.1	U	0.13	2.2	ug/Kg
1024-57-3	Heptachlor epoxide	1.1	U	0.21	2.2	ug/Kg
959-98-8	Endosulfan I	1.1	U	0.2	2.2	ug/Kg
60-57-1	Dieldrin	1.1	U	0.17	2.2	ug/Kg
72-55-9	4,4-DDE	1.1	U	0.26	2.2	ug/Kg
72-20-8	Endrin	1.1	U	0.24	2.2	ug/Kg
33213-65-9	Endosulfan II	1.1	U	0.18	2.2	ug/Kg
72-54-8	4,4-DDD	1.1	U	0.22	2.2	ug/Kg
1031-07-8	Endosulfan Sulfate	1.1	U	0.2	2.2	ug/Kg
50-29-3	4,4-DDT	1.1	U	0.18	2.2	ug/Kg
72-43-5	Methoxychlor	1.1	U	0.22	2.2	ug/Kg
53494-70-5	Endrin ketone	1.1	U	0.17	2.2	ug/Kg
7421-93-4	Endrin aldehyde	1.1	U	0.2	2.2	ug/Kg
5103-71-9	alpha-Chlordane	1.1	U	0.18	2.2	ug/Kg
5103-74-2	gamma-Chlordane	1.1	U	0.17	2.2	ug/Kg
8001-35-2	Toxaphene	11	U	13	22	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.5		55 - 130	88%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18		70 - 125	90%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
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D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.6 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003755.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.6		55 - 130	98%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.8		70 - 125	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	24.8 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003754.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.21	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	1.15	U	0.17	2.3	ug/Kg
72-55-9	4,4-DDE	3.4	P	0.26	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.6		55 - 130	98%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.1		70 - 125	101%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	19.7 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003756.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	18.9		55 - 130	94%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		70 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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C5146Analytical Summary

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	17.6 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003758.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.22	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.12	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.18	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.17	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.12	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.19	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.18	2.1	ug/Kg
60-57-1	Dieldrin	8.6		0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.24	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.22	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.17	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.18	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.17	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.18	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.17	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19		55 - 130	95%	SPK: 20
877-09-8	Tetrachloro-m-xylene	13.6	*	70 - 125	68%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	25.8 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003757.D	1	12/29/11	01/07/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.17	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	25		0.17	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.17	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.17	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.2		55 - 130	101%	SPK: 20
877-09-8	Tetrachloro-m-xylene	10.9	*	70 - 125	55%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000376.D	1	12/29/11	12/31/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.8	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.7	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.7	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.1	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.7	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.3		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.1		60 - 125	86%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	22 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000367.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11	U	4.4	22	ug/Kg
11104-28-2	Aroclor-1221	11	U	4.4	22	ug/Kg
11141-16-5	Aroclor-1232	11	U	9.6	22	ug/Kg
53469-21-9	Aroclor-1242	11	U	4.4	22	ug/Kg
12672-29-6	Aroclor-1248	11	U	8.4	22	ug/Kg
11097-69-1	Aroclor-1254	11	U	1.9	22	ug/Kg
11096-82-5	Aroclor-1260	11	U	5.3	22	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.8		10 - 166	79%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.1		60 - 125	81%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	29 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000366.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.3	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.2		10 - 166	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.5		60 - 125	78%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	15 Decanted:
Sample Wt/Vol:	30.08 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000368.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10	U	4.1	20	ug/Kg
11104-28-2	Aroclor-1221	10	U	4	20	ug/Kg
11141-16-5	Aroclor-1232	10	U	8.8	20	ug/Kg
53469-21-9	Aroclor-1242	10	U	4	20	ug/Kg
12672-29-6	Aroclor-1248	10	U	7.7	20	ug/Kg
11097-69-1	Aroclor-1254	10	U	1.7	20	ug/Kg
11096-82-5	Aroclor-1260	10	U	4.8	20	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.2		10 - 166	91%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.6		60 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000354.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.5		10 - 166	92%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.5		60 - 125	87%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	25 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000353.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.6	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.5	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	9.9	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.5	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.8	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.1		10 - 166	86%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.6		60 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	25 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000355.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.6	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.5	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	10	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.5	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.8	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	14.7		10 - 166	74%	SPK: 20
2051-24-3	Decachlorobiphenyl	14.5		60 - 125	73%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	19 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000357.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.2	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.1	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18		10 - 166	90%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.8		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000356.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.8	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.7	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	10	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.7	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.1	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.7	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.2		10 - 166	96%	SPK: 20
2051-24-3	Decachlorobiphenyl	17.7		60 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000358.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16		10 - 166	80%	SPK: 20
2051-24-3	Decachlorobiphenyl	16		60 - 125	80%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000364.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.7		10 - 166	88%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.8		60 - 125	79%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	29 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000475.D	1	12/29/11	01/11/12	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	12	U	4.9	24	ug/Kg
11104-28-2	Aroclor-1221	12	U	4.8	24	ug/Kg
11141-16-5	Aroclor-1232	12	U	11	24	ug/Kg
53469-21-9	Aroclor-1242	12	U	4.8	24	ug/Kg
12672-29-6	Aroclor-1248	12	U	9.3	24	ug/Kg
11097-69-1	Aroclor-1254	12	U	2.1	24	ug/Kg
11096-82-5	Aroclor-1260	12	U	5.8	24	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	27.8		10 - 166	139%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.1		60 - 125	81%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	24 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000365.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11	U	4.6	22	ug/Kg
11104-28-2	Aroclor-1221	11	U	4.5	22	ug/Kg
11141-16-5	Aroclor-1232	11	U	9.8	22	ug/Kg
53469-21-9	Aroclor-1242	11	U	4.5	22	ug/Kg
12672-29-6	Aroclor-1248	11	U	8.7	22	ug/Kg
11097-69-1	Aroclor-1254	11	U	2	22	ug/Kg
11096-82-5	Aroclor-1260	11	U	5.4	22	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.2		10 - 166	96%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.5		60 - 125	93%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	21 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000370.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.4	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.3	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.4	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.3	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.3	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.2	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18		10 - 166	90%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.1		60 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	25 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000369.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.6	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.5	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	9.9	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.5	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.8	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.8		10 - 166	94%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.5		60 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	20 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000371.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.3	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.2	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.3	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.2	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8.2	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.9	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5.1	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.5		10 - 166	88%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.2		60 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	18 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000375.D	1	12/29/11	12/31/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	10.5	U	4.2	21	ug/Kg
11104-28-2	Aroclor-1221	10.5	U	4.1	21	ug/Kg
11141-16-5	Aroclor-1232	10.5	U	9.1	21	ug/Kg
53469-21-9	Aroclor-1242	10.5	U	4.1	21	ug/Kg
12672-29-6	Aroclor-1248	10.5	U	8	21	ug/Kg
11097-69-1	Aroclor-1254	10.5	U	1.8	21	ug/Kg
11096-82-5	Aroclor-1260	10.5	U	5	21	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	15.6		10 - 166	78%	SPK: 20
2051-24-3	Decachlorobiphenyl	15.2		60 - 125	76%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	26 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000372.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11.5	U	4.7	23	ug/Kg
11104-28-2	Aroclor-1221	11.5	U	4.6	23	ug/Kg
11141-16-5	Aroclor-1232	11.5	U	10	23	ug/Kg
53469-21-9	Aroclor-1242	11.5	U	4.6	23	ug/Kg
12672-29-6	Aroclor-1248	11.5	U	8.9	23	ug/Kg
11097-69-1	Aroclor-1254	11.5	U	2	23	ug/Kg
11096-82-5	Aroclor-1260	11.5	U	5.5	23	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.2		10 - 166	91%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.4		60 - 125	97%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Appendix C

Support Documentation

NASJRB WILLOW GROVE
SOIL DATA
C5146

FRACTION	CHEMICAL	12SB06-000.5-01GR2	UNITS	12SB-DUP-08GR2	RPD	D
OS	ACENAPHTHENE	6.1	UG/KG	ND	200.00	6.10
OS	ACENAPHTHYLENE	5.6	UG/KG	ND	200.00	5.60
OS	PHENANTHRENE	5.2	UG/KG	6.5	22.22	1.30

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5146

FRACTION	CHEMICAL	12SB06-000.5-01	UNITS	12SB-DUP-08	RPD	D
OS	2-METHYLNAPHTHALENE	7.5	UG/KG	ND	200.00	7.50
OS	BENZO(A)PYRENE	ND	UG/KG	2.8 J	200.00	2.80
OS	BENZO(B)FLUORANTHENE	2.8 J	UG/KG	4.6	48.65	1.80
OS	CHRYSENE	2.3 J	UG/KG	3.7 J	46.67	1.40
OS	FLUORANTHENE	6.1	UG/KG	8.8	36.24	2.70
OS	FLUORENE	4.2 J	UG/KG	ND	200.00	4.20
OS	NAPHTHALENE	8.9	UG/KG	ND	200.00	8.90
OS	PYRENE	5.2	UG/KG	6.9	28.10	1.70

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5146

FRACTION	CHEMICAL	12SB06-000.5-01	UNITS	12SB-DUP-08	RPD	D
OV	ACETONE	50	UG/KG	52	3.92	2.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SDG C5146

SAMPLE IDENTIFICATION	12SB08-000.5-01
COMPOUND	2-BUTANONE
COMPOUND AREA	10997
INTERNAL STANDARD AMOUNT (ng)	250
DILUTION FACTOR	1
INTERNAL STANDARD AREA	88756
AVERAGE RRF	0.641
% SOLIDS	0.72
WEIGHT OF SAMPLE (g)	5.37
ng to µg	1000
g to Kg	1000
CONCENTRATION =	12.5 µg/Kg

10997 x 250ng x 1µg x 1000g/(88756 x 0.641 x 5.37g x 0.72 x 1000ng)

Quantitation Report (QT/LSC Reviewed)

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010412\
Data File : VF030552.D
Acq On : 5 Jan 2012 6:46
Operator : MS
Sample : C5146-04 125803-002.5-C1
Misc : 5.37g/5mL,MSVOA_F
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jan 05 07:13:51 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	4.38	168	88576	50.00	ug/l	0.00
33) 1,4-Difluorobenzene	5.13	114	162837	50.00	ug/l	0.00
62) Chlorobenzene-d5	9.32	117	158665	50.00	ug/l	0.00
71) 1,4-Dichlorobenzene-d4	12.24	152	65782	50.00	ug/l	0.00
System Monitoring Compounds						
32) 1,2-Dichloroethane-d4	4.34	65	68656	41.92	ug/l	0.00
Spiked Amount 50.000			Recovery =	83.84%		
34) Dibromofluoromethane	3.63	113	66727	46.23	ug/l	0.02
Spiked Amount 50.000			Recovery =	92.46%		
49) Toluene-d8	7.11	98	177469	47.28	ug/l	0.00
Spiked Amount 50.000			Recovery =	94.56%		
61) 4-Bromofluorobenzene	11.06	95	76097	46.80	ug/l	0.00
Spiked Amount 50.000			Recovery =	93.60%		
Target Compounds						Qvalue
16) Acetone	1.97	43	148386	165.43	ug/l	99
→ 25) 2-Butanone	3.83	43	10997	9.69	ug/l	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

$\overline{RRF}$ = 0.641

% solids = 72%

NASJRB WILLOW GROVE
SDG C5146

SAMPLE IDENTIFICATION	12SB27-0.502-02
COMPOUND	PHENANTHRENE
COMPOUND AREA	5214133
INTERNAL STANDARD AMOUNT (ng)	5
DILUTION FACTOR	1
INTERNAL STANDARD AREA	690166
AVERAGE RRF	4.533
% SOLIDS	0.82
WEIGHT OF SAMPLE (g)	30.06
VOLUME EXTRACT (µl)	1000
VOLUME INJECTED (µl)	1
ng to µg	1000
g to Kg	1000
CONCENTRATION =	338.07 µg/Kg

5214133 x 5ng x 1000µl 1µg x 1000g/(690166 x 4.533 x 30.06g x 1µl x 0.82 x 1000ng x 1Kg)

Quantitation Report (QT Reviewed)

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA G\DATA\BG011112\
Data File : BG002758.D
Acq On : 11 Jan 2012 22:26
Operator : HNP
Sample : C5146-19 125827-0.502-02
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 12 04:01:03 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.80	152	142974m	5.00	ng	-0.02
2) Naphthalene-d8	9.98	136	599148m	5.00	ng	-0.02
7) Acenaphthene-d10	12.96	164	403868m	5.00	ng	-0.01
12) Phenanthrene-d10	15.40	188	690166m	5.00	ng	-0.02
16) Chrysene-d12	19.76	240	639225m	5.00	ng	-0.03
22) Perylene-d12	22.71	264	556268m	5.00	ng	-0.04
System Monitoring Compounds						
3) Nitrobenzene-d5	8.73	82	1914055m	43.48	ng	-0.03
8) 2-Fluorobiphenyl	11.84	172	4494957m	38.44	ng	-0.01
18) Terphenyl-d14	18.03	244	3874535m	45.21	ng	-0.02
Target Compounds						Qvalue
4) Naphthalene	10.02	128	106797m	0.21	ng	
5) 2-Methylnaphthalene	11.20	142	87295m	0.24	ng	
6) 1-Methylnaphthalene	11.37	142	78735m	0.24	ng	
9) Acenaphthylene	12.72	152	150246m	0.29	ng	
10) Acenaphthene	13.00	154	24118m	0.27	ng	
11) Fluorene	13.87	166	64169m	0.59	ng	
→ 13) Phenanthrene	15.44	178	5214133m	8.33	ng	
14) Anthracene	15.52	178	540072m	0.87	ng	
15) Fluoranthene	17.41	202	9195875m	13.22	ng	
17) Pyrene	17.78	202	7241819m	10.56	ng	
19) Benzo(a)anthracene	19.75	228	3082130m	4.96	ng	
20) Chrysene	19.80	228	3680450m	6.30	ng	
21) Indeno(1,2,3-cd)pyrene	26.10	276	1586667m	3.48	ng	
23) Benzo(b)fluoranthene	21.79	252	10578013m	8.30	ng	
24) Benzo(k)fluoranthene	21.84	252	3828481m	3.01	ng	
25) Benzo(a)pyrene	22.56	252	6809899m	5.70	ng	
26) Dibenzo(a,h)anthracene	26.17	278	97119m	1.00	ng	
27) Benzo(g,h,i)perylene	27.15	276	1363259m	3.44	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

RRF = 4.533

% solids = 82%

wt = 30.06 g

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60308**

Analytical Method: 8270 Modified **Extraction Date:** 12/29/2011-15:38 **Concentration Date:** 12/30/11

Lab Sample ID	Client Sample ID	Test	30 mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60308BL	PB60308BL	SVOCMS Group2	30.02	NA	RA	DT	1	
PB60308BS	PB60308BS	SVOCMS Group2	30.01					
C5146-01	12SB07-000.5-01	SVOCMS Group2	30.04					yellow oil
C5146-02	12SB07-0.502-02	SVOCMS Group2	30.06					
C5146-03	12SB07-0304-03	SVOCMS Group2	30.02					
C5146-04	12SB08-000.5-01	SVOCMS Group2	30.09					
C5146-05	12SB08-0.502-02	SVOCMS Group2	30.04					
C5146-06	12SB08-0304-03	SVOCMS Group2	30.03					Cen
C5146-07	12SB12-000.5-01	SVOCMS Group2	30.05					12/30/11
C5146-08	C5146-07MS	SVOCMS Group2	30.02					
C5146-09	C5146-07MSD	SVOCMS Group2	30.06					
C5146-10	12SB12-0.502-02	SVOCMS Group2	30.08					
C5146-11	12SB12-0304-03	SVOCMS Group2	30.11					
C5146-12	12SB06-000.5-01	SVOCMS Group2	30.06					
C5146-13	12SB06-0.502-02	SVOCMS Group2	30.05					
C5146-14	12SB06-0304-03	SVOCMS Group2	30.07					
C5146-15	12SB17-000.5-01	SVOCMS Group2	30.02					
C5146-16	12SB17-0.502-02	SVOCMS Group2	30.08					
C5146-17	12SB17-0304-03	SVOCMS Group2	30.06					
C5146-18	12SB27-000.5-01	SVOCMS Group2	30.11					
C5146-19	12SB27-0.502-02	SVOCMS Group2	30.06			↓	↓	yellow Extract

* Extracts relinquished on the same date as received.

NASJRB WILLOW GROVE
SDG C5146

SAMPLE IDENTIFICATION	12SB27-000.5-01
COMPOUND	DIELDRIN
COMPOUND AREA	249517
AVERAGE CF	4379348
DILUTION FACTOR	1
% SOLIDS	0.742
WEIGHT OF SAMPLE (g)	30.04
VOLUME EXTRACT (µl)	10000
VOLUME INJECTED (µl)	1
ng to µg	1000
g to Kg	1000

CONCENTRATION = 25.56 µg/Kg

249517 Area x 10000µl x 1 x 1000g x 1µg/(4379348 Area/ng 30.04g x 1µl x 1000ng 1Kg)

Quantitation Report (QT Reviewed)

Data Path : P:\HPCHEM1\Ecd_G\Data\PG010612\
Data File : PG003757.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 7 Jan 2012 3:32
Operator : JJ
Sample : C5146-18
Misc :
ALS Vial : 38 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jan 07 08:20:36 2012
Quant Method : P:\HPCHEM1\Ecd_G\Method\PG010612.M
Quant Title : GC Extractables
QLast Update : Sat Jan 07 07:26:32 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 µl
Signal #1 Phase : ZB-MR1 Signal #2 Phase: ZB-MR2
Signal #1 Info : 30M x 0.32mm x0.5 Signal #2 Info : 30M x 0.32mm x0.25µm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/ml	ng/ml	
	System Monitoring Compounds							
1)	SA Tetrachlo...	4.770	4.066	53146	414935	10.905m	16.763	#
22)	SA Decachlor...	11.370	9.730	166557	562156	20.220	20.420	
	Target Compounds							
→ 13)	MA Dieldrin	7.727	6.788	249517	1661438	56.585	55.040	

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

GC (1)

RF = 4379348

% solids = 74.2

wt = 30.04 g

CHEMTECH **EXTRACTION LOGPAGE** **PrepBatch ID** **PB60305**

Analytical Method: 8081A **Extraction Date:** 12/29/2011-15:38 **Concentration Date:** 12/30/11

Lab Sample ID	Client Sample ID	Test	g/mL	PH	Surr/Spike By:		Final Vol. (mL)	Comments
					Added By	Verified By		
PB60305BL	PB60305BL	PESTICIDE Group1	30.00	NA	KJ	BF	10	
PB60305BS	PB60305BS	PESTICIDE Group1	30.02					
C5146-01	12SB07-000.5-01	PESTICIDE Group1	30.05					YELLOW SP
C5146-02	12SB07-0.502-02	PESTICIDE Group1	30.06					
C5146-03	12SB07-0304-03	PESTICIDE Group1	30.02					
C5146-04	12SB08-000.5-01	PESTICIDE Group1	30.07					
C5146-05	12SB08-0.502-02	PESTICIDE Group1	30.03					
C5146-06	12SB08-0304-03	PESTICIDE Group1	30.10					
C5146-07	12SB12-000.5-01	PESTICIDE Group1	30.04					
C5146-08	C5146-07MS	PESTICIDE Group1	30.09					
C5146-09	C5146-07MSD	PESTICIDE Group1	30.03					
C5146-10	12SB12-0.502-02	PESTICIDE Group1	30.06					
C5146-11	12SB12-0304-03	PESTICIDE Group1	30.02					
C5146-12	12SB06-000.5-01	PESTICIDE Group1	30.07					
C5146-13	12SB06-0.502-02	PESTICIDE Group1	30.06					
C5146-14	12SB06-0304-03	PESTICIDE Group1	30.08					
C5146-15	12SB17-000.5-01	PESTICIDE Group1	30.11					
C5146-16	12SB17-0.502-02	PESTICIDE Group1	30.06					
C5146-17	12SB17-0304-03	PESTICIDE Group1	30.09					
C5146-18	12SB27-000.5-01	PESTICIDE Group1	30.04					
C5146-19	12SB27-0.502-02	PESTICIDE Group1	30.06					

* Extracts relinquished on the same date as received.

12/30/11

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5146
QUOTE NO.
COC Number 021234

CLIENT INFORMATION (REPORT TO BE SENT TO)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTOWE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetra tech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 TCL VOC 5 Aroclor
2 TCL SVOC / PAH sim
3 PCB / PEST / PCB
4 Metals, Ca, Mg, pH
5 OP
6 TCL VOC 4 vials (1+2)
7
8
9

CHEMTECH SAMPLE ID (KR 12/29/11)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
13.	12SB06-0.5-02-02	Soil		✓	12/28/11	1405	7	3	1	1	1	1					
14.	12SB06-0304-03	Soil		✓	12/28/11	1420	7	3	1	1	1	1					
15.	12SB17-00015-01	Soil		✓	12/28/11	1520	6	3	1	1	1						
16.	12SB17-0.5-02-02	Soil		✓	12/28/11	1540	6	3	1	1	1						
17.	12SB17-0304-03	Soil		✓	12/28/11	1555	6	3	1	1	1						
18.	12SB27-00015-01	Soil		✓	12/28/11	1620	6	3	1	1	1						
19.	12SB27-0.5-02-02	Soil		✓	12/28/11	1635	6	3	1	1	1						
20.	12SB-DUP-08	Soil		✓	12/29/11	1200	6	3	1	1	1	+ CH 12/28/11					
21.	TB-01-122811	AQ		✓	12/29/11	0700	2						2				

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/29/11 2100	1.
RELINQUISHED BY	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY	DATE/TIME:	RECEIVED FOR LAB BY:
3. Fed Ex	12/29/11 9:10	3. Ken Rivera

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

C5146 Analytical Summary

Shipped via Federal Express Airbill NO 8744 5964 0073

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5146
QUOTE NO.
COC Number 021233

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech WDS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 8260 Baseline
2 TCL SVOC / PAH SIM
3 PEST / PCB
4 Metals: Cr, Hg, Pb
5 ORP
6
7
8
9

CHEMTECH SAMPLE ID (LAB USE)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB07-000.5-01	Soil		✓	12/28/11	0930	6	3	1	1	1						
2.	12SB07-0.5-02-02	Soil		✓	12/28/11	0950	6	3	1	1	1						
3.	12SB07-0304-03	Soil		✓	12/28/11	1010	6	3	1	1	1						
4.	12SB08-000.5-01	Soil		✓	12/28/11	1035	6	3	1	1	1						
5.	12SB08-0.5-02-02	Soil		✓	12/28/11	1050	6	3	1	1	1						
6.	12SB08-0304-03	Soil		✓	12/28/11	1110	6	3	1	1	1						
7. 9.	12SB12-000.5-01	Soil		✓	12/28/11	1140	16	9	2	2	2	1					DO MS/MSD
8. 10.	12SB12-0.5-02-02	Soil		✓	12/28/11	1215	7	3	1	1	1	1					
9. 11.	12SB12-0304-03	Soil		✓	12/28/11	1235	7	3	1	1	1	1					
10. 12.	12SB06-000.5-01	Soil		✓	12/28/11	1340	7	3	1	1	1	1					

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/28/11 2100	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex	12/29/11 9:10	3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
Cooler Temp. 4°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?: Yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

C5146 Analytical Summary

Shipped Via Federal Express Airbill NO 8744 5964 0073

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_F were done using GC column RTX-VMS, which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_H were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied BY OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for HRP-MW-8MS [1,2-Dichloroethane-d4 - 37%, 4-Bromofluorobenzene - 40%, Dibromofluoromethane - 37%, Toluene-d8 - 38%].
The Internal Standards Areas met the acceptable requirements except for 12SB12-000.5-01MS.
The Retention Times were acceptable for all samples.

The MS {C5146-08MS} with File ID: VF030572.D recoveries met the requirements for all compounds except for 1,2,3-Trichlorobenzene[48%], 1,2,4-Trichlorobenzene[58%], Isopropylbenzene[145%] and Vinyl chloride[126%] .
The MS {C5165-03MS} with File ID: VH045159.D recoveries met the requirements for all compounds except for 1,4-Dioxane[140%] and Bromochloromethane[64%] .
The MSD {C5146-09MSD} with File ID: VF030573.D recoveries met the acceptable requirements except for 1,1,2,2-Tetrachloroethane[133%], 1,2,3-Trichlorobenzene[57%] and 1,2,4-Trichlorobenzene[62%] .The MSD {C5165-04MSD} with File ID: VH045160.D recoveries met the acceptable requirements except for 1,4-Dioxane[150%] .

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The RPD for {C5146-09MSD} with File ID: VF030573.D recoveries met criteria except for Acetone[22%], Chloroethane[27%] .
The RPD for {C5165-04MSD} with File ID: VH045160.D recoveries met criteria except for Bromochloromethane[44%] ..
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID VF030545.D met the requirements except for 1,4-Dioxane .The Continuous Calibration File ID VH045173.D met the requirements except for Bromomethane,Chloroethane,1,1-Dichloroethene,Methyl tert-butyl Ether,Methyl Acetate,4-Methyl-2-Pentanone,2-Hexanone,Tetrachloroethene and 1,4-Dioxane but it is not present in the sample.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.19 16:24:43 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF0104S3	BSF0104S3	1,2-Dichloroethane-d4	50	55.43	111		55	158
		Dibromofluoromethane	50	51.02	102		53	156
		Toluene-d8	50	48.81	98		85	115
		4-Bromofluorobenzene	50	49.23	98		85	120
BSF0105S1	BSF0105S1	1,2-Dichloroethane-d4	50	49.54	99		55	158
		Dibromofluoromethane	50	48.81	98		53	156
		Toluene-d8	50	49.34	99		85	115
		4-Bromofluorobenzene	50	49.24	98		85	120
BSF0105S2	BSF0105S2	1,2-Dichloroethane-d4	50	52.31	105		55	158
		Dibromofluoromethane	50	49.33	99		53	156
		Toluene-d8	50	44.71	89		85	115
		4-Bromofluorobenzene	50	45.55	91		85	120
BSH0103W1	BSH0103W1	1,2-Dichloroethane-d4	50	43.98	88		70	120
		Dibromofluoromethane	50	48.32	97		85	115
		Toluene-d8	50	47.1	94		85	120
		4-Bromofluorobenzene	50	46.6	93		75	120
BSH0103W3	BSH0103W3	1,2-Dichloroethane-d4	50	53.01	106		70	120
		Dibromofluoromethane	50	50.31	101		85	115
		Toluene-d8	50	48.19	96		85	120
		4-Bromofluorobenzene	50	48.17	96		75	120
C5146-01	12SB07-000.5-01	1,2-Dichloroethane-d4	50	41.51	83		55	158
		Dibromofluoromethane	50	44.66	89		53	156
		Toluene-d8	50	46.59	93		85	115
		4-Bromofluorobenzene	50	47.66	95		85	120
C5146-02	12SB07-0.502-02	1,2-Dichloroethane-d4	50	43.84	88		55	158
		Dibromofluoromethane	50	47.13	94		53	156
		Toluene-d8	50	48.52	97		85	115
		4-Bromofluorobenzene	50	48.24	96		85	120
C5146-03	12SB07-0304-03	1,2-Dichloroethane-d4	50	41.01	82		55	158
		Dibromofluoromethane	50	45.14	90		53	156
		Toluene-d8	50	48.26	97		85	115
		4-Bromofluorobenzene	50	50.81	102		85	120
C5146-04	12SB08-000.5-01	1,2-Dichloroethane-d4	50	41.92	84		55	158
		Dibromofluoromethane	50	46.23	92		53	156
		Toluene-d8	50	47.28	95		85	115
		4-Bromofluorobenzene	50	46.8	94		85	120
C5146-05	12SB08-0.502-02	1,2-Dichloroethane-d4	50	44.01	88		55	158
		Dibromofluoromethane	50	48.89	98		53	156
		Toluene-d8	50	49.85	100		85	115
		4-Bromofluorobenzene	50	56.04	112		85	120
C5146-06	12SB08-0304-03	1,2-Dichloroethane-d4	50	44.14	88		55	158
		Dibromofluoromethane	50	45.29	91		53	156
		Toluene-d8	50	46.86	94		85	115
		4-Bromofluorobenzene	50	56.17	112		85	120
C5146-07	12SB12-000.5-01	1,2-Dichloroethane-d4	50	44.61	89		55	158
		Dibromofluoromethane	50	46.49	93		53	156
		Toluene-d8	50	46.98	94		85	115
		4-Bromofluorobenzene	50	46.5	93		85	120
C5146-08MS	12SB12-000.5-01MS	1,2-Dichloroethane-d4	50	44.09	88		55	158
		Dibromofluoromethane	50	47.74	95		53	156
		Toluene-d8	50	47.19	94		85	115
		4-Bromofluorobenzene	50	39.25	79	*	85	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5146-09MSD	12SB12-000.5-01MSD	1,2-Dichloroethane-d4	50	45.82	92		55	158
		Dibromofluoromethane	50	49.74	99		53	156
		Toluene-d8	50	46.79	94		85	115
		4-Bromofluorobenzene	50	40.08	80	*	85	120
C5146-10	12SB12-0.502-02	1,2-Dichloroethane-d4	50	42.51	85		55	158
		Dibromofluoromethane	50	45.05	90		53	156
		Toluene-d8	50	46.38	93		85	115
		4-Bromofluorobenzene	50	49.93	100		85	120
C5146-11	12SB12-0304-03	1,2-Dichloroethane-d4	50	42.44	85		55	158
		Dibromofluoromethane	50	45.56	91		53	156
		Toluene-d8	50	46.39	93		85	115
		4-Bromofluorobenzene	50	44.64	89		85	120
C5146-12	12SB06-000.5-01	1,2-Dichloroethane-d4	50	40.35	81		55	158
		Dibromofluoromethane	50	46.88	94		53	156
		Toluene-d8	50	47.67	95		85	115
		4-Bromofluorobenzene	50	48.48	97		85	120
C5146-13	12SB06-0.502-02	1,2-Dichloroethane-d4	50	42.22	84		55	158
		Dibromofluoromethane	50	47.65	95		53	156
		Toluene-d8	50	48.99	98		85	115
		4-Bromofluorobenzene	50	55.12	110		85	120
C5146-14	12SB06-0304-03	1,2-Dichloroethane-d4	50	42.72	85		55	158
		Dibromofluoromethane	50	45.57	91		53	156
		Toluene-d8	50	48.42	97		85	115
		4-Bromofluorobenzene	50	54.34	109		85	120
C5146-15	12SB17-000.5-01	1,2-Dichloroethane-d4	50	42.37	85		55	158
		Dibromofluoromethane	50	50.09	100		53	156
		Toluene-d8	50	49.37	99		85	115
		4-Bromofluorobenzene	50	52.19	104		85	120
C5146-16	12SB17-0.502-02	1,2-Dichloroethane-d4	50	46.46	93		55	158
		Dibromofluoromethane	50	45.94	92		53	156
		Toluene-d8	50	49.02	98		85	115
		4-Bromofluorobenzene	50	56.16	112		85	120
C5146-17	12SB17-0304-03	1,2-Dichloroethane-d4	50	44.27	89		55	158
		Dibromofluoromethane	50	46.97	94		53	156
		Toluene-d8	50	48.09	96		85	115
		4-Bromofluorobenzene	50	53.48	107		85	120
C5146-18	12SB27-000.5-01	1,2-Dichloroethane-d4	50	43.34	87		55	158
		Dibromofluoromethane	50	46.48	93		53	156
		Toluene-d8	50	46.8	94		85	115
		4-Bromofluorobenzene	50	43.03	86		85	120
C5146-19	12SB27-0.502-02	1,2-Dichloroethane-d4	50	46.02	92		55	158
		Dibromofluoromethane	50	47.57	95		53	156
		Toluene-d8	50	47.93	96		85	115
		4-Bromofluorobenzene	50	54.07	108		85	120
C5146-20	12SB-DUP-08	1,2-Dichloroethane-d4	50	44.76	90		55	158
		Dibromofluoromethane	50	45.69	91		53	156
		Toluene-d8	50	46.3	93		85	115
		4-Bromofluorobenzene	50	48.35	97		85	120
C5146-21	TB-01-122811	1,2-Dichloroethane-d4	50	51.13	102		70	120
		Dibromofluoromethane	50	51.47	103		85	115
		Toluene-d8	50	51.71	103		85	120
		4-Bromofluorobenzene	50	53.82	108		75	120

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5165-03MS	HRP-MW-8MS – not sample in SDG	1,2-Dichloroethane-d4	50	18.32	(67)	*	70	120
		Dibromofluoromethane	50	18.49	(37)	*	85	115
		Toluene-d8	50	18.79	(38)	*	85	120
		4-Bromofluorobenzene	50	19.9	(40)	*	75	120
C5165-04MSD	HRP-MW-8MSD	1,2-Dichloroethane-d4	50	44.29	89		70	120
		Dibromofluoromethane	50	45.77	92		85	115
		Toluene-d8	50	45.39	91		85	120
		4-Bromofluorobenzene	50	45.95	92		75	120
VBF0104S2	VBF0104S2	1,2-Dichloroethane-d4	50	51.29	103		55	158
		Dibromofluoromethane	50	52.74	105		53	156
		Toluene-d8	50	49.44	99		85	115
		4-Bromofluorobenzene	50	49.16	98		85	120
VBF0105S1	VBF0105S1	1,2-Dichloroethane-d4	50	47.01	94		55	158
		Dibromofluoromethane	50	48.53	97		53	156
		Toluene-d8	50	47.04	94		85	115
		4-Bromofluorobenzene	50	44.85	90		85	120
VBF0105S2	VBF0105S2	1,2-Dichloroethane-d4	50	56.24	112		55	158
		Dibromofluoromethane	50	52.64	105		53	156
		Toluene-d8	50	46.77	94		85	115
		4-Bromofluorobenzene	50	46.13	92		85	120
VBH0103W1	VBH0103W1	1,2-Dichloroethane-d4	50	45.84	92		70	120
		Dibromofluoromethane	50	50.34	101		85	115
		Toluene-d8	50	51.19	102		85	120
		4-Bromofluorobenzene	50	52.38	105		75	120
VBH0103W2	VBH0103W2	1,2-Dichloroethane-d4	50	53.87	108		70	120
		Dibromofluoromethane	50	53.31	107		85	115
		Toluene-d8	50	49.85	100		85	120
		4-Bromofluorobenzene	50	48.21	96		75	120

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030545.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 03:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	113505	4.38	219502	5.12	201134	9.33
UPPER LIMIT	227010	4.88	439004	5.62	402268	9.83
LOWER LIMIT	56752.5	3.88	109751	4.62	100567	8.83
EPA SAMPLE NO.						
BSF0104S3	110542	4.39	213126	5.13	196192	9.33
12SB07-000.5-01	108723	4.38	196656	5.12	189386	9.33
12SB07-0304-03	101172	4.39	186183	5.13	184603	9.33
12SB08-000.5-01	88576	4.38	162837	5.13	158665	9.32
12SB08-0.502-02	96508	4.38	171969	5.13	183225	9.32
12SB08-0304-03	100336	4.39	184683	5.13	192759	9.32
12SB12-0.502-02	96022	4.39	184773	5.13	180299	9.32
12SB12-0304-03	89142	4.38	166646	5.13	157756	9.32
12SB06-000.5-01	96759	4.39	171920	5.13	169939	9.32
12SB06-0.502-02	93891	4.38	169910	5.12	176820	9.32
12SB06-0304-03	97973	4.38	177064	5.13	184900	9.32
12SB17-000.5-01	92440	4.38	162974	5.12	166796	9.32
VBF0104S2	116839	4.37	212752	5.12	203144	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030545.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 03:10

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	100994	12.23				
UPPER LIMIT	201988	12.73				
LOWER LIMIT	50497	11.73				
EPA SAMPLE NO.						
BSF0104S3	101031	12.23				
12SB07-000.5-01	83965	12.23				
12SB07-0304-03	92200	12.23				
12SB08-000.5-01	65782	12.24				
12SB08-0.502-02	96916	12.24				
12SB08-0304-03	104196	12.24				
12SB12-0.502-02	88506	12.24				
12SB12-0304-03	68466	12.24				
12SB06-000.5-01	75204	12.24				
12SB06-0.502-02	96334	12.23				
12SB06-0304-03	100962	12.24				
12SB17-000.5-01	80901	12.23				
VBF0104S2	100297	12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030569.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 16:17

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	130478	4.39	224699	5.13	201375	9.32
UPPER LIMIT	260956	4.89	449398	5.63	402750	9.82
LOWER LIMIT	65239	3.89	112349.5	4.63	100687.5	8.82
EPA SAMPLE NO.						
BSF0105S1	124929	4.39	213434	5.13	190713	9.32
12SB07-0.502-02	93340	4.39	163149	5.13	161130	9.32
12SB12-000.5-01	92364	4.38	173230	5.13	168960	9.32
12SB12-000.5-01MS	94844	4.39	160441	5.13	134273	9.32
12SB12-000.5-01MSD	123214	4.39	210474	5.13	170577	9.32
12SB17-0.502-02	89431	4.38	166552	5.12	176127	9.32
12SB17-0304-03	90990	4.39	169390	5.12	173064	9.32
12SB27-000.5-01	87441	4.39	160670	5.13	145218	9.32
VBF0105S1	134068	4.39	232349	5.13	202346	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030569.D Date Analyzed: 01/05/2012

Instrument ID: MSVOA_F Time Analyzed: 16:17

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #		RT #				
12 HOUR STD	108795		12.24				
UPPER LIMIT	217590		12.74				
LOWER LIMIT	54397.5		11.74				
EPA SAMPLE NO.							
BSF0105S1	101150		12.24				
12SB07-0.502-02	66443		12.24				
12SB12-000.5-01	70698		12.24				
12SB12-000.5-01MS	53487	*	12.24				
12SB12-000.5-01MSD	76565		12.24				
12SB17-0.502-02	94117		12.23				
12SB17-0304-03	96547		12.23				
12SB27-000.5-01	57213		12.24				
VBF0105S1	105306		12.24				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030591.D Date Analyzed: 01/06/2012

Instrument ID: MSVOA_F Time Analyzed: 03:56

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	104647	4.37	199853	5.12	180510	9.32
UPPER LIMIT	209294	4.87	399706	5.62	361020	9.82
LOWER LIMIT	52323.5	3.87	99926.5	4.62	90255	8.82
EPA SAMPLE NO.						
BSF0105S2	105083	4.38	202350	5.12	187077	9.32
12SB27-0.502-02	87503	4.39	163634	5.13	162632	9.32
12SB-DUP-08	75664	4.39	139092	5.13	134896	9.32
VBF0105S2	100396	4.38	194265	5.12	182903	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030591.D Date Analyzed: 01/06/2012

Instrument ID: MSVOA_F Time Analyzed: 03:56

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	97224	12.23				
UPPER LIMIT	194448	12.73				
LOWER LIMIT	48612	11.73				
EPA SAMPLE NO.						
BSF0105S2	96156	12.23				
12SB27-0.502-02	89822	12.24				
12SB-DUP-08	62275	12.24				
VBF0105S2	92398	12.23				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VH045173.D Date Analyzed: 01/04/2012

Instrument ID: MSVOAH Time Analyzed: 05:42

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	607961	4.95	1006959	5.66	885305	9.79
UPPER LIMIT	1215922	5.45	2013918	6.16	1770610	10.29
LOWER LIMIT	303980.5	4.45	503479.5	5.16	442652.5	9.29
EPA SAMPLE NO.						
BSH0103W3	593903	4.95	959020	5.66	868110	9.79
TB-01-122811	532496	4.95	872768	5.66	821748	9.78
VBH0103W2	572106	4.95	935966	5.66	888761	9.78

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VH045173.D Date Analyzed: 01/04/2012

Instrument ID: MSVOAH Time Analyzed: 05:42

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	571273	12.53				
UPPER LIMIT	1142546	13.03				
LOWER LIMIT	285636.5	12.03				
EPA SAMPLE NO.						
BSH0103W3	548194	12.52				
TB-01-122811	545626	12.52				
VBH0103W2	525872	12.52				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030522.D BFB Injection Date: 01/04/2012

Instrument ID: MSVOA_F BFB Injection Time: 15:16

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.3
75	30.0 - 60.0% of mass 95	48.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	72.6
175	5.0 - 9.0% of mass 174	5.4 (7.5) 1
176	95.0 - 101.0% of mass 174	71.7 (98.7) 1
177	5.0 - 9.0% of mass 176	5.1 (7.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD020	20 PPB ICC	VF030525.D	01/04/2012	16:57
VSTD050	50 PPB ICC	VF030526.D	01/04/2012	17:28
VSTD075	75 PPB ICC	VF030527.D	01/04/2012	17:59
VSTD010	10 PPB ICC	VF030528.D	01/04/2012	18:29
VSTD005	5 PPB ICC	VF030529.D	01/04/2012	19:00
VSTD100	100 PPB ICC	VF030530.D	01/04/2012	19:30

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Calibration Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030529.D RRF020 = VF030525.D RRF050 = VF030526.D
RRF075 = VF030527.D RRF100 = VF030530.D RRF010 = VF030528.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	RRF	% RSD
Dichlorodifluoromethane	0.638	0.731	0.747	0.766	0.729	0.679	0.715	6.6
Chloromethane	1.137	1.154	1.272	1.280	1.232	1.041	1.186	7.8
Vinyl Chloride	0.662	0.785	0.835	0.855	0.812	0.611	0.76	13.1
Bromomethane	0.349	0.379	0.388	0.410	0.362	0.289	0.363	11.5
Chloroethane	0.171	0.331	0.247	0.218	0.197	0.184	0.225	26
Trichlorofluoromethane	0.623	0.930	0.965	0.929	0.855	0.705	0.835	16.7
1,1,2-Trichlorotrifluoroethane	0.427	0.588	0.594	0.600	0.546	0.481	0.539	13.2
1,1-Dichloroethene	0.465	0.545	0.561	0.541	0.519	0.493	0.521	6.9
Acetone	0.355	0.395	0.491	0.489	0.410	0.291	0.405	19.1
Carbon Disulfide	1.454	1.791	1.847	1.757	1.658	1.277	1.631	13.6
Methyl tert-butyl Ether	1.543	1.790	2.044	2.093	1.883	1.452	1.801	14.5
Methyl Acetate	1.246	1.490	1.719	1.871	1.587	1.255	1.528	16.4
Methylene Chloride	0.674	0.705	0.752	0.724	0.702	0.578	0.689	8.8
trans-1,2-Dichloroethene	0.396	0.547	0.575	0.592	0.555	0.424	0.515	16.2
1,1-Dichloroethane	0.996	1.242	1.279	1.256	1.204	0.889	1.144	14.2
Cyclohexane	0.958	1.118	1.217	1.204	1.168	0.925	1.098	11.5
2-Butanone	0.576	0.624	0.724	0.759	0.647	0.515	0.641	14.1
Carbon Tetrachloride	0.408	0.519	0.532	0.521	0.501	0.406	0.481	12.1
cis-1,2-Dichloroethene	0.603	0.782	0.822	0.825	0.827	0.629	0.748	13.9
Bromochloromethane	0.962	0.931	0.880	0.826	0.833	0.823	0.876	6.8
Chloroform	1.147	1.413	1.490	1.414	1.460	1.143	1.344	11.7
1,1,1-Trichloroethane	0.678	0.865	0.900	0.915	0.896	0.644	0.816	14.9
Methylcyclohexane	0.479	0.568	0.551	0.569	0.547	0.506	0.537	6.8
Benzene	1.253	1.457	1.456	1.470	1.463	1.238	1.389	8
1,2-Dichloroethane	0.477	0.573	0.635	0.623	0.597	0.493	0.566	11.8
Trichloroethene	0.402	0.510	0.509	0.530	0.503	0.447	0.483	10
1,2-Dichloropropane	0.339	0.422	0.449	0.450	0.461	0.381	0.417	11.5
Bromodichloromethane	0.451	0.554	0.607	0.619	0.610	0.461	0.55	13.9
4-Methyl-2-Pentanone	0.524	0.503	0.616	0.649	0.557	0.491	0.557	11.4

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date(s): 01/04/2012 01/04/2012

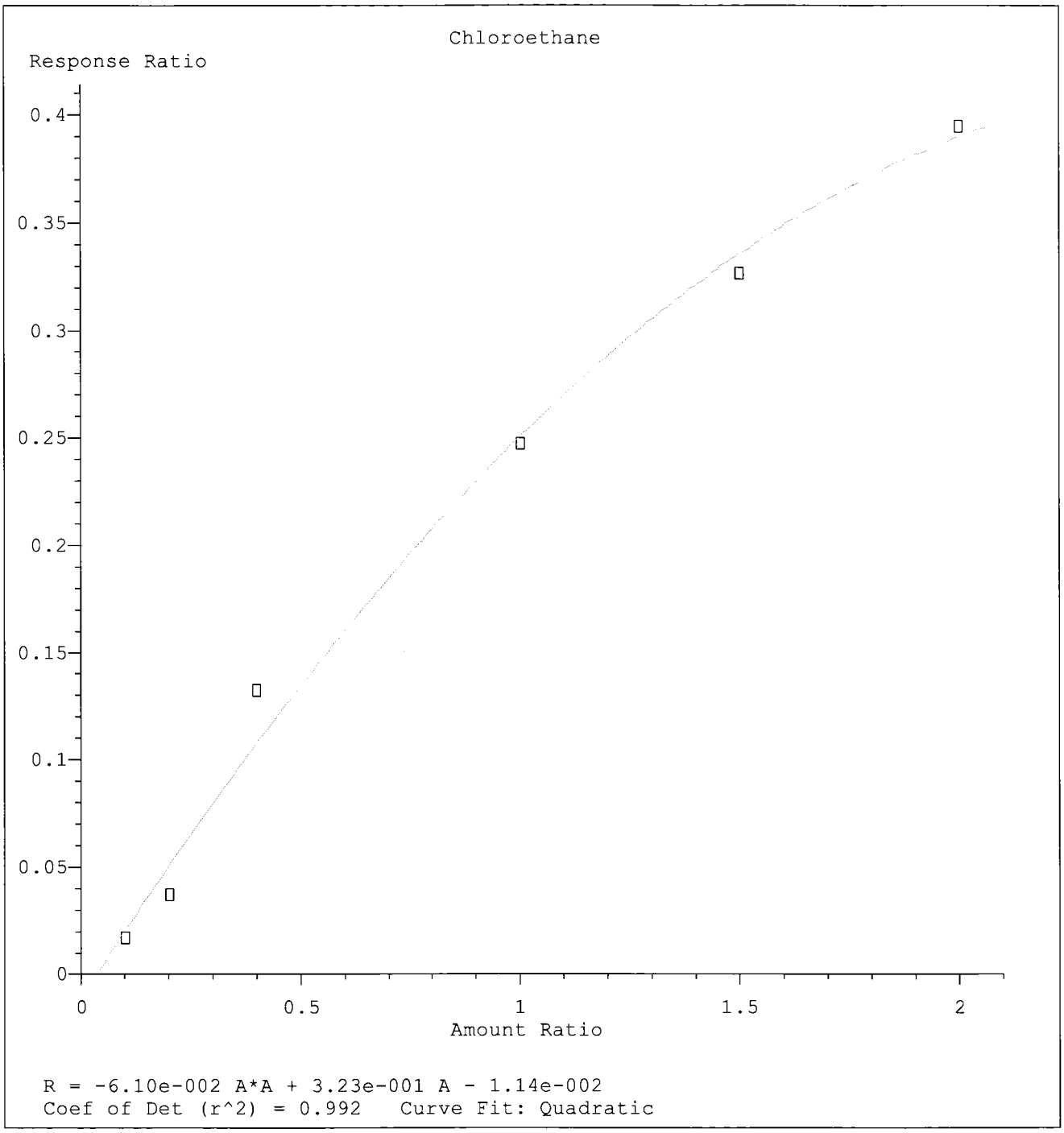
Heated Purge: (Y/N) Y Calibration Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030529.D RRF020 = VF030525.D RRF050 = VF030526.D
RRF075 = VF030527.D RRF100 = VF030530.D RRF010 = VF030528.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	$\overline{RRF}$	% RSD
Toluene	0.621	0.829	0.861	0.838	0.850	0.727	0.788	12
t-1,3-Dichloropropene	0.473	0.599	0.692	0.686	0.674	0.497	0.603	16.2
cis-1,3-Dichloropropene	0.564	0.681	0.744	0.738	0.732	0.541	0.666	13.7
1,1,2-Trichloroethane	0.246	0.319	0.370	0.362	0.350	0.283	0.322	15.2
2-Hexanone	0.410	0.400	0.474	0.488	0.438	0.402	0.435	8.8
Dibromochloromethane	0.273	0.382	0.445	0.461	0.436	0.316	0.386	19.9
1,2-Dibromoethane	0.312	0.369	0.416	0.430	0.402	0.314	0.374	13.7
Tetrachloroethene	0.471	0.541	0.580	0.550	0.542	0.499	0.53	7.4
Chlorobenzene	0.884	1.008	1.049	1.031	1.027	0.887	0.981	7.6
Ethyl Benzene	1.337	1.675	1.751	1.692	1.699	1.416	1.595	10.8
m/p-Xylenes	0.498	0.594	0.633	0.621	0.620	0.510	0.579	10.3
o-Xylene	0.462	0.619	0.659	0.642	0.629	0.519	0.588	13.4
Styrene	0.675	0.977	1.074	1.071	1.063	0.813	0.945	17.6
Bromoform	0.209	0.270	0.320	0.336	0.310	0.230	0.279	18.4
Isopropylbenzene	2.372	2.920	3.232	3.170	3.156	2.617	2.911	12
1,1,2,2-Tetrachloroethane	0.340	0.344	0.401	0.432	0.373	0.313	0.367	11.9
1,3-Dichlorobenzene	1.311	1.525	1.637	1.647	1.574	1.347	1.507	9.6
1,4-Dichlorobenzene	1.457	1.626	1.695	1.655	1.594	1.448	1.579	6.6
1,2-Dichlorobenzene	1.277	1.471	1.611	1.586	1.558	1.355	1.476	9.2
1,2-Dibromo-3-Chloropropane	0.135	0.128	0.158	0.173	0.146	0.108	0.141	16.4
1,2,4-Trichlorobenzene	0.895	1.020	1.131	1.133	1.061	0.847	1.014	11.8
1,2,3-Trichlorobenzene	0.825	0.948	1.060	1.036	0.962	0.800	0.939	11.3
1,2-Dichloroethane-d4	1.032	0.892	0.930	0.947	0.884	0.862	0.925	6.6
Dibromofluoromethane	0.484	0.458	0.433	0.435	0.418	0.430	0.443	5.4
Toluene-d8	1.256	1.110	1.141	1.134	1.110	1.163	1.153	4.7
4-Bromofluorobenzene	0.526	0.503	0.493	0.488	0.493	0.493	0.499	2.8
1,4-Dioxane	0.003	0.004	0.004	0.005	0.004	0.003	0.004	21.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



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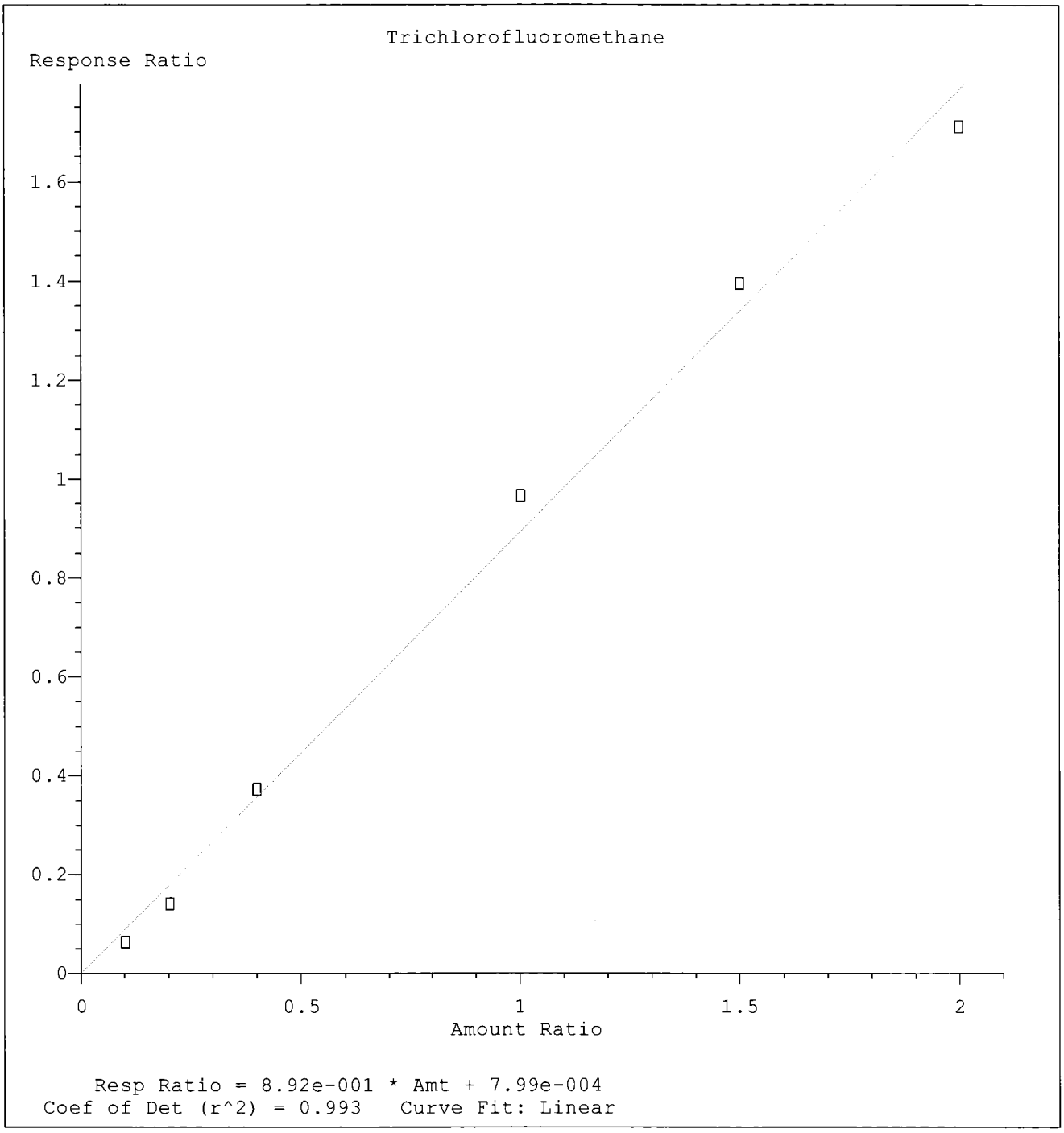
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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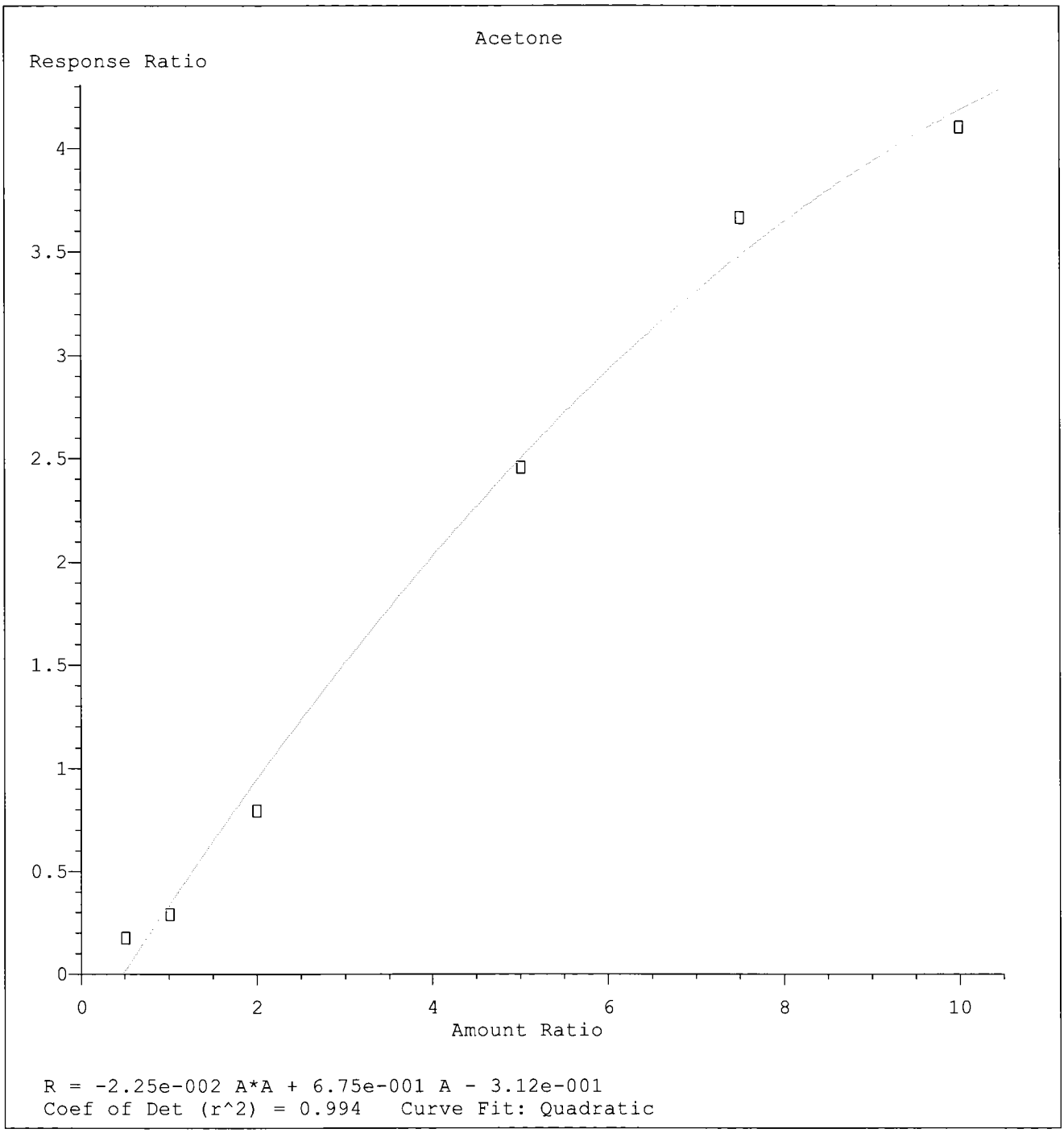
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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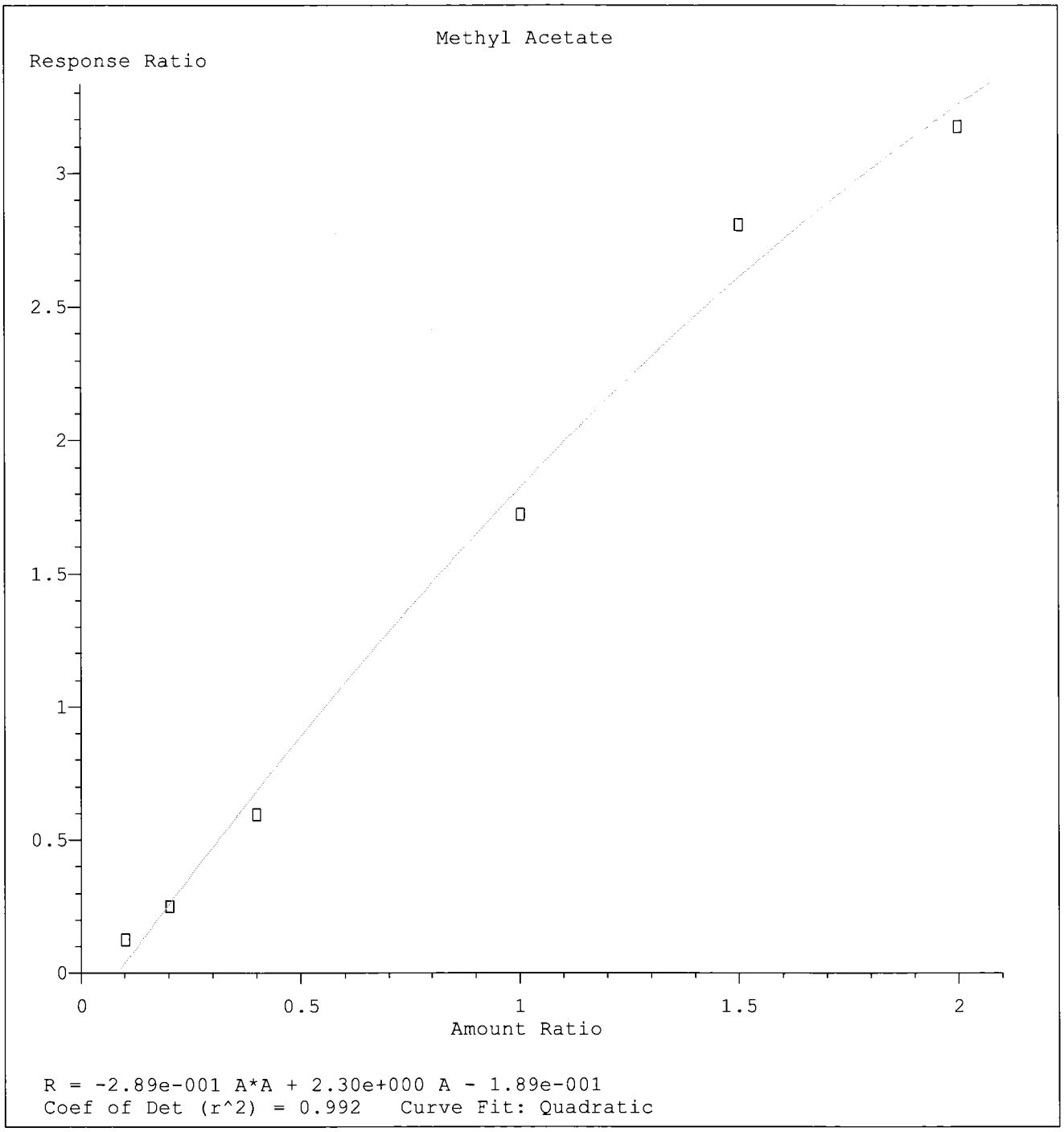
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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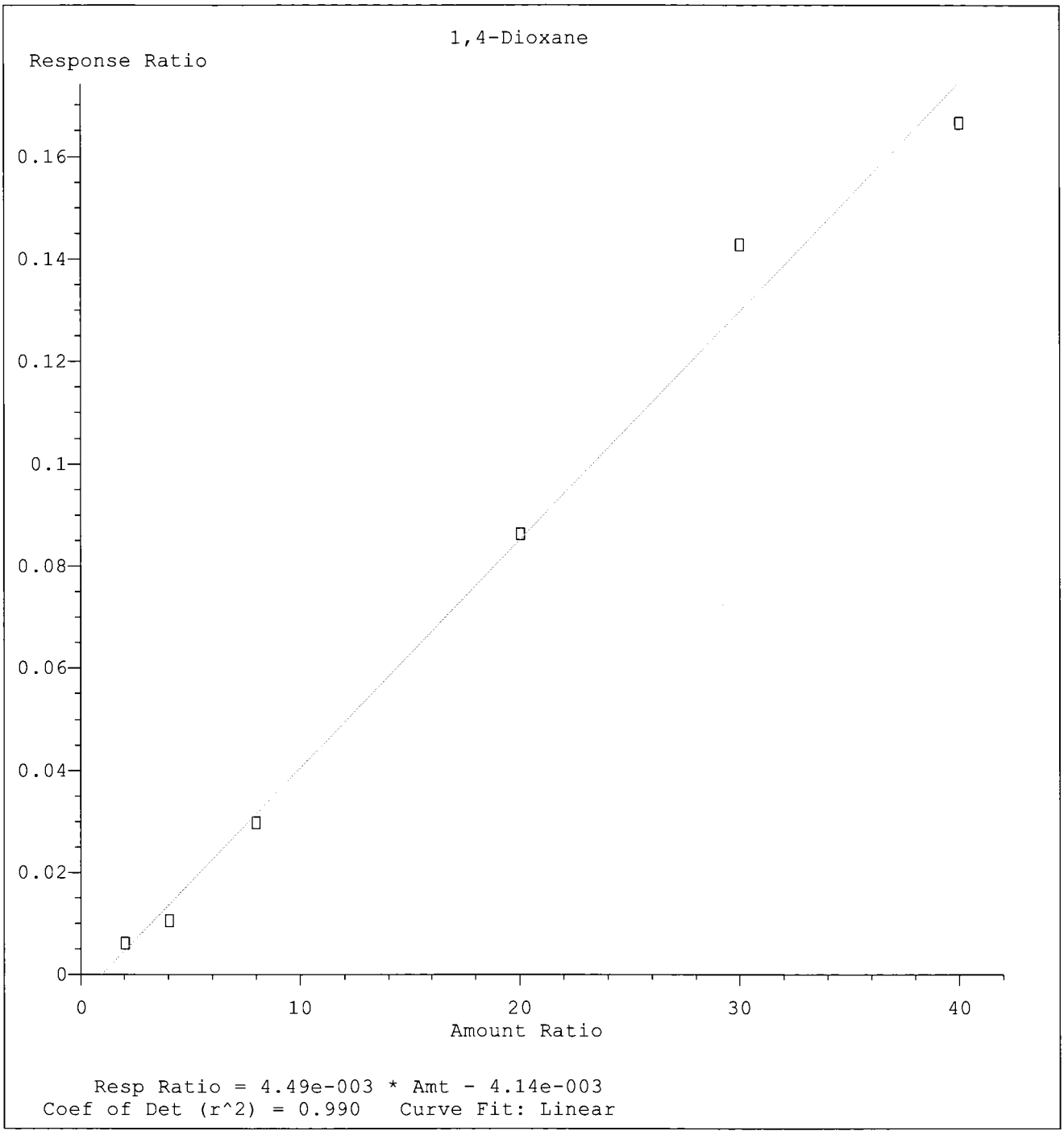

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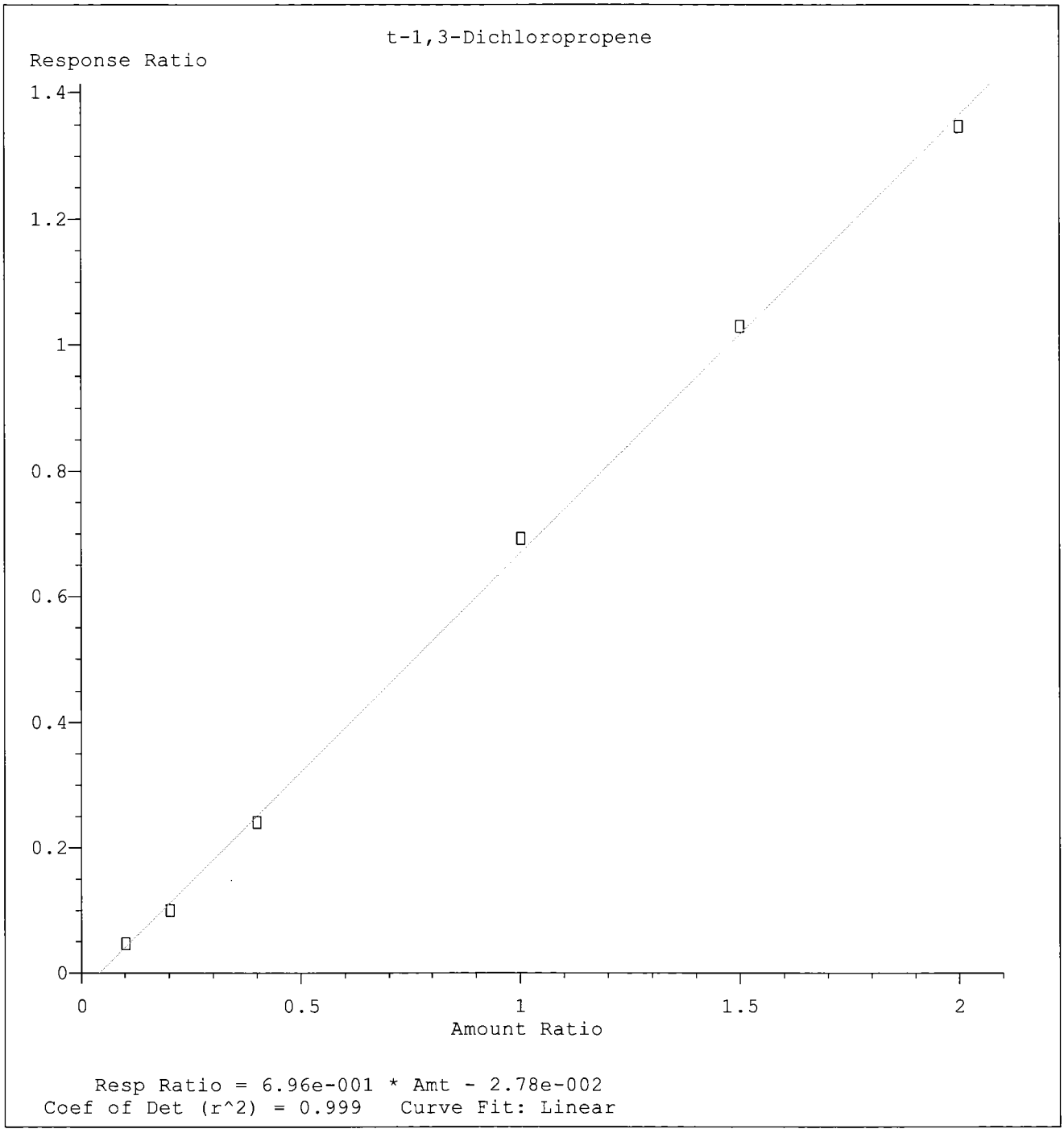

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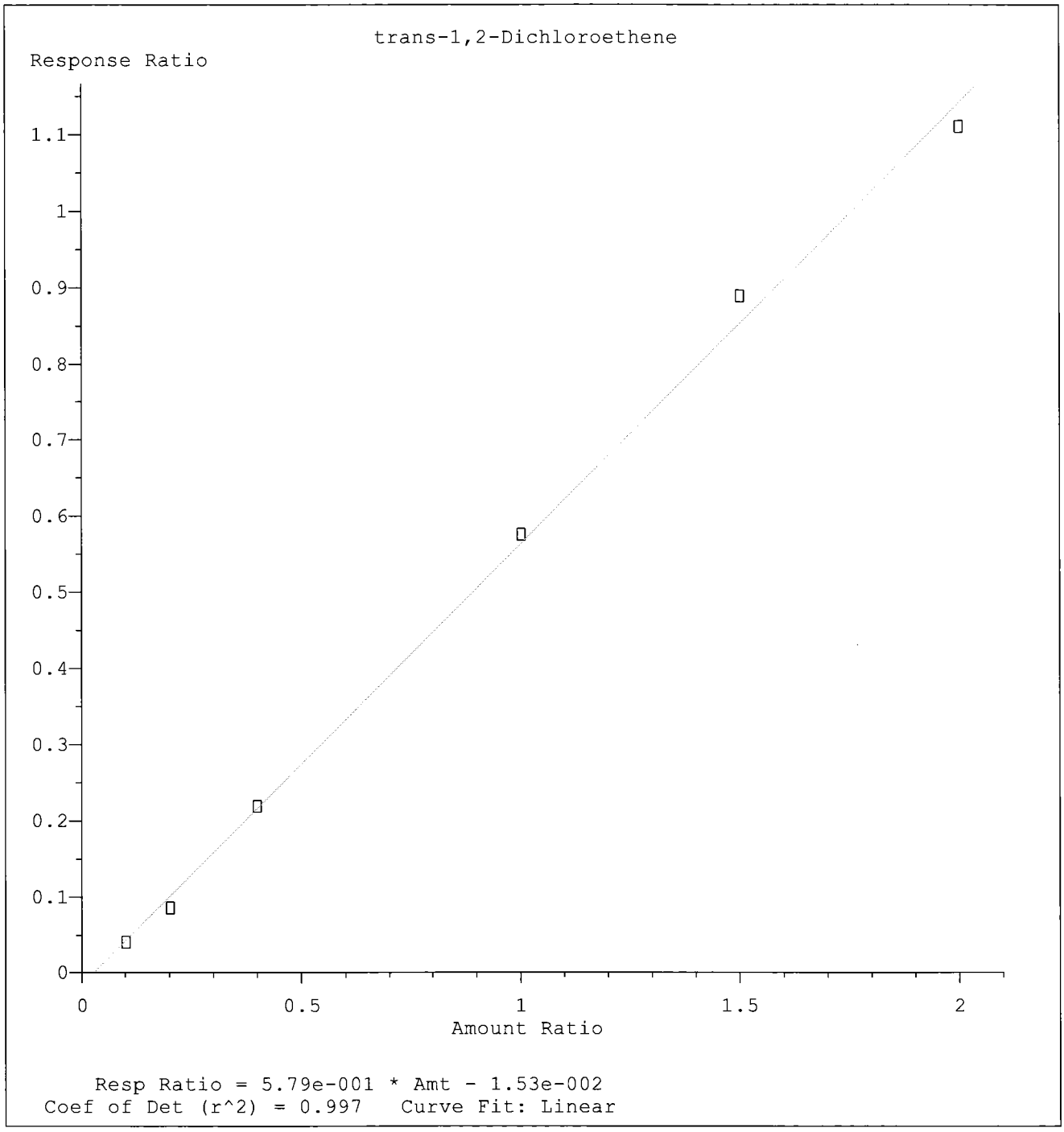
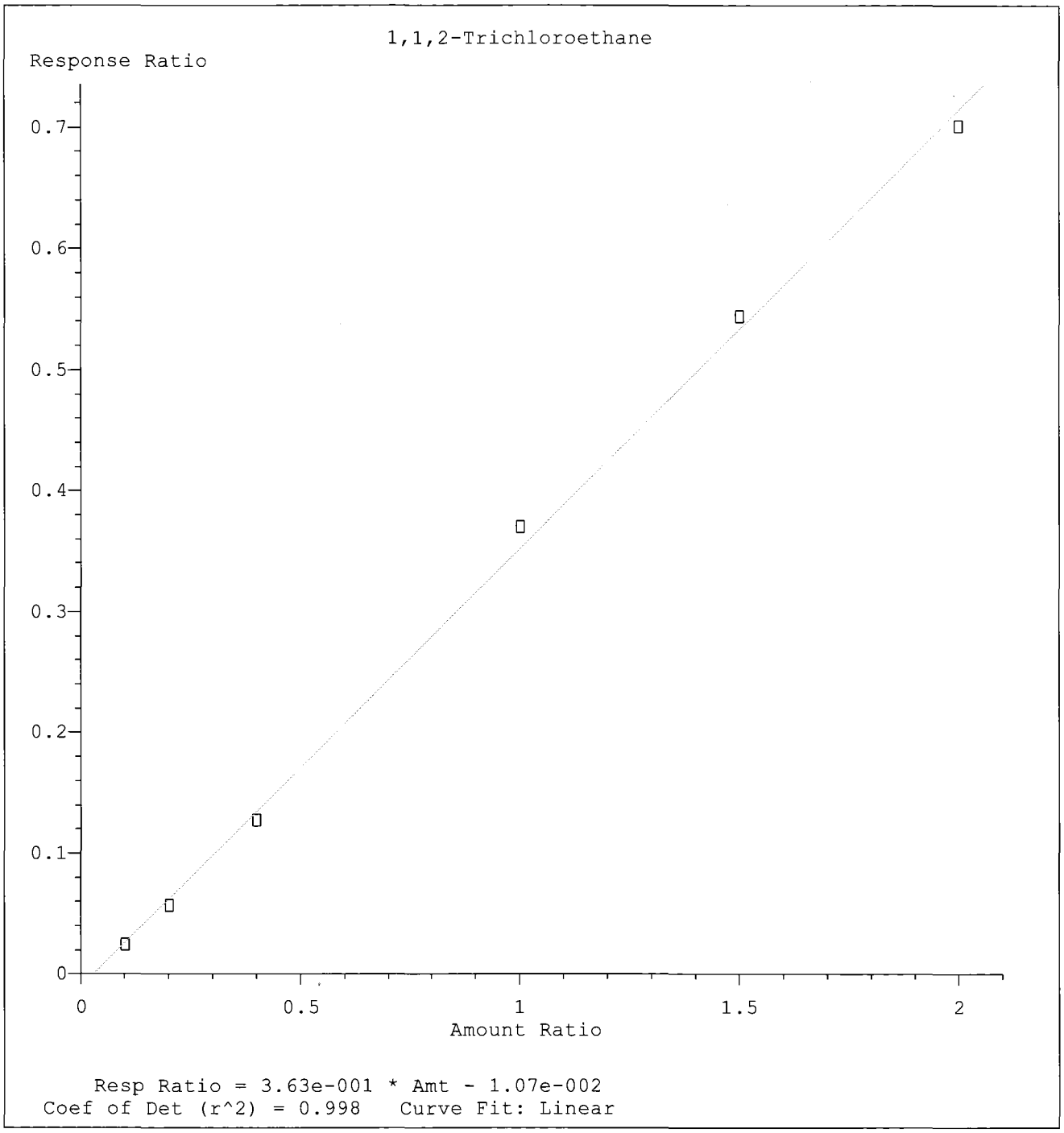
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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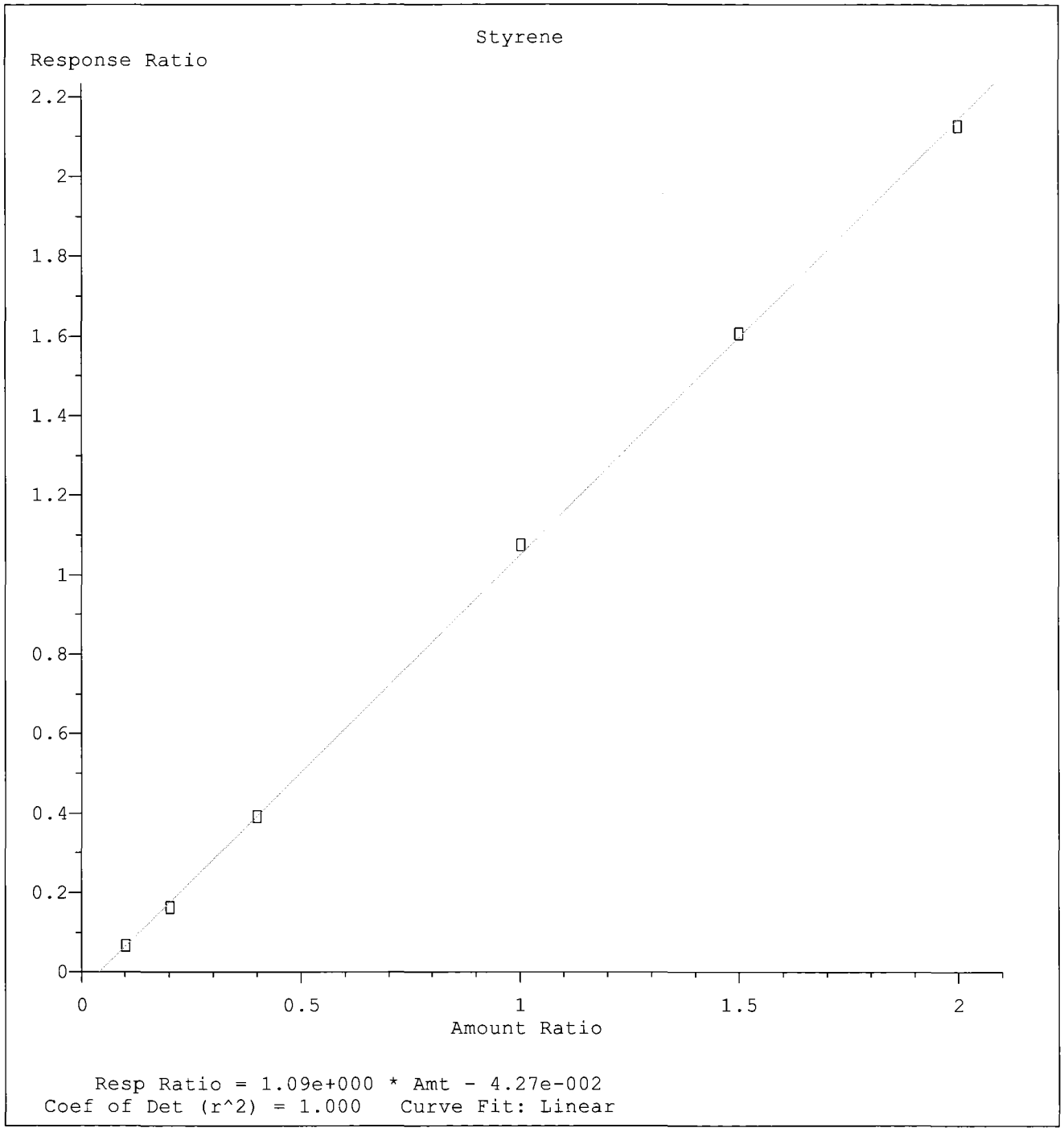
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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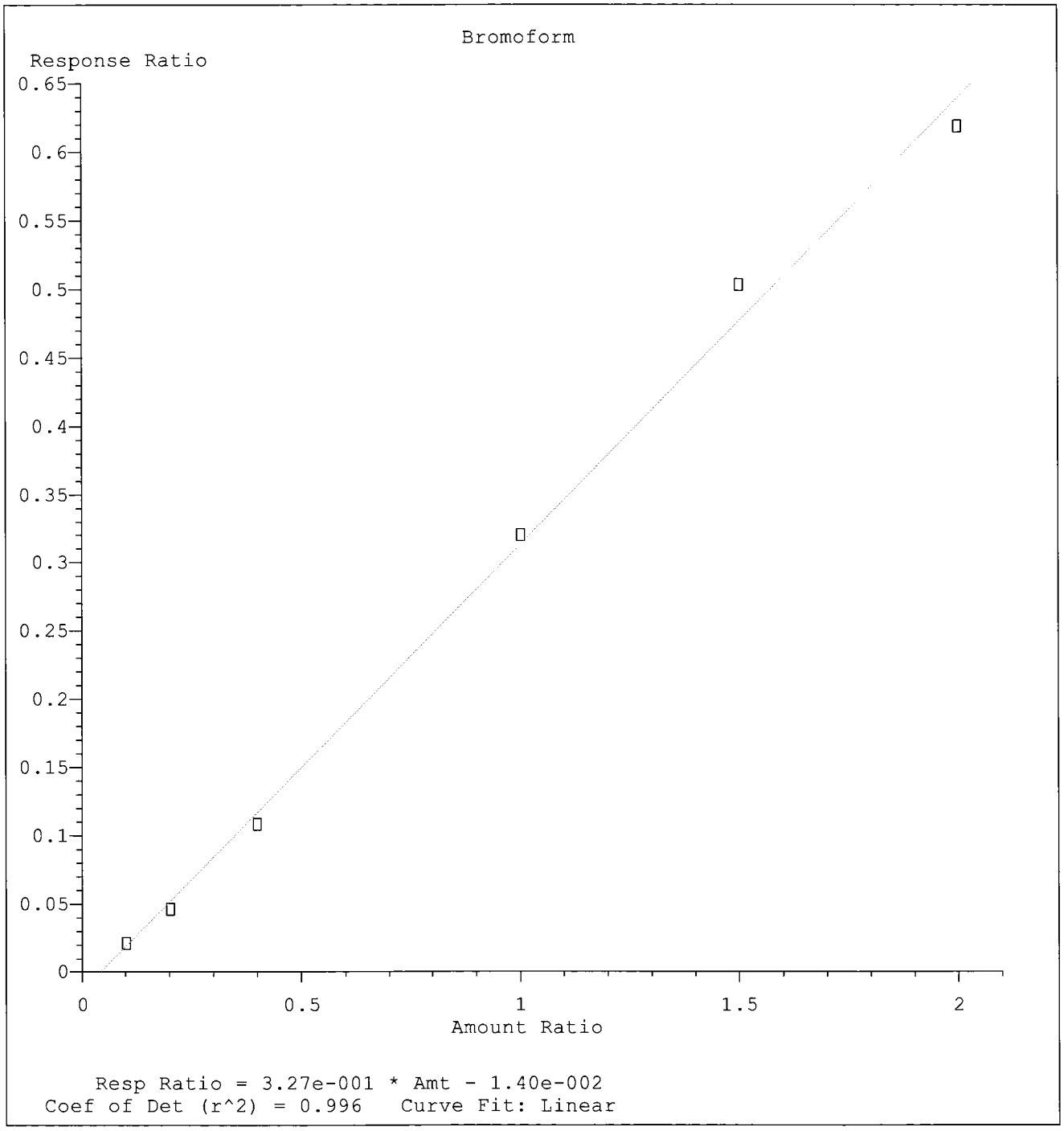
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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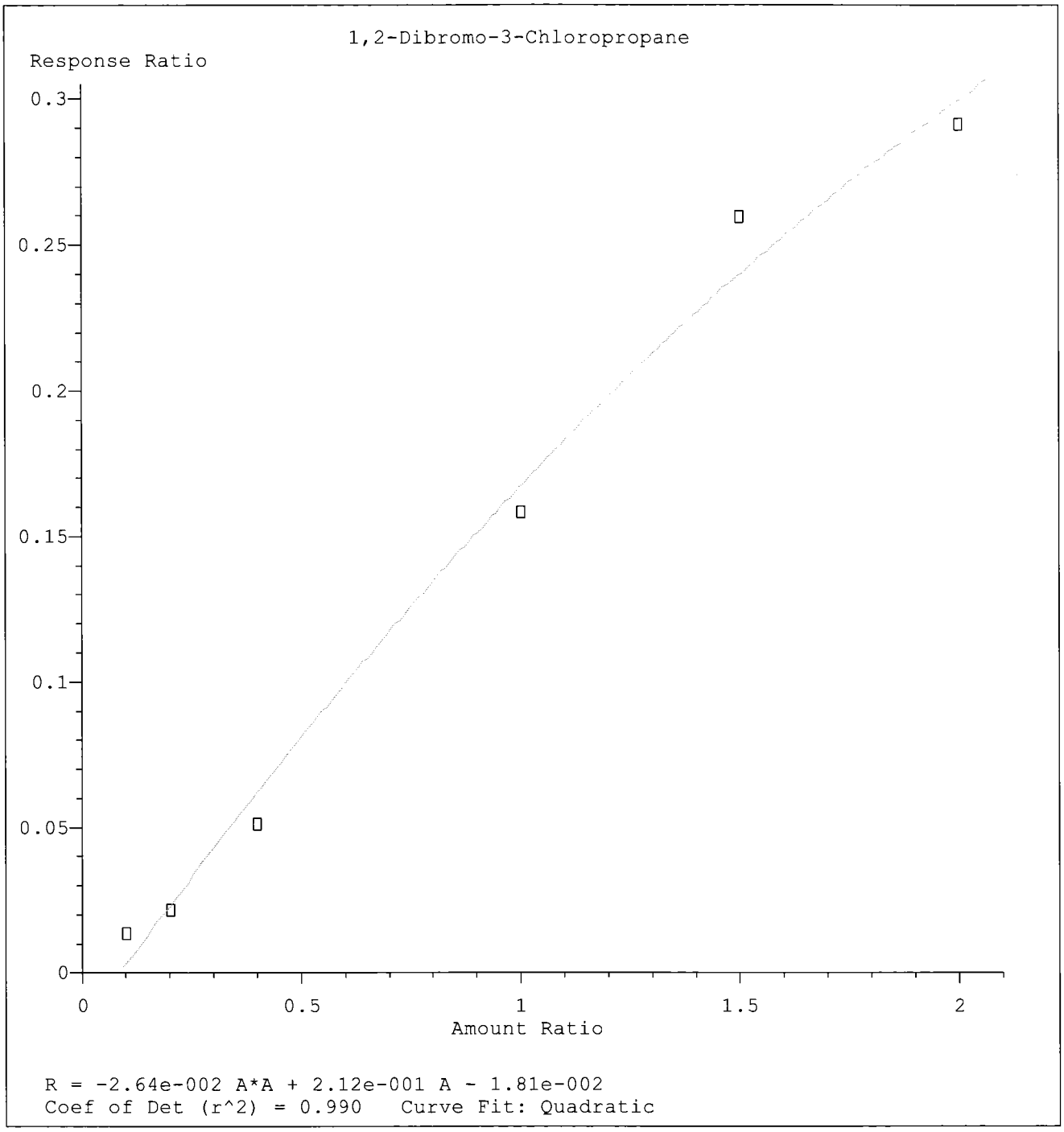
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030544.D BFB Injection Date: 01/05/2012

Instrument ID: MSVOA_F BFB Injection Time: 02:40

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.1
75	30.0 - 60.0% of mass 95	45.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	76.3
175	5.0 - 9.0% of mass 174	4.7 (6.1) 1
176	95.0 - 101.0% of mass 174	73.7 (96.6) 1
177	5.0 - 9.0% of mass 176	4.4 (6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030545.D	01/05/2012	03:10
VBF0104S2	VBF0104S2	VF030546.D	01/05/2012	03:41
BSF0104S3	BSF0104S3	VF030547.D	01/05/2012	04:11
12SB07-000.5-01	C5146-01	VF030549.D	01/05/2012	05:13
12SB07-0304-03	C5146-03	VF030551.D	01/05/2012	06:15
12SB08-000.5-01	C5146-04	VF030552.D	01/05/2012	06:46
12SB08-0.502-02	C5146-05	VF030553.D	01/05/2012	07:18
12SB08-0304-03	C5146-06	VF030554.D	01/05/2012	07:49
12SB12-0.502-02	C5146-10	VF030555.D	01/05/2012	08:20
12SB12-0304-03	C5146-11	VF030556.D	01/05/2012	08:51
12SB06-000.5-01	C5146-12	VF030557.D	01/05/2012	09:22
12SB06-0.502-02	C5146-13	VF030558.D	01/05/2012	09:53
12SB06-0304-03	C5146-14	VF030559.D	01/05/2012	10:24
12SB17-000.5-01	C5146-15	VF030560.D	01/05/2012	10:55

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 03:10

Lab File ID: VF030545.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.715	0.723		1.12	
Chloromethane	1.186	1.245	0.1	4.97	
Vinyl Chloride	0.76	0.816		7.37	20
Bromomethane	0.363	0.409		12.67	
Chloroethane	0.225	0.271		20.44	
Trichlorofluoromethane	0.835	0.948		13.53	
1,1,2-Trichlorotrifluoroethane	0.539	0.591		9.65	
1,1-Dichloroethene	0.521	0.567		8.83	20
Acetone	0.405	0.415		2.47	
Carbon Disulfide	1.631	1.695		3.92	
Methyl tert-butyl Ether	1.801	2.037		13.1	
Methyl Acetate	1.528	1.630		6.68	
Methylene Chloride	0.689	0.766		11.18	
trans-1,2-Dichloroethene	0.515	0.595		15.53	
1,1-Dichloroethane	1.144	1.300	0.1	13.64	
Cyclohexane	1.098	1.188		8.2	
2-Butanone	0.641	0.652		1.72	
Carbon Tetrachloride	0.481	0.506		5.2	
cis-1,2-Dichloroethene	0.748	0.880		17.65	
Bromochloromethane	0.876	0.906		3.42	
Chloroform	1.344	1.574		17.11	20
1,1,1-Trichloroethane	0.816	0.891		9.19	
Methylcyclohexane	0.537	0.517		-3.72	
Benzene	1.389	1.466		5.54	
1,2-Dichloroethane	0.566	0.624		10.25	
Trichloroethene	0.483	0.534		10.56	
1,2-Dichloropropane	0.417	0.459		10.07	20
Bromodichloromethane	0.55	0.601		9.27	
4-Methyl-2-Pentanone	0.557	0.545		-2.15	
Toluene	0.788	0.833		5.71	20
t-1,3-Dichloropropene	0.603	0.642		6.47	
cis-1,3-Dichloropropene	0.666	0.716		7.51	
1,1,2-Trichloroethane	0.322	0.361		12.11	
2-Hexanone	0.435	0.426		-2.07	
Dibromochloromethane	0.386	0.441		14.25	
1,2-Dibromoethane	0.374	0.390		4.28	
Tetrachloroethene	0.53	0.543		2.45	
Chlorobenzene	0.981	1.035	0.3	5.5	
Ethyl Benzene	1.595	1.708		7.08	20
m/p-Xylenes	0.579	0.608		5.01	
o-Xylene	0.588	0.621		5.61	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 03:10

Lab File ID: VF030545.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.052		11.32	
Bromoform	0.279	0.297	0.1	6.45	
Isopropylbenzene	2.911	3.196		9.79	
1,1,2,2-Tetrachloroethane	0.367	0.349	0.3	-4.9	
1,3-Dichlorobenzene	1.507	1.630		8.16	
1,4-Dichlorobenzene	1.579	1.661		5.19	
1,2-Dichlorobenzene	1.476	1.600		8.4	
1,2-Dibromo-3-Chloropropane	0.141	0.146		3.55	
1,2,4-Trichlorobenzene	1.014	1.069		5.42	
1,2,3-Trichlorobenzene	0.939	0.992		5.64	
1,2-Dichloroethane-d4	0.925	0.966		4.43	
Dibromofluoromethane	0.443	0.444		0.23	
Toluene-d8	1.153	1.136		-1.47	
4-Bromofluorobenzene	0.499	0.492		-1.4	
1,4-Dioxane	0.004	0.003		-25	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010412\
Data File : VF030545.D
Acq On : 5 Jan 2012 3:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 05 06:59:06 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	92	0.00
2	T	Dichlorodifluoromethane	50.000	50.553	-1.1	89	0.00
3	P	Chloromethane	50.000	52.498	-5.0	90	0.00
4	C	Vinyl Chloride	50.000	53.672	-7.3#	90	0.00
5	T	Bromomethane	50.000	56.418	-12.8	97	0.00
6	T	Chloroethane	50.000	55.354	-10.7	101	0.00
7	T	Trichlorofluoromethane	50.000	53.090	-6.2	91	0.01
8	T	Diethyl Ether	50.000	51.939	-3.9	88	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	54.784	-9.6	92	0.00
10	T	Methyl Iodide	50.000	52.041	-4.1	93	0.02
11	T	Tert butyl alcohol	250.000	254.310	-1.7	82	0.00
12	CM	1,1-Dichloroethene	50.000	54.424	-8.8#	93	0.01
13	T	Acrolein	250.000	209.220	16.3	77	0.00
14	T	Allyl chloride	50.000	54.059	-8.1	91	0.00
15	T	Acrylonitrile	250.000	255.856	-2.3	84	0.00
16	T	Acetone	250.000	204.845	18.1	78	0.00
17	T	Carbon Disulfide	50.000	51.964	-3.9	85	0.01
18	T	Methyl Acetate	50.000	44.509	11.0	88	0.00
19	T	Methyl tert-butyl Ether	50.000	56.556	-13.1	92	0.00
20	T	Methylene Chloride	50.000	55.593	-11.2	94	0.00
21	T	trans-1,2-Dichloroethene	50.000	52.713	-5.4	96	0.00
22	T	Diisopropyl ether	50.000	55.607	-11.2	93	0.00
23	T	Vinyl Acetate	250.000	202.321	19.1	66	0.01
24	P	1,1-Dichloroethane	50.000	56.794	-13.6	94	0.00
25	T	2-Butanone	250.000	254.217	-1.7	83	0.00
26	T	2,2-Dichloropropane	50.000	50.707	-1.4	85	0.01
27	T	cis-1,2-Dichloroethene	50.000	58.799	-17.6	99	0.01
28	T	Bromochloromethane	50.000	51.697	-3.4	95	0.00
29	C	Chloroform	50.000	58.549	-17.1#	98	0.00
30	T	Cyclohexane	50.000	54.105	-8.2	90	0.00
31	T	1,1,1-Trichloroethane	50.000	54.571	-9.1	91	0.00
32	S	1,2-Dichloroethane-d4	50.000	52.238	-4.5	96	0.01
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	97	0.00
34	S	Dibromofluoromethane	50.000	50.117	-0.2	100	0.01
35	T	1,1-Dichloropropene	50.000	50.281	-0.6	92	0.00
36	T	Ethyl Acetate	50.000	47.996	4.0	86	0.00
37	T	Carbon Tetrachloride	50.000	52.583	-5.2	92	0.00
38	T	Methylcyclohexane	50.000	48.153	3.7	91	0.00
39	TM	Benzene	50.000	52.756	-5.5	98	0.00
40	T	Methacrylonitrile	50.000	49.992	0.0	87	0.00
41	TM	1,2-Dichloroethane	50.000	55.116	-10.2	96	0.00
42	T	Isopropyl Acetate	50.000	49.390	1.2	84	0.01
43	TM	Trichloroethene	50.000	55.287	-10.6	102	0.01
44	C	1,2-Dichloropropane	50.000	55.051	-10.1#	99	0.00
45	T	Dibromomethane	50.000	50.120	-0.2	93	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010412\
Data File : VF030545.D
Acq On : 5 Jan 2012 3:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 05 06:59:06 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	54.619	-9.2	96	0.00
47	T	Methyl methacrylate	50.000	46.113	7.8	88	0.01
48	T	1,4-Dioxane	1000.000	760.376	24.0#	72	0.00
49	S	Toluene-d8	50.000	49.297	1.4	97	0.00
50	T	4-Methyl-2-Pentanone	250.000	244.776	2.1	86	0.00
51	CM	Toluene	50.000	52.886	-5.8#	94	0.00
52	T	t-1,3-Dichloropropene	50.000	48.090	3.8	90	0.01
53	T	cis-1,3-Dichloropropene	50.000	53.711	-7.4	94	0.00
54	T	1,1,2-Trichloroethane	50.000	51.215	-2.4	95	0.00
55	T	Ethyl methacrylate	50.000	47.266	5.5	89	0.00
56	T	1,3-Dichloropropane	50.000	52.370	-4.7	93	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	242.062	3.2	89	0.00
58	T	2-Hexanone	250.000	244.765	2.1	87	0.00
59	T	Dibromochloromethane	50.000	50.501	-1.0	96	0.01
60	T	1,2-Dibromoethane	50.000	52.086	-4.2	91	0.00
61	S	4-Bromofluorobenzene	50.000	49.220	1.6	97	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	98	0.01
63	T	Tetrachloroethene	50.000	51.226	-2.5	92	0.00
64	PM	Chlorobenzene	50.000	52.722	-5.4	97	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	50.575	-1.2	97	0.01
66	C	Ethyl Benzene	50.000	53.549	-7.1#	96	0.00
67	T	m/p-Xylenes	100.000	105.020	-5.0	95	0.01
68	T	o-Xylene	50.000	52.796	-5.6	93	0.01
69	T	Styrene	50.000	50.076	-0.2	96	0.00
70	P	Bromoform	50.000	47.571	4.9	91	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	94	0.00
72	T	Isopropylbenzene	50.000	54.890	-9.8	93	0.00
73	T	N-amyl acetate	50.000	51.454	-2.9	85	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	47.580	4.8	82	0.00
75	T	1,2,3-Trichloropropane	50.000	55.091	-10.2	94	0.00
76	T	Bromobenzene	50.000	54.582	-9.2	92	0.00
77	T	n-propylbenzene	50.000	53.309	-6.6	92	0.00
78	T	2-Chlorotoluene	50.000	54.063	-8.1	93	0.01
79	T	1,3,5-Trimethylbenzene	50.000	55.912	-11.8	94	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	47.548	4.9	85	0.01
81	T	4-Chlorotoluene	50.000	55.292	-10.6	97	0.01
82	T	tert-Butylbenzene	50.000	53.928	-7.9	92	0.01
83	T	1,2,4-Trimethylbenzene	50.000	54.242	-8.5	92	0.00
84	T	sec-Butylbenzene	50.000	53.562	-7.1	92	0.00
85	T	p-Isopropyltoluene	50.000	53.889	-7.8	92	0.00
86	T	1,3-Dichlorobenzene	50.000	54.085	-8.2	93	0.00
87	T	1,4-Dichlorobenzene	50.000	52.590	-5.2	92	0.00
88	T	n-Butylbenzene	50.000	52.317	-4.6	87	0.00
89	T	Hexachloroethane	50.000	48.191	3.6	89	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010412\
Data File : VF030545.D
Acq On : 5 Jan 2012 3:10
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 05 06:59:06 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	54.175	-8.3	93	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	43.520	13.0	87	0.00
92	T	1,2,4-Trichlorobenzene	50.000	52.704	-5.4	89	0.00
93	T	Hexachlorobutadiene	50.000	49.947	0.1	86	0.00
94	T	Naphthalene	50.000	51.509	-3.0	86	0.00
95	T	1,2,3-Trichlorobenzene	50.000	52.867	-5.7	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0104S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030546.D Lab Sample ID: VBF0104S2

Date Analyzed: 01/05/2012 Time Analyzed: 03:41

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0104S3	BSF0104S3	VF030547.D	01/05/2012
12SB07-000.5-01	C5146-01	VF030549.D	01/05/2012
12SB07-0304-03	C5146-03	VF030551.D	01/05/2012
12SB08-000.5-01	C5146-04	VF030552.D	01/05/2012
12SB08-0.502-02	C5146-05	VF030553.D	01/05/2012
12SB08-0304-03	C5146-06	VF030554.D	01/05/2012
12SB12-0.502-02	C5146-10	VF030555.D	01/05/2012
12SB12-0304-03	C5146-11	VF030556.D	01/05/2012
12SB06-000.5-01	C5146-12	VF030557.D	01/05/2012
12SB06-0.502-02	C5146-13	VF030558.D	01/05/2012
12SB06-0304-03	C5146-14	VF030559.D	01/05/2012
12SB17-000.5-01	C5146-15	VF030560.D	01/05/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S2	SDG No.:	C5146
Lab Sample ID:	VBF0104S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030546.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S2	SDG No.:	C5146
Lab Sample ID:	VBF0104S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030546.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.3		55 - 158	103%	SPK: 50
1868-53-7	Dibromofluoromethane	52.7		53 - 156	105%	SPK: 50
2037-26-5	Toluene-d8	49.4		85 - 115	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.2		85 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	116839	4.37			
540-36-3	1,4-Difluorobenzene	212752	5.12			
3114-55-4	Chlorobenzene-d5	203144	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	100297	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSF0104S3 Analytical Method: EPA SW846 8260 Datafile : VF030547.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(47-135)
Chloromethane	20		20	100	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		24	120	(45-158)
Chloroethane	20		24	120	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		21	105	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		100	100	(57-148)
Carbon Disulfide	20		22	110	(60-138)
Methyl tert-butyl Ether	20		23	115	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		23	115	(63-140)
trans-1,2-Dichloroethene	20		21	105	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		110	110	(52-153)
Carbon Tetrachloride	20		19	95	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		24	120	(74-125)
Chloroform	20		23	115	(75-125)
1,1,1-Trichloroethane	20		22	110	(75-128)
Methylcyclohexane	20		18	90	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		22	110	(76-120)
Bromodichloromethane	20		21	105	(77-124)
4-Methyl-2-Pentanone	100		100	100	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		20	100	(79-122)
1,1,2-Trichloroethane	20		20	100	(76-125)
2-Hexanone	100		110	110	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSF0104S3 Analytical Method: EPA SW846 8260 Datafile : VF030547.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		19	95	(65-140)
Chlorobenzene	20		21	105	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		19	95	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		20	100	(71-125)
Isopropylbenzene	20		20	100	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		20	100	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		18	90	(71-124)
1,2,3-Trichlorobenzene	20		20	100	(74-123)
1,4-Dioxane	400		400	100	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030567.D BFB Injection Date: 01/05/2012

Instrument ID: MSVOA_F BFB Injection Time: 14:48

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.8
75	30.0 - 60.0% of mass 95	45.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	5.7
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	77.4
175	5.0 - 9.0% of mass 174	4.6 (6) 1
176	95.0 - 101.0% of mass 174	74.3 (96) 1
177	5.0 - 9.0% of mass 176	5.6 (7.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030569.D	01/05/2012	16:17
VBF0105S1	VBF0105S1	VF030570.D	01/05/2012	16:59
BSF0105S1	BSF0105S1	VF030571.D	01/05/2012	17:38
12SB12-000.5-01MS	C5146-08MS	VF030572.D	01/05/2012	18:08
12SB12-000.5-01MSD	C5146-09MSD	VF030573.D	01/05/2012	18:39
12SB07-0.502-02	C5146-02	VF030580.D	01/05/2012	22:16
12SB12-000.5-01	C5146-07	VF030581.D	01/05/2012	22:47
12SB17-0.502-02	C5146-16	VF030585.D	01/06/2012	00:52
12SB17-0304-03	C5146-17	VF030586.D	01/06/2012	01:23
12SB27-000.5-01	C5146-18	VF030587.D	01/06/2012	01:54

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 16:17

Lab File ID: VF030569.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.715	0.806		12.73	
Chloromethane	1.186	1.264	0.1	6.58	
Vinyl Chloride	0.76	0.912		20	20
Bromomethane	0.363	0.387		6.61	
Chloroethane	0.225	0.283		25.78	
Trichlorofluoromethane	0.835	1.038		24.31	
1,1,2-Trichlorotrifluoroethane	0.539	0.669		24.12	
1,1-Dichloroethene	0.521	0.641		23.03	20
Acetone	0.405	0.478		18.02	
Carbon Disulfide	1.631	1.925		18.03	
Methyl tert-butyl Ether	1.801	2.022		12.27	
Methyl Acetate	1.528	1.698		11.13	
Methylene Chloride	0.689	0.745		8.13	
trans-1,2-Dichloroethene	0.515	0.615		19.42	
1,1-Dichloroethane	1.144	1.354	0.1	18.36	
Cyclohexane	1.098	1.198		9.11	
2-Butanone	0.641	0.629		-1.87	
Carbon Tetrachloride	0.481	0.568		18.09	
cis-1,2-Dichloroethene	0.748	0.799		6.82	
Bromochloromethane	0.876	0.816		-6.85	
Chloroform	1.344	1.400		4.17	20
1,1,1-Trichloroethane	0.816	0.898		10.05	
Methylcyclohexane	0.537	0.596		10.99	
Benzene	1.389	1.470		5.83	
1,2-Dichloroethane	0.566	0.632		11.66	
Trichloroethene	0.483	0.532		10.14	
1,2-Dichloropropane	0.417	0.440		5.52	20
Bromodichloromethane	0.55	0.610		10.91	
4-Methyl-2-Pentanone	0.557	0.567		1.8	
Toluene	0.788	0.836		6.09	20
t-1,3-Dichloropropene	0.603	0.672		11.44	
cis-1,3-Dichloropropene	0.666	0.747		12.16	
1,1,2-Trichloroethane	0.322	0.347		7.76	
2-Hexanone	0.435	0.439		0.92	
Dibromochloromethane	0.386	0.444		15.03	
1,2-Dibromoethane	0.374	0.394		5.35	
Tetrachloroethene	0.53	0.577		8.87	
Chlorobenzene	0.981	1.060	0.3	8.05	
Ethyl Benzene	1.595	1.808		13.35	20
m/p-Xylenes	0.579	0.643		11.05	
o-Xylene	0.588	0.651		10.71	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date/Time: 01/05/2012 16:17

Lab File ID: VF030569.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.070		13.23	
Bromoform	0.279	0.306	0.1	9.68	
Isopropylbenzene	2.911	3.213		10.37	
1,1,2,2-Tetrachloroethane	0.367	0.372	0.3	1.36	
1,3-Dichlorobenzene	1.507	1.626		7.9	
1,4-Dichlorobenzene	1.579	1.658		5	
1,2-Dichlorobenzene	1.476	1.580		7.05	
1,2-Dibromo-3-Chloropropane	0.141	0.145		2.84	
1,2,4-Trichlorobenzene	1.014	1.135		11.93	
1,2,3-Trichlorobenzene	0.939	1.033		10.01	
1,2-Dichloroethane-d4	0.925	0.848		-8.32	
Dibromofluoromethane	0.443	0.410		-7.45	
Toluene-d8	1.153	1.072		-7.03	
4-Bromofluorobenzene	0.499	0.467		-6.41	
1,4-Dioxane	0.004	0.004		0	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF010512\
Data File : VF030569.D
Acq On : 5 Jan 2012 16:17
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 05 17:03:27 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	106	0.01
2	T	Dichlorodifluoromethane	50.000	56.343	-12.7	115	0.00
3	P	Chloromethane	50.000	53.302	-6.6	106	0.01
4	C	Vinyl Chloride	50.000	59.983	-20.0#	116	0.01
5	T	Bromomethane	50.000	53.293	-6.6	106	0.00
6	T	Chloroethane	50.000	58.704	-17.4	122	0.01
7	T	Trichlorofluoromethane	50.000	58.108	-16.2	114	0.01
8	T	Diethyl Ether	50.000	54.852	-9.7	106	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	62.022	-24.0#	119	0.01
10	T	Methyl Iodide	50.000	52.072	-4.1	106	0.01
11	T	Tert butyl alcohol	250.000	262.634	-5.1	98	0.01
12	CM	1,1-Dichloroethene	50.000	61.593	-23.2#	121	0.01
13	T	Acrolein	250.000	293.892	-17.6	124	0.00
14	T	Allyl chloride	50.000	57.260	-14.5	111	0.01
15	T	Acrylonitrile	250.000	267.650	-7.1	101	0.01
16	T	Acetone	250.000	237.628	4.9	103	0.01
17	T	Carbon Disulfide	50.000	59.029	-18.1	111	0.00
18	T	Methyl Acetate	50.000	46.450	7.1	105	0.01
19	T	Methyl tert-butyl Ether	50.000	56.134	-12.3	105	0.01
20	T	Methylene Chloride	50.000	54.021	-8.0	105	0.01
21	T	trans-1,2-Dichloroethene	50.000	54.469	-8.9	114	0.01
22	T	Diisopropyl ether	50.000	58.232	-16.5	112	0.01
23	T	Vinyl Acetate	250.000	298.370	-19.3	113	0.01
24	P	1,1-Dichloroethane	50.000	59.181	-18.4	112	0.01
25	T	2-Butanone	250.000	245.557	1.8	92	0.01
26	T	2,2-Dichloropropane	50.000	53.969	-7.9	105	0.02
27	T	cis-1,2-Dichloroethene	50.000	53.380	-6.8	103	0.01
28	T	Bromochloromethane	50.000	46.579	6.8	98	0.01
29	C	Chloroform	50.000	52.072	-4.1#	100	0.02
30	T	Cyclohexane	50.000	54.533	-9.1	104	0.01
31	T	1,1,1-Trichloroethane	50.000	54.992	-10.0	106	0.01
32	S	1,2-Dichloroethane-d4	50.000	45.867	8.3	97	0.02
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	99	0.01
34	S	Dibromofluoromethane	50.000	46.232	7.5	94	0.02
35	T	1,1-Dichloropropene	50.000	55.578	-11.2	105	0.01
36	T	Ethyl Acetate	50.000	52.582	-5.2	96	0.01
37	T	Carbon Tetrachloride	50.000	59.042	-18.1	106	0.01
38	T	Methylcyclohexane	50.000	55.540	-11.1	108	0.01
39	TM	Benzene	50.000	52.904	-5.8	100	0.01
40	T	Methacrylonitrile	50.000	54.293	-8.6	97	0.01
41	TM	1,2-Dichloroethane	50.000	55.829	-11.7	99	0.01
42	T	Isopropyl Acetate	50.000	51.662	-3.3	90	0.02
43	TM	Trichloroethene	50.000	55.058	-10.1	104	0.02
44	C	1,2-Dichloropropane	50.000	52.722	-5.4#	97	0.02
45	T	Dibromomethane	50.000	50.075	-0.2	95	0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF010512\
Data File : VF030569.D
Acq On : 5 Jan 2012 16:17
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 05 17:03:27 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	55.385	-10.8	100	0.02
47	T	Methyl methacrylate	50.000	49.330	1.3	97	0.02
48	T	1,4-Dioxane	1000.000	866.842	13.3	85	0.01
49	S	Toluene-d8	50.000	46.500	7.0	93	0.01
50	T	4-Methyl-2-Pentanone	250.000	254.800	-1.9	92	0.01
51	CM	Toluene	50.000	53.061	-6.1#	97	0.01
52	T	t-1,3-Dichloropropene	50.000	50.259	-0.5	97	0.02
53	T	cis-1,3-Dichloropropene	50.000	56.074	-12.1	100	0.01
54	T	1,1,2-Trichloroethane	50.000	49.286	1.4	93	0.01
55	T	Ethyl methacrylate	50.000	46.777	6.4	90	0.01
56	T	1,3-Dichloropropane	50.000	52.892	-5.8	96	0.01
57	T	2-Chloroethyl Vinyl ether	250.000	231.319	7.5	87	0.01
58	T	2-Hexanone	250.000	252.175	-0.9	92	0.01
59	T	Dibromochloromethane	50.000	50.810	-1.6	99	0.01
60	T	1,2-Dibromoethane	50.000	52.630	-5.3	94	0.01
61	S	4-Bromofluorobenzene	50.000	46.805	6.4	94	0.01
62	I	Chlorobenzene-d5	50.000	50.000	0.0	98	0.01
63	T	Tetrachloroethene	50.000	54.375	-8.8	98	0.01
64	PM	Chlorobenzene	50.000	54.044	-8.1	100	0.01
65	T	1,1,1,2-Tetrachloroethane	50.000	50.478	-1.0	96	0.01
66	C	Ethyl Benzene	50.000	56.662	-13.3#	102	0.01
67	T	m/p-Xylenes	100.000	110.938	-10.9	100	0.01
68	T	o-Xylene	50.000	55.332	-10.7	97	0.01
69	T	Styrene	50.000	50.912	-1.8	98	0.01
70	P	Bromoform	50.000	48.852	2.3	94	0.01
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	101	0.01
72	T	Isopropylbenzene	50.000	55.182	-10.4	100	0.01
73	T	N-amyl acetate	50.000	51.247	-2.5	91	0.01
74	P	1,1,2,2-Tetrachloroethane	50.000	50.716	-1.4	94	0.01
75	T	1,2,3-Trichloropropane	50.000	51.843	-3.7	95	0.00
76	T	Bromobenzene	50.000	51.586	-3.2	94	0.01
77	T	n-propylbenzene	50.000	55.227	-10.5	102	0.01
78	T	2-Chlorotoluene	50.000	54.214	-8.4	100	0.01
79	T	1,3,5-Trimethylbenzene	50.000	56.145	-12.3	102	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	47.353	5.3	92	0.01
81	T	4-Chlorotoluene	50.000	54.517	-9.0	103	0.01
82	T	tert-Butylbenzene	50.000	55.562	-11.1	102	0.01
83	T	1,2,4-Trimethylbenzene	50.000	55.335	-10.7	101	0.01
84	T	sec-Butylbenzene	50.000	56.129	-12.3	104	0.00
85	T	p-Isopropyltoluene	50.000	55.908	-11.8	103	0.01
86	T	1,3-Dichlorobenzene	50.000	53.954	-7.9	100	0.01
87	T	1,4-Dichlorobenzene	50.000	52.511	-5.0	99	0.00
88	T	n-Butylbenzene	50.000	57.002	-14.0	102	0.00
89	T	Hexachloroethane	50.000	50.990	-2.0	102	0.01

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_F\Data\VF010512\
Data File : VF030569.D
Acq On : 5 Jan 2012 16:17
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 05 17:03:27 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	53.517	-7.0	99	0.01
91	T	1,2-Dibromo-3-Chloropropane	50.000	43.285	13.4	93	0.00
92	T	1,2,4-Trichlorobenzene	50.000	55.942	-11.9	101	0.00
93	T	Hexachlorobutadiene	50.000	56.047	-12.1	104	0.01
94	T	Naphthalene	50.000	52.439	-4.9	95	0.00
95	T	1,2,3-Trichlorobenzene	50.000	55.024	-10.0	98	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0105S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030570.D Lab Sample ID: VBF0105S1

Date Analyzed: 01/05/2012 Time Analyzed: 16:59

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0105S1	BSF0105S1	VF030571.D	01/05/2012
12SB12-000.5-01MS	C5146-08MS	VF030572.D	01/05/2012
12SB12-000.5-01MSD	C5146-09MSD	VF030573.D	01/05/2012
12SB07-0.502-02	C5146-02	VF030580.D	01/05/2012
12SB12-000.5-01	C5146-07	VF030581.D	01/05/2012
12SB17-0.502-02	C5146-16	VF030585.D	01/06/2012
12SB17-0304-03	C5146-17	VF030586.D	01/06/2012
12SB27-000.5-01	C5146-18	VF030587.D	01/06/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S1	SDG No.:	C5146
Lab Sample ID:	VBF0105S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030570.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S1	SDG No.:	C5146
Lab Sample ID:	VBF0105S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030570.D	1		01/05/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47		55 - 158	94%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	47		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.8		85 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	134068	4.39			
540-36-3	1,4-Difluorobenzene	232349	5.13			
3114-55-4	Chlorobenzene-d5	202346	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	105306	12.24			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSF0105S1 Analytical Method: EPA SW846 8260 Datafile : VF030571.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		22	110	(45-158)
Chloroethane	20		23	115	(42-155)
Trichlorofluoromethane	20		22	110	(55-146)
1,1,2-Trichlorotrifluoroethane	20		22	110	(65-134)
1,1-Dichloroethene	20		21	105	(65-135)
Acetone	100		97	97	(57-148)
Carbon Disulfide	20		23	115	(60-138)
Methyl tert-butyl Ether	20		21	105	(70-131)
Methyl Acetate	20		21	105	(44-187)
Methylene Chloride	20		22	110	(63-140)
trans-1,2-Dichloroethene	20		22	110	(73-130)
1,1-Dichloroethane	20		22	110	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		100	100	(52-153)
Carbon Tetrachloride	20		22	110	(74-122)
cis-1,2-Dichloroethene	20		20	100	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		20	100	(75-125)
1,1,1-Trichloroethane	20		22	110	(75-128)
Methylcyclohexane	20		21	105	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		21	105	(76-120)
Bromodichloromethane	20		21	105	(77-124)
4-Methyl-2-Pentanone	100		100	100	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		20	100	(79-122)
1,1,2-Trichloroethane	20		21	105	(76-125)
2-Hexanone	100		100	100	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

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CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSF0105S1 Analytical Method: EPA SW846 8260 Datafile : VF030571.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		20	100	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		42	105	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		21	105	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		18	90	(66-132)
1,2,4-Trichlorobenzene	20		20	100	(71-124)
1,2,3-Trichlorobenzene	20		19	95	(74-123)
1,4-Dioxane	400		380	95	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5146-08 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030572.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	69	0	78	113	(42-135)
Chloromethane	69	0	73	106	(50-130)
Vinyl Chloride	69	0	87	126*	(60-125)
Bromomethane	69	0	70	101	(40-154)
Chloroethane	69	0	100	145	(40-155)
Trichlorofluoromethane	69	0	87	126	(46-159)
1,1,2-Trichlorotrifluoroethane	69	0	84	122	(59-140)
1,1-Dichloroethene	69	0	81	117	(65-135)
Acetone	347	0	300	86	(31-158)
Carbon Disulfide	69	0	81	117	(45-144)
Methyl tert-butyl Ether	69	0	77	112	(56-146)
Methyl Acetate	69	0	98	142	(16-205)
Methylene Chloride	69	0	74	107	(55-140)
trans-1,2-Dichloroethene	69	0	78	113	(65-135)
1,1-Dichloroethane	69	0	83	120	(75-125)
Cyclohexane	69	0	75	109	(51-136)
2-Butanone	347	0	330	95	(40-157)
Carbon Tetrachloride	69	0	90	130	(65-135)
cis-1,2-Dichloroethene	69	0	76	110	(65-125)
Bromochloromethane	69	0	63	91	(70-125)
Chloroform	69	0	76	110	(70-125)
1,1,1-Trichloroethane	69	0	86	125	(70-135)
Methylcyclohexane	69	0	66	96	(43-133)
Benzene	69	0	79	114	(75-125)
1,2-Dichloroethane	69	0	78	113	(70-135)
Trichloroethene	69	0	79	114	(75-125)
1,2-Dichloropropane	69	0	74	107	(70-120)
Bromodichloromethane	69	0	75	109	(70-130)
4-Methyl-2-Pentanone	347	0	350	101	(53-145)
Toluene	69	0	75	109	(70-125)
t-1,3-Dichloropropene	69	0	61	88	(65-125)
cis-1,3-Dichloropropene	69	0	68	99	(70-125)
1,1,2-Trichloroethane	69	0	68	99	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5146-08 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030572.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	347	0	310	89	(45-145)
Dibromochloromethane	69	0	65	94	(65-130)
1,2-Dibromoethane	69	0	68	99	(70-125)
Tetrachloroethene	69	0	78	113	(65-140)
Chlorobenzene	69	0	76	110	(75-125)
Ethyl Benzene	69	0	83	120	(75-125)
m/p-Xylenes	139	0	160	115	(80-125)
o-Xylene	69	0	78	113	(75-125)
Styrene	69	0	67	97	(75-125)
Bromoform	69	0	65	94	(62-135)
Isopropylbenzene	69	0	100	145*	(75-130)
1,1,2,2-Tetrachloroethane	69	0	84	122	(55-130)
1,3-Dichlorobenzene	69	0	80	116	(70-125)
1,4-Dichlorobenzene	69	0	76	110	(70-124)
1,2-Dichlorobenzene	69	0	75	109	(75-120)
1,2-Dibromo-3-Chloropropane	69	0	55	80	(44-135)
1,2,4-Trichlorobenzene	69	0	40	58*	(65-130)
1,2,3-Trichlorobenzene	69	0	33	48*	(60-135)
1,4-Dioxane	1389	0	1100	79	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 4 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5146-09 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030573.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	69	68	99	13	20	(42-135)
Chloromethane	69	64	93	13	20	(50-130)
Vinyl Chloride	69	71	103	20	20	(60-125)
Bromomethane	69	64	93	8	20	(40-154)
Chloroethane	69	76	110	27*	20	(40-155)
Trichlorofluoromethane	69	74	107	16	20	(46-159)
1,1,2-Trichlorotrifluoroethane	69	78	113	8	20	(59-140)
1,1-Dichloroethene	69	66	96	20	20	(65-135)
Acetone	347	240	69	22*	20	(31-158)
Carbon Disulfide	69	70	101	15	20	(45-144)
Methyl tert-butyl Ether	69	69	100	11	20	(56-146)
Methyl Acetate	69	86	125	13	20	(16-205)
Methylene Chloride	69	65	94	13	20	(55-140)
trans-1,2-Dichloroethene	69	66	96	16	20	(65-135)
1,1-Dichloroethane	69	73	106	12	20	(75-125)
Cyclohexane	69	66	96	13	20	(51-136)
2-Butanone	347	290	84	12	20	(40-157)
Carbon Tetrachloride	69	77	112	15	20	(65-135)
cis-1,2-Dichloroethene	69	66	96	14	20	(65-125)
Bromochloromethane	69	55	80	13	20	(70-125)
Chloroform	69	66	96	14	20	(70-125)
1,1,1-Trichloroethane	69	75	109	14	20	(70-135)
Methylcyclohexane	69	64	93	3	20	(43-133)
Benzene	69	69	100	13	20	(75-125)
1,2-Dichloroethane	69	69	100	12	20	(70-135)
Trichloroethene	69	66	96	17	20	(75-125)
1,2-Dichloropropane	69	67	97	10	20	(70-120)
Bromodichloromethane	69	67	97	12	20	(70-130)
4-Methyl-2-Pentanone	347	310	89	13	20	(53-145)
Toluene	69	67	97	12	20	(70-125)
t-1,3-Dichloropropene	69	56	81	8	20	(65-125)
cis-1,3-Dichloropropene	69	61	88	12	20	(70-125)
1,1,2-Trichloroethane	69	61	88	12	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5146-09 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030573.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
2-Hexanone	347	280	81	9	20	(45-145)
Dibromochloromethane	69	61	88	7	20	(65-130)
1,2-Dibromoethane	69	61	88	12	20	(70-125)
Tetrachloroethene	69	69	100	12	20	(65-140)
Chlorobenzene	69	69	100	10	20	(75-125)
Ethyl Benzene	69	75	109	10	20	(75-125)
m/p-Xylenes	139	150	108	6	20	(80-125)
o-Xylene	69	74	107	5	20	(75-125)
Styrene	69	62	90	7	20	(75-125)
Bromoform	69	63	91	3	20	(62-135)
Isopropylbenzene	69	88	128	12	20	(75-130)
1,1,2,2-Tetrachloroethane	69	92	133*	9	20	(55-130)
1,3-Dichlorobenzene	69	69	100	15	20	(70-125)
1,4-Dichlorobenzene	69	67	97	13	20	(70-124)
1,2-Dichlorobenzene	69	67	97	12	20	(75-120)
1,2-Dibromo-3-Chloropropane	69	67	97	19	20	(44-135)
1,2,4-Trichlorobenzene	69	43	62*	7	20	(65-130)
1,2,3-Trichlorobenzene	69	39	57*	17	20	(60-135)
1,4-Dioxane	1389	1200	86	8	20	(70-130)

RPD : 2 Out of 52 outside limits

Spike Recovery : 3 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030590.D BFB Injection Date: 01/06/2012

Instrument ID: MSVOA_F BFB Injection Time: 03:26

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.8
75	30.0 - 60.0% of mass 95	48.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	69.4
175	5.0 - 9.0% of mass 174	5.4 (7.7) 1
176	95.0 - 101.0% of mass 174	69.7 (100.5) 1
177	5.0 - 9.0% of mass 176	4.4 (6.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VF030591.D	01/06/2012	03:56
VBF0105S2	VBF0105S2	VF030592.D	01/06/2012	04:27
BSF0105S2	BSF0105S2	VF030593.D	01/06/2012	04:57
12SB27-0.502-02	C5146-19	VF030595.D	01/06/2012	05:59
12SB-DUP-08	C5146-20	VF030596.D	01/06/2012	06:30

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date/Time: 01/06/2012 03:56

Lab File ID: VF030591.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.715	0.676		-5.45	
Chloromethane	1.186	1.244	0.1	4.89	
Vinyl Chloride	0.76	0.845		11.18	20
Bromomethane	0.363	0.392		7.99	
Chloroethane	0.225	0.296		31.56	
Trichlorofluoromethane	0.835	0.950		13.77	
1,1,2-Trichlorotrifluoroethane	0.539	0.600		11.32	
1,1-Dichloroethene	0.521	0.592		13.63	20
Acetone	0.405	0.429		5.93	
Carbon Disulfide	1.631	1.779		9.07	
Methyl tert-butyl Ether	1.801	2.127		18.1	
Methyl Acetate	1.528	1.744		14.14	
Methylene Chloride	0.689	0.795		15.38	
trans-1,2-Dichloroethene	0.515	0.619		20.19	
1,1-Dichloroethane	1.144	1.397	0.1	22.12	
Cyclohexane	1.098	1.080		-1.64	
2-Butanone	0.641	0.620		-3.28	
Carbon Tetrachloride	0.481	0.504		4.78	
cis-1,2-Dichloroethene	0.748	0.876		17.11	
Bromochloromethane	0.876	0.869		-0.8	
Chloroform	1.344	1.583		17.78	20
1,1,1-Trichloroethane	0.816	0.926		13.48	
Methylcyclohexane	0.537	0.475		-11.55	
Benzene	1.389	1.464		5.4	
1,2-Dichloroethane	0.566	0.645		13.96	
Trichloroethene	0.483	0.522		8.07	
1,2-Dichloropropane	0.417	0.455		9.11	20
Bromodichloromethane	0.55	0.605		10	
4-Methyl-2-Pentanone	0.557	0.531		-4.67	
Toluene	0.788	0.809		2.66	20
t-1,3-Dichloropropene	0.603	0.669		10.95	
cis-1,3-Dichloropropene	0.666	0.694		4.2	
1,1,2-Trichloroethane	0.322	0.354		9.94	
2-Hexanone	0.435	0.400		-8.05	
Dibromochloromethane	0.386	0.449		16.32	
1,2-Dibromoethane	0.374	0.401		7.22	
Tetrachloroethene	0.53	0.540		1.89	
Chlorobenzene	0.981	1.023	0.3	4.28	
Ethyl Benzene	1.595	1.634		2.45	20
m/p-Xylenes	0.579	0.602		3.97	
o-Xylene	0.588	0.614		4.42	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOA_F Calibration Date/Time: 01/06/2012 03:56

Lab File ID: VF030591.D Init. Calib. Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Init. Calib. Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	0.945	1.066		12.8	
Bromoform	0.279	0.308	0.1	10.39	
Isopropylbenzene	2.911	2.950		1.34	
1,1,2,2-Tetrachloroethane	0.367	0.330	0.3	-10.08	
1,3-Dichlorobenzene	1.507	1.575		4.51	
1,4-Dichlorobenzene	1.579	1.586		0.44	
1,2-Dichlorobenzene	1.476	1.558		5.56	
1,2-Dibromo-3-Chloropropane	0.141	0.132		-6.38	
1,2,4-Trichlorobenzene	1.014	1.012		-0.2	
1,2,3-Trichlorobenzene	0.939	1.001		6.6	
1,2-Dichloroethane-d4	0.925	0.977		5.62	
Dibromofluoromethane	0.443	0.455		2.71	
Toluene-d8	1.153	1.100		-4.6	
4-Bromofluorobenzene	0.499	0.483		-3.21	
1,4-Dioxane	0.004	0.004		0	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010512\
Data File : VF030591.D
Acq On : 6 Jan 2012 3:56
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jan 06 07:39:00 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	85	0.00
2	T	Dichlorodifluoromethane	50.000	47.264	5.5	77	0.00
3	P	Chloromethane	50.000	52.454	-4.9	83	0.00
4	C	Vinyl Chloride	50.000	55.599	-11.2#	86	0.00
5	T	Bromomethane	50.000	54.071	-8.1	86	0.00
6	T	Chloroethane	50.000	62.249	-24.5#	102	0.00
7	T	Trichlorofluoromethane	50.000	53.167	-6.3	84	0.00
8	T	Diethyl Ether	50.000	54.906	-9.8	85	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	55.635	-11.3	86	0.02
10	T	Methyl Iodide	50.000	54.186	-8.4	89	0.03
11	T	Tert butyl alcohol	250.000	264.062	-5.6	79	0.00
12	CM	1,1-Dichloroethene	50.000	56.870	-13.7#	90	0.02
13	T	Acrolein	250.000	248.982	0.4	84	0.00
14	T	Allyl chloride	50.000	59.196	-18.4	92	0.00
15	T	Acrylonitrile	250.000	281.574	-12.6	85	0.00
16	T	Acetone	250.000	211.825	15.3	74	0.00
17	T	Carbon Disulfide	50.000	54.548	-9.1	82	0.02
18	T	Methyl Acetate	50.000	47.737	4.5	86	0.00
19	T	Methyl tert-butyl Ether	50.000	59.056	-18.1	89	0.00
20	T	Methylene Chloride	50.000	57.635	-15.3	90	0.00
21	T	trans-1,2-Dichloroethene	50.000	54.848	-9.7	92	0.00
22	T	Diisopropyl ether	50.000	59.750	-19.5	92	0.00
23	T	Vinyl Acetate	250.000	232.523	7.0	70	0.00
24	P	1,1-Dichloroethane	50.000	61.036	-22.1#	93	0.00
25	T	2-Butanone	250.000	242.080	3.2	73	0.00
26	T	2,2-Dichloropropane	50.000	48.910	2.2	76	0.02
27	T	cis-1,2-Dichloroethene	50.000	58.533	-17.1	91	0.00
28	T	Bromochloromethane	50.000	49.580	0.8	84	0.00
29	C	Chloroform	50.000	58.872	-17.7#	90	0.00
30	T	Cyclohexane	50.000	49.172	1.7	76	0.00
31	T	1,1,1-Trichloroethane	50.000	56.734	-13.5	88	0.00
32	S	1,2-Dichloroethane-d4	50.000	52.831	-5.7	89	0.02
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	88	0.00
34	S	Dibromofluoromethane	50.000	51.378	-2.8	93	0.02
35	T	1,1-Dichloropropene	50.000	48.089	3.8	80	0.00
36	T	Ethyl Acetate	50.000	48.118	3.8	78	0.00
37	T	Carbon Tetrachloride	50.000	52.347	-4.7	84	0.00
38	T	Methylcyclohexane	50.000	44.300	11.4	76	0.00
39	TM	Benzene	50.000	52.682	-5.4	89	0.00
40	T	Methacrylonitrile	50.000	50.345	-0.7	80	0.00
41	TM	1,2-Dichloroethane	50.000	56.944	-13.9	90	0.00
42	T	Isopropyl Acetate	50.000	48.428	3.1	75	0.02
43	TM	Trichloroethene	50.000	54.008	-8.0	91	0.02
44	C	1,2-Dichloropropane	50.000	54.600	-9.2#	90	0.02
45	T	Dibromomethane	50.000	49.491	1.0	84	0.00

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010512\
Data File : VF030591.D
Acq On : 6 Jan 2012 3:56
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jan 06 07:39:00 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	54.985	-10.0	88	0.00
47	T	Methyl methacrylate	50.000	46.030	7.9	80	0.02
48	T	1,4-Dioxane	1000.000	922.536	7.7	81	0.02
49	S	Toluene-d8	50.000	47.735	4.5	85	0.00
50	T	4-Methyl-2-Pentanone	250.000	238.275	4.7	76	0.00
51	CM	Toluene	50.000	51.364	-2.7#	83	0.00
52	T	t-1,3-Dichloropropene	50.000	50.039	-0.1	86	0.00
53	T	cis-1,3-Dichloropropene	50.000	52.041	-4.1	83	0.00
54	T	1,1,2-Trichloroethane	50.000	50.182	-0.4	85	0.00
55	T	Ethyl methacrylate	50.000	46.078	7.8	79	0.00
56	T	1,3-Dichloropropane	50.000	51.729	-3.5	84	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	244.139	2.3	81	0.00
58	T	2-Hexanone	250.000	230.014	8.0	75	0.00
59	T	Dibromochloromethane	50.000	51.387	-2.8	89	0.00
60	T	1,2-Dibromoethane	50.000	53.635	-7.3	85	0.00
61	S	4-Bromofluorobenzene	50.000	48.374	3.3	87	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	88	0.00
63	T	Tetrachloroethene	50.000	50.889	-1.8	82	0.00
64	PM	Chlorobenzene	50.000	52.119	-4.2	86	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	53.141	-6.3	91	0.00
66	C	Ethyl Benzene	50.000	51.212	-2.4#	82	0.00
67	T	m/p-Xylenes	100.000	103.855	-3.9	84	0.00
68	T	o-Xylene	50.000	52.185	-4.4	82	0.00
69	T	Styrene	50.000	50.710	-1.4	88	0.00
70	P	Bromoform	50.000	49.197	1.6	85	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	90	0.00
72	T	Isopropylbenzene	50.000	50.666	-1.3	82	0.00
73	T	N-amyl acetate	50.000	47.683	4.6	76	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	44.959	10.1	74	0.00
75	T	1,2,3-Trichloropropane	50.000	52.367	-4.7	86	0.00
76	T	Bromobenzene	50.000	54.049	-8.1	88	0.00
77	T	n-propylbenzene	50.000	50.277	-0.6	83	0.00
78	T	2-Chlorotoluene	50.000	51.783	-3.6	86	0.00
79	T	1,3,5-Trimethylbenzene	50.000	52.901	-5.8	86	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	41.058	17.9	70	0.00
81	T	4-Chlorotoluene	50.000	51.524	-3.0	87	0.00
82	T	tert-Butylbenzene	50.000	50.359	-0.7	83	0.00
83	T	1,2,4-Trimethylbenzene	50.000	52.093	-4.2	85	0.00
84	T	sec-Butylbenzene	50.000	50.833	-1.7	84	0.00
85	T	p-Isopropyltoluene	50.000	50.266	-0.5	83	0.00
86	T	1,3-Dichlorobenzene	50.000	52.265	-4.5	87	0.00
87	T	1,4-Dichlorobenzene	50.000	50.216	-0.4	84	0.00
88	T	n-Butylbenzene	50.000	49.713	0.6	80	0.00
89	T	Hexachloroethane	50.000	48.339	3.3	86	0.00

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\MSVOA_F\DATA\VF010512\
Data File : VF030591.D
Acq On : 6 Jan 2012 3:56
Operator : MS
Sample : 50 PPB CCC
Misc : 5.00g/5mL,MSVOA_F
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jan 06 07:39:00 2012
Quant Method : W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 19:56:11 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	52.751	-5.5	87	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	39.215	21.6#	75	0.00
92	T	1,2,4-Trichlorobenzene	50.000	49.902	0.2	81	0.00
93	T	Hexachlorobutadiene	50.000	53.322	-6.6	88	0.00
94	T	Naphthalene	50.000	51.184	-2.4	83	0.00
95	T	1,2,3-Trichlorobenzene	50.000	53.330	-6.7	85	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0105S2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VF030592.D Lab Sample ID: VBF0105S2

Date Analyzed: 01/06/2012 Time Analyzed: 04:27

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0105S2	BSF0105S2	VF030593.D	01/06/2012
12SB27-0.502-02	C5146-19	VF030595.D	01/06/2012
12SB-DUP-08	C5146-20	VF030596.D	01/06/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S2	SDG No.:	C5146
Lab Sample ID:	VBF0105S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030592.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0105S2	SDG No.:	C5146
Lab Sample ID:	VBF0105S2	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030592.D	1		01/06/12	VF010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	50	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.2		55 - 158	112%	SPK: 50
1868-53-7	Dibromofluoromethane	52.6		53 - 156	105%	SPK: 50
2037-26-5	Toluene-d8	46.8		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.1		85 - 120	92%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	100396	4.38			
540-36-3	1,4-Difluorobenzene	194265	5.12			
3114-55-4	Chlorobenzene-d5	182903	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	92398	12.23			

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSF0105S2 Analytical Method: EPA SW846 8260 Datafile : VF030593.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(47-135)
Chloromethane	20		20	100	(56-130)
Vinyl Chloride	20		21	105	(60-125)
Bromomethane	20		21	105	(45-158)
Chloroethane	20		26	130	(42-155)
Trichlorofluoromethane	20		20	100	(55-146)
1,1,2-Trichlorotrifluoroethane	20		20	100	(65-134)
1,1-Dichloroethene	20		22	110	(65-135)
Acetone	100		89	89	(57-148)
Carbon Disulfide	20		21	105	(60-138)
Methyl tert-butyl Ether	20		22	110	(70-131)
Methyl Acetate	20		19	95	(44-187)
Methylene Chloride	20		23	115	(63-140)
trans-1,2-Dichloroethene	20		22	110	(73-130)
1,1-Dichloroethane	20		24	120	(75-125)
Cyclohexane	20		20	100	(66-132)
2-Butanone	100		97	97	(52-153)
Carbon Tetrachloride	20		21	105	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		20	100	(74-125)
Chloroform	20		23	115	(75-125)
1,1,1-Trichloroethane	20		21	105	(75-128)
Methylcyclohexane	20		17	85	(71-124)
Benzene	20		20	100	(79-122)
1,2-Dichloroethane	20		22	110	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		21	105	(76-120)
Bromodichloromethane	20		20	100	(77-124)
4-Methyl-2-Pentanone	100		88	88	(70-141)
Toluene	20		19	95	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		20	100	(79-122)
1,1,2-Trichloroethane	20		20	100	(76-125)
2-Hexanone	100		89	89	(55-145)
Dibromochloromethane	20		20	100	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

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CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSF0105S2 Analytical Method: EPA SW846 8260 Datafile : VF030593.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		19	95	(76-125)
Tetrachloroethene	20		19	95	(65-140)
Chlorobenzene	20		20	100	(79-120)
Ethyl Benzene	20		19	95	(77-120)
m/p-Xylenes	40		39	98	(80-120)
o-Xylene	20		19	95	(78-119)
Styrene	20		19	95	(80-119)
Bromoform	20		19	95	(71-125)
Isopropylbenzene	20		19	95	(77-124)
1,1,2,2-Tetrachloroethane	20		16	80	(77-130)
1,3-Dichlorobenzene	20		20	100	(82-121)
1,4-Dichlorobenzene	20		20	100	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		16	80	(66-132)
1,2,4-Trichlorobenzene	20		19	95	(71-124)
1,2,3-Trichlorobenzene	20		19	95	(74-123)
1,4-Dioxane	400		330	83	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VH045146.D BFB Injection Date: 01/03/2012

Instrument ID: MSVOAH BFB Injection Time: 13:48

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.7
75	30.0 - 60.0% of mass 95	48.4
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	84
175	5.0 - 9.0% of mass 174	5.7 (6.8) 1
176	95.0 - 101.0% of mass 174	83.1 (98.9) 1
177	5.0 - 9.0% of mass 176	5 (6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB ICC	VH045149.D	01/03/2012	15:14
VSTD100	100 PPB ICC	VH045150.D	01/03/2012	15:38
VSTD150	150 PPB ICC	VH045151.D	01/03/2012	16:03
VSTD020	20 PPB ICC	VH045152.D	01/03/2012	16:51
VSTD005	5 PPB ICC	VH045153.D	01/03/2012	17:27
VBH0103W1	VBH0103W1	VH045156.D	01/03/2012	19:05
BSH0103W1	BSH0103W1	VH045157.D	01/03/2012	19:38
HRP-MW-8MS	C5165-03MS	VH045159.D	01/03/2012	20:28
HRP-MW-8MSD	C5165-04MSD	VH045160.D	01/03/2012	20:53

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOAH Calibration Date(s): 01/03/2012 01/03/2012

Heated Purge: (Y/N) N Calibration Time(s): 15:14 17:27

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VH045153.D RRF020 = VH045152.D RRF050 = VH045149.D
RRF100 = VH045150.D RRF150 = VH045151.D RRF =

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF150	RRF	$\overline{RRF}$	% RSD
Dichlorodifluoromethane	0.502	0.664	0.675	0.692	0.718		0.65	13.1
Chloromethane	0.627	0.748	0.760	0.774	0.773		0.736	8.5
Vinyl Chloride	0.575	0.700	0.722	0.721	0.768		0.697	10.5
Bromomethane	0.406	0.528	0.528	0.510	0.524		0.499	10.5
Chloroethane	0.277	0.364	0.353	0.346	0.323		0.333	10.5
Trichlorofluoromethane	0.640	0.881	0.980	0.948	0.936		0.877	15.6
1,1,2-Trichlorotrifluoroethane	0.454	0.561	0.522	0.530	0.543		0.522	7.8
1,1-Dichloroethene	0.408	0.469	0.467	0.468	0.476		0.458	6.1
Acetone	0.090	0.089	0.108	0.100	0.105		0.098	8.9
Carbon Disulfide	1.419	1.700	1.711	1.668	1.666		1.633	7.4
Methyl tert-butyl Ether	0.948	1.314	1.381	1.327	1.392		1.272	14.5
Methyl Acetate	0.573	0.677	0.794	0.759	0.779		0.716	12.8
Methylene Chloride	0.443	0.547	0.549	0.559	0.574		0.534	9.8
trans-1,2-Dichloroethene	0.416	0.496	0.501	0.512	0.499		0.485	8
1,1-Dichloroethane	0.768	0.921	0.941	0.965	0.947		0.908	8.8
Cyclohexane	0.552	0.731	0.713	0.686	0.717		0.68	10.8
2-Butanone	0.223	0.235	0.258	0.244	0.246		0.241	5.4
Carbon Tetrachloride	0.452	0.518	0.510	0.515	0.514		0.502	5.6
cis-1,2-Dichloroethene	0.473	0.566	0.585	0.557	0.572		0.551	8.1
Bromochloromethane	0.313	0.347	0.300	0.296	0.307		0.313	6.5
Chloroform	0.697	0.885	0.989	0.963	0.942		0.895	13.1
1,1,1-Trichloroethane	0.677	0.777	0.832	0.832	0.830		0.79	8.5
Methylcyclohexane	0.347	0.454	0.385	0.398	0.420		0.401	9.9
Benzene	0.892	1.039	1.015	1.059	1.073		1.016	7.1
1,2-Dichloroethane	0.318	0.417	0.452	0.476	0.448		0.422	14.7
Trichloroethene	0.339	0.363	0.369	0.372	0.393		0.367	5.3
1,2-Dichloropropane	0.273	0.336	0.351	0.354	0.357		0.334	10.5
Bromodichloromethane	0.377	0.455	0.478	0.487	0.505		0.461	10.8
4-Methyl-2-Pentanone	0.246	0.284	0.321	0.304	0.309		0.293	10
Toluene	0.688	0.765	0.765	0.769	0.800		0.757	5.5
t-1,3-Dichloropropene	0.398	0.478	0.502	0.517	0.532		0.486	10.8

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOAH Calibration Date(s): 01/03/2012 01/03/2012

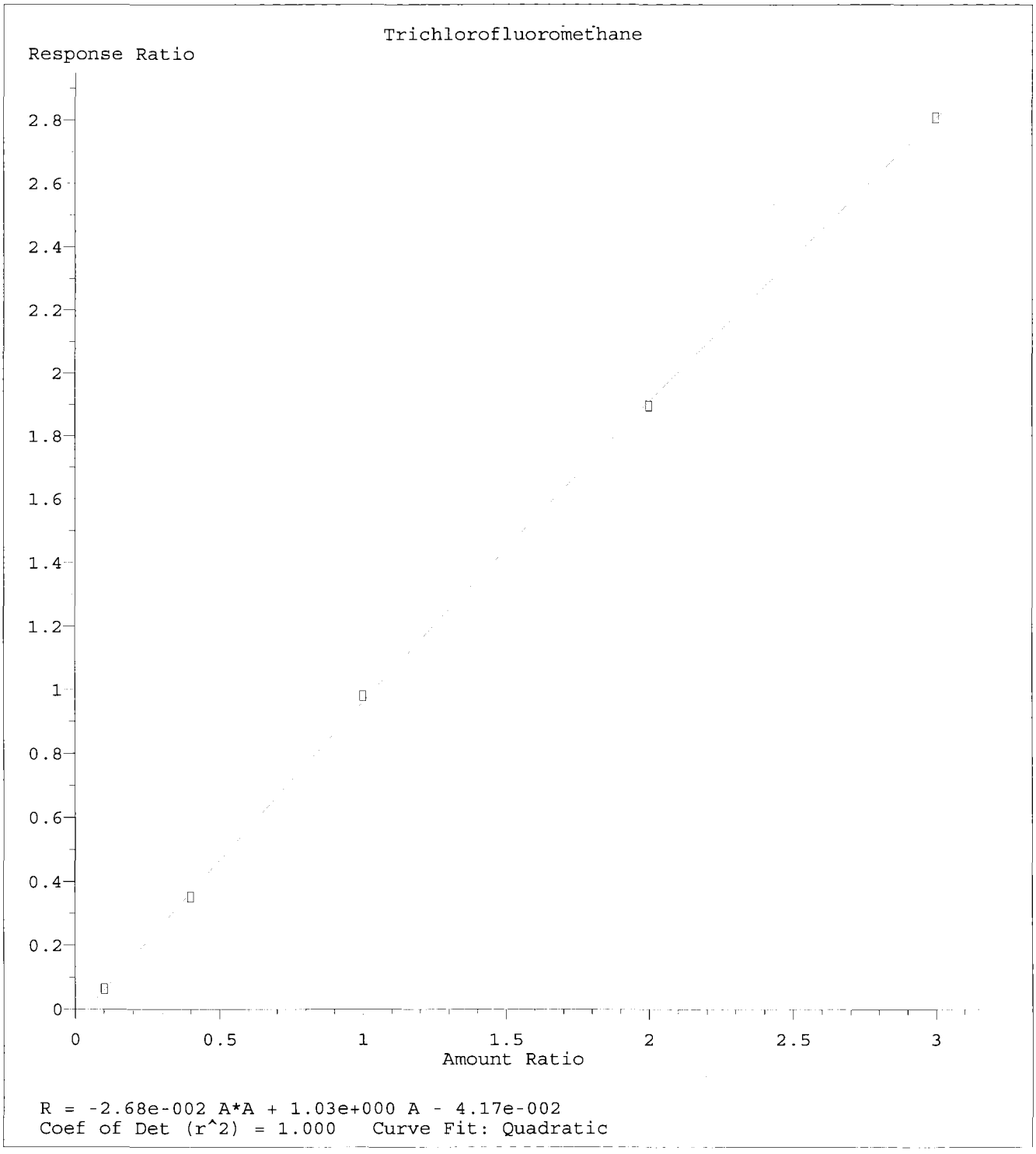
Heated Purge: (Y/N) N Calibration Time(s): 15:14 17:27

GC Column: RTX-VMS ID: 0.18 (mm)

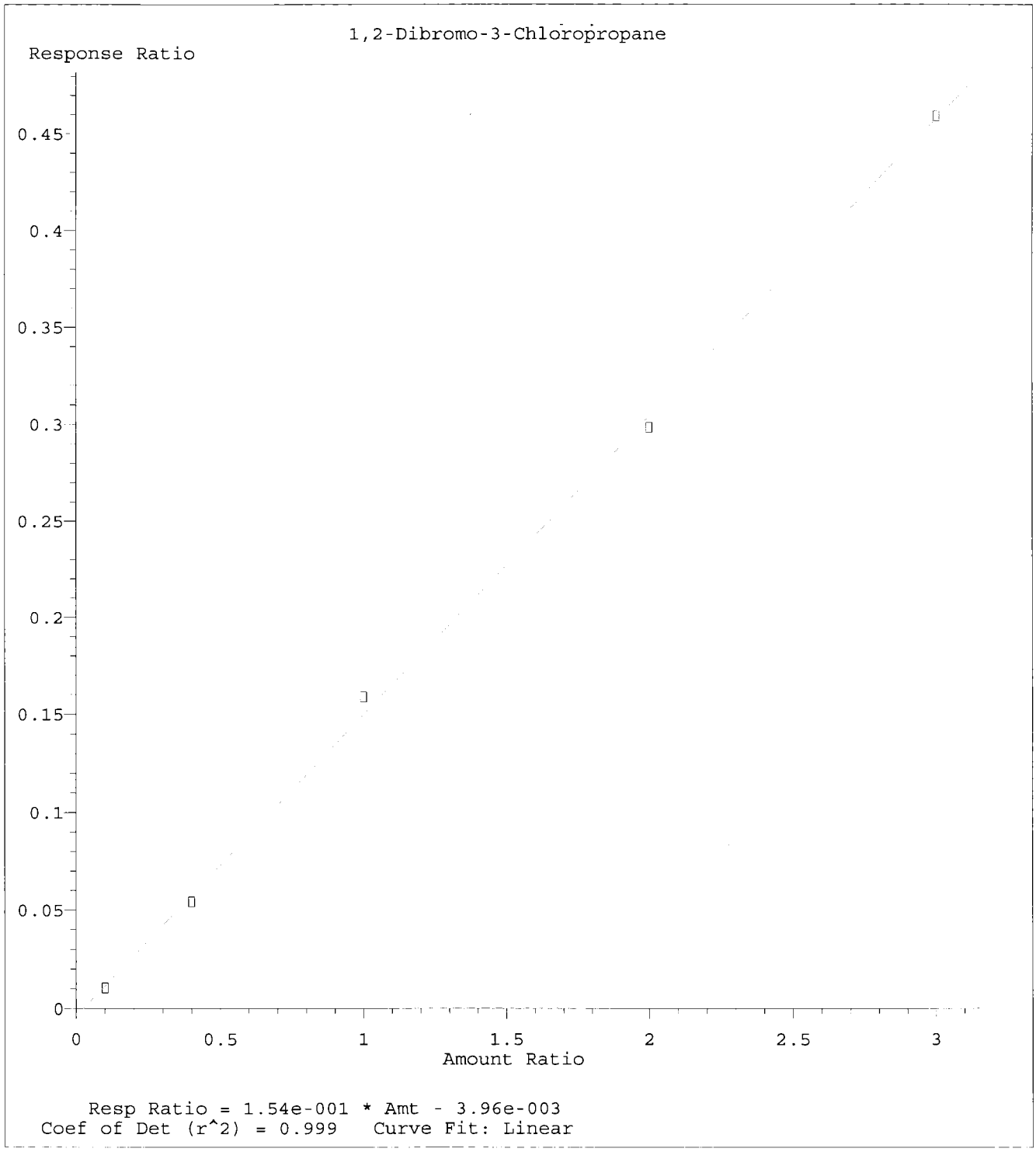
LAB FILE ID: RRF005 = VH045153.D RRF020 = VH045152.D RRF050 = VH045149.D
RRF100 = VH045150.D RRF150 = VH045151.D RRF =

COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF150	RRF	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.442	0.519	0.562	0.578	0.599		0.54	11.5
1,1,2-Trichloroethane	0.238	0.278	0.296	0.312	0.321		0.289	11.4
2-Hexanone	0.147	0.185	0.212	0.207	0.212		0.192	14.5
Dibromochloromethane	0.297	0.373	0.390	0.393	0.405		0.371	11.7
1,2-Dibromoethane	0.275	0.309	0.341	0.331	0.344		0.32	8.9
Tetrachloroethene	0.288	0.365	0.365	0.369	0.388		0.355	10.8
Chlorobenzene	0.864	1.092	1.053	1.033	1.033		1.015	8.6
Ethyl Benzene	0.430	0.546	0.501	0.506	0.490		0.495	8.4
m/p-Xylenes	0.562	0.693	0.630	0.638	0.615		0.628	7.5
o-Xylene	0.562	0.710	0.642	0.661	0.651		0.645	8.3
Styrene	0.948	1.216	1.125	1.126	1.110		1.105	8.8
Bromoform	0.241	0.305	0.295	0.290	0.291		0.284	8.7
Isopropylbenzene	2.418	2.943	2.813	2.885	2.862		2.784	7.5
1,1,2,2-Tetrachloroethane	0.644	0.720	0.832	0.773	0.822		0.758	10.2
1,3-Dichlorobenzene	1.435	1.603	1.590	1.553	1.535		1.543	4.3
1,4-Dichlorobenzene	1.511	1.598	1.635	1.577	1.592		1.583	2.9
1,2-Dichlorobenzene	1.363	1.571	1.590	1.536	1.573		1.527	6.1
1,2-Dibromo-3-Chloropropane	0.104	0.136	0.159	0.149	0.153		0.14	15.7
1,2,4-Trichlorobenzene	1.020	1.090	1.015	0.967	0.995		1.018	4.5
1,2,3-Trichlorobenzene	1.020	1.000	0.945	0.912	0.920		0.959	5
1,2-Dichloroethane-d4	0.554	0.576	0.579	0.558	0.573		0.568	1.9
Dibromofluoromethane	0.348	0.406	0.343	0.347	0.362		0.361	7.3
Toluene-d8	1.194	1.271	1.121	1.158	1.179		1.185	4.7
4-Bromofluorobenzene	0.510	0.526	0.465	0.468	0.481		0.49	5.5
1,4-Dioxane	0.002	0.002	0.002	0.002	0.002		0.002	12.6

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



Method Name: W:\HPCHEM1\MSVOA_H\METHOD\82H010312W.M
Calibration Table Last Updated: Thu Jan 05 12:32:02 2012



Method Name: W:\HPCHEM1\MSVOA_H\METHOD\82H010312W.M
Calibration Table Last Updated: Thu Jan 05 12:32:02 2012

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBH0103W1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VH045156.D Lab Sample ID: VBH0103W1

Date Analyzed: 01/03/2012 Time Analyzed: 19:05

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAH

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSH0103W1	BSH0103W1	VH045157.D	01/03/2012
HRP-MW-8MS	C5165-03MS	VH045159.D	01/03/2012
HRP-MW-8MSD	C5165-04MSD	VH045160.D	01/03/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBH0103W1	SDG No.:	C5146
Lab Sample ID:	VBH0103W1	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045156.D	1		01/03/12	VH010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
74-87-3	Chloromethane	2.5	U	0.54	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
74-83-9	Bromomethane	2.5	U	0.62	5	ug/L
75-00-3	Chloroethane	2.5	U	0.66	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	0.45	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-15-0	Carbon Disulfide	2.5	U	0.54	5	ug/L
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.35	5	ug/L
79-20-9	Methyl Acetate	2.5	U	0.83	5	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
110-82-7	Cyclohexane	2.5	U	0.55	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
56-23-5	Carbon Tetrachloride	2.5	U	0.62	5	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
74-97-5	Bromochloromethane	2.5	U	2.2	5	ug/L
67-66-3	Chloroform	2.5	U	0.34	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
108-87-2	Methylcyclohexane	2.5	U	0.68	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
78-87-5	1,2-Dichloropropane	2.5	U	0.46	5	ug/L
75-27-4	Bromodichloromethane	2.5	U	0.36	5	ug/L
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.1	25	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.29	5	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBH0103W1	SDG No.:	C5146
Lab Sample ID:	VBH0103W1	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045156.D	1		01/03/12	VH010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.31	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
591-78-6	2-Hexanone	12.5	U	1.9	25	ug/L
124-48-1	Dibromochloromethane	2.5	U	0.52	5	ug/L
106-93-4	1,2-Dibromoethane	2.5	U	0.41	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
108-90-7	Chlorobenzene	2.5	U	0.49	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
100-42-5	Styrene	2.5	U	0.36	5	ug/L
75-25-2	Bromoform	2.5	U	0.47	5	ug/L
98-82-8	Isopropylbenzene	2.5	U	0.45	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
541-73-1	1,3-Dichlorobenzene	2.5	U	0.43	5	ug/L
106-46-7	1,4-Dichlorobenzene	2.5	U	0.32	5	ug/L
95-50-1	1,2-Dichlorobenzene	2.5	U	0.45	5	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.46	5	ug/L
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.62	5	ug/L
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.65	5	ug/L
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/L
123-91-1	1,4-Dioxane	50	U	20	100	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	45.8		70 - 120	92%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	51.2		85 - 120	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.4		75 - 120	105%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	519600	4.95			
540-36-3	1,4-Difluorobenzene	820417	5.66			
3114-55-4	Chlorobenzene-d5	802976	9.8			
3855-82-1	1,4-Dichlorobenzene-d4	486659	12.52			

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSH0103W1 Analytical Method: EPA SW846 8260 Datafile : VH045157.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		19	95	(35-124)
Chloromethane	20		17	85	(40-125)
Vinyl Chloride	20		18	90	(50-144)
Bromomethane	20		20	100	(44-145)
Chloroethane	20		20	100	(60-135)
Trichlorofluoromethane	20		18	90	(60-137)
1,1,2-Trichlorotrifluoroethane	20		19	95	(52-142)
1,1-Dichloroethene	20		20	100	(70-130)
Acetone	100		84	84	(50-140)
Carbon Disulfide	20		19	95	(36-155)
Methyl tert-butyl Ether	20		19	95	(65-125)
Methyl Acetate	20		19	95	(51-158)
Methylene Chloride	20		17	85	(61-138)
trans-1,2-Dichloroethene	20		18	90	(60-137)
1,1-Dichloroethane	20		18	90	(70-135)
Cyclohexane	20		19	95	(56-141)
2-Butanone	100		89	89	(56-150)
Carbon Tetrachloride	20		19	95	(65-138)
cis-1,2-Dichloroethene	20		18	90	(70-125)
Bromochloromethane	20		15	75	(65-130)
Chloroform	20		19	95	(67-135)
1,1,1-Trichloroethane	20		18	90	(65-130)
Methylcyclohexane	20		20	100	(56-137)
Benzene	20		19	95	(80-120)
1,2-Dichloroethane	20		20	100	(70-130)
Trichloroethene	20		19	95	(70-125)
1,2-Dichloropropane	20		19	95	(75-125)
Bromodichloromethane	20		18	90	(75-120)
4-Methyl-2-Pentanone	100		94	94	(63-135)
Toluene	20		19	95	(75-120)
t-1,3-Dichloropropene	20		18	90	(66-135)
cis-1,3-Dichloropropene	20		19	95	(70-130)
1,1,2-Trichloroethane	20		19	95	(75-125)
2-Hexanone	100		96	96	(56-130)
Dibromochloromethane	20		19	95	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSH0103W1 Analytical Method: EPA SW846 8260 Datafile : VH045157.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(80-120)
Tetrachloroethene	20		20	100	(45-178)
Chlorobenzene	20		20	100	(80-120)
Ethyl Benzene	20		20	100	(75-125)
m/p-Xylenes	40		41	103	(75-130)
o-Xylene	20		21	105	(80-120)
Styrene	20		20	100	(65-135)
Bromoform	20		21	105	(70-130)
Isopropylbenzene	20		19	95	(75-125)
1,1,2,2-Tetrachloroethane	20		18	90	(65-130)
1,3-Dichlorobenzene	20		19	95	(75-125)
1,4-Dichlorobenzene	20		19	95	(75-125)
1,2-Dichlorobenzene	20		18	90	(70-120)
1,2-Dibromo-3-Chloropropane	20		15	75	(54-130)
1,2,4-Trichlorobenzene	20		18	90	(65-133)
1,2,3-Trichlorobenzene	20		18	90	(60-135)
1,4-Dioxane	400		320	80	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5165-03 **Analytical Method:** EPA SW846 8260 **Datafile :** VH045159.D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	50	0	55	110	(30-155)
Chloromethane	50	0	54	108	(40-125)
Vinyl Chloride	50	0	51	102	(50-145)
Bromomethane	50	0	54	108	(34-145)
Chloroethane	50	0	57	114	(60-135)
Trichlorofluoromethane	50	0	50	100	(60-145)
1,1,2-Trichlorotrifluoroethane	50	0	54	108	(47-152)
1,1-Dichloroethene	50	0	53	106	(70-130)
Acetone	250	0	290	116	(40-140)
Carbon Disulfide	50	0	52	104	(35-160)
Methyl tert-butyl Ether	50	0	54	108	(65-125)
Methyl Acetate	50	0	47	94	(29-176)
Methylene Chloride	50	0	52	104	(55-140)
trans-1,2-Dichloroethene	50	0	52	104	(60-140)
1,1-Dichloroethane	50	0	50	100	(70-135)
Cyclohexane	50	0	55	110	(42-159)
2-Butanone	250	0	220	88	(47-150)
Carbon Tetrachloride	50	0	55	110	(65-140)
cis-1,2-Dichloroethene	50	0	52	104	(70-125)
Bromochloromethane	50	0	32	64*	(66-130)
Chloroform	50	0	52	104	(65-135)
1,1,1-Trichloroethane	50	0	51	102	(65-130)
Methylcyclohexane	50	0	56	112	(41-152)
Benzene	50	0	53	106	(80-120)
1,2-Dichloroethane	50	0	52	104	(70-130)
Trichloroethene	50	0	53	106	(70-125)
1,2-Dichloropropane	50	0	54	108	(75-125)
Bromodichloromethane	50	0	53	106	(75-120)
4-Methyl-2-Pentanone	250	0	260	104	(60-135)
Toluene	50	0	54	108	(75-120)
t-1,3-Dichloropropene	50	0	54	108	(55-140)
cis-1,3-Dichloropropene	50	0	53	106	(70-130)
1,1,2-Trichloroethane	50	0	51	102	(75-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

not from SDG N/A

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5165-03 **Analytical Method:** EPA SW846 8260 **Datafile :** VH045159.D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMITS REC
2-Hexanone	250	0	260	104	(55-130)
Dibromochloromethane	50	0	53	106	(60-135)
1,2-Dibromoethane	50	0	54	108	(80-120)
Tetrachloroethene	50	0	51	102	(45-148)
Chlorobenzene	50	0	56	112	(80-120)
Ethyl Benzene	50	0	58	116	(75-125)
m/p-Xylenes	100	0	110	110	(75-130)
o-Xylene	50	0	57	114	(80-120)
Styrene	50	0	58	116	(65-135)
Bromoform	50	0	57	114	(70-130)
Isopropylbenzene	50	0	53	106	(75-125)
1,1,2,2-Tetrachloroethane	50	0	50	100	(65-130)
1,3-Dichlorobenzene	50	0	51	102	(75-125)
1,4-Dichlorobenzene	50	0	51	102	(75-125)
1,2-Dichlorobenzene	50	0	52	104	(70-120)
1,2-Dibromo-3-Chloropropane	50	0	48	96	(50-130)
1,2,4-Trichlorobenzene	50	0	49	98	(65-135)
1,2,3-Trichlorobenzene	50	0	48	96	(55-137)
1,4-Dioxane	1000	0	1400	140*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 2 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5165-04 **Analytical Method:** EPA SW846 8260 **Datafile :** VH045160.D

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % (ug/L)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	50	52	104	6	20	(30-155)
Chloromethane	50	52	104	4	20	(40-125)
Vinyl Chloride	50	49	98	4	20	(50-145)
Bromomethane	50	54	108	0	20	(34-145)
Chloroethane	50	51	102	11	20	(60-135)
Trichlorofluoromethane	50	45	90	11	20	(60-145)
1,1,2-Trichlorotrifluoroethane	50	52	104	4	20	(47-152)
1,1-Dichloroethene	50	51	102	4	20	(70-130)
Acetone	250	290	116	0	20	(40-140)
Carbon Disulfide	50	49	98	6	20	(35-160)
Methyl tert-butyl Ether	50	51	102	6	20	(65-125)
Methyl Acetate	50	46	92	2	20	(29-176)
Methylene Chloride	50	48	96	8	20	(55-140)
trans-1,2-Dichloroethene	50	51	102	2	20	(60-140)
1,1-Dichloroethane	50	47	94	6	20	(70-135)
Cyclohexane	50	52	104	6	20	(42-159)
2-Butanone	250	210	84	5	20	(47-150)
Carbon Tetrachloride	50	49	98	12	20	(65-140)
cis-1,2-Dichloroethene	50	49	98	6	20	(70-125)
Bromochloromethane	50	50	100	44*	20	(66-130)
Chloroform	50	48	96	8	20	(65-135)
1,1,1-Trichloroethane	50	48	96	6	20	(65-130)
Methylcyclohexane	50	51	102	9	20	(41-152)
Benzene	50	51	102	4	20	(80-120)
1,2-Dichloroethane	50	49	98	6	20	(70-130)
Trichloroethene	50	50	100	6	20	(70-125)
1,2-Dichloropropane	50	49	98	10	20	(75-125)
Bromodichloromethane	50	46	92	14	20	(75-120)
4-Methyl-2-Pentanone	250	240	96	8	20	(60-135)
Toluene	50	49	98	10	20	(75-120)
t-1,3-Dichloropropene	50	50	100	8	20	(55-140)
cis-1,3-Dichloropropene	50	49	98	8	20	(70-130)
1,1,2-Trichloroethane	50	49	98	4	20	(75-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5146 **SAS No :** C5146 **SDG No:** C5146

Matrix Spike - EPA Sample No : C5165-04 **Analytical Method:** EPA SW846 8260 **Datafile :** VH045160.D

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % (ug/L)	%	QC LIMITS RPD	REC
2-Hexanone	250	260	104	0	20	(55-130)
Dibromochloromethane	50	48	96	10	20	(60-135)
1,2-Dibromoethane	50	52	104	4	20	(80-120)
Tetrachloroethene	50	46	92	10	20	(45-148)
Chlorobenzene	50	53	106	6	20	(80-120)
Ethyl Benzene	50	52	104	11	20	(75-125)
m/p-Xylenes	100	110	110	0	20	(75-130)
o-Xylene	50	54	108	5	20	(80-120)
Styrene	50	53	106	9	20	(65-135)
Bromoform	50	52	104	9	20	(70-130)
Isopropylbenzene	50	49	98	8	20	(75-125)
1,1,2,2-Tetrachloroethane	50	47	94	6	20	(65-130)
1,3-Dichlorobenzene	50	46	92	10	20	(75-125)
1,4-Dichlorobenzene	50	47	94	8	20	(75-125)
1,2-Dichlorobenzene	50	46	92	12	20	(70-120)
1,2-Dibromo-3-Chloropropane	50	43	86	11	20	(50-130)
1,2,4-Trichlorobenzene	50	45	90	9	20	(65-135)
1,2,3-Trichlorobenzene	50	44	88	9	20	(55-137)
1,4-Dioxane	1000	1500	150*	7	20	(70-130)

RPD : 1 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VH045171.D BFB Injection Date: 01/04/2012

Instrument ID: MSVOAH BFB Injection Time: 04:51

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17
75	30.0 - 60.0% of mass 95	45.4
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	5.6
173	Less than 2.0% of mass 174	0.4 (0.5) 1
174	50.0 - 100.0% of mass 95	79
175	5.0 - 9.0% of mass 174	5 (6.4) 1
176	95.0 - 101.0% of mass 174	76.4 (96.7) 1
177	5.0 - 9.0% of mass 176	4.6 (6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VH045173.D	01/04/2012	05:42
VBH0103W2	VBH0103W2	VH045175.D	01/04/2012	06:31
BSH0103W3	BSH0103W3	VH045176.D	01/04/2012	06:56
TB-01-122811	C5146-21	VH045182.D	01/04/2012	09:27

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOAH Calibration Date/Time: 01/04/2012 05:42

Lab File ID: VH045173.D Init. Calib. Date(s): 01/03/2012 01/03/2012

Heated Purge: (Y/N) N Init. Calib. Time(s): 15:14 17:27

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.65	0.683		5.08	
Chloromethane	0.736	0.847	0.1	15.08	
Vinyl Chloride	0.697	0.795		14.06	20
Bromomethane	0.499	0.607		21.64	
Chloroethane	0.333	0.420		26.13	
Trichlorofluoromethane	0.877	0.933		6.39	
1,1,2-Trichlorotrifluoroethane	0.522	0.545		4.41	
1,1-Dichloroethene	0.458	0.561		22.49	20
Acetone	0.098	0.124		26.53	
Carbon Disulfide	1.633	1.878		15	
Methyl tert-butyl Ether	1.272	1.564		22.96	
Methyl Acetate	0.716	0.906		26.54	
Methylene Chloride	0.534	0.616		15.36	
trans-1,2-Dichloroethene	0.485	0.546		12.58	
1,1-Dichloroethane	0.908	1.054	0.1	16.08	
Cyclohexane	0.68	0.734		7.94	
2-Butanone	0.241	0.280		16.18	
Carbon Tetrachloride	0.502	0.540		7.57	
cis-1,2-Dichloroethene	0.551	0.589		6.9	
Bromochloromethane	0.313	0.317		1.28	
Chloroform	0.895	1.052		17.54	20
1,1,1-Trichloroethane	0.79	0.856		8.35	
Methylcyclohexane	0.401	0.388		-3.24	
Benzene	1.016	1.159		14.07	
1,2-Dichloroethane	0.422	0.486		15.17	
Trichloroethene	0.367	0.398		8.45	
1,2-Dichloropropane	0.334	0.378		13.17	20
Bromodichloromethane	0.461	0.501		8.68	
4-Methyl-2-Pentanone	0.293	0.353		20.48	
Toluene	0.757	0.842		11.23	20
t-1,3-Dichloropropene	0.486	0.532		9.47	
cis-1,3-Dichloropropene	0.54	0.573		6.11	
1,1,2-Trichloroethane	0.289	0.311		7.61	
2-Hexanone	0.192	0.241		25.52	
Dibromochloromethane	0.371	0.401		8.09	
1,2-Dibromoethane	0.32	0.372		16.25	
Tetrachloroethene	0.355	0.540		52.11	
Chlorobenzene	1.015	1.197	0.3	17.93	
Ethyl Benzene	0.495	0.582		17.58	20
m/p-Xylenes	0.628	0.731		16.4	
o-Xylene	0.645	0.749		16.12	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: MSVOAH Calibration Date/Time: 01/04/2012 05:42

Lab File ID: VH045173.D Init. Calib. Date(s): 01/03/2012 01/03/2012

Heated Purge: (Y/N) N Init. Calib. Time(s): 15:14 17:27

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Styrene	1.105	1.296		17.29	
Bromoform	0.284	0.315	0.1	10.92	
Isopropylbenzene	2.784	2.930		5.24	
1,1,2,2-Tetrachloroethane	0.758	0.774	0.3	2.11	
1,3-Dichlorobenzene	1.543	1.553		0.65	
1,4-Dichlorobenzene	1.583	1.612		1.83	
1,2-Dichlorobenzene	1.527	1.571		2.88	
1,2-Dibromo-3-Chloropropane	0.14	0.157		12.14	
1,2,4-Trichlorobenzene	1.018	1.012		-0.59	
1,2,3-Trichlorobenzene	0.959	0.918		-4.28	
1,2-Dichloroethane-d4	0.568	0.703		23.77	
Dibromofluoromethane	0.361	0.436		20.78	
Toluene-d8	1.185	1.420		19.83	
4-Bromofluorobenzene	0.49	0.573		16.94	
1,4-Dioxane	0.002	0.003		50	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_H\Data\VH010312\
Data File : VH045173.D
Acq On : 4 Jan 2012 5:42
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL MSVOA_H
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jan 04 14:30:54 2012
Quant Method : W:\HPCHEM1\MSVOA_H\METHOD\82H010312W.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 13:48:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	102	0.00
2	T	Dichlorodifluoromethane	50.000	52.504	-5.0	103	0.00
3	P	Chloromethane	50.000	57.532	-15.1	113	0.00
4	CM	Vinyl Chloride	50.000	56.990	-14.0#	112	-0.02
5	T	Bromomethane	50.000	60.776	-21.6#	117	0.00
6	T	Chloroethane	50.000	63.102	-26.2#	121	0.00
7	T	Trichlorofluoromethane	50.000	48.576	2.8	97	0.00
8	T	Tert butyl alcohol	250.000	283.648	-13.5	112	0.00
9	T	Diethyl Ether	50.000	62.687	-25.4#	129	0.00
10	T	Diisopropyl ether	50.000	60.937	-21.9#	118	0.00
11	CM	1,1-Dichloroethene	50.000	61.270	-22.5#	122	0.00
12	T	Methyl Iodide	50.000	60.092	-20.2#	113	0.00
13	T	Acrolein	250.000	256.088	-2.4	106	0.00
14	T	1,1,2-Trichlorotrifluoroeth	50.000	52.227	-4.5	106	0.00
15	T	Acrylonitrile	250.000	294.691	-17.9	114	0.00
16	T	Allyl Chloride	50.000	51.575	-3.2	109	0.00
17	T	Acetone	250.000	313.975	-25.6#	116	0.00
18	T	Carbon Disulfide	50.000	57.499	-15.0	112	0.00
19	T	Methyl Acetate	50.000	63.218	-26.4#	116	-0.01
20	T	Methyl tert-butyl Ether	50.000	61.456	-22.9#	115	0.00
21	T	Methylene Chloride	50.000	57.673	-15.3	114	0.00
22	T	trans-1,2-Dichloroethene	50.000	56.279	-12.6	111	0.00
23	T	Vinyl Acetate	250.000	251.777	-0.7	96	-0.02
24	P	1,1-Dichloroethane	50.000	58.012	-16.0	114	0.00
25	TM	2-Butanone	250.000	289.900	-16.0	110	-0.02
26	T	2,2-Dichloropropane	50.000	45.550	8.9	86	-0.02
27	T	cis-1,2-Dichloroethene	50.000	53.518	-7.0	102	-0.02
28	T	Bromochloromethane	50.000	50.667	-1.3	107	0.00
29	CM	Chloroform	50.000	58.772	-17.5#	108	-0.01
30	T	Cyclohexane	50.000	54.021	-8.0	105	-0.01
31	T	1,1,1-Trichloroethane	50.000	54.225	-8.5	105	-0.02
32	S	1,2-Dichloroethane-d4	50.000	61.847	-23.7#	123	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	102	-0.01
34	S	Dibromofluoromethane	50.000	60.305	-20.6#	129	-0.02
35	T	1,1-Dichloropropene	50.000	52.312	-4.6	105	-0.01
36		Ethyl acetate	50.000	57.075	-14.2	112	0.00
37	TM	Carbon Tetrachloride	50.000	53.835	-7.7	108	-0.02
38	TM	Benzene	50.000	57.055	-14.1	116	-0.01
39	T	Methacrylonitrile	50.000	58.475	-17.0	114	0.00
40	TM	1,2-Dichloroethane	50.000	57.587	-15.2	110	0.00
41	T	Isopropyl Acetate	50.000	58.516	-17.0	114	-0.01
42	TM	Trichloroethene	50.000	54.225	-8.5	110	-0.01
43	T	Methylcyclohexane	50.000	48.358	3.3	102	0.00
44	C	1,2-Dichloropropane	50.000	56.582	-13.2#	110	-0.01
45	T	Dibromomethane	50.000	58.696	-17.4	114	0.00

Data Path : W:\HPCHEM1\Msvoa_H\Data\VH010312\
Data File : VH045173.D
Acq On : 4 Jan 2012 5:42
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL MSVOA_H
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jan 04 14:30:54 2012
Quant Method : W:\HPCHEM1\MSVOA_H\METHOD\82H010312W.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 13:48:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	54.392	-8.8	107	0.00
47	S	Toluene-d8	50.000	59.931	-19.9	129	-0.01
48	T	4-Methyl-2-Pentanone	250.000	301.593	-20.6#	112	0.00
49	CM	Toluene	50.000	55.568	-11.1#	112	-0.01
50	T	t-1,3-Dichloropropene	50.000	54.825	-9.7	108	-0.01
51	T	Methyl Methacrylate	50.000	52.513	-5.0	109	0.00
52	T	1,4-Dioxane	1000.000	1293.580	-29.4#	161	0.00
53	T	cis-1,3-Dichloropropene	50.000	53.045	-6.1	104	0.00
54	T	1,1,2-Trichloroethane	50.000	53.881	-7.8	107	-0.01
55	T	Ethyl Methacrylate	50.000	57.412	-14.8	112	-0.01
56	T	1,3-Dichloropropane	50.000	57.332	-14.7	117	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	287.136	-14.9	111	0.00
58	T	2-Hexanone	250.000	313.844	-25.5#	116	-0.01
59	T	Dibromochloromethane	50.000	53.947	-7.9	105	-0.01
60	T	1,2-Dibromoethane	50.000	58.082	-16.2	111	-0.01
61	S	4-Bromofluorobenzene	50.000	58.445	-16.9	125	-0.01
62	I	Chlorobenzene-d5	50.000	50.000	0.0	96	-0.02
63	TM	Tetrachloroethene	50.000	76.059	-52.1#	142	-0.02
64	PM	Chlorobenzene	50.000	58.965	-17.9	109	-0.01
65	T	1,1,1,2-Tetrachloroethane	50.000	59.379	-18.8	111	-0.02
66	C	Ethyl Benzene	50.000	58.869	-17.7#	111	-0.02
67	T	m/p-Xylenes	100.000	116.452	-16.5	111	-0.01
68	T	o-Xylene	50.000	58.074	-16.1	112	0.00
69	T	Styrene	50.000	58.664	-17.3	110	0.00
70	P	Bromoform	50.000	55.458	-10.9	103	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	105	0.00
72	T	Isopropylbenzene	50.000	52.622	-5.2	110	-0.01
73	T	n-Amyl Acetate	50.000	57.908	-15.8	109	-0.01
74	P	1,1,2,2-Tetrachloroethane	50.000	51.065	-2.1	98	-0.01
75	T	1,2,3-Trichloropropane	50.000	55.398	-10.8	107	0.00
76	T	Bromobenzene	50.000	52.945	-5.9	111	-0.01
77	T	n-propylbenzene	50.000	55.813	-11.6	110	0.00
78	T	2-Chlorotoluene	50.000	54.185	-8.4	108	-0.01
79	T	1,3,5-Trimethylbenzene	50.000	54.922	-9.8	108	0.00
80	T	trans-1,4-Dichloro-2-Butene	50.000	52.164	-4.3	100	0.00
81	T	4-Chlorotoluene	50.000	53.925	-7.8	109	0.00
82	T	tert-Butylbenzene	50.000	48.182	3.6	93	0.00
83	T	1,2,4-Trimethylbenzene	50.000	54.762	-9.5	108	0.00
84	T	sec-Butylbenzene	50.000	53.570	-7.1	107	0.00
85	T	p-Isopropyltoluene	50.000	54.496	-9.0	105	0.00
86	T	1,3-Dichlorobenzene	50.000	50.321	-0.6	103	0.00
87	T	1,4-Dichlorobenzene	50.000	50.937	-1.9	104	0.00
88	T	n-Butylbenzene	50.000	52.520	-5.0	105	-0.01
89	T	Hexachloroethane	50.000	53.647	-7.3	109	-0.02

Evaluate Continuing Calibration Report

Data Path : W:\HPCHEM1\Msvoa_H\Data\VH010312\
Data File : VH045173.D
Acq On : 4 Jan 2012 5:42
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL MSVOA_H
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jan 04 14:30:54 2012
Quant Method : W:\HPCHEM1\MSVOA_H\METHOD\82H010312W.M
Quant Title : SW846 8260
QLast Update : Wed Jan 04 13:48:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dichlorobenzene	50.000	51.460	-2.9	104	0.00
91	T	1,2-Dibromo-3-Chloropropane	50.000	52.183	-4.4	104	-0.02
92	T	1,2,4-Trichlorobenzene	50.000	49.705	0.6	105	0.00
93	T	Hexachlorobutadiene	50.000	43.183	13.6	96	0.00
94	T	Naphthalene	50.000	50.323	-0.6	100	0.00
95	T	1,2,3-Trichlorobenzene	50.000	47.836	4.3	102	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBH0103W2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: VH045175.D Lab Sample ID: VBH0103W2

Date Analyzed: 01/04/2012 Time Analyzed: 06:31

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAH

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSH0103W3	BSH0103W3	VH045176.D	01/04/2012
TB-01-122811	C5146-21	VH045182.D	01/04/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBH0103W2	SDG No.:	C5146
Lab Sample ID:	VBH0103W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045175.D	1		01/04/12	VH010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
74-87-3	Chloromethane	2.5	U	0.54	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
74-83-9	Bromomethane	2.5	U	0.62	5	ug/L
75-00-3	Chloroethane	2.5	U	0.66	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	0.45	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-15-0	Carbon Disulfide	2.5	U	0.54	5	ug/L
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.35	5	ug/L
79-20-9	Methyl Acetate	2.5	U	0.83	5	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
110-82-7	Cyclohexane	2.5	U	0.55	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
56-23-5	Carbon Tetrachloride	2.5	U	0.62	5	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
74-97-5	Bromochloromethane	2.5	U	2.2	5	ug/L
67-66-3	Chloroform	2.5	U	0.34	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
108-87-2	Methylcyclohexane	2.5	U	0.68	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
78-87-5	1,2-Dichloropropane	2.5	U	0.46	5	ug/L
75-27-4	Bromodichloromethane	2.5	U	0.36	5	ug/L
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.1	25	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.29	5	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBH0103W2	SDG No.:	C5146
Lab Sample ID:	VBH0103W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH045175.D	1		01/04/12	VH010312

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.31	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
591-78-6	2-Hexanone	12.5	U	1.9	25	ug/L
124-48-1	Dibromochloromethane	2.5	U	0.52	5	ug/L
106-93-4	1,2-Dibromoethane	2.5	U	0.41	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
108-90-7	Chlorobenzene	2.5	U	0.49	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
100-42-5	Styrene	2.5	U	0.36	5	ug/L
75-25-2	Bromoform	2.5	U	0.47	5	ug/L
98-82-8	Isopropylbenzene	2.5	U	0.45	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
541-73-1	1,3-Dichlorobenzene	2.5	U	0.43	5	ug/L
106-46-7	1,4-Dichlorobenzene	2.5	U	0.32	5	ug/L
95-50-1	1,2-Dichlorobenzene	2.5	U	0.45	5	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.46	5	ug/L
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.62	5	ug/L
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.65	5	ug/L
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/L
123-91-1	1,4-Dioxane	50	U	20	100	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.9		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	53.3		85 - 115	107%	SPK: 50
2037-26-5	Toluene-d8	49.8		85 - 120	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.2		75 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	572106	4.95			
540-36-3	1,4-Difluorobenzene	935966	5.66			
3114-55-4	Chlorobenzene-d5	888761	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	525872	12.52			

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSH0103W3 Analytical Method: EPA SW846 8260 Datafile : VH045176.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(35-124)
Chloromethane	20		21	105	(40-125)
Vinyl Chloride	20		20	100	(50-144)
Bromomethane	20		21	105	(44-145)
Chloroethane	20		21	105	(60-135)
Trichlorofluoromethane	20		18	90	(60-137)
1,1,2-Trichlorotrifluoroethane	20		18	90	(52-142)
1,1-Dichloroethene	20		21	105	(70-130)
Acetone	100		110	110	(50-140)
Carbon Disulfide	20		21	105	(36-155)
Methyl tert-butyl Ether	20		22	110	(65-125)
Methyl Acetate	20		25	125	(51-158)
Methylene Chloride	20		20	100	(61-138)
trans-1,2-Dichloroethene	20		21	105	(60-137)
1,1-Dichloroethane	20		21	105	(70-135)
Cyclohexane	20		20	100	(56-141)
2-Butanone	100		100	100	(56-150)
Carbon Tetrachloride	20		20	100	(65-138)
cis-1,2-Dichloroethene	20		21	105	(70-125)
Bromochloromethane	20		17	85	(65-130)
Chloroform	20		21	105	(67-135)
1,1,1-Trichloroethane	20		20	100	(65-130)
Methylcyclohexane	20		18	90	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		22	110	(70-130)
Trichloroethene	20		20	100	(70-125)
1,2-Dichloropropane	20		20	100	(75-125)
Bromodichloromethane	20		19	95	(75-120)
4-Methyl-2-Pentanone	100		120	120	(63-135)
Toluene	20		20	100	(75-120)
t-1,3-Dichloropropene	20		19	95	(66-135)
cis-1,3-Dichloropropene	20		20	100	(70-130)
1,1,2-Trichloroethane	20		21	105	(75-125)
2-Hexanone	100		120	120	(56-130)
Dibromochloromethane	20		19	95	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

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CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5146 SAS No : C5146 SDG No: C5146

Matrix Spike - EPA Sample No : BSH0103W3 Analytical Method: EPA SW846 8260 Datafile : VH045176.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(80-120)
Tetrachloroethene	20		28	140	(45-178)
Chlorobenzene	20		20	100	(80-120)
Ethyl Benzene	20		20	100	(75-125)
m/p-Xylenes	40		40	100	(75-130)
o-Xylene	20		20	100	(80-120)
Styrene	20		20	100	(65-135)
Bromoform	20		19	95	(70-130)
Isopropylbenzene	20		20	100	(75-125)
1,1,2,2-Tetrachloroethane	20		20	100	(65-130)
1,3-Dichlorobenzene	20		19	95	(75-125)
1,4-Dichlorobenzene	20		19	95	(75-125)
1,2-Dichlorobenzene	20		19	95	(70-120)
1,2-Dibromo-3-Chloropropane	20		20	100	(54-130)
1,2,4-Trichlorobenzene	20		18	90	(65-133)
1,2,3-Trichlorobenzene	20		18	90	(60-135)
1,4-Dioxane	400		400	100	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB08-0304-03 [2-Fluorobiphenyl - 109%, 2-Fluorophenol - 110%, Nitrobenzene-d5 - 108%, Phenol-d5 - 112%], 12SB08-0304-03RE [2-Fluorobiphenyl - 109%, 2-Fluorophenol - 110%, Nitrobenzene-d5 - 110%, Phenol-d5 - 110%] and 12SB12-0304-03 [Phenol-d5 - 106%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike for {PB60307BS} with File ID: BE074978.D met requirements for all samples except for 4-Chloroaniline[14%], Hexachlorocyclopentadiene[118%] but it is not present in the sample.
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration met the requirements .
The Tuning criteria met requirements.

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E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.19 16:24:34 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5146-01	12SB07-000.5-01	2-Fluorophenol	150	111.14	74		35	105
		Phenol-d5	150	112.35	75		40	100
		Nitrobenzene-d5	100	72.09	72		35	100
		2-Fluorobiphenyl	100	69.16	69		45	105
		2,4,6-Tribromophenol	150	96.95	65		35	125
		Terphenyl-d14	100	72.08	72		30	125
C5146-02	12SB07-0.502-02	2-Fluorophenol	150	102.98	69		35	105
		Phenol-d5	150	104.16	69		40	100
		Nitrobenzene-d5	100	65.21	65		35	100
		2-Fluorobiphenyl	100	66.45	66		45	105
		2,4,6-Tribromophenol	150	93.60	62		35	125
		Terphenyl-d14	100	71.94	72		30	125
C5146-03	12SB07-0304-03	2-Fluorophenol	150	145.64	97		35	105
		Phenol-d5	150	148.79	99		40	100
		Nitrobenzene-d5	100	93.11	93		35	100
		2-Fluorobiphenyl	100	96.47	96		45	105
		2,4,6-Tribromophenol	150	136.13	91		35	125
		Terphenyl-d14	100	99.38	99		30	125
C5146-04	12SB08-000.5-01	2-Fluorophenol	150	119.26	80		35	105
		Phenol-d5	150	123.64	82		40	100
		Nitrobenzene-d5	100	76.68	77		35	100
		2-Fluorobiphenyl	100	72.27	72		45	105
		2,4,6-Tribromophenol	150	105.88	71		35	125
		Terphenyl-d14	100	77.91	78		30	125
C5146-05	12SB08-0.502-02	2-Fluorophenol	150	105.54	70		35	105
		Phenol-d5	150	108.98	73		40	100
		Nitrobenzene-d5	100	69.06	69		35	100
		2-Fluorobiphenyl	100	74.57	75		45	105
		2,4,6-Tribromophenol	150	101.61	68		35	125
		Terphenyl-d14	100	77.18	77		30	125
C5146-06	12SB08-0304-03	2-Fluorophenol	150	165.61	110	*	35	105
		Phenol-d5	150	168.34	112	*	40	100
		Nitrobenzene-d5	100	108.47	108	*	35	100
		2-Fluorobiphenyl	100	109.07	109	*	45	105
		2,4,6-Tribromophenol	150	159.46	106		35	125
		Terphenyl-d14	100	112.45	112		30	125
C5146-06RE	12SB08-0304-03RE	2-Fluorophenol	150	165.32	110	*	35	105
		Phenol-d5	150	165.57	110	*	40	100
		Nitrobenzene-d5	100	110.12	110	*	35	100
		2-Fluorobiphenyl	100	108.65	109	*	45	105
		2,4,6-Tribromophenol	150	159.86	107		35	125
		Terphenyl-d14	100	111.60	112		30	125
C5146-07	12SB12-000.5-01	2-Fluorophenol	150	129.09	86		35	105
		Phenol-d5	150	131.65	88		40	100
		Nitrobenzene-d5	100	83.28	83		35	100
		2-Fluorobiphenyl	100	84.54	85		45	105
		2,4,6-Tribromophenol	150	119.54	80		35	125
		Terphenyl-d14	100	87.70	88		30	125
C5146-08MS	12SB12-000.5-01MS	2-Fluorophenol	150	137.57	92		35	105
		Phenol-d5	150	138.60	92		40	100
		Nitrobenzene-d5	100	93.48	93		35	100
		2-Fluorobiphenyl	100	85.42	85		45	105

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5146-08MS	12SB12-000.5-01MS	2,4,6-Tribromophenol	150	132.00	88		35	125
		Terphenyl-d14	100	86.40	86		30	125
C5146-09MSD	12SB12-000.5-01MSD	2-Fluorophenol	150	133.09	89		35	105
		Phenol-d5	150	133.61	89		40	100
		Nitrobenzene-d5	100	90.87	91		35	100
		2-Fluorobiphenyl	100	83.17	83		45	105
		2,4,6-Tribromophenol	150	128.09	85		35	125
		Terphenyl-d14	100	81.21	81		30	125
C5146-10	12SB12-0.502-02	2-Fluorophenol	150	108.17	72		35	105
		Phenol-d5	150	108.77	73		40	100
		Nitrobenzene-d5	100	67.55	68		35	100
		2-Fluorobiphenyl	100	69.38	69		45	105
		2,4,6-Tribromophenol	150	98.48	66		35	125
		Terphenyl-d14	100	71.69	72		30	125
C5146-11	12SB12-0304-03	2-Fluorophenol	150	157.85	105		35	105
		Phenol-d5	150	158.87	106	*	40	100
		Nitrobenzene-d5	100	99.92	100		35	100
		2-Fluorobiphenyl	100	104.18	104		45	105
		2,4,6-Tribromophenol	150	146.22	97		35	125
		Terphenyl-d14	100	105.17	105		30	125
C5146-12	12SB06-000.5-01	2-Fluorophenol	150	115.38	77		35	105
		Phenol-d5	150	116.26	78		40	100
		Nitrobenzene-d5	100	72.34	72		35	100
		2-Fluorobiphenyl	100	67.67	68		45	105
		2,4,6-Tribromophenol	150	99.56	66		35	125
		Terphenyl-d14	100	65.13	65		30	125
C5146-13	12SB06-0.502-02	2-Fluorophenol	150	132.20	88		35	105
		Phenol-d5	150	132.10	88		40	100
		Nitrobenzene-d5	100	86.16	86		35	100
		2-Fluorobiphenyl	100	89.81	90		45	105
		2,4,6-Tribromophenol	150	126.09	84		35	125
		Terphenyl-d14	100	87.76	88		30	125
C5146-14	12SB06-0304-03	2-Fluorophenol	150	110.87	74		35	105
		Phenol-d5	150	111.12	74		40	100
		Nitrobenzene-d5	100	72.72	73		35	100
		2-Fluorobiphenyl	100	78.77	79		45	105
		2,4,6-Tribromophenol	150	106.81	71		35	125
		Terphenyl-d14	100	77.13	77		30	125
C5146-15	12SB17-000.5-01	2-Fluorophenol	150	144.75	97		35	105
		Phenol-d5	150	144.31	96		40	100
		Nitrobenzene-d5	100	92.56	93		35	100
		2-Fluorobiphenyl	100	99.37	99		45	105
		2,4,6-Tribromophenol	150	137.30	92		35	125
		Terphenyl-d14	100	98.30	98		30	125
C5146-16	12SB17-0.502-02	2-Fluorophenol	150	115.91	77		35	105
		Phenol-d5	150	117.90	79		40	100
		Nitrobenzene-d5	100	73.97	74		35	100
		2-Fluorobiphenyl	100	80.60	81		45	105
		2,4,6-Tribromophenol	150	109.38	73		35	125
		Terphenyl-d14	100	80.27	80		30	125
C5146-17	12SB17-0304-03	2-Fluorophenol	150	102.45	68		35	105
		Phenol-d5	150	102.01	68		40	100

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5146-17	12SB17-0304-03	Nitrobenzene-d5	100	63.16	63		35	100
		2-Fluorobiphenyl	100	70.94	71		45	105
		2,4,6-Tribromophenol	150	93.71	62		35	125
		Terphenyl-d14	100	72.87	73		30	125
C5146-18	12SB27-000.5-01	2-Fluorophenol	150	118.34	79		35	105
		Phenol-d5	150	121.69	81		40	100
		Nitrobenzene-d5	100	78.48	78		35	100
		2-Fluorobiphenyl	100	82.85	83		45	105
		2,4,6-Tribromophenol	150	118.20	79		35	125
		Terphenyl-d14	100	85.23	85		30	125
C5146-19	12SB27-0.502-02	2-Fluorophenol	150	135.55	90		35	105
		Phenol-d5	150	141.52	94		40	100
		Nitrobenzene-d5	100	92.08	92		35	100
		2-Fluorobiphenyl	100	90.20	90		45	105
		2,4,6-Tribromophenol	150	130.32	87		35	125
		Terphenyl-d14	100	93.67	94		30	125
C5146-20	12SB-DUP-08	2-Fluorophenol	150	119.15	79		35	105
		Phenol-d5	150	120.99	81		40	100
		Nitrobenzene-d5	100	75.89	76		35	100
		2-Fluorobiphenyl	100	74.12	74		45	105
		2,4,6-Tribromophenol	150	107.51	72		35	125
		Terphenyl-d14	100	74.85	75		30	125
PB60307B	PB60307B	2-Fluorophenol	150	123.92	83		35	105
		Phenol-d5	150	122.36	82		40	100
		Nitrobenzene-d5	100	81.00	81		35	100
		2-Fluorobiphenyl	100	86.48	86		45	105
		2,4,6-Tribromophenol	150	117.53	78		35	125
		Terphenyl-d14	100	86.22	86		30	125
PB60307BS	PB60307BS	2-Fluorophenol	150	136.81	91		35	105
		Phenol-d5	150	134.02	89		40	100
		Nitrobenzene-d5	100	91.59	92		35	100
		2-Fluorobiphenyl	100	91.72	92		45	105
		2,4,6-Tribromophenol	150	130.36	87		35	125
		Terphenyl-d14	100	87.00	87		30	125

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD040 Date Analyzed: 01/11/2012

Lab File ID: BE074977.D Time Analyzed: 08:41

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	122011	8.61	497791	10.78	269746	13.74
	UPPER LIMIT	244022	9.11	995582	11.28	539492	14.24
	LOWER LIMIT	61005.5	8.11	248895.5	10.28	134873	13.24
	EPA SAMPLE NO.						
01	PB60307BS	128364	8.61	503538	10.78	266512	13.74
02	PB60307B	126108	8.61	486314	10.78	254094	13.74
03	12SB07-0304-03	108778	8.60	429955	10.78	231375	13.74
04	12SB08-0.502-02	126982	8.60	507355	10.78	274036	13.74
05	12SB08-0304-03	118608	8.60	462503	10.78	250947	13.74
06	12SB12-0.502-02	115912	8.61	458823	10.78	247935	13.74
07	12SB17-0304-03	123068	8.61	494106	10.78	259975	13.74
08	12SB17-0.502-02	115109	8.61	453562	10.78	244411	13.74
09	12SB06-000.5-01	125285	8.60	493901	10.78	268134	13.74

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD040 Date Analyzed: 01/11/2012

Lab File ID: BE074977.D Time Analyzed: 08:41

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	468858	16.21	445522	20.66	388550	24.3
	UPPER LIMIT	937716	16.71	891044	21.16	777100	24.8
	LOWER LIMIT	234429	15.71	222761	20.16	194275	23.8
	EPA SAMPLE NO.						
01	PB60307BS	456168	16.21	455085	20.66	427768	24.30
02	PB60307B	462076	16.21	443437	20.66	396570	24.30
03	12SB07-0304-03	417153	16.22	389299	20.65	339783	24.30
04	12SB08-0.502-02	482300	16.21	448621	20.66	394661	24.30
05	12SB08-0304-03	447729	16.21	413915	20.66	378653	24.30
06	12SB12-0.502-02	444244	16.21	407625	20.66	357721	24.30
07	12SB17-0304-03	463308	16.21	422080	20.65	372373	24.30
08	12SB17-0.502-02	433048	16.22	404778	20.65	352076	24.30
09	12SB06-000.5-01	467976	16.21	428918	20.66	379118	24.30

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD040 Date Analyzed: 01/12/2012

Lab File ID: BE075007.D Time Analyzed: 06:37

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	117772	8.6	478306	10.78	263712	13.74
	UPPER LIMIT	235544	9.1	956612	11.28	527424	14.24
	LOWER LIMIT	58886	8.1	239153	10.28	131856	13.24
	EPA SAMPLE NO.						
01	12SB07-000.5-01	149606	8.61	589172	10.78	320938	13.74
02	12SB08-000.5-01	132770	8.60	519798	10.78	275876	13.74
03	12SB07-0.502-02	123506	8.60	484088	10.78	259986	13.74
04	12SB-DUP-08	130953	8.60	517363	10.78	277559	13.74
05	12SB12-000.5-01	141927	8.60	572524	10.78	306750	13.74
06	12SB12-000.5-01MS	122549	8.60	485559	10.78	265893	13.74
07	12SB12-000.5-01MSD	131206	8.60	514242	10.78	276975	13.74
08	12SB27-0.502-02	120589	8.60	482342	10.78	259482	13.74
09	12SB27-000.5-01	128668	8.61	506793	10.78	273631	13.74
10	12SB12-0304-03	130929	8.61	527810	10.78	274931	13.74
11	12SB17-000.5-01	118618	8.60	468342	10.78	244416	13.74

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD040 Date Analyzed: 01/12/2012

Lab File ID: BE075007.D Time Analyzed: 06:37

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	462121	16.22	449082	20.66	384433	24.31
	UPPER LIMIT	924242	16.72	898164	21.16	768866	24.81
	LOWER LIMIT	231060.5	15.72	224541	20.16	192216.5	23.81
	EPA SAMPLE NO.						
01	12SB07-000.5-01	561071	16.21	509884	20.66	439170	24.31
02	12SB08-000.5-01	481593	16.21	444117	20.65	390528	24.30
03	12SB07-0.502-02	455735	16.22	422056	20.65	374762	24.30
04	12SB-DUP-08	489411	16.22	445278	20.65	391336	24.30
05	12SB12-000.5-01	531640	16.21	486493	20.65	435209	24.30
06	12SB12-000.5-01MS	467157	16.22	447943	20.66	400816	24.31
07	12SB12-000.5-01MSD	489716	16.21	485903	20.66	423433	24.31
08	12SB27-0.502-02	459377	16.22	425127	20.66	379821	24.31
09	12SB27-000.5-01	491912	16.21	446278	20.66	397555	24.31
10	12SB12-0304-03	474741	16.22	433866	20.66	388073	24.31
11	12SB17-000.5-01	437583	16.21	399426	20.66	357396	24.30

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD040 Date Analyzed: 01/12/2012

Lab File ID: BE075022.D Time Analyzed: 20:09

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	125059	8.6	512063	10.77	283860	13.74
	UPPER LIMIT	250118	9.1	1024126	11.27	567720	14.24
	LOWER LIMIT	62529.5	8.1	256031.5	10.27	141930	13.24
	EPA SAMPLE NO.						
01	12SB06-0.502-02	134007	8.60	518476	10.77	268422	13.74
02	12SB06-0304-03	132700	8.60	508650	10.78	264049	13.74
03	12SB08-0304-03RE	124551	8.60	477687	10.77	257952	13.73

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD040 Date Analyzed: 01/12/2012

Lab File ID: BE075022.D Time Analyzed: 20:09

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	491404	16.21	488396	20.65	432921	24.28
	UPPER LIMIT	982808	16.71	976792	21.15	865842	24.78
	LOWER LIMIT	245702	15.71	244198	20.15	216460.5	23.78
	EPA SAMPLE NO.						
01	12SB06-0.502-02	483916	16.21	450213	20.65	412735	24.29
02	12SB06-0304-03	478739	16.21	457133	20.65	415375	24.28
03	12SB08-0304-03RE	450433	16.21	430951	20.65	387209	24.29

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60307B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: BE074979.D Lab Sample ID: PB60307B

Instrument ID: BNA_E Date Extracted: 12/29/2011

Matrix: (soil/water) SOIL Date Analyzed: 01/11/2012

Level: (low/med) LOW Time Analyzed: 10:05

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB06-0304-03	C5146-14	BE075031.D	01/13/2012
12SB06-0.502-02	C5146-13	BE075030.D	01/13/2012
12SB17-000.5-01	C5146-15	BE075019.D	01/12/2012
12SB12-0304-03	C5146-11	BE075018.D	01/12/2012
12SB06-000.5-01	C5146-12	BE074988.D	01/11/2012
12SB17-0.502-02	C5146-16	BE074987.D	01/11/2012
12SB27-000.5-01	C5146-18	BE075017.D	01/12/2012
12SB27-0.502-02	C5146-19	BE075016.D	01/12/2012
12SB17-0304-03	C5146-17	BE074986.D	01/11/2012
12SB12-000.5-01MSD	C5146-09MSD	BE075015.D	01/12/2012
12SB12-000.5-01MS	C5146-08MS	BE075014.D	01/12/2012
12SB12-000.5-01	C5146-07	BE075013.D	01/12/2012
12SB12-0.502-02	C5146-10	BE074983.D	01/11/2012
12SB08-0304-03	C5146-06	BE074982.D	01/11/2012
12SB08-0.502-02	C5146-05	BE074981.D	01/11/2012
12SB-DUP-08	C5146-20	BE075011.D	01/12/2012
12SB07-0.502-02	C5146-02	BE075010.D	01/12/2012
12SB07-0304-03	C5146-03	BE074980.D	01/11/2012
12SB08-000.5-01	C5146-04	BE075009.D	01/12/2012
12SB07-000.5-01	C5146-01	BE075008.D	01/12/2012
PB60307BS	PB60307BS	BE074978.D	01/11/2012

COMMENTS:

C5146 Analytical Summary

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60307B	SDG No.:	C5146
Lab Sample ID:	PB60307B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074979.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	23	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	15	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60307B	SDG No.:	C5146
Lab Sample ID:	PB60307B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074979.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	165	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	123		35 - 105	83%	SPK: 150
13127-88-3	Phenol-d5	122		40 - 100	82%	SPK: 150
4165-60-0	Nitrobenzene-d5	81		35 - 100	81%	SPK: 100
321-60-8	2-Fluorobiphenyl	86.5		45 - 105	86%	SPK: 100
118-79-6	2,4,6-Tribromophenol	117		35 - 125	78%	SPK: 150
1718-51-0	Terphenyl-d14	86.2		30 - 125	86%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	126108	8.61			
1146-65-2	Naphthalene-d8	486314	10.78			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60307B	SDG No.:	C5146
Lab Sample ID:	PB60307B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074979.D	1	12/29/11	01/11/12	PB60307

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	254094	13.74			
1517-22-2	Phenanthrene-d10	462076	16.21			
1719-03-5	Chrysene-d12	443437	20.66			
1520-96-3	Perylene-d12	396570	24.3			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60307BS	Benzaldehyde	1700	470	28				10	161	
	Phenol	1700	1500	88				51	100	
	bis(2-Chloroethyl)ether	1700	1500	88				48	105	
	2-Chlorophenol	1700	1500	88				53	105	
	2-Methylphenol	1700	1500	88				52	105	
	2,2-oxybis(1-Chloropropane)	1700	1500	88				45	115	
	Acetophenone	1700	1500	88				51	114	
	3+4-Methylphenols	1700	1400	82				54	105	
	N-Nitroso-di-n-propylamine	1700	1400	82				51	114	
	Hexachloroethane	1700	1500	88				44	110	
	Nitrobenzene	1700	1600	94				49	114	
	Isophorone	1700	1500	88				52	110	
	2-Nitrophenol	1700	1500	88				51	110	
	2,4-Dimethylphenol	1700	1500	88				46	105	
	bis(2-Chloroethoxy)methane	1700	1500	88				52	110	
	2,4-Dichlorophenol	1700	1500	88				53	110	
	4-Chloroaniline	1700	230	14		*		25	115	
	Hexachlorobutadiene	1700	1600	94				47	115	
	Caprolactam	1700	1400	82				45	115	
	4-Chloro-3-methylphenol	1700	1400	82				56	111	
	Hexachlorocyclopentadiene	3300	3900	118		*		43	112	
	2,4,6-Trichlorophenol	1700	1500	88				53	110	
	2,4,5-Trichlorophenol	1700	1500	88				53	110	
	1,1-Biphenyl	1700	1500	88				55	109	
	2-Chloronaphthalene	1700	1500	88				55	105	
	2-Nitroaniline	1700	1500	88				53	118	
	Dimethylphthalate	1700	1500	88				57	110	
	Acenaphthylene	1700	1600	94				54	105	
	2,6-Dinitrotoluene	1700	1600	94				55	110	
	3-Nitroaniline	1700	460	27				25	110	
	Acenaphthene	1700	1600	94				54	110	
	2,4-Dinitrophenol	3300	2800	85				15	130	
	4-Nitrophenol	3300	3200	97				44	115	
	Dibenzofuran	1700	1500	88				59	105	
	2,4-Dinitrotoluene	1700	1600	94				55	115	
	Diethylphthalate	1700	1500	88				56	111	
	4-Chlorophenyl-phenylether	1700	1500	88				56	110	
	4-Nitroaniline	1700	1400	82				46	113	
	4,6-Dinitro-2-methylphenol	1700	1600	94				39	126	
	N-Nitrosodiphenylamine	1700	1500	88				54	115	
	4-Bromophenyl-phenylether	1700	1600	94				51	115	
	Hexachlorobenzene	1700	1500	88				52	117	
	Atrazine	1700	1500	88				40	127	
	Pentachlorophenol	3300	3400	103				47	116	
	Phenanthrene	1700	1600	94				56	110	
	Carbazole	1700	1500	88				54	117	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60307BS	Di-n-butylphthalate	1700	1500	88				58	110	
	Butylbenzylphthalate	1700	1500	88				57	122	
	3,3-Dichlorobenzidine	1700	520	31				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1500	88				60	119	
	Di-n-octyl phthalate	1700	1500	88				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	1500	88				70	130	
	2,3,4,6-Tetrachlorophenol	1700	1600	94				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5146-08MS	**Client Sample ID: 12SB12-000.5-01MS**									
Benzaldehyde	2300	0	620	27				10	161	
Phenol	2300	0	2100	91				43	100	
bis(2-Chloroethyl)ether	2300	0	2100	91				43	105	
2-Chlorophenol	2300	0	2100	91				45	105	
2-Methylphenol	2300	0	2100	91				44	105	
2,2-oxybis(1-Chloropropane)	2300	0	2100	91				36	115	
Acetophenone	2300	0	2100	91				48	131	
3+4-Methylphenols	2300	0	2100	91				44	105	
N-Nitroso-di-n-propylamine	2300	0	2100	91				41	115	
Hexachloroethane	2300	0	2000	87				35	110	
Nitrobenzene	2300	0	2200	96				40	115	
Isophorone	2300	0	2200	96				45	110	
2-Nitrophenol	2300	0	2100	91				40	110	
2,4-Dimethylphenol	2300	0	2100	91				35	105	
bis(2-Chloroethoxy)methane	2300	0	2200	96				45	110	
2,4-Dichlorophenol	2300	0	2100	91				45	110	
4-Chloroaniline	2300	0	730	32				10	160	
Hexachlorobutadiene	2300	0	2100	91				40	115	
Caprolactam	2300	0	2000	87				24	145	
4-Chloro-3-methylphenol	2300	0	2100	91				45	115	
Hexachlorocyclopentadiene	4600	0	4400	96				10	128	
2,4,6-Trichlorophenol	2300	0	2100	91				45	110	
2,4,5-Trichlorophenol	2300	0	2100	91				50	110	
1,1-Biphenyl	2300	0	2000	87				47	131	
2-Chloronaphthalene	2300	0	2100	91				45	105	
2-Nitroaniline	2300	0	2200	96				45	120	
Dimethylphthalate	2300	0	2200	96				51	110	
Acenaphthylene	2300	0	2200	96				45	105	
2,6-Dinitrotoluene	2300	0	2100	91				50	110	
3-Nitroaniline	2300	0	1300	57				25	110	
Acenaphthene	2300	0	2200	96				45	110	
2,4-Dinitrophenol	4600	0	3700	80				15	130	
4-Nitrophenol	4600	0	4500	98				15	140	
Dibenzofuran	2300	0	2100	91				50	105	
2,4-Dinitrotoluene	2300	0	2200	96				50	115	
Diethylphthalate	2300	0	2200	96				50	115	
4-Chlorophenyl-phenylether	2300	0	2100	91				45	110	
4-Nitroaniline	2300	0	1900	83				35	115	
4,6-Dinitro-2-methylphenol	2300	0	2100	91				30	135	
N-Nitrosodiphenylamine	2300	0	2100	91				50	115	
4-Bromophenyl-phenylether	2300	0	2100	91				45	115	
Hexachlorobenzene	2300	0	2000	87				45	120	
Atrazine	2300	0	2000	87				38	135	
Pentachlorophenol	4600	0	4800	104				25	120	
Phenanthrene	2300	0	2200	96				50	110	
Carbazole	2300	0	2100	91				45	115	
Di-n-butylphthalate	2300	0	2200	96				55	110	
Butylbenzylphthalate	2300	0	2200	96				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2300	0	1200	52				10	126	
bis(2-Ethylhexyl)phthalate	2300	0	2200	96				45	125	
Di-n-octyl phthalate	2300	0	2200	96				40	130	
1,2,4,5-Tetrachlorobenzene	2300	0	2000	87				70	130	
2,3,4,6-Tetrachlorophenol	2300	0	2200	96				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5146-09MSD	**Client Sample ID: 12SB12-000.5-01MSD**									
Benzaldehyde	2300	0	590	26		4		10	161	20
Phenol	2300	0	2000	87		4		43	100	20
bis(2-Chloroethyl)ether	2300	0	2100	91		0		43	105	20
2-Chlorophenol	2300	0	2000	87		4		45	105	20
2-Methylphenol	2300	0	2000	87		4		44	105	20
2,2-oxybis(1-Chloropropane)	2300	0	2000	87		4		36	115	20
Acetophenone	2300	0	2000	87		4		48	131	20
3+4-Methylphenols	2300	0	2000	87		4		44	105	20
N-Nitroso-di-n-propylamine	2300	0	2000	87		4		41	115	20
Hexachloroethane	2300	0	2000	87		0		35	110	20
Nitrobenzene	2300	0	2200	96		0		40	115	20
Isophorone	2300	0	2200	96		0		45	110	20
2-Nitrophenol	2300	0	2000	87		4		40	110	20
2,4-Dimethylphenol	2300	0	2100	91		0		35	105	20
bis(2-Chloroethoxy)methane	2300	0	2100	91		5		45	110	20
2,4-Dichlorophenol	2300	0	2000	87		4		45	110	20
4-Chloroaniline	2300	0	770	33		3		10	160	20
Hexachlorobutadiene	2300	0	2100	91		0		40	115	20
Caprolactam	2300	0	1900	83		5		24	145	20
4-Chloro-3-methylphenol	2300	0	2100	91		0		45	115	20
Hexachlorocyclopentadiene	4600	0	4300	93		3		10	128	20
2,4,6-Trichlorophenol	2300	0	2100	91		0		45	110	20
2,4,5-Trichlorophenol	2300	0	2100	91		0		50	110	20
1,1-Biphenyl	2300	0	2000	87		0		47	131	20
2-Chloronaphthalene	2300	0	2100	91		0		45	105	20
2-Nitroaniline	2300	0	2200	96		0		45	120	20
Dimethylphthalate	2300	0	2200	96		0		51	110	20
Acenaphthylene	2300	0	2200	96		0		45	105	20
2,6-Dinitrotoluene	2300	0	2100	91		0		50	110	20
3-Nitroaniline	2300	0	1300	57		0		25	110	20
Acenaphthene	2300	0	2200	96		0		45	110	20
2,4-Dinitrophenol	4600	0	3800	83		4		15	130	20
4-Nitrophenol	4600	0	4500	98		0		15	140	20
Dibenzofuran	2300	0	2000	87		4		50	105	20
2,4-Dinitrotoluene	2300	0	2100	91		5		50	115	20
Diethylphthalate	2300	0	2100	91		5		50	115	20
4-Chlorophenyl-phenylether	2300	0	2100	91		0		45	110	20
4-Nitroaniline	2300	0	1800	78		6		35	115	20
4,6-Dinitro-2-methylphenol	2300	0	2000	87		4		30	135	20
N-Nitrosodiphenylamine	2300	0	2100	91		0		50	115	20
4-Bromophenyl-phenylether	2300	0	2000	87		4		45	115	20
Hexachlorobenzene	2300	0	2000	87		0		45	120	20
Atrazine	2300	0	2000	87		0		38	135	20
Pentachlorophenol	4600	0	4700	102		2		25	120	20
Phenanthrene	2300	0	2100	91		5		50	110	20
Carbazole	2300	0	2100	91		0		45	115	20
Di-n-butylphthalate	2300	0	2100	91		5		55	110	20
Butylbenzylphthalate	2300	0	2100	91		5		50	125	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	2300	0	1200	52		0		10	126	20
bis(2-Ethylhexyl)phthalate	2300	0	2100	91		5		45	125	20
Di-n-octyl phthalate	2300	0	2100	91		5		40	130	20
1,2,4,5-Tetrachlorobenzene	2300	0	2000	87		0		70	130	20
2,3,4,6-Tetrachlorophenol	2300	0	2200	96		0		70	130	20

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BE074954.D DFTPP Injection Date: 01/10/2012

Instrument ID: BNA_E DFTPP Injection Time: 15:58

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	40.6
68	Less than 2.0% of mass 69	0.6 (1.8) 1
69	Mass 69 relative abundance	34.1
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	47.1
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	20.9
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	10.7
442	Greater than 40% of mass 198	65.7
443	17.0 - 23.0% of mass 442	13 (19.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074955.D	01/10/2012	16:43
02	SSTD025	25 ng BNA ICC	BE074956.D	01/10/2012	17:28
03	SSTD040	40 ng BNA ICC	BE074957.D	01/10/2012	18:10
04	SSTD050	50 ng BNA ICC	BE074958.D	01/10/2012	18:54
05	SSTD060	60 ng BNA ICC	BE074959.D	01/10/2012	19:39
06	SSTD080	80 ng BNA ICC	BE074960.D	01/10/2012	20:24

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date(s): 01/10/2012 01/10/2012

Calibration Time(s): 16:43 20:24

LAB FILE ID: RRF010 = BE074955.D RRF025 = BE074956.D RRF040 = BE074957.D
RRF050 = BE074958.D RRF060 = BE074959.D RRF080 = BE074960.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.159	1.179	1.149	1.115	0.990	0.828	1.070	12.7
Phenol	1.903	1.922	1.940	1.955	1.906	1.894	1.920	1.2
bis(2-Chloroethyl)ether	1.519	1.501	1.498	1.536	1.483	1.469	1.501	1.6
2-Chlorophenol	1.487	1.499	1.498	1.516	1.462	1.469	1.488	1.4
2-Methylphenol	1.170	1.160	1.190	1.188	1.177	1.170	1.176	1.0
2,2-oxybis(1-Chloropropane)	2.265	2.223	2.210	2.242	2.194	2.162	2.216	1.6
Acetophenone	0.488	0.479	0.484	0.491	0.473	0.482	0.483	1.3
3+4-Methylphenols	1.532	1.581	1.597	1.615	1.578	1.544	1.575	2.0
n-Nitroso-di-n-propylamine	1.077	1.083	1.097	1.106	1.081	1.057	1.083	1.6
Hexachloroethane	0.550	0.549	0.552	0.558	0.550	0.546	0.551	0.7
Nitrobenzene	0.364	0.365	0.365	0.370	0.362	0.371	0.366	1.0
Isophorone	0.645	0.654	0.664	0.661	0.657	0.671	0.659	1.3
2-Nitrophenol	0.183	0.193	0.200	0.197	0.195	0.199	0.194	3.1
2,4-Dimethylphenol	0.317	0.321	0.328	0.326	0.321	0.326	0.323	1.3
bis(2-Chloroethoxy)methane	0.433	0.434	0.436	0.437	0.429	0.432	0.434	0.6
2,4-Dichlorophenol	0.283	0.286	0.290	0.294	0.288	0.291	0.289	1.3
4-Chloroaniline	0.437	0.439	0.450	0.441	0.438	0.454	0.443	1.6
Hexachlorobutadiene	0.146	0.144	0.144	0.142	0.142	0.142	0.143	1.1
Caprolactam	0.119	0.128	0.132	0.131	0.128	0.135	0.129	4.3
4-Chloro-3-methylphenol	0.306	0.299	0.311	0.299	0.300	0.306	0.304	1.6
Hexachlorocyclopentadiene	0.156	0.187	0.206	0.214	0.215	0.226	0.201	12.8
2,4,6-Trichlorophenol	0.341	0.346	0.351	0.354	0.345	0.351	0.348	1.4
2,4,5-Trichlorophenol	0.372	0.370	0.380	0.386	0.374	0.379	0.377	1.6
1,1-Biphenyl	1.641	1.564	1.579	1.599	1.549	1.545	1.579	2.3
2-Chloronaphthalene	1.185	1.147	1.168	1.153	1.129	1.137	1.153	1.8
2-Nitroaniline	0.329	0.343	0.364	0.360	0.358	0.370	0.354	4.3
Dimethylphthalate	1.336	1.293	1.326	1.329	1.292	1.300	1.313	1.5
Acenaphthylene	1.814	1.798	1.834	1.862	1.806	1.814	1.821	1.3
2,6-Dinitrotoluene	0.302	0.302	0.317	0.317	0.305	0.317	0.310	2.4
3-Nitroaniline	0.376	0.370	0.384	0.388	0.377	0.395	0.382	2.4
Acenaphthene	1.204	1.173	1.217	1.215	1.188	1.203	1.200	1.4
2,4-Dinitrophenol	0.030	0.065	0.096	0.112	0.112	0.138	0.092	42.3
4-Nitrophenol	0.256	0.284	0.303	0.314	0.304	0.325	0.298	8.2
Dibenzofuran	1.759	1.676	1.697	1.695	1.641	1.649	1.686	2.5

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date(s): 01/10/2012 01/10/2012

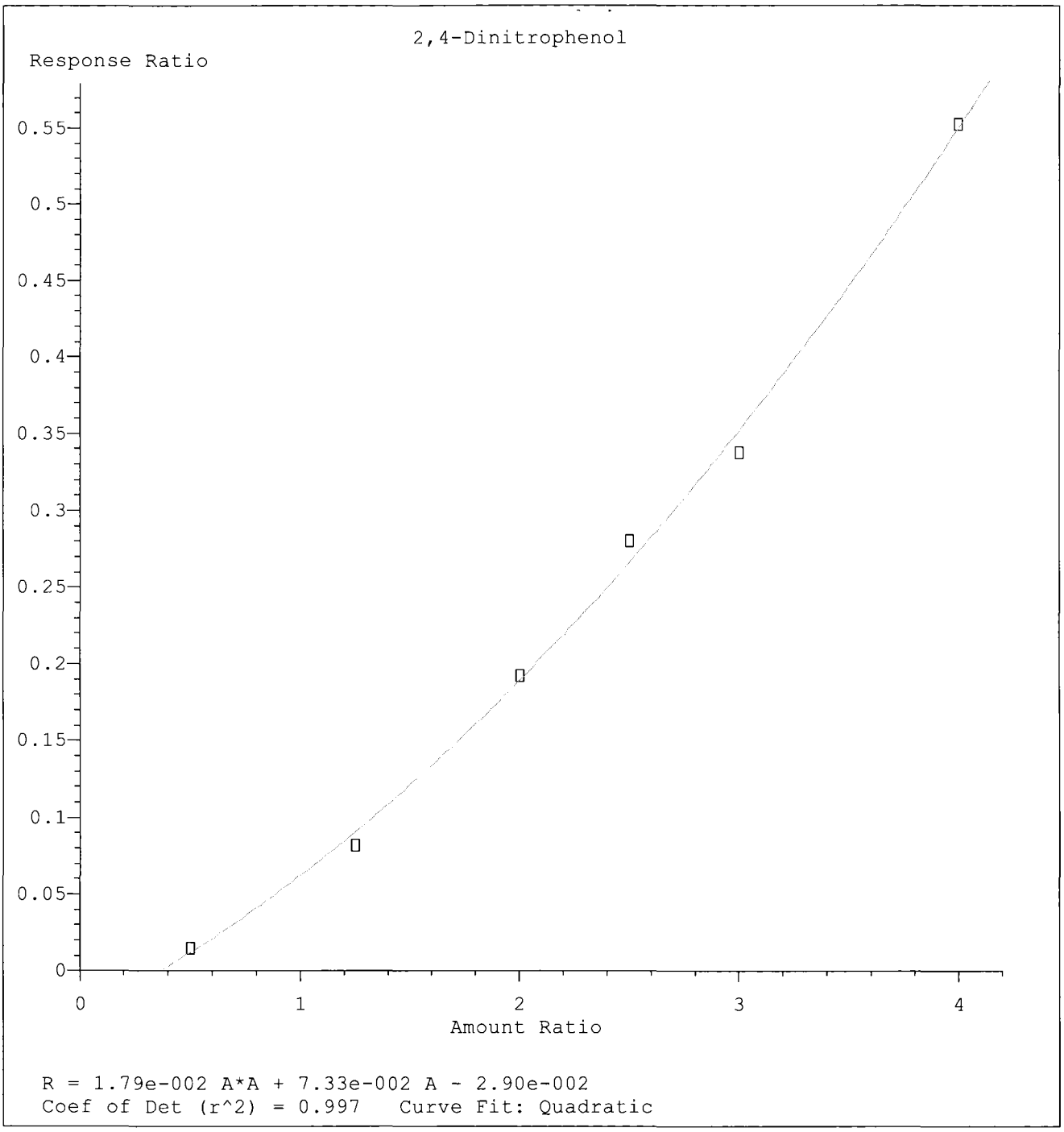
Calibration Time(s): 16:43 20:24

LAB FILE ID: RRF010 = BE074955.D RRF025 = BE074956.D RRF040 = BE074957.D
RRF050 = BE074958.D RRF060 = BE074959.D RRF080 = BE074960.D

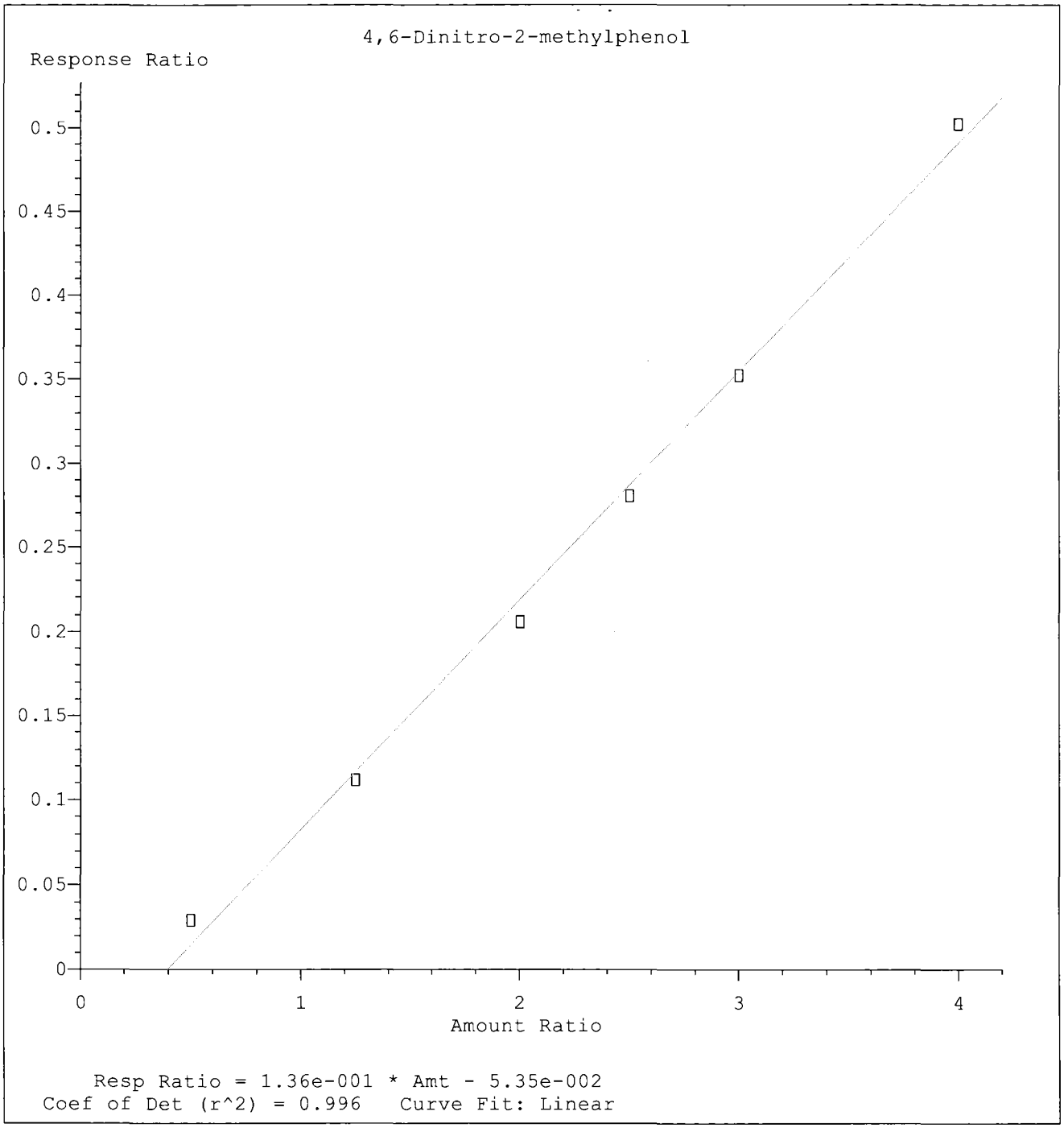
COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.376	0.387	0.410	0.413	0.403	0.424	0.402	4.4
Diethylphthalate	1.300	1.257	1.301	1.291	1.258	1.305	1.285	1.7
4-Chlorophenyl-phenylether	0.616	0.590	0.599	0.600	0.586	0.588	0.597	1.9
4-Nitroaniline	0.387	0.377	0.409	0.407	0.389	0.410	0.397	3.5
4,6-Dinitro-2-methylphenol	0.058	0.089	0.103	0.112	0.117	0.126	0.101	24.2
n-Nitrosodiphenylamine	0.671	0.669	0.677	0.670	0.666	0.649	0.667	1.4
4-Bromophenyl-phenylether	0.184	0.185	0.187	0.188	0.185	0.181	0.185	1.3
Hexachlorobenzene	0.202	0.205	0.199	0.199	0.194	0.192	0.199	2.5
Atrazine	0.199	0.198	0.207	0.202	0.201	0.200	0.201	1.6
Pentachlorophenol	0.069	0.088	0.106	0.108	0.112	0.119	0.100	18.5
Phenanthrene	1.175	1.135	1.149	1.138	1.111	1.085	1.132	2.7
Carbazole	1.098	1.111	1.132	1.118	1.097	1.082	1.106	1.6
Di-n-butylphthalate	1.196	1.240	1.269	1.273	1.254	1.230	1.244	2.3
Butylbenzylphthalate	0.547	0.567	0.573	0.575	0.568	0.575	0.567	1.9
3,3-Dichlorobenzidine	0.369	0.404	0.422	0.418	0.410	0.401	0.404	4.6
Bis(2-ethylhexyl)phthalate	0.766	0.773	0.806	0.804	0.798	0.801	0.791	2.2
Di-n-octyl phthalate	1.274	1.300	1.341	1.359	1.324	1.371	1.328	2.7
1,2,4,5-Tetrachlorobenzene	0.520	0.489	0.498	0.497	0.485	0.475	0.494	3.1
2,3,4,6-Tetrachlorophenol	0.259	0.285	0.293	0.292	0.295	0.298	0.287	5.0
2-Fluorophenol	1.379	1.382	1.398	1.405	1.371	1.365	1.383	1.1
Phenol-d5	1.779	1.792	1.810	1.832	1.791	1.768	1.795	1.3
Nitrobenzene-d5	0.364	0.366	0.373	0.370	0.364	0.368	0.367	1.0
2-Fluorobiphenyl	1.411	1.337	1.333	1.316	1.275	1.241	1.319	4.4
2,4,6-Tribromophenol	0.157	0.153	0.158	0.160	0.150	0.159	0.156	2.5
Terphenyl-d14	0.782	0.757	0.746	0.724	0.700	0.659	0.728	6.0

All other compounds must meet a minimum RRF of 0.010.

C5146 Analytical Summary



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE011012.M
Calibration Table Last Updated: Wed Jan 11 04:08:20 2012



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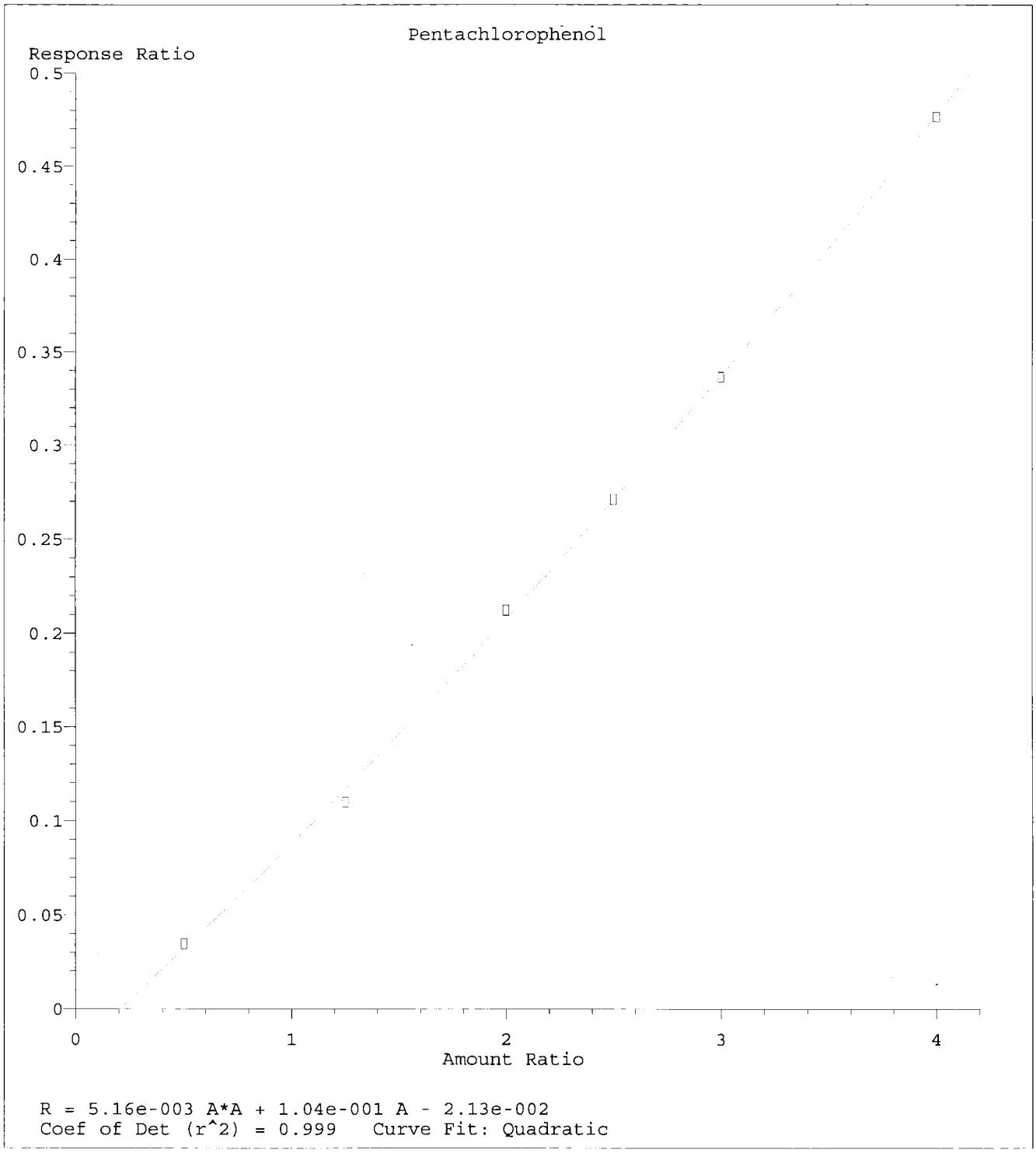
Calibration Table Last Updated: Wed Jan 11 04:08:38 2012



Method Name: \\TERASTORAGE\SVOASRV\HPCHEM1\BNA_E\METHOD\8270-BE011012.M
Calibration Table Last Updated: Wed Jan 11 04:09:41 2012

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BE074976.D DFTPP Injection Date: 01/11/2012

Instrument ID: BNA_E DFTPP Injection Time: 07:56

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.4
68	Less than 2.0% of mass 69	0.6 (1.6) 1
69	Mass 69 relative abundance	37.3
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	50.7
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	20.2
365	Greater than 1% of mass 198	2
441	Present, but less than mass 443	11.3
442	Greater than 40% of mass 198	68.7
443	17.0 - 23.0% of mass 442	13.1 (19.1) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074977.D	01/11/2012	08:41
02	PB60307BS	PB60307BS	BE074978.D	01/11/2012	09:23
03	PB60307B	PB60307B	BE074979.D	01/11/2012	10:05
04	12SB07-0304-03	C5146-03	BE074980.D	01/11/2012	10:49
05	12SB08-0.502-02	C5146-05	BE074981.D	01/11/2012	11:31
06	12SB08-0304-03	C5146-06	BE074982.D	01/11/2012	12:16
07	12SB12-0.502-02	C5146-10	BE074983.D	01/11/2012	13:01
08	12SB17-0304-03	C5146-17	BE074986.D	01/11/2012	15:12
09	12SB17-0.502-02	C5146-16	BE074987.D	01/11/2012	15:57
10	12SB06-000.5-01	C5146-12	BE074988.D	01/11/2012	16:41

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date/Time: 01/11/2012 08:41

Lab File ID: BE074977.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:43 20:24

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.070	1.102		3.0	
Phenol	1.920	1.937		0.9	20.0
bis(2-Chloroethyl)ether	1.501	1.511		0.7	
2-Chlorophenol	1.488	1.511		1.5	
2-Methylphenol	1.176	1.169		0.6	
2,2-oxybis(1-Chloropropane)	2.216	2.243		1.2	
Acetophenone	0.483	0.489		1.3	
3+4-Methylphenols	1.575	1.558		1.1	
n-Nitroso-di-n-propylamine	1.083	1.105	0.050	2.0	
Hexachloroethane	0.551	0.554		0.6	
Nitrobenzene	0.366	0.373		1.8	
Isophorone	0.659	0.650		1.4	
2-Nitrophenol	0.194	0.190		2.3	20.0
2,4-Dimethylphenol	0.323	0.323		0.1	
bis(2-Chloroethoxy)methane	0.434	0.441		1.6	
2,4-Dichlorophenol	0.289	0.284		1.6	20.0
4-Chloroaniline	0.443	0.448		1.1	
Hexachlorobutadiene	0.143	0.146		1.8	20.0
Caprolactam	0.129	0.121		6.2	
4-Chloro-3-methylphenol	0.304	0.293		3.5	20.0
Hexachlorocyclopentadiene	0.201	0.210	0.050	4.4	
2,4,6-Trichlorophenol	0.348	0.345		0.9	20.0
2,4,5-Trichlorophenol	0.377	0.377		0.1	
1,1-Biphenyl	1.579	1.630		3.2	
2-Chloronaphthalene	1.153	1.178		2.2	
2-Nitroaniline	0.354	0.356		0.5	
Dimethylphthalate	1.313	1.325		0.9	
Acenaphthylene	1.821	1.862		2.3	
2,6-Dinitrotoluene	0.310	0.315		1.7	
3-Nitroaniline	0.382	0.374		2.2	
Acenaphthene	1.200	1.234		2.8	20.0
2,4-Dinitrophenol	0.092	0.101	0.050	9.4	
4-Nitrophenol	0.298	0.289	0.050	2.9	
Dibenzofuran	1.686	1.704		1.1	
2,4-Dinitrotoluene	0.402	0.412		2.5	
Diethylphthalate	1.285	1.302		1.4	
4-Chlorophenyl-phenylether	0.597	0.609		2.0	
4-Nitroaniline	0.397	0.397		0.1	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date/Time: 01/11/2012 08:41

Lab File ID: BE074977.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:43 20:24

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.101	0.107		6.2	
n-Nitrosodiphenylamine	0.667	0.684		2.6	20.0
4-Bromophenyl-phenylether	0.185	0.190		2.9	
Hexachlorobenzene	0.199	0.201		1.0	
Atrazine	0.201	0.200		0.4	
Pentachlorophenol	0.100	0.098		1.8	20.0
Phenanthrene	1.132	1.154		1.9	
Carbazole	1.106	1.120		1.3	
Di-n-butylphthalate	1.244	1.230		1.1	
Butylbenzylphthalate	0.567	0.540		4.8	
3,3-Dichlorobenzidine	0.404	0.400		1.1	
Bis(2-ethylhexyl)phthalate	0.791	0.773		2.2	
Di-n-octyl phthalate	1.328	1.217		8.4	20.0
1,2,4,5-Tetrachlorobenzene	0.494	0.500		1.3	
2,3,4,6-Tetrachlorophenol	0.287	0.283		1.4	
2-Fluorophenol	1.383	1.357		1.9	
Phenol-d5	1.795	1.799		0.2	
Nitrobenzene-d5	0.367	0.370		0.9	
2-Fluorobiphenyl	1.319	1.373		4.1	
2,4,6-Tribromophenol	0.156	0.154		1.6	
Terphenyl-d14	0.728	0.752		3.4	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011112\
Data File : BE074977.D
Acq On : 11 Jan 2012 8:41 am
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 12 01:50:21 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	95	0.00
2		1,4-Dioxane	40.000	40.281	-0.7	96	0.00
3		Pyridine	40.000	40.559	-1.4	96	0.00
4		n-Nitrosodimethylamine	40.000	41.174	-2.9	97	0.00
5	S	2-Fluorophenol	80.000	78.488	1.9	92	0.00
6		Aniline	40.000	39.746	0.6	93	0.00
7	S	Phenol-d5	80.000	80.159	-0.2	95	0.00
8		2-Chlorophenol	40.000	40.601	-1.5	96	0.00
9		Benzaldehyde	40.000	41.186	-3.0	91	0.00
10	C	Phenol	40.000	40.350	-0.9	95	0.00
11		bis(2-Chloroethyl)ether	40.000	40.260	-0.6	96	0.00
12	S	2-Chlorophenol-d4	80.000	80.595	-0.7	96	0.00
13		1,3-Dichlorobenzene	40.000	39.981	0.0	94	0.00
14	C	1,4-Dichlorobenzene	40.000	39.915	0.2	94	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	80.921	-1.2	96	0.00
16		1,2-Dichlorobenzene	40.000	40.300	-0.7	95	0.00
17		Benzyl Alcohol	40.000	39.603	1.0	93	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	40.488	-1.2	97	0.00
19		2-Methylphenol	40.000	39.770	0.6	94	0.00
20		Hexachloroethane	40.000	40.242	-0.6	96	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	40.800	-2.0	96	0.00
22		3+4-Methylphenols	40.000	39.590	1.0	93	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	95	0.00
24		Acetophenone	40.000	40.543	-1.4	96	0.00
25	S	Nitrobenzene-d5	80.000	80.600	-0.7	94	0.00
26		Nitrobenzene	40.000	40.713	-1.8	97	0.00
27		Isophorone	40.000	39.466	1.3	93	0.00
28	C	2-Nitrophenol	40.000	38.996	2.5	90	0.00
29		2,4-Dimethylphenol	40.000	40.003	-0.0	93	0.00
30		bis(2-Chloroethoxy)methane	40.000	40.668	-1.7	96	0.00
31	C	2,4-Dichlorophenol	40.000	39.416	1.5	93	0.00
32		1,2,4-Trichlorobenzene	40.000	39.878	0.3	93	0.00
33		Naphthalene	40.000	40.567	-1.4	95	0.00
34		Benzoic acid	40.000	38.051	4.9	88	0.00
35		4-Chloroaniline	40.000	40.443	-1.1	94	0.00
36	C	Hexachlorobutadiene	40.000	40.652	-1.6	96	0.00
37		Caprolactam	40.000	37.603	6.0	87	0.00
38	C	4-Chloro-3-methylphenol	40.000	38.645	3.4	89	0.00
39		2-Methylnaphthalene	40.000	40.018	-0.0	94	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	92	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	40.532	-1.3	93	0.00
42	P	Hexachlorocyclopentadiene	40.000	41.815	-4.5	94	0.00
43	S	2,4,6-Tribromophenol	80.000	78.584	1.8	89	0.00
44	C	2,4,6-Trichlorophenol	40.000	39.644	0.9	90	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011112\
Data File : BE074977.D
Acq On : 11 Jan 2012 8:41 am
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 12 01:50:21 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	40.056	-0.1	91	0.00
46	S	2-Fluorobiphenyl	80.000	83.284	-4.1	95	0.00
47		1,1'-Biphenyl	40.000	41.288	-3.2	95	0.00
48		2-Chloronaphthalene	40.000	40.866	-2.2	93	0.00
49		2-Nitroaniline	40.000	40.186	-0.5	90	0.00
50		Acenaphthylene	40.000	40.900	-2.2	93	0.00
51		Dimethylphthalate	40.000	40.362	-0.9	92	0.00
52		2,6-Dinitrotoluene	40.000	40.656	-1.6	92	0.00
53	C	Acenaphthene	40.000	41.131	-2.8	93	0.00
54		3-Nitroaniline	40.000	39.158	2.1	90	0.00
55	P	2,4-Dinitrophenol	40.000	41.681	-4.2	96	0.00
56		Dibenzofuran	40.000	40.432	-1.1	92	0.00
57	P	4-Nitrophenol	40.000	38.892	2.8	88	0.00
58		2,4-Dinitrotoluene	40.000	40.980	-2.4	92	0.00
59		Fluorene	40.000	40.636	-1.6	92	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	39.413	1.5	89	0.00
61		Diethylphthalate	40.000	40.533	-1.3	92	0.00
62		4-Chlorophenyl-phenylether	40.000	40.813	-2.0	93	0.00
63		4-Nitroaniline	40.000	40.085	-0.2	89	0.00
64		Azobenzene	40.000	40.929	-2.3	94	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	92	0.00
66		4,6-Dinitro-2-methylphenol	40.000	39.405	1.5	96	0.00
67	c	n-Nitrosodiphenylamine	40.000	41.009	-2.5	92	0.00
68		4-Bromophenyl-phenylether	40.000	41.189	-3.0	93	0.00
69		Hexachlorobenzene	40.000	40.442	-1.1	92	0.00
70		Atrazine	40.000	39.823	0.4	89	0.00
71	C	Pentachlorophenol	40.000	39.070	2.3	85	0.00
72		Phenanthrene	40.000	40.757	-1.9	92	0.00
73		Anthracene	40.000	40.391	-1.0	91	0.00
74		Carbazole	40.000	40.510	-1.3	91	0.00
75		Di-n-butylphthalate	40.000	39.573	1.1	89	0.00
76	C	Fluoranthene	40.000	39.630	0.9	89	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	90	0.00
78		Benzidine	40.000	46.186	-15.5	91	0.00
79		Pyrene	40.000	40.704	-1.8	90	0.00
80	S	Terphenyl-d14	80.000	82.677	-3.3	91	0.00
81		Butylbenzylphthalate	40.000	38.039	4.9	85	0.00
82		Benzo(a)anthracene	40.000	40.448	-1.1	89	0.00
83		3,3'-Dichlorobenzidine	40.000	39.542	1.1	85	0.00
84		Chrysene	40.000	40.411	-1.0	90	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	39.087	2.3	86	0.00
86	c	Di-n-octyl phthalate	40.000	36.654	8.4	82	0.00
87		Indeno(1,2,3-cd)pyrene	40.000	38.505	3.7	86	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011112\
Data File : BE074977.D
Acq On : 11 Jan 2012 8:41 am
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jan 12 01:50:21 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	86	0.00
89		Benzo(b)fluoranthene	40.000	39.659	0.9	84	0.00
90		Benzo(k)fluoranthene	40.000	42.274	-5.7	90	0.00
91	C	Benzo(a)pyrene	40.000	40.125	-0.3	85	0.00
92		Dibenzo(a,h)anthracene	40.000	39.978	0.1	86	-0.01
93		Benzo(g,h,i)perylene	40.000	40.071	-0.2	86	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BE075006.D DFTPP Injection Date: 01/12/2012

Instrument ID: BNA_E DFTPP Injection Time: 05:52

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.3
68	Less than 2.0% of mass 69	0.6 (1.7) 1
69	Mass 69 relative abundance	34.6
70	Less than 2.0% of mass 69	0.1 (0.4) 1
127	40.0 - 60.0% of mass 198	46
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	20.6
365	Greater than 1% of mass 198	2.3
441	Present, but less than mass 443	10.1
442	Greater than 40% of mass 198	66.8
443	17.0 - 23.0% of mass 442	13.6 (20.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE075007.D	01/12/2012	06:37
02	12SB07-000.5-01	C5146-01	BE075008.D	01/12/2012	07:22
03	12SB08-000.5-01	C5146-04	BE075009.D	01/12/2012	08:07
04	12SB07-0.502-02	C5146-02	BE075010.D	01/12/2012	08:48
05	12SB-DUP-08	C5146-20	BE075011.D	01/12/2012	09:33
06	12SB12-000.5-01	C5146-07	BE075013.D	01/12/2012	11:00
07	12SB12-000.5-01MS	C5146-08MS	BE075014.D	01/12/2012	11:44
08	12SB12-000.5-01MSD	C5146-09MSD	BE075015.D	01/12/2012	12:29
09	12SB27-0.502-02	C5146-19	BE075016.D	01/12/2012	13:14
10	12SB27-000.5-01	C5146-18	BE075017.D	01/12/2012	13:59
11	12SB12-0304-03	C5146-11	BE075018.D	01/12/2012	14:40
12	12SB17-000.5-01	C5146-15	BE075019.D	01/12/2012	15:25

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date/Time: 01/12/2012 06:37

Lab File ID: BE075007.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:43 20:24

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.070	1.060		1.0	
Phenol	1.920	1.906		0.7	20.0
bis(2-Chloroethyl)ether	1.501	1.490		0.7	
2-Chlorophenol	1.488	1.482		0.4	
2-Methylphenol	1.176	1.157		1.6	
2,2-oxybis(1-Chloropropane)	2.216	2.261		2.0	
Acetophenone	0.483	0.495		2.5	
3+4-Methylphenols	1.575	1.567		0.5	
n-Nitroso-di-n-propylamine	1.083	1.067	0.050	1.5	
Hexachloroethane	0.551	0.566		2.7	
Nitrobenzene	0.366	0.374		2.2	
Isophorone	0.659	0.647		1.7	
2-Nitrophenol	0.194	0.186		4.1	20.0
2,4-Dimethylphenol	0.323	0.323		0.1	
bis(2-Chloroethoxy)methane	0.434	0.439		1.2	
2,4-Dichlorophenol	0.289	0.288		0.4	20.0
4-Chloroaniline	0.443	0.444		0.2	
Hexachlorobutadiene	0.143	0.146		2.3	20.0
Caprolactam	0.129	0.123		4.7	
4-Chloro-3-methylphenol	0.304	0.299		1.5	20.0
Hexachlorocyclopentadiene	0.201	0.205	0.050	2.1	
2,4,6-Trichlorophenol	0.348	0.341		2.1	20.0
2,4,5-Trichlorophenol	0.377	0.382		1.2	
1,1-Biphenyl	1.579	1.616		2.4	
2-Chloronaphthalene	1.153	1.193		3.5	
2-Nitroaniline	0.354	0.358		1.3	
Dimethylphthalate	1.313	1.334		1.6	
Acenaphthylene	1.821	1.865		2.4	
2,6-Dinitrotoluene	0.310	0.312		0.8	
3-Nitroaniline	0.382	0.375		1.7	
Acenaphthene	1.200	1.243		3.6	20.0
2,4-Dinitrophenol	0.092	0.102	0.050	10.3	
4-Nitrophenol	0.298	0.303	0.050	1.6	
Dibenzofuran	1.686	1.721		2.1	
2,4-Dinitrotoluene	0.402	0.402		0.1	
Diethylphthalate	1.285	1.304		1.5	
4-Chlorophenyl-phenylether	0.597	0.608		1.9	
4-Nitroaniline	0.397	0.396		0.3	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date/Time: 01/12/2012 06:37

Lab File ID: BE075007.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:43 20:24

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.101	0.106		5.1	
n-Nitrosodiphenylamine	0.667	0.683		2.4	20.0
4-Bromophenyl-phenylether	0.185	0.183		0.9	
Hexachlorobenzene	0.199	0.203		2.1	
Atrazine	0.201	0.198		1.5	
Pentachlorophenol	0.100	0.108		8.1	20.0
Phenanthrene	1.132	1.170		3.3	
Carbazole	1.106	1.132		2.3	
Di-n-butylphthalate	1.244	1.243		0.1	
Butylbenzylphthalate	0.567	0.547		3.5	
3,3-Dichlorobenzidine	0.404	0.385		4.6	
Bis(2-ethylhexyl)phthalate	0.791	0.781		1.3	
Di-n-octyl phthalate	1.328	1.197		9.9	20.0
1,2,4,5-Tetrachlorobenzene	0.494	0.500		1.2	
2,3,4,6-Tetrachlorophenol	0.287	0.280		2.3	
2-Fluorophenol	1.383	1.366		1.2	
Phenol-d5	1.795	1.820		1.4	
Nitrobenzene-d5	0.367	0.370		0.9	
2-Fluorobiphenyl	1.319	1.357		2.9	
2,4,6-Tribromophenol	0.156	0.151		3.0	
Terphenyl-d14	0.728	0.752		3.3	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011212\
Data File : BE075007.D
Acq On : 12 Jan 2012 6:37
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 12 07:24:06 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	92	0.00
2		1,4-Dioxane	40.000	40.855	-2.1	94	0.00
3		Pyridine	40.000	40.686	-1.7	93	0.00
4		n-Nitrosodimethylamine	40.000	41.951	-4.9	95	0.00
5	S	2-Fluorophenol	80.000	79.002	1.2	90	0.00
6		Aniline	40.000	39.509	1.2	90	0.00
7	S	Phenol-d5	80.000	81.086	-1.4	92	0.00
8		2-Chlorophenol	40.000	39.835	0.4	91	0.00
9		Benzaldehyde	40.000	39.602	1.0	85	0.00
10	C	Phenol	40.000	39.698	0.8	90	0.00
11		bis(2-Chloroethyl)ether	40.000	39.696	0.8	91	0.00
12	S	2-Chlorophenol-d4	80.000	80.338	-0.4	92	0.00
13		1,3-Dichlorobenzene	40.000	40.658	-1.6	93	0.00
14	C	1,4-Dichlorobenzene	40.000	40.531	-1.3	92	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	81.103	-1.4	93	0.00
16		1,2-Dichlorobenzene	40.000	40.045	-0.1	91	0.00
17		Benzyl Alcohol	40.000	38.485	3.8	87	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	40.818	-2.0	94	0.00
19		2-Methylphenol	40.000	39.360	1.6	89	0.00
20		Hexachloroethane	40.000	41.089	-2.7	94	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	39.387	1.5	89	0.00
22		3+4-Methylphenols	40.000	39.799	0.5	90	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	91	0.00
24		Acetophenone	40.000	40.997	-2.5	93	0.00
25	S	Nitrobenzene-d5	80.000	80.600	-0.7	90	0.00
26		Nitrobenzene	40.000	40.873	-2.2	93	0.00
27		Isophorone	40.000	39.325	1.7	89	0.00
28	C	2-Nitrophenol	40.000	38.273	4.3	85	0.00
29		2,4-Dimethylphenol	40.000	40.017	-0.0	90	0.00
30		bis(2-Chloroethoxy)methane	40.000	40.523	-1.3	92	0.00
31	C	2,4-Dichlorophenol	40.000	39.890	0.3	91	0.00
32		1,2,4-Trichlorobenzene	40.000	40.403	-1.0	91	0.00
33		Naphthalene	40.000	40.780	-2.0	91	0.00
34		Benzoic acid	40.000	40.739	-1.8	93	0.00
35		4-Chloroaniline	40.000	40.083	-0.2	90	0.00
36	C	Hexachlorobutadiene	40.000	40.830	-2.1	93	0.00
37		Caprolactam	40.000	38.209	4.5	85	0.00
38	C	4-Chloro-3-methylphenol	40.000	39.429	1.4	88	0.00
39		2-Methylnaphthalene	40.000	40.593	-1.5	92	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	90	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	40.507	-1.3	90	0.00
42	P	Hexachlorocyclopentadiene	40.000	40.892	-2.2	89	0.00
43	S	2,4,6-Tribromophenol	80.000	77.405	3.2	86	0.00
44	C	2,4,6-Trichlorophenol	40.000	39.158	2.1	87	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011212\
Data File : BE075007.D
Acq On : 12 Jan 2012 6:37
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 12 07:24:06 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	40.524	-1.3	90	0.00
46	S	2-Fluorobiphenyl	80.000	82.295	-2.9	92	0.00
47		1,1'-Biphenyl	40.000	40.938	-2.3	92	0.00
48		2-Chloronaphthalene	40.000	41.399	-3.5	92	0.00
49		2-Nitroaniline	40.000	40.476	-1.2	88	0.00
50		Acenaphthylene	40.000	40.971	-2.4	91	0.00
51		Dimethylphthalate	40.000	40.654	-1.6	90	0.00
52		2,6-Dinitrotoluene	40.000	40.302	-0.8	89	0.00
53	C	Acenaphthene	40.000	41.441	-3.6	92	0.00
54		3-Nitroaniline	40.000	39.329	1.7	88	0.00
55	P	2,4-Dinitrophenol	40.000	41.922	-4.8	95	0.00
56		Dibenzofuran	40.000	40.839	-2.1	91	0.00
57	P	4-Nitrophenol	40.000	40.678	-1.7	90	0.00
58		2,4-Dinitrotoluene	40.000	40.014	-0.0	88	0.00
59		Fluorene	40.000	40.880	-2.2	91	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	39.067	2.3	86	0.00
61		Diethylphthalate	40.000	40.577	-1.4	90	0.00
62		4-Chlorophenyl-phenylether	40.000	40.773	-1.9	91	0.00
63		4-Nitroaniline	40.000	39.922	0.2	87	0.00
64		Azobenzene	40.000	42.526	-6.3	95	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	90	0.00
66		4,6-Dinitro-2-methylphenol	40.000	39.074	2.3	93	0.00
67	c	n-Nitrosodiphenylamine	40.000	40.930	-2.3	91	0.00
68		4-Bromophenyl-phenylether	40.000	39.640	0.9	89	0.00
69		Hexachlorobenzene	40.000	40.894	-2.2	92	0.00
70		Atrazine	40.000	39.376	1.6	86	0.00
71	C	Pentachlorophenol	40.000	43.027	-7.6	92	0.00
72		Phenanthrene	40.000	41.336	-3.3	92	0.00
73		Anthracene	40.000	41.116	-2.8	91	0.00
74		Carbazole	40.000	40.916	-2.3	90	0.00
75		Di-n-butylphthalate	40.000	39.976	0.1	88	0.00
76	C	Fluoranthene	40.000	40.485	-1.2	90	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	91	0.00
78		Benzidine	40.000	42.046	-5.1	84	0.00
79		Pyrene	40.000	40.821	-2.1	91	0.00
80	S	Terphenyl-d14	80.000	82.660	-3.3	91	0.00
81		Butylbenzylphthalate	40.000	38.589	3.5	87	0.00
82		Benzo(a)anthracene	40.000	40.660	-1.6	91	0.00
83		3,3'-Dichlorobenzidine	40.000	38.138	4.7	83	0.00
84		Chrysene	40.000	40.670	-1.7	91	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	39.453	1.4	88	0.00
86	c	Di-n-octyl phthalate	40.000	36.052	9.9	81	0.00
87		Indeno(1,2,3-cd)pyrene	40.000	38.620	3.5	87	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011212\
Data File : BE075007.D
Acq On : 12 Jan 2012 6:37
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 12 07:24:06 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	85	0.00
89		Benzo(b)fluoranthene	40.000	40.281	-0.7	85	0.00
90		Benzo(k)fluoranthene	40.000	42.738	-6.8	90	0.00
91	C	Benzo(a)pyrene	40.000	41.259	-3.1	87	0.00
92		Dibenzo(a,h)anthracene	40.000	41.371	-3.4	88	0.00
93		Benzo(g,h,i)perylene	40.000	41.203	-3.0	87	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BE075020.D DFTPP Injection Date: 01/12/2012

Instrument ID: BNA_E DFTPP Injection Time: 18:12

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.7
68	Less than 2.0% of mass 69	0.4 (1.2) 1
69	Mass 69 relative abundance	34.4
70	Less than 2.0% of mass 69	0.1 (0.4) 1
127	40.0 - 60.0% of mass 198	48.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.3
275	10.0 - 30.0% of mass 198	18.3
365	Greater than 1% of mass 198	1.8
441	Present, but less than mass 443	10.9
442	Greater than 40% of mass 198	65.2
443	17.0 - 23.0% of mass 442	13.3 (20.4) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE075022.D	01/12/2012	20:09
02	12SB06-0.502-02	C5146-13	BE075030.D	01/13/2012	02:01
03	12SB06-0304-03	C5146-14	BE075031.D	01/13/2012	02:46
04	12SB08-0304-03RE	C5146-06RE	BE075032.D	01/13/2012	03:30

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date/Time: 01/12/2012 20:09

Lab File ID: BE075022.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:43 20:24

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.070	1.077		0.6	
Phenol	1.920	1.917		0.2	20.0
bis(2-Chloroethyl)ether	1.501	1.513		0.8	
2-Chlorophenol	1.488	1.516		1.9	
2-Methylphenol	1.176	1.195		1.6	
2,2-oxybis(1-Chloropropane)	2.216	2.243		1.2	
Acetophenone	0.483	0.491		1.7	
3+4-Methylphenols	1.575	1.585		0.6	
n-Nitroso-di-n-propylamine	1.083	1.075	0.050	0.7	
Hexachloroethane	0.551	0.560		1.6	
Nitrobenzene	0.366	0.365		0.2	
Isophorone	0.659	0.653		1.0	
2-Nitrophenol	0.194	0.199		2.4	20.0
2,4-Dimethylphenol	0.323	0.322		0.2	
bis(2-Chloroethoxy)methane	0.434	0.432		0.4	
2,4-Dichlorophenol	0.289	0.293		1.4	20.0
4-Chloroaniline	0.443	0.452		2.0	
Hexachlorobutadiene	0.143	0.143		0.3	20.0
Caprolactam	0.129	0.129		0.2	
4-Chloro-3-methylphenol	0.304	0.302		0.7	20.0
Hexachlorocyclopentadiene	0.201	0.213	0.050	6.0	
2,4,6-Trichlorophenol	0.348	0.347		0.3	20.0
2,4,5-Trichlorophenol	0.377	0.373		1.0	
1,1-Biphenyl	1.579	1.584		0.3	
2-Chloronaphthalene	1.153	1.169		1.4	
2-Nitroaniline	0.354	0.353		0.2	
Dimethylphthalate	1.313	1.305		0.6	
Acenaphthylene	1.821	1.825		0.2	
2,6-Dinitrotoluene	0.310	0.321		3.7	
3-Nitroaniline	0.382	0.384		0.6	
Acenaphthene	1.200	1.211		0.9	20.0
2,4-Dinitrophenol	0.092	0.086	0.050	6.6	
4-Nitrophenol	0.298	0.309	0.050	3.7	
Dibenzofuran	1.686	1.686		0.0	
2,4-Dinitrotoluene	0.402	0.409		1.8	
Diethylphthalate	1.285	1.289		0.3	
4-Chlorophenyl-phenylether	0.597	0.605		1.3	
4-Nitroaniline	0.397	0.405		2.0	
4,6-Dinitro-2-methylphenol	0.101	0.101		0.1	
n-Nitrosodiphenylamine	0.667	0.686		2.8	20.0
4-Bromophenyl-phenylether	0.185	0.189		2.1	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_E Calibration Date/Time: 01/12/2012 20:09

Lab File ID: BE075022.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:43 20:24

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.199	0.196		1.6	
Atrazine	0.201	0.202		0.4	
Pentachlorophenol	0.100	0.100		0.3	20.0
Phenanthrene	1.132	1.168		3.2	
Carbazole	1.106	1.145		3.5	
Di-n-butylphthalate	1.244	1.281		3.0	
Butylbenzylphthalate	0.567	0.576		1.6	
3,3-Dichlorobenzidine	0.404	0.415		2.7	
Bis(2-ethylhexyl)phthalate	0.791	0.804		1.7	
Di-n-octyl phthalate	1.328	1.321		0.5	20.0
1,2,4,5-Tetrachlorobenzene	0.494	0.489		1.0	
2,3,4,6-Tetrachlorophenol	0.287	0.293		2.0	
2-Fluorophenol	1.383	1.409		1.9	
Phenol-d5	1.795	1.818		1.3	
Nitrobenzene-d5	0.367	0.372		1.3	
2-Fluorobiphenyl	1.319	1.336		1.3	
2,4,6-Tribromophenol	0.156	0.153		1.6	
Terphenyl-d14	0.728	0.733		0.7	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011212\
Data File : BE075022.D
Acq On : 12 Jan 2012 20:09
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 01:35:33 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	98	0.00
2		1,4-Dioxane	40.000	40.327	-0.8	99	0.00
3		Pyridine	40.000	40.154	-0.4	97	0.00
4		n-Nitrosodimethylamine	40.000	40.256	-0.6	97	0.00
5	S	2-Fluorophenol	80.000	81.510	-1.9	98	0.00
6		Aniline	40.000	40.369	-0.9	97	0.00
7	S	Phenol-d5	80.000	81.012	-1.3	98	0.00
8		2-Chlorophenol	40.000	40.735	-1.8	99	0.00
9		Benzaldehyde	40.000	40.241	-0.6	91	0.00
10	C	Phenol	40.000	39.922	0.2	96	0.00
11		bis(2-Chloroethyl)ether	40.000	40.309	-0.8	99	0.00
12	S	2-Chlorophenol-d4	80.000	81.109	-1.4	99	0.00
13		1,3-Dichlorobenzene	40.000	40.542	-1.4	98	0.00
14	C	1,4-Dichlorobenzene	40.000	40.212	-0.5	97	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	80.498	-0.6	98	0.00
16		1,2-Dichlorobenzene	40.000	40.668	-1.7	99	0.00
17		Benzyl Alcohol	40.000	39.993	0.0	97	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	40.488	-1.2	99	0.00
19		2-Methylphenol	40.000	40.647	-1.6	98	0.00
20		Hexachloroethane	40.000	40.634	-1.6	99	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	39.694	0.8	96	0.00
22		3+4-Methylphenols	40.000	40.269	-0.7	97	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	97	0.00
24		Acetophenone	40.000	40.702	-1.8	99	0.00
25	S	Nitrobenzene-d5	80.000	80.898	-1.1	97	0.00
26		Nitrobenzene	40.000	39.897	0.3	97	0.00
27		Isophorone	40.000	39.641	0.9	96	0.00
28	C	2-Nitrophenol	40.000	40.865	-2.2	97	0.00
29		2,4-Dimethylphenol	40.000	39.869	0.3	96	0.00
30		bis(2-Chloroethoxy)methane	40.000	39.874	0.3	97	0.00
31	C	2,4-Dichlorophenol	40.000	40.609	-1.5	99	0.00
32		1,2,4-Trichlorobenzene	40.000	40.968	-2.4	99	0.00
33		Naphthalene	40.000	40.169	-0.4	96	0.00
34		Benzoic acid	40.000	30.047	24.9	66	0.00
35		4-Chloroaniline	40.000	40.808	-2.0	98	0.00
36	C	Hexachlorobutadiene	40.000	39.817	0.5	97	0.00
37		Caprolactam	40.000	39.994	0.0	95	0.00
38	C	4-Chloro-3-methylphenol	40.000	39.744	0.6	95	0.00
39		2-Methylnaphthalene	40.000	40.220	-0.5	97	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	97	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	39.606	1.0	95	0.00
42	P	Hexachlorocyclopentadiene	40.000	42.475	-6.2	100	0.00
43	S	2,4,6-Tribromophenol	80.000	78.544	1.8	94	0.00
44	C	2,4,6-Trichlorophenol	40.000	39.872	0.3	96	0.00

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011212\
Data File : BE075022.D
Acq On : 12 Jan 2012 20:09
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 01:35:33 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.646	0.9	95	0.00
46	S	2-Fluorobiphenyl	80.000	81.026	-1.3	97	0.00
47		1,1'-Biphenyl	40.000	40.119	-0.3	97	0.00
48		2-Chloronaphthalene	40.000	40.551	-1.4	97	0.00
49		2-Nitroaniline	40.000	39.894	0.3	94	0.00
50		Acenaphthylene	40.000	40.079	-0.2	96	0.00
51		Dimethylphthalate	40.000	39.774	0.6	95	0.00
52		2,6-Dinitrotoluene	40.000	41.458	-3.6	98	0.00
53	C	Acenaphthene	40.000	40.365	-0.9	96	0.00
54		3-Nitroaniline	40.000	40.267	-0.7	97	0.00
55	P	2,4-Dinitrophenol	40.000	37.600	6.0	87	0.00
56		Dibenzofuran	40.000	40.005	-0.0	96	0.00
57	P	4-Nitrophenol	40.000	41.539	-3.8	99	0.00
58		2,4-Dinitrotoluene	40.000	40.714	-1.8	97	0.00
59		Fluorene	40.000	40.455	-1.1	97	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	40.802	-2.0	97	0.00
61		Diethylphthalate	40.000	40.129	-0.3	96	0.00
62		4-Chlorophenyl-phenylether	40.000	40.555	-1.4	98	0.00
63		4-Nitroaniline	40.000	40.846	-2.1	96	0.00
64		Azobenzene	40.000	40.304	-0.8	97	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	96	0.00
66		4,6-Dinitro-2-methylphenol	40.000	37.588	6.0	94	0.00
67	c	n-Nitrosodiphenylamine	40.000	41.119	-2.8	97	0.00
68		4-Bromophenyl-phenylether	40.000	40.873	-2.2	97	0.00
69		Hexachlorobenzene	40.000	39.409	1.5	94	0.00
70		Atrazine	40.000	40.122	-0.3	94	0.00
71	C	Pentachlorophenol	40.000	39.697	0.8	90	0.00
72		Phenanthrene	40.000	41.268	-3.2	98	0.00
73		Anthracene	40.000	40.743	-1.9	96	0.00
74		Carbazole	40.000	41.392	-3.5	97	0.00
75		Di-n-butylphthalate	40.000	41.203	-3.0	97	0.00
76	C	Fluoranthene	40.000	41.382	-3.5	98	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	99	0.00
78		Benzidine	40.000	40.612	-1.5	88	0.00
79		Pyrene	40.000	40.315	-0.8	98	0.00
80	S	Terphenyl-d14	80.000	80.529	-0.7	97	0.00
81		Butylbenzylphthalate	40.000	40.610	-1.5	99	0.00
82		Benzo(a)anthracene	40.000	40.216	-0.5	98	0.00
83		3,3'-Dichlorobenzidine	40.000	41.056	-2.6	97	0.00
84		Chrysene	40.000	40.155	-0.4	98	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	40.653	-1.6	98	0.00
86	c	Di-n-octyl phthalate	40.000	39.782	0.5	97	-0.01
87		Indeno(1,2,3-cd)pyrene	40.000	39.560	1.1	97	-0.04

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_E\Data\BE011212\
Data File : BE075022.D
Acq On : 12 Jan 2012 20:09
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 01:35:33 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 11 04:09:41 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88 I	Perylene-d12	20.000	20.000	0.0	95	-0.02
89	Benzo(b)fluoranthene	40.000	41.339	-3.3	98	-0.01
90	Benzo(k)fluoranthene	40.000	41.443	-3.6	98	-0.01
91 C	Benzo(a)pyrene	40.000	40.864	-2.2	97	-0.02
92	Dibenzo(a,h)anthracene	40.000	40.730	-1.8	97	-0.03
93	Benzo(g,h,i)perylene	40.000	40.748	-1.9	97	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB07-000.5-01 [2-Fluorobiphenyl - 40%], 12SB07-0.502-02 [2-Fluorobiphenyl - 36%], 12SB07-0304-03 [2-Fluorobiphenyl - 44%], 12SB08-000.5-01 [2-Fluorobiphenyl - 37%], 12SB08-0.502-02 [2-Fluorobiphenyl - 38%], 12SB08-0304-03 [2-Fluorobiphenyl - 38%], 12SB12-000.5-01 [2-Fluorobiphenyl - 37%], 12SB12-0.502-02 [2-Fluorobiphenyl - 41%], 12SB12-0304-03 [2-Fluorobiphenyl - 36%], 12SB06-000.5-01 [2-Fluorobiphenyl - 34%], 12SB06-0.502-02 [2-Fluorobiphenyl - 42%], 12SB06-0304-03 [2-Fluorobiphenyl - 42%], 12SB17-000.5-01 [2-Fluorobiphenyl - 39%], 12SB17-0.502-02 [2-Fluorobiphenyl - 42%], 12SB17-0304-03 [2-Fluorobiphenyl - 41%], 12SB27-0.502-02 [2-Fluorobiphenyl - 38%] and 12SB-DUP-08 [2-Fluorobiphenyl - 39%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .

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The Continuous Calibration met the requirements.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.19 16:24:23 -05'00'

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5146-01	12SB07-000.5-01	Nitrobenzene-d5	100	60.54	61		30	150
		2-Fluorobiphenyl	100	40.16	40	*	45	105
		Terphenyl-d14	100	51.41	51		30	125
C5146-02	12SB07-0.502-02	Nitrobenzene-d5	100	46.34	46		30	150
		2-Fluorobiphenyl	100	36.43	36	*	45	105
		Terphenyl-d14	100	44.88	45		30	125
C5146-03	12SB07-0304-03	Nitrobenzene-d5	100	55.23	55		30	150
		2-Fluorobiphenyl	100	44.42	44	*	45	105
		Terphenyl-d14	100	56.56	57		30	125
C5146-04	12SB08-000.5-01	Nitrobenzene-d5	100	50.65	51		30	150
		2-Fluorobiphenyl	100	37.21	37	*	45	105
		Terphenyl-d14	100	47.61	48		30	125
C5146-05	12SB08-0.502-02	Nitrobenzene-d5	100	46.21	46		30	150
		2-Fluorobiphenyl	100	37.73	38	*	45	105
		Terphenyl-d14	100	48.03	48		30	125
C5146-06	12SB08-0304-03	Nitrobenzene-d5	100	45.62	46		30	150
		2-Fluorobiphenyl	100	38.16	38	*	45	105
		Terphenyl-d14	100	48.03	48		30	125
C5146-07	12SB12-000.5-01	Nitrobenzene-d5	100	52.39	52		30	150
		2-Fluorobiphenyl	100	36.79	37	*	45	105
		Terphenyl-d14	100	47.57	48		30	125
C5146-08MS	12SB12-000.5-01MS	Nitrobenzene-d5	10	5.70	57		30	150
		2-Fluorobiphenyl	10	5.42	54		45	105
		Terphenyl-d14	10	5.65	57		30	125
C5146-09MSD	12SB12-000.5-01MSD	Nitrobenzene-d5	10	5.98	60		30	150
		2-Fluorobiphenyl	10	5.73	57		45	105
		Terphenyl-d14	10	5.93	59		30	125
C5146-10	12SB12-0.502-02	Nitrobenzene-d5	100	50.64	51		30	150
		2-Fluorobiphenyl	100	41.41	41	*	45	105
		Terphenyl-d14	100	51.51	52		30	125
C5146-11	12SB12-0304-03	Nitrobenzene-d5	100	52.10	52		30	150
		2-Fluorobiphenyl	100	36.01	36	*	45	105
		Terphenyl-d14	100	46.25	46		30	125
C5146-12	12SB06-000.5-01	Nitrobenzene-d5	100	44.78	45		30	150
		2-Fluorobiphenyl	100	33.93	34	*	45	105
		Terphenyl-d14	100	40.02	40		30	125
C5146-13	12SB06-0.502-02	Nitrobenzene-d5	100	52.80	53		30	150
		2-Fluorobiphenyl	100	41.59	42	*	45	105
		Terphenyl-d14	100	52.71	53		30	125
C5146-14	12SB06-0304-03	Nitrobenzene-d5	100	51.47	51		30	150
		2-Fluorobiphenyl	100	42.30	42	*	45	105
		Terphenyl-d14	100	53.76	54		30	125
C5146-15	12SB17-000.5-01	Nitrobenzene-d5	100	46.50	47		30	150
		2-Fluorobiphenyl	100	39.49	39	*	45	105
		Terphenyl-d14	100	49.48	49		30	125
C5146-16	12SB17-0.502-02	Nitrobenzene-d5	100	50.00	50		30	150
		2-Fluorobiphenyl	100	41.62	42	*	45	105
		Terphenyl-d14	100	50.90	51		30	125
C5146-17	12SB17-0304-03	Nitrobenzene-d5	100	48.83	49		30	150
		2-Fluorobiphenyl	100	40.82	41	*	45	105
		Terphenyl-d14	100	50.74	51		30	125
C5146-18	12SB27-000.5-01	Nitrobenzene-d5	100	55.74	56		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5146-18	12SB27-000.5-01	2-Fluorobiphenyl	100	50.44	50		45	105
		Terphenyl-d14	100	59.77	60		30	125
C5146-19	12SB27-0.502-02	Nitrobenzene-d5	100	43.48	43		30	150
		2-Fluorobiphenyl	100	38.44	38	*	45	105
		Terphenyl-d14	100	45.21	45		30	125
C5146-20	12SB-DUP-08	Nitrobenzene-d5	100	50.83	51		30	150
		2-Fluorobiphenyl	100	39.28	39	*	45	105
		Terphenyl-d14	100	48.41	48		30	125
PB60308B	PB60308B	Nitrobenzene-d5	10	8.16	82		30	150
		2-Fluorobiphenyl	10	8.06	81		45	105
		Terphenyl-d14	10	9.89	99		30	125
PB60308BS	PB60308BS	Nitrobenzene-d5	10	6.06	61		30	150
		2-Fluorobiphenyl	10	6.03	60		45	105
		Terphenyl-d14	10	6.98	70		30	125

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002666.D Time Analyzed: 19:49

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	171159	7.86	599968	10.04	380513	13.02
	UPPER LIMIT	342318	8.36000	1199936	10.54	761026	13.52
	LOWER LIMIT	85579.5	7.36	299984	9.54	190256.5	12.52
	EPA SAMPLE NO.						
01	12SB07-0304-03	155795	7.86	535770	10.05	326376	13.02
02	12SB08-0.502-02	196570	7.86	675068	10.05	410311	13.02
03	12SB08-0304-03	142523	7.86	500913	10.05	307138	13.02
04	12SB12-0.502-02	166497	7.86	569234	10.05	336449	13.02
05	12SB06-000.5-01	209143	7.86	713502	10.04	424016	13.02
06	12SB06-0.502-02	188329	7.86	641247	10.05	389656	13.02
07	12SB06-0304-03	178786	7.87	608307	10.04	365950	13.02
08	12SB17-0.502-02	173875	7.86	591185	10.05	354233	13.02
09	PB60308B	165256	7.86	594638	10.05	375304	13.02
10	PB60308BS	149520	7.86	536140	10.05	334105	13.02
11	12SB17-0304-03	176109	7.86	598542	10.04	358253	13.02

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/06/2012

Lab File ID: BG002692.D Time Analyzed: 14:18

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	173524	7.84	610424	10.03	387302	13
	UPPER LIMIT	347048	8.34	1220848	10.53	774604	13.5
	LOWER LIMIT	86762	7.34	305212	9.53	193651	12.5
	EPA SAMPLE NO.						
01	12SB07-0.502-02	172009	7.84	598256	10.03	372281	13.00
02	12SB08-000.5-01	182991	7.84	637839	10.03	397480	13.00
03	12SB-DUP-08	182442	7.85	635041	10.03	388230	13.00

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/11/2012

Lab File ID: BG002738.D Time Analyzed: 07:20

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	141223	7.82	519410	10.01	354384	12.97
	UPPER LIMIT	282446	8.32	1038820	10.51	708768	13.47
	LOWER LIMIT	70611.5	7.32	259705	9.51	177192	12.47
	EPA SAMPLE NO.						
01	12SB07-000.5-01	151845	7.82	551944	10.00	362272	12.97
02	12SB12-000.5-01	168374	7.83	617389	10.00	407635	12.97
03	12SB12-000.5-01MS	193102	7.82	711130	10.01	475914	12.97
04	12SB12-000.5-01MSD	163757	7.82	607551	10.00	404024	12.97
05	12SB12-0304-03	169764	7.82	616521	10.00	406830	12.97

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/11/2012

Lab File ID: BG002756.D Time Analyzed: 21:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	117160	7.8	485437	9.98	335147	12.96
	UPPER LIMIT	234320	8.3	970874	10.48	670294	13.46
	LOWER LIMIT	58580	7.3	242718.5	9.48	167573.5	12.46
	EPA SAMPLE NO.						
01	12SB17-000.5-01	146280	7.80	607550	9.98	415097	12.96
02	12SB27-0.502-02	142974	7.80	599148	9.98	403868	12.96
03	12SB27-000.5-01	110933	7.80	467283	9.98	314842	12.94

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002666.D Time Analyzed: 19:49

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	732887	15.46	738664	19.82	624104	22.84
	UPPER LIMIT	1465774	15.96	1477328	20.32	1248208	23.34
	LOWER LIMIT	366443.5	14.96	369332	19.32	312052	22.34
	EPA SAMPLE NO.						
01	12SB07-0304-03	627038	15.46	585242	19.83	534559	22.84
02	12SB08-0.502-02	775060	15.46	723975	19.82	653386	22.84
03	12SB08-0304-03	589144	15.46	551273	19.82	484044	22.84
04	12SB12-0.502-02	643879	15.46	601655	19.83	540608	22.84
05	12SB06-000.5-01	797861	15.46	747852	19.83	680109	22.84
06	12SB06-0.502-02	726616	15.46	677319	19.82	610204	22.84
07	12SB06-0304-03	683681	15.46	640974	19.83	572132	22.84
08	12SB17-0.502-02	669783	15.46	627307	19.82	556736	22.84
09	PB60308B	724579	15.46	684159	19.83	583164	22.84
10	PB60308BS	630085	15.46	611943	19.82	516959	22.84
11	12SB17-0304-03	675776	15.46	629771	19.83	562589	22.84

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/06/2012

Lab File ID: BG002692.D Time Analyzed: 14:18

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	770921	15.45	780407	19.82	662124	22.82
	UPPER LIMIT	1541842	15.95	1560814	20.32	1324248	23.32
	LOWER LIMIT	385460.5	14.95	390203.5	19.32	331062	22.32
	EPA SAMPLE NO.						
01	12SB07-0.502-02	727274	15.45	722669	19.82	625389	22.81
02	12SB08-000.5-01	764223	15.45	731492	19.82	655391	22.81
03	12SB-DUP-08	750003	15.45	705819	19.82	636288	22.81

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/11/2012

Lab File ID: BG002738.D Time Analyzed: 07:20

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	625450	15.42	602781	19.78	543865	22.75
	UPPER LIMIT	1250900	15.92	1205562	20.28	1087730	23.25
	LOWER LIMIT	312725	14.92	301390.5	19.28	271932.5	22.25
	EPA SAMPLE NO.						
01	12SB07-000.5-01	603838	15.42	587650	19.78	553927	22.76
02	12SB12-000.5-01	675958	15.42	652149	19.78	597809	22.75
03	12SB12-000.5-01MS	788660	15.42	743372	19.79	630335	22.75
04	12SB12-000.5-01MSD	677545	15.42	658373	19.78	567773	22.76
05	12SB12-0304-03	687848	15.42	662477	19.78	616776	22.75

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

EPA Sample No.: SSTD2.5 Date Analyzed: 01/11/2012

Lab File ID: BG002756.D Time Analyzed: 21:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	590159	15.4	563847	19.76	522684	22.71
	UPPER LIMIT	1180318	15.9	1127694	20.26	1045368	23.21
	LOWER LIMIT	295079.5	14.9	281923.5	19.26	261342	22.21
	EPA SAMPLE NO.						
01	12SB17-000.5-01	715314	15.40	653880	19.76	624108	22.71
02	12SB27-0.502-02	690166	15.40	639225	19.76	556268	22.71
03	12SB27-000.5-01	533274	15.40	507495	19.76	463343	22.71

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60308B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002679.D Lab Sample ID: PB60308B

Instrument ID: BNA_G Date Extracted: 12/29/2011

Matrix: (soil/water) SOIL Date Analyzed: 01/06/2012

Level: (low/med) LOW Time Analyzed: 04:22

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB17-0304-03	C5146-17	BG002681.D	01/06/2012
PB60308BS	PB60308BS	BG002680.D	01/06/2012
12SB17-0.502-02	C5146-16	BG002678.D	01/06/2012
12SB27-000.5-01	C5146-18	BG002759.D	01/11/2012
12SB27-0.502-02	C5146-19	BG002758.D	01/11/2012
12SB06-0304-03	C5146-14	BG002677.D	01/06/2012
12SB06-0.502-02	C5146-13	BG002676.D	01/06/2012
12SB17-000.5-01	C5146-15	BG002757.D	01/11/2012
12SB06-000.5-01	C5146-12	BG002675.D	01/06/2012
12SB12-0.502-02	C5146-10	BG002674.D	01/06/2012
12SB08-0304-03	C5146-06	BG002673.D	01/06/2012
12SB08-0.502-02	C5146-05	BG002672.D	01/05/2012
12SB07-0304-03	C5146-03	BG002671.D	01/05/2012
12SB12-0304-03	C5146-11	BG002751.D	01/11/2012
12SB12-000.5-01MSD	C5146-09MSD	BG002750.D	01/11/2012
12SB12-000.5-01MS	C5146-08MS	BG002749.D	01/11/2012
12SB12-000.5-01	C5146-07	BG002748.D	01/11/2012
12SB07-000.5-01	C5146-01	BG002747.D	01/11/2012
12SB-DUP-08	C5146-20	BG002695.D	01/06/2012
12SB08-000.5-01	C5146-04	BG002694.D	01/06/2012
12SB07-0.502-02	C5146-02	BG002693.D	01/06/2012

COMMENTS:

C5146 Analytical Summary

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60308B	SDG No.:	C5146
Lab Sample ID:	PB60308B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002679.D	1	12/29/11	01/06/12	PB60308

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.16		30 - 150	82%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.06		45 - 105	81%	SPK: 10
1718-51-0	Terphenyl-d14	9.89		30 - 125	99%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	165256	7.86			
1146-65-2	Naphthalene-d8	594638	10.05			
15067-26-2	Acenaphthene-d10	375304	13.02			
1517-22-2	Phenanthrene-d10	724579	15.46			
1719-03-5	Chrysene-d12	684159	19.83			
1520-96-3	Perylene-d12	583164	22.84			

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60308BS	Naphthalene	330	210	64				51	114	
	2-Methylnaphthalene	330	210	64				54	111	
	Acenaphthylene	330	210	64				54	113	
	Acenaphthene	330	220	67				54	113	
	Fluorene	330	210	64				56	113	
	Phenanthrene	330	210	64				56	113	
	Anthracene	330	220	67				56	113	
	Fluoranthene	330	220	67				54	117	
	Pyrene	330	220	67				58	117	
	Benzo(a)anthracene	330	240	73				57	112	
	Chrysene	330	210	64				59	114	
	Benzo(b)fluoranthene	330	210	64				53	120	
	Benzo(k)fluoranthene	330	210	64				56	117	
	Benzo(a)pyrene	330	210	64				56	117	
	Indeno(1,2,3-cd)pyrene	330	230	70				49	120	
	Dibenz(a,h)anthracene	330	230	70				52	119	
	Benzo(g,h,i)perylene	330	220	67				53	119	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5146-08MS	**Client Sample ID: 12SB12-000.5-01MS**									
Naphthalene	460	0	260	57				23	160	
2-Methylnaphthalene	460	0	260	57				37	139	
Acenaphthylene	460	0	250	54				28	155	
Acenaphthene	460	0	250	54				32	146	
Fluorene	460	0	250	54				17	166	
Phenanthrene	460	23	330	67				30	149	
Anthracene	460	2.3	270	58				27	158	
Fluoranthene	460	38	480	96				26	155	
Pyrene	460	30	450	91				22	173	
Benzo(a)anthracene	460	14	370	77				27	159	
Chrysene	460	17	370	77				23	166	
Benzo(b)fluoranthene	460	20	430	89				21	171	
Benzo(k)fluoranthene	460	7.9	320	68				26	165	
Benzo(a)pyrene	460	14	370	77				26	157	
Indeno(1,2,3-cd)pyrene	460	8.3	290	61				10	188	
Dibenz(a,h)anthracene	460	0	260	57				18	147	
Benzo(g,h,i)perylene	460	7.9	300	64				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5146-09MSD	**Client Sample ID: 12SB12-000.5-01MSD**									
Naphthalene	460	0	270	59		3		23	160	20
2-Methylnaphthalene	460	0	270	59		3		37	139	20
Acenaphthylene	460	0	270	59		9		28	155	20
Acenaphthene	460	0	260	57		5		32	146	20
Fluorene	460	0	260	57		5		17	166	20
Phenanthrene	460	23	340	69		3		30	149	20
Anthracene	460	2.3	290	63		8		27	158	20
Fluoranthene	460	38	480	96		0		26	155	20
Pyrene	460	30	440	89		2		22	173	20
Benzo(a)anthracene	460	14	370	77		0		27	159	20
Chrysene	460	17	370	77		0		23	166	20
Benzo(b)fluoranthene	460	20	400	83		7		21	171	20
Benzo(k)fluoranthene	460	7.9	340	72		6		26	165	20
Benzo(a)pyrene	460	14	370	77		0		26	157	20
Indeno(1,2,3-cd)pyrene	460	8.3	300	63		3		10	188	20
Dibenz(a,h)anthracene	460	0	270	59		3		18	147	20
Benzo(g,h,i)perylene	460	7.9	300	64		0		10	177	20

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002656.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_G DFTPP Injection Time: 12:56

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.6
68	Less than 2.0% of mass 69	1 (1.9) 1
69	Mass 69 relative abundance	50.3
70	Less than 2.0% of mass 69	0.2 (0.5) 1
127	40.0 - 60.0% of mass 198	45.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	5.6
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1% of mass 198	1.5
441	Present, but less than mass 443	7.5
442	Greater than 40% of mass 198	58.3
443	17.0 - 23.0% of mass 442	11.4 (19.6) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002658.D	01/05/2012	14:21
02	SSTD0.5	0.5 PPM BNA ICC	BG002659.D	01/05/2012	15:03
03	SSTD2.5	2.5 PPM BNA ICC	BG002660.D	01/05/2012	15:43
04	SSTD025	25 PPM BNA ICC	BG002662.D	01/05/2012	17:02
05	SSTD010	10 PPM BNA ICC	BG002663.D	01/05/2012	17:50

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

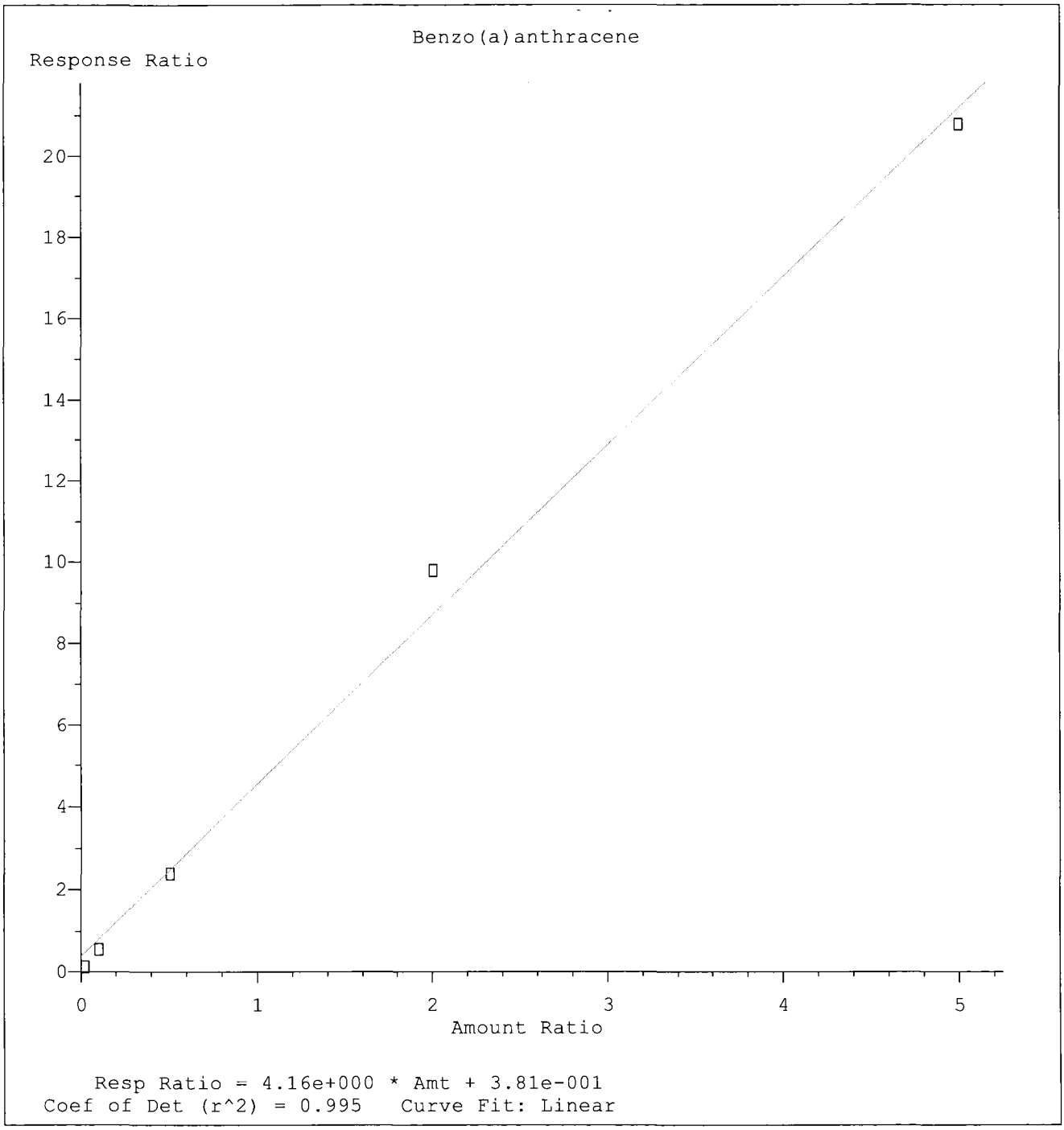
Instrument ID: BNA_G Calibration Date(s): 01/05/2012 01/05/2012

Calibration Time(s): 14:21 17:50

LAB FILE ID: RRF0.1 = BG002658.D RRF0.5 = BG002659.D RRF2.5 = BG002660.D
RRF010 = BG002663.D RRF025 = BG002662.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	5.021	4.952	4.307	4.369	3.500		4.430	13.9
2-Methylnapthalene	3.216	3.271	2.950	2.973	2.436		2.969	11.1
Acenaphthylene	8.165	7.883	7.101	7.405	5.917		7.294	12.0
Acenaphthene	1.515	1.347	1.220	1.293	1.114		1.298	11.5
Fluorene	1.553	1.628	1.425	1.428	1.169		1.441	12.1
Phenanthrene	5.334	5.244	4.583	4.696	3.710		4.713	13.8
Anthracene	5.026	5.124	4.558	4.758	3.760		4.645	11.7
Fluoranthene	5.763	5.638	5.033	5.260	4.099		5.159	12.8
Pyrene	6.085	5.984	5.316	5.444	4.447		5.455	12.0
Benzo(a)anthracene	6.227	5.493	4.774	4.894	4.156		5.109	15.4
Chrysene	5.731	5.404	4.666	4.766	4.013		4.916	13.7
Benzo(b)fluoranthene	13.232	12.833	11.426	12.324	11.173		12.197	7.3
Benzo(k)fluoranthene	13.493	12.451	11.312	12.193	11.061		12.102	8.0
Benzo(a)pyrene	12.627	11.897	10.755	11.550	10.515		11.469	7.5
Indeno(1,2,3-cd)pyrene	4.447	4.302	4.045	3.966	3.189		3.990	12.2
Dibenzo(a,h)anthracene	1.037	0.979	0.966	0.969	0.781		0.946	10.2
Benzo(g,h,i)perylene	4.597	4.349	4.045	3.764	3.104		3.972	14.5
Nitrobenzene-d5	0.528	0.514	0.454	0.489	0.427		0.482	8.6
2-Fluorobiphenyl	1.797	1.698	1.498	1.536	1.282		1.562	12.7
Terphenyl-d14	1.299	0.906	0.751	0.773	0.663		0.878	28.5

All other compounds must meet a minimum RRF of 0.010.



Method Name: \\TSCLIENT\Z\HPCHEM1\BNA_G\METHOD\SIMPAH-BG010512.M
Calibration Table Last Updated: Thu Jan 05 18:30:29 2012

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002665.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_G DFTPP Injection Time: 19:09

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.2
68	Less than 2.0% of mass 69	0.8 (1.6) 1
69	Mass 69 relative abundance	50.1
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	43.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	22.4
365	Greater than 1% of mass 198	3.1
441	Present, but less than mass 443	9.2
442	Greater than 40% of mass 198	67.7
443	17.0 - 23.0% of mass 442	13.2 (19.5) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002666.D	01/05/2012	19:49
02	12SB07-0304-03	C5146-03	BG002671.D	01/05/2012	23:08
03	12SB08-0.502-02	C5146-05	BG002672.D	01/05/2012	23:47
04	12SB08-0304-03	C5146-06	BG002673.D	01/06/2012	00:26
05	12SB12-0.502-02	C5146-10	BG002674.D	01/06/2012	01:05
06	12SB06-000.5-01	C5146-12	BG002675.D	01/06/2012	01:45
07	12SB06-0.502-02	C5146-13	BG002676.D	01/06/2012	02:24
08	12SB06-0304-03	C5146-14	BG002677.D	01/06/2012	03:03
09	12SB17-0.502-02	C5146-16	BG002678.D	01/06/2012	03:43
10	PB60308B	PB60308B	BG002679.D	01/06/2012	04:22
11	PB60308BS	PB60308BS	BG002680.D	01/06/2012	05:01
12	12SB17-0304-03	C5146-17	BG002681.D	01/06/2012	05:40

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_G Calibration Date/Time: 01/05/2012 19:49

Lab File ID: BG002666.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:21 17:50

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{\text{RRF}}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.430	4.243		4.2	20.0
2-Methylnapthalene	2.969	2.834		4.6	20.0
Acenaphthylene	7.294	6.834		6.3	20.0
Acenaphthene	1.298	1.178		9.3	20.0
Fluorene	1.441	1.373		4.7	20.0
Phenanthrene	4.713	4.463		5.3	20.0
Anthracene	4.645	4.466		3.8	20.0
Fluoranthene	5.159	4.923		4.6	20.0
Pyrene	5.455	5.106		6.4	20.0
Benzo(a)anthracene	5.109	4.560		10.7	20.0
Chrysene	4.916	4.538		7.7	20.0
Benzo(b)fluoranthene	12.197	10.512		13.8	20.0
Benzo(k)fluoranthene	12.102	11.389		5.9	20.0
Benzo(a)pyrene	11.469	10.246		10.7	20.0
Indeno(1,2,3-cd)pyrene	3.990	3.855		3.4	20.0
Dibenzo(a,h)anthracene	0.946	0.926		2.1	20.0
Benzo(g,h,i)perylene	3.972	3.881		2.3	20.0
Nitrobenzene-d5	0.482	0.445		7.6	20.0
2-Fluorobiphenyl	1.562	1.430		8.4	20.0
Terphenyl-d14	0.878	0.723		17.6	20.0

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG010512\
Data File : BG002666.D
Acq On : 5 Jan 2012 19:49
Operator : HNP
Sample : 2.5 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 06 00:58:01 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 05 18:30:43 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	109	0.00
2	I	Naphthalene-d8	5.000	5.000	0.0	107	0.00
3	S	Nitrobenzene-d5	2.500	2.309	7.6	105	0.00
4		Naphthalene	2.500	2.395	4.2	106	0.00
5		2-Methylnapthalene	2.500	2.386	4.6	103	0.00
6		1-Methylnapthalene	2.500	2.409	3.6	104	0.00
7	I	Acenaphthene-d10	5.000	5.000	0.0	108	0.00
8	S	2-Fluorobiphenyl	2.500	2.289	8.4	103	0.00
9		Acenaphthylene	2.500	2.342	6.3	104	0.00
10		Acenaphthene	2.500	2.269	9.2	104	0.00
11		Fluorene	2.500	2.383	4.7	104	0.00
12	I	Phenanthrene-d10	5.000	5.000	0.0	107	0.00
13		Phenanthrene	2.500	2.367	5.3	104	0.00
14		Anthracene	2.500	2.404	3.8	104	0.00
15		Fluoranthene	2.500	2.386	4.6	104	0.00
16	I	Chrysene-d12	5.000	5.000	0.0	109	0.00
17		Pyrene	2.500	2.340	6.4	105	0.00
18	S	Terphenyl-d14	2.500	2.274	9.0	105	0.00
19		Bis(2-ethylhexyl)phthalate	2.500	2.171	13.2	102	0.00
20		Benzo(a)anthracene	2.500	2.281	8.8	✓104	0.00
21		Chrysene	2.500	2.308	7.7	106	0.00
22		Indeno(1,2,3-cd)pyrene	2.500	2.416	3.4	104	0.00
23	I	Perylene-d12	5.000	5.000	0.0	109	0.00
24		Benzo(b)fluoranthene	2.500	2.154	13.8	100	0.00
25		Benzo(k)fluoranthene	2.500	2.353	5.9	110	0.00
26		Benzo(a)pyrene	2.500	2.233	10.7	104	0.00
27		Dibenzo(a,h)anthracene	2.500	2.447	2.1	105	0.00
28		Benzo(g,h,i)perylene	2.500	2.443	2.3	105	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

C5146 Analytical Summary

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002691.D DFTPP Injection Date: 01/06/2012

Instrument ID: BNA_G DFTPP Injection Time: 13:30

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.8
68	Less than 2.0% of mass 69	0.3 (0.7) 1
69	Mass 69 relative abundance	50.7
70	Less than 2.0% of mass 69	0.3 (0.5) 1
127	40.0 - 60.0% of mass 198	45.4
197	Less than 1.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	21.6
365	Greater than 1% of mass 198	1.8
441	Present, but less than mass 443	9.1
442	Greater than 40% of mass 198	63.2
443	17.0 - 23.0% of mass 442	12.1 (19.1) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002692.D	01/06/2012	14:18
02	12SB07-0.502-02	C5146-02	BG002693.D	01/06/2012	14:57
03	12SB08-000.5-01	C5146-04	BG002694.D	01/06/2012	15:37
04	12SB-DUP-08	C5146-20	BG002695.D	01/06/2012	16:17

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_G Calibration Date/Time: 01/06/2012 14:18

Lab File ID: BG002692.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:21 17:50

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.430	4.213		4.9	20.0
2-Methylnapthalene	2.969	2.854		3.9	20.0
Acenaphthylene	7.294	6.831		6.4	20.0
Acenaphthene	1.298	1.219		6.1	20.0
Fluorene	1.441	1.396		3.1	20.0
Phenanthrene	4.713	4.431		6.0	20.0
Anthracene	4.645	4.405		5.2	20.0
Fluoranthene	5.159	4.983		3.4	20.0
Pyrene	5.455	5.090		6.7	20.0
Benzo(a)anthracene	5.109	4.606		9.8	20.0
Chrysene	4.916	4.576		6.9	20.0
Benzo(b)fluoranthene	12.197	10.562		13.4	20.0
Benzo(k)fluoranthene	12.102	11.426		5.6	20.0
Benzo(a)pyrene	11.469	10.267		10.5	20.0
Indeno(1,2,3-cd)pyrene	3.990	3.964		0.7	20.0
Dibenzo(a,h)anthracene	0.946	0.950		0.4	20.0
Benzo(g,h,i)perylene	3.972	3.916		1.4	20.0
Nitrobenzene-d5	0.482	0.459		4.8	20.0
2-Fluorobiphenyl	1.562	1.454		6.9	20.0
Terphenyl-d14	0.878	0.727		17.2	20.0

All other compounds must meet a minimum RRF of 0.010.

C5146 Analytical Summary

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG010612\
Data File : BG002692.D
Acq On : 6 Jan 2012 14:18
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 01:41:59 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 05 18:30:43 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	111	-0.02
2	I	Naphthalene-d8	5.000	5.000	0.0	109	-0.02
3	S	Nitrobenzene-d5	2.500	2.379	4.8	110	-0.02
4		Naphthalene	2.500	2.378	4.9	107	-0.02
5		2-Methylnapthalene	2.500	2.403	3.9	105	-0.01
6		1-Methylnapthalene	2.500	2.373	5.1	104	-0.01
7	I	Acenaphthene-d10	5.000	5.000	0.0	110	-0.01
8	S	2-Fluorobiphenyl	2.500	2.326	7.0	107	-0.01
9		Acenaphthylene	2.500	2.341	6.4	106	-0.01
10		Acenaphthene	2.500	2.347	6.1	110	-0.01
11		Fluorene	2.500	2.422	3.1	108	-0.01
12	I	Phenanthrene-d10	5.000	5.000	0.0	112	-0.01
13		Phenanthrene	2.500	2.350	6.0	108	-0.01
14		Anthracene	2.500	2.370	5.2	108	-0.01
15		Fluoranthene	2.500	2.415	3.4	111	-0.01
16	I	Chrysene-d12	5.000	5.000	0.0	115	-0.02
17		Pyrene	2.500	2.333	6.7	110	-0.01
18	S	Terphenyl-d14	2.500	2.288	8.5	111	0.00
19		Bis(2-ethylhexyl)phthalate	2.500	2.272	9.1	113	0.00
20		Benzo(a)anthracene	2.500	2.309	7.6	111	0.00
21		Chrysene	2.500	2.327	6.9	113	0.00
22		Indeno(1,2,3-cd)pyrene	2.500	2.484	0.6	113	-0.03
23	I	Perylene-d12	5.000	5.000	0.0	116	-0.02
24		Benzo(b)fluoranthene	2.500	2.165	13.4	107	-0.02
25		Benzo(k)fluoranthene	2.500	2.360	5.6	117	-0.02
26		Benzo(a)pyrene	2.500	2.238	10.5	110	-0.02
27		Dibenzo(a,h)anthracene	2.500	2.509	-0.4	114	-0.03
28		Benzo(g,h,i)perylene	2.500	2.465	1.4	112	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

C5146 Analytical Summary

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002711.D DFTPP Injection Date: 01/10/2012

Instrument ID: BNA_G DFTPP Injection Time: 12:55

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.3
68	Less than 2.0% of mass 69	0.3 (0.7) 1
69	Mass 69 relative abundance	42
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	40.5
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1% of mass 198	3.4
441	Present, but less than mass 443	9.8
442	Greater than 40% of mass 198	82.3
443	17.0 - 23.0% of mass 442	15.1 (18.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002714.D	01/10/2012	14:55
02	SSTD0.5	0.5 PPM BNA ICC	BG002715.D	01/10/2012	15:34
03	SSTD2.5	2.5 PPM BNA ICC	BG002716.D	01/10/2012	16:13
04	SSTD010	10 PPM BNA ICC	BG002717.D	01/10/2012	16:52
05	SSTD025	25 PPM BNA ICC	BG002718.D	01/10/2012	17:31

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_G Calibration Date(s): 01/10/2012 01/10/2012

Calibration Time(s): 14:55 17:31

LAB FILE ID: RRF0.1 = BG002714.D RRF0.5 = BG002715.D RRF2.5 = BG002716.D
RRF010 = BG002717.D RRF025 = BG002718.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.697	4.720	4.145	4.193	3.516		4.255	11.6
2-Methylnapthalene	3.145	3.296	2.960	3.065	2.668		3.027	7.8
Acenaphthylene	6.915	7.128	6.256	6.553	5.495		6.469	9.9
Acenaphthene	1.271	1.173	1.022	1.064	0.948		1.096	11.6
Fluorene	1.436	1.482	1.287	1.362	1.135		1.340	10.2
Phenanthrene	5.118	4.988	4.352	4.481	3.726		4.533	12.3
Anthracene	4.799	4.894	4.433	4.584	3.828		4.508	9.3
Fluoranthene	5.433	5.520	4.934	5.135	4.175		5.039	10.7
Pyrene	5.997	5.852	5.148	5.361	4.460		5.364	11.4
Benzo(a)anthracene	5.705	5.293	4.590	4.702	4.034		4.865	13.3
Chrysene	5.164	5.026	4.435	4.460	3.749		4.567	12.3
Benzo(b)fluoranthene	12.086	11.779	10.600	11.665	11.144		11.455	5.1
Benzo(k)fluoranthene	11.485	12.268	11.055	11.921	10.344		11.415	6.6
Benzo(a)pyrene	11.048	11.125	10.189	11.182	10.136		10.736	4.9
Indeno(1,2,3-cd)pyrene	3.533	3.731	3.640	3.853	3.100		3.571	8.1
Dibenzo(a,h)anthracene	0.836	0.899	0.897	0.955	0.789		0.875	7.3
Benzo(g,h,i)perylene	3.793	3.740	3.608	3.591	3.073		3.561	8.0
Nitrobenzene-d5	0.380	0.375	0.346	0.382	0.353		0.367	4.5
2-Fluorobiphenyl	1.596	1.581	1.387	1.452	1.223		1.448	10.6
Terphenyl-d14	1.162	1.059	0.751	0.775	0.664		0.882	24.5

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002737.D DFTPP Injection Date: 01/11/2012

Instrument ID: BNA_G DFTPP Injection Time: 06:41

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	40.1
68	Less than 2.0% of mass 69	0.5 (1.4) 1
69	Mass 69 relative abundance	36.1
70	Less than 2.0% of mass 69	0.6 (1.7) 1
127	40.0 - 60.0% of mass 198	47.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	5.1
275	10.0 - 30.0% of mass 198	15.9
365	Greater than 1% of mass 198	3.2
441	Present, but less than mass 443	5.8
442	Greater than 40% of mass 198	78.7
443	17.0 - 23.0% of mass 442	15.4 (19.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002738.D	01/11/2012	07:20
02	12SB07-000.5-01	C5146-01	BG002747.D	01/11/2012	13:07
03	12SB12-000.5-01	C5146-07	BG002748.D	01/11/2012	13:47
04	12SB12-000.5-01MS	C5146-08MS	BG002749.D	01/11/2012	14:26
05	12SB12-000.5-01MSD	C5146-09MSD	BG002750.D	01/11/2012	15:05
06	12SB12-0304-03	C5146-11	BG002751.D	01/11/2012	15:44

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_G Calibration Date/Time: 01/11/2012 07:20

Lab File ID: BG002738.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	3.974		6.6	20.0
2-Methylnapthalene	3.027	2.896		4.3	20.0
Acenaphthylene	6.469	6.076		6.1	20.0
Acenaphthene	1.096	1.001		8.7	20.0
Fluorene	1.340	1.302		2.9	20.0
Phenanthrene	4.533	4.240		6.5	20.0
Anthracene	4.508	4.255		5.6	20.0
Fluoranthene	5.039	4.761		5.5	20.0
Pyrene	5.364	5.214		2.8	20.0
Benzo(a)anthracene	4.865	4.466		8.2	20.0
Chrysene	4.567	4.321		5.4	20.0
Benzo(b)fluoranthene	11.455	10.529		8.1	20.0
Benzo(k)fluoranthene	11.415	10.478		8.2	20.0
Benzo(a)pyrene	10.736	10.024		6.6	20.0
Indeno(1,2,3-cd)pyrene	3.571	3.822		7.0	20.0
Dibenzo(a,h)anthracene	0.875	0.886		1.2	20.0
Benzo(g,h,i)perylene	3.561	3.533		0.8	20.0
Nitrobenzene-d5	0.367	0.351		4.5	20.0
2-Fluorobiphenyl	1.448	1.366		5.7	20.0
Terphenyl-d14	0.882	0.752		14.8	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5146 SDG NO.: C5146

Lab File ID: BG002755.D DFTPP Injection Date: 01/11/2012

Instrument ID: BNA_G DFTPP Injection Time: 20:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	34.7
68	Less than 2.0% of mass 69	0.5 (1.3) 1
69	Mass 69 relative abundance	38
70	Less than 2.0% of mass 69	0.6 (1.5) 1
127	40.0 - 60.0% of mass 198	40.2
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	5.7
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	3.2
441	Present, but less than mass 443	13.4
442	Greater than 40% of mass 198	76.1
443	17.0 - 23.0% of mass 442	15.7 (20.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002756.D	01/11/2012	21:08
02	12SB17-000.5-01	C5146-15	BG002757.D	01/11/2012	21:47
03	12SB27-0.502-02	C5146-19	BG002758.D	01/11/2012	22:26
04	12SB27-000.5-01	C5146-18	BG002759.D	01/11/2012	23:05

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG No.: C5146

Instrument ID: BNA_G Calibration Date/Time: 01/11/2012 21:08

Lab File ID: BG002756.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	3.998		6.0	20.0
2-Methylnapthalene	3.027	2.937		3.0	20.0
Acenaphthylene	6.469	5.982		7.5	20.0
Acenaphthene	1.096	0.993		9.4	20.0
Fluorene	1.340	1.246		7.0	20.0
Phenanthrene	4.533	4.235		6.6	20.0
Anthracene	4.508	4.267		5.3	20.0
Fluoranthene	5.039	4.711		6.5	20.0
Pyrene	5.364	5.159		3.8	20.0
Benzo(a)anthracene	4.865	4.483		7.8	20.0
Chrysene	4.567	4.331		5.2	20.0
Benzo(b)fluoranthene	11.455	10.473		8.6	20.0
Benzo(k)fluoranthene	11.415	10.355		9.3	20.0
Benzo(a)pyrene	10.736	10.051		6.4	20.0
Indeno(1,2,3-cd)pyrene	3.571	4.061		13.7	20.0
Dibenzo(a,h)anthracene	0.875	0.920		5.2	20.0
Benzo(g,h,i)perylene	3.561	3.708		4.1	20.0
Nitrobenzene-d5	0.367	0.283		23.0	20.0
2-Fluorobiphenyl	1.448	1.322		8.7	20.0
Terphenyl-d14	0.882	0.747		15.3	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

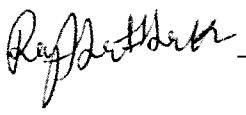
C. Analytical Techniques:
The analyses were performed on instrument GCECD_G. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5um df, Catalogue #: 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalogue #: 7HM-G017-11The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB12-000.5-01 [Decachlorobiphenyl(1) - 53%], 12SB27-000.5-01 [Tetrachloro-m-xylene(1) - 55%] and 12SB27-0.502-02 [Tetrachloro-m-xylene(1) - 68%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PG003736.D , PG003761.D met the requirements except for Endrin ketone in first column.The Continuous Calibration File ID PG003749.D, PG003761.D met the requirements except for Endrin ketone in second column but it is not present in the sample.

CHEMTECH

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature  Kalpana Raythattha
I am approving this document
2012.01.20 08:49:45 -05'00'

CHEMTECH

C5146Analytical Summary

Surrogate Summary

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PG003676.D	PIBLK-PG003676.D	Decachlorobiphenyl	1	20	20.49	102		10	192
		Tetrachloro-m-xylene	1	20	18.95	95		10	172
		Decachlorobiphenyl	2	20	21.94	110		10	192
		Tetrachloro-m-xylene	2	20	21.53	108		10	172
I.BLK-PG003689.D	PIBLK-PG003689.D	Decachlorobiphenyl	1	20	20.46	102		10	192
		Tetrachloro-m-xylene	1	20	18.4	92		10	172
		Decachlorobiphenyl	2	20	21.48	107		10	192
		Tetrachloro-m-xylene	2	20	20.85	104		10	172
PB60305BL	PB60305BL	Decachlorobiphenyl	1	20	20.33	102		55	130
		Tetrachloro-m-xylene	1	20	18.21	91		70	125
		Decachlorobiphenyl	2	20	21.81	109		55	130
		Tetrachloro-m-xylene	2	20	20.6	103		70	125
PB60305BS	PB60305BS	Decachlorobiphenyl	1	20	21.28	106		55	130
		Tetrachloro-m-xylene	1	20	19.59	98		70	125
		Decachlorobiphenyl	2	20	22.38	112		55	130
		Tetrachloro-m-xylene	2	20	21.52	108		70	125
C5146-08MS	12SB12-000.5-01MS	Decachlorobiphenyl	1	20	17.93	90		55	130
		Tetrachloro-m-xylene	1	20	19.28	96		70	125
		Decachlorobiphenyl	2	20	17.62	88		55	130
		Tetrachloro-m-xylene	2	20	19.64	98		70	125
C5146-09MSD	12SB12-000.5-01MSD	Decachlorobiphenyl	1	20	17.63	88		55	130
		Tetrachloro-m-xylene	1	20	17.86	89		70	125
		Decachlorobiphenyl	2	20	17.52	88		55	130
		Tetrachloro-m-xylene	2	20	19.6	98		70	125
I.BLK-PG003701.D	PIBLK-PG003701.D	Decachlorobiphenyl	1	20	19.38	97		10	192
		Tetrachloro-m-xylene	1	20	18.22	91		10	172
		Decachlorobiphenyl	2	20	19.86	99		10	192
		Tetrachloro-m-xylene	2	20	20.42	102		10	172
I.BLK-PG003722.D	PIBLK-PG003722.D	Decachlorobiphenyl	1	20	20.59	103		10	192
		Tetrachloro-m-xylene	1	20	19.23	96		10	172
		Decachlorobiphenyl	2	20	18.23	91		10	192
		Tetrachloro-m-xylene	2	20	22.48	112		10	172
I.BLK-PG003735.D	PIBLK-PG003735.D	Decachlorobiphenyl	1	20	20.22	101		10	192
		Tetrachloro-m-xylene	1	20	18.94	95		10	172
		Decachlorobiphenyl	2	20	22.98	115		10	192
		Tetrachloro-m-xylene	2	20	21.16	106		10	172
C5146-01	12SB07-000.5-01	Decachlorobiphenyl	1	20	18.33	92		55	130
		Tetrachloro-m-xylene	1	20	18.05	90		70	125
		Decachlorobiphenyl	2	20	20.41	102		55	130
		Tetrachloro-m-xylene	2	20	19.5	98		70	125
C5146-02	12SB07-0.502-02	Decachlorobiphenyl	1	20	17.14	86		55	130
		Tetrachloro-m-xylene	1	20	17.7	89		70	125
		Decachlorobiphenyl	2	20	18.47	92		55	130
		Tetrachloro-m-xylene	2	20	19.1	96		70	125

CHEMTECH

C5146Analytical Summary

Surrogate Summary

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5146-03	12SB07-0304-03	Decachlorobiphenyl	1	20	13.13	66		55	130
		Tetrachloro-m-xylene	1	20	14.71	74		70	125
		Decachlorobiphenyl	2	20	14.2	71		55	130
		Tetrachloro-m-xylene	2	20	15.36	77		70	125
C5146-04	12SB08-000.5-01	Decachlorobiphenyl	1	20	16.35	82		55	130
		Tetrachloro-m-xylene	1	20	17.05	85		70	125
		Decachlorobiphenyl	2	20	17.74	89		55	130
		Tetrachloro-m-xylene	2	20	18.11	91		70	125
C5146-05	12SB08-0.502-02	Decachlorobiphenyl	1	20	18.07	90		55	130
		Tetrachloro-m-xylene	1	20	18.08	90		70	125
		Decachlorobiphenyl	2	20	18.54	93		55	130
		Tetrachloro-m-xylene	2	20	19.61	98		70	125
C5146-06	12SB08-0304-03	Decachlorobiphenyl	1	20	16.19	81		55	130
		Tetrachloro-m-xylene	1	20	16.67	83		70	125
		Decachlorobiphenyl	2	20	17.65	88		55	130
		Tetrachloro-m-xylene	2	20	17.85	89		70	125
C5146-07	12SB12-000.5-01	Decachlorobiphenyl	1	20	10.58	53	*	55	130
		Tetrachloro-m-xylene	1	20	14.42	72		70	125
		Decachlorobiphenyl	2	20	10.92	55		55	130
		Tetrachloro-m-xylene	2	20	15.19	76		70	125
C5146-10	12SB12-0.502-02	Decachlorobiphenyl	1	20	14.37	72		55	130
		Tetrachloro-m-xylene	1	20	15.83	79		70	125
		Decachlorobiphenyl	2	20	15.34	77		55	130
		Tetrachloro-m-xylene	2	20	17.16	86		70	125
I.BLK-PG003748.D	PIBLK-PG003748.D	Decachlorobiphenyl	1	20	20.98	105		10	192
		Tetrachloro-m-xylene	1	20	19.01	95		10	172
		Decachlorobiphenyl	2	20	22.16	111		10	192
		Tetrachloro-m-xylene	2	20	20.92	105		10	172
C5146-11	12SB12-0304-03	Decachlorobiphenyl	1	20	17.52	88		55	130
		Tetrachloro-m-xylene	1	20	17.98	90		70	125
		Decachlorobiphenyl	2	20	18.84	94		55	130
		Tetrachloro-m-xylene	2	20	19.12	96		70	125
C5146-12	12SB06-000.5-01	Decachlorobiphenyl	1	20	15.92	80		55	130
		Tetrachloro-m-xylene	1	20	17.04	85		70	125
		Decachlorobiphenyl	2	20	16.46	82		55	130
		Tetrachloro-m-xylene	2	20	18.27	91		70	125
C5146-13	12SB06-0.502-02	Decachlorobiphenyl	1	20	16.99	85		55	130
		Tetrachloro-m-xylene	1	20	16.86	84		70	125
		Decachlorobiphenyl	2	20	17.13	86		55	130
		Tetrachloro-m-xylene	2	20	18.09	90		70	125
C5146-14	12SB06-0304-03	Decachlorobiphenyl	1	20	19.57	98		55	130
		Tetrachloro-m-xylene	1	20	18.41	92		70	125
		Decachlorobiphenyl	2	20	20.07	100		55	130
		Tetrachloro-m-xylene	2	20	19.61	98		70	125

CHEMTECH

C5146Analytical Summary

Surrogate Summary

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5146-15	12SB17-000.5-01	Decachlorobiphenyl	1	20	19.57	98		55	130
		Tetrachloro-m-xylene	1	20	20.12	101		70	125
		Decachlorobiphenyl	2	20	20.35	102		55	130
		Tetrachloro-m-xylene	2	20	19.07	95		70	125
C5146-16	12SB17-0.502-02	Decachlorobiphenyl	1	20	19.64	98		55	130
		Tetrachloro-m-xylene	1	20	18.85	94		70	125
		Decachlorobiphenyl	2	20	20.43	102		55	130
		Tetrachloro-m-xylene	2	20	20.05	100		70	125
C5146-17	12SB17-0304-03	Decachlorobiphenyl	1	20	18.86	94		55	130
		Tetrachloro-m-xylene	1	20	19.16	96		70	125
		Decachlorobiphenyl	2	20	19.45	97		55	130
		Tetrachloro-m-xylene	2	20	18.51	93		70	125
C5146-18	12SB27-000.5-01	Decachlorobiphenyl	1	20	20.22	101		55	130
		Tetrachloro-m-xylene	1	20	10.9	55	*	70	125
		Decachlorobiphenyl	2	20	20.42	102		55	130
		Tetrachloro-m-xylene	2	20	16.76	84		70	125
C5146-19	12SB27-0.502-02	Decachlorobiphenyl	1	20	18.95	95		55	130
		Tetrachloro-m-xylene	1	20	13.59	68	*	70	125
		Decachlorobiphenyl	2	20	17.91	90		55	130
		Tetrachloro-m-xylene	2	20	16.72	84		70	125
C5146-20	12SB-DUP-08	Decachlorobiphenyl	1	20	16.49	82		55	130
		Tetrachloro-m-xylene	1	20	18.87	94		70	125
		Decachlorobiphenyl	2	20	19.85	99		55	130
		Tetrachloro-m-xylene	2	20	19.49	97		70	125
I.BLK-PG003760.D	PIBLK-PG003760.D	Decachlorobiphenyl	1	20	20.77	104		10	192
		Tetrachloro-m-xylene	1	20	18.85	94		10	172
		Decachlorobiphenyl	2	20	21.34	107		10	192
		Tetrachloro-m-xylene	2	20	20.35	102		10	172

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60305BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab Sample ID: PB60305BL Lab File ID: PG003691.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/29/2011

Date Analyzed (1): 01/04/2012 Date Analyzed (2): 01/04/2012

Time Analyzed (1): 21:22 Time Analyzed (2): 21:22

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column (1): ZB-MR1 ID: 0.32 (mm) GC Column (2): ZB-MR2 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60305BS	PB60305BS	PG003692.D	01/04/2012	01/04/2012
12SB12-000.5-01MS	C5146-08MS	PG003699.D	01/04/2012	01/04/2012
12SB12-000.5-01MSD	C5146-09MSD	PG003700.D	01/05/2012	01/05/2012
12SB07-000.5-01	C5146-01	PG003740.D	01/06/2012	01/06/2012
12SB07-0.502-02	C5146-02	PG003741.D	01/06/2012	01/06/2012
12SB07-0304-03	C5146-03	PG003742.D	01/06/2012	01/06/2012
12SB08-000.5-01	C5146-04	PG003743.D	01/06/2012	01/06/2012
12SB08-0.502-02	C5146-05	PG003744.D	01/06/2012	01/06/2012
12SB08-0304-03	C5146-06	PG003745.D	01/06/2012	01/06/2012
12SB12-000.5-01	C5146-07	PG003746.D	01/07/2012	01/07/2012
12SB12-0.502-02	C5146-10	PG003747.D	01/07/2012	01/07/2012
12SB12-0304-03	C5146-11	PG003750.D	01/07/2012	01/07/2012
12SB06-000.5-01	C5146-12	PG003751.D	01/07/2012	01/07/2012
12SB06-0.502-02	C5146-13	PG003752.D	01/07/2012	01/07/2012
12SB06-0304-03	C5146-14	PG003753.D	01/07/2012	01/07/2012
12SB17-000.5-01	C5146-15	PG003754.D	01/07/2012	01/07/2012
12SB17-0.502-02	C5146-16	PG003755.D	01/07/2012	01/07/2012
12SB17-0304-03	C5146-17	PG003756.D	01/07/2012	01/07/2012
12SB27-000.5-01	C5146-18	PG003757.D	01/07/2012	01/07/2012
12SB27-0.502-02	C5146-19	PG003758.D	01/07/2012	01/07/2012
12SB-DUP-08	C5146-20	PG003759.D	01/07/2012	01/07/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60305BL	SDG No.:	C5146
Lab Sample ID:	PB60305BL	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	0 Decanted:
Sample Wt/Vol:	30 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003691.D	1	12/29/11	01/04/12	PB60305

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.3		55 - 130	102%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.2		70 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60305BS	alpha-BHC	16.7	18	108				84	123	
	beta-BHC	16.7	17	102				82	123	
	delta-BHC	16.7	17	102				83	126	
	gamma-BHC (Lindane)	16.7	18	108				83	125	
	Heptachlor	16.7	17	102				83	122	
	Aldrin	16.7	17	102				82	124	
	Heptachlor epoxide	16.7	17	102				83	120	
	Endosulfan I	16.7	17	102				81	124	
	Dieldrin	16.7	17	102				85	121	
	4,4-DDE	16.7	17	102				81	123	
	Endrin	16.7	16	96				76	130	
	Endosulfan II	16.7	17	102				80	125	
	4,4-DDD	16.7	18	108				80	131	
	Endosulfan sulfate	16.7	17	102				81	122	
	4,4-DDT	16.7	16	96				70	129	
	Methoxychlor	16.7	16	96				78	129	
	Endrin ketone	16.7	18	108				77	132	
	Endrin aldehyde	16.7	18	108				79	124	
	alpha-Chlordane	16.7	17	102				84	120	
	gamma-Chlordane	16.7	17	102				83	122	

C5146 CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12SB12-000.5-01MS**										
C5146-08MS	alpha-BHC	23.2	0	24	103				60	125	
	beta-BHC	23.2	0	23	99				60	125	
	delta-BHC	23.2	0	23	99				55	130	
	gamma-BHC (Lindane)	23.2	0	27	116				60	125	
	Heptachlor	23.2	0	22	95				50	140	
	Aldrin	23.2	0	23	99				45	140	
	Heptachlor epoxide	23.2	0	22	95				65	130	
	Endosulfan I	23.2	0	22	95				15	135	
	Dieldrin	23.2	0	22	95				65	125	
	4,4-DDE	23.2	0	21	91				70	125	
	Endrin	23.2	0	23	99				60	135	
	Endosulfan II	23.2	0	22	95				35	140	
	4,4-DDD	23.2	0	22	95				30	135	
	Endosulfan sulfate	23.2	0	22	95				60	135	
	4,4-DDT	23.2	0	22	95				45	140	
	Methoxychlor	23.2	0	21	91				55	145	
	Endrin ketone	23.2	0	23	99				65	135	
	Endrin aldehyde	23.2	0	21	91				35	145	
	alpha-Chlordane	23.2	0	21	91				65	120	
	gamma-Chlordane	23.2	0	22	95				65	125	
Client Sample ID:	**12SB12-000.5-01MSD**										
C5146-09MSD	alpha-BHC	23.3	0	24	103		0		60	125	20
	beta-BHC	23.3	0	23	99		0		60	125	20
	delta-BHC	23.3	0	23	99		0		55	130	20
	gamma-BHC (Lindane)	23.3	0	27	116		0		60	125	20
	Heptachlor	23.3	0	23	99		4		50	140	20
	Aldrin	23.3	0	23	99		0		45	140	20
	Heptachlor epoxide	23.3	0	22	94		1		65	130	20
	Endosulfan I	23.3	0	22	94		1		15	135	20
	Dieldrin	23.3	0	22	94		1		65	125	20
	4,4-DDE	23.3	0	22	94		3		70	125	20
	Endrin	23.3	0	23	99		0		60	135	20
	Endosulfan II	23.3	0	22	94		1		35	140	20
	4,4-DDD	23.3	0	21	90		5		30	135	20
	Endosulfan sulfate	23.3	0	22	94		1		60	135	20
	4,4-DDT	23.3	0	22	94		1		45	140	20
	Methoxychlor	23.3	0	21	90		1		55	145	20
	Endrin ketone	23.3	0	24	103		4		65	135	20
	Endrin aldehyde	23.3	0	21	90		1		35	145	20

CHEMTECH

C5146 Analytical Summary

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
C5146-09MSD	alpha-Chlordane	23.3	0	22	94		3		65	120	20
	gamma-Chlordane	23.3	0	22	94		1		65	125	20

CHEMTECH

C5146Analytical Summary

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB27-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab Sample ID: C5146-18 Date(s) Analyzed: 01/07/2012 01/07/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	25	0.0
	2	6.79	6.72	6.86	25	

CHEMTECH

C5146Analytical Summary

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB27-0.502-02

Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab Sample ID: C5146-19 Date(s) Analyzed: 01/07/2012 01/07/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	7.9	8.5
	(2)	6.79	6.72	6.86	8.6	

CHEMTECH

C5146Analytical Summary

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB17-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab Sample ID: C5146-15 Date(s) Analyzed: 01/07/2012 01/07/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
4,4-DDE	1	7.52	7.45	7.59	2.6	26.7
	(2)	6.60	6.53	6.67	3.4	

RPD > 40% for qualification as per SAP

CHEMTECH

C5146Analytical Summary

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_G
GC Column:	ZB-MR1 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	01/04/2012 01/04/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	01/04/2012	16:42	PG003676.D	11.37	4.77
PEM01	PEM01	01/04/2012	17:00	PG003677.D	11.37	4.77
RESC01	RESCHK	01/04/2012	17:19	PG003678.D	11.37	4.77
100 PPB PEST STD	100 PPB PEST STD	01/04/2012	17:38	PG003679.D	11.37	4.77
75 PPB PEST STD	75 PPB PEST STD	01/04/2012	17:57	PG003680.D	11.37	4.77
50 PPB PEST STD	50 PPB PEST STD	01/04/2012	18:15	PG003681.D	11.37	4.77
25 PPB PEST STD	25 PPB PEST STD	01/04/2012	18:34	PG003682.D	11.37	4.77
5 PPB PEST STD	5 PPB PEST STD	01/04/2012	18:53	PG003683.D	11.37	4.77
TOX 500	TOX	01/04/2012	19:30	PG003685.D	11.37	4.77
CHLOR 500	CHLOR 500	01/04/2012	19:49	PG003686.D	11.37	4.77
PIBLK02	I.BLK02	01/04/2012	20:45	PG003689.D	11.37	4.77
CCAL01	STD 25	01/04/2012	21:04	PG003690.D	11.37	4.77
PB60305BL	PB60305BL	01/04/2012	21:22	PG003691.D	11.37	4.77
PB60305BS	PB60305BS	01/04/2012	21:41	PG003692.D	11.37	4.77
12SB12-000.5-01MS	C5146-08MS	01/04/2012	23:50	PG003699.D	11.37	4.77
12SB12-000.5-01MSD	C5146-09MSD	01/05/2012	00:09	PG003700.D	11.37	4.77
PIBLK03	I.BLK03	01/05/2012	00:27	PG003701.D	11.37	4.77
CCAL02	STD 25	01/05/2012	00:45	PG003702.D	11.37	4.77

CHEMTECH

C5146Analytical Summary

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5146

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 01/04/2012 01/04/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	01/04/2012	16:42	PG003676.D	9.73	4.07
PEM01	PEM01	01/04/2012	17:00	PG003677.D	9.73	4.07
RESC01	RESCHK	01/04/2012	17:19	PG003678.D	9.73	4.07
100 PPB PEST STD	100 PPB PEST STD	01/04/2012	17:38	PG003679.D	9.73	4.07
75 PPB PEST STD	75 PPB PEST STD	01/04/2012	17:57	PG003680.D	9.73	4.07
50 PPB PEST STD	50 PPB PEST STD	01/04/2012	18:15	PG003681.D	9.73	4.07
25 PPB PEST STD	25 PPB PEST STD	01/04/2012	18:34	PG003682.D	9.73	4.07
5 PPB PEST STD	5 PPB PEST STD	01/04/2012	18:53	PG003683.D	9.73	4.07
TOX 500	TOX	01/04/2012	19:30	PG003685.D	9.73	4.07
CHLOR 500	CHLOR 500	01/04/2012	19:49	PG003686.D	9.73	4.07
PIBLK02	I.BLK02	01/04/2012	20:45	PG003689.D	9.73	4.07
CCAL01	STD 25	01/04/2012	21:04	PG003690.D	9.73	4.07
PB60305BL	PB60305BL	01/04/2012	21:22	PG003691.D	9.73	4.07
PB60305BS	PB60305BS	01/04/2012	21:41	PG003692.D	9.73	4.07
12SB12-000.5-01MS	C5146-08MS	01/04/2012	23:50	PG003699.D	9.73	4.07
12SB12-000.5-01MSD	C5146-09MSD	01/05/2012	00:09	PG003700.D	9.73	4.07
PIBLK03	I.BLK03	01/05/2012	00:27	PG003701.D	9.73	4.07
CCAL02	STD 25	01/05/2012	00:45	PG003702.D	9.73	4.07

CHEMTECH
C5146Analytical Summary

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_G
GC Column:	ZB-MR1 ID: 0.32 (mm)	**Inst. Calib. Date(s):**	01/06/2012 01/06/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	01/06/2012	16:52	PG003722.D	11.37	4.77
PEM02	PEM02	01/06/2012	17:10	PG003723.D	11.37	4.77
RESC01	RESCHK	01/06/2012	17:29	PG003724.D	11.37	4.77
100 PPB PEST STD	100 PPB PEST STD	01/06/2012	17:47	PG003725.D	11.37	4.77
75 PPB PEST STD	75 PPB PEST STD	01/06/2012	18:05	PG003726.D	11.37	4.77
50 PPB PEST STD	50 PPB PEST STD	01/06/2012	18:24	PG003727.D	11.37	4.77
25 PPB PEST STD	25 PPB PEST STD	01/06/2012	18:42	PG003728.D	11.37	4.77
5 PPB PEST STD	5 PPB PEST STD	01/06/2012	19:00	PG003729.D	11.37	4.77
TOX 500	TOX	01/06/2012	19:37	PG003731.D	11.37	4.77
CHLOR 500	CHLOR 500	01/06/2012	19:55	PG003732.D	11.37	4.77
PIBLK05	I.BLK05	01/06/2012	20:50	PG003735.D	11.37	4.77
CCAL03	STD 25	01/06/2012	21:08	PG003736.D	11.37	4.77
PEM03	PEM03	01/06/2012	21:27	PG003737.D	11.37	4.77
12SB07-000.5-01	C5146-01	01/06/2012	22:22	PG003740.D	11.37	4.77
12SB07-0.502-02	C5146-02	01/06/2012	22:40	PG003741.D	11.37	4.77
12SB07-0304-03	C5146-03	01/06/2012	22:58	PG003742.D	11.37	4.77
12SB08-000.5-01	C5146-04	01/06/2012	23:16	PG003743.D	11.37	4.77
12SB08-0.502-02	C5146-05	01/06/2012	23:35	PG003744.D	11.37	4.77
12SB08-0304-03	C5146-06	01/06/2012	23:53	PG003745.D	11.37	4.77
12SB12-000.5-01	C5146-07	01/07/2012	00:11	PG003746.D	11.37	4.77
12SB12-0.502-02	C5146-10	01/07/2012	00:29	PG003747.D	11.37	4.77
PIBLK06	I.BLK06	01/07/2012	00:48	PG003748.D	11.37	4.77
CCAL04	STD 25	01/07/2012	01:06	PG003749.D	11.37	4.77
12SB12-0304-03	C5146-11	01/07/2012	01:24	PG003750.D	11.37	4.77
12SB06-000.5-01	C5146-12	01/07/2012	01:42	PG003751.D	11.37	4.77
12SB06-0.502-02	C5146-13	01/07/2012	02:01	PG003752.D	11.37	4.77
12SB06-0304-03	C5146-14	01/07/2012	02:19	PG003753.D	11.37	4.77
12SB17-000.5-01	C5146-15	01/07/2012	02:37	PG003754.D	11.37	4.77
12SB17-0.502-02	C5146-16	01/07/2012	02:56	PG003755.D	11.37	4.77
12SB17-0304-03	C5146-17	01/07/2012	03:14	PG003756.D	11.37	4.77
12SB27-000.5-01	C5146-18	01/07/2012	03:32	PG003757.D	11.37	4.77
12SB27-0.502-02	C5146-19	01/07/2012	03:50	PG003758.D	11.37	4.77
12SB-DUP-08	C5146-20	01/07/2012	04:09	PG003759.D	11.37	4.77
PIBLK07	I.BLK07	01/07/2012	04:27	PG003760.D	11.37	4.77
CCAL05	STD 25	01/07/2012	04:45	PG003761.D	11.37	4.77

CHEMTECH

C5146 Analytical Summary

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_G
GC Column:	ZB-MR2 **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	01/06/2012 01/06/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	01/06/2012	16:52	PG003722.D	9.73	4.07
PEM02	PEM02	01/06/2012	17:10	PG003723.D	9.73	4.07
RESC01	RESCHK	01/06/2012	17:29	PG003724.D	9.73	4.07
100 PPB PEST STD	100 PPB PEST STD	01/06/2012	17:47	PG003725.D	9.73	4.07
75 PPB PEST STD	75 PPB PEST STD	01/06/2012	18:05	PG003726.D	9.73	4.07
50 PPB PEST STD	50 PPB PEST STD	01/06/2012	18:24	PG003727.D	9.73	4.07
25 PPB PEST STD	25 PPB PEST STD	01/06/2012	18:42	PG003728.D	9.73	4.07
5 PPB PEST STD	5 PPB PEST STD	01/06/2012	19:00	PG003729.D	9.73	4.07
TOX 500	TOX	01/06/2012	19:37	PG003731.D	9.73	4.07
CHLOR 500	CHLOR 500	01/06/2012	19:55	PG003732.D	9.73	4.07
PIBLK05	I.BLK05	01/06/2012	20:50	PG003735.D	9.73	4.07
CCAL03	STD 25	01/06/2012	21:08	PG003736.D	9.73	4.07
PEM03	PEM03	01/06/2012	21:27	PG003737.D	9.73	4.07
12SB07-000.5-01	C5146-01	01/06/2012	22:22	PG003740.D	9.73	4.07
12SB07-0.502-02	C5146-02	01/06/2012	22:40	PG003741.D	9.73	4.07
12SB07-0304-03	C5146-03	01/06/2012	22:58	PG003742.D	9.73	4.07
12SB08-000.5-01	C5146-04	01/06/2012	23:16	PG003743.D	9.73	4.07
12SB08-0.502-02	C5146-05	01/06/2012	23:35	PG003744.D	9.73	4.07
12SB08-0304-03	C5146-06	01/06/2012	23:53	PG003745.D	9.73	4.07
12SB12-000.5-01	C5146-07	01/07/2012	00:11	PG003746.D	9.73	4.07
12SB12-0.502-02	C5146-10	01/07/2012	00:29	PG003747.D	9.73	4.07
PIBLK06	I.BLK06	01/07/2012	00:48	PG003748.D	9.73	4.07
CCAL04	STD 25	01/07/2012	01:06	PG003749.D	9.73	4.07
12SB12-0304-03	C5146-11	01/07/2012	01:24	PG003750.D	9.73	4.07
12SB06-000.5-01	C5146-12	01/07/2012	01:42	PG003751.D	9.73	4.07
12SB06-0.502-02	C5146-13	01/07/2012	02:01	PG003752.D	9.73	4.07
12SB06-0304-03	C5146-14	01/07/2012	02:19	PG003753.D	9.73	4.07
12SB17-000.5-01	C5146-15	01/07/2012	02:37	PG003754.D	9.73	4.07
12SB17-0.502-02	C5146-16	01/07/2012	02:56	PG003755.D	9.73	4.07
12SB17-0304-03	C5146-17	01/07/2012	03:14	PG003756.D	9.73	4.07
12SB27-000.5-01	C5146-18	01/07/2012	03:32	PG003757.D	9.73	4.07
12SB27-0.502-02	C5146-19	01/07/2012	03:50	PG003758.D	9.73	4.07
12SB-DUP-08	C5146-20	01/07/2012	04:09	PG003759.D	9.73	4.07
PIBLK07	I.BLK07	01/07/2012	04:27	PG003760.D	9.73	4.07
CCAL05	STD 25	01/07/2012	04:45	PG003761.D	9.73	4.07

CHEMTECH

C5146 Analytical Summary

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PG003683.D **CF 025 =** PG003682.D

CF 050 = PG003681.D **CF 075 =** PG003680.D **CF 100 =** PG003679.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	872680	788584	791650	758260	731283	788491	7
Tetrachloro-m-xylene	488400	431820	463322	465617	457516	461335	4
alpha-BHC	3616600	3992240	4920260	5366987	5593780	4697973	18
beta-BHC	2732600	2679760	2899460	2953400	2928540	2838752	4
delta-BHC	3654600	3626360	4337860	4718160	4881680	4243732	14
gamma-BHC (Lindane)	3800200	4245640	5078580	5457013	5613550	4838997	16
Heptachlor	5157000	5193680	5665780	5732053	5696510	5489005	5
Aldrin	4295400	4397960	4828700	4949760	4990260	4692416	7
Heptachlor epoxide	5251000	5042200	5344820	5356760	5296850	5258326	2
Endosulfan I	4777600	4815240	5143480	5245653	5237330	5043861	5
Dieldrin	4288200	4126320	4434380	4513880	4533960	4379348	4
4,4-DDE	4321400	4388680	4574000	4769120	4773530	4565346	5
Endrin	2515800	2612560	2845540	2857147	2795140	2725237	6
Endosulfan II	4541000	4372040	4646600	4642813	4596740	4559839	2
4,4-DDD	3082800	2865280	3044960	3077747	3203130	3054783	4
Endosulfan sulfate	4280800	4119240	4424000	4372547	4307540	4300825	3
4,4-DDT	3221200	3376640	3752040	3939040	3993490	3656482	9
Methoxychlor	2083800	2083600	2337620	2322240	2302070	2225866	6
Endrin ketone	4391600	4347280	4816280	4904773	4933120	4678611	6
Endrin aldehyde	4831400	4428320	4449080	4333120	4236320	4455648	5
alpha-Chlordane	4835400	4822200	5174180	5195707	5160440	5037585	4
gamma-Chlordane	4990800	4868240	5164760	5178200	5140440	5068488	3

CHEMTECH

C5146Analytical Summary

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003683.D CF 025 = PG003682.D

CF 050 = PG003681.D CF 075 = PG003680.D CF 100 = PG003679.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3754220	3097484	2592194	2646860	2488814	2915914	18
Tetrachloro-m-xylene	2925800	2504324	2402422	2269932	2138297	2448155	12
alpha-BHC	36842400	36033680	36198640	34891653	33424570	35478189	4
beta-BHC	18203400	16977160	16529640	15691813	14699460	16420295	8
delta-BHC	33959600	33665080	34155300	33059520	31418310	33251562	3
gamma-BHC (Lindane)	38081200	35829320	35676700	34337560	32565510	35298058	6
Heptachlor	34913000	31980320	31467740	29878707	28090020	31265957	8
Aldrin	34660200	32501200	32124300	30450627	28813270	31709919	7
Heptachlor epoxide	35822600	31882680	31094880	29228000	27142120	31034056	10
Endosulfan I	33536400	30057400	29124220	27339413	25459850	29103457	10
Dieldrin	34891400	31607000	30950400	29394947	27638770	30896503	9
4,4-DDE	34332600	31510360	31062180	29193200	27680450	30755758	8
Endrin	19579800	20209880	20940060	19562747	18128020	19684101	5
Endosulfan II	31663000	28139040	27169060	25543720	23792980	27261560	11
4,4-DDD	24910400	24382160	24595480	23505373	21604910	23799665	6
Endosulfan sulfate	28797800	25780880	24974860	23477973	22130090	25032321	10
4,4-DDT	23190800	23503200	24063700	23194733	21970390	23184565	3
Methoxychlor	12365400	11543560	11423820	10907693	10590880	11366271	6
Endrin ketone	31788800	28867200	27880480	25128160	24435290	27619986	11
Endrin aldehyde	28623800	24651800	23167020	21717760	20389830	23710042	13
alpha-Chlordane	36838000	32710880	31903280	30180533	28334560	31993451	10
gamma-Chlordane	36756800	32659280	31851080	30330320	28440010	32007498	10

CHEMTECH

C5146 Analytical Summary

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Date(s) Analyzed:** 01/04/2012 01/04/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15392
		2	8.24	8.18	8.29	137762
		3	8.50	8.45	8.55	221576
		4	8.62	8.57	8.67	184822
		5	9.13	9.08	9.18	353008

CHEMTECH

C5146Analytical Summary

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Date(s) Analyzed:** 01/04/2012 01/04/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.18	6.13	6.23	156582
		2	7.71	7.66	7.76	2395532
		3	8.01	7.96	8.06	1173182
		4	8.13	8.08	8.18	1057432
		5	8.28	8.23	8.33	1989258

CHEMTECH

C5146 Analytical Summary

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/04/2012 01/04/2012

Client Sample No. (PEM): PEM01 Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:00

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.370	11.270	11.470	0.021	0.020	5.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.239	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.768	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.010	0.010	0.0
Endrin	7.986	7.920	8.060	0.057	0.050	14.0
4,4-DDT	8.430	8.360	8.500	0.107	0.100	7.0
Methoxychlor	8.963	8.890	9.030	0.278	0.250	11.2

Client Sample No. (PEM): PEM01 Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:00

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.730	9.630	9.830	0.022	0.020	10.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.596	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.216	5.170	5.270	0.011	0.010	10.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.011	0.010	10.0
Endrin	7.092	7.020	7.160	0.051	0.050	2.0
4,4-DDT	7.467	7.400	7.540	0.090	0.100	10.0
Methoxychlor	8.065	8.000	8.140	0.195	0.250	22.0

Sample: PEM
Data File: PG003677.D **Date Acquired** 1/4/2012 17:00
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.99	156154.622	182233.275	26078.653	**14.31**
Endrin aldehyde	8.36	10497.762			
Endrin ketone	9.24	15580.891			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	1006367.247	1163425.977	157058.73	**13.50**
Endrin aldehyde #2	7.59	54067.978			
Endrin ketone #2	8.41	102990.752			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	392018.346	399566.865	7548.519	**1.89**
4,4'-DDE	7.52	6594.612			
4,4'-DDD	8.08	953.907			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2081016.734	2173036.74	92020.006	**4.23**
4,4'-DDE #2	6.60	56328.294			
4,4'-DDD #2	7.19	35691.712			

CHEMTECH

C5146Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL01 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PG003690.D **Time Analyzed:** 21:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.240	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.769	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.034	5.980	6.080	0.021	0.025	16.0
gamma-BHC (Lindane)	5.582	5.530	5.630	0.021	0.025	16.0
Heptachlor	6.200	6.150	6.250	0.023	0.025	8.0
Aldrin	6.567	6.520	6.620	0.023	0.025	8.0
Heptachlor epoxide	7.013	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.435	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.729	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.525	7.450	7.590	0.024	0.025	4.0
Endrin	7.986	7.920	8.060	0.022	0.025	12.0
Endosulfan II	8.217	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.084	8.010	8.150	0.023	0.025	8.0
Endosulfan sulfate	8.618	8.550	8.690	0.024	0.025	4.0
4,4-DDT	8.431	8.360	8.500	0.021	0.025	16.0
Methoxychlor	8.965	8.890	9.030	0.022	0.025	12.0
Endrin ketone	9.239	9.170	9.310	0.024	0.025	4.0
Endrin aldehyde	8.359	8.290	8.430	0.025	0.025	0.0
alpha-Chlordane	7.371	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.285	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.372	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.023	0.025	8.0

CHEMTECH

C5146 Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL01 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PG003690.D **Time Analyzed:** 21:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.217	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.025	0.025	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.293	5.240	5.340	0.024	0.025	4.0
Aldrin	5.592	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.107	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.025	0.025	0.0
4,4-DDE	6.602	6.530	6.670	0.025	0.025	0.0
Endrin	7.093	7.020	7.160	0.024	0.025	4.0
Endosulfan II	7.397	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.192	7.120	7.260	0.027	0.025	8.0
Endosulfan sulfate	7.825	7.750	7.890	0.025	0.025	0.0
4,4-DDT	7.468	7.400	7.540	0.024	0.025	4.0
Methoxychlor	8.069	8.000	8.140	0.023	0.025	8.0
Endrin ketone	8.409	8.340	8.480	0.027	0.025	8.0
Endrin aldehyde	7.588	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.435	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.366	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.731	9.630	9.830	0.026	0.025	4.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.025	0.025	0.0

CHEMTECH

C5146 Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL02 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003702.D **Time Analyzed:** 00:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.240	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.769	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.034	5.980	6.080	0.022	0.025	12.0
gamma-BHC (Lindane)	5.582	5.530	5.630	0.022	0.025	12.0
Heptachlor	6.202	6.150	6.250	0.022	0.025	12.0
Aldrin	6.567	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.012	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.434	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.729	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.524	7.450	7.590	0.024	0.025	4.0
Endrin	7.986	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.216	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.083	8.010	8.150	0.023	0.025	8.0
Endosulfan sulfate	8.617	8.550	8.690	0.024	0.025	4.0
4,4-DDT	8.429	8.360	8.500	0.020	0.025	20.0
Methoxychlor	8.965	8.890	9.030	0.021	0.025	16.0
Endrin ketone	9.240	9.170	9.310	0.025	0.025	0.0
Endrin aldehyde	8.357	8.290	8.430	0.026	0.025	4.0
alpha-Chlordane	7.369	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.284	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.370	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.024	0.025	4.0

CHEMTECH

C5146Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL02 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003702.D **Time Analyzed:** 00:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.597	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.218	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.025	0.025	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.294	5.240	5.340	0.024	0.025	4.0
Aldrin	5.593	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.108	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.025	0.025	0.0
4,4-DDE	6.603	6.530	6.670	0.023	0.025	8.0
Endrin	7.093	7.020	7.160	0.024	0.025	4.0
Endosulfan II	7.397	7.330	7.470	0.025	0.025	0.0
4,4-DDD	7.191	7.120	7.260	0.029	0.025	16.0
Endosulfan sulfate	7.825	7.750	7.890	0.025	0.025	0.0
4,4-DDT	7.468	7.400	7.540	0.022	0.025	12.0
Methoxychlor	8.068	8.000	8.140	0.022	0.025	12.0
Endrin ketone	8.408	8.340	8.480	0.027	0.025	8.0
Endrin aldehyde	7.588	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.436	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.366	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.730	9.630	9.830	0.026	0.025	4.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.026	0.025	4.0

CHEMTECH

C5146Analytical Summary

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

LAB FILE ID: **CF 005 =** PG003729.D **CF 025 =** PG003728.D

CF 050 = PG003727.D **CF 075 =** PG003726.D **CF 100 =** PG003725.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	930920	840880	814196	761411	771313	823744	8
Tetrachloro-m-xylene	523960	471752	484924	471827	484378	487368	4
alpha-BHC	3664600	4103080	4772820	5119600	5630510	4658122	17
beta-BHC	2966800	2828320	2923900	2926080	3033300	2935680	3
delta-BHC	3486400	3387360	3830100	4055680	4438980	3839704	11
gamma-BHC (Lindane)	3988600	4313480	4902820	5180440	5621210	4801310	14
Heptachlor	5240600	5265760	5496700	5538213	5793030	5466861	4
Aldrin	4570000	4566520	4804300	4884693	5157850	4796673	5
Heptachlor epoxide	5447800	5179920	5297060	5255560	5429970	5322062	2
Endosulfan I	4883800	4930240	5091440	5118200	5331000	5070936	3
Dieldrin	4437400	4203960	4361460	4402973	4641990	4409557	4
4,4-DDE	4534200	4576240	4674140	4707920	4939330	4686366	3
Endrin	2717000	2906840	2925900	2885267	3026520	2892305	4
Endosulfan II	4573800	4391800	4501660	4468947	4613420	4509925	2
4,4-DDD	3266400	2999560	3047580	3081960	3262820	3131664	4
Endosulfan sulfate	4140000	4054960	4163800	4114307	4234760	4141565	2
4,4-DDT	3556600	3656920	3910800	4003280	4214510	3868422	7
Methoxychlor	2229200	2256440	2339560	2296453	2412530	2306837	3
Endrin ketone	3619400	3521400	3611920	3589933	3800210	3628573	3
Endrin aldehyde	5107200	4568320	4447420	4276680	4308450	4541614	7
alpha-Chlordane	4933600	4891680	5021900	5020707	5186180	5010813	2
gamma-Chlordane	5094800	4915480	5017660	5011120	5186140	5045040	2

CHEMTECH

C5146 Analytical Summary

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PG003729.D **CF 025 =** PG003728.D

CF 050 = PG003727.D **CF 075 =** PG003726.D **CF 100 =** PG003725.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3469080	2616744	2665356	2543540	2469922	2752928	15
Tetrachloro-m-xylene	2962380	2577744	2404358	2238951	2192933	2475273	13
alpha-BHC	36725000	36173720	35325700	33753920	33487680	35093204	4
beta-BHC	18551000	17116000	16209960	15123187	14817940	16363617	9
delta-BHC	30943800	31082720	30642540	29171013	28769590	30121933	4
gamma-BHC (Lindane)	38024600	35897880	34660600	32849853	32670030	34820593	6
Heptachlor	36212400	33307960	31961740	29662453	29017590	32032429	9
Aldrin	35154600	33201000	32125800	30001560	29294340	31955460	7
Heptachlor epoxide	36601000	31857560	30268980	28540080	27202690	30894062	12
Endosulfan I	32357400	29196280	28069360	26047707	25330100	28200169	10
Dieldrin	34786000	31076640	29944560	27919933	27202010	30185829	10
4,4-DDE	34756200	30856160	30099680	28247133	27528810	30297597	9
Endrin	19400800	19419800	19328140	18294240	17995890	18887774	4
Endosulfan II	31454400	23929760	25706100	23975080	23510600	25715188	13
4,4-DDD	24250400	22376640	22696360	21483147	21126720	22386653	5
Endosulfan sulfate	27241600	20657920	22974880	21608507	21237130	22744007	12
4,4-DDT	25195600	20752840	24066020	22694120	22382800	23018276	7
Methoxychlor	12861800	9920360	10600500	10726653	10710710	10964005	10
Endrin ketone	23684000	15168080	21385740	19845160	19229340	19862464	16
Endrin aldehyde	27841000	21142320	22304880	20619373	20016180	22384751	14
alpha-Chlordane	36536000	31924000	30932680	29226440	28655870	31454998	10
gamma-Chlordane	36453800	32321400	30839840	29528440	28958720	31620440	9

CHEMTECH

C5146Analytical Summary

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Date(s) Analyzed:** 01/06/2012 01/06/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15728
		2	8.23	8.18	8.28	142822
		3	8.50	8.45	8.55	238386
		4	8.61	8.56	8.66	196098
		5	9.13	9.08	9.18	379938

CHEMTECH

C5146Analytical Summary

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_G **Date(s) Analyzed:** 01/06/2012 01/06/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.18	6.13	6.23	125872
		2	7.71	7.66	7.76	2348998
		3	8.01	7.96	8.06	1188082
		4	8.13	8.08	8.18	1027776
		5	8.28	8.23	8.33	1981502

CHEMTECH

C5146Analytical Summary

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/06/2012 01/06/2012

Client Sample No. (PEM): PEM02 Date Analyzed: 01/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.369	11.270	11.470	0.021	0.020	5.0
Tetrachloro-m-xylene	4.769	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.238	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.767	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.580	5.530	5.630	0.009	0.010	10.0
Endrin	7.984	7.910	8.050	0.057	0.050	14.0
4,4-DDT	8.428	8.360	8.500	0.100	0.100	0.0
Methoxychlor	8.962	8.890	9.030	0.259	0.250	3.6

Client Sample No. (PEM): PEM02 Date Analyzed: 01/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.730	9.630	9.830	0.021	0.020	5.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.596	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.217	5.170	5.270	0.010	0.010	0.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.010	0.010	0.0
Endrin	7.093	7.020	7.160	0.052	0.050	4.0
4,4-DDT	7.466	7.400	7.540	0.088	0.100	12.0
Methoxychlor	8.065	8.000	8.140	0.196	0.250	21.6

Sample: PEM
Data File: PG003723.D **Date Acquired** 1/6/2012 17:10
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	7.98	164264.54	179813.882	15549.342	**8.65**
Endrin aldehyde	8.36	5857.915			
Endrin ketone	9.24	9691.427			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	975733.405	1069320.629	93587.224	**8.75**
Endrin aldehyde #2	7.59	33440.751			
Endrin ketone #2	8.41	60146.473			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	386249.081	398518.874	12269.793	**3.08**
4,4'-DDE	7.52	10724.859			
4,4'-DDD	8.08	1544.934			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2019074.556	2116381.874	97307.318	**4.60**
4,4'-DDE #2	6.60	84034.775			
4,4'-DDD #2	7.19	13272.543			

CHEMTECH

C5146Analytical Summary

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/06/2012 01/06/2012

Client Sample No. (PEM): PEM03 Date Analyzed: 01/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 21:27

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.370	11.270	11.470	0.022	0.020	10.0
Tetrachloro-m-xylene	4.770	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.238	5.190	5.290	0.009	0.010	10.0
beta-BHC	5.767	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.580	5.530	5.630	0.010	0.010	0.0
Endrin	7.982	7.910	8.050	0.054	0.050	8.0
4,4-DDT	8.429	8.360	8.500	0.105	0.100	5.0
Methoxychlor	8.963	8.890	9.030	0.269	0.250	7.6

Client Sample No. (PEM): PEM03 Date Analyzed: 01/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 21:27

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.731	9.630	9.830	0.023	0.020	15.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.021	0.020	5.0
alpha-BHC	4.597	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.218	5.170	5.270	0.010	0.010	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.010	0.010	0.0
Endrin	7.091	7.020	7.160	0.052	0.050	4.0
4,4-DDT	7.465	7.400	7.540	0.091	0.100	9.0
Methoxychlor	8.065	8.000	8.140	0.196	0.250	21.6

Sample: PEM
Data File: PG003737.D **Date Acquired** 1/6/2012 21:27
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.98	157070.783	180579.115	23508.332	**13.02**
Endrin aldehyde	8.35	9789.425			
Endrin ketone	9.24	13718.907			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	984373.615	1134968.652	150595.037	**13.27**
Endrin aldehyde #2	7.59	54082.037			
Endrin ketone #2	8.41	96513			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	405298.658	414695.362	9396.704	**2.27**
4,4'-DDE	7.52	8116.15			
4,4'-DDD	8.08	1280.554			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2097099.091	2178268.997	81169.906	**3.73**
4,4'-DDE #2	6.60	52715.613			
4,4'-DDD #2	7.19	28454.293			

CHEMTECH

C5146Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/06/2012

Lab Sample No.: STD 25 **Data File :** PG003736.D **Time Analyzed:** 21:08

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.239	5.190	5.290	0.022	0.025	12.0
beta-BHC	5.768	5.720	5.820	0.024	0.025	4.0
delta-BHC	6.033	5.980	6.080	0.023	0.025	8.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.022	0.025	12.0
Heptachlor	6.199	6.150	6.250	0.025	0.025	0.0
Aldrin	6.566	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.011	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.433	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.728	7.660	7.800	0.024	0.025	4.0
4,4-DDE	7.523	7.450	7.590	0.024	0.025	4.0
Endrin	7.985	7.910	8.050	0.024	0.025	4.0
Endosulfan II	8.215	8.140	8.280	0.025	0.025	0.0
4,4-DDD	8.083	8.010	8.150	0.023	0.025	8.0
Endosulfan sulfate	8.619	8.550	8.690	0.025	0.025	0.0
4,4-DDT	8.429	8.360	8.500	0.022	0.025	12.0
Methoxychlor	8.964	8.890	9.030	0.023	0.025	8.0
Endrin ketone	9.238	9.170	9.310	0.027	0.025	8.0
Endrin aldehyde	8.357	8.290	8.430	0.025	0.025	0.0
alpha-Chlordane	7.369	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.283	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.369	11.270	11.470	0.026	0.025	4.0
Tetrachloro-m-xylene	4.769	4.670	4.870	0.024	0.025	4.0

CHEMTECH

C5146 Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/06/2012

Lab Sample No.: STD 25 **Data File :** PG003736.D **Time Analyzed:** 21:08

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.217	5.170	5.270	0.026	0.025	4.0
delta-BHC	5.469	5.420	5.520	0.026	0.025	4.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.294	5.240	5.340	0.025	0.025	0.0
Aldrin	5.592	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.107	6.040	6.180	0.026	0.025	4.0
Endosulfan I	6.509	6.440	6.580	0.026	0.025	4.0
Dieldrin	6.788	6.720	6.860	0.026	0.025	4.0
4,4-DDE	6.602	6.530	6.670	0.026	0.025	4.0
Endrin	7.093	7.020	7.160	0.026	0.025	4.0
Endosulfan II	7.397	7.330	7.470	0.027	0.025	8.0
4,4-DDD	7.190	7.120	7.260	0.026	0.025	4.0
Endosulfan sulfate	7.823	7.750	7.890	0.027	0.025	8.0
4,4-DDT	7.468	7.400	7.540	0.026	0.025	4.0
Methoxychlor	8.068	8.000	8.140	0.025	0.025	0.0
Endrin ketone	8.407	8.340	8.480	0.031	0.025	24.0
Endrin aldehyde	7.586	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.435	6.360	6.500	0.026	0.025	4.0
gamma-Chlordane	6.366	6.290	6.430	0.025	0.025	0.0
Decachlorobiphenyl	9.730	9.630	9.830	0.027	0.025	8.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.026	0.025	4.0

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CHEMTECH

C5146Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003749.D **Time Analyzed:** 01:06

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.238	5.190	5.290	0.022	0.025	12.0
beta-BHC	5.768	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.033	5.980	6.080	0.024	0.025	4.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.023	0.025	8.0
Heptachlor	6.198	6.150	6.250	0.024	0.025	4.0
Aldrin	6.565	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.010	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.433	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.727	7.660	7.800	0.024	0.025	4.0
4,4-DDE	7.523	7.450	7.590	0.024	0.025	4.0
Endrin	7.984	7.910	8.050	0.022	0.025	12.0
Endosulfan II	8.215	8.140	8.280	0.025	0.025	0.0
4,4-DDD	8.082	8.010	8.150	0.024	0.025	4.0
Endosulfan sulfate	8.617	8.550	8.690	0.025	0.025	0.0
4,4-DDT	8.428	8.360	8.500	0.022	0.025	12.0
Methoxychlor	8.962	8.890	9.030	0.023	0.025	8.0
Endrin ketone	9.237	9.170	9.310	0.030	0.025	20.0
Endrin aldehyde	8.357	8.290	8.430	0.026	0.025	4.0
alpha-Chlordane	7.368	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.283	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.369	11.270	11.470	0.026	0.025	4.0
Tetrachloro-m-xylene	4.770	4.670	4.870	0.024	0.025	4.0

CHEMTECH

C5146 Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003749.D **Time Analyzed:** 01:06

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.597	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.218	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.027	0.025	8.0
gamma-BHC (Lindane)	4.938	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.294	5.240	5.340	0.024	0.025	4.0
Aldrin	5.593	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.107	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.026	0.025	4.0
Dieldrin	6.789	6.720	6.860	0.025	0.025	0.0
4,4-DDE	6.602	6.530	6.670	0.024	0.025	4.0
Endrin	7.094	7.020	7.160	0.022	0.025	12.0
Endosulfan II	7.398	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.190	7.120	7.260	0.026	0.025	4.0
Endosulfan sulfate	7.825	7.750	7.890	0.027	0.025	8.0
4,4-DDT	7.468	7.400	7.540	0.024	0.025	4.0
Methoxychlor	8.068	8.000	8.140	0.024	0.025	4.0
Endrin ketone	8.408	8.340	8.480	0.034	0.025	36.0
Endrin aldehyde	7.586	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.435	6.360	6.500	0.025	0.025	0.0
gamma-Chlordane	6.366	6.290	6.430	0.025	0.025	0.0
Decachlorobiphenyl	9.731	9.630	9.830	0.028	0.025	12.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.025	0.025	0.0

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CHEMTECH

C5146Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003761.D **Time Analyzed:** 04:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.238	5.190	5.290	0.022	0.025	12.0
beta-BHC	5.768	5.720	5.820	0.024	0.025	4.0
delta-BHC	6.032	5.980	6.080	0.024	0.025	4.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.023	0.025	8.0
Heptachlor	6.198	6.150	6.250	0.023	0.025	8.0
Aldrin	6.564	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.010	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.433	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.727	7.660	7.800	0.024	0.025	4.0
4,4-DDE	7.522	7.450	7.590	0.024	0.025	4.0
Endrin	7.984	7.910	8.050	0.020	0.025	20.0
Endosulfan II	8.215	8.140	8.280	0.025	0.025	0.0
4,4-DDD	8.082	8.010	8.150	0.024	0.025	4.0
Endosulfan sulfate	8.617	8.550	8.690	0.025	0.025	0.0
4,4-DDT	8.428	8.360	8.500	0.020	0.025	20.0
Methoxychlor	8.961	8.890	9.030	0.021	0.025	16.0
Endrin ketone	9.237	9.170	9.310	0.032	0.025	28.0
Endrin aldehyde	8.357	8.290	8.430	0.026	0.025	4.0
alpha-Chlordane	7.368	7.300	7.440	0.025	0.025	0.0
gamma-Chlordane	7.282	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.369	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.770	4.670	4.870	0.024	0.025	4.0

CHEMTECH

C5146Analytical Summary

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003761.D **Time Analyzed:** 04:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.217	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.026	0.025	4.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.293	5.240	5.340	0.023	0.025	8.0
Aldrin	5.592	5.540	5.640	0.024	0.025	4.0
Heptachlor epoxide	6.106	6.040	6.180	0.024	0.025	4.0
Endosulfan I	6.508	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.024	0.025	4.0
4,4-DDE	6.602	6.530	6.670	0.023	0.025	8.0
Endrin	7.093	7.020	7.160	0.022	0.025	12.0
Endosulfan II	7.397	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.189	7.120	7.260	0.024	0.025	4.0
Endosulfan sulfate	7.824	7.750	7.890	0.026	0.025	4.0
4,4-DDT	7.467	7.400	7.540	0.022	0.025	12.0
Methoxychlor	8.066	8.000	8.140	0.023	0.025	8.0
Endrin ketone	8.408	8.340	8.480	0.036	0.025	44.0
Endrin aldehyde	7.587	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.434	6.360	6.500	0.024	0.025	4.0
gamma-Chlordane	6.365	6.290	6.430	0.024	0.025	4.0
Decachlorobiphenyl	9.731	9.630	9.830	0.027	0.025	8.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.025	0.025	0.0

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: PCB

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_B. The front column is Rtx-CLPesticides which is 30 meters, 0.32 mm ID, 0.32 um df, Catalog # 11141. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PB000379.D met the requirements except for Aroclor-1260(Peak5) in first column.The Continuous Calibration File ID PB000379.D met the requirements except for Decachlorobiphenyl second column.
The AVG %D for all peaks for each compound in continuing Calibration was below 15%.

CHEMTECH

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.01.19 16:24:13 -05'00'

CHEMTECH

Surrogate Summary

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PB000123.D	PIBLK-PB000123.D	Tetrachloro-m-xylene	1	20	18.46	92		35	137
		Decachlorobiphenyl	1	20	17.99	90		40	135
		Tetrachloro-m-xylene	2	20	17.78	89		35	137
		Decachlorobiphenyl	2	20	15.89	79		40	135
I.BLK-PB000349.D	PIBLK-PB000349.D	Tetrachloro-m-xylene	1	20	19.73	99		35	137
		Decachlorobiphenyl	1	20	22.83	114		40	135
		Tetrachloro-m-xylene	2	20	19.62	98		35	137
		Decachlorobiphenyl	2	20	24.27	121		40	135
PB60306BL	PB60306BL	Tetrachloro-m-xylene	1	20	18.37	92		10	166
		Decachlorobiphenyl	1	20	21.07	105		60	125
		Tetrachloro-m-xylene	2	20	18.71	94		10	166
		Decachlorobiphenyl	2	20	22.85	114		60	125
PB60306BS	PB60306BS	Tetrachloro-m-xylene	1	20	18.36	92		10	166
		Decachlorobiphenyl	1	20	21.24	106		60	125
		Tetrachloro-m-xylene	2	20	18.81	94		10	166
		Decachlorobiphenyl	2	20	23.09	115		60	125
C5146-01	12SB07-000.5-01	Tetrachloro-m-xylene	1	20	17.13	86		10	166
		Decachlorobiphenyl	1	20	18.65	93		60	125
		Tetrachloro-m-xylene	2	20	17.06	85		10	166
		Decachlorobiphenyl	2	20	20.65	103		60	125
C5146-02	12SB07-0.502-02	Tetrachloro-m-xylene	1	20	18.48	92		10	166
		Decachlorobiphenyl	1	20	17.47	87		60	125
		Tetrachloro-m-xylene	2	20	17.72	89		10	166
		Decachlorobiphenyl	2	20	19.2	96		60	125
C5146-03	12SB07-0304-03	Tetrachloro-m-xylene	1	20	14.7	74		10	166
		Decachlorobiphenyl	1	20	14.52	73		60	125
		Tetrachloro-m-xylene	2	20	14.4	72		10	166
		Decachlorobiphenyl	2	20	15.77	79		60	125
C5146-04	12SB08-000.5-01	Tetrachloro-m-xylene	1	20	19.24	96		10	166
		Decachlorobiphenyl	1	20	17.7	89		60	125
		Tetrachloro-m-xylene	2	20	18.2	91		10	166
		Decachlorobiphenyl	2	20	19.55	98		60	125
C5146-05	12SB08-0.502-02	Tetrachloro-m-xylene	1	20	18.05	90		10	166
		Decachlorobiphenyl	1	20	17.84	89		60	125
		Tetrachloro-m-xylene	2	20	18.47	92		10	166
		Decachlorobiphenyl	2	20	19.32	97		60	125
C5146-06	12SB08-0304-03	Tetrachloro-m-xylene	1	20	15.95	80		10	166
		Decachlorobiphenyl	1	20	16.01	80		60	125
		Tetrachloro-m-xylene	2	20	15.82	79		10	166
		Decachlorobiphenyl	2	20	17.66	88		60	125
C5146-08MS	12SB12-000.5-01MS	Tetrachloro-m-xylene	1	20	19.75	99		10	166
		Decachlorobiphenyl	1	20	17.62	88		60	125
		Tetrachloro-m-xylene	2	20	18.11	91		10	166
		Decachlorobiphenyl	2	20	19.83	99		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PB000361.D	PIBLK-PB000361.D	Tetrachloro-m-xylene	1	20	20.28	101		35	137
		Decachlorobiphenyl	1	20	22.01	110		40	135
		Tetrachloro-m-xylene	2	20	20.49	102		35	137
		Decachlorobiphenyl	2	20	24.09	120		40	135
C5146-09MSD	12SB12-000.5-01MSD	Tetrachloro-m-xylene	1	20	16.73	84		10	166
		Decachlorobiphenyl	1	20	16.99	85		60	125
		Tetrachloro-m-xylene	2	20	16.72	84		10	166
		Decachlorobiphenyl	2	20	18.94	95		60	125
C5146-10	12SB12-0.502-02	Tetrachloro-m-xylene	1	20	17.69	88		10	166
		Decachlorobiphenyl	1	20	15.84	79		60	125
		Tetrachloro-m-xylene	2	20	16.76	84		10	166
		Decachlorobiphenyl	2	20	17.47	87		60	125
C5146-11	12SB12-0304-03	Tetrachloro-m-xylene	1	20	19.2	96		10	166
		Decachlorobiphenyl	1	20	18.52	93		60	125
		Tetrachloro-m-xylene	2	20	18.86	94		10	166
		Decachlorobiphenyl	2	20	20.44	102		60	125
C5146-12	12SB06-000.5-01	Tetrachloro-m-xylene	1	20	16.18	81		10	166
		Decachlorobiphenyl	1	20	15.52	78		60	125
		Tetrachloro-m-xylene	2	20	15.97	80		10	166
		Decachlorobiphenyl	2	20	17.11	86		60	125
C5146-13	12SB06-0.502-02	Tetrachloro-m-xylene	1	20	15.84	79		10	166
		Decachlorobiphenyl	1	20	16.12	81		60	125
		Tetrachloro-m-xylene	2	20	15.98	80		10	166
		Decachlorobiphenyl	2	20	17.51	88		60	125
C5146-14	12SB06-0304-03	Tetrachloro-m-xylene	1	20	18.16	91		10	166
		Decachlorobiphenyl	1	20	19.58	98		60	125
		Tetrachloro-m-xylene	2	20	18.28	91		10	166
		Decachlorobiphenyl	2	20	21.28	106		60	125
C5146-15	12SB17-000.5-01	Tetrachloro-m-xylene	1	20	18.81	94		10	166
		Decachlorobiphenyl	1	20	19.54	98		60	125
		Tetrachloro-m-xylene	2	20	18.9	95		10	166
		Decachlorobiphenyl	2	20	21.36	107		60	125
C5146-16	12SB17-0.502-02	Tetrachloro-m-xylene	1	20	17.97	90		10	166
		Decachlorobiphenyl	1	20	19.1	96		60	125
		Tetrachloro-m-xylene	2	20	17.9	90		10	166
		Decachlorobiphenyl	2	20	20.75	104		60	125
C5146-17	12SB17-0304-03	Tetrachloro-m-xylene	1	20	17.53	88		10	166
		Decachlorobiphenyl	1	20	18.2	91		60	125
		Tetrachloro-m-xylene	2	20	17.64	88		10	166
		Decachlorobiphenyl	2	20	19.98	100		60	125
C5146-18	12SB27-000.5-01	Tetrachloro-m-xylene	1	20	18.18	91		10	166
		Decachlorobiphenyl	1	20	19.4	97		60	125
		Tetrachloro-m-xylene	2	20	18.02	90		10	166
		Decachlorobiphenyl	2	20	22.32	112		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PB000373.D	PIBLK-PB000373.D	Tetrachloro-m-xylene	1	20	21.09	105		35	137
		Decachlorobiphenyl	1	20	22.21	111		40	135
		Tetrachloro-m-xylene	2	20	21.4	107		35	137
		Decachlorobiphenyl	2	20	24.41	122		40	135
C5146-19	12SB27-0.502-02	Tetrachloro-m-xylene	1	20	15.58	78		10	166
		Decachlorobiphenyl	1	20	15.19	76		60	125
		Tetrachloro-m-xylene	2	20	15.44	77		10	166
		Decachlorobiphenyl	2	20	19.75	99		60	125
C5146-20	12SB-DUP-08	Tetrachloro-m-xylene	1	20	16.26	81		10	166
		Decachlorobiphenyl	1	20	17.13	86		60	125
		Tetrachloro-m-xylene	2	20	16.35	82		10	166
		Decachlorobiphenyl	2	20	20.2	101		60	125
I.BLK-PB000378.D	PIBLK-PB000378.D	Tetrachloro-m-xylene	1	20	20.32	102		35	137
		Decachlorobiphenyl	1	20	22.51	113		40	135
		Tetrachloro-m-xylene	2	20	20.63	103		35	137
		Decachlorobiphenyl	2	20	24.53	123		40	135
I.BLK-PB000447.D	PIBLK-PB000447.D	Tetrachloro-m-xylene	1	20	21.4	107		35	137
		Decachlorobiphenyl	1	20	22.6	113		40	135
		Tetrachloro-m-xylene	2	20	19.59	98		35	137
		Decachlorobiphenyl	2	20	19.3	97		40	135
I.BLK-PB000473.D	PIBLK-PB000473.D	Tetrachloro-m-xylene	1	20	21.24	106		35	137
		Decachlorobiphenyl	1	20	23.13	116		40	135
		Tetrachloro-m-xylene	2	20	19.67	98		35	137
		Decachlorobiphenyl	2	20	22.18	111		40	135
C5146-07	12SB12-000.5-01	Tetrachloro-m-xylene	1	20	27.76	139		10	166
		Decachlorobiphenyl	1	20	16.14	81		60	125
		Tetrachloro-m-xylene	2	20	22.63	113		10	166
		Decachlorobiphenyl	2	20	15.2	76		60	125
I.BLK-PB000484.D	PIBLK-PB000484.D	Tetrachloro-m-xylene	1	20	22.13	111		35	137
		Decachlorobiphenyl	1	20	24.29	121		40	135
		Tetrachloro-m-xylene	2	20	20.7	104		35	137
		Decachlorobiphenyl	2	20	23.95	120		40	135

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60306BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5146 SAS No.: C5146 SDG NO.: C5146

Lab Sample ID: PB60306BL Lab File ID: PB000351.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/29/2011

Date Analyzed (1): 12/30/2011 Date Analyzed (2): 12/30/2011

Time Analyzed (1): 17:33 Time Analyzed (2): 17:33

Instrument ID (1): ECD_B Instrument ID (2): ECD_B

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60306BS	PB60306BS	PB000352.D	12/30/2011	12/30/2011
12SB07-000.5-01	C5146-01	PB000353.D	12/30/2011	12/30/2011
12SB07-0.502-02	C5146-02	PB000354.D	12/30/2011	12/30/2011
12SB07-0304-03	C5146-03	PB000355.D	12/30/2011	12/30/2011
12SB08-000.5-01	C5146-04	PB000356.D	12/30/2011	12/30/2011
12SB08-0.502-02	C5146-05	PB000357.D	12/30/2011	12/30/2011
12SB08-0304-03	C5146-06	PB000358.D	12/30/2011	12/30/2011
12SB12-000.5-01MS	C5146-08MS	PB000360.D	12/30/2011	12/30/2011
12SB12-000.5-01MSD	C5146-09MSD	PB000363.D	12/30/2011	12/30/2011
12SB12-0.502-02	C5146-10	PB000364.D	12/30/2011	12/30/2011
12SB12-0304-03	C5146-11	PB000365.D	12/30/2011	12/30/2011
12SB06-000.5-01	C5146-12	PB000366.D	12/30/2011	12/30/2011
12SB06-0.502-02	C5146-13	PB000367.D	12/30/2011	12/30/2011
12SB06-0304-03	C5146-14	PB000368.D	12/30/2011	12/30/2011
12SB17-000.5-01	C5146-15	PB000369.D	12/30/2011	12/30/2011
12SB17-0.502-02	C5146-16	PB000370.D	12/30/2011	12/30/2011
12SB17-0304-03	C5146-17	PB000371.D	12/30/2011	12/30/2011
12SB27-000.5-01	C5146-18	PB000372.D	12/30/2011	12/30/2011
12SB27-0.502-02	C5146-19	PB000375.D	12/31/2011	12/31/2011
12SB-DUP-08	C5146-20	PB000376.D	12/31/2011	12/31/2011
12SB12-000.5-01	C5146-07	PB000475.D	01/11/2012	01/11/2012

COMMENTS:

C5146 Analytical Summary

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60306BL	SDG No.:	C5146
Lab Sample ID:	PB60306BL	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PB000351.D	1	12/29/11	12/30/11	PB60306

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.4		10 - 166	92%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.1		60 - 125	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12SB12-000.5-01MS**										
C5146-08MS	AR1016	93.8	0	120	128				40	140	
	AR1260	93.8	0	110	117				60	130	
Client Sample ID:	**12SB12-000.5-01MSD**										
C5146-09MSD	AR1016	93.7	0	110	117		9		40	140	20
	AR1260	93.7	0	110	117		0		60	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5146

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60306BS	AR1016	66.7	81	121				53	140	
	AR1260	66.7	82	123				65	130	

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_B
GC Column:	RTX-CLPest **ID:** 0.32 (mm)	**Inst. Calib. Date(s):**	12/15/2011 12/15/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/15/2011	12:03	PB000123.D	1.86	8.94
1660 1000 PPB	1660 1000 PPB	12/15/2011	12:19	PB000124.D	1.85	8.94
1660 750 PPB	1660 750 PPB	12/15/2011	12:35	PB000125.D	1.85	8.93
1660 500 PPB	1660 500 PPB	12/15/2011	12:51	PB000126.D	1.85	8.93
1660 250 PPB	1660 250 PPB	12/15/2011	13:07	PB000127.D	1.85	8.94
1660 50 PPB	1660 50 PPB	12/15/2011	13:24	PB000128.D	1.85	8.93
AR122101	AR1221 500 PPB	12/15/2011	13:40	PB000129.D	1.85	8.93
AR123201	AR1232 500 PPB	12/15/2011	13:56	PB000130.D	1.85	8.94
AR124201	AR1242 500 PPB	12/15/2011	14:12	PB000131.D	1.85	8.93
AR124801	AR1248 500 PPB	12/15/2011	14:28	PB000132.D	1.85	8.93
AR125401	AR1254 500 PPB	12/15/2011	14:44	PB000133.D	1.85	8.93
PIBLK02	I.BLK02	12/30/2011	16:24	PB000349.D	1.85	8.93
CCAL01	1660 250	12/30/2011	16:40	PB000350.D	1.85	8.93
PB60306BL	PB60306BL	12/30/2011	17:33	PB000351.D	1.86	8.94
PB60306BS	PB60306BS	12/30/2011	17:49	PB000352.D	1.85	8.93
12SB07-000.5-01	C5146-01	12/30/2011	18:05	PB000353.D	1.85	8.93
12SB07-0.502-02	C5146-02	12/30/2011	18:21	PB000354.D	1.85	8.93
12SB07-0304-03	C5146-03	12/30/2011	18:38	PB000355.D	1.85	8.93
12SB08-000.5-01	C5146-04	12/30/2011	18:54	PB000356.D	1.85	8.93
12SB08-0.502-02	C5146-05	12/30/2011	19:10	PB000357.D	1.85	8.93
12SB08-0304-03	C5146-06	12/30/2011	19:26	PB000358.D	1.85	8.93
12SB12-000.5-01MS	C5146-08MS	12/30/2011	19:58	PB000360.D	1.85	8.93
PIBLK03	I.BLK03	12/30/2011	20:15	PB000361.D	1.85	8.93
CCAL02	1660 250	12/30/2011	20:31	PB000362.D	1.85	8.93
12SB12-000.5-01MSD	C5146-09MSD	12/30/2011	20:47	PB000363.D	1.85	8.93
12SB12-0.502-02	C5146-10	12/30/2011	21:03	PB000364.D	1.85	8.93
12SB12-0304-03	C5146-11	12/30/2011	21:19	PB000365.D	1.85	8.93
12SB06-000.5-01	C5146-12	12/30/2011	21:35	PB000366.D	1.85	8.93
12SB06-0.502-02	C5146-13	12/30/2011	21:51	PB000367.D	1.85	8.93
12SB06-0304-03	C5146-14	12/30/2011	22:08	PB000368.D	1.85	8.93
12SB17-000.5-01	C5146-15	12/30/2011	22:24	PB000369.D	1.85	8.93
12SB17-0.502-02	C5146-16	12/30/2011	22:40	PB000370.D	1.85	8.93
12SB17-0304-03	C5146-17	12/30/2011	22:56	PB000371.D	1.85	8.93
12SB27-000.5-01	C5146-18	12/30/2011	23:12	PB000372.D	1.85	8.93
PIBLK04	I.BLK04	12/30/2011	23:28	PB000373.D	1.85	8.93
CCAL03	1660 250	12/30/2011	23:44	PB000374.D	1.85	8.93
12SB27-0.502-02	C5146-19	12/31/2011	00:01	PB000375.D	1.85	8.93
12SB-DUP-08	C5146-20	12/31/2011	00:17	PB000376.D	1.85	8.93
PIBLK05	I.BLK05	12/31/2011	00:49	PB000378.D	1.85	8.93
CCAL04	1660 250	12/31/2011	01:05	PB000379.D	1.85	8.93

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5146

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_B

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 12/15/2011 12/15/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/15/2011	12:03	PB000123.D	2.07	9.98
1660 1000 PPB	1660 1000 PPB	12/15/2011	12:19	PB000124.D	2.06	9.98
1660 750 PPB	1660 750 PPB	12/15/2011	12:35	PB000125.D	2.06	9.98
1660 500 PPB	1660 500 PPB	12/15/2011	12:51	PB000126.D	2.06	9.98
1660 250 PPB	1660 250 PPB	12/15/2011	13:07	PB000127.D	2.06	9.98
1660 50 PPB	1660 50 PPB	12/15/2011	13:24	PB000128.D	2.06	9.98
AR122101	AR1221 500 PPB	12/15/2011	13:40	PB000129.D	2.06	9.98
AR123201	AR1232 500 PPB	12/15/2011	13:56	PB000130.D	2.07	9.98
AR124201	AR1242 500 PPB	12/15/2011	14:12	PB000131.D	2.06	9.98
AR124801	AR1248 500 PPB	12/15/2011	14:28	PB000132.D	2.06	9.98
AR125401	AR1254 500 PPB	12/15/2011	14:44	PB000133.D	2.06	9.98
PIBLK02	I.BLK02	12/30/2011	16:24	PB000349.D	2.05	9.96
CCAL01	1660 250	12/30/2011	16:40	PB000350.D	2.05	9.96
PB60306BL	PB60306BL	12/30/2011	17:33	PB000351.D	2.06	9.96
PB60306BS	PB60306BS	12/30/2011	17:49	PB000352.D	2.06	9.96
12SB07-000.5-01	C5146-01	12/30/2011	18:05	PB000353.D	2.06	9.96
12SB07-0.502-02	C5146-02	12/30/2011	18:21	PB000354.D	2.06	9.96
12SB07-0304-03	C5146-03	12/30/2011	18:38	PB000355.D	2.06	9.96
12SB08-000.5-01	C5146-04	12/30/2011	18:54	PB000356.D	2.06	9.96
12SB08-0.502-02	C5146-05	12/30/2011	19:10	PB000357.D	2.06	9.96
12SB08-0304-03	C5146-06	12/30/2011	19:26	PB000358.D	2.06	9.96
12SB12-000.5-01MS	C5146-08MS	12/30/2011	19:58	PB000360.D	2.05	9.96
PIBLK03	I.BLK03	12/30/2011	20:15	PB000361.D	2.06	9.96
CCAL02	1660 250	12/30/2011	20:31	PB000362.D	2.05	9.96
12SB12-000.5-01MSD	C5146-09MSD	12/30/2011	20:47	PB000363.D	2.05	9.96
12SB12-0.502-02	C5146-10	12/30/2011	21:03	PB000364.D	2.05	9.96
12SB12-0304-03	C5146-11	12/30/2011	21:19	PB000365.D	2.05	9.96
12SB06-000.5-01	C5146-12	12/30/2011	21:35	PB000366.D	2.06	9.96
12SB06-0.502-02	C5146-13	12/30/2011	21:51	PB000367.D	2.06	9.96
12SB06-0304-03	C5146-14	12/30/2011	22:08	PB000368.D	2.05	9.96
12SB17-000.5-01	C5146-15	12/30/2011	22:24	PB000369.D	2.06	9.96
12SB17-0.502-02	C5146-16	12/30/2011	22:40	PB000370.D	2.05	9.96
12SB17-0304-03	C5146-17	12/30/2011	22:56	PB000371.D	2.05	9.96
12SB27-000.5-01	C5146-18	12/30/2011	23:12	PB000372.D	2.05	9.96
PIBLK04	I.BLK04	12/30/2011	23:28	PB000373.D	2.06	9.96
CCAL03	1660 250	12/30/2011	23:44	PB000374.D	2.05	9.96
12SB27-0.502-02	C5146-19	12/31/2011	00:01	PB000375.D	2.05	9.96
12SB-DUP-08	C5146-20	12/31/2011	00:17	PB000376.D	2.05	9.96
PIBLK05	I.BLK05	12/31/2011	00:49	PB000378.D	2.05	9.96
CCAL04	1660 250	12/31/2011	01:05	PB000379.D	2.05	9.96

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5146

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_B

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 01/10/2012 01/10/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK06	I.BLK06	01/10/2012	13:01	PB000447.D	1.85	8.93
1660 1000 PPB	1660 1000 PPB	01/10/2012	13:17	PB000448.D	1.85	8.93
1660 750 PPB	1660 750 PPB	01/10/2012	13:34	PB000449.D	1.85	8.93
1660 500 PPB	1660 500 PPB	01/10/2012	13:50	PB000450.D	1.85	8.93
1660 250 PPB	1660 250 PPB	01/10/2012	14:06	PB000451.D	1.85	8.93
1660 50 PPB	1660 50 PPB	01/10/2012	14:22	PB000452.D	1.85	8.93
AR122101	AR1221 500 PPB	01/10/2012	14:39	PB000453.D	1.85	8.93
AR123201	AR1232 500 PPB	01/10/2012	14:55	PB000454.D	1.85	8.93
AR124201	AR1242 500 PPB	01/10/2012	17:38	PB000455.D	1.85	8.93
AR124801	AR1248 500 PPB	01/10/2012	17:54	PB000456.D	1.85	8.93
AR125401	AR1254 500 PPB	01/10/2012	18:11	PB000457.D	1.85	8.93
PIBLK07	I.BLK07	01/11/2012	12:57	PB000473.D	1.85	8.94
CCAL05	1660 250	01/11/2012	13:13	PB000474.D	1.85	8.93
12SB12-000.5-01	C5146-07	01/11/2012	16:31	PB000475.D	1.85	8.93
PIBLK08	I.BLK08	01/11/2012	18:58	PB000484.D	1.85	8.93
CCAL06	1660 250	01/11/2012	19:14	PB000485.D	1.85	8.93

CHEMTECH

Analytical Sequence

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Instrument ID:**	ECD_B
GC Column:	RTX-CLPest II ID: 0.32 (mm)	**Inst. Calib. Date(s):**	01/10/2012 01/10/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK06	I.BLK06	01/10/2012	13:01	PB000447.D	2.05	9.96
1660 1000 PPB	1660 1000 PPB	01/10/2012	13:17	PB000448.D	2.05	9.96
1660 750 PPB	1660 750 PPB	01/10/2012	13:34	PB000449.D	2.05	9.96
1660 500 PPB	1660 500 PPB	01/10/2012	13:50	PB000450.D	2.05	9.96
1660 250 PPB	1660 250 PPB	01/10/2012	14:06	PB000451.D	2.05	9.96
1660 50 PPB	1660 50 PPB	01/10/2012	14:22	PB000452.D	2.05	9.96
AR122101	AR1221 500 PPB	01/10/2012	14:39	PB000453.D	2.05	9.96
AR123201	AR1232 500 PPB	01/10/2012	14:55	PB000454.D	2.05	9.96
AR124201	AR1242 500 PPB	01/10/2012	17:38	PB000455.D	2.05	9.96
AR124801	AR1248 500 PPB	01/10/2012	17:54	PB000456.D	2.05	9.96
AR125401	AR1254 500 PPB	01/10/2012	18:11	PB000457.D	2.05	9.96
PIBLK07	I.BLK07	01/11/2012	12:57	PB000473.D	2.05	9.96
CCAL05	1660 250	01/11/2012	13:13	PB000474.D	2.05	9.96
12SB12-000.5-01	C5146-07	01/11/2012	16:31	PB000475.D	2.05	9.96
PIBLK08	I.BLK08	01/11/2012	18:58	PB000484.D	2.05	9.96
CCAL06	1660 250	01/11/2012	19:14	PB000485.D	2.05	9.96

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Calibration Date(s):** 12/15/2011 12/15/2011

Calibration Times: 12:19 13:24

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PB000128.D **CF 250 =** PB000127.D

CF 500 = PB000126.D **CF 750 =** PB000125.D **CF 1000 =** PB000124.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	2414160	2136988	2198608	2255212	2321484	2265290	5
Decachlorobiphenyl	2695500	2324808	2260310	2139161	2132294	2310415	10
AR1016 (1)	117150	102949	96264	90067	88492	98984	12
AR1016 (2)	68114	69884	66860	65866	65892	67323	3
AR1016 (3)	176584	168752	162976	158003	157084	164680	5
AR1016 (4)	66848	69527	65929	64019	63678	66000	4
AR1016 (5)	80696	72322	69660	70525	70767	72794	6
AR1260 (1)	127236	102696	95830	88669	106696	104225	14
AR1260 (2)	218342	200426	188787	173738	177242	191707	9
AR1260 (3)	175906	169307	165832	154400	155668	164222	6
AR1260 (4)	237828	218090	216641	206465	216948	219194	5
AR1260 (5)	96724	83224	80635	76313	78163	83012	10

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Calibration Date(s):** 12/15/2011 12/15/2011

Calibration Times: 12:19 13:24

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PB000128.D **CF 250 =** PB000127.D

CF 500 = PB000126.D **CF 750 =** PB000125.D **CF 1000 =** PB000124.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	858140	802244	893246	919989	977328	890189	7
Decachlorobiphenyl	1187560	1117532	1120296	1082957	1080856	1117840	4
AR1016 (1)	62214	55956	54820	53327	53158	55895	7
AR1016 (2)	95544	81728	83410	82673	84088	85489	7
AR1016 (3)	42214	37710	37477	36740	37014	38231	6
AR1016 (4)	23386	24362	24688	24568	25125	24426	3
AR1016 (5)	33518	28372	28964	31481	32047	30876	7
AR1260 (1)	64044	57788	58466	55925	57883	58821	5
AR1260 (2)	65518	58282	65644	63385	64958	63557	5
AR1260 (3)	82828	73919	76590	75448	83544	78466	6
AR1260 (4)	45350	47580	48210	46978	47591	47142	2
AR1260 (5)	110176	99788	103420	101833	103545	103752	4

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Date(s) Analyzed:** 12/15/2011 12/15/2011

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.03	1.98	2.08	27483
		2	2.21	2.16	2.26	83989
		3	1.42	1.37	1.47	25199
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.22	2.17	2.27	80887
		2	2.60	2.55	2.65	50516
		3	3.12	3.07	3.17	80560
		4	3.28	3.23	3.33	32669
		5	3.35	3.30	3.40	25012
AR1242	0.5000	1	2.60	2.55	2.65	89703
		2	3.12	3.07	3.17	155243
		3	3.28	3.23	3.33	63554
		4	3.78	3.73	3.83	71847
		5	4.34	4.29	4.39	105632
AR1248	0.5000	1	3.11	3.06	3.16	104514
		2	3.78	3.73	3.83	106292
		3	4.33	4.28	4.38	177784
		4	5.12	5.07	5.17	51415
		5	5.49	5.44	5.54	36039
AR1254	0.5000	1	4.26	4.21	4.31	116596
		2	5.11	5.06	5.16	233185
		3	5.48	5.43	5.53	169959
		4	5.74	5.69	5.79	151818
		5	6.11	6.06	6.16	201589

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Date(s) Analyzed:** 12/15/2011 12/15/2011

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.40	2.35	2.45	12284
		2	2.56	2.51	2.61	6863
		3	2.63	2.58	2.68	36533
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.63	2.58	2.68	32632
		2	3.68	3.63	3.73	37576
		3	3.86	3.81	3.91	16246
		4	3.99	3.94	4.04	9268
		5	4.64	4.59	4.69	15015
AR1242	0.5000	1	3.12	3.07	3.17	51086
		2	3.68	3.63	3.73	73500
		3	3.86	3.81	3.91	30870
		4	4.99	4.94	5.04	21948
		5	5.04	4.99	5.09	38616
AR1248	0.5000	1	3.68	3.63	3.73	44547
		2	4.64	4.59	4.69	47500
		3	4.99	4.94	5.04	39671
		4	5.04	4.99	5.09	64112
		5	5.92	5.87	5.97	32076
AR1254	0.5000	1	5.30	5.25	5.35	83353
		2	5.92	5.87	5.97	130097
		3	6.49	6.44	6.54	57477
		4	6.71	6.66	6.76	90583
		5	6.97	6.92	7.02	119671

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/30/2011

Lab Sample No.: 1660 250 **Data File :** PB000350.D **Time Analyzed:** 16:40

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.590	2.550	2.650	0.266	0.250	6.4
AR1016 (2)	2.807	2.760	2.860	0.269	0.250	7.6
AR1016 (3)	3.110	3.060	3.160	0.284	0.250	13.6
AR1016 (4)	3.273	3.230	3.330	0.285	0.250	14.0
AR1016 (5)	3.777	3.730	3.830	0.281	0.250	12.4
AR1260 (1)	5.359	5.310	5.410	0.268	0.250	7.2
AR1260 (2)	5.736	5.690	5.790	0.284	0.250	13.6
AR1260 (3)	6.106	6.060	6.160	0.285	0.250	14.0
AR1260 (4)	7.029	6.980	7.080	0.281	0.250	12.4
AR1260 (5)	7.405	7.360	7.460	0.290	0.250	16.0
Tetrachloro-m-xylene	1.848	1.800	1.900	0.024	0.025	4.0
Decachlorobiphenyl	8.930	8.830	9.030	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/30/2011

Lab Sample No.: 1660 250 **Data File :** PB000350.D **Time Analyzed:** 16:40

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.105	3.070	3.170	0.271	0.250	8.4
AR1016 (2)	3.664	3.630	3.730	0.249	0.250	0.4
AR1016 (3)	3.841	3.810	3.910	0.255	0.250	2.0
AR1016 (4)	3.972	3.940	4.040	0.224	0.250	10.4
AR1016 (5)	4.617	4.590	4.690	0.239	0.250	4.4
AR1260 (1)	6.175	6.140	6.240	0.279	0.250	11.6
AR1260 (2)	6.470	6.440	6.540	0.284	0.250	13.6
AR1260 (3)	6.952	6.920	7.020	0.284	0.250	13.6
AR1260 (4)	7.488	7.460	7.560	0.285	0.250	14.0
AR1260 (5)	7.846	7.810	7.910	0.269	0.250	7.6
Tetrachloro-m-xylene	2.052	2.010	2.110	0.025	0.025	0.0
Decachlorobiphenyl	9.961	9.880	10.080	0.031	0.025	24.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/30/2011

Lab Sample No.: 1660 250 **Data File :** PB000362.D **Time Analyzed:** 20:31

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.592	2.550	2.650	0.271	0.250	8.4
AR1016 (2)	2.809	2.760	2.860	0.275	0.250	10.0
AR1016 (3)	3.110	3.060	3.160	0.265	0.250	6.0
AR1016 (4)	3.272	3.230	3.330	0.258	0.250	3.2
AR1016 (5)	3.776	3.730	3.830	0.259	0.250	3.6
AR1260 (1)	5.360	5.310	5.410	0.271	0.250	8.4
AR1260 (2)	5.735	5.690	5.790	0.264	0.250	5.6
AR1260 (3)	6.105	6.060	6.160	0.261	0.250	4.4
AR1260 (4)	7.028	6.980	7.080	0.274	0.250	9.6
AR1260 (5)	7.404	7.360	7.460	0.296	0.250	18.4
Tetrachloro-m-xylene	1.849	1.800	1.900	0.025	0.025	0.0
Decachlorobiphenyl	8.929	8.830	9.030	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/30/2011

Lab Sample No.: 1660 250 **Data File :** PB000362.D **Time Analyzed:** 20:31

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.105	3.070	3.170	0.274	0.250	9.6
AR1016 (2)	3.664	3.630	3.730	0.249	0.250	0.4
AR1016 (3)	3.840	3.810	3.910	0.281	0.250	12.4
AR1016 (4)	3.972	3.940	4.040	0.228	0.250	8.8
AR1016 (5)	4.616	4.590	4.690	0.246	0.250	1.6
AR1260 (1)	6.174	6.140	6.240	0.281	0.250	12.4
AR1260 (2)	6.469	6.440	6.540	0.274	0.250	9.6
AR1260 (3)	6.951	6.920	7.020	0.282	0.250	12.8
AR1260 (4)	7.487	7.460	7.560	0.284	0.250	13.6
AR1260 (5)	7.845	7.810	7.910	0.265	0.250	6.0
Tetrachloro-m-xylene	2.052	2.010	2.110	0.026	0.025	4.0
Decachlorobiphenyl	9.959	9.880	10.080	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/30/2011

Lab Sample No.: 1660 250 **Data File :** PB000374.D **Time Analyzed:** 23:44

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.592	2.550	2.650	0.276	0.250	10.4
AR1016 (2)	2.808	2.760	2.860	0.278	0.250	11.2
AR1016 (3)	3.110	3.060	3.160	0.267	0.250	6.8
AR1016 (4)	3.272	3.230	3.330	0.262	0.250	4.8
AR1016 (5)	3.776	3.730	3.830	0.260	0.250	4.0
AR1260 (1)	5.360	5.310	5.410	0.278	0.250	11.2
AR1260 (2)	5.735	5.690	5.790	0.264	0.250	5.6
AR1260 (3)	6.105	6.060	6.160	0.261	0.250	4.4
AR1260 (4)	7.028	6.980	7.080	0.269	0.250	7.6
AR1260 (5)	7.405	7.360	7.460	0.281	0.250	12.4
Tetrachloro-m-xylene	1.849	1.800	1.900	0.025	0.025	0.0
Decachlorobiphenyl	8.930	8.830	9.030	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL03 **Date Analyzed:** 12/30/2011

Lab Sample No.: 1660 250 **Data File :** PB000374.D **Time Analyzed:** 23:44

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.105	3.070	3.170	0.257	0.250	2.8
AR1016 (2)	3.664	3.630	3.730	0.255	0.250	2.0
AR1016 (3)	3.840	3.810	3.910	0.276	0.250	10.4
AR1016 (4)	3.972	3.940	4.040	0.235	0.250	6.0
AR1016 (5)	4.616	4.590	4.690	0.241	0.250	3.6
AR1260 (1)	6.172	6.140	6.240	0.265	0.250	6.0
AR1260 (2)	6.467	6.440	6.540	0.266	0.250	6.4
AR1260 (3)	6.950	6.920	7.020	0.258	0.250	3.2
AR1260 (4)	7.486	7.460	7.560	0.268	0.250	7.2
AR1260 (5)	7.845	7.810	7.910	0.272	0.250	8.8
Tetrachloro-m-xylene	2.053	2.010	2.110	0.026	0.025	4.0
Decachlorobiphenyl	9.960	9.880	10.080	0.030	0.025	20.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/31/2011

Lab Sample No.: 1660 250 **Data File :** PB000379.D **Time Analyzed:** 01:05

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.592	2.550	2.650	0.278	0.250	11.2
AR1016 (2)	2.809	2.760	2.860	0.274	0.250	9.6
AR1016 (3)	3.110	3.060	3.160	0.272	0.250	8.8
AR1016 (4)	3.272	3.230	3.330	0.271	0.250	8.4
AR1016 (5)	3.778	3.730	3.830	0.281	0.250	12.4
AR1260 (1)	5.360	5.310	5.410	0.281	0.250	12.4
AR1260 (2)	5.734	5.690	5.790	0.282	0.250	12.8
AR1260 (3)	6.105	6.060	6.160	0.274	0.250	9.6
AR1260 (4)	7.027	6.980	7.080	0.280	0.250	12.0
AR1260 (5)	7.403	7.360	7.460	0.303	0.250	21.2
Tetrachloro-m-xylene	1.850	1.800	1.900	0.026	0.025	4.0
Decachlorobiphenyl	8.929	8.830	9.030	0.028	0.025	12.0

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CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/15/2011 12/15/2011

Client Sample No.: CCAL04 **Date Analyzed:** 12/31/2011

Lab Sample No.: 1660 250 **Data File :** PB000379.D **Time Analyzed:** 01:05

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.105	3.070	3.170	0.262	0.250	4.8
AR1016 (2)	3.663	3.630	3.730	0.261	0.250	4.4
AR1016 (3)	3.839	3.810	3.910	0.278	0.250	11.2
AR1016 (4)	3.971	3.940	4.040	0.239	0.250	4.4
AR1016 (5)	4.615	4.590	4.690	0.240	0.250	4.0
AR1260 (1)	6.171	6.140	6.240	0.273	0.250	9.2
AR1260 (2)	6.466	6.440	6.540	0.281	0.250	12.4
AR1260 (3)	6.949	6.920	7.020	0.263	0.250	5.2
AR1260 (4)	7.485	7.460	7.560	0.275	0.250	10.0
AR1260 (5)	7.844	7.810	7.910	0.279	0.250	11.6
Tetrachloro-m-xylene	2.053	2.010	2.110	0.026	0.025	4.0
Decachlorobiphenyl	9.959	9.880	10.080	0.031	0.025	24.0

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Calibration Date(s):** 01/10/2012 01/10/2012

Calibration Times: 13:17 14:22

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PB000452.D **CF 250 =** PB000451.D

CF 500 = PB000450.D **CF 750 =** PB000449.D **CF 1000 =** PB000448.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	2210580	2529320	2613580	2556153	2758281	2533583	8
Decachlorobiphenyl	2831300	2832704	2500318	2607877	2678676	2690175	5
AR1016 (1)	138858	131839	122935	118011	118656	126060	7
AR1016 (2)	89026	93128	88941	90161	88423	89936	2
AR1016 (3)	218868	225134	216082	208919	216177	217036	3
AR1016 (4)	91144	93072	88473	86299	86899	89177	3
AR1016 (5)	96566	104514	99460	97890	98256	99337	3
AR1260 (1)	158978	162369	152142	148833	148993	154263	4
AR1260 (2)	275684	275353	257980	247688	252220	261785	5
AR1260 (3)	225256	233193	225663	219772	221802	225137	2
AR1260 (4)	318066	329962	318151	315580	322908	320934	2
AR1260 (5)	121906	115920	110163	105960	107734	112336	6

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Calibration Date(s):** 01/10/2012 01/10/2012

Calibration Times: 13:17 14:22

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PB000452.D **CF 250 =** PB000451.D

CF 500 = PB000450.D **CF 750 =** PB000449.D **CF 1000 =** PB000448.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	782400	937812	976744	1064825	1177786	987913	15
Decachlorobiphenyl	1363060	1137604	1144954	1104768	1190399	1188157	9
AR1016 (1)	67274	63739	61607	58618	62037	62655	5
AR1016 (2)	90088	95983	98509	96301	105523	97281	6
AR1016 (3)	41236	42203	41962	40467	44821	42138	4
AR1016 (4)	23704	24969	25674	25441	28474	25652	7
AR1016 (5)	37982	40982	41243	40234	44467	40982	6
AR1260 (1)	72184	75048	73569	70087	74579	73093	3
AR1260 (2)	70132	81413	80598	75465	85044	78530	7
AR1260 (3)	96106	101382	103989	101683	111776	102987	6
AR1260 (4)	63732	62189	63053	61107	66916	63399	3
AR1260 (5)	115658	122256	127320	124644	138223	125620	7

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Date(s) Analyzed:** 01/10/2012 01/10/2012

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.02	1.97	2.07	39737
		2	2.21	2.16	2.26	126023
		3	1.42	1.37	1.47	37844
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.21	2.16	2.26	84478
		2	2.59	2.54	2.64	51776
		3	3.11	3.06	3.16	81769
		4	3.27	3.22	3.32	34060
		5	3.34	3.29	3.39	26521
AR1242	0.5000	1	2.59	2.54	2.64	107924
		2	3.11	3.06	3.16	190757
		3	3.28	3.23	3.33	77223
		4	3.78	3.73	3.83	88137
		5	4.33	4.28	4.38	131191
AR1248	0.5000	1	3.11	3.06	3.16	109210
		2	3.78	3.73	3.83	111437
		3	4.33	4.28	4.38	189285
		4	5.11	5.06	5.16	56804
		5	5.48	5.43	5.53	41975
AR1254	0.5000	1	4.26	4.21	4.31	82319
		2	5.11	5.06	5.16	160887
		3	5.48	5.43	5.53	116529
		4	5.73	5.68	5.78	106747
		5	6.11	6.06	6.16	141679

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

Instrument ID: ECD_B **Date(s) Analyzed:** 01/10/2012 01/10/2012

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.39	2.34	2.44	16447
		2	2.55	2.50	2.60	9654
		3	2.61	2.56	2.66	49541
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.61	2.56	2.66	30342
		2	3.66	3.61	3.71	33510
		3	3.84	3.79	3.89	14895
		4	3.97	3.92	4.02	8678
		5	4.62	4.57	4.67	13781
AR1242	0.5000	1	3.10	3.05	3.15	53759
		2	3.66	3.61	3.71	84057
		3	3.84	3.79	3.89	35819
		4	4.97	4.92	5.02	24816
		5	5.02	4.97	5.07	43398
AR1248	0.5000	1	3.66	3.61	3.71	42405
		2	4.61	4.56	4.66	44754
		3	4.96	4.91	5.01	36938
		4	5.02	4.97	5.07	59546
		5	5.90	5.85	5.95	27414
AR1254	0.5000	1	5.28	5.23	5.33	51137
		2	5.90	5.85	5.95	75785
		3	6.47	6.42	6.52	30223
		4	6.68	6.63	6.73	50352
		5	6.95	6.90	7.00	68805

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/10/2012 01/10/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/11/2012

Lab Sample No.: 1660 250 **Data File :** PB000474.D **Time Analyzed:** 13:13

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.591	2.540	2.640	0.255	0.250	2.0
AR1016 (2)	2.808	2.760	2.860	0.249	0.250	0.4
AR1016 (3)	3.110	3.060	3.160	0.255	0.250	2.0
AR1016 (4)	3.273	3.220	3.320	0.255	0.250	2.0
AR1016 (5)	3.778	3.730	3.830	0.256	0.250	2.4
AR1260 (1)	5.360	5.310	5.410	0.257	0.250	2.8
AR1260 (2)	5.737	5.690	5.790	0.258	0.250	3.2
AR1260 (3)	6.107	6.060	6.160	0.253	0.250	1.2
AR1260 (4)	7.029	6.980	7.080	0.248	0.250	0.8
AR1260 (5)	7.405	7.350	7.450	0.247	0.250	1.2
Tetrachloro-m-xylene	1.848	1.800	1.900	0.024	0.025	4.0
Decachlorobiphenyl	8.930	8.830	9.030	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/10/2012 01/10/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/11/2012

Lab Sample No.: 1660 250 **Data File :** PB000474.D **Time Analyzed:** 13:13

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.101	3.050	3.150	0.241	0.250	3.6
AR1016 (2)	3.660	3.610	3.710	0.234	0.250	6.4
AR1016 (3)	3.837	3.790	3.890	0.255	0.250	2.0
AR1016 (4)	3.968	3.920	4.020	0.231	0.250	7.6
AR1016 (5)	4.614	4.560	4.660	0.239	0.250	4.4
AR1260 (1)	6.170	6.120	6.220	0.244	0.250	2.4
AR1260 (2)	6.464	6.410	6.510	0.261	0.250	4.4
AR1260 (3)	6.947	6.900	7.000	0.233	0.250	6.8
AR1260 (4)	7.483	7.430	7.530	0.233	0.250	6.8
AR1260 (5)	7.840	7.790	7.890	0.236	0.250	5.6
Tetrachloro-m-xylene	2.049	2.000	2.100	0.022	0.025	12.0
Decachlorobiphenyl	9.955	9.860	10.060	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/10/2012 01/10/2012

Client Sample No.: CCAL06 **Date Analyzed:** 01/11/2012

Lab Sample No.: 1660 250 **Data File :** PB000485.D **Time Analyzed:** 19:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.592	2.540	2.640	0.258	0.250	3.2
AR1016 (2)	2.809	2.760	2.860	0.247	0.250	1.2
AR1016 (3)	3.111	3.060	3.160	0.262	0.250	4.8
AR1016 (4)	3.273	3.220	3.320	0.258	0.250	3.2
AR1016 (5)	3.778	3.730	3.830	0.256	0.250	2.4
AR1260 (1)	5.360	5.310	5.410	0.261	0.250	4.4
AR1260 (2)	5.736	5.690	5.790	0.264	0.250	5.6
AR1260 (3)	6.107	6.060	6.160	0.254	0.250	1.6
AR1260 (4)	7.029	6.980	7.080	0.255	0.250	2.0
AR1260 (5)	7.405	7.350	7.450	0.258	0.250	3.2
Tetrachloro-m-xylene	1.851	1.800	1.900	0.025	0.025	0.0
Decachlorobiphenyl	8.929	8.830	9.030	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG NO.:** C5146

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/10/2012 01/10/2012

Client Sample No.: CCAL06 **Date Analyzed:** 01/11/2012

Lab Sample No.: 1660 250 **Data File :** PB000485.D **Time Analyzed:** 19:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.103	3.050	3.150	0.248	0.250	0.8
AR1016 (2)	3.661	3.610	3.710	0.245	0.250	2.0
AR1016 (3)	3.837	3.790	3.890	0.267	0.250	6.8
AR1016 (4)	3.969	3.920	4.020	0.242	0.250	3.2
AR1016 (5)	4.615	4.560	4.660	0.246	0.250	1.6
AR1260 (1)	6.170	6.120	6.220	0.250	0.250	0.0
AR1260 (2)	6.464	6.410	6.510	0.302	0.250	20.8
AR1260 (3)	6.947	6.900	7.000	0.242	0.250	3.2
AR1260 (4)	7.483	7.430	7.530	0.241	0.250	3.6
AR1260 (5)	7.841	7.790	7.890	0.247	0.250	1.2
Tetrachloro-m-xylene	2.052	2.000	2.100	0.023	0.025	8.0
Decachlorobiphenyl	9.956	9.860	10.060	0.027	0.025	8.0

Tetra Tech **INTERNAL CORRESPONDENCE**

TO:	**A. FREBOWITZ**	**DATE:**	**March 8th , 2012**
FROM:	**MEGAN CARSON**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, ORP, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5146

SAMPLES: 18/Soil/

12SB-DUP-08	12SB06-0.502-02	12SB06-000.5-01
12SB06-0304-03	12SB07-0.502-02	12SB07-000.5-01
12SB07-0304-03	12SB08-0.502-02	12SB08-000.5-01
12SB08-0304-03	12SB12-0.502-02	12SB12-000.5-01
12SB12-0304-03	12SB17-0.502-02	12SB17-000.5-01
12SB17-0304-03	12SB27-0.502-02	12SB27-000.5-01

Overview

The sample set for NASJRB Willow Grove, SDG C5146, consists of eighteen (18) soil environmental samples. This SDG contains one field duplicate pair: 12SB-DUP-08/12SB06-000.5-01.

All samples in the SDG were analyzed TAL metals, cyanide, and pH. Samples 12SB06-0.502-02, 12SB06-000.5-01, 12SB06-0304-03, 12SB12-0.502-02, 12SB12-000.5-01, and 12SB12-0304-03 were analyzed for oxygen reduction potential (ORP). The samples were collected by Tetra Tech on December 28th, 2011 and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7471A. Cyanide analyses were conducted using method 9012B. ORP analyses were conducted using method 9045C. pH analyses were conducted using standard method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The following contaminants were detected in preparation and calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Vanadium [1]	0.014 mg/kg	0.07 mg/kg
Aluminum [2]	10.99 ug/L	5.49 mg/kg
Antimony [2]	0.79 ug/L	0.39 mg/kg
Arsenic [2]	0.24 ug/L	0.12 mg/kg
Barium [2]	0.77 ug/L	0.38 mg/kg
Beryllium [2]	0.22 ug/L	0.11 mg/kg
Calcium [2]	16.5 ug/L	8.2 mg/kg
Chromium [2]	0.24 ug/L	0.12 mg/kg
Cobalt [2]	0.17 ug/L	0.085 mg/kg
Copper [2]	0.32 ug/L	0.16 mg/kg
Iron [2]	21.8 ug/L	10.9 mg/kg
Lead [2]	0.25 ug/L	0.12 mg/kg
Magnesium [2]	17.9 ug/L	8.9 mg/kg
Manganese [2]	0.73 ug/L	0.36 mg/kg
Nickel [2]	0.17 ug/L	0.085 mg/kg
Potassium [2]	23.04 ug/L	11.52 mg/kg
Silver [2]	0.17 ug/L	0.085 mg/kg
Sodium [2]	56.89 ug/L	28.4 mg/kg
Thallium [2]	0.59 ug/L	0.29 mg/kg
Vanadium [2]	0.43 ug/L	0.21 mg/kg
Zinc [2]	0.45 ug/L	0.22 mg/kg
Lead [3]	0.12 ug/L	0.06 mg/kg
Thallium [3]	0.11 ug/L	0.05 mg/kg
Aluminum [3]	6.5 ug/L	3.2 mg/kg
Antimony [3]	0.79 ug/L	0.39 mg/kg
Barium [3]	0.41 ug/L	0.20 mg/kg
Beryllium [3]	0.16 ug/L	0.084 mg/kg
Cadmium [3]	0.13 ug/L	0.065 mg/kg
Calcium [3]	9.5 ug/L	4.75 mg/kg
Chromium [3]	0.057 ug/L	0.028 mg/kg
Cobalt [3]	0.095 ug/L	0.047 mg/kg
Copper [3]	0.17 ug/L	0.085 mg/kg
Iron [3]	19 ug/L	9.5 mg/kg
Magnesium [3]	12.87 ug/L	6.4 mg/kg
Manganese [3]	0.16 ug/L	0.08 mg/kg
Nickel [3]	0.07 ug/L	0.035 mg/kg
Potassium [3]	41.46 ug/L	20.7 mg/kg
Selenium [3]	0.70 ug/L	0.35 mg/kg
Silver [3]	0.075 ug/L	0.037 mg/kg
Sodium [3]	30.47 ug/L	15.2 mg/kg
Zinc [3]	0.23 ug/L	0.11 mg/kg

[1] Maximum concentration found in a preparation blank affecting samples in batch PB60309.

[2] Maximum concentration found in a calibration blank affecting samples analyzed on 1/12/12.

[3] Maximum concentration found in a calibration blank affecting samples analyzed on 1/13/12.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. All samples in the SDG were affected. Positive results less than the blank action level were qualified "B" as a result of blank contamination.

- The CRDL standard analyzed on 1/12/12 had a percent recovery >110% for cadmium, manganese, and nickel. Samples analyzed on 1/12/12 were affected. Positive cadmium results <2X LOQ were qualified as biased high (K). No other validation action was taken as sample results were greater than 2X LOQ.

- The CRDL standard analyzed on 1/13/12 had a percent recovery >110% for aluminum, antimony, arsenic, beryllium, iron, manganese, and zinc and a percent recovery < 90% for selenium. Samples analyzed on 1/13/12 were affected. Positive results for selenium <2X LOQ were qualified as biased low (L) and non-detected selenium results were qualified as biased low (UL). Some results were qualified as estimated (J) due to conflicting direction bias. No other validation action was taken as sample results were greater than 2 X LOQ.

- The matrix spike and matrix spike duplicate had a percent recovery < 80% for antimony, cobalt, potassium, vanadium and a percent recovery >120% for barium. All samples were affected. Positive results for barium were qualified as biased high (K). Positive results for antimony, cobalt, potassium, vanadium were qualified as biased low (L). Some results were qualified as estimated (J) due to conflicting direction bias.

- The serial dilution had a percent difference > 10% for aluminum, arsenic, beryllium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. All samples were affected. Positive results were qualified as estimated (J).

- Sample 12SB08-0.502-02 had a percent recovery > 130% for internal standard scandium. Results for beryllium, sodium, magnesium, calcium, potassium, vanadium, chromium, cobalt, nickel, copper, zinc, and arsenic were qualified as estimated (J).

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

Executive Summary

Laboratory Performance: Preparation and calibration blank contamination resulted in the qualification of sample results. CRDL standard non-compliances resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike/matrix spike duplicate non-compliances resulted in the qualification of sample results. Serial dilution non-compliances resulted in the qualification of sample results. Internal standard non-compliances resulted in the qualification of results for sample 12SB08-0.502-02.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02	12SB06-0.502-02DL	12SB06-000.5-01	12SB06-000.5-01DL
SDG: C5146	LAB_ID	C5146-13	C5146-13DL	C5146-12	C5146-12DL
FRACTION: M	SAMP_DATE	12/28/2011	12/28/2011	12/28/2011	12/28/2011
MEDIA: SOIL	QC_TYPE	NM	NM	NM	NM
	UNITS	MG/KG	MG/KG	MG/KG	MG/KG
	PCT_SOLIDS	77.6	77.6	71.3	71.3
	DUP_OF				

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM				15300	J	I				8420	J	I
ANTIMONY	0.23	B	A				1.8	L	D			
ARSENIC	8.6	J	I				5.3	J	I			
BARIUM	69.7	K	D				58.3	K	D			
BERYLLIUM	0.57	J	I				0.55	J	I			
CADMIUM	0.11	K	C				0.11	K	C			
CALCIUM	639	J	I				609	J	I			
CHROMIUM	19.7	J	I				13.6	J	I			
COBALT	6.7	J	DI				4	J	DI			
COPPER	11	J	I				7.9	J	I			
IRON				32300	J	I				14000	J	I
LEAD	13.6									445		
MAGNESIUM	2270	J	I				1270	J	I			
MANGANESE	183	J	I				148	J	I			
MERCURY	0.026						0.071					
NICKEL	9.4	J	I				6.9	J	I			
POTASSIUM	419	J	DI				283	J	DI			
SELENIUM	0.07	J	P				0.25	J	P			
SILVER	0.029	B	A				0.069	B	A			
SODIUM	35.2	J	IP				34.2	J	IP			
THALLIUM	0.18	B	A				0.15	B	A			
VANADIUM	30.3	J	DI				20.1	J	DI			
ZINC	33.1	J	I				36.3	J	I			

PROJ_NO: 02014	NSAMPLE	12SB06-0304-03			12SB06-0304-03DL			12SB07-0.502-02			12SB07-0.502-02DL		
SDG: C5146	LAB_ID	C5146-14			C5146-14DL			C5146-02			C5146-02DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	84.7			84.7			79.7			79.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					8600	J	I				9870	J	I
ANTIMONY		0.12	B	A				0.6	L	D			
ARSENIC		3.3	J	I				3.2	J	I			
BARIUM		38.9	K	D				77.3	K	D			
BERYLLIUM		0.46	J	I				0.63	J	I			
CADMIUM		0.079	J	P				0.14	K	C			
CALCIUM		305	J	I				547	J	I			
CHROMIUM		15.3	J	I				11.7	J	I			
COBALT		5.9	J	DI				5	J	DI			
COPPER		8.4	J	I				8.6	J	I			
IRON					15800	J	I				15200	J	I
LEAD		7.7						56.6					
MAGNESIUM		1290	J	I				1210	J	I			
MANGANESE					337	J	I				375	J	I
MERCURY		0.007	J	P				0.024					
NICKEL		6.7	J	I				6.8	J	I			
POTASSIUM		273	J	DI				309	J	DI			
SELENIUM		0.22	UL	C				0.17	J	P			
SILVER		0.015	B	A				0.032	B	A			
SODIUM		58.3	J	I				40.8	J	IP			
THALLIUM		0.08	J	P				0.12	B	A			
VANADIUM		20.4	J	DI				17.5	J	DI			
ZINC		18.6	J	I				21.1	J	I			

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-000.5-01DL			12SB07-0304-03			12SB07-0304-03DL		
SDG: C5146	LAB_ID	C5146-01			C5146-01DL			C5146-03			C5146-03DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	75.4			75.4			75.3			75.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					7420	J	I				9950	J	I
ANTIMONY		10.1	L	D				0.12	B	A			
ARSENIC		7.1	J	I				2.5	J	I			
BARIUM		44.1	K	D				202	K	D			
BERYLLIUM		0.54	J	I				1.4	J	I			
CADMIUM		0.19	K	C				0.13	K	C			
CALCIUM		863	J	I				988	J	I			
CHROMIUM		12.9	J	I				14.1	J	I			
COBALT		6	J	DI				5.9	J	DI			
COPPER		12.6	J	I				4.6	J	I			
IRON					15400	J	I				15700	J	I
LEAD					883			12.5					
MAGNESIUM		1020	J	I				1160	J	I			
MANGANESE					411	J	I				798	J	I
MERCURY		0.041						0.023					
NICKEL		6.8	J	I				9	J	I			
POTASSIUM		345	J	DI				251	J	DI			
SELENIUM		0.26	J	P				0.33	J	P			
SILVER		0.1	B	A				0.056	B	A			
SODIUM		39.9	J	IP				63.7	J	I			
THALLIUM		0.14	B	A				0.14	B	A			
VANADIUM		19	J	DI				18	J	DI			
ZINC		30.5	J	I				25.1	J	I			

PROJ_NO: 02014	NSAMPLE	12SB08-0.502-02			12SB08-0.502-02DL			12SB08-000.5-01			12SB08-000.5-01DL		
SDG: C5146	LAB_ID	C5146-05			C5146-05DL			C5146-04			C5146-04DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.4			81.4			72.1			72.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					11000	J	I				9470	J	I
ANTIMONY		0.22	B	A				0.35	B	A			
ARSENIC		2.8	J	IN				2.8	J	I			
BARIUM		47.7	K	D				54.2	K	D			
BERYLLIUM		0.71	J	IN				0.68	J	I			
CADMIUM		0.12	K	C				0.16	K	C			
CALCIUM		362	J	IN				1000	J	I			
CHROMIUM		19.1	J	IN				17	J	I			
COBALT		6.5	J	DIN				8.6	J	DI			
COPPER		6.6	J	IN				6.8	J	I			
IRON					24300	J	I				23800	J	I
LEAD		10.3						17.5					
MAGNESIUM		1540	J	IN				1520	J	I			
MANGANESE					252	J	I				430	J	I
MERCURY		0.017						0.039					
NICKEL		9.9	J	IN				9.3	J	I			
POTASSIUM		556	J	DIN				719	J	DI			
SELENIUM		0.21	U					0.3	U				
SILVER		0.023	B	A				0.026	B	A			
SODIUM		51.3	J	IN				48.2	J	IP			
THALLIUM		0.12	B	A				0.12	B	A			
VANADIUM		21.5	J	DIN				23.4	J	DI			
ZINC		20	J	IN				29.2	J	I			

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB08-0304-03DL			12SB12-0.502-02			12SB12-0.502-02DL		
SDG: C5146	LAB_ID	C5146-06			C5146-06DL			C5146-10			C5146-10DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.8			79.8			79.7			79.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					12500	J	I				11400	J	I
ANTIMONY		0.23	B	A				0.27	B	A			
ARSENIC		4	J	I				5.6	J	I			
BARIUM		63.7	K	D				84.4	K	D			
BERYLLIUM		0.78	J	I				0.9	J	I			
CADMIUM		0.13	K	C				0.23					
CALCIUM		436	J	I				910	J	I			
CHROMIUM		19	J	I				16.4	J	I			
COBALT		5.9	J	DI				5.6	J	DI			
COPPER		11	J	I				10.5	J	I			
IRON					25200	J	I				17900	J	I
LEAD		11.6						20.1					
MAGNESIUM		2180	J	I				1440	J	I			
MANGANESE		212	J	I							526	J	I
MERCURY		0.021						0.03					
NICKEL		9.5	J	I				8.3	J	I			
POTASSIUM		577	J	DI				276	J	DI			
SELENIUM		0.27	U					0.21	J	P			
SILVER		0.034	B	A				0.049	B	A			
SODIUM		49.2	J	IP				48.9	J	IP			
THALLIUM		0.26	B	A				0.16	B	A			
VANADIUM		25.6	J	DI				22.3	J	DI			
ZINC		29.8	J	I				34.7	J	I			

PROJ_NO: 02014	NSAMPLE	12SB12-000.5-01			12SB12-000.5-01DL			12SB12-0304-03			12SB12-0304-03DL		
SDG: C5146	LAB_ID	C5146-07			C5146-07DL			C5146-11			C5146-11DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	71.5			71.5			75.7			75.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					10900	J	I				8090	J	I
ANTIMONY		0.51	L	D				0.92	L	D			
ARSENIC		4.8	J	I				10.7	J	I			
BARIUM		90.9	K	D				97.2	K	D			
BERYLLIUM		0.82	J	I				0.79	J	I			
CADMIUM		0.56						0.86					
CALCIUM		1860	J	I				1140	J	I			
CHROMIUM		20.9	J	I				12.8	J	I			
COBALT		8.6	J	DI				5.8	J	DI			
COPPER		15.2	J	I				17.4	J	I			
IRON					20200	J	I				18200	J	I
LEAD		40						74.2					
MAGNESIUM		2050	J	I				1140	J	I			
MANGANESE					555	J	I				535	J	I
MERCURY		0.065						0.068					
NICKEL		10.4	J	I				12.4	J	I			
POTASSIUM		605	J	DI				313	J	DI			
SELENIUM		0.42	J	P				0.29	J	P			
SILVER		0.15						0.79					
SODIUM		48.4	J	IP				64.7	J	I			
THALLIUM		0.17	B	A				0.22	B	A			
VANADIUM		26.9	J	DI				16.2	J	DI			
ZINC					447	J	I	56.7	J	I			

PROJ_NO: 02014	NSAMPLE	12SB17-0.502-02			12SB17-0.502-02DL			12SB17-000.5-01			12SB17-000.5-01DL		
SDG: C5146	LAB_ID	C5146-16			C5146-16DL			C5146-15			C5146-15DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.4			79.4			75.2			75.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					16400	J	I				13500	J	I
ANTIMONY		0.21	B	A				0.41	L	D			
ARSENIC		5.8	J	I				5.8	J	I			
BARIUM		85.2	K	D				64	K	D			
BERYLLIUM		0.76	J	I				0.75	J	I			
CADMIUM		0.37						1.6					
CALCIUM		751	J	I				771	J	I			
CHROMIUM		19.8	J	I				18.1	J	I			
COBALT		4.9	J	DI				4.8	J	DI			
COPPER		8.5	J	I				9.3	J	I			
IRON					24500	J	I				21300	J	I
LEAD		13.4						24.7					
MAGNESIUM		2060	J	I				1680	J	I			
MANGANESE		208	J	I							274	J	I
MERCURY		0.02						0.039					
NICKEL		9.3	J	I				8.6	J	I			
POTASSIUM		436	J	DI				424	J	DI			
SELENIUM		0.27	UL	C				0.21	B	A			
SILVER		0.05	J	P				0.063	J	P			
SODIUM		39.9	J	IP				49.4	J	IP			
THALLIUM		0.18						0.15					
VANADIUM		28.8	J	DI				26.5	J	DI			
ZINC		33.7	J	I				38.6	J	I			

PROJ_NO: 02014	NSAMPLE	12SB17-0304-03			12SB17-0304-03DL			12SB27-0.502-02			12SB27-0.502-02DL		
SDG: C5146	LAB_ID	C5146-17			C5146-17DL			C5146-19			C5146-19DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.3			80.3			82.4			82.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					14400	J	I				10100	J	I
ANTIMONY		0.13	B	A				1.3	L	D			
ARSENIC		3.6	J	I				7.2	J	I			
BARIUM		72.7	K	D				83.8	K	D			
BERYLLIUM		0.82	J	I				0.7	J	I			
CADMIUM		0.085	J	P				0.51					
CALCIUM		466	J	I				2720	J	I			
CHROMIUM		17.8	J	I				13.8	J	I			
COBALT		7.4	J	DI				5.1	J	DI			
COPPER		6.1	J	I				31.2	J	I			
IRON					20800	J	I				15100	J	I
LEAD		9.5						73.7					
MAGNESIUM		1750	J	I				1830	J	I			
MANGANESE					394	J	I				446	J	I
MERCURY		0.023						0.056					
NICKEL		9.3	J	I				7.8	J	I			
POTASSIUM		365	J	DI				368	J	DI			
SELENIUM		0.245	UL	C				0.35	B	A			
SILVER		0.033	B	A				0.15					
SODIUM		55.4	J	I				48.8	J	IP			
THALLIUM		0.14						0.14					
VANADIUM		26.2	J	DI				17.4	J	DI			
ZINC		24.9	J	I				119	J	I			

PROJ_NO: 02014	NSAMPLE	12SB27-000.5-01			12SB27-000.5-01DL			12SB-DUP-08			12SB-DUP-08DL		
SDG: C5146	LAB_ID	C5146-18			C5146-18DL			C5146-20			C5146-20DL		
FRACTION: M	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	74.2			74.2			72.4			72.4		
	DUP_OF							12SB06-000.5-01			12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					11000	J	I				8680	J	I
ANTIMONY		1.5	L	D				1.4	L	D			
ARSENIC		14.4	J	I				5.6	J	I			
BARIUM		80.1	K	D				53.8	K	D			
BERYLLIUM		0.79	J	I				0.54	J	I			
CADMIUM		0.43						0.086	J	P			
CALCIUM		687	J	I				454	J	I			
CHROMIUM		16.7	J	I				14.2	J	I			
COBALT		6.4	J	DI				4	J	DI			
COPPER		15.1	J	I				7.9	J	I			
IRON					26300	J	I				14000	J	I
LEAD		39.2									356		
MAGNESIUM		1220	J	I				1120	J	I			
MANGANESE					465	J	I	138	J	I			
MERCURY		0.052						0.074					
NICKEL		9.4	J	I				6.9	J	I			
POTASSIUM		433	J	DI				240	J	DI			
SELENIUM		0.62	L	C				0.35	B	A			
SILVER		0.09	J	P				0.066	J	P			
SODIUM		38.8	J	IP				33.1	J	IP			
THALLIUM		0.23						0.11	J	P			
VANADIUM		23.5	J	DI				20.6	J	DI			
ZINC		56.2	J	I				32.9	J	I			

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02								12SB06-000.5-01		
SDG: C5146	LAB_ID	C5146-13								C5146-12		
FRACTION: MISC	SAMP_DATE	12/28/2011								12/28/2011		
MEDIA: SOIL	QC_TYPE	NM								NM		
	UNITS	MG/KG			MV			S.U.		MG/KG		
	PCT_SOLIDS	77.6			77.6			77.6		71.3		
	DUP_OF											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.05	J	P							0.119	J	P
OXIDATION REDUCTION POTENTIAL					373.2								
PH								4.86					

PROJ_NO: 02014	NSAMPLE	12SB06-000.5-01						12SB06-0304-03					
SDG: C5146	LAB_ID	C5146-12						C5146-14					
FRACTION: MISC	SAMP_DATE	12/28/2011						12/28/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			MV		
	PCT_SOLIDS	71.3			71.3			84.7			84.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.1475	U				
OXIDATION REDUCTION POTENTIAL		334.4									381.3		
PH					4.88								

PROJ_NO: 02014	NSAMPLE	12SB06-0304-03			12SB07-0.502-02						12SB07-000.5-01		
SDG: C5146	LAB_ID	C5146-14			C5146-02						C5146-01		
FRACTION: MISC	SAMP_DATE	12/28/2011			12/28/2011						12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	84.7			79.7			79.7			75.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.1565	U					0.101	J	P
OXIDATION REDUCTION POTENTIAL													
PH		4.68						5.23					

PROJ_NO: 02014	NSAMPLE	12SB07-000.5-01			12SB07-0304-03						12SB08-0.502-02		
SDG: C5146	LAB_ID	C5146-01			C5146-03						C5146-05		
FRACTION: MISC	SAMP_DATE	12/28/2011			12/28/2011						12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	75.4			75.3			75.3			81.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.091	J	P				0.055	J	P
OXIDATION REDUCTION POTENTIAL													
PH		5.06						5.47					

PROJ_NO: 02014	NSAMPLE	12SB08-0.502-02			12SB08-000.5-01						12SB08-0304-03		
SDG: C5146	LAB_ID	C5146-05			C5146-04						C5146-06		
FRACTION: MISC	SAMP_DATE	12/28/2011			12/28/2011						12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM						NM		
	UNITS	S.U.			MG/KG			S.U.			MG/KG		
	PCT_SOLIDS	81.4			72.1			72.1			79.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.081	J	P				0.07	J	P
OXIDATION REDUCTION POTENTIAL													
PH		4.84						5.49					

PROJ_NO: 02014	NSAMPLE	12SB08-0304-03			12SB12-0.502-02								
SDG: C5146	LAB_ID	C5146-06			C5146-10								
FRACTION: MISC	SAMP_DATE	12/28/2011			12/28/2011								
MEDIA: SOIL	QC_TYPE	NM			NM								
	UNITS	S.U.			MG/KG			MV			S.U.		
	PCT_SOLIDS	79.8			79.7			79.7			79.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE					0.097	J	P						
OXIDATION REDUCTION POTENTIAL								293.1					
PH		4.76									6.35		

PROJ_NO: 02014	NSAMPLE	12SB12-000.5-01									12SB12-0304-03		
SDG: C5146	LAB_ID	C5146-07									C5146-11		
FRACTION: MISC	SAMP_DATE	12/28/2011									12/28/2011		
MEDIA: SOIL	QC_TYPE	NM									NM		
	UNITS	MG/KG			MV			S.U.			MG/KG		
	PCT_SOLIDS	71.5			71.5			71.5			75.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.166	J	P							0.079	J	P
OXIDATION REDUCTION POTENTIAL					271.7								
PH								6.37					

PROJ_NO: 02014	NSAMPLE	12SB12-0304-03						12SB17-0.502-02					
SDG: C5146	LAB_ID	C5146-11						C5146-16					
FRACTION: MISC	SAMP_DATE	12/28/2011						12/28/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MV			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	75.7			75.7			79.4			79.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE								0.064	J	P			
OXIDATION REDUCTION POTENTIAL		281.5											
PH					6.2						5.37		

PROJ_NO: 02014	NSAMPLE	12SB17-000.5-01						12SB17-0304-03					
SDG: C5146	LAB_ID	C5146-15						C5146-17					
FRACTION: MISC	SAMP_DATE	12/28/2011						12/28/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	75.2			75.2			80.3			80.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.076	J	P				0.057	J	P			
OXIDATION REDUCTION POTENTIAL													
PH					5.3						5.42		

PROJ_NO: 02014	NSAMPLE	12SB27-0.502-02						12SB27-000.5-01					
SDG: C5146	LAB_ID	C5146-19						C5146-18					
FRACTION: MISC	SAMP_DATE	12/28/2011						12/28/2011					
MEDIA: SOIL	QC_TYPE	NM						NM					
	UNITS	MG/KG			S.U.			MG/KG			S.U.		
	PCT_SOLIDS	82.4			82.4			74.2			74.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.087	J	P				0.127	J	P			
OXIDATION REDUCTION POTENTIAL													
PH					6.61						5.76		

PROJ_NO: 02014	NSAMPLE	12SB-DUP-08					
SDG: C5146	LAB_ID	C5146-20					
FRACTION: MISC	SAMP_DATE	12/28/2011					
MEDIA: SOIL	QC_TYPE	NM					
	UNITS	MG/KG			S.U.		
	PCT_SOLIDS	72.4			72.4		
	DUP_OF	12SB06-000.5-01			12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.114	J	P			
OXIDATION REDUCTION POTENTIAL							
PH					4.86		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
Level (low/med):	low	% Solid:	72.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7940	OR	1	0.83	2.46	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	1.4	N	1	0.032	0.25	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	5.6		1	0.027	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	53.8	N	1	0.01	1.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.54		1	0.009	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	0.086	J	1	0.011	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	454		1	0.78	61.7	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	14.2	N	1	0.014	0.25	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	4	N	1	0.007	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	7.9		1	0.007	0.25	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	12400	OR	1	1.14	24.7	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	356.5	OR	1	0.004	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	1120		1	0.85	61.7	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	138	*	1	0.007	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.074		1	0.002	0.012	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	6.9		1	0.011	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	240	N	1	1.1	61.7	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.35	J	1	0.069	0.62	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.066	J	1	0.009	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	33.1	J*	1	1.5	61.7	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.11	J*	1	0.006	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	20.6	N	1	0.016	0.62	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	32.9		1	0.014	0.25	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08DL	SDG No.:	C5146
Lab Sample ID:	C5146-20DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	72.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8680	D	10	8.3	24.7	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	14000	D	10	11.4	247	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	356	D	10	0.049	1.2	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
Level (low/med):	low	% Solid:	77.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	12200	OR	1	0.632	1.868	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.23	N	1	0.024	0.19	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	8.6		1	0.021	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	69.7	N	1	0.008	0.93	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.57		1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.11		1	0.008	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	639		1	0.59	46.7	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	19.7	N	1	0.01	0.19	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	6.7	N	1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	11		1	0.006	0.19	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	24000	OR	1	0.865	18.676	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	13.6		1	0.004	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	2270		1	0.65	46.7	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	183	*	1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.026		1	0.002	0.012	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	9.4		1	0.008	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	419	N	1	0.84	46.7	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.07	J	1	0.052	0.47	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.029	J	1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	35.2	J*	1	1.1	46.7	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.18	*	1	0.005	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	30.3	N	1	0.012	0.47	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	33.1		1	0.01	0.19	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02DL	SDG No.:	C5146
Lab Sample ID:	C5146-13DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	77.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	15300	D	10	6.3	18.7	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	32300	D	10	8.6	187	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	71.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7650	OR	1	0.742	2.191	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	1.8	N	1	0.029	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	5.3		1	0.024	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	58.3	N	1	0.009	1.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.55		1	0.008	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.11		1	0.01	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	609		1	0.7	54.8	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	13.6	N	1	0.012	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	4	N	1	0.007	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	7.9		1	0.007	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	12300	OR	1	1.015	21.914	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	448.589	OR	1	0.004	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1270		1	0.76	54.8	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	148	*	1	0.007	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.071		1	0.003	0.013	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	6.9		1	0.01	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	283	N	1	0.99	54.8	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.25	J	1	0.061	0.55	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.069	J	1	0.008	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	34.2	J*	1	1.3	54.8	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.15	*	1	0.006	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	20.1	N	1	0.014	0.55	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	36.3		1	0.012	0.22	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01DL	SDG No.:	C5146
Lab Sample ID:	C5146-12DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	71.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8420	D	10	7.4	21.9	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	14000	D	10	10.1	219	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	445	D	10	0.044	1.1	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
Level (low/med):	low	% Solid:	84.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7260	OR	1	0.596	1.762	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	0.12	JN	1	0.023	0.18	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	3.3		1	0.019	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	38.9	N	1	0.007	0.88	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.46		1	0.006	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	0.079	J	1	0.008	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	305		1	0.56	44.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	15.3	N	1	0.01	0.18	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	5.9	N	1	0.005	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	8.4		1	0.005	0.18	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	12400	OR	1	0.816	17.621	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	7.7		1	0.004	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	1290		1	0.61	44.1	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	268.463	OR*	1	0.005	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.007	J	1	0.002	0.011	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	6.7		1	0.008	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	273	N	1	0.79	44.1	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.22	U	1	0.049	0.44	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.015	J	1	0.006	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	58.3	*	1	1.1	44.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.08	J*	1	0.004	0.088	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	20.4	N	1	0.011	0.44	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	18.6		1	0.01	0.18	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03DL	SDG No.:	C5146
Lab Sample ID:	C5146-14DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	84.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8600	D	10	6	17.6	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	15800	D	10	8.2	176	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	337	*D	10	0.053	0.88	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8460	OR	1	0.629	1.859	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.6	N	1	0.024	0.19	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	3.2		1	0.02	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	77.3	N	1	0.007	0.93	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.63		1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.14		1	0.008	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	547		1	0.59	46.5	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	11.7	N	1	0.01	0.19	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	5	N	1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	8.6		1	0.006	0.19	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	12300	OR	1	0.861	18.588	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	56.6		1	0.004	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1210		1	0.64	46.5	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	308.379	OR*	1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.024		1	0.002	0.011	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	6.8		1	0.008	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	309	N	1	0.84	46.5	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.17	J	1	0.052	0.46	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.032	J	1	0.006	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	40.8	J*	1	1.1	46.5	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.12	*	1	0.005	0.093	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	17.5	N	1	0.012	0.46	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	21.1		1	0.01	0.19	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02DL	SDG No.:	C5146
Lab Sample ID:	C5146-02DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9870	D	10	6.3	18.6	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	15200	D	10	8.6	186	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	375	*D	10	0.056	0.93	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	6540	OR	1	0.855	2.526	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	10.1	N	1	0.033	0.25	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	7.1		1	0.028	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	44.1	N	1	0.01	1.3	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.54		1	0.009	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.19		1	0.011	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	863		1	0.8	63.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	12.9	N	1	0.014	0.25	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	6	N	1	0.008	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	12.6		1	0.008	0.25	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	12600	OR	1	1.17	25.262	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	841.986	OR	1	0.005	0.126	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1020		1	0.88	63.2	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	347.354	OR*	1	0.008	0.126	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.041		1	0.002	0.012	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	6.8		1	0.011	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	345	N	1	1.1	63.2	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.26	J	1	0.071	0.63	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.1	J	1	0.009	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	39.9	J*	1	1.5	63.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.14	*	1	0.006	0.13	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	19	N	1	0.016	0.63	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	30.5		1	0.014	0.25	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
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E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01DL	SDG No.:	C5146
Lab Sample ID:	C5146-01DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7420	D	10	8.6	25.3	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	15400	D	10	11.7	253	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	883	D	10	0.051	1.3	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	411	*D	10	0.076	1.3	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8640	OR	1	0.676	1.997	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.12	JN	1	0.026	0.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	2.5		1	0.022	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	202	N	1	0.008	1	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	1.4		1	0.007	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.13		1	0.009	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	988		1	0.63	49.9	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	14.1	N	1	0.011	0.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	5.9	N	1	0.006	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	4.6		1	0.006	0.2	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	13000	OR	1	0.925	19.97	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	12.5		1	0.004	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1160		1	0.69	49.9	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	673.596	OR*	1	0.006	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.023		1	0.002	0.012	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	9		1	0.009	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	251	N	1	0.9	49.9	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.33	J	1	0.056	0.5	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.056	J	1	0.007	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	63.7	*	1	1.2	49.9	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.14	*	1	0.005	0.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	18	N	1	0.013	0.5	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	25.1		1	0.011	0.2	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03DL	SDG No.:	C5146
Lab Sample ID:	C5146-03DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9950	D	10	6.8	20	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	15700	D	10	9.2	200	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	798	*D	10	0.06	1	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8810	OR	1	0.566	1.671	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.22	N	1	0.022	0.17	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	2.8		1	0.018	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	47.7	N	1	0.007	0.84	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.71		1	0.006	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.12		1	0.008	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	362		1	0.53	41.8	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	19.1	N	1	0.009	0.17	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	6.5	N	1	0.005	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	6.6		1	0.005	0.17	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	17800	OR	1	0.774	16.714	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	10.3		1	0.003	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1540		1	0.58	41.8	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	187.117	OR*	1	0.005	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.017		1	0.002	0.011	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	9.9		1	0.008	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	556	N	1	0.75	41.8	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.21	U	1	0.047	0.42	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.023	J	1	0.006	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	51.3	*	1	1	41.8	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.12	*	1	0.004	0.084	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	21.5	N	1	0.011	0.42	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	20		1	0.009	0.17	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02DL	SDG No.:	C5146
Lab Sample ID:	C5146-05DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11000	D	10	5.7	16.7	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	24300	D	10	7.7	167	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	252	*D	10	0.05	0.84	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
Level (low/med):	low	% Solid:	72.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8050	OR	1	0.816	2.412	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.35	N	1	0.031	0.24	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	2.8		1	0.026	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	54.2	N	1	0.01	1.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.68		1	0.008	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.16		1	0.011	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	1000		1	0.77	60.3	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	17	N	1	0.013	0.24	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	8.6	N	1	0.007	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	6.8		1	0.007	0.24	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	19100	OR	1	1.117	24.121	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	17.5		1	0.005	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1520		1	0.84	60.3	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	350.479	OR*	1	0.007	0.121	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.039		1	0.002	0.012	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	9.3		1	0.011	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	719	N	1	1.1	60.3	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.3	U	1	0.068	0.6	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.026	J	1	0.008	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	48.2	J*	1	1.5	60.3	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.12	*	1	0.006	0.12	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	23.4	N	1	0.016	0.6	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	29.2		1	0.013	0.24	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01DL	SDG No.:	C5146
Lab Sample ID:	C5146-04DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	72.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9470	D	10	8.2	24.1	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	23800	D	10	11.2	241	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	430	*D	10	0.072	1.2	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10300	OR	1	0.738	2.179	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.23	N	1	0.028	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	4		1	0.024	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	63.7	N	1	0.009	1.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.78		1	0.008	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.13		1	0.01	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	436		1	0.69	54.5	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	19	N	1	0.012	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	5.9	N	1	0.006	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	11		1	0.006	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	19300	OR	1	1.009	21.794	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	11.6		1	0.004	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	2180		1	0.76	54.5	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	212	*	1	0.006	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.021		1	0.002	0.012	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	9.5		1	0.01	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	577	N	1	0.98	54.5	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.27	U	1	0.061	0.54	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.034	J	1	0.008	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	49.2	J*	1	1.3	54.5	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.26	*	1	0.005	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	25.6	N	1	0.014	0.54	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	29.8		1	0.012	0.22	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03DL	SDG No.:	C5146
Lab Sample ID:	C5146-06DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	12500	D	10	7.4	21.8	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	25200	D	10	10.1	218	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10100	OR	1	0.664	1.96	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.27	N	1	0.025	0.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	5.6		1	0.022	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	84.4	N	1	0.008	0.98	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.9		1	0.007	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.23		1	0.009	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	910		1	0.62	49	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	16.4	N	1	0.011	0.2	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	5.6	N	1	0.006	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	10.5		1	0.006	0.2	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	15100	OR	1	0.908	19.605	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	20.1		1	0.004	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1440		1	0.68	49	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	444.44	OR*	1	0.006	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.03		1	0.002	0.011	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	8.3		1	0.009	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	276	N	1	0.88	49	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.21	J	1	0.055	0.49	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.049	J	1	0.007	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	48.9	J*	1	1.2	49	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.16	*	1	0.005	0.098	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	22.3	N	1	0.013	0.49	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	34.7		1	0.011	0.2	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02DL	SDG No.:	C5146
Lab Sample ID:	C5146-10DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11400	D	10	6.6	19.6	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	17900	D	10	9.1	196	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	526	*D	10	0.059	0.98	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	71.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9600	OR	1	0.947	2.797	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.51	N	1	0.036	0.28	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	4.8		1	0.031	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	90.9	N	1	0.011	1.4	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.82		1	0.01	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.56		1	0.013	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	1860		1	0.89	69.9	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	20.9	N	1	0.015	0.28	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	8.6	N	1	0.008	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	15.2		1	0.008	0.28	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	16500	OR	1	1.295	27.972	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	40		1	0.006	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	2050		1	0.97	69.9	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	460.56	OR*	1	0.008	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.065		1	0.003	0.014	mg/Kg	12/30/11	01/03/12	SW7471A
7440-02-0	Nickel	10.4		1	0.013	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	605	N	1	1.3	69.9	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.42	J	1	0.078	0.7	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.15		1	0.01	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	48.4	J*	1	1.7	69.9	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.17	*	1	0.007	0.14	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	26.9	N	1	0.018	0.7	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	366.993	OR	1	0.015	0.28	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01DL	SDG No.:	C5146
Lab Sample ID:	C5146-07DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	71.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10900	D	10	9.5	28	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	20200	D	10	13	280	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	555	*D	10	0.084	1.4	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	447	D	10	0.15	2.8	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	7180	OR	1	0.739	2.183	mg/Kg	12/29/11	01/12/12	SW6020
7440-36-0	Antimony	0.92	N	1	0.028	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7440-38-2	Arsenic	10.7		1	0.024	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-39-3	Barium	97.2	N	1	0.009	1.1	mg/Kg	12/29/11	01/12/12	SW6020
7440-41-7	Beryllium	0.79		1	0.008	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-43-9	Cadmium	0.86		1	0.01	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-70-2	Calcium	1140		1	0.69	54.6	mg/Kg	12/29/11	01/12/12	SW6020
7440-47-3	Chromium	12.8	N	1	0.012	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7440-48-4	Cobalt	5.8	N	1	0.007	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-50-8	Copper	17.4		1	0.007	0.22	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	15200	OR	1	1.011	21.835	mg/Kg	12/29/11	01/12/12	SW6020
7439-92-1	Lead	74.2		1	0.004	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7439-95-4	Magnesium	1140		1	0.76	54.6	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	452.744	OR*	1	0.007	0.109	mg/Kg	12/29/11	01/12/12	SW6020
7439-97-6	Mercury	0.068		1	0.002	0.012	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	12.4		1	0.01	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-09-7	Potassium	313	N	1	0.98	54.6	mg/Kg	12/29/11	01/12/12	SW6020
7782-49-2	Selenium	0.29	J	1	0.061	0.55	mg/Kg	12/29/11	01/12/12	SW6020
7440-22-4	Silver	0.79		1	0.008	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-23-5	Sodium	64.7	*	1	1.3	54.6	mg/Kg	12/29/11	01/12/12	SW6020
7440-28-0	Thallium	0.22	*	1	0.006	0.11	mg/Kg	12/29/11	01/12/12	SW6020
7440-62-2	Vanadium	16.2	N	1	0.014	0.55	mg/Kg	12/29/11	01/12/12	SW6020
7440-66-6	Zinc	56.7		1	0.012	0.22	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03DL	SDG No.:	C5146
Lab Sample ID:	C5146-11DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8090	D	10	7.4	21.8	mg/Kg	12/29/11	01/12/12	SW6020
7439-89-6	Iron	18200	D	10	10.1	218	mg/Kg	12/29/11	01/12/12	SW6020
7439-96-5	Manganese	535	*D	10	0.066	1.1	mg/Kg	12/29/11	01/12/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	13700	OR	1	0.729	2.153	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	0.21	JN	1	0.028	0.22	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	5.8		1	0.024	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	85.2	N	1	0.009	1.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.76		1	0.008	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	0.37		1	0.01	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	751		1	0.68	53.8	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	19.8	N	1	0.012	0.22	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	4.9	N	1	0.006	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	8.5		1	0.006	0.22	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	19500	OR	1	0.997	21.529	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	13.4		1	0.004	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	2060		1	0.75	53.8	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	208	*	1	0.006	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.02		1	0.002	0.012	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	9.3		1	0.01	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	436	N	1	0.97	53.8	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.27	U	1	0.06	0.54	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.05	J	1	0.008	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	39.9	J*	1	1.3	53.8	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.18	*	1	0.005	0.11	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	28.8	N	1	0.014	0.54	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	33.7		1	0.012	0.22	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02DL	SDG No.:	C5146
Lab Sample ID:	C5146-16DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	16400	D	10	7.3	21.5	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	24500	D	10	10	215	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11400	OR	1	0.682	2.015	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	0.41	N	1	0.026	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	5.8		1	0.022	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	64	N	1	0.008	1	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.75		1	0.007	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	1.6		1	0.009	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	771		1	0.64	50.4	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	18.1	N	1	0.011	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	4.8	N	1	0.006	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	9.3		1	0.006	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	16900	OR	1	0.933	20.148	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	24.7		1	0.004	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	1680		1	0.7	50.4	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	220.624	OR*	1	0.006	0.101	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.039		1	0.003	0.013	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	8.6		1	0.009	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	424	N	1	0.91	50.4	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.21	J	1	0.056	0.5	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.063	J	1	0.007	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	49.4	J*	1	1.2	50.4	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.15	*	1	0.005	0.1	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	26.5	N	1	0.013	0.5	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	38.6		1	0.011	0.2	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01DL	SDG No.:	C5146
Lab Sample ID:	C5146-15DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	75.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	13500	D	10	6.8	20.1	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	21300	D	10	9.3	201	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	274	*D	10	0.06	1	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

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B = Analyte Found in Associated Method Blank
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	12400	OR	1	0.669	1.977	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	0.13	JN	1	0.026	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	3.6		1	0.022	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	72.7	N	1	0.008	0.99	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.82		1	0.007	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	0.085	J	1	0.009	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	466		1	0.63	49.4	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	17.8	N	1	0.011	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	7.4	N	1	0.006	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	6.1		1	0.006	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	16600	OR	1	0.915	19.767	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	9.5		1	0.004	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	1750		1	0.68	49.4	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	321.809	OR*	1	0.006	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.023		1	0.002	0.011	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	9.3		1	0.009	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	365	N	1	0.89	49.4	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.245	U	1	0.055	0.49	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.033	J	1	0.007	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	55.4	*	1	1.2	49.4	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.14	*	1	0.005	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	26.2	N	1	0.013	0.49	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	24.9		1	0.011	0.2	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
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LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03DL	SDG No.:	C5146
Lab Sample ID:	C5146-17DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	14400	D	10	6.7	19.8	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	20800	D	10	9.2	198	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	394	*D	10	0.059	0.99	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
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OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8720	OR	1	0.67	1.97	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	1.3	N	1	0.026	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	7.2		1	0.022	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	83.8	N	1	0.008	0.99	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.7		1	0.007	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	0.51		1	0.009	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	2720		1	0.63	49.3	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	13.8	N	1	0.011	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	5.1	N	1	0.006	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	31.2		1	0.006	0.2	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	12200	OR	1	0.91	19.7	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	73.7		1	0.004	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	1830		1	0.68	49.3	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	368.7	OR*	1	0.005	0.09	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.056		1	0.002	0.011	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	7.8		1	0.009	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	368	N	1	0.89	49.3	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.35	J	1	0.055	0.49	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.15		1	0.007	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	48.8	J*	1	1.2	49.3	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.14	*	1	0.005	0.099	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	17.4	N	1	0.013	0.49	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	119		1	0.011	0.2	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02DL	SDG No.:	C5146
Lab Sample ID:	C5146-19DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	82.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10100	D	10	6.7	19.7	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	15100	*D	10	9.1	197	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	446	D	10	0.059	0.99	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
Level (low/med):	low	% Solid:	74.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9630	OR	1	0.79	2.34	mg/Kg	12/29/11	01/13/12	SW6020
7440-36-0	Antimony	1.5	N	1	0.03	0.23	mg/Kg	12/29/11	01/13/12	SW6020
7440-38-2	Arsenic	14.4		1	0.026	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-39-3	Barium	80.1	N	1	0.009	1.2	mg/Kg	12/29/11	01/13/12	SW6020
7440-41-7	Beryllium	0.79		1	0.008	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-43-9	Cadmium	0.43		1	0.011	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-70-2	Calcium	687		1	0.74	58.6	mg/Kg	12/29/11	01/13/12	SW6020
7440-47-3	Chromium	16.7	N	1	0.013	0.23	mg/Kg	12/29/11	01/13/12	SW6020
7440-48-4	Cobalt	6.4	N	1	0.007	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-50-8	Copper	15.1		1	0.007	0.23	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	21500	OR	1	1.08	23.4	mg/Kg	12/29/11	01/13/12	SW6020
7439-92-1	Lead	39.2		1	0.005	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7439-95-4	Magnesium	1220		1	0.81	58.6	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	390.2	OR*	1	0.007	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7439-97-6	Mercury	0.052		1	0.003	0.013	mg/Kg	12/30/11	01/04/12	SW7471A
7440-02-0	Nickel	9.4		1	0.011	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-09-7	Potassium	433	N	1	1.1	58.6	mg/Kg	12/29/11	01/13/12	SW6020
7782-49-2	Selenium	0.62		1	0.066	0.59	mg/Kg	12/29/11	01/13/12	SW6020
7440-22-4	Silver	0.09	J	1	0.008	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-23-5	Sodium	38.8	J*	1	1.4	58.6	mg/Kg	12/29/11	01/13/12	SW6020
7440-28-0	Thallium	0.23	*	1	0.006	0.12	mg/Kg	12/29/11	01/13/12	SW6020
7440-62-2	Vanadium	23.5	N	1	0.015	0.59	mg/Kg	12/29/11	01/13/12	SW6020
7440-66-6	Zinc	56.2		1	0.013	0.23	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01DL	SDG No.:	C5146
Lab Sample ID:	C5146-18DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	74.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	11000	D	10	7.9	23.4	mg/Kg	12/29/11	01/13/12	SW6020
7439-89-6	Iron	26300	D	10	10.9	234	mg/Kg	12/29/11	01/13/12	SW6020
7439-96-5	Manganese	465	*D	10	0.07	1.2	mg/Kg	12/29/11	01/13/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB-DUP-08	SDG No.:	C5146
Lab Sample ID:	C5146-20	Matrix:	SOIL
		% Solid:	72.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.114	J	1	0.046	0.345	mg/Kg	12/29/11	12/30/11	9012B
pH	4.86		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-13	Matrix:	SOIL
		% Solid:	77.6

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.05	J	1	0.042	0.322	mg/Kg	12/29/11	12/30/11	9012B
pH	4.86		1	0	0	pH	12/29/11	12/29/11	9045C
Redox Potential	373.2		1	0.129	0.129	mV	12/30/11	12/30/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-12	Matrix:	SOIL
		% Solid:	71.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.119	J	1	0.046	0.35	mg/Kg	12/29/11	12/30/11	9012B
pH	4.88		1	0	0	pH	12/29/11	12/29/11	9045C
Redox Potential	334.4		1	0.14	0.14	mV	12/30/11	12/30/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB06-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-14	Matrix:	SOIL
		% Solid:	84.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.148	U	1	0.039	0.295	mg/Kg	12/29/11	12/30/11	9012B
pH	4.68		1	0	0	pH	12/29/11	12/29/11	9045C
Redox Potential	381.3		1	0.118	0.118	mV	12/30/11	12/30/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-02	Matrix:	SOIL
		% Solid:	79.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.157	U	1	0.041	0.313	mg/Kg	12/29/11	12/30/11	9012B
pH	5.23		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-01	Matrix:	SOIL
		% Solid:	75.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.101	J	1	0.044	0.331	mg/Kg	12/29/11	12/30/11	9012B
pH	5.06		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB07-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-03	Matrix:	SOIL
		% Solid:	75.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.091	J	1	0.044	0.332	mg/Kg	12/29/11	12/30/11	9012B
pH	5.47		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-05	Matrix:	SOIL
		% Solid:	81.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.055	J	1	0.041	0.307	mg/Kg	12/29/11	12/30/11	9012B
pH	4.84		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-04	Matrix:	SOIL
		% Solid:	72.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.081	J	1	0.046	0.346	mg/Kg	12/29/11	12/30/11	9012B
pH	5.49		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB08-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-06	Matrix:	SOIL
		% Solid:	79.8

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.07	J	1	0.041	0.313	mg/Kg	12/29/11	12/30/11	9012B
pH	4.76		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-10	Matrix:	SOIL
		% Solid:	79.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.097	J	1	0.041	0.313	mg/Kg	12/29/11	12/30/11	9012B
pH	6.35		1	0	0	pH	12/29/11	12/29/11	9045C
Redox Potential	293.1		1	0.125	0.125	mV	12/30/11	12/30/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-07	Matrix:	SOIL
		% Solid:	71.5

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.166	J	1	0.046	0.349	mg/Kg	12/29/11	12/30/11	9012B
pH	6.37		1	0	0	pH	12/29/11	12/29/11	9045C
Redox Potential	271.7		1	0.14	0.14	mV	12/30/11	12/30/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB12-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-11	Matrix:	SOIL
		% Solid:	75.7

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.079	J	1	0.044	0.33	mg/Kg	12/29/11	12/30/11	9012B
pH	6.2		1	0	0	pH	12/29/11	12/29/11	9045C
Redox Potential	281.5		1	0.132	0.132	mV	12/30/11	12/30/11	1498

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-16	Matrix:	SOIL
		% Solid:	79.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.064	J	1	0.041	0.314	mg/Kg	12/29/11	12/30/11	9012B
pH	5.37		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-15	Matrix:	SOIL
		% Solid:	75.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.076	J	1	0.044	0.332	mg/Kg	12/29/11	12/30/11	9012B
pH	5.3		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB17-0304-03	SDG No.:	C5146
Lab Sample ID:	C5146-17	Matrix:	SOIL
		% Solid:	80.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.057	J	1	0.041	0.311	mg/Kg	12/29/11	12/30/11	9012B
pH	5.42		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-0.502-02	SDG No.:	C5146
Lab Sample ID:	C5146-19	Matrix:	SOIL
		% Solid:	82.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.087	J	1	0.04	0.303	mg/Kg	12/29/11	12/30/11	9012B
pH	6.61		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/28/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	12SB27-000.5-01	SDG No.:	C5146
Lab Sample ID:	C5146-18	Matrix:	SOIL
		% Solid:	74.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.127	J	1	0.044	0.337	mg/Kg	12/29/11	12/30/11	9012B
pH	5.76		1	0	0	pH	12/29/11	12/29/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH

CHAIN OF CUSTODY RECORD

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(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5146
QUOTE NO.
COC Number 021233

CLIENT INFORMATION	CLIENT PROJECT INFORMATION	CLIENT BILLING INFORMATION
REPORT TO BE SENT TO:		
COMPANY: Tetra Tech NUS	PROJECT NAME: NASJRB Willow Grove	BILL TO: PO#:
ADDRESS: 234 Mall Boulevard	PROJECT NO.: CTO WE05 LOCATION: Site 12	ADDRESS:
CITY: King of Prussia STATE: PA ZIP: 19406	PROJECT MANAGER: Andy Frebowitz	CITY: STATE: ZIP:
ATTENTION: Andy Frebowitz	e-mail: andy.frebowitz at tetratech.com	ATTENTION: PHONE:
PHONE: 610 382 1170 FAX: 610 491 9645	PHONE: 610 382 1170 FAX: 610 491 9645	

DATA TURNAROUND INFORMATION

FAX: ______ DAYS *
HARD COPY: ______ DAYS *
EDD: ______ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other ______
☐ EDD FORMAT ______

ANALYSIS

1. TCL VOC Encore
2. TCL SVOC / PAH SIM
3. Pest / PCB
4. Metals, CN, Hg, pH
5. ORP
6.
7.
8.
9.

CHEMTECH SAMPLE ID 12/29/11	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	COMP	GRAB	DATE	TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB07-000.5-01	Soil		✓	12/28/11	0930	6	3	1	1	(1)						
2.	12SB07-0.502-02	Soil		✓	12/28/11	0950	6	3	1	1	(1)						
3.	12SB07-0304-03	Soil		✓	12/28/11	1010	6	3	1	1	(1)						
4.	12SB08-000.5-01	Soil		✓	12/28/11	1035	6	3	1	1	(1)						
5.	12SB08-0502-02	Soil		✓	12/28/11	1050	6	3	1	1	(1)						
6.	12SB08-0304-03	Soil		✓	12/28/11	1110	6	3	1	1	(1)						
7. 8, 9.	12SB12-00015-01	Soil		✓	12/28/11	1140	16	9	2	2	(2)	(1)					DO MS/MSD
10.	12SB12-0.502-02	Soil		✓	12/28/11	1215	7	3	1	1	(1)	(1)					
11.	12SB12-0304-03	Soil		✓	12/28/11	1235	7	3	1	1	(1)	(1)					
12.	12SB06-000.5-01	Soil		✓	12/28/11	1340	7	3	1	1	(1)	(1)					

PRESERVATIVES — Specify Preservatives: A–HCl B–HNO_3 C–H_2SO_4 D–NaOH E–ICE F–Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY
RELINQUISHED BY SAMPLER: 1. [signature]	12/28/11 2100	1.
RELINQUISHED BY: 2.		2.
RELINQUISHED BY: 3. Fed Ex	12/29/11 9:10	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
Cooler Temp. 4°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Ice in Cooler?: Yes
Comments:

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

Shipped via Federal Express Airbill No 8744 5804 0073

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5146
QUOTE NO.
COC Number 021234

CLIENT INFORMATION	CLIENT PROJECT INFORMATION	CLIENT BILLING INFORMATION
REPORT TO BE SENT TO: COMPANY: Tetra Tech NUS	PROJECT NAME: NASJRB Willow Grove	BILL TO: PO#:
ADDRESS: 234 Mall Boulevard	PROJECT NO. CTO WE05 LOCATION: Site 12	ADDRESS:
CITY: King of Prussia STATE: PA ZIP: 19406	PROJECT MANAGER: Andy Frebowitz	CITY: STATE: ZIP:
ATTENTION: Andy Frebowitz	e-mail: andy.frebowitz at tetratech.com	ATTENTION: PHONE:
PHONE: 610 382 1170 FAX: 610 491 9645	PHONE: 610 382 1170 FAX: 610 491 9645	

DATA TURNAROUND INFORMATION

FAX: ______ DAYS*
HARD COPY: ______ DAYS*
EDD: ______ DAYS*
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other ______
☐ EDD FORMAT ______

ANALYSIS

1. TCL VOC 5 g/Encore
2. TCL SVOC / PAH SIM
3. Pest / PCB
4. Metals, Cn, Hg, pH
5. ORP
6. TCL VOC 40 ml VOA (HCl)
7.
8.
9.

CHEMTECH SAMPLE ID (KR 12/29/11)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	COMP	GRAB	DATE	TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1. 13.	12SB06-0.502-02	Soil		✓	12/28/11	1405	7	3	1	1	(1)	(1)					
2. 14.	12SB06-0304-03	Soil		✓	12/28/11	1420	7	3	1	1	(1)	(1)					
3. 15	12SB17-00015-01	Soil		✓	12/28/11	1520	6	3	1	1	(1)						
4. 16.	12SB17-0.502-02	Soil		✓	12/28/11	1540	6	3	1	1	(1)						
5. 17.	12SB17-0304-03	Soil		✓	12/28/11	1555	6	3	1	1	(1)						
6. 18.	12SB27-00015-01	Soil		✓	12/28/11	1620	6	3	1	1	(1)						
7. 19.	12SB27-0.502-02	Soil		✓	12/28/11	1635	6	3	1	1	(1)						
8. 20.	12SB-DUP-08	Soil		✓	12/28/11	1200	6	3	1	1	(1)	+ CM 12/28/11					
9. 21.	TB-01-122811	AQ		✓	12/28/11	0700	2						2				
10.																	

PRESERVATIVES — Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY
RELINQUISHED BY SAMPLER: 1. [signature]	12/28/11 2100	1.
RELINQUISHED BY: 2.		2.
RELINQUISHED BY: 3. Fed Ex	12/29/11 9:10	RECEIVED FOR LAB BY: 3. Ken Rivera

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Cooler Temp. 4°C
Ice in Cooler?: yes

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☒ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

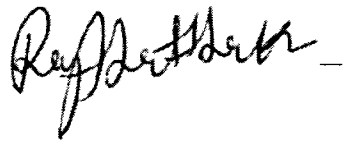
C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6020, digestion based on method 3050B (soils). The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The sample # 12SB07-000.5-01was diluted for Aluminum, Iron, Lead, Manganese.
The sample # 12SB07-0.502-02, 12SB07-0304-03, 12SB08-000.5-01, 12SB08-0.502-02 12SB12-0.502-02 , 12SB12-0304-03 were diluted for Aluminum, Iron, Manganese.
The sample # 12SB08-0304-03, 12SB06-0.502-02, 12SB17-0.502-02 was diluted for Aluminum, Iron,
The sample # 12SB12-000.5-01was diluted for Aluminum, Iron, Manganese, Zinc.
The sample # 12SB06-000.5-01, 12SB-DUP-08 was diluted for Aluminum, Iron, Lead,
The sample # 12SB06-0304-03, 12SB17-000.5-01 , 12SB17-0304-03, 12SB27-000.5-01, 12SB27-0.502-02 was diluted for Aluminum, Iron, Manganese due to high concentrations .
The Blank Spike met requirements for all samples.
The Duplicate (12SB12-000.5-01D)analysis met criteria for all samples except for Manganese, Sodium and Thallium.
The Matrix Spike (12SB12-000.5-01S) analysis met criteria for all samples except for Antimony, Barium, Cobalt, Potassium, Vanadium.
The Matrix Spike Duplicate(12SB12-000.5-01SD)analysis met criteria for all samples except for Antimony, Barium, Chromium, Cobalt, Potassium and Vanadium.
The Blank analysis did not indicate the presence of lab contamination.
The ccv03 is failing for Silver in run number # LB58833 but there is no samples analyzed with this calibration.

CHEMTECH

The Serial Dilution met criteria for all samples except for Aluminum, Arsenic, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Vanadium and Zinc.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature 

Kalpana Raythattha
I am approving this document
2012.01.19 17:26:08 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5146
Test Name: Cyanide,pH,Redox Potential

A. Number of Samples and Date of Receipt:
20 Solid samples were received on 12/29/2011.
1 Water sample was received on 12/29/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, Redox Potential, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide,pH,Redox Potential.

C. Analytical Techniques:
The analysis of Redox Potential was based on method 1498, The analysis of Cyanide was based on method 9012B and The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.19 16:15:29 -05'00'

C5146-13X10 01/13/2012 12:33:35 AM 12SB06-0.502-02

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	80%	0.905	1.670	0.000	77.830	2966.000	2871.000	2802.000	16150.000
2	00:35:51	78%	0.726	3.259	0.000	79.660	2946.000	2861.000	2784.000	16010.000
3	00:36:59	75%	0.684	3.172	0.000	93.510	3135.000	3006.000	2940.000	16990.000
x		78%	0.772	2.700	0.000	83.670	3016.000	2913.000	2842.000	16380.000
%RSD		3	15.210	33.070	0.000	10.250	3.454	2.773	3.001	3.226

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	625.400	346.200	0.000	0.000	614.000	1048.000	993.800	75%	322.000
2	00:35:51	607.100	338.300	0.000	0.000	595.200	895.800	942.100	77%	320.500
3	00:36:59	653.400	367.700	0.000	0.000	640.900	1022.000	1004.000	74%	332.600
x		628.600	350.700	0.000	0.000	616.700	988.500	980.000	76%	325.000
%RSD		3.713	4.344	0.000	0.000	3.723	8.231	3.389	2	2.034

Run	Time	51V	52Cr	53Cl O	[redacted]	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	43.940	28.480	158.000	35520.000	262.300	35300.000	34850.000	9.446	13.140
2	00:35:51	38.890	27.200	158.900	34750.000	255.500	34150.000	33650.000	9.223	12.870
3	00:36:59	42.210	28.260	163.600	36330.000	266.100	35800.000	35130.000	9.598	13.600
x		41.680	27.980	160.200	35540.000	261.300	35080.000	34540.000	9.422	13.210
%RSD		6.167	2.441	1.862	2.226	2.062	2.410	2.275	2.004	2.798

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	14.990	15.010	46.370	11.890	-0.152	0.691	-0.610	-0.152	6.008
2	00:35:51	15.050	14.900	45.970	11.270	0.140	0.693	-0.798	0.139	3.095
3	00:36:59	15.670	15.660	47.190	10.610	-1.396	0.805	-0.275	-1.390	7.496
x		15.240	15.190	46.510	11.260	-0.470	0.730	-0.561	-0.467	5.533
%RSD		2.472	2.732	1.344	5.695	173.700	8.951	47.210	173.700	40.460

Run	Time	86Sr	88Sr	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	5.891	5.406	3.999	1.519	2.020	1.389	1.351	-0.006	74%
2	00:35:51	5.814	5.932	4.164	1.231	2.229	1.105	1.328	-0.006	74%
3	00:36:59	5.848	5.845	5.088	1.621	2.191	1.356	1.395	-0.001	74%
x		5.851	5.728	4.417	1.457	2.147	1.283	1.358	-0.004	74%
%RSD		0.655	4.927	13.290	13.860	5.199	12.120	2.514	64.730	0

Run	Time	106Cd	107Ag	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	2.771	0.028	-1.172	2.760	0.011	0.208	0.849	0.220	76.050
2	00:35:51	0.617	0.013	0.069	0.603	0.019	0.056	0.790	0.235	76.790
3	00:36:59	1.596	0.023	-0.421	1.586	0.011	0.091	0.768	0.241	78.370
x		1.661	0.021	-0.508	1.650	0.014	0.118	0.802	0.232	77.070
%RSD		64.940	36.940	123.100	65.450	32.180	67.560	5.199	4.546	1.542

Run	Time	137Ba	159Tb	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	00:34:43	75.150	78%	78%	0.206	0.202	16.150	14.420	15.160	79%
2	00:35:51	75.450	79%	79%	0.219	0.214	16.050	14.230	15.040	79%
3	00:36:59	76.800	77%	77%	0.233	0.225	15.940	14.660	15.320	79%
x		75.800	78%	78%	0.219	0.214	16.050	14.440	15.170	79%
%RSD		1.161	1	1	6.088	5.231	0.652	1.481	0.925	1

Run	Time	238U
		ppb
1	00:34:43	1.687
2	00:35:51	1.715
3	00:36:59	1.712
x		1.704
%RSD		0.903

$$35540\,\frac{\mu g}{L} \times \frac{0.1\,L}{1.38\,g} \times \frac{1000\,g}{1\,kg} \times \frac{1\,mg}{1000\,\mu g} \times \frac{1}{0.776\%} = 3318\,\frac{mg}{kg}$$

$\times 10\,DF$

$33{,}187\,\frac{mg}{kg}$

reportadas $32{,}300\,\frac{mg}{kg}$

NASJRB WILLOW GROVE
SOIL DATA
C5146

FRACTION	CHEMICAL	12SB-DUP-08	UNITS	12SB06-000.5-01	RPD	D
M	ANTIMONY	1.4 L	MG/KG	1.8 L	25.00	0.40
M	ARSENIC	5.6 J	MG/KG	5.3 J	5.50	0.30
M	BARIUM	53.8 K	MG/KG	58.3 K	8.03	4.50
M	BERYLLIUM	0.54 J	MG/KG	0.55 J	1.83	0.01
M	CADMIUM	0.086 J	MG/KG	0.11 K	24.49	0.02
M	CALCIUM	454 J	MG/KG	609 J	29.16	155.00
M	CHROMIUM	14.2 J	MG/KG	13.6 J	4.32	0.60
M	COBALT	4 J	MG/KG	4 J	0.00	0.00
M	COPPER	7.9 J	MG/KG	7.9 J	0.00	0.00
M	MAGNESIUM	1120 J	MG/KG	1270 J	12.55	150.00
M	MANGANESE	138 J	MG/KG	148 J	6.99	10.00
M	MERCURY	0.074	MG/KG	0.071	4.14	0.00
M	NICKEL	6.9 J	MG/KG	6.9 J	0.00	0.00
M	POTASSIUM	240 J	MG/KG	283 J	16.44	43.00
M	SELENIUM	0.35 B	MG/KG	0.25 J	33.33	0.10
M	SILVER	0.066 J	MG/KG	0.069 J	4.44	0.00
M	SODIUM	33.1 J	MG/KG	34.2 J	3.27	1.10
M	THALLIUM	0.11 J	MG/KG	0.15 B	30.77	0.04
M	VANADIUM	20.6 J	MG/KG	20.1 J	2.46	0.50
M	ZINC	32.9 J	MG/KG	36.3 J	9.83	3.40

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5146

FRACTION	CHEMICAL	12SB-DUP-08	UNITS	12SB06-000.5-01	RPD	D
MISC	CYANIDE	0.114 J	MG/KG	0.119 J	4.29	0.01
MISC	HEXAVALENT CHROMIUM	2.3	MG/KG	3.2	32.73	0.90
MISC	OXIDATION REDUCTION POTENTIAL	ND	MV	334.4	200.00	334.40
MISC	PH	4.86	S.U.	4.88	0.41	0.02

was not analyzed for

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

HOLDTIME

SDG C5146

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB12-0.502-02	C5146-10	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB06-0304-03	C5146-14	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB07-0.502-02	C5146-02	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
HG	MG/KG	12SB07-000.5-01	C5146-01	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
HG	MG/KG	12SB07-0304-03	C5146-03	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
HG	MG/KG	12SB08-0.502-02	C5146-05	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
HG	MG/KG	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB08-0304-03	C5146-06	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
HG	MG/KG	12SB27-000.5-01	C5146-18	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB12-000.5-01	C5146-07	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
HG	MG/KG	12SB12-0304-03	C5146-11	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB17-0.502-02	C5146-16	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB17-000.5-01	C5146-15	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB17-0304-03	C5146-17	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB27-0.502-02	C5146-19	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB-DUP-08	C5146-20	NM	12/28/2011	12/30/2011	1/4/2012	2	5	7
HG	MG/KG	12SB08-000.5-01	C5146-04	NM	12/28/2011	12/30/2011	1/3/2012	2	4	6
M	MG/KG	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB08-0304-03	C5146-06DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB08-0304-03	C5146-06	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB08-000.5-01	C5146-04DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB08-000.5-01	C5146-04	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB08-0.502-02	C5146-05DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB08-0.502-02	C5146-05	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB06-0.502-02	C5146-13DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB07-0304-03	C5146-03	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB12-000.5-01	C5146-07	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB07-000.5-01	C5146-01	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB07-0.502-02	C5146-02	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB06-0304-03	C5146-14DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB06-0304-03	C5146-14	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB06-000.5-01	C5146-12DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB07-0304-03	C5146-03DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB17-000.5-01	C5146-15DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB-DUP-08	C5146-20DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB-DUP-08	C5146-20	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB27-000.5-01	C5146-18DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB27-000.5-01	C5146-18	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB27-0.502-02	C5146-19DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB27-0.502-02	C5146-19	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB12-0.502-02	C5146-10	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB17-0304-03	C5146-17	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB12-0.502-02	C5146-10DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB17-000.5-01	C5146-15	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB17-0.502-02	C5146-16DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB17-0.502-02	C5146-16	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB12-0304-03	C5146-11DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB12-0304-03	C5146-11	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB12-000.5-01	C5146-07DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB07-0.502-02	C5146-02DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
M	MG/KG	12SB17-0304-03	C5146-17DL	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
M	MG/KG	12SB07-000.5-01	C5146-01DL	NM	12/28/2011	12/29/2011	1/12/2012	1	14	15
CN	MG/KG	12SB08-000.5-01	C5146-04	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB27-000.5-01	C5146-18	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB27-0.502-02	C5146-19	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB17-0304-03	C5146-17	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB17-0.502-02	C5146-16	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB12-000.5-01	C5146-07	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB-DUP-08	C5146-20	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB08-0304-03	C5146-06	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB17-000.5-01	C5146-15	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB08-0.502-02	C5146-05	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB07-0304-03	C5146-03	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB07-000.5-01	C5146-01	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB07-0.502-02	C5146-02	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB06-0304-03	C5146-14	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/KG	12SB12-0.502-02	C5146-10	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB12-0304-03	C5146-11	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
CN	MG/KG	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/29/2011	12/30/2011	1	1	2
ORP	MV	12SB12-0304-03	C5146-11	NM	12/28/2011	12/30/2011	12/30/2011	2	0	2
ORP	MV	12SB12-000.5-01	C5146-07	NM	12/28/2011	12/30/2011	12/30/2011	2	0	2
ORP	MV	12SB12-0.502-02	C5146-10	NM	12/28/2011	12/30/2011	12/30/2011	2	0	2
ORP	MV	12SB06-0304-03	C5146-14	NM	12/28/2011	12/30/2011	12/30/2011	2	0	2
ORP	MV	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/30/2011	12/30/2011	2	0	2
ORP	MV	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/30/2011	12/30/2011	2	0	2
PH	S.U.	12SB17-0304-03	C5146-17	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB27-000.5-01	C5146-18	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB-DUP-08	C5146-20	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB27-0.502-02	C5146-19	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB06-0304-03	C5146-14	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB17-000.5-01	C5146-15	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB07-000.5-01	C5146-01	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB07-0.502-02	C5146-02	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PH	S.U.	12SB17-0.502-02	C5146-16	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB07-0304-03	C5146-03	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB08-0.502-02	C5146-05	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB08-000.5-01	C5146-04	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB08-0304-03	C5146-06	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB12-0.502-02	C5146-10	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB12-000.5-01	C5146-07	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB12-0304-03	C5146-11	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
PH	S.U.	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/29/2011	12/29/2011	1	0	1
OS	UG/KG	12SB07-0.502-02	C5146-02	NM	12/28/2011	12/29/2011	1/6/2012	1	8	9
OS	UG/KG	12SB08-0304-03	C5146-06	NM	12/28/2011	12/29/2011	1/11/2012	1	13	14
OS	UG/KG	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/29/2011	1/6/2012	1	8	9
OS	UG/KG	12SB06-0.502-02	C5146-13	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
OS	UG/KG	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/29/2011	1/6/2012	1	8	9
OS	UG/KG	12SB06-000.5-01	C5146-12	NM	12/28/2011	12/29/2011	1/11/2012	1	13	14
OS	UG/KG	12SB06-0304-03	C5146-14	NM	12/28/2011	12/29/2011	1/6/2012	1	8	9
OS	UG/KG	12SB06-0304-03	C5146-14	NM	12/28/2011	12/29/2011	1/13/2012	1	15	16
OS	UG/KG	12SB17-0.502-02	C5146-16	NM	12/28/2011	12/29/2011	1/6/2012	1	8	9

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG No.:** C5146

Instrument ID Number: CV1 **Method:** CV **Run Number:** LB58677

Start Date: 01/03/2012 **End Date:** 01/03/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std1Rep1	1	1619																X									
Std2Rep1	1	1621																X									
Std3Rep1	1	1623																X									
Std4Rep1	1	1625																X									
Std5Rep1	1	1627																X									
Std6Rep1	1	1629																X									
ICV01	1	1631																X									
ICB01	1	1633																X									
CCV01	1	1635																X									
CCB01	1	1637																X									
CRI01	1	1639																X									
CCV02	1	1659																X									
CCB02	1	1701																X									
CCV03	1	1722																X									
CCB03	1	1725																X									
PB60324BL	1	1743																X									
PB60324BS	1	1745																X									
12SB07-000.5-01	1	1747																X									
CCV04	1	1749																X									
CCB04	1	1750																X									
12SB07-0.502-02	1	1752																X									
12SB07-0304-03	1	1754																X									
12SB08-000.5-01	1	1756																X									
12SB08-0.502-02	1	1758																X									
12SB08-0304-03	1	1800																X									
12SB12-000.5-01	1	1802																X									
12SB12-000.5-01D	1	1804																X									
12SB12-000.5-01L	5	1806																X									
12SB12-000.5-01S	1	1808																X									
12SB12-000.5-01SD	1	1809																X									
CCV05	1	1811																X									
CCB05	1	1814																X									

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG No.:** C5146

Instrument ID Number: CV1 **Method:** CV **Run Number:** LB58685

Start Date: 01/04/2012 **End Date:** 01/04/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std1Rep01	1	1021																X								
Std1Rep02	1	1022																X								
Std1Rep03	1	1024																X								
Std1Rep04	1	1026																X								
Std1Rep05	1	1028																X								
Std1Rep06	1	1030																X								
ICV01	1	1032																X								
ICB01	1	1035																X								
CCV01	1	1037																X								
CCB01	1	1043																X								
CRI01	1	1045																X								
12SB12-0.502-02	1	1050																X								
12SB12-0304-03	1	1053																X								
12SB06-000.5-01	1	1054																X								
12SB06-0.502-02	1	1056																X								
12SB06-0304-03	1	1058																X								
12SB17-000.5-01	1	1100																X								
12SB17-0.502-02	1	1102																X								
CCV02	1	1104																X								
CCB02	1	1106																X								
12SB17-0304-03	1	1108																X								
12SB27-000.5-01	1	1110																X								
12SB27-0.502-02	1	1112																X								
12SB-DUP-08	1	1113																X								
12SB12-000.5-01A	1	1117																								
CCV03	1	1123																X								
CCB03	1	1125																X								

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG No.:** C5146

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58810

Start Date: 01/12/2012 **End Date:** 01/13/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1416		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1424		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1432		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1440		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1448		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1456		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1504		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1512		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1519		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1527		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1551		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1559		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1607		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60309BL	1	1623		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB60309BS	1	1638		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1726		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1734		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1853		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1901		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB07-000.5-01	1	1909		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB07-0.502-02	1	1916		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB07-0304-03	1	1924		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB08-000.5-01	1	1932		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB08-0.502-02	1	1940		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB07-000.5-01DL	10	1948		X										X	X		X										
12SB07-0.502-02DL	10	1956		X										X			X										
12SB07-0304-03DL	10	2004		X										X			X										
12SB08-000.5-01DL	10	2012		X										X			X										
12SB08-0.502-02DL	10	2020		X										X			X										
CCV04	1	2028		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2036		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB12-000.5-01	1	2043		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB12-000.5-01D	1	2051			X	X	X	X	X	X	X	X	X		X	X			X	X	X	X	X	X	X		
12SB12-000.5-01L	5	2059			X	X	X	X	X	X	X	X	X		X	X			X	X	X	X	X	X	X		
12SB12-000.5-01S	1	2107			X	X	X	X	X	X	X	X	X			X			X	X		X	X		X	X	
12SB12-000.5-01SD	1	2115			X	X	X	X	X	X	X	X	X			X			X	X		X	X		X	X	
12SB12-000.5-01A	1	2123			X		X				X	X								X					X		
12SB12-000.5-01DL	10	2131		X										X			X									X	
12SB12-000.5-01D	10	2139		X										X			X									X	
12SB12-000.5-01L	50	2147		X										X			X									X	
12SB12-000.5-01S	10	2155		X										X	X		X				X			X			

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG No.:** C5146

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58810

Start Date: 01/12/2012 **End Date:** 01/13/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV05	1	2203		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2211		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB12-000.5-01SD	10	2218		X										X	X		X				X			X			
12SB12-000.5-01A	10	2226																										
12SB08-0304-03	1	2234		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB08-0304-03DL	10	2242		X										X														
12SB12-0.502-02	1	2250		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB12-0304-03	1	2258		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB06-000.5-01	1	2306		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB12-0.502-02DL	10	2314		X										X			X										
12SB12-0304-03DL	10	2322		X										X			X										
12SB06-000.5-01DL	10	2330		X										X	X												
CCV06	1	2338		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	2346		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB06-0.502-02	1	2353		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB06-0304-03	1	0001		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB17-000.5-01	1	0009		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB17-0.502-02	1	0017		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB17-0304-03	1	0025		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB06-0.502-02DL	10	0033		X										X														
12SB06-0304-03DL	10	0041		X										X			X										
12SB17-000.5-01DL	10	0049		X										X			X										
12SB17-0.502-02DL	10	0057		X										X														
12SB17-0304-03DL	10	0105		X										X			X										
CCV07	1	0113		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0121		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG No.:** C5146

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58833

Start Date: 01/13/2012 **End Date:** 01/13/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1306		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1314		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1322		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1330		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1338		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1346		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1353		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1401		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1425		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1433		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1457		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1505		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1512		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB27-000.5-01	1	1528		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB27-0.502-02	1	1536		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB-DUP-08	1	1544		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB27-000.5-01DL	10	1552		X										X			X										
12SB27-0.502-02DL	10	1600		X										X			X										
12SB-DUP-08DL	10	1608		X										X	X												
CCV02	1	1616		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1624		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1806		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1814		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	1837		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	1845		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Instrument ID: CV1 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date:	01/15/2009
Mercury	253.70	0.0915	0.2000		

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date:	01/15/2009
Mercury	253.70	0.0020	0.01		

Analyte	Mass	MDL ug/L	CRQL ug/L	Date:	02/14/2009
Aluminum	27	4.97	20		
Antimony	121	0.14	2		
Arsenic	75	0.18	1		
Barium	137	0.10	10		
Beryllium	9	0.09	1		
Cadmium	111	0.13	1		
Calcium	44	9.06	500		
Chromium	52	0.04	2		
Cobalt	59	0.05	1		
Copper	63	0.04	2		
Iron	57	10.28	200		
Lead	208	0.04	1		
Magnesium	24	4.95	500		
Manganese	55	0.05	1		
Nickel	60	0.06	1		
Potassium	39	12.22	500		
Selenium	82	0.70	5		
Silver	107	0.03	1		
Sodium	23	5.32	500		
Thallium	205	0.02	1		
Vanadium	51	0.15	5		
Zinc	66	0.09	2		

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date:	02/14/2009
Aluminum	27	0.6770	2.00		
Antimony	121	0.0260	0.20		
Arsenic	75	0.0220	0.10		
Barium	137	0.0080	1.00		
Beryllium	9	0.0070	0.10		
Cadmium	111	0.0090	0.10		
Calcium	44	0.6350	50.00		
Chromium	52	0.0110	0.20		
Cobalt	59	0.0060	0.10		
Copper	63	0.0060	0.20		
Iron	57	0.9260	20.00		
Lead	208	0.0040	0.10		

CHEMTECH

Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Instrument: CV1

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60324BL		**SOIL**		**Batch Number:**		**PB60324**		**Prep Date:**	**12/30/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	01/03/2012	17:43	LB58677
PB60309BL		**SOIL**		**Batch Number:**		**PB60309**		**Prep Date:**	**12/29/2011**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	01/12/2012	16:23	LB58810
	Antimony	0.026	<0.200	U	0.026	0.200	MS	01/12/2012	16:23	LB58810
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	01/12/2012	16:23	LB58810
	Barium	0.008	<1.000	U	0.008	1.000	MS	01/12/2012	16:23	LB58810
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	01/12/2012	16:23	LB58810
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	01/12/2012	16:23	LB58810
	Calcium	0.635	<50.000	U	0.635	50.000	MS	01/12/2012	16:23	LB58810
	Chromium	0.011	<0.200	U	0.011	0.200	MS	01/12/2012	16:23	LB58810
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	01/12/2012	16:23	LB58810
	Copper	0.006	<0.200	U	0.006	0.200	MS	01/12/2012	16:23	LB58810
	Iron	0.926	<20.000	U	0.926	20.000	MS	01/12/2012	16:23	LB58810
	Lead	0.004	<0.100	U	0.004	0.100	MS	01/12/2012	16:23	LB58810
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	01/12/2012	16:23	LB58810
	Manganese	0.006	<0.100	U	0.006	0.100	MS	01/12/2012	16:23	LB58810
	Nickel	0.009	<0.100	U	0.009	0.100	MS	01/12/2012	16:23	LB58810
	Potassium	0.901	<50.000	U	0.901	50.000	MS	01/12/2012	16:23	LB58810
	Selenium	0.056	<0.500	U	0.056	0.500	MS	01/12/2012	16:23	LB58810
	Silver	0.007	<0.100	U	0.007	0.100	MS	01/12/2012	16:23	LB58810
	Sodium	1.225	<50.000	U	1.225	50.000	MS	01/12/2012	16:23	LB58810
	Thallium	0.005	<0.100	U	0.005	0.100	MS	01/12/2012	16:23	LB58810
	Vanadium	0.014	<0.500	J	0.013	0.500	MS	01/12/2012	16:23	LB58810
	Zinc	0.011	<0.200	U	0.011	0.200	MS	01/12/2012	16:23	LB58810

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Matrix: SOIL **Sample ID:** C5146-07 **Client ID:** 12SB12-000.5-01S

Percent Solids for Sample: 71.5 **Spiked ID:** C5146-08S **Percent Solids for Spike Sample:** 71.5

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	13078.3200		9597.2040		279.72	1244.5		MS
Antimony	mg/Kg	80 - 120	71.8042		0.5052		111.89	63.7	N	MS
Arsenic	mg/Kg	80 - 120	95.1888		4.8378		111.89	80.7		MS
Barium	mg/Kg	80 - 120	128.3916		90.8671		27.97	134.2	N	MS
Beryllium	mg/Kg	80 - 120	24.0699		0.8194		27.97	83.1		MS
Cadmium	mg/Kg	80 - 120	26.8951		0.5601		27.97	94.2		MS
Calcium	mg/Kg	80 - 120	1881.1190		1855.9440		139.86	18.0		MS
Chromium	mg/Kg	80 - 120	65.6364		20.9091		55.94	80.0		MS
Cobalt	mg/Kg	80 - 120	29.2308		8.6322		27.97	73.6	N	MS
Copper	mg/Kg	80 - 120	51.5245		15.1888		41.96	86.6		MS
Iron	mg/Kg	80 - 120	19244.7600		16503.5000		419.58	653.3		MS
Lead	mg/Kg	80 - 120	171.1888		40.0280		139.86	93.8		MS
Magnesium	mg/Kg	80 - 120	1889.5110		2047.5530		279.72	-56.5		MS
Manganese	mg/Kg	80 - 120	586.8532		460.5595		27.97	451.5		MS
Nickel	mg/Kg	80 - 120	68.0280		10.4378		69.93	82.4		MS
Mercury	mg/Kg	34 - 153	0.3142		0.0646		0.28	89.1		CV
Potassium	mg/Kg	80 - 120	1658.7410		604.7553		1398.60	75.4	N	MS
Selenium	mg/Kg	80 - 120	257.9021		0.4158	J	279.72	92.1		MS
Silver	mg/Kg	80 - 120	10.2252		0.1519		10.49	96.0		MS
Sodium	mg/Kg	80 - 120	414.2658		48.4056	J	419.58	87.2		MS
Thallium	mg/Kg	80 - 120	263.0769		0.1662		279.72	94.0		MS
Vanadium	mg/Kg	80 - 120	57.5105		26.8532		41.96	73.1	N	MS
Zinc	mg/Kg	80 - 120	267.9720		366.9930		27.97	-354.0		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Matrix: SOIL **Sample ID:** C5146-07 **Client ID:** 12SB12-000.5-01SD

Percent Solids for Sample: 71.5 **Spiked ID:** C5146-09SD **Percent Solids for Spike Sample:** 71.5

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	13202.8000		9597.2040		279.72	1289.0		MS
Antimony	mg/Kg	80 - 120	70.7133		0.5052		111.89	62.7	N	MS
Arsenic	mg/Kg	80 - 120	95.5804		4.8378		111.89	81.1		MS
Barium	mg/Kg	80 - 120	125.2168		90.8671		27.97	122.8	N	MS
Beryllium	mg/Kg	80 - 120	24.3497		0.8194		27.97	84.1		MS
Cadmium	mg/Kg	80 - 120	27.1049		0.5601		27.97	94.9		MS
Calcium	mg/Kg	80 - 120	2233.5670		1855.9440		139.86	270.0		MS
Chromium	mg/Kg	80 - 120	63.8602		20.9091		55.94	76.8 OK	N	MS
Cobalt	mg/Kg	80 - 120	29.2727		8.6322		27.97	73.8	N	MS
Copper	mg/Kg	80 - 120	51.3427		15.1888		41.96	86.2		MS
Iron	mg/Kg	80 - 120	19020.9800		16503.5000		419.58	600.0		MS
Lead	mg/Kg	80 - 120	175.9441		40.0280		139.86	97.2		MS
Magnesium	mg/Kg	80 - 120	1944.0560		2047.5530		279.72	-37.0		MS
Manganese	mg/Kg	80 - 120	594.6854		460.5595		27.97	479.5		MS
Nickel	mg/Kg	80 - 120	66.5734		10.4378		69.93	80.3		MS
Mercury	mg/Kg	34 - 153	0.2838		0.0646		0.28	78.3 OK		CV
Potassium	mg/Kg	80 - 120	1657.3430		604.7553		1398.60	75.3	N	MS
Selenium	mg/Kg	80 - 120	260.6993		0.4158	J	279.72	93.1		MS
Silver	mg/Kg	80 - 120	10.4546		0.1519		10.49	98.2		MS
Sodium	mg/Kg	80 - 120	431.4685		48.4056	J	419.58	91.3		MS
Thallium	mg/Kg	80 - 120	270.7693		0.1662		279.72	96.7		MS
Vanadium	mg/Kg	80 - 120	57.3287		26.8532		41.96	72.6	N	MS
Zinc	mg/Kg	80 - 120	267.1329		366.9930		27.97	-357.0		MS

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Matrix: WATER **Level:** LOW **Client ID:** 12SB12-000.5-01A

Sample ID: C5146-07 **Spiked ID:** C5146-07A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	80 - 120	753.30		3.61		800.0	93.7		MS
Barium	ug/L	80 - 120	830.00		649.70		200.0	90.2		MS
Chromium	ug/L	80 - 120	465.90		149.50		400.0	79.1		MS
Cobalt	ug/L	80 - 120	223.80		61.72		200.0	81.0		MS
Potassium	ug/L	80 - 120	12060.00		4324.00		10000.0	77.4		MS
Vanadium	ug/L	80 - 120	424.20		192.00		300.0	77.4		MS

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Matrix: SOIL **Sample ID:** C5146-07 **Client ID:** 12SB12-000.5-01D

Percent Solids for Sample: 71.5 **Duplicate ID** C5146-07D **Percent Solids for Spike Sample:** 71.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	9597.2040		9756.6450		1.6		MS
Antimony	mg/Kg	20	0.5052		0.4860		3.9		MS
Arsenic	mg/Kg	20	4.8378		4.3608		10.4		MS
Barium	mg/Kg	20	90.8671		94.0280		3.4		MS
Beryllium	mg/Kg	20	0.8194		0.7869		4.0		MS
Cadmium	mg/Kg	20	0.5601		0.5351		4.6		MS
Calcium	mg/Kg	20	1855.9440		1697.9020		8.9		MS
Chromium	mg/Kg	20	20.9091		20.5874		1.6		MS
Cobalt	mg/Kg	20	8.6322		7.8406		9.6		MS
Copper	mg/Kg	20	15.1888		15.1608		0.2		MS
Iron	mg/Kg	20	16503.5000		19006.9900		14.1		MS
Lead	mg/Kg	20	40.0280		36.1818		10.1		MS
Magnesium	mg/Kg	20	2047.5530		1896.5040		7.7		MS
Manganese	mg/Kg	20	460.5595		587.1329		24.2	*	MS
Nickel	mg/Kg	20	10.4378		10.6532		2.0		MS
Mercury	mg/Kg	20	0.0646		0.0538		18.2		CV
Potassium	mg/Kg	20	604.7553		576.5035		4.8		MS
Selenium	mg/Kg	20	0.4158	J	0.2348	J	55.6		MS
Silver	mg/Kg	20	0.1519		0.1583		4.1		MS
Sodium	mg/Kg	20	48.4056	J	59.7483	J	21.0	*	MS
Thallium	mg/Kg	20	0.1662		0.1284	J	25.7	*	MS
Vanadium	mg/Kg	20	26.8532		25.5804		4.9		MS
Zinc	mg/Kg	20	366.9930		373.4266		1.7		MS

All <35%

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Matrix: SOIL **Sample ID:** C5146-07 **Client ID:** 12SB12-000.5-01SD

Percent Solids for Sample: 71.5 **Duplicate ID** C5146-09SD **Percent Solids for Spike Sample:** 71.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	13078.3200		13202.8000		0.9		MS
Antimony	mg/Kg	20	71.8042		70.7133		1.5		MS
Arsenic	mg/Kg	20	95.1888		95.5804		0.4		MS
Barium	mg/Kg	20	128.3916		125.2168		2.5		MS
Beryllium	mg/Kg	20	24.0699		24.3497		1.2		MS
Cadmium	mg/Kg	20	26.8951		27.1049		0.8		MS
Calcium	mg/Kg	20	1881.1190		2233.5670		17.1		MS
Chromium	mg/Kg	20	65.6364		63.8602		2.7		MS
Cobalt	mg/Kg	20	29.2308		29.2727		0.1		MS
Copper	mg/Kg	20	51.5245		51.3427		0.4		MS
Iron	mg/Kg	20	19244.7600		19020.9800		1.2		MS
Lead	mg/Kg	20	171.1888		175.9441		2.7		MS
Magnesium	mg/Kg	20	1889.5110		1944.0560		2.8		MS
Manganese	mg/Kg	20	586.8532		594.6854		1.3		MS
Nickel	mg/Kg	20	68.0280		66.5734		2.2		MS
Mercury	mg/Kg	20	0.3142		0.2838		10.2		CV
Potassium	mg/Kg	20	1658.7410		1657.3430		0.1		MS
Selenium	mg/Kg	20	257.9021		260.6993		1.1		MS
Silver	mg/Kg	20	10.2252		10.4546		2.2		MS
Sodium	mg/Kg	20	414.2658		431.4685		4.1		MS
Thallium	mg/Kg	20	263.0769		270.7693		2.9		MS
Vanadium	mg/Kg	20	57.5105		57.3287		0.3		MS
Zinc	mg/Kg	20	267.9720		267.1329		0.3		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60309BS							
Aluminum	mg/Kg	200.0	196.5		98.2	80 - 120	MS
Antimony	mg/Kg	80.0	79.2		99.0	80 - 120	MS
Arsenic	mg/Kg	80.0	80.2		100.2	80 - 120	MS
Barium	mg/Kg	20.0	20.4		102.0	80 - 120	MS
Beryllium	mg/Kg	20.0	18.5		92.5	80 - 120	MS
Cadmium	mg/Kg	20.0	20.0		100.0	80 - 120	MS
Calcium	mg/Kg	100.0	108.2		108.2	80 - 120	MS
Chromium	mg/Kg	40.0	40.1		100.2	80 - 120	MS
Cobalt	mg/Kg	20.0	20.2		101.0	80 - 120	MS
Copper	mg/Kg	30.0	31.5		105.0	80 - 120	MS
Iron	mg/Kg	300.0	308.3		102.8	80 - 120	MS
Lead	mg/Kg	100.0	99.3		99.3	80 - 120	MS
Magnesium	mg/Kg	200.0	197.5		98.8	80 - 120	MS
Manganese	mg/Kg	20.0	20.6		103.0	80 - 120	MS
Nickel	mg/Kg	50.0	51.2		102.4	80 - 120	MS
Potassium	mg/Kg	1000.0	1009.0		100.9	80 - 120	MS
Selenium	mg/Kg	200.0	199.1		99.6	80 - 120	MS
Silver	mg/Kg	7.5	7.7		102.7	80 - 120	MS
Sodium	mg/Kg	300.0	302.5		100.8	80 - 120	MS
Thallium	mg/Kg	200.0	197.7		98.8	80 - 120	MS
Vanadium	mg/Kg	30.0	29.5		98.3	80 - 120	MS
Zinc	mg/Kg	20.0	20.6		103.0	80 - 120	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60324BS							
Mercury	mg/Kg	0.200	0.187		93.5	73 - 121	CV

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB12-000.5-01L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5146 **SAS No.:** C5146 **SDG No.:** C5146

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	68620.00		81600.00		18.9		MS
Antimony	3.61		3.62	J	0.3		MS
Arsenic	34.59		43.06		24.5		MS
Barium	649.70		659.00		1.4		MS
Beryllium	5.86		6.61		12.8		MS
Cadmium	4.01		3.40	J	15.2	OL	MS
Calcium	13270.00		16285.00		22.7		MS
Chromium	149.50		177.25		18.6		MS
Cobalt	61.72		72.80		18.0		MS
Copper	108.60		127.00		16.9		MS
Iron	118000.00		149950.00		27.1		MS
Lead	286.20		288.85		0.9		MS
Magnesium	14640.00		16535.00		12.9		MS
Manganese	3293.00		4138.50		25.7		MS
Nickel	74.63		85.20		14.2		MS
Mercury	0.09	U	0.67	J	100.0		CV
Potassium	4324.00		5205.00		20.4		MS
Selenium	2.97	J	3.50	U	100.0		MS
Silver	1.09		1.00	J	8.3		MS
Sodium	346.10	J	490.95	J	41.9		MS
Thallium	1.19		1.14	J	4.2		MS
Vanadium	192.00		222.40		15.8		MS
Zinc	2624.00		3317.00		26.4		MS

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	4.01	4.0	100.2	90 - 110	CV	01/03/2012	16:31	LB58677
CCV01	Mercury	5.10	5.0	102.0	90 - 110	CV	01/03/2012	16:35	LB58677
CCV02	Mercury	4.93	5.0	98.6	90 - 110	CV	01/03/2012	16:59	LB58677
CCV03	Mercury	4.98	5.0	99.6	90 - 110	CV	01/03/2012	17:22	LB58677
CCV04	Mercury	4.83	5.0	96.6	90 - 110	CV	01/03/2012	17:49	LB58677
CCV05	Mercury	4.64	5.0	92.8	90 - 110	CV	01/03/2012	18:11	LB58677
ICV01	Mercury	3.72	4.0	93.0	90 - 110	CV	01/04/2012	10:32	LB58685
CCV01	Mercury	4.75	5.0	95.0	90 - 110	CV	01/04/2012	10:37	LB58685
CCV02	Mercury	4.62	5.0	92.4	90 - 110	CV	01/04/2012	11:04	LB58685
CCV03	Mercury	4.63	5.0	92.6	90 - 110	CV	01/04/2012	11:23	LB58685

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	526.20	504.0	104.4	90 - 110	MS	01/12/2012	15:04	LB58810
	Antimony	188.20	199.0	94.6	90 - 110	MS	01/12/2012	15:04	LB58810
	Arsenic	192.10	200.0	96.0	90 - 110	MS	01/12/2012	15:04	LB58810
	Barium	99.45	99.0	100.5	90 - 110	MS	01/12/2012	15:04	LB58810
	Beryllium	96.40	99.0	97.4	90 - 110	MS	01/12/2012	15:04	LB58810
	Cadmium	97.01	99.0	98.0	90 - 110	MS	01/12/2012	15:04	LB58810
	Calcium	2150.00	2005.0	107.2	90 - 110	MS	01/12/2012	15:04	LB58810
	Chromium	98.43	98.0	100.4	90 - 110	MS	01/12/2012	15:04	LB58810
	Cobalt	99.32	100.0	99.3	90 - 110	MS	01/12/2012	15:04	LB58810
	Copper	102.10	98.0	104.2	90 - 110	MS	01/12/2012	15:04	LB58810
	Iron	1036.00	1016.0	102.0	90 - 110	MS	01/12/2012	15:04	LB58810
	Lead	194.40	200.0	97.2	90 - 110	MS	01/12/2012	15:04	LB58810
	Magnesium	1216.00	1215.0	100.1	90 - 110	MS	01/12/2012	15:04	LB58810
	Manganese	100.40	100.0	100.4	90 - 110	MS	01/12/2012	15:04	LB58810
	Nickel	102.50	101.0	101.5	90 - 110	MS	01/12/2012	15:04	LB58810
	Potassium	2014.00	2004.0	100.5	90 - 110	MS	01/12/2012	15:04	LB58810
	Selenium	192.70	206.0	93.5	90 - 110	MS	01/12/2012	15:04	LB58810
	Silver	94.56	100.0	94.6	90 - 110	MS	01/12/2012	15:04	LB58810
	Sodium	2024.00	2019.0	100.2	90 - 110	MS	01/12/2012	15:04	LB58810
	Thallium	197.80	206.0	96.0	90 - 110	MS	01/12/2012	15:04	LB58810
	Vanadium	96.14	100.0	96.1	90 - 110	MS	01/12/2012	15:04	LB58810
	Zinc	199.60	205.0	97.4	90 - 110	MS	01/12/2012	15:04	LB58810
CCV01	Aluminum	9720.00	10000.0	97.2	90 - 110	MS	01/12/2012	15:51	LB58810
	Antimony	486.00	500.0	97.2	90 - 110	MS	01/12/2012	15:51	LB58810
	Arsenic	485.70	500.0	97.1	90 - 110	MS	01/12/2012	15:51	LB58810
	Barium	2427.00	2500.0	97.1	90 - 110	MS	01/12/2012	15:51	LB58810
	Beryllium	493.90	500.0	98.8	90 - 110	MS	01/12/2012	15:51	LB58810
	Cadmium	485.70	500.0	97.1	90 - 110	MS	01/12/2012	15:51	LB58810
	Calcium	48840.00	50000.0	97.7	90 - 110	MS	01/12/2012	15:51	LB58810
	Chromium	485.10	500.0	97.0	90 - 110	MS	01/12/2012	15:51	LB58810
	Cobalt	490.20	500.0	98.0	90 - 110	MS	01/12/2012	15:51	LB58810
	Copper	978.00	1000.0	97.8	90 - 110	MS	01/12/2012	15:51	LB58810
	Iron	24500.00	25000.0	98.0	90 - 110	MS	01/12/2012	15:51	LB58810
	Lead	488.80	500.0	97.8	90 - 110	MS	01/12/2012	15:51	LB58810
	Magnesium	49260.00	50000.0	98.5	90 - 110	MS	01/12/2012	15:51	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Manganese	981.30	1000.0	98.1	90 - 110	MS	01/12/2012	15:51	LB58810
	Nickel	490.10	500.0	98.0	90 - 110	MS	01/12/2012	15:51	LB58810
	Potassium	24470.00	25000.0	97.9	90 - 110	MS	01/12/2012	15:51	LB58810
	Selenium	494.00	500.0	98.8	90 - 110	MS	01/12/2012	15:51	LB58810
	Silver	486.50	500.0	97.3	90 - 110	MS	01/12/2012	15:51	LB58810
	Sodium	48820.00	50000.0	97.6	90 - 110	MS	01/12/2012	15:51	LB58810
	Thallium	489.00	500.0	97.8	90 - 110	MS	01/12/2012	15:51	LB58810
	Vanadium	487.50	500.0	97.5	90 - 110	MS	01/12/2012	15:51	LB58810
	Zinc	980.30	1000.0	98.0	90 - 110	MS	01/12/2012	15:51	LB58810
CCV02	Aluminum	9546.00	10000.0	95.5	90 - 110	MS	01/12/2012	17:26	LB58810
	Antimony	493.30	500.0	98.7	90 - 110	MS	01/12/2012	17:26	LB58810
	Arsenic	486.50	500.0	97.3	90 - 110	MS	01/12/2012	17:26	LB58810
	Barium	2426.00	2500.0	97.0	90 - 110	MS	01/12/2012	17:26	LB58810
	Beryllium	494.20	500.0	98.8	90 - 110	MS	01/12/2012	17:26	LB58810
	Cadmium	496.70	500.0	99.3	90 - 110	MS	01/12/2012	17:26	LB58810
	Calcium	49790.00	50000.0	99.6	90 - 110	MS	01/12/2012	17:26	LB58810
	Chromium	488.90	500.0	97.8	90 - 110	MS	01/12/2012	17:26	LB58810
	Cobalt	485.70	500.0	97.1	90 - 110	MS	01/12/2012	17:26	LB58810
	Copper	975.90	1000.0	97.6	90 - 110	MS	01/12/2012	17:26	LB58810
	Iron	24760.00	25000.0	99.0	90 - 110	MS	01/12/2012	17:26	LB58810
	Lead	489.50	500.0	97.9	90 - 110	MS	01/12/2012	17:26	LB58810
	Magnesium	50680.00	50000.0	101.4	90 - 110	MS	01/12/2012	17:26	LB58810
	Manganese	989.20	1000.0	98.9	90 - 110	MS	01/12/2012	17:26	LB58810
	Nickel	484.70	500.0	96.9	90 - 110	MS	01/12/2012	17:26	LB58810
	Potassium	24650.00	25000.0	98.6	90 - 110	MS	01/12/2012	17:26	LB58810
	Selenium	491.00	500.0	98.2	90 - 110	MS	01/12/2012	17:26	LB58810
	Silver	491.00	500.0	98.2	90 - 110	MS	01/12/2012	17:26	LB58810
	Sodium	50460.00	50000.0	100.9	90 - 110	MS	01/12/2012	17:26	LB58810
	Thallium	490.20	500.0	98.0	90 - 110	MS	01/12/2012	17:26	LB58810
	Vanadium	484.30	500.0	96.9	90 - 110	MS	01/12/2012	17:26	LB58810
	Zinc	998.70	1000.0	99.9	90 - 110	MS	01/12/2012	17:26	LB58810
CCV03	Aluminum	9351.00	10000.0	93.5	90 - 110	MS	01/12/2012	18:53	LB58810
	Antimony	493.00	500.0	98.6	90 - 110	MS	01/12/2012	18:53	LB58810
	Arsenic	481.30	500.0	96.3	90 - 110	MS	01/12/2012	18:53	LB58810
	Barium	2402.00	2500.0	96.1	90 - 110	MS	01/12/2012	18:53	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Beryllium	490.20	500.0	98.0	90 - 110	MS	01/12/2012	18:53	LB58810
	Cadmium	495.30	500.0	99.1	90 - 110	MS	01/12/2012	18:53	LB58810
	Calcium	49780.00	50000.0	99.6	90 - 110	MS	01/12/2012	18:53	LB58810
	Chromium	478.30	500.0	95.7	90 - 110	MS	01/12/2012	18:53	LB58810
	Cobalt	477.10	500.0	95.4	90 - 110	MS	01/12/2012	18:53	LB58810
	Copper	956.20	1000.0	95.6	90 - 110	MS	01/12/2012	18:53	LB58810
	Iron	24500.00	25000.0	98.0	90 - 110	MS	01/12/2012	18:53	LB58810
	Lead	486.30	500.0	97.3	90 - 110	MS	01/12/2012	18:53	LB58810
	Magnesium	50940.00	50000.0	101.9	90 - 110	MS	01/12/2012	18:53	LB58810
	Manganese	976.20	1000.0	97.6	90 - 110	MS	01/12/2012	18:53	LB58810
	Nickel	477.00	500.0	95.4	90 - 110	MS	01/12/2012	18:53	LB58810
	Potassium	24820.00	25000.0	99.3	90 - 110	MS	01/12/2012	18:53	LB58810
	Selenium	480.60	500.0	96.1	90 - 110	MS	01/12/2012	18:53	LB58810
	Silver	484.90	500.0	97.0	90 - 110	MS	01/12/2012	18:53	LB58810
	Sodium	51600.00	50000.0	103.2	90 - 110	MS	01/12/2012	18:53	LB58810
	Thallium	488.30	500.0	97.7	90 - 110	MS	01/12/2012	18:53	LB58810
	Vanadium	474.60	500.0	94.9	90 - 110	MS	01/12/2012	18:53	LB58810
	Zinc	997.90	1000.0	99.8	90 - 110	MS	01/12/2012	18:53	LB58810
CCV04	Aluminum	9420.00	10000.0	94.2	90 - 110	MS	01/12/2012	20:28	LB58810
	Antimony	498.80	500.0	99.8	90 - 110	MS	01/12/2012	20:28	LB58810
	Arsenic	481.00	500.0	96.2	90 - 110	MS	01/12/2012	20:28	LB58810
	Barium	2399.00	2500.0	96.0	90 - 110	MS	01/12/2012	20:28	LB58810
	Beryllium	495.70	500.0	99.1	90 - 110	MS	01/12/2012	20:28	LB58810
	Cadmium	498.80	500.0	99.8	90 - 110	MS	01/12/2012	20:28	LB58810
	Calcium	49490.00	50000.0	99.0	90 - 110	MS	01/12/2012	20:28	LB58810
	Chromium	478.70	500.0	95.7	90 - 110	MS	01/12/2012	20:28	LB58810
	Cobalt	474.70	500.0	94.9	90 - 110	MS	01/12/2012	20:28	LB58810
	Copper	954.10	1000.0	95.4	90 - 110	MS	01/12/2012	20:28	LB58810
	Iron	24430.00	25000.0	97.7	90 - 110	MS	01/12/2012	20:28	LB58810
	Lead	487.80	500.0	97.6	90 - 110	MS	01/12/2012	20:28	LB58810
	Magnesium	51420.00	50000.0	102.8	90 - 110	MS	01/12/2012	20:28	LB58810
	Manganese	982.10	1000.0	98.2	90 - 110	MS	01/12/2012	20:28	LB58810
	Nickel	472.60	500.0	94.5	90 - 110	MS	01/12/2012	20:28	LB58810
	Potassium	24900.00	25000.0	99.6	90 - 110	MS	01/12/2012	20:28	LB58810
	Selenium	476.20	500.0	95.2	90 - 110	MS	01/12/2012	20:28	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	492.00	500.0	98.4	90 - 110	MS	01/12/2012	20:28	LB58810
	Sodium	51710.00	50000.0	103.4	90 - 110	MS	01/12/2012	20:28	LB58810
	Thallium	489.30	500.0	97.9	90 - 110	MS	01/12/2012	20:28	LB58810
	Vanadium	475.50	500.0	95.1	90 - 110	MS	01/12/2012	20:28	LB58810
	Zinc	997.00	1000.0	99.7	90 - 110	MS	01/12/2012	20:28	LB58810
CCV05	Aluminum	9340.00	10000.0	93.4	90 - 110	MS	01/12/2012	22:03	LB58810
	Antimony	500.10	500.0	100.0	90 - 110	MS	01/12/2012	22:03	LB58810
	Arsenic	479.10	500.0	95.8	90 - 110	MS	01/12/2012	22:03	LB58810
	Barium	2404.00	2500.0	96.2	90 - 110	MS	01/12/2012	22:03	LB58810
	Beryllium	491.40	500.0	98.3	90 - 110	MS	01/12/2012	22:03	LB58810
	Cadmium	497.70	500.0	99.5	90 - 110	MS	01/12/2012	22:03	LB58810
	Calcium	49660.00	50000.0	99.3	90 - 110	MS	01/12/2012	22:03	LB58810
	Chromium	477.90	500.0	95.6	90 - 110	MS	01/12/2012	22:03	LB58810
	Cobalt	475.10	500.0	95.0	90 - 110	MS	01/12/2012	22:03	LB58810
	Copper	954.10	1000.0	95.4	90 - 110	MS	01/12/2012	22:03	LB58810
	Iron	24500.00	25000.0	98.0	90 - 110	MS	01/12/2012	22:03	LB58810
	Lead	485.60	500.0	97.1	90 - 110	MS	01/12/2012	22:03	LB58810
	Magnesium	51290.00	50000.0	102.6	90 - 110	MS	01/12/2012	22:03	LB58810
	Manganese	980.90	1000.0	98.1	90 - 110	MS	01/12/2012	22:03	LB58810
	Nickel	471.70	500.0	94.3	90 - 110	MS	01/12/2012	22:03	LB58810
	Potassium	25000.00	25000.0	100.0	90 - 110	MS	01/12/2012	22:03	LB58810
	Selenium	480.50	500.0	96.1	90 - 110	MS	01/12/2012	22:03	LB58810
	Silver	489.50	500.0	97.9	90 - 110	MS	01/12/2012	22:03	LB58810
	Sodium	52210.00	50000.0	104.4	90 - 110	MS	01/12/2012	22:03	LB58810
	Thallium	487.10	500.0	97.4	90 - 110	MS	01/12/2012	22:03	LB58810
	Vanadium	475.50	500.0	95.1	90 - 110	MS	01/12/2012	22:03	LB58810
	Zinc	1005.00	1000.0	100.5	90 - 110	MS	01/12/2012	22:03	LB58810
CCV06	Aluminum	9355.00	10000.0	93.6	90 - 110	MS	01/12/2012	23:38	LB58810
	Antimony	496.30	500.0	99.3	90 - 110	MS	01/12/2012	23:38	LB58810
	Arsenic	481.10	500.0	96.2	90 - 110	MS	01/12/2012	23:38	LB58810
	Barium	2384.00	2500.0	95.4	90 - 110	MS	01/12/2012	23:38	LB58810
	Beryllium	494.20	500.0	98.8	90 - 110	MS	01/12/2012	23:38	LB58810
	Cadmium	501.10	500.0	100.2	90 - 110	MS	01/12/2012	23:38	LB58810
	Calcium	49740.00	50000.0	99.5	90 - 110	MS	01/12/2012	23:38	LB58810
	Chromium	478.60	500.0	95.7	90 - 110	MS	01/12/2012	23:38	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	474.60	500.0	94.9	90 - 110	MS	01/12/2012	23:38	LB58810
	Copper	951.60	1000.0	95.2	90 - 110	MS	01/12/2012	23:38	LB58810
	Iron	24410.00	25000.0	97.6	90 - 110	MS	01/12/2012	23:38	LB58810
	Lead	484.50	500.0	96.9	90 - 110	MS	01/12/2012	23:38	LB58810
	Magnesium	51700.00	50000.0	103.4	90 - 110	MS	01/12/2012	23:38	LB58810
	Manganese	979.60	1000.0	98.0	90 - 110	MS	01/12/2012	23:38	LB58810
	Nickel	474.90	500.0	95.0	90 - 110	MS	01/12/2012	23:38	LB58810
	Potassium	25120.00	25000.0	100.5	90 - 110	MS	01/12/2012	23:38	LB58810
	Selenium	482.40	500.0	96.5	90 - 110	MS	01/12/2012	23:38	LB58810
	Silver	490.10	500.0	98.0	90 - 110	MS	01/12/2012	23:38	LB58810
	Sodium	52820.00	50000.0	105.6	90 - 110	MS	01/12/2012	23:38	LB58810
	Thallium	485.00	500.0	97.0	90 - 110	MS	01/12/2012	23:38	LB58810
	Vanadium	477.80	500.0	95.6	90 - 110	MS	01/12/2012	23:38	LB58810
	Zinc	1001.00	1000.0	100.1	90 - 110	MS	01/12/2012	23:38	LB58810
CCV07	Aluminum	9447.00	10000.0	94.5	90 - 110	MS	01/13/2012	01:13	LB58810
	Antimony	500.80	500.0	100.2	90 - 110	MS	01/13/2012	01:13	LB58810
	Arsenic	481.40	500.0	96.3	90 - 110	MS	01/13/2012	01:13	LB58810
	Barium	2406.00	2500.0	96.2	90 - 110	MS	01/13/2012	01:13	LB58810
	Beryllium	500.30	500.0	100.1	90 - 110	MS	01/13/2012	01:13	LB58810
	Cadmium	499.30	500.0	99.9	90 - 110	MS	01/13/2012	01:13	LB58810
	Calcium	50010.00	50000.0	100.0	90 - 110	MS	01/13/2012	01:13	LB58810
	Chromium	481.00	500.0	96.2	90 - 110	MS	01/13/2012	01:13	LB58810
	Cobalt	478.90	500.0	95.8	90 - 110	MS	01/13/2012	01:13	LB58810
	Copper	957.90	1000.0	95.8	90 - 110	MS	01/13/2012	01:13	LB58810
	Iron	24550.00	25000.0	98.2	90 - 110	MS	01/13/2012	01:13	LB58810
	Lead	487.60	500.0	97.5	90 - 110	MS	01/13/2012	01:13	LB58810
	Magnesium	51870.00	50000.0	103.7	90 - 110	MS	01/13/2012	01:13	LB58810
	Manganese	983.20	1000.0	98.3	90 - 110	MS	01/13/2012	01:13	LB58810
	Nickel	478.20	500.0	95.6	90 - 110	MS	01/13/2012	01:13	LB58810
	Potassium	25290.00	25000.0	101.2	90 - 110	MS	01/13/2012	01:13	LB58810
	Selenium	482.50	500.0	96.5	90 - 110	MS	01/13/2012	01:13	LB58810
	Silver	491.80	500.0	98.4	90 - 110	MS	01/13/2012	01:13	LB58810
	Sodium	52990.00	50000.0	106.0	90 - 110	MS	01/13/2012	01:13	LB58810
	Thallium	488.60	500.0	97.7	90 - 110	MS	01/13/2012	01:13	LB58810
	Vanadium	480.30	500.0	96.1	90 - 110	MS	01/13/2012	01:13	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1000.00	1000.0	100.0	90 - 110	MS	01/13/2012	01:13	LB58810
ICV01	Aluminum	513.00	504.0	101.8	90 - 110	MS	01/13/2012	13:53	LB58833
	Antimony	188.80	199.0	94.9	90 - 110	MS	01/13/2012	13:53	LB58833
	Arsenic	193.60	200.0	96.8	90 - 110	MS	01/13/2012	13:53	LB58833
	Barium	99.02	99.0	100.0	90 - 110	MS	01/13/2012	13:53	LB58833
	Beryllium	95.66	99.0	96.6	90 - 110	MS	01/13/2012	13:53	LB58833
	Cadmium	98.29	99.0	99.3	90 - 110	MS	01/13/2012	13:53	LB58833
	Calcium	2119.00	2005.0	105.7	90 - 110	MS	01/13/2012	13:53	LB58833
	Chromium	98.16	98.0	100.2	90 - 110	MS	01/13/2012	13:53	LB58833
	Cobalt	99.36	100.0	99.4	90 - 110	MS	01/13/2012	13:53	LB58833
	Copper	101.90	98.0	104.0	90 - 110	MS	01/13/2012	13:53	LB58833
	Iron	1020.00	1016.0	100.4	90 - 110	MS	01/13/2012	13:53	LB58833
	Lead	195.10	200.0	97.6	90 - 110	MS	01/13/2012	13:53	LB58833
	Magnesium	1183.00	1215.0	97.4	90 - 110	MS	01/13/2012	13:53	LB58833
	Manganese	99.98	100.0	100.0	90 - 110	MS	01/13/2012	13:53	LB58833
	Nickel	101.80	101.0	100.8	90 - 110	MS	01/13/2012	13:53	LB58833
	Potassium	1998.00	2004.0	99.7	90 - 110	MS	01/13/2012	13:53	LB58833
	Selenium	193.80	206.0	94.1	90 - 110	MS	01/13/2012	13:53	LB58833
	Silver	95.36	100.0	95.4	90 - 110	MS	01/13/2012	13:53	LB58833
	Sodium	1987.00	2019.0	98.4	90 - 110	MS	01/13/2012	13:53	LB58833
	Thallium	195.70	206.0	95.0	90 - 110	MS	01/13/2012	13:53	LB58833
	Vanadium	95.72	100.0	95.7	90 - 110	MS	01/13/2012	13:53	LB58833
	Zinc	201.80	205.0	98.4	90 - 110	MS	01/13/2012	13:53	LB58833
CCV01	Aluminum	9713.00	10000.0	97.1	90 - 110	MS	01/13/2012	14:57	LB58833
	Antimony	500.30	500.0	100.1	90 - 110	MS	01/13/2012	14:57	LB58833
	Arsenic	499.00	500.0	99.8	90 - 110	MS	01/13/2012	14:57	LB58833
	Barium	2487.00	2500.0	99.5	90 - 110	MS	01/13/2012	14:57	LB58833
	Beryllium	491.40	500.0	98.3	90 - 110	MS	01/13/2012	14:57	LB58833
	Cadmium	501.60	500.0	100.3	90 - 110	MS	01/13/2012	14:57	LB58833
	Calcium	50190.00	50000.0	100.4	90 - 110	MS	01/13/2012	14:57	LB58833
	Chromium	499.90	500.0	100.0	90 - 110	MS	01/13/2012	14:57	LB58833
	Cobalt	499.10	500.0	99.8	90 - 110	MS	01/13/2012	14:57	LB58833
	Copper	1005.00	1000.0	100.5	90 - 110	MS	01/13/2012	14:57	LB58833
	Iron	25160.00	25000.0	100.6	90 - 110	MS	01/13/2012	14:57	LB58833
	Lead	494.70	500.0	98.9	90 - 110	MS	01/13/2012	14:57	LB58833

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Magnesium	49610.00	50000.0	99.2	90 - 110	MS	01/13/2012	14:57	LB58833
	Manganese	1000.00	1000.0	100.0	90 - 110	MS	01/13/2012	14:57	LB58833
	Nickel	502.00	500.0	100.4	90 - 110	MS	01/13/2012	14:57	LB58833
	Potassium	25040.00	25000.0	100.2	90 - 110	MS	01/13/2012	14:57	LB58833
	Selenium	498.40	500.0	99.7	90 - 110	MS	01/13/2012	14:57	LB58833
	Silver	501.80	500.0	100.4	90 - 110	MS	01/13/2012	14:57	LB58833
	Sodium	50160.00	50000.0	100.3	90 - 110	MS	01/13/2012	14:57	LB58833
	Thallium	492.50	500.0	98.5	90 - 110	MS	01/13/2012	14:57	LB58833
	Vanadium	497.00	500.0	99.4	90 - 110	MS	01/13/2012	14:57	LB58833
	Zinc	1012.00	1000.0	101.2	90 - 110	MS	01/13/2012	14:57	LB58833
CCV02	Aluminum	9647.00	10000.0	96.5	90 - 110	MS	01/13/2012	16:16	LB58833
	Antimony	495.00	500.0	99.0	90 - 110	MS	01/13/2012	16:16	LB58833
	Arsenic	494.80	500.0	99.0	90 - 110	MS	01/13/2012	16:16	LB58833
	Barium	2457.00	2500.0	98.3	90 - 110	MS	01/13/2012	16:16	LB58833
	Beryllium	495.00	500.0	99.0	90 - 110	MS	01/13/2012	16:16	LB58833
	Cadmium	503.20	500.0	100.6	90 - 110	MS	01/13/2012	16:16	LB58833
	Calcium	49270.00	50000.0	98.5	90 - 110	MS	01/13/2012	16:16	LB58833
	Chromium	494.40	500.0	98.9	90 - 110	MS	01/13/2012	16:16	LB58833
	Cobalt	495.00	500.0	99.0	90 - 110	MS	01/13/2012	16:16	LB58833
	Copper	996.00	1000.0	99.6	90 - 110	MS	01/13/2012	16:16	LB58833
	Iron	24860.00	25000.0	99.4	90 - 110	MS	01/13/2012	16:16	LB58833
	Lead	493.00	500.0	98.6	90 - 110	MS	01/13/2012	16:16	LB58833
	Magnesium	49210.00	50000.0	98.4	90 - 110	MS	01/13/2012	16:16	LB58833
	Manganese	993.50	1000.0	99.4	90 - 110	MS	01/13/2012	16:16	LB58833
	Nickel	495.30	500.0	99.1	90 - 110	MS	01/13/2012	16:16	LB58833
	Potassium	24630.00	25000.0	98.5	90 - 110	MS	01/13/2012	16:16	LB58833
	Selenium	496.10	500.0	99.2	90 - 110	MS	01/13/2012	16:16	LB58833
	Silver	495.10	500.0	99.0	90 - 110	MS	01/13/2012	16:16	LB58833
	Sodium	49450.00	50000.0	98.9	90 - 110	MS	01/13/2012	16:16	LB58833
	Thallium	489.50	500.0	97.9	90 - 110	MS	01/13/2012	16:16	LB58833
	Vanadium	489.70	500.0	97.9	90 - 110	MS	01/13/2012	16:16	LB58833
	Zinc	996.90	1000.0	99.7	90 - 110	MS	01/13/2012	16:16	LB58833
CCV03	Aluminum	9555.00	10000.0	95.6	90 - 110	MS	01/13/2012	18:06	LB58833
	Antimony	504.20	500.0	100.8	90 - 110	MS	01/13/2012	18:06	LB58833
	Arsenic	500.00	500.0	100.0	90 - 110	MS	01/13/2012	18:06	LB58833

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Barium	2496.00	2500.0	99.8	90 - 110	MS	01/13/2012	18:06	LB58833
	Beryllium	497.80	500.0	99.6	90 - 110	MS	01/13/2012	18:06	LB58833
	Cadmium	503.30	500.0	100.7	90 - 110	MS	01/13/2012	18:06	LB58833
	Calcium	50460.00	50000.0	100.9	90 - 110	MS	01/13/2012	18:06	LB58833
	Chromium	502.00	500.0	100.4	90 - 110	MS	01/13/2012	18:06	LB58833
	Cobalt	499.30	500.0	99.9	90 - 110	MS	01/13/2012	18:06	LB58833
	Copper	995.60	1000.0	99.6	90 - 110	MS	01/13/2012	18:06	LB58833
	Iron	25210.00	25000.0	100.8	90 - 110	MS	01/13/2012	18:06	LB58833
	Lead	496.70	500.0	99.3	90 - 110	MS	01/13/2012	18:06	LB58833
	Magnesium	50040.00	50000.0	100.1	90 - 110	MS	01/13/2012	18:06	LB58833
	Manganese	1009.00	1000.0	100.9	90 - 110	MS	01/13/2012	18:06	LB58833
	Nickel	499.00	500.0	99.8	90 - 110	MS	01/13/2012	18:06	LB58833
	Potassium	25470.00	25000.0	101.9	90 - 110	MS	01/13/2012	18:06	LB58833
	Selenium	499.40	500.0	99.9	90 - 110	MS	01/13/2012	18:06	LB58833
	Silver	282.90	500.0	56.6	90 - 110	MS	01/13/2012	18:06	LB58833
	Sodium	51470.00	50000.0	102.9	90 - 110	MS	01/13/2012	18:06	LB58833
	Thallium	492.70	500.0	98.5	90 - 110	MS	01/13/2012	18:06	LB58833
	Vanadium	499.00	500.0	99.8	90 - 110	MS	01/13/2012	18:06	LB58833
	Zinc	1019.00	1000.0	101.9	90 - 110	MS	01/13/2012	18:06	LB58833
CCV04	Aluminum	9661.00	10000.0	96.6	90 - 110	MS	01/13/2012	18:37	LB58833
	Antimony	504.10	500.0	100.8	90 - 110	MS	01/13/2012	18:37	LB58833
	Arsenic	504.90	500.0	101.0	90 - 110	MS	01/13/2012	18:37	LB58833
	Barium	2501.00	2500.0	100.0	90 - 110	MS	01/13/2012	18:37	LB58833
	Beryllium	498.70	500.0	99.7	90 - 110	MS	01/13/2012	18:37	LB58833
	Cadmium	508.20	500.0	101.6	90 - 110	MS	01/13/2012	18:37	LB58833
	Calcium	50360.00	50000.0	100.7	90 - 110	MS	01/13/2012	18:37	LB58833
	Chromium	501.60	500.0	100.3	90 - 110	MS	01/13/2012	18:37	LB58833
	Cobalt	500.60	500.0	100.1	90 - 110	MS	01/13/2012	18:37	LB58833
	Copper	998.30	1000.0	99.8	90 - 110	MS	01/13/2012	18:37	LB58833
	Iron	25140.00	25000.0	100.6	90 - 110	MS	01/13/2012	18:37	LB58833
	Lead	496.70	500.0	99.3	90 - 110	MS	01/13/2012	18:37	LB58833
	Magnesium	49950.00	50000.0	99.9	90 - 110	MS	01/13/2012	18:37	LB58833
	Manganese	1006.00	1000.0	100.6	90 - 110	MS	01/13/2012	18:37	LB58833
	Nickel	498.10	500.0	99.6	90 - 110	MS	01/13/2012	18:37	LB58833
	Potassium	25280.00	25000.0	101.1	90 - 110	MS	01/13/2012	18:37	LB58833

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Selenium	499.10	500.0	99.8	90 - 110	MS	01/13/2012	18:37	LB58833
	Silver	501.10	500.0	100.2	90 - 110	MS	01/13/2012	18:37	LB58833
	Sodium	50730.00	50000.0	101.5	90 - 110	MS	01/13/2012	18:37	LB58833
	Thallium	490.90	500.0	98.2	90 - 110	MS	01/13/2012	18:37	LB58833
	Vanadium	497.00	500.0	99.4	90 - 110	MS	01/13/2012	18:37	LB58833
	Zinc	1025.00	1000.0	102.5	90 - 110	MS	01/13/2012	18:37	LB58833

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.17	0.2	85.0	0 - 200	CV	01/03/2012	16:39	LB58677
CRI01	Mercury	0.19	0.2	95.0	0 - 200	CV	01/04/2012	10:45	LB58685
CRI01	Aluminum	26.19	20.0	131.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Antimony	2.21	2.0	110.5	50 - 150	MS	01/12/2012	16:07	LB58810
	Arsenic	1.10	1.0	110.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Barium	9.91	10.0	99.1	70 - 130	MS	01/12/2012	16:07	LB58810
	Beryllium	1.06	1.0	106.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Cadmium	1.25	1.0	125.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Calcium	497.90	500.0	99.6	50 - 150	MS	01/12/2012	16:07	LB58810
	Chromium	2.12	2.0	106.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Cobalt	1.04	1.0	104.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Copper	2.17	2.0	108.5	70 - 130	MS	01/12/2012	16:07	LB58810
	Iron	219.40	200.0	109.7	50 - 150	MS	01/12/2012	16:07	LB58810
	Lead	1.05	1.0	105.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Magnesium	509.80	500.0	102.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Manganese	1.25	1.0	125.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Nickel	1.13	1.0	113.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Potassium	504.40	500.0	100.9	50 - 150	MS	01/12/2012	16:07	LB58810
	Selenium	4.86	5.0	97.2	70 - 130	MS	01/12/2012	16:07	LB58810
	Silver	0.97	1.0	97.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Sodium	515.20	500.0	103.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Thallium	1.06	1.0	106.0	50 - 150	MS	01/12/2012	16:07	LB58810
	Vanadium	4.50	5.0	90.0	70 - 130	MS	01/12/2012	16:07	LB58810
	Zinc	2.20	2.0	110.0	50 - 150	MS	01/12/2012	16:07	LB58810
CRI01	Aluminum	28.42	20.0	142.1	50 - 150	MS	01/13/2012	15:12	LB58833
	Antimony	2.30	2.0	115.0	50 - 150	MS	01/13/2012	15:12	LB58833
	Arsenic	1.13	1.0	113.0	70 - 130	MS	01/13/2012	15:12	LB58833
	Barium	10.21	10.0	102.1	70 - 130	MS	01/13/2012	15:12	LB58833
	Beryllium	1.13	1.0	113.0	70 - 130	MS	01/13/2012	15:12	LB58833
	Cadmium	1.04	1.0	104.0	70 - 130	MS	01/13/2012	15:12	LB58833
	Calcium	518.90	500.0	103.8	50 - 150	MS	01/13/2012	15:12	LB58833
	Chromium	2.10	2.0	105.0	70 - 130	MS	01/13/2012	15:12	LB58833
	Cobalt	1.05	1.0	105.0	50 - 150	MS	01/13/2012	15:12	LB58833
	Copper	2.15	2.0	107.5	70 - 130	MS	01/13/2012	15:12	LB58833
	Iron	224.30	200.0	112.2	50 - 150	MS	01/13/2012	15:12	LB58833
	Lead	1.07	1.0	107.0	50 - 150	MS	01/13/2012	15:12	LB58833
	Magnesium	509.40	500.0	101.9	50 - 150	MS	01/13/2012	15:12	LB58833
	Manganese	1.28	1.0	128.0	50 - 150	MS	01/13/2012	15:12	LB58833

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Nickel	1.01	1.0	101.0	70 - 130	MS	01/13/2012	15:12	LB58833
	Potassium	541.40	500.0	108.3	50 - 150	MS	01/13/2012	15:12	LB58833
	Selenium	4.47	5.0	89.4	70 - 130	MS	01/13/2012	15:12	LB58833
	Silver	1.04	1.0	104.0	70 - 130	MS	01/13/2012	15:12	LB58833
	Sodium	536.80	500.0	107.4	50 - 150	MS	01/13/2012	15:12	LB58833
	Thallium	1.03	1.0	103.0	50 - 150	MS	01/13/2012	15:12	LB58833
	Vanadium	4.64	5.0	92.8	70 - 130	MS	01/13/2012	15:12	LB58833
	Zinc	2.32	2.0	116.0	50 - 150	MS	01/13/2012	15:12	LB58833

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.091	+/-0.200	U	0.091	0.200	CV	01/03/2012	16:33	LB58677
CCB01	Mercury	0.091	+/-0.200	U	0.091	0.200	CV	01/03/2012	16:37	LB58677
CCB02	Mercury	0.091	+/-0.200	U	0.091	0.200	CV	01/03/2012	17:01	LB58677
CCB03	Mercury	0.091	+/-0.200	U	0.091	0.200	CV	01/03/2012	17:25	LB58677
CCB04	Mercury	0.091	+/-0.200	U	0.091	0.200	CV	01/03/2012	17:50	LB58677
CCB05	Mercury	0.091	+/-0.200	U	0.091	0.200	CV	01/03/2012	18:14	LB58677
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	10:35	LB58685
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	10:43	LB58685
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	11:06	LB58685
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	11:25	LB58685
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/12/2012	15:12	LB58810
	Antimony	0.897	+/-2.000	J	0.140	2.000	MS	01/12/2012	15:12	LB58810
	Arsenic	0.186	+/-1.000	J	0.180	1.000	MS	01/12/2012	15:12	LB58810
	Barium	0.144	+/-10.000	J	0.100	10.000	MS	01/12/2012	15:12	LB58810
	Beryllium	0.176	+/-1.000	J	0.090	1.000	MS	01/12/2012	15:12	LB58810
	Cadmium	0.134	+/-1.000	J	0.130	1.000	MS	01/12/2012	15:12	LB58810
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/12/2012	15:12	LB58810
	Chromium	0.116	+/-2.000	J	0.040	2.000	MS	01/12/2012	15:12	LB58810
	Cobalt	0.067	+/-1.000	J	0.050	1.000	MS	01/12/2012	15:12	LB58810
	Copper	0.158	+/-2.000	J	0.040	2.000	MS	01/12/2012	15:12	LB58810
	Iron	15.430	+/-200.000	J	10.280	200.000	MS	01/12/2012	15:12	LB58810
	Lead	0.161	+/-1.000	J	0.040	1.000	MS	01/12/2012	15:12	LB58810
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/12/2012	15:12	LB58810
	Manganese	0.214	+/-1.000	J	0.050	1.000	MS	01/12/2012	15:12	LB58810
	Nickel	0.078	+/-1.000	J	0.060	1.000	MS	01/12/2012	15:12	LB58810
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/12/2012	15:12	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	15:12	LB58810
	Silver	0.069	+/-1.000	J	0.030	1.000	MS	01/12/2012	15:12	LB58810
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/12/2012	15:12	LB58810
	Thallium	0.153	+/-1.000	J	0.020	1.000	MS	01/12/2012	15:12	LB58810
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/12/2012	15:12	LB58810
	Zinc	0.221	+/-2.000	J	0.090	2.000	MS	01/12/2012	15:12	LB58810
CCB01 X	Aluminum	6.733	+/-20.000	J	4.970	20.000	MS	01/12/2012	15:59	LB58810
	Antimony	0.724	+/-2.000	J	0.140	2.000	MS	01/12/2012	15:59	LB58810
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/12/2012	15:59	LB58810
	Barium	0.534	+/-10.000	J	0.100	10.000	MS	01/12/2012	15:59	LB58810
	Beryllium	0.169	+/-1.000	J	0.090	1.000	MS	01/12/2012	15:59	LB58810
	Cadmium	0.184	+/-1.000	J	0.130	1.000	MS	01/12/2012	15:59	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Calcium	13.210	+/-500.000	J	9.060	500.000	MS	01/12/2012	15:59	LB58810
	Chromium	0.143	+/-2.000	J	0.040	2.000	MS	01/12/2012	15:59	LB58810
	Cobalt	0.106	+/-1.000	J	0.050	1.000	MS	01/12/2012	15:59	LB58810
	Copper	0.279	+/-2.000	J	0.040	2.000	MS	01/12/2012	15:59	LB58810
	Iron	15.960	+/-200.000	J	10.280	200.000	MS	01/12/2012	15:59	LB58810
	Lead	0.145	+/-1.000	J	0.040	1.000	MS	01/12/2012	15:59	LB58810
	Magnesium	16.380	+/-500.000	J	4.950	500.000	MS	01/12/2012	15:59	LB58810
	Manganese	0.240	+/-1.000	J	0.050	1.000	MS	01/12/2012	15:59	LB58810
	Nickel	0.130	+/-1.000	J	0.060	1.000	MS	01/12/2012	15:59	LB58810
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/12/2012	15:59	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	15:59	LB58810
	Silver	0.113	+/-1.000	J	0.030	1.000	MS	01/12/2012	15:59	LB58810
	Sodium	8.626	+/-500.000	J	5.320	500.000	MS	01/12/2012	15:59	LB58810
	Thallium	0.169	+/-1.000	J	0.020	1.000	MS	01/12/2012	15:59	LB58810
	Vanadium	0.220	+/-5.000	J	0.150	5.000	MS	01/12/2012	15:59	LB58810
	Zinc	0.317	+/-2.000	J	0.090	2.000	MS	01/12/2012	15:59	LB58810
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/12/2012	17:34	LB58810
	Antimony	0.677	+/-2.000	J	0.140	2.000	MS	01/12/2012	17:34	LB58810
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/12/2012	17:34	LB58810
	Barium	0.257	+/-10.000	J	0.100	10.000	MS	01/12/2012	17:34	LB58810
	Beryllium	0.126	+/-1.000	J	0.090	1.000	MS	01/12/2012	17:34	LB58810
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/12/2012	17:34	LB58810
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/12/2012	17:34	LB58810
	Chromium	0.152	+/-2.000	J	0.040	2.000	MS	01/12/2012	17:34	LB58810
	Cobalt	0.054	+/-1.000	J	0.050	1.000	MS	01/12/2012	17:34	LB58810
	Copper	0.138	+/-2.000	J	0.040	2.000	MS	01/12/2012	17:34	LB58810
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/12/2012	17:34	LB58810
	Lead	0.089	+/-1.000	J	0.040	1.000	MS	01/12/2012	17:34	LB58810
	Magnesium	6.699	+/-500.000	J	4.950	500.000	MS	01/12/2012	17:34	LB58810
	Manganese	0.259	+/-1.000	J	0.050	1.000	MS	01/12/2012	17:34	LB58810
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/12/2012	17:34	LB58810
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/12/2012	17:34	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	17:34	LB58810
	Silver	0.071	+/-1.000	J	0.030	1.000	MS	01/12/2012	17:34	LB58810
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/12/2012	17:34	LB58810
	Thallium	0.175	+/-1.000	J	0.020	1.000	MS	01/12/2012	17:34	LB58810
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/12/2012	17:34	LB58810
	Zinc	0.156	+/-2.000	J	0.090	2.000	MS	01/12/2012	17:34	LB58810
CCB03	Aluminum	5.080	+/-20.000	J	4.970	20.000	MS	01/12/2012	19:01	LB58810
	Antimony	0.741	+/-2.000	J	0.140	2.000	MS	01/12/2012	19:01	LB58810
	Arsenic	0.247	+/-1.000	J	0.180	1.000	MS	01/12/2012	19:01	LB58810
	Barium	0.443	+/-10.000	J	0.100	10.000	MS	01/12/2012	19:01	LB58810

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Beryllium	0.109	+/-1.000	J	0.090	1.000	MS	01/12/2012	19:01	LB58810
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/12/2012	19:01	LB58810
	Calcium	12.060	+/-500.000	J	9.060	500.000	MS	01/12/2012	19:01	LB58810
	Chromium	0.234	+/-2.000	J	0.040	2.000	MS	01/12/2012	19:01	LB58810
	Cobalt	0.097	+/-1.000	J	0.050	1.000	MS	01/12/2012	19:01	LB58810
	Copper	0.206	+/-2.000	J	0.040	2.000	MS	01/12/2012	19:01	LB58810
	Iron	13.380	+/-200.000	J	10.280	200.000	MS	01/12/2012	19:01	LB58810
	Lead	0.146	+/-1.000	J	0.040	1.000	MS	01/12/2012	19:01	LB58810
	Magnesium	11.430	+/-500.000	J	4.950	500.000	MS	01/12/2012	19:01	LB58810
	Manganese	0.374	+/-1.000	J	0.050	1.000	MS	01/12/2012	19:01	LB58810
	Nickel	0.119	+/-1.000	J	0.060	1.000	MS	01/12/2012	19:01	LB58810
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/12/2012	19:01	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	19:01	LB58810
	Silver	0.173	+/-1.000	J	0.030	1.000	MS	01/12/2012	19:01	LB58810
	Sodium	25.390	+/-500.000	J	5.320	500.000	MS	01/12/2012	19:01	LB58810
	Thallium	0.419	+/-1.000	J	0.020	1.000	MS	01/12/2012	19:01	LB58810
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/12/2012	19:01	LB58810
	Zinc	0.429	+/-2.000	J	0.090	2.000	MS	01/12/2012	19:01	LB58810
CCB04	Aluminum	10.990	+/-20.000	J	4.970	20.000	MS	01/12/2012	20:36	LB58810
	Antimony	0.791	+/-2.000	J	0.140	2.000	MS	01/12/2012	20:36	LB58810
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/12/2012	20:36	LB58810
	Barium	0.771	+/-10.000	J	0.100	10.000	MS	01/12/2012	20:36	LB58810
	Beryllium	0.228	+/-1.000	J	0.090	1.000	MS	01/12/2012	20:36	LB58810
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/12/2012	20:36	LB58810
	Calcium	16.550	+/-500.000	J	9.060	500.000	MS	01/12/2012	20:36	LB58810
	Chromium	0.244	+/-2.000	J	0.040	2.000	MS	01/12/2012	20:36	LB58810
	Cobalt	0.178	+/-1.000	J	0.050	1.000	MS	01/12/2012	20:36	LB58810
	Copper	0.324	+/-2.000	J	0.040	2.000	MS	01/12/2012	20:36	LB58810
	Iron	21.860	+/-200.000	J	10.280	200.000	MS	01/12/2012	20:36	LB58810
	Lead	0.256	+/-1.000	J	0.040	1.000	MS	01/12/2012	20:36	LB58810
	Magnesium	17.900	+/-500.000	J	4.950	500.000	MS	01/12/2012	20:36	LB58810
	Manganese	0.736	+/-1.000	J	0.050	1.000	MS	01/12/2012	20:36	LB58810
	Nickel	0.177	+/-1.000	J	0.060	1.000	MS	01/12/2012	20:36	LB58810
	Potassium	23.040	+/-500.000	J	12.220	500.000	MS	01/12/2012	20:36	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	20:36	LB58810
	Silver	0.122	+/-1.000	J	0.030	1.000	MS	01/12/2012	20:36	LB58810
	Sodium	55.070	+/-500.000	J	5.320	500.000	MS	01/12/2012	20:36	LB58810
	Thallium	0.301	+/-1.000	J	0.020	1.000	MS	01/12/2012	20:36	LB58810
	Vanadium	0.435	+/-5.000	J	0.150	5.000	MS	01/12/2012	20:36	LB58810
	Zinc	0.455	+/-2.000	J	0.090	2.000	MS	01/12/2012	20:36	LB58810
CCB05	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/12/2012	22:11	LB58810
	Antimony	0.668	+/-2.000	J	0.140	2.000	MS	01/12/2012	22:11	LB58810

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB05	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/12/2012	22:11	LB58810
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/12/2012	22:11	LB58810
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/12/2012	22:11	LB58810
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/12/2012	22:11	LB58810
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/12/2012	22:11	LB58810
	Chromium	0.043	+/-2.000	J	0.040	2.000	MS	01/12/2012	22:11	LB58810
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/12/2012	22:11	LB58810
	Copper	0.045	+/-2.000	J	0.040	2.000	MS	01/12/2012	22:11	LB58810
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/12/2012	22:11	LB58810
	Lead	0.063	+/-1.000	J	0.040	1.000	MS	01/12/2012	22:11	LB58810
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/12/2012	22:11	LB58810
	Manganese	0.249	+/-1.000	J	0.050	1.000	MS	01/12/2012	22:11	LB58810
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/12/2012	22:11	LB58810
	Potassium	15.920	+/-500.000	J	12.220	500.000	MS	01/12/2012	22:11	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	22:11	LB58810
	Silver	0.030	+/-1.000	J	0.030	1.000	MS	01/12/2012	22:11	LB58810
	Sodium	43.990	+/-500.000	J	5.320	500.000	MS	01/12/2012	22:11	LB58810
	Thallium	0.593	+/-1.000	J	0.020	1.000	MS	01/12/2012	22:11	LB58810
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/12/2012	22:11	LB58810
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/12/2012	22:11	LB58810
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/12/2012	23:46	LB58810
	Antimony	0.726	+/-2.000	J	0.140	2.000	MS	01/12/2012	23:46	LB58810
	Arsenic	0.222	+/-1.000	J	0.180	1.000	MS	01/12/2012	23:46	LB58810
	Barium	0.234	+/-10.000	J	0.100	10.000	MS	01/12/2012	23:46	LB58810
	Beryllium	0.135	+/-1.000	J	0.090	1.000	MS	01/12/2012	23:46	LB58810
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/12/2012	23:46	LB58810
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/12/2012	23:46	LB58810
	Chromium	0.094	+/-2.000	J	0.040	2.000	MS	01/12/2012	23:46	LB58810
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/12/2012	23:46	LB58810
	Copper	0.089	+/-2.000	J	0.040	2.000	MS	01/12/2012	23:46	LB58810
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/12/2012	23:46	LB58810
	Lead	0.146	+/-1.000	J	0.040	1.000	MS	01/12/2012	23:46	LB58810
	Magnesium	5.617	+/-500.000	J	4.950	500.000	MS	01/12/2012	23:46	LB58810
	Manganese	0.370	+/-1.000	J	0.050	1.000	MS	01/12/2012	23:46	LB58810
	Nickel	0.064	+/-1.000	J	0.060	1.000	MS	01/12/2012	23:46	LB58810
	Potassium	20.040	+/-500.000	J	12.220	500.000	MS	01/12/2012	23:46	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/12/2012	23:46	LB58810
	Silver	0.057	+/-1.000	J	0.030	1.000	MS	01/12/2012	23:46	LB58810
	Sodium	50.510	+/-500.000	J	5.320	500.000	MS	01/12/2012	23:46	LB58810
	Thallium	0.283	+/-1.000	J	0.020	1.000	MS	01/12/2012	23:46	LB58810
	Vanadium	0.332	+/-5.000	J	0.150	5.000	MS	01/12/2012	23:46	LB58810
	Zinc	0.133	+/-2.000	J	0.090	2.000	MS	01/12/2012	23:46	LB58810

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5146 **SAS No.:** C5146

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: [redacted]							
C5146-01	12SB07-000.5-01	SAM	SOIL	12/29/2011	1.05	100.0	75.40
C5146-01DL	12SB07-000.5-01DL	SAM	SOIL	12/29/2011	1.05	100.0	75.40
C5146-02	12SB07-0.502-02	SAM	SOIL	12/29/2011	1.35	100.0	79.70
C5146-02DL	12SB07-0.502-02DL	SAM	SOIL	12/29/2011	1.35	100.0	79.70
C5146-03	12SB07-0304-03	SAM	SOIL	12/29/2011	1.33	100.0	75.30
C5146-03DL	12SB07-0304-03DL	SAM	SOIL	12/29/2011	1.33	100.0	75.30
C5146-04	12SB08-000.5-01	SAM	SOIL	12/29/2011	1.15	100.0	72.10
C5146-04DL	12SB08-000.5-01DL	SAM	SOIL	12/29/2011	1.15	100.0	72.10
C5146-05	12SB08-0.502-02	SAM	SOIL	12/29/2011	1.47	100.0	81.40
C5146-05DL	12SB08-0.502-02DL	SAM	SOIL	12/29/2011	1.47	100.0	81.40
C5146-06	12SB08-0304-03	SAM	SOIL	12/29/2011	1.15	100.0	79.80
C5146-06DL	12SB08-0304-03DL	SAM	SOIL	12/29/2011	1.15	100.0	79.80
C5146-07	12SB12-000.5-01	SAM	SOIL	12/29/2011	1.00	100.0	71.50
C5146-07D	12SB12-000.5-01D	DUP	SOIL	12/29/2011	1.00	100.0	71.50
C5146-07DL	12SB12-000.5-01DL	SAM	SOIL	12/29/2011	1.00	100.0	71.50
C5146-08S	12SB12-000.5-01S	MS	SOIL	12/29/2011	1.00	100.0	71.50
C5146-09SD	12SB12-000.5-01SD	MSD	SOIL	12/29/2011	1.00	100.0	71.50
C5146-10	12SB12-0.502-02	SAM	SOIL	12/29/2011	1.28	100.0	79.70
C5146-10DL	12SB12-0.502-02DL	SAM	SOIL	12/29/2011	1.28	100.0	79.70
C5146-11	12SB12-0304-03	SAM	SOIL	12/29/2011	1.21	100.0	75.70
C5146-11DL	12SB12-0304-03DL	SAM	SOIL	12/29/2011	1.21	100.0	75.70
C5146-12	12SB06-000.5-01	SAM	SOIL	12/29/2011	1.28	100.0	71.30
C5146-12DL	12SB06-000.5-01DL	SAM	SOIL	12/29/2011	1.28	100.0	71.30
C5146-13	12SB06-0.502-02	SAM	SOIL	12/29/2011	1.38	100.0	77.60
C5146-13DL	12SB06-0.502-02DL	SAM	SOIL	12/29/2011	1.38	100.0	77.60
C5146-14	12SB06-0304-03	SAM	SOIL	12/29/2011	1.34	100.0	84.70
C5146-14DL	12SB06-0304-03DL	SAM	SOIL	12/29/2011	1.34	100.0	84.70
C5146-15	12SB17-000.5-01	SAM	SOIL	12/29/2011	1.32	100.0	75.20
C5146-15DL	12SB17-000.5-01DL	SAM	SOIL	12/29/2011	1.32	100.0	75.20
C5146-16	12SB17-0.502-02	SAM	SOIL	12/29/2011	1.17	100.0	79.40
C5146-16DL	12SB17-0.502-02DL	SAM	SOIL	12/29/2011	1.17	100.0	79.40
C5146-17	12SB17-0304-03	SAM	SOIL	12/29/2011	1.26	100.0	80.30
C5146-17DL	12SB17-0304-03DL	SAM	SOIL	12/29/2011	1.26	100.0	80.30
C5146-18	12SB27-000.5-01	SAM	SOIL	12/29/2011	1.15	100.0	74.20
C5146-18DL	12SB27-000.5-01DL	SAM	SOIL	12/29/2011	1.15	100.0	74.20
C5146-19	12SB27-0.502-02	SAM	SOIL	12/29/2011	1.23	100.0	82.40
C5146-19DL	12SB27-0.502-02DL	SAM	SOIL	12/29/2011	1.23	100.0	82.40
C5146-20	12SB-DUP-08	SAM	SOIL	12/29/2011	1.12	100.0	72.40
C5146-20DL	12SB-DUP-08DL	SAM	SOIL	12/29/2011	1.12	100.0	72.40
PB60309BL	PB60309BL	MB	SOIL	12/29/2011	1.00	100.0	100.00
PB60309BS	PB60309BS	LCS	SOIL	12/29/2011	1.00	100.0	100.00

CHEMTECH

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5146 **SAS No.:** C5146

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: [redacted]							
C5146-01	12SB07-000.5-01	SAM	SOIL	12/30/2011	0.65	30.0	75.40
C5146-02	12SB07-0.502-02	SAM	SOIL	12/30/2011	0.67	30.0	79.70
C5146-03	12SB07-0304-03	SAM	SOIL	12/30/2011	0.65	30.0	75.30
C5146-04	12SB08-000.5-01	SAM	SOIL	12/30/2011	0.69	30.0	72.10
C5146-05	12SB08-0.502-02	SAM	SOIL	12/30/2011	0.67	30.0	81.40
C5146-06	12SB08-0304-03	SAM	SOIL	12/30/2011	0.64	30.0	79.80
C5146-07	12SB12-000.5-01	SAM	SOIL	12/30/2011	0.60	30.0	71.50
C5146-07D	12SB12-000.5-01D	DUP	SOIL	12/30/2011	0.60	30.0	71.50
C5146-08S	12SB12-000.5-01S	MS	SOIL	12/30/2011	0.60	30.0	71.50
C5146-09SD	12SB12-000.5-01SD	MSD	SOIL	12/30/2011	0.60	30.0	71.50
C5146-10	12SB12-0.502-02	SAM	SOIL	12/30/2011	0.67	30.0	79.70
C5146-11	12SB12-0304-03	SAM	SOIL	12/30/2011	0.68	30.0	75.70
C5146-12	12SB06-000.5-01	SAM	SOIL	12/30/2011	0.67	30.0	71.30
C5146-13	12SB06-0.502-02	SAM	SOIL	12/30/2011	0.66	30.0	77.60
C5146-14	12SB06-0304-03	SAM	SOIL	12/30/2011	0.67	30.0	84.70
C5146-15	12SB17-000.5-01	SAM	SOIL	12/30/2011	0.62	30.0	75.20
C5146-16	12SB17-0.502-02	SAM	SOIL	12/30/2011	0.64	30.0	79.40
C5146-17	12SB17-0304-03	SAM	SOIL	12/30/2011	0.69	30.0	80.30
C5146-18	12SB27-000.5-01	SAM	SOIL	12/30/2011	0.62	30.0	74.20
C5146-19	12SB27-0.502-02	SAM	SOIL	12/30/2011	0.66	30.0	82.40
C5146-20	12SB-DUP-08	SAM	SOIL	12/30/2011	0.67	30.0	72.40
PB60324BL	PB60324BL	MB	SOIL	12/30/2011	0.60	30.0	100.00
PB60324BS	PB60324BS	LCS	SOIL	12/30/2011	0.60	30.0	100.00

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB07	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/13/2012	01:21	LB58810
	Antimony	0.673	+/-2.000	J	0.140	2.000	MS	01/13/2012	01:21	LB58810
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/13/2012	01:21	LB58810
	Barium	0.354	+/-10.000	J	0.100	10.000	MS	01/13/2012	01:21	LB58810
	Beryllium	0.160	+/-1.000	J	0.090	1.000	MS	01/13/2012	01:21	LB58810
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/13/2012	01:21	LB58810
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/13/2012	01:21	LB58810
	Chromium	0.099	+/-2.000	J	0.040	2.000	MS	01/13/2012	01:21	LB58810
	Cobalt	0.086	+/-1.000	J	0.050	1.000	MS	01/13/2012	01:21	LB58810
	Copper	0.126	+/-2.000	J	0.040	2.000	MS	01/13/2012	01:21	LB58810
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/13/2012	01:21	LB58810
	Lead	0.117	+/-1.000	J	0.040	1.000	MS	01/13/2012	01:21	LB58810
	Magnesium	8.610	+/-500.000	J	4.950	500.000	MS	01/13/2012	01:21	LB58810
	Manganese	0.361	+/-1.000	J	0.050	1.000	MS	01/13/2012	01:21	LB58810
	Nickel	0.067	+/-1.000	J	0.060	1.000	MS	01/13/2012	01:21	LB58810
	Potassium	22.050	+/-500.000	J	12.220	500.000	MS	01/13/2012	01:21	LB58810
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/13/2012	01:21	LB58810
	Silver	0.116	+/-1.000	J	0.030	1.000	MS	01/13/2012	01:21	LB58810
	Sodium	56.890	+/-500.000	J	5.320	500.000	MS	01/13/2012	01:21	LB58810
	Thallium	0.263	+/-1.000	J	0.020	1.000	MS	01/13/2012	01:21	LB58810
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/13/2012	01:21	LB58810
	Zinc	0.286	+/-2.000	J	0.090	2.000	MS	01/13/2012	01:21	LB58810
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/13/2012	14:01	LB58833
	Antimony	1.004	+/-2.000	J	0.140	2.000	MS	01/13/2012	14:01	LB58833
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/13/2012	14:01	LB58833
	Barium	0.138	+/-10.000	J	0.100	10.000	MS	01/13/2012	14:01	LB58833
	Beryllium	0.163	+/-1.000	J	0.090	1.000	MS	01/13/2012	14:01	LB58833
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/13/2012	14:01	LB58833
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/13/2012	14:01	LB58833
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/13/2012	14:01	LB58833
	Cobalt	0.072	+/-1.000	J	0.050	1.000	MS	01/13/2012	14:01	LB58833
	Copper	0.136	+/-2.000	J	0.040	2.000	MS	01/13/2012	14:01	LB58833
	Iron	13.440	+/-200.000	J	10.280	200.000	MS	01/13/2012	14:01	LB58833
	Lead	0.127	+/-1.000	J	0.040	1.000	MS	01/13/2012	14:01	LB58833
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/13/2012	14:01	LB58833
	Manganese	0.129	+/-1.000	J	0.050	1.000	MS	01/13/2012	14:01	LB58833
	Nickel	0.068	+/-1.000	J	0.060	1.000	MS	01/13/2012	14:01	LB58833
	Potassium	20.950	+/-500.000	J	12.220	500.000	MS	01/13/2012	14:01	LB58833
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/13/2012	14:01	LB58833
	Silver	0.058	+/-1.000	J	0.030	1.000	MS	01/13/2012	14:01	LB58833
	Sodium	15.750	+/-500.000	J	5.320	500.000	MS	01/13/2012	14:01	LB58833
	Thallium	0.119	+/-1.000	J	0.020	1.000	MS	01/13/2012	14:01	LB58833

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/13/2012	14:01	LB58833
	Zinc	0.195	+/-2.000	J	0.090	2.000	MS	01/13/2012	14:01	LB58833
CCB01	Aluminum	6.551	+/-20.000	J	4.970	20.000	MS	01/13/2012	15:05	LB58833
	Antimony	0.796	+/-2.000	J	0.140	2.000	MS	01/13/2012	15:05	LB58833
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/13/2012	15:05	LB58833
	Barium	0.408	+/-10.000	J	0.100	10.000	MS	01/13/2012	15:05	LB58833
	Beryllium	0.169	+/-1.000	J	0.090	1.000	MS	01/13/2012	15:05	LB58833
	Cadmium	0.137	+/-1.000	J	0.130	1.000	MS	01/13/2012	15:05	LB58833
	Calcium	9.518	+/-500.000	J	9.060	500.000	MS	01/13/2012	15:05	LB58833
	Chromium	0.051	+/-2.000	J	0.040	2.000	MS	01/13/2012	15:05	LB58833
	Cobalt	0.095	+/-1.000	J	0.050	1.000	MS	01/13/2012	15:05	LB58833
	Copper	0.178	+/-2.000	J	0.040	2.000	MS	01/13/2012	15:05	LB58833
	Iron	19.000	+/-200.000	J	10.280	200.000	MS	01/13/2012	15:05	LB58833
	Lead	0.094	+/-1.000	J	0.040	1.000	MS	01/13/2012	15:05	LB58833
	Magnesium	12.870	+/-500.000	J	4.950	500.000	MS	01/13/2012	15:05	LB58833
	Manganese	0.166	+/-1.000	J	0.050	1.000	MS	01/13/2012	15:05	LB58833
	Nickel	0.070	+/-1.000	J	0.060	1.000	MS	01/13/2012	15:05	LB58833
	Potassium	41.460	+/-500.000	J	12.220	500.000	MS	01/13/2012	15:05	LB58833
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/13/2012	15:05	LB58833
	Silver	0.075	+/-1.000	J	0.030	1.000	MS	01/13/2012	15:05	LB58833
	Sodium	30.470	+/-500.000	J	5.320	500.000	MS	01/13/2012	15:05	LB58833
	Thallium	0.090	+/-1.000	J	0.020	1.000	MS	01/13/2012	15:05	LB58833
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/13/2012	15:05	LB58833
	Zinc	0.139	+/-2.000	J	0.090	2.000	MS	01/13/2012	15:05	LB58833
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/13/2012	16:24	LB58833
	Antimony	0.712	+/-2.000	J	0.140	2.000	MS	01/13/2012	16:24	LB58833
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/13/2012	16:24	LB58833
	Barium	0.175	+/-10.000	J	0.100	10.000	MS	01/13/2012	16:24	LB58833
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/13/2012	16:24	LB58833
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/13/2012	16:24	LB58833
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/13/2012	16:24	LB58833
	Chromium	0.057	+/-2.000	J	0.040	2.000	MS	01/13/2012	16:24	LB58833
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/13/2012	16:24	LB58833
	Copper	0.078	+/-2.000	J	0.040	2.000	MS	01/13/2012	16:24	LB58833
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/13/2012	16:24	LB58833
	Lead	0.076	+/-1.000	J	0.040	1.000	MS	01/13/2012	16:24	LB58833
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/13/2012	16:24	LB58833
	Manganese	0.138	+/-1.000	J	0.050	1.000	MS	01/13/2012	16:24	LB58833
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/13/2012	16:24	LB58833
	Potassium	19.390	+/-500.000	J	12.220	500.000	MS	01/13/2012	16:24	LB58833
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/13/2012	16:24	LB58833
	Silver	0.055	+/-1.000	J	0.030	1.000	MS	01/13/2012	16:24	LB58833

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Sodium	7.638	+/-500.000	J	5.320	500.000	MS	01/13/2012	16:24	LB58833
	Thallium	0.066	+/-1.000	J	0.020	1.000	MS	01/13/2012	16:24	LB58833
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/13/2012	16:24	LB58833
	Zinc	0.235	+/-2.000	J	0.090	2.000	MS	01/13/2012	16:24	LB58833
CCB03	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/13/2012	18:14	LB58833
	Antimony	0.750	+/-2.000	J	0.140	2.000	MS	01/13/2012	18:14	LB58833
	Arsenic	0.280	+/-1.000	J	0.180	1.000	MS	01/13/2012	18:14	LB58833
	Barium	0.102	+/-10.000	J	0.100	10.000	MS	01/13/2012	18:14	LB58833
	Beryllium	0.091	+/-1.000	J	0.090	1.000	MS	01/13/2012	18:14	LB58833
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/13/2012	18:14	LB58833
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/13/2012	18:14	LB58833
	Chromium	0.067	+/-2.000	J	0.040	2.000	MS	01/13/2012	18:14	LB58833
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/13/2012	18:14	LB58833
	Copper	0.065	+/-2.000	J	0.040	2.000	MS	01/13/2012	18:14	LB58833
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/13/2012	18:14	LB58833
	Lead	0.123	+/-1.000	J	0.040	1.000	MS	01/13/2012	18:14	LB58833
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/13/2012	18:14	LB58833
	Manganese	0.200	+/-1.000	J	0.050	1.000	MS	01/13/2012	18:14	LB58833
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/13/2012	18:14	LB58833
	Potassium	43.580	+/-500.000	J	12.220	500.000	MS	01/13/2012	18:14	LB58833
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/13/2012	18:14	LB58833
	Silver	0.216	+/-1.000	J	0.030	1.000	MS	01/13/2012	18:14	LB58833
	Sodium	34.080	+/-500.000	J	5.320	500.000	MS	01/13/2012	18:14	LB58833
	Thallium	0.914	+/-1.000	J	0.020	1.000	MS	01/13/2012	18:14	LB58833
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/13/2012	18:14	LB58833
	Zinc	0.210	+/-2.000	J	0.090	2.000	MS	01/13/2012	18:14	LB58833
CCB04	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/13/2012	18:45	LB58833
	Antimony	0.864	+/-2.000	J	0.140	2.000	MS	01/13/2012	18:45	LB58833
	Arsenic	0.192	+/-1.000	J	0.180	1.000	MS	01/13/2012	18:45	LB58833
	Barium	0.635	+/-10.000	J	0.100	10.000	MS	01/13/2012	18:45	LB58833
	Beryllium	0.239	+/-1.000	J	0.090	1.000	MS	01/13/2012	18:45	LB58833
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/13/2012	18:45	LB58833
	Calcium	11.350	+/-500.000	J	9.060	500.000	MS	01/13/2012	18:45	LB58833
	Chromium	0.157	+/-2.000	J	0.040	2.000	MS	01/13/2012	18:45	LB58833
	Cobalt	0.172	+/-1.000	J	0.050	1.000	MS	01/13/2012	18:45	LB58833
	Copper	0.264	+/-2.000	J	0.040	2.000	MS	01/13/2012	18:45	LB58833
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/13/2012	18:45	LB58833
	Lead	0.179	+/-1.000	J	0.040	1.000	MS	01/13/2012	18:45	LB58833
	Magnesium	12.720	+/-500.000	J	4.950	500.000	MS	01/13/2012	18:45	LB58833
	Manganese	0.345	+/-1.000	J	0.050	1.000	MS	01/13/2012	18:45	LB58833
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/13/2012	18:45	LB58833
	Potassium	50.200	+/-500.000	J	12.220	500.000	MS	01/13/2012	18:45	LB58833

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	97400	100000	97.4	80 - 120%	01/12/2012	15:19	LB58810
	Antimony	1.6				01/12/2012	15:19	LB58810
	Arsenic	-0.038				01/12/2012	15:19	LB58810
	Barium	1.5				01/12/2012	15:19	LB58810
	Beryllium	0.42				01/12/2012	15:19	LB58810
	Cadmium	0.23				01/12/2012	15:19	LB58810
	Calcium	99200	100000	99.2	80 - 120%	01/12/2012	15:19	LB58810
	Chromium	20.2	21	96.2	80 - 120%	01/12/2012	15:19	LB58810
	Cobalt	1.3				01/12/2012	15:19	LB58810
	Copper	8.3				01/12/2012	15:19	LB58810
	Iron	94500	100000	94.5	80 - 120%	01/12/2012	15:19	LB58810
	Lead	4.4	4	110.0	80 - 120%	01/12/2012	15:19	LB58810
	Magnesium	99500	100000	99.5	80 - 120%	01/12/2012	15:19	LB58810
	Manganese	8.2				01/12/2012	15:19	LB58810
	Nickel	6.1				01/12/2012	15:19	LB58810
	Potassium	98700	100000	98.7	80 - 120%	01/12/2012	15:19	LB58810
	Selenium	-1.0				01/12/2012	15:19	LB58810
	Silver	0.067				01/12/2012	15:19	LB58810
	Sodium	99600	100000	99.6	80 - 120%	01/12/2012	15:19	LB58810
	Thallium	0.16				01/12/2012	15:19	LB58810
	Vanadium	-0.077				01/12/2012	15:19	LB58810
	Zinc	12.6				01/12/2012	15:19	LB58810
ICSAB01	Aluminum	96000	100000	96.0	80 - 120%	01/12/2012	15:27	LB58810
	Antimony	20.9	22	95.0	80 - 120%	01/12/2012	15:27	LB58810
	Arsenic	19.8	19	104.2	80 - 120%	01/12/2012	15:27	LB58810
	Barium	21.9	22	99.5	80 - 120%	01/12/2012	15:27	LB58810
	Beryllium	20.4	20	102.0	80 - 120%	01/12/2012	15:27	LB58810
	Cadmium	20.4	20	102.0	80 - 120%	01/12/2012	15:27	LB58810
	Calcium	97600	100000	97.6	80 - 120%	01/12/2012	15:27	LB58810
	Chromium	39.8	40	99.5	80 - 120%	01/12/2012	15:27	LB58810
	Cobalt	20.9	20	104.5	80 - 120%	01/12/2012	15:27	LB58810
	Copper	27.6	25	110.4	80 - 120%	01/12/2012	15:27	LB58810
	Iron	94200	100000	94.2	80 - 120%	01/12/2012	15:27	LB58810
	Lead	24.0	25	96.0	80 - 120%	01/12/2012	15:27	LB58810
	Magnesium	98400	100000	98.4	80 - 120%	01/12/2012	15:27	LB58810
	Manganese	28.0	27	103.7	80 - 120%	01/12/2012	15:27	LB58810
	Nickel	26.0	24	108.3	80 - 120%	01/12/2012	15:27	LB58810
	Potassium	97700	100000	97.7	80 - 120%	01/12/2012	15:27	LB58810
	Selenium	19.7	19	103.7	80 - 120%	01/12/2012	15:27	LB58810
	Silver	19.2	18	106.7	80 - 120%	01/12/2012	15:27	LB58810
	Sodium	98500	100000	98.5	80 - 120%	01/12/2012	15:27	LB58810
	Thallium	19.8	21	94.3	80 - 120%	01/12/2012	15:27	LB58810
	Vanadium	19.0	19	100.0	80 - 120%	01/12/2012	15:27	LB58810
	Zinc	32.1	29	110.7	80 - 120%	01/12/2012	15:27	LB58810
ICSA01	Aluminum	92700	100000	92.7	80 - 120%	01/13/2012	14:25	LB58833
	Antimony	1.2				01/13/2012	14:25	LB58833

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5146 **SAS No.:** C5146

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Arsenic	0.38				01/13/2012	14:25	LB58833
	Barium	1.3				01/13/2012	14:25	LB58833
	Beryllium	0.32				01/13/2012	14:25	LB58833
	Cadmium	0.12				01/13/2012	14:25	LB58833
	Calcium	95700	100000	95.7	80 - 120%	01/13/2012	14:25	LB58833
	Chromium	19.5	21	92.9	80 - 120%	01/13/2012	14:25	LB58833
	Cobalt	1.2				01/13/2012	14:25	LB58833
	Copper	7.8				01/13/2012	14:25	LB58833
	Iron	95800	100000	95.8	80 - 120%	01/13/2012	14:25	LB58833
	Lead	4.1	4	102.5	80 - 120%	01/13/2012	14:25	LB58833
	Magnesium	94700	100000	94.7	80 - 120%	01/13/2012	14:25	LB58833
	Manganese	7.5				01/13/2012	14:25	LB58833
	Nickel	5.5				01/13/2012	14:25	LB58833
	Potassium	95900	100000	95.9	80 - 120%	01/13/2012	14:25	LB58833
	Selenium	-0.23				01/13/2012	14:25	LB58833
	Silver	0.018				01/13/2012	14:25	LB58833
	Sodium	97100	100000	97.1	80 - 120%	01/13/2012	14:25	LB58833
	Thallium	0.099				01/13/2012	14:25	LB58833
	Vanadium	-0.13				01/13/2012	14:25	LB58833
	Zinc	12.2				01/13/2012	14:25	LB58833
ICSAB01	Aluminum	91400	100000	91.4	80 - 120%	01/13/2012	14:33	LB58833
	Antimony	20.3	22	92.3	80 - 120%	01/13/2012	14:33	LB58833
	Arsenic	19.4	19	102.1	80 - 120%	01/13/2012	14:33	LB58833
	Barium	20.8	22	94.5	80 - 120%	01/13/2012	14:33	LB58833
	Beryllium	19.8	20	99.0	80 - 120%	01/13/2012	14:33	LB58833
	Cadmium	19.4	20	97.0	80 - 120%	01/13/2012	14:33	LB58833
	Calcium	95500	100000	95.5	80 - 120%	01/13/2012	14:33	LB58833
	Chromium	38.7	40	96.8	80 - 120%	01/13/2012	14:33	LB58833
	Cobalt	20.1	20	100.5	80 - 120%	01/13/2012	14:33	LB58833
	Copper	26.9	25	107.6	80 - 120%	01/13/2012	14:33	LB58833
	Iron	95600	100000	95.6	80 - 120%	01/13/2012	14:33	LB58833
	Lead	23.5	25	94.0	80 - 120%	01/13/2012	14:33	LB58833
	Magnesium	94000	100000	94.0	80 - 120%	01/13/2012	14:33	LB58833
	Manganese	26.9	27	99.6	80 - 120%	01/13/2012	14:33	LB58833
	Nickel	24.7	24	102.9	80 - 120%	01/13/2012	14:33	LB58833
	Potassium	95600	100000	95.6	80 - 120%	01/13/2012	14:33	LB58833
	Selenium	18.5	19	97.4	80 - 120%	01/13/2012	14:33	LB58833
	Silver	18.7	18	103.9	80 - 120%	01/13/2012	14:33	LB58833
	Sodium	96500	100000	96.5	80 - 120%	01/13/2012	14:33	LB58833
	Thallium	19.5	21	92.9	80 - 120%	01/13/2012	14:33	LB58833
	Vanadium	18.9	19	99.5	80 - 120%	01/13/2012	14:33	LB58833
	Zinc	30.9	29	106.6	80 - 120%	01/13/2012	14:33	LB58833

CHEMTECH

Method Detection Limits

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	MDL	RDL
Method: 1498 Redox Potential		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Redox Potential	**mV**	**0.10**	**0.10**
Method: 9012B Cyanide		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Cyanide	**mg/Kg**	**0.033**	**0.250**
Method: 9045C pH		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
pH	**pH**	**0.00**	**0.00**

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB58668BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	12/30/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5000-05
Client ID:	OU2-IDW-BX11-121411S	**Percent Solids for Spike Sample:**	90.4

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.170		0.044	J	2.21	1	96		12/30/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5000-05
Client ID:	OU2-IDW-BX11-121411SD	**Percent Solids for Spike Sample:**	90.4

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.240		0.044	J	2.21	1	99		12/30/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-07
Client ID:	12SB12-000.5-01S	**Percent Solids for Spike Sample:**	**71.5**

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.840		0.166	J	2.80	1	96		12/30/2011

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-07
Client ID:	12SB12-000.5-01SD	**Percent Solids for Spike Sample:**	71.5

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.840		0.166	J	2.79	1	96		12/30/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5000-05
Client ID:	OU2-IDW-BX11-121411D	**Percent Solids for Spike Sample:**	90.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.044	J	0.042	J	1	4.7		12/30/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5000-05
Client ID:	OU2-IDW-BX11-121411SD	**Percent Solids for Spike Sample:**	90.4

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.170	2.240		1	3.2		12/30/2011

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5146

Project: CTO WE05 NAS JRB Willow Grove

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	**LB58668BSS**								
Cyanide		**mg/Kg**	**10.00**	**9.24**		**92**	**1**	**80-110**	**12/30/2011**

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-07
Client ID:	12SB12-000.5-01D	**Percent Solids for Spike Sample:**	71.5

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.166	J	0.158	J	1	4.9		12/30/2011
Redox Potential	mV	+/-20	271.7		271.6		1	0.04		12/30/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-07
Client ID:	12SB12-000.5-01SD	**Percent Solids for Spike Sample:**	71.5

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.840	2.840		1	0		12/30/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-01
Client ID:	12SB07-000.5-01D	**Percent Solids for Spike Sample:**	75.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	5.6		5.070		1	1.8		12/29/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-10
Client ID:	12SB12-0.502-02D	**Percent Solids for Spike Sample:**	79.7

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.35		6.360		1	0.2		12/29/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5146-19
Client ID:	12SB27-0.502-02D	**Percent Solids for Spike Sample:**	82.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.61		6.620		1	0.2		12/29/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58640

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.02	7.00	100	90-110	12/29/2011
Sample ID:	CCV1						
pH		pH	2.03	2.00	102	90-110	12/29/2011
Sample ID:	CCV2						
pH		pH	7.01	7.00	100	90-110	12/29/2011
Sample ID:	CCV3						
pH		pH	7.00	7.00	100	90-110	12/29/2011
Sample ID:	CCV4						
pH		pH	12.01	12.00	100	90-110	12/29/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58668

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60311						
Cyanide		mg/L	0.10	0.10	100	85-115	12/30/2011
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	12/30/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.24	0.25	96	90-110	12/30/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.24	0.25	96	90-110	12/30/2011
Sample ID:	CCV4						
Cyanide		mg/L	0.26	0.25	104	90-110	12/30/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5146
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58668

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/30/2011
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/30/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/30/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/30/2011
Sample ID:	CCB4						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	12/30/2011

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 12, 2012**

FROM: **A. COGNETTI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOC/SVOC/PAH/PEST/PCB**
NASJRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) - C5164

SAMPLES: 1/Soil/VOC/SVOC/PCB

12SB28-000.5-01

2/Aqueous/VOC

RB-01-122911 TB-01-122911

1/Aqueous/SVOC/PAH/PEST/PCB

RB-01-122911

15/Soil/PAH

12SB-DUP01-122911	12SB-DUP02-122911	12SB28-000.5-01
12SB48-0.502-02	12SB49-0.502-02	12SB50-0.502-02
12SB51-0.502-02	12SB52-0.502-02	12SB53-0.502-02
12SB54-0.502-02	12SB55-0.502-02	12SB56-0.502-02
12SB57-000.5-01	12SB58-000.5-01	12SB59-000.5-01

5/Soil/PEST

12SB-DUP01-122911	12SB28-000.5-01	12SB57-000.5-01
12SB58-000.5-01	12SB59-000.5-01	

Overview

The sample set for NASJRB Willow Grove, SDG C5164 consists of fifteen (15) soil environmental samples and one (1) rinsate blank. One (1) soil environmental sample, a trip blank and a rinsate blank were analyzed for volatile organic compounds (VOC). One (1) soil environmental sample and the rinsate blank were also analyzed for semivolatile organic compounds (SVOC) and polychlorinated biphenyls (PCBs). Fifteen (15) soil environmental samples and the rinsate blank were analyzed for polynuclear aromatic hydrocarbons (PAH). Five (5) soil environmental samples and a rinsate blank were analyzed for pesticides (PEST). Two field duplicate pairs were included in this SDG: 12SB57-000.5-01/ 12SBDUP01-122911 and 12SB48-0.502-02 and 12SBDUP02-122911.

The samples were collected on December 29, 2011and analyzed by Chemtech Laboratories. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270C, 8270C SIM, 8081A, 8082 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, field duplicate results, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

TO: A. Frebowitz
FROM: A. Cognetti
SDG: C5164
DATE: March 12, 2012

Major

- The laboratory control sample (LCS) associated with SVOC batch PB60339BS had a 0 percent recovery (%R) for 4-chloroaniline. The nondetected 4-chloroaniline result was qualified as rejected (UR) in sample 12SB28-000.5-01.

- The PEST surrogates decachlorobiphenyl and tetrachloro-m-xylene had %Rs less than 10% and less than the lower quality control limit, respectively in sample 12SB57-000.5-01. The sample was re-analyzed with similar results. The original sample results were used for validation and reporting purposes. The positive PEST results in sample 12SB57-000.5-01 were qualified as biased low (L). The nondetected PEST results in sample 12SB57-000.5-01 were qualified as rejected (UR).

Minor

- The LCS associated with SVOC batch PB60339BS, had %Rs less than the lower quality control limit for 3-nitroaniline. The nondetected 3-nitroaniline result were qualified as estimated low (UL) in the affected sample 12SB28-000.5-01.

- The internal standard area of perylene-d12 was less than the lower quality control limit in sample 12SB59-000.5-01 in the PAH fraction. The positive PAHs results quantitated using perylene-d12 were qualified as estimated (J) in sample 12SB59-000.5-01.

- The continuing calibration percent differences (%Ds) for 4,4'-DDT were greater than the 15% quality control limit but less than 50% on January 7, 2012 @ 6:35 on both columns and column ZB-MR1 @ 4:45. The positive 4,4'-DDT results were qualified as estimated (J) in the affected samples 12SB57-000.5-01, 12SB58-000.5-01 and 12SB59-000.5-01.

- Field duplicate imprecision was noted in the field duplicate pair 12SB-DUP01-122911 and 12SB57-000.5-01 for several PAHs. The PAHs were 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, naphthalene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene. The positive and nondetected 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, naphthalene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene results were qualified as estimated (J) and (UJ), respectively in the field duplicate pair 12SB-DUP01-122911 and 12SB57-000.5-01.

- Field duplicate imprecision was noted in the field duplicate pair 12SB48-0.502-02 and 12SB-DUP02-122911 for several PAHs. The PAHs were 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene. The positive 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene results were qualified as estimated (J) in the field duplicate pair 12SB48-0.502-02 and 12SB-DUP02-122911.

- Field duplicate imprecision was noted in the field duplicate pair 12SB57-000.5-01 and 12SB-DUP01-121911 for 4,4'-DDE, 4,4'-DDT and dieldrin in the PEST fraction. The positive and nondetected 4,4'-DDE, 4,4'-DDT and dieldrin results were qualified as estimated (J) and (UJ), respectively in the field duplicate pair 12SB57-000.5-01 and 12SB-DUP01-121911.

TO: A. Frebowitz
FROM: A. Cognetti
SDG: C5164
DATE: March 12, 2012

- The continuing calibration %Ds for endrin ketone were greater than the 15% quality control limit but less than 50% on both columns on December 30, 2011 @ 19:28 and 22:16 affecting the rinsate blank. The nondetected endrin ketone result was qualified as estimated (UJ) in the rinsate blank.

- The continuing calibration %Ds for endrin, methoxychlor and endrin ketone were greater than the 15% quality control limit but less than 50% on column ZB-MR1 on January 7, 2011 @ 4:45 and 6:35. The %Ds for endrin ketone exceeded quality control limits on column ZB-MR2 @ 4:45 and methoxychlor and endrin ketone @ 6:35. The nondetected methoxychlor and endrin ketone results were qualified as estimated (UJ) in the affected samples. No action was taken on the nondetected endrin results in the affected samples.

- Positive results less than the reporting limit (RL) were qualified as estimated, (J), due to uncertainty near the detection limit.

Notes

The rinsate blank contained the following contaminants in the VOC fraction:

Contaminant	Maximum Concentration (ug/kg)
2-butanone	3.2
Acetone	11
Methylene chloride	3.1

No action was taken on the environmental sample due to rinsate blank contamination.

The VOC matrix spike (MS) associated with sample C5135-17, not a sample in this SDG, had relative percent differences (RPDs) for methyl acetate and methylene chloride greater than the upper quality control limit. No action was taken because sample C5135-17 is not a sample in this SDG.

The SVOC LCS associated with batch PB60329 had several compounds with RPDs exceeding quality control limits. The compounds were nitrobenzene, isophorone, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 4-chloroaniline, 2-nitroaniline, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, di-n-butylphthalate and bis(2-ethylhexyl)phthalate. No action was taken because the LCS and laboratory control sample duplicate (LCSD) %Rs were within quality control limits for these compounds.

The %Rs of surrogate terphenyl-d14 were less than 10% in samples 12SB54-0.502-02DL and 12SB59-000.5-01DL in the PAH fraction. No action was taken because these samples were diluted 50X.

The RPDs were greater than the quality control limit in the PAH LCS associated with batch PB60341 for acenaphthene, fluoranthene and indeno(1,2,3-cd)pyrene. No action was taken because the LCS/LCSD %Rs of acenaphthene, fluoranthene and indeno(1,2,3-cd)pyrene were within quality control limits.

The continuing calibration %Ds for alpha-BHC, endrin, 4,4'-DDT and methoxychlor exceeded quality control limits on column ZB-MR1 on January 5, 2012 @00:45. In addition, the %D for 4,4'-DDD exceeded quality control limits on column ZB-MR2. No action was taken on the nondetected endrin, 4,4'-DDT, methoxychlor and 4,4'-DDD results in the affected sample 12SB28-000.5-01.

The %R of PCB surrogate decachlorobiphenyl was less than the lower quality control limit on column 1 in sample 12SB28-000.5-01. No action was taken on the nondetected PCB results in sample 12SB28-000.5-01.

TO: A. Frebowitz
FROM: A. Cognetti
SDG: C5164
DATE: March 12, 2012

Several samples were diluted in the PAH fraction as follows:

Sample	Dilution Factor
12SB28-000.5-01	5X; fluoranthene, pyrene
12SB54-0.502-02	5X; 50X for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene and pyrene
12SB59-000.5-01	5X; 50X for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene and pyrene

Nondetected results were reported to the limit of detection (LOD).

Several target compounds nondetected results in several fractions were greater than the project screening level as specified in the SAP for Phase II RI at Site 12 - South Landfill (October 2011). The compounds were 1,1,2,2-tetachloroethane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichloroethane, bromodichloromethane, chloroform, dibromochloromethane, tetrachloroethene, vinyl chloride, 2,2'-Oxybis(1-chloropropane), 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 3,3'-Dichlorobenzidine, 4,6-Dinitro-2-methylphenol, 4-Chloroanaline, 4-Nitroaniline, Bis(2-chloroethyl)ether, Di-n-butyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Nitrobenzene, N-Nitrosodi-n-propylamine, Pentachlorophenol and all PCBs. No action was taken.

The data reviewer identified five additional VOCs and 7 SVOCs analyzed by the laboratory that were not included in Worksheet 15 of the SAP. The project manager was notified of these additional analytes. . The VOC analytes were 1,4-dioxane, bromochloromethane, cyclohexane, methyl acetate and methyl cyclohexane. The SVOC compounds were 1,1-biphenyl, 1,2,4,5-tetrachlorobenzene, 2,3,4,6-tetrachlorophenol, atrazine, benzaldehyde and caprolactam. The aforementioned compound results were deleted from the EDD. The results are reported on the form 1s.

Executive Summary

Laboratory Performance: The LCS associated with SVOC batch PB60339BS had a 0 %R for 4-chloroaniline. The PEST surrogates decachlorobiphenyl and tetrachloro-m-xylene had %Rs less than 10% and less than the lower quality control limit, respectively in sample 12SB57-000.5-01. The LCS associated with SVOC batch PB60339BS, had %Rs less than the lower quality control limit for 3-nitroaniline. The internal standard area of perylene-d12 was less than the lower quality control limit in sample 12SB59-000.5-01 in the PAH fraction. The continuing calibration %Ds for several pesticides resulted in the qualification of nondetected results

Other Factors Affecting Data Quality: Field duplicate imprecision was noted in the field duplicate pair 12SB-DUP01-122911 and 12SB57-000.5-01 for several PAHs and pesticides. Field duplicate imprecision was noted in the field duplicate pair 12SB48-0.502-02 and 12SB-DUP02-122911 for several PAHs.

TO: A. Frebowitz
FROM: A. Cognetti
SDG: C5164
DATE: March 12, 2012

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Data Review" (September 1994), and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Ann Cognetti
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01		
SDG: C5164	LAB_ID	C5164-02		
FRACTION: OV	SAMP_DATE	12/29/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	76.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		3	U	
1,1,2,2-TETRACHLOROETHANE		3	U	
1,1,2-TRICHLOROETHANE		3	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		3	U	
1,1-DICHLOROETHANE		3	U	
1,1-DICHLOROETHENE		3	U	
1,2,3-TRICHLOROBENZENE		3	U	
1,2,4-TRICHLOROBENZENE		3	U	
1,2-DIBROMO-3-CHLOROPROPANE		3	U	
1,2-DIBROMOETHANE		3	U	
1,2-DICHLOROBENZENE		3	U	
1,2-DICHLOROETHANE		3	U	
1,2-DICHLOROPROPANE		3	U	
1,3-DICHLOROBENZENE		3	U	
1,4-DICHLOROBENZENE		3	U	
2-BUTANONE		15	U	
2-HEXANONE		15	U	
4-METHYL-2-PENTANONE		15	U	
ACETONE		15	U	
BENZENE		3	U	
BROMODICHLOROMETHANE		3	U	
BROMOFORM		3	U	
BROMOMETHANE		3	U	
CARBON DISULFIDE		3	U	
CARBON TETRACHLORIDE		3	U	
CHLOROBENZENE		3	U	
CHLORODIBROMOMETHANE		3	U	
CHLOROETHANE		3	U	
CHLOROFORM		3	U	
CHLOROMETHANE		3	U	
CIS-1,2-DICHLOROETHENE		3	U	
CIS-1,3-DICHLOROPROPENE		3	U	
DICHLORODIFLUOROMETHANE		3	U	
ETHYLBENZENE		3	U	
ISOPROPYLBENZENE		3	U	

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01		
SDG: C5164	LAB_ID	C5164-02		
FRACTION: OV	SAMP_DATE	12/29/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	76.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
M+P-XYLENES		6	U	
METHYL TERT-BUTYL ETHER		3	U	
METHYLENE CHLORIDE		3	U	
O-XYLENE		3	U	
STYRENE		3	U	
TETRACHLOROETHENE		3	U	
TOLUENE		3	U	
TOTAL XYLENES		9	U	
TRANS-1,2-DICHLOROETHENE		3	U	
TRANS-1,3-DICHLOROPROPENE		3	U	
TRICHLOROETHENE		3	U	
TRICHLOROFLUOROMETHANE		3	U	
VINYL CHLORIDE		3	U	

PROJ_NO: 02014	NSAMPLE	RB-01-122911	TB-01-122911
SDG: C5164	LAB_ID	C5164-23	C5164-01
FRACTION: OV	SAMP_DATE	12/29/2011	12/29/2011
MEDIA: WATER	QC_TYPE	NM	NM
	UNITS	UG/L	UG/L
	PCT_SOLIDS	0.0	0.0
	DUP_OF		

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE	0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE	0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U		0.5	U	
1,1-DICHLOROETHANE	0.5	U		0.5	U	
1,1-DICHLOROETHENE	0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE	0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE	0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U		0.5	U	
1,2-DIBROMOETHANE	0.5	U		0.5	U	
1,2-DICHLOROBENZENE	0.5	U		0.5	U	
1,2-DICHLOROETHANE	0.5	U		0.5	U	
1,2-DICHLOROPROPANE	0.5	U		0.5	U	
1,3-DICHLOROBENZENE	0.5	U		0.5	U	
1,4-DICHLOROBENZENE	0.5	U		0.5	U	
2-BUTANONE	3.2	J	P	2.5	U	
2-HEXANONE	2.5	U		2.5	U	
4-METHYL-2-PENTANONE	2.5	U		2.5	U	
ACETONE	11			2.5	U	
BENZENE	0.5	U		0.5	U	
BROMODICHLOROMETHANE	0.5	U		0.5	U	
BROMOFORM	0.5	U		0.5	U	
BROMOMETHANE	0.5	U		0.5	U	
CARBON DISULFIDE	0.5	U		0.5	U	
CARBON TETRACHLORIDE	0.5	U		0.5	U	
CHLOROBENZENE	0.5	U		0.5	U	
CHLORODIBROMOMETHANE	0.5	U		0.5	U	
CHLOROETHANE	0.5	U		0.5	U	
CHLOROFORM	0.5	U		0.5	U	
CHLOROMETHANE	0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE	0.5	U		0.5	U	
ETHYLBENZENE	0.5	U		0.5	U	
ISOPROPYLBENZENE	0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	RB-01-122911			TB-01-122911		
SDG: C5164	LAB_ID	C5164-23			C5164-01		
FRACTION: OV	SAMP_DATE	12/29/2011			12/29/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		1	U		1	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U	
METHYLENE CHLORIDE		3.1			0.5	U	
O-XYLENE		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U	
TOTAL XYLENES		1.5	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01			12SB28-000.5-01DL			12SB28-000.5-01GR2			12SB48-0.502-02		
SDG: C5164	LAB_ID	C5164-02			C5164-02DL			C5164-02			C5164-16		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	76.0			76.0			76.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		215	U										
2,4,5-TRICHLOROPHENOL		215	U										
2,4,6-TRICHLOROPHENOL		215	U										
2,4-DICHLOROPHENOL		215	U										
2,4-DIMETHYLPHENOL		215	U										
2,4-DINITROPHENOL		215	U										
2,4-DINITROTOLUENE		215	U										
2,6-DINITROTOLUENE		215	U										
2-CHLORONAPHTHALENE		215	U										
2-CHLOROPHENOL		215	U										
2-METHYLNAPHTHALENE		3.1	J	P							2.05	UJ	G
2-METHYLPHENOL		215	U										
2-NITROANILINE		215	U										
2-NITROPHENOL		215	U										
3&4-METHYLPHENOL		215	U										
3,3'-DICHLOROBENZIDINE		215	U										
3-NITROANILINE		215	UL	E									
4,6-DINITRO-2-METHYLPHENOL		215	U										
4-BROMOPHENYL PHENYL ETHER		215	U										
4-CHLORO-3-METHYLPHENOL		215	U										
4-CHLOROANILINE		215	UR	E									
4-CHLOROPHENYL PHENYL ETHER		215	U										
4-NITROANILINE		215	U										
4-NITROPHENOL		215	U										
ACENAPHTHENE								16			2.05	U	
ACENAPHTHYLENE								52			2.05	U	
ANTHRACENE		160									2.05	U	
BENZO(A)ANTHRACENE		670									2.5	J	GP
BENZO(A)PYRENE		580									2.05	UJ	G
BENZO(B)FLUORANTHENE		820									2.9	J	GP
BENZO(G,H,I)PERYLENE		340									2.05	UJ	G
BENZO(K)FLUORANTHENE		260									2.05	U	
BIS(2-CHLOROETHOXY)METHANE		215	U										
BIS(2-CHLOROETHYL)ETHER		215	U										
BIS(2-ETHYLHEXYL)PHTHALATE		215	U										

PROJ_NO: 02014	NSAMPLE	12SB49-0.502-02			12SB50-0.502-02			12SB51-0.502-02			12SB52-0.502-02		
SDG: C5164	LAB_ID	C5164-06			C5164-12			C5164-09			C5164-10		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			78.0			85.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)													
2,4,5-TRICHLOROPHENOL													
2,4,6-TRICHLOROPHENOL													
2,4-DICHLOROPHENOL													
2,4-DIMETHYLPHENOL													
2,4-DINITROPHENOL													
2,4-DINITROTOLUENE													
2,6-DINITROTOLUENE													
2-CHLORONAPHTHALENE													
2-CHLOROPHENOL													
2-METHYLNAPHTHALENE		2.05	U		2.1	U		2	J	P	5.7		
2-METHYLPHENOL													
2-NITROANILINE													
2-NITROPHENOL													
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE													
3-NITROANILINE													
4,6-DINITRO-2-METHYLPHENOL													
4-BROMOPHENYL PHENYL ETHER													
4-CHLORO-3-METHYLPHENOL													
4-CHLOROANILINE													
4-CHLOROPHENYL PHENYL ETHER													
4-NITROANILINE													
4-NITROPHENOL													
ACENAPHTHENE		2.05	U		2.1	U		1.95	U		15		
ACENAPHTHYLENE		2.05	U		2.1	U		4.7			9.3		
ANTHRACENE		2.05	U		2.1	U		15			82		
BENZO(A)ANTHRACENE		2.05	U		2.1	U		42			290		
BENZO(A)PYRENE		2.05	U		2.1	U		47			290		
BENZO(B)FLUORANTHENE		2.05	U		2.1	U		68			370		
BENZO(G,H,I)PERYLENE		2.05	U		2.1	U		31			160		
BENZO(K)FLUORANTHENE		2.05	U		2.1	U		24			140		
BIS(2-CHLOROETHOXY)METHANE													
BIS(2-CHLOROETHYL)ETHER													
BIS(2-ETHYLHEXYL)PHTHALATE													

PROJ_NO: 02014	NSAMPLE	12SB53-0.502-02			12SB54-0.502-02			12SB54-0.502-02DL			12SB55-0.502-02		
SDG: C5164	LAB_ID	C5164-11			C5164-03			C5164-03DL			C5164-05		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			80.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)													
2,4,5-TRICHLOROPHENOL													
2,4,6-TRICHLOROPHENOL													
2,4-DICHLOROPHENOL													
2,4-DIMETHYLPHENOL													
2,4-DINITROPHENOL													
2,4-DINITROTOLUENE													
2,6-DINITROTOLUENE													
2-CHLORONAPHTHALENE													
2-CHLOROPHENOL													
2-METHYLNAPHTHALENE		4.2			46						1.95	U	
2-METHYLPHENOL													
2-NITROANILINE													
2-NITROPHENOL													
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE													
3-NITROANILINE													
4,6-DINITRO-2-METHYLPHENOL													
4-BROMOPHENYL PHENYL ETHER													
4-CHLORO-3-METHYLPHENOL													
4-CHLOROANILINE													
4-CHLOROPHENYL PHENYL ETHER													
4-NITROANILINE													
4-NITROPHENOL													
ACENAPHTHENE		11			440						1.95	U	
ACENAPHTHYLENE		8.7			160						3.5	J	P
ANTHRACENE		39			2200						6.3		
BENZO(A)ANTHRACENE		120						6300			31		
BENZO(A)PYRENE		110						4900			29		
BENZO(B)FLUORANTHENE		150						6400			41		
BENZO(G,H,I)PERYLENE		63			3300						18		
BENZO(K)FLUORANTHENE		56			2800						14		
BIS(2-CHLOROETHOXY)METHANE													
BIS(2-CHLOROETHYL)ETHER													
BIS(2-ETHYLHEXYL)PHTHALATE													

PROJ_NO: 02014	NSAMPLE	12SB56-0.502-02			12SB57-000.5-01			12SB58-000.5-01			12SB59-000.5-01		
SDG: C5164	LAB_ID	C5164-04			C5164-13			C5164-14			C5164-15		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			72.0			69.0			74.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)												
2,4,5-TRICHLOROPHENOL												
2,4,6-TRICHLOROPHENOL												
2,4-DICHLOROPHENOL												
2,4-DIMETHYLPHENOL												
2,4-DINITROPHENOL												
2,4-DINITROTOLUENE												
2,6-DINITROTOLUENE												
2-CHLORONAPHTHALENE												
2-CHLOROPHENOL												
2-METHYLNAPHTHALENE	2.05	U		37	J	G	2.4	U		130		
2-METHYLPHENOL												
2-NITROANILINE												
2-NITROPHENOL												
3&4-METHYLPHENOL												
3,3'-DICHLOROBENZIDINE												
3-NITROANILINE												
4,6-DINITRO-2-METHYLPHENOL												
4-BROMOPHENYL PHENYL ETHER												
4-CHLORO-3-METHYLPHENOL												
4-CHLOROANILINE												
4-CHLOROPHENYL PHENYL ETHER												
4-NITROANILINE												
4-NITROPHENOL												
ACENAPHTHENE	2.05	U		2.3	U		2.4	U		660		
ACENAPHTHYLENE	2.05	U		2.8	J	P	2.9	J	P	90		
ANTHRACENE	2.05	U		3.7	J	P	3.4	J	P	2200		
BENZO(A)ANTHRACENE	2.5	J	P	16	J	G	28					
BENZO(A)PYRENE	2.05	U		18	J	G	33					
BENZO(B)FLUORANTHENE	2.5	J	P	29	J	G	47					
BENZO(G,H,I)PERYLENE	2.05	U		13	J	G	21			4600	J	N
BENZO(K)FLUORANTHENE	2.05	U		11	J	G	18			3100	J	N
BIS(2-CHLOROETHOXY)METHANE												
BIS(2-CHLOROETHYL)ETHER												
BIS(2-ETHYLHEXYL)PHTHALATE												

PROJ_NO: 02014	NSAMPLE	12SB59-000.5-01DL			12SB-DUP01-122911			12SB-DUP02-122911		
SDG: C5164	LAB_ID	C5164-15DL			C5164-20			C5164-21		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.0			79.0			71.0		
	DUP_OF				12SB57-000.5-01			12SB48-0.502-02		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,2'-OXYBIS(1-CHLOROPROPANE)										
2,4,5-TRICHLOROPHENOL										
2,4,6-TRICHLOROPHENOL										
2,4-DICHLOROPHENOL										
2,4-DIMETHYLPHENOL										
2,4-DINITROPHENOL										
2,4-DINITROTOLUENE										
2,6-DINITROTOLUENE										
2-CHLORONAPHTHALENE										
2-CHLOROPHENOL										
2-METHYLNAPHTHALENE				2.1	UJ	G	35	J	G	
2-METHYLPHENOL										
2-NITROANILINE										
2-NITROPHENOL										
3&4-METHYLPHENOL										
3,3'-DICHLOROBENZIDINE										
3-NITROANILINE										
4,6-DINITRO-2-METHYLPHENOL										
4-BROMOPHENYL PHENYL ETHER										
4-CHLORO-3-METHYLPHENOL										
4-CHLOROANILINE										
4-CHLOROPHENYL PHENYL ETHER										
4-NITROANILINE										
4-NITROPHENOL										
ACENAPHTHENE				2.1	U		2.3	U		
ACENAPHTHYLENE				2.1	U		2.8	J	P	
ANTHRACENE				2.1	U		3.3	J	P	
BENZO(A)ANTHRACENE	7600			2.9	J	GP	13	J	G	
BENZO(A)PYRENE	6400			2.5	J	GP	15	J	G	
BENZO(B)FLUORANTHENE	8800			4.2	J	G	27	J	G	
BENZO(G,H,I)PERYLENE				2.1	UJ	G	12	J	G	
BENZO(K)FLUORANTHENE				2.1	UJ	G	7.5			
BIS(2-CHLOROETHOXY)METHANE										
BIS(2-CHLOROETHYL)ETHER										
BIS(2-ETHYLHEXYL)PHTHALATE										

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01			12SB28-000.5-01DL			12SB28-000.5-01GR2			12SB48-0.502-02		
SDG: C5164	LAB_ID	C5164-02			C5164-02DL			C5164-02			C5164-16		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	76.0			76.0			76.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		215	U										
CARBAZOLE		215	U										
CHRYSENE		660									2.5	J	GP
DIBENZO(A,H)ANTHRACENE		110									2.05	U	
DIBENZOFURAN		215	U										
DIETHYL PHTHALATE		215	U										
DIMETHYL PHTHALATE		215	U										
DI-N-BUTYL PHTHALATE		215	U										
DI-N-OCTYL PHTHALATE		215	U										
FLUORANTHENE					1500						5.3	J	G
FLUORENE		31									2.05	U	
HEXACHLOROBENZENE		215	U										
HEXACHLOROBUTADIENE		215	U										
HEXACHLOROCYCLOPENTADIENE		215	U										
HEXACHLOROETHANE		215	U										
INDENO(1,2,3-CD)PYRENE		310									2.05	UJ	G
ISOPHORONE		215	U										
NAPHTHALENE		4.4									2.05	UJ	G
NITROBENZENE		215	U										
N-NITROSO-DI-N-PROPYLAMINE		215	U										
N-NITROSODIPHENYLAMINE		215	U										
PENTACHLOROPHENOL		215	U										
PHENANTHRENE								600			3.3	J	GP
PHENOL		215	U										
PYRENE					1300						4.1	J	G

PROJ_NO: 02014	NSAMPLE	12SB49-0.502-02			12SB50-0.502-02			12SB51-0.502-02			12SB52-0.502-02		
SDG: C5164	LAB_ID	C5164-06			C5164-12			C5164-09			C5164-10		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			78.0			85.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE													
CARBAZOLE													
CHRYSENE		2.05	U		2.1	U		53			300		
DIBENZO(A,H)ANTHRACENE		2.05	U		2.1	U		8.6			47		
DIBENZOFURAN													
DIETHYL PHTHALATE													
DIMETHYL PHTHALATE													
DI-N-BUTYL PHTHALATE													
DI-N-OCTYL PHTHALATE													
FLUORANTHENE		2.05	U		2.1	U		120			660		
FLUORENE		2.05	U		2.1	U		3.9			21		
HEXACHLOROBENZENE													
HEXACHLOROBUTADIENE													
HEXACHLOROCYCLOPENTADIENE													
HEXACHLOROETHANE													
INDENO(1,2,3-CD)PYRENE		2.05	U		2.1	U		36			170		
ISOPHORONE													
NAPHTHALENE		2.05	U		2.1	U		1.95	U		6.9		
NITROBENZENE													
N-NITROSO-DI-N-PROPYLAMINE													
N-NITROSODIPHENYLAMINE													
PENTACHLOROPHENOL													
PHENANTHRENE		2.05	U		2.1	U		54			320		
PHENOL													
PYRENE		2.05	U		2.1	U		90			530		

PROJ_NO: 02014	NSAMPLE	12SB53-0.502-02			12SB54-0.502-02			12SB54-0.502-02DL			12SB55-0.502-02		
SDG: C5164	LAB_ID	C5164-11			C5164-03			C5164-03DL			C5164-05		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			80.0			80.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE													
CARBAZOLE													
CHRYSENE		130						6200			34		
DIBENZO(A,H)ANTHRACENE		18			1000						5.5		
DIBENZOFURAN													
DIETHYL PHTHALATE													
DIMETHYL PHTHALATE													
DI-N-BUTYL PHTHALATE													
DI-N-OCTYL PHTHALATE													
FLUORANTHENE		300						15000			63		
FLUORENE		13			680						2.3	J	P
HEXACHLOROBENZENE													
HEXACHLOROBUTADIENE													
HEXACHLOROCYCLOPENTADIENE													
HEXACHLOROETHANE													
INDENO(1,2,3-CD)PYRENE		67			2700						20		
ISOPHORONE													
NAPHTHALENE		3.7	J	P	48						1.95	U	
NITROBENZENE													
N-NITROSO-DI-N-PROPYLAMINE													
N-NITROSODIPHENYLAMINE													
PENTACHLOROPHENOL													
PHENANTHRENE		180						8500			27		
PHENOL													
PYRENE		240						12000			56		

PROJ_NO: 02014	NSAMPLE	12SB56-0.502-02			12SB57-000.5-01			12SB58-000.5-01			12SB59-000.5-01		
SDG: C5164	LAB_ID	C5164-04			C5164-13			C5164-14			C5164-15		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	80.0			72.0			69.0			74.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE													
CARBAZOLE													
CHRYSENE		2.5	J	P	29	J	G	39					
DIBENZO(A,H)ANTHRACENE		2.05	U		5.1			5.3			1400	J	N
DIBENZOFURAN													
DIETHYL PHTHALATE													
DIMETHYL PHTHALATE													
DI-N-BUTYL PHTHALATE													
DI-N-OCTYL PHTHALATE													
FLUORANTHENE		4.6			48	J	G	61					
FLUORENE		2.05	U		3.2	J	P	2.4	U		620		
HEXACHLOROBENZENE													
HEXACHLOROBUTADIENE													
HEXACHLOROCYCLOPENTADIENE													
HEXACHLOROETHANE													
INDENO(1,2,3-CD)PYRENE		2.05	U		14	J	G	23			3500		
ISOPHORONE													
NAPHTHALENE		2.05	U		23	J	G	2.4	U		74		
NITROBENZENE													
N-NITROSO-DI-N-PROPYLAMINE													
N-NITROSODIPHENYLAMINE													
PENTACHLOROPHENOL													
PHENANTHRENE		2.5	J	P	42	J	G	37					
PHENOL													
PYRENE		3.7	J	P	38	J	G	53					

PROJ_NO: 02014	NSAMPLE	12SB59-000.5-01DL			12SB-DUP01-122911			12SB-DUP02-122911		
SDG: C5164	LAB_ID	C5164-15DL			C5164-20			C5164-21		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	74.0			79.0			71.0		
	DUP_OF				12SB57-000.5-01			12SB48-0.502-02		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE										
CARBAZOLE										
CHRYSENE		7800			3.8	J	GP	25	J	G
DIBENZO(A,H)ANTHRACENE					2.1	U		3.3	J	P
DIBENZOFURAN										
DIETHYL PHTHALATE										
DIMETHYL PHTHALATE										
DI-N-BUTYL PHTHALATE										
DI-N-OCTYL PHTHALATE										
FLUORANTHENE		17000			8.4	J	G	40	J	G
FLUORENE					2.1	U		2.3	U	
HEXACHLOROBENZENE										
HEXACHLOROBUTADIENE										
HEXACHLOROCYCLOPENTADIENE										
HEXACHLOROETHANE										
INDENO(1,2,3-CD)PYRENE					2.1	UJ	G	13	J	G
ISOPHORONE										
NAPHTHALENE					2.1	UJ	G	22	J	G
NITROBENZENE										
N-NITROSO-DI-N-PROPYLAMINE										
N-NITROSODIPHENYLAMINE										
PENTACHLOROPHENOL										
PHENANTHRENE		8200			6.3	J	G	36	J	G
PHENOL										
PYRENE		15000			6.3	J	G	33	J	G

PROJ_NO: 02014	NSAMPLE	RB-01-122911			RB-01-122911GR2		
SDG: C5164	LAB_ID	C5164-23			C5164-23		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2,2'-OXYBIS(1-CHLOROPROPANE)		5	U				
2,4,5-TRICHLOROPHENOL		5	U				
2,4,6-TRICHLOROPHENOL		5	U				
2,4-DICHLOROPHENOL		5	U				
2,4-DIMETHYLPHENOL		5	U				
2,4-DINITROPHENOL		5	U				
2,4-DINITROTOLUENE		5	U				
2,6-DINITROTOLUENE		5	U				
2-CHLORONAPHTHALENE		5	U				
2-CHLOROPHENOL		5	U				
2-METHYLNAPHTHALENE		0.05	U				
2-METHYLPHENOL		5	U				
2-NITROANILINE		5	U				
2-NITROPHENOL		5	U				
3&4-METHYLPHENOL		5	U				
3,3'-DICHLOROBENZIDINE		5	U				
3-NITROANILINE		5	U				
4,6-DINITRO-2-METHYLPHENOL		5	U				
4-BROMOPHENYL PHENYL ETHER		5	U				
4-CHLORO-3-METHYLPHENOL		5	U				
4-CHLOROANILINE		5	U				
4-CHLOROPHENYL PHENYL ETHER		5	U				
4-NITROANILINE		5	U				
4-NITROPHENOL		5	U				
ACENAPHTHENE					0.05	U	
ACENAPHTHYLENE					0.05	U	
ANTHRACENE		0.05	U				
BENZO(A)ANTHRACENE		0.05	U				
BENZO(A)PYRENE		0.05	U				
BENZO(B)FLUORANTHENE		0.26	U				
BENZO(G,H,I)PERYLENE		0.05	U				
BENZO(K)FLUORANTHENE		0.26	U				
BIS(2-CHLOROETHOXY)METHANE		5	U				
BIS(2-CHLOROETHYL)ETHER		5	U				
BIS(2-ETHYLHEXYL)PHTHALATE		5	U				

PROJ_NO: 02014	NSAMPLE	RB-01-122911			RB-01-122911GR2		
SDG: C5164	LAB_ID	C5164-23			C5164-23		
FRACTION: OS	SAMP_DATE	12/29/2011			12/29/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
BUTYL BENZYL PHTHALATE		5	U				
CARBAZOLE		5	U				
CHRYSENE		0.05	U				
DIBENZO(A,H)ANTHRACENE		0.05	U				
DIBENZOFURAN		5	U				
DIETHYL PHTHALATE		5	U				
DIMETHYL PHTHALATE		5	U				
DI-N-BUTYL PHTHALATE		5	U				
DI-N-OCTYL PHTHALATE		5	U				
FLUORANTHENE		0.05	U				
FLUORENE		0.05	U				
HEXACHLOROBENZENE		5	U				
HEXACHLOROBUTADIENE		5	U				
HEXACHLOROCYCLOPENTADIENE		5	U				
HEXACHLOROETHANE		5	U				
INDENO(1,2,3-CD)PYRENE		0.05	U				
ISOPHORONE		5	U				
NAPHTHALENE		0.05	U				
NITROBENZENE		5	U				
N-NITROSO-DI-N-PROPYLAMINE		5	U				
N-NITROSODIPHENYLAMINE		5	U				
PENTACHLOROPHENOL		5	U				
PHENANTHRENE					0.05	U	
PHENOL		5	U				
PYRENE		0.05	U				

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01						12SB57-000.5-01			12SB58-000.5-01		
SDG: C5164	LAB_ID	C5164-02						C5164-13			C5164-14		
FRACTION: PEST/PCB	SAMP_DATE	12/29/2011						12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM						NM			NM		
	UNITS	UG/KG						UG/KG			UG/KG		
	PCT_SOLIDS	76.0			76.1			72.0			68.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD					1.1	U		1.2	UR	R	1.25	U	
4,4'-DDE					1.1	U		7.8	J	GR	2.1	J	P
4,4'-DDT					1.1	U		7.2	J	CGR	1.6	J	CP
ALDRIN					1.1	U		1.2	UR	R	1.25	U	
ALPHA-BHC					1.1	U		1.2	UR	R	1.25	U	
ALPHA-CHLORDANE					1.1	U		1.2	UR	R	1.25	U	
AROCLOR-1016		11	U										
AROCLOR-1221		11	U										
AROCLOR-1232		11	U										
AROCLOR-1242		11	U										
AROCLOR-1248		11	U										
AROCLOR-1254		11	U										
AROCLOR-1260		11	U										
BETA-BHC					1.1	U		1.2	UR	R	1.25	U	
DELTA-BHC					1.1	U		1.2	UR	R	1.25	U	
DIELDRIN					1.1	U		8	J	GR	1.25	U	
ENDOSULFAN I					1.1	U		1.2	UR	R	1.25	U	
ENDOSULFAN II					1.1	U		1.2	UR	R	1.25	U	
ENDOSULFAN SULFATE					1.1	U		1.2	UR	R	1.25	U	
ENDRIN					1.1	U		1.2	UR	R	1.25	U	
ENDRIN ALDEHYDE					1.1	U		1.2	UR	R	1.25	U	
ENDRIN KETONE					1.1	U		1.2	UR	R	1.25	UJ	C
GAMMA-BHC (LINDANE)					1.1	U		1.2	UR	R	1.25	U	
GAMMA-CHLORDANE					1.1	U		1.2	UR	R	1.25	U	
HEPTACHLOR					1.1	U		1.2	UR	R	1.25	U	
HEPTACHLOR EPOXIDE					1.1	U		1.2	UR	R	1.25	U	
METHOXYCHLOR					1.1	U		1.2	UR	R	1.25	UJ	C
TOXAPHENE					11	U		12	UR	R	12.5	U	

PROJ_NO: 02014	NSAMPLE	12SB59-000.5-01			12SB-DUP01-122911		
SDG: C5164	LAB_ID	C5164-15			C5164-20		
FRACTION: PEST/PCB	SAMP_DATE	12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	74.1			79.3		
	DUP_OF				12SB57-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		1.15	U		1.05	U	
4,4'-DDE		1.15	U		1.05	UJ	G
4,4'-DDT		2.1	J	CP	1.05	UJ	G
ALDRIN		1.15	U		1.05	U	
ALPHA-BHC		1.15	U		1.05	U	
ALPHA-CHLORDANE		1.15	U		1.05	U	
AROCLOR-1016							
AROCLOR-1221							
AROCLOR-1232							
AROCLOR-1242							
AROCLOR-1248							
AROCLOR-1254							
AROCLOR-1260							
BETA-BHC		1.15	U		1.05	U	
DELTA-BHC		1.15	U		1.05	U	
DIELDRIN		33	P		1.05	UJ	G
ENDOSULFAN I		1.15	U		1.05	U	
ENDOSULFAN II		1.15	U		1.05	U	
ENDOSULFAN SULFATE		1.15	U		1.05	U	
ENDRIN		1.15	U		1.05	U	
ENDRIN ALDEHYDE		1.15	U		1.05	U	
ENDRIN KETONE		1.15	UJ	C	1.05	UJ	C
GAMMA-BHC (LINDANE)		1.15	U		1.05	U	
GAMMA-CHLORDANE		1.15	U		1.05	U	
HEPTACHLOR		1.15	U		1.05	U	
HEPTACHLOR EPOXIDE		1.15	U		1.05	U	
METHOXYCHLOR		1.15	UJ	C	1.05	UJ	C
TOXAPHENE		11.5	U		10.5	U	

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	24
Sample Wt/Vol:	5.51 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030541.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	3	U	0.78	6	ug/Kg
74-87-3	Chloromethane	3	U	1	6	ug/Kg
75-01-4	Vinyl Chloride	3	U	1.5	6	ug/Kg
74-83-9	Bromomethane	3	U	2.9	6	ug/Kg
75-00-3	Chloroethane	3	U	1.7	6	ug/Kg
75-69-4	Trichlorofluoromethane	3	U	1.6	6	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	3	U	1.6	6	ug/Kg
75-35-4	1,1-Dichloroethene	3	U	1.8	6	ug/Kg
67-64-1	Acetone	15	U	3.6	30	ug/Kg
75-15-0	Carbon Disulfide	3	U	1.3	6	ug/Kg
1634-04-4	Methyl tert-butyl Ether	3	U	1.1	6	ug/Kg
79-20-9	Methyl Acetate	3	U	1.8	6	ug/Kg
75-09-2	Methylene Chloride	3	U	1.7	6	ug/Kg
156-60-5	trans-1,2-Dichloroethene	3	U	0.82	6	ug/Kg
75-34-3	1,1-Dichloroethane	3	U	1.1	6	ug/Kg
110-82-7	Cyclohexane	3	U	1.2	6	ug/Kg
78-93-3	2-Butanone	15	U	3.7	30	ug/Kg
56-23-5	Carbon Tetrachloride	3	U	1.2	6	ug/Kg
156-59-2	cis-1,2-Dichloroethene	3	U	1.1	6	ug/Kg
74-97-5	Bromochloromethane	3	U	0.94	6	ug/Kg
67-66-3	Chloroform	3	U	0.88	6	ug/Kg
71-55-6	1,1,1-Trichloroethane	3	U	1.1	6	ug/Kg
108-87-2	Methylcyclohexane	3	U	1.3	6	ug/Kg
71-43-2	Benzene	3	U	0.45	6	ug/Kg
107-06-2	1,2-Dichloroethane	3	U	0.76	6	ug/Kg
79-01-6	Trichloroethene	3	U	1	6	ug/Kg
78-87-5	1,2-Dichloropropane	3	U	0.31	6	ug/Kg
75-27-4	Bromodichloromethane	3	U	0.74	6	ug/Kg
108-10-1	4-Methyl-2-Pentanone	15	U	3.5	30	ug/Kg
108-88-3	Toluene	3	U	0.76	6	ug/Kg
10061-02-6	t-1,3-Dichloropropene	3	U	0.94	6	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	24
Sample Wt/Vol:	5.51 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030541.D	1		01/05/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	3	U	0.86	6	ug/Kg
79-00-5	1,1,2-Trichloroethane	3	U	1.1	6	ug/Kg
591-78-6	2-Hexanone	15	U	4.7	30	ug/Kg
124-48-1	Dibromochloromethane	3	U	0.64	6	ug/Kg
106-93-4	1,2-Dibromoethane	3	U	0.76	6	ug/Kg
127-18-4	Tetrachloroethene	3	U	1.2	6	ug/Kg
108-90-7	Chlorobenzene	3	U	0.6	6	ug/Kg
100-41-4	Ethyl Benzene	3	U	0.74	6	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.86	12	ug/Kg
95-47-6	o-Xylene	3	U	0.81	6	ug/Kg
100-42-5	Styrene	3	U	0.54	6	ug/Kg
75-25-2	Bromoform	3	U	0.88	6	ug/Kg
98-82-8	Isopropylbenzene	3	U	0.57	6	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	3	U	0.55	6	ug/Kg
541-73-1	1,3-Dichlorobenzene	3	U	0.44	6	ug/Kg
106-46-7	1,4-Dichlorobenzene	3	U	0.49	6	ug/Kg
95-50-1	1,2-Dichlorobenzene	3	U	0.74	6	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	3	U	1	6	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	3	U	0.84	6	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	3	U	0.6	6	ug/Kg
1330-20-7	Total Xylenes	9	U	1.7	18	ug/Kg
123-91-1	1,4-Dioxane	120	U	120	120	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	39.5		55 - 158	79%	SPK: 50
1868-53-7	Dibromofluoromethane	43.4		53 - 156	87%	SPK: 50
2037-26-5	Toluene-d8	46.8		85 - 115	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.1		85 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	112690	4.37			
540-36-3	1,4-Difluorobenzene	206683	5.12			
3114-55-4	Chlorobenzene-d5	195142	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	84962	12.23			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040013.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	11		0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	3.1		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	3.2	J	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040013.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	20	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	44.6		70 - 120	89%	SPK: 50
1868-53-7	Dibromofluoromethane	45.2		85 - 115	90%	SPK: 50
2037-26-5	Toluene-d8	45.9		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.5		75 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	705892	3.91			
540-36-3	1,4-Difluorobenzene	1025690	4.71			
3114-55-4	Chlorobenzene-d5	1024930	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	532036	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	TB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040014.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	TB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040014.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	20	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	45		70 - 120	90%	SPK: 50
1868-53-7	Dibromofluoromethane	44.2		85 - 115	88%	SPK: 50
2037-26-5	Toluene-d8	46.3		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.9		75 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	722713	3.9			
540-36-3	1,4-Difluorobenzene	1030770	4.71			
3114-55-4	Chlorobenzene-d5	1031660	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	539574	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074910.D	1	01/03/12	01/07/12	PB60339

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	215	U	23	430	ug/Kg
108-95-2	Phenol	215	U	10	430	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	215	U	21	430	ug/Kg
95-57-8	2-Chlorophenol	215	U	23	430	ug/Kg
95-48-7	2-Methylphenol	215	U	24	430	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	215	U	18	430	ug/Kg
98-86-2	Acetophenone	215	U	13	430	ug/Kg
65794-96-9	3+4-Methylphenols	215	U	23	430	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	215	U	22	430	ug/Kg
67-72-1	Hexachloroethane	215	U	20	430	ug/Kg
98-95-3	Nitrobenzene	215	U	17	430	ug/Kg
78-59-1	Isophorone	215	U	14	430	ug/Kg
88-75-5	2-Nitrophenol	215	U	21	430	ug/Kg
105-67-9	2,4-Dimethylphenol	215	U	25	430	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	215	U	25	430	ug/Kg
120-83-2	2,4-Dichlorophenol	215	U	17	430	ug/Kg
106-47-8	4-Chloroaniline	215	U	31	430	ug/Kg
87-68-3	Hexachlorobutadiene	215	U	16	430	ug/Kg
105-60-2	Caprolactam	215	U	20	430	ug/Kg
59-50-7	4-Chloro-3-methylphenol	215	U	19	430	ug/Kg
77-47-4	Hexachlorocyclopentadiene	215	U	11	430	ug/Kg
88-06-2	2,4,6-Trichlorophenol	215	U	13	430	ug/Kg
95-95-4	2,4,5-Trichlorophenol	215	U	31	430	ug/Kg
92-52-4	1,1-Biphenyl	215	U	17	430	ug/Kg
91-58-7	2-Chloronaphthalene	215	U	10	430	ug/Kg
88-74-4	2-Nitroaniline	215	U	19	430	ug/Kg
131-11-3	Dimethylphthalate	215	U	12	430	ug/Kg
208-96-8	Acenaphthylene	215	U	11	430	ug/Kg
606-20-2	2,6-Dinitrotoluene	215	U	18	430	ug/Kg
99-09-2	3-Nitroaniline	215	U	28	430	ug/Kg
83-32-9	Acenaphthene	215	U	12	430	ug/Kg

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074910.D	1	01/03/12	01/07/12	PB60339

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	215	U	45	430	ug/Kg
100-02-7	4-Nitrophenol	215	U	81	430	ug/Kg
132-64-9	Dibenzofuran	215	U	17	430	ug/Kg
121-14-2	2,4-Dinitrotoluene	215	U	13	430	ug/Kg
84-66-2	Diethylphthalate	215	U	6.8	430	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	215	U	24	430	ug/Kg
100-01-6	4-Nitroaniline	215	U	57	430	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	215	U	25	430	ug/Kg
86-30-6	N-Nitrosodiphenylamine	215	U	11	430	ug/Kg
101-55-3	4-Bromophenyl-phenylether	215	U	8.5	430	ug/Kg
118-74-1	Hexachlorobenzene	215	U	18	430	ug/Kg
1912-24-9	Atrazine	215	U	23	430	ug/Kg
87-86-5	Pentachlorophenol	215	U	30	430	ug/Kg
85-01-8	Phenanthrene	850		12	430	ug/Kg
86-74-8	Carbazole	215	U	9.6	430	ug/Kg
84-74-2	Di-n-butylphthalate	215	U	34	430	ug/Kg
85-68-7	Butylbenzylphthalate	215	U	21	430	ug/Kg
91-94-1	3,3-Dichlorobenzidine	215	U	28	430	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	215	U	16	430	ug/Kg
117-84-0	Di-n-octyl phthalate	215	U	5	430	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	215	U	17	430	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	215	U	430	430	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	124		35 - 105	83%	SPK: 150
13127-88-3	Phenol-d5	127		40 - 100	85%	SPK: 150
4165-60-0	Nitrobenzene-d5	82.7		35 - 100	83%	SPK: 100
321-60-8	2-Fluorobiphenyl	82.3		45 - 105	82%	SPK: 100
118-79-6	2,4,6-Tribromophenol	123		35 - 125	82%	SPK: 150
1718-51-0	Terphenyl-d14	79.7		30 - 125	80%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	122617	8.61			
1146-65-2	Naphthalene-d8	474444	10.79			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074910.D	1	01/03/12	01/07/12	PB60339

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	255947	13.76			
1517-22-2	Phenanthrene-d10	452184	16.23			
1719-03-5	Chrysene-d12	441586	20.67			
1520-96-3	Perylene-d12	398335	24.33			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074827.D	1	12/30/11	01/04/12	PB60329

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	5	U	0.79	10	ug/L
108-95-2	Phenol	5	U	0.22	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.57	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.56	10	ug/L
95-48-7	2-Methylphenol	5	U	0.25	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.18	10	ug/L
98-86-2	Acetophenone	5	U	0.14	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.39	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.21	10	ug/L
67-72-1	Hexachloroethane	5	U	0.26	10	ug/L
98-95-3	Nitrobenzene	5	U	0.7	10	ug/L
78-59-1	Isophorone	5	U	0.31	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.54	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.73	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.57	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.68	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.26	10	ug/L
105-60-2	Caprolactam	5	U	2.1	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.41	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.25	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.58	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.41	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.51	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.23	10	ug/L
208-96-8	Acenaphthylene	5	U	0.72	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.33	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	10	ug/L
83-32-9	Acenaphthene	5	U	0.22	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074827.D	1	12/30/11	01/04/12	PB60329

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.2	10	ug/L
100-02-7	4-Nitrophenol	5	U	2.1	10	ug/L
132-64-9	Dibenzofuran	5	U	0.25	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1.1	10	ug/L
84-66-2	Diethylphthalate	5	U	0.39	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.22	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.76	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.62	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.24	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.19	10	ug/L
1912-24-9	Atrazine	5	U	0.41	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.8	10	ug/L
85-01-8	Phenanthrene	5	U	0.27	10	ug/L
86-74-8	Carbazole	5	U	0.23	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2.1	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.2	10	ug/L
91-94-1	3,3-Dichlorobenzidine	5	U	2.1	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.53	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.21	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	10	10	ug/L
SURROGATES						
367-12-4	2-Fluorophenol	51.9		20 - 110	35%	SPK: 150
13127-88-3	Phenol-d5	30		10 - 160	20%	SPK: 150
4165-60-0	Nitrobenzene-d5	83.4		40 - 110	83%	SPK: 100
321-60-8	2-Fluorobiphenyl	91		50 - 110	91%	SPK: 100
118-79-6	2,4,6-Tribromophenol	137		40 - 125	91%	SPK: 150
1718-51-0	Terphenyl-d14	94.9		50 - 135	95%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	134282	8.63			
1146-65-2	Naphthalene-d8	523611	10.81			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074827.D	1	12/30/11	01/04/12	PB60329

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
15067-26-2	Acenaphthene-d10	283601	13.77			
1517-22-2	Phenanthrene-d10	501200	16.25			
1719-03-5	Chrysene-d12	452888	20.7			
1520-96-3	Perylene-d12	408189	24.37			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB-DUP01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	21
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002725.D	1	01/03/12	01/10/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.5	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.5	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.5	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.5	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.5	4.2	ug/Kg
85-01-8	Phenanthrene	6.3		0.5	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.5	4.2	ug/Kg
206-44-0	Fluoranthene	8.4		0.5	4.2	ug/Kg
129-00-0	Pyrene	6.3		0.5	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.9	J	0.5	4.2	ug/Kg
218-01-9	Chrysene	3.8	J	0.5	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	4.2		0.5	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.5	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.5	J	0.5	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.5	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.5	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.5	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	6.07		30 - 150	61%	SPK: 10
321-60-8	2-Fluorobiphenyl	6.14		45 - 105	61%	SPK: 10
1718-51-0	Terphenyl-d14	7.14		30 - 125	71%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	116365	7.82			
1146-65-2	Naphthalene-d8	429878	10			
15067-26-2	Acenaphthene-d10	291283	12.97			
1517-22-2	Phenanthrene-d10	513863	15.42			
1719-03-5	Chrysene-d12	496735	19.78			
1520-96-3	Perylene-d12	445235	22.75			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB-DUP02-122911	SDG No.:	C5164
Lab Sample ID:	C5164-21	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	29
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002768.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	22		0.56	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	35		0.56	4.6	ug/Kg
208-96-8	Acenaphthylene	2.8	J	0.56	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.56	4.6	ug/Kg
86-73-7	Fluorene	2.3	U	0.56	4.6	ug/Kg
85-01-8	Phenanthrene	36		0.56	4.6	ug/Kg
120-12-7	Anthracene	3.3	J	0.56	4.6	ug/Kg
206-44-0	Fluoranthene	40		0.56	4.6	ug/Kg
129-00-0	Pyrene	33		0.56	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	13		0.56	4.6	ug/Kg
218-01-9	Chrysene	25		0.56	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	27		0.56	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	7.5		0.56	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	15		0.56	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	13		0.56	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	3.3	J	0.56	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	12		0.56	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	5.02		30 - 150	50%	SPK: 10
321-60-8	2-Fluorobiphenyl	5.75		45 - 105	58%	SPK: 10
1718-51-0	Terphenyl-d14	6.49		30 - 125	65%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	88027	7.8			
1146-65-2	Naphthalene-d8	374563	9.98			
15067-26-2	Acenaphthene-d10	243688	12.96			
1517-22-2	Phenanthrene-d10	416082	15.4			
1719-03-5	Chrysene-d12	386056	19.76			
1520-96-3	Perylene-d12	373716	22.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002762.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.4		0.53	4.3	ug/Kg
91-57-6	2-Methylnaphthalene	3.1	J	0.53	4.3	ug/Kg
208-96-8	Acenaphthylene	52		0.53	4.3	ug/Kg
83-32-9	Acenaphthene	16		0.53	4.3	ug/Kg
86-73-7	Fluorene	31		0.53	4.3	ug/Kg
85-01-8	Phenanthrene	600		0.53	4.3	ug/Kg
120-12-7	Anthracene	160		0.53	4.3	ug/Kg
206-44-0	Fluoranthene	1300	E	0.53	4.3	ug/Kg
129-00-0	Pyrene	1200	E	0.53	4.3	ug/Kg
56-55-3	Benzo(a)anthracene	670		0.53	4.3	ug/Kg
218-01-9	Chrysene	660		0.53	4.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	820		0.53	4.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	260		0.53	4.3	ug/Kg
50-32-8	Benzo(a)pyrene	580		0.53	4.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	310		0.53	4.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	110		0.53	4.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	340		0.53	4.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	62.1		30 - 150	62%	SPK: 100
321-60-8	2-Fluorobiphenyl	45.5		45 - 105	46%	SPK: 100
1718-51-0	Terphenyl-d14	56.5		30 - 125	56%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	88201	7.8			
1146-65-2	Naphthalene-d8	314042	9.98			
15067-26-2	Acenaphthene-d10	237374	12.96			
1517-22-2	Phenanthrene-d10	397298	15.4			
1719-03-5	Chrysene-d12	388917	19.76			
1520-96-3	Perylene-d12	310665	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01DL	SDG No.:	C5164
Lab Sample ID:	C5164-02DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002780.D	5	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	11	UD	2.6	22	ug/Kg
91-57-6	2-Methylnaphthalene	11	UD	2.6	22	ug/Kg
208-96-8	Acenaphthylene	57	D	2.6	22	ug/Kg
83-32-9	Acenaphthene	18	JD	2.6	22	ug/Kg
86-73-7	Fluorene	39	D	2.6	22	ug/Kg
85-01-8	Phenanthrene	660	D	2.6	22	ug/Kg
120-12-7	Anthracene	160	D	2.6	22	ug/Kg
206-44-0	Fluoranthene	1500	D	2.6	22	ug/Kg
129-00-0	Pyrene	1300	D	2.6	22	ug/Kg
56-55-3	Benzo(a)anthracene	720	D	2.6	22	ug/Kg
218-01-9	Chrysene	730	D	2.6	22	ug/Kg
205-99-2	Benzo(b)fluoranthene	770	D	2.6	22	ug/Kg
207-08-9	Benzo(k)fluoranthene	240	D	2.6	22	ug/Kg
50-32-8	Benzo(a)pyrene	590	D	2.6	22	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	370	D	2.6	22	ug/Kg
53-70-3	Dibenz(a,h)anthracene	96	D	2.6	22	ug/Kg
191-24-2	Benzo(g,h,i)perylene	340	D	2.6	22	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	60		30 - 150	60%	SPK: 100
321-60-8	2-Fluorobiphenyl	62.2		45 - 105	62%	SPK: 100
1718-51-0	Terphenyl-d14	66.8		30 - 125	67%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	85659	7.8			
1146-65-2	Naphthalene-d8	353755	9.98			
15067-26-2	Acenaphthene-d10	234727	12.96			
1517-22-2	Phenanthrene-d10	403690	15.4			
1719-03-5	Chrysene-d12	388555	19.76			
1520-96-3	Perylene-d12	362934	22.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB48-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002724.D	1	01/03/12	01/10/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	3.3	J	0.49	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.49	4.1	ug/Kg
206-44-0	Fluoranthene	5.3		0.49	4.1	ug/Kg
129-00-0	Pyrene	4.1		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.5	J	0.49	4.1	ug/Kg
218-01-9	Chrysene	2.5	J	0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.9	J	0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.86		30 - 150	89%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.56		45 - 105	86%	SPK: 10
1718-51-0	Terphenyl-d14	10.3		30 - 125	103%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	96791	7.82			
1146-65-2	Naphthalene-d8	414727	10			
15067-26-2	Acenaphthene-d10	285790	12.97			
1517-22-2	Phenanthrene-d10	498580	15.42			
1719-03-5	Chrysene-d12	486777	19.78			
1520-96-3	Perylene-d12	438052	22.76			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB49-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-06	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002721.D	1	01/03/12	01/10/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	2.05	U	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	2.05	U	0.5	4.1	ug/Kg
129-00-0	Pyrene	2.05	U	0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.05	U	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.05	U	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.05	U	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.49		30 - 150	75%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.51		45 - 105	75%	SPK: 10
1718-51-0	Terphenyl-d14	8.95		30 - 125	90%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	106971	7.82			
1146-65-2	Naphthalene-d8	390231	10			
15067-26-2	Acenaphthene-d10	263137	12.97			
1517-22-2	Phenanthrene-d10	475689	15.42			
1719-03-5	Chrysene-d12	476365	19.78			
1520-96-3	Perylene-d12	427365	22.76			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB50-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	22
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002726.D	1	01/03/12	01/10/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.1	U	0.51	4.2	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	U	0.51	4.2	ug/Kg
208-96-8	Acenaphthylene	2.1	U	0.51	4.2	ug/Kg
83-32-9	Acenaphthene	2.1	U	0.51	4.2	ug/Kg
86-73-7	Fluorene	2.1	U	0.51	4.2	ug/Kg
85-01-8	Phenanthrene	2.1	U	0.51	4.2	ug/Kg
120-12-7	Anthracene	2.1	U	0.51	4.2	ug/Kg
206-44-0	Fluoranthene	2.1	U	0.51	4.2	ug/Kg
129-00-0	Pyrene	2.1	U	0.51	4.2	ug/Kg
56-55-3	Benzo(a)anthracene	2.1	U	0.51	4.2	ug/Kg
218-01-9	Chrysene	2.1	U	0.51	4.2	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.1	U	0.51	4.2	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.1	U	0.51	4.2	ug/Kg
50-32-8	Benzo(a)pyrene	2.1	U	0.51	4.2	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U	0.51	4.2	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.1	U	0.51	4.2	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.1	U	0.51	4.2	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.21		30 - 150	82%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.03		45 - 105	80%	SPK: 10
1718-51-0	Terphenyl-d14	10		30 - 125	101%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	116995	7.82			
1146-65-2	Naphthalene-d8	434876	10			
15067-26-2	Acenaphthene-d10	296691	12.97			
1517-22-2	Phenanthrene-d10	520425	15.42			
1719-03-5	Chrysene-d12	500718	19.78			
1520-96-3	Perylene-d12	455247	22.76			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB51-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002764.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	2	J	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	4.7		0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	3.9		0.47	3.9	ug/Kg
85-01-8	Phenanthrene	54		0.47	3.9	ug/Kg
120-12-7	Anthracene	15		0.47	3.9	ug/Kg
206-44-0	Fluoranthene	120		0.47	3.9	ug/Kg
129-00-0	Pyrene	90		0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	42		0.47	3.9	ug/Kg
218-01-9	Chrysene	53		0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	68		0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	24		0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	47		0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	36		0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	8.6		0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	31		0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.42		30 - 150	84%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.59		45 - 105	96%	SPK: 10
1718-51-0	Terphenyl-d14	11.3		30 - 125	113%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	73722	7.8			
1146-65-2	Naphthalene-d8	306061	9.98			
15067-26-2	Acenaphthene-d10	200311	12.96			
1517-22-2	Phenanthrene-d10	348796	15.4			
1719-03-5	Chrysene-d12	342797	19.76			
1520-96-3	Perylene-d12	324956	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB52-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002765.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	6.9		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	5.7		0.49	4	ug/Kg
208-96-8	Acenaphthylene	9.3		0.49	4	ug/Kg
83-32-9	Acenaphthene	15		0.49	4	ug/Kg
86-73-7	Fluorene	21		0.49	4	ug/Kg
85-01-8	Phenanthrene	320		0.49	4	ug/Kg
120-12-7	Anthracene	82		0.49	4	ug/Kg
206-44-0	Fluoranthene	660		0.49	4	ug/Kg
129-00-0	Pyrene	530		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	290		0.49	4	ug/Kg
218-01-9	Chrysene	300		0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	370		0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	140		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	290		0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	170		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	47		0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	160		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.43		30 - 150	74%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.49		45 - 105	85%	SPK: 10
1718-51-0	Terphenyl-d14	10.1		30 - 125	101%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	78801	7.8			
1146-65-2	Naphthalene-d8	328700	9.98			
15067-26-2	Acenaphthene-d10	215447	12.96			
1517-22-2	Phenanthrene-d10	373265	15.4			
1719-03-5	Chrysene-d12	348843	19.76			
1520-96-3	Perylene-d12	319481	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB53-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002766.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	3.7	J	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	4.2		0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	8.7		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	11		0.5	4.1	ug/Kg
86-73-7	Fluorene	13		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	180		0.5	4.1	ug/Kg
120-12-7	Anthracene	39		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	300		0.5	4.1	ug/Kg
129-00-0	Pyrene	240		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	120		0.5	4.1	ug/Kg
218-01-9	Chrysene	130		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	150		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	56		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	110		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	67		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	18		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	63		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	6.35		30 - 150	64%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.17		45 - 105	72%	SPK: 10
1718-51-0	Terphenyl-d14	8.21		30 - 125	82%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	79653	7.8			
1146-65-2	Naphthalene-d8	334194	9.98			
15067-26-2	Acenaphthene-d10	222024	12.96			
1517-22-2	Phenanthrene-d10	376720	15.4			
1719-03-5	Chrysene-d12	362504	19.76			
1520-96-3	Perylene-d12	328946	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB54-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002760.D	5	01/03/12	01/11/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	48		2.5	21	ug/Kg
91-57-6	2-Methylnaphthalene	46		2.5	21	ug/Kg
208-96-8	Acenaphthylene	160		2.5	21	ug/Kg
83-32-9	Acenaphthene	440		2.5	21	ug/Kg
86-73-7	Fluorene	680		2.5	21	ug/Kg
85-01-8	Phenanthrene	7900		2.5	21	ug/Kg
120-12-7	Anthracene	2200		2.5	21	ug/Kg
206-44-0	Fluoranthene	11000	E	2.5	21	ug/Kg
129-00-0	Pyrene	10000	E	2.5	21	ug/Kg
56-55-3	Benzo(a)anthracene	6400		2.5	21	ug/Kg
218-01-9	Chrysene	6000		2.5	21	ug/Kg
205-99-2	Benzo(b)fluoranthene	8500	E	2.5	21	ug/Kg
207-08-9	Benzo(k)fluoranthene	2800		2.5	21	ug/Kg
50-32-8	Benzo(a)pyrene	5600		2.5	21	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2700		2.5	21	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1000		2.5	21	ug/Kg
191-24-2	Benzo(g,h,i)perylene	3300		2.5	21	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.3		30 - 150	73%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.95		45 - 105	90%	SPK: 10
1718-51-0	Terphenyl-d14	8.4		30 - 125	84%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	83972	7.79			
1146-65-2	Naphthalene-d8	359639	9.98			
15067-26-2	Acenaphthene-d10	236037	12.96			
1517-22-2	Phenanthrene-d10	400692	15.4			
1719-03-5	Chrysene-d12	378887	19.76			
1520-96-3	Perylene-d12	264589	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB54-0.502-02DL	SDG No.:	C5164
Lab Sample ID:	C5164-03DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002778.D	50	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	105	UD	25	210	ug/Kg
91-57-6	2-Methylnaphthalene	105	UD	25	210	ug/Kg
208-96-8	Acenaphthylene	170	JD	25	210	ug/Kg
83-32-9	Acenaphthene	420	D	25	210	ug/Kg
86-73-7	Fluorene	600	D	25	210	ug/Kg
85-01-8	Phenanthrene	8500	D	25	210	ug/Kg
120-12-7	Anthracene	2000	D	25	210	ug/Kg
206-44-0	Fluoranthene	15000	D	25	210	ug/Kg
129-00-0	Pyrene	12000	D	25	210	ug/Kg
56-55-3	Benzo(a)anthracene	6300	D	25	210	ug/Kg
218-01-9	Chrysene	6200	D	25	210	ug/Kg
205-99-2	Benzo(b)fluoranthene	6400	D	25	210	ug/Kg
207-08-9	Benzo(k)fluoranthene	2600	D	25	210	ug/Kg
50-32-8	Benzo(a)pyrene	4900	D	25	210	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	3100	D	25	210	ug/Kg
53-70-3	Dibenz(a,h)anthracene	830	D	25	210	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2700	D	25	210	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.5		30 - 150	75%	SPK: 10
321-60-8	2-Fluorobiphenyl	9		45 - 105	90%	SPK: 10
1718-51-0	Terphenyl-d14	-13	*	30 - 125	-135%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80294	7.81			
1146-65-2	Naphthalene-d8	337836	9.98			
15067-26-2	Acenaphthene-d10	229422	12.96			
1517-22-2	Phenanthrene-d10	398097	15.4			
1719-03-5	Chrysene-d12	384407	19.76			
1520-96-3	Perylene-d12	354359	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB55-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-05	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002763.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	1.95	U	0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	3.5	J	0.47	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.47	3.9	ug/Kg
86-73-7	Fluorene	2.3	J	0.47	3.9	ug/Kg
85-01-8	Phenanthrene	27		0.47	3.9	ug/Kg
120-12-7	Anthracene	6.3		0.47	3.9	ug/Kg
206-44-0	Fluoranthene	63		0.47	3.9	ug/Kg
129-00-0	Pyrene	56		0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	31		0.47	3.9	ug/Kg
218-01-9	Chrysene	34		0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	41		0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	14		0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	29		0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	20		0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5.5		0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	18		0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.71		30 - 150	77%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.01		45 - 105	90%	SPK: 10
1718-51-0	Terphenyl-d14	10.9		30 - 125	109%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	73528	7.8			
1146-65-2	Naphthalene-d8	315058	9.98			
15067-26-2	Acenaphthene-d10	205901	12.96			
1517-22-2	Phenanthrene-d10	360196	15.4			
1719-03-5	Chrysene-d12	344271	19.76			
1520-96-3	Perylene-d12	324945	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB56-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002720.D	1	01/03/12	01/10/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.5	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.5	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.5	4.1	ug/Kg
85-01-8	Phenanthrene	2.5	J	0.5	4.1	ug/Kg
120-12-7	Anthracene	2.05	U	0.5	4.1	ug/Kg
206-44-0	Fluoranthene	4.6		0.5	4.1	ug/Kg
129-00-0	Pyrene	3.7	J	0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	2.5	J	0.5	4.1	ug/Kg
218-01-9	Chrysene	2.5	J	0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2.5	J	0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	2.05	U	0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	2.05	U	0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	2.05	U	0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.05	U	0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2.05	U	0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.31		30 - 150	73%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.36		45 - 105	74%	SPK: 10
1718-51-0	Terphenyl-d14	8.67		30 - 125	87%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	121783	7.82			
1146-65-2	Naphthalene-d8	445814	10.01			
15067-26-2	Acenaphthene-d10	299516	12.97			
1517-22-2	Phenanthrene-d10	532630	15.42			
1719-03-5	Chrysene-d12	527396	19.78			
1520-96-3	Perylene-d12	476166	22.75			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB57-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	28
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002769.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	23		0.55	4.6	ug/Kg
91-57-6	2-Methylnaphthalene	37		0.55	4.6	ug/Kg
208-96-8	Acenaphthylene	2.8	J	0.55	4.6	ug/Kg
83-32-9	Acenaphthene	2.3	U	0.55	4.6	ug/Kg
86-73-7	Fluorene	3.2	J	0.55	4.6	ug/Kg
85-01-8	Phenanthrene	42		0.55	4.6	ug/Kg
120-12-7	Anthracene	3.7	J	0.55	4.6	ug/Kg
206-44-0	Fluoranthene	48		0.55	4.6	ug/Kg
129-00-0	Pyrene	38		0.55	4.6	ug/Kg
56-55-3	Benzo(a)anthracene	16		0.55	4.6	ug/Kg
218-01-9	Chrysene	29		0.55	4.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	29		0.55	4.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	11		0.55	4.6	ug/Kg
50-32-8	Benzo(a)pyrene	18		0.55	4.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	14		0.55	4.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5.1		0.55	4.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	13		0.55	4.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	6.03		30 - 150	60%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.24		45 - 105	72%	SPK: 10
1718-51-0	Terphenyl-d14	8.4		30 - 125	84%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	84870	7.81			
1146-65-2	Naphthalene-d8	355740	9.99			
15067-26-2	Acenaphthene-d10	233123	12.96			
1517-22-2	Phenanthrene-d10	396292	15.4			
1719-03-5	Chrysene-d12	374478	19.77			
1520-96-3	Perylene-d12	354438	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB58-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	31
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002767.D	1	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.4	U	0.58	4.8	ug/Kg
91-57-6	2-Methylnaphthalene	2.4	U	0.58	4.8	ug/Kg
208-96-8	Acenaphthylene	2.9	J	0.58	4.8	ug/Kg
83-32-9	Acenaphthene	2.4	U	0.58	4.8	ug/Kg
86-73-7	Fluorene	2.4	U	0.58	4.8	ug/Kg
85-01-8	Phenanthrene	37		0.58	4.8	ug/Kg
120-12-7	Anthracene	3.4	J	0.58	4.8	ug/Kg
206-44-0	Fluoranthene	61		0.58	4.8	ug/Kg
129-00-0	Pyrene	53		0.58	4.8	ug/Kg
56-55-3	Benzo(a)anthracene	28		0.58	4.8	ug/Kg
218-01-9	Chrysene	39		0.58	4.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	47		0.58	4.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	18		0.58	4.8	ug/Kg
50-32-8	Benzo(a)pyrene	33		0.58	4.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	23		0.58	4.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5.3		0.58	4.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	21		0.58	4.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.03		30 - 150	70%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.1		45 - 105	81%	SPK: 10
1718-51-0	Terphenyl-d14	9.19		30 - 125	92%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	87196	7.8			
1146-65-2	Naphthalene-d8	369805	9.99			
15067-26-2	Acenaphthene-d10	242196	12.96			
1517-22-2	Phenanthrene-d10	417365	15.4			
1719-03-5	Chrysene-d12	386294	19.76			
1520-96-3	Perylene-d12	366071	22.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB59-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002761.D	5	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	74		2.7	22	ug/Kg
91-57-6	2-Methylnaphthalene	130		2.7	22	ug/Kg
208-96-8	Acenaphthylene	90		2.7	22	ug/Kg
83-32-9	Acenaphthene	660		2.7	22	ug/Kg
86-73-7	Fluorene	620		2.7	22	ug/Kg
85-01-8	Phenanthrene	7600		2.7	22	ug/Kg
120-12-7	Anthracene	2200		2.7	22	ug/Kg
206-44-0	Fluoranthene	13000	E	2.7	22	ug/Kg
129-00-0	Pyrene	12000	E	2.7	22	ug/Kg
56-55-3	Benzo(a)anthracene	7500		2.7	22	ug/Kg
218-01-9	Chrysene	7200		2.7	22	ug/Kg
205-99-2	Benzo(b)fluoranthene	10000	E	2.7	22	ug/Kg
207-08-9	Benzo(k)fluoranthene	3100		2.7	22	ug/Kg
50-32-8	Benzo(a)pyrene	6600		2.7	22	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	3500		2.7	22	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1400		2.7	22	ug/Kg
191-24-2	Benzo(g,h,i)perylene	4600		2.7	22	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.1		30 - 150	81%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.75		45 - 105	98%	SPK: 10
1718-51-0	Terphenyl-d14	8.8		30 - 125	88%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	86118	7.8			
1146-65-2	Naphthalene-d8	353368	9.98			
15067-26-2	Acenaphthene-d10	221579	12.96			
1517-22-2	Phenanthrene-d10	378506	15.4			
1719-03-5	Chrysene-d12	368816	19.76			
1520-96-3	Perylene-d12	259116	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB59-000.5-01DL	SDG No.:	C5164
Lab Sample ID:	C5164-15DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	26
Sample Wt/Vol:	30 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002779.D	50	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	110	UD	27	220	ug/Kg
91-57-6	2-Methylnaphthalene	140	JD	27	220	ug/Kg
208-96-8	Acenaphthylene	110	UD	27	220	ug/Kg
83-32-9	Acenaphthene	650	D	27	220	ug/Kg
86-73-7	Fluorene	610	D	27	220	ug/Kg
85-01-8	Phenanthrene	8200	D	27	220	ug/Kg
120-12-7	Anthracene	2100	D	27	220	ug/Kg
206-44-0	Fluoranthene	17000	D	27	220	ug/Kg
129-00-0	Pyrene	15000	D	27	220	ug/Kg
56-55-3	Benzo(a)anthracene	7600	D	27	220	ug/Kg
218-01-9	Chrysene	7800	D	27	220	ug/Kg
205-99-2	Benzo(b)fluoranthene	8800	D	27	220	ug/Kg
207-08-9	Benzo(k)fluoranthene	2600	D	27	220	ug/Kg
50-32-8	Benzo(a)pyrene	6400	D	27	220	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	4100	D	27	220	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1100	D	27	220	ug/Kg
191-24-2	Benzo(g,h,i)perylene	3900	D	27	220	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.5		30 - 150	75%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.5		45 - 105	95%	SPK: 10
1718-51-0	Terphenyl-d14	-12	*	30 - 125	-125%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	79924	7.8			
1146-65-2	Naphthalene-d8	340307	9.99			
15067-26-2	Acenaphthene-d10	225261	12.96			
1517-22-2	Phenanthrene-d10	385077	15.4			
1719-03-5	Chrysene-d12	377633	19.76			
1520-96-3	Perylene-d12	350595	22.71			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002653.D	1	01/03/12	01/05/12	PB60341

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	0.05	U	0.021	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.021	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.021	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.021	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.021	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.021	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.021	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.021	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.021	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.021	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.26	U	0.021	0.52	ug/L
207-08-9	Benzo(k)fluoranthene	0.26	U	0.021	0.52	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.021	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.021	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.021	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.021	0.1	ug/L
SURROGATES						
4165-60-0	Nitrobenzene-d5	68.4		40 - 110	68%	SPK: 100
321-60-8	2-Fluorobiphenyl	51.9		50 - 110	52%	SPK: 100
1718-51-0	Terphenyl-d14	66.9		50 - 135	67%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	177885	7.88			
1146-65-2	Naphthalene-d8	602607	10.07			
15067-26-2	Acenaphthene-d10	353017	13.03			
1517-22-2	Phenanthrene-d10	650081	15.48			
1719-03-5	Chrysene-d12	608402	19.85			
1520-96-3	Perylene-d12	538516	22.87			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB-DUP01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-20	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.7 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003765.D	1	12/30/11	01/07/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	17.4		55 - 130	87%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18		70 - 125	90%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB-DUP01-122911RE	SDG No.:	C5164
Lab Sample ID:	C5164-20RE	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	20.7 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003782.D	1	12/30/11	01/09/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.05	U	0.16	2.1	ug/Kg
319-85-7	beta-BHC	1.05	U	0.23	2.1	ug/Kg
319-86-8	delta-BHC	1.05	U	0.13	2.1	ug/Kg
58-89-9	gamma-BHC	1.05	U	0.19	2.1	ug/Kg
76-44-8	Heptachlor	1.05	U	0.18	2.1	ug/Kg
309-00-2	Aldrin	1.05	U	0.13	2.1	ug/Kg
1024-57-3	Heptachlor epoxide	1.05	U	0.2	2.1	ug/Kg
959-98-8	Endosulfan I	1.05	U	0.19	2.1	ug/Kg
60-57-1	Dieldrin	1.05	U	0.16	2.1	ug/Kg
72-55-9	4,4-DDE	1.05	U	0.25	2.1	ug/Kg
72-20-8	Endrin	1.05	U	0.23	2.1	ug/Kg
33213-65-9	Endosulfan II	1.05	U	0.18	2.1	ug/Kg
72-54-8	4,4-DDD	1.05	U	0.21	2.1	ug/Kg
1031-07-8	Endosulfan Sulfate	1.05	U	0.19	2.1	ug/Kg
50-29-3	4,4-DDT	1.05	U	0.18	2.1	ug/Kg
72-43-5	Methoxychlor	1.05	U	0.21	2.1	ug/Kg
53494-70-5	Endrin ketone	1.05	U	0.16	2.1	ug/Kg
7421-93-4	Endrin aldehyde	1.05	U	0.19	2.1	ug/Kg
5103-71-9	alpha-Chlordane	1.05	U	0.18	2.1	ug/Kg
5103-74-2	gamma-Chlordane	1.05	U	0.16	2.1	ug/Kg
8001-35-2	Toxaphene	10.5	U	12	21	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.1		55 - 130	95%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.8		70 - 125	89%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	23.9 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003695.D	1	12/30/11	01/04/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.1	U	0.17	2.2	ug/Kg
319-85-7	beta-BHC	1.1	U	0.24	2.2	ug/Kg
319-86-8	delta-BHC	1.1	U	0.13	2.2	ug/Kg
58-89-9	gamma-BHC	1.1	U	0.2	2.2	ug/Kg
76-44-8	Heptachlor	1.1	U	0.18	2.2	ug/Kg
309-00-2	Aldrin	1.1	U	0.13	2.2	ug/Kg
1024-57-3	Heptachlor epoxide	1.1	U	0.21	2.2	ug/Kg
959-98-8	Endosulfan I	1.1	U	0.2	2.2	ug/Kg
60-57-1	Dieldrin	1.1	U	0.17	2.2	ug/Kg
72-55-9	4,4-DDE	1.1	U	0.26	2.2	ug/Kg
72-20-8	Endrin	1.1	U	0.24	2.2	ug/Kg
33213-65-9	Endosulfan II	1.1	U	0.18	2.2	ug/Kg
72-54-8	4,4-DDD	1.1	U	0.22	2.2	ug/Kg
1031-07-8	Endosulfan Sulfate	1.1	U	0.2	2.2	ug/Kg
50-29-3	4,4-DDT	1.1	U	0.18	2.2	ug/Kg
72-43-5	Methoxychlor	1.1	U	0.22	2.2	ug/Kg
53494-70-5	Endrin ketone	1.1	U	0.17	2.2	ug/Kg
7421-93-4	Endrin aldehyde	1.1	U	0.2	2.2	ug/Kg
5103-71-9	alpha-Chlordane	1.1	U	0.18	2.2	ug/Kg
5103-74-2	gamma-Chlordane	1.1	U	0.17	2.2	ug/Kg
8001-35-2	Toxaphene	11	U	13	22	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.8		55 - 130	84%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.1		70 - 125	90%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB57-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-13	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003762.D	1	12/30/11	01/07/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.19	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	8		0.18	2.4	ug/Kg
72-55-9	4,4-DDE	7.8		0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.19	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	7.2		0.19	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.19	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.65	*	55 - 130	43%	SPK: 20
877-09-8	Tetrachloro-m-xylene	12.4	*	70 - 125	62%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB57-000.5-01RE	SDG No.:	C5164
Lab Sample ID:	C5164-13RE	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	28 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003779.D	1	12/30/11	01/09/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.2	U	0.18	2.4	ug/Kg
319-85-7	beta-BHC	1.2	U	0.25	2.4	ug/Kg
319-86-8	delta-BHC	1.2	U	0.14	2.4	ug/Kg
58-89-9	gamma-BHC	1.2	U	0.21	2.4	ug/Kg
76-44-8	Heptachlor	1.2	U	0.19	2.4	ug/Kg
309-00-2	Aldrin	1.2	U	0.14	2.4	ug/Kg
1024-57-3	Heptachlor epoxide	1.2	U	0.22	2.4	ug/Kg
959-98-8	Endosulfan I	1.2	U	0.21	2.4	ug/Kg
60-57-1	Dieldrin	8.3		0.18	2.4	ug/Kg
72-55-9	4,4-DDE	7.9		0.28	2.4	ug/Kg
72-20-8	Endrin	1.2	U	0.25	2.4	ug/Kg
33213-65-9	Endosulfan II	1.2	U	0.19	2.4	ug/Kg
72-54-8	4,4-DDD	1.2	U	0.24	2.4	ug/Kg
1031-07-8	Endosulfan Sulfate	1.2	U	0.21	2.4	ug/Kg
50-29-3	4,4-DDT	7.1		0.19	2.4	ug/Kg
72-43-5	Methoxychlor	1.2	U	0.24	2.4	ug/Kg
53494-70-5	Endrin ketone	1.2	U	0.18	2.4	ug/Kg
7421-93-4	Endrin aldehyde	1.2	U	0.21	2.4	ug/Kg
5103-71-9	alpha-Chlordane	1.2	U	0.19	2.4	ug/Kg
5103-74-2	gamma-Chlordane	1.2	U	0.18	2.4	ug/Kg
8001-35-2	Toxaphene	12	U	14	24	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	8.82	*	55 - 130	44%	SPK: 20
877-09-8	Tetrachloro-m-xylene	11.7	*	70 - 125	59%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB58-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-14	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	31.2 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003763.D	1	12/30/11	01/07/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.25	U	0.19	2.5	ug/Kg
319-85-7	beta-BHC	1.25	U	0.26	2.5	ug/Kg
319-86-8	delta-BHC	1.25	U	0.15	2.5	ug/Kg
58-89-9	gamma-BHC	1.25	U	0.22	2.5	ug/Kg
76-44-8	Heptachlor	1.25	U	0.2	2.5	ug/Kg
309-00-2	Aldrin	1.25	U	0.15	2.5	ug/Kg
1024-57-3	Heptachlor epoxide	1.25	U	0.23	2.5	ug/Kg
959-98-8	Endosulfan I	1.25	U	0.22	2.5	ug/Kg
60-57-1	Dieldrin	1.25	U	0.19	2.5	ug/Kg
72-55-9	4,4-DDE	2.1	J	0.29	2.5	ug/Kg
72-20-8	Endrin	1.25	U	0.26	2.5	ug/Kg
33213-65-9	Endosulfan II	1.25	U	0.2	2.5	ug/Kg
72-54-8	4,4-DDD	1.25	U	0.25	2.5	ug/Kg
1031-07-8	Endosulfan Sulfate	1.25	U	0.22	2.5	ug/Kg
50-29-3	4,4-DDT	1.6	JP	0.2	2.5	ug/Kg
72-43-5	Methoxychlor	1.25	U	0.25	2.5	ug/Kg
53494-70-5	Endrin ketone	1.25	U	0.19	2.5	ug/Kg
7421-93-4	Endrin aldehyde	1.25	U	0.22	2.5	ug/Kg
5103-71-9	alpha-Chlordane	1.25	U	0.2	2.5	ug/Kg
5103-74-2	gamma-Chlordane	1.25	U	0.19	2.5	ug/Kg
8001-35-2	Toxaphene	12.5	U	14	25	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.9		55 - 130	85%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.6		70 - 125	88%	SPK: 20

U = Not Detected
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB58-000.5-01RE	SDG No.:	C5164
Lab Sample ID:	C5164-14RE	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	31.2 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003780.D	1	12/30/11	01/09/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.25	U	0.19	2.5	ug/Kg
319-85-7	beta-BHC	1.25	U	0.26	2.5	ug/Kg
319-86-8	delta-BHC	1.25	U	0.15	2.5	ug/Kg
58-89-9	gamma-BHC	1.25	U	0.22	2.5	ug/Kg
76-44-8	Heptachlor	1.25	U	0.2	2.5	ug/Kg
309-00-2	Aldrin	1.25	U	0.15	2.5	ug/Kg
1024-57-3	Heptachlor epoxide	1.25	U	0.23	2.5	ug/Kg
959-98-8	Endosulfan I	1.25	U	0.22	2.5	ug/Kg
60-57-1	Dieldrin	1.25	U	0.19	2.5	ug/Kg
72-55-9	4,4-DDE	2.9	P	0.29	2.5	ug/Kg
72-20-8	Endrin	1.25	U	0.26	2.5	ug/Kg
33213-65-9	Endosulfan II	1.25	U	0.2	2.5	ug/Kg
72-54-8	4,4-DDD	1.25	U	0.25	2.5	ug/Kg
1031-07-8	Endosulfan Sulfate	1.25	U	0.22	2.5	ug/Kg
50-29-3	4,4-DDT	1.25	U	0.2	2.5	ug/Kg
72-43-5	Methoxychlor	1.25	U	0.25	2.5	ug/Kg
53494-70-5	Endrin ketone	1.25	U	0.19	2.5	ug/Kg
7421-93-4	Endrin aldehyde	1.25	U	0.22	2.5	ug/Kg
5103-71-9	alpha-Chlordane	1.25	U	0.2	2.5	ug/Kg
5103-74-2	gamma-Chlordane	1.25	U	0.19	2.5	ug/Kg
8001-35-2	Toxaphene	12.5	U	14	25	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.4		55 - 130	97%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.2		70 - 125	86%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB59-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-15	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	25.9 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003764.D	1	12/30/11	01/07/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.18	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	33	P	0.18	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	2.1	J	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.18	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.18	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	19		55 - 130	95%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.1		70 - 125	90%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB59-000.5-01RE	SDG No.:	C5164
Lab Sample ID:	C5164-15RE	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	25.9 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003781.D	1	12/30/11	01/09/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.15	U	0.18	2.3	ug/Kg
319-85-7	beta-BHC	1.15	U	0.24	2.3	ug/Kg
319-86-8	delta-BHC	1.15	U	0.13	2.3	ug/Kg
58-89-9	gamma-BHC	1.15	U	0.2	2.3	ug/Kg
76-44-8	Heptachlor	1.15	U	0.19	2.3	ug/Kg
309-00-2	Aldrin	1.15	U	0.13	2.3	ug/Kg
1024-57-3	Heptachlor epoxide	1.15	U	0.22	2.3	ug/Kg
959-98-8	Endosulfan I	1.15	U	0.2	2.3	ug/Kg
60-57-1	Dieldrin	33	P	0.18	2.3	ug/Kg
72-55-9	4,4-DDE	1.15	U	0.27	2.3	ug/Kg
72-20-8	Endrin	1.15	U	0.24	2.3	ug/Kg
33213-65-9	Endosulfan II	1.15	U	0.19	2.3	ug/Kg
72-54-8	4,4-DDD	1.15	U	0.23	2.3	ug/Kg
1031-07-8	Endosulfan Sulfate	1.15	U	0.2	2.3	ug/Kg
50-29-3	4,4-DDT	1.15	U	0.19	2.3	ug/Kg
72-43-5	Methoxychlor	1.15	U	0.23	2.3	ug/Kg
53494-70-5	Endrin ketone	1.15	U	0.18	2.3	ug/Kg
7421-93-4	Endrin aldehyde	1.15	U	0.2	2.3	ug/Kg
5103-71-9	alpha-Chlordane	1.15	U	0.19	2.3	ug/Kg
5103-74-2	gamma-Chlordane	1.15	U	0.18	2.3	ug/Kg
8001-35-2	Toxaphene	11.5	U	13	23	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.3		55 - 130	101%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.7		70 - 125	88%	SPK: 20

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	940 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003635.D	1	12/30/11	12/30/11	PB60330

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.027	U	0.0054	0.053	ug/L
319-85-7	beta-BHC	0.027	U	0.0091	0.053	ug/L
319-86-8	delta-BHC	0.027	U	0.006	0.053	ug/L
58-89-9	gamma-BHC	0.027	U	0.0059	0.053	ug/L
76-44-8	Heptachlor	0.027	U	0.0073	0.053	ug/L
309-00-2	Aldrin	0.027	U	0.0066	0.053	ug/L
1024-57-3	Heptachlor epoxide	0.027	U	0.0071	0.053	ug/L
959-98-8	Endosulfan I	0.027	U	0.0065	0.053	ug/L
60-57-1	Dieldrin	0.027	U	0.005	0.053	ug/L
72-55-9	4,4-DDE	0.027	U	0.0043	0.053	ug/L
72-20-8	Endrin	0.027	U	0.0062	0.053	ug/L
33213-65-9	Endosulfan II	0.027	U	0.0059	0.053	ug/L
72-54-8	4,4-DDD	0.027	U	0.0076	0.053	ug/L
1031-07-8	Endosulfan Sulfate	0.027	U	0.0064	0.053	ug/L
50-29-3	4,4-DDT	0.027	U	0.0063	0.053	ug/L
72-43-5	Methoxychlor	0.027	U	0.0045	0.053	ug/L
53494-70-5	Endrin ketone	0.027	U	0.0061	0.053	ug/L
7421-93-4	Endrin aldehyde	0.027	U	0.0048	0.053	ug/L
5103-71-9	alpha-Chlordane	0.027	U	0.0052	0.053	ug/L
5103-74-2	gamma-Chlordane	0.027	U	0.0053	0.053	ug/L
8001-35-2	Toxaphene	0.265	U	0.106	0.53	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.7		30 - 135	98%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.6		25 - 140	98%	SPK: 20

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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	c5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	24 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006421.D	1	01/03/12	01/04/12	PB60338

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	11	U	4.6	22	ug/Kg
11104-28-2	Aroclor-1221	11	U	4.5	22	ug/Kg
11141-16-5	Aroclor-1232	11	U	9.8	22	ug/Kg
53469-21-9	Aroclor-1242	11	U	4.5	22	ug/Kg
12672-29-6	Aroclor-1248	11	U	8.7	22	ug/Kg
11097-69-1	Aroclor-1254	11	U	2	22	ug/Kg
11096-82-5	Aroclor-1260	11	U	5.4	22	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	11.5		10 - 166	58%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.8	*	60 - 125	59%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
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LOD = Limit of Detection
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	c5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	900 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006401.D	1	01/03/12	01/03/12	PB60343

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.28	U	0.107	0.56	ug/L
11104-28-2	Aroclor-1221	0.28	U	0.211	0.56	ug/L
11141-16-5	Aroclor-1232	0.28	U	0.167	0.56	ug/L
53469-21-9	Aroclor-1242	0.28	U	0.099	0.56	ug/L
12672-29-6	Aroclor-1248	0.28	U	0.267	0.56	ug/L
11097-69-1	Aroclor-1254	0.28	U	0.049	0.56	ug/L
11096-82-5	Aroclor-1260	0.28	U	0.09	0.56	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.2		35 - 137	81%	SPK: 20
2051-24-3	Decachlorobiphenyl	14.7		40 - 135	74%	SPK: 20

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Appendix C

Support Documentation

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5164
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_F were done using GC column RTX-624, which is 20 meters, 0.25 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260B.

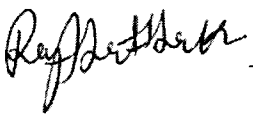
D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5135-17MS} with File ID: VF030535.D recoveries met the requirements for all compounds except for 1,4-Dioxane[67%] .
The MSD recoveries met the acceptable requirements .
The RPD for {C5135-18MSD} with File ID: VF030536.D recoveries met criteria except for Methyl Acetate[62%], Methylene Chloride[27%] .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration met the requirements .
The Tuning criteria met requirements.

CHEMTECH

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____  _____ Kalpana Raythattha
I am approving this document
2012.01.23 17:23:32 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5164
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group1 was based on method 8270C and extraction was done based on method 3510c/3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C5161-01MS} with File ID: BE074912.D recoveries met the requirements for all compounds except for 1,2,4,5-Tetrachlorobenzene[68%] .
The MSD recoveries met the acceptable requirements .
The RPD for {PB60329BSD} with File ID: BE074823.D recoveries met criteria except for 2,4-Dichlorophenol[22%], 2,4-Dimethylphenol[21%], 2,4-Dinitrophenol[22%], 2-Nitroaniline[21%], 2-Nitrophenol[24%], 4,6-Dinitro-2-methylphenol[23%], 4-Chloroaniline[34%], Atrazine[21%], Benzaldehyde[29%], bis(2-Ethylhexyl)phthalate[21%], Caprolactam[21%], Di-n-butylphthalate[21%], Isophorone[21%] and Nitrobenzene[21%] .
The RPD for {C5161-01MSD} with File ID: BE074913.D recoveries met criteria except for 1,1-Biphenyl[21%], 2,4,5-Trichlorophenol[21%], 2,4,6-Trichlorophenol[21%], 2-Chloronaphthalene[21%], 4,6-Dinitro-2-methylphenol[21%], 4-Chloro-3-methylphenol[21%] and Dibenzofuran[21%] .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.

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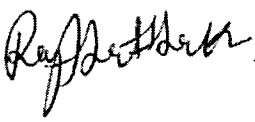
The Initial Calibration met the requirements .
The Continuous Calibration File ID BE074891.D , BE074908.D met the requirements except for Benzaldehyde but it is not present in the sample.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature  Kalpana Raythattha
I am approving this document
2012.01.23 17:23:55 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5164
Test Name: SVOCMS Group2

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for SVOCMS Group2.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOCMS Group2 was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB54-0.502-02DL [Terphenyl-d14 - -135%], 12SB59-000.5-01DL [Terphenyl-d14 - -125%].
The Internal Standards Areas met the acceptable requirements except for 12SB59-000.5-01.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD for File ID: BG002723.D recoveries met criteria except for Acenaphthene, Fluoranthene and Indeno(1,2,3-cd)pyrene .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration met the requirements .
The Tuning criteria met requirements.
Samples 12SB54-0.502-02, 12SB59-000.5-01 was diluted due to bad matrix.
Samples 12SB28-000.5-01, 12SB54-0.502-02 and 12SB59-000.5-01 were diluted due to high concentrations.

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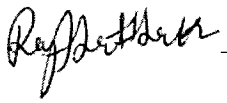
E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature  Kalpana Raythattha
I am approving this document
2012.01.23 17:24:14 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5164
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_G. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5um df, Catalogue #: 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalogue #: 7HM-G017-11The analysis of PESTICIDE Group1s was based on method 8081A and extraction was done based on method 3510C/3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12SB57-000.5-01 [Decachlorobiphenyl(1) - 43%, Decachlorobiphenyl(2) - 45%, Tetrachloro-m-xylene(1) - 62%, Tetrachloro-m-xylene(2) - 57%], 12SB57-000.5-01RE [Decachlorobiphenyl(1) - 44%, Decachlorobiphenyl(2) - 46%, Tetrachloro-m-xylene(1) - 59% and Tetrachloro-m-xylene(2) - 57%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID PG003761.D met the requirements except for Endrin ketone in both column.The Continuous Calibration File ID PG003767.D met the requirements except for 4,4-DDT and Endrin ketone in both column. The end check is failing in both column for 4,4-DDT and the associate samples have hit for that

compound so all those samples were reanalyzed to conform the results. The Continuous Calibration File ID PG003776.D met the requirements except for Decachlorobiphenyl in second column. The Continuous Calibration File ID PG003637.D met the requirements except for Endrin ketone in second column.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____ _____ Kalpana Raythattha
I am approving this document
2012.01.23 17:24:34 -05'00'

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5164
Test Name: PCB

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for PCB.

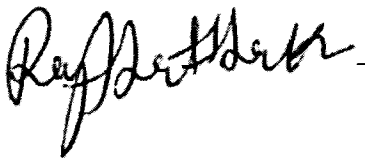
C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082 and extraction was done based on method 3510C/3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for SHAFT4-PCB-SOIL-01MS [Decachlorobiphenyl(1) - 808%], SHAFT4-PCB-SOIL-01MSD [Decachlorobiphenyl(1) - 854%] and 12SB28-000.5-01 [Decachlorobiphenyl(1) - 59%].
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration met the requirements .

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

CHEMTECH

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_  Kalpana Raythattha
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CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : c5164

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number	Test	Out of Hold
C5164-01	TB-01-122911		
C5164-02	12SB28-000.5-01	pH	*
C5164-03	12SB54-0.502-02		
C5164-04	12SB56-0.502-02		
C5164-05	12SB55-0.502-02		
C5164-06	12SB49-0.502-02		
C5164-07	C5164-06MS		
C5164-08	C5164-06MSD		
C5164-09	12SB51-0.502-02		
C5164-10	12SB52-0.502-02		
C5164-11	12SB53-0.502-02		
C5164-12	12SB50-0.502-02		
C5164-13	12SB57-000.5-01		
C5164-14	12SB58-000.5-01		
C5164-15	12SB59-000.5-01		
C5164-16	12SB48-0.502-02		
C5164-17	12SB47-0.502-02		
C5164-18	12SB45-0.502-02		
C5164-19	12SB46-0.502-02		
C5164-20	12SB-DUP01-122911		
C5164-21	12SB-DUP02-122911		
C5164-22	12SB-DUP03-122911		
C5164-23	RB-01-122911		

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature :

Kalpana Raythattha
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NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5164
QUOTE NO.
COC Number 021237

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 112G WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 40 ml VOA Vial
2 TCL VOC 5 gram Encore
3 TCL SVOC/PAH Sim 8oz Glass
4 Pest/PCB 8oz Glass
5 Metals 4oz Glass
6 PAH Sim 8oz Glass
7 Lead only 4oz Glass
8
9

PRESERVATIVES

1 2 3 4 5 6 7 8 9

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	TB-01-122911	Aq		✓	12/29/11	0700	2	2									
2.	12SB28-000.5-01	Soil		✓	12/29/11	0930	6	3	3	1	1	1					
3.	12SB54-0.5-02-02	Soil		✓	12/29/11	1030	1						1				
4.	12SB56-0.5-02-02	Soil		✓	12/29/11	1035	1						1				
5.	12SB55-0.5-02-02	Soil		✓	12/29/11	1045	1						1				
6. 7, 8.	12SB49-0.5-02-02	Soil		✓	12/29/11	1120	4						2	2			DO MS/MSD
7. 9.	12SB51-0.5-02-02	Soil		✓	12/29/11	1130	2						1	1			
8. 10.	12SB52-0.5-02-02	Soil		✓	12/29/11	1145	2						1	1			
9. 11.	12SB53-0.5-02-02	Soil		✓	12/29/11	1205	2						1	1			
10. 12.	12SB50-0.5-02-02	Soil		✓	12/29/11	1255	2						1	1			

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

	RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	[signature]	12/29/11 2000	1.
2.	RELINQUISHED BY	DATE/TIME	RECEIVED BY: 2.
3.	RELINQUISHED BY: FedEx	DATE/TIME: 12/30/11 9:05	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: YES

Page 1 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

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CHAIN OF CUSTODY RECORD

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CHEMTECH PROJECT NO. C5164
QUOTE NO.
COC Number 021236

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fickbowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Fickbowitz
e-mail: andy.fickbowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH Sim 8oz Glass
2 Pest 8oz Glass
3 cadmium 4oz Glass
4 Copper
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1. 13.	12SB57-0005-01	Soil		✓	12/29/11	1330	2	1	1								
2. 14.	12SB58-0005-01	Soil		✓	12/29/11	1335	2	1	1								
3. 15.	12SB59-0005-01	Soil		✓	12/29/11	1345	2	1	1								
4. 16.	12SB48-0.502-02	Soil		✓	12/29/11	1400	1	1									
5. 17.	12SB47-0.502-02	Soil		✓	12/29/11	1450	1			1							
6. 18.	12SB45-0.502-02	Soil		✓	12/29/11	1505	1			1							
7. 19.	12SB46-0.502-02	Soil		✓	12/29/11	1520	1			1							
8. 20.	12SB-DUP01-122911	Soil		✓	12/29/11	1200	2	1	1								
9. 21.	12SB-DUP02-122911	Soil		✓	12/29/11	1300	1	1									
10. 22	12SB-DUP03-122911	Soil		✓	12/29/11	1400	1			1							

← Specify Preservatives
A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

	RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	[signature]	12/29/11 2000	[signature]
2.	RELINQUISHED BY	DATE/TIME	RECEIVED BY
3.	RELINQUISHED BY: FedEx	DATE/TIME: 9:05 12/30/11	RECEIVED FOR LAB BY: [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 2 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

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CHEMTECH PROJECT NO. C5164
QUOTE NO.
COC Number 021238

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO. CTOWEOS LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOA 40 ml VOA Vial
2 TCL SVOC 1 Liter Amber
3 PCB/PAH SIM 1 Liter Amber
4 Metals 500 ml HNO3
5 Cyanide 500 ml NaOH
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
23.	RB-01-122911	Aq		V	12/29/11	1735		2	2	2	1	1					
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

PRESERVATIVES: ← Specify Preservatives
A – HCl B – HNO_3 C – H_2SO_4 D – NaOH E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY:
1 [signature]	12/29/11 2000	1 [signature]
RELINQUISHED BY	DATE/TIME	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. FedEx	12/30/11 9:05	3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 3 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

HOLDTIME

SDG C5164

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/4/2012	5	1	6
HG	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/4/2012	5	1	6
M	MG/KG	12SB52-0.502-02	C5164-10DL	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB-DUP03-122911	C5164-22	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB53-0.502-02	C5164-11	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB52-0.502-02	C5164-10	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB51-0.502-02	C5164-09	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB50-0.502-02	C5164-12	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB49-0.502-02	C5164-06	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB46-0.502-02	C5164-19	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB45-0.502-02	C5164-18	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB28-000.5-01	C5164-02DL	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB47-0.502-02	C5164-17	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB53-0.502-02	C5164-11DL	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/5/2012	5	2	7
CN	MG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/6/2012	1/6/2012	8	0	8
CN	MG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/6/2012	5	3	8
PH	S.U.	12SB28-000.5-01	C5164-02	NM	12/29/2011	12/30/2011	12/30/2011	1	0	1
OS	UG/KG	12SB52-0.502-02	C5164-10	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB51-0.502-02	C5164-09	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB50-0.502-02	C5164-12	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB49-0.502-02	C5164-06	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB48-0.502-02	C5164-16	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB28-000.5-01	C5164-02DL	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/7/2012	5	4	9
OS	UG/KG	12SB54-0.502-02	C5164-03DL	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB55-0.502-02	C5164-05	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB56-0.502-02	C5164-04	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB57-000.5-01	C5164-13	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB58-000.5-01	C5164-14	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB59-000.5-01	C5164-15	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OS	UG/KG	12SB59-000.5-01	C5164-15DL	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB-DUP01-122911	C5164-20	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB-DUP02-122911	C5164-21	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB54-0.502-02	C5164-03	NM	12/29/2011	1/3/2012	1/11/2012	5	8	13
OS	UG/KG	12SB53-0.502-02	C5164-11	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	12/30/2011	1/4/2012	1	5	6
OS	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/5/2012	5	2	7
OV	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/5/2012	1/5/2012	7	0	7
OV	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/4/2012	1/4/2012	6	0	6
OV	UG/L	TB-01-122911	C5164-01	NM	12/29/2011	1/4/2012	1/4/2012	6	0	6
PCB	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/4/2012	5	1	6
PCB	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/3/2012	5	0	5
PEST	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	12/30/2011	1/4/2012	1	5	6
PEST	UG/KG	12SB57-000.5-01	C5164-13	NM	12/29/2011	12/30/2011	1/7/2012	1	8	9
PEST	UG/KG	12SB57-000.5-01	C5164-13RE	NM	12/29/2011	12/30/2011	1/9/2012	1	10	11
PEST	UG/KG	12SB58-000.5-01	C5164-14	NM	12/29/2011	12/30/2011	1/7/2012	1	8	9
PEST	UG/KG	12SB58-000.5-01	C5164-14RE	NM	12/29/2011	12/30/2011	1/9/2012	1	10	11
PEST	UG/KG	12SB59-000.5-01	C5164-15	NM	12/29/2011	12/30/2011	1/7/2012	1	8	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/KG	12SB59-000.5-01	C5164-15RE	NM	12/29/2011	12/30/2011	1/9/2012	1	10	11
PEST	UG/KG	12SB-DUP01-122911	C5164-20	NM	12/29/2011	12/30/2011	1/7/2012	1	8	9
PEST	UG/KG	12SB-DUP01-122911	C5164-20RE	NM	12/29/2011	12/30/2011	1/9/2012	1	10	11
PEST	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	12/30/2011	12/30/2011	1	0	1

NASJRB WILLOW GROVE
SOIL DATA
C5164

FRACTION	CHEMICAL	12SB57-000.5-01	UNITS	12SB-DUP01-122911	RPD	D
OS	2-METHYLNAPHTHALENE	37	UG/KG	ND	200.00	37.00
OS	ACENAPHTHYLENE	2.8 J	UG/KG	ND	200.00	2.80
OS	ANTHRACENE	3.7 J	UG/KG	ND	200.00	3.70
OS	BENZO(A)ANTHRACENE	16	UG/KG	2.9 J	138.62	13.10
OS	BENZO(A)PYRENE	18	UG/KG	2.5 J	151.22	15.50
OS	BENZO(B)FLUORANTHENE	29	UG/KG	4.2	149.40	24.80
OS	BENZO(G,H,I)PERYLENE	13	UG/KG	ND	200.00	13.00
OS	BENZO(K)FLUORANTHENE	11	UG/KG	ND	200.00	11.00
OS	CHRYSENE	29	UG/KG	3.8 J	153.66	25.20
OS	DIBENZO(A,H)ANTHRACENE	5.1	UG/KG	ND	200.00	5.10
OS	FLUORANTHENE	48	UG/KG	8.4	140.43	39.60
OS	FLUORENE	3.2 J	UG/KG	ND	200.00	3.20
OS	INDENO(1,2,3-CD)PYRENE	14	UG/KG	ND	200.00	14.00
OS	NAPHTHALENE	23	UG/KG	ND	200.00	23.00
OS	PHENANTHRENE	42	UG/KG	6.3	147.83	35.70
OS	PYRENE	38	UG/KG	6.3	143.12	31.70

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5164

FRACTION	CHEMICAL	12SB48-0.502-02	UNITS	12SB-DUP02-122911	RPD	D
OS	2-METHYLNAPHTHALENE	ND	UG/KG	35	200.00	35.00
OS	ACENAPHTHYLENE	ND	UG/KG	2.8 J	200.00	2.80
OS	ANTHRACENE	ND	UG/KG	3.3 J	200.00	3.30
OS	BENZO(A)ANTHRACENE	2.5 J	UG/KG	13	135.48	10.50
OS	BENZO(A)PYRENE	ND	UG/KG	15	200.00	15.00
OS	BENZO(B)FLUORANTHENE	2.9 J	UG/KG	27	161.20	24.10
OS	BENZO(G,H,I)PERYLENE	ND	UG/KG	12	200.00	12.00
OS	BENZO(K)FLUORANTHENE	ND	UG/KG	7.5	200.00	7.50
OS	CHRYSENE	2.5 J	UG/KG	25	163.64	22.50
OS	DIBENZO(A,H)ANTHRACENE	ND	UG/KG	3.3 J	200.00	3.30
OS	FLUORANTHENE	5.3	UG/KG	40	153.20	34.70
OS	INDENO(1,2,3-CD)PYRENE	ND	UG/KG	13	200.00	13.00
OS	NAPHTHALENE	ND	UG/KG	22	200.00	22.00
OS	PHENANTHRENE	3.3 J	UG/KG	36	166.41	32.70
OS	PYRENE	4.1	UG/KG	33	155.80	28.90

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE
SOIL DATA
C5164

FRACTION	CHEMICAL	12SB57-000.5-01	UNITS	12SB-DUP01-122911	RPD	D
PEST/PCB	4,4'-DDE	7.8 L	UG/KG	ND	200.00	7.80
PEST/PCB	4,4'-DDT	7.2 J	UG/KG	ND	200.00	7.20
PEST/PCB	DIELDRIN	8 L	UG/KG	ND	200.00	8.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VF030522.D BFB Injection Date: 01/04/2012

Instrument ID: MSVOA_F BFB Injection Time: 15:16

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: Y/N Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.3
75	30.0 - 60.0% of mass 95	48.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	72.6
175	5.0 - 9.0% of mass 174	5.4 (7.5) 1
176	95.0 - 101.0% of mass 174	71.7 (98.7) 1
177	5.0 - 9.0% of mass 176	5.1 (7.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD020	20 PPB ICC	VF030525.D	01/04/2012	16:57
VSTD050	50 PPB ICC	VF030526.D	01/04/2012	17:28
VSTD075	75 PPB ICC	VF030527.D	01/04/2012	17:59
VSTD010	10 PPB ICC	VF030528.D	01/04/2012	18:29
VSTD005	5 PPB ICC	VF030529.D	01/04/2012	19:00
VSTD100	100 PPB ICC	VF030530.D	01/04/2012	19:30
VBF0104S1	VBF0104S1	VF030532.D	01/04/2012	20:32
BSF0104S1	BSF0104S1	VF030533.D	01/04/2012	21:02
BSF0104S2	BSF0104S2	VF030534.D	01/04/2012	21:32
UBZ2-SO-28-11-12MS	C5135-17MS	VF030535.D	01/04/2012	22:03
UBZ2-SO-28-11-12MSD	C5135-18MSD	VF030536.D	01/04/2012	22:33
12SB28-000.5-01	C5164-02	VF030541.D	01/05/2012	01:09

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: MSVOA_F Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Calibration Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030529.D RRF020 = VF030525.D RRF050 = VF030526.D
RRF075 = VF030527.D RRF100 = VF030530.D RRF010 = VF030528.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	RRF	% RSD	
Dichlorodifluoromethane	0.638	0.731	0.747	0.766	0.729	0.679	0.715	6.6	
Chloromethane	1.137	1.154	1.272	1.280	1.232	1.041	1.186	7.8	
Vinyl Chloride	0.662	0.785	0.835	0.855	0.812	0.611	0.76	13.1	
Bromomethane	0.349	0.379	0.388	0.410	0.362	0.289	0.363	11.5	
Chloroethane	0.171	0.331	0.247	0.218	0.197	0.184	0.225	26	r^2 ok
Trichlorofluoromethane	0.623	0.930	0.965	0.929	0.855	0.705	0.835	16.7	r^2 ok
1,1,2-Trichlorotrifluoroethane	0.427	0.588	0.594	0.600	0.546	0.481	0.539	13.2	
1,1-Dichloroethene	0.465	0.545	0.561	0.541	0.519	0.493	0.521	6.9	
Acetone	0.355	0.395	0.491	0.489	0.410	0.291	0.405	19.1	r^2 ok
Carbon Disulfide	1.454	1.791	1.847	1.757	1.658	1.277	1.631	13.6	
Methyl tert-butyl Ether	1.543	1.790	2.044	2.093	1.883	1.452	1.801	14.5	
Methyl Acetate	1.246	1.490	1.719	1.871	1.587	1.255	1.528	16.4	r^2 ok
Methylene Chloride	0.674	0.705	0.752	0.724	0.702	0.578	0.689	8.8	
trans-1,2-Dichloroethene	0.396	0.547	0.575	0.592	0.555	0.424	0.515	16.2	r^2 ok
1,1-Dichloroethane	0.996	1.242	1.279	1.256	1.204	0.889	1.144	14.2	
Cyclohexane	0.958	1.118	1.217	1.204	1.168	0.925	1.098	11.5	
2-Butanone	0.576	0.624	0.724	0.759	0.647	0.515	0.641	14.1	
Carbon Tetrachloride	0.408	0.519	0.532	0.521	0.501	0.406	0.481	12.1	
cis-1,2-Dichloroethene	0.603	0.782	0.822	0.825	0.827	0.629	0.748	13.9	
Bromochloromethane	0.962	0.931	0.880	0.826	0.833	0.823	0.876	6.8	
Chloroform	1.147	1.413	1.490	1.414	1.460	1.143	1.344	11.7	
1,1,1-Trichloroethane	0.678	0.865	0.900	0.915	0.896	0.644	0.816	14.9	
Methylcyclohexane	0.479	0.568	0.551	0.569	0.547	0.506	0.537	6.8	
Benzene	1.253	1.457	1.456	1.470	1.463	1.238	1.389	8	
1,2-Dichloroethane	0.477	0.573	0.635	0.623	0.597	0.493	0.566	11.8	
Trichloroethene	0.402	0.510	0.509	0.530	0.503	0.447	0.483	10	
1,2-Dichloropropane	0.339	0.422	0.449	0.450	0.461	0.381	0.417	11.5	
Bromodichloromethane	0.451	0.554	0.607	0.619	0.610	0.461	0.55	13.9	
4-Methyl-2-Pentanone	0.524	0.503	0.616	0.649	0.557	0.491	0.557	11.4	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: MSVOA_F Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) Y Calibration Time(s): 16:57 19:30

GC Column: RTX-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VF030529.D RRF020 = VF030525.D RRF050 = VF030526.D
RRF075 = VF030527.D RRF100 = VF030530.D RRF010 = VF030528.D

COMPOUND	RRF005	RRF020	RRF050	RRF075	RRF100	RRF010	RRF	% RSD	
Toluene	0.621	0.829	0.861	0.838	0.850	0.727	0.788	12	
t-1,3-Dichloropropene	0.473	0.599	0.692	0.686	0.674	0.497	0.603	16.2	r^20k
cis-1,3-Dichloropropene	0.564	0.681	0.744	0.738	0.732	0.541	0.666	13.7	
1,1,2-Trichloroethane	0.246	0.319	0.370	0.362	0.350	0.283	0.322	15.2	r^20k
2-Hexanone	0.410	0.400	0.474	0.488	0.438	0.402	0.435	8.8	
Dibromochloromethane	0.273	0.382	0.445	0.461	0.436	0.316	0.386	19.9	r^20k
1,2-Dibromoethane	0.312	0.369	0.416	0.430	0.402	0.314	0.374	13.7	
Tetrachloroethene	0.471	0.541	0.580	0.550	0.542	0.499	0.53	7.4	
Chlorobenzene	0.884	1.008	1.049	1.031	1.027	0.887	0.981	7.6	
Ethyl Benzene	1.337	1.675	1.751	1.692	1.699	1.416	1.595	10.8	
m/p-Xylenes	0.498	0.594	0.633	0.621	0.620	0.510	0.579	10.3	
o-Xylene	0.462	0.619	0.659	0.642	0.629	0.519	0.588	13.4	
Styrene	0.675	0.977	1.074	1.071	1.063	0.813	0.945	17.6	r^20k
Bromoform	0.209	0.270	0.320	0.336	0.310	0.230	0.279	18.4	r^20k
Isopropylbenzene	2.372	2.920	3.232	3.170	3.156	2.617	2.911	12	
1,1,2,2-Tetrachloroethane	0.340	0.344	0.401	0.432	0.373	0.313	0.367	11.9	
1,3-Dichlorobenzene	1.311	1.525	1.637	1.647	1.574	1.347	1.507	9.6	
1,4-Dichlorobenzene	1.457	1.626	1.695	1.655	1.594	1.448	1.579	6.6	
1,2-Dichlorobenzene	1.277	1.471	1.611	1.586	1.558	1.355	1.476	9.2	
1,2-Dibromo-3-Chloropropane	0.135	0.128	0.158	0.173	0.146	0.108	0.141	16.4	r^20k
1,2,4-Trichlorobenzene	0.895	1.020	1.131	1.133	1.061	0.847	1.014	11.8	
1,2,3-Trichlorobenzene	0.825	0.948	1.060	1.036	0.962	0.800	0.939	11.3	
1,2-Dichloroethane-d4	1.032	0.892	0.930	0.947	0.884	0.862	0.925	6.6	
Dibromofluoromethane	0.484	0.458	0.433	0.435	0.418	0.430	0.443	5.4	
Toluene-d8	1.256	1.110	1.141	1.134	1.110	1.163	1.153	4.7	
4-Bromofluorobenzene	0.526	0.503	0.493	0.488	0.493	0.493	0.499	2.8	
1,4-Dioxane	0.003	0.004	0.004	0.005	0.004	0.003	0.004	21.2	r^20k

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Method Path : W:\HPCHEM1\MSVOA_F\METHOD\
Method File : 82F010412S.M
Title : SW846 8260
Last Update : Wed Jan 04 19:56:11 2012
Response Via : Initial Calibration

Calibration Files
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50 =VF030526.D 75 =VF030527.D 100 =VF030530.D

		Compound	5	10	20	50	75	100	Avg	%RSD
1)	I	Pentafluorobenzene	----------	ISTD	----------					
2)	T	Dichlorodifluorom	0.638	0.679	0.731	0.747	0.766	0.729	0.715	6.63
3)	P	Chloromethane	1.137	1.041	1.154	1.272	1.280	1.232	1.186	7.79
4)	C	Vinyl Chloride	0.662	0.611	0.785	0.835	0.855	0.812	0.760	13.12#
5)	T	Bromomethane	0.349	0.289	0.379	0.388	0.410	0.362	0.363	11.53
6)	T	Chloroethane	0.171	0.184	0.331	0.247	0.218	0.197	0.225	26.02
7)	T	Trichlorofluorome	0.623	0.705	0.930	0.965	0.929	0.855	0.835	16.67
8)	T	Diethyl Ether	0.325	0.250	0.359	0.402	0.386	0.350	0.345	15.64
9)	T	1,1,2-Trichlorotr	0.427	0.481	0.588	0.594	0.600	0.546	0.539	13.14
10)	T	Methyl Iodide	0.786	0.812	1.081	1.119	1.121	1.056	0.996	15.53
11)	T	Tert butyl alcoho	0.083	0.070	0.091	0.108	0.121	0.094	0.095	19.26
12)	CM	1,1-Dichloroethen	0.465	0.493	0.545	0.561	0.541	0.519	0.521	6.94#
13)	T	Acrolein	0.091	0.075	0.078	0.078	0.080	0.064	0.078	11.20
14)	T	Allyl chloride	1.041	0.854	1.139	1.180	1.158	1.089	1.077	11.15
15)	T	Acrylonitrile	0.264	0.204	0.266	0.303	0.315	0.266	0.270	14.45
16)	T	Acetone	0.355	0.291	0.395	0.491	0.489	0.410	0.405	19.11
17)	T	Carbon Disulfide	1.454	1.277	1.791	1.847	1.757	1.658	1.631	13.58
18)	T	Methyl Acetate	1.246	1.255	1.490	1.719	1.871	1.587	1.528	16.39
19)	T	Methyl tert-butyl	1.543	1.452	1.790	2.044	2.093	1.883	1.801	14.47
20)	T	Methylene Chlorid	0.674	0.578	0.705	0.752	0.724	0.702	0.689	8.75
21)	T	trans-1,2-Dichlor	0.396	0.424	0.547	0.575	0.592	0.555	0.515	16.17
22)	T	Diisopropyl ether	2.102	1.899	2.490	2.602	2.556	2.489	2.356	12.14
23)	T	Vinyl Acetate	0.963	0.859	1.052	1.161	1.149	1.007	1.032	11.12
24)	P	1,1-Dichloroethan	0.996	0.889	1.242	1.279	1.256	1.204	1.144	14.15
25)	T	2-Butanone	0.576	0.515	0.624	0.724	0.759	0.647	0.641	14.14
26)	T	2,2-Dichloropropa	0.445	0.426	0.544	0.561	0.566	0.533	0.512	11.90
27)	T	cis-1,2-Dichloroe	0.603	0.629	0.782	0.822	0.825	0.827	0.748	13.87
28)	T	Bromochloromethan	0.962	0.823	0.931	0.880	0.826	0.833	0.876	6.78
29)	C	Chloroform	1.147	1.143	1.413	1.490	1.414	1.460	1.344	11.70#
30)	T	Cyclohexane	0.958	0.925	1.118	1.217	1.204	1.168	1.098	11.53
31)	T	1,1,1-Trichloroet	0.678	0.644	0.865	0.900	0.915	0.896	0.816	14.93
32)	S	1,2-Dichloroethan	1.032	0.862	0.892	0.930	0.947	0.884	0.925	6.62
33)	I	1,4-Difluorobenzene	----------	ISTD	----------					
34)	S	Dibromofluorometh	0.484	0.430	0.458	0.433	0.435	0.418	0.443	5.39
35)	T	1,1-Dichloroprope	0.483	0.510	0.528	0.560	0.564	0.534	0.530	5.77
36)	T	Ethyl Acetate	0.746	0.704	0.687	0.806	0.807	0.690	0.740	7.51
37)	T	Carbon Tetrachlor	0.408	0.406	0.519	0.532	0.521	0.501	0.481	12.10
38)	T	Methylcyclohexane	0.479	0.506	0.568	0.551	0.569	0.547	0.537	6.80
39)	TM	Benzene	1.253	1.238	1.457	1.456	1.470	1.463	1.389	8.04
40)	T	Methacrylonitrile	0.290	0.279	0.301	0.360	0.377	0.334	0.324	12.34
41)	TM	1,2-Dichloroethan	0.477	0.493	0.573	0.635	0.623	0.597	0.566	11.79
42)	T	Isopropyl Acetate	0.699	0.663	0.656	0.859	0.866	0.775	0.753	12.59
43)	TM	Trichloroethene	0.402	0.447	0.510	0.509	0.530	0.503	0.483	10.03
44)	C	1,2-Dichloropropa	0.339	0.381	0.422	0.449	0.450	0.461	0.417	11.53#
45)	T	Dibromomethane	0.240	0.237	0.306	0.335	0.333	0.316	0.294	15.23
46)	T	Bromodichlorometh	0.451	0.461	0.554	0.607	0.619	0.610	0.550	13.87
47)	T	Methyl methacryla	0.345	0.347	0.403	0.465	0.502	0.449	0.418	15.37
48)	T	1,4-Dioxane	0.003	0.003	0.004	0.004	0.005	0.004	0.004	21.49
49)	S	Toluene-d8	1.256	1.163	1.110	1.141	1.134	1.110	1.153	4.71
50)	T	4-Methyl-2-Pentan	0.524	0.491	0.503	0.616	0.649	0.557	0.557	11.44
51)	CM	Toluene	0.621	0.727	0.829	0.861	0.838	0.850	0.788	12.03#
52)	T	t-1,3-Dichloropro	0.473	0.497	0.599	0.692	0.686	0.674	0.603	16.23

Method Path : W:\HPCHEM1\MSVOA_F\METHOD\
Method File : 82F010412S.M
Title : SW846 8260
Last Update : Wed Jan 04 19:56:11 2012
Response Via : Initial Calibration

Calibration Files
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50 =VF030526.D 75 =VF030527.D 100 =VF030530.D

		Compound	5	10	20	50	75	100	Avg	%RSD
53)	T	cis-1,3-Dichlorop	0.564	0.541	0.681	0.744	0.738	0.732	0.666	13.70
54)	T	1,1,2-Trichloroet	0.246	0.283	0.319	0.370	0.362	0.350	0.322	15.24
55)	T	Ethyl methacrylat	0.397	0.420	0.478	0.596	0.624	0.575	0.515	18.68
56)	T	1,3-Dichloropropa	0.601	0.571	0.663	0.732	0.727	0.722	0.669	10.45
57)	T	2-Chloroethyl Vin	0.213	0.215	0.216	0.237	0.237	0.222	0.223	4.92
58)	T	2-Hexanone	0.410	0.402	0.400	0.474	0.488	0.438	0.435	8.76
59)	T	Dibromochlorometh	0.273	0.316	0.382	0.445	0.461	0.436	0.386	19.88
60)	T	1,2-Dibromoethane	0.312	0.314	0.369	0.416	0.430	0.402	0.374	13.73
61)	S	4-Bromofluorobenz	0.526	0.493	0.503	0.493	0.488	0.493	0.499	2.78
62)	I	Chlorobenzene-d5	----------	ISTD	----------					
63)	T	Tetrachloroethene	0.471	0.499	0.541	0.580	0.550	0.542	0.530	7.36
64)	PM	Chlorobenzene	0.884	0.887	1.008	1.049	1.031	1.027	0.981	7.64
65)	T	1,1,1,2-Tetrachlo	0.249	0.277	0.333	0.377	0.369	0.372	0.329	16.64
66)	C	Ethyl Benzene	1.337	1.416	1.675	1.751	1.692	1.699	1.595	10.84#
67)	T	m/p-Xylenes	0.498	0.510	0.594	0.633	0.621	0.620	0.579	10.32
68)	T	o-Xylene	0.462	0.519	0.619	0.659	0.642	0.629	0.588	13.42
69)	T	Styrene	0.675	0.813	0.977	1.074	1.071	1.063	0.945	17.54
70)	P	Bromoform	0.209	0.230	0.270	0.320	0.336	0.310	0.279	18.41
71)	I	1,4-Dichlorobenzene-d	----------	ISTD	----------					
72)	T	Isopropylbenzene	2.372	2.617	2.920	3.232	3.170	3.156	2.911	11.96
73)	T	N-amyl acetate	1.606	1.785	1.677	2.180	2.256	2.041	1.924	14.15
74)	P	1,1,2,2-Tetrachlo	0.340	0.313	0.344	0.401	0.432	0.373	0.367	11.94
75)	T	1,2,3-Trichloropr	0.808	0.728	0.749	0.910	0.937	0.810	0.824	10.21
76)	T	Bromobenzene	0.693	0.710	0.787	0.878	0.838	0.843	0.791	9.58
77)	T	n-propylbenzene	3.051	3.458	3.857	4.063	4.008	3.926	3.727	10.58
78)	T	2-Chlorotoluene	1.931	2.142	2.371	2.513	2.429	2.438	2.304	9.65
79)	T	1,3,5-Trimethylbe	1.853	2.088	2.400	2.630	2.611	2.567	2.358	13.56
80)	T	trans-1,4-Dichlor	0.343	0.422	0.478	0.591	0.613	0.555	0.500	20.97
81)	T	4-Chlorotoluene	2.116	2.108	2.417	2.560	2.570	2.571	2.390	9.35
82)	T	tert-Butylbenzene	1.756	1.872	2.020	2.256	2.259	2.184	2.058	10.24
83)	T	1,2,4-Trimethylbe	1.937	2.293	2.467	2.760	2.761	2.694	2.485	13.13
84)	T	sec-Butylbenzene	2.755	2.973	3.282	3.548	3.541	3.442	3.257	10.03
85)	T	p-Isopropyltoluen	2.084	2.411	2.565	2.838	2.846	2.799	2.591	11.70
86)	T	1,3-Dichlorobenze	1.311	1.347	1.525	1.637	1.647	1.574	1.507	9.62
87)	T	1,4-Dichlorobenze	1.457	1.448	1.626	1.695	1.655	1.594	1.579	6.56
88)	T	n-Butylbenzene	2.052	2.495	2.705	3.057	3.017	2.932	2.710	14.22
89)	T	Hexachloroethane	0.402	0.462	0.592	0.662	0.690	0.653	0.577	20.49
90)	T	1,2-Dichlorobenze	1.277	1.355	1.471	1.611	1.586	1.558	1.476	9.16
91)	T	1,2-Dibromo-3-Chl	0.135	0.108	0.128	0.158	0.173	0.146	0.141	16.40
92)	T	1,2,4-Trichlorobe	0.895	0.847	1.020	1.131	1.133	1.061	1.014	11.84
93)	T	Hexachlorobutadie	0.509	0.463	0.577	0.601	0.588	0.579	0.553	9.89
94)	T	Naphthalene	2.095	2.235	2.178	2.683	2.769	2.433	2.399	11.60
95)	T	1,2,3-Trichlorobe	0.825	0.800	0.948	1.060	1.036	0.962	0.939	11.35

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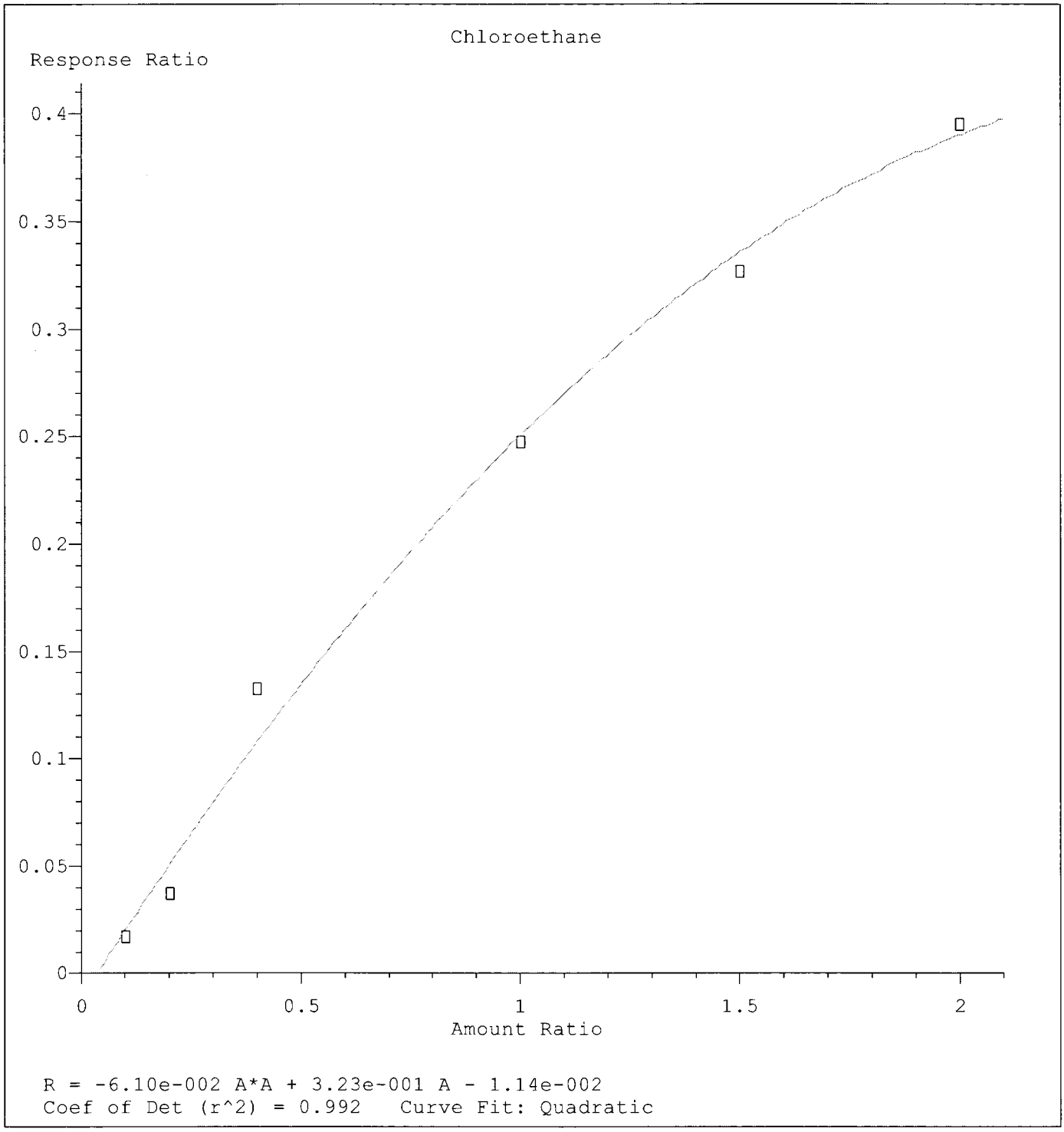

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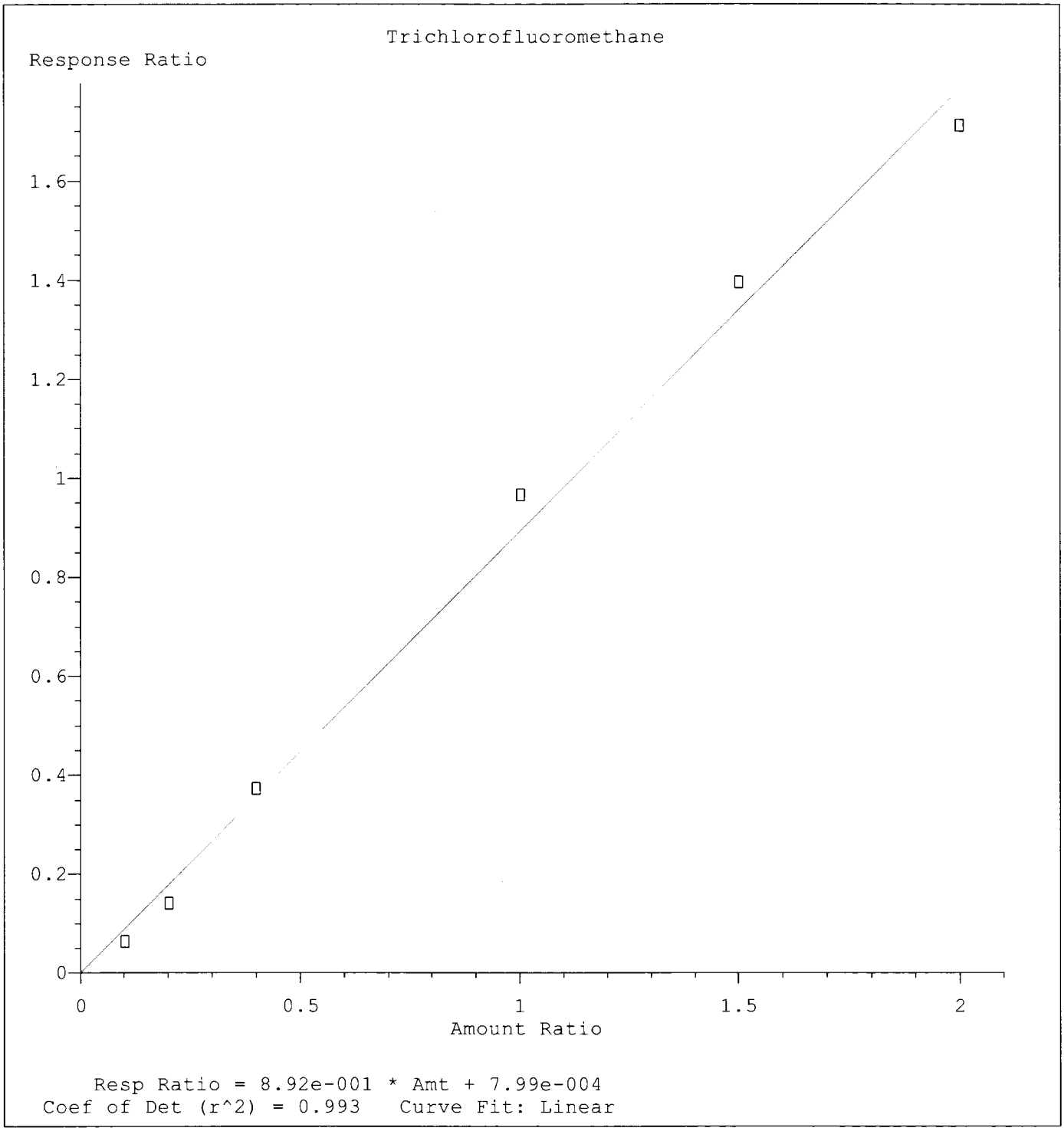
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012



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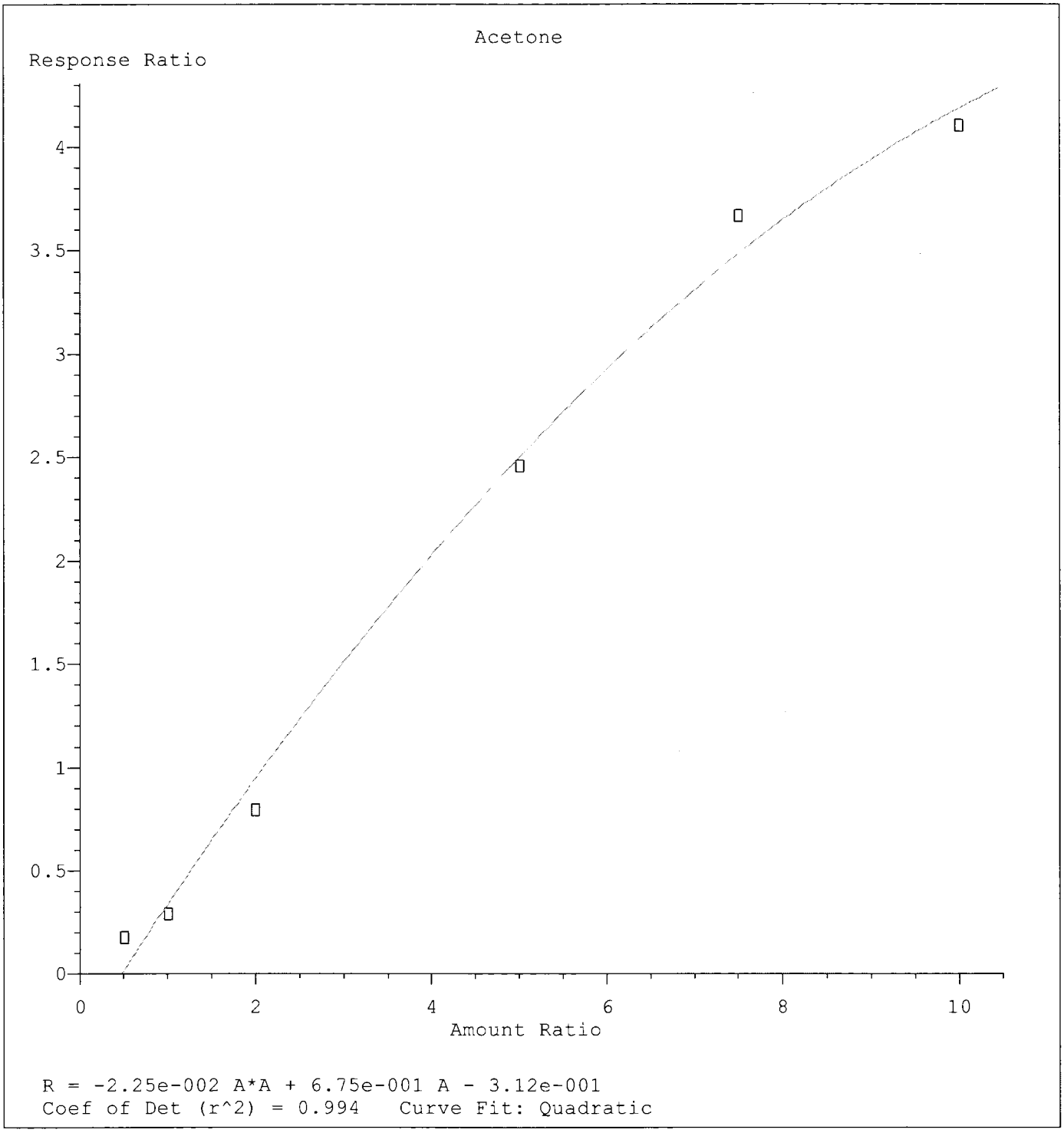

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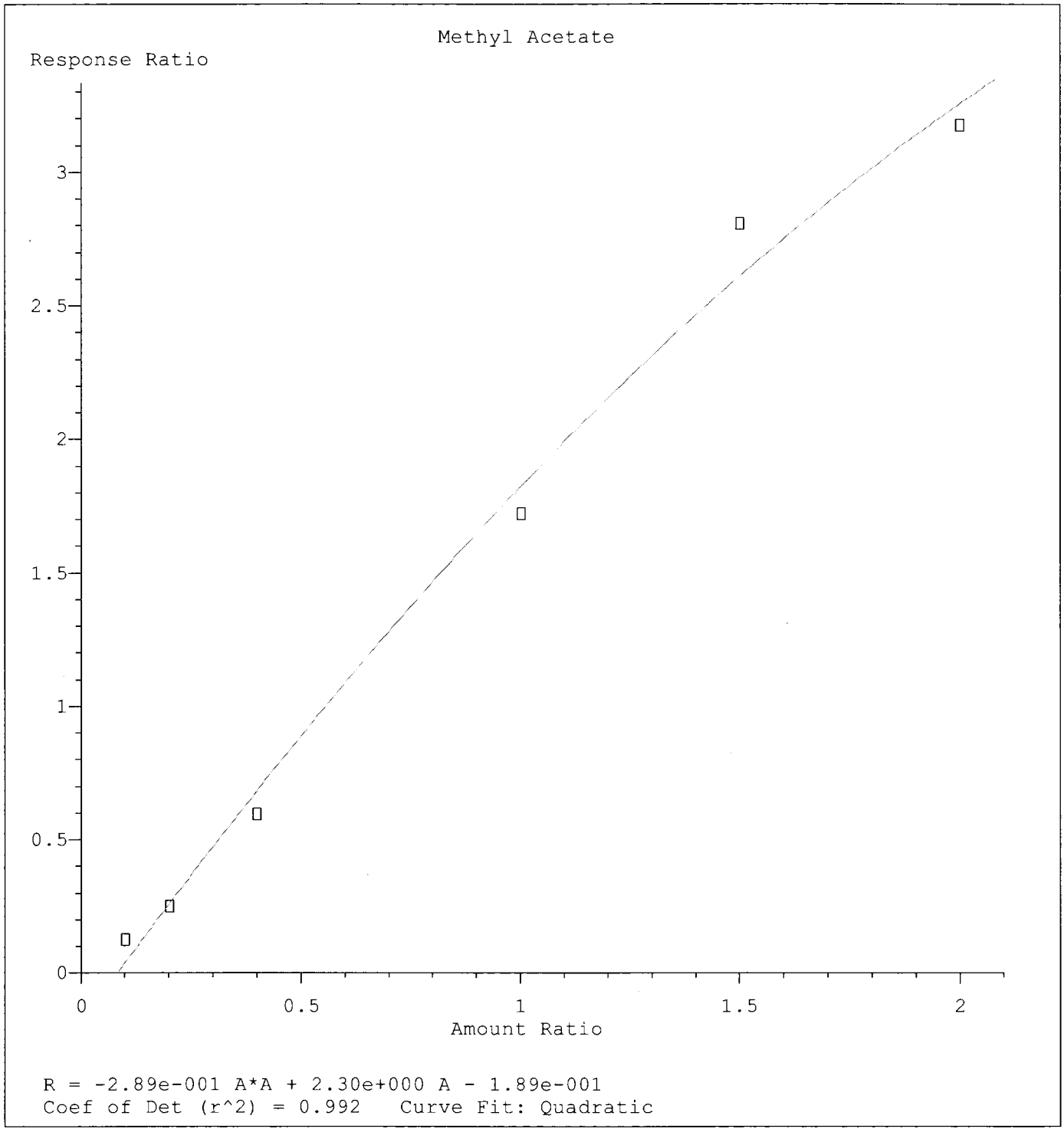

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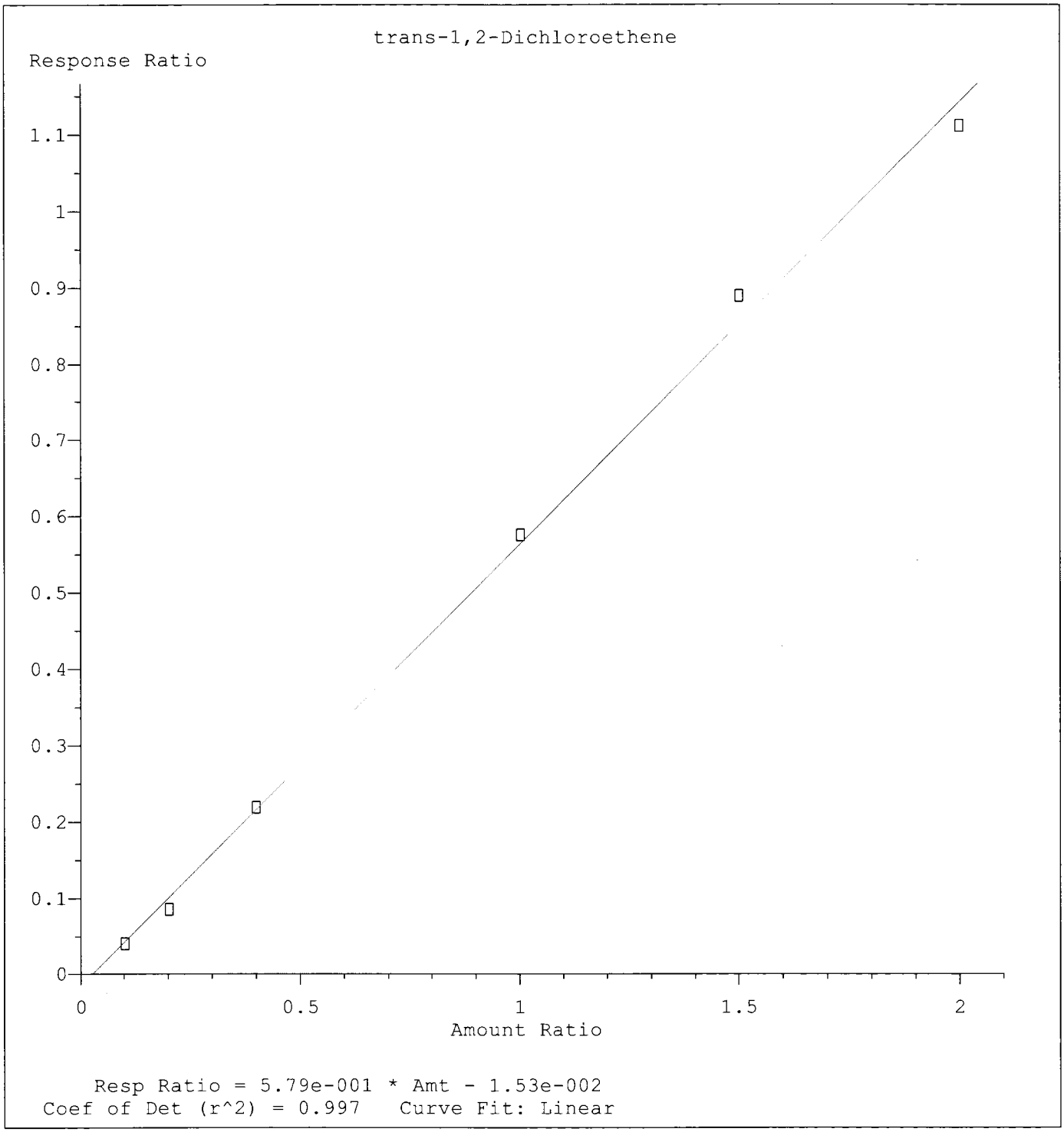

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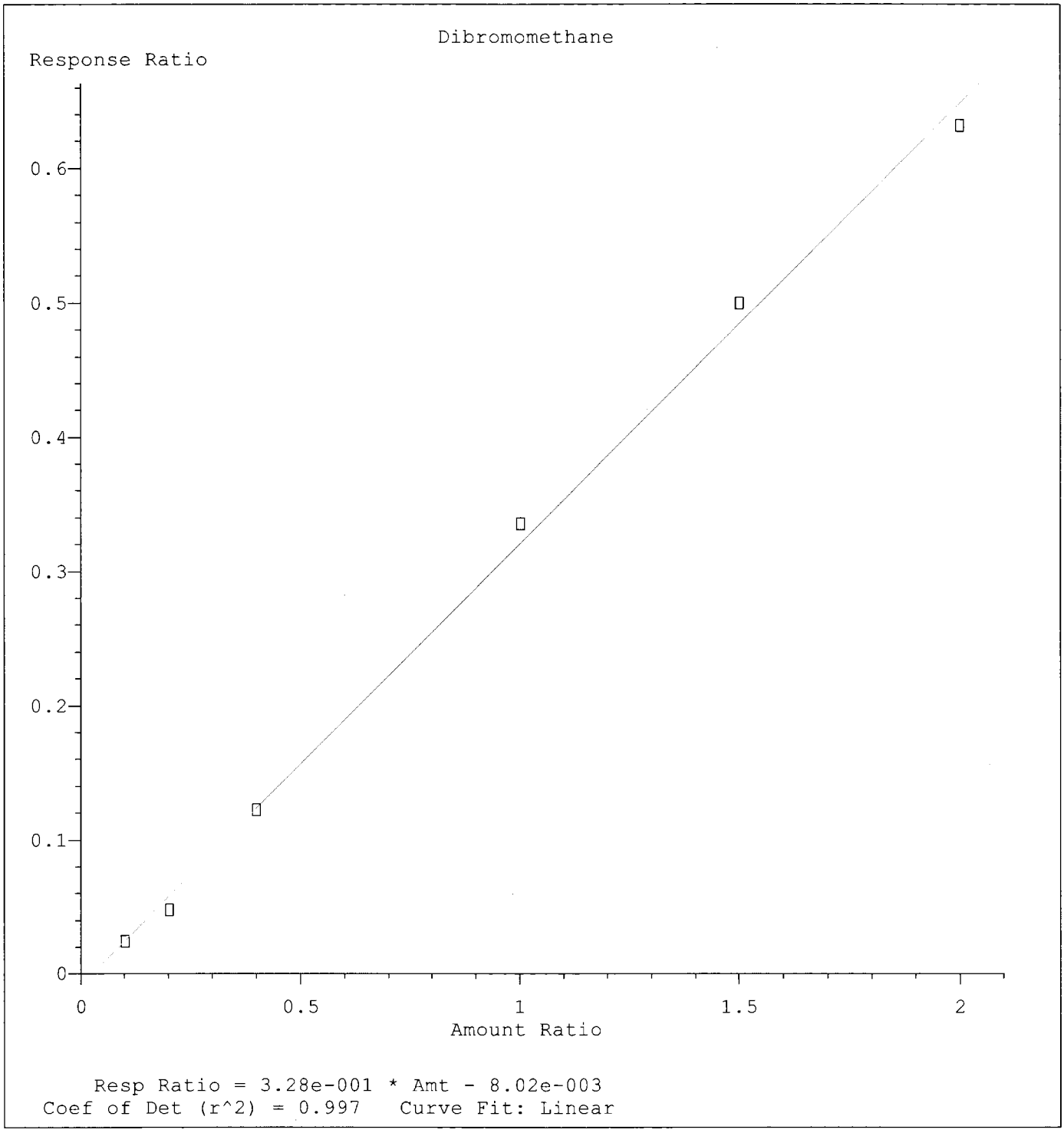

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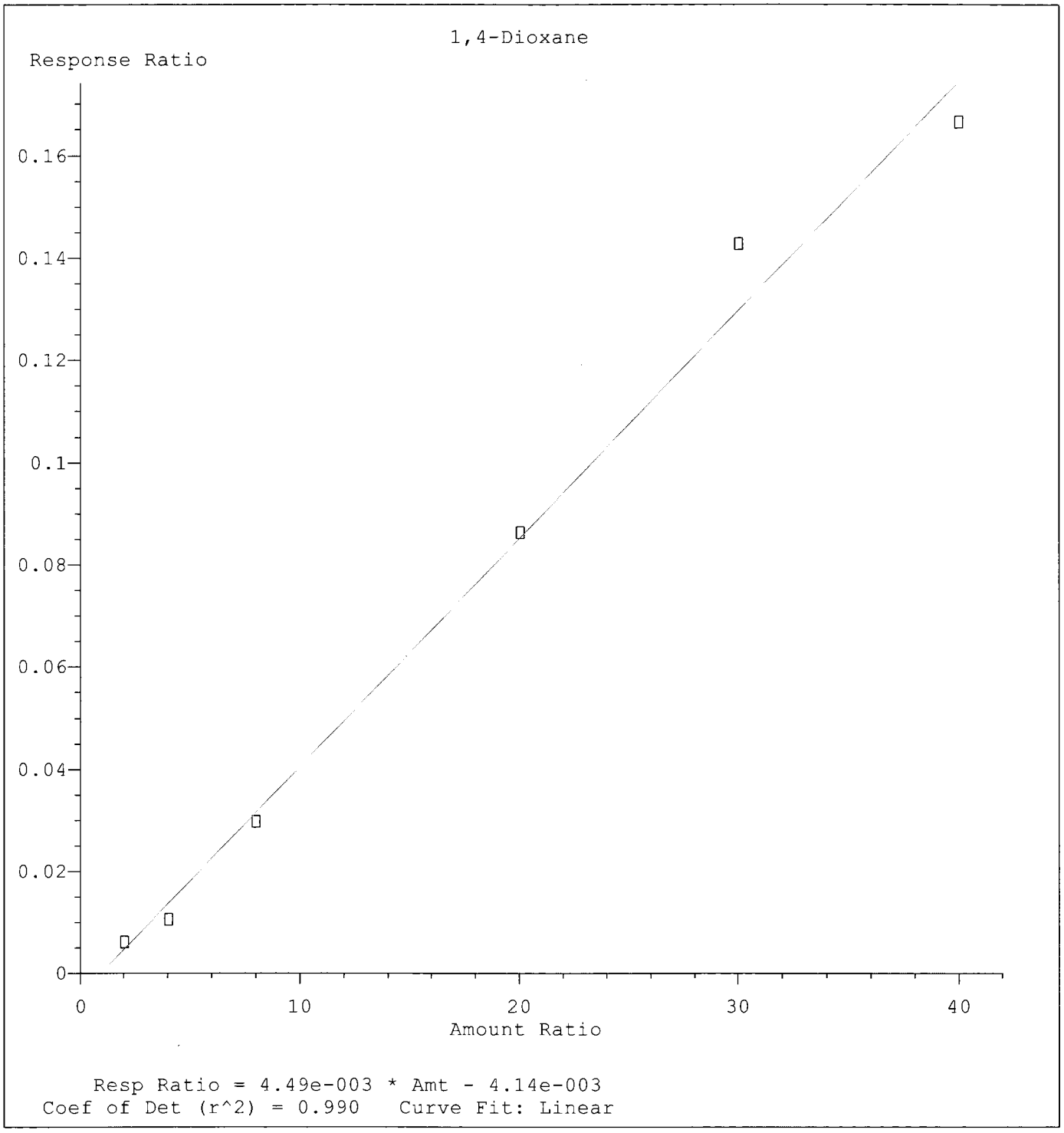

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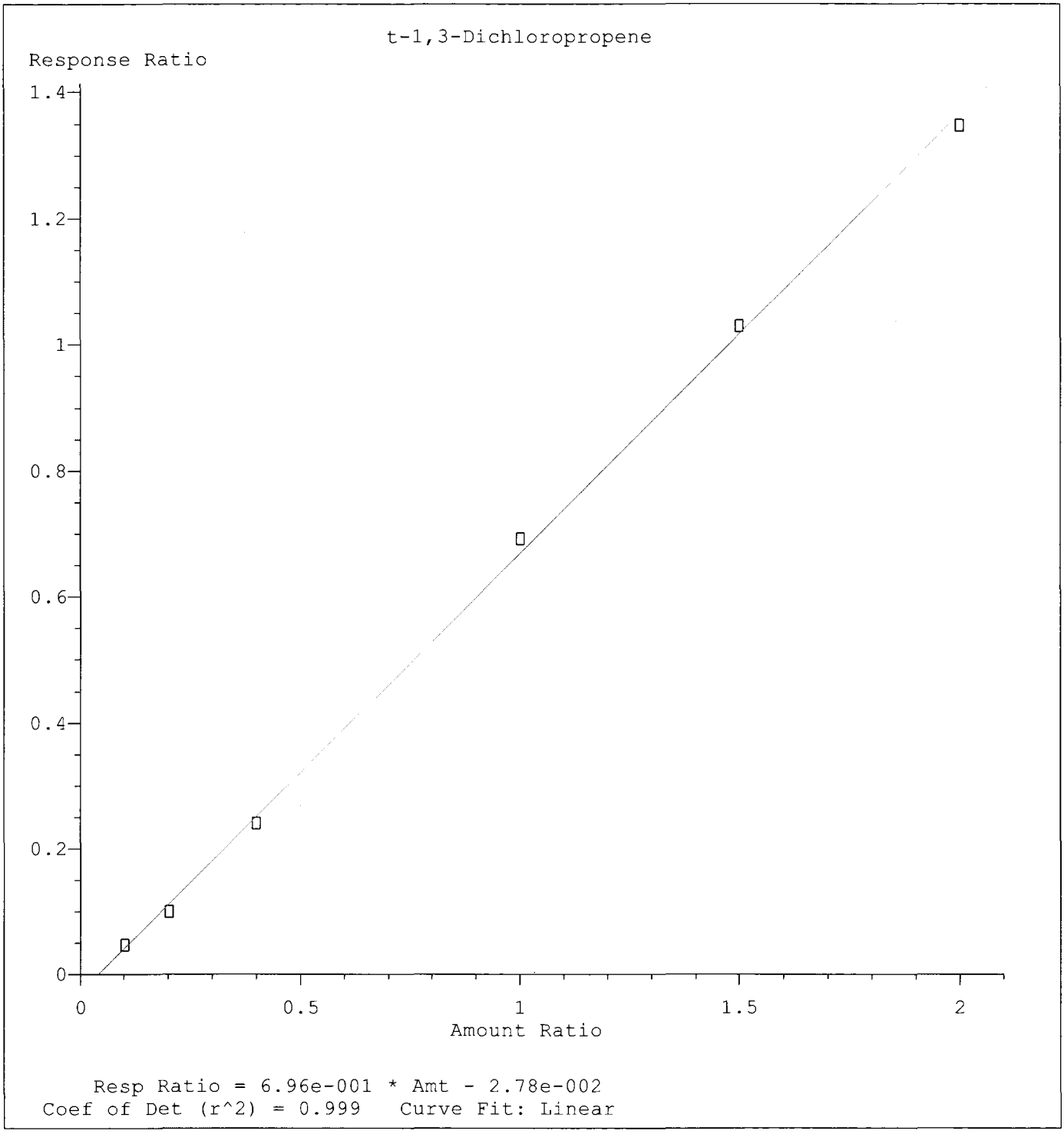

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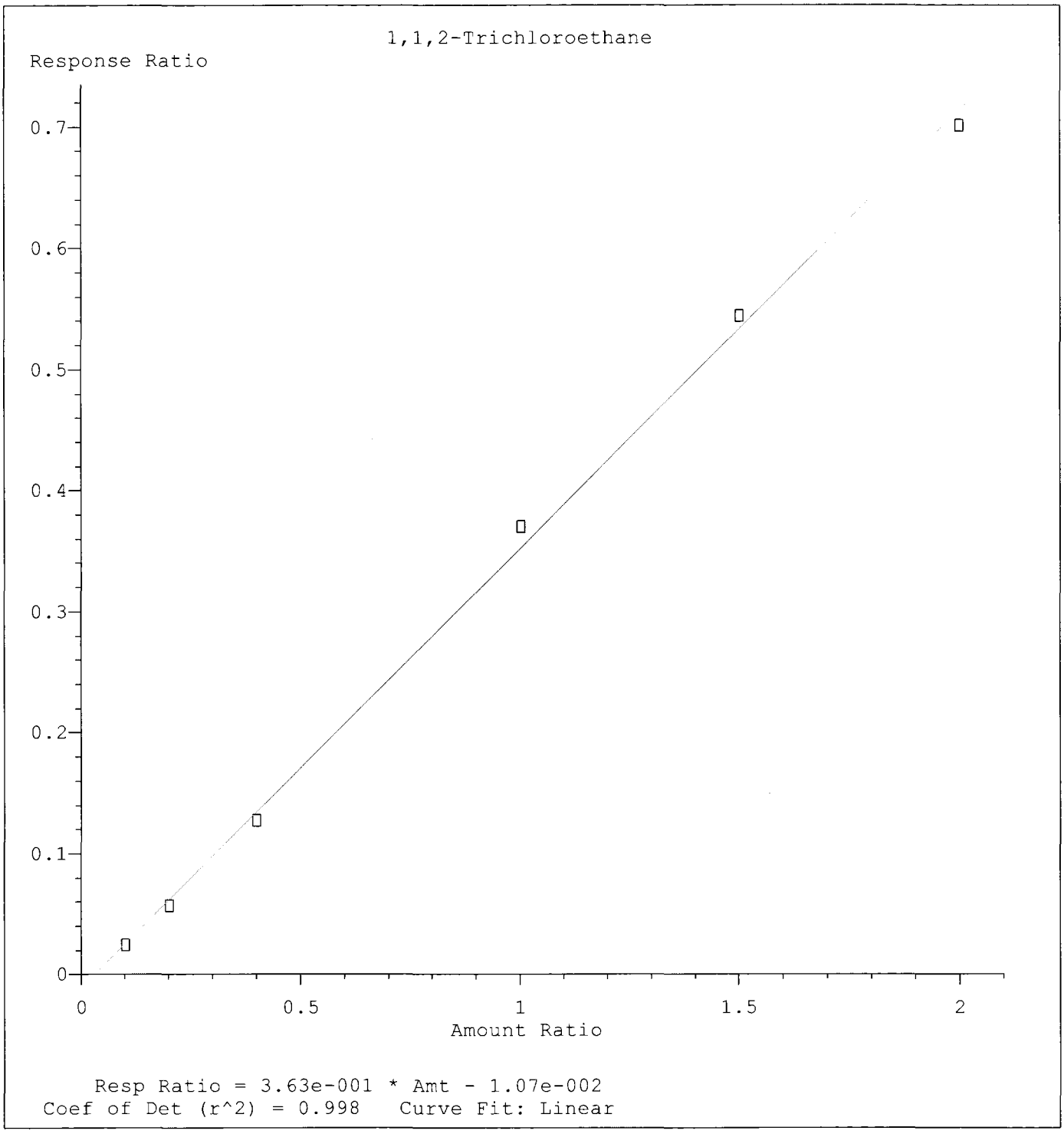

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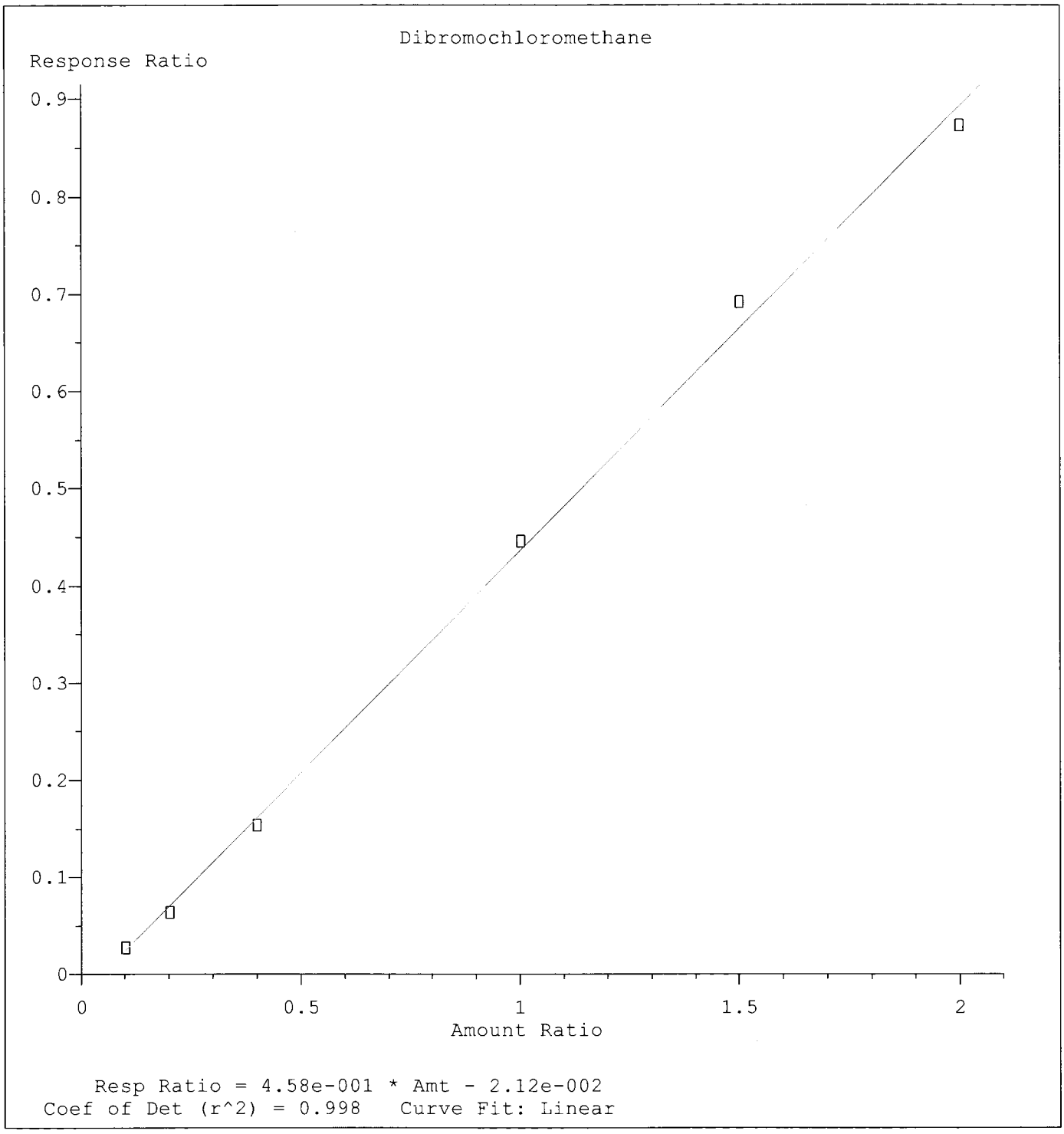

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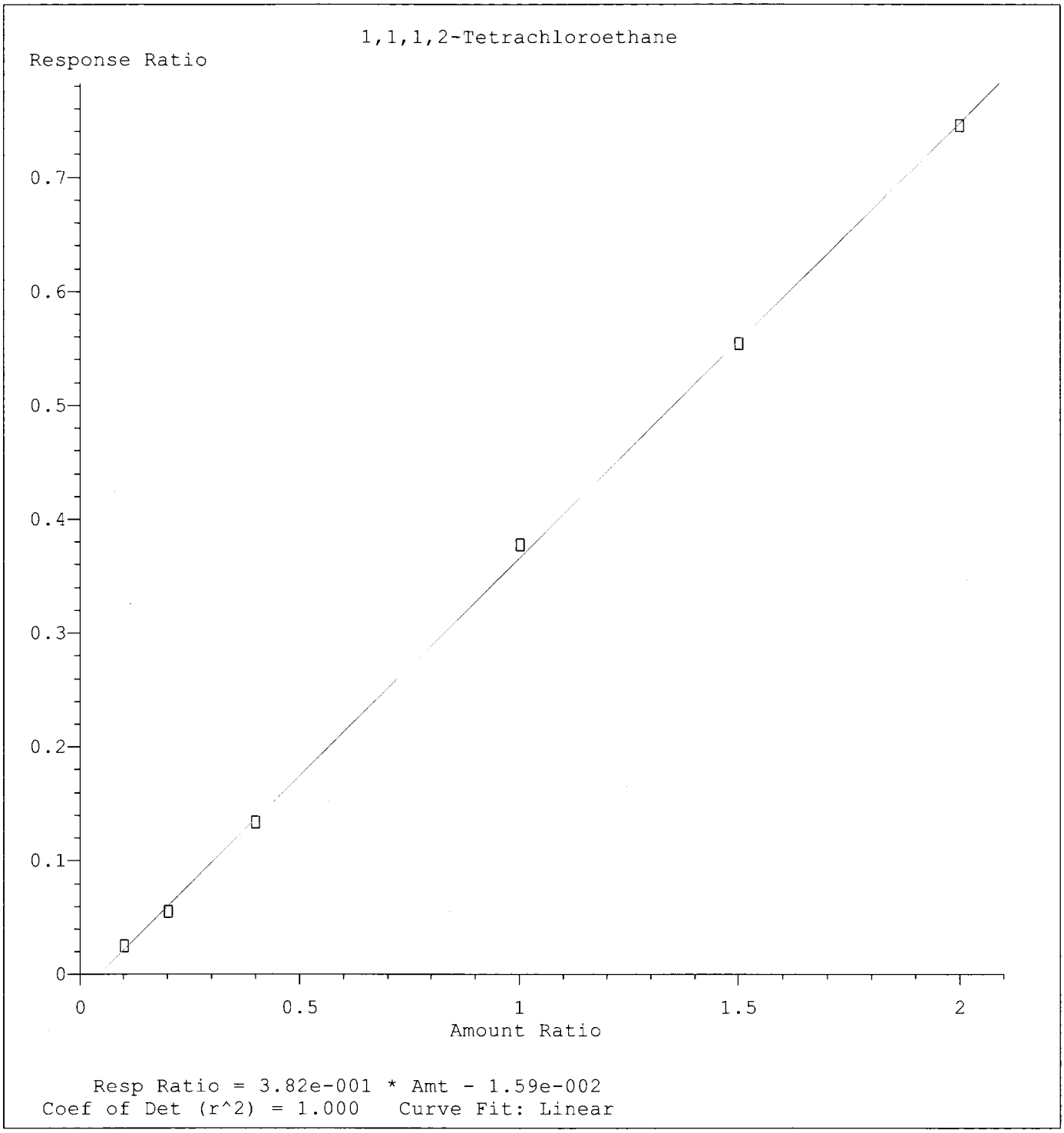

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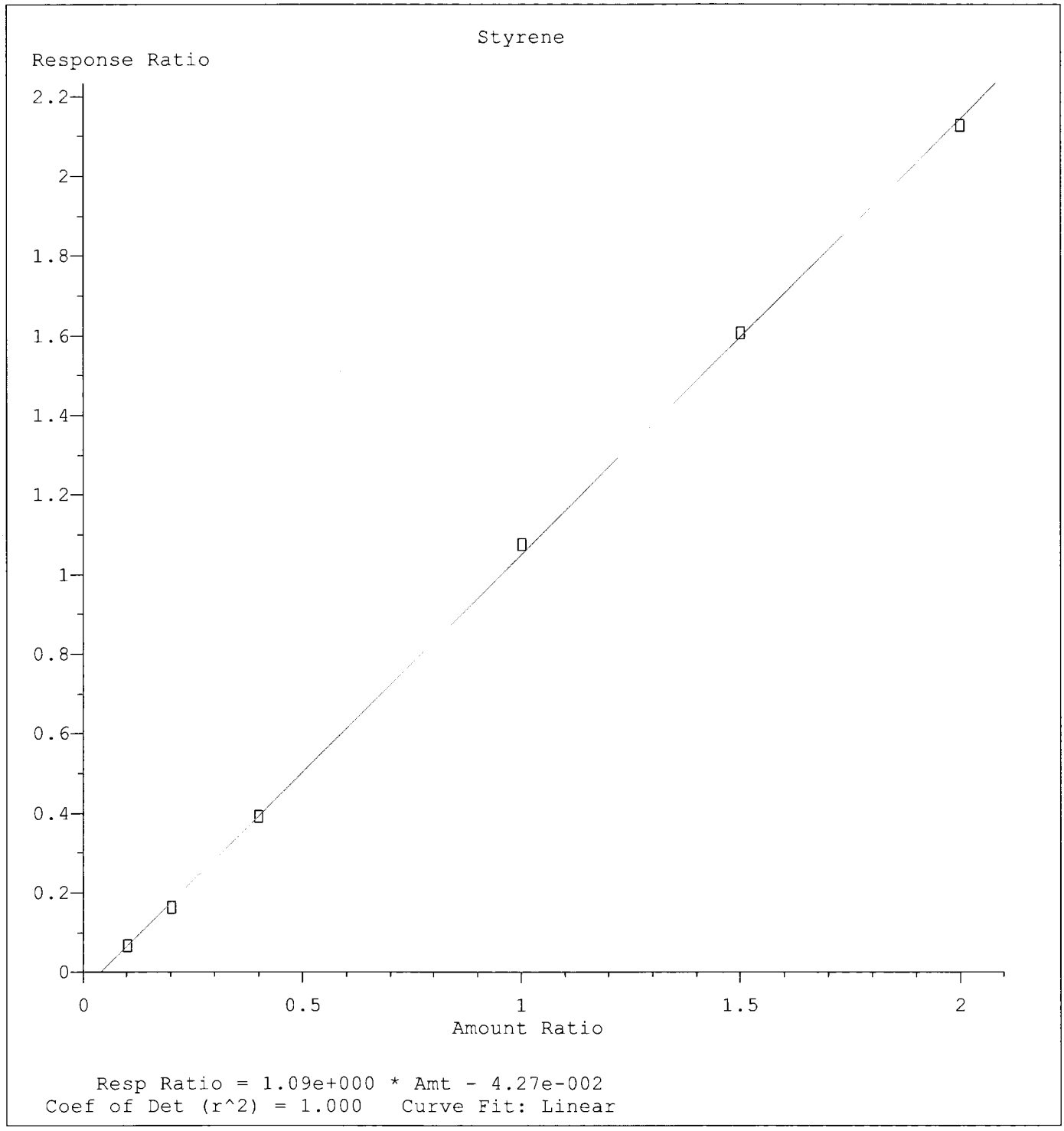

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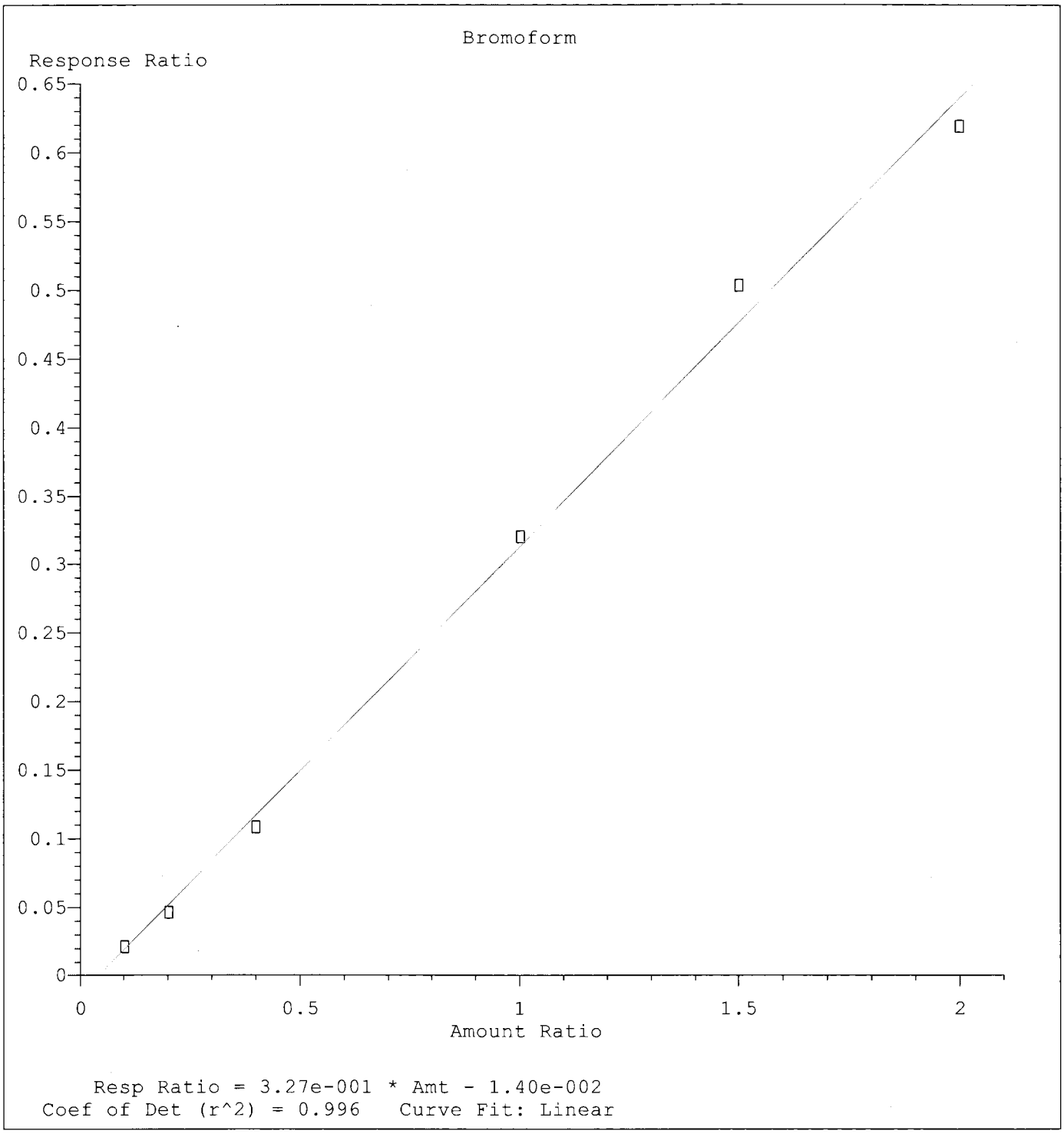

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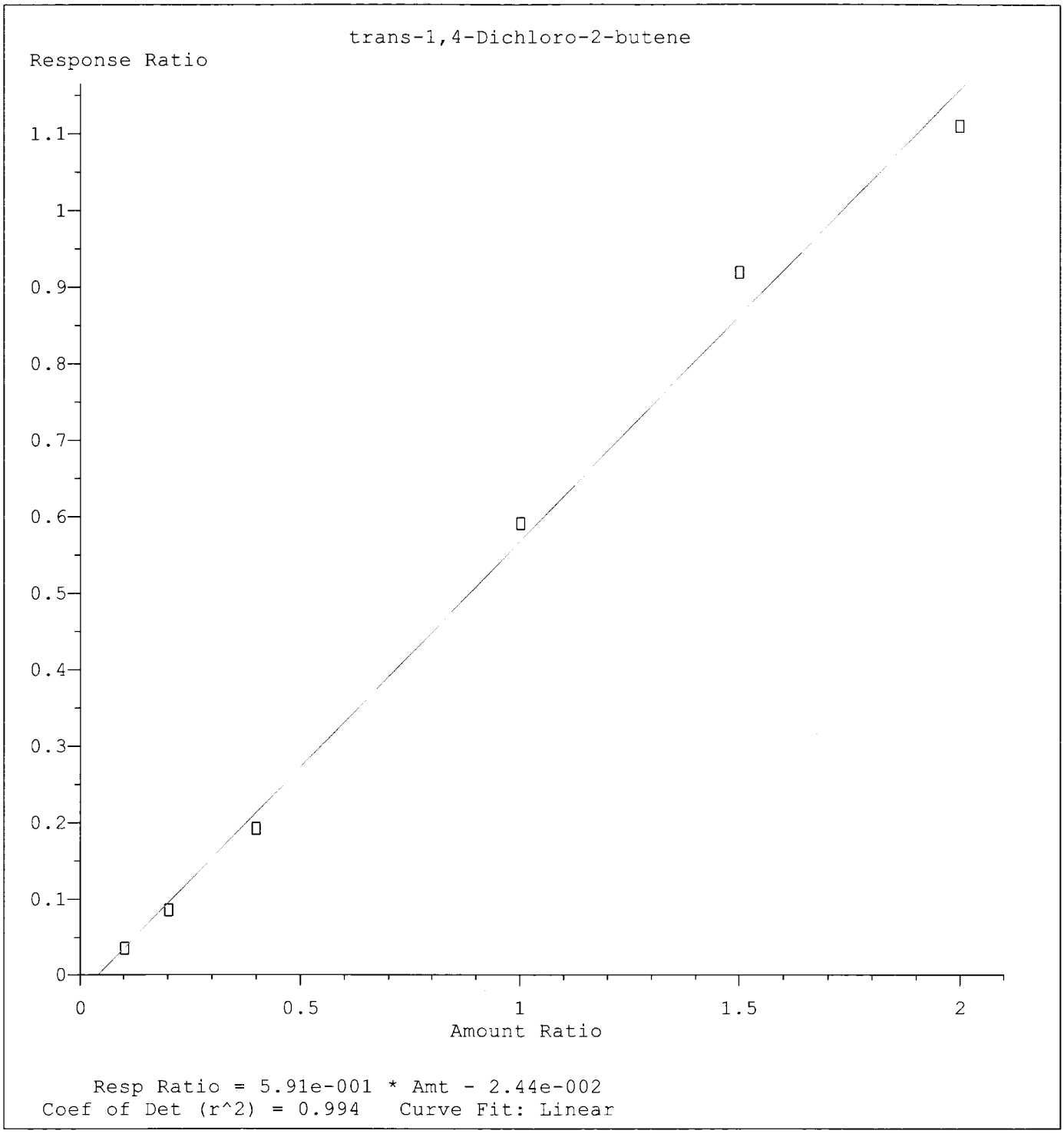

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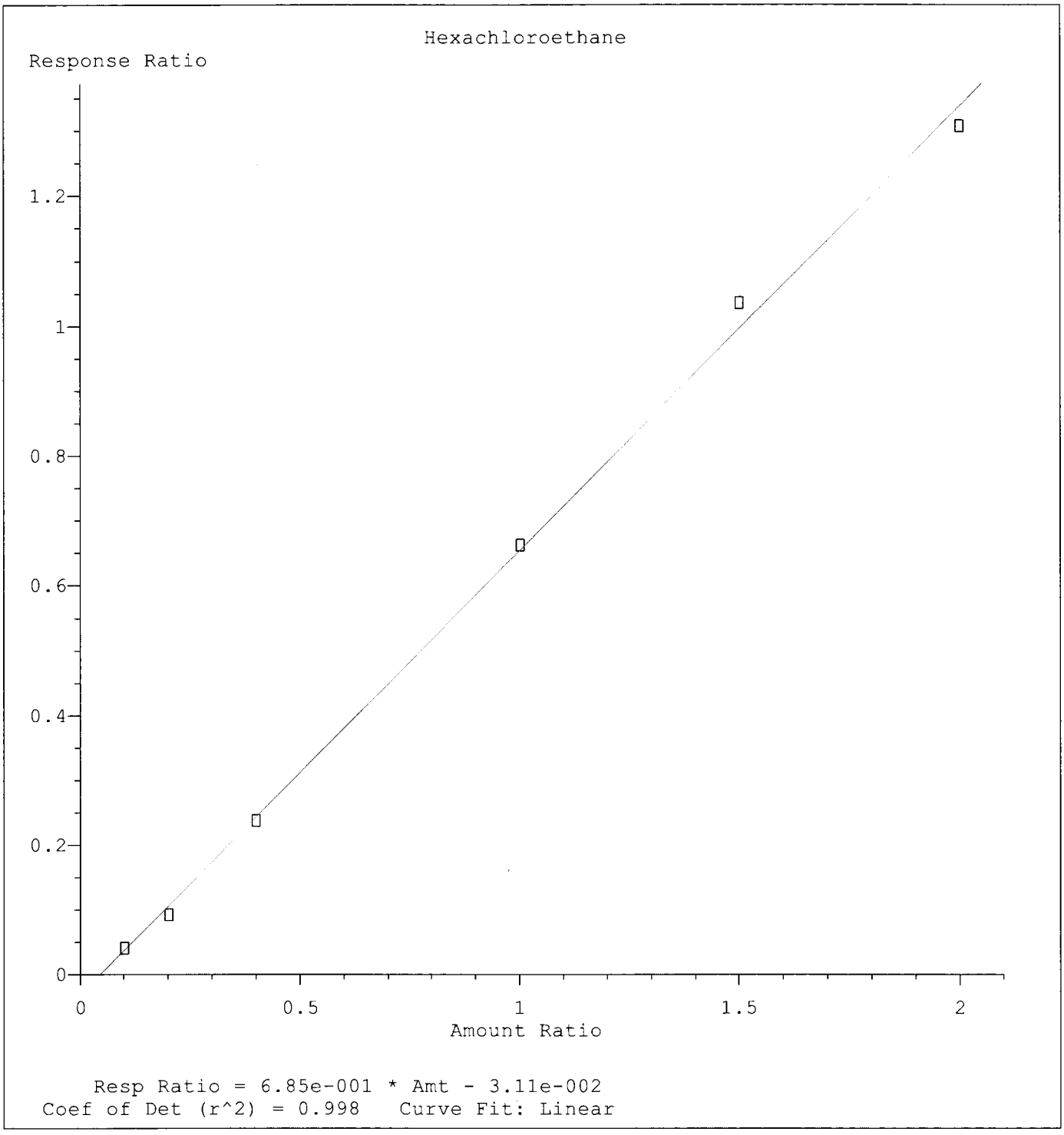

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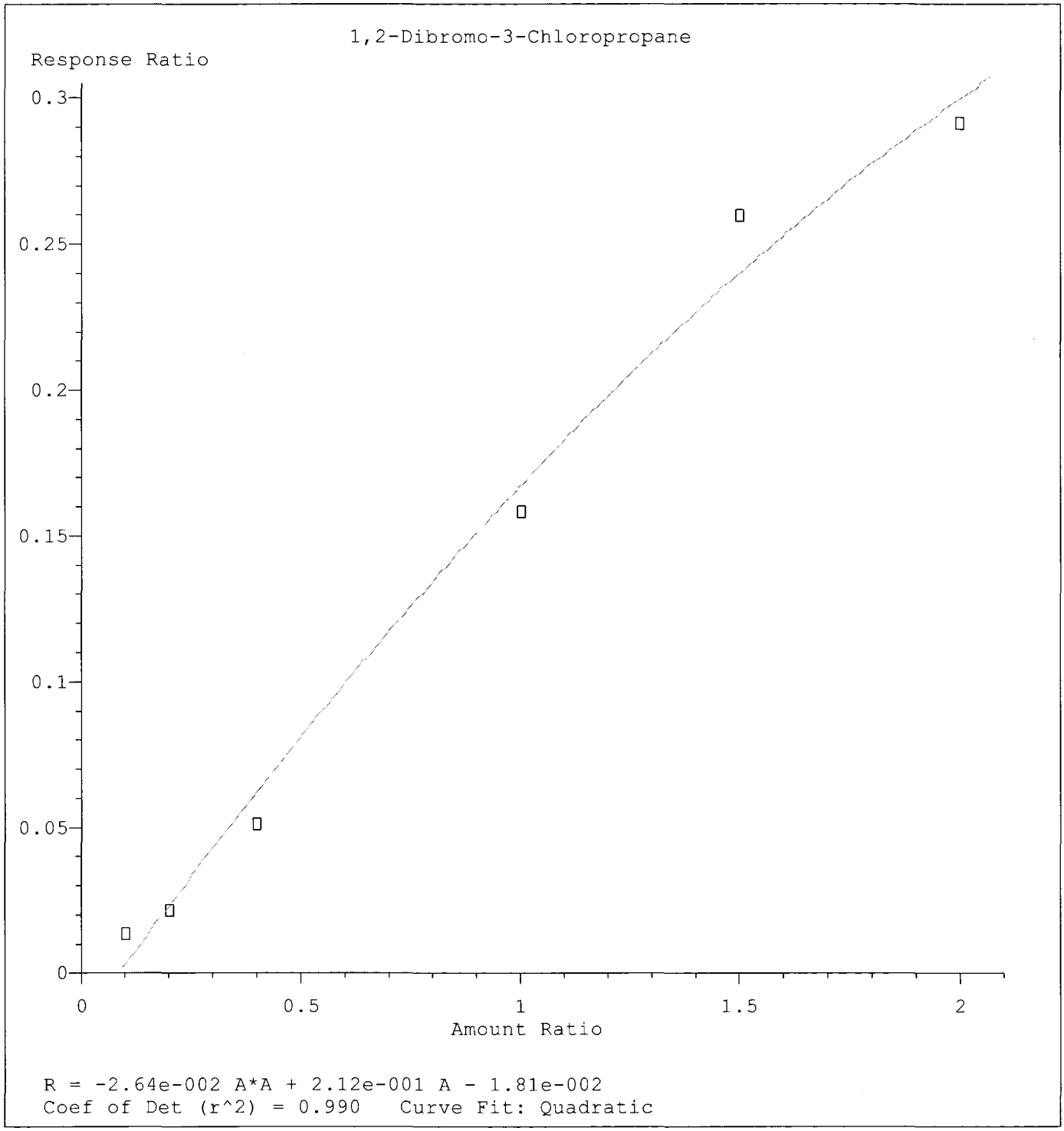


Method Name: W:\HPCHEM1\MSVOA_F\METHOD\82F010412S.M
Calibration Table Last Updated: Wed Jan 04 19:56:11 2012

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBF0104S1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VF030532.D Lab Sample ID: VBF0104S1

Date Analyzed: 01/04/2012 Time Analyzed: 20:32

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOA_F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSF0104S1	BSF0104S1	VF030533.D	01/04/2012
BSF0104S2	BSF0104S2	VF030534.D	01/04/2012
UBZ2-SO-28-11-12MS	C5135-17MS	VF030535.D	01/04/2012
UBZ2-SO-28-11-12MSD	C5135-18MSD	VF030536.D	01/04/2012
12SB28-000.5-01	C5164-02	VF030541.D	01/05/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S1	SDG No.:	C5164
Lab Sample ID:	VBF0104S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030532.D	1		01/04/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.65	5	ug/Kg
74-87-3	Chloromethane	2.5	U	0.86	5	ug/Kg
75-01-4	Vinyl Chloride	2.5	U	1.2	5	ug/Kg
74-83-9	Bromomethane	2.5	U	2.4	5	ug/Kg
75-00-3	Chloroethane	2.5	U	1.4	5	ug/Kg
75-69-4	Trichlorofluoromethane	2.5	U	1.3	5	ug/Kg
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	1.3	5	ug/Kg
75-35-4	1,1-Dichloroethene	2.5	U	1.5	5	ug/Kg
67-64-1	Acetone	12.5	U	3	25	ug/Kg
75-15-0	Carbon Disulfide	2.5	U	1.1	5	ug/Kg
1634-04-4	Methyl tert-butyl Ether	2.5	U	0.96	5	ug/Kg
79-20-9	Methyl Acetate	2.5	U	1.5	5	ug/Kg
75-09-2	Methylene Chloride	2.5	U	1.4	5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.69	5	ug/Kg
75-34-3	1,1-Dichloroethane	2.5	U	0.94	5	ug/Kg
110-82-7	Cyclohexane	2.5	U	1	5	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
56-23-5	Carbon Tetrachloride	2.5	U	0.99	5	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.89	5	ug/Kg
74-97-5	Bromochloromethane	2.5	U	0.79	5	ug/Kg
67-66-3	Chloroform	2.5	U	0.74	5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.5	U	0.88	5	ug/Kg
108-87-2	Methylcyclohexane	2.5	U	1.1	5	ug/Kg
71-43-2	Benzene	2.5	U	0.38	5	ug/Kg
107-06-2	1,2-Dichloroethane	2.5	U	0.64	5	ug/Kg
79-01-6	Trichloroethene	2.5	U	0.86	5	ug/Kg
78-87-5	1,2-Dichloropropane	2.5	U	0.26	5	ug/Kg
75-27-4	Bromodichloromethane	2.5	U	0.62	5	ug/Kg
108-10-1	4-Methyl-2-Pentanone	12.5	U	2.9	25	ug/Kg
108-88-3	Toluene	2.5	U	0.64	5	ug/Kg
10061-02-6	t-1,3-Dichloropropene	2.5	U	0.79	5	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBF0104S1	SDG No.:	C5164
Lab Sample ID:	VBF0104S1	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	0
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF030532.D	1		01/04/12	VF010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	2.5	U	0.72	5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.5	U	0.9	5	ug/Kg
591-78-6	2-Hexanone	12.5	U	3.9	25	ug/Kg
124-48-1	Dibromochloromethane	2.5	U	0.54	5	ug/Kg
106-93-4	1,2-Dibromoethane	2.5	U	0.64	5	ug/Kg
127-18-4	Tetrachloroethene	2.5	U	1	5	ug/Kg
108-90-7	Chlorobenzene	2.5	U	0.5	5	ug/Kg
100-41-4	Ethyl Benzene	2.5	U	0.62	5	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.72	10	ug/Kg
95-47-6	o-Xylene	2.5	U	0.68	5	ug/Kg
100-42-5	Styrene	2.5	U	0.45	5	ug/Kg
75-25-2	Bromoform	2.5	U	0.74	5	ug/Kg
98-82-8	Isopropylbenzene	2.5	U	0.48	5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.46	5	ug/Kg
541-73-1	1,3-Dichlorobenzene	2.5	U	0.37	5	ug/Kg
106-46-7	1,4-Dichlorobenzene	2.5	U	0.41	5	ug/Kg
95-50-1	1,2-Dichlorobenzene	2.5	U	0.62	5	ug/Kg
96-12-8	1,2-Dibromo-3-Chloropropane	2.5	U	0.87	5	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	2.5	U	0.7	5	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	2.5	U	0.5	5	ug/Kg
1330-20-7	Total Xylenes	7.5	U	1.4	15	ug/Kg
123-91-1	1,4-Dioxane	100	U	100	100	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.7		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	45.2		53 - 156	90%	SPK: 50
2037-26-5	Toluene-d8	45.2		85 - 115	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.4		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	167028	4.38			
540-36-3	1,4-Difluorobenzene	296168	5.12			
3114-55-4	Chlorobenzene-d5	260627	9.32			
3855-82-1	1,4-Dichlorobenzene-d4	129317	12.23			

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VG040001.D BFB Injection Date: 01/04/2012

Instrument ID: MSVOAG BFB Injection Time: 12:34

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.3
75	30.0 - 60.0% of mass 95	50.6
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	84
175	5.0 - 9.0% of mass 174	6.9 (8.2) 1
176	95.0 - 101.0% of mass 174	80.7 (96.2) 1
177	5.0 - 9.0% of mass 176	5.8 (7.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD001	1 PPB ICC	VG040002.D	01/04/2012	13:14
VSTD005	5 PPB ICC	VG040003.D	01/04/2012	13:43
VSTD020	20 PPB ICC	VG040004.D	01/04/2012	14:12
VSTD050	50 PPB ICC	VG040005.D	01/04/2012	14:41
VSTD100	100 PPB ICC	VG040006.D	01/04/2012	15:10
VSTD150	150 PPB ICC	VG040007.D	01/04/2012	15:39
VBG0104W2	VBG0104W2	VG040010.D	01/04/2012	17:55
BSG0104W1	BSG0104W1	VG040011.D	01/04/2012	18:24
BSG0104W2	BSG0104W2	VG040012.D	01/04/2012	18:53
RB-01-122911	C5164-23	VG040013.D	01/04/2012	19:22
TB-01-122911	C5164-01	VG040014.D	01/04/2012	19:52

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: MSVOAG Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) N Calibration Time(s): 13:14 15:39

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG040003.D RRF001 = VG040002.D RRF020 = VG040004.D
RRF050 = VG040005.D RRF100 = VG040006.D RRF150 = VG040007.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	$\overline{RRF}$	% RSD	
Dichlorodifluoromethane	0.487	0.441	0.541	0.618	0.583	0.497	0.528	12.4	
Chloromethane	0.426	0.447	0.443	0.530	0.494	0.434	0.462	8.9	
Vinyl Chloride	0.386	0.431	0.388	0.453	0.427	0.381	0.411	7.3	
Bromomethane	0.431	0.461	0.400	0.460	0.441	0.389	0.43	7	
Chloroethane	0.227	0.215	0.222	0.256	0.269	0.265	0.243	9.7	
Trichlorofluoromethane	0.988	1.056	0.962	1.114	1.008	0.883	1.002	7.9	
1,1,2-Trichlorotrifluoroethane	0.467	0.490	0.437	0.504	0.471	0.411	0.463	7.4	
1,1-Dichloroethene	0.450	0.484	0.435	0.511	0.475	0.404	0.46	8.3	
Acetone	0.142	0.196	0.130	0.154	0.133	0.110	0.144	20.2	r^2 ok
Carbon Disulfide	1.223	1.455	1.160	1.415	1.254	1.086	1.266	11.4	
Methyl tert-butyl Ether	1.266	1.435	1.279	1.547	1.311	1.148	1.331	10.6	
Methyl Acetate	0.668	0.766	0.594	0.728	0.622	0.572	0.658	11.7	
Methylene Chloride	0.482	0.597	0.436	0.547	0.480	0.421	0.494	13.5	
trans-1,2-Dichloroethene	0.481	0.620	0.453	0.575	0.487	0.435	0.508	14.3	
1,1-Dichloroethane	0.882	0.904	0.818	0.980	0.873	0.783	0.873	7.9	
Cyclohexane	0.510	0.650	0.469	0.524	0.501	0.448	0.517	13.7	
2-Butanone	0.223	0.280	0.206	0.260	0.220	0.189	0.23	14.8	
Carbon Tetrachloride	0.623	0.752	0.589	0.681	0.595	0.512	0.625	13.2	
cis-1,2-Dichloroethene	0.566	0.544	0.542	0.641	0.565	0.509	0.561	7.9	
Bromochloromethane	0.448	0.581	0.467	0.350	0.339	0.334	0.42	23.2	r^2 ok
Chloroform	1.164	1.245	1.116	1.270	1.104	0.999	1.149	8.7	
1,1,1-Trichloroethane	0.929	1.083	0.926	1.098	0.940	0.815	0.965	11.1	
Methylcyclohexane	0.429	0.419	0.401	0.438	0.403	0.347	0.406	7.9	
Benzene	0.988	1.225	0.929	1.123	0.980	0.884	1.022	12.5	
1,2-Dichloroethane	0.707	0.743	0.631	0.721	0.629	0.543	0.662	11.3	
Trichloroethene	0.370	0.435	0.363	0.397	0.354	0.324	0.374	10.2	
1,2-Dichloropropane	0.249	0.357	0.240	0.273	0.241	0.214	0.262	19.1	r^2 ok
Bromodichloromethane	0.560	0.636	0.575	0.645	0.559	0.506	0.58	9.1	
4-Methyl-2-Pentanone	0.286	0.316	0.266	0.298	0.237	0.200	0.267	16	
Toluene	0.684	0.770	0.648	0.755	0.640	0.573	0.678	11	
t-1,3-Dichloropropene	0.482	0.465	0.494	0.584	0.511	0.456	0.499	9.3	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: MSVOAG Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) N Calibration Time(s): 13:14 15:39

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG040003.D RRF001 = VG040002.D RRF020 = VG040004.D
RRF050 = VG040005.D RRF100 = VG040006.D RRF150 = VG040007.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	RRF	% RSD
cis-1,3-Dichloropropene	0.441	0.448	0.431	0.522	0.449	0.405	0.449	8.7
1,1,2-Trichloroethane	0.283	0.320	0.283	0.335	0.280	0.248	0.292	10.7
2-Hexanone	0.220	0.241	0.191	0.216	0.167	0.142	0.196	18.7
Dibromochloromethane	0.362	0.363	0.368	0.462	0.412	0.351	0.386	11.1
1,2-Dibromoethane	0.360	0.383	0.331	0.400	0.346	0.313	0.356	9
Tetrachloroethene	0.407	0.377	0.374	0.426	0.401	0.358	0.391	6.4
Chlorobenzene	0.987	1.179	0.908	1.051	0.892	0.834	0.975	12.9
Ethyl Benzene	1.720	1.916	1.639	1.764	1.514	1.293	1.641	13.2
m/p-Xylenes	0.654	0.685	0.609	0.674	0.572	0.547	0.624	9
o-Xylene	0.670	0.593	0.645	0.696	0.608	0.553	0.628	8.4
Styrene	1.033	1.140	1.029	1.121	1.003	0.866	1.032	9.5
Bromoform	0.234	0.231	0.250	0.310	0.272	0.253	0.258	11.5
Isopropylbenzene	3.379	3.821	3.244	3.662	3.149	2.760	3.336	11.4
1,1,2,2-Tetrachloroethane	0.725	0.844	0.724	0.793	0.678	0.597	0.727	11.9
1,3-Dichlorobenzene	1.501	1.752	1.555	1.693	1.495	1.337	1.556	9.6
1,4-Dichlorobenzene	1.441	1.633	1.472	1.603	1.462	1.290	1.484	8.3
1,2-Dichlorobenzene	1.477	1.622	1.345	1.509	1.357	1.198	1.418	10.5
1,2-Dibromo-3-Chloropropane	0.122	0.126	0.116	0.150	0.133	0.124	0.129	9.4
1,2,4-Trichlorobenzene	0.839	1.055	0.875	1.012	0.877	0.799	0.91	11.1
1,2,3-Trichlorobenzene	0.727	0.887	0.816	0.895	0.821	0.740	0.814	8.6
1,2-Dichloroethane-d4	0.829	1.193	1.002	0.924	0.675	0.650	0.879	23.5
Dibromofluoromethane	0.515	0.770	0.613	0.591	0.422	0.407	0.553	24.6
Toluene-d8	1.074	1.741	1.297	1.207	0.908	0.854	1.18	27.3
4-Bromofluorobenzene	0.508	0.897	0.627	0.580	0.426	0.400	0.573	31.6
1,4-Dioxane	0.002	0.002	0.002	0.002	0.002	0.002	0.002	13.1

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Method Path : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\
Method File : 82G010412W.M
Title : SW846 8260
Last Update : Thu Jan 05 02:44:39 2012
Response Via : Initial Calibration

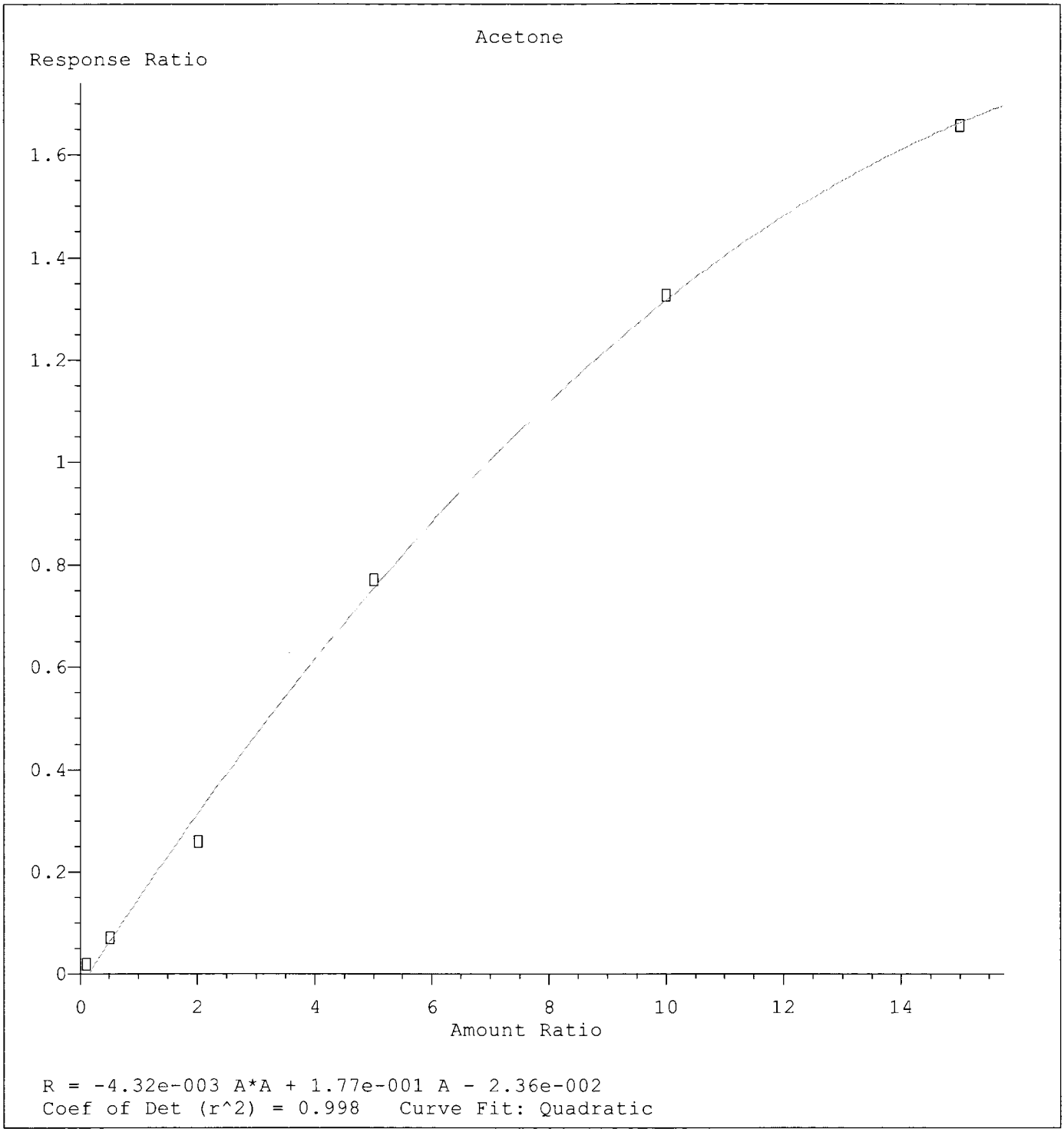
Calibration Files
1 =VG040002.D 5 =VG040003.D 20 =VG040004.D 50 =VG040005.D 100 =VG040006.D
150 =VG040007.D

		Compound	1	5	20	50	100	150	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------							
2)	T	Dichlorodifluo...	0.441	0.487	0.541	0.618	0.588	0.497	0.529	12.54
3)	P	Chloromethane	0.479	0.426	0.443	0.530	0.497	0.435	0.469	8.71
4)	C	Vinyl Chloride	0.431	0.386	0.388	0.453	0.427	0.381	0.411	7.30#
5)	T	Bromomethane	0.459	0.431	0.400	0.460	0.440	0.390	0.430	6.84
6)	T	Chloroethane	0.215	0.227	0.222	0.256	0.269	0.265	0.243	9.74
7)	T	Trichlorofluor...	1.056	0.988	0.962	1.114	1.006	0.885	1.002	7.86
8)	T	Diethyl Ether	0.296	0.196	0.207	0.249	0.231	0.204	0.231	16.32
9)	T	1,1,2-Trichlor...	0.490	0.467	0.437	0.504	0.472	0.413	0.464	7.23
10)	T	Methyl Iodide	1.295	1.119	1.056	1.256	1.154	0.985	1.144	10.26
11)	T	Tert butyl alc...	0.060	0.044	0.041	0.052	0.044	0.038	0.046	17.53
12)	CM	1,1-Dichloroet...	0.484	0.450	0.436	0.511	0.475	0.404	0.460	8.28#
13)	T	Acrolein	0.077	0.040	0.030	0.030	0.025	0.025	0.038	52.61
14)	T	Allyl chloride	0.708	0.652	0.612	0.742	0.652	0.582	0.658	8.99
15)	T	Acrylonitrile	0.118	0.097	0.090	0.110	0.101	0.089	0.101	11.27
16)	T	Acetone	0.196	0.142	0.130	0.154	0.133	0.110	0.144	20.22
17)	T	Carbon Disulfide	1.455	1.223	1.160	1.415	1.258	1.086	1.266	11.35
18)	T	Methyl Acetate	0.769	0.668	0.594	0.728	0.622	0.572	0.659	11.80
19)	T	Methyl tert-bu...	1.435	1.266	1.281	1.547	1.311	1.148	1.331	10.54
20)	T	Methylene Chlo...	0.597	0.482	0.436	0.547	0.480	0.423	0.494	13.45
21)	T	trans-1,2-Dich...	0.620	0.481	0.453	0.575	0.487	0.435	0.508	14.28
22)	T	Diisopropyl ether	1.555	1.376	1.300	1.609	1.374	1.216	1.405	10.68
23)	T	Vinyl Acetate	0.603	0.547	0.534	0.637	0.531	0.446	0.550	11.98
24)	P	1,1-Dichloroet...	0.904	0.882	0.818	0.980	0.873	0.783	0.873	7.86
25)	T	2-Butanone	0.280	0.223	0.206	0.261	0.220	0.189	0.230	14.90
26)	T	2,2-Dichloropr...	0.986	0.723	0.696	0.763	0.655	0.569	0.732	19.23
27)	T	cis-1,2-Dichlo...	0.544	0.566	0.542	0.641	0.565	0.509	0.561	7.86
28)	T	Bromochloromet...	0.581	0.448	0.467	0.350	0.339	0.334	0.420	23.25
29)	C	Chloroform	1.245	1.164	1.117	1.270	1.105	0.997	1.150	8.69#
30)	T	Cyclohexane	0.650	0.510	0.469	0.524	0.501	0.448	0.517	13.67
31)	T	1,1,1-Trichlor...	1.083	0.929	0.926	1.098	0.940	0.815	0.965	11.12
32)	S	1,2-Dichloroet...	1.193	0.829	1.002	0.924	0.675	0.650	0.879	23.46
33)	I	1,4-Difluorobenzene	----------ISTD----------							
34)	S	Dibromofluorom...	0.770	0.515	0.613	0.591	0.422	0.407	0.553	24.57
35)	T	1,1-Dichloropr...	0.678	0.544	0.508	0.587	0.519	0.455	0.549	14.00
36)	T	Ethyl Acetate	0.458	0.365	0.331	0.382	0.322	0.293	0.359	16.20
37)	T	Carbon Tetrach...	0.752	0.623	0.589	0.681	0.595	0.517	0.626	13.00
38)	T	Methylcyclohexane	0.419	0.429	0.401	0.438	0.403	0.347	0.406	7.94
39)	TM	Benzene	1.225	0.988	0.929	1.123	0.980	0.884	1.022	12.56
40)	T	Methacrylonitrile	0.339	0.196	0.164	0.202	0.166	0.152	0.203	34.14
41)	TM	1,2-Dichloroet...	0.743	0.707	0.639	0.720	0.629	0.543	0.663	11.22
42)	T	Isopropyl Acetate	0.662	0.612	0.530	0.592	0.500	0.448	0.557	14.17
43)	TM	Trichloroethene	0.435	0.370	0.363	0.397	0.354	0.324	0.374	10.26
44)	C	1,2-Dichloropr...	0.363	0.249	0.240	0.273	0.241	0.214	0.263	19.88#
45)	T	Dibromomethane	0.331	0.278	0.277	0.305	0.263	0.228	0.280	12.52
46)	T	Bromodichlorom...	0.636	0.560	0.575	0.645	0.559	0.506	0.580	9.06
47)	T	Methyl methacr...	0.298	0.241	0.267	0.311	0.261	0.236	0.269	11.20
48)	T	1,4-Dioxane	0.001	0.002	0.002	0.002	0.002	0.002	0.002	23.44
49)	S	Toluene-d8	1.741	1.074	1.297	1.208	0.908	0.854	1.180	27.32
50)	T	4-Methyl-2-Pen...	0.316	0.288	0.266	0.298	0.238	0.200	0.268	15.95
51)	CM	Toluene	0.770	0.684	0.648	0.755	0.641	0.573	0.678	10.95#
52)	T	t-1,3-Dichloro...	0.465	0.482	0.494	0.584	0.511	0.457	0.499	9.25

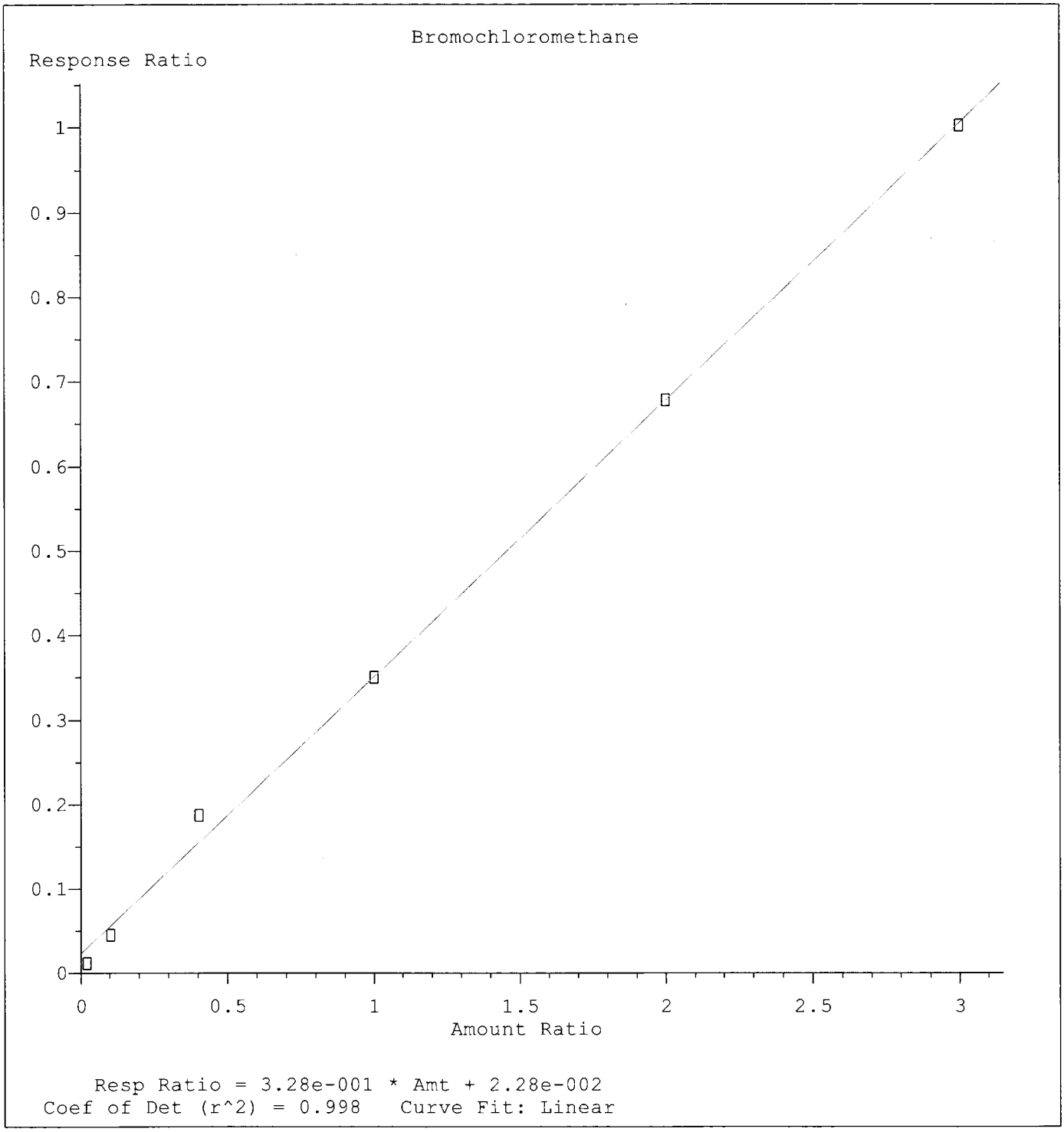
Method Path : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\
Method File : 82G010412W.M
Title : SW846 8260

53)	T	cis-1,3-Dichlo...	0.448	0.441	0.431	0.522	0.449	0.405	0.449	8.70
54)	T	1,1,2-Trichlor...	0.320	0.283	0.283	0.335	0.280	0.248	0.292	10.74
55)	T	Ethyl methacry...	0.321	0.339	0.333	0.410	0.350	0.311	0.344	10.22
56)	T	1,3-Dichloropr...	0.532	0.545	0.502	0.566	0.494	0.419	0.510	10.13
57)	T	2-Chloroethyl ...	0.184	0.157	0.139	0.157	0.124	0.113	0.146	17.64
58)	T	2-Hexanone	0.241	0.202	0.191	0.216	0.167	0.142	0.193	18.14
59)	T	Dibromochlorom...	0.363	0.362	0.367	0.462	0.412	0.351	0.386	11.04
60)	T	1,2-Dibromoethane	0.383	0.360	0.331	0.400	0.346	0.313	0.356	9.04
61)	S	4-Bromofluorob...	0.897	0.508	0.627	0.580	0.426	0.400	0.573	31.64
62)	I	Chlorobenzene-d5	----------ISTD----------							
63)	T	Tetrachloroethene	0.377	0.407	0.374	0.426	0.401	0.358	0.391	6.37
64)	PM	Chlorobenzene	1.179	0.987	0.908	1.051	0.894	0.833	0.976	12.87
65)	T	1,1,1,2-Tetrac...	0.438	0.408	0.380	0.431	0.377	0.346	0.397	8.91
66)	C	Ethyl Benzene	1.916	1.720	1.641	1.764	1.514	1.293	1.641	13.18#
67)	T	m/p-Xylenes	0.685	0.654	0.609	0.675	0.572	0.549	0.624	9.00
68)	T	o-Xylene	0.593	0.670	0.645	0.696	0.608	0.553	0.628	8.42
69)	T	Styrene	1.140	1.033	1.029	1.121	1.003	0.866	1.032	9.48
70)	P	Bromoform	0.231	0.234	0.250	0.310	0.272	0.253	0.258	11.47
71)	I	1,4-Dichlorobenzen...	----------ISTD----------							
72)	T	Isopropylbenzene	3.821	3.379	3.244	3.666	3.143	2.755	3.335	11.45
73)	T	N-amyl acetate	1.292	1.096	1.122	1.362	1.120	0.971	1.161	12.24
74)	P	1,1,2,2-Tetrac...	0.844	0.725	0.724	0.793	0.678	0.597	0.727	11.88
75)	T	1,2,3-Trichlor...	0.606	0.618	0.599	0.701	0.623	0.540	0.615	8.42
76)	T	Bromobenzene	1.113	0.894	0.847	0.939	0.865	0.775	0.906	12.73
77)	T	n-propylbenzene	4.473	3.728	3.724	4.015	3.430	2.992	3.727	13.51
78)	T	2-Chlorotoluene	2.928	2.201	2.222	2.517	2.192	1.934	2.332	14.81
79)	T	1,3,5-Trimethy...	3.319	2.470	2.511	2.845	2.411	2.070	2.604	16.45
80)	T	trans-1,4-Dich...	0.219	0.140	0.190	0.259	0.227	0.212	0.208	19.22
81)	T	4-Chlorotoluene	2.940	2.359	2.258	2.514	2.196	2.003	2.379	13.60
82)	T	tert-Butylbenzene	2.801	2.474	2.490	2.744	2.358	2.068	2.489	10.73
83)	T	1,2,4-Trimethy...	2.843	2.534	2.635	2.848	2.434	2.171	2.578	10.04
84)	T	sec-Butylbenzene	3.836	3.411	3.315	3.683	3.163	2.666	3.346	12.36
85)	T	p-Isopropyltol...	3.052	2.741	2.760	2.969	2.495	2.241	2.710	11.12
86)	T	1,3-Dichlorobe...	1.752	1.501	1.555	1.693	1.495	1.337	1.556	9.63
87)	T	1,4-Dichlorobe...	1.633	1.441	1.472	1.603	1.462	1.296	1.485	8.21
88)	T	n-Butylbenzene	2.765	2.578	2.586	2.846	2.324	2.027	2.521	11.98
89)	T	Hexachloroethane	0.575	0.514	0.534	0.664	0.616	0.557	0.577	9.57
90)	T	1,2-Dichlorobe...	1.622	1.477	1.345	1.509	1.357	1.198	1.418	10.51
91)	T	1,2-Dibromo-3-...	0.126	0.122	0.116	0.150	0.133	0.124	0.129	9.40
92)	T	1,2,4-Trichlor...	1.055	0.839	0.875	1.012	0.877	0.801	0.910	11.08
93)	T	Hexachlorobuta...	0.400	0.376	0.341	0.388	0.345	0.310	0.360	9.42
94)	T	Naphthalene	1.893	1.748	1.772	2.243	1.861	1.705	1.870	10.46
95)	T	1,2,3-Trichlor...	0.887	0.727	0.816	0.895	0.821	0.740	0.814	8.64

(#) = Out of Range



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G010412W.M
Calibration Table Last Updated: Thu Jan 05 03:45:30 2012



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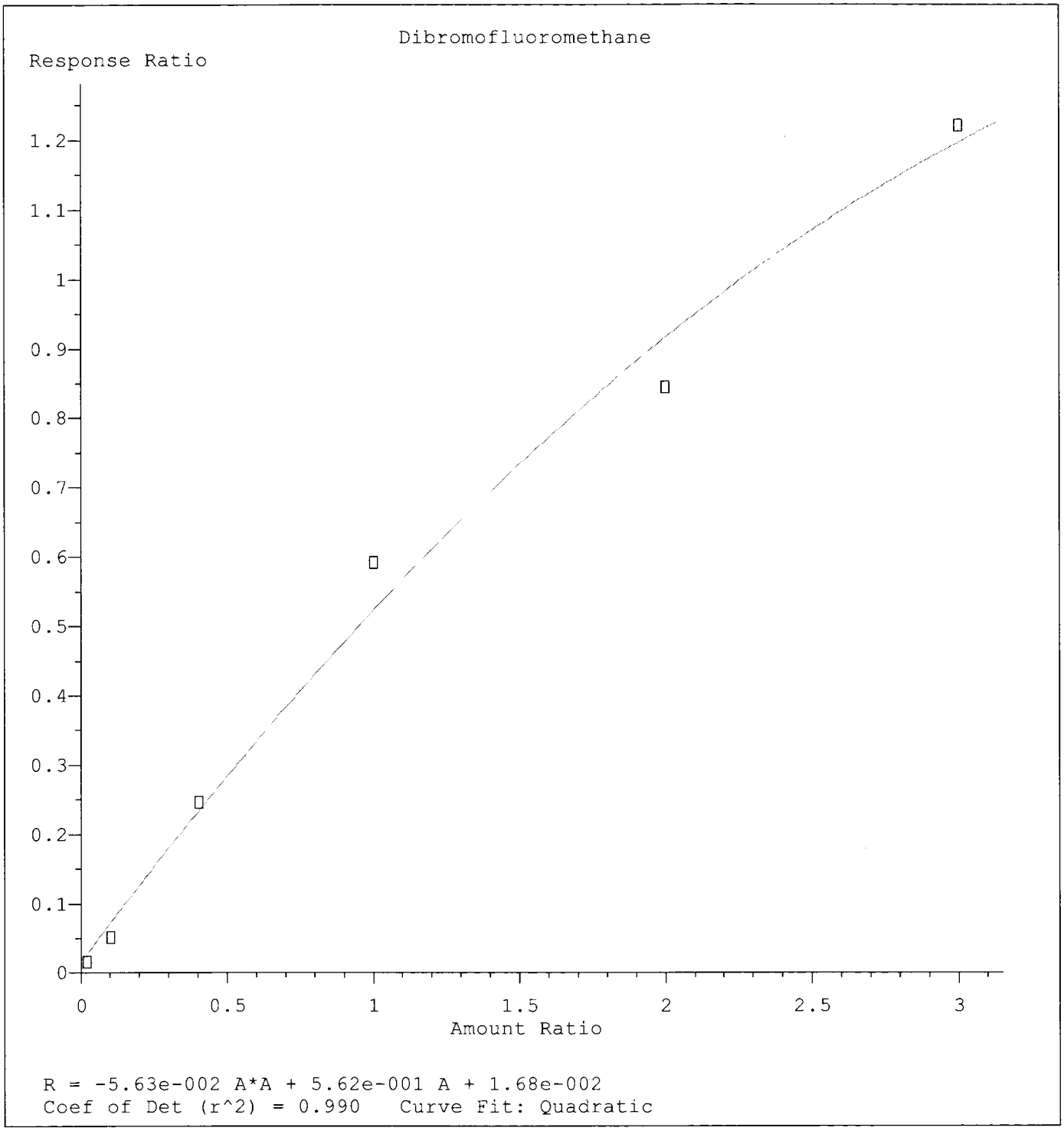

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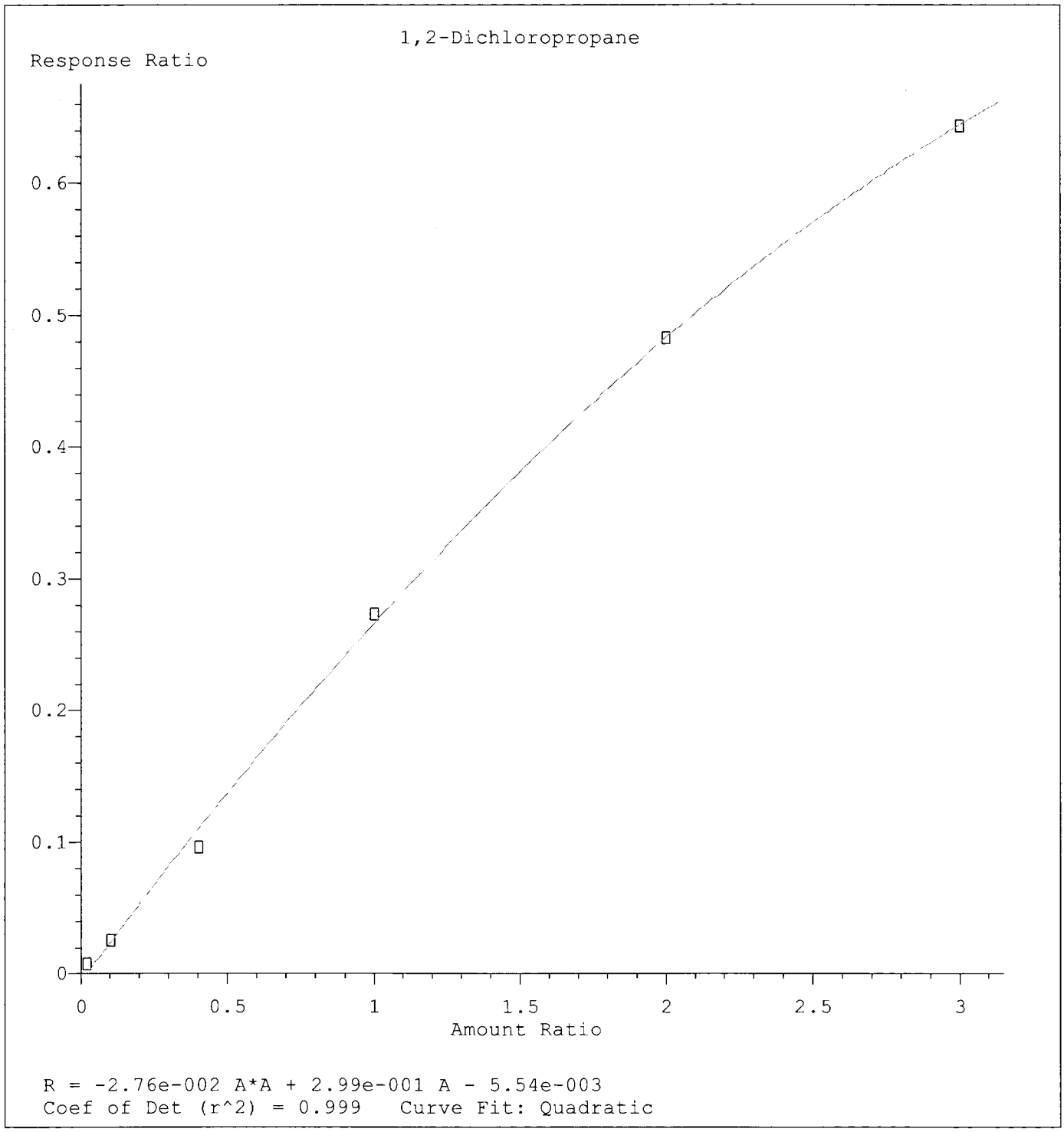

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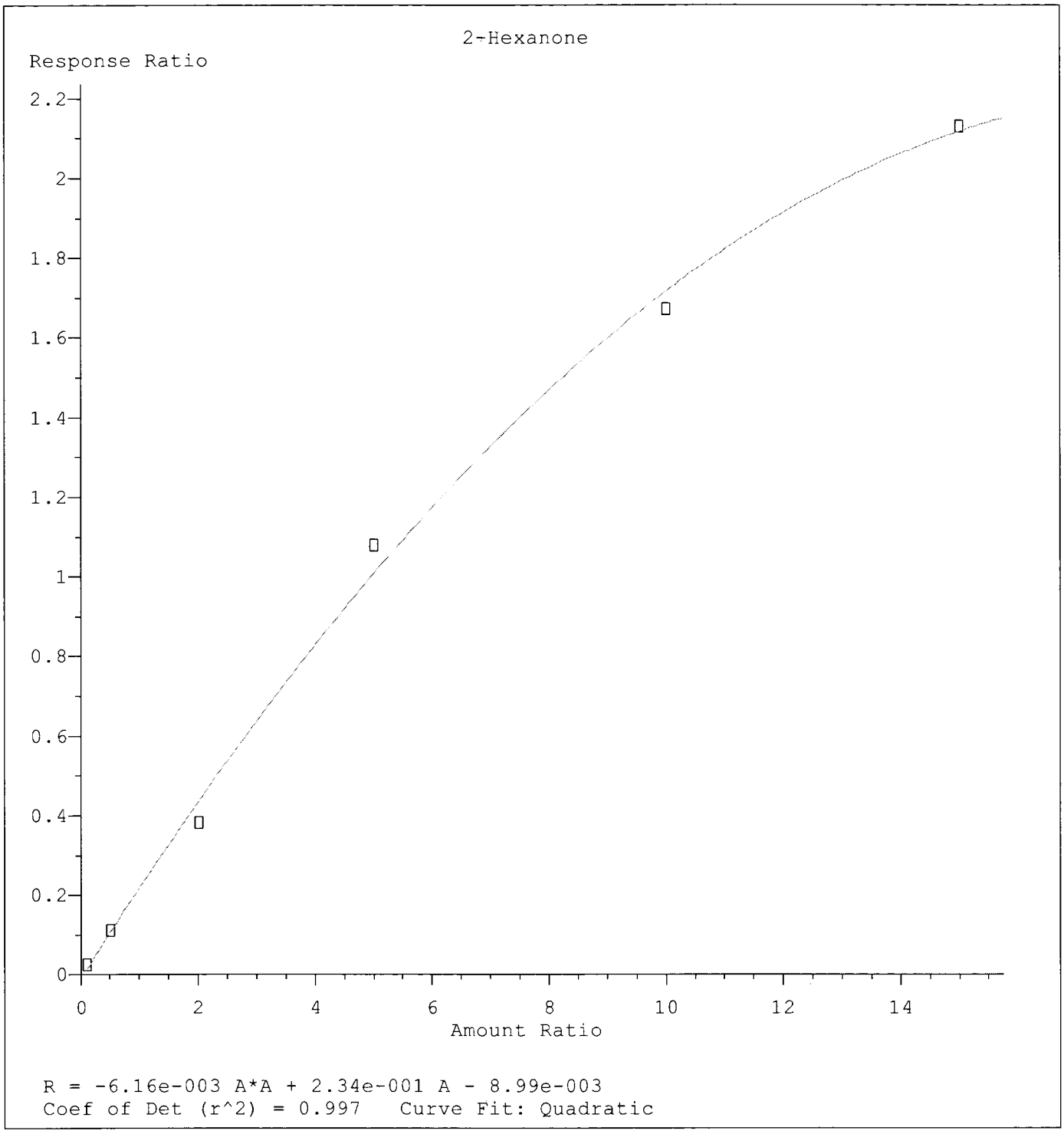


Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G010412W.M
Calibration Table Last Updated: Thu Jan 05 03:52:32 2012

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG0104W2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VG040010.D Lab Sample ID: VBG0104W2

Date Analyzed: 01/04/2012 Time Analyzed: 17:55

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG0104W1	BSG0104W1	VG040011.D	01/04/2012
BSG0104W2	BSG0104W2	VG040012.D	01/04/2012
RB-01-122911	C5164-23	VG040013.D	01/04/2012
TB-01-122911	C5164-01	VG040014.D	01/04/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG0104W2	SDG No.:	C5164
Lab Sample ID:	VBG0104W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040010.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG0104W2	SDG No.:	C5164
Lab Sample ID:	VBG0104W2	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040010.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	3	ug/L
123-91-1	1,4-Dioxane	20	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.3		70 - 120	87%	SPK: 50
1868-53-7	Dibromofluoromethane	45		85 - 115	90%	SPK: 50
2037-26-5	Toluene-d8	47.3		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	50		75 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	756004	3.9			
540-36-3	1,4-Difluorobenzene	1088780	4.71			
3114-55-4	Chlorobenzene-d5	1065990	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	573176	13.38			

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSF0104S1	BSF0104S1	1,2-Dichloroethane-d4	50	46.43	93		55	158
		Dibromofluoromethane	50	47.95	96		53	156
		Toluene-d8	50	49.49	99		85	115
		4-Bromofluorobenzene	50	49.96	100		85	120
BSF0104S2	BSF0104S2	1,2-Dichloroethane-d4	50	43	86		55	158
		Dibromofluoromethane	50	45.41	91		53	156
		Toluene-d8	50	47.98	96		85	115
		4-Bromofluorobenzene	50	47.6	95		85	120
BSG0104W1	BSG0104W1	1,2-Dichloroethane-d4	50	43.77	88		70	120
		Dibromofluoromethane	50	44.62	89		85	115
		Toluene-d8	50	45.1	90		85	120
		4-Bromofluorobenzene	50	44.63	89		75	120
BSG0104W2	BSG0104W2	1,2-Dichloroethane-d4	50	45.36	91		70	120
		Dibromofluoromethane	50	45.56	91		85	115
		Toluene-d8	50	47.08	94		85	120
		4-Bromofluorobenzene	50	46.29	93		75	120
C5135-17MS	UBZ2-SO-28-11-12MS	1,2-Dichloroethane-d4	50	48.18	96		55	158
		Dibromofluoromethane	50	48.71	97		53	156
		Toluene-d8	50	49.53	99		85	115
		4-Bromofluorobenzene	50	47.33	95		85	120
C5135-18MSD	UBZ2-SO-28-11-12MSD	1,2-Dichloroethane-d4	50	45.69	91		55	158
		Dibromofluoromethane	50	47.11	94		53	156
		Toluene-d8	50	48.16	96		85	115
		4-Bromofluorobenzene	50	46.8	94		85	120
C5164-01	TB-01-122911	1,2-Dichloroethane-d4	50	44.95	90		70	120
		Dibromofluoromethane	50	44.24	88		85	115
		Toluene-d8	50	46.3	93		85	120
		4-Bromofluorobenzene	50	49.92	100		75	120
C5164-02	12SB28-000.5-01	1,2-Dichloroethane-d4	50	39.53	79		55	158
		Dibromofluoromethane	50	43.45	87		53	156
		Toluene-d8	50	46.75	94		85	115
		4-Bromofluorobenzene	50	48.07	96		85	120
C5164-23	RB-01-122911	1,2-Dichloroethane-d4	50	44.65	89		70	120
		Dibromofluoromethane	50	45.18	90		85	115
		Toluene-d8	50	45.92	92		85	120
		4-Bromofluorobenzene	50	49.54	99		75	120
VBF0104S1	VBF0104S1	1,2-Dichloroethane-d4	50	41.69	83		55	158
		Dibromofluoromethane	50	45.18	90		53	156
		Toluene-d8	50	45.24	90		85	115
		4-Bromofluorobenzene	50	44.37	89		85	120
VBG0104W2	VBG0104W2	1,2-Dichloroethane-d4	50	43.29	87		70	120
		Dibromofluoromethane	50	45.05	90		85	115
		Toluene-d8	50	47.27	95		85	120
		4-Bromofluorobenzene	50	50	100		75	120

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5164 **SAS No :** C5164 **SDG No:** C5164

Matrix Spike - EPA Sample No : C5135-17 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030535.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	54	0	49	91	(42-135)
Chloromethane	54	0	51	94	(50-130)
Vinyl Chloride	54	0	49	91	(60-125)
Bromomethane	54	0	46	85	(40-154)
Chloroethane	54	0	52	96	(40-155)
Trichlorofluoromethane	54	0	47	87	(46-159)
1,1,2-Trichlorotrifluoroethane	54	0	51	94	(59-140)
1,1-Dichloroethene	54	0	49	91	(65-135)
Acetone	272	0	170	63	(31-158)
Carbon Disulfide	54	0	50	93	(45-144)
Methyl tert-butyl Ether	54	0	48	89	(56-146)
Methyl Acetate	54	0	83	154	(16-205)
Methylene Chloride	54	0	59	109	(55-140)
trans-1,2-Dichloroethene	54	0	49	91	(65-135)
1,1-Dichloroethane	54	0	49	91	(75-125)
Cyclohexane	54	0	55	102	(51-136)
2-Butanone	272	0	240	88	(40-157)
Carbon Tetrachloride	54	0	52	96	(65-135)
cis-1,2-Dichloroethene	54	0	56	104	(65-125)
Bromochloromethane	54	0	49	91	(70-125)
Chloroform	54	0	54	100	(70-125)
1,1,1-Trichloroethane	54	0	51	94	(70-135)
Methylcyclohexane	54	0	51	94	(43-133)
Benzene	54	0	54	100	(75-125)
1,2-Dichloroethane	54	0	50	93	(70-135)
Trichloroethene	54	0	51	94	(75-125)
1,2-Dichloropropane	54	0	55	102	(70-120)
Bromodichloromethane	54	0	51	94	(70-130)
4-Methyl-2-Pentanone	272	0	260	96	(53-145)
Toluene	54	0	52	96	(70-125)
t-1,3-Dichloropropene	54	0	48	89	(65-125)
cis-1,3-Dichloropropene	54	0	53	98	(70-125)
1,1,2-Trichloroethane	54	0	49	91	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5164 **SAS No :** C5164 **SDG No:** C5164

Matrix Spike - EPA Sample No : C5135-17 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030535.D

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMITS REC
2-Hexanone	272	0	250	92	(45-145)
Dibromochloromethane	54	0	48	89	(65-130)
1,2-Dibromoethane	54	0	49	91	(70-125)
Tetrachloroethene	54	0	52	96	(65-140)
Chlorobenzene	54	0	53	98	(75-125)
Ethyl Benzene	54	0	55	102	(75-125)
m/p-Xylenes	109	0	110	101	(80-125)
o-Xylene	54	0	55	102	(75-125)
Styrene	54	0	50	93	(75-125)
Bromoform	54	0	46	85	(62-135)
Isopropylbenzene	54	0	57	106	(75-130)
1,1,2,2-Tetrachloroethane	54	0	59	109	(55-130)
1,3-Dichlorobenzene	54	0	54	100	(70-125)
1,4-Dichlorobenzene	54	0	54	100	(70-124)
1,2-Dichlorobenzene	54	0	52	96	(75-120)
1,2-Dibromo-3-Chloropropane	54	0	46	85	(44-135)
1,2,4-Trichlorobenzene	54	0	51	94	(65-130)
1,2,3-Trichlorobenzene	54	0	49	91	(60-135)
1,4-Dioxane	1087	0	730	67*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 1 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5164 **SAS No :** C5164 **SDG No:** C5164

Matrix Spike - EPA Sample No : C5135-18 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030536.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	54	44	81	12	20	(42-135)
Chloromethane	54	51	94	0	20	(50-130)
Vinyl Chloride	54	46	85	7	20	(60-125)
Bromomethane	54	50	93	9	20	(40-154)
Chloroethane	54	53	98	2	20	(40-155)
Trichlorofluoromethane	54	43	80	8	20	(46-159)
1,1,2-Trichlorotrifluoroethane	54	45	83	12	20	(59-140)
1,1-Dichloroethene	54	45	83	9	20	(65-135)
Acetone	272	160	59	7	20	(31-158)
Carbon Disulfide	54	47	87	7	20	(45-144)
Methyl tert-butyl Ether	54	47	87	2	20	(56-146)
Methyl Acetate	54	44	81	62*	20	(16-205)
Methylene Chloride	54	45	83	27*	20	(55-140)
trans-1,2-Dichloroethene	54	45	83	9	20	(65-135)
1,1-Dichloroethane	54	48	89	2	20	(75-125)
Cyclohexane	54	50	93	9	20	(51-136)
2-Butanone	272	250	92	4	20	(40-157)
Carbon Tetrachloride	54	48	89	8	20	(65-135)
cis-1,2-Dichloroethene	54	53	98	6	20	(65-125)
Bromochloromethane	54	46	85	7	20	(70-125)
Chloroform	54	51	94	6	20	(70-125)
1,1,1-Trichloroethane	54	51	94	0	20	(70-135)
Methylcyclohexane	54	48	89	5	20	(43-133)
Benzene	54	52	96	4	20	(75-125)
1,2-Dichloroethane	54	50	93	0	20	(70-135)
Trichloroethene	54	51	94	0	20	(75-125)
1,2-Dichloropropane	54	53	98	4	20	(70-120)
Bromodichloromethane	54	52	96	2	20	(70-130)
4-Methyl-2-Pentanone	272	270	99	3	20	(53-145)
Toluene	54	51	94	2	20	(70-125)
t-1,3-Dichloropropene	54	48	89	0	20	(65-125)
cis-1,3-Dichloropropene	54	52	96	2	20	(70-125)
1,1,2-Trichloroethane	54	47	87	4	20	(67-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** C5164 **SAS No :** C5164 **SDG No:** C5164

Matrix Spike - EPA Sample No : C5135-18 **Analytical Method:** EPA SW846 8260 **Datafile :** VF030536.D

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % (ug/Kg)	MSD %	QC LIMITS RPD	QC LIMITS REC
2-Hexanone	272	260	96	4	20	(45-145)
Dibromochloromethane	54	46	85	5	20	(65-130)
1,2-Dibromoethane	54	50	93	2	20	(70-125)
Tetrachloroethene	54	49	91	5	20	(65-140)
Chlorobenzene	54	51	94	4	20	(75-125)
Ethyl Benzene	54	52	96	6	20	(75-125)
m/p-Xylenes	109	100	92	9	20	(80-125)
o-Xylene	54	52	96	6	20	(75-125)
Styrene	54	48	89	4	20	(75-125)
Bromoform	54	45	83	2	20	(62-135)
Isopropylbenzene	54	53	98	8	20	(75-130)
1,1,2,2-Tetrachloroethane	54	57	106	3	20	(55-130)
1,3-Dichlorobenzene	54	52	96	4	20	(70-125)
1,4-Dichlorobenzene	54	49	91	9	20	(70-124)
1,2-Dichlorobenzene	54	49	91	5	20	(75-120)
1,2-Dibromo-3-Chloropropane	54	42	78	9	20	(44-135)
1,2,4-Trichlorobenzene	54	47	87	8	20	(65-130)
1,2,3-Trichlorobenzene	54	47	87	4	20	(60-135)
1,4-Dioxane	1087	770	71	6	20	(70-130)

RPD : 2 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSF0104S1 Analytical Method: EPA SW846 8260 Datafile : VF030533.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		20	100	(47-135)
Chloromethane	20		20	100	(56-130)
Vinyl Chloride	20		19	95	(60-125)
Bromomethane	20		22	110	(45-158)
Chloroethane	20		21	105	(42-155)
Trichlorofluoromethane	20		18	90	(55-146)
1,1,2-Trichlorotrifluoroethane	20		20	100	(65-134)
1,1-Dichloroethene	20		19	95	(65-135)
Acetone	100		84	84	(57-148)
Carbon Disulfide	20		20	100	(60-138)
Methyl tert-butyl Ether	20		19	95	(70-131)
Methyl Acetate	20		18	90	(44-187)
Methylene Chloride	20		19	95	(63-140)
trans-1,2-Dichloroethene	20		20	100	(73-130)
1,1-Dichloroethane	20		20	100	(75-125)
Cyclohexane	20		21	105	(66-132)
2-Butanone	100		100	100	(52-153)
Carbon Tetrachloride	20		20	100	(74-122)
cis-1,2-Dichloroethene	20		22	110	(75-125)
Bromochloromethane	20		20	100	(74-125)
Chloroform	20		20	100	(75-125)
1,1,1-Trichloroethane	20		20	100	(75-128)
Methylcyclohexane	20		19	95	(71-124)
Benzene	20		21	105	(79-122)
1,2-Dichloroethane	20		20	100	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		21	105	(76-120)
Bromodichloromethane	20		20	100	(77-124)
4-Methyl-2-Pentanone	100		100	100	(70-141)
Toluene	20		21	105	(78-121)
t-1,3-Dichloropropene	20		20	100	(76-125)
cis-1,3-Dichloropropene	20		21	105	(79-122)
1,1,2-Trichloroethane	20		19	95	(76-125)
2-Hexanone	100		110	110	(55-145)
Dibromochloromethane	20		19	95	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSF0104S1 Analytical Method: EPA SW846 8260 Datafile : VF030533.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		20	100	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		21	105	(79-120)
Ethyl Benzene	20		21	105	(77-120)
m/p-Xylenes	40		40	100	(80-120)
o-Xylene	20		20	100	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		18	90	(71-125)
Isopropylbenzene	20		22	110	(77-124)
1,1,2,2-Tetrachloroethane	20		20	100	(77-130)
1,3-Dichlorobenzene	20		21	105	(82-121)
1,4-Dichlorobenzene	20		21	105	(82-118)
1,2-Dichlorobenzene	20		21	105	(81-120)
1,2-Dibromo-3-Chloropropane	20		17	85	(66-132)
1,2,4-Trichlorobenzene	20		20	100	(71-124)
1,2,3-Trichlorobenzene	20		20	100	(74-123)
1,4-Dioxane	400		400	100	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSF0104S2 Analytical Method: EPA SW846 8260 Datafile : VF030534.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(47-135)
Chloromethane	20		19	95	(56-130)
Vinyl Chloride	20		18	90	(60-125)
Bromomethane	20		20	100	(45-158)
Chloroethane	20		20	100	(42-155)
Trichlorofluoromethane	20		17	85	(55-146)
1,1,2-Trichlorotrifluoroethane	20		18	90	(65-134)
1,1-Dichloroethene	20		18	90	(65-135)
Acetone	100		76	76	(57-148)
Carbon Disulfide	20		19	95	(60-138)
Methyl tert-butyl Ether	20		17	85	(70-131)
Methyl Acetate	20		15	75	(44-187)
Methylene Chloride	20		19	95	(63-140)
trans-1,2-Dichloroethene	20		18	90	(73-130)
1,1-Dichloroethane	20		18	90	(75-125)
Cyclohexane	20		21	105	(66-132)
2-Butanone	100		90	90	(52-153)
Carbon Tetrachloride	20		19	95	(74-122)
cis-1,2-Dichloroethene	20		21	105	(75-125)
Bromochloromethane	20		19	95	(74-125)
Chloroform	20		19	95	(75-125)
1,1,1-Trichloroethane	20		20	100	(75-128)
Methylcyclohexane	20		20	100	(71-124)
Benzene	20		19	95	(79-122)
1,2-Dichloroethane	20		18	90	(75-132)
Trichloroethene	20		21	105	(77-120)
1,2-Dichloropropane	20		20	100	(76-120)
Bromodichloromethane	20		18	90	(77-124)
4-Methyl-2-Pentanone	100		91	91	(70-141)
Toluene	20		20	100	(78-121)
t-1,3-Dichloropropene	20		19	95	(76-125)
cis-1,3-Dichloropropene	20		19	95	(79-122)
1,1,2-Trichloroethane	20		19	95	(76-125)
2-Hexanone	100		91	91	(55-145)
Dibromochloromethane	20		18	90	(73-126)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

SOIL VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSF0104S2 Analytical Method: EPA SW846 8260 Datafile : VF030534.D

COMPOUND	SPIKE ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		17	85	(76-125)
Tetrachloroethene	20		20	100	(65-140)
Chlorobenzene	20		19	95	(79-120)
Ethyl Benzene	20		20	100	(77-120)
m/p-Xylenes	40		41	103	(80-120)
o-Xylene	20		19	95	(78-119)
Styrene	20		20	100	(80-119)
Bromoform	20		17	85	(71-125)
Isopropylbenzene	20		21	105	(77-124)
1,1,2,2-Tetrachloroethane	20		16	80	(77-130)
1,3-Dichlorobenzene	20		20	100	(82-121)
1,4-Dichlorobenzene	20		19	95	(82-118)
1,2-Dichlorobenzene	20		20	100	(81-120)
1,2-Dibromo-3-Chloropropane	20		16	80	(66-132)
1,2,4-Trichlorobenzene	20		19	95	(71-124)
1,2,3-Trichlorobenzene	20		18	90	(74-123)
1,4-Dioxane	400		350	88	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSG0104W1 Analytical Method: EPA SW846 8260 Datafile : VG040011.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		22	110	(35-124)
Chloromethane	20		21	105	(40-125)
Vinyl Chloride	20		21	105	(50-144)
Bromomethane	20		18	90	(44-145)
Chloroethane	20		20	100	(60-135)
Trichlorofluoromethane	20		20	100	(60-137)
1,1,2-Trichlorotrifluoroethane	20		21	105	(52-142)
1,1-Dichloroethene	20		21	105	(70-130)
Acetone	100		84	84	(50-140)
Carbon Disulfide	20		21	105	(36-155)
Methyl tert-butyl Ether	20		20	100	(65-125)
Methyl Acetate	20		19	95	(51-158)
Methylene Chloride	20		21	105	(61-138)
trans-1,2-Dichloroethene	20		20	100	(60-137)
1,1-Dichloroethane	20		21	105	(70-135)
Cyclohexane	20		21	105	(56-141)
2-Butanone	100		91	91	(56-150)
Carbon Tetrachloride	20		19	95	(65-138)
cis-1,2-Dichloroethene	20		21	105	(70-125)
Bromochloromethane	20		21	105	(65-130)
Chloroform	20		21	105	(67-135)
1,1,1-Trichloroethane	20		20	100	(65-130)
Methylcyclohexane	20		21	105	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		20	100	(70-130)
Trichloroethene	20		21	105	(70-125)
1,2-Dichloropropane	20		19	95	(75-125)
Bromodichloromethane	20		20	100	(75-120)
4-Methyl-2-Pentanone	100		86	86	(63-135)
Toluene	20		21	105	(75-120)
t-1,3-Dichloropropene	20		21	105	(66-135)
cis-1,3-Dichloropropene	20		22	110	(70-130)
1,1,2-Trichloroethane	20		20	100	(75-125)
2-Hexanone	100		94	94	(56-130)
Dibromochloromethane	20		21	105	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSG0104W1 Analytical Method: EPA SW846 8260 Datafile : VG040011.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
1,2-Dibromoethane	20		21	105	(80-120)
Tetrachloroethene	20		19	95	(45-178)
Chlorobenzene	20		20	100	(80-120)
Ethyl Benzene	20		21	105	(75-125)
m/p-Xylenes	40		40	100	(75-130)
o-Xylene	20		21	105	(80-120)
Styrene	20		20	100	(65-135)
Bromoform	20		20	100	(70-130)
Isopropylbenzene	20		21	105	(75-125)
1,1,2,2-Tetrachloroethane	20		20	100	(65-130)
1,3-Dichlorobenzene	20		21	105	(75-125)
1,4-Dichlorobenzene	20		21	105	(75-125)
1,2-Dichlorobenzene	20		20	100	(70-120)
1,2-Dibromo-3-Chloropropane	20		19	95	(54-130)
1,2,4-Trichlorobenzene	20		21	105	(65-133)
1,2,3-Trichlorobenzene	20		20	100	(60-135)
1,4-Dioxane	400		370	93	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSG0104W2 Analytical Method: EPA SW846 8260 Datafile : VG040012.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	20	22	110	0	20	(35-124)
Chloromethane	20	22	110	5	20	(40-125)
Vinyl Chloride	20	24	120	13	20	(50-144)
Bromomethane	20	20	100	11	20	(44-145)
Chloroethane	20	21	105	5	20	(60-135)
Trichlorofluoromethane	20	21	105	5	20	(60-137)
1,1,2-Trichlorotrifluoroethane	20	22	110	5	20	(52-142)
1,1-Dichloroethene	20	21	105	0	20	(70-130)
Acetone	100	90	90	7	20	(50-140)
Carbon Disulfide	20	21	105	0	20	(36-155)
Methyl tert-butyl Ether	20	21	105	5	20	(65-125)
Methyl Acetate	20	21	105	10	20	(51-158)
Methylene Chloride	20	21	105	0	20	(61-138)
trans-1,2-Dichloroethene	20	20	100	0	20	(60-137)
1,1-Dichloroethane	20	21	105	0	20	(70-135)
Cyclohexane	20	21	105	0	20	(56-141)
2-Butanone	100	95	95	4	20	(56-150)
Carbon Tetrachloride	20	20	100	5	20	(65-138)
cis-1,2-Dichloroethene	20	21	105	0	20	(70-125)
Bromochloromethane	20	20	100	5	20	(65-130)
Chloroform	20	20	100	5	20	(67-135)
1,1,1-Trichloroethane	20	21	105	5	20	(65-130)
Methylcyclohexane	20	22	110	5	20	(56-137)
Benzene	20	20	100	5	20	(80-120)
1,2-Dichloroethane	20	20	100	0	20	(70-130)
Trichloroethene	20	20	100	5	20	(70-125)
1,2-Dichloropropane	20	18	90	5	20	(75-125)
Bromodichloromethane	20	20	100	0	20	(75-120)
4-Methyl-2-Pentanone	100	93	93	8	20	(63-135)
Toluene	20	20	100	5	20	(75-120)
t-1,3-Dichloropropene	20	22	110	5	20	(66-135)
cis-1,3-Dichloropropene	20	21	105	5	20	(70-130)
1,1,2-Trichloroethane	20	20	100	0	20	(75-125)
2-Hexanone	100	97	97	3	20	(56-130)
Dibromochloromethane	20	21	105	0	20	(64-135)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: C5164 SAS No : C5164 SDG No: C5164

Matrix Spike - EPA Sample No : BSG0104W2 Analytical Method: EPA SW846 8260 Datafile : VG040012.D

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	LCSD % RPD #	QC LIMITS RPD	QC LIMITS REC
1,2-Dibromoethane	20	21	105	0	20	(80-120)
Tetrachloroethene	20	19	95	0	20	(45-178)
Chlorobenzene	20	20	100	0	20	(80-120)
Ethyl Benzene	20	21	105	0	20	(75-125)
m/p-Xylenes	40	41	103	3	20	(75-130)
o-Xylene	20	21	105	0	20	(80-120)
Styrene	20	20	100	0	20	(65-135)
Bromoform	20	20	100	0	20	(70-130)
Isopropylbenzene	20	20	100	5	20	(75-125)
1,1,2,2-Tetrachloroethane	20	21	105	5	20	(65-130)
1,3-Dichlorobenzene	20	21	105	0	20	(75-125)
1,4-Dichlorobenzene	20	21	105	0	20	(75-125)
1,2-Dichlorobenzene	20	21	105	5	20	(70-120)
1,2-Dibromo-3-Chloropropane	20	20	100	5	20	(54-130)
1,2,4-Trichlorobenzene	20	20	100	5	20	(65-133)
1,2,3-Trichlorobenzene	20	21	105	5	20	(60-135)
1,4-Dioxane	400	380	95	2	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 0 Out of 52 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VF030526.D Date Analyzed: 01/04/2012

Instrument ID: MSVOA_F Time Analyzed: 17:28

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	122927	4.38	225855	5.12	204448	9.31
UPPER LIMIT	245854	4.88	451710	5.62	408896	9.81
LOWER LIMIT	61463.5	3.88	112927.5	4.62	102224	8.81
EPA SAMPLE NO.						
BSF0104S1	141715	4.38	257247	5.12	229249	9.32
BSF0104S2	157029	4.38	280378	5.12	247573	9.31
UBZ2-SO-28-11-12MS	144036	4.38	266146	5.12	231846	9.32
UBZ2-SO-28-11-12MSD	152445	4.37	275488	5.12	243583	9.32
12SB28-000.5-01	112690	4.37	206683	5.12	195142	9.32
VBF0104S1	167028	4.38	296168	5.12	260627	9.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VF030526.D Date Analyzed: 01/04/2012

Instrument ID: MSVOA_F Time Analyzed: 17:28

GC Column: RTX-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS4 AREA #	RT #				
12 HOUR STD	107720	12.23				
UPPER LIMIT	215440	12.73				
LOWER LIMIT	53860	11.73				
EPA SAMPLE NO.						
BSF0104S1	112180	12.23				
BSF0104S2	125755	12.23				
UBZ2-SO-28-11-12MS	113547	12.23				
UBZ2-SO-28-11-12MSD	122037	12.23				
12SB28-000.5-01	84962	12.23				
VBF0104S1	129317	12.23				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VG040005.D Date Analyzed: 01/04/2012

Instrument ID: MSVOAG Time Analyzed: 14:41

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	704038	3.90	994373	4.71	917758	9.68
UPPER LIMIT	1408076	4.4	1988746	5.21	1835516	10.18
LOWER LIMIT	352019	3.4	497186.5	4.21	458879	9.18
EPA SAMPLE NO.						
BSG0104W1	759223	3.90	1047055	4.71	986326	9.68
BSG0104W2	736835	3.90	1041022	4.71	975063	9.68
TB-01-122911	722713	3.90	1030771	4.71	1031664	9.68
RB-01-122911	705892	3.91	1025691	4.71	1024929	9.68
VBG0104W2	756004	3.90	1088780	4.71	1065985	9.69

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: VG040005.D Date Analyzed: 01/04/2012

Instrument ID: MSVOAG Time Analyzed: 14:41

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	492545	13.38				
UPPER LIMIT	985090	13.88				
LOWER LIMIT	246272.5	12.88				
EPA SAMPLE NO.						
BSG0104W1	510717	13.39				
BSG0104W2	506321	13.39				
TB-01-122911	539574	13.40				
RB-01-122911	532036	13.39				
VBG0104W2	573176	13.38				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074743.D DFTPP Injection Date: 12/30/2011

Instrument ID: BNA_E DFTPP Injection Time: 20:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.7
68	Less than 2.0% of mass 69	0.5 (1.2) 1
69	Mass 69 relative abundance	39.7
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.3
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	9.2
442	Greater than 40% of mass 198	57.9
443	17.0 - 23.0% of mass 442	11.8 (20.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074744.D	12/30/2011	21:01
02	SSTD025	25 ng BNA ICC	BE074745.D	12/30/2011	21:46
03	SSTD040	40 ng BNA ICC	BE074746.D	12/30/2011	22:27
04	SSTD050	50 ng BNA ICC	BE074747.D	12/30/2011	23:12
05	SSTD060	60 ng BNA ICC	BE074748.D	12/30/2011	23:54
06	SSTD080	80 ng BNA ICC	BE074749.D	12/31/2011	00:39

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date(s): 12/30/2011 12/31/2011

Calibration Time(s): 21:01 00:39

LAB FILE ID: RRF010 = BE074744.D RRF025 = BE074745.D RRF040 = BE074746.D
RRF050 = BE074747.D RRF060 = BE074748.D RRF080 = BE074749.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	0.955	0.941	0.780	0.731	0.649	0.540	0.766	21.2
Phenol	1.705	1.836	1.811	1.872	1.933	1.913	1.845	4.5
bis(2-Chloroethyl)ether	1.407	1.432	1.416	1.451	1.486	1.484	1.446	2.3
2-Chlorophenol	1.405	1.469	1.448	1.495	1.502	1.488	1.468	2.5
2-Methylphenol	1.061	1.117	1.110	1.173	1.178	1.183	1.137	4.3
2,2-oxybis(1-Chloropropane)	2.015	2.141	2.101	2.210	2.201	2.216	2.147	3.7
Acetophenone	0.456	0.481	0.465	0.490	0.479	0.485	0.476	2.7
3+4-Methylphenols	1.374	1.514	1.481	1.553	1.572	1.556	1.509	4.9
n-Nitroso-di-n-propylamine	0.926	0.986	0.999	1.076	1.069	1.068	1.021	5.9
Hexachloroethane	0.498	0.534	0.521	0.550	0.553	0.548	0.534	4.0
Nitrobenzene	0.329	0.351	0.341	0.369	0.355	0.363	0.352	4.2
Isophorone	0.567	0.629	0.623	0.659	0.644	0.663	0.631	5.5
2-Nitrophenol	0.168	0.184	0.181	0.194	0.192	0.198	0.186	5.9
2,4-Dimethylphenol	0.296	0.319	0.307	0.324	0.322	0.328	0.316	3.8
bis(2-Chloroethoxy)methane	0.412	0.425	0.415	0.433	0.428	0.431	0.424	2.0
2,4-Dichlorophenol	0.269	0.291	0.281	0.299	0.295	0.295	0.288	3.9
4-Chloroaniline	0.413	0.447	0.430	0.453	0.444	0.444	0.439	3.3
Hexachlorobutadiene	0.145	0.150	0.142	0.149	0.144	0.148	0.147	2.1
Caprolactam	0.094	0.110	0.113	0.119	0.119	0.121	0.113	9.0
4-Chloro-3-methylphenol	0.264	0.291	0.284	0.303	0.300	0.302	0.291	5.1
Hexachlorocyclopentadiene	0.169	0.217	0.221	0.239	0.248	0.253	0.224	13.7
2,4,6-Trichlorophenol	0.312	0.344	0.338	0.349	0.357	0.353	0.342	4.8
2,4,5-Trichlorophenol	0.349	0.368	0.369	0.380	0.384	0.387	0.373	3.8
1,1-Biphenyl	1.550	1.586	1.544	1.592	1.602	1.579	1.576	1.5
2-Chloronaphthalene	1.118	1.191	1.144	1.158	1.179	1.149	1.157	2.3
2-Nitroaniline	0.279	0.325	0.328	0.346	0.355	0.358	0.332	8.8
Dimethylphthalate	1.251	1.317	1.271	1.297	1.302	1.300	1.290	1.9
Acenaphthylene	1.741	1.829	1.813	1.848	1.874	1.858	1.827	2.6
2,6-Dinitrotoluene	0.282	0.297	0.298	0.312	0.313	0.310	0.302	4.1
3-Nitroaniline	0.315	0.357	0.359	0.373	0.376	0.382	0.360	6.8
Acenaphthene	1.147	1.213	1.179	1.209	1.232	1.226	1.201	2.7
2,4-Dinitrophenol	0.036	0.072	0.095	0.111	0.124	0.140	0.096	39.3
4-Nitrophenol	0.211	0.267	0.280	0.294	0.301	0.311	0.277	13.1
Dibenzofuran	1.655	1.703	1.629	1.651	1.672	1.645	1.659	1.5

r^2 ok

r^2 ok

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date(s): 12/30/2011 12/31/2011

Calibration Time(s): 21:01 00:39

LAB FILE ID: RRF010 = BE074744.D RRF025 = BE074745.D RRF040 = BE074746.D
RRF050 = BE074747.D RRF060 = BE074748.D RRF080 = BE074749.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD	
2,4-Dinitrotoluene	0.328	0.383	0.380	0.403	0.400	0.412	0.384	7.8	
Diethylphthalate	1.196	1.265	1.249	1.269	1.280	1.260	1.253	2.4	
4-Chlorophenyl-phenylether	0.599	0.609	0.590	0.601	0.597	0.598	0.599	1.1	
4-Nitroaniline	0.332	0.370	0.373	0.390	0.396	0.392	0.376	6.3	
4,6-Dinitro-2-methylphenol	0.053	0.085	0.103	0.110	0.117	0.128	0.099	27.1	r^2 < 0.990
n-Nitrosodiphenylamine	0.636	0.663	0.663	0.684	0.682	0.679	0.668	2.7	
4-Bromophenyl-phenylether	0.178	0.184	0.182	0.186	0.188	0.189	0.185	2.3	
Hexachlorobenzene	0.194	0.202	0.195	0.199	0.198	0.196	0.197	1.4	
Atrazine	0.163	0.184	0.186	0.193	0.196	0.197	0.186	6.7	
Pentachlorophenol	0.078	0.096	0.104	0.113	0.118	0.124	0.105	16.0	r^2 < 0.990
Phenanthrene	1.126	1.126	1.133	1.132	1.142	1.131	1.132	0.5	
Carbazole	1.032	1.095	1.088	1.109	1.122	1.107	1.092	2.9	
Di-n-butylphthalate	1.051	1.186	1.209	1.241	1.242	1.246	1.196	6.3	
Butylbenzylphthalate	0.455	0.522	0.531	0.553	0.554	0.571	0.531	7.8	
3,3-Dichlorobenzidine	0.335	0.381	0.378	0.380	0.371	0.368	0.369	4.7	
Bis(2-ethylhexyl)phthalate	0.643	0.737	0.737	0.782	0.765	0.785	0.742	7.1	
Di-n-octyl phthalate	0.989	1.174	1.202	1.281	1.265	1.312	1.204	9.7	
1,2,4,5-Tetrachlorobenzene	0.507	0.512	0.496	0.504	0.502	0.490	0.502	1.5	
2,3,4,6-Tetrachlorophenol	0.248	0.273	0.275	0.288	0.296	0.301	0.280	6.9	
2-Fluorophenol	1.237	1.315	1.294	1.343	1.354	1.359	1.317	3.5	
Phenol-d5	1.596	1.717	1.666	1.745	1.757	1.773	1.709	3.9	
Nitrobenzene-d5	0.341	0.367	0.358	0.380	0.374	0.380	0.367	4.2	
2-Fluorobiphenyl	1.402	1.429	1.367	1.379	1.377	1.325	1.380	2.5	
2,4,6-Tribromophenol	0.128	0.144	0.141	0.146	0.148	0.147	0.143	5.3	
Terphenyl-d14	0.757	0.774	0.746	0.746	0.729	0.690	0.740	3.9	

All other compounds must meet a minimum RRF of 0.010.

Method Path : Z:\HPCHEM1\BNA_E\Method\
Method File : 8270-BE123011.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Sat Dec 31 03:52:36 2011
Response Via : Initial Calibration

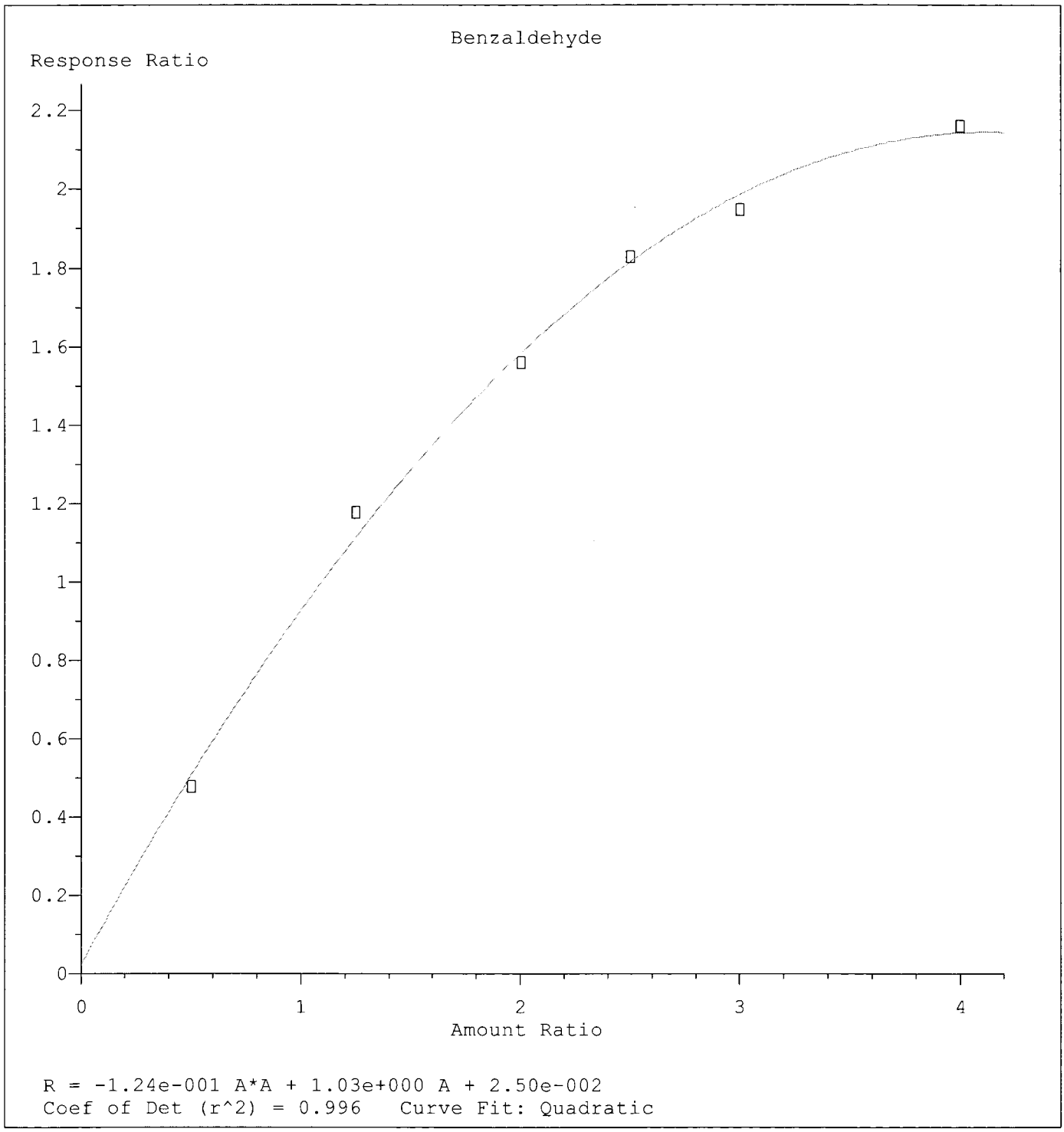
Calibration Files
40 =BE074746.D 10 =BE074744.D 25 =BE074745.D 50 =BE074747.D 60 =BE074748.D
80 =BE074749.D

		Compound	40	10	25	50	60	80	Avg	%RSD
1)	I	1,4-Dichlorobenzen...	----------ISTD----------							
2)		1,4-Dioxane	0.566	0.558	0.582	0.584	0.595	0.588	0.579	2.45
3)		Pyridine	1.650	1.543	1.644	1.713	1.728	1.725	1.667	4.27
4)		n-Nitrosodimet...	0.681	0.675	0.703	0.713	0.726	0.726	0.704	3.12
5)	S	2-Fluorophenol	1.294	1.237	1.315	1.343	1.354	1.359	1.317	3.53
6)		Aniline	2.140	2.022	2.172	2.244	2.262	2.255	2.182	4.26
7)	S	Phenol-d5	1.666	1.596	1.717	1.745	1.757	1.773	1.709	3.92
8)		2-Chlorophenol	1.448	1.405	1.469	1.495	1.502	1.488	1.468	2.49
9)		Benzaldehyde	0.780	0.955	0.941	0.731	0.649	0.540	0.766	21.25
10)	C	Phenol	1.811	1.705	1.836	1.872	1.933	1.913	1.845	4.47
11)		bis(2-Chloroet...	1.416	1.407	1.432	1.451	1.486	1.484	1.446	2.33
12)	S	2-Chlorophenol-d4	1.284	1.240	1.308	1.340	1.341	1.335	1.308	3.06
13)		1,3-Dichlorobe...	1.506	1.511	1.557	1.566	1.555	1.552	1.541	1.67
14)	C	1,4-Dichlorobe...	1.538	1.530	1.572	1.586	1.571	1.574	1.562	1.43
15)	s	1,2-Dichlorobe...	0.941	0.950	0.985	0.964	0.965	0.953	0.960	1.62
16)		1,2-Dichlorobe...	1.456	1.471	1.492	1.510	1.499	1.500	1.488	1.37
17)		Benzyl Alcohol	1.035	0.913	1.026	1.100	1.106	1.110	1.048	7.24
18)		2,2'-oxybis(1-...	2.101	2.015	2.141	2.210	2.201	2.216	2.147	3.67
19)		2-Methylphenol	1.110	1.061	1.117	1.173	1.178	1.183	1.137	4.29
20)		Hexachloroethane	0.521	0.498	0.534	0.550	0.553	0.548	0.534	3.96
21)	P	n-Nitroso-di-n...	0.999	0.926	0.986	1.076	1.069	1.068	1.021	5.90
22)		3+4-Methylphenols	1.481	1.374	1.514	1.553	1.572	1.556	1.509	4.87
23)	I	Naphthalene-d8	----------ISTD----------							
24)		Acetophenone	0.465	0.456	0.481	0.490	0.479	0.485	0.476	2.73
25)	S	Nitrobenzene-d5	0.358	0.341	0.367	0.380	0.374	0.380	0.367	4.18
26)		Nitrobenzene	0.341	0.329	0.351	0.369	0.355	0.363	0.352	4.25
27)		Isophorone	0.623	0.567	0.629	0.659	0.644	0.663	0.631	5.55
28)	C	2-Nitrophenol	0.181	0.168	0.184	0.194	0.192	0.198	0.186	5.85
29)		2,4-Dimethylph...	0.307	0.296	0.319	0.324	0.322	0.328	0.316	3.79
30)		bis(2-Chloroet...	0.415	0.412	0.425	0.433	0.428	0.431	0.424	2.04
31)	C	2,4-Dichloroph...	0.281	0.269	0.291	0.299	0.295	0.295	0.288	3.92
32)		1,2,4-Trichlor...	0.302	0.321	0.321	0.320	0.316	0.319	0.316	2.29
33)		Naphthalene	1.024	1.052	1.091	1.075	1.050	1.057	1.058	2.16
34)		Benzoic acid	0.123	0.062	0.103	0.140	0.155	0.174	0.126	31.50
35)		4-Chloroaniline	0.430	0.413	0.447	0.453	0.444	0.444	0.439	3.33
36)	C	Hexachlorobuta...	0.142	0.145	0.150	0.149	0.144	0.148	0.147	2.13
37)		Caprolactam	0.113	0.094	0.110	0.119	0.119	0.121	0.113	8.97
38)	C	4-Chloro-3-met...	0.284	0.264	0.291	0.303	0.300	0.302	0.291	5.13
39)		2-Methylnaphth...	0.700	0.706	0.729	0.731	0.717	0.714	0.716	1.71
40)	I	Acenaphthene-d10	----------ISTD----------							
41)		1,2,4,5-Tetrac...	0.496	0.507	0.512	0.504	0.502	0.490	0.502	1.55
42)	P	Hexachlorocycl...	0.221	0.169	0.217	0.239	0.248	0.253	0.224	13.72
43)	S	2,4,6-Tribromo...	0.141	0.128	0.144	0.146	0.148	0.147	0.143	5.26
44)	C	2,4,6-Trichlor...	0.338	0.312	0.344	0.349	0.357	0.353	0.342	4.78
45)		2,4,5-Trichlor...	0.369	0.349	0.368	0.380	0.384	0.387	0.373	3.82
46)	S	2-Fluorobiphenyl	1.367	1.402	1.429	1.379	1.377	1.325	1.380	2.55
47)		1,1'-Biphenyl	1.544	1.550	1.586	1.592	1.602	1.579	1.576	1.48
48)		2-Chloronaphth...	1.144	1.118	1.191	1.158	1.179	1.149	1.157	2.25
49)		2-Nitroaniline	0.328	0.279	0.325	0.346	0.355	0.358	0.332	8.77
50)		Acenaphthylene	1.813	1.741	1.829	1.848	1.874	1.858	1.827	2.60
51)		Dimethylphthalate	1.271	1.251	1.317	1.297	1.302	1.300	1.290	1.86

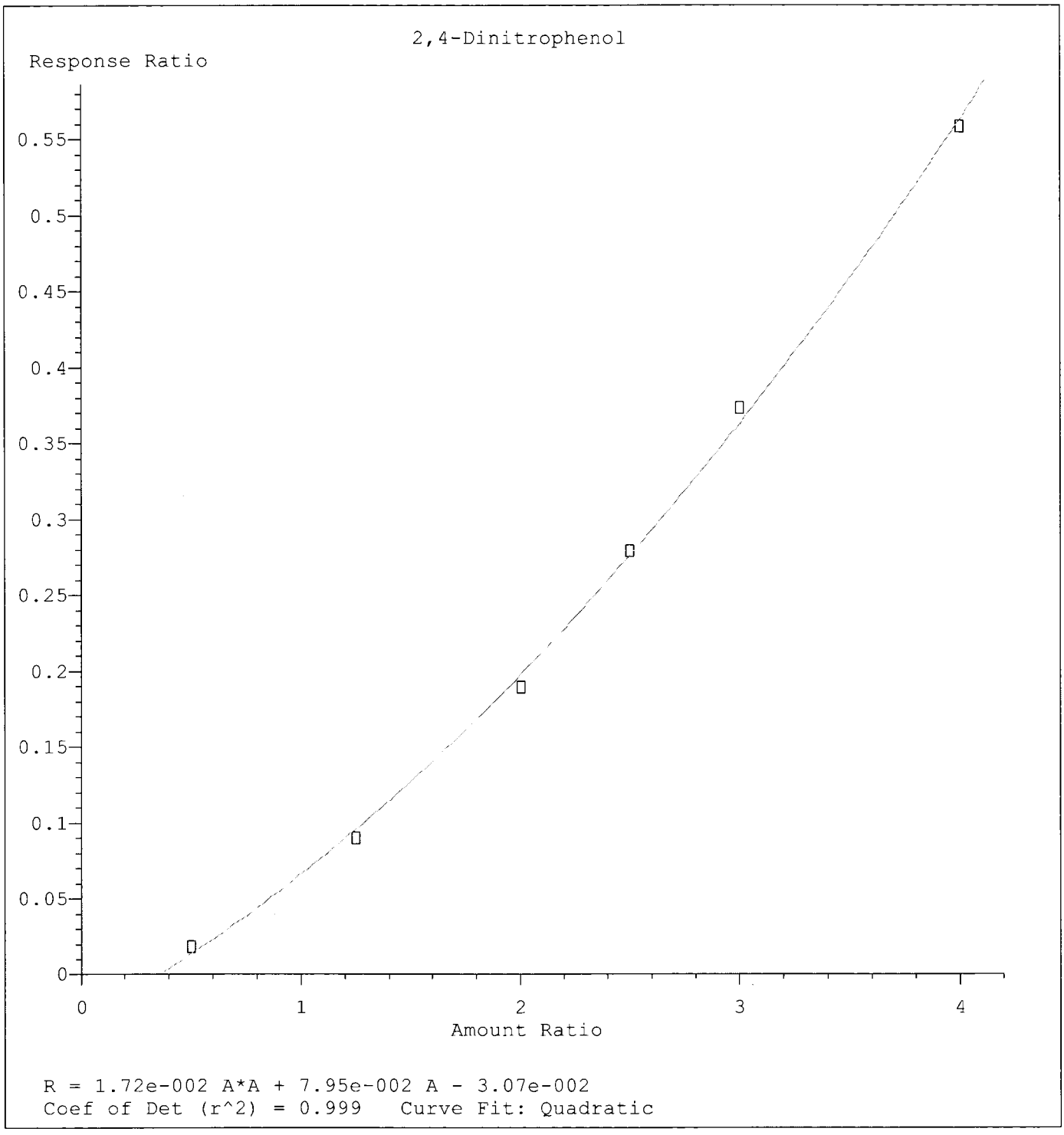
Method Path : Z:\HPCHEM1\BNA_E\Method\
Method File : 8270-BE123011.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION

52)		2,6-Dinitrotol...	0.298	0.282	0.297	0.312	0.313	0.310	0.302	4.07
53)	C	Acenaphthene	1.179	1.147	1.213	1.209	1.232	1.226	1.201	2.68
54)		3-Nitroaniline	0.359	0.315	0.357	0.373	0.376	0.382	0.360	6.80
55)	P	2,4-Dinitrophenol	0.095	0.036	0.072	0.111	0.124	0.140	0.096	39.18
56)		Dibenzofuran	1.629	1.655	1.703	1.651	1.672	1.645	1.659	1.55
57)	P	4-Nitrophenol	0.280	0.211	0.267	0.294	0.301	0.311	0.277	13.05
58)		2,4-Dinitrotol...	0.380	0.328	0.383	0.403	0.400	0.412	0.384	7.82
59)		Fluorene	1.381	1.372	1.430	1.396	1.416	1.399	1.399	1.53
60)		2,3,4,6-Tetrac...	0.275	0.248	0.273	0.288	0.296	0.301	0.280	6.91
61)		Diethylphthalate	1.249	1.196	1.265	1.269	1.280	1.260	1.253	2.39
62)		4-Chlorophenyl...	0.590	0.599	0.609	0.601	0.597	0.598	0.599	1.05
63)		4-Nitroaniline	0.373	0.332	0.370	0.390	0.396	0.392	0.376	6.35
64)		Azobenzene	1.329	1.256	1.349	1.361	1.393	1.388	1.346	3.72
65)	I	Phenanthrene-d10	----------ISTD----------							
66)		4,6-Dinitro-2-...	0.103	0.053	0.085	0.110	0.117	0.128	0.099	27.01
67)	c	n-Nitrosodiphe...	0.663	0.636	0.663	0.684	0.682	0.679	0.668	2.71
68)		4-Bromophenyl-...	0.182	0.178	0.184	0.186	0.188	0.189	0.185	2.27
69)		Hexachlorobenzene	0.195	0.194	0.202	0.199	0.198	0.196	0.197	1.42
70)		Atrazine	0.186	0.163	0.184	0.193	0.196	0.197	0.186	6.70
71)	C	Pentachlorophenol	0.104	0.078	0.096	0.113	0.118	0.124	0.105	15.94
72)		Phenanthrene	1.133	1.126	1.126	1.132	1.142	1.131	1.132	0.51
73)		Anthracene	1.137	1.069	1.139	1.156	1.153	1.161	1.136	2.98
74)		Carbazole	1.088	1.032	1.095	1.109	1.122	1.107	1.092	2.91
75)		Di-n-butylphth...	1.209	1.051	1.186	1.241	1.242	1.246	1.196	6.25
76)	C	Fluoranthene	1.148	1.085	1.149	1.161	1.162	1.150	1.142	2.51
77)	I	Chrysene-d12	----------ISTD----------							
78)		Benzidine	0.522	0.437	0.559	0.512	0.477	0.439	0.491	9.94
79)		Pyrene	1.221	1.150	1.240	1.264	1.240	1.227	1.224	3.19
80)	S	Terphenyl-d14	0.746	0.757	0.774	0.746	0.729	0.690	0.740	3.87
81)		Butylbenzylpht...	0.531	0.455	0.522	0.553	0.554	0.571	0.531	7.76
82)		Benzo(a)anthra...	1.090	1.057	1.123	1.131	1.107	1.110	1.103	2.40
83)		3,3'-Dichlorob...	0.378	0.335	0.381	0.380	0.371	0.368	0.369	4.73
84)		Chrysene	1.061	1.068	1.092	1.102	1.071	1.062	1.076	1.61
85)		Bis(2-ethylhex...	0.737	0.643	0.737	0.782	0.765	0.785	0.742	7.10
86)	c	Di-n-octyl pht...	1.202	0.989	1.174	1.281	1.265	1.312	1.204	9.71
87)		Indeno(1,2,3-c...	1.089	1.012	1.085	1.129	1.118	1.144	1.096	4.29
88)	I	Perylene-d12	----------ISTD----------							
89)		Benzo(b)fluora...	1.130	1.073	1.144	1.176	1.183	1.176	1.147	3.63
90)		Benzo(k)fluora...	1.150	1.107	1.178	1.228	1.209	1.207	1.180	3.81
91)	C	Benzo(a)pyrene	1.070	1.015	1.089	1.132	1.138	1.130	1.095	4.37
92)		Dibenzo(a,h)an...	1.019	0.948	1.034	1.082	1.087	1.089	1.043	5.29
93)		Benzo(g,h,i)pe...	1.036	0.964	1.053	1.104	1.111	1.111	1.063	5.48

(#) = Out of Range



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE123011.M
Calibration Table Last Updated: Sat Dec 31 03:48:46 2011



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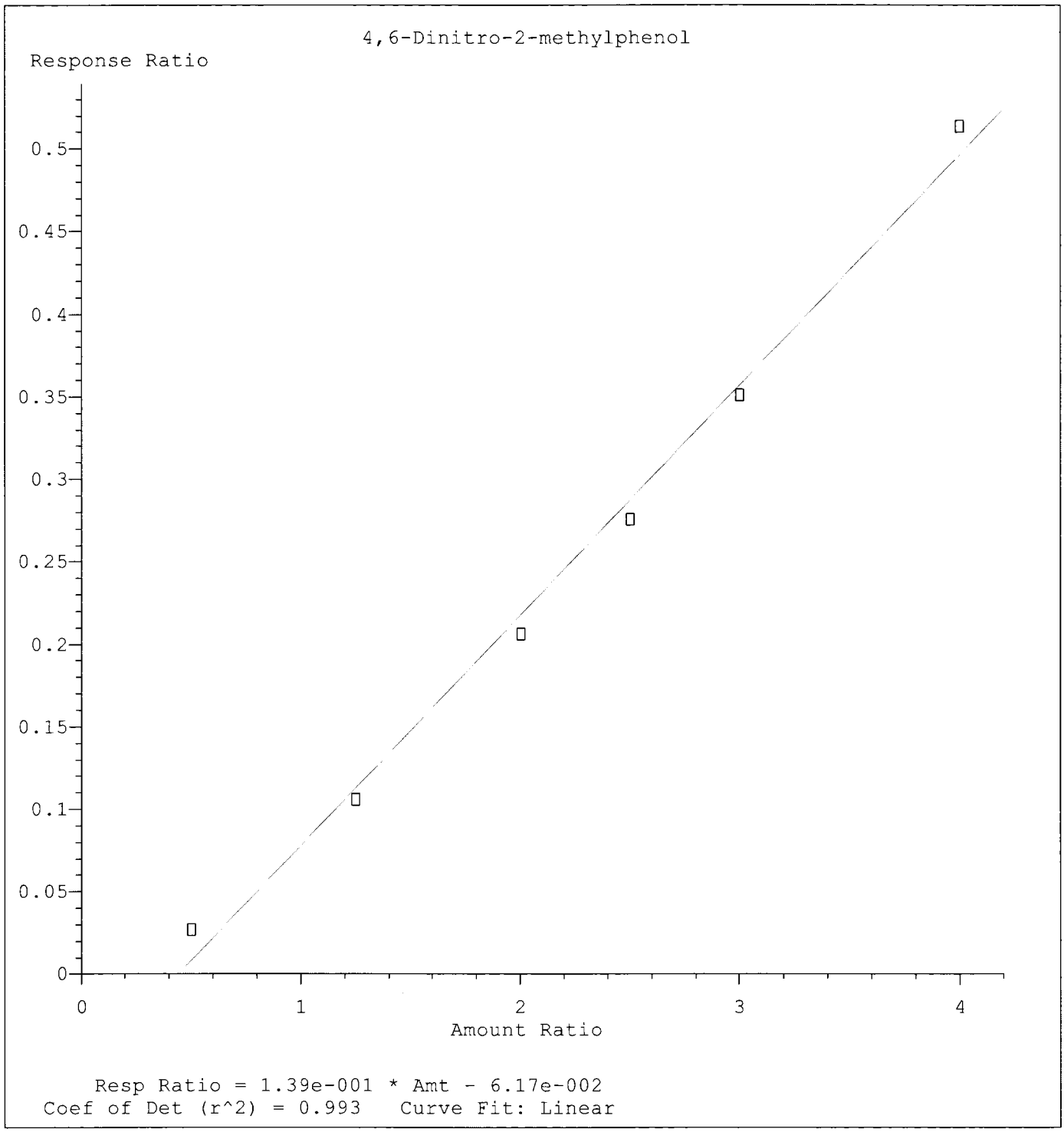
Calibration Table Last Updated: Sat Dec 31 03:50:31 2011



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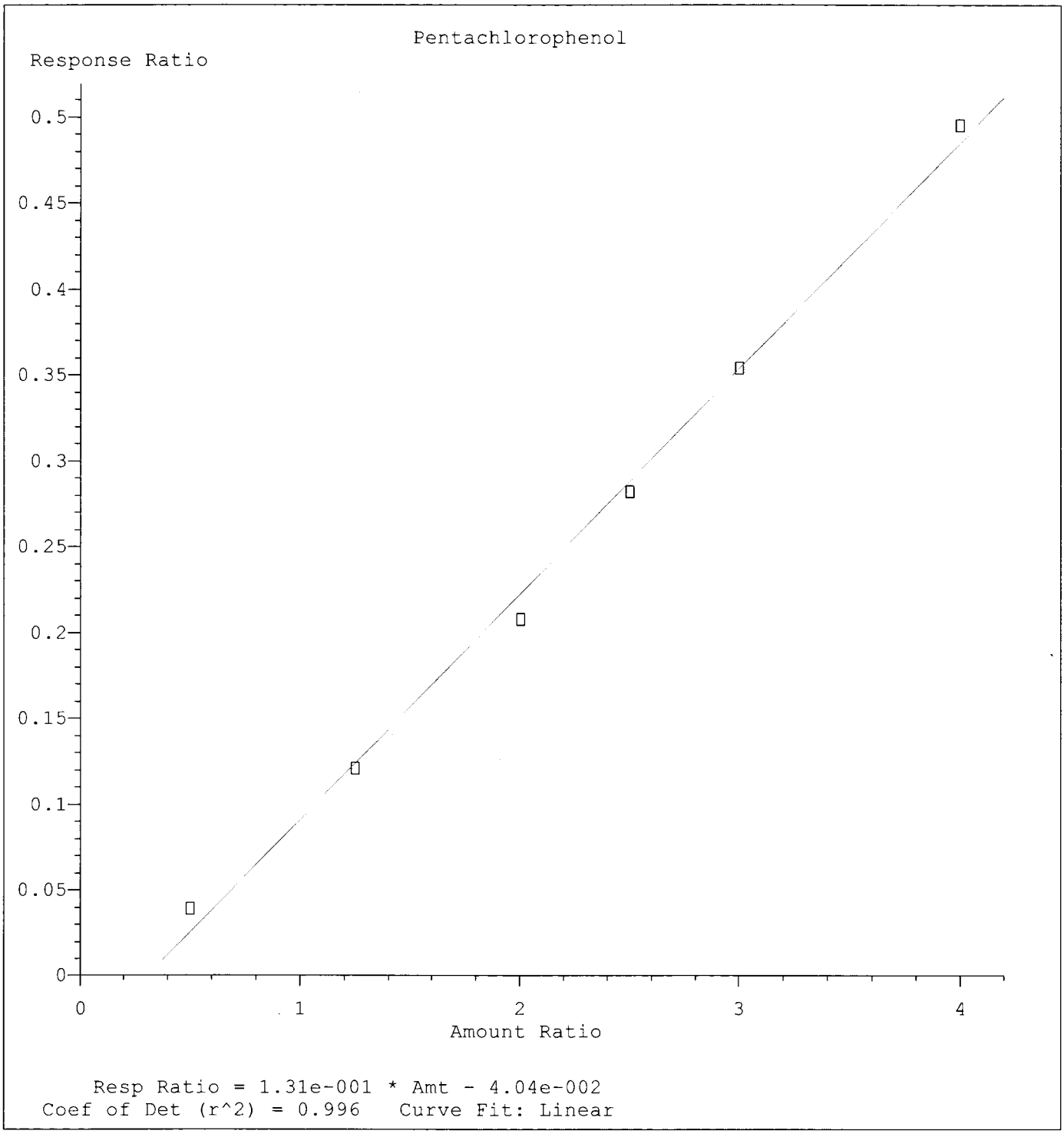
Calibration Table Last Updated: Sat Dec 31 03:50:58 2011



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE123011.M
Calibration Table Last Updated: Sat Dec 31 03:51:16 2011

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074820.D DFTPP Injection Date: 01/04/2012

Instrument ID: BNA_E DFTPP Injection Time: 05:01

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.9
68	Less than 2.0% of mass 69	0.6 (1.5) 1
69	Mass 69 relative abundance	39.1
70	Less than 2.0% of mass 69	0.2 (0.4) 1
127	40.0 - 60.0% of mass 198	48.9
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	19.1
365	Greater than 1% of mass 198	1.6
441	Present, but less than mass 443	10.4
442	Greater than 40% of mass 198	62.8
443	17.0 - 23.0% of mass 442	12.3 (19.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074821.D	01/04/2012	05:45
02	PB60329BS	PB60329BS	BE074822.D	01/04/2012	06:27
03	PB60329BSD	PB60329BSD	BE074823.D	01/04/2012	07:09
04	PB60329B	PB60329B	BE074824.D	01/04/2012	07:51
05	RB-01-122911	C5164-23	BE074827.D	01/04/2012	09:59

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date/Time: 01/04/2012 05:45

Lab File ID: BE074821.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.766	0.793		3.5	
Phenol	1.845	1.811		1.9	20.0
bis(2-Chloroethyl)ether	1.446	1.408		2.6	
2-Chlorophenol	1.468	1.435		2.3	
2-Methylphenol	1.137	1.131		0.5	
2,2-oxybis(1-Chloropropane)	2.147	2.131		0.8	
Acetophenone	0.476	0.468		1.7	
3+4-Methylphenols	1.509	1.460		3.2	
n-Nitroso-di-n-propylamine	1.021	1.004	0.050	1.7	
Hexachloroethane	0.534	0.526		1.5	
Nitrobenzene	0.352	0.350		0.5	
Isophorone	0.631	0.623		1.2	
2-Nitrophenol	0.186	0.187		0.8	20.0
2,4-Dimethylphenol	0.316	0.308		2.7	
bis(2-Chloroethoxy)methane	0.424	0.411		3.1	
2,4-Dichlorophenol	0.288	0.283		1.6	20.0
4-Chloroaniline	0.439	0.425		3.1	
Hexachlorobutadiene	0.147	0.144		2.0	20.0
Caprolactam	0.113	0.112		1.2	
4-Chloro-3-methylphenol	0.291	0.281		3.4	20.0
Hexachlorocyclopentadiene	0.224	0.203	0.050	9.5	
2,4,6-Trichlorophenol	0.342	0.341		0.2	20.0
2,4,5-Trichlorophenol	0.373	0.369		1.0	
1,1-Biphenyl	1.576	1.528		3.1	
2-Chloronaphthalene	1.157	1.124		2.8	
2-Nitroaniline	0.332	0.342		3.0	
Dimethylphthalate	1.290	1.257		2.5	
Acenaphthylene	1.827	1.817		0.5	
2,6-Dinitrotoluene	0.302	0.296		1.9	
3-Nitroaniline	0.360	0.363		0.8	
Acenaphthene	1.201	1.175		2.2	20.0
2,4-Dinitrophenol	0.096	0.095	0.050	0.8	
4-Nitrophenol	0.277	0.291	0.050	5.0	
Dibenzofuran	1.659	1.626		2.0	
2,4-Dinitrotoluene	0.384	0.387		0.8	
Diethylphthalate	1.253	1.226		2.1	
4-Chlorophenyl-phenylether	0.599	0.577		3.6	
4-Nitroaniline	0.376	0.389		3.4	
4,6-Dinitro-2-methylphenol	0.099	0.090		8.9	
n-Nitrosodiphenylamine	0.668	0.649		2.8	20.0
4-Bromophenyl-phenylether	0.185	0.181		2.1	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date/Time: 01/04/2012 05:45

Lab File ID: BE074821.D Init. Calib. Date(s): 12/30/2011 12/31/2011

EPA Sample No.: SSTD040 Init. Calib. Time(s): 21:01 00:39

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.197	0.191		2.8	
Atrazine	0.186	0.168		9.6	
Pentachlorophenol	0.105	0.112		6.8	20.0
Phenanthrene	1.132	1.099		3.0	
Carbazole	1.092	1.072		1.8	
Di-n-butylphthalate	1.196	1.188		0.7	
Butylbenzylphthalate	0.531	0.526		1.0	
3,3-Dichlorobenzidine	0.369	0.368		0.3	
Bis(2-ethylhexyl)phthalate	0.742	0.732		1.3	
Di-n-octyl phthalate	1.204	1.241		3.1	20.0
1,2,4,5-Tetrachlorobenzene	0.502	0.502		0.1	
2,3,4,6-Tetrachlorophenol	0.280	0.285		1.8	
2-Fluorophenol	1.317	1.298		1.4	
Phenol-d5	1.709	1.665		2.6	
Nitrobenzene-d5	0.367	0.360		2.0	
2-Fluorobiphenyl	1.380	1.350		2.2	
2,4,6-Tribromophenol	0.143	0.150		4.7	
Terphenyl-d14	0.740	0.723		2.3	

All other compounds must meet a minimum RRF of 0.010.

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA E\DATA\BE010412\
Data File : BE074821.D
Acq On : 4 Jan 2012 5:45
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 04 17:29:58 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA E\METHOD\8270-BE123011.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sat Dec 31 03:52:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	126	0.00
2		1,4-Dioxane	0.579	0.550	5.0	123	0.00
3		Pyridine	1.667	1.603	3.8	123	0.00
4		n-Nitrosodimethylamine	0.704	0.694	1.4	128	0.00
5	S	2-Fluorophenol	1.317	1.298	1.4	127	0.00
6		Aniline	2.182	2.145	1.7	126	0.00
7	S	Phenol-d5	1.709	1.665	2.6	126	0.00
8		2-Chlorophenol	1.468	1.435	2.2	125	0.00
9		Benzaldehyde	0.766	0.793	-3.5	128	0.00
.0	C	Phenol	1.845	1.811	1.8	126	0.00
.1		bis(2-Chloroethyl)ether	1.446	1.408	2.6	125	0.00
.2	S	2-Chlorophenol-d4	1.308	1.281	2.1	126	0.00
.3		1,3-Dichlorobenzene	1.541	1.516	1.6	127	0.00
.4	C	1,4-Dichlorobenzene	1.562	1.529	2.1	125	0.00
.5	s	1,2-Dichlorobenzene-d4	0.960	0.939	2.2	126	0.00
.6		1,2-Dichlorobenzene	1.488	1.471	1.1	127	0.00
.7		Benzyl Alcohol	1.048	1.027	2.0	125	0.00
.8		2,2'-oxybis(1-Chloropropane	2.147	2.131	0.7	128	0.00
.9		2-Methylphenol	1.137	1.131	0.5	129	0.00
20		Hexachloroethane	0.534	0.526	1.5	127	0.00
21	P	n-Nitroso-di-n-propylamine	1.021	1.004	1.7	127	0.00
22		3+4-Methylphenols	1.509	1.460	3.2	124	0.00
23	I	Naphthalene-d8	1.000	1.000	0.0	125	0.00
24		Acetophenone	0.476	0.468	1.7	125	0.00
25	S	Nitrobenzene-d5	0.367	0.360	1.9	125	0.00
26		Nitrobenzene	0.352	0.350	0.6	128	0.00
27		Isophorone	0.631	0.623	1.3	125	0.00
28	C	2-Nitrophenol	0.186	0.187	-0.5	129	0.00
29		2,4-Dimethylphenol	0.316	0.308	2.5	125	0.00
30		bis(2-Chloroethoxy)methane	0.424	0.411	3.1	123	0.00
31	C	2,4-Dichlorophenol	0.288	0.283	1.7	125	0.00
32		1,2,4-Trichlorobenzene	0.316	0.310	1.9	128	0.00
33		Naphthalene	1.058	1.038	1.9	126	0.00
34		Benzoic acid	0.126	0.139	-10.3	141	0.00
35		4-Chloroaniline	0.439	0.425	3.2	123	0.00
36	C	Hexachlorobutadiene	0.147	0.144	2.0	126	0.00
37		Caprolactam	0.113	0.112	0.9	123	0.00
38	C	4-Chloro-3-methylphenol	0.291	0.281	3.4	123	0.00
39		2-Methylnaphthalene	0.716	0.691	3.5	123	-0.01
40	I	Acenaphthene-d10	1.000	1.000	0.0	122	0.00
41		1,2,4,5-Tetrachlorobenzene	0.502	0.502	0.0	124	0.00
42	P	Hexachlorocyclopentadiene	0.224	0.203	9.4	112	0.00
43	S	2,4,6-Tribromophenol	0.143	0.150	-4.9	130	0.00
44	C	2,4,6-Trichlorophenol	0.342	0.341	0.3	123	0.00

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA E\DATA\BE010412\
Data File : BE074821.D
Acq On : 4 Jan 2012 5:45
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 04 17:29:58 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA E\METHOD\8270-BE123011.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sat Dec 31 03:52:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	0.373	0.369	1.1	122	0.00
46	S	2-Fluorobiphenyl	1.380	1.350	2.2	121	0.00
47		1,1'-Biphenyl	1.576	1.528	3.0	121	0.00
48		2-Chloronaphthalene	1.157	1.124	2.9	120	0.00
49		2-Nitroaniline	0.332	0.342	-3.0	128	0.00
50		Acenaphthylene	1.827	1.817	0.5	123	-0.01
51		Dimethylphthalate	1.290	1.257	2.6	121	0.00
52		2,6-Dinitrotoluene	0.302	0.296	2.0	122	-0.01
53	C	Acenaphthene	1.201	1.175	2.2	122	0.00
54		3-Nitroaniline	0.360	0.363	-0.8	124	-0.01
55	P	2,4-Dinitrophenol	0.096	0.095	1.0	123	-0.01
56		Dibenzofuran	1.659	1.626	2.0	122	0.00
57	P	4-Nitrophenol	0.277	0.291	-5.1	127	0.00
58		2,4-Dinitrotoluene	0.384	0.387	-0.8	124	0.00
59		Fluorene	1.399	1.369	2.1	121	0.00
60		2,3,4,6-Tetrachlorophenol	0.280	0.285	-1.8	127	-0.01
61		Diethylphthalate	1.253	1.226	2.2	120	-0.01
62		4-Chlorophenyl-phenylether	0.599	0.577	3.7	120	-0.01
63		4-Nitroaniline	0.376	0.389	-3.5	127	-0.01
64		Azobenzene	1.346	1.337	0.7	123	-0.01
65	I	Phenanthrene-d10	1.000	1.000	0.0	124	0.00
66		4,6-Dinitro-2-methylphenol	0.099	0.090	9.1	109	-0.01
67	c	n-Nitrosodiphenylamine	0.668	0.649	2.8	122	0.00
68		4-Bromophenyl-phenylether	0.185	0.181	2.2	123	0.00
69		Hexachlorobenzene	0.197	0.191	3.0	122	0.00
70		Atrazine	0.186	0.168	9.7	112	0.00
71	C	Pentachlorophenol	0.105	0.112	-6.7	134	0.00
72		Phenanthrene	1.132	1.099	2.9	120	0.00
73		Anthracene	1.136	1.115	1.8	122	0.00
74		Carbazole	1.092	1.072	1.8	122	-0.01
75		Di-n-butylphthalate	1.196	1.188	0.7	122	0.00
76	C	Fluoranthene	1.142	1.120	1.9	121	-0.01
77	I	Chrysene-d12	1.000	1.000	0.0	124	-0.01
78		Benzidine	0.491	0.558	-13.6	132	0.00
79		Pyrene	1.224	1.196	2.3	121	-0.01
80	S	Terphenyl-d14	0.740	0.723	2.3	120	-0.01
81		Butylbenzylphthalate	0.531	0.526	0.9	123	-0.01
82		Benzo(a)anthracene	1.103	1.086	1.5	123	0.00
83		3,3'-Dichlorobenzidine	0.369	0.368	0.3	120	-0.01
84		Chrysene	1.076	1.060	1.5	124	-0.01
85		Bis(2-ethylhexyl)phthalate	0.742	0.732	1.3	123	-0.01
86	c	Di-n-octyl phthalate	1.204	1.241	-3.1	128	-0.02
87		Indeno(1,2,3-cd)pyrene	1.096	1.079	1.6	123	-0.03

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA E\DATA\BE010412\
Data File : BE074821.D
Acq On : 4 Jan 2012 5:45
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 04 17:29:58 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA E\METHOD\8270-BE123011.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sat Dec 31 03:52:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
38	I	Perylene-d12	1.000	1.000	0.0	125	-0.02
39		Benzo(b)fluoranthene	1.147	1.108	3.4	123	-0.02
40		Benzo(k)fluoranthene	1.180	1.135	3.8	124	-0.02
41	C	Benzo(a)pyrene	1.095	1.054	3.7	123	-0.02
42		Dibenzo(a,h)anthracene	1.043	1.000	4.1	123	-0.03
43		Benzo(g,h,i)perylene	1.063	1.031	3.0	125	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA E\DATA\BE010412\
Data File : BE074821.D
Acq On : 4 Jan 2012 5:45
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 04 17:29:58 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA E\METHOD\8270-BE123011.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sat Dec 31 03:52:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	126	0.00
2		1,4-Dioxane	40.000	38.009	5.0	123	0.00
3		Pyridine	40.000	38.470	3.8	123	0.00
4		n-Nitrosodimethylamine	40.000	39.409	1.5	128	0.00
5	S	2-Fluorophenol	80.000	78.835	1.5	127	0.00
6		Aniline	40.000	39.305	1.7	126	0.00
7	S	Phenol-d5	80.000	77.963	2.5	126	0.00
8		2-Chlorophenol	40.000	39.100	2.2	125	0.00
9		Benzaldehyde	40.000	40.179	-0.4	128	0.00
10	C	Phenol	40.000	39.261	1.8	126	0.00
11		bis(2-Chloroethyl)ether	40.000	38.960	2.6	125	0.00
12	S	2-Chlorophenol-d4	80.000	78.363	2.0	126	0.00
13		1,3-Dichlorobenzene	40.000	39.355	1.6	127	0.00
14	C	1,4-Dichlorobenzene	40.000	39.170	2.1	125	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	78.299	2.1	126	0.00
16		1,2-Dichlorobenzene	40.000	39.532	1.2	127	0.00
17		Benzyl Alcohol	40.000	39.186	2.0	125	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	39.692	0.8	128	0.00
19		2-Methylphenol	40.000	39.787	0.5	129	0.00
20		Hexachloroethane	40.000	39.401	1.5	127	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	39.335	1.7	127	0.00
22		3+4-Methylphenols	40.000	38.714	3.2	124	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	125	0.00
24		Acetophenone	40.000	39.316	1.7	125	0.00
25	S	Nitrobenzene-d5	80.000	78.466	1.9	125	0.00
26		Nitrobenzene	40.000	39.852	0.4	128	0.00
27		Isophorone	40.000	39.536	1.2	125	0.00
28	C	2-Nitrophenol	40.000	40.267	-0.7	129	0.00
29		2,4-Dimethylphenol	40.000	38.943	2.6	125	0.00
30		bis(2-Chloroethoxy)methane	40.000	38.743	3.1	123	0.00
31	C	2,4-Dichlorophenol	40.000	39.327	1.7	125	0.00
32		1,2,4-Trichlorobenzene	40.000	39.189	2.0	128	0.00
33		Naphthalene	40.000	39.250	1.9	126	0.00
34		Benzoic acid	40.000	42.674	-6.7	141	0.00
35		4-Chloroaniline	40.000	38.781	3.0	123	0.00
36	C	Hexachlorobutadiene	40.000	39.341	1.6	126	0.00
37		Caprolactam	40.000	39.573	1.1	123	0.00
38	C	4-Chloro-3-methylphenol	40.000	38.671	3.3	123	0.00
39		2-Methylnaphthalene	40.000	38.621	3.4	123	-0.01
40	I	Acenaphthene-d10	20.000	20.000	0.0	122	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	40.039	-0.1	124	0.00
42	P	Hexachlorocyclopentadiene	40.000	36.162	9.6	112	0.00
43	S	2,4,6-Tribromophenol	80.000	84.082	-5.1	130	0.00
44	C	2,4,6-Trichlorophenol	40.000	39.884	0.3	123	0.00

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA E\DATA\BE010412\
Data File : BE074821.D
Acq On : 4 Jan 2012 5:45
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 04 17:29:58 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA E\METHOD\8270-BE123011.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sat Dec 31 03:52:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	39.614	1.0	122	0.00
46	S	2-Fluorobiphenyl	80.000	78.254	2.2	121	0.00
47		1,1'-Biphenyl	40.000	38.781	3.0	121	0.00
48		2-Chloronaphthalene	40.000	38.884	2.8	120	0.00
49		2-Nitroaniline	40.000	41.214	-3.0	128	0.00
50		Acenaphthylene	40.000	39.779	0.6	123	-0.01
51		Dimethylphthalate	40.000	38.986	2.5	121	0.00
52		2,6-Dinitrotoluene	40.000	39.247	1.9	122	-0.01
53	C	Acenaphthene	40.000	39.116	2.2	122	0.00
54		3-Nitroaniline	40.000	40.302	-0.8	124	-0.01
55	P	2,4-Dinitrophenol	40.000	39.093	2.3	123	-0.01
56		Dibenzofuran	40.000	39.197	2.0	122	0.00
57	P	4-Nitrophenol	40.000	41.979	-4.9	127	0.00
58		2,4-Dinitrotoluene	40.000	40.275	-0.7	124	0.00
59		Fluorene	40.000	39.146	2.1	121	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	40.703	-1.8	127	-0.01
61		Diethylphthalate	40.000	39.148	2.1	120	-0.01
62		4-Chlorophenyl-phenylether	40.000	38.556	3.6	120	-0.01
63		4-Nitroaniline	40.000	41.390	-3.5	127	-0.01
64		Azobenzene	40.000	39.725	0.7	123	-0.01
65	I	Phenanthrene-d10	20.000	20.000	0.0	124	0.00
66		4,6-Dinitro-2-methylphenol	40.000	34.706	13.2	109	-0.01
67	c	n-Nitrosodiphenylamine	40.000	38.909	2.7	122	0.00
68		4-Bromophenyl-phenylether	40.000	39.227	1.9	123	0.00
69		Hexachlorobenzene	40.000	38.846	2.9	122	0.00
70		Atrazine	40.000	36.084	9.8	112	0.00
71	C	Pentachlorophenol	40.000	40.312	-0.8	134	0.00
72		Phenanthrene	40.000	38.824	2.9	120	0.00
73		Anthracene	40.000	39.283	1.8	122	0.00
74		Carbazole	40.000	39.260	1.9	122	-0.01
75		Di-n-butylphthalate	40.000	39.740	0.6	122	0.00
76	C	Fluoranthene	40.000	39.206	2.0	121	-0.01
77	I	Chrysene-d12	20.000	20.000	0.0	124	-0.01
78		Benzidine	40.000	45.506	-13.8	132	0.00
79		Pyrene	40.000	39.106	2.2	121	-0.01
80	S	Terphenyl-d14	80.000	78.150	2.3	120	-0.01
81		Butylbenzylphthalate	40.000	39.629	0.9	123	-0.01
82		Benzo(a)anthracene	40.000	39.369	1.6	123	0.00
83		3,3'-Dichlorobenzidine	40.000	39.923	0.2	120	-0.01
84		Chrysene	40.000	39.417	1.5	124	-0.01
85		Bis(2-ethylhexyl)phthalate	40.000	39.488	1.3	123	-0.01
86	c	Di-n-octyl phthalate	40.000	41.234	-3.1	128	-0.02
87		Indeno(1,2,3-cd)pyrene	40.000	39.395	1.5	123	-0.03

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA E\DATA\BE010412\
Data File : BE074821.D
Acq On : 4 Jan 2012 5:45
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 04 17:29:58 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA E\METHOD\8270-BE123011.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Sat Dec 31 03:52:36 2011
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	125	-0.02
39		Benzo(b)fluoranthene	40.000	38.639	3.4	123	-0.02
40		Benzo(k)fluoranthene	40.000	38.494	3.8	124	-0.02
41	C	Benzo(a)pyrene	40.000	38.485	3.8	123	-0.02
42		Dibenzo(a,h)anthracene	40.000	38.353	4.1	123	-0.03
43		Benzo(g,h,i)perylene	40.000	38.784	3.0	125	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60329B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074824.D Lab Sample ID: PB60329B

Instrument ID: BNA_E Date Extracted: 12/30/2011

Matrix: (soil/water) WATER Date Analyzed: 01/04/2012

Level: (low/med) LOW Time Analyzed: 07:51

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
RB-01-122911	C5164-23	BE074827.D	01/04/2012
PB60329BSD	PB60329BSD	BE074823.D	01/04/2012
PB60329BS	PB60329BS	BE074822.D	01/04/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60329B	SDG No.:	C5164
Lab Sample ID:	PB60329B	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074824.D	1	12/30/11	01/04/12	PB60329

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	5	U	0.77	10	ug/L
108-95-2	Phenol	5	U	0.21	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.55	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.54	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	10	ug/L
98-86-2	Acetophenone	5	U	0.14	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	10	ug/L
98-95-3	Nitrobenzene	5	U	0.68	10	ug/L
78-59-1	Isophorone	5	U	0.3	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.52	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.71	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.55	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.66	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	10	ug/L
105-60-2	Caprolactam	5	U	2	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.56	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	10	ug/L
208-96-8	Acenaphthylene	5	U	0.7	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	10	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60329B	SDG No.:	C5164
Lab Sample ID:	PB60329B	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074824.D	1	12/30/11	01/04/12	PB60329

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.74	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.6	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	10	ug/L
1912-24-9	Atrazine	5	U	0.4	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	10	ug/L
86-74-8	Carbazole	5	U	0.22	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	10	ug/L
91-94-1	3,3-Dichlorobenzidine	5	U	2	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.51	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	10	10	ug/L
SURROGATES						
367-12-4	2-Fluorophenol	157		20 - 110	105%	SPK: 150
13127-88-3	Phenol-d5	155		10 - 160	104%	SPK: 150
4165-60-0	Nitrobenzene-d5	97.2		40 - 110	97%	SPK: 100
321-60-8	2-Fluorobiphenyl	100		50 - 110	101%	SPK: 100
118-79-6	2,4,6-Tribromophenol	159		40 - 125	106%	SPK: 150
1718-51-0	Terphenyl-d14	105		50 - 135	105%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	146075	8.64			
1146-65-2	Naphthalene-d8	565077	10.81			

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074857.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_E DFTPP Injection Time: 13:50

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.5
68	Less than 2.0% of mass 69	0.1 (0.4) 1
69	Mass 69 relative abundance	34.8
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	47.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	20
365	Greater than 1% of mass 198	2.2
441	Present, but less than mass 443	9.2
442	Greater than 40% of mass 198	60
443	17.0 - 23.0% of mass 442	12.3 (20.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BE074858.D	01/05/2012	14:35
02	SSTD025	25 ng BNA ICC	BE074859.D	01/05/2012	15:17
03	SSTD040	40 ng BNA ICC	BE074860.D	01/05/2012	16:01
04	SSTD050	50 ng BNA ICC	BE074861.D	01/05/2012	16:43
05	SSTD060	60 ng BNA ICC	BE074862.D	01/05/2012	17:28
06	SSTD080	80 ng BNA ICC	BE074863.D	01/05/2012	18:12

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date(s): 01/05/2012 01/05/2012

Calibration Time(s): 14:35 18:12

LAB FILE ID: RRF010 = BE074858.D RRF025 = BE074859.D RRF040 = BE074860.D
RRF050 = BE074861.D RRF060 = BE074862.D RRF080 = BE074863.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	0.942	0.978	0.922	0.853	0.717	0.533	0.824	20.6
Phenol	1.723	1.766	1.739	1.794	1.770	1.789	1.764	1.6
bis(2-Chloroethyl)ether	1.404	1.408	1.374	1.403	1.398	1.408	1.399	0.9
2-Chlorophenol	1.394	1.419	1.375	1.405	1.393	1.385	1.395	1.1
2-Methylphenol	1.010	1.085	1.081	1.111	1.102	1.110	1.083	3.5
2,2-oxybis(1-Chloropropane)	2.075	2.064	2.005	2.060	2.046	2.052	2.050	1.2
Acetophenone	0.450	0.461	0.465	0.460	0.456	0.462	0.459	1.2
3+4-Methylphenols	1.340	1.416	1.438	1.478	1.456	1.456	1.431	3.4
n-Nitroso-di-n-propylamine	0.883	0.973	0.979	1.002	0.997	0.997	0.972	4.6
Hexachloroethane	0.511	0.523	0.506	0.502	0.509	0.525	0.513	1.8
Nitrobenzene	0.327	0.338	0.337	0.335	0.337	0.346	0.337	1.8
Isophorone	0.545	0.581	0.600	0.605	0.597	0.611	0.590	4.1
2-Nitrophenol	0.154	0.172	0.179	0.178	0.180	0.185	0.175	6.4
2,4-Dimethylphenol	0.277	0.303	0.310	0.302	0.296	0.306	0.299	3.9
bis(2-Chloroethoxy)methane	0.394	0.403	0.408	0.408	0.399	0.406	0.403	1.4
2,4-Dichlorophenol	0.241	0.266	0.268	0.270	0.268	0.274	0.265	4.4
4-Chloroaniline	0.395	0.408	0.419	0.416	0.411	0.417	0.411	2.1
Hexachlorobutadiene	0.137	0.137	0.137	0.137	0.135	0.134	0.136	1.1
Caprolactam	0.088	0.104	0.112	0.111	0.111	0.117	0.107	9.8
4-Chloro-3-methylphenol	0.254	0.268	0.275	0.279	0.277	0.280	0.272	3.6
Hexachlorocyclopentadiene	0.163	0.192	0.205	0.207	0.216	0.220	0.201	10.4
2,4,6-Trichlorophenol	0.292	0.319	0.321	0.325	0.322	0.319	0.316	3.9
2,4,5-Trichlorophenol	0.328	0.344	0.356	0.342	0.352	0.349	0.345	2.8
1,1-Biphenyl	1.523	1.547	1.503	1.491	1.473	1.455	1.499	2.2
2-Chloronaphthalene	1.113	1.106	1.087	1.078	1.077	1.058	1.087	1.9
2-Nitroaniline	0.279	0.311	0.321	0.317	0.330	0.330	0.315	6.0
Dimethylphthalate	1.209	1.244	1.231	1.208	1.203	1.199	1.215	1.5
Acenaphthylene	1.667	1.711	1.706	1.677	1.688	1.669	1.686	1.1
2,6-Dinitrotoluene	0.270	0.290	0.286	0.288	0.288	0.291	0.286	2.7
3-Nitroaniline	0.311	0.352	0.350	0.351	0.353	0.351	0.345	4.8
Acenaphthene	1.114	1.158	1.135	1.132	1.135	1.123	1.133	1.3
2,4-Dinitrophenol	0.057	0.095	0.115	0.127	0.128	0.142	0.111	27.7
4-Nitrophenol	0.218	0.261	0.271	0.273	0.279	0.284	0.264	9.1
Dibenzofuran	1.624	1.620	1.603	1.566	1.535	1.529	1.580	2.7
2,4-Dinitrotoluene	0.330	0.377	0.370	0.377	0.382	0.382	0.370	5.4
Diethylphthalate	1.177	1.207	1.202	1.202	1.197	1.179	1.194	1.1

r^20k

r^20k

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date(s): 01/05/2012 01/05/2012

Calibration Time(s): 14:35 18:12

LAB FILE ID: RRF010 = BE074858.D RRF025 = BE074859.D RRF040 = BE074860.D
RRF050 = BE074861.D RRF060 = BE074862.D RRF080 = BE074863.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.564	0.569	0.565	0.562	0.546	0.540	0.557	2.1
4-Nitroaniline	0.323	0.357	0.363	0.365	0.369	0.369	0.358	4.9
4,6-Dinitro-2-methylphenol	0.067	0.092	0.106	0.111	0.117	0.125	0.103	20.3
n-Nitrosodiphenylamine	0.607	0.640	0.623	0.630	0.626	0.624	0.625	1.7
4-Bromophenyl-phenylether	0.169	0.176	0.166	0.173	0.175	0.171	0.172	2.2
Hexachlorobenzene	0.194	0.187	0.181	0.186	0.182	0.180	0.185	2.9
Atrazine	0.163	0.178	0.176	0.179	0.183	0.181	0.177	4.0
Pentachlorophenol	0.064	0.086	0.095	0.099	0.107	0.112	0.094	18.2
Phenanthrene	1.072	1.095	1.051	1.047	1.054	1.026	1.058	2.2
Carbazole	0.992	1.057	1.031	1.038	1.026	1.031	1.029	2.1
Di-n-butylphthalate	0.998	1.113	1.122	1.138	1.138	1.142	1.108	5.0
Butylbenzylphthalate	0.423	0.477	0.489	0.508	0.508	0.520	0.488	7.2
3,3-Dichlorobenzidine	0.321	0.357	0.355	0.350	0.346	0.335	0.344	4.0
Bis(2-ethylhexyl)phthalate	0.619	0.697	0.699	0.710	0.726	0.733	0.697	5.9
Di-n-octyl phthalate	0.928	1.091	1.107	1.156	1.171	1.197	1.108	8.7
1,2,4,5-Tetrachlorobenzene	0.497	0.479	0.478	0.457	0.467	0.449	0.471	3.7
2,3,4,6-Tetrachlorophenol	0.233	0.260	0.261	0.262	0.264	0.272	0.259	5.1
2-Fluorophenol	1.254	1.298	1.258	1.270	1.289	1.295	1.277	1.5
Phenol-d5	1.585	1.645	1.619	1.659	1.669	1.660	1.639	1.9
Nitrobenzene-d5	0.330	0.348	0.349	0.348	0.344	0.349	0.345	2.1
2-Fluorobiphenyl	1.363	1.341	1.301	1.275	1.236	1.199	1.286	4.8
2,4,6-Tribromophenol	0.129	0.139	0.141	0.140	0.142	0.138	0.138	3.4
Terphenyl-d14	0.736	0.729	0.693	0.690	0.668	0.639	0.693	5.3

r^20% r^20%

All other compounds must meet a minimum RRF of 0.010.

Method Path : Z:\HPCHEM1\BNA_E\METHOD\
Method File : 8270-BE010512.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Fri Jan 06 01:52:02 2012
Response Via : Initial Calibration

Calibration Files
40 =BE074860.D 10 =BE074858.D 25 =BE074859.D
50 =BE074861.D 60 =BE074862.D 80 =BE074863.D

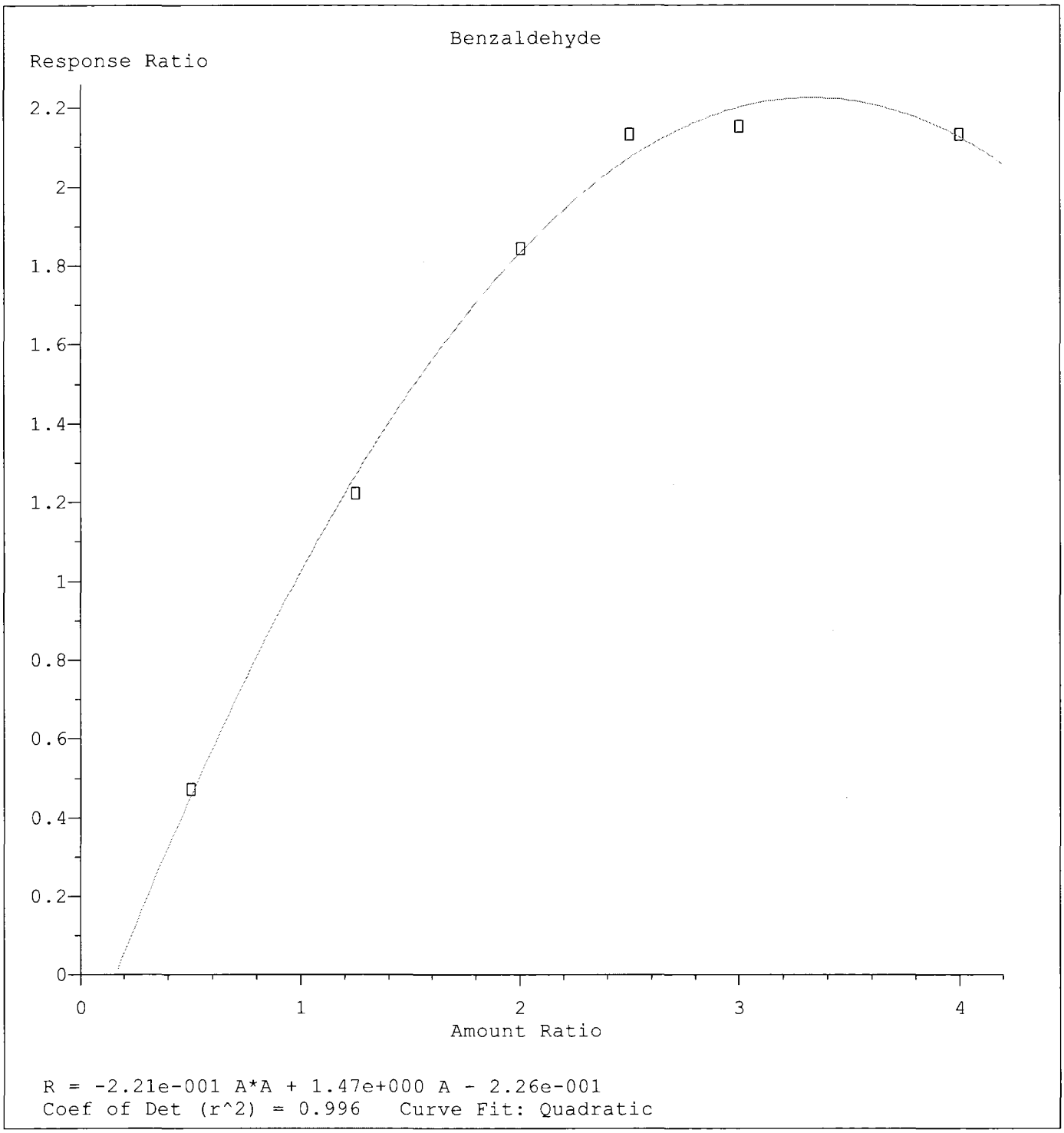
		Compound	40	10	25	50	60	80	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)		1,4-Dioxane	0.560	0.589	0.589	0.570	0.578	0.563	0.575	2.19
3)		Pyridine	1.576	1.574	1.625	1.610	1.638	1.624	1.608	1.67
4)		n-Nitrosodimethyl	0.651	0.659	0.682	0.675	0.680	0.679	0.671	1.92
5)	S	2-Fluorophenol	1.258	1.254	1.298	1.270	1.289	1.295	1.277	1.51
6)		Aniline	2.054	1.965	2.079	2.100	2.078	2.109	2.064	2.53
7)	S	Phenol-d5	1.619	1.585	1.645	1.659	1.669	1.660	1.639	1.94
8)		2-Chlorophenol	1.375	1.394	1.419	1.405	1.393	1.385	1.395	1.10
9)		Benzaldehyde	0.922	0.942	0.978	0.853	0.717	0.533	0.824	20.62
10)	C	Phenol	1.739	1.723	1.766	1.794	1.770	1.789	1.764	1.57
11)		bis(2-Chloroethyl	1.374	1.404	1.408	1.403	1.398	1.408	1.399	0.93
12)	S	2-Chlorophenol-d4	1.253	1.249	1.284	1.271	1.282	1.278	1.269	1.19
13)		1,3-Dichlorobenze	1.443	1.550	1.499	1.475	1.484	1.445	1.483	2.67
14)	C	1,4-Dichlorobenze	1.469	1.566	1.546	1.487	1.494	1.481	1.507	2.62
15)	s	1,2-Dichlorobenze	0.890	0.919	0.936	0.906	0.897	0.882	0.905	2.18
16)		1,2-Dichlorobenze	1.407	1.472	1.459	1.436	1.444	1.409	1.438	1.82
17)		Benzyl Alcohol	0.992	0.864	0.970	1.010	1.033	1.055	0.987	6.83
18)		2,2'-oxybis(1-Chl	2.005	2.075	2.064	2.060	2.046	2.052	2.050	1.19
19)		2-Methylphenol	1.081	1.010	1.085	1.111	1.102	1.110	1.083	3.50
20)		Hexachloroethane	0.506	0.511	0.523	0.502	0.509	0.525	0.513	1.83
21)	P	n-Nitroso-di-n-pr	0.979	0.883	0.973	1.002	0.997	0.997	0.972	4.65
22)		3+4-Methylphenols	1.438	1.340	1.416	1.478	1.456	1.456	1.431	3.42
23)	I	Naphthalene-d8	----------ISTD----------							
24)		Acetophenone	0.465	0.450	0.461	0.460	0.456	0.462	0.459	1.20
25)	S	Nitrobenzene-d5	0.349	0.330	0.348	0.348	0.344	0.349	0.345	2.14
26)		Nitrobenzene	0.337	0.327	0.338	0.335	0.337	0.346	0.337	1.84
27)		Isophorone	0.600	0.545	0.581	0.605	0.597	0.611	0.590	4.08
28)	C	2-Nitrophenol	0.179	0.154	0.172	0.178	0.180	0.185	0.175	6.39
29)		2,4-Dimethylpheno	0.310	0.277	0.303	0.302	0.296	0.306	0.299	3.86
30)		bis(2-Chloroethox	0.408	0.394	0.403	0.408	0.399	0.406	0.403	1.37
31)	C	2,4-Dichloropheno	0.268	0.241	0.266	0.270	0.268	0.274	0.265	4.43
32)		1,2,4-Trichlorobe	0.300	0.309	0.307	0.296	0.291	0.292	0.299	2.53
33)		Naphthalene	1.003	1.015	1.017	0.992	0.973	0.983	0.997	1.77
34)		Benzoic acid	0.128	0.085	0.108	0.135	0.150	0.166	0.129	22.60
35)		4-Chloroaniline	0.419	0.395	0.408	0.416	0.411	0.417	0.411	2.10
36)	C	Hexachlorobutadie	0.137	0.137	0.137	0.137	0.135	0.134	0.136	1.03
37)		Caprolactam	0.112	0.088	0.104	0.111	0.111	0.117	0.107	9.76
38)	C	4-Chloro-3-methyl	0.275	0.254	0.268	0.279	0.277	0.280	0.272	3.55
39)		2-Methylnaphthale	0.646	0.654	0.650	0.638	0.631	0.639	0.643	1.33
40)	I	Acenaphthene-d10	----------ISTD----------							
41)		1,2,4,5-Tetrachlo	0.478	0.497	0.479	0.457	0.467	0.449	0.471	3.67
42)	P	Hexachlorocyclope	0.205	0.163	0.192	0.207	0.216	0.220	0.201	10.45
43)	S	2,4,6-Tribromophe	0.141	0.129	0.139	0.140	0.142	0.138	0.138	3.40
44)	C	2,4,6-Trichloroph	0.321	0.292	0.319	0.325	0.322	0.319	0.316	3.88
45)		2,4,5-Trichloroph	0.356	0.328	0.344	0.342	0.352	0.349	0.345	2.83
46)	S	2-Fluorobiphenyl	1.301	1.363	1.341	1.275	1.236	1.199	1.286	4.85
47)		1,1'-Biphenyl	1.503	1.523	1.547	1.491	1.473	1.455	1.499	2.23
48)		2-Chloronaphthale	1.087	1.113	1.106	1.078	1.077	1.058	1.087	1.87
49)		2-Nitroaniline	0.321	0.279	0.311	0.317	0.330	0.330	0.315	6.05
50)		Acenaphthylene	1.706	1.667	1.711	1.677	1.688	1.669	1.686	1.13
51)		Dimethylphthalate	1.231	1.209	1.244	1.208	1.203	1.199	1.215	1.45

Method Path : Z:\HPCHEM1\BNA_E\METHOD\
Method File : 8270-BE010512.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Fri Jan 06 01:52:02 2012
Response Via : Initial Calibration

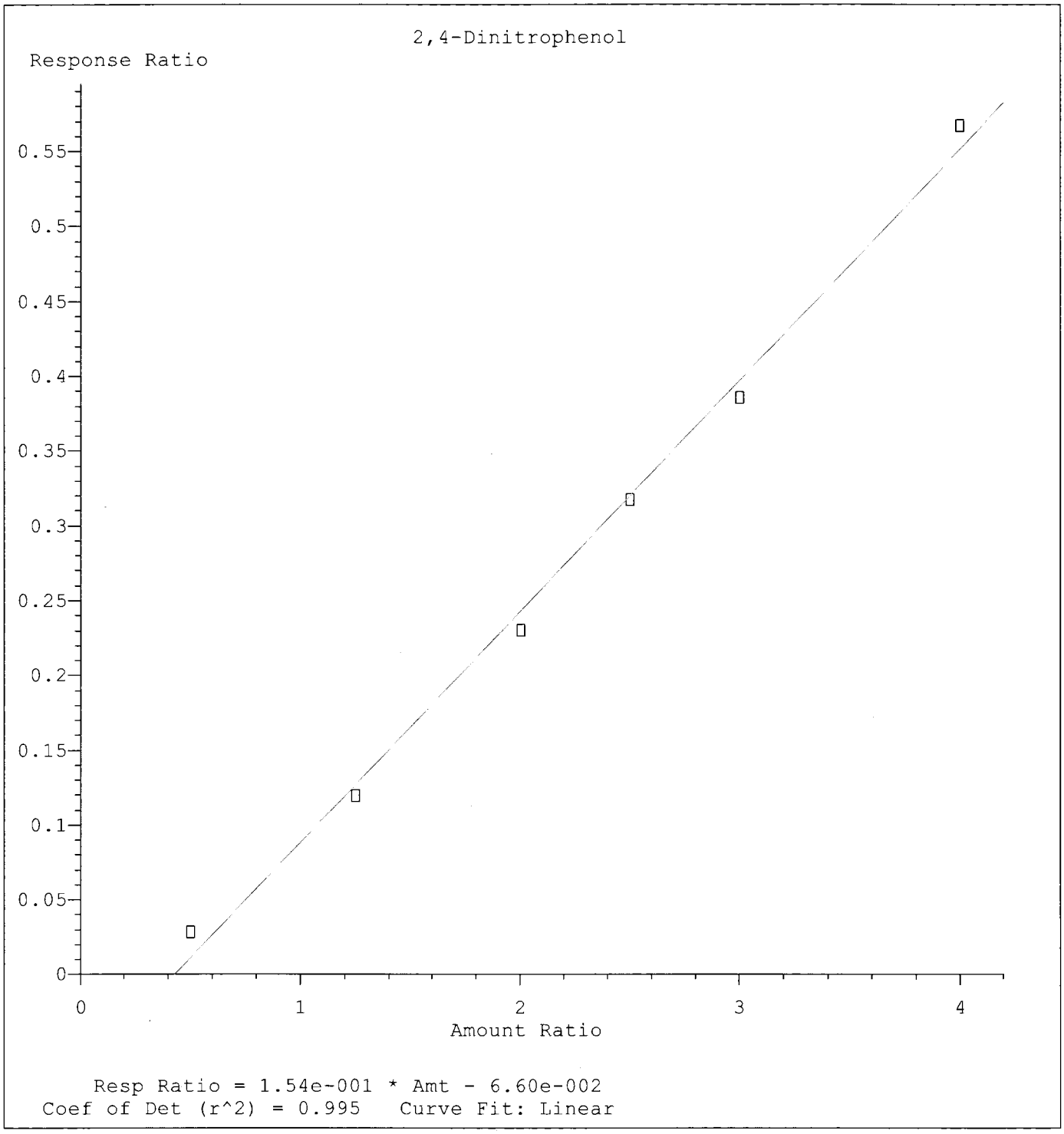
Calibration Files
40 =BE074860.D 10 =BE074858.D 25 =BE074859.D
50 =BE074861.D 60 =BE074862.D 80 =BE074863.D

		Compound	40	10	25	50	60	80	Avg	%RSD
52)		2,6-Dinitrotoluen	0.286	0.270	0.290	0.288	0.288	0.291	0.286	2.66
53)	C	Acenaphthene	1.135	1.114	1.158	1.132	1.135	1.123	1.133	1.32
54)		3-Nitroaniline	0.350	0.311	0.352	0.351	0.353	0.351	0.345	4.82
55)	P	2,4-Dinitrophenol	0.115	0.057	0.095	0.127	0.128	0.142	0.111	27.79
56)		Dibenzofuran	1.603	1.624	1.620	1.566	1.535	1.529	1.580	2.66
57)	P	4-Nitrophenol	0.271	0.218	0.261	0.273	0.279	0.284	0.264	9.05
58)		2,4-Dinitrotoluen	0.370	0.330	0.377	0.377	0.382	0.382	0.370	5.37
59)		Fluorene	1.325	1.333	1.340	1.300	1.281	1.252	1.305	2.60
60)		2,3,4,6-Tetrachlo	0.261	0.233	0.260	0.262	0.264	0.272	0.259	5.13
61)		Diethylphthalate	1.202	1.177	1.207	1.202	1.197	1.179	1.194	1.07
62)		4-Chlorophenyl-ph	0.565	0.564	0.569	0.562	0.546	0.540	0.557	2.09
63)		4-Nitroaniline	0.363	0.323	0.357	0.365	0.369	0.369	0.358	4.90
64)		Azobenzene	1.298	1.200	1.293	1.286	1.287	1.276	1.274	2.87
65)	I	Phenanthrene-d10	----------	ISTD	----------					
66)		4,6-Dinitro-2-met	0.106	0.067	0.092	0.111	0.117	0.125	0.103	20.24
67)	c	n-Nitrosodiphenyl	0.623	0.607	0.640	0.630	0.626	0.624	0.625	1.73
68)		4-Bromophenyl-phe	0.166	0.169	0.176	0.173	0.175	0.171	0.172	2.24
69)		Hexachlorobenzene	0.181	0.194	0.187	0.186	0.182	0.180	0.185	2.86
70)		Atrazine	0.176	0.163	0.178	0.179	0.183	0.181	0.177	4.03
71)	C	Pentachlorophenol	0.095	0.064	0.086	0.099	0.107	0.112	0.094	18.25
72)		Phenanthrene	1.051	1.072	1.095	1.047	1.054	1.026	1.058	2.23
73)		Anthracene	1.057	1.024	1.063	1.068	1.068	1.052	1.055	1.59
74)		Carbazole	1.031	0.992	1.057	1.038	1.026	1.031	1.029	2.06
75)		Di-n-butylphthala	1.122	0.998	1.113	1.138	1.138	1.142	1.108	4.99
76)	C	Fluoranthene	1.073	1.044	1.097	1.079	1.072	1.068	1.072	1.61
77)	I	Chrysene-d12	----------	ISTD	----------					
78)		Benzidine	0.589	0.419	0.586	0.561	0.501	0.428	0.514	14.99
79)		Pyrene	1.148	1.163	1.185	1.161	1.157	1.133	1.158	1.49
80)	S	Terphenyl-d14	0.693	0.736	0.729	0.690	0.668	0.639	0.693	5.28
81)		Butylbenzylphthal	0.489	0.423	0.477	0.508	0.508	0.520	0.488	7.17
82)		Benzo(a)anthracen	1.040	1.038	1.074	1.043	1.037	1.032	1.044	1.46
83)		3,3'-Dichlorobenz	0.355	0.321	0.357	0.350	0.346	0.335	0.344	4.00
84)		Chrysene	1.010	1.067	1.052	1.021	1.017	1.000	1.028	2.52
85)		Bis(2-ethylhexyl)	0.699	0.619	0.697	0.710	0.726	0.733	0.697	5.89
86)	c	Di-n-octyl phthal	1.107	0.928	1.091	1.156	1.171	1.197	1.108	8.73
87)		Indeno(1,2,3-cd)p	1.009	0.971	1.011	1.024	1.037	1.041	1.016	2.51
88)	I	Perylene-d12	----------	ISTD	----------					
89)		Benzo(b)fluoranth	1.065	1.026	1.035	1.062	1.066	1.066	1.053	1.68
90)		Benzo(k)fluoranth	1.107	1.068	1.116	1.120	1.118	1.129	1.110	1.97
91)	C	Benzo(a)pyrene	1.018	0.944	1.002	1.026	1.022	1.039	1.008	3.36
92)		Dibenzo(a,h)anthr	0.962	0.898	0.948	0.974	0.971	0.980	0.955	3.15
93)		Benzo(g,h,i)peryl	0.972	0.915	0.973	0.987	0.995	0.997	0.973	3.13

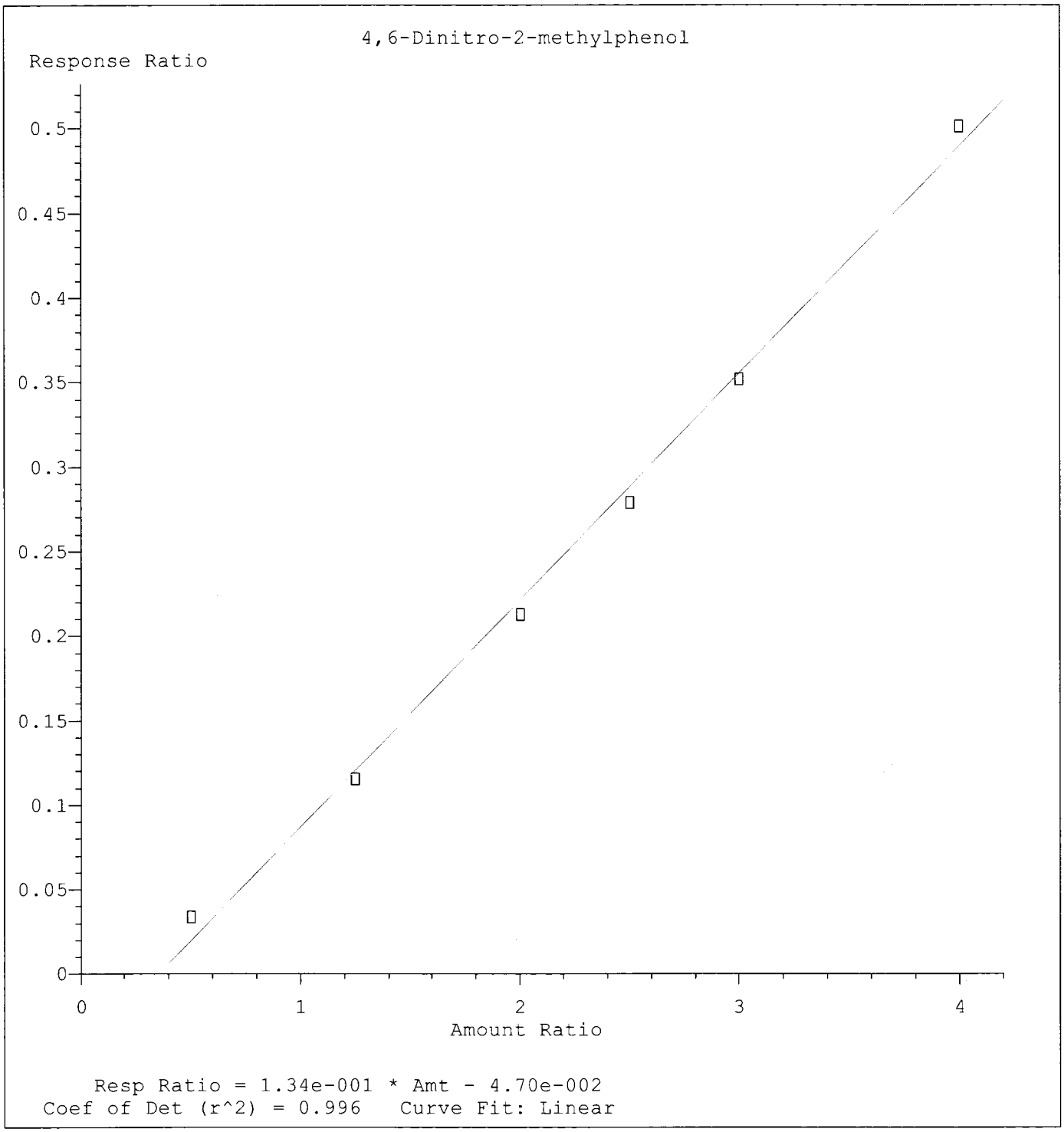
(#) = Out of Range



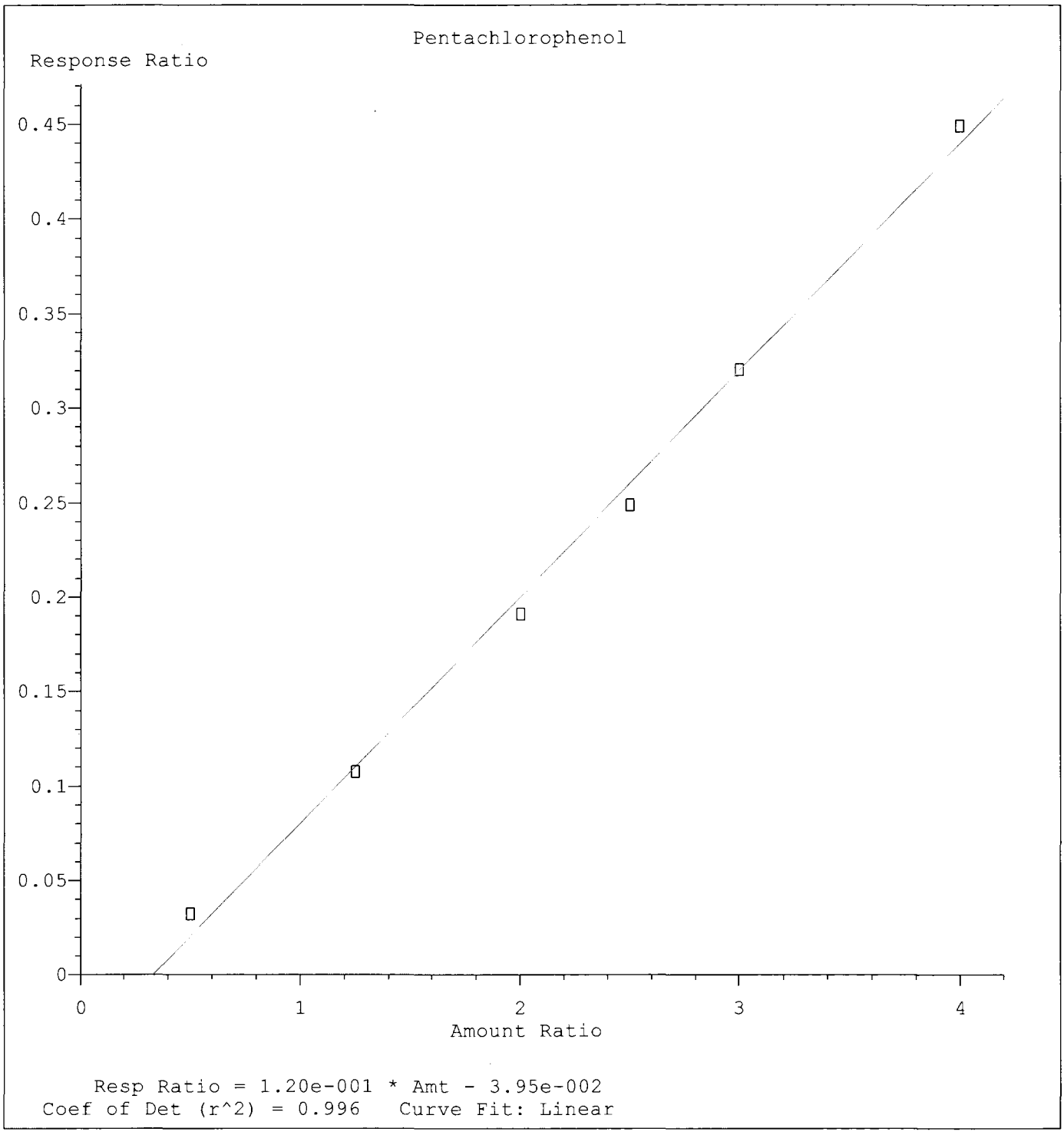
Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE010512.M
Calibration Table Last Updated: Fri Jan 06 01:48:26 2012



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE010512.M
Calibration Table Last Updated: Fri Jan 06 01:51:08 2012



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE010512.M
Calibration Table Last Updated: Fri Jan 06 01:51:32 2012



Method Name: Z:\HPCHEM1\BNA_E\METHOD\8270-BE010512.M
Calibration Table Last Updated: Fri Jan 06 01:51:53 2012

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074890.D DFTPP Injection Date: 01/06/2012

Instrument ID: BNA_E DFTPP Injection Time: 16:14

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.9
68	Less than 2.0% of mass 69	0.6 (1.8) 1
69	Mass 69 relative abundance	35.4
70	Less than 2.0% of mass 69	0.3 (0.8) 1
127	40.0 - 60.0% of mass 198	46.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	19.4
365	Greater than 1% of mass 198	2
441	Present, but less than mass 443	10.1
442	Greater than 40% of mass 198	62.2
443	17.0 - 23.0% of mass 442	12.1 (19.4) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074891.D	01/06/2012	16:56
02	PB60339B	PB60339B	BE074904.D	01/07/2012	02:26
03	PB60339BS	PB60339BS	BE074905.D	01/07/2012	03:07

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date/Time: 01/06/2012 16:56

Lab File ID: BE074891.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 14:35 18:12

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.824	0.762		7.5	
Phenol	1.764	1.751		0.8	20.0
bis(2-Chloroethyl)ether	1.399	1.390		0.6	
2-Chlorophenol	1.395	1.381		1.0	
2-Methylphenol	1.083	1.076		0.6	
2,2-oxybis(1-Chloropropane)	2.050	2.059		0.4	
Acetophenone	0.459	0.461		0.4	
3+4-Methylphenols	1.431	1.459		2.0	
n-Nitroso-di-n-propylamine	0.972	0.975	0.050	0.3	
Hexachloroethane	0.513	0.511		0.3	
Nitrobenzene	0.337	0.332		1.4	
Isophorone	0.590	0.589		0.1	
2-Nitrophenol	0.175	0.181		3.3	20.0
2,4-Dimethylphenol	0.299	0.302		0.9	
bis(2-Chloroethoxy)methane	0.403	0.395		1.9	
2,4-Dichlorophenol	0.265	0.265		0.2	20.0
4-Chloroaniline	0.411	0.412		0.2	
Hexachlorobutadiene	0.136	0.136		0.0	20.0
Caprolactam	0.107	0.109		2.1	
4-Chloro-3-methylphenol	0.272	0.276		1.5	20.0
Hexachlorocyclopentadiene	0.201	0.201	0.050	0.2	
2,4,6-Trichlorophenol	0.316	0.324		2.6	20.0
2,4,5-Trichlorophenol	0.345	0.349		1.1	
1,1-Biphenyl	1.499	1.492		0.5	
2-Chloronaphthalene	1.087	1.094		0.6	
2-Nitroaniline	0.315	0.316		0.4	
Dimethylphthalate	1.215	1.212		0.2	
Acenaphthylene	1.686	1.717		1.8	
2,6-Dinitrotoluene	0.286	0.288		0.6	
3-Nitroaniline	0.345	0.345		0.0	
Acenaphthene	1.133	1.137		0.3	20.0
2,4-Dinitrophenol	0.111	0.097	0.050	12.3	
4-Nitrophenol	0.264	0.270	0.050	2.2	
Dibenzofuran	1.580	1.578		0.1	
2,4-Dinitrotoluene	0.370	0.374		1.2	
Diethylphthalate	1.194	1.179		1.3	
4-Chlorophenyl-phenylether	0.557	0.559		0.4	
4-Nitroaniline	0.358	0.361		0.9	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date/Time: 01/06/2012 16:56

Lab File ID: BE074891.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 14:35 18:12

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.103	0.094		9.0	
n-Nitrosodiphenylamine	0.625	0.624		0.2	20.0
4-Bromophenyl-phenylether	0.172	0.176		2.1	
Hexachlorobenzene	0.185	0.185		0.1	
Atrazine	0.177	0.180		1.5	
Pentachlorophenol	0.094	0.099		4.9	20.0
Phenanthrene	1.058	1.064		0.6	
Carbazole	1.029	1.027		0.2	
Di-n-butylphthalate	1.108	1.147		3.5	
Butylbenzylphthalate	0.488	0.511		4.7	
3,3-Dichlorobenzidine	0.344	0.354		3.0	
Bis(2-ethylhexyl)phthalate	0.697	0.714		2.4	
Di-n-octyl phthalate	1.108	1.178		6.3	20.0
1,2,4,5-Tetrachlorobenzene	0.471	0.468		0.6	
2,3,4,6-Tetrachlorophenol	0.259	0.269		3.7	
2-Fluorophenol	1.277	1.272		0.4	
Phenol-d5	1.639	1.644		0.3	
Nitrobenzene-d5	0.345	0.343		0.6	
2-Fluorobiphenyl	1.286	1.284		0.2	
2,4,6-Tribromophenol	0.138	0.143		3.3	
Terphenyl-d14	0.693	0.691		0.3	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074891.D
Acq On : 6 Jan 2012 16:56
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 04:18:51 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	106	0.00
2		1,4-Dioxane	0.575	0.569	1.0	108	0.00
3		Pyridine	1.608	1.584	1.5	107	0.00
4		n-Nitrosodimethylamine	0.671	0.678	-1.0	111	0.00
5	S	2-Fluorophenol	1.277	1.272	0.4	108	0.00
6		Aniline	2.064	2.022	2.0	105	0.00
7	S	Phenol-d5	1.639	1.644	-0.3	108	0.00
8		2-Chlorophenol	1.395	1.381	1.0	107	0.00
9		Benzaldehyde	0.824	0.762	7.5	88	0.00
10	C	Phenol	1.764	1.751	0.7	107	0.00
11		bis(2-Chloroethyl)ether	1.399	1.390	0.6	108	0.00
12	S	2-Chlorophenol-d4	1.269	1.249	1.6	106	0.00
13		1,3-Dichlorobenzene	1.483	1.466	1.1	108	0.00
14	C	1,4-Dichlorobenzene	1.507	1.464	2.9	106	0.00
15	s	1,2-Dichlorobenzene-d4	0.905	0.899	0.7	107	0.00
16		1,2-Dichlorobenzene	1.438	1.413	1.7	107	0.00
17		Benzyl Alcohol	0.987	1.003	-1.6	108	0.00
18		2,2'-oxybis(1-Chloropropane	2.050	2.059	-0.4	109	0.00
19		2-Methylphenol	1.083	1.076	0.6	106	0.00
20		Hexachloroethane	0.513	0.511	0.4	108	0.00
21	P	n-Nitroso-di-n-propylamine	0.972	0.975	-0.3	106	0.00
22		3+4-Methylphenols	1.431	1.459	-2.0	108	0.00
23	I	Naphthalene-d8	1.000	1.000	0.0	109	0.00
24		Acetophenone	0.459	0.461	-0.4	108	0.00
25	S	Nitrobenzene-d5	0.345	0.343	0.6	107	0.00
26		Nitrobenzene	0.337	0.332	1.5	107	0.00
27		Isophorone	0.590	0.589	0.2	107	0.00
28	C	2-Nitrophenol	0.175	0.181	-3.4	109	0.00
29		2,4-Dimethylphenol	0.299	0.302	-1.0	106	0.00
30		bis(2-Chloroethoxy)methane	0.403	0.395	2.0	105	0.00
31	C	2,4-Dichlorophenol	0.265	0.265	0.0	108	0.00
32		1,2,4-Trichlorobenzene	0.299	0.299	0.0	108	0.00
33		Naphthalene	0.997	0.991	0.6	107	0.00
34		Benzoic acid	0.129	0.119	7.8	100	0.00
35		4-Chloroaniline	0.411	0.412	-0.2	107	0.00
36	C	Hexachlorobutadiene	0.136	0.136	0.0	108	0.00
37		Caprolactam	0.107	0.109	-1.9	106	0.00
38	C	4-Chloro-3-methylphenol	0.272	0.276	-1.5	109	0.00
39		2-Methylnaphthalene	0.643	0.646	-0.5	109	0.00
40	I	Acenaphthene-d10	1.000	1.000	0.0	108	0.00
41		1,2,4,5-Tetrachlorobenzene	0.471	0.468	0.6	106	0.00
42	P	Hexachlorocyclopentadiene	0.201	0.201	0.0	106	0.00
43	S	2,4,6-Tribromophenol	0.138	0.143	-3.6	109	0.00
44	C	2,4,6-Trichlorophenol	0.316	0.324	-2.5	109	0.00

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074891.D
Acq On : 6 Jan 2012 16:56
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 04:18:51 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	0.345	0.349	-1.2	106	0.00
46	S	2-Fluorobiphenyl	1.286	1.284	0.2	107	0.00
47		1,1'-Biphenyl	1.499	1.492	0.5	107	0.00
48		2-Chloronaphthalene	1.087	1.094	-0.6	109	0.00
49		2-Nitroaniline	0.315	0.316	-0.3	106	0.00
50		Acenaphthylene	1.686	1.717	-1.8	109	0.00
51		Dimethylphthalate	1.215	1.212	0.2	107	0.00
52		2,6-Dinitrotoluene	0.286	0.288	-0.7	109	0.00
53	C	Acenaphthene	1.133	1.137	-0.4	108	0.00
54		3-Nitroaniline	0.345	0.345	0.0	106	0.00
55	P	2,4-Dinitrophenol	0.111	0.097	12.6	91	0.00
56		Dibenzofuran	1.580	1.578	0.1	107	0.00
57	P	4-Nitrophenol	0.264	0.270	-2.3	108	0.00
58		2,4-Dinitrotoluene	0.370	0.374	-1.1	109	0.00
59		Fluorene	1.305	1.324	-1.5	108	0.00
60		2,3,4,6-Tetrachlorophenol	0.259	0.269	-3.9	111	0.00
61		Diethylphthalate	1.194	1.179	1.3	106	0.00
62		4-Chlorophenyl-phenylether	0.557	0.559	-0.4	107	0.00
63		4-Nitroaniline	0.358	0.361	-0.8	107	0.00
64		Azobenzene	1.274	1.283	-0.7	107	0.00
65	I	Phenanthrene-d10	1.000	1.000	0.0	107	0.00
66		4,6-Dinitro-2-methylphenol	0.103	0.094	8.7	94	0.00
67	c	n-Nitrosodiphenylamine	0.625	0.624	0.2	107	0.00
68		4-Bromophenyl-phenylether	0.172	0.176	-2.3	113	0.00
69		Hexachlorobenzene	0.185	0.185	0.0	109	0.00
70		Atrazine	0.177	0.180	-1.7	109	0.00
71	C	Pentachlorophenol	0.094	0.099	-5.3	110	0.00
72		Phenanthrene	1.058	1.064	-0.6	108	0.00
73		Anthracene	1.055	1.061	-0.6	107	0.00
74		Carbazole	1.029	1.027	0.2	106	0.00
75		Di-n-butylphthalate	1.108	1.147	-3.5	109	0.00
76	C	Fluoranthene	1.072	1.090	-1.7	108	0.00
77	I	Chrysene-d12	1.000	1.000	0.0	107	0.00
78		Benzidine	0.514	0.440	14.4	80	0.00
79		Pyrene	1.158	1.160	-0.2	109	0.00
80	S	Terphenyl-d14	0.693	0.691	0.3	107	0.00
81		Butylbenzylphthalate	0.488	0.511	-4.7	112	0.00
82		Benzo(a)anthracene	1.044	1.043	0.1	108	0.00
83		3,3'-Dichlorobenzidine	0.344	0.354	-2.9	107	0.00
84		Chrysene	1.028	1.016	1.2	108	0.00
85		Bis(2-ethylhexyl)phthalate	0.697	0.714	-2.4	110	0.00
86	c	Di-n-octyl phthalate	1.108	1.178	-6.3	114	0.00
87		Indeno(1,2,3-cd)pyrene	1.016	1.037	-2.1	110	0.00

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074891.D
Acq On : 6 Jan 2012 16:56
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 04:18:51 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
38	I	Perylene-d12	1.000	1.000	0.0	110	0.00
39		Benzo(b)fluoranthene	1.053	1.040	1.2	107	0.00
40		Benzo(k)fluoranthene	1.110	1.106	0.4	110	0.00
41	C	Benzo(a)pyrene	1.008	1.013	-0.5	109	0.00
42		Dibenzo(a,h)anthracene	0.955	0.965	-1.0	110	-0.01
43		Benzo(g,h,i)perylene	0.973	0.986	-1.3	111	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074891.D
Acq On : 6 Jan 2012 16:56
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 04:18:51 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	106	0.00
2		1,4-Dioxane	40.000	39.543	1.1	108	0.00
3		Pyridine	40.000	39.407	1.5	107	0.00
4		n-Nitrosodimethylamine	40.000	40.418	-1.0	111	0.00
5	S	2-Fluorophenol	80.000	79.682	0.4	108	0.00
6		Aniline	40.000	39.185	2.0	105	0.00
7	S	Phenol-d5	80.000	80.228	-0.3	108	0.00
8		2-Chlorophenol	40.000	39.583	1.0	107	0.00
9		Benzaldehyde	40.000	31.023	22.4	88	0.00
10	C	Phenol	40.000	39.708	0.7	107	0.00
11		bis(2-Chloroethyl)ether	40.000	39.747	0.6	108	0.00
12	S	2-Chlorophenol-d4	80.000	78.695	1.6	106	0.00
13		1,3-Dichlorobenzene	40.000	39.562	1.1	108	0.00
14	C	1,4-Dichlorobenzene	40.000	38.863	2.8	106	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	79.442	0.7	107	0.00
16		1,2-Dichlorobenzene	40.000	39.320	1.7	107	0.00
17		Benzyl Alcohol	40.000	40.631	-1.6	108	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	40.174	-0.4	109	0.00
19		2-Methylphenol	40.000	39.735	0.7	106	0.00
20		Hexachloroethane	40.000	39.894	0.3	108	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	40.111	-0.3	106	0.00
22		3+4-Methylphenols	40.000	40.801	-2.0	108	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	109	0.00
24		Acetophenone	40.000	40.156	-0.4	108	0.00
25	S	Nitrobenzene-d5	80.000	79.569	0.5	107	0.00
26		Nitrobenzene	40.000	39.476	1.3	107	0.00
27		Isophorone	40.000	39.973	0.1	107	0.00
28	C	2-Nitrophenol	40.000	41.401	-3.5	109	0.00
29		2,4-Dimethylphenol	40.000	40.353	-0.9	106	0.00
30		bis(2-Chloroethoxy)methane	40.000	39.240	1.9	105	0.00
31	C	2,4-Dichlorophenol	40.000	40.106	-0.3	108	0.00
32		1,2,4-Trichlorobenzene	40.000	39.916	0.2	108	0.00
33		Naphthalene	40.000	39.750	0.6	107	0.00
34		Benzoic acid	40.000	37.884	5.3	100	0.00
35		4-Chloroaniline	40.000	40.058	-0.1	107	0.00
36	C	Hexachlorobutadiene	40.000	39.930	0.2	108	0.00
37		Caprolactam	40.000	40.757	-1.9	106	0.00
38	C	4-Chloro-3-methylphenol	40.000	40.562	-1.4	109	0.00
39		2-Methylnaphthalene	40.000	40.169	-0.4	109	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	108	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	39.772	0.6	106	0.00
42	P	Hexachlorocyclopentadiene	40.000	39.988	0.0	106	0.00
43	S	2,4,6-Tribromophenol	80.000	82.475	-3.1	109	0.00
44	C	2,4,6-Trichlorophenol	40.000	40.991	-2.5	109	0.00

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074891.D
Acq On : 6 Jan 2012 16:56
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 04:18:51 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	40.446	-1.1	106	0.00
46	S	2-Fluorobiphenyl	80.000	79.874	0.2	107	0.00
47		1,1'-Biphenyl	40.000	39.821	0.4	107	0.00
48		2-Chloronaphthalene	40.000	40.274	-0.7	109	0.00
49		2-Nitroaniline	40.000	40.193	-0.5	106	0.00
50		Acenaphthylene	40.000	40.726	-1.8	109	0.00
51		Dimethylphthalate	40.000	39.891	0.3	107	0.00
52		2,6-Dinitrotoluene	40.000	40.307	-0.8	109	0.00
53	C	Acenaphthene	40.000	40.135	-0.3	108	0.00
54		3-Nitroaniline	40.000	40.023	-0.1	106	0.00
55	P	2,4-Dinitrophenol	40.000	33.801	15.5	91	0.00
56		Dibenzofuran	40.000	39.968	0.1	107	0.00
57	P	4-Nitrophenol	40.000	40.826	-2.1	108	0.00
58		2,4-Dinitrotoluene	40.000	40.528	-1.3	109	0.00
59		Fluorene	40.000	40.559	-1.4	108	0.00
60		2,3,4,6-Tetrachlorophenol	40.000	41.546	-3.9	111	0.00
61		Diethylphthalate	40.000	39.491	1.3	106	0.00
62		4-Chlorophenyl-phenylether	40.000	40.106	-0.3	107	0.00
63		4-Nitroaniline	40.000	40.360	-0.9	107	0.00
64		Azobenzene	40.000	40.295	-0.7	107	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	107	0.00
66		4,6-Dinitro-2-methylphenol	40.000	35.003	12.5	94	0.00
67	c	n-Nitrosodiphenylamine	40.000	39.925	0.2	107	0.00
68		4-Bromophenyl-phenylether	40.000	40.923	-2.3	113	0.00
69		Hexachlorobenzene	40.000	39.943	0.1	109	0.00
70		Atrazine	40.000	40.656	-1.6	109	0.00
71	C	Pentachlorophenol	40.000	39.584	1.0	110	0.00
72		Phenanthrene	40.000	40.239	-0.6	108	0.00
73		Anthracene	40.000	40.212	-0.5	107	0.00
74		Carbazole	40.000	39.916	0.2	106	0.00
75		Di-n-butylphthalate	40.000	41.405	-3.5	109	0.00
76	C	Fluoranthene	40.000	40.674	-1.7	108	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	107	0.00
78		Benzidine	40.000	34.234	14.4	80	0.00
79		Pyrene	40.000	40.082	-0.2	109	0.00
80	S	Terphenyl-d14	80.000	79.791	0.3	107	0.00
81		Butylbenzylphthalate	40.000	41.908	-4.8	112	0.00
82		Benzo(a)anthracene	40.000	39.975	0.1	108	0.00
83		3,3'-Dichlorobenzidine	40.000	41.183	-3.0	107	0.00
84		Chrysene	40.000	39.556	1.1	108	0.00
85		Bis(2-ethylhexyl)phthalate	40.000	40.946	-2.4	110	0.00
86	c	Di-n-octyl phthalate	40.000	42.499	-6.2	114	0.00
87		Indeno(1,2,3-cd)pyrene	40.000	40.831	-2.1	110	0.00

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074891.D
Acq On : 6 Jan 2012 16:56
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 07 04:18:51 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	110	0.00
39		Benzo(b)fluoranthene	40.000	39.508	1.2	107	0.00
40		Benzo(k)fluoranthene	40.000	39.863	0.3	110	0.00
41	C	Benzo(a)pyrene	40.000	40.193	-0.5	109	0.00
42		Dibenzo(a,h)anthracene	40.000	40.381	-1.0	110	-0.01
43		Benzo(g,h,i)perylene	40.000	40.546	-1.4	111	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60339B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074904.D Lab Sample ID: PB60339B

Instrument ID: BNA_E Date Extracted: 01/03/2012

Matrix: (soil/water) SOIL Date Analyzed: 01/07/2012

Level: (low/med) LOW Time Analyzed: 02:26

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
UBZ3-SO-6-05-2MSD	C5161-01MSD	BE074913.D	01/07/2012
UBZ3-SO-6-05-2MS	C5161-01MS	BE074912.D	01/07/2012
12SB28-000.5-01	C5164-02	BE074910.D	01/07/2012
PB60339BS	PB60339BS	BE074905.D	01/07/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60339B	SDG No.:	C5164
Lab Sample ID:	PB60339B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074904.D	1	01/03/12	01/07/12	PB60339

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
100-52-7	Benzaldehyde	165	U	17	330	ug/Kg
108-95-2	Phenol	165	U	7.7	330	ug/Kg
111-44-4	bis(2-Chloroethyl)ether	165	U	16	330	ug/Kg
95-57-8	2-Chlorophenol	165	U	18	330	ug/Kg
95-48-7	2-Methylphenol	165	U	18	330	ug/Kg
108-60-1	2,2-oxybis(1-Chloropropane)	165	U	14	330	ug/Kg
98-86-2	Acetophenone	165	U	10	330	ug/Kg
65794-96-9	3+4-Methylphenols	165	U	17	330	ug/Kg
621-64-7	N-Nitroso-di-n-propylamine	165	U	17	330	ug/Kg
67-72-1	Hexachloroethane	165	U	15	330	ug/Kg
98-95-3	Nitrobenzene	165	U	13	330	ug/Kg
78-59-1	Isophorone	165	U	11	330	ug/Kg
88-75-5	2-Nitrophenol	165	U	16	330	ug/Kg
105-67-9	2,4-Dimethylphenol	165	U	19	330	ug/Kg
111-91-1	bis(2-Chloroethoxy)methane	165	U	19	330	ug/Kg
120-83-2	2,4-Dichlorophenol	165	U	13	330	ug/Kg
106-47-8	4-Chloroaniline	165	U	23	330	ug/Kg
87-68-3	Hexachlorobutadiene	165	U	12	330	ug/Kg
105-60-2	Caprolactam	165	U	15	330	ug/Kg
59-50-7	4-Chloro-3-methylphenol	165	U	15	330	ug/Kg
77-47-4	Hexachlorocyclopentadiene	165	U	8.1	330	ug/Kg
88-06-2	2,4,6-Trichlorophenol	165	U	10	330	ug/Kg
95-95-4	2,4,5-Trichlorophenol	165	U	23	330	ug/Kg
92-52-4	1,1-Biphenyl	165	U	13	330	ug/Kg
91-58-7	2-Chloronaphthalene	165	U	7.6	330	ug/Kg
88-74-4	2-Nitroaniline	165	U	15	330	ug/Kg
131-11-3	Dimethylphthalate	165	U	9	330	ug/Kg
208-96-8	Acenaphthylene	165	U	8.4	330	ug/Kg
606-20-2	2,6-Dinitrotoluene	165	U	14	330	ug/Kg
99-09-2	3-Nitroaniline	165	U	21	330	ug/Kg
83-32-9	Acenaphthene	165	U	9.4	330	ug/Kg

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60339B	SDG No.:	C5164
Lab Sample ID:	PB60339B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074904.D	1	01/03/12	01/07/12	PB60339

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	165	U	34	330	ug/Kg
100-02-7	4-Nitrophenol	165	U	62	330	ug/Kg
132-64-9	Dibenzofuran	165	U	13	330	ug/Kg
121-14-2	2,4-Dinitrotoluene	165	U	10	330	ug/Kg
84-66-2	Diethylphthalate	165	U	5.2	330	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	165	U	18	330	ug/Kg
100-01-6	4-Nitroaniline	165	U	43	330	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	165	U	19	330	ug/Kg
86-30-6	N-Nitrosodiphenylamine	165	U	8	330	ug/Kg
101-55-3	4-Bromophenyl-phenylether	165	U	6.5	330	ug/Kg
118-74-1	Hexachlorobenzene	165	U	14	330	ug/Kg
1912-24-9	Atrazine	165	U	18	330	ug/Kg
87-86-5	Pentachlorophenol	165	U	23	330	ug/Kg
85-01-8	Phenanthrene	165	U	9	330	ug/Kg
86-74-8	Carbazole	165	U	7.3	330	ug/Kg
84-74-2	Di-n-butylphthalate	165	U	26	330	ug/Kg
85-68-7	Butylbenzylphthalate	165	U	16	330	ug/Kg
91-94-1	3,3-Dichlorobenzidine	165	U	21	330	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	165	U	12	330	ug/Kg
117-84-0	Di-n-octyl phthalate	165	U	3.8	330	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	165	U	13	330	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	165	U	330	330	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	131		35 - 105	88%	SPK: 150
13127-88-3	Phenol-d5	132		40 - 100	88%	SPK: 150
4165-60-0	Nitrobenzene-d5	82		35 - 100	82%	SPK: 100
321-60-8	2-Fluorobiphenyl	88.9		45 - 105	89%	SPK: 100
118-79-6	2,4,6-Tribromophenol	130		35 - 125	87%	SPK: 150
1718-51-0	Terphenyl-d14	93.6		30 - 125	94%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	129141	8.62			
1146-65-2	Naphthalene-d8	493638	10.79			

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BE074907.D DFTPP Injection Date: 01/07/2012

Instrument ID: BNA_E DFTPP Injection Time: 04:34

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	41.9
68	Less than 2.0% of mass 69	0.4 (1.2) 1
69	Mass 69 relative abundance	36.3
70	Less than 2.0% of mass 69	0.0 (0.1) 1
127	40.0 - 60.0% of mass 198	46.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	19.8
365	Greater than 1% of mass 198	2.2
441	Present, but less than mass 443	11.8
442	Greater than 40% of mass 198	63.2
443	17.0 - 23.0% of mass 442	12.4 (19.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BE074908.D	01/07/2012	05:19
02	12SB28-000.5-01	C5164-02	BE074910.D	01/07/2012	06:45
03	UBZ3-SO-6-05-2MS	C5161-01MS	BE074912.D	01/07/2012	08:12
04	UBZ3-SO-6-05-2MSD	C5161-01MSD	BE074913.D	01/07/2012	08:57

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date/Time: 01/07/2012 05:19

Lab File ID: BE074908.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 14:35 18:12

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	0.824	0.755		8.4	
Phenol	1.764	1.758		0.3	20.0
bis(2-Chloroethyl)ether	1.399	1.386		0.9	
2-Chlorophenol	1.395	1.384		0.8	
2-Methylphenol	1.083	1.065		1.6	
2,2-oxybis(1-Chloropropane)	2.050	2.073		1.1	
Acetophenone	0.459	0.452		1.6	
3+4-Methylphenols	1.431	1.423		0.6	
n-Nitroso-di-n-propylamine	0.972	0.989	0.050	1.7	
Hexachloroethane	0.513	0.518		1.0	
Nitrobenzene	0.337	0.340		0.9	
Isophorone	0.590	0.584		1.1	
2-Nitrophenol	0.175	0.172		1.9	20.0
2,4-Dimethylphenol	0.299	0.295		1.3	
bis(2-Chloroethoxy)methane	0.403	0.402		0.3	
2,4-Dichlorophenol	0.265	0.263		0.8	20.0
4-Chloroaniline	0.411	0.411		0.0	
Hexachlorobutadiene	0.136	0.134		1.5	20.0
Caprolactam	0.107	0.107		0.0	
4-Chloro-3-methylphenol	0.272	0.269		1.1	20.0
Hexachlorocyclopentadiene	0.201	0.187	0.050	6.9	
2,4,6-Trichlorophenol	0.316	0.308		2.6	20.0
2,4,5-Trichlorophenol	0.345	0.328		5.1	
1,1-Biphenyl	1.499	1.477		1.5	
2-Chloronaphthalene	1.087	1.072		1.4	
2-Nitroaniline	0.315	0.309		2.0	
Dimethylphthalate	1.215	1.202		1.1	
Acenaphthylene	1.686	1.681		0.3	
2,6-Dinitrotoluene	0.286	0.281		1.9	
3-Nitroaniline	0.345	0.336		2.6	
Acenaphthene	1.133	1.120		1.1	20.0
2,4-Dinitrophenol	0.111	0.095	0.050	14.7	
4-Nitrophenol	0.264	0.259	0.050	2.1	
Dibenzofuran	1.580	1.550		1.9	
2,4-Dinitrotoluene	0.370	0.360		2.7	
Diethylphthalate	1.194	1.176		1.5	
4-Chlorophenyl-phenylether	0.557	0.550		1.2	
4-Nitroaniline	0.358	0.356		0.6	
4,6-Dinitro-2-methylphenol	0.103	0.099		4.2	
n-Nitrosodiphenylamine	0.625	0.628		0.5	20.0
4-Bromophenyl-phenylether	0.172	0.171		0.8	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date/Time: 01/07/2012 05:19

Lab File ID: BE074908.D Init. Calib. Date(s): 01/05/2012 01/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 14:35 18:12

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.185	0.185		0.2	
Atrazine	0.177	0.179		1.1	
Pentachlorophenol	0.094	0.093		1.5	20.0
Phenanthrene	1.058	1.069		1.0	
Carbazole	1.029	1.028		0.1	
Di-n-butylphthalate	1.108	1.120		1.1	
Butylbenzylphthalate	0.488	0.484		0.9	
3,3-Dichlorobenzidine	0.344	0.333		3.3	
Bis(2-ethylhexyl)phthalate	0.697	0.702		0.7	
Di-n-octyl phthalate	1.108	1.068		3.6	20.0
1,2,4,5-Tetrachlorobenzene	0.471	0.468		0.6	
2,3,4,6-Tetrachlorophenol	0.259	0.257		0.7	
2-Fluorophenol	1.277	1.258		1.5	
Phenol-d5	1.639	1.635		0.2	
Nitrobenzene-d5	0.345	0.341		1.1	
2-Fluorobiphenyl	1.286	1.269		1.3	
2,4,6-Tribromophenol	0.138	0.133		3.5	
Terphenyl-d14	0.693	0.697		0.5	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074908.D
Acq On : 7 Jan 2012 5:19
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 07 06:37:42 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	98	0.00
2		1,4-Dioxane	0.575	0.558	3.0	98	0.00
3		Pyridine	1.608	1.581	1.7	99	0.00
4		n-Nitrosodimethylamine	0.671	0.699	-4.2	106	0.00
5	S	2-Fluorophenol	1.277	1.258	1.5	98	0.00
6		Aniline	2.064	2.049	0.7	98	0.00
7	S	Phenol-d5	1.639	1.635	0.2	99	0.00
8		2-Chlorophenol	1.395	1.384	0.8	99	0.00
9		Benzaldehyde	0.824	0.755	8.4	81	0.00
10	C	Phenol	1.764	1.758	0.3	99	0.00
11		bis(2-Chloroethyl)ether	1.399	1.386	0.9	99	0.00
12	S	2-Chlorophenol-d4	1.269	1.258	0.9	99	0.00
13		1,3-Dichlorobenzene	1.483	1.450	2.2	99	0.00
14	C	1,4-Dichlorobenzene	1.507	1.477	2.0	99	0.00
15	s	1,2-Dichlorobenzene-d4	0.905	0.904	0.1	100	0.00
16		1,2-Dichlorobenzene	1.438	1.412	1.8	99	0.00
17		Benzyl Alcohol	0.987	0.972	1.5	96	0.00
18		2,2'-oxybis(1-Chloropropane	2.050	2.073	-1.1	102	0.00
19		2-Methylphenol	1.083	1.065	1.7	97	0.00
20		Hexachloroethane	0.513	0.518	-1.0	101	0.00
21	P	n-Nitroso-di-n-propylamine	0.972	0.989	-1.7	99	0.00
22		3+4-Methylphenols	1.431	1.423	0.6	97	0.00
23	I	Naphthalene-d8	1.000	1.000	0.0	100	0.00
24		Acetophenone	0.459	0.452	1.5	97	0.00
25	S	Nitrobenzene-d5	0.345	0.341	1.2	98	0.00
26		Nitrobenzene	0.337	0.340	-0.9	101	0.00
27		Isophorone	0.590	0.584	1.0	97	0.00
28	C	2-Nitrophenol	0.175	0.172	1.7	96	0.00
29		2,4-Dimethylphenol	0.299	0.295	1.3	95	0.00
30		bis(2-Chloroethoxy)methane	0.403	0.402	0.2	98	0.00
31	C	2,4-Dichlorophenol	0.265	0.263	0.8	98	0.00
32		1,2,4-Trichlorobenzene	0.299	0.301	-0.7	100	0.00
33		Naphthalene	0.997	0.996	0.1	99	0.00
34		Benzoic acid	0.129	0.110	14.7	86	0.00
35		4-Chloroaniline	0.411	0.411	0.0	98	0.00
36	C	Hexachlorobutadiene	0.136	0.134	1.5	98	0.00
37		Caprolactam	0.107	0.107	0.0	95	0.00
38	C	4-Chloro-3-methylphenol	0.272	0.269	1.1	98	0.00
39		2-Methylnaphthalene	0.643	0.649	-0.9	100	0.00
40	I	Acenaphthene-d10	1.000	1.000	0.0	100	0.00
41		1,2,4,5-Tetrachlorobenzene	0.471	0.468	0.6	98	0.00
42	P	Hexachlorocyclopentadiene	0.201	0.187	7.0	92	0.00
43	S	2,4,6-Tribromophenol	0.138	0.133	3.6	95	0.00
44	C	2,4,6-Trichlorophenol	0.316	0.308	2.5	96	0.00

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074908.D
Acq On : 7 Jan 2012 5:19
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 07 06:37:42 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	0.345	0.328	4.9	92	0.00
46	S	2-Fluorobiphenyl	1.286	1.269	1.3	98	0.00
47		1,1'-Biphenyl	1.499	1.477	1.5	99	0.00
48		2-Chloronaphthalene	1.087	1.072	1.4	99	0.00
49		2-Nitroaniline	0.315	0.309	1.9	96	0.00
50		Acenaphthylene	1.686	1.681	0.3	99	0.00
51		Dimethylphthalate	1.215	1.202	1.1	98	0.00
52		2,6-Dinitrotoluene	0.286	0.281	1.7	98	0.00
53	C	Acenaphthene	1.133	1.120	1.1	99	0.00
54		3-Nitroaniline	0.345	0.336	2.6	96	0.00
55	P	2,4-Dinitrophenol	0.111	0.095	14.4	83	0.00
56		Dibenzofuran	1.580	1.550	1.9	97	0.00
57	P	4-Nitrophenol	0.264	0.259	1.9	96	0.00
58		2,4-Dinitrotoluene	0.370	0.360	2.7	98	0.00
59		Fluorene	1.305	1.305	0.0	99	-0.01
60		2,3,4,6-Tetrachlorophenol	0.259	0.257	0.8	99	0.00
61		Diethylphthalate	1.194	1.176	1.5	98	0.00
62		4-Chlorophenyl-phenylether	0.557	0.550	1.3	98	0.00
63		4-Nitroaniline	0.358	0.356	0.6	98	0.00
64		Azobenzene	1.274	1.309	-2.7	101	0.00
65	I	Phenanthrene-d10	1.000	1.000	0.0	97	-0.01
66		4,6-Dinitro-2-methylphenol	0.103	0.099	3.9	90	0.00
67	c	n-Nitrosodiphenylamine	0.625	0.628	-0.5	98	0.00
68		4-Bromophenyl-phenylether	0.172	0.171	0.6	100	0.00
69		Hexachlorobenzene	0.185	0.185	0.0	99	0.00
70		Atrazine	0.177	0.179	-1.1	99	-0.01
71	C	Pentachlorophenol	0.094	0.093	1.1	94	0.00
72		Phenanthrene	1.058	1.069	-1.0	99	0.00
73		Anthracene	1.055	1.067	-1.1	98	-0.01
74		Carbazole	1.029	1.028	0.1	97	0.00
75		Di-n-butylphthalate	1.108	1.120	-1.1	97	-0.01
76	C	Fluoranthene	1.072	1.065	0.7	96	0.00
77	I	Chrysene-d12	1.000	1.000	0.0	97	-0.02
78		Benzidine	0.514	0.462	10.1	76	-0.01
79		Pyrene	1.158	1.163	-0.4	98	0.00
80	S	Terphenyl-d14	0.693	0.697	-0.6	97	-0.01
81		Butylbenzylphthalate	0.488	0.484	0.8	96	-0.01
82		Benzo(a)anthracene	1.044	1.031	1.2	96	-0.01
83		3,3'-Dichlorobenzidine	0.344	0.333	3.2	91	-0.01
84		Chrysene	1.028	1.020	0.8	98	-0.01
85		Bis(2-ethylhexyl)phthalate	0.697	0.702	-0.7	97	-0.01
86	c	Di-n-octyl phthalate	1.108	1.068	3.6	93	-0.02
87		Indeno(1,2,3-cd)pyrene	1.016	0.979	3.6	94	-0.05

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074908.D
Acq On : 7 Jan 2012 5:19
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 07 06:37:42 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
88	I	Perylene-d12	1.000	1.000	0.0	94	-0.02
89		Benzo(b)fluoranthene	1.053	1.062	-0.9	94	-0.02
90		Benzo(k)fluoranthene	1.110	1.156	-4.1	99	-0.02
91	C	Benzo(a)pyrene	1.008	1.020	-1.2	95	-0.03
92		Dibenzo(a,h)anthracene	0.955	0.979	-2.5	96	-0.06
93		Benzo(g,h,i)perylene	0.973	0.976	-0.3	95	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074908.D
Acq On : 7 Jan 2012 5:19
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Quant Time: Jan 07 06:37:42 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
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Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	98	0.00
2		1,4-Dioxane	40.000	38.782	3.0	98	0.00
3		Pyridine	40.000	39.320	1.7	99	0.00
4		n-Nitrosodimethylamine	40.000	41.641	-4.1	106	0.00
5	S	2-Fluorophenol	80.000	78.775	1.5	98	0.00
6		Aniline	40.000	39.714	0.7	98	0.00
7	S	Phenol-d5	80.000	79.812	0.2	99	0.00
8		2-Chlorophenol	40.000	39.663	0.8	99	0.00
9		Benzaldehyde	40.000	30.654	23.4	81	0.00
10	C	Phenol	40.000	39.873	0.3	99	0.00
11		bis(2-Chloroethyl)ether	40.000	39.636	0.9	99	0.00
12	S	2-Chlorophenol-d4	80.000	79.282	0.9	99	0.00
13		1,3-Dichlorobenzene	40.000	39.115	2.2	99	0.00
14	C	1,4-Dichlorobenzene	40.000	39.195	2.0	99	0.00
15	s	1,2-Dichlorobenzene-d4	80.000	79.918	0.1	100	0.00
16		1,2-Dichlorobenzene	40.000	39.273	1.8	99	0.00
17		Benzyl Alcohol	40.000	39.388	1.5	96	0.00
18		2,2'-oxybis(1-Chloropropane	40.000	40.439	-1.1	102	0.00
19		2-Methylphenol	40.000	39.337	1.7	97	0.00
20		Hexachloroethane	40.000	40.416	-1.0	101	0.00
21	P	n-Nitroso-di-n-propylamine	40.000	40.685	-1.7	99	0.00
22		3+4-Methylphenols	40.000	39.785	0.5	97	0.00
23	I	Naphthalene-d8	20.000	20.000	0.0	100	0.00
24		Acetophenone	40.000	39.388	1.5	97	0.00
25	S	Nitrobenzene-d5	80.000	79.153	1.1	98	0.00
26		Nitrobenzene	40.000	40.365	-0.9	101	0.00
27		Isophorone	40.000	39.595	1.0	97	0.00
28	C	2-Nitrophenol	40.000	39.340	1.6	96	0.00
29		2,4-Dimethylphenol	40.000	39.492	1.3	95	0.00
30		bis(2-Chloroethoxy)methane	40.000	39.892	0.3	98	0.00
31	C	2,4-Dichlorophenol	40.000	39.707	0.7	98	0.00
32		1,2,4-Trichlorobenzene	40.000	40.190	-0.5	100	0.00
33		Naphthalene	40.000	39.952	0.1	99	0.00
34		Benzoic acid	40.000	35.816	10.5	86	0.00
35		4-Chloroaniline	40.000	39.993	0.0	98	0.00
36	C	Hexachlorobutadiene	40.000	39.351	1.6	98	0.00
37		Caprolactam	40.000	39.907	0.2	95	0.00
38	C	4-Chloro-3-methylphenol	40.000	39.523	1.2	98	0.00
39		2-Methylnaphthalene	40.000	40.387	-1.0	100	0.00
40	I	Acenaphthene-d10	20.000	20.000	0.0	100	0.00
41		1,2,4,5-Tetrachlorobenzene	40.000	39.766	0.6	98	0.00
42	P	Hexachlorocyclopentadiene	40.000	37.314	6.7	92	0.00
43	S	2,4,6-Tribromophenol	80.000	77.047	3.7	95	0.00
44	C	2,4,6-Trichlorophenol	40.000	38.905	2.7	96	0.00

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074908.D
Acq On : 7 Jan 2012 5:19
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 07 06:37:42 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	37.984	5.0	92	0.00
46	S	2-Fluorobiphenyl	80.000	78.972	1.3	98	0.00
47		1,1'-Biphenyl	40.000	39.426	1.4	99	0.00
48		2-Chloronaphthalene	40.000	39.461	1.3	99	0.00
49		2-Nitroaniline	40.000	39.235	1.9	96	0.00
50		Acenaphthylene	40.000	39.874	0.3	99	0.00
51		Dimethylphthalate	40.000	39.564	1.1	98	0.00
52		2,6-Dinitrotoluene	40.000	39.307	1.7	98	0.00
53	C	Acenaphthene	40.000	39.552	1.1	99	0.00
54		3-Nitroaniline	40.000	38.980	2.6	96	0.00
55	P	2,4-Dinitrophenol	40.000	33.128	17.2	83	0.00
56		Dibenzofuran	40.000	39.237	1.9	97	0.00
57	P	4-Nitrophenol	40.000	39.122	2.2	96	0.00
58		2,4-Dinitrotoluene	40.000	38.960	2.6	98	0.00
59		Fluorene	40.000	39.990	0.0	99	-0.01
60		2,3,4,6-Tetrachlorophenol	40.000	39.784	0.5	99	0.00
61		Diethylphthalate	40.000	39.382	1.5	98	0.00
62		4-Chlorophenyl-phenylether	40.000	39.484	1.3	98	0.00
63		4-Nitroaniline	40.000	39.790	0.5	98	0.00
64		Azobenzene	40.000	41.101	-2.8	101	0.00
65	I	Phenanthrene-d10	20.000	20.000	0.0	97	-0.01
66		4,6-Dinitro-2-methylphenol	40.000	36.455	8.9	90	0.00
67	c	n-Nitrosodiphenylamine	40.000	40.202	-0.5	98	0.00
68		4-Bromophenyl-phenylether	40.000	39.765	0.6	100	0.00
69		Hexachlorobenzene	40.000	40.074	-0.2	99	0.00
70		Atrazine	40.000	40.489	-1.2	99	-0.01
71	C	Pentachlorophenol	40.000	37.570	6.1	94	0.00
72		Phenanthrene	40.000	40.430	-1.1	99	0.00
73		Anthracene	40.000	40.458	-1.1	98	-0.01
74		Carbazole	40.000	39.965	0.1	97	0.00
75		Di-n-butylphthalate	40.000	40.423	-1.1	97	-0.01
76	C	Fluoranthene	40.000	39.739	0.7	96	0.00
77	I	Chrysene-d12	20.000	20.000	0.0	97	-0.02
78		Benzidine	40.000	35.962	10.1	76	-0.01
79		Pyrene	40.000	40.188	-0.5	98	0.00
80	S	Terphenyl-d14	80.000	80.462	-0.6	97	-0.01
81		Butylbenzylphthalate	40.000	39.674	0.8	96	-0.01
82		Benzo(a)anthracene	40.000	39.515	1.2	96	-0.01
83		3,3'-Dichlorobenzidine	40.000	38.682	3.3	91	-0.01
84		Chrysene	40.000	39.694	0.8	98	-0.01
85		Bis(2-ethylhexyl)phthalate	40.000	40.246	-0.6	97	-0.01
86	c	Di-n-octyl phthalate	40.000	38.536	3.7	93	-0.02
87		Indeno(1,2,3-cd)pyrene	40.000	38.578	3.6	94	-0.05

Data Path : Z:\HPCHEM1\BNA E\Data\BE010612\
Data File : BE074908.D
Acq On : 7 Jan 2012 5:19
Operator : OM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 07 06:37:42 2012
Quant Method : Z:\HPCHEM1\BNA E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	94	-0.02
39		Benzo(b)fluoranthene	40.000	40.318	-0.8	94	-0.02
40		Benzo(k)fluoranthene	40.000	41.654	-4.1	99	-0.02
41	C	Benzo(a)pyrene	40.000	40.474	-1.2	95	-0.03
42		Dibenzo(a,h)anthracene	40.000	40.980	-2.4	96	-0.06
43		Benzo(g,h,i)perylene	40.000	40.100	-0.3	95	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5164-23	RB-01-122911	2-Fluorophenol	150	51.87	35		20	110
		Phenol-d5	150	30.01	20		10	160
		Nitrobenzene-d5	100	83.42	83		40	110
		2-Fluorobiphenyl	100	90.98	91		50	110
		2,4,6-Tribromophenol	150	137.23	91		40	125
		Terphenyl-d14	100	94.88	95		50	135
PB60329B	PB60329B	2-Fluorophenol	150	157.90	105		20	110
		Phenol-d5	150	155.42	104		10	160
		Nitrobenzene-d5	100	97.24	97		40	110
		2-Fluorobiphenyl	100	100.57	101		50	110
		2,4,6-Tribromophenol	150	159.09	106		40	125
		Terphenyl-d14	100	105.35	105		50	135
PB60329BS	PB60329BS	2-Fluorophenol	150	117.64	78		20	110
		Phenol-d5	150	116.84	78		10	160
		Nitrobenzene-d5	100	73.63	74		40	110
		2-Fluorobiphenyl	100	73.35	73		50	110
		2,4,6-Tribromophenol	150	123.02	82		40	125
		Terphenyl-d14	100	75.26	75		50	135
PB60329BSD	PB60329BSD	2-Fluorophenol	150	145.12	97		20	110
		Phenol-d5	150	143.50	96		10	160
		Nitrobenzene-d5	100	91.37	91		40	110
		2-Fluorobiphenyl	100	89.03	89		50	110
		2,4,6-Tribromophenol	150	148.53	99		40	125
		Terphenyl-d14	100	91.12	91		50	135

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5161-01MS	UBZ3-SO-6-05-2MS	2-Fluorophenol	150	104.08	69		35	105
		Phenol-d5	150	109.42	73		40	100
		Nitrobenzene-d5	100	70.87	71		35	100
		2-Fluorobiphenyl	100	70.65	71		45	105
		2,4,6-Tribromophenol	150	116.88	78		35	125
		Terphenyl-d14	100	75.05	75		30	125
C5161-01MSD	UBZ3-SO-6-05-2MSD	2-Fluorophenol	150	113.87	76		35	105
		Phenol-d5	150	123.35	82		40	100
		Nitrobenzene-d5	100	80.05	80		35	100
		2-Fluorobiphenyl	100	81.07	81		45	105
		2,4,6-Tribromophenol	150	136.14	91		35	125
		Terphenyl-d14	100	88.00	88		30	125
C5164-02	12SB28-000.5-01	2-Fluorophenol	150	124.39	83		35	105
		Phenol-d5	150	127.68	85		40	100
		Nitrobenzene-d5	100	82.72	83		35	100
		2-Fluorobiphenyl	100	82.33	82		45	105
		2,4,6-Tribromophenol	150	123.67	82		35	125
		Terphenyl-d14	100	79.66	80		30	125
PB60339B	PB60339B	2-Fluorophenol	150	131.86	88		35	105
		Phenol-d5	150	132.25	88		40	100
		Nitrobenzene-d5	100	81.98	82		35	100
		2-Fluorobiphenyl	100	88.93	89		45	105
		2,4,6-Tribromophenol	150	130.95	87		35	125
		Terphenyl-d14	100	93.57	94		30	125
PB60339BS	PB60339BS	2-Fluorophenol	150	89.18	59		35	105
		Phenol-d5	150	91.17	61		40	100
		Nitrobenzene-d5	100	58.95	59		35	100
		2-Fluorobiphenyl	100	59.42	59		45	105
		2,4,6-Tribromophenol	150	96.62	64		35	125
		Terphenyl-d14	100	59.10	59		30	125

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5161-01MS	**Client Sample ID: UBZ3-SO-6-05-2MS**									
Benzaldehyde	1900	0	1100	58				10	161	
Phenol	1900	0	1300	68				43	100	
bis(2-Chloroethyl)ether	1900	0	1300	68				43	105	
2-Chlorophenol	1900	0	1200	63				45	105	
2-Methylphenol	1900	0	1300	68				44	105	
2,2-oxybis(1-Chloropropane)	1900	0	1300	68				36	115	
Acetophenone	1900	0	1300	68				48	131	
3+4-Methylphenols	1900	0	1300	68				44	105	
N-Nitroso-di-n-propylamine	1900	0	1300	68				41	115	
Hexachloroethane	1900	0	1200	63				35	110	
Nitrobenzene	1900	0	1300	68				40	115	
Isophorone	1900	0	1400	74				45	110	
2-Nitrophenol	1900	0	1300	68				40	110	
2,4-Dimethylphenol	1900	0	1300	68				35	105	
bis(2-Chloroethoxy)methane	1900	0	1300	68				45	110	
2,4-Dichlorophenol	1900	0	1300	68				45	110	
4-Chloroaniline	1900	0	570	30				10	160	
Hexachlorobutadiene	1900	0	1300	68				40	115	
Caprolactam	1900	0	1400	74				24	145	
4-Chloro-3-methylphenol	1900	0	1300	68				45	115	
Hexachlorocyclopentadiene	3800	0	2700	71				10	128	
2,4,6-Trichlorophenol	1900	0	1300	68				45	110	
2,4,5-Trichlorophenol	1900	0	1300	68				50	110	
1,1-Biphenyl	1900	0	1300	68				47	131	
2-Chloronaphthalene	1900	0	1300	68				45	105	
2-Nitroaniline	1900	0	1400	74				45	120	
Dimethylphthalate	1900	0	1400	74				51	110	
Acenaphthylene	1900	0	1400	74				45	105	
2,6-Dinitrotoluene	1900	0	1400	74				50	110	
3-Nitroaniline	1900	0	890	47				25	110	
Acenaphthene	1900	0	1400	74				45	110	
2,4-Dinitrophenol	3800	0	2600	68				15	130	
4-Nitrophenol	3800	0	3000	79				15	140	
Dibenzofuran	1900	0	1300	68				50	105	
2,4-Dinitrotoluene	1900	0	1400	74				50	115	
Diethylphthalate	1900	0	1400	74				50	115	
4-Chlorophenyl-phenylether	1900	0	1400	74				45	110	
4-Nitroaniline	1900	0	1300	68				35	115	
4,6-Dinitro-2-methylphenol	1900	0	1300	68				30	135	
N-Nitrosodiphenylamine	1900	0	1300	68				50	115	
4-Bromophenyl-phenylether	1900	0	1400	74				45	115	
Hexachlorobenzene	1900	0	1400	74				45	120	
Atrazine	1900	0	1400	74				38	135	
Pentachlorophenol	3800	0	2700	71				25	120	
Phenanthrene	1900	0	1400	74				50	110	
Carbazole	1900	0	1400	74				45	115	
Di-n-butylphthalate	1900	0	1500	79				55	110	
Butylbenzylphthalate	1900	0	1500	79				50	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	1900	0	920	48				10	126	
bis(2-Ethylhexyl)phthalate	1900	0	1500	79				45	125	
Di-n-octyl phthalate	1900	0	1600	84				40	130	
1,2,4,5-Tetrachlorobenzene	1900	0	1300	68	*			70	130	
2,3,4,6-Tetrachlorophenol	1900	0	1400	74				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5161-01MSD	**Client Sample ID: UBZ3-SO-6-05-2MSD**									
Benzaldehyde	1900	0	1200	63		8		10	161	20
Phenol	1900	0	1500	79		15		43	100	20
bis(2-Chloroethyl)ether	1900	0	1400	74		8		43	105	20
2-Chlorophenol	1900	0	1400	74		16		45	105	20
2-Methylphenol	1900	0	1500	79		15		44	105	20
2,2-oxybis(1-Chloropropane)	1900	0	1400	74		8		36	115	20
Acetophenone	1900	0	1500	79		15		48	131	20
3+4-Methylphenols	1900	0	1500	79		15		44	105	20
N-Nitroso-di-n-propylamine	1900	0	1500	79		15		41	115	20
Hexachloroethane	1900	0	1300	68		8		35	110	20
Nitrobenzene	1900	0	1500	79		15		40	115	20
Isophorone	1900	0	1600	84		13		45	110	20
2-Nitrophenol	1900	0	1500	79		15		40	110	20
2,4-Dimethylphenol	1900	0	1400	74		8		35	105	20
bis(2-Chloroethoxy)methane	1900	0	1500	79		15		45	110	20
2,4-Dichlorophenol	1900	0	1500	79		15		45	110	20
4-Chloroaniline	1900	0	680	36		18		10	160	20
Hexachlorobutadiene	1900	0	1400	74		8		40	115	20
Caprolactam	1900	0	1700	89		18		24	145	20
4-Chloro-3-methylphenol	1900	0	1600	84		21	*	45	115	20
Hexachlorocyclopentadiene	3800	0	3200	84		17		10	128	20
2,4,6-Trichlorophenol	1900	0	1600	84		21	*	45	110	20
2,4,5-Trichlorophenol	1900	0	1600	84		21	*	50	110	20
1,1-Biphenyl	1900	0	1600	84		21	*	47	131	20
2-Chloronaphthalene	1900	0	1600	84		21	*	45	105	20
2-Nitroaniline	1900	0	1700	89		18		45	120	20
Dimethylphthalate	1900	0	1700	89		18		51	110	20
Acenaphthylene	1900	0	1600	84		13		45	105	20
2,6-Dinitrotoluene	1900	0	1600	84		13		50	110	20
3-Nitroaniline	1900	0	1000	53		12		25	110	20
Acenaphthene	1900	0	1700	89		18		45	110	20
2,4-Dinitrophenol	3800	0	3100	82		19		15	130	20
4-Nitrophenol	3800	0	3700	97		20		15	140	20
Dibenzofuran	1900	0	1600	84		21	*	50	105	20
2,4-Dinitrotoluene	1900	0	1700	89		18		50	115	20
Diethylphthalate	1900	0	1600	84		13		50	115	20
4-Chlorophenyl-phenylether	1900	0	1600	84		13		45	110	20
4-Nitroaniline	1900	0	1500	79		15		35	115	20
4,6-Dinitro-2-methylphenol	1900	0	1600	84		21	*	30	135	20
N-Nitrosodiphenylamine	1900	0	1500	79		15		50	115	20
4-Bromophenyl-phenylether	1900	0	1700	89		18		45	115	20
Hexachlorobenzene	1900	0	1600	84		13		45	120	20
Atrazine	1900	0	1600	84		13		38	135	20
Pentachlorophenol	3800	0	3300	87		20		25	120	20
Phenanthrene	1900	0	1600	84		13		50	110	20
Carbazole	1900	0	1600	84		13		45	115	20
Di-n-butylphthalate	1900	0	1800	95		18		55	110	20
Butylbenzylphthalate	1900	0	1800	95		18		50	125	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
3,3-Dichlorobenzidine	1900	0	970	51		6		10	126	20
bis(2-Ethylhexyl)phthalate	1900	0	1800	95		18		45	125	20
Di-n-octyl phthalate	1900	0	1900	100		17		40	130	20
1,2,4,5-Tetrachlorobenzene	1900	0	1500	79		15		70	130	20
2,3,4,6-Tetrachlorophenol	1900	0	1700	89		18		70	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60329BS	Benzaldehyde	50	12	24				10	161	
	Phenol	50	38	76				10	132	
	bis(2-Chloroethyl)ether	50	38	76				38	110	
	2-Chlorophenol	50	38	76				35	105	
	2-Methylphenol	50	38	76				40	110	
	2,2-oxybis(1-Chloropropane)	50	39	78				46	118	
	Acetophenone	50	37	74				57	116	
	3+4-Methylphenols	50	37	74				30	110	
	N-Nitroso-di-n-propylamine	50	38	76				49	120	
	Hexachloroethane	50	37	74				30	100	
	Nitrobenzene	50	39	78				45	110	
	Isophorone	50	39	78				50	110	
	2-Nitrophenol	50	37	74				49	115	
	2,4-Dimethylphenol	50	38	76				30	110	
	bis(2-Chloroethoxy)methane	50	39	78				48	105	
	2,4-Dichlorophenol	50	37	74				50	105	
	4-Chloroaniline	50	12	24				15	110	
	Hexachlorobutadiene	50	39	78				33	105	
	Caprolactam	50	38	76				10	161	
	4-Chloro-3-methylphenol	50	38	76				45	110	
	Hexachlorocyclopentadiene	100	81	81				10	155	
	2,4,6-Trichlorophenol	50	38	76				50	115	
	2,4,5-Trichlorophenol	50	38	76				50	110	
	1,1-Biphenyl	50	37	74				58	115	
	2-Chloronaphthalene	50	38	76				52	105	
	2-Nitroaniline	50	39	78				62	115	
	Dimethylphthalate	50	39	78				25	125	
	Acenaphthylene	50	40	80				52	105	
	2,6-Dinitrotoluene	50	39	78				65	115	
	3-Nitroaniline	50	18	36				20	120	
	Acenaphthene	50	40	80				51	110	
	2,4-Dinitrophenol	100	64	64				15	136	
	4-Nitrophenol	100	83	83				10	161	
	Dibenzofuran	50	38	76				61	105	
	2,4-Dinitrotoluene	50	40	80				68	120	
	Diethylphthalate	50	39	78				51	120	
	4-Chlorophenyl-phenylether	50	38	76				62	110	
	4-Nitroaniline	50	33	66				66	120	
	4,6-Dinitro-2-methylphenol	50	34	68				40	130	
	N-Nitrosodiphenylamine	50	38	76				64	110	
	4-Bromophenyl-phenylether	50	39	78				63	115	
	Hexachlorobenzene	50	39	78				50	110	
	Atrazine	50	39	78				61	132	
	Pentachlorophenol	100	73	73				40	115	
	Phenanthrene	50	38	76				55	115	
	Carbazole	50	38	76				70	115	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60329BS	Di-n-butylphthalate	50	39	78				72	115	
	Butylbenzylphthalate	50	40	80				66	115	
	3,3-Dichlorobenzidine	50	23	46				20	110	
	bis(2-Ethylhexyl)phthalate	50	39	78				69	125	
	Di-n-octyl phthalate	50	40	80				66	131	
	1,2,4,5-Tetrachlorobenzene	50	37	74				70	130	
	2,3,4,6-Tetrachlorophenol	50	40	80				70	130	
PB60329BSD	Benzaldehyde	50	16	32	29		*	10	161	20
	Phenol	50	46	92	19			10	132	20
	bis(2-Chloroethyl)ether	50	46	92	19			38	110	20
	2-Chlorophenol	50	46	92	19			35	105	20
	2-Methylphenol	50	46	92	19			40	110	20
	2,2-oxybis(1-Chloropropane)	50	47	94	19			46	118	20
	Acetophenone	50	45	90	20			57	116	20
	3+4-Methylphenols	50	45	90	20			30	110	20
	N-Nitroso-di-n-propylamine	50	46	92	19			49	120	20
	Hexachloroethane	50	45	90	20			30	100	20
	Nitrobenzene	50	48	96	21		*	45	110	20
	Isophorone	50	48	96	21		*	50	110	20
	2-Nitrophenol	50	47	94	24		*	49	115	20
	2,4-Dimethylphenol	50	47	94	21		*	30	110	20
	bis(2-Chloroethoxy)methane	50	46	92	16			48	105	20
	2,4-Dichlorophenol	50	46	92	22		*	50	105	20
	4-Chloroaniline	50	8.5	17	34		*	15	110	20
	Hexachlorobutadiene	50	46	92	16			33	105	20
	Caprolactam	50	47	94	21		*	10	161	20
	4-Chloro-3-methylphenol	50	46	92	19			45	110	20
	Hexachlorocyclopentadiene	100	99	99	20			10	155	20
	2,4,6-Trichlorophenol	50	46	92	19			50	115	20
	2,4,5-Trichlorophenol	50	46	92	19			50	110	20
	1,1-Biphenyl	50	45	90	20			58	115	20
	2-Chloronaphthalene	50	46	92	19			52	105	20
	2-Nitroaniline	50	48	96	21		*	62	115	20
	Dimethylphthalate	50	47	94	19			25	125	20
	Acenaphthylene	50	48	96	18			52	105	20
	2,6-Dinitrotoluene	50	47	94	19			65	115	20
	3-Nitroaniline	50	17	34	6			20	120	20
	Acenaphthene	50	49	98	20			51	110	20
	2,4-Dinitrophenol	100	80	80	22		*	15	136	20
	4-Nitrophenol	100	100	100	19			10	161	20
	Dibenzofuran	50	46	92	19			61	105	20
	2,4-Dinitrotoluene	50	48	96	18			68	120	20
	Diethylphthalate	50	47	94	19			51	120	20
	4-Chlorophenyl-phenylether	50	46	92	19			62	110	20
	4-Nitroaniline	50	40	80	19			66	120	20
	4,6-Dinitro-2-methylphenol	50	43	86	23		*	40	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60329BSD	N-Nitrosodiphenylamine	50	46	92	19			64	110	20
	4-Bromophenyl-phenylether	50	47	94	19			63	115	20
	Hexachlorobenzene	50	46	92	16			50	110	20
	Atrazine	50	48	96	21		*	61	132	20
	Pentachlorophenol	100	89	89	20			40	115	20
	Phenanthrene	50	46	92	19			55	115	20
	Carbazole	50	46	92	19			70	115	20
	Di-n-butylphthalate	50	48	96	21		*	72	115	20
	Butylbenzylphthalate	50	49	98	20			66	115	20
	3,3-Dichlorobenzidine	50	24	48	4			20	110	20
	bis(2-Ethylhexyl)phthalate	50	48	96	21		*	69	125	20
	Di-n-octyl phthalate	50	49	98	20			66	131	20
	1,2,4,5-Tetrachlorobenzene	50	44	88	17			70	130	20
	2,3,4,6-Tetrachlorophenol	50	49	98	20			70	130	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60339BS	Benzaldehyde	1700	290	17				10	161	
	Phenol	1700	980	58				51	100	
	bis(2-Chloroethyl)ether	1700	950	56				48	105	
	2-Chlorophenol	1700	970	57				53	105	
	2-Methylphenol	1700	980	58				52	105	
	2,2-oxybis(1-Chloropropane)	1700	970	57				45	115	
	Acetophenone	1700	950	56				51	114	
	3+4-Methylphenols	1700	970	57				54	105	
	N-Nitroso-di-n-propylamine	1700	980	58				51	114	
	Hexachloroethane	1700	940	55				44	110	
	Nitrobenzene	1700	1000	59				49	114	
	Isophorone	1700	1000	59				52	110	
	2-Nitrophenol	1700	1000	59				51	110	
	2,4-Dimethylphenol	1700	1000	59				46	105	
	bis(2-Chloroethoxy)methane	1700	1000	59				52	110	
	2,4-Dichlorophenol	1700	1000	59				53	110	
	4-Chloroaniline	1700	0	0		*		25	115	
	Hexachlorobutadiene	1700	990	58				47	115	
	Caprolactam	1700	1000	59				45	115	
	4-Chloro-3-methylphenol	1700	1000	59				56	111	
	Hexachlorocyclopentadiene	3300	2400	73				43	112	
	2,4,6-Trichlorophenol	1700	1100	65				53	110	
	2,4,5-Trichlorophenol	1700	1100	65				53	110	
	1,1-Biphenyl	1700	1000	59				55	109	
	2-Chloronaphthalene	1700	1000	59				55	105	
	2-Nitroaniline	1700	1100	65				53	118	
	Dimethylphthalate	1700	1100	65				57	110	
	Acenaphthylene	1700	1100	65				54	105	
	2,6-Dinitrotoluene	1700	1100	65				55	110	
	3-Nitroaniline	1700	220	13		*		25	110	
	Acenaphthene	1700	1100	65				54	110	
	2,4-Dinitrophenol	3300	1900	58				15	130	
	4-Nitrophenol	3300	2300	70				44	115	
	Dibenzofuran	1700	1000	59				59	105	
	2,4-Dinitrotoluene	1700	1100	65				55	115	
	Diethylphthalate	1700	1100	65				56	111	
	4-Chlorophenyl-phenylether	1700	1000	59				56	110	
	4-Nitroaniline	1700	940	55				46	113	
	4,6-Dinitro-2-methylphenol	1700	980	58				39	126	
	N-Nitrosodiphenylamine	1700	1000	59				54	115	
	4-Bromophenyl-phenylether	1700	1000	59				51	115	
	Hexachlorobenzene	1700	1000	59				52	117	
	Atrazine	1700	1000	59				40	127	
	Pentachlorophenol	3300	1900	58				47	116	
	Phenanthrene	1700	1000	59				56	110	
	Carbazole	1700	1000	59				54	117	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60339BS	Di-n-butylphthalate	1700	1100	65				58	110	
	Butylbenzylphthalate	1700	1100	65				57	122	
	3,3-Dichlorobenzidine	1700	350	21				10	157	
	bis(2-Ethylhexyl)phthalate	1700	1100	65				60	119	
	Di-n-octyl phthalate	1700	1100	65				56	122	
	1,2,4,5-Tetrachlorobenzene	1700	960	56		*		70	130	
	2,3,4,6-Tetrachlorophenol	1700	1100	65		*		70	130	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD040 Date Analyzed: 01/04/2012

Lab File ID: BE074821.D Time Analyzed: 05:45

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	167610	8.63	668112	10.81	359209	13.77
	UPPER LIMIT	335220	9.13	1336224	11.31	718418	14.27
	LOWER LIMIT	83805	8.13	334056	10.31	179604.5	13.27
	EPA SAMPLE NO.						
01	PB60329BS	141830	8.63	560764	10.81	304426	13.77
02	PB60329BSD	145038	8.63	574888	10.81	310730	13.77
03	PB60329B	146075	8.64	565077	10.81	297803	13.78
04	RB-01-122911	134282	8.63	523611	10.81	283601	13.77

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD040 Date Analyzed: 01/04/2012

Lab File ID: BE074821.D Time Analyzed: 05:45

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	623850	16.25	605848	20.7	547740	24.38
	UPPER LIMIT	1247700	16.75	1211696	21.2	1095480	24.88
	LOWER LIMIT	311925	15.75	302924	20.2	273870	23.88
	EPA SAMPLE NO.						
01	PB60329BS	524823	16.25	498253	20.70	451145	24.38
02	PB60329BSD	537911	16.25	510262	20.70	457394	24.38
03	PB60329B	520133	16.25	482684	20.70	439771	24.38
04	RB-01-122911	501200	16.25	452888	20.70	408189	24.37

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD040 Date Analyzed: 01/07/2012

Lab File ID: BE074908.D Time Analyzed: 05:19

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	493931	16.23	477307	20.67	409789	24.33
	UPPER LIMIT	987862	16.73	954614	21.17	819578	24.83
	LOWER LIMIT	246965.5	15.73	238653.5	20.17	204894.5	23.83
	EPA SAMPLE NO.						
01	12SB28-000.5-01	452184	16.23	441586	20.67	398335	24.33
02	UBZ3-SO-6-05-2MS	498131	16.23	478176	20.67	441601	24.32
03	UBZ3-SO-6-05-2MSD	520897	16.23	499935	20.67	463248	24.33

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD040 Date Analyzed: 01/07/2012

Lab File ID: BE074908.D Time Analyzed: 05:19

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	128089	8.62	518239	10.79	288456	13.75
	UPPER LIMIT	256178	9.12	1036478	11.29	576912	14.25
	LOWER LIMIT	64044.5	8.12	259119.5	10.29	144228	13.25
	EPA SAMPLE NO.						
01	12SB28-000.5-01	122617	8.61	474444	10.79	255947	13.76
02	UBZ3-SO-6-05-2MS	134244	8.62	527474	10.79	288221	13.75
03	UBZ3-SO-6-05-2MSD	143226	8.62	560351	10.79	301736	13.75

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD040 Date Analyzed: 01/06/2012

Lab File ID: BE074891.D Time Analyzed: 16:56

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	138601	8.62	563954	10.8	310891	13.76
	UPPER LIMIT	277202	9.12	1127908	11.3	621782	14.26
	LOWER LIMIT	69300.5	8.12	281977	10.3	155445.5	13.26
	EPA SAMPLE NO.						
01	PB60339B	129141	8.62	493638	10.79	261710	13.75
02	PB60339BS	135387	8.62	530284	10.79	283090	13.75

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD040 Date Analyzed: 01/06/2012

Lab File ID: BE074891.D Time Analyzed: 16:56

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	541213	16.24	529411	20.68	476239	24.35
	UPPER LIMIT	1082426	16.74	1058822	21.18	952478	24.85
	LOWER LIMIT	270606.5	15.74	264705.5	20.18	238119.5	23.85
	EPA SAMPLE NO.						
01	PB60339B	471740	16.23	432172	20.67	375320	24.33
02	PB60339BS	498580	16.23	477628	20.67	427070	24.33

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002600.D DFTPP Injection Date: 01/03/2012

Instrument ID: BNA_G DFTPP Injection Time: 19:54

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	48.3
68	Less than 2.0% of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	44.4
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	45.1
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	23.3
365	Greater than 1% of mass 198	1.5
441	Present, but less than mass 443	11.3
442	Greater than 40% of mass 198	65.8
443	17.0 - 23.0% of mass 442	11.7 (17.8) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002601.D	01/03/2012	20:36
02	SSTD0.5	0.5 PPM BNA ICC	BG002602.D	01/03/2012	21:15
03	SSTD2.5	2.5 PPM BNA ICC	BG002603.D	01/03/2012	21:54
04	SSTD010	10 PPM BNA ICC	BG002604.D	01/03/2012	22:34
05	SSTD025	25 PPM BNA ICC	BG002605.D	01/03/2012	23:13

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_G Calibration Date(s): 01/03/2012 01/03/2012

Calibration Time(s): 20:36 23:13

LAB FILE ID: RRF0.1 = BG002601.D RRF0.5 = BG002602.D RRF2.5 = BG002603.D
RRF010 = BG002604.D RRF025 = BG002605.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	5.057	4.934	4.144	3.905	3.483		4.305	15.7
Acenaphthylene	7.999	8.139	6.750	6.547	5.777		7.043	14.3
Acenaphthene	1.509	1.375	1.145	1.103	1.055		1.237	15.8
Fluorene	1.599	1.646	1.372	1.316	1.153		1.417	14.4
Phenanthrene	5.411	5.289	4.458	4.196	3.669		4.604	16.0
Anthracene	5.174	5.125	4.459	4.228	3.684		4.534	13.9
Fluoranthene	5.915	5.800	5.001	4.748	4.023		5.098	15.3
Pyrene	6.152	6.214	5.225	5.051	4.430		5.414	14.1
Benzo(a)anthracene	6.117	5.606	4.684	4.503	4.077		4.998	16.8
Chrysene	5.576	5.370	4.560	4.319	3.955		4.756	14.6
Benzo(b)fluoranthene	13.409	12.568	10.980	10.797	10.850		11.721	10.2
Benzo(k)fluoranthene	12.879	12.924	11.277	11.092	10.441		11.723	9.6
Benzo(a)pyrene	12.705	12.161	10.612	10.460	10.299		11.247	9.8
Indeno(1,2,3-cd)pyrene	4.899	4.730	4.179	4.047	3.265		4.224	15.3
Dibenzo(a,h)anthracene	1.091	1.127	1.014	0.967	0.774		0.995	13.9
Benzo(g,h,i)perylene	4.822	4.807	4.186	3.695	3.002		4.103	18.9
Nitrobenzene-d5	0.494	0.495	0.419	0.415	0.409		0.446	9.8
2-Fluorobiphenyl	1.669	1.688	1.427	1.378	1.259		1.484	12.7
Terphenyl-d14	1.063	0.908	0.727	0.716	0.659		0.815	20.5

All other compounds must meet a minimum RRF of 0.010.

Method Path : Z:\HPCHEM1\BNA_G\METHOD\
Method File : SIMPAH-BG010312.M
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Wed Jan 04 04:56:04 2012
Response Via : Initial Calibration

Calibration Files
0.1 =BG002601.D 0.5 =BG002602.D 2.5 =BG002603.D
10 =BG002604.D 25 =BG002605.D

		Compound	0.1	0.5	2.5	10	25	Avg		%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	I	Naphthalene-d8	----------ISTD----------							
3)	S	Nitrobenzene-d5	0.494	0.495	0.419	0.415	0.409	0.446		9.78
4)		Naphthalene	5.057	4.934	4.144	3.905	3.483	4.305		15.68
5)		2-Methylnapthalene	3.268	3.305	2.834	2.706	2.453	2.913		12.61
6)		1-Methylnapthalene	2.961	3.067	2.622	2.522	2.300	2.695		11.75
7)	I	Acenaphthene-d10	----------ISTD----------							
8)	S	2-Fluorobiphenyl	1.669	1.688	1.427	1.378	1.259	1.484		12.65
9)		Acenaphthylene	7.999	8.139	6.750	6.547	5.777	7.043		14.29
.0)		Acenaphthene	1.509	1.375	1.145	1.103	1.055	1.237		15.79
.1)		Fluorene	1.599	1.646	1.372	1.316	1.153	1.417		14.44
.2)	I	Phenanthrene-d10	----------ISTD----------							
.3)		Phenanthrene	5.411	5.289	4.458	4.196	3.669	4.604		16.04
.4)		Anthracene	5.174	5.125	4.459	4.228	3.684	4.534		13.86
.5)		Fluoranthene	5.915	5.799	5.001	4.748	4.023	5.098		15.34
.6)	I	Chrysene-d12	----------ISTD----------							
.7)		Pyrene	6.152	6.214	5.225	5.051	4.430	5.414		14.06
.8)	S	Terphenyl-d14	1.063	0.908	0.727	0.716	0.659	0.815		20.53
.9)		Bis(2-ethylhexyl)ph	0.903	0.810	0.675	0.674	0.634	0.739		15.35
20)		Benzo(a)anthracene	6.117	5.606	4.684	4.503	4.077	4.998		16.78
21)		Chrysene	5.576	5.370	4.560	4.319	3.955	4.756		14.57
22)		Indeno(1,2,3-cd)pyr	4.899	4.730	4.179	4.047	3.265	4.224		15.28
23)	I	Perylene-d12	----------ISTD----------							
24)		Benzo(b)fluoranthen	1.341	1.257	1.098	1.080	1.085	1.172	E1	10.21
25)		Benzo(k)fluoranthen	1.288	1.292	1.128	1.109	1.044	1.172	E1	9.55
26)		Benzo(a)pyrene	1.271	1.216	1.061	1.046	1.030	1.125	E1	9.82
27)		Dibenzo(a,h)anthrac	1.091	1.127	1.014	0.967	0.774	0.995		13.91
28)		Benzo(g,h,i)perylen	4.822	4.807	4.186	3.695	3.002	4.103		18.87

(#) = Out of Range

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002626.D DFTPP Injection Date: 01/04/2012

Instrument ID: BNA_G DFTPP Injection Time: 14:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.9
68	Less than 2.0% of mass 69	0.1 (0.3) 1
69	Mass 69 relative abundance	50.3
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	40.0 - 60.0% of mass 198	43
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.2
275	10.0 - 30.0% of mass 198	22.6
365	Greater than 1% of mass 198	2.2
441	Present, but less than mass 443	10.9
442	Greater than 40% of mass 198	65.5
443	17.0 - 23.0% of mass 442	12.7 (19.4) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002627.D	01/04/2012	15:08
02	PB60341B	PB60341B	BG002640.D	01/04/2012	23:47
03	PB60341BS	PB60341BS	BG002641.D	01/05/2012	00:26
04	PB60341BSD	PB60341BSD	BG002642.D	01/05/2012	01:06

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60341B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002640.D Lab Sample ID: PB60341B

Instrument ID: BNA_G Date Extracted: 01/03/2012

Matrix: (soil/water) WATER Date Analyzed: 01/04/2012

Level: (low/med) LOW Time Analyzed: 23:47

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
RB-01-122911	C5164-23	BG002653.D	01/05/2012
PB60341BSD	PB60341BSD	BG002642.D	01/05/2012
PB60341BS	PB60341BS	BG002641.D	01/05/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60341B	SDG No.:	C5164
Lab Sample ID:	PB60341B	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002640.D	1	01/03/12	01/04/12	PB60341

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	0.05	U	0.02	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.25	U	0.02	0.5	ug/L
207-08-9	Benzo(k)fluoranthene	0.25	U	0.02	0.5	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.1	ug/L
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.63		40 - 110	86%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.32		50 - 110	83%	SPK: 10
1718-51-0	Terphenyl-d14	10		50 - 135	100%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	154242	7.88			
1146-65-2	Naphthalene-d8	553754	10.06			
15067-26-2	Acenaphthene-d10	348630	13.03			
1517-22-2	Phenanthrene-d10	685438	15.48			
1719-03-5	Chrysene-d12	659796	19.85			
1520-96-3	Perylene-d12	546345	22.88			

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002643.D DFTPP Injection Date: 01/05/2012

Instrument ID: BNA_G DFTPP Injection Time: 01:45

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.7
68	Less than 2.0% of mass 69	0.3 (0.5) 1
69	Mass 69 relative abundance	53.3
70	Less than 2.0% of mass 69	0.4 (0.7) 1
127	40.0 - 60.0% of mass 198	46.6
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	25.8
365	Greater than 1% of mass 198	3.2
441	Present, but less than mass 443	9.4
442	Greater than 40% of mass 198	63.3
443	17.0 - 23.0% of mass 442	12.7 (20.1) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002644.D	01/05/2012	02:24
02	RB-01-122911	C5164-23	BG002653.D	01/05/2012	08:16

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_G Calibration Date/Time: 01/05/2012 02:24

Lab File ID: BG002644.D Init. Calib. Date(s): 01/03/2012 01/03/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 20:36 23:13

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{\text{RRF}}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.305	4.209		2.2	20.0
Acenaphthylene	7.043	6.711		4.7	20.0
Acenaphthene	1.237	1.150		7.0	20.0
Fluorene	1.417	1.374		3.0	20.0
Phenanthrene	4.604	4.479		2.7	20.0
Anthracene	4.534	4.447		1.9	20.0
Fluoranthene	5.098	4.996		2.0	20.0
Pyrene	5.414	5.048		6.8	20.0
Benzo(a)anthracene	4.998	4.515		9.7	20.0
Chrysene	4.756	4.525		4.9	20.0
Benzo(b)fluoranthene	11.721	10.533		10.1	20.0
Benzo(k)fluoranthene	11.723	11.559		1.4	20.0
Benzo(a)pyrene	11.247	10.177		9.5	20.0
Indeno(1,2,3-cd)pyrene	4.224	3.846		8.9	20.0
Dibenzo(a,h)anthracene	0.995	0.983		1.2	20.0
Benzo(g,h,i)perylene	4.103	4.109		0.1	20.0
Nitrobenzene-d5	0.446	0.445		0.1	20.0
2-Fluorobiphenyl	1.484	1.437		3.2	20.0
Terphenyl-d14	0.815	0.710		12.9	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG010412\
Data File : BG002644.D
Acq On : 5 Jan 2012 2:24
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jan 05 04:10:30 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG010312.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 04 04:56:04 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	92	-0.02
2	I	Naphthalene-d8	1.000	1.000	0.0	86	-0.02
3	S	Nitrobenzene-d5	0.446	0.445	0.2	91	-0.03
4		Naphthalene	4.305	4.209	2.2	87	-0.03
5		2-Methylnapthalene	2.913	2.773	4.8	84	-0.03
6		1-Methylnapthalene	2.695	2.609	3.2	85	-0.03
7	I	Acenaphthene-d10	1.000	1.000	0.0	84	-0.03
8	S	2-Fluorobiphenyl	1.484	1.437	3.2	85	-0.03
9		Acenaphthylene	7.043	6.711	4.7	84	-0.03
.0		Acenaphthene	1.237	1.150	7.0	85	-0.03
.1		Fluorene	1.417	1.374	3.0	84	-0.03
.2	I	Phenanthrene-d10	1.000	1.000	0.0	83	-0.03
.3		Phenanthrene	4.604	4.479	2.7	84	-0.03
.4		Anthracene	4.534	4.447	1.9	83	-0.03
.5		Fluoranthene	5.098	4.996	2.0	83	-0.03
.6	I	Chrysene-d12	1.000	1.000	0.0	86	-0.03
.7		Pyrene	5.414	5.048	6.8	83	-0.04
.8	S	Terphenyl-d14	0.815	0.710	12.9	84	-0.03
.9		Bis(2-ethylhexyl)phthalate	0.739	0.620	16.1	79	-0.02
20		Benzo(a)anthracene	4.998	4.515	9.7	83	-0.04
21		Chrysene	4.756	4.525	4.9	85	-0.04
22		Indeno(1,2,3-cd)pyrene	4.224	3.846	8.9	79	-0.10
23	I	Perylene-d12	1.000	1.000	0.0	82	-0.06
24		Benzo(b)fluoranthene	11.721	10.533	10.1	79	-0.05
25		Benzo(k)fluoranthene	11.723	11.559	1.4	84	-0.06
26		Benzo(a)pyrene	11.247	10.177	9.5	79	-0.07
27		Dibenzo(a,h)anthracene	0.995	0.983	1.2	80	-0.10
28		Benzo(g,h,i)perylene	4.103	4.109	-0.1	81	-0.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : Z:\HPCHEM1\BNA G\Data\BG010412\
Data File : BG002644.D
Acq On : 5 Jan 2012 2:24
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc : PAH
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jan 05 04:10:30 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG010312.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Jan 04 04:56:04 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	92	-0.02
2	I	Naphthalene-d8	5.000	5.000	0.0	86	-0.02
3	S	Nitrobenzene-d5	2.500	2.494	0.2	91	-0.03
4		Naphthalene	2.500	2.618	-4.7	87	-0.03
5		2-Methylnapthalene	2.500	2.379	4.8	84	-0.03
6		1-Methylnapthalene	2.500	2.421	3.2	85	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	84	-0.03
8	S	2-Fluorobiphenyl	2.500	2.420	3.2	85	-0.03
9		Acenaphthylene	2.500	2.382	4.7	84	-0.03
10		Acenaphthene	2.500	2.537	-1.5	85	-0.03
11		Fluorene	2.500	2.423	3.1	84	-0.03
12	I	Phenanthrene-d10	5.000	5.000	0.0	83	-0.03
13		Phenanthrene	2.500	2.589	-3.6	84	-0.03
14		Anthracene	2.500	2.452	1.9	83	-0.03
15		Fluoranthene	2.500	2.560	-2.4	83	-0.03
16	I	Chrysene-d12	5.000	5.000	0.0	86	-0.03
17		Pyrene	2.500	2.331	6.8	83	-0.04
18	S	Terphenyl-d14	2.500	2.406	3.8	84	-0.03
19		Bis(2-ethylhexyl)phthalate	2.500	2.241	10.4	79	-0.02
20		Benzo(a)anthracene	2.500	2.424	3.0	83	-0.04
21		Chrysene	2.500	2.378	4.9	85	-0.04
22		Indeno(1,2,3-cd)pyrene	2.500	2.273	9.1	79	-0.10
23	I	Perylene-d12	5.000	5.000	0.0	82	-0.06
24		Benzo(b)fluoranthene	2.500	2.247	10.1	79	-0.05
25		Benzo(k)fluoranthene	2.500	2.465	1.4	84	-0.06
26		Benzo(a)pyrene	2.500	2.262	9.5	79	-0.07
27		Dibenzo(a,h)anthracene	2.500	2.470	1.2	80	-0.10
28		Benzo(g,h,i)perylene	2.500	2.667	-6.7	81	-0.12

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002711.D DFTPP Injection Date: 01/10/2012

Instrument ID: BNA_G DFTPP Injection Time: 12:55

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.3
68	Less than 2.0% of mass 69	0.3 (0.7) 1
69	Mass 69 relative abundance	42
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	40.5
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1% of mass 198	3.4
441	Present, but less than mass 443	9.8
442	Greater than 40% of mass 198	82.3
443	17.0 - 23.0% of mass 442	15.1 (18.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002714.D	01/10/2012	14:55
02	SSTD0.5	0.5 PPM BNA ICC	BG002715.D	01/10/2012	15:34
03	SSTD2.5	2.5 PPM BNA ICC	BG002716.D	01/10/2012	16:13
04	SSTD010	10 PPM BNA ICC	BG002717.D	01/10/2012	16:52
05	SSTD025	25 PPM BNA ICC	BG002718.D	01/10/2012	17:31
06	12SB56-0.502-02	C5164-04	BG002720.D	01/10/2012	19:38
07	12SB49-0.502-02	C5164-06	BG002721.D	01/10/2012	20:17
08	12SB49-0.502-02MS	C5164-07MS	BG002722.D	01/10/2012	20:57
09	12SB49-0.502-02MSD	C5164-08MSD	BG002723.D	01/10/2012	21:35
10	12SB48-0.502-02	C5164-16	BG002724.D	01/10/2012	22:14
11	12SB-DUP01-122911	C5164-20	BG002725.D	01/10/2012	22:53
12	12SB50-0.502-02	C5164-12	BG002726.D	01/10/2012	23:32
13	PB60340B	PB60340B	BG002727.D	01/11/2012	00:11
14	PB60340BS	PB60340BS	BG002728.D	01/11/2012	00:49

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_G Calibration Date(s): 01/10/2012 01/10/2012

Calibration Time(s): 14:55 17:31

LAB FILE ID: RRF0.1 = BG002714.D RRF0.5 = BG002715.D RRF2.5 = BG002716.D
RRF010 = BG002717.D RRF025 = BG002718.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.697	4.720	4.145	4.193	3.516		4.255	11.6
2-Methylnapthalene	3.145	3.296	2.960	3.065	2.668		3.027	7.8
Acenaphthylene	6.915	7.128	6.256	6.553	5.495		6.469	9.9
Acenaphthene	1.271	1.173	1.022	1.064	0.948		1.096	11.6
Fluorene	1.436	1.482	1.287	1.362	1.135		1.340	10.2
Phenanthrene	5.118	4.988	4.352	4.481	3.726		4.533	12.3
Anthracene	4.799	4.894	4.433	4.584	3.828		4.508	9.3
Fluoranthene	5.433	5.520	4.934	5.135	4.175		5.039	10.7
Pyrene	5.997	5.852	5.148	5.361	4.460		5.364	11.4
Benzo(a)anthracene	5.705	5.293	4.590	4.702	4.034		4.865	13.3
Chrysene	5.164	5.026	4.435	4.460	3.749		4.567	12.3
Benzo(b)fluoranthene	12.086	11.779	10.600	11.665	11.144		11.455	5.1
Benzo(k)fluoranthene	11.485	12.268	11.055	11.921	10.344		11.415	6.6
Benzo(a)pyrene	11.048	11.125	10.189	11.182	10.136		10.736	4.9
Indeno(1,2,3-cd)pyrene	3.533	3.731	3.640	3.853	3.100		3.571	8.1
Dibenzo(a,h)anthracene	0.836	0.899	0.897	0.955	0.789		0.875	7.3
Benzo(g,h,i)perylene	3.793	3.740	3.608	3.591	3.073		3.561	8.0
Nitrobenzene-d5	0.380	0.375	0.346	0.382	0.353		0.367	4.5
2-Fluorobiphenyl	1.596	1.581	1.387	1.452	1.223		1.448	10.6
Terphenyl-d14	1.162	1.059	0.751	0.775	0.664		0.882	24.5

All other compounds must meet a minimum RRF of 0.010.

Response Factor Report GC/MS Ins

Method : \\TSCLIENT\Z\HPC...IMPAH-BG011012.M (RTE Integrator)
Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
Last Update : Tue Jan 10 18:10:20 2012
Response via : Initial Calibration

Calibration Files
0.1 =BG002714.D 0.5 =BG002715.D 2.5 =BG002716.D
10 =BG002717.D 25 =BG002718.D

		Compound	0.1	0.5	2.5	10	25	Avg		%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	I	Naphthalene-d8	----------ISTD----------							
3)	S	Nitrobenzene-d5	0.380	0.375	0.346	0.382	0.353	0.367		4.48
4)		Naphthalene	4.697	4.720	4.145	4.193	3.516	4.255		11.60
5)		2-Methylnapthalene	3.145	3.296	2.960	3.065	2.668	3.027		7.76
6)		1-Methylnapthalene	2.906	3.028	2.685	2.830	2.451	2.780		7.98
7)	I	Acenaphthene-d10	----------ISTD----------							
8)	S	2-Fluorobiphenyl	1.596	1.581	1.387	1.452	1.223	1.448		10.59
9)		Acenaphthylene	6.915	7.128	6.256	6.553	5.495	6.469		9.88
10)		Acenaphthene	1.271	1.173	1.022	1.064	0.948	1.096		11.64
11)		Fluorene	1.436	1.482	1.287	1.362	1.135	1.340		10.19
12)	I	Phenanthrene-d10	----------ISTD----------							
13)		Phenanthrene	5.118	4.988	4.352	4.481	3.726	4.533		12.26
14)		Anthracene	4.799	4.894	4.433	4.584	3.828	4.508		9.33
15)		Fluoranthene	5.433	5.520	4.934	5.135	4.175	5.039		10.66
16)	I	Chrysene-d12	----------ISTD----------							
17)		Pyrene	5.997	5.852	5.148	5.361	4.460	5.364		11.43
18)	S	Terphenyl-d14	1.162	1.059	0.751	0.775	0.664	0.882		24.47
19)		Benzo(a)anthracene	5.705	5.293	4.590	4.702	4.034	4.865		13.32
20)		Chrysene	5.164	5.026	4.435	4.460	3.749	4.567		12.32
21)		Indeno(1,2,3-cd)pyren	3.533	3.731	3.640	3.853	3.100	3.571		8.09
22)	I	Perylene-d12	----------ISTD----------							
23)		Benzo(b)fluoranthene	1.209	1.178	1.060	1.167	1.114	1.145	E1	5.12
24)		Benzo(k)fluoranthene	1.149	1.227	1.106	1.192	1.034	1.141	E1	6.59
25)		Benzo(a)pyrene	1.105	1.113	1.019	1.118	1.014	1.074	E1	4.90
26)		Dibenzo(a,h)anthracen	0.836	0.899	0.897	0.955	0.789	0.875		7.34
27)		Benzo(g,h,i)perylene	3.793	3.740	3.608	3.591	3.073	3.561		8.03

(#) = Out of Range

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60340B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002727.D Lab Sample ID: PB60340B

Instrument ID: BNA_G Date Extracted: 01/03/2012

Matrix: (soil/water) SOIL Date Analyzed: 01/11/2012

Level: (low/med) LOW Time Analyzed: 00:11

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB57-000.5-01	C5164-13	BG002769.D	01/12/2012
12SB-DUP02-122911	C5164-21	BG002768.D	01/12/2012
12SB58-000.5-01	C5164-14	BG002767.D	01/12/2012
12SB53-0.502-02	C5164-11	BG002766.D	01/12/2012
12SB52-0.502-02	C5164-10	BG002765.D	01/12/2012
12SB51-0.502-02	C5164-09	BG002764.D	01/12/2012
12SB55-0.502-02	C5164-05	BG002763.D	01/12/2012
12SB28-000.5-01	C5164-02	BG002762.D	01/12/2012
12SB59-000.5-01	C5164-15	BG002761.D	01/12/2012
12SB54-0.502-02	C5164-03	BG002760.D	01/11/2012
PB60340BS	PB60340BS	BG002728.D	01/11/2012
12SB50-0.502-02	C5164-12	BG002726.D	01/10/2012
12SB-DUP01-122911	C5164-20	BG002725.D	01/10/2012
12SB48-0.502-02	C5164-16	BG002724.D	01/10/2012
12SB49-0.502-02MSD	C5164-08MSD	BG002723.D	01/10/2012
12SB49-0.502-02MS	C5164-07MS	BG002722.D	01/10/2012
12SB49-0.502-02	C5164-06	BG002721.D	01/10/2012
12SB56-0.502-02	C5164-04	BG002720.D	01/10/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60340B	SDG No.:	C5164
Lab Sample ID:	PB60340B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002727.D	1	01/03/12	01/11/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.8		30 - 150	88%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.6		45 - 105	86%	SPK: 10
1718-51-0	Terphenyl-d14	10.2		30 - 125	102%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	121629	7.83			
1146-65-2	Naphthalene-d8	447322	10			
15067-26-2	Acenaphthene-d10	306386	12.97			
1517-22-2	Phenanthrene-d10	548608	15.42			
1719-03-5	Chrysene-d12	535204	19.78			
1520-96-3	Perylene-d12	455864	22.76			

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002755.D DFTPP Injection Date: 01/11/2012

Instrument ID: BNA_G DFTPP Injection Time: 20:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	34.7
68	Less than 2.0% of mass 69	0.5 (1.3) 1
69	Mass 69 relative abundance	38
70	Less than 2.0% of mass 69	0.6 (1.5) 1
127	40.0 - 60.0% of mass 198	40.2
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	5.7
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 1% of mass 198	3.2
441	Present, but less than mass 443	13.4
442	Greater than 40% of mass 198	76.1
443	17.0 - 23.0% of mass 442	15.7 (20.7) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002756.D	01/11/2012	21:08
02	12SB54-0.502-02	C5164-03	BG002760.D	01/11/2012	23:44
03	12SB59-000.5-01	C5164-15	BG002761.D	01/12/2012	00:23
04	12SB28-000.5-01	C5164-02	BG002762.D	01/12/2012	01:02
05	12SB55-0.502-02	C5164-05	BG002763.D	01/12/2012	01:41
06	12SB51-0.502-02	C5164-09	BG002764.D	01/12/2012	02:21
07	12SB52-0.502-02	C5164-10	BG002765.D	01/12/2012	03:00
08	12SB53-0.502-02	C5164-11	BG002766.D	01/12/2012	03:39
09	12SB58-000.5-01	C5164-14	BG002767.D	01/12/2012	04:18
10	12SB-DUP02-122911	C5164-21	BG002768.D	01/12/2012	04:57
11	12SB57-000.5-01	C5164-13	BG002769.D	01/12/2012	05:36

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_G Calibration Date/Time: 01/11/2012 21:08

Lab File ID: BG002756.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{RRF}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	3.998		6.0	20.0
2-Methylnapthalene	3.027	2.937		3.0	20.0
Acenaphthylene	6.469	5.982		7.5	20.0
Acenaphthene	1.096	0.993		9.4	20.0
Fluorene	1.340	1.246		7.0	20.0
Phenanthrene	4.533	4.235		6.6	20.0
Anthracene	4.508	4.267		5.3	20.0
Fluoranthene	5.039	4.711		6.5	20.0
Pyrene	5.364	5.159		3.8	20.0
Benzo(a)anthracene	4.865	4.483		7.8	20.0
Chrysene	4.567	4.331		5.2	20.0
Benzo(b)fluoranthene	11.455	10.473		8.6	20.0
Benzo(k)fluoranthene	11.415	10.355		9.3	20.0
Benzo(a)pyrene	10.736	10.051		6.4	20.0
Indeno(1,2,3-cd)pyrene	3.571	4.061		13.7	20.0
Dibenzo(a,h)anthracene	0.875	0.920		5.2	20.0
Benzo(g,h,i)perylene	3.561	3.708		4.1	20.0
Nitrobenzene-d5	0.367	0.283		23.0	20.0
2-Fluorobiphenyl	1.448	1.322		8.7	20.0
Terphenyl-d14	0.882	0.747		15.3	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG011112\
Data File : BG002756.D
Acq On : 11 Jan 2012 21:08
Operator : HNP
Sample : 2.5PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 12 03:51:08 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	-0.02
2	I	Naphthalene-d8	1.000	1.000	0.0	100	-0.02
3	S	Nitrobenzene-d5	0.367	0.283	22.9#	82	-0.02
4		Naphthalene	4.255	3.998	6.0	97	-0.02
5		2-Methylnapthalene	3.027	2.937	3.0	100	-0.03
6		1-Methylnapthalene	2.780	2.704	2.7	101	-0.03
7	I	Acenaphthene-d10	1.000	1.000	0.0	100	-0.01
8	S	2-Fluorobiphenyl	1.448	1.322	8.7	96	-0.01
9		Acenaphthylene	6.469	5.982	7.5	96	-0.01
10		Acenaphthene	1.096	0.993	9.4	97	-0.01
11		Fluorene	1.340	1.246	7.0	97	-0.01
12	I	Phenanthrene-d10	1.000	1.000	0.0	102	-0.02
13		Phenanthrene	4.533	4.235	6.6	100	-0.02
14		Anthracene	4.508	4.267	5.3	98	-0.02
15		Fluoranthene	5.039	4.711	6.5	98	-0.02
16	I	Chrysene-d12	1.000	1.000	0.0	97	-0.03
17		Pyrene	5.364	5.159	3.8	97	-0.03
18	S	Terphenyl-d14	0.882	0.747	15.3	97	-0.02
19		Benzo(a)anthracene	4.865	4.483	7.9	95	-0.03
20		Chrysene	4.567	4.331	5.2	95	-0.03
21		Indeno(1,2,3-cd)pyrene	3.571	4.061	-13.7	109	-0.07
22	I	Perylene-d12	1.000	1.000	0.0	105	-0.04
23		Benzo(b)fluoranthene	11.455	10.473	8.6	104	-0.04
24		Benzo(k)fluoranthene	11.415	10.355	9.3	98	-0.03
25		Benzo(a)pyrene	10.736	10.051	6.4	103	-0.04
26		Dibenzo(a,h)anthracene	0.875	0.920	-5.1	108	-0.08
27		Benzo(g,h,i)perylene	3.561	3.708	-4.1	108	-0.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA G\Data\BG011112\
Data File : BG002756.D
Acq On : 11 Jan 2012 21:08
Operator : HNP
Sample : 2.5PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 12 03:51:08 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	89	-0.02
2	I	Naphthalene-d8	5.000	5.000	0.0	100	-0.02
3	S	Nitrobenzene-d5	2.500	1.923	23.1#	82	-0.02
4		Naphthalene	2.500	2.349	6.0	97	-0.02
5		2-Methylnapthalene	2.500	2.426	3.0	100	-0.03
6		1-Methylnapthalene	2.500	2.431	2.8	101	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	100	-0.01
8	S	2-Fluorobiphenyl	2.500	2.282	8.7	96	-0.01
9		Acenaphthylene	2.500	2.312	7.5	96	-0.01
.0		Acenaphthene	2.500	2.266	9.4	97	-0.01
.1		Fluorene	2.500	2.324	7.0	97	-0.01
.2	I	Phenanthrene-d10	5.000	5.000	0.0	102	-0.02
.3		Phenanthrene	2.500	2.335	6.6	100	-0.02
.4		Anthracene	2.500	2.367	5.3	98	-0.02
.5		Fluoranthene	2.500	2.337	6.5	98	-0.02
.6	I	Chrysene-d12	5.000	5.000	0.0	97	-0.03
.7		Pyrene	2.500	2.404	3.8	97	-0.03
.8	S	Terphenyl-d14	2.500	2.333	6.7	97	-0.02
.9		Benzo(a)anthracene	2.500	2.304	7.8	95	-0.03
20		Chrysene	2.500	2.371	5.2	95	-0.03
21		Indeno(1,2,3-cd)pyrene	2.500	2.842	-13.7	109	-0.07
22	I	Perylene-d12	5.000	5.000	0.0	105	-0.04
23		Benzo(b)fluoranthene	2.500	2.286	8.6	104	-0.04
24		Benzo(k)fluoranthene	2.500	2.268	9.3	98	-0.03
25		Benzo(a)pyrene	2.500	2.341	6.4	103	-0.04
26		Dibenzo(a,h)anthracene	2.500	2.628	-5.1	108	-0.08
27		Benzo(g,h,i)perylene	2.500	2.604	-4.2	108	-0.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: C5164 SDG NO.: C5164

Lab File ID: BG002772.D DFTPP Injection Date: 01/12/2012

Instrument ID: BNA_G DFTPP Injection Time: 07:33

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.4
68	Less than 2.0% of mass 69	0.4 (1.1) 1
69	Mass 69 relative abundance	35
70	Less than 2.0% of mass 69	0.1 (0.4) 1
127	40.0 - 60.0% of mass 198	46.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	23.9
365	Greater than 1% of mass 198	2.1
441	Present, but less than mass 443	9.4
442	Greater than 40% of mass 198	69.9
443	17.0 - 23.0% of mass 442	13.9 (19.8) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002773.D	01/12/2012	08:14
02	12SB54-0.502-02DL	C5164-03DL	BG002778.D	01/12/2012	11:29
03	12SB59-000.5-01DL	C5164-15DL	BG002779.D	01/12/2012	12:08
04	12SB28-000.5-01DL	C5164-02DL	BG002780.D	01/12/2012	12:48

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_G Calibration Date/Time: 01/12/2012 08:14

Lab File ID: BG002773.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	3.977		6.5	20.0
2-Methylnapthalene	3.027	2.863		5.4	20.0
Acenaphthylene	6.469	6.084		6.0	20.0
Acenaphthene	1.096	0.979		10.7	20.0
Fluorene	1.340	1.286		4.0	20.0
Phenanthrene	4.533	4.236		6.6	20.0
Anthracene	4.508	4.242		5.9	20.0
Fluoranthene	5.039	4.582		9.1	20.0
Pyrene	5.364	4.953		7.7	20.0
Benzo(a)anthracene	4.865	4.476		8.0	20.0
Chrysene	4.567	4.267		6.6	20.0
Benzo(b)fluoranthene	11.455	10.250		10.5	20.0
Benzo(k)fluoranthene	11.415	10.484		8.2	20.0
Benzo(a)pyrene	10.736	9.986		7.0	20.0
Indeno(1,2,3-cd)pyrene	3.571	3.919		9.7	20.0
Dibenzo(a,h)anthracene	0.875	0.895		2.3	20.0
Benzo(g,h,i)perylene	3.561	3.506		1.5	20.0
Nitrobenzene-d5	0.367	0.297		19.1	20.0
2-Fluorobiphenyl	1.448	1.364		5.8	20.0
Terphenyl-d14	0.882	0.719		18.4	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG011212\
Data File : BG002773.D
Acq On : 12 Jan 2012 8:14
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 03:49:17 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	84	-0.01
2	I	Naphthalene-d8	1.000	1.000	0.0	97	-0.01
3	S	Nitrobenzene-d5	0.367	0.297	19.1	83	-0.02
4		Naphthalene	4.255	3.977	6.5	93	-0.02
5		2-Methylnapthalene	3.027	2.863	5.4	93	-0.03
6		1-Methylnapthalene	2.780	2.613	6.0	94	-0.03
7	I	Acenaphthene-d10	1.000	1.000	0.0	92	-0.01
8	S	2-Fluorobiphenyl	1.448	1.364	5.8	91	-0.01
9		Acenaphthylene	6.469	6.084	6.0	89	-0.01
.0		Acenaphthene	1.096	0.979	10.7	88	-0.01
.1		Fluorene	1.340	1.286	4.0	92	-0.01
.2	I	Phenanthrene-d10	1.000	1.000	0.0	91	-0.03
.3		Phenanthrene	4.533	4.236	6.6	89	-0.02
.4		Anthracene	4.508	4.242	5.9	87	-0.03
.5		Fluoranthene	5.039	4.582	9.1	85	-0.02
.6	I	Chrysene-d12	1.000	1.000	0.0	89	-0.03
.7		Pyrene	5.364	4.953	7.7	86	-0.03
.8	S	Terphenyl-d14	0.882	0.719	18.5	85	-0.02
.9		Benzo(a)anthracene	4.865	4.476	8.0	87	-0.02
20		Chrysene	4.567	4.267	6.6	86	-0.03
21		Indeno(1,2,3-cd)pyrene	3.571	3.919	-9.7	96	-0.06
22	I	Perylene-d12	1.000	1.000	0.0	96	-0.03
23		Benzo(b)fluoranthene	11.455	10.250	10.5	93	-0.03
24		Benzo(k)fluoranthene	11.415	10.484	8.2	91	-0.03
25		Benzo(a)pyrene	10.736	9.986	7.0	94	-0.03
26		Dibenzo(a,h)anthracene	0.875	0.895	-2.3	96	-0.07
27		Benzo(g,h,i)perylene	3.561	3.506	1.5	93	-0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG011212\
Data File : BG002773.D
Acq On : 12 Jan 2012 8:14
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 03:49:17 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	84	-0.01
2	I	Naphthalene-d8	5.000	5.000	0.0	97	-0.01
3	S	Nitrobenzene-d5	2.500	2.022	19.1	83	-0.02
4		Naphthalene	2.500	2.337	6.5	93	-0.02
5		2-Methylnapthalene	2.500	2.365	5.4	93	-0.03
6		1-Methylnapthalene	2.500	2.350	6.0	94	-0.03
7	I	Acenaphthene-d10	5.000	5.000	0.0	92	-0.01
8	S	2-Fluorobiphenyl	2.500	2.356	5.8	91	-0.01
9		Acenaphthylene	2.500	2.351	6.0	89	-0.01
.0		Acenaphthene	2.500	2.234	10.6	88	-0.01
.1		Fluorene	2.500	2.398	4.1	92	-0.01
.2	I	Phenanthrene-d10	5.000	5.000	0.0	91	-0.03
.3		Phenanthrene	2.500	2.336	6.6	89	-0.02
.4		Anthracene	2.500	2.353	5.9	87	-0.03
.5		Fluoranthene	2.500	2.273	9.1	85	-0.02
.6	I	Chrysene-d12	5.000	5.000	0.0	89	-0.03
.7		Pyrene	2.500	2.309	7.6	86	-0.03
.8	S	Terphenyl-d14	2.500	2.230	10.8	85	-0.02
.9		Benzo(a)anthracene	2.500	2.300	8.0	87	-0.02
20		Chrysene	2.500	2.336	6.6	86	-0.03
21		Indeno(1,2,3-cd)pyrene	2.500	2.743	-9.7	96	-0.06
22	I	Perylene-d12	5.000	5.000	0.0	96	-0.03
23		Benzo(b)fluoranthene	2.500	2.237	10.5	93	-0.03
24		Benzo(k)fluoranthene	2.500	2.296	8.2	91	-0.03
25		Benzo(a)pyrene	2.500	2.325	7.0	94	-0.03
26		Dibenzo(a,h)anthracene	2.500	2.556	-2.2	96	-0.07
27		Benzo(g,h,i)perylene	2.500	2.462	1.5	93	-0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5164-02	12SB28-000.5-01	Nitrobenzene-d5	100	62.07	62		30	150
		2-Fluorobiphenyl	100	45.50	46		45	105
		Terphenyl-d14	100	56.48	56		30	125
C5164-02DL	12SB28-000.5-01DL	Nitrobenzene-d5	100	59.95	60		30	150
		2-Fluorobiphenyl	100	62.15	62		45	105
		Terphenyl-d14	100	66.85	67		30	125
C5164-03	12SB54-0.502-02	Nitrobenzene-d5	10	7.30	73		30	150
		2-Fluorobiphenyl	10	8.95	90		45	105
		Terphenyl-d14	10	8.40	84		30	125
C5164-03DL	12SB54-0.502-02DL	Nitrobenzene-d5	10	7.50	75		30	150
		2-Fluorobiphenyl	10	9.00	90		45	105
		Terphenyl-d14	10	-13.50	-135	*	30	125
C5164-04	12SB56-0.502-02	Nitrobenzene-d5	10	7.31	73		30	150
		2-Fluorobiphenyl	10	7.36	74		45	105
		Terphenyl-d14	10	8.67	87		30	125
C5164-05	12SB55-0.502-02	Nitrobenzene-d5	10	7.71	77		30	150
		2-Fluorobiphenyl	10	9.01	90		45	105
		Terphenyl-d14	10	10.88	109		30	125
C5164-06	12SB49-0.502-02	Nitrobenzene-d5	10	7.49	75		30	150
		2-Fluorobiphenyl	10	7.51	75		45	105
		Terphenyl-d14	10	8.95	90		30	125
C5164-07MS	12SB49-0.502-02MS	Nitrobenzene-d5	10	7.58	76		30	150
		2-Fluorobiphenyl	10	7.38	74		45	105
		Terphenyl-d14	10	8.53	85		30	125
C5164-08MSD	12SB49-0.502-02MSD	Nitrobenzene-d5	10	8.38	84		30	150
		2-Fluorobiphenyl	10	7.95	79		45	105
		Terphenyl-d14	10	9.65	97		30	125
C5164-09	12SB51-0.502-02	Nitrobenzene-d5	10	8.42	84		30	150
		2-Fluorobiphenyl	10	9.59	96		45	105
		Terphenyl-d14	10	11.31	113		30	125
C5164-10	12SB52-0.502-02	Nitrobenzene-d5	10	7.43	74		30	150
		2-Fluorobiphenyl	10	8.49	85		45	105
		Terphenyl-d14	10	10.10	101		30	125
C5164-11	12SB53-0.502-02	Nitrobenzene-d5	10	6.35	64		30	150
		2-Fluorobiphenyl	10	7.17	72		45	105
		Terphenyl-d14	10	8.21	82		30	125
C5164-12	12SB50-0.502-02	Nitrobenzene-d5	10	8.21	82		30	150
		2-Fluorobiphenyl	10	8.03	80		45	105
		Terphenyl-d14	10	10.05	101		30	125
C5164-13	12SB57-000.5-01	Nitrobenzene-d5	10	6.03	60		30	150
		2-Fluorobiphenyl	10	7.24	72		45	105
		Terphenyl-d14	10	8.40	84		30	125
C5164-14	12SB58-000.5-01	Nitrobenzene-d5	10	7.03	70		30	150
		2-Fluorobiphenyl	10	8.10	81		45	105
		Terphenyl-d14	10	9.19	92		30	125
C5164-15	12SB59-000.5-01	Nitrobenzene-d5	10	8.10	81		30	150
		2-Fluorobiphenyl	10	9.75	98		45	105
		Terphenyl-d14	10	8.80	88		30	125
C5164-15DL	12SB59-000.5-01DL	Nitrobenzene-d5	10	7.50	75		30	150
		2-Fluorobiphenyl	10	9.50	95		45	105
		Terphenyl-d14	10	-12.50	-125	*	30	125
C5164-16	12SB48-0.502-02	Nitrobenzene-d5	10	8.86	89		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5164-16	12SB48-0.502-02	2-Fluorobiphenyl	10	8.56	86		45	105
		Terphenyl-d14	10	10.34	103		30	125
C5164-20	12SB-DUP01-122911	Nitrobenzene-d5	10	6.07	61		30	150
		2-Fluorobiphenyl	10	6.14	61		45	105
		Terphenyl-d14	10	7.14	71		30	125
C5164-21	12SB-DUP02-122911	Nitrobenzene-d5	10	5.02	50		30	150
		2-Fluorobiphenyl	10	5.75	58		45	105
		Terphenyl-d14	10	6.49	65		30	125
PB60340B	PB60340B	Nitrobenzene-d5	10	8.80	88		30	150
		2-Fluorobiphenyl	10	8.60	86		45	105
		Terphenyl-d14	10	10.15	102		30	125
PB60340BS	PB60340BS	Nitrobenzene-d5	10	9.65	97		30	150
		2-Fluorobiphenyl	10	9.20	92		45	105
		Terphenyl-d14	10	10.75	108		30	125

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C5164-23	RB-01-122911	Nitrobenzene-d5	100	68.45	68		40	110
		2-Fluorobiphenyl	100	51.94	52		50	110
		Terphenyl-d14	100	66.92	67		50	135
PB60341B	PB60341B	Nitrobenzene-d5	10	8.63	86		40	110
		2-Fluorobiphenyl	10	8.32	83		50	110
		Terphenyl-d14	10	10.00	100		50	135
PB60341BS	PB60341BS	Nitrobenzene-d5	10	6.71	67		40	110
		2-Fluorobiphenyl	10	6.80	68		50	110
		Terphenyl-d14	10	7.45	75		50	135
PB60341BSD	PB60341BSD	Nitrobenzene-d5	10	7.85	79		40	110
		2-Fluorobiphenyl	10	7.66	77		50	110
		Terphenyl-d14	10	8.66	87		50	135

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: C5164-07MS	**Client Sample ID: 12SB49-0.502-02MS**									
Naphthalene	420	0	320	76				23	160	
2-Methylnaphthalene	420	0	320	76				37	139	
Acenaphthylene	420	0	320	76				28	155	
Acenaphthene	420	0	320	76				32	146	
Fluorene	420	0	320	76				17	166	
Phenanthrene	420	0	320	76				30	149	
Anthracene	420	0	320	76				27	158	
Fluoranthene	420	0	330	79				26	155	
Pyrene	420	0	320	76				22	173	
Benzo(a)anthracene	420	0	320	76				27	159	
Chrysene	420	0	320	76				23	166	
Benzo(b)fluoranthene	420	0	320	76				21	171	
Benzo(k)fluoranthene	420	0	320	76				26	165	
Benzo(a)pyrene	420	0	330	79				26	157	
Indeno(1,2,3-cd)pyrene	420	0	360	86				10	188	
Dibenz(a,h)anthracene	420	0	350	83				18	147	
Benzo(g,h,i)perylene	420	0	320	76				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: C5164-08MSD	**Client Sample ID: 12SB49-0.502-02MSD**									
Naphthalene	420	0	340	81		6		23	160	20
2-Methylnaphthalene	420	0	350	83		9		37	139	20
Acenaphthylene	420	0	340	81		6		28	155	20
Acenaphthene	420	0	340	81		6		32	146	20
Fluorene	420	0	350	83		9		17	166	20
Phenanthrene	420	0	340	81		6		30	149	20
Anthracene	420	0	350	83		9		27	158	20
Fluoranthene	420	0	350	83		5		26	155	20
Pyrene	420	0	360	86		12		22	173	20
Benzo(a)anthracene	420	0	340	81		6		27	159	20
Chrysene	420	0	340	81		6		23	166	20
Benzo(b)fluoranthene	420	0	340	81		6		21	171	20
Benzo(k)fluoranthene	420	0	340	81		6		26	165	20
Benzo(a)pyrene	420	0	350	83		5		26	157	20
Indeno(1,2,3-cd)pyrene	420	0	380	90		5		10	188	20
Dibenz(a,h)anthracene	420	0	360	86		4		18	147	20
Benzo(g,h,i)perylene	420	0	340	81		6		10	177	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60341BS	Naphthalene	10	8.3	83				42	115	
	Acenaphthylene	10	7.2	72				52	118	
	Acenaphthene	10	8.8	88				51	118	
	Fluorene	10	7.2	72				52	121	
	Phenanthrene	10	8.4	84				55	126	
	Anthracene	10	7.2	72				59	122	
	Fluoranthene	10	8.5	85				61	127	
	Pyrene	10	7.0	70				62	128	
	Benzo(a)anthracene	10	8.0	80				52	136	
	Chrysene	10	7.0	70				55	136	
	Benzo(b)fluoranthene	10	7.1	71				48	149	
	Benzo(k)fluoranthene	10	7.5	75				54	138	
	Benzo(a)pyrene	10	7.1	71				55	139	
	Indeno(1,2,3-cd)pyrene	10	8.6	86				10	145	
	Dibenz(a,h)anthracene	10	7.8	78				45	150	
	Benzo(g,h,i)perylene	10	10	100				54	138	
PB60341BSD	Naphthalene	10	9.6	96	15			42	115	20
	Acenaphthylene	10	8.4	84	15			52	118	20
	Acenaphthene	10	11	110	22		*	51	118	20
	Fluorene	10	8.4	84	15			52	121	20
	Phenanthrene	10	10	100	17			55	126	20
	Anthracene	10	8.8	88	20			59	122	20
	Fluoranthene	10	11	110	26		*	61	127	20
	Pyrene	10	8.4	84	18			62	128	20
	Benzo(a)anthracene	10	9.8	98	20			52	136	20
	Chrysene	10	8.4	84	18			55	136	20
	Benzo(b)fluoranthene	10	8.5	85	18			48	149	20
	Benzo(k)fluoranthene	10	9.1	91	19			54	138	20
	Benzo(a)pyrene	10	8.6	86	19			55	139	20
	Indeno(1,2,3-cd)pyrene	10	11	110	24		*	10	145	20
	Dibenz(a,h)anthracene	10	9.5	95	20			45	150	20
	Benzo(g,h,i)perylene	10	12	120	18			54	138	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60340BS	Naphthalene	330	350	106				51	114	
	2-Methylnaphthalene	330	360	109				54	111	
	Acenaphthylene	330	360	109				54	113	
	Acenaphthene	330	370	112				54	113	
	Fluorene	330	360	109				56	113	
	Phenanthrene	330	350	106				56	113	
	Anthracene	330	370	112				56	113	
	Fluoranthene	330	360	109				54	117	
	Pyrene	330	360	109				58	117	
	Benzo(a)anthracene	330	360	109				57	112	
	Chrysene	330	350	106				59	114	
	Benzo(b)fluoranthene	330	370	112				53	120	
	Benzo(k)fluoranthene	330	370	112				56	117	
	Benzo(a)pyrene	330	380	115				56	117	
	Indeno(1,2,3-cd)pyrene	330	390	118				49	120	
	Dibenz(a,h)anthracene	330	380	115				52	119	
	Benzo(g,h,i)perylene	330	360	109				53	119	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/04/2012

Lab File ID: BG002627.D Time Analyzed: 15:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	180118	7.88	644774	10.07	414715	13.03
	UPPER LIMIT	360236	8.38	1289548	10.57	829430	13.53
	LOWER LIMIT	90059	7.38	322387	9.57	207357.5	12.53
	EPA SAMPLE NO.						
01	PB60341B	154242	7.88	553754	10.06	348630	13.03
02	PB60341BS	157113	7.88	556912	10.07	349084	13.03
03	PB60341BSD	159231	7.89	568721	10.06	354513	13.03

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/04/2012

Lab File ID: BG002627.D Time Analyzed: 15:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	817837	15.48	859351	19.85	713516	22.88
	UPPER LIMIT	1635674	15.98	1718702	20.35	1427032	23.38
	LOWER LIMIT	408918.5	14.98	429675.5	19.35	356758	22.38
	EPA SAMPLE NO.						
01	PB60341B	685438	15.48	659796	19.85	546345	22.88
02	PB60341BS	670974	15.48	667375	19.85	533810	22.88
03	PB60341BSD	674284	15.48	685788	19.85	553104	22.87

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002644.D Time Analyzed: 02:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	166606	7.88	586824	10.07	370629	13.03
	UPPER LIMIT	333212	8.38	1173648	10.57	741258	13.53
	LOWER LIMIT	83303	7.38	293412	9.57	185314.5	12.53
	EPA SAMPLE NO.						
01	RB-01-122911	177885	7.88	602607	10.07	353017	13.03

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/05/2012

Lab File ID: BG002644.D Time Analyzed: 02:24

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	716863	15.48	740338	19.85	598575	22.88
	UPPER LIMIT	1433726	15.98	1480676	20.35	1197150	23.38
	LOWER LIMIT	358431.5	14.98	370169	19.35	299287.5	22.38
	EPA SAMPLE NO.						
01	RB-01-122911	650081	15.48	608402	19.85	538516	22.87

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/11/2012

Lab File ID: BG002756.D Time Analyzed: 21:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	117160	7.8	485437	9.98	335147	12.96
	UPPER LIMIT	234320	8.3	970874	10.48	670294	13.46
	LOWER LIMIT	58580	7.3	242718.5	9.48	167573.5	12.46
	EPA SAMPLE NO.						
01	12SB54-0.502-02	83972	7.79	359639	9.98	236037	12.96
02	12SB59-000.5-01	86118	7.80	353368	9.98	221579	12.96
03	12SB28-000.5-01	88201	7.80	314042	9.98	237374	12.96
04	12SB55-0.502-02	73528	7.80	315058	9.98	205901	12.96
05	12SB51-0.502-02	73722	7.80	306061	9.98	200311	12.96
06	12SB52-0.502-02	78801	7.80	328700	9.98	215447	12.96
07	12SB53-0.502-02	79653	7.80	334194	9.98	222024	12.96
08	12SB58-000.5-01	87196	7.80	369805	9.99	242196	12.96
09	12SB-DUP02-122911	88027	7.80	374563	9.98	243688	12.96
10	12SB57-000.5-01	84870	7.81	355740	9.99	233123	12.96

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/11/2012

Lab File ID: BG002756.D Time Analyzed: 21:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	590159	15.4	563847	19.76	522684	22.71
	UPPER LIMIT	1180318	15.9	1127694	20.26	1045368	23.21
	LOWER LIMIT	295079.5	14.9	281923.5	19.26	261342	22.21
	EPA SAMPLE NO.						
01	12SB54-0.502-02	400692	15.40	378887	19.76	264589	22.71
02	12SB59-000.5-01	378506	15.40	368816	19.76	259116 *	22.71
03	12SB28-000.5-01	397298	15.40	388917	19.76	310665	22.71
04	12SB55-0.502-02	360196	15.40	344271	19.76	324945	22.71
05	12SB51-0.502-02	348796	15.40	342797	19.76	324956	22.71
06	12SB52-0.502-02	373265	15.40	348843	19.76	319481	22.71
07	12SB53-0.502-02	376720	15.40	362504	19.76	328946	22.71
08	12SB58-000.5-01	417365	15.40	386294	19.76	366071	22.72
09	12SB-DUP02-122911	416082	15.40	386056	19.76	373716	22.72
10	12SB57-000.5-01	396292	15.40	374478	19.77	354438	22.71

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/12/2012

Lab File ID: BG002773.D Time Analyzed: 08:14

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	110466	7.8	466940	9.99	307299	12.96
	UPPER LIMIT	220932	8.3	933880	10.49	614598	13.46
	LOWER LIMIT	55233	7.3	233470	9.49	153649.5	12.46
	EPA SAMPLE NO.						
01	12SB54-0.502-02DL	80294	7.81	337836	9.98	229422	12.96
02	12SB59-000.5-01DL	79924	7.80	340307	9.99	225261	12.96
03	12SB28-000.5-01DL	85659	7.80	353755	9.98	234727	12.96

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/12/2012

Lab File ID: BG002773.D Time Analyzed: 08:14

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	526987	15.4	515500	19.76	477687	22.72
	UPPER LIMIT	1053974	15.9	1031000	20.26	955374	23.22
	LOWER LIMIT	263493.5	14.9	257750	19.26	238843.5	22.22
	EPA SAMPLE NO.						
01	12SB54-0.502-02DL	398097	15.40	384407	19.76	354359	22.71
02	12SB59-000.5-01DL	385077	15.40	377633	19.76	350595	22.71
03	12SB28-000.5-01DL	403690	15.40	388555	19.76	362934	22.72

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/10/2012

Lab File ID: BG002716.D Time Analyzed: 16:13

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	131376	7.82	483405	10	333931	12.97
	UPPER LIMIT	262752	8.32	966810	10.5	667862	13.47
	LOWER LIMIT	65688	7.32	241702.5	9.5	166965.5	12.47
	EPA SAMPLE NO.						
01	12SB56-0.502-02	121783	7.82	445814	10.01	299516	12.97
02	12SB49-0.502-02	106971	7.82	390231	10.00	263137	12.97
03	12SB49-0.502-02MS	101105	7.82	418141	10.00	283794	12.97
04	12SB49-0.502-02MSD	105291	7.82	441122	10.01	306556	12.97
05	12SB48-0.502-02	96791	7.82	414727	10.00	285790	12.97
06	12SB-DUP01-122911	116365	7.82	429878	10.00	291283	12.97
07	12SB50-0.502-02	116995	7.82	434876	10.00	296691	12.97
08	PB60340B	121629	7.83	447322	10.00	306386	12.97
09	PB60340BS	133798	7.83	488961	10.00	327493	12.97

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

EPA Sample No.: SSTD2.5 Date Analyzed: 01/10/2012

Lab File ID: BG002716.D Time Analyzed: 16:13

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	576970	15.42	579518	19.79	498414	22.75
	UPPER LIMIT	1153940	15.92	1159036	20.29	996828	23.25
	LOWER LIMIT	288485	14.92	289759	19.29	249207	22.25
	EPA SAMPLE NO.						
01	12SB56-0.502-02	532630	15.42	527396	19.78	476166	22.75
02	12SB49-0.502-02	475689	15.42	476365	19.78	427365	22.76
03	12SB49-0.502-02MS	486602	15.42	478521	19.78	433810	22.76
04	12SB49-0.502-02MSD	535945	15.43	505707	19.78	461187	22.76
05	12SB48-0.502-02	498580	15.42	486777	19.78	438052	22.76
06	12SB-DUP01-122911	513863	15.42	496735	19.78	445235	22.75
07	12SB50-0.502-02	520425	15.42	500718	19.78	455247	22.76
08	PB60340B	548608	15.42	535204	19.78	455864	22.76
09	PB60340BS	556322	15.43	537215	19.78	477905	22.76

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Internal Standard Reference

Data Path : Z:\HPCHEM1\BNA G\Data\BG011112\
Data File : BG002756.D
Acq On : 11 Jan 2012 21:08
Operator : HNP
Sample : 2.5PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 12 03:51:08 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	-0.02
2	I	Naphthalene-d8	1.000	1.000	0.0	100	-0.02
3	S	Nitrobenzene-d5	0.367	0.283	22.9#	82	-0.02
4		Naphthalene	4.255	3.998	6.0	97	-0.02
5		2-Methylnapthalene	3.027	2.937	3.0	100	-0.03
6		1-Methylnapthalene	2.780	2.704	2.7	101	-0.03
7	I	Acenaphthene-d10	1.000	1.000	0.0	100	-0.01
8	S	2-Fluorobiphenyl	1.448	1.322	8.7	96	-0.01
9		Acenaphthylene	6.469	5.982	7.5	96	-0.01
10		Acenaphthene	1.096	0.993	9.4	97	-0.01
11		Fluorene	1.340	1.246	7.0	97	-0.01
12	I	Phenanthrene-d10	1.000	1.000	0.0	102	-0.02
13		Phenanthrene	4.533	4.235	6.6	100	-0.02
14		Anthracene	4.508	4.267	5.3	98	-0.02
15		Fluoranthene	5.039	4.711	6.5	98	-0.02
16	I	Chrysene-d12	1.000	1.000	0.0	97	-0.03
17		Pyrene	5.364	5.159	3.8	97	-0.03
18	S	Terphenyl-d14	0.882	0.747	15.3	97	-0.02
19		Benzo(a)anthracene	4.865	4.483	7.9	95	-0.03
20		Chrysene	4.567	4.331	5.2	95	-0.03
21		Indeno(1,2,3-cd)pyrene	3.571	4.061	-13.7	109	-0.07
22	I	Perylene-d12	1.000	1.000	0.0	105	-0.04
23		Benzo(b)fluoranthene	11.455	10.473	8.6	104	-0.04
24		Benzo(k)fluoranthene	11.415	10.355	9.3	98	-0.03
25		Benzo(a)pyrene	10.736	10.051	6.4	103	-0.04
26		Dibenzo(a,h)anthracene	0.875	0.920	-5.1	108	-0.08
27		Benzo(g,h,i)perylene	3.561	3.708	-4.1	108	-0.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
Client ID :	**12SB28-000.5-01**							
C5164-02	12SB28-000.5-01	SOIL	Naphthalene	4.400		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	2-Methylnaphthalene	3.100	J	4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Acenaphthylene	52.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Acenaphthene	16.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Fluorene	31.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Phenanthrene	600.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Anthracene	160.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Fluoranthene	1,300.000	E	4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Pyrene	1,200.000	E	4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Benzo(a)anthracene	670.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Chrysene	660.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Benzo(b)fluoranthene	820.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Benzo(k)fluoranthene	260.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Benzo(a)pyrene	580.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	310.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Dibenz(a,h)anthracene	110.000		4.3	0.53	ug/Kg
C5164-02	12SB28-000.5-01	SOIL	Benzo(g,h,i)perylene	340.000		4.3	0.53	ug/Kg
			Total Svoc :	**7,116.50**				
			Total Concentration:	**7,116.50**				
Client ID :	**12SB28-000.5-01DL**							
C5164-02DL	12SB28-000.5-01DL	SOIL	Acenaphthylene	57.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Acenaphthene	18.000	JD	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Fluorene	39.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Phenanthrene	660.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Anthracene	160.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Fluoranthene	1,500.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Pyrene	1,300.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Benzo(a)anthracene	720.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Chrysene	730.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Benzo(b)fluoranthene	770.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Benzo(k)fluoranthene	240.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Benzo(a)pyrene	590.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Indeno(1,2,3-cd)pyrene	370.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Dibenz(a,h)anthracene	96.000	D	22	2.6	ug/Kg
C5164-02DL	12SB28-000.5-01DL	SOIL	Benzo(g,h,i)perylene	340.000	D	22	2.6	ug/Kg
			Total Svoc :	**7,590.00**				
			Total Concentration:	**7,590.00**				
Client ID :	**12SB48-0.502-02**							
C5164-16	12SB48-0.502-02	SOIL	Phenanthrene	3.300	J	4.1	0.49	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5164-16	12SB48-0.502-02	SOIL	Fluoranthene	5.300		4.1	0.49	ug/Kg
C5164-16	12SB48-0.502-02	SOIL	Pyrene	4.100		4.1	0.49	ug/Kg
C5164-16	12SB48-0.502-02	SOIL	Benzo(a)anthracene	2.500	J	4.1	0.49	ug/Kg
C5164-16	12SB48-0.502-02	SOIL	Chrysene	2.500	J	4.1	0.49	ug/Kg
C5164-16	12SB48-0.502-02	SOIL	Benzo(b)fluoranthene	2.900	J	4.1	0.49	ug/Kg
			Total Svoc :	**20.60**				
			Total Concentration:	**20.60**				
Client ID :	**12SB51-0.502-02**							
C5164-09	12SB51-0.502-02	SOIL	2-Methylnaphthalene	2.000	J	3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Acenaphthylene	4.700		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Fluorene	3.900		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Phenanthrene	54.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Anthracene	15.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Fluoranthene	120.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Pyrene	90.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Benzo(a)anthracene	42.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Chrysene	53.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Benzo(b)fluoranthene	68.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Benzo(k)fluoranthene	24.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Benzo(a)pyrene	47.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	36.000		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Dibenz(a,h)anthracene	8.600		3.9	0.47	ug/Kg
C5164-09	12SB51-0.502-02	SOIL	Benzo(g,h,i)perylene	31.000		3.9	0.47	ug/Kg
			Total Svoc :	**599.20**				
			Total Concentration:	**599.20**				
Client ID :	**12SB52-0.502-02**							
C5164-10	12SB52-0.502-02	SOIL	Naphthalene	6.900		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	2-Methylnaphthalene	5.700		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Acenaphthylene	9.300		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Acenaphthene	15.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Fluorene	21.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Phenanthrene	320.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Anthracene	82.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Fluoranthene	660.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Pyrene	530.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Benzo(a)anthracene	290.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Chrysene	300.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Benzo(b)fluoranthene	370.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Benzo(k)fluoranthene	140.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Benzo(a)pyrene	290.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	170.000		4.0	0.49	ug/Kg
C5164-10	12SB52-0.502-02	SOIL	Dibenz(a,h)anthracene	47.000		4.0	0.49	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5164-10	12SB52-0.502-02	SOIL	Benzo(g,h,i)perylene	160.000		4.0	0.49	ug/Kg
			Total Svoc :	**3,416.90**				
			Total Concentration:	**3,416.90**				
Client ID :	**12SB53-0.502-02**							
C5164-11	12SB53-0.502-02	SOIL	Naphthalene	3.700	J	4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	2-Methylnaphthalene	4.200		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Acenaphthylene	8.700		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Acenaphthene	11.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Fluorene	13.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Phenanthrene	180.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Anthracene	39.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Fluoranthene	300.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Pyrene	240.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Benzo(a)anthracene	120.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Chrysene	130.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Benzo(b)fluoranthene	150.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Benzo(k)fluoranthene	56.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Benzo(a)pyrene	110.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	67.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Dibenz(a,h)anthracene	18.000		4.1	0.50	ug/Kg
C5164-11	12SB53-0.502-02	SOIL	Benzo(g,h,i)perylene	63.000		4.1	0.50	ug/Kg
			Total Svoc :	**1,513.60**				
			Total Concentration:	**1,513.60**				
Client ID :	**12SB54-0.502-02**							
C5164-03	12SB54-0.502-02	SOIL	Naphthalene	48.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	2-Methylnaphthalene	46.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Acenaphthylene	160.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Acenaphthene	440.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Fluorene	680.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Phenanthrene	7,900.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Anthracene	2,200.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Fluoranthene	11,000.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Pyrene	10,000.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Benzo(a)anthracene	6,400.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Chrysene	6,000.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Benzo(b)fluoranthene	8,500.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Benzo(k)fluoranthene	2,800.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Benzo(a)pyrene	5,600.000	E	21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	2,700.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Dibenz(a,h)anthracene	1,000.000		21	2.5	ug/Kg
C5164-03	12SB54-0.502-02	SOIL	Benzo(g,h,i)perylene	3,300.000		21	2.5	ug/Kg
			Total Svoc :	**68,774.00**				

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
			Total Concentration:	**68,774.00**				
Client ID :	**12SB54-0.502-02DL**							
C5164-03DL	12SB54-0.502-02DL	SOIL	Acenaphthylene	170.000	JD	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Acenaphthene	420.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Fluorene	600.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Phenanthrene	8,500.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Anthracene	2,000.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Fluoranthene	15,000.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Pyrene	12,000.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Benzo(a)anthracene	6,300.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Chrysene	6,200.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Benzo(b)fluoranthene	6,400.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Benzo(k)fluoranthene	2,600.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Benzo(a)pyrene	4,900.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Indeno(1,2,3-cd)pyrene	3,100.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Dibenz(a,h)anthracene	830.000	D	210	25	ug/Kg
C5164-03DL	12SB54-0.502-02DL	SOIL	Benzo(g,h,i)perylene	2,700.000	D	210	25	ug/Kg
			Total Svoc :	**71,720.00**				
			Total Concentration:	**71,720.00**				
Client ID :	**12SB55-0.502-02**							
C5164-05	12SB55-0.502-02	SOIL	Acenaphthylene	3.500	J	3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Fluorene	2.300	J	3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Phenanthrene	27.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Anthracene	6.300		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Fluoranthene	63.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Pyrene	56.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Benzo(a)anthracene	31.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Chrysene	34.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Benzo(b)fluoranthene	41.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Benzo(k)fluoranthene	14.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Benzo(a)pyrene	29.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Indeno(1,2,3-cd)pyrene	20.000		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Dibenz(a,h)anthracene	5.500		3.9	0.47	ug/Kg
C5164-05	12SB55-0.502-02	SOIL	Benzo(g,h,i)perylene	18.000		3.9	0.47	ug/Kg
			Total Svoc :	**350.60**				
			Total Concentration:	**350.60**				
Client ID :	**12SB56-0.502-02**							
C5164-04	12SB56-0.502-02	SOIL	Phenanthrene	2.500	J	4.1	0.50	ug/Kg
C5164-04	12SB56-0.502-02	SOIL	Fluoranthene	4.600		4.1	0.50	ug/Kg
C5164-04	12SB56-0.502-02	SOIL	Pyrene	3.700	J	4.1	0.50	ug/Kg
C5164-04	12SB56-0.502-02	SOIL	Benzo(a)anthracene	2.500	J	4.1	0.50	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5164-04	12SB56-0.502-02	SOIL	Chrysene	2.500	J	4.1	0.50	ug/Kg
C5164-04	12SB56-0.502-02	SOIL	Benzo(b)fluoranthene	2.500	J	4.1	0.50	ug/Kg
			Total Svoc :	**18.30**				
			Total Concentration:	**18.30**				
Client ID :	**12SB57-000.5-01**							
C5164-13	12SB57-000.5-01	SOIL	Naphthalene	23.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	2-Methylnaphthalene	37.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Acenaphthylene	2.800	J	4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Fluorene	3.200	J	4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Phenanthrene	42.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Anthracene	3.700	J	4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Fluoranthene	48.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Pyrene	38.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Benzo(a)anthracene	16.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Chrysene	29.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Benzo(b)fluoranthene	29.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Benzo(k)fluoranthene	11.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Benzo(a)pyrene	18.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	14.000		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Dibenz(a,h)anthracene	5.100		4.6	0.55	ug/Kg
C5164-13	12SB57-000.5-01	SOIL	Benzo(g,h,i)perylene	13.000		4.6	0.55	ug/Kg
			Total Svoc :	**332.80**				
			Total Concentration:	**332.80**				
Client ID :	**12SB58-000.5-01**							
C5164-14	12SB58-000.5-01	SOIL	Acenaphthylene	2.900	J	4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Phenanthrene	37.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Anthracene	3.400	J	4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Fluoranthene	61.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Pyrene	53.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Benzo(a)anthracene	28.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Chrysene	39.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Benzo(b)fluoranthene	47.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Benzo(k)fluoranthene	18.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Benzo(a)pyrene	33.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	23.000		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Dibenz(a,h)anthracene	5.300		4.8	0.58	ug/Kg
C5164-14	12SB58-000.5-01	SOIL	Benzo(g,h,i)perylene	21.000		4.8	0.58	ug/Kg
			Total Svoc :	**371.60**				
			Total Concentration:	**371.60**				
Client ID :	**12SB59-000.5-01**							
C5164-15	12SB59-000.5-01	SOIL	Naphthalene	74.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	2-Methylnaphthalene	130.000		22	2.7	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5164-15	12SB59-000.5-01	SOIL	Acenaphthylene	90.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Acenaphthene	660.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Fluorene	620.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Phenanthrene	7,600.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Anthracene	2,200.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Fluoranthene	13,000.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Pyrene	12,000.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Benzo(a)anthracene	7,500.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Chrysene	7,200.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Benzo(b)fluoranthene	10,000.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Benzo(k)fluoranthene	3,100.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Benzo(a)pyrene	6,600.000	E	22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Indeno(1,2,3-cd)pyrene	3,500.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Dibenz(a,h)anthracene	1,400.000		22	2.7	ug/Kg
C5164-15	12SB59-000.5-01	SOIL	Benzo(g,h,i)perylene	4,600.000		22	2.7	ug/Kg
			Total Svoc :	**80,274.00**				
			Total Concentration:	**80,274.00**				
Client ID :	**12SB59-000.5-01DL**							
C5164-15DL	12SB59-000.5-01DL	SOIL	2-Methylnaphthalene	140.000	JD	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Acenaphthene	650.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Fluorene	610.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Phenanthrene	8,200.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Anthracene	2,100.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Fluoranthene	17,000.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Pyrene	15,000.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Benzo(a)anthracene	7,600.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Chrysene	7,800.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Benzo(b)fluoranthene	8,800.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Benzo(k)fluoranthene	2,600.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Benzo(a)pyrene	6,400.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Indeno(1,2,3-cd)pyrene	4,100.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Dibenz(a,h)anthracene	1,100.000	D	220	27	ug/Kg
C5164-15DL	12SB59-000.5-01DL	SOIL	Benzo(g,h,i)perylene	3,900.000	D	220	27	ug/Kg
			Total Svoc :	**86,000.00**				
			Total Concentration:	**86,000.00**				
Client ID :	**12SB-DUP01-122911**							
C5164-20	12SB-DUP01-122911	SOIL	Phenanthrene	6.300		4.2	0.50	ug/Kg
C5164-20	12SB-DUP01-122911	SOIL	Fluoranthene	8.400		4.2	0.50	ug/Kg
C5164-20	12SB-DUP01-122911	SOIL	Pyrene	6.300		4.2	0.50	ug/Kg
C5164-20	12SB-DUP01-122911	SOIL	Benzo(a)anthracene	2.900	J	4.2	0.50	ug/Kg
C5164-20	12SB-DUP01-122911	SOIL	Chrysene	3.800	J	4.2	0.50	ug/Kg
C5164-20	12SB-DUP01-122911	SOIL	Benzo(b)fluoranthene	4.200		4.2	0.50	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C5164-20	12SB-DUP01-122911	SOIL	Benzo(a)pyrene	2.500	J	4.2	0.50	ug/Kg
			Total Svoc :	**34.40**				
			Total Concentration:	**34.40**				
Client ID :	**12SB-DUP02-122911**							
C5164-21	12SB-DUP02-122911	SOIL	Naphthalene	22.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	2-Methylnaphthalene	35.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Acenaphthylene	2.800	J	4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Phenanthrene	36.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Anthracene	3.300	J	4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Fluoranthene	40.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Pyrene	33.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Benzo(a)anthracene	13.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Chrysene	25.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Benzo(b)fluoranthene	27.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Benzo(k)fluoranthene	7.500		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Benzo(a)pyrene	15.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Indeno(1,2,3-cd)pyrene	13.000		4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Dibenz(a,h)anthracene	3.300	J	4.6	0.56	ug/Kg
C5164-21	12SB-DUP02-122911	SOIL	Benzo(g,h,i)perylene	12.000		4.6	0.56	ug/Kg
			Total Svoc :	**287.90**				
			Total Concentration:	**287.90**				

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/29/2011	15:14	PG003560.D	11.38	4.78
PEM01	PEM01	12/29/2011	15:32	PG003561.D	11.38	4.78
RESC01	RESCHK	12/29/2011	15:51	PG003562.D	11.38	4.78
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	16:10	PG003563.D	11.38	4.77
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	16:28	PG003564.D	11.38	4.77
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	16:47	PG003565.D	11.38	4.78
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	17:05	PG003566.D	11.38	4.78
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	17:24	PG003567.D	11.38	4.78
TOX 500	TOX	12/29/2011	18:01	PG003569.D	11.38	4.78
CHLOR 500	CHLOR 500	12/29/2011	18:20	PG003570.D	11.38	4.77
PEM02	PEM02	12/30/2011	11:12	PG003603.D	11.38	4.78
PIBLK02	I.BLK02	12/30/2011	19:09	PG003627.D	11.39	4.78
CCAL01	STD 25	12/30/2011	19:28	PG003628.D	11.39	4.78
PB60330BL	PB60330BL	12/30/2011	19:47	PG003629.D	11.39	4.78
PB60330BS	PB60330BS	12/30/2011	20:06	PG003630.D	11.39	4.78
PB60330BSD	PB60330BSD	12/30/2011	20:24	PG003631.D	11.39	4.78
RB-01-122911	C5164-23	12/30/2011	21:39	PG003635.D	11.39	4.78
PIBLK03	I.BLK03	12/30/2011	21:58	PG003636.D	11.39	4.78
CCAL02	STD 25	12/30/2011	22:16	PG003637.D	11.39	4.78

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003567.D CF 025 = PG003566.D

CF 050 = PG003565.D CF 075 = PG003564.D CF 100 = PG003563.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	905840	823284	808662	765019	757823	812126	7
Tetrachloro-m-xylene	497100	479668	496794	486461	497615	491528	2
alpha-BHC	4141600	4463520	5350420	5720093	6226790	5180485	17
beta-BHC	2962600	2914240	2615800	2576653	3157190	2845297	9
delta-BHC	4331600	4039000	4654840	4941067	5318720	4657045	11
gamma-BHC (Lindane)	4354800	4736880	5536440	5820293	6234080	5336499	15
Heptachlor	5553000	5488800	5834520	5828787	6089700	5758961	4
Aldrin	5068400	4933280	5322440	5380560	5641950	5269326	5
Heptachlor epoxide	5880000	5547560	5759840	5687693	5826780	5740375	2
Endosulfan I	5239000	5123440	5385640	5353133	5488660	5317975	3
Dieldrin	4720600	4486080	4739820	4764267	4986660	4739485	4
4,4-DDE	4851000	4710840	4933920	4855467	5053790	4881003	3
Endrin	2997200	3004680	3048380	3033387	3136920	3044113	2
Endosulfan II	4978200	4721120	4902360	4833213	4964400	4879859	2
4,4-DDD	3704000	3117960	3294920	3332347	3521370	3394119	7
Endosulfan sulfate	4243800	4154360	4256960	4220840	4309030	4236998	1
4,4-DDT	3737800	3806440	4176260	4249453	4489410	4091873	8
Methoxychlor	2381200	2338600	2444720	2383253	2466510	2402857	2
Endrin ketone	4288000	4212960	4518080	4539747	4729050	4457567	5
Endrin aldehyde	5138800	4711200	4688840	4526293	4543690	4721765	5
alpha-Chlordane	5274000	5153800	5391000	5336613	5438700	5318823	2
gamma-Chlordane	5336000	5098040	5291500	5243213	5330070	5259765	2

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PG003567.D RT 025 = PG003566.D

RT 050 = PG003565.D RT 075 = PG003564.D RT 100 = PG003563.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	11.38	11.38	11.38	11.38	11.38	11.38	11.28	11.48
Tetrachloro-m-xylene	4.78	4.78	4.78	4.77	4.77	4.77	4.67	4.87
alpha-BHC	5.24	5.24	5.25	5.24	5.24	5.24	5.19	5.29
beta-BHC	5.77	5.77	5.77	5.77	5.77	5.77	5.72	5.82
delta-BHC	6.04	6.04	6.04	6.04	6.04	6.04	5.99	6.09
gamma-BHC (Lindane)	5.58	5.59	5.59	5.59	5.59	5.59	5.54	5.64
Heptachlor	6.21	6.21	6.21	6.21	6.21	6.21	6.16	6.26
Aldrin	6.57	6.57	6.57	6.57	6.57	6.57	6.52	6.62
Heptachlor epoxide	7.02	7.02	7.02	7.02	7.02	7.02	6.95	7.09
Endosulfan I	7.44	7.44	7.44	7.44	7.44	7.44	7.37	7.51
Dieldrin	7.74	7.74	7.73	7.73	7.73	7.73	7.66	7.80
4,4-DDE	7.53	7.53	7.53	7.53	7.53	7.53	7.46	7.60
Endrin	7.99	7.99	7.99	7.99	7.99	7.99	7.92	8.06
Endosulfan II	8.22	8.22	8.22	8.22	8.22	8.22	8.15	8.29
4,4-DDD	8.09	8.09	8.09	8.09	8.09	8.09	8.02	8.16
Endosulfan sulfate	8.63	8.63	8.63	8.63	8.63	8.63	8.56	8.70
4,4-DDT	8.44	8.44	8.44	8.44	8.44	8.44	8.37	8.51
Methoxychlor	8.97	8.97	8.97	8.97	8.97	8.97	8.90	9.04
Endrin ketone	9.25	9.25	9.25	9.25	9.25	9.25	9.18	9.32
Endrin aldehyde	8.36	8.36	8.36	8.36	8.36	8.36	8.29	8.43
alpha-Chlordane	7.38	7.38	7.38	7.38	7.37	7.38	7.31	7.45
gamma-Chlordane	7.29	7.29	7.29	7.29	7.29	7.29	7.22	7.36

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15466
		2	8.24	8.19	8.29	157526
		3	8.51	8.46	8.56	258706
		4	8.62	8.57	8.67	212526
		5	9.14	9.09	9.19	420676

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM - PG003561.D Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:32

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.382	11.280	11.480	0.021	0.020	5.0
Tetrachloro-m-xylene	4.775	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.244	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.771	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.586	5.540	5.640	0.009	0.010	10.0
Endrin	7.992	7.920	8.060	0.056	0.050	12.0
4,4-DDT	8.436	8.370	8.510	0.103	0.100	3.0
Methoxychlor	8.968	8.900	9.040	0.276	0.250	10.4

Client Sample No. (PEM): PEM - PG003561.D Date Analyzed: 12/29/2011

Lab Sample No.(PEM): PEM Time Analyzed: 15:32

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.744	9.640	9.840	0.022	0.020	10.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.602	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.224	5.170	5.270	0.011	0.010	10.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.011	0.010	10.0
Endrin	7.100	7.030	7.170	0.050	0.050	0.0
4,4-DDT	7.475	7.410	7.550	0.090	0.100	10.0
Methoxychlor	8.074	8.010	8.150	0.209	0.250	16.4

Sample: PEM
Data File: PG003561.D **Date Acquired** 12/29/2011 15:32
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	7.99	171370.39	198440.114	27069.724	**13.64**
Endrin aldehyde	8.36	12603.767			
Endrin ketone	9.25	14465.957			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.10	996608.405	1142905.665	146297.26	**12.80**
Endrin aldehyde #2	7.60	59451.582			
Endrin ketone #2	8.42	86845.678			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.44	423443.969	437741.533	14297.564	**3.27**
4,4'-DDE	7.53	13748.95			
4,4'-DDD	8.09	548.614			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.48	2001916.32	2125953.892	124037.572	**5.83**
4,4'-DDE #2	6.61	107235.811			
4,4'-DDD #2	7.20	16801.761			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 12/29/2011 12/29/2011

Client Sample No. (PEM): PEM - PG003603.D Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:12

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.384	11.280	11.480	0.020	0.020	0.0
Tetrachloro-m-xylene	4.776	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.245	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.771	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.587	5.540	5.640	0.009	0.010	10.0
Endrin	7.991	7.920	8.060	0.053	0.050	6.0
4,4-DDT	8.438	8.370	8.510	0.100	0.100	0.0
Methoxychlor	8.970	8.900	9.040	0.266	0.250	6.4

Client Sample No. (PEM): PEM - PG003603.D Date Analyzed: 12/30/2011

Lab Sample No.(PEM): PEM Time Analyzed: 11:12

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.744	9.640	9.840	0.024	0.020	20.0
Tetrachloro-m-xylene	4.070	3.970	4.170	0.026	0.020	30.0
alpha-BHC	4.603	4.550	4.650	0.012	0.010	20.0
beta-BHC	5.223	5.170	5.270	0.012	0.010	20.0
gamma-BHC (Lindane)	4.943	4.890	4.990	0.012	0.010	20.0
Endrin	7.100	7.030	7.170	0.056	0.050	12.0
4,4-DDT	7.476	7.410	7.550	0.102	0.100	2.0
Methoxychlor	8.074	8.010	8.150	0.229	0.250	8.4

Sample: PEM
Data File: PG003603.D **Date Acquired** 12/30/2011 11:12
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.99	161180.597	185131.886	23951.289	**12.94**
Endrin aldehyde	8.36	10124.293			
Endrin ketone	9.25	13826.996			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.10	1110861.361	1288321.379	177460.018	**13.77**
Endrin aldehyde #2	7.60	65136.648			
Endrin ketone #2	8.42	112323.37			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.44	409292.447	424140.251	14847.804	**3.50**
4,4'-DDE	7.53	13527.119			
4,4'-DDD	8.09	1320.685			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.48	2256543.082	2389216.652	132673.57	**5.55**
4,4'-DDE #2	6.61	101147.382			
4,4'-DDD #2	7.20	31526.188			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 19:28 **Initial Calibration Time(s):** 16:10 17:24

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.39	11.38	11.28	11.48	-0.01
Tetrachloro-m-xylene	4.78	4.77	4.67	4.87	-0.01
alpha-BHC	5.25	5.24	5.19	5.29	-0.01
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.04	6.04	5.99	6.09	0.00
gamma-BHC (Lindane)	5.59	5.59	5.54	5.64	0.00
Heptachlor	6.21	6.21	6.16	6.26	0.00
Aldrin	6.57	6.57	6.52	6.62	0.00
Heptachlor epoxide	7.02	7.02	6.95	7.09	0.00
Endosulfan I	7.44	7.44	7.37	7.51	0.00
Dieldrin	7.74	7.73	7.66	7.80	-0.01
4,4-DDE	7.53	7.53	7.46	7.60	0.00
Endrin	8.00	7.99	7.92	8.06	-0.01
Endosulfan II	8.22	8.22	8.15	8.29	0.00
4,4-DDD	8.09	8.09	8.02	8.16	0.00
Endosulfan sulfate	8.63	8.63	8.56	8.70	0.00
4,4-DDT	8.44	8.44	8.37	8.51	0.00
Methoxychlor	8.97	8.97	8.90	9.04	0.00
Endrin ketone	9.25	9.25	9.18	9.32	0.00
Endrin aldehyde	8.37	8.36	8.29	8.43	-0.01
alpha-Chlordane	7.38	7.38	7.31	7.45	0.00
gamma-Chlordane	7.29	7.29	7.22	7.36	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 22:16 **Initial Calibration Time(s):** 16:10 17:24

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.39	11.38	11.28	11.48	-0.01
Tetrachloro-m-xylene	4.78	4.77	4.67	4.87	-0.01
alpha-BHC	5.25	5.24	5.19	5.29	-0.01
beta-BHC	5.78	5.77	5.72	5.82	-0.01
delta-BHC	6.04	6.04	5.99	6.09	0.00
gamma-BHC (Lindane)	5.59	5.59	5.54	5.64	0.00
Heptachlor	6.21	6.21	6.16	6.26	0.00
Aldrin	6.57	6.57	6.52	6.62	0.00
Heptachlor epoxide	7.02	7.02	6.95	7.09	0.00
Endosulfan I	7.44	7.44	7.37	7.51	0.00
Dieldrin	7.74	7.73	7.66	7.80	-0.01
4,4-DDE	7.53	7.53	7.46	7.60	0.00
Endrin	7.99	7.99	7.92	8.06	0.00
Endosulfan II	8.22	8.22	8.15	8.29	0.00
4,4-DDD	8.09	8.09	8.02	8.16	0.00
Endosulfan sulfate	8.63	8.63	8.56	8.70	0.00
4,4-DDT	8.44	8.44	8.37	8.51	0.00
Methoxychlor	8.97	8.97	8.90	9.04	0.00
Endrin ketone	9.25	9.25	9.18	9.32	0.00
Endrin aldehyde	8.37	8.36	8.29	8.43	-0.01
alpha-Chlordane	7.38	7.38	7.31	7.45	0.00
gamma-Chlordane	7.29	7.29	7.22	7.36	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003628.D **Time Analyzed:** 19:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.246	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.773	5.720	5.820	0.026	0.025	4.0
delta-BHC	6.040	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.208	6.160	6.260	0.023	0.025	8.0
Aldrin	6.574	6.520	6.620	0.022	0.025	12.0
Heptachlor epoxide	7.020	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.442	7.370	7.510	0.023	0.025	8.0
Dieldrin	7.737	7.660	7.800	0.022	0.025	12.0
4,4-DDE	7.531	7.460	7.600	0.023	0.025	8.0
Endrin	7.995	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.224	8.150	8.290	0.023	0.025	8.0
4,4-DDD	8.091	8.020	8.160	0.023	0.025	8.0
Endosulfan sulfate	8.627	8.560	8.700	0.024	0.025	4.0
4,4-DDT	8.437	8.370	8.510	0.021	0.025	16.0
Methoxychlor	8.974	8.900	9.040	0.022	0.025	12.0
Endrin ketone	9.249	9.180	9.320	0.026	0.025	4.0
Endrin aldehyde	8.366	8.290	8.430	0.024	0.025	4.0
alpha-Chlordane	7.377	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.292	7.220	7.360	0.023	0.025	8.0
Decachlorobiphenyl	11.386	11.280	11.480	0.025	0.025	0.0
Tetrachloro-m-xylene	4.777	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003637.D **Time Analyzed:** 22:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.246	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.775	5.720	5.820	0.024	0.025	4.0
delta-BHC	6.040	5.990	6.090	0.021	0.025	16.0
gamma-BHC (Lindane)	5.588	5.540	5.640	0.021	0.025	16.0
Heptachlor	6.208	6.160	6.260	0.023	0.025	8.0
Aldrin	6.573	6.520	6.620	0.022	0.025	12.0
Heptachlor epoxide	7.019	6.950	7.090	0.023	0.025	8.0
Endosulfan I	7.442	7.370	7.510	0.023	0.025	8.0
Dieldrin	7.737	7.660	7.800	0.022	0.025	12.0
4,4-DDE	7.531	7.460	7.600	0.023	0.025	8.0
Endrin	7.994	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.224	8.150	8.290	0.023	0.025	8.0
4,4-DDD	8.092	8.020	8.160	0.022	0.025	12.0
Endosulfan sulfate	8.627	8.560	8.700	0.024	0.025	4.0
4,4-DDT	8.437	8.370	8.510	0.020	0.025	20.0
Methoxychlor	8.974	8.900	9.040	0.022	0.025	12.0
Endrin ketone	9.249	9.180	9.320	0.027	0.025	8.0
Endrin aldehyde	8.366	8.290	8.430	0.024	0.025	4.0
alpha-Chlordane	7.377	7.310	7.450	0.023	0.025	8.0
gamma-Chlordane	7.292	7.220	7.360	0.023	0.025	8.0
Decachlorobiphenyl	11.385	11.280	11.480	0.025	0.025	0.0
Tetrachloro-m-xylene	4.776	4.670	4.870	0.024	0.025	4.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 12/29/2011 12/29/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	12/29/2011	15:14	PG003560.D	9.74	4.07
PEM01	PEM01	12/29/2011	15:32	PG003561.D	9.74	4.07
RESC01	RESCHK	12/29/2011	15:51	PG003562.D	9.74	4.07
100 PPB PEST STD	100 PPB PEST STD	12/29/2011	16:10	PG003563.D	9.74	4.07
75 PPB PEST STD	75 PPB PEST STD	12/29/2011	16:28	PG003564.D	9.74	4.07
50 PPB PEST STD	50 PPB PEST STD	12/29/2011	16:47	PG003565.D	9.75	4.07
25 PPB PEST STD	25 PPB PEST STD	12/29/2011	17:05	PG003566.D	9.74	4.07
5 PPB PEST STD	5 PPB PEST STD	12/29/2011	17:24	PG003567.D	9.74	4.07
TOX 500	TOX	12/29/2011	18:01	PG003569.D	9.74	4.07
CHLOR 500	CHLOR 500	12/29/2011	18:20	PG003570.D	9.74	4.07
PEM02	PEM02	12/30/2011	11:12	PG003603.D	9.74	4.07
PIBLK02	I.BLK02	12/30/2011	19:09	PG003627.D	9.74	4.07
CCAL01	STD 25	12/30/2011	19:28	PG003628.D	9.75	4.07
PB60330BL	PB60330BL	12/30/2011	19:47	PG003629.D	9.75	4.07
PB60330BS	PB60330BS	12/30/2011	20:06	PG003630.D	9.75	4.07
PB60330BSD	PB60330BSD	12/30/2011	20:24	PG003631.D	9.75	4.07
RB-01-122911	C5164-23	12/30/2011	21:39	PG003635.D	9.75	4.07
PIBLK03	I.BLK03	12/30/2011	21:58	PG003636.D	9.75	4.07
CCAL02	STD 25	12/30/2011	22:16	PG003637.D	9.75	4.07

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003567.D CF 025 = PG003566.D

CF 050 = PG003565.D CF 075 = PG003564.D CF 100 = PG003563.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3381660	2810924	2606838	2383196	2280875	2692699	16
Tetrachloro-m-xylene	2660500	2368236	2028354	2107512	2127890	2258498	11
alpha-BHC	33192600	33114720	32708040	31034560	30997110	32209406	3
beta-BHC	16876600	16110480	15543580	14484800	14183730	15439838	7
delta-BHC	30361400	30864800	30912180	29259347	29037680	30087081	3
gamma-BHC (Lindane)	35774200	33908480	33224720	31060067	30673410	32928175	6
Heptachlor	31169200	28995200	28373600	26502080	26312440	28270504	7
Aldrin	33402000	31269280	30504260	28404480	28021500	30320304	7
Heptachlor epoxide	34349200	30484080	29195720	26936413	25916240	29376331	11
Endosulfan I	32175200	28592840	27303660	25419107	24507580	27599677	11
Dieldrin	33001600	29850600	28796400	26955387	26330520	28986901	9
4,4-DDE	31826200	29507040	28816600	27107853	26538190	28759177	7
Endrin	20811600	20475600	20035480	19040813	18892300	19851159	4
Endosulfan II	29545400	26184200	24992020	23210560	21973570	25181150	12
4,4-DDD	22718000	21694080	21516200	20494320	20228310	21330182	5
Endosulfan sulfate	23953200	22008760	21511800	20086827	18876530	21287423	9
4,4-DDT	23094000	22963720	22791420	21584200	20627050	22212078	5
Methoxychlor	11299600	10317880	9909480	10206720	9497210	10246178	7
Endrin ketone	26688200	24093240	23349860	21698787	19550880	23076193	12
Endrin aldehyde	26165400	22545440	21356320	19679013	18516800	21652595	14
alpha-Chlordane	35226400	30968960	29762580	27670333	26931560	30111967	11
gamma-Chlordane	35059000	30922040	29852520	27738613	27017190	30117873	11

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 12/29/2011 12/29/2011

Calibration Times: 16:10 17:24

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PG003567.D RT 025 = PG003566.D

RT 050 = PG003565.D RT 075 = PG003564.D RT 100 = PG003563.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	9.74	9.74	9.75	9.74	9.74	9.74	9.64	9.84
Tetrachloro-m-xylene	4.07	4.07	4.07	4.07	4.07	4.07	3.97	4.17
alpha-BHC	4.60	4.60	4.60	4.60	4.60	4.60	4.55	4.65
beta-BHC	5.22	5.22	5.22	5.22	5.22	5.22	5.17	5.27
delta-BHC	5.48	5.48	5.48	5.48	5.47	5.48	5.43	5.53
gamma-BHC (Lindane)	4.94	4.94	4.94	4.94	4.94	4.94	4.89	4.99
Heptachlor	5.30	5.30	5.30	5.30	5.30	5.30	5.25	5.35
Aldrin	5.60	5.60	5.60	5.60	5.60	5.60	5.55	5.65
Heptachlor epoxide	6.11	6.11	6.11	6.11	6.11	6.11	6.04	6.18
Endosulfan I	6.52	6.52	6.52	6.52	6.52	6.52	6.45	6.59
Dieldrin	6.80	6.80	6.80	6.80	6.80	6.80	6.73	6.87
4,4-DDE	6.61	6.61	6.61	6.61	6.61	6.61	6.54	6.68
Endrin	7.10	7.10	7.10	7.10	7.10	7.10	7.03	7.17
Endosulfan II	7.41	7.41	7.41	7.40	7.40	7.40	7.33	7.47
4,4-DDD	7.20	7.20	7.20	7.20	7.20	7.20	7.13	7.27
Endosulfan sulfate	7.83	7.83	7.83	7.83	7.83	7.83	7.76	7.90
4,4-DDT	7.48	7.48	7.48	7.48	7.47	7.48	7.41	7.55
Methoxychlor	8.08	8.08	8.08	8.07	8.07	8.08	8.01	8.15
Endrin ketone	8.42	8.42	8.42	8.42	8.42	8.42	8.35	8.49
Endrin aldehyde	7.60	7.60	7.60	7.59	7.59	7.59	7.52	7.66
alpha-Chlordane	6.44	6.44	6.44	6.44	6.44	6.44	6.37	6.51
gamma-Chlordane	6.37	6.37	6.37	6.37	6.37	6.37	6.30	6.44

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Date(s) Analyzed:** 12/29/2011 12/29/2011

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.19	6.14	6.24	114734
		2	7.72	7.67	7.77	2282462
		3	8.02	7.97	8.07	1140404
		4	8.14	8.09	8.19	986690
		5	8.29	8.24	8.34	1897638

Method Path : P:\HPCHEM1\Ecd_G\Method\
Method File : PG122911.M
Title : GC Extractables
Last Update : Fri Dec 30 02:01:52 2011
Response Via : Initial Calibration

Calibration Files
50 =PG003565.D 100 =PG003563.D 75 =PG003564.D
25 =PG003566.D 5 =PG003567.D

		Compound	50	100	75	25	5	Avg		%RSD
1)	SA	Tetrachloro-m-xylene	4.968	4.976	4.865	4.797	4.971	4.915	E3	1.65
2)	A	alpha-BHC	5.350	6.227	5.720	4.464	4.106	5.173	E3	16.97
3)	MA	gamma-BHC (Lindane)	5.536	6.234	5.820	4.737	4.289	5.323	E3	14.95
4)	MA	Heptachlor	5.835	6.090	5.829	5.489	5.553	5.759	E3	4.21
5)	MB	Aldrin	5.322	5.642	5.381	4.933	5.068	5.269	E3	5.26
6)	B	beta-BHC	2.616	2.600	2.577	2.540	3.151	2.697	E3	9.48
7)	B	delta-BHC	4.655	5.319	4.941	4.039	4.332	4.657	E3	10.77
8)	B	Heptachlor epoxide	5.760	5.827	5.688	5.548	5.880	5.740	E3	2.26
9)	A	Endosulfan I	5.386	5.489	5.353	5.123	5.239	5.318	E3	2.64
.0)	B	gamma-Chlordane	5.292	5.330	5.243	5.098	5.336	5.260	E3	1.86
.1)	B	alpha-Chlordane	5.391	5.439	5.337	5.154	5.274	5.319	E3	2.08
.2)	B	4,4'-DDE	4.934	5.054	4.855	4.711	4.851	4.881	E3	2.57
.3)	MA	Dieldrin	4.740	4.987	4.764	4.486	4.721	4.739	E3	3.75
.4)	MA	Endrin	3.048	3.137	3.033	3.005	2.997	3.044	E3	1.84
.5)	B	Endosulfan II	4.902	4.964	4.833	4.721	4.978	4.880	E3	2.17
.6)	A	4,4'-DDD	3.295	3.521	3.332	3.118	3.472	3.348	E3	4.76
.7)	MA	4,4'-DDT	4.176	4.489	4.249	3.806	3.738	4.092	E3	7.70
.8)	B	Endrin aldehyde	4.689	4.544	4.526	4.711	5.139	4.722	E3	5.24
.9)	B	Endosulfan Sulfate	4.257	4.309	4.221	4.154	4.244	4.237	E3	1.33
:0)	A	Methoxychlor	2.445	2.467	2.383	2.339	2.381	2.403	E3	2.16
:1)	B	Endrin ketone	4.518	4.729	4.540	4.213	4.288	4.458	E3	4.66
:2)	SA	Decachlorobiphenyl	8.087	7.578	7.650	8.233	9.058	8.121	E3	7.31

.gnal #2 Calibration Files
50 =PG003565.D 100 =PG003563.D 75 =PG003564.D
25 =PG003566.D 5 =PG003567.D

		Compound	50	100	75	25	5	Avg		%RSD
1)	SA	Tetrachloro-m-xylene	2.028	1.732	1.814	2.441	2.477	2.099	E4	16.53
2)	A	alpha-BHC	3.271	3.100	3.103	3.311	3.319	3.221	E4	3.43
3)	MA	gamma-BHC (Lindane)	3.322	3.067	3.106	3.391	3.577	3.293	E4	6.39
4)	MA	Heptachlor	2.837	2.631	2.650	2.900	3.117	2.827	E4	7.05
5)	MB	Aldrin	3.050	2.802	2.840	3.127	3.340	3.032	E4	7.26
6)	B	beta-BHC	1.554	1.418	1.448	1.611	1.688	1.544	E4	7.25
7)	B	delta-BHC	3.091	2.904	2.926	3.086	3.036	3.009	E4	2.95
8)	B	Heptachlor epoxide	2.920	2.592	2.694	3.048	3.435	2.938	E4	11.28
9)	A	Endosulfan I	2.730	2.451	2.542	2.859	3.218	2.760	E4	10.92
.0)	B	gamma-Chlordane	2.985	2.702	2.774	3.092	3.506	3.012	E4	10.55
.1)	B	alpha-Chlordane	2.976	2.693	2.767	3.097	3.523	3.011	E4	10.90
.2)	B	4,4'-DDE	2.882	2.654	2.711	2.951	3.183	2.876	E4	7.30
.3)	MA	Dieldrin	2.880	2.633	2.696	2.985	3.300	2.899	E4	9.14
.4)	MA	Endrin	2.004	1.889	1.904	2.048	2.081	1.985	E4	4.31
.5)	B	Endosulfan II	2.499	2.197	2.321	2.618	2.955	2.518	E4	11.62
.6)	A	4,4'-DDD	2.152	2.023	2.049	2.169	2.272	2.133	E4	4.69
.7)	MA	4,4'-DDT	2.279	2.063	2.158	2.296	2.309	2.221	E4	4.82
.8)	B	Endrin aldehyde	2.136	1.852	1.968	2.255	2.617	2.165	E4	13.66
.9)	B	Endosulfan Sulfate	2.151	1.888	2.009	2.201	2.395	2.129	E4	9.08
:0)	A	Methoxychlor	0.991	0.834	1.018	1.032	1.130	1.001	E4	10.71
:1)	B	Endrin ketone	2.335	1.955	2.170	2.409	2.669	2.308	E4	11.56
:2)	SA	Decachlorobiphenyl	2.607	2.281	2.383	2.811	3.382	2.693	E4	16.20

(#) = Out of Range

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG122911\
Data File : PG003562.D
Acq On : 29 Dec 2011 15:51
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG122911.M
Title : GC Extractables
Last Update : Fri Dec 30 02:01:52 2011
Integrator: ChemStation

RT#1	RT#2	Resolution
4.775	7.289	100.00%
7.289	7.441	100.00%
7.441	7.529	97.74%
7.529	7.735	100.00%
7.735	8.626	100.00%
8.626	8.971	100.00%
8.971	9.246	100.00%
9.246	11.382	100.00%

ignal #2

4.071	6.373	100.00%
6.373	6.517	100.00%
6.517	6.609	100.00%
6.609	6.797	100.00%
6.797	7.832	100.00%
7.832	8.075	100.00%
8.075	8.418	100.00%
8.418	9.744	100.00%

122911.M Fri Dec 30 03:12:05 2011 GC/MS

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 19:28 **Initial Calibration Time(s):** 16:10 17:24

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.75	9.74	9.64	9.84	-0.01
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.00
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.48	5.48	5.43	5.53	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.30	5.30	5.25	5.35	0.00
Aldrin	5.60	5.60	5.55	5.65	0.00
Heptachlor epoxide	6.12	6.11	6.04	6.18	0.00
Endosulfan I	6.52	6.52	6.45	6.59	0.00
Dieldrin	6.80	6.80	6.73	6.87	0.00
4,4-DDE	6.61	6.61	6.54	6.68	0.00
Endrin	7.10	7.10	7.03	7.17	0.00
Endosulfan II	7.41	7.40	7.33	7.47	-0.01
4,4-DDD	7.20	7.20	7.13	7.27	0.00
Endosulfan sulfate	7.83	7.83	7.76	7.90	0.00
4,4-DDT	7.48	7.48	7.41	7.55	0.00
Methoxychlor	8.08	8.08	8.01	8.15	0.00
Endrin ketone	8.42	8.42	8.35	8.49	0.00
Endrin aldehyde	7.60	7.59	7.52	7.66	-0.01
alpha-Chlordane	6.44	6.44	6.37	6.51	0.00
gamma-Chlordane	6.37	6.37	6.30	6.44	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 12/30/2011 **Initial Calibration Date(s):** 12/29/2011 12/29/2011

Continuing Calib Time: 22:16 **Initial Calibration Time(s):** 16:10 17:24

GC Column: ZB-MR2 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.75	9.74	9.64	9.84	-0.01
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.00
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.48	5.48	5.43	5.53	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.30	5.30	5.25	5.35	0.00
Aldrin	5.60	5.60	5.55	5.65	0.00
Heptachlor epoxide	6.12	6.11	6.04	6.18	-0.01
Endosulfan I	6.52	6.52	6.45	6.59	0.00
Dieldrin	6.80	6.80	6.73	6.87	0.00
4,4-DDE	6.61	6.61	6.54	6.68	0.00
Endrin	7.10	7.10	7.03	7.17	0.00
Endosulfan II	7.41	7.40	7.33	7.47	-0.01
4,4-DDD	7.20	7.20	7.13	7.27	0.00
Endosulfan sulfate	7.83	7.83	7.76	7.90	0.00
4,4-DDT	7.48	7.48	7.41	7.55	0.00
Methoxychlor	8.08	8.08	8.01	8.15	0.00
Endrin ketone	8.42	8.42	8.35	8.49	0.00
Endrin aldehyde	7.60	7.59	7.52	7.66	-0.01
alpha-Chlordane	6.44	6.44	6.37	6.51	0.00
gamma-Chlordane	6.38	6.37	6.30	6.44	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL01 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003628.D **Time Analyzed:** 19:28

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.603	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.224	5.170	5.270	0.024	0.025	4.0
delta-BHC	5.477	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.944	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.301	5.250	5.350	0.025	0.025	0.0
Aldrin	5.600	5.550	5.650	0.025	0.025	0.0
Heptachlor epoxide	6.115	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.517	6.450	6.590	0.025	0.025	0.0
Dieldrin	6.798	6.730	6.870	0.025	0.025	0.0
4,4-DDE	6.610	6.540	6.680	0.025	0.025	0.0
Endrin	7.101	7.030	7.170	0.022	0.025	12.0
Endosulfan II	7.406	7.330	7.470	0.025	0.025	0.0
4,4-DDD	7.200	7.130	7.270	0.025	0.025	0.0
Endosulfan sulfate	7.833	7.760	7.900	0.026	0.025	4.0
4,4-DDT	7.476	7.410	7.550	0.023	0.025	8.0
Methoxychlor	8.078	8.010	8.150	0.024	0.025	4.0
Endrin ketone	8.418	8.350	8.490	0.029	0.025	16.0
Endrin aldehyde	7.596	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.443	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.374	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.745	9.640	9.840	0.026	0.025	4.0
Tetrachloro-m-xylene	4.073	3.970	4.170	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/29/2011 12/29/2011

Client Sample No.: CCAL02 **Date Analyzed:** 12/30/2011

Lab Sample No.: STD 25 **Data File :** PG003637.D **Time Analyzed:** 22:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.603	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.224	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.476	5.430	5.530	0.026	0.025	4.0
gamma-BHC (Lindane)	4.944	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.301	5.250	5.350	0.025	0.025	0.0
Aldrin	5.600	5.550	5.650	0.025	0.025	0.0
Heptachlor epoxide	6.116	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.518	6.450	6.590	0.025	0.025	0.0
Dieldrin	6.798	6.730	6.870	0.025	0.025	0.0
4,4-DDE	6.611	6.540	6.680	0.024	0.025	4.0
Endrin	7.102	7.030	7.170	0.022	0.025	12.0
Endosulfan II	7.406	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.200	7.130	7.270	0.025	0.025	0.0
Endosulfan sulfate	7.833	7.760	7.900	0.027	0.025	8.0
4,4-DDT	7.477	7.410	7.550	0.023	0.025	8.0
Methoxychlor	8.077	8.010	8.150	0.024	0.025	4.0
Endrin ketone	8.418	8.350	8.490	0.031	0.025	24.0
Endrin aldehyde	7.597	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.443	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.375	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.745	9.640	9.840	0.026	0.025	4.0
Tetrachloro-m-xylene	4.072	3.970	4.170	0.025	0.025	0.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 01/04/2012 01/04/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	01/04/2012	16:42	PG003676.D	11.37	4.77
PEM03	PEM03	01/04/2012	17:00	PG003677.D	11.37	4.77
RESC01	RESCHK	01/04/2012	17:19	PG003678.D	11.37	4.77
100 PPB PEST STD	100 PPB PEST STD	01/04/2012	17:38	PG003679.D	11.37	4.77
75 PPB PEST STD	75 PPB PEST STD	01/04/2012	17:57	PG003680.D	11.37	4.77
50 PPB PEST STD	50 PPB PEST STD	01/04/2012	18:15	PG003681.D	11.37	4.77
25 PPB PEST STD	25 PPB PEST STD	01/04/2012	18:34	PG003682.D	11.37	4.77
5 PPB PEST STD	5 PPB PEST STD	01/04/2012	18:53	PG003683.D	11.37	4.77
TOX 500	TOX	01/04/2012	19:30	PG003685.D	11.37	4.77
CHLOR 500	CHLOR 500	01/04/2012	19:49	PG003686.D	11.37	4.77
PIBLK05	I.BLK05	01/04/2012	20:45	PG003689.D	11.37	4.77
CCAL03	STD 25	01/04/2012	21:04	PG003690.D	11.37	4.77
PB60327BL	PB60327BL	01/04/2012	22:00	PG003693.D	11.37	4.77
PB60327BS	PB60327BS	01/04/2012	22:18	PG003694.D	11.37	4.77
12SB28-000.5-01	C5164-02	01/04/2012	22:36	PG003695.D	11.37	4.77
12SB28-000.5-01MS	C5164-02MS	01/04/2012	22:55	PG003696.D	11.37	4.77
12SB28-000.5-01MSD	C5164-02MSD	01/04/2012	23:13	PG003697.D	11.37	4.77
PIBLK06	I.BLK06	01/05/2012	00:27	PG003701.D	11.37	4.77
CCAL04	STD 25	01/05/2012	00:45	PG003702.D	11.37	4.77

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PG003683.D RT 025 = PG003682.D

RT 050 = PG003681.D RT 075 = PG003680.D RT 100 = PG003679.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	11.37	11.37	11.37	11.37	11.37	11.37	11.27	11.47
Tetrachloro-m-xylene	4.77	4.77	4.77	4.77	4.77	4.77	4.67	4.87
alpha-BHC	5.24	5.24	5.24	5.24	5.24	5.24	5.19	5.29
beta-BHC	5.77	5.77	5.77	5.77	5.77	5.77	5.72	5.82
delta-BHC	6.03	6.03	6.04	6.03	6.03	6.03	5.98	6.08
gamma-BHC (Lindane)	5.58	5.58	5.58	5.58	5.58	5.58	5.53	5.63
Heptachlor	6.20	6.20	6.20	6.20	6.20	6.20	6.15	6.25
Aldrin	6.57	6.57	6.57	6.57	6.57	6.57	6.52	6.62
Heptachlor epoxide	7.01	7.01	7.01	7.01	7.01	7.01	6.94	7.08
Endosulfan I	7.44	7.43	7.44	7.43	7.43	7.43	7.36	7.50
Dieldrin	7.73	7.73	7.73	7.73	7.73	7.73	7.66	7.80
4,4-DDE	7.53	7.52	7.52	7.52	7.52	7.52	7.45	7.59
Endrin	7.99	7.99	7.99	7.99	7.99	7.99	7.92	8.06
Endosulfan II	8.22	8.22	8.22	8.22	8.22	8.22	8.15	8.29
4,4-DDD	8.08	8.08	8.08	8.08	8.08	8.08	8.01	8.15
Endosulfan sulfate	8.62	8.62	8.62	8.62	8.62	8.62	8.55	8.69
4,4-DDT	8.43	8.43	8.43	8.43	8.43	8.43	8.36	8.50
Methoxychlor	8.96	8.97	8.97	8.96	8.96	8.96	8.89	9.03
Endrin ketone	9.24	9.24	9.24	9.24	9.24	9.24	9.17	9.31
Endrin aldehyde	8.36	8.36	8.36	8.36	8.36	8.36	8.29	8.43
alpha-Chlordane	7.37	7.37	7.37	7.37	7.37	7.37	7.30	7.44
gamma-Chlordane	7.28	7.28	7.28	7.28	7.28	7.28	7.21	7.35

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PG003683.D **CF 025 =** PG003682.D

CF 050 = PG003681.D **CF 075 =** PG003680.D **CF 100 =** PG003679.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	872680	788584	791650	758260	731283	788491	7
Tetrachloro-m-xylene	488400	431820	463322	465617	457516	461335	4
alpha-BHC	3616600	3992240	4920260	5366987	5593780	4697973	18
beta-BHC	2732600	2679760	2899460	2953400	2928540	2838752	4
delta-BHC	3654600	3626360	4337860	4718160	4881680	4243732	14
gamma-BHC (Lindane)	3800200	4245640	5078580	5457013	5613550	4838997	16
Heptachlor	5157000	5193680	5665780	5732053	5696510	5489005	5
Aldrin	4295400	4397960	4828700	4949760	4990260	4692416	7
Heptachlor epoxide	5251000	5042200	5344820	5356760	5296850	5258326	2
Endosulfan I	4777600	4815240	5143480	5245653	5237330	5043861	5
Dieldrin	4288200	4126320	4434380	4513880	4533960	4379348	4
4,4-DDE	4321400	4388680	4574000	4769120	4773530	4565346	5
Endrin	2515800	2612560	2845540	2857147	2795140	2725237	6
Endosulfan II	4541000	4372040	4646600	4642813	4596740	4559839	2
4,4-DDD	3082800	2865280	3044960	3077747	3203130	3054783	4
Endosulfan sulfate	4280800	4119240	4424000	4372547	4307540	4300825	3
4,4-DDT	3221200	3376640	3752040	3939040	3993490	3656482	9
Methoxychlor	2083800	2083600	2337620	2322240	2302070	2225866	6
Endrin ketone	4391600	4347280	4816280	4904773	4933120	4678611	6
Endrin aldehyde	4831400	4428320	4449080	4333120	4236320	4455648	5
alpha-Chlordane	4835400	4822200	5174180	5195707	5160440	5037585	4
gamma-Chlordane	4990800	4868240	5164760	5178200	5140440	5068488	3

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Date(s) Analyzed:** 01/04/2012 01/04/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15392
		2	8.24	8.18	8.29	137762
		3	8.50	8.45	8.55	221576
		4	8.62	8.57	8.67	184822
		5	9.13	9.08	9.18	353008

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/04/2012 01/04/2012

Client Sample No. (PEM): PEM - PG003677.D Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:00

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.370	11.270	11.470	0.021	0.020	5.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.239	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.768	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.010	0.010	0.0
Endrin	7.986	7.920	8.060	0.057	0.050	14.0
4,4-DDT	8.430	8.360	8.500	0.107	0.100	7.0
Methoxychlor	8.963	8.890	9.030	0.278	0.250	11.2

Client Sample No. (PEM): PEM - PG003677.D Date Analyzed: 01/04/2012

Lab Sample No.(PEM): PEM Time Analyzed: 17:00

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.730	9.630	9.830	0.022	0.020	10.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.596	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.216	5.170	5.270	0.011	0.010	10.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.011	0.010	10.0
Endrin	7.092	7.020	7.160	0.051	0.050	2.0
4,4-DDT	7.467	7.400	7.540	0.090	0.100	10.0
Methoxychlor	8.065	8.000	8.140	0.195	0.250	22.0

Sample: PEM
Data File: PG003677.D **Date Acquired** 1/4/2012 17:00
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.99	156154.622	182233.275	26078.653	**14.31**
Endrin aldehyde	8.36	10497.762			
Endrin ketone	9.24	15580.891			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	1006367.247	1163425.977	157058.73	**13.50**
Endrin aldehyde #2	7.59	54067.978			
Endrin ketone #2	8.41	102990.752			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	392018.346	399566.865	7548.519	**1.89**
4,4'-DDE	7.52	6594.612			
4,4'-DDD	8.08	953.907			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2081016.734	2173036.74	92020.006	**4.23**
4,4'-DDE #2	6.60	56328.294			
4,4'-DDD #2	7.19	35691.712			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 01/04/2012 01/04/2012

Continuing Calib Time: 21:04 **Initial Calibration Time(s):** 17:38 18:53

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.57	6.57	6.52	6.62	0.00
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.44	7.43	7.36	7.50	-0.01
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.53	7.52	7.45	7.59	-0.01
Endrin	7.99	7.99	7.92	8.06	0.00
Endosulfan II	8.22	8.22	8.15	8.29	0.00
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.97	8.96	8.89	9.03	-0.01
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.29	7.28	7.21	7.35	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/05/2012 **Initial Calibration Date(s):** 01/04/2012 01/04/2012

Continuing Calib Time: 00:45 **Initial Calibration Time(s):** 17:38 18:53

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.57	6.57	6.52	6.62	0.00
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.43	7.43	7.36	7.50	0.00
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.52	7.52	7.45	7.59	0.00
Endrin	7.99	7.99	7.92	8.06	0.00
Endosulfan II	8.22	8.22	8.15	8.29	0.00
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.97	8.96	8.89	9.03	-0.01
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.28	7.28	7.21	7.35	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PG003690.D **Time Analyzed:** 21:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.240	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.769	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.034	5.980	6.080	0.021	0.025	16.0
gamma-BHC (Lindane)	5.582	5.530	5.630	0.021	0.025	16.0
Heptachlor	6.200	6.150	6.250	0.023	0.025	8.0
Aldrin	6.567	6.520	6.620	0.023	0.025	8.0
Heptachlor epoxide	7.013	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.435	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.729	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.525	7.450	7.590	0.024	0.025	4.0
Endrin	7.986	7.920	8.060	0.022	0.025	12.0
Endosulfan II	8.217	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.084	8.010	8.150	0.023	0.025	8.0
Endosulfan sulfate	8.618	8.550	8.690	0.024	0.025	4.0
4,4-DDT	8.431	8.360	8.500	0.021	0.025	16.0
Methoxychlor	8.965	8.890	9.030	0.022	0.025	12.0
Endrin ketone	9.239	9.170	9.310	0.024	0.025	4.0
Endrin aldehyde	8.359	8.290	8.430	0.025	0.025	0.0
alpha-Chlordane	7.371	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.285	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.372	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003702.D **Time Analyzed:** 00:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.240	5.190	5.290	0.021	0.025	16.0
beta-BHC	5.769	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.034	5.980	6.080	0.022	0.025	12.0
gamma-BHC (Lindane)	5.582	5.530	5.630	0.022	0.025	12.0
Heptachlor	6.202	6.150	6.250	0.022	0.025	12.0
Aldrin	6.567	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.012	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.434	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.729	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.524	7.450	7.590	0.024	0.025	4.0
Endrin	7.986	7.920	8.060	0.021	0.025	16.0
Endosulfan II	8.216	8.150	8.290	0.024	0.025	4.0
4,4-DDD	8.083	8.010	8.150	0.023	0.025	8.0
Endosulfan sulfate	8.617	8.550	8.690	0.024	0.025	4.0
4,4-DDT	8.429	8.360	8.500	0.020	0.025	20.0
Methoxychlor	8.965	8.890	9.030	0.021	0.025	16.0
Endrin ketone	9.240	9.170	9.310	0.025	0.025	0.0
Endrin aldehyde	8.357	8.290	8.430	0.026	0.025	4.0
alpha-Chlordane	7.369	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.284	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.370	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.771	4.670	4.870	0.024	0.025	4.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 01/04/2012 01/04/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK04	I.BLK04	01/04/2012	16:42	PG003676.D	9.73	4.07
PEM03	PEM03	01/04/2012	17:00	PG003677.D	9.73	4.07
RESC01	RESCHK	01/04/2012	17:19	PG003678.D	9.73	4.07
100 PPB PEST STD	100 PPB PEST STD	01/04/2012	17:38	PG003679.D	9.73	4.07
75 PPB PEST STD	75 PPB PEST STD	01/04/2012	17:57	PG003680.D	9.73	4.07
50 PPB PEST STD	50 PPB PEST STD	01/04/2012	18:15	PG003681.D	9.73	4.07
25 PPB PEST STD	25 PPB PEST STD	01/04/2012	18:34	PG003682.D	9.73	4.07
5 PPB PEST STD	5 PPB PEST STD	01/04/2012	18:53	PG003683.D	9.73	4.07
TOX 500	TOX	01/04/2012	19:30	PG003685.D	9.73	4.07
CHLOR 500	CHLOR 500	01/04/2012	19:49	PG003686.D	9.73	4.07
PIBLK05	I.BLK05	01/04/2012	20:45	PG003689.D	9.73	4.07
CCAL03	STD 25	01/04/2012	21:04	PG003690.D	9.73	4.07
PB60327BL	PB60327BL	01/04/2012	22:00	PG003693.D	9.73	4.07
PB60327BS	PB60327BS	01/04/2012	22:18	PG003694.D	9.73	4.07
12SB28-000.5-01	C5164-02	01/04/2012	22:36	PG003695.D	9.73	4.07
12SB28-000.5-01MS	C5164-02MS	01/04/2012	22:55	PG003696.D	9.73	4.07
12SB28-000.5-01MSD	C5164-02MSD	01/04/2012	23:13	PG003697.D	9.73	4.07
PIBLK06	I.BLK06	01/05/2012	00:27	PG003701.D	9.73	4.07
CCAL04	STD 25	01/05/2012	00:45	PG003702.D	9.73	4.07

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PG003683.D **CF 025 =** PG003682.D

CF 050 = PG003681.D **CF 075 =** PG003680.D **CF 100 =** PG003679.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3754220	3097484	2592194	2646860	2488814	2915914	18*
Tetrachloro-m-xylene	2925800	2504324	2402422	2269932	2138297	2448155	12
alpha-BHC	36842400	36033680	36198640	34891653	33424570	35478189	4
beta-BHC	18203400	16977160	16529640	15691813	14699460	16420295	8
delta-BHC	33959600	33665080	34155300	33059520	31418310	33251562	3
gamma-BHC (Lindane)	38081200	35829320	35676700	34337560	32565510	35298058	6
Heptachlor	34913000	31980320	31467740	29878707	28090020	31265957	8
Aldrin	34660200	32501200	32124300	30450627	28813270	31709919	7
Heptachlor epoxide	35822600	31882680	31094880	29228000	27142120	31034056	10
Endosulfan I	33536400	30057400	29124220	27339413	25459850	29103457	10
Dieldrin	34891400	31607000	30950400	29394947	27638770	30896503	9
4,4-DDE	34332600	31510360	31062180	29193200	27680450	30755758	8
Endrin	19579800	20209880	20940060	19562747	18128020	19684101	5
Endosulfan II	31663000	28139040	27169060	25543720	23792980	27261560	11
4,4-DDD	24910400	24382160	24595480	23505373	21604910	23799665	6
Endosulfan sulfate	28797800	25780880	24974860	23477973	22130090	25032321	10
4,4-DDT	23190800	23503200	24063700	23194733	21970390	23184565	3
Methoxychlor	12365400	11543560	11423820	10907693	10590880	11366271	6
Endrin ketone	31788800	28867200	27880480	25128160	24435290	27619986	11
Endrin aldehyde	28623800	24651800	23167020	21717760	20389830	23710042	13
alpha-Chlordane	36838000	32710880	31903280	30180533	28334560	31993451	10
gamma-Chlordane	36756800	32659280	31851080	30330320	28440010	32007498	10

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/04/2012 01/04/2012

Calibration Times: 17:38 18:53

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PG003683.D RT 025 = PG003682.D

RT 050 = PG003681.D RT 075 = PG003680.D RT 100 = PG003679.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	9.73	9.73	9.73	9.73	9.73	9.73	9.63	9.83
Tetrachloro-m-xylene	4.07	4.07	4.07	4.07	4.07	4.07	3.97	4.17
alpha-BHC	4.60	4.60	4.60	4.60	4.60	4.60	4.55	4.65
beta-BHC	5.22	5.22	5.22	5.22	5.22	5.22	5.17	5.27
delta-BHC	5.47	5.47	5.47	5.47	5.47	5.47	5.42	5.52
gamma-BHC (Lindane)	4.94	4.94	4.94	4.94	4.94	4.94	4.89	4.99
Heptachlor	5.29	5.29	5.29	5.29	5.29	5.29	5.24	5.34
Aldrin	5.59	5.59	5.59	5.59	5.59	5.59	5.54	5.64
Heptachlor epoxide	6.11	6.11	6.11	6.11	6.11	6.11	6.04	6.18
Endosulfan I	6.51	6.51	6.51	6.51	6.51	6.51	6.44	6.58
Dieldrin	6.79	6.79	6.79	6.79	6.79	6.79	6.72	6.86
4,4-DDE	6.60	6.60	6.60	6.60	6.60	6.60	6.53	6.67
Endrin	7.09	7.09	7.09	7.09	7.09	7.09	7.02	7.16
Endosulfan II	7.40	7.40	7.40	7.40	7.40	7.40	7.33	7.47
4,4-DDD	7.19	7.19	7.19	7.19	7.19	7.19	7.12	7.26
Endosulfan sulfate	7.83	7.83	7.83	7.82	7.82	7.82	7.75	7.89
4,4-DDT	7.47	7.47	7.47	7.47	7.47	7.47	7.40	7.54
Methoxychlor	8.07	8.07	8.07	8.07	8.07	8.07	8.00	8.14
Endrin ketone	8.41	8.41	8.41	8.41	8.41	8.41	8.34	8.48
Endrin aldehyde	7.59	7.59	7.59	7.59	7.59	7.59	7.52	7.66
alpha-Chlordane	6.44	6.44	6.44	6.44	6.43	6.44	6.37	6.51
gamma-Chlordane	6.37	6.37	6.37	6.37	6.37	6.37	6.30	6.44

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Date(s) Analyzed:** 01/04/2012 01/04/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.18	6.13	6.23	156582
		2	7.71	7.66	7.76	2395532
		3	8.01	7.96	8.06	1173182
		4	8.13	8.08	8.18	1057432
		5	8.28	8.23	8.33	1989258

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 01/04/2012 01/04/2012

Continuing Calib Time: 21:04 **Initial Calibration Time(s):** 17:38 18:53

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.00
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.83	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.00
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.44	6.44	6.37	6.51	0.01
gamma-Chlordane	6.37	6.37	6.30	6.44	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/05/2012 **Initial Calibration Date(s):** 01/04/2012 01/04/2012

Continuing Calib Time: 00:45 **Initial Calibration Time(s):** 17:38 18:53

GC Column: ZB-MR2 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.00
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.83	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.00
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.44	6.44	6.37	6.51	0.00
gamma-Chlordane	6.37	6.37	6.30	6.44	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL03 **Date Analyzed:** 01/04/2012

Lab Sample No.: STD 25 **Data File :** PG003690.D **Time Analyzed:** 21:04

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.217	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.025	0.025	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.293	5.240	5.340	0.024	0.025	4.0
Aldrin	5.592	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.107	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.025	0.025	0.0
4,4-DDE	6.602	6.530	6.670	0.025	0.025	0.0
Endrin	7.093	7.020	7.160	0.024	0.025	4.0
Endosulfan II	7.397	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.192	7.120	7.260	0.027	0.025	8.0
Endosulfan sulfate	7.825	7.750	7.890	0.025	0.025	0.0
4,4-DDT	7.468	7.400	7.540	0.024	0.025	4.0
Methoxychlor	8.069	8.000	8.140	0.023	0.025	8.0
Endrin ketone	8.409	8.340	8.480	0.027	0.025	8.0
Endrin aldehyde	7.588	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.435	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.366	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.731	9.630	9.830	0.026	0.025	4.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/04/2012 01/04/2012

Client Sample No.: CCAL04 **Date Analyzed:** 01/05/2012

Lab Sample No.: STD 25 **Data File :** PG003702.D **Time Analyzed:** 00:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.597	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.218	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.025	0.025	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.294	5.240	5.340	0.024	0.025	4.0
Aldrin	5.593	5.540	5.640	0.025	0.025	0.0
Heptachlor epoxide	6.108	6.040	6.180	0.025	0.025	0.0
Endosulfan I	6.510	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.025	0.025	0.0
4,4-DDE	6.603	6.530	6.670	0.023	0.025	8.0
Endrin	7.093	7.020	7.160	0.024	0.025	4.0
Endosulfan II	7.397	7.330	7.470	0.025	0.025	0.0
4,4-DDD	7.191	7.120	7.260	0.029	0.025	16.0
Endosulfan sulfate	7.825	7.750	7.890	0.025	0.025	0.0
4,4-DDT	7.468	7.400	7.540	0.022	0.025	12.0
Methoxychlor	8.068	8.000	8.140	0.022	0.025	12.0
Endrin ketone	8.408	8.340	8.480	0.027	0.025	8.0
Endrin aldehyde	7.588	7.520	7.660	0.026	0.025	4.0
alpha-Chlordane	6.436	6.370	6.510	0.025	0.025	0.0
gamma-Chlordane	6.366	6.300	6.440	0.025	0.025	0.0
Decachlorobiphenyl	9.730	9.630	9.830	0.026	0.025	4.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.026	0.025	4.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 01/06/2012 01/06/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK07	I.BLK07	01/06/2012	16:52	PG003722.D	11.37	4.77
PEM04	PEM04	01/06/2012	17:10	PG003723.D	11.37	4.77
RESC01	RESCHK	01/06/2012	17:29	PG003724.D	11.37	4.77
100 PPB PEST STD	100 PPB PEST STD	01/06/2012	17:47	PG003725.D	11.37	4.77
75 PPB PEST STD	75 PPB PEST STD	01/06/2012	18:05	PG003726.D	11.37	4.77
50 PPB PEST STD	50 PPB PEST STD	01/06/2012	18:24	PG003727.D	11.37	4.77
25 PPB PEST STD	25 PPB PEST STD	01/06/2012	18:42	PG003728.D	11.37	4.77
5 PPB PEST STD	5 PPB PEST STD	01/06/2012	19:00	PG003729.D	11.37	4.77
TOX 500	TOX	01/06/2012	19:37	PG003731.D	11.37	4.77
CHLOR 500	CHLOR 500	01/06/2012	19:55	PG003732.D	11.37	4.77
PEM05	PEM05	01/06/2012	21:27	PG003737.D	11.37	4.77
PIBLK08	I.BLK08	01/07/2012	04:27	PG003760.D	11.37	4.77
CCAL05	STD 25	01/07/2012	04:45	PG003761.D	11.37	4.77
12SB57-000.5-01	C5164-13	01/07/2012	05:03	PG003762.D	11.37	4.77
12SB58-000.5-01	C5164-14	01/07/2012	05:22	PG003763.D	11.37	4.77
12SB59-000.5-01	C5164-15	01/07/2012	05:40	PG003764.D	11.37	4.77
12SB-DUP01-122911	C5164-20	01/07/2012	05:58	PG003765.D	11.37	4.77
PIBLK09	I.BLK09	01/07/2012	06:17	PG003766.D	11.37	4.77
CCAL06	STD 25	01/07/2012	06:35	PG003767.D	11.37	4.77
PEM6	PEM6	01/09/2012	14:02	PG003770.D	11.37	4.77
PIBLK10	I.BLK10	01/09/2012	17:27	PG003775.D	11.37	4.77
CCAL07	STD 25	01/09/2012	17:46	PG003776.D	11.37	4.77
12SB57-000.5-01RE	C5164-13RE	01/09/2012	18:42	PG003779.D	11.37	4.77
12SB58-000.5-01RE	C5164-14RE	01/09/2012	19:01	PG003780.D	11.37	4.77
12SB59-000.5-01RE	C5164-15RE	01/09/2012	19:19	PG003781.D	11.37	4.77
12SB-DUP01-122911RE	C5164-20RE	01/09/2012	19:38	PG003782.D	11.37	4.77
PIBLK11	I.BLK11	01/09/2012	19:56	PG003783.D	11.37	4.77
CCAL08	STD 25	01/09/2012	20:14	PG003784.D	11.37	4.77

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PG003729.D **CF 025 =** PG003728.D

CF 050 = PG003727.D **CF 075 =** PG003726.D **CF 100 =** PG003725.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	930920	840880	814196	761411	771313	823744	8
Tetrachloro-m-xylene	523960	471752	484924	471827	484378	487368	4
alpha-BHC	3664600	4103080	4772820	5119600	5630510	4658122	17
beta-BHC	2966800	2828320	2923900	2926080	3033300	2935680	3
delta-BHC	3486400	3387360	3830100	4055680	4438980	3839704	11
gamma-BHC (Lindane)	3988600	4313480	4902820	5180440	5621210	4801310	14
Heptachlor	5240600	5265760	5496700	5538213	5793030	5466861	4
Aldrin	4570000	4566520	4804300	4884693	5157850	4796673	5
Heptachlor epoxide	5447800	5179920	5297060	5255560	5429970	5322062	2
Endosulfan I	4883800	4930240	5091440	5118200	5331000	5070936	3
Dieldrin	4437400	4203960	4361460	4402973	4641990	4409557	4
4,4-DDE	4534200	4576240	4674140	4707920	4939330	4686366	3
Endrin	2717000	2906840	2925900	2885267	3026520	2892305	4
Endosulfan II	4573800	4391800	4501660	4468947	4613420	4509925	2
4,4-DDD	3266400	2999560	3047580	3081960	3262820	3131664	4
Endosulfan sulfate	4140000	4054960	4163800	4114307	4234760	4141565	2
4,4-DDT	3556600	3656920	3910800	4003280	4214510	3868422	7
Methoxychlor	2229200	2256440	2339560	2296453	2412530	2306837	3
Endrin ketone	3619400	3521400	3611920	3589933	3800210	3628573	3
Endrin aldehyde	5107200	4568320	4447420	4276680	4308450	4541614	7
alpha-Chlordane	4933600	4891680	5021900	5020707	5186180	5010813	2
gamma-Chlordane	5094800	4915480	5017660	5011120	5186140	5045040	2

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PG003729.D RT 025 = PG003728.D

RT 050 = PG003727.D RT 075 = PG003726.D RT 100 = PG003725.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	11.37	11.37	11.37	11.37	11.37	11.37	11.27	11.47
Tetrachloro-m-xylene	4.77	4.77	4.77	4.77	4.77	4.77	4.67	4.87
alpha-BHC	5.24	5.24	5.24	5.24	5.24	5.24	5.19	5.29
beta-BHC	5.77	5.77	5.77	5.77	5.77	5.77	5.72	5.82
delta-BHC	6.03	6.03	6.03	6.03	6.03	6.03	5.98	6.08
gamma-BHC (Lindane)	5.58	5.58	5.58	5.58	5.58	5.58	5.53	5.63
Heptachlor	6.20	6.20	6.20	6.20	6.20	6.20	6.15	6.25
Aldrin	6.57	6.57	6.57	6.57	6.57	6.57	6.52	6.62
Heptachlor epoxide	7.01	7.01	7.01	7.01	7.01	7.01	6.94	7.08
Endosulfan I	7.43	7.43	7.43	7.43	7.43	7.43	7.36	7.50
Dieldrin	7.73	7.73	7.73	7.73	7.73	7.73	7.66	7.80
4,4-DDE	7.52	7.52	7.52	7.52	7.52	7.52	7.45	7.59
Endrin	7.99	7.99	7.98	7.98	7.98	7.98	7.91	8.05
Endosulfan II	8.22	8.22	8.21	8.21	8.22	8.21	8.14	8.28
4,4-DDD	8.08	8.08	8.08	8.08	8.08	8.08	8.01	8.15
Endosulfan sulfate	8.62	8.62	8.62	8.62	8.62	8.62	8.55	8.69
4,4-DDT	8.43	8.43	8.43	8.43	8.43	8.43	8.36	8.50
Methoxychlor	8.96	8.96	8.96	8.96	8.96	8.96	8.89	9.03
Endrin ketone	9.24	9.24	9.24	9.24	9.24	9.24	9.17	9.31
Endrin aldehyde	8.36	8.36	8.36	8.36	8.36	8.36	8.29	8.43
alpha-Chlordane	7.37	7.37	7.37	7.37	7.37	7.37	7.30	7.44
gamma-Chlordane	7.28	7.28	7.28	7.28	7.28	7.28	7.21	7.35

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Date(s) Analyzed:** 01/06/2012 01/06/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	7.01	6.96	7.06	15728
		2	8.23	8.18	8.28	142822
		3	8.50	8.45	8.55	238386
		4	8.61	8.56	8.66	196098
		5	9.13	9.08	9.18	379938

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No. (PEM): PEM - PG003723.D **Date Analyzed:** 01/06/2012

Lab Sample No.(PEM): PEM **Time Analyzed:** 17:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.369	11.270	11.470	0.021	0.020	5.0
Tetrachloro-m-xylene	4.769	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.238	5.190	5.290	0.008	0.010	20.0
beta-BHC	5.767	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.580	5.530	5.630	0.009	0.010	10.0
Endrin	7.984	7.910	8.050	0.057	0.050	14.0
4,4-DDT	8.428	8.360	8.500	0.100	0.100	0.0
Methoxychlor	8.962	8.890	9.030	0.259	0.250	3.6

Client Sample No. (PEM): PEM - PG003723.D **Date Analyzed:** 01/06/2012

Lab Sample No.(PEM): PEM **Time Analyzed:** 17:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.730	9.630	9.830	0.021	0.020	5.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.022	0.020	10.0
alpha-BHC	4.596	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.217	5.170	5.270	0.010	0.010	0.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.010	0.010	0.0
Endrin	7.093	7.020	7.160	0.052	0.050	4.0
4,4-DDT	7.466	7.400	7.540	0.088	0.100	12.0
Methoxychlor	8.065	8.000	8.140	0.196	0.250	21.6

Sample: PEM
Data File: PG003723.D **Date Acquired** 1/6/2012 17:10
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.98	164264.54	179813.882	15549.342	**8.65**
Endrin aldehyde	8.36	5857.915			
Endrin ketone	9.24	9691.427			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	975733.405	1069320.629	93587.224	**8.75**
Endrin aldehyde #2	7.59	33440.751			
Endrin ketone #2	8.41	60146.473			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	386249.081	398518.874	12269.793	**3.08**
4,4'-DDE	7.52	10724.859			
4,4'-DDD	8.08	1544.934			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2019074.556	2116381.874	97307.318	**4.60**
4,4'-DDE #2	6.60	84034.775			
4,4'-DDD #2	7.19	13272.543			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/06/2012 01/06/2012

Client Sample No. (PEM): PEM - PG003737.D Date Analyzed: 01/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 21:27

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.370	11.270	11.470	0.022	0.020	10.0
Tetrachloro-m-xylene	4.770	4.670	4.870	0.021	0.020	5.0
alpha-BHC	5.238	5.190	5.290	0.009	0.010	10.0
beta-BHC	5.767	5.720	5.820	0.010	0.010	0.0
gamma-BHC (Lindane)	5.580	5.530	5.630	0.010	0.010	0.0
Endrin	7.982	7.910	8.050	0.054	0.050	8.0
4,4-DDT	8.429	8.360	8.500	0.105	0.100	5.0
Methoxychlor	8.963	8.890	9.030	0.269	0.250	7.6

Client Sample No. (PEM): PEM - PG003737.D Date Analyzed: 01/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 21:27

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.731	9.630	9.830	0.023	0.020	15.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.021	0.020	5.0
alpha-BHC	4.597	4.550	4.650	0.010	0.010	0.0
beta-BHC	5.218	5.170	5.270	0.010	0.010	0.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.010	0.010	0.0
Endrin	7.091	7.020	7.160	0.052	0.050	4.0
4,4-DDT	7.465	7.400	7.540	0.091	0.100	9.0
Methoxychlor	8.065	8.000	8.140	0.196	0.250	21.6

Sample: PEM
Data File: PG003737.D **Date Acquired** 1/6/2012 21:27
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.98	157070.783	180579.115	23508.332	**13.02**
Endrin aldehyde	8.35	9789.425			
Endrin ketone	9.24	13718.907			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	984373.615	1134968.652	150595.037	**13.27**
Endrin aldehyde #2	7.59	54082.037			
Endrin ketone #2	8.41	96513			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	405298.658	414695.362	9396.704	**2.27**
4,4'-DDE	7.52	8116.15			
4,4'-DDD	8.08	1280.554			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	2097099.091	2178268.997	81169.906	**3.73**
4,4'-DDE #2	6.60	52715.613			
4,4'-DDD #2	7.19	28454.293			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

GC Column: ZB-MR1 ID: 0.32 (mm) Initi. Calib. Date(s): 01/06/2012 01/06/2012

Client Sample No. (PEM): PEM - PG003770.D Date Analyzed: 01/09/2012

Lab Sample No.(PEM): PEM Time Analyzed: 14:02

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	11.365	11.270	11.470	0.020	0.020	0.0
Tetrachloro-m-xylene	4.768	4.670	4.870	0.020	0.020	0.0
alpha-BHC	5.237	5.190	5.290	0.007	0.010	30.0
beta-BHC	5.766	5.720	5.820	0.009	0.010	10.0
gamma-BHC (Lindane)	5.579	5.530	5.630	0.008	0.010	20.0
Endrin	7.981	7.910	8.050	0.050	0.050	0.0
4,4-DDT	8.426	8.360	8.500	0.088	0.100	12.0
Methoxychlor	8.960	8.890	9.030	0.255	0.250	2.0

Client Sample No. (PEM): PEM - PG003770.D Date Analyzed: 01/09/2012

Lab Sample No.(PEM): PEM Time Analyzed: 14:02

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	9.729	9.630	9.830	0.020	0.020	0.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.019	0.020	5.0
alpha-BHC	4.596	4.550	4.650	0.008	0.010	20.0
beta-BHC	5.218	5.170	5.270	0.009	0.010	10.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.008	0.010	20.0
Endrin	7.090	7.020	7.160	0.042	0.050	16.0
4,4-DDT	7.466	7.400	7.540	0.071	0.100	29.0
Methoxychlor	8.065	8.000	8.140	0.172	0.250	31.2

Sample: PEM
Data File: PG003770.D **Date Acquired** 1/9/2012 14:02
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	7.98	143609.993	167330.623	23720.63	**14.18**
Endrin aldehyde	8.36	13500.021			
Endrin ketone	9.23	10220.609			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	7.09	798606.988	905634.237	107027.249	**11.82**
Endrin aldehyde #2	7.59	48642.418			
Endrin ketone #2	8.41	58384.831			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	8.43	340163.99	370220.765	30056.775	**8.12**
4,4'-DDE	7.52	28390.925			
4,4'-DDD	8.08	1665.85			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.47	1642588.852	1870381.647	227792.795	**12.18**
4,4'-DDE #2	6.60	200923.252			
4,4'-DDD #2	7.19	26869.543			

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/07/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 04:45 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.56	6.57	6.52	6.62	0.01
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.43	7.43	7.36	7.50	0.00
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.52	7.52	7.45	7.59	0.00
Endrin	7.98	7.98	7.91	8.05	0.00
Endosulfan II	8.22	8.21	8.14	8.28	-0.01
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.96	8.96	8.89	9.03	0.00
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.28	7.28	7.21	7.35	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/07/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 06:35 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.57	6.57	6.52	6.62	0.00
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.43	7.43	7.36	7.50	0.00
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.52	7.52	7.45	7.59	0.00
Endrin	7.99	7.98	7.91	8.05	-0.01
Endosulfan II	8.22	8.21	8.14	8.28	-0.01
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.96	8.96	8.89	9.03	0.00
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.28	7.28	7.21	7.35	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/09/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 17:46 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.57	6.57	6.52	6.62	0.01
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.43	7.43	7.36	7.50	0.00
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.52	7.52	7.45	7.59	0.00
Endrin	7.98	7.98	7.91	8.05	0.00
Endosulfan II	8.22	8.21	8.14	8.28	-0.01
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.96	8.96	8.89	9.03	0.00
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.28	7.28	7.21	7.35	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/09/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 20:14 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	11.37	11.37	11.27	11.47	0.00
Tetrachloro-m-xylene	4.77	4.77	4.67	4.87	0.00
alpha-BHC	5.24	5.24	5.19	5.29	0.00
beta-BHC	5.77	5.77	5.72	5.82	0.00
delta-BHC	6.03	6.03	5.98	6.08	0.00
gamma-BHC (Lindane)	5.58	5.58	5.53	5.63	0.00
Heptachlor	6.20	6.20	6.15	6.25	0.00
Aldrin	6.57	6.57	6.52	6.62	0.01
Heptachlor epoxide	7.01	7.01	6.94	7.08	0.00
Endosulfan I	7.43	7.43	7.36	7.50	0.00
Dieldrin	7.73	7.73	7.66	7.80	0.00
4,4-DDE	7.52	7.52	7.45	7.59	0.00
Endrin	7.98	7.98	7.91	8.05	0.00
Endosulfan II	8.22	8.21	8.14	8.28	-0.01
4,4-DDD	8.08	8.08	8.01	8.15	0.00
Endosulfan sulfate	8.62	8.62	8.55	8.69	0.00
4,4-DDT	8.43	8.43	8.36	8.50	0.00
Methoxychlor	8.96	8.96	8.89	9.03	0.00
Endrin ketone	9.24	9.24	9.17	9.31	0.00
Endrin aldehyde	8.36	8.36	8.29	8.43	0.00
alpha-Chlordane	7.37	7.37	7.30	7.44	0.00
gamma-Chlordane	7.28	7.28	7.21	7.35	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003761.D **Time Analyzed:** 04:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.238	5.190	5.290	0.022	0.025	12.0
beta-BHC	5.768	5.720	5.820	0.024	0.025	4.0
delta-BHC	6.032	5.980	6.080	0.024	0.025	4.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.023	0.025	8.0
Heptachlor	6.198	6.150	6.250	0.023	0.025	8.0
Aldrin	6.564	6.520	6.620	0.024	0.025	4.0
Heptachlor epoxide	7.010	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.433	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.727	7.660	7.800	0.024	0.025	4.0
4,4-DDE	7.522	7.450	7.590	0.024	0.025	4.0
Endrin	7.984	7.910	8.050	0.020	0.025	20.0
Endosulfan II	8.215	8.140	8.280	0.025	0.025	0.0
4,4-DDD	8.082	8.010	8.150	0.024	0.025	4.0
Endosulfan sulfate	8.617	8.550	8.690	0.025	0.025	0.0
4,4-DDT	8.428	8.360	8.500	0.020	0.025	20.0
Methoxychlor	8.961	8.890	9.030	0.021	0.025	16.0
Endrin ketone	9.237	9.170	9.310	0.032	0.025	28.0
Endrin aldehyde	8.357	8.290	8.430	0.026	0.025	4.0
alpha-Chlordane	7.368	7.300	7.440	0.025	0.025	0.0
gamma-Chlordane	7.282	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.369	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.770	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL06 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003767.D **Time Analyzed:** 06:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.239	5.190	5.290	0.022	0.025	12.0
beta-BHC	5.768	5.720	5.820	0.023	0.025	8.0
delta-BHC	6.033	5.980	6.080	0.025	0.025	0.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.023	0.025	8.0
Heptachlor	6.199	6.150	6.250	0.022	0.025	12.0
Aldrin	6.566	6.520	6.620	0.023	0.025	8.0
Heptachlor epoxide	7.011	6.940	7.080	0.024	0.025	4.0
Endosulfan I	7.433	7.360	7.500	0.024	0.025	4.0
Dieldrin	7.728	7.660	7.800	0.023	0.025	8.0
4,4-DDE	7.523	7.450	7.590	0.024	0.025	4.0
Endrin	7.985	7.910	8.050	0.020	0.025	20.0
Endosulfan II	8.215	8.140	8.280	0.025	0.025	0.0
4,4-DDD	8.082	8.010	8.150	0.022	0.025	12.0
Endosulfan sulfate	8.617	8.550	8.690	0.025	0.025	0.0
4,4-DDT	8.428	8.360	8.500	0.019	0.025	24.0
Methoxychlor	8.962	8.890	9.030	0.020	0.025	20.0
Endrin ketone	9.237	9.170	9.310	0.032	0.025	28.0
Endrin aldehyde	8.356	8.290	8.430	0.025	0.025	0.0
alpha-Chlordane	7.368	7.300	7.440	0.024	0.025	4.0
gamma-Chlordane	7.284	7.210	7.350	0.024	0.025	4.0
Decachlorobiphenyl	11.369	11.270	11.470	0.025	0.025	0.0
Tetrachloro-m-xylene	4.770	4.670	4.870	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL07 **Date Analyzed:** 01/09/2012

Lab Sample No.: STD 25 **Data File :** PG003776.D **Time Analyzed:** 17:46

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.238	5.190	5.290	0.023	0.025	8.0
beta-BHC	5.767	5.720	5.820	0.027	0.025	8.0
delta-BHC	6.032	5.980	6.080	0.020	0.025	20.0
gamma-BHC (Lindane)	5.581	5.530	5.630	0.024	0.025	4.0
Heptachlor	6.200	6.150	6.250	0.026	0.025	4.0
Aldrin	6.565	6.520	6.620	0.027	0.025	8.0
Heptachlor epoxide	7.011	6.940	7.080	0.028	0.025	12.0
Endosulfan I	7.433	7.360	7.500	0.028	0.025	12.0
Dieldrin	7.727	7.660	7.800	0.027	0.025	8.0
4,4-DDE	7.522	7.450	7.590	0.029	0.025	16.0
Endrin	7.984	7.910	8.050	0.027	0.025	8.0
Endosulfan II	8.215	8.140	8.280	0.027	0.025	8.0
4,4-DDD	8.081	8.010	8.150	0.027	0.025	8.0
Endosulfan sulfate	8.624	8.550	8.690	0.022	0.025	12.0
4,4-DDT	8.428	8.360	8.500	0.024	0.025	4.0
Methoxychlor	8.963	8.890	9.030	0.027	0.025	8.0
Endrin ketone	9.238	9.170	9.310	0.023	0.025	8.0
Endrin aldehyde	8.356	8.290	8.430	0.029	0.025	16.0
alpha-Chlordane	7.368	7.300	7.440	0.028	0.025	12.0
gamma-Chlordane	7.282	7.210	7.350	0.028	0.025	12.0
Decachlorobiphenyl	11.368	11.270	11.470	0.030	0.025	20.0
Tetrachloro-m-xylene	4.769	4.670	4.870	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL08 **Date Analyzed:** 01/09/2012

Lab Sample No.: STD 25 **Data File :** PG003784.D **Time Analyzed:** 20:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	5.237	5.190	5.290	0.024	0.025	4.0
beta-BHC	5.767	5.720	5.820	0.026	0.025	4.0
delta-BHC	6.031	5.980	6.080	0.022	0.025	12.0
gamma-BHC (Lindane)	5.580	5.530	5.630	0.024	0.025	4.0
Heptachlor	6.199	6.150	6.250	0.028	0.025	12.0
Aldrin	6.565	6.520	6.620	0.027	0.025	8.0
Heptachlor epoxide	7.010	6.940	7.080	0.028	0.025	12.0
Endosulfan I	7.432	7.360	7.500	0.028	0.025	12.0
Dieldrin	7.726	7.660	7.800	0.027	0.025	8.0
4,4-DDE	7.521	7.450	7.590	0.029	0.025	16.0
Endrin	7.983	7.910	8.050	0.026	0.025	4.0
Endosulfan II	8.215	8.140	8.280	0.028	0.025	12.0
4,4-DDD	8.081	8.010	8.150	0.027	0.025	8.0
Endosulfan sulfate	8.621	8.550	8.690	0.021	0.025	16.0
4,4-DDT	8.427	8.360	8.500	0.023	0.025	8.0
Methoxychlor	8.962	8.890	9.030	0.025	0.025	0.0
Endrin ketone	9.237	9.170	9.310	0.025	0.025	0.0
Endrin aldehyde	8.356	8.290	8.430	0.028	0.025	12.0
alpha-Chlordane	7.367	7.300	7.440	0.028	0.025	12.0
gamma-Chlordane	7.281	7.210	7.350	0.028	0.025	12.0
Decachlorobiphenyl	11.367	11.270	11.470	0.029	0.025	16.0
Tetrachloro-m-xylene	4.768	4.670	4.870	0.029	0.025	16.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_G

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 01/06/2012 01/06/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK07	I.BLK07	01/06/2012	16:52	PG003722.D	9.73	4.07
PEM04	PEM04	01/06/2012	17:10	PG003723.D	9.73	4.07
RESC01	RESCHK	01/06/2012	17:29	PG003724.D	9.73	4.07
100 PPB PEST STD	100 PPB PEST STD	01/06/2012	17:47	PG003725.D	9.73	4.07
75 PPB PEST STD	75 PPB PEST STD	01/06/2012	18:05	PG003726.D	9.73	4.07
50 PPB PEST STD	50 PPB PEST STD	01/06/2012	18:24	PG003727.D	9.73	4.07
25 PPB PEST STD	25 PPB PEST STD	01/06/2012	18:42	PG003728.D	9.73	4.07
5 PPB PEST STD	5 PPB PEST STD	01/06/2012	19:00	PG003729.D	9.73	4.07
TOX 500	TOX	01/06/2012	19:37	PG003731.D	9.73	4.07
CHLOR 500	CHLOR 500	01/06/2012	19:55	PG003732.D	9.73	4.07
PEM05	PEM05	01/06/2012	21:27	PG003737.D	9.73	4.07
PIBLK08	I.BLK08	01/07/2012	04:27	PG003760.D	9.73	4.07
CCAL05	STD 25	01/07/2012	04:45	PG003761.D	9.73	4.07
12SB57-000.5-01	C5164-13	01/07/2012	05:03	PG003762.D	9.73	4.07
12SB58-000.5-01	C5164-14	01/07/2012	05:22	PG003763.D	9.73	4.07
12SB59-000.5-01	C5164-15	01/07/2012	05:40	PG003764.D	9.73	4.07
12SB-DUP01-122911	C5164-20	01/07/2012	05:58	PG003765.D	9.73	4.07
PIBLK09	I.BLK09	01/07/2012	06:17	PG003766.D	9.73	4.07
CCAL06	STD 25	01/07/2012	06:35	PG003767.D	9.73	4.07
PEM6	PEM6	01/09/2012	14:02	PG003770.D	9.73	4.07
PIBLK10	I.BLK10	01/09/2012	17:27	PG003775.D	9.73	4.07
CCAL07	STD 25	01/09/2012	17:46	PG003776.D	9.73	4.07
12SB57-000.5-01RE	C5164-13RE	01/09/2012	18:42	PG003779.D	9.73	4.07
12SB58-000.5-01RE	C5164-14RE	01/09/2012	19:01	PG003780.D	9.73	4.07
12SB59-000.5-01RE	C5164-15RE	01/09/2012	19:19	PG003781.D	9.73	4.07
12SB-DUP01-122911RE	C5164-20RE	01/09/2012	19:38	PG003782.D	9.73	4.07
PIBLK11	I.BLK11	01/09/2012	19:56	PG003783.D	9.73	4.07
CCAL08	STD 25	01/09/2012	20:14	PG003784.D	9.73	4.07

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003729.D CF 025 = PG003728.D

CF 050 = PG003727.D CF 075 = PG003726.D CF 100 = PG003725.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3469080	2616744	2665356	2543540	2469922	2752928	15
Tetrachloro-m-xylene	2962380	2577744	2404358	2238951	2192933	2475273	13
alpha-BHC	36725000	36173720	35325700	33753920	33487680	35093204	4
beta-BHC	18551000	17116000	16209960	15123187	14817940	16363617	9
delta-BHC	30943800	31082720	30642540	29171013	28769590	30121933	4
gamma-BHC (Lindane)	38024600	35897880	34660600	32849853	32670030	34820593	6
Heptachlor	36212400	33307960	31961740	29662453	29017590	32032429	9
Aldrin	35154600	33201000	32125800	30001560	29294340	31955460	7
Heptachlor epoxide	36601000	31857560	30268980	28540080	27202690	30894062	12
Endosulfan I	32357400	29196280	28069360	26047707	25330100	28200169	10
Dieldrin	34786000	31076640	29944560	27919933	27202010	30185829	10
4,4-DDE	34756200	30856160	30099680	28247133	27528810	30297597	9
Endrin	19400800	19419800	19328140	18294240	17995890	18887774	4
Endosulfan II	31454400	23929760	25706100	23975080	23510600	25715188	13
4,4-DDD	24250400	22376640	22696360	21483147	21126720	22386653	5
Endosulfan sulfate	27241600	20657920	22974880	21608507	21237130	22744007	12
4,4-DDT	25195600	20752840	24066020	22694120	22382800	23018276	7
Methoxychlor	12861800	9920360	10600500	10726653	10710710	10964005	10
Endrin ketone	23684000	15168080	21385740	19845160	19229340	19862464	16
Endrin aldehyde	27841000	21142320	22304880	20619373	20016180	22384751	14
alpha-Chlordane	36536000	31924000	30932680	29226440	28655870	31454998	10
gamma-Chlordane	36453800	32321400	30839840	29528440	28958720	31620440	9

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PG003729.D RT 025 = PG003728.D

RT 050 = PG003727.D RT 075 = PG003726.D RT 100 = PG003725.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	9.73	9.73	9.73	9.73	9.73	9.73	9.63	9.83
Tetrachloro-m-xylene	4.07	4.07	4.07	4.07	4.07	4.07	3.97	4.17
alpha-BHC	4.60	4.60	4.60	4.60	4.60	4.60	4.55	4.65
beta-BHC	5.22	5.22	5.22	5.22	5.22	5.22	5.17	5.27
delta-BHC	5.47	5.47	5.47	5.47	5.47	5.47	5.42	5.52
gamma-BHC (Lindane)	4.94	4.94	4.94	4.94	4.94	4.94	4.89	4.99
Heptachlor	5.29	5.29	5.29	5.29	5.29	5.29	5.24	5.34
Aldrin	5.59	5.59	5.59	5.59	5.59	5.59	5.54	5.64
Heptachlor epoxide	6.11	6.11	6.11	6.11	6.10	6.11	6.04	6.18
Endosulfan I	6.51	6.51	6.51	6.51	6.51	6.51	6.44	6.58
Dieldrin	6.79	6.79	6.79	6.79	6.79	6.79	6.72	6.86
4,4-DDE	6.60	6.60	6.60	6.60	6.60	6.60	6.53	6.67
Endrin	7.09	7.09	7.09	7.09	7.09	7.09	7.02	7.16
Endosulfan II	7.40	7.40	7.40	7.39	7.39	7.40	7.33	7.47
4,4-DDD	7.19	7.19	7.19	7.19	7.19	7.19	7.12	7.26
Endosulfan sulfate	7.82	7.82	7.82	7.82	7.82	7.82	7.75	7.89
4,4-DDT	7.47	7.47	7.47	7.47	7.47	7.47	7.40	7.54
Methoxychlor	8.07	8.07	8.07	8.06	8.07	8.07	8.00	8.14
Endrin ketone	8.41	8.41	8.41	8.41	8.41	8.41	8.34	8.48
Endrin aldehyde	7.59	7.59	7.59	7.58	7.58	7.59	7.52	7.66
alpha-Chlordane	6.44	6.43	6.43	6.43	6.43	6.43	6.36	6.50
gamma-Chlordane	6.37	6.36	6.36	6.36	6.36	6.36	6.29	6.43

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Date(s) Analyzed:** 01/06/2012 01/06/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.18	6.13	6.23	125872
		2	7.71	7.66	7.76	2348998
		3	8.01	7.96	8.06	1188082
		4	8.13	8.08	8.18	1027776
		5	8.28	8.23	8.33	1981502

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/07/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 04:45 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.01
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.82	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.00
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.43	6.43	6.36	6.50	0.00
gamma-Chlordane	6.37	6.36	6.29	6.43	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/07/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 06:35 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.00
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.82	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.01
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.44	6.43	6.36	6.50	-0.01
gamma-Chlordane	6.37	6.36	6.29	6.43	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/09/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 17:46 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.01
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.82	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.00
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.43	6.43	6.36	6.50	0.00
gamma-Chlordane	6.37	6.36	6.29	6.43	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/09/2012 **Initial Calibration Date(s):** 01/06/2012 01/06/2012

Continuing Calib Time: 20:14 **Initial Calibration Time(s):** 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	9.73	9.73	9.63	9.83	0.00
Tetrachloro-m-xylene	4.07	4.07	3.97	4.17	0.01
alpha-BHC	4.60	4.60	4.55	4.65	0.00
beta-BHC	5.22	5.22	5.17	5.27	0.00
delta-BHC	5.47	5.47	5.42	5.52	0.00
gamma-BHC (Lindane)	4.94	4.94	4.89	4.99	0.00
Heptachlor	5.29	5.29	5.24	5.34	0.00
Aldrin	5.59	5.59	5.54	5.64	0.00
Heptachlor epoxide	6.11	6.11	6.04	6.18	0.00
Endosulfan I	6.51	6.51	6.44	6.58	0.00
Dieldrin	6.79	6.79	6.72	6.86	0.00
4,4-DDE	6.60	6.60	6.53	6.67	0.00
Endrin	7.09	7.09	7.02	7.16	0.00
Endosulfan II	7.40	7.40	7.33	7.47	0.00
4,4-DDD	7.19	7.19	7.12	7.26	0.00
Endosulfan sulfate	7.82	7.82	7.75	7.89	0.00
4,4-DDT	7.47	7.47	7.40	7.54	0.00
Methoxychlor	8.07	8.07	8.00	8.14	0.00
Endrin ketone	8.41	8.41	8.34	8.48	0.00
Endrin aldehyde	7.59	7.59	7.52	7.66	0.00
alpha-Chlordane	6.43	6.43	6.36	6.50	0.00
gamma-Chlordane	6.37	6.36	6.29	6.43	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL05 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003761.D **Time Analyzed:** 04:45

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.025	0.025	0.0
beta-BHC	5.217	5.170	5.270	0.025	0.025	0.0
delta-BHC	5.470	5.420	5.520	0.026	0.025	4.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.025	0.025	0.0
Heptachlor	5.293	5.240	5.340	0.023	0.025	8.0
Aldrin	5.592	5.540	5.640	0.024	0.025	4.0
Heptachlor epoxide	6.106	6.040	6.180	0.024	0.025	4.0
Endosulfan I	6.508	6.440	6.580	0.025	0.025	0.0
Dieldrin	6.789	6.720	6.860	0.024	0.025	4.0
4,4-DDE	6.602	6.530	6.670	0.023	0.025	8.0
Endrin	7.093	7.020	7.160	0.022	0.025	12.0
Endosulfan II	7.397	7.330	7.470	0.026	0.025	4.0
4,4-DDD	7.189	7.120	7.260	0.024	0.025	4.0
Endosulfan sulfate	7.824	7.750	7.890	0.026	0.025	4.0
4,4-DDT	7.467	7.400	7.540	0.022	0.025	12.0
Methoxychlor	8.066	8.000	8.140	0.023	0.025	8.0
Endrin ketone	8.408	8.340	8.480	0.036	0.025	44.0
Endrin aldehyde	7.587	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.434	6.360	6.500	0.024	0.025	4.0
gamma-Chlordane	6.365	6.290	6.430	0.024	0.025	4.0
Decachlorobiphenyl	9.731	9.630	9.830	0.027	0.025	8.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL06 **Date Analyzed:** 01/07/2012

Lab Sample No.: STD 25 **Data File :** PG003767.D **Time Analyzed:** 06:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.597	4.550	4.650	0.024	0.025	4.0
beta-BHC	5.218	5.170	5.270	0.024	0.025	4.0
delta-BHC	5.470	5.420	5.520	0.026	0.025	4.0
gamma-BHC (Lindane)	4.937	4.890	4.990	0.024	0.025	4.0
Heptachlor	5.294	5.240	5.340	0.022	0.025	12.0
Aldrin	5.593	5.540	5.640	0.023	0.025	8.0
Heptachlor epoxide	6.108	6.040	6.180	0.023	0.025	8.0
Endosulfan I	6.510	6.440	6.580	0.024	0.025	4.0
Dieldrin	6.789	6.720	6.860	0.023	0.025	8.0
4,4-DDE	6.601	6.530	6.670	0.023	0.025	8.0
Endrin	7.093	7.020	7.160	0.023	0.025	8.0
Endosulfan II	7.397	7.330	7.470	0.023	0.025	8.0
4,4-DDD	7.189	7.120	7.260	0.023	0.025	8.0
Endosulfan sulfate	7.824	7.750	7.890	0.024	0.025	4.0
4,4-DDT	7.466	7.400	7.540	0.019	0.025	24.0
Methoxychlor	8.065	8.000	8.140	0.021	0.025	16.0
Endrin ketone	8.408	8.340	8.480	0.033	0.025	32.0
Endrin aldehyde	7.587	7.520	7.660	0.024	0.025	4.0
alpha-Chlordane	6.435	6.360	6.500	0.023	0.025	8.0
gamma-Chlordane	6.366	6.290	6.430	0.023	0.025	8.0
Decachlorobiphenyl	9.730	9.630	9.830	0.024	0.025	4.0
Tetrachloro-m-xylene	4.066	3.970	4.170	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL07 **Date Analyzed:** 01/09/2012

Lab Sample No.: STD 25 **Data File :** PG003776.D **Time Analyzed:** 17:46

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.026	0.025	4.0
beta-BHC	5.217	5.170	5.270	0.028	0.025	12.0
delta-BHC	5.468	5.420	5.520	0.021	0.025	16.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.027	0.025	8.0
Heptachlor	5.293	5.240	5.340	0.026	0.025	4.0
Aldrin	5.592	5.540	5.640	0.029	0.025	16.0
Heptachlor epoxide	6.106	6.040	6.180	0.029	0.025	16.0
Endosulfan I	6.509	6.440	6.580	0.029	0.025	16.0
Dieldrin	6.788	6.720	6.860	0.029	0.025	16.0
4,4-DDE	6.600	6.530	6.670	0.030	0.025	20.0
Endrin	7.092	7.020	7.160	0.029	0.025	16.0
Endosulfan II	7.397	7.330	7.470	0.029	0.025	16.0
4,4-DDD	7.190	7.120	7.260	0.028	0.025	12.0
Endosulfan sulfate	7.818	7.750	7.890	0.023	0.025	8.0
4,4-DDT	7.467	7.400	7.540	0.026	0.025	4.0
Methoxychlor	8.067	8.000	8.140	0.028	0.025	12.0
Endrin ketone	8.408	8.340	8.480	0.028	0.025	12.0
Endrin aldehyde	7.587	7.520	7.660	0.029	0.025	16.0
alpha-Chlordane	6.434	6.360	6.500	0.028	0.025	12.0
gamma-Chlordane	6.366	6.290	6.430	0.028	0.025	12.0
Decachlorobiphenyl	9.729	9.630	9.830	0.031	0.025	24.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 01/06/2012 01/06/2012

Client Sample No.: CCAL08 **Date Analyzed:** 01/09/2012

Lab Sample No.: STD 25 **Data File :** PG003784.D **Time Analyzed:** 20:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.596	4.550	4.650	0.026	0.025	4.0
beta-BHC	5.217	5.170	5.270	0.027	0.025	8.0
delta-BHC	5.469	5.420	5.520	0.021	0.025	16.0
gamma-BHC (Lindane)	4.936	4.890	4.990	0.027	0.025	8.0
Heptachlor	5.293	5.240	5.340	0.024	0.025	4.0
Aldrin	5.592	5.540	5.640	0.028	0.025	12.0
Heptachlor epoxide	6.106	6.040	6.180	0.027	0.025	8.0
Endosulfan I	6.508	6.440	6.580	0.028	0.025	12.0
Dieldrin	6.787	6.720	6.860	0.027	0.025	8.0
4,4-DDE	6.599	6.530	6.670	0.028	0.025	12.0
Endrin	7.091	7.020	7.160	0.027	0.025	8.0
Endosulfan II	7.397	7.330	7.470	0.027	0.025	8.0
4,4-DDD	7.190	7.120	7.260	0.028	0.025	12.0
Endosulfan sulfate	7.821	7.750	7.890	0.021	0.025	16.0
4,4-DDT	7.466	7.400	7.540	0.023	0.025	8.0
Methoxychlor	8.066	8.000	8.140	0.025	0.025	0.0
Endrin ketone	8.408	8.340	8.480	0.027	0.025	8.0
Endrin aldehyde	7.586	7.520	7.660	0.027	0.025	8.0
alpha-Chlordane	6.434	6.360	6.500	0.027	0.025	8.0
gamma-Chlordane	6.365	6.290	6.430	0.027	0.025	8.0
Decachlorobiphenyl	9.729	9.630	9.830	0.030	0.025	20.0
Tetrachloro-m-xylene	4.065	3.970	4.170	0.028	0.025	12.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60327BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: PB60327BL Lab File ID: PG003693.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 12/30/2011

Date Analyzed (1): 01/04/2012 Date Analyzed (2): 01/04/2012

Time Analyzed (1): 22:00 Time Analyzed (2): 22:00

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column (1): ZB-MR1 ID: 0.32 (mm) GC Column (2): ZB-MR2 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60327BS	PB60327BS	PG003694.D	01/04/2012	01/04/2012
12SB28-000.5-01	C5164-02	PG003695.D	01/04/2012	01/04/2012
12SB28-000.5-01MS	C5164-02MS	PG003696.D	01/04/2012	01/04/2012
12SB28-000.5-01MSD	C5164-02MSD	PG003697.D	01/04/2012	01/04/2012
12SB57-000.5-01	C5164-13	PG003762.D	01/07/2012	01/07/2012
12SB58-000.5-01	C5164-14	PG003763.D	01/07/2012	01/07/2012
12SB59-000.5-01	C5164-15	PG003764.D	01/07/2012	01/07/2012
12SB-DUP01-122911	C5164-20	PG003765.D	01/07/2012	01/07/2012

COMMENTS:

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60330BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: PB60330BL Lab File ID: PG003629.D

Matrix: (soil/water) WATER Extraction: (Type) SEPF

Sulfur Cleanup: (Y/N) N Date Extracted: 12/30/2011

Date Analyzed (1): 12/30/2011 Date Analyzed (2): 12/30/2011

Time Analyzed (1): 19:47 Time Analyzed (2): 19:47

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column (1): ZB-MR1 ID: 0.32 (mm) GC Column (2): ZB-MR2 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60330BS	PB60330BS	PG003630.D	12/30/2011	12/30/2011
PB60330BSD	PB60330BSD	PG003631.D	12/30/2011	12/30/2011
RB-01-122911	C5164-23	PG003635.D	12/30/2011	12/30/2011

COMMENTS:

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60327BL	SDG No.:	C5164
Lab Sample ID:	PB60327BL	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.01 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003693.D	1	12/30/11	01/04/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.85	U	0.13	1.7	ug/Kg
319-85-7	beta-BHC	0.85	U	0.18	1.7	ug/Kg
319-86-8	delta-BHC	0.85	U	0.1	1.7	ug/Kg
58-89-9	gamma-BHC	0.85	U	0.15	1.7	ug/Kg
76-44-8	Heptachlor	0.85	U	0.14	1.7	ug/Kg
309-00-2	Aldrin	0.85	U	0.1	1.7	ug/Kg
1024-57-3	Heptachlor epoxide	0.85	U	0.16	1.7	ug/Kg
959-98-8	Endosulfan I	0.85	U	0.15	1.7	ug/Kg
60-57-1	Dieldrin	0.85	U	0.13	1.7	ug/Kg
72-55-9	4,4-DDE	0.85	U	0.2	1.7	ug/Kg
72-20-8	Endrin	0.85	U	0.18	1.7	ug/Kg
33213-65-9	Endosulfan II	0.85	U	0.14	1.7	ug/Kg
72-54-8	4,4-DDD	0.85	U	0.17	1.7	ug/Kg
1031-07-8	Endosulfan Sulfate	0.85	U	0.15	1.7	ug/Kg
50-29-3	4,4-DDT	0.85	U	0.14	1.7	ug/Kg
72-43-5	Methoxychlor	0.85	U	0.17	1.7	ug/Kg
53494-70-5	Endrin ketone	0.85	U	0.13	1.7	ug/Kg
7421-93-4	Endrin aldehyde	0.85	U	0.15	1.7	ug/Kg
5103-71-9	alpha-Chlordane	0.85	U	0.14	1.7	ug/Kg
5103-74-2	gamma-Chlordane	0.85	U	0.13	1.7	ug/Kg
8001-35-2	Toxaphene	8.5	U	9.8	17	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	21.4		55 - 130	107%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		70 - 125	96%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60330BL	SDG No.:	C5164
Lab Sample ID:	PB60330BL	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003629.D	1	12/30/11	12/30/11	PB60330

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.6		30 - 135	103%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.5		25 - 140	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/29/11
Client Sample ID:	PIBLK-PG003560.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003560.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003560.D	1		12/29/11	PG122911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.7		10 - 192	99%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.8		10 - 172	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/30/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	PIBLK-PG003627.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003627.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003627.D	1		12/30/11	PG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.8		10 - 192	99%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.3		10 - 172	96%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/30/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	PIBLK-PG003636.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003636.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003636.D	1		12/30/11	PG123011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.6		10 - 192	103%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		10 - 172	96%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PG003676.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003676.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003676.D	1		01/04/12	PG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.5		10 - 192	102%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19		10 - 172	95%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PG003689.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003689.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003689.D	1		01/04/12	PG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.5		10 - 192	102%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.4		10 - 172	92%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/05/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	PIBLK-PG003701.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003701.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003701.D	1		01/05/12	PG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.4		10 - 192	97%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.2		10 - 172	91%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/06/12
Client Sample ID:	PIBLK-PG003722.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003722.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003722.D	1		01/06/12	PG010612

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.6		10 - 192	103%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.2		10 - 172	96%	SPK: 20

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* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/07/12
Client Sample ID:	PIBLK-PG003760.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003760.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003760.D	1		01/07/12	PG010612

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.8		10 - 192	104%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.8		10 - 172	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/07/12
Client Sample ID:	PIBLK-PG003766.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003766.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003766.D	1		01/07/12	PG010612

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20		10 - 192	100%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.1		10 - 172	95%	SPK: 20

U = Not Detected
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LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/09/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/09/12
Client Sample ID:	PIBLK-PG003775.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003775.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003775.D	1		01/09/12	PG010912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	20.4		10 - 192	102%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.2		10 - 172	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/09/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/09/12
Client Sample ID:	PIBLK-PG003783.D	SDG No.:	C5164
Lab Sample ID:	I.BLK-PG003783.D	Matrix:	WATER
Analytical Method:	SW8081A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003783.D	1		01/09/12	PG010912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	0.025	U	0.0051	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.5	ug/L
SURROGATES						
2051-24-3	Decachlorobiphenyl	19.8		10 - 192	99%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.5		10 - 172	92%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG010412\
Data File : PG003678.D
Acq On : 4 Jan 2012 17:19
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG010412.M
Title : GC Extractables
Last Update : Thu Jan 05 04:44:06 2012
Integrator: ChemStation

RT#1	RT#2	Resolution
4.771	7.285	100.00%
7.285	7.435	100.00%
7.435	7.525	98.04%
7.525	7.729	100.00%
7.729	8.619	100.00%
8.619	8.964	100.00%
8.964	9.239	100.00%
9.239	11.371	100.00%

Signal #2

4.066	6.367	100.00%
6.367	6.510	99.74%
6.510	6.602	99.71%
6.602	6.790	100.00%
6.790	7.825	100.00%
7.825	8.068	100.00%
8.068	8.409	100.00%
8.409	9.733	100.00%

G010412.M Thu Jan 05 05:09:21 2012 GC/MS

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_G\Data\PG010612\
Data File : PG003724.D
Acq On : 6 Jan 2012 17:29
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_G\Method\PG010612.M
Title : GC Extractables
Last Update : Sat Jan 07 07:26:32 2012
Integrator: ChemStation

RT#1	RT#2	Resolution
4.770	7.283	100.00%
7.283	7.433	99.91%
7.433	7.522	97.46%
7.522	7.727	100.00%
7.727	8.619	100.00%
8.619	8.962	100.00%
8.962	9.237	100.00%
9.237	11.369	100.00%

;ignal #2

4.065	6.365	100.00%
6.365	6.509	100.00%
6.509	6.601	100.00%
6.601	6.789	100.00%
6.789	7.823	100.00%
7.823	8.067	100.00%
8.067	8.408	100.00%
8.408	9.730	100.00%

;010612.M Sat Jan 07 07:58:53 2012 GC/MS

CHEMTECH

Surrogate Summary

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PG003560.D	PIBLK-PG003560.D	Decachlorobiphenyl	1	20	19.73	99		10	192
		Tetrachloro-m-xylene	1	20	18.8	94		10	172
		Decachlorobiphenyl	2	20	21.32	107		10	192
		Tetrachloro-m-xylene	2	20	24.26	121		10	172
I.BLK-PG003627.D	PIBLK-PG003627.D	Decachlorobiphenyl	1	20	19.82	99		10	192
		Tetrachloro-m-xylene	1	20	19.27	96		10	172
		Decachlorobiphenyl	2	20	20.66	103		10	192
		Tetrachloro-m-xylene	2	20	22.77	114		10	172
PB60330BL	PB60330BL	Decachlorobiphenyl	1	20	20.61	103		30	135
		Tetrachloro-m-xylene	1	20	19.52	98		25	140
		Decachlorobiphenyl	2	20	21.96	110		30	135
		Tetrachloro-m-xylene	2	20	23.12	116		25	140
PB60330BS	PB60330BS	Decachlorobiphenyl	1	20	20.91	105		30	135
		Tetrachloro-m-xylene	1	20	20.05	100		25	140
		Decachlorobiphenyl	2	20	22.4	112		30	135
		Tetrachloro-m-xylene	2	20	24.1	121		25	140
PB60330BSD	PB60330BSD	Decachlorobiphenyl	1	20	20.85	104		30	135
		Tetrachloro-m-xylene	1	20	20.05	100		25	140
		Decachlorobiphenyl	2	20	22.31	112		30	135
		Tetrachloro-m-xylene	2	20	21.69	108		25	140
C5164-23	RB-01-122911	Decachlorobiphenyl	1	20	19.66	98		30	135
		Tetrachloro-m-xylene	1	20	19.59	98		25	140
		Decachlorobiphenyl	2	20	21	105		30	135
		Tetrachloro-m-xylene	2	20	22.47	112		25	140
I.BLK-PG003636.D	PIBLK-PG003636.D	Decachlorobiphenyl	1	20	20.64	103		10	192
		Tetrachloro-m-xylene	1	20	19.18	96		10	172
		Decachlorobiphenyl	2	20	22.27	111		10	192
		Tetrachloro-m-xylene	2	20	22.96	115		10	172
I.BLK-PG003676.D	PIBLK-PG003676.D	Decachlorobiphenyl	1	20	20.49	102		10	192
		Tetrachloro-m-xylene	1	20	18.95	95		10	172
		Decachlorobiphenyl	2	20	21.94	110		10	192
		Tetrachloro-m-xylene	2	20	21.53	108		10	172
I.BLK-PG003689.D	PIBLK-PG003689.D	Decachlorobiphenyl	1	20	20.46	102		10	192
		Tetrachloro-m-xylene	1	20	18.4	92		10	172
		Decachlorobiphenyl	2	20	21.48	107		10	192
		Tetrachloro-m-xylene	2	20	20.85	104		10	172
PB60327BL	PB60327BL	Decachlorobiphenyl	1	20	21.38	107		55	130
		Tetrachloro-m-xylene	1	20	19.25	96		70	125
		Decachlorobiphenyl	2	20	22.33	112		55	130
		Tetrachloro-m-xylene	2	20	21.5	108		70	125
PB60327BS	PB60327BS	Decachlorobiphenyl	1	20	21.13	106		55	130
		Tetrachloro-m-xylene	1	20	19.8	99		70	125
		Decachlorobiphenyl	2	20	22.38	112		55	130
		Tetrachloro-m-xylene	2	20	21.54	108		70	125

CHEMTECH

Surrogate Summary

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5164-02	12SB28-000.5-01	Decachlorobiphenyl	1	20	16.76	84		55	130
		Tetrachloro-m-xylene	1	20	18.09	90		70	125
		Decachlorobiphenyl	2	20	18.05	90		55	130
		Tetrachloro-m-xylene	2	20	19.24	96		70	125
C5164-02MS	12SB28-000.5-01MS	Decachlorobiphenyl	1	20	17.04	85		55	130
		Tetrachloro-m-xylene	1	20	18.6	93		70	125
		Decachlorobiphenyl	2	20	16.76	84		55	130
		Tetrachloro-m-xylene	2	20	23.03	115		70	125
C5164-02MSD	12SB28-000.5-01MSD	Decachlorobiphenyl	1	20	17.73	89		55	130
		Tetrachloro-m-xylene	1	20	18.71	94		70	125
		Decachlorobiphenyl	2	20	18.67	93		55	130
		Tetrachloro-m-xylene	2	20	23.24	116		70	125
I.BLK-PG003701.D	PIBLK-PG003701.D	Decachlorobiphenyl	1	20	19.38	97		10	192
		Tetrachloro-m-xylene	1	20	18.22	91		10	172
		Decachlorobiphenyl	2	20	19.86	99		10	192
		Tetrachloro-m-xylene	2	20	20.42	102		10	172
I.BLK-PG003722.D	PIBLK-PG003722.D	Decachlorobiphenyl	1	20	20.59	103		10	192
		Tetrachloro-m-xylene	1	20	19.23	96		10	172
		Decachlorobiphenyl	2	20	18.23	91		10	192
		Tetrachloro-m-xylene	2	20	22.48	112		10	172
I.BLK-PG003760.D	PIBLK-PG003760.D	Decachlorobiphenyl	1	20	20.77	104		10	192
		Tetrachloro-m-xylene	1	20	18.85	94		10	172
		Decachlorobiphenyl	2	20	21.34	107		10	192
		Tetrachloro-m-xylene	2	20	20.35	102		10	172
C5164-13	12SB57-000.5-01	Decachlorobiphenyl	1	20	8.65	43	*	55	130
		Tetrachloro-m-xylene	1	20	12.4	62	*	70	125
		Decachlorobiphenyl	2	20	9.01	45	*	55	130
		Tetrachloro-m-xylene	2	20	11.43	57	*	70	125
C5164-14	12SB58-000.5-01	Decachlorobiphenyl	1	20	16.91	85		55	130
		Tetrachloro-m-xylene	1	20	17.58	88		70	125
		Decachlorobiphenyl	2	20	17.03	85		55	130
		Tetrachloro-m-xylene	2	20	18.04	90		70	125
C5164-15	12SB59-000.5-01	Decachlorobiphenyl	1	20	18.97	95		55	130
		Tetrachloro-m-xylene	1	20	18.09	90		70	125
		Decachlorobiphenyl	2	20	14.04	70		55	130
		Tetrachloro-m-xylene	2	20	18.16	91		70	125
C5164-20	12SB-DUP01-122911	Decachlorobiphenyl	1	20	17.44	87		55	130
		Tetrachloro-m-xylene	1	20	17.98	90		70	125
		Decachlorobiphenyl	2	20	16.33	82		55	130
		Tetrachloro-m-xylene	2	20	18.66	93		70	125
I.BLK-PG003766.D	PIBLK-PG003766.D	Decachlorobiphenyl	1	20	19.97	100		10	192
		Tetrachloro-m-xylene	1	20	19.07	95		10	172
		Decachlorobiphenyl	2	20	19.27	96		10	192
		Tetrachloro-m-xylene	2	20	20.68	103		10	172

CHEMTECH

Surrogate Summary

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PG003775.D	PIBLK-PG003775.D	Decachlorobiphenyl	1	20	20.45	102		10	192
		Tetrachloro-m-xylene	1	20	18.15	91		10	172
		Decachlorobiphenyl	2	20	21.96	110		10	192
		Tetrachloro-m-xylene	2	20	20.61	103		10	172
C5164-13RE	12SB57-000.5-01RE	Decachlorobiphenyl	1	20	8.82	44	*	55	130
		Tetrachloro-m-xylene	1	20	11.72	59	*	70	125
		Decachlorobiphenyl	2	20	9.29	46	*	55	130
		Tetrachloro-m-xylene	2	20	11.42	57	*	70	125
C5164-14RE	12SB58-000.5-01RE	Decachlorobiphenyl	1	20	19.43	97		55	130
		Tetrachloro-m-xylene	1	20	17.18	86		70	125
		Decachlorobiphenyl	2	20	16.75	84		55	130
		Tetrachloro-m-xylene	2	20	16.51	83		70	125
C5164-15RE	12SB59-000.5-01RE	Decachlorobiphenyl	1	20	20.29	101		55	130
		Tetrachloro-m-xylene	1	20	17.68	88		70	125
		Decachlorobiphenyl	2	20	14.57	73		55	130
		Tetrachloro-m-xylene	2	20	16.29	81		70	125
C5164-20RE	12SB-DUP01-122911RE	Decachlorobiphenyl	1	20	19.06	95		55	130
		Tetrachloro-m-xylene	1	20	17.83	89		70	125
		Decachlorobiphenyl	2	20	17.63	88		55	130
		Tetrachloro-m-xylene	2	20	17.79	89		70	125
I.BLK-PG003783.D	PIBLK-PG003783.D	Decachlorobiphenyl	1	20	19.85	99		10	192
		Tetrachloro-m-xylene	1	20	18.48	92		10	172
		Decachlorobiphenyl	2	20	19.36	97		10	192
		Tetrachloro-m-xylene	2	20	20.32	102		10	172

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12SB28-000.5-01MS**										
C5164-02MS	alpha-BHC	21.9	0	21	96				60	125	
	beta-BHC	21.9	0	19	87				60	125	
	delta-BHC	21.9	0	18	82				55	130	
	gamma-BHC (Lindane)	21.9	0	25	114				60	125	
	Heptachlor	21.9	0	21	96				50	140	
	Aldrin	21.9	0	22	100				45	140	
	Heptachlor epoxide	21.9	0	21	96				65	130	
	Endosulfan I	21.9	0	20	91				15	135	
	Dieldrin	21.9	0	22	100				65	125	
	4,4-DDE	21.9	0	20	91				70	125	
	Endrin	21.9	0	20	91				60	135	
	Endosulfan II	21.9	0	15	68				35	140	
	4,4-DDD	21.9	0	20	91				30	135	
	Endosulfan sulfate	21.9	0	14	64				60	135	
	4,4-DDT	21.9	0	19	87				45	140	
	Methoxychlor	21.9	0	14	64				55	145	
	Endrin ketone	21.9	0	18	82				65	135	
	Endrin aldehyde	21.9	0	17	78				35	145	
	alpha-Chlordane	21.9	0	20	91				65	120	
	gamma-Chlordane	21.9	0	20	91				65	125	
Client Sample ID:	**12SB28-000.5-01MSD**										
C5164-02MSD	alpha-BHC	21.9	0	21	96		0		60	125	20
	beta-BHC	21.9	0	20	91		4		60	125	20
	delta-BHC	21.9	0	19	87		6		55	130	20
	gamma-BHC (Lindane)	21.9	0	26	119		4		60	125	20
	Heptachlor	21.9	0	21	96		0		50	140	20
	Aldrin	21.9	0	22	100		0		45	140	20
	Heptachlor epoxide	21.9	0	21	96		0		65	130	20
	Endosulfan I	21.9	0	21	96		5		15	135	20
	Dieldrin	21.9	0	22	100		0		65	125	20
	4,4-DDE	21.9	0	21	96		5		70	125	20
	Endrin	21.9	0	20	91		0		60	135	20
	Endosulfan II	21.9	0	15	68		0		35	140	20
	4,4-DDD	21.9	0	20	91		0		30	135	20
	Endosulfan sulfate	21.9	0	15	68		6		60	135	20
	4,4-DDT	21.9	0	19	87		0		45	140	20
	Methoxychlor	21.9	0	15	68		6		55	145	20
	Endrin ketone	21.9	0	19	87		6		65	135	20
	Endrin aldehyde	21.9	0	17	78		0		35	145	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
C5164-02MSD	alpha-Chlordane	21.9	0	21	96		5		65	120	20
	gamma-Chlordane	21.9	0	20	91		0		65	125	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60327BS	alpha-BHC	16.7	18	108				84	123	
	beta-BHC	16.7	17	102				82	123	
	delta-BHC	16.7	17	102				83	126	
	gamma-BHC (Lindane)	16.7	18	108				83	125	
	Heptachlor	16.7	16	96				83	122	
	Aldrin	16.7	17	102				82	124	
	Heptachlor epoxide	16.7	17	102				83	120	
	Endosulfan I	16.7	17	102				81	124	
	Dieldrin	16.7	17	102				85	121	
	4,4-DDE	16.7	17	102				81	123	
	Endrin	16.7	15	90				76	130	
	Endosulfan II	16.7	17	102				80	125	
	4,4-DDD	16.7	18	108				80	131	
	Endosulfan sulfate	16.7	17	102				81	122	
	4,4-DDT	16.7	16	96				70	129	
	Methoxychlor	16.7	16	96				78	129	
	Endrin ketone	16.7	18	108				77	132	
	Endrin aldehyde	16.7	18	108				79	124	
	alpha-Chlordane	16.7	17	102				84	120	
	gamma-Chlordane	16.7	17	102				83	122	
PB60330BS	alpha-BHC	0.5000	0.53	106				85	130	
	beta-BHC	0.5000	0.53	106				83	125	
	delta-BHC	0.5000	0.53	106				69	135	
	gamma-BHC (Lindane)	0.5000	0.53	106				82	129	
	Heptachlor	0.5000	0.51	102				79	127	
	Aldrin	0.5000	0.51	102				79	126	
	Heptachlor epoxide	0.5000	0.50	100				81	124	
	Endosulfan I	0.5000	0.51	102				85	110	
	Dieldrin	0.5000	0.50	100				83	125	
	4,4-DDE	0.5000	0.51	102				80	127	
	Endrin	0.5000	0.45	90				81	128	
	Endosulfan II	0.5000	0.51	102				82	123	
	4,4-DDD	0.5000	0.52	104				77	131	
	Endosulfan sulfate	0.5000	0.53	106				76	129	
	4,4-DDT	0.5000	0.49	98				80	133	
	Methoxychlor	0.5000	0.52	104				76	137	
	Endrin ketone	0.5000	0.61	122				80	125	
	Endrin aldehyde	0.5000	0.52	104				82	127	
	alpha-Chlordane	0.5000	0.51	102				82	125	
	gamma-Chlordane	0.5000	0.51	102				82	125	
PB60330BSD	alpha-BHC	0.5000	0.53	106	0			85	130	20
	beta-BHC	0.5000	0.53	106	0			83	125	20
	delta-BHC	0.5000	0.53	106	0			69	135	20
	gamma-BHC (Lindane)	0.5000	0.53	106	0			82	129	20
	Heptachlor	0.5000	0.50	100	2			79	127	20
	Aldrin	0.5000	0.51	102	0			79	126	20
	Heptachlor epoxide	0.5000	0.50	100	0			81	124	20
	Endosulfan I	0.5000	0.51	102	0			85	110	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60330BSD	Dieldrin	0.5000	0.51	102	2			83	125	20
	4,4-DDE	0.5000	0.51	102	0			80	127	20
	Endrin	0.5000	0.45	90	0			81	128	20
	Endosulfan II	0.5000	0.51	102	0			82	123	20
	4,4-DDD	0.5000	0.52	104	0			77	131	20
	Endosulfan sulfate	0.5000	0.54	108	2			76	129	20
	4,4-DDT	0.5000	0.48	96	2			80	133	20
	Methoxychlor	0.5000	0.48	96	8			76	137	20
	Endrin ketone	0.5000	0.61	122	0			80	125	20
	Endrin aldehyde	0.5000	0.52	104	0			82	127	20
	alpha-Chlordane	0.5000	0.51	102	0			82	125	20
	gamma-Chlordane	0.5000	0.51	102	0			82	125	20

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB57-000.5-01

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Lab Sample ID: C5164-13 **Date(s) Analyzed:** 01/07/2012 01/07/2012

Instrument ID (1): ECD_G **Instrument ID (2):** ECD_G

GC Column: (1): ZB-MR1 **ID:** 0.32 (mm) **GC Column:(2):** ZB-MR2 **ID:** 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	7.6	5.1
	2	6.79	6.72	6.86	8.0	
4,4-DDE	1	7.52	7.45	7.59	7.5	3.9
	2	6.60	6.53	6.67	7.8	
4,4-DDT	1	8.43	8.36	8.50	5.7	23.3
	2	7.47	7.40	7.54	7.2	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB57-000.5-01RE

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5164-13RE Date(s) Analyzed: 01/09/2012 01/09/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	7.7	7.5
	2	6.79	6.72	6.86	8.3	
4,4-DDE	1	7.52	7.45	7.59	7.9	0.0
	2	6.60	6.53	6.67	7.9	
4,4-DDT	1	8.43	8.36	8.50	5.8	20.2
	2	7.47	7.40	7.54	7.1	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB58-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5164-14 Date(s) Analyzed: 01/07/2012 01/07/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
4,4-DDE	1	7.52	7.45	7.59	2.0	4.9
	2	6.60	6.53	6.67	2.1	
4,4-DDT	1	8.43	8.36	8.50	1.6	28.6
	2	7.47	7.40	7.54	1.2	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB58-000.5-01RE

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5164-14RE Date(s) Analyzed: 01/09/2012 01/09/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
4,4-DDE	1	7.52	7.45	7.59	2.0	36.7
	2	6.61	6.53	6.67	2.9	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB59-000.5-01

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5164-15 Date(s) Analyzed: 01/07/2012 01/07/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	33	27.6
	2	6.79	6.72	6.86	25	
4,4-DDT	1	8.43	8.36	8.50	2.0	4.9
	2	7.46	7.40	7.54	2.1	

CHEMTECH

COMPOUND DETECTION SUMMARY

CLIENT SAMPLE NO.

12SB59-000.5-01RE

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5164-15RE Date(s) Analyzed: 01/09/2012 01/09/2012

Instrument ID (1): ECD_G Instrument ID (2): ECD_G

GC Column: (1): ZB-MR1 ID: 0.32 (mm) GC Column:(2): ZB-MR2 ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%RPD
Dieldrin	1	7.73	7.66	7.80	33	31.6
	2	6.79	6.72	6.86	24	

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.58	8.43
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.58	8.42
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.57	8.42
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.58	8.42
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.58	8.42
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.58	8.43
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.58	8.42
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.58	8.42
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.58	8.42
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.58	8.43
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.58	8.42
PIBLK02	I.BLK02	01/03/2012	18:45	PC006397.D	1.58	8.43
CCAL01	1660 250	01/03/2012	19:32	PC006398.D	1.58	8.43
PB60343BL	PB60343BL	01/03/2012	19:48	PC006399.D	1.58	8.43
PB60343BS	PB60343BS	01/03/2012	20:05	PC006400.D	1.58	8.43
RB-01-122911	C5164-23	01/03/2012	20:21	PC006401.D	1.58	8.43
HRP-MW-8MS	C5165-03MS	01/03/2012	21:09	PC006404.D	1.58	8.43
HRP-MW-8MSD	C5165-04MSD	01/03/2012	21:26	PC006405.D	1.58	8.43
PIBLK03	I.BLK03	01/03/2012	21:58	PC006407.D	1.58	8.43
CCAL02	1660 250	01/03/2012	22:14	PC006408.D	1.58	8.43
PB60338BL	PB60338BL	01/03/2012	22:30	PC006409.D	1.58	8.43
PB60338BS	PB60338BS	01/03/2012	22:47	PC006410.D	1.57	8.43
SHAFT4-PCB-SOIL-01MS	C5154-01MS	01/04/2012	00:07	PC006415.D	1.58	8.39
SHAFT4-PCB-SOIL-01MSD	C5154-01MSD	01/04/2012	00:24	PC006416.D	1.58	8.39
PIBLK04	I.BLK04	01/04/2012	00:40	PC006417.D	1.58	8.43
CCAL03	1660 250	01/04/2012	00:56	PC006418.D	1.58	8.43
PIBLK05	I.BLK05	01/04/2012	14:08	PC006419.D	1.58	8.42
CCAL04	1660 250	01/04/2012	15:35	PC006420.D	1.58	8.43
12SB28-000.5-01	C5164-02	01/04/2012	16:04	PC006421.D	1.58	8.43
PIBLK06	I.BLK06	01/04/2012	17:33	PC006425.D	1.58	8.43
CCAL05	1660 250	01/04/2012	17:49	PC006426.D	1.58	8.43

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006011.D RT 250 = PC006010.D

RT 500 = PC006009.D RT 750 = PC006008.D RT 1000 = PC006007.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.58	1.58	1.58	1.57	1.58	1.58	1.53	1.63
Decachlorobiphenyl		8.43	8.42	8.42	8.42	8.42	8.42	8.32	8.52
AR1016	(1)	2.25	2.25	2.25	2.24	2.25	2.25	2.20	2.30
AR1016	(2)	2.74	2.74	2.74	2.73	2.73	2.73	2.68	2.78
AR1016	(3)	2.89	2.89	2.89	2.88	2.89	2.89	2.84	2.94
AR1016	(4)	3.13	3.13	3.13	3.12	3.12	3.12	3.07	3.17
AR1016	(5)	3.37	3.37	3.37	3.36	3.36	3.37	3.32	3.42
AR1260	(1)	4.90	4.90	4.89	4.89	4.89	4.89	4.84	4.94
AR1260	(2)	5.27	5.27	5.27	5.26	5.26	5.27	5.22	5.32
AR1260	(3)	5.63	5.63	5.63	5.63	5.63	5.63	5.58	5.68
AR1260	(4)	6.54	6.54	6.54	6.54	6.54	6.54	6.49	6.59
AR1260	(5)	6.91	6.91	6.91	6.91	6.91	6.91	6.86	6.96

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1539340	1583428	1652292	1516859	1525454	1563475	4
Decachlorobiphenyl	2753860	2322628	2228812	1984339	1934411	2244810	15
AR1016 (1)	81972	69605	66677	59385	58354	67199	14
AR1016 (2)	119474	139033	138562	120044	124271	128277	8
AR1016 (3)	45572	50213	49382	43690	43986	46569	7
AR1016 (4)	95814	81476	78901	71383	69652	79445	13
AR1016 (5)	63008	59206	58785	53206	52860	57413	8
AR1260 (1)	101772	94032	93196	83493	82614	91021	9
AR1260 (2)	209384	177891	177586	158917	156997	176155	12
AR1260 (3)	161338	151174	155707	141296	141029	150109	6
AR1260 (4)	233482	216564	219776	189635	189204	209732	9
AR1260 (5)	99230	95811	98680	92081	91537	95468	4

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.20	1.15	1.25	10802
		2	1.74	1.69	1.79	17204
		3	1.90	1.85	1.95	53471
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.90	1.85	1.95	42188
		2	2.25	2.20	2.30	31833
		3	2.74	2.69	2.79	61113
		4	2.89	2.84	2.94	21823
		5	3.90	3.85	3.95	39339
AR1242	0.5000	1	2.25	2.20	2.30	56293
		2	2.74	2.69	2.79	114860
		3	3.13	3.08	3.18	65688
		4	3.37	3.32	3.42	49772
		5	3.90	3.85	3.95	83942
AR1248	0.5000	1	2.74	2.69	2.79	73698
		2	3.13	3.08	3.18	106133
		3	3.37	3.32	3.42	73441
		4	3.90	3.85	3.95	138267
		5	4.66	4.61	4.71	38608
AR1254	0.5000	1	3.11	3.06	3.16	65083
		2	4.65	4.60	4.70	165431
		3	5.02	4.97	5.07	134662
		4	5.26	5.21	5.31	122909
		5	5.63	5.58	5.68	193414

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/03/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 19:32 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.58	1.58	1.53	1.63	0.00
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	0.00
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.91	4.89	4.84	4.94	-0.02
AR1260 (2)	5.28	5.27	5.22	5.32	-0.01
AR1260 (3)	5.64	5.63	5.58	5.68	-0.01
AR1260 (4)	6.55	6.54	6.49	6.59	-0.01
AR1260 (5)	6.92	6.91	6.86	6.96	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/03/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 22:14 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.58	1.58	1.53	1.63	0.00
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.25	2.25	2.20	2.30	0.00
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.89	2.89	2.84	2.94	0.00
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.64	5.63	5.58	5.68	-0.01
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.92	6.91	6.86	6.96	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 00:56 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.58	1.58	1.53	1.63	0.00
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.25	2.25	2.20	2.30	0.00
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.89	2.89	2.84	2.94	0.00
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.63	5.63	5.58	5.68	0.00
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.91	6.91	6.86	6.96	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 15:35 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.58	1.58	1.53	1.63	0.00
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.26	2.25	2.20	2.30	-0.01
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.90	2.89	2.84	2.94	-0.01
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.91	4.89	4.84	4.94	-0.02
AR1260 (2)	5.28	5.27	5.22	5.32	-0.01
AR1260 (3)	5.64	5.63	5.58	5.68	-0.01
AR1260 (4)	6.55	6.54	6.49	6.59	-0.01
AR1260 (5)	6.92	6.91	6.86	6.96	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 17:49 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.58	1.58	1.53	1.63	0.00
Decachlorobiphenyl	8.43	8.42	8.32	8.52	-0.01
AR1016 (1)	2.25	2.25	2.20	2.30	0.00
AR1016 (2)	2.74	2.73	2.68	2.78	-0.01
AR1016 (3)	2.89	2.89	2.84	2.94	0.00
AR1016 (4)	3.13	3.12	3.07	3.17	-0.01
AR1016 (5)	3.37	3.37	3.32	3.42	0.00
AR1260 (1)	4.90	4.89	4.84	4.94	-0.01
AR1260 (2)	5.27	5.27	5.22	5.32	0.00
AR1260 (3)	5.64	5.63	5.58	5.68	-0.01
AR1260 (4)	6.54	6.54	6.49	6.59	0.00
AR1260 (5)	6.92	6.91	6.86	6.96	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 01/03/2012

Lab Sample No.: 1660 250 **Data File :** PC006398.D **Time Analyzed:** 19:32

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.255	2.200	2.300	0.269	0.250	7.6
AR1016 (2)	2.741	2.680	2.780	0.280	0.250	12.0
AR1016 (3)	2.895	2.840	2.940	0.285	0.250	14.0
AR1016 (4)	3.131	3.070	3.170	0.252	0.250	0.8
AR1016 (5)	3.373	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.905	4.840	4.940	0.252	0.250	0.8
AR1260 (2)	5.276	5.220	5.320	0.249	0.250	0.4
AR1260 (3)	5.639	5.580	5.680	0.242	0.250	3.2
AR1260 (4)	6.548	6.490	6.590	0.246	0.250	1.6
AR1260 (5)	6.918	6.860	6.960	0.235	0.250	6.0
Tetrachloro-m-xylene	1.579	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.431	8.320	8.520	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 01/03/2012

Lab Sample No.: 1660 250 **Data File :** PC006408.D **Time Analyzed:** 22:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.253	2.200	2.300	0.258	0.250	3.2
AR1016 (2)	2.738	2.680	2.780	0.281	0.250	12.4
AR1016 (3)	2.892	2.840	2.940	0.268	0.250	7.2
AR1016 (4)	3.128	3.070	3.170	0.237	0.250	5.2
AR1016 (5)	3.369	3.320	3.420	0.238	0.250	4.8
AR1260 (1)	4.901	4.840	4.940	0.255	0.250	2.0
AR1260 (2)	5.272	5.220	5.320	0.251	0.250	0.4
AR1260 (3)	5.635	5.580	5.680	0.243	0.250	2.8
AR1260 (4)	6.544	6.490	6.590	0.248	0.250	0.8
AR1260 (5)	6.915	6.860	6.960	0.232	0.250	7.2
Tetrachloro-m-xylene	1.577	1.530	1.630	0.027	0.025	8.0
Decachlorobiphenyl	8.427	8.320	8.520	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006418.D **Time Analyzed:** 00:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.252	2.200	2.300	0.252	0.250	0.8
AR1016 (2)	2.737	2.680	2.780	0.276	0.250	10.4
AR1016 (3)	2.891	2.840	2.940	0.286	0.250	14.4
AR1016 (4)	3.129	3.070	3.170	0.282	0.250	12.8
AR1016 (5)	3.370	3.320	3.420	0.261	0.250	4.4
AR1260 (1)	4.899	4.840	4.940	0.250	0.250	0.0
AR1260 (2)	5.271	5.220	5.320	0.247	0.250	1.2
AR1260 (3)	5.633	5.580	5.680	0.242	0.250	3.2
AR1260 (4)	6.542	6.490	6.590	0.237	0.250	5.2
AR1260 (5)	6.913	6.860	6.960	0.236	0.250	5.6
Tetrachloro-m-xylene	1.577	1.530	1.630	0.026	0.025	4.0
Decachlorobiphenyl	8.426	8.320	8.520	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006420.D **Time Analyzed:** 15:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.256	2.200	2.300	0.261	0.250	4.4
AR1016 (2)	2.742	2.680	2.780	0.281	0.250	12.4
AR1016 (3)	2.896	2.840	2.940	0.290	0.250	16.0
AR1016 (4)	3.132	3.070	3.170	0.263	0.250	5.2
AR1016 (5)	3.373	3.320	3.420	0.241	0.250	3.6
AR1260 (1)	4.906	4.840	4.940	0.267	0.250	6.8
AR1260 (2)	5.277	5.220	5.320	0.259	0.250	3.6
AR1260 (3)	5.640	5.580	5.680	0.251	0.250	0.4
AR1260 (4)	6.550	6.490	6.590	0.254	0.250	1.6
AR1260 (5)	6.921	6.860	6.960	0.236	0.250	5.6
Tetrachloro-m-xylene	1.580	1.530	1.630	0.025	0.025	0.0
Decachlorobiphenyl	8.432	8.320	8.520	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006426.D **Time Analyzed:** 17:49

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.252	2.200	2.300	0.265	0.250	6.0
AR1016 (2)	2.738	2.680	2.780	0.279	0.250	11.6
AR1016 (3)	2.892	2.840	2.940	0.286	0.250	14.4
AR1016 (4)	3.127	3.070	3.170	0.277	0.250	10.8
AR1016 (5)	3.368	3.320	3.420	0.245	0.250	2.0
AR1260 (1)	4.900	4.840	4.940	0.280	0.250	12.0
AR1260 (2)	5.272	5.220	5.320	0.270	0.250	8.0
AR1260 (3)	5.635	5.580	5.680	0.262	0.250	4.8
AR1260 (4)	6.544	6.490	6.590	0.263	0.250	5.2
AR1260 (5)	6.916	6.860	6.960	0.236	0.250	5.6
Tetrachloro-m-xylene	1.576	1.530	1.630	0.025	0.025	0.0
Decachlorobiphenyl	8.427	8.320	8.520	0.026	0.025	4.0

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: C5164

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 12/13/2011 12/13/2011

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	12/13/2011	13:21	PC006006.D	1.97	9.88
1660 1000 PPB	1660 1000 PPB	12/13/2011	13:37	PC006007.D	1.97	9.88
1660 750 PPB	1660 750 PPB	12/13/2011	13:54	PC006008.D	1.96	9.88
1660 500 PPB	1660 500 PPB	12/13/2011	14:10	PC006009.D	1.97	9.88
1660 250 PPB	1660 250 PPB	12/13/2011	14:26	PC006010.D	1.97	9.88
1660 50 PPB	1660 50 PPB	12/13/2011	14:43	PC006011.D	1.97	9.88
AR122101	AR1221 500 PPB	12/13/2011	14:59	PC006012.D	1.97	9.88
AR123201	AR1232 500 PPB	12/13/2011	15:15	PC006013.D	1.97	9.88
AR124201	AR1242 500 PPB	12/13/2011	15:31	PC006014.D	1.97	9.88
AR124801	AR1248 500 PPB	12/13/2011	16:23	PC006015.D	1.98	9.89
AR125401	AR1254 500 PPB	12/13/2011	16:40	PC006016.D	1.97	9.88
PIBLK02	I.BLK02	01/03/2012	18:45	PC006397.D	1.98	9.89
CCAL01	1660 250	01/03/2012	19:32	PC006398.D	1.98	9.89
PB60343BL	PB60343BL	01/03/2012	19:48	PC006399.D	1.97	9.89
PB60343BS	PB60343BS	01/03/2012	20:05	PC006400.D	1.97	9.88
RB-01-122911	C5164-23	01/03/2012	20:21	PC006401.D	1.98	9.89
HRP-MW-8MS	C5165-03MS	01/03/2012	21:09	PC006404.D	1.97	9.88
HRP-MW-8MSD	C5165-04MSD	01/03/2012	21:26	PC006405.D	1.97	9.88
PIBLK03	I.BLK03	01/03/2012	21:58	PC006407.D	1.98	9.89
CCAL02	1660 250	01/03/2012	22:14	PC006408.D	1.97	9.89
PB60338BL	PB60338BL	01/03/2012	22:30	PC006409.D	1.98	9.89
PB60338BS	PB60338BS	01/03/2012	22:47	PC006410.D	1.97	9.89
SHAFT4-PCB-SOIL-01MS	C5154-01MS	01/04/2012	00:07	PC006415.D	1.98	9.89
SHAFT4-PCB-SOIL-01MSD	C5154-01MSD	01/04/2012	00:24	PC006416.D	1.98	9.89
PIBLK04	I.BLK04	01/04/2012	00:40	PC006417.D	1.97	9.88
CCAL03	1660 250	01/04/2012	00:56	PC006418.D	1.97	9.89
PIBLK05	I.BLK05	01/04/2012	14:08	PC006419.D	1.97	9.88
CCAL04	1660 250	01/04/2012	15:35	PC006420.D	1.98	9.89
12SB28-000.5-01	C5164-02	01/04/2012	16:04	PC006421.D	1.98	9.89
PIBLK06	I.BLK06	01/04/2012	17:33	PC006425.D	1.97	9.89
CCAL05	1660 250	01/04/2012	17:49	PC006426.D	1.97	9.88

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006011.D RT 250 = PC006010.D

RT 500 = PC006009.D RT 750 = PC006008.D RT 1000 = PC006007.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.97	1.97	1.97	1.96	1.97	1.97	1.92	2.02
Decachlorobiphenyl		9.88	9.88	9.88	9.88	9.88	9.88	9.78	9.98
AR1016	(1)	3.01	3.01	3.00	3.00	3.00	3.00	2.95	3.05
AR1016	(2)	3.57	3.57	3.57	3.56	3.57	3.57	3.52	3.62
AR1016	(3)	3.74	3.74	3.74	3.74	3.74	3.74	3.69	3.79
AR1016	(4)	3.87	3.87	3.87	3.87	3.87	3.87	3.82	3.92
AR1016	(5)	4.52	4.52	4.52	4.52	4.52	4.52	4.47	4.57
AR1260	(1)	6.08	6.08	6.08	6.08	6.08	6.08	6.03	6.13
AR1260	(2)	6.39	6.39	6.38	6.38	6.38	6.38	6.33	6.43
AR1260	(3)	6.86	6.86	6.86	6.86	6.86	6.86	6.81	6.91
AR1260	(4)	7.77	7.76	7.76	7.76	7.76	7.76	7.71	7.81
AR1260	(5)	8.26	8.26	8.26	8.26	8.26	8.26	8.21	8.31

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_C **Calibration Date(s):** 12/13/2011 12/13/2011

Calibration Times: 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006011.D **CF 250 =** PC006010.D

CF 500 = PC006009.D **CF 750 =** PC006008.D **CF 1000 =** PC006007.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4286580	3835452	3775146	3400877	3401207	3739852	10
Decachlorobiphenyl	6971140	5675536	5299222	4567911	4287308	5360223	20
AR1016 (1)	170044	148835	143778	126098	124730	142697	13
AR1016 (2)	410106	328973	318375	281943	276128	323105	17
AR1016 (3)	180598	137123	144625	129749	128291	144077	15
AR1016 (4)	133338	109270	115039	104717	105265	113526	10
AR1016 (5)	175524	131268	128639	115200	114714	133069	19
AR1260 (1)	280148	237834	225971	198178	193735	227173	15
AR1260 (2)	334588	285589	273392	234251	234942	272552	15
AR1260 (3)	492282	361751	366763	345958	338776	381106	17
AR1260 (4)	616564	523832	498470	440964	429018	501769	15
AR1260 (5)	474756	365290	400652	358039	342462	388240	14

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_C **Date(s) Analyzed:** 12/13/2011 12/13/2011

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.30	2.25	2.35	40341
		2	2.45	2.40	2.50	25307
		3	2.52	2.47	2.57	102884
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.52	2.47	2.57	95734
		2	3.01	2.96	3.06	78811
		3	3.57	3.52	3.62	159496
		4	3.74	3.69	3.79	72117
		5	4.52	4.47	4.57	59201
AR1242	0.5000	1	3.01	2.96	3.06	144390
		2	3.57	3.52	3.62	284971
		3	3.74	3.69	3.79	130662
		4	4.88	4.83	4.93	99797
		5	4.93	4.88	4.98	133151
AR1248	0.5000	1	3.57	3.52	3.62	189426
		2	4.36	4.31	4.41	227718
		3	4.52	4.47	4.57	179891
		4	4.88	4.83	4.93	165968
		5	4.93	4.88	4.98	218113
AR1254	0.5000	1	5.20	5.15	5.25	277781
		2	5.81	5.76	5.86	403951
		3	6.39	6.34	6.44	181582
		4	6.60	6.55	6.65	366397
		5	6.86	6.81	6.91	453032

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/03/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 19:32 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.98	1.97	1.92	2.02	0.00
Decachlorobiphenyl	9.89	9.88	9.78	9.98	-0.01
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.57	3.57	3.52	3.62	0.00
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.53	4.52	4.47	4.57	-0.01
AR1260 (1)	6.09	6.08	6.03	6.13	-0.01
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.87	6.86	6.81	6.91	-0.01
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.27	8.26	8.21	8.31	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/03/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 22:14 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.97	1.97	1.92	2.02	0.00
Decachlorobiphenyl	9.89	9.88	9.78	9.98	-0.01
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.57	3.57	3.52	3.62	0.00
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.09	6.08	6.03	6.13	-0.01
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.87	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 00:56 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.97	1.97	1.92	2.02	0.00
Decachlorobiphenyl	9.89	9.88	9.78	9.98	-0.01
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.57	3.57	3.52	3.62	0.00
AR1016 (3)	3.74	3.74	3.69	3.79	0.00
AR1016 (4)	3.87	3.87	3.82	3.92	0.00
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.86	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 15:35 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.98	1.97	1.92	2.02	-0.01
Decachlorobiphenyl	9.89	9.88	9.78	9.98	-0.01
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.57	3.57	3.52	3.62	0.00
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.09	6.08	6.03	6.13	-0.01
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.87	6.86	6.81	6.91	-0.01
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.27	8.26	8.21	8.31	-0.01

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Continuing Calib Date: 01/04/2012 **Initial Calibration Date(s):** 12/13/2011 12/13/2011

Continuing Calib Time: 17:49 **Initial Calibration Time(s):** 13:37 14:43

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.97	1.97	1.92	2.02	0.00
Decachlorobiphenyl	9.88	9.88	9.78	9.98	0.00
AR1016 (1)	3.01	3.00	2.95	3.05	-0.01
AR1016 (2)	3.57	3.57	3.52	3.62	0.00
AR1016 (3)	3.75	3.74	3.69	3.79	-0.01
AR1016 (4)	3.88	3.87	3.82	3.92	-0.01
AR1016 (5)	4.52	4.52	4.47	4.57	0.00
AR1260 (1)	6.08	6.08	6.03	6.13	0.00
AR1260 (2)	6.39	6.38	6.33	6.43	-0.01
AR1260 (3)	6.87	6.86	6.81	6.91	0.00
AR1260 (4)	7.77	7.76	7.71	7.81	-0.01
AR1260 (5)	8.26	8.26	8.21	8.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL01 **Date Analyzed:** 01/03/2012

Lab Sample No.: 1660 250 **Data File :** PC006398.D **Time Analyzed:** 19:32

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.008	2.950	3.050	0.277	0.250	10.8
AR1016 (2)	3.574	3.520	3.620	0.262	0.250	4.8
AR1016 (3)	3.749	3.690	3.790	0.285	0.250	14.0
AR1016 (4)	3.879	3.820	3.920	0.292	0.250	16.8
AR1016 (5)	4.526	4.470	4.570	0.274	0.250	9.6
AR1260 (1)	6.087	6.030	6.130	0.259	0.250	3.6
AR1260 (2)	6.393	6.330	6.430	0.245	0.250	2.0
AR1260 (3)	6.868	6.810	6.910	0.259	0.250	3.6
AR1260 (4)	7.772	7.710	7.810	0.274	0.250	9.6
AR1260 (5)	8.266	8.210	8.310	0.268	0.250	7.2
Tetrachloro-m-xylene	1.975	1.920	2.020	0.026	0.025	4.0
Decachlorobiphenyl	9.888	9.780	9.980	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL02 **Date Analyzed:** 01/03/2012

Lab Sample No.: 1660 250 **Data File :** PC006408.D **Time Analyzed:** 22:14

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.008	2.950	3.050	0.289	0.250	15.6
AR1016 (2)	3.573	3.520	3.620	0.258	0.250	3.2
AR1016 (3)	3.746	3.690	3.790	0.280	0.250	12.0
AR1016 (4)	3.877	3.820	3.920	0.278	0.250	11.2
AR1016 (5)	4.523	4.470	4.570	0.276	0.250	10.4
AR1260 (1)	6.085	6.030	6.130	0.257	0.250	2.8
AR1260 (2)	6.391	6.330	6.430	0.243	0.250	2.8
AR1260 (3)	6.865	6.810	6.910	0.258	0.250	3.2
AR1260 (4)	7.769	7.710	7.810	0.278	0.250	11.2
AR1260 (5)	8.262	8.210	8.310	0.270	0.250	8.0
Tetrachloro-m-xylene	1.974	1.920	2.020	0.026	0.025	4.0
Decachlorobiphenyl	9.886	9.780	9.980	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL03 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006418.D **Time Analyzed:** 00:56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.006	2.950	3.050	0.276	0.250	10.4
AR1016 (2)	3.571	3.520	3.620	0.257	0.250	2.8
AR1016 (3)	3.744	3.690	3.790	0.290	0.250	16.0
AR1016 (4)	3.874	3.820	3.920	0.281	0.250	12.4
AR1016 (5)	4.521	4.470	4.570	0.260	0.250	4.0
AR1260 (1)	6.083	6.030	6.130	0.258	0.250	3.2
AR1260 (2)	6.389	6.330	6.430	0.245	0.250	2.0
AR1260 (3)	6.864	6.810	6.910	0.258	0.250	3.2
AR1260 (4)	7.768	7.710	7.810	0.267	0.250	6.8
AR1260 (5)	8.262	8.210	8.310	0.273	0.250	9.2
Tetrachloro-m-xylene	1.974	1.920	2.020	0.026	0.025	4.0
Decachlorobiphenyl	9.885	9.780	9.980	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL04 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006420.D **Time Analyzed:** 15:35

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.009	2.950	3.050	0.266	0.250	6.4
AR1016 (2)	3.574	3.520	3.620	0.249	0.250	0.4
AR1016 (3)	3.747	3.690	3.790	0.275	0.250	10.0
AR1016 (4)	3.877	3.820	3.920	0.288	0.250	15.2
AR1016 (5)	4.524	4.470	4.570	0.252	0.250	0.8
AR1260 (1)	6.088	6.030	6.130	0.258	0.250	3.2
AR1260 (2)	6.394	6.330	6.430	0.261	0.250	4.4
AR1260 (3)	6.868	6.810	6.910	0.260	0.250	4.0
AR1260 (4)	7.772	7.710	7.810	0.278	0.250	11.2
AR1260 (5)	8.266	8.210	8.310	0.268	0.250	7.2
Tetrachloro-m-xylene	1.976	1.920	2.020	0.024	0.025	4.0
Decachlorobiphenyl	9.887	9.780	9.980	0.026	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 12/13/2011 12/13/2011

Client Sample No.: CCAL05 **Date Analyzed:** 01/04/2012

Lab Sample No.: 1660 250 **Data File :** PC006426.D **Time Analyzed:** 17:49

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	3.005	2.950	3.050	0.284	0.250	13.6
AR1016 (2)	3.573	3.520	3.620	0.262	0.250	4.8
AR1016 (3)	3.746	3.690	3.790	0.278	0.250	11.2
AR1016 (4)	3.876	3.820	3.920	0.278	0.250	11.2
AR1016 (5)	4.523	4.470	4.570	0.280	0.250	12.0
AR1260 (1)	6.084	6.030	6.130	0.266	0.250	6.4
AR1260 (2)	6.390	6.330	6.430	0.265	0.250	6.0
AR1260 (3)	6.865	6.810	6.910	0.264	0.250	5.6
AR1260 (4)	7.769	7.710	7.810	0.278	0.250	11.2
AR1260 (5)	8.262	8.210	8.310	0.262	0.250	4.8
Tetrachloro-m-xylene	1.973	1.920	2.020	0.025	0.025	0.0
Decachlorobiphenyl	9.884	9.780	9.980	0.027	0.025	8.0

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60338BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: PB60338BL Lab File ID: PC006409.D

Matrix: (soil/water) SOIL Extraction: (Type) SOXH

Sulfur Cleanup: (Y/N) N Date Extracted: 01/03/2012

Date Analyzed (1): 01/03/2012 Date Analyzed (2): 01/03/2012

Time Analyzed (1): 22:30 Time Analyzed (2): 22:30

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60338BS	PB60338BS	PC006410.D	01/03/2012	01/03/2012
SHAFT4-PCB-SOIL-01MS	C5154-01MS	PC006415.D	01/04/2012	01/04/2012
SHAFT4-PCB-SOIL-01MSD	C5154-01MSD	PC006416.D	01/04/2012	01/04/2012
12SB28-000.5-01	C5164-02	PC006421.D	01/04/2012	01/04/2012

COMMENTS:

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60338BL	SDG No.:	c5164
Lab Sample ID:	PB60338BL	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	0 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006409.D	1	01/03/12	01/03/12	PB60338

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.4	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.5	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.4	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.6	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.1	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.2		10 - 166	91%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.9		60 - 125	99%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60343BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: PB60343BL Lab File ID: PC006399.D

Matrix: (soil/water) WATER Extraction: (Type) SEPF

Sulfur Cleanup: (Y/N) N Date Extracted: 01/03/2012

Date Analyzed (1): 01/03/2012 Date Analyzed (2): 01/03/2012

Time Analyzed (1): 19:48 Time Analyzed (2): 19:48

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB60343BS	PB60343BS	PC006400.D	01/03/2012	01/03/2012
RB-01-122911	C5164-23	PC006401.D	01/03/2012	01/03/2012
HRP-MW-8MS	C5165-03MS	PC006404.D	01/03/2012	01/03/2012
HRP-MW-8MSD	C5165-04MSD	PC006405.D	01/03/2012	01/03/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60343BL	SDG No.:	c5164
Lab Sample ID:	PB60343BL	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006399.D	1	01/03/12	01/03/12	PB60343

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	18.3		35 - 137	92%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.3		40 - 135	97%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/13/11
Client Sample ID:	PIBLK-PC006006.D	SDG No.:	c5164
Lab Sample ID:	I.BLK-PC006006.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006006.D	1		12/13/11	PC121311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	24.5		35 - 137	122%	SPK: 20
2051-24-3	Decachlorobiphenyl	23.6		40 - 135	118%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/03/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/03/12
Client Sample ID:	PIBLK-PC006397.D	SDG No.:	c5164
Lab Sample ID:	I.BLK-PC006397.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006397.D	1		01/03/12	PC010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.5		35 - 137	98%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.7		40 - 135	94%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/03/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/03/12
Client Sample ID:	PIBLK-PC006407.D	SDG No.:	c5164
Lab Sample ID:	I.BLK-PC006407.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006407.D	1		01/03/12	PC010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.6		35 - 137	98%	SPK: 20
2051-24-3	Decachlorobiphenyl	20.3		40 - 135	101%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PC006417.D	SDG No.:	c5164
Lab Sample ID:	I.BLK-PC006417.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006417.D	1		01/04/12	PC010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.6		35 - 137	88%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.6		40 - 135	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PC006419.D	SDG No.:	c5164
Lab Sample ID:	I.BLK-PC006419.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006419.D	1		01/04/12	PC010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	20.6		35 - 137	103%	SPK: 20
2051-24-3	Decachlorobiphenyl	21		40 - 135	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/04/12
Client Sample ID:	PIBLK-PC006425.D	SDG No.:	c5164
Lab Sample ID:	I.BLK-PC006425.D	Matrix:	WATER
Analytical Method:	SW8082	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006425.D	1		01/04/12	PC010512

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	0.25	U	0.096	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.5	ug/L
SURROGATES						
877-09-8	Tetrachloro-m-xylene	20.8		35 - 137	104%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.6		40 - 135	108%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Surrogate Summary

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006006.D	PIBLK-PC006006.D	Tetrachloro-m-xylene	1	20	24.47	122		35	137
		Decachlorobiphenyl	1	20	23.61	118		40	135
		Tetrachloro-m-xylene	2	20	25.07	125		35	137
		Decachlorobiphenyl	2	20	24.18	121		40	135
I.BLK-PC006397.D	PIBLK-PC006397.D	Tetrachloro-m-xylene	1	20	19.53	98		35	137
		Decachlorobiphenyl	1	20	18.72	94		40	135
		Tetrachloro-m-xylene	2	20	20.08	100		35	137
		Decachlorobiphenyl	2	20	17.83	89		40	135
PB60343BL	PB60343BL	Tetrachloro-m-xylene	1	20	18.34	92		35	137
		Decachlorobiphenyl	1	20	19.34	97		40	135
		Tetrachloro-m-xylene	2	20	19.25	96		35	137
		Decachlorobiphenyl	2	20	20.69	103		40	135
PB60343BS	PB60343BS	Tetrachloro-m-xylene	1	20	18.76	94		35	137
		Decachlorobiphenyl	1	20	19.31	97		40	135
		Tetrachloro-m-xylene	2	20	18.97	95		35	137
		Decachlorobiphenyl	2	20	18.99	95		40	135
C5164-23	RB-01-122911	Tetrachloro-m-xylene	1	20	16.18	81		35	137
		Decachlorobiphenyl	1	20	14.73	74		40	135
		Tetrachloro-m-xylene	2	20	14.88	74		35	137
		Decachlorobiphenyl	2	20	14.69	73		40	135
C5165-03MS	HRP-MW-8MS	Tetrachloro-m-xylene	1	20	16.45	82		35	137
		Decachlorobiphenyl	1	20	12.18	61		40	135
		Tetrachloro-m-xylene	2	20	16.14	81		35	137
		Decachlorobiphenyl	2	20	12.44	62		40	135
C5165-04MSD	HRP-MW-8MSD	Tetrachloro-m-xylene	1	20	16.35	82		35	137
		Decachlorobiphenyl	1	20	13.9	70		40	135
		Tetrachloro-m-xylene	2	20	16.74	84		35	137
		Decachlorobiphenyl	2	20	14.23	71		40	135
I.BLK-PC006407.D	PIBLK-PC006407.D	Tetrachloro-m-xylene	1	20	19.56	98		35	137
		Decachlorobiphenyl	1	20	20.27	101		40	135
		Tetrachloro-m-xylene	2	20	19.77	99		35	137
		Decachlorobiphenyl	2	20	22.18	111		40	135
PB60338BL	PB60338BL	Tetrachloro-m-xylene	1	20	18.21	91		10	166
		Decachlorobiphenyl	1	20	19.87	99		60	125
		Tetrachloro-m-xylene	2	20	19.04	95		10	166
		Decachlorobiphenyl	2	20	21.04	105		60	125
PB60338BS	PB60338BS	Tetrachloro-m-xylene	1	20	18.48	92		10	166
		Decachlorobiphenyl	1	20	19.9	100		60	125
		Tetrachloro-m-xylene	2	20	18.92	95		10	166
		Decachlorobiphenyl	2	20	19.68	98		60	125
C5154-01MS	SHAFT4-PCB-SOIL-01MS	Tetrachloro-m-xylene	1	20	14.68	73		10	166
		Decachlorobiphenyl	1	20	161.64	808	*	60	125
		Tetrachloro-m-xylene	2	20	21.93	110		10	166
		Decachlorobiphenyl	2	20	17.26	86		60	125

CHEMTECH

Surrogate Summary

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
C5154-01MSD	SHAFT4-PCB-SOIL-01MSD	Tetrachloro-m-xylene	1	20	15.74	79		10	166
		Decachlorobiphenyl	1	20	170.77	854	*	60	125
		Tetrachloro-m-xylene	2	20	22.09	110		10	166
		Decachlorobiphenyl	2	20	18.67	93		60	125
I.BLK-PC006417.D	PIBLK-PC006417.D	Tetrachloro-m-xylene	1	20	17.6	88		35	137
		Decachlorobiphenyl	1	20	19.57	98		40	135
		Tetrachloro-m-xylene	2	20	18.69	93		35	137
		Decachlorobiphenyl	2	20	17.51	88		40	135
I.BLK-PC006419.D	PIBLK-PC006419.D	Tetrachloro-m-xylene	1	20	20.55	103		35	137
		Decachlorobiphenyl	1	20	21.03	105		40	135
		Tetrachloro-m-xylene	2	20	19.95	100		35	137
		Decachlorobiphenyl	2	20	22.73	114		40	135
C5164-02	12SB28-000.5-01	Tetrachloro-m-xylene	1	20	11.53	58		10	166
		Decachlorobiphenyl	1	20	11.84	59	*	60	125
		Tetrachloro-m-xylene	2	20	12.08	60		10	166
		Decachlorobiphenyl	2	20	12.47	62		60	125
I.BLK-PC006425.D	PIBLK-PC006425.D	Tetrachloro-m-xylene	1	20	20.85	104		35	137
		Decachlorobiphenyl	1	20	21.64	108		40	135
		Tetrachloro-m-xylene	2	20	21.54	108		35	137
		Decachlorobiphenyl	2	20	22.87	114		40	135

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**SHAFT4-PCB-SOIL-01MS**										
C5154-01MS	AR1016	81.2	0	77	95				40	140	
	AR1260	81.2	0	69	85				60	130	
Client Sample ID:	**SHAFT4-PCB-SOIL-01MSD**										
C5154-01MSD	AR1016	81.2	0	85	105		10		40	140	20
	AR1260	81.2	0	69	85		0		60	130	20
Client Sample ID:	**HRP-MW-8MS**										
C5165-03MS	AR1016	2.000	0	2.3	115				65	145	
	AR1260	2.000	0	1.8	90				65	145	
Client Sample ID:	**HRP-MW-8MSD**										
C5165-04MSD	AR1016	2.083	0	2.4	115		0		65	145	20
	AR1260	2.083	0	2.0	96		6		65	145	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: C5164

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60338BS	AR1016	66.6	80	120				53	140	
	AR1260	66.6	75	113				65	130	
PB60343BS	AR1016	2.000	2.5	125				56	149	
	AR1260	2.000	2.2	110				66	147	

CHEMTECH

IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

SHAFT4-PCB-SOIL-01M

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5154-01MS Date(s) Analyzed: 01/04/2012 01/04/2012

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column: (1): RTX-CLPest ID: 0.32 (mm) GC Column: (2): RTX-CLPest II ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%RPD
AR1016	1	2.25	2.20	2.30	65.86		
	2	2.74	2.68	2.78	78.37		
	3	2.89	2.84	2.94	87.66		
COLUMN 1	4	3.14	3.07	3.17	87.12		
	5	3.37	3.32	3.42	67.50	77.00	
	1	3.01	2.95	3.05	85.24		
	2	3.57	3.52	3.62	63.06		
	3	3.75	3.69	3.79	76.83		
	4	3.88	3.82	3.92	49.12		
COLUMN 2	5	4.52	4.47	4.57	61.98	67.00	14.90
AR1260	1	4.91	4.84	4.94	76.90		
	2	5.27	5.22	5.32	65.14		
	3	5.63	5.58	5.68	63.73		
COLUMN 1	4	6.55	6.49	6.59	69.21		
	5	6.91	6.86	6.96	68.63	69.00	
	1	6.08	6.03	6.13	93.50		
	2	6.39	6.33	6.43	48.49		
	3	6.87	6.81	6.91	49.94		
	4	7.77	7.71	7.81	53.49		
COLUMN 2	5	8.26	8.21	8.31	56.75	60.00	15.00

CHEMTECH

IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

SHAFT4-PCB-SOIL-01M

Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG NO.: C5164

Lab Sample ID: C5154-01MSD Date(s) Analyzed: 01/04/2012 01/04/2012

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column: (1): RTX-CLPest ID: 0.32 (mm) GC Column: (2): RTX-CLPest II ID: 0.32 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%RPD
AR1016	1	2.25	2.20	2.30	74.04		
	2	2.74	2.68	2.78	87.04		
	3	2.89	2.84	2.94	97.52		
COLUMN 1	4	3.14	3.07	3.17	93.59		
	5	3.37	3.32	3.42	74.65	85.00	
	1	3.01	2.95	3.05	95.00		
	2	3.57	3.52	3.62	70.71		
	3	3.75	3.69	3.79	86.15		
	4	3.88	3.82	3.92	59.34		
COLUMN 2	5	4.52	4.47	4.57	71.92	77.00	10.40
AR1260	1	4.91	4.84	4.94	81.00		
	2	5.27	5.22	5.32	67.76		
	3	5.63	5.58	5.68	64.57		
COLUMN 1	4	6.55	6.49	6.59	63.44		
	5	6.91	6.86	6.96	65.83	69.00	
	1	6.09	6.03	6.13	101.06		
	2	6.39	6.33	6.43	55.89		
	3	6.87	6.81	6.91	54.89		
	4	7.77	7.71	7.81	59.21		
COLUMN 2	5	8.26	8.21	8.31	61.54	67.00	3.00

Method Path : P:\HPCHEM1\Ecd_C\Method\
Method File : PC121311.M
Title : GC EXTRACTABLES
Last Update : Thu Dec 15 04:22:08 2011
Response Via : Initial Calibration

Calibration Files
500 =PC006009.D 1000 =PC006007.D 750 =PC006008.D
250 =PC006010.D 50 =PC006011.D

	Compound	500	1000	750	250	50	Avg		%RSD
1) SA	Tetrachloro-m-xylene	1.652	1.525	1.517	1.583	1.539	1.563	E4	3.57
2) SA	Decachlorobiphenyl	2.229	1.934	1.984	2.323	2.754	2.245	E4	14.60
3) L1	Aroclor-1016-1	6.668	5.835	5.939	6.960	8.197	6.720	E2	14.19
4) L1	Aroclor-1016-2	1.386	1.243	1.200	1.390	1.195	1.283	E3	7.63
5) L1	Aroclor-1016-3	4.938	4.399	4.369	5.021	4.557	4.657	E2	6.54
6) L1	Aroclor-1016-4	7.890	6.965	7.138	8.148	9.581	7.945	E2	13.10
7) L1	Aroclor-1016-5	5.878	5.286	5.321	5.921	6.301	5.741	E2	7.53
8) L2	Aroclor-1221-1	1.080					1.080	E2	0.00
9) L2	Aroclor-1221-2	1.720					1.720	E2	0.00
.0) L2	Aroclor-1221-3	5.347					5.347	E2	0.00
.1) L3	Aroclor-1232-1	4.219					4.219	E2	0.00
.2) L3	Aroclor-1232-2	3.183					3.183	E2	0.00
.3) L3	Aroclor-1232-3	6.111					6.111	E2	0.00
.4) L3	Aroclor-1232-4	2.182					2.182	E2	0.00
.5) L3	Aroclor-1232-5	3.934					3.934	E2	0.00
.6) L4	Aroclor-1242-1	5.629					5.629	E2	0.00
.7) L4	Aroclor-1242-2	1.149					1.149	E3	0.00
.8) L4	Aroclor-1242-3	6.569					6.569	E2	0.00
.9) L4	Aroclor-1242-4	4.977					4.977	E2	0.00
:0) L4	Aroclor-1242-5	8.394					8.394	E2	0.00
:1) L5	Aroclor-1248-1	7.370					7.370	E2	0.00
:2) L5	Aroclor-1248-2	1.061					1.061	E3	0.00
:3) L5	Aroclor-1248-3	7.344					7.344	E2	0.00
:4) L5	Aroclor-1248-4	1.383					1.383	E3	0.00
:5) L5	Aroclor-1248-5	3.861					3.861	E2	0.00
:6) L6	Aroclor-1254-1	6.508					6.508	E2	0.00
:7) L6	Aroclor-1254-2	1.654					1.654	E3	0.00
:8) L6	Aroclor-1254-3	1.347					1.347	E3	0.00
:9) L6	Aroclor-1254-4	1.229					1.229	E3	0.00
30) L6	Aroclor-1254-5	1.934					1.934	E3	0.00
31) L7	Aroclor-1260-1	0.932	0.826	0.835	0.940	1.018	0.910	E3	8.80
32) L7	Aroclor-1260-2	1.776	1.570	1.589	1.779	2.094	1.762	E3	11.95
33) L7	Aroclor-1260-3	1.557	1.410	1.413	1.512	1.613	1.501	E3	5.95
34) L7	Aroclor-1260-4	2.198	1.892	1.896	2.166	2.335	2.097	E3	9.35
35) L7	Aroclor-1260-5	9.868	9.154	9.208	9.581	9.923	9.547	E2	3.76
36) L8	Aroclor-1262-1	1.427					1.427	E3	0.00
37) L8	Aroclor-1262-2	9.163					9.163	E2	0.00
38) L8	Aroclor-1262-3	1.625					1.625	E3	0.00
39) L8	Aroclor-1262-4	2.466					2.466	E3	0.00
40) L8	Aroclor-1262-5	9.569					9.569	E2	0.00
41) L9	Aroclor-1268-1	1.822					1.822	E3	0.00
42) L9	Aroclor-1268-2	2.823					2.823	E3	0.00
43) L9	Aroclor-1268-3	2.030					2.030	E3	0.00
44) L9	Aroclor-1268-4	9.510					9.510	E2	0.00
45) L9	Aroclor-1268-5	6.190					6.190	E3	0.00

.gnal #2 Calibration Files
500 =PC006009.D 1000 =PC006007.D 750 =PC006008.D
250 =PC006010.D 50 =PC006011.D

	Compound	500	1000	750	250	50	Avg		%RSD
1) SA	Tetrachloro-m-xylene	3.775	3.401	3.401	3.835	4.287	3.740	E4	9.81
2) SA	Decachlorobiphenyl	5.299	4.287	4.568	5.676	6.971	5.360	E4	19.74
3) L1	Aroclor-1016-1	1.438	1.247	1.261	1.488	1.700	1.427	E3	13.04
4) L1	Aroclor-1016-2	3.184	2.761	2.819	3.290	4.101	3.231	E3	16.61

5)	L1	Aroclor-1016-3	1.446	1.285	1.297	1.571	1.806	1.441	E3	14.87
6)	L1	Aroclor-1016-4	1.150	1.053	1.047	1.093	1.333	1.135	E3	10.41
7)	L1	Aroclor-1016-5	1.286	1.147	1.152	1.313	1.755	1.331	E3	18.72
8)	L2	Aroclor-1221-1	4.034					4.034	E2	0.00
9)	L2	Aroclor-1221-2	2.531					2.531	E2	0.00
0)	L2	Aroclor-1221-3	1.029					1.029	E3	0.00
1)	L3	Aroclor-1232-1	9.573					9.573	E2	0.00
2)	L3	Aroclor-1232-2	7.881					7.881	E2	0.00
3)	L3	Aroclor-1232-3	1.595					1.595	E3	0.00
4)	L3	Aroclor-1232-4	7.212					7.212	E2	0.00
5)	L3	Aroclor-1232-5	5.920					5.920	E2	0.00
6)	L4	Aroclor-1242-1	1.444					1.444	E3	0.00
7)	L4	Aroclor-1242-2	2.850					2.850	E3	0.00
8)	L4	Aroclor-1242-3	1.307					1.307	E3	0.00
9)	L4	Aroclor-1242-4	9.980					9.980	E2	0.00
0)	L4	Aroclor-1242-5	1.332					1.332	E3	0.00
1)	L5	Aroclor-1248-1	1.894					1.894	E3	0.00
2)	L5	Aroclor-1248-2	2.277					2.277	E3	0.00
3)	L5	Aroclor-1248-3	1.799					1.799	E3	0.00
4)	L5	Aroclor-1248-4	1.660					1.660	E3	0.00
5)	L5	Aroclor-1248-5	2.181					2.181	E3	0.00
6)	L6	Aroclor-1254-1	2.778					2.778	E3	0.00
7)	L6	Aroclor-1254-2	4.040					4.040	E3	0.00
8)	L6	Aroclor-1254-3	1.816					1.816	E3	0.00
9)	L6	Aroclor-1254-4	3.664					3.664	E3	0.00
0)	L6	Aroclor-1254-5	4.530					4.530	E3	0.00
1)	L7	Aroclor-1260-1	2.260	1.937	1.982	2.378	2.801	2.272	E3	15.38
2)	L7	Aroclor-1260-2	2.734	2.349	2.343	2.856	3.346	2.726	E3	15.24
3)	L7	Aroclor-1260-3	3.668	3.388	3.460	3.618	4.923	3.811	E3	16.58
4)	L7	Aroclor-1260-4	4.985	4.290	4.410	5.238	6.166	5.018	E3	15.00
5)	L7	Aroclor-1260-5	4.007	3.425	3.580	3.653	4.748	3.882	E3	13.61
6)	L8	Aroclor-1262-1	1.889					1.889	E3	0.00
7)	L8	Aroclor-1262-2	2.148					2.148	E3	0.00
8)	L8	Aroclor-1262-3	2.498					2.498	E3	0.00
9)	L8	Aroclor-1262-4	3.052					3.052	E3	0.00
0)	L8	Aroclor-1262-5	6.304					6.304	E3	0.00
1)	L9	Aroclor-1268-1	6.609					6.609	E3	0.00
2)	L9	Aroclor-1268-2	7.097					7.097	E3	0.00
3)	L9	Aroclor-1268-3	6.071					6.071	E3	0.00
4)	L9	Aroclor-1268-4	2.794					2.794	E3	0.00
5)	L9	Aroclor-1268-5	1.627					1.627	E4	0.00

(#) = Out of Range

121311.M Thu Dec 15 04:22:34 2011 GC/MS

TETRA TECH **CALCULATION WORKSHEET** PAGE _____ OF _____

CLIENT	JOB NUMBER
NASJRB Willow Grove	SDG C5164
SUBJECT: Sample Calculation	
BASED ON	DRAWING NUMBER
BY: Ann Cognetta / CHECKED BY	APPROVED BY / DATE: February 27 2012

I. VOC; Sample RB-01-122911; 2-butanone

$$\frac{10426}{705892} * \frac{50\ ug/L}{0.23} = 3.2\ ug/L$$

II. SVOC; Sample 125B28-000.5-01; Phenanthrene

$$\frac{465062}{452184} * \frac{1000\ uL}{30.05g} * \frac{20ng}{1.058} * \frac{1}{0.76} = 851.3\ ug/kg$$

III. PAH; Sample 125B54-0.502-021 pyrene

$$\frac{23820178}{384407} * \frac{1000\ uL}{30.02g} * 50x * \frac{5\ ng}{5.364} * \frac{1}{0.80} = 12025.8\ ug/kg$$

IV PEST; Sample 125B58-000.5-01; 4,4'-DDE

$$\frac{130120}{30297597} * \frac{10000uL}{30.05g} * \frac{1}{0.688} = 2.1 ug/kg$$

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG040013.D	1		01/04/12	VG010412

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	11		0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	3.1		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	3.2	J	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

Sample Calculation

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG010412\
Data File : VG040013.D
Acq On : 4 Jan 2012 19:22
Operator : ZQ
Sample : C5164-23 RB-01-122911
Misc : 5mL,MSVOA_G
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 05 04:10:21 2012
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G010412W.M
Quant Title : SW846 8260
QLast Update : Thu Jan 05 03:54:13 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Pentafluorobenzene	3.91	168	705892	50.00	ug/l		0.00
33) 1,4-Difluorobenzene	4.71	114	1025691	50.00	ug/l		0.00
62) Chlorobenzene-d5	9.68	117	1024929	50.00	ug/l		0.00
71) 1,4-Dichlorobenzene-d4	13.39	152	532036	50.00	ug/l		0.00
System Monitoring Compounds							
32) 1,2-Dichloroethane-d4	3.90	65	530061	44.65	ug/l		0.00
Spiked Amount 50.000			Recovery =	89.30%			
34) Dibromofluoromethane	3.25	113	490923	45.18	ug/l		0.00
Spiked Amount 50.000			Recovery =	90.36%			
49) Toluene-d8	7.18	98	1049036	45.92	ug/l		0.00
Spiked Amount 50.000			Recovery =	91.84%			
61) 4-Bromofluorobenzene	11.64	95	533748	49.54	ug/l		0.00
Spiked Amount 50.000			Recovery =	99.08%			
Target Compounds							Qvalue
8) Diethyl Ether	1.19	74	96	Below Cal			56
11) Tert butyl alcohol	2.05	59	14084	24.47	ug/l		98
13) Acrolein	1.63	56	1094	Below Cal			88
15) Acrylonitrile	2.34	53	815	0.58	ug/l	#	28
16) Acetone	1.80	43	9716	10.60	ug/l		97
20) Methylene Chloride	1.76	84	21864	3.14	ug/l		94
25) 2-Butanone	3.44	43	10426	3.22	ug/l	#	86
26) 2,2-Dichloropropane	2.85	77	654	0.78	ug/l	#	62
28) Bromochloromethane	3.04	49	230	Below Cal			87
36) Ethyl Acetate	3.25	43	1793	0.73	ug/l	#	47
40) Methacrylonitrile	3.82	41	505	0.46	ug/l	#	57
44) 1,2-Dichloropropane	5.51	63	1105	1.11	ug/l	#	69
47) Methyl methacrylate	6.15	41	1923	0.74	ug/l	#	33
48) 1,4-Dioxane	6.22	88	765	17.48	ug/l	#	42
50) 4-Methyl-2-Pentanone	8.04	43	808	3.42	ug/l	#	39
57) 2-Chloroethyl Vinyl ether	6.90	63	611	0.54	ug/l	#	44
58) 2-Hexanone	9.46	43	1665	2.27	ug/l		89
79) 1,3,5-Trimethylbenzene	12.28	105	1762	1.12	ug/l		99
94) Naphthalene	16.94	128	12100	0.61	ug/l	#	91
95) 1,2,3-Trichlorobenzene	17.24	180	5632	0.65	ug/l		68

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: MSVOAG Calibration Date(s): 01/04/2012 01/04/2012

Heated Purge: (Y/N) N Calibration Time(s): 13:14 15:39

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG040003.D RRF001 = VG040002.D RRF020 = VG040004.D
RRF050 = VG040005.D RRF100 = VG040006.D RRF150 = VG040007.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF150	RRF	% RSD
Dichlorodifluoromethane	0.487	0.441	0.541	0.618	0.583	0.497	0.528	12.4
Chloromethane	0.426	0.447	0.443	0.530	0.494	0.434	0.462	8.9
Vinyl Chloride	0.386	0.431	0.388	0.453	0.427	0.381	0.411	7.3
Bromomethane	0.431	0.461	0.400	0.460	0.441	0.389	0.43	7
Chloroethane	0.227	0.215	0.222	0.256	0.269	0.265	0.243	9.7
Trichlorofluoromethane	0.988	1.056	0.962	1.114	1.008	0.883	1.002	7.9
1,1,2-Trichlorotrifluoroethane	0.467	0.490	0.437	0.504	0.471	0.411	0.463	7.4
1,1-Dichloroethene	0.450	0.484	0.435	0.511	0.475	0.404	0.46	8.3
Acetone	0.142	0.196	0.130	0.154	0.133	0.110	0.144	20.2
Carbon Disulfide	1.223	1.455	1.160	1.415	1.254	1.086	1.266	11.4
Methyl tert-butyl Ether	1.266	1.435	1.279	1.547	1.311	1.148	1.331	10.6
Methyl Acetate	0.668	0.766	0.594	0.728	0.622	0.572	0.658	11.7
Methylene Chloride	0.482	0.597	0.436	0.547	0.480	0.421	0.494	13.5
trans-1,2-Dichloroethene	0.481	0.620	0.453	0.575	0.487	0.435	0.508	14.3
1,1-Dichloroethane	0.882	0.904	0.818	0.980	0.873	0.783	0.873	7.9
Cyclohexane	0.510	0.650	0.469	0.524	0.501	0.448	0.517	13.7
2-Butanone	0.223	0.280	0.206	0.260	0.220	0.189	0.23	14.8
Carbon Tetrachloride	0.623	0.752	0.589	0.681	0.595	0.512	0.625	13.2
cis-1,2-Dichloroethene	0.566	0.544	0.542	0.641	0.565	0.509	0.561	7.9
Bromochloromethane	0.448	0.581	0.467	0.350	0.339	0.334	0.42	23.2
Chloroform	1.164	1.245	1.116	1.270	1.104	0.999	1.149	8.7
1,1,1-Trichloroethane	0.929	1.083	0.926	1.098	0.940	0.815	0.965	11.1
Methylcyclohexane	0.429	0.419	0.401	0.438	0.403	0.347	0.406	7.9
Benzene	0.988	1.225	0.929	1.123	0.980	0.884	1.022	12.5
1,2-Dichloroethane	0.707	0.743	0.631	0.721	0.629	0.543	0.662	11.3
Trichloroethene	0.370	0.435	0.363	0.397	0.354	0.324	0.374	10.2
1,2-Dichloropropane	0.249	0.357	0.240	0.273	0.241	0.214	0.262	19.1
Bromodichloromethane	0.560	0.636	0.575	0.645	0.559	0.506	0.58	9.1
4-Methyl-2-Pentanone	0.286	0.316	0.266	0.298	0.237	0.200	0.267	16
Toluene	0.684	0.770	0.648	0.755	0.640	0.573	0.678	11
t-1,3-Dichloropropene	0.482	0.465	0.494	0.584	0.511	0.456	0.499	9.3

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	24
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE074910.D	1	01/03/12	01/07/12	PB60339

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	215	U	45	430	ug/Kg
100-02-7	4-Nitrophenol	215	U	81	430	ug/Kg
132-64-9	Dibenzofuran	215	U	17	430	ug/Kg
121-14-2	2,4-Dinitrotoluene	215	U	13	430	ug/Kg
84-66-2	Diethylphthalate	215	U	6.8	430	ug/Kg
7005-72-3	4-Chlorophenyl-phenylether	215	U	24	430	ug/Kg
100-01-6	4-Nitroaniline	215	U	57	430	ug/Kg
534-52-1	4,6-Dinitro-2-methylphenol	215	U	25	430	ug/Kg
86-30-6	N-Nitrosodiphenylamine	215	U	11	430	ug/Kg
101-55-3	4-Bromophenyl-phenylether	215	U	8.5	430	ug/Kg
118-74-1	Hexachlorobenzene	215	U	18	430	ug/Kg
1912-24-9	Atrazine	215	U	23	430	ug/Kg
87-86-5	Pentachlorophenol	215	U	30	430	ug/Kg
85-01-8	Phenanthrene	850		12	430	ug/Kg
86-74-8	Carbazole	215	U	9.6	430	ug/Kg
84-74-2	Di-n-butylphthalate	215	U	34	430	ug/Kg
85-68-7	Butylbenzylphthalate	215	U	21	430	ug/Kg
91-94-1	3,3-Dichlorobenzidine	215	U	28	430	ug/Kg
117-81-7	bis(2-Ethylhexyl)phthalate	215	U	16	430	ug/Kg
117-84-0	Di-n-octyl phthalate	215	U	5	430	ug/Kg
95-94-3	1,2,4,5-Tetrachlorobenzene	215	U	17	430	ug/Kg
58-90-2	2,3,4,6-Tetrachlorophenol	215	U	430	430	ug/Kg
SURROGATES						
367-12-4	2-Fluorophenol	124		35 - 105	83%	SPK: 150
13127-88-3	Phenol-d5	127		40 - 100	85%	SPK: 150
4165-60-0	Nitrobenzene-d5	82.7		35 - 100	83%	SPK: 100
321-60-8	2-Fluorobiphenyl	82.3		45 - 105	82%	SPK: 100
118-79-6	2,4,6-Tribromophenol	123		35 - 125	82%	SPK: 150
1718-51-0	Terphenyl-d14	79.7		30 - 125	80%	SPK: 100
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	122617	8.61			
1146-65-2	Naphthalene-d8	474444	10.79			

Sample Calculation

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_E Calibration Date(s): 01/05/2012 01/05/2012

Calibration Time(s): 14:35 18:12

LAB FILE ID: RRF010 = BE074858.D RRF025 = BE074859.D RRF040 = BE074860.D
RRF050 = BE074861.D RRF060 = BE074862.D RRF080 = BE074863.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
4-Chlorophenyl-phenylether	0.564	0.569	0.565	0.562	0.546	0.540	0.557	2.1
4-Nitroaniline	0.323	0.357	0.363	0.365	0.369	0.369	0.358	4.9
4,6-Dinitro-2-methylphenol	0.067	0.092	0.106	0.111	0.117	0.125	0.103	20.3
n-Nitrosodiphenylamine	0.607	0.640	0.623	0.630	0.626	0.624	0.625	1.7
4-Bromophenyl-phenylether	0.169	0.176	0.166	0.173	0.175	0.171	0.172	2.2
Hexachlorobenzene	0.194	0.187	0.181	0.186	0.182	0.180	0.185	2.9
Atrazine	0.163	0.178	0.176	0.179	0.183	0.181	0.177	4.0
Pentachlorophenol	0.064	0.086	0.095	0.099	0.107	0.112	0.094	18.2
Phenanthrene	1.072	1.095	1.051	1.047	1.054	1.026	1.058	2.2
Carbazole	0.992	1.057	1.031	1.038	1.026	1.031	1.029	2.1
Di-n-butylphthalate	0.998	1.113	1.122	1.138	1.138	1.142	1.108	5.0
Butylbenzylphthalate	0.423	0.477	0.489	0.508	0.508	0.520	0.488	7.2
3,3-Dichlorobenzidine	0.321	0.357	0.355	0.350	0.346	0.335	0.344	4.0
Bis(2-ethylhexyl)phthalate	0.619	0.697	0.699	0.710	0.726	0.733	0.697	5.9
Di-n-octyl phthalate	0.928	1.091	1.107	1.156	1.171	1.197	1.108	8.7
1,2,4,5-Tetrachlorobenzene	0.497	0.479	0.478	0.457	0.467	0.449	0.471	3.7
2,3,4,6-Tetrachlorophenol	0.233	0.260	0.261	0.262	0.264	0.272	0.259	5.1
2-Fluorophenol	1.254	1.298	1.258	1.270	1.289	1.295	1.277	1.5
Phenol-d5	1.585	1.645	1.619	1.659	1.669	1.660	1.639	1.9
Nitrobenzene-d5	0.330	0.348	0.349	0.348	0.344	0.349	0.345	2.1
2-Fluorobiphenyl	1.363	1.341	1.301	1.275	1.236	1.199	1.286	4.8
2,4,6-Tribromophenol	0.129	0.139	0.141	0.140	0.142	0.138	0.138	3.4
Terphenyl-d14	0.736	0.729	0.693	0.690	0.668	0.639	0.693	5.3

All other compounds must meet a minimum RRF of 0.010.

Form VI SV-1

Sample Calculation

Data Path : Z:\HPCHEM1\BNA_E\Data\BE010612\
Data File : BE074910.D
Acq On : 7 Jan 2012 6:45
Operator : QM
Sample : C5164-02 Sample 125B28-000.5-01
Misc :
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jan 07 07:26:55 2012
Quant Method : Z:\HPCHEM1\BNA_E\Method\8270-BE010512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 06 01:52:02 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	8.614	152	122617	20.00	ng	-0.01
23) Naphthalene-d8	10.794	136	474444	20.00	ng	0.00
40) Acenaphthene-d10	13.755	164	255947	20.00	ng	0.00
65) Phenanthrene-d10	16.229	188	452184	20.00	ng	-0.01
77) Chrysene-d12	20.671	240	441586	20.00	ng	-0.02
88) Perylene-d12	24.331	264	398335	20.00	ng	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	6.393	112	974141	124.39	ng	0.00
7) Phenol-d5	7.927	99	1283248	127.68	ng	0.00
12) 2-Chlorophenol-d4	8.232	132	976409	125.46	ng	0.00
15) 1,2-Dichlorobenzene-d4	8.890	152	427142	77.00	ng	0.00
25) Nitrobenzene-d5	9.543	82	676469	82.72	ng	0.00
43) 2,4,6-Tribromophenol	15.066	330	218947	123.67	ng	0.00
46) 2-Fluorobiphenyl	12.598	172	1354748	82.33	ng	-0.01
80) Terphenyl-d14	18.838	244	1218530	79.66	ng	-0.01
Target Compounds						Qvalue
55) 2,4-Dinitrophenol	13.826	184	24	8.57	ng	# 21
66) 4,6-Dinitro-2-methylph...	14.707	198	25	7.03	ng	# 1
71) Pentachlorophenol	15.917	266	1259	7.07	ng	# 78
72) Phenanthrene	16.264	178	465062	19.45	ng	99
73) Anthracene	16.352	178	104246	4.37	ng	98
76) Fluoranthene	18.244	202	1100411	45.39	ng	99
79) Pyrene	18.626	202	1035615	40.52	ng	99
82) Benzo(a)anthracene	20.647	228	473323	20.53	ng	98
84) Chrysene	20.718	228	467753	20.62	ng	98
87) Indeno(1,2,3-cd)pyrene	28.632	276	186606	8.32	ng	# 89
89) Benzo(b)fluoranthene	23.162	252	454843	21.68	ng	97
90) Benzo(k)fluoranthene	23.162	252	454843	20.58	ng	98
91) Benzo(a)pyrene	24.149	252	324517	16.16	ng	93
93) Benzo(g,h,i)perylene	29.977	276	175599	9.06	ng	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB54-0.502-02DL	SDG No.:	C5164
Lab Sample ID:	C5164-03DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group2
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002778.D	50	01/03/12	01/12/12	PB60340

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	105	UD	25	210	ug/Kg
91-57-6	2-Methylnaphthalene	105	UD	25	210	ug/Kg
208-96-8	Acenaphthylene	170	JD	25	210	ug/Kg
83-32-9	Acenaphthene	420	D	25	210	ug/Kg
86-73-7	Fluorene	600	D	25	210	ug/Kg
85-01-8	Phenanthrene	8500	D	25	210	ug/Kg
120-12-7	Anthracene	2000	D	25	210	ug/Kg
206-44-0	Fluoranthene	15000	D	25	210	ug/Kg
129-00-0	Pyrene	12000	D	25	210	ug/Kg
56-55-3	Benzo(a)anthracene	6300	D	25	210	ug/Kg
218-01-9	Chrysene	6200	D	25	210	ug/Kg
205-99-2	Benzo(b)fluoranthene	6400	D	25	210	ug/Kg
207-08-9	Benzo(k)fluoranthene	2600	D	25	210	ug/Kg
50-32-8	Benzo(a)pyrene	4900	D	25	210	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	3100	D	25	210	ug/Kg
53-70-3	Dibenz(a,h)anthracene	830	D	25	210	ug/Kg
191-24-2	Benzo(g,h,i)perylene	2700	D	25	210	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.5		30 - 150	75%	SPK: 10
321-60-8	2-Fluorobiphenyl	9		45 - 105	90%	SPK: 10
1718-51-0	Terphenyl-d14	-13	*	30 - 125	-135%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80294	7.81			
1146-65-2	Naphthalene-d8	337836	9.98			
15067-26-2	Acenaphthene-d10	229422	12.96			
1517-22-2	Phenanthrene-d10	398097	15.4			
1719-03-5	Chrysene-d12	384407	19.76			
1520-96-3	Perylene-d12	354359	22.71			

Quantitation Report (Not Reviewed)

Sample Calculated

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG011212\
Data File : BG002778.D
Acq On : 12 Jan 2012 11:29
Operator : HNP
Sample : C5164-03DL 50X Sample 125B54-0.502-02
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jan 13 03:49:42 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.81	152	80294	5.00	ng		-0.01
2) Naphthalene-d8	9.98	136	337836	5.00	ng		-0.02
7) Acenaphthene-d10	12.96	164	229422	5.00	ng		-0.01
12) Phenanthrene-d10	15.40	188	398097	5.00	ng		-0.02
16) Chrysene-d12	19.76	240	384407	5.00	ng		-0.03
22) Perylene-d12	22.71	264	354359	5.00	ng		-0.04
System Monitoring Compounds							
3) Nitrobenzene-d5	8.74	82	3618	0.15	ng		-0.02
8) 2-Fluorobiphenyl	11.84	172	11695	0.18	ng		-0.01
18) Terphenyl-d14	18.03	244	11024	-0.27	ng		-0.02
Target Compounds							Qvalue
9) Acenaphthylene	12.72	152	23192	0.08	ng	#	94
10) Acenaphthene	13.00	154	10047	0.20	ng		94
11) Fluorene	13.87	166	18076	0.29	ng		98
13) Phenanthrene	15.44	178	1470239	4.07	ng		100
14) Anthracene	15.52	178	347825	0.97	ng		98
15) Fluoranthene	17.41	202	2894024	7.21	ng		99
17) Pyrene	17.78	202	2382078	5.78	ng		94
19) Benzo(a)anthracene	19.80	228	1040946	2.78	ng		94
20) Chrysene	19.80	228	1040946	2.96	ng		97
21) Indeno(1,2,3-cd)pyrene	26.10	276	413739	1.51	ng	#	90
23) Benzo(b)fluoranthene	22.02	252	303981	0.37	ng		95
24) Benzo(k)fluoranthene	21.79	252	2484097	3.07	ng	#	93
25) Benzo(a)pyrene	22.56	252	1796300	2.36	ng		97
26) Dibenzo(a,h)anthracene	26.18	278	24923	0.40	ng		97
27) Benzo(g,h,i)perylene	27.15	276	331387	1.31	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sample Calculation

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: C5164 SAS No.: C5164 SDG No.: C5164

Instrument ID: BNA_G Calibration Date(s): 01/10/2012 01/10/2012

Calibration Time(s): 14:55 17:31

LAB FILE ID: RRF0.1 = BG002714.D RRF0.5 = BG002715.D RRF2.5 = BG002716.D
RRF010 = BG002717.D RRF025 = BG002718.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.697	4.720	4.145	4.193	3.516		4.255	11.6
2-Methylnapthalene	3.145	3.296	2.960	3.065	2.668		3.027	7.8
Acenaphthylene	6.915	7.128	6.256	6.553	5.495		6.469	9.9
Acenaphthene	1.271	1.173	1.022	1.064	0.948		1.096	11.6
Fluorene	1.436	1.482	1.287	1.362	1.135		1.340	10.2
Phenanthrene	5.118	4.988	4.352	4.481	3.726		4.533	12.3
Anthracene	4.799	4.894	4.433	4.584	3.828		4.508	9.3
Fluoranthene	5.433	5.520	4.934	5.135	4.175		5.039	10.7
Pyrene	5.997	5.852	5.148	5.361	4.460		5.364	11.4
Benzo(a)anthracene	5.705	5.293	4.590	4.702	4.034		4.865	13.3
Chrysene	5.164	5.026	4.435	4.460	3.749		4.567	12.3
Benzo(b)fluoranthene	12.086	11.779	10.600	11.665	11.144		11.455	5.1
Benzo(k)fluoranthene	11.485	12.268	11.055	11.921	10.344		11.415	6.6
Benzo(a)pyrene	11.048	11.125	10.189	11.182	10.136		10.736	4.9
Indeno(1,2,3-cd)pyrene	3.533	3.731	3.640	3.853	3.100		3.571	8.1
Dibenzo(a,h)anthracene	0.836	0.899	0.897	0.955	0.789		0.875	7.3
Benzo(g,h,i)perylene	3.793	3.740	3.608	3.591	3.073		3.561	8.0
Nitrobenzene-d5	0.380	0.375	0.346	0.382	0.353		0.367	4.5
2-Fluorobiphenyl	1.596	1.581	1.387	1.452	1.223		1.448	10.6
Terphenyl-d14	1.162	1.059	0.751	0.775	0.664		0.882	24.5

All other compounds must meet a minimum RRF of 0.010.

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB58-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-14	Matrix:	SOIL
Analytical Method:	SW8081A	% Moisture:	31.2 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PG003763.D	1	12/30/11	01/07/12	PB60327

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
319-84-6	alpha-BHC	1.25	U	0.19	2.5	ug/Kg
319-85-7	beta-BHC	1.25	U	0.26	2.5	ug/Kg
319-86-8	delta-BHC	1.25	U	0.15	2.5	ug/Kg
58-89-9	gamma-BHC	1.25	U	0.22	2.5	ug/Kg
76-44-8	Heptachlor	1.25	U	0.2	2.5	ug/Kg
309-00-2	Aldrin	1.25	U	0.15	2.5	ug/Kg
1024-57-3	Heptachlor epoxide	1.25	U	0.23	2.5	ug/Kg
959-98-8	Endosulfan I	1.25	U	0.22	2.5	ug/Kg
60-57-1	Dieldrin	1.25	U	0.19	2.5	ug/Kg
72-55-9	4,4-DDE	2.1	J	0.29	2.5	ug/Kg
72-20-8	Endrin	1.25	U	0.26	2.5	ug/Kg
33213-65-9	Endosulfan II	1.25	U	0.2	2.5	ug/Kg
72-54-8	4,4-DDD	1.25	U	0.25	2.5	ug/Kg
1031-07-8	Endosulfan Sulfate	1.25	U	0.22	2.5	ug/Kg
50-29-3	4,4-DDT	1.6	JP	0.2	2.5	ug/Kg
72-43-5	Methoxychlor	1.25	U	0.25	2.5	ug/Kg
53494-70-5	Endrin ketone	1.25	U	0.19	2.5	ug/Kg
7421-93-4	Endrin aldehyde	1.25	U	0.22	2.5	ug/Kg
5103-71-9	alpha-Chlordane	1.25	U	0.2	2.5	ug/Kg
5103-74-2	gamma-Chlordane	1.25	U	0.19	2.5	ug/Kg
8001-35-2	Toxaphene	12.5	U	14	25	ug/Kg
SURROGATES						
2051-24-3	Decachlorobiphenyl	16.9		55 - 130	85%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.6		70 - 125	88%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

Sample Calculation

Data Path : P:\HPCHEM1\Ecd_G\Data\PG010612\
Data File : PG003763.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 7 Jan 2012 5:22
Operator : JJ
Sample : C5164-14 Sample 125B58-000.5-01
Misc :
ALS Vial : 44 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jan 07 07:52:29 2012
Quant Method : P:\HPCHEM1\Ecd_G\Method\PG010612.M
Quant Title : GC Extractables
QLast Update : Sat Jan 07 07:26:32 2012
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 µl
Signal #1 Phase : ZB-MR1 Signal #2 Phase: ZB-MR2
Signal #1 Info : 30M x 0.32mm x0.5 Signal #2 Info : 30M x 0.32mm x0.25µm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/ml	ng/ml	
	System Monitoring Compounds							
.)	SA Tetrachlo...	4.770	4.066	85655	446574	17.575	18.041	
2)	SA Decachlor...	11.369	9.731	139290	468693	16.909	17.025	
	Target Compounds							
3)	MA gamma-BHC...	5.570	0.000	16680	0	3.474	N.D.	#
2)	B 4,4'-DDE	7.523	6.601	22857	130120	4.877	4.295	
5)	A 4,4'-DDD	0.000	7.210	0	109191	N.D.	4.878	#
7)	MA 4,4'-DDT	8.426	7.467	26126	57659	6.754	2.505	#

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

CHEMTECH

Sample Calculation

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG NO.:** C5164

Instrument ID: ECD_G **Calibration Date(s):** 01/06/2012 01/06/2012

Calibration Times: 17:47 19:00

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: CF 005 = PG003729.D CF 025 = PG003728.D

CF 050 = PG003727.D CF 075 = PG003726.D CF 100 = PG003725.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3469080	2616744	2665356	2543540	2469922	2752928	15
Tetrachloro-m-xylene	2962380	2577744	2404358	2238951	2192933	2475273	13
alpha-BHC	36725000	36173720	35325700	33753920	33487680	35093204	4
beta-BHC	18551000	17116000	16209960	15123187	14817940	16363617	9
delta-BHC	30943800	31082720	30642540	29171013	28769590	30121933	4
gamma-BHC (Lindane)	38024600	35897880	34660600	32849853	32670030	34820593	6
Heptachlor	36212400	33307960	31961740	29662453	29017590	32032429	9
Aldrin	35154600	33201000	32125800	30001560	29294340	31955460	7
Heptachlor epoxide	36601000	31857560	30268980	28540080	27202690	30894062	12
Endosulfan I	32357400	29196280	28069360	26047707	25330100	28200169	10
Dieldrin	34786000	31076640	29944560	27919933	27202010	30185829	10
4,4-DDE	34756200	30856160	30099680	28247133	27528810	30297597	9
Endrin	19400800	19419800	19328140	18294240	17995890	18887774	4
Endosulfan II	31454400	23929760	25706100	23975080	23510600	25715188	13
4,4-DDD	24250400	22376640	22696360	21483147	21126720	22386653	5
Endosulfan sulfate	27241600	20657920	22974880	21608507	21237130	22744007	12
4,4-DDT	25195600	20752840	24066020	22694120	22382800	23018276	7
Methoxychlor	12861800	9920360	10600500	10726653	10710710	10964005	10
Endrin ketone	23684000	15168080	21385740	19845160	19229340	19862464	16
Endrin aldehyde	27841000	21142320	22304880	20619373	20016180	22384751	14
alpha-Chlordane	36536000	31924000	30932680	29226440	28655870	31454998	10
gamma-Chlordane	36453800	32321400	30839840	29528440	28958720	31620440	9

Tetra Tech **INTERNAL CORRESPONDENCE**

TO:	**A. FREBOWITZ**	**DATE:**	**March 8, 2012**
FROM:	**MEGAN CARSON**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, AND pH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – C5164

SAMPLES: 10/Soil/

12SB-DUP03-122911	12SB28-000.5-01	12SB45-0.502-02
12SB46-0.502-02	12SB47-0.502-02	12SB49-0.502-02
12SB50-0.502-02	12SB51-0.502-02	12SB52-0.502-02
12SB53-0.502-02		

1/Water/
RB-01-122911

Overview

The sample set for NASJRB Willow Grove, SDG C5164, consists of ten (10) soil environmental samples and one (1) rinsate blank. This SDG contained one field duplicate pair: 12SB-DUP03-122911/12SB45-0.502-02.

Samples 12SB28-000.5-01 and RB-01-122911 were analyzed for target analyte list (TAL) metals and cyanide. Samples 12SB-DUP03-122911, 12SB45-0.502-02, 12SB47-0.502-02, and 12SB46-0.502-02 were analyzed for cadmium and copper. Samples 12SB49-0.502-02, 12SB50-0.502-02, 12SB51-0.502-02, 12SB52-0.502-02, and 12SB53-0.502-02 were analyzed for lead. Sample 12SB28-000.5-01 was analyzed for pH. The samples were collected by Tetra Tech on December 29th, 2011 and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7471A. Cyanide analyses were conducted using method 9012B. pH analyses were conducted using standard method 1498.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The CRDL standard analyzed on 1/05/12 had a percent recovery >110% for aluminum and manganese and a percent recovery < 90% for nickel and vanadium. Sample RB-01-122911 was affected. The positive result for aluminum was qualified as estimated (J) due to conflicting directional bias. The non-detected vanadium result was qualified as biased low (UL). No other validation action was taken as sample results were > 2X LOQ.

- The CRDL standard analyzed on 1/09/12 had a percent recovery < 90% for cadmium. Samples analyzed on 1/9/12 were affected. The positive cadmium result for sample 12SB45-0.502-02 was qualified as estimated (J) due to conflicting directional bias. No other validation action was taken as sample results were > 2X LOQ.

- The matrix spike and/or matrix spike duplicate had a percent recovery < 80% for antimony, beryllium, manganese, chromium, cobalt, potassium, sodium, and vanadium. Sample 12SB28-000.5-01 was affected. Positive results were qualified as biased low (L) and estimated (J) due to conflicting directional bias.

- The serial dilution had a percent difference > 10% for arsenic, calcium, chromium, cobalt copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc. All samples were affected. Positive results were qualified as estimated (J).

- The field duplicate pair 12SB-DUP03-122911/12SB45-0.502-02 had a relative percent difference > 50% for copper and a difference > 4X LOQ for cadmium. All samples were affected. Positive results were qualified as estimated (J).

Notes

Non-detected results were reported to the limit of detection (LOD).

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

The following contaminants were detected in preparation and calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Iron [1]	1.56 mg/kg	7.8 mg/kg
Antimony [2]	0.92 ug/L	0.46 mg/kg
Barium [2]	0.21 ug/L	0.1 mg/kg
Beryllium [2]	0.12 ug/L	0.06 mg/kg
Chromium [2]	0.11 ug/L	0.055 mg/kg
Lead [2]	0.11 ug/L	0.055 mg/kg
Iron [2]	16.5 ug/L	8.25 mg/kg
Manganese [2]	0.11 ug/L	0.055 mg/kg
Silver [2]	0.08 ug/L	0.04 mg/kg
Sodium [2]	7.49 ug/L	3.74 mg/kg
Thallium [2]	0.13 ug/L	0.064 mg/kg
Vanadium [2]	0.25 ug/L	0.12 mg/kg
Copper [3]	0.24 ug/L	0.12 mg/kg

[1] Maximum concentration found in a preparation blank affecting samples in batch PB60337.

[2] Maximum concentration found in a calibration blank affecting sample12SB28-000.5-01.

(3) Maximum concentration found in a calibration blank affecting samples 12SB-DUP03-122911, 12SB45-0.502-02, 12SB46-0.502-02, and 12SB47-0.502-02.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. No validation action was warranted.

Executive Summary

Laboratory Performance: CRDL standard non-compliances resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike/matrix spike duplicate non-compliances resulted in the qualification of sample results. Serial dilution non-compliances resulted in the qualification of sample results. Field duplicate non-compliances resulted in the qualification of sample results.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	RB-01-122911		
SDG: C5164	LAB_ID	C5164-23		
FRACTION: M	SAMP_DATE	12/29/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	100.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ALUMINUM		5.1	J	CP
ANTIMONY		1	U	
ARSENIC		0.5	U	
BARIUM		0.45	J	P
BERYLLIUM		0.5	U	
CADMIUM		0.5	U	
CALCIUM		64.1	J	P
CHROMIUM		16.8		
COBALT		0.48	J	P
COPPER		1.2	J	P
IRON		49.6	J	P
LEAD		0.3	J	P
MAGNESIUM		12.1	J	P
MANGANESE		6.4		
MERCURY		0.1	U	
NICKEL		26.5		
POTASSIUM		250	U	
SELENIUM		2.5	U	
SILVER		0.5	U	
SODIUM		48.6	J	P
THALLIUM		0.5	U	
VANADIUM		2.5	UL	C
ZINC		5.6		

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01			12SB28-000.5-01DL			12SB45-0.502-02			12SB46-0.502-02		
SDG: C5164	LAB_ID	C5164-02			C5164-02DL			C5164-18			C5164-19		
FRACTION: M	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	76.1			76.1			81.1			73.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM					10800								
ANTIMONY		0.7	L	D									
ARSENIC		5	J	I									
BARIUM		84.5											
BERYLLIUM		0.8	L	D									
CADMIUM		0.29	J	G				0.17	J	CG	0.8	J	G
CALCIUM		1390	J	I									
CHROMIUM		15.6	J	DI									
COBALT		6.3	J	DI									
COPPER		12.2	J	GI				4.9	J	GI	18.9	J	GI
IRON					17100	J	I						
LEAD		33.5											
MAGNESIUM		1450	J	I									
MANGANESE					499	J	DI						
MERCURY		0.093											
NICKEL		8.9	J	I									
POTASSIUM		449	J	DI									
SELENIUM		0.39	J	P									
SILVER		0.084	J	P									
SODIUM		34.5	J	DP									
THALLIUM		0.14											
VANADIUM		22.5	J	DI									
ZINC		44	J	I									

PROJ_NO: 02014	NSAMPLE	12SB47-0.502-02			12SB49-0.502-02			12SB50-0.502-02			12SB51-0.502-02		
SDG: C5164	LAB_ID	C5164-17			C5164-06			C5164-12			C5164-09		
FRACTION: M	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.4			79.7			78.4			85.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM													
ANTIMONY													
ARSENIC													
BARIUM													
BERYLLIUM													
CADMIUM		0.31	J	G									
CALCIUM													
CHROMIUM													
COBALT													
COPPER		12.7	J	GI									
IRON													
LEAD					9.7			9.5			31.8		
MAGNESIUM													
MANGANESE													
MERCURY													
NICKEL													
POTASSIUM													
SELENIUM													
SILVER													
SODIUM													
THALLIUM													
VANADIUM													
ZINC													

PROJ_NO: 02014	NSAMPLE	12SB52-0.502-02DL			12SB53-0.502-02DL			12SB-DUP03-122911		
SDG: C5164	LAB_ID	C5164-10DL			C5164-11DL			C5164-22		
FRACTION: M	SAMP_DATE	12/29/2011			12/29/2011			12/29/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.6			80.3			80.9		
	DUP_OF							12SB45-0.502-02		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM										
ANTIMONY										
ARSENIC										
BARIUM										
BERYLLIUM										
CADMIUM								1.1	J	G
CALCIUM										
CHROMIUM										
COBALT										
COPPER								13.2	J	GI
IRON										
LEAD		1410			470					
MAGNESIUM										
MANGANESE										
MERCURY										
NICKEL										
POTASSIUM										
SELENIUM										
SILVER										
SODIUM										
THALLIUM										
VANADIUM										
ZINC										

PROJ_NO: 02014	NSAMPLE	12SB28-000.5-01					
SDG: C5164	LAB_ID	C5164-02					
FRACTION: MISC	SAMP_DATE	12/29/2011					
MEDIA: SOIL	QC_TYPE	NM					
	UNITS	MG/KG			S.U.		
	PCT_SOLIDS	76.1			100.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.182	J	P			
PH					6.32		

PROJ_NO: 02014	NSAMPLE	RB-01-122911		
SDG: C5164	LAB_ID	C5164-23		
FRACTION: MISC	SAMP_DATE	12/29/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	MG/L		
	PCT_SOLIDS	100.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
CYANIDE		0.0025	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5.1	J	1	5	20	ug/L	01/03/12	01/05/12	SW6020
7440-36-0	Antimony	1	UN	1	0.14	2	ug/L	01/03/12	01/05/12	SW6020
7440-38-2	Arsenic	0.5	UN	1	0.18	1	ug/L	01/03/12	01/05/12	SW6020
7440-39-3	Barium	0.45	J	1	0.1	10	ug/L	01/03/12	01/05/12	SW6020
7440-41-7	Beryllium	0.5	UN	1	0.09	1	ug/L	01/03/12	01/05/12	SW6020
7440-43-9	Cadmium	0.5	UN	1	0.13	1	ug/L	01/03/12	01/05/12	SW6020
7440-70-2	Calcium	64.1	J	1	9.1	500	ug/L	01/03/12	01/05/12	SW6020
7440-47-3	Chromium	16.8	N*	1	0.04	2	ug/L	01/03/12	01/05/12	SW6020
7440-48-4	Cobalt	0.48	J	1	0.05	1	ug/L	01/03/12	01/05/12	SW6020
7440-50-8	Copper	1.2	J*	1	0.04	2	ug/L	01/03/12	01/05/12	SW6020
7439-89-6	Iron	49.6	JN	1	10.3	200	ug/L	01/03/12	01/05/12	SW6020
7439-92-1	Lead	0.3	JN	1	0.04	1	ug/L	01/03/12	01/05/12	SW6020
7439-95-4	Magnesium	12.1	JN	1	5	500	ug/L	01/03/12	01/05/12	SW6020
7439-96-5	Manganese	6.4		1	0.05	1	ug/L	01/03/12	01/05/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.2	ug/L	01/03/12	01/04/12	SW7470A
7440-02-0	Nickel	26.5	*	1	0.06	1	ug/L	01/03/12	01/05/12	SW6020
7440-09-7	Potassium	250	U	1	12.2	500	ug/L	01/03/12	01/05/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	5	ug/L	01/03/12	01/05/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	1	ug/L	01/03/12	01/05/12	SW6020
7440-23-5	Sodium	48.6	JN	1	5.3	500	ug/L	01/03/12	01/05/12	SW6020
7440-28-0	Thallium	0.5	UN	1	0.02	1	ug/L	01/03/12	01/05/12	SW6020
7440-62-2	Vanadium	2.5	UN	1	0.15	5	ug/L	01/03/12	01/05/12	SW6020
7440-66-6	Zinc	5.6		1	0.09	2	ug/L	01/03/12	01/05/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB-DUP03-122911	SDG No.:	C5164
Lab Sample ID:	C5164-22	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7440-43-9	Cadmium	1.1		1	0.01	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-50-8	Copper	13.2		1	0.007	0.22	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group4				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	76.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	9100	OR	1	0.735	2.172	mg/Kg	01/03/12	01/09/12	SW6020
7440-36-0	Antimony	0.7	N	1	0.028	0.22	mg/Kg	01/03/12	01/09/12	SW6020
7440-38-2	Arsenic	5		1	0.024	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-39-3	Barium	84.5		1	0.009	1.1	mg/Kg	01/03/12	01/09/12	SW6020
7440-41-7	Beryllium	0.8	N	1	0.008	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-43-9	Cadmium	0.29		1	0.01	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-70-2	Calcium	1390		1	0.69	54.3	mg/Kg	01/03/12	01/09/12	SW6020
7440-47-3	Chromium	15.6	N	1	0.012	0.22	mg/Kg	01/03/12	01/09/12	SW6020
7440-48-4	Cobalt	6.3	N	1	0.006	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-50-8	Copper	12.2		1	0.006	0.22	mg/Kg	01/03/12	01/09/12	SW6020
7439-89-6	Iron	13900	OR	1	1.005	21.72	mg/Kg	01/03/12	01/09/12	SW6020
7439-92-1	Lead	33.5		1	0.004	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7439-95-4	Magnesium	1450		1	0.75	54.3	mg/Kg	01/03/12	01/09/12	SW6020
7439-96-5	Manganese	413.332	ORN	1	0.006	0.109	mg/Kg	01/03/12	01/09/12	SW6020
7439-97-6	Mercury	0.093		1	0.002	0.012	mg/Kg	01/03/12	01/04/12	SW7471A
7440-02-0	Nickel	8.9		1	0.01	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-09-7	Potassium	449	N	1	0.98	54.3	mg/Kg	01/03/12	01/09/12	SW6020
7782-49-2	Selenium	0.39	J	1	0.061	0.54	mg/Kg	01/03/12	01/09/12	SW6020
7440-22-4	Silver	0.084	J	1	0.008	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-23-5	Sodium	34.5	JN*	1	1.3	54.3	mg/Kg	01/03/12	01/09/12	SW6020
7440-28-0	Thallium	0.14	*	1	0.005	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-62-2	Vanadium	22.5	N	1	0.014	0.54	mg/Kg	01/03/12	01/09/12	SW6020
7440-66-6	Zinc	44		1	0.012	0.22	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01DL	SDG No.:	C5164
Lab Sample ID:	C5164-02DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	76.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10800	D	25	18.4	54.3	mg/Kg	01/03/12	01/09/12	SW6020
7439-89-6	Iron	17100	D	25	25.1	543	mg/Kg	01/03/12	01/09/12	SW6020
7439-96-5	Manganese	499	ND	25	0.16	2.7	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB45-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-18	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7440-43-9	Cadmium	0.17		1	0.009	0.1	mg/Kg	01/03/12	01/09/12	SW6020
7440-50-8	Copper	4.9		1	0.006	0.21	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group4				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB46-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-19	Matrix:	SOIL
Level (low/med):	low	% Solid:	73.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7440-43-9	Cadmium	0.8		1	0.011	0.12	mg/Kg	01/03/12	01/09/12	SW6020
7440-50-8	Copper	18.9		1	0.007	0.24	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group4				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB47-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-17	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7440-43-9	Cadmium	0.31		1	0.01	0.11	mg/Kg	01/03/12	01/09/12	SW6020
7440-50-8	Copper	12.7		1	0.007	0.22	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group4				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB49-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	9.7		1	0.005	0.13	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB50-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	78.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	9.5		1	0.005	0.13	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB51-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	85.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	31.8		1	0.004	0.096	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB52-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-10	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	1360	OR	1	0.004	0.103	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB52-0.502-02DL	SDG No.:	C5164
Lab Sample ID:	C5164-10DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	81.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	1410	D	50	0.21	5.1	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB53-0.502-02	SDG No.:	C5164
Lab Sample ID:	C5164-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	476.387	OR	1	0.004	0.096	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB53-0.502-02DL	SDG No.:	C5164
Lab Sample ID:	C5164-11DL	Matrix:	SOIL
Level (low/med):	low	% Solid:	80.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	470	D	20	0.077	1.9	mg/Kg	01/03/12	01/09/12	SW6020

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	12SB28-000.5-01	SDG No.:	C5164
Lab Sample ID:	C5164-02	Matrix:	SOIL
		% Solid:	76.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.182	J	1	0.043	0.328	mg/Kg	01/06/12	01/06/12	9012B
pH	6.32		1	0	0	pH	12/30/11	12/30/11	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/29/11
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	12/30/11
Client Sample ID:	RB-01-122911	SDG No.:	C5164
Lab Sample ID:	C5164-23	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.005	mg/L	01/03/12	01/06/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5164
QUOTE NO.
COC Number 021237

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 176 WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 TCL VOC 40ml VOA Vial
2 TCL VOC 5 gram Encore
3 TCL SVOC/PAH Sim 8oz Glass
4 Pest/PCB 8oz Glass
5 Metals (Cd, Hg) 4oz Glass
6 PAH Sim 8oz Glass
7 Lead only 4oz Glass
8
9

CHEMTECH SAMPLE (Rec. ID 12/30/11)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	TB-01-122911	Aq		✓	12/29/11	0700	2	2									
2.	12SB28-0005-01	Soil		✓	12/29/11	0930	6	3	3	1	1	1					
3.	12SB54-0.5-02-02	Soil		✓	12/29/11	1030	1						1				
4.	12SB56-0.5-02-02	Soil		✓	12/29/11	1035	1						1				
5.	12SB55-0.5-02-02	Soil		✓	12/29/11	1045	1						1				
6. 7, 8.	12SB49-0.5-02-02	Soil		✓	12/29/11	1120	4						2	2			Do MS/MSD
7. 9.	12SB51-0.5-02-02	Soil		✓	12/29/11	1130	2						1	1			
8. 10.	12SB52-0.5-02-02	Soil		✓	12/29/11	1145	2						1	1			
9. 11.	12SB53-0.5-02-02	Soil		✓	12/29/11	1205	2						1	1			
10. 12.	12SB50-0.5-02-02	Soil		✓	12/29/11	1255	2						1	1			

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/29/11 2000	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. fedex	12/30/11 9:05	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 1 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5164
QUOTE NO.
COC Number 021236

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fickbowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Fickbowitz
e-mail: andy.fickbowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 PAH SIM 8oz glass
2 Pest 8oz Glass
3 Cadmium, Copper 4oz Glass
4
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
12	12SB57-000.5-01	Soil		✓	12/29/11	1330	2	1	1								
14.	12SB58-000.5-01	Soil		✓	12/29/11	1335	2	1	1								
15.	12SB59-000.5-01	Soil		✓	12/29/11	1345	2	1	1								
16.	12SB48-0.5-02-02	Soil		✓	12/29/11	1400	1	1									
17.	12SB47-0.5-02-02	Soil		✓	12/29/11	1450	1			1							
18.	12SB45-0.5-02-02	Soil		✓	12/29/11	1505	1			1							
19.	12SB46-0.5-02-02	Soil		✓	12/29/11	1520	1			1							
20.	12SB-DUP01-122911	Soil		✓	12/29/11	1200	2	1	1								
21.	12SB-DUP02-122911	Soil		✓	12/29/11	1300	1	1									
22	12SB-DUP03-122911	Soil		✓	12/29/11	1400	1			1							

COMMENTS ← Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/29/11 2000	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	12/30/11 9:05	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 2 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C5164
QUOTE NO.
COC Number 021238

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO. CTOWEOS LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 TCL VOC 40 ml VOA
2 TCL SVOC 1 Liter Amber
3 Pest/PCB 1 Liter Amber
4 Metals 500 ml HNO3
5 Cyanide 500 ml NaOH
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
23.	RB-01-122911	Aq		V	12/29/11	1735		2	2	2	1	1					
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY:
1.	12/29/11 2000	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. FedEx	12/30/11 9:05	3.

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Yes

Page 3 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # C5164
Test Name: Mercury,Metals Group3,Metals Group4,Metals ICP-TAL

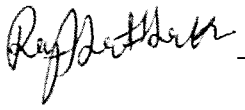
A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Mercury,Metals Group3,Metals Group4,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals Group3,Metals Group4,Metals ICP-TAL was based on method 6020, digestion based on method 3050 (soils) and 3010 (waters).The analysis and digestion of Mercury was based on method 7470A. The analysis of Mercury was based on method 7471A and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Samples 12SB52-0.502-02, 12SB53-0.502-02 was diluted due to high concentrations for Lead.
Samples 12SB28-000.5- 01 was diluted due to high concentrations for Aluminum, Iron, Lead, Manganese.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Sodium and Thallium.
The Matrix Spike(12SB49-0.502-02S)analysis met criteria for all samples except for Antimony, Beryllium, , Chromium, Cobalt, Manganese, Potassium, Sodium, Vanadium .
The Matrix Spike Duplicate(12SB49-0.502-02SD)analysis met criteria for all samples except for Antimony, Chromium, Cobalt, Potassium, Sodium, Vanadium.
The Blank (CCB 04)is failing for Manganese, Zinc in the run number and the CCB05 is failing for Manganese in run number # LB58758 but this run is analyzed for only Lead.
The calibration (ccv06) is failing for Aluminum,ccv07 is failing for Aluminum, Copper, Nickel in run number LB58711 but there is no samples were analyzed with these calibration.
The Serial Dilution met criteria for all samples except for Arsenic, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Vanadium and Zinc.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature  Kalpana Raythattha
I am approving this document
2012.01.23 09:29:21 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manger Name: Ms. Tobrena Skeen
Chemtech Project # C5164
Test Name: Cyanide,pH

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 12/30/2011.
2 Water samples were received on 12/30/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Mercury, Metals Group3, Metals Group4, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, pH, SVOC-SIMGroup1, SVOCMS Group1, SVOCMS Group2 and VOCMS Group1. This data package contains results for Cyanide, pH.

C. Analytical Techniques:
The analysis of Cyanide was based on method 9012B and the analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were met for Cyanide analysis.
Thes ample was received out of holding time for PH.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____ _____ Kalpana Raythattha
I am approving this document
2012.01.20 16:47:45 -05'00'

Kalpana Raythattha

From: Frebowitz, Andy [Andy.Frebowitz@tetratech.com]
Sent: January 03, 2012 07:47
To: Elizabeth Griffiths
Subject: RE: C5164

Elizabeth- the Id on the jars is correct.

Thanks

Andy

From: Frebowitz, Andy
Sent: Saturday, December 31, 2011 10:25 AM
To: Elizabeth Griffiths
Subject: RE: C5164

Hi Elizabeth-

I need to look at the QAPP to identify the correct ID. I won't be in the office until Tuesday to get access to the SAP. My hunch is the jars are correct, but I'll confirm with you on Tuesday.

Andy

From: Elizabeth Griffiths [egriffiths@chemtech.net]
Sent: Friday, December 30, 2011 1:12 PM
To: Frebowitz, Andy
Subject: C5164

HI Andy,

12SB57-0.502-01 - 12SB57-000.5-01 on jars

12SB58-0.502-01 - 12SB58-000.5-01 on jars

12SB59-0.502-01 - 12SB59-000.5-01 on jars

Which IDs are correct?

Thanks!

Elizabeth Griffiths
Project Manager
CHEMTECH
284 Sheffield St | Mountainside, NJ 07092
7210 Corporate Court | Frederick, MD 21703
NJ Direct: 908-728-3145 | MD Direct: 240-215-4321
egriffiths@chemtech.net| www.chemtech.net

NASJRB WILLOW GROVE
SOIL DATA
C5164

FRACTION	CHEMICAL	12SB-DUP03-122911	UNITS	12SB45-0.502-02	RPD	D
M	CADMIUM	1.1	MG/KG	0.17	146.46	0.93
M	COPPER	13.2	MG/KG	4.9	91.71	8.30

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

C5164-02X25 01/09/2012 03:31:33 PM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	102%	0.225	2.614	0.000	1.654	637.500	649.000	646.800	4021.000
2	15:33:50	102%	0.239	1.381	0.000	3.876	647.500	651.200	662.900	4132.000
3	15:35:01	104%	0.349	0.063	0.000	-1.664	605.900	609.800	609.200	3818.000
x		103%	0.271	1.353	0.000	1.288	630.300	636.700	639.600	3990.000
%RSD		1	25.110	94.340	0.000	216.400	3.450	3.663	4.307	3.995

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	343.800	161.700	0.000	0.000	166.400	693.500	618.300	97%	107.800
2	15:33:50	361.100	170.900	0.000	0.000	179.000	623.000	637.500	94%	111.900
3	15:35:01	331.200	147.300	0.000	0.000	161.600	687.500	590.000	97%	105.500
x		345.400	159.900	0.000	0.000	169.000	668.000	615.200	96%	108.400
%RSD		4.349	7.424	0.000	0.000	5.330	5.852	3.886	2	3.011

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	7.510	6.797	128.500	6622.000	182.800	6408.000	6293.000	2.673	3.925
2	15:33:50	9.622	7.280	120.700	6812.000	190.600	6630.000	6539.000	2.876	4.156
3	15:35:01	7.475	6.595	111.200	6409.000	177.500	6179.000	6025.000	2.635	3.780
x		8.202	6.890	120.100	6614.000	183.700	6406.000	6285.000	2.728	3.954
%RSD		14.990	5.111	7.197	3.047	3.581	3.523	4.092	4.760	4.791

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	5.831	5.939	20.190	2.628	0.623	0.371	-0.666	0.623	-2.294
2	15:33:50	5.511	5.416	19.960	1.822	0.385	0.476	0.622	0.384	-1.565
3	15:35:01	4.995	5.090	19.640	2.071	-0.081	0.358	-0.257	-0.080	1.655
x		5.446	5.481	19.930	2.173	0.309	0.401	-0.100	0.309	-0.735
%RSD		7.743	7.816	1.408	19.000	115.900	16.110	656.400	115.800	285.900

Run	Time	94Mo	95Mo	96Mo	97Mo	98Mo	99Ru	103Rh	106Cd	107Ag
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	1.468	0.338	0.460	0.361	0.308	0.002	91%	-1.249	0.071
2	15:33:50	1.549	0.219	0.419	0.248	0.295	0.005	90%	-0.076	0.035
3	15:35:01	1.100	0.243	0.405	0.346	0.284	0.009	93%	-1.185	0.038
x		1.373	0.267	0.428	0.318	0.296	0.005	91%	-0.837	0.048
%RSD		17.420	23.590	6.747	19.220	4.048	66.460	2	78.810	41.350

Run	Time	108Mo O	108Cd	109Ag	111Cd	118Sn	121Sb	135Ba	137Ba	159Tb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	0.578	-1.253	0.075	-0.003	0.602	0.278	33.110	32.510	92%
2	15:33:50	0.060	-0.078	0.030	0.050	0.511	0.294	33.070	32.960	90%
3	15:35:01	0.599	-1.187	0.030	-0.007	0.598	0.248	31.250	30.570	93%
x		0.412	-0.840	0.045	0.013	0.570	0.273	32.470	32.010	92%
%RSD		73.970	78.630	57.530	245.400	9.024	8.465	3.271	3.967	1

Run	Time	165Ho	203Tl	205Tl	206Pb	207Pb	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	15:32:41	92%	0.060	0.082	13.390	12.130	12.810	91%	0.468
2	15:33:50	90%	0.049	0.029	13.500	12.160	12.920	89%	0.457
3	15:35:01	93%	0.000	0.011	12.690	11.440	12.100	92%	0.417
x		92%	0.037	0.041	13.190	11.910	12.610	91%	0.447
%RSD		2	87.480	90.880	3.304	3.437	3.536	1	6.058

$$6285\ \frac{\mu g}{L} \times \frac{0.1\,L}{1.21\,g} \times \frac{1000\,g}{1\,Kg} \times \frac{1\,mg}{1000\,\mu g} \times \frac{1}{0.761\%S} \times 25DF = 17063.7\ \frac{mg}{Kg}$$

reportadas

$$17100\ \frac{mg}{Kg}$$

HOLDTIME

SDG C5164

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	MG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/4/2012	5	1	6
HG	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/4/2012	5	1	6
M	MG/KG	12SB52-0.502-02	C5164-10DL	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB-DUP03-122911	C5164-22	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB53-0.502-02	C5164-11	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB52-0.502-02	C5164-10	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB51-0.502-02	C5164-09	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB50-0.502-02	C5164-12	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB49-0.502-02	C5164-06	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB46-0.502-02	C5164-19	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB45-0.502-02	C5164-18	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB28-000.5-01	C5164-02DL	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB47-0.502-02	C5164-17	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11
M	MG/KG	12SB53-0.502-02	C5164-11DL	NM	12/29/2011	1/3/2012	1/9/2012	5	6	11

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/5/2012	5	2	7
CN	MG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/6/2012	1/6/2012	8	0	8
CN	MG/L	RB-01-122911	C5164-23	NM	12/29/2011	1/3/2012	1/6/2012	5	3	8
PH	S.U.	12SB28-000.5-01	C5164-02	NM	12/29/2011	12/30/2011	12/30/2011	1	0	1
OS	UG/KG	12SB52-0.502-02	C5164-10	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB51-0.502-02	C5164-09	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB50-0.502-02	C5164-12	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB49-0.502-02	C5164-06	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB48-0.502-02	C5164-16	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB28-000.5-01	C5164-02DL	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/7/2012	5	4	9
OS	UG/KG	12SB54-0.502-02	C5164-03DL	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB28-000.5-01	C5164-02	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB55-0.502-02	C5164-05	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB56-0.502-02	C5164-04	NM	12/29/2011	1/3/2012	1/10/2012	5	7	12
OS	UG/KG	12SB57-000.5-01	C5164-13	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB58-000.5-01	C5164-14	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14
OS	UG/KG	12SB59-000.5-01	C5164-15	NM	12/29/2011	1/3/2012	1/12/2012	5	9	14

CHEMTECH

Metals
- 14 -
ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB58686

Start Date: 01/04/2012 **End Date:** 01/04/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1209																X								
Std02Rep1	1	1211																X								
Std03Rep1	1	1213																X								
Std04Rep1	1	1215																X								
Std05Rep1	1	1218																X								
Std06Rep1	1	1221																X								
ICV01	1	1226																X								
ICB01	1	1228																X								
CCV01	1	1230																X								
CCB01	1	1232																X								
CRI01	1	1234																X								
CCV02	1	1253																X								
CCB02	1	1254																X								
CCV03	1	1321																X								
CCB03	1	1323																X								
PB60353BL	1	1325																X								
PB60353BS	1	1328																X								
RB-01-122911	1	1337																X								
CCV04	1	1345																X								
CCB04	1	1347																X								
CCV05	1	1411																X								
CCB05	1	1413																X								
CCV06	1	1432																X								
CCB06	1	1435																X								
CCV07	1	1454																X								
CCB07	1	1457																X								
CCV08	1	1514																X								
CCB08	1	1516																X								

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Instrument ID Number: CV1 **Method:** CV **Run Number:** LB58693

Start Date: 01/04/2012 **End Date:** 01/04/2012

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std1Rep1	1	1534																X									
Std1Rep2	1	1536																X									
Std1Rep3	1	1538																X									
Std1Rep4	1	1540																X									
Std1Rep5	1	1542																X									
Std1Rep6	1	1544																X									
ICV01	1	1547																X									
ICB01	1	1549																X									
CCV01	1	1551																X									
CCB01	1	1553																X									
CRI01	1	1555																X									
CCV02	1	1614																X									
CCB02	1	1617																X									
CCV03	1	1638																X									
CCB03	1	1640																X									
PB60357BL	1	1642																X									
PB60357BS	1	1643																X									
BZ3-SO-1-6-7D	1	1653																X									
BZ3-SO-1-6-7L	5	1657																X									
BZ3-SO-1-6-7S	1	1659																X									
BZ3-SO-1-6-7SD	1	1700																X									
CCV04	1	1702																X									
CCB04	1	1708																X									
12SB28-000.5-01	1	1713																X									
BZ3-SO-1-6-7A	1	1721																									
CCV05	1	1729																X									
CCB05	1	1731																X									
CCV06	1	1739																X									
CCB06	1	1741																X									

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58711

Start Date: 01/05/2012 **End Date:** 01/06/2012

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1	1300		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S1	1	1308		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S2	1	1316		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S3	1	1324		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S4	1	1332		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S5	1	1340		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICV01	1	1347		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB01	1	1355		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA01	1	1403		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB01	1	1411		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV01	1	1435		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB01	1	1443		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CRI01	1	1451		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV02	1	1610		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB02	1	1618		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV03	1	1745		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB03	1	1753		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV04	1	1917		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB04	1	1925		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CRI02	1	1933		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
PB60331BL	1	1942		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
PB60331BS	1	1958		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
RB-01-122911	1	2046		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV05	1	2054		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB05	1	2101		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV06	1	2229		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB06	1	2237		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV07	1	0004		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB07	1	0012		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58758

Start Date: 01/09/2012 **End Date:** 01/09/2012

	EPA Sample No.	D/F	Time	% R	Analytes																										
					AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN				
	S0	1	1213		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	S1	1	1221		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	S2	1	1229		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	S3	1	1237		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	S4	1	1245		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	S5	1	1253		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	ICV01	1	1301		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	ICB01	1	1309		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	ICSA01	1	1316		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	ICSAB01	1	1324		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCV01	1	1348		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCB01	1	1356		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CRI01	1	1404		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCV02	1	1420		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCB02	1	1428		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	PB60337BL	1	1443		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	PB60337BS	1	1459		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	12SB28-000.5-01	1	1515		X	X	X	X	X	(X)	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
Mg	12SB51-0.502-02	1	1523													X															
	12SB28-000.5-01DL	25	1531		X										X			X													
Pb	12SB49-0.502-02	1	1539													X															
	12SB49-0.502-02L	5	1547		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCV03	1	1555		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCB03	1	1603		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	12SB49-0.502-02D	1	1611			X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X				
	12SB49-0.502-02S	1	1619			X	X	X	X	X	X	X	X	X			X	X		X	X		X	X		X	X				
	12SB49-0.502-02SD	1	1627			X	X	X	X	X	X	X	X	X			X	X		X	X		X	X		X	X				
	12SB49-0.502-02A	1	1635			X			X			X	X					X			X			X		X					
Mg	12SB52-0.502-02	1	1643													X															
Mg	12SB53-0.502-02	1	1650													X															
Mg	12SB50-0.502-02	1	1658													X															
Cd Cu	12SB47-0.502-02	1	1706							(X)				X																	
Cd Cu	12SB45-0.502-02	1	1714							(X)				X																	
Cd Cu	12SB46-0.502-02	1	1722							(X)				X																	
	CCV04	1	1730		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
	CCB04	1	1738		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
Cd Cu	12SB-DUP03-122911	1	1746							(X)				X																	
Pb	12SB52-0.502-02DL	50	1754													X															
Pb	12SB53-0.502-02DL	20	1802													X															
~~X~~	12SB49-0.502-02S	20	1810		X										X	X						X			X						
~~X~~	12SB49-0.502-02SD	20	1818		X										X	X						X			X						

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58758

Start Date: 01/09/2012 **End Date:** 01/09/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
12SB49-0.502-02A	20	1826																								
CCV05	1	1833		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	1841		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Instrument ID Number: P6 **Method:** MS **Run Number:** LB58874

Start Date: 01/17/2012 **End Date:** 01/17/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1402		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1410		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1418		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1426		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1434		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1442		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1505		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1513		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1521		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1529		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1553		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1600		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1608		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12SB49-0.502-02D	20	1632		X										X													
12SB49-0.502-02L	100	1640		X										X													
CCV02	1	1728		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1735		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1902		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1910		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	2030		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	2037		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	2157		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2205		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV06	1	2300		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	2308		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Instrument ID: CV1 **Date:** 01/15/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 01/15/2009
Mercury	253.70	0.0020	0.01	

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Mass	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Aluminum	27	0.6770	2.00	
Antimony	121	0.0260	0.20	
Arsenic	75	0.0220	0.10	
Barium	137	0.0080	1.00	
Beryllium	9	0.0070	0.10	
Cadmium	111	0.0090	0.10	
Calcium	44	0.6350	50.00	
Chromium	52	0.0110	0.20	
Cobalt	59	0.0060	0.10	
Copper	63	0.0060	0.20	
Iron	57	0.9260	20.00	
Lead	208	0.0040	0.10	

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Magnesium	24	0.6930	50.00
Manganese	55	0.0060	0.10
Nickel	60	0.0090	0.10
Potassium	39	0.9010	50.00
Selenium	82	0.0560	0.50
Silver	107	0.0070	0.10
Sodium	23	1.2250	50.00
Thallium	205	0.0050	0.10
Vanadium	51	0.0130	0.50
Zinc	66	0.0110	0.20

CHEMTECH

Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5164 **SAS No.:** C5164

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60331**						
C5164-23	RB-01-122911	SAM	WATER	01/03/2012	50.0	50.0	
PB60331BL	PB60331BL	MB	WATER	01/03/2012	50.0	50.0	
PB60331BS	PB60331BS	LCS	WATER	01/03/2012	50.0	50.0	

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: C5164 **SAS No.:** C5164

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60337**						
C5164-02	12SB28-000.5-01	SAM	SOIL	01/03/2012	1.21	100.0	76.10
C5164-02DL	12SB28-000.5-01DL	SAM	SOIL	01/03/2012	1.21	100.0	76.10
C5164-06	12SB49-0.502-02	SAM	SOIL	01/03/2012	1.00	100.0	79.70
C5164-06D	12SB49-0.502-02D	DUP	SOIL	01/03/2012	1.00	100.0	79.70
C5164-07S	12SB49-0.502-02S	MS	SOIL	01/03/2012	1.00	100.0	79.70
C5164-08SD	12SB49-0.502-02SD	MSD	SOIL	01/03/2012	1.00	100.0	79.70
C5164-09	12SB51-0.502-02	SAM	SOIL	01/03/2012	1.23	100.0	85.10
C5164-10	12SB52-0.502-02	SAM	SOIL	01/03/2012	1.19	100.0	81.60
C5164-10DL	12SB52-0.502-02DL	SAM	SOIL	01/03/2012	1.19	100.0	81.60
C5164-11	12SB53-0.502-02	SAM	SOIL	01/03/2012	1.30	100.0	80.30
C5164-11DL	12SB53-0.502-02DL	SAM	SOIL	01/03/2012	1.30	100.0	80.30
C5164-12	12SB50-0.502-02	SAM	SOIL	01/03/2012	1.00	100.0	78.40
C5164-17	12SB47-0.502-02	SAM	SOIL	01/03/2012	1.12	100.0	79.40
C5164-18	12SB45-0.502-02	SAM	SOIL	01/03/2012	1.19	100.0	81.10
C5164-19	12SB46-0.502-02	SAM	SOIL	01/03/2012	1.15	100.0	73.20
C5164-22	12SB-DUP03-122911	SAM	SOIL	01/03/2012	1.11	100.0	80.90
PB60337BL	PB60337BL	MB	SOIL	01/03/2012	1.00	100.0	100.00
PB60337BS	PB60337BS	LCS	SOIL	01/03/2012	1.00	100.0	100.00

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5164 **SAS No.:** C5164

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60353**						
C5164-23	RB-01-122911	SAM	WATER	01/03/2012	30.0	30.0	
PB60353BL	PB60353BL	MB	WATER	01/03/2012	30.0	30.0	
PB60353BS	PB60353BS	LCS	WATER	01/03/2012	30.0	30.0	

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: C5164 **SAS No.:** C5164

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60357**						
C5161-04D	BZ3-SO-1-6-7D	DUP	SOIL	01/03/2012	0.60	30.0	92.40
C5161-04S	BZ3-SO-1-6-7S	MS	SOIL	01/03/2012	0.60	30.0	92.40
C5161-04SD	BZ3-SO-1-6-7SD	MSD	SOIL	01/03/2012	0.60	30.0	92.40
C5164-02	12SB28-000.5-01	SAM	SOIL	01/03/2012	0.66	30.0	76.10
PB60357BL	PB60357BL	MB	SOIL	01/03/2012	0.60	30.0	100.00
PB60357BS	PB60357BS	LCS	SOIL	01/03/2012	0.60	30.0	100.00

CHEMTECH

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Instrument: CV2

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	MDL ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB60353BL		**WATER**		**Batch Number:**		**PB60353**		**Prep Date:**	**01/03/2012**	
	Mercury	0.092	<0.200	U	0.092	0.200	CV	01/04/2012	13:25	LB58686
PB60357BL		**SOIL**		**Batch Number:**		**PB60357**		**Prep Date:**	**01/03/2012**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	01/04/2012	16:42	LB58693
PB60331BL		**WATER**		**Batch Number:**		**PB60331**		**Prep Date:**	**01/03/2012**	
	Aluminum	4.970	<20.000	U	4.970	20.000	MS	01/05/2012	19:42	LB58711
	Antimony	0.140	<2.000	U	0.140	2.000	MS	01/05/2012	19:42	LB58711
	Arsenic	0.180	<1.000	U	0.180	1.000	MS	01/05/2012	19:42	LB58711
	Barium	0.100	<10.000	U	0.100	10.000	MS	01/05/2012	19:42	LB58711
	Beryllium	0.090	<1.000	U	0.090	1.000	MS	01/05/2012	19:42	LB58711
	Cadmium	0.130	<1.000	U	0.130	1.000	MS	01/05/2012	19:42	LB58711
	Calcium	9.060	<500.000	U	9.060	500.000	MS	01/05/2012	19:42	LB58711
	Chromium	0.040	<2.000	U	0.040	2.000	MS	01/05/2012	19:42	LB58711
	Cobalt	0.050	<1.000	U	0.050	1.000	MS	01/05/2012	19:42	LB58711
	Copper	0.040	<2.000	U	0.040	2.000	MS	01/05/2012	19:42	LB58711
	Iron	10.280	<200.000	U	10.280	200.000	MS	01/05/2012	19:42	LB58711
	Lead	0.040	<1.000	U	0.040	1.000	MS	01/05/2012	19:42	LB58711
	Magnesium	4.950	<500.000	U	4.950	500.000	MS	01/05/2012	19:42	LB58711
	Manganese	0.050	<1.000	U	0.050	1.000	MS	01/05/2012	19:42	LB58711
	Nickel	0.060	<1.000	U	0.060	1.000	MS	01/05/2012	19:42	LB58711
	Potassium	12.220	<500.000	U	12.220	500.000	MS	01/05/2012	19:42	LB58711
	Selenium	0.700	<5.000	U	0.700	5.000	MS	01/05/2012	19:42	LB58711
	Silver	0.030	<1.000	U	0.030	1.000	MS	01/05/2012	19:42	LB58711
	Sodium	10.610	<500.000	J	5.320	500.000	MS	01/05/2012	19:42	LB58711
	Thallium	0.020	<1.000	U	0.020	1.000	MS	01/05/2012	19:42	LB58711
	Vanadium	0.150	<5.000	U	0.150	5.000	MS	01/05/2012	19:42	LB58711
	Zinc	0.090	<2.000	U	0.090	2.000	MS	01/05/2012	19:42	LB58711
PB60337BL		**SOIL**		**Batch Number:**		**PB60337**		**Prep Date:**	**01/03/2012**	
	Aluminum	0.677	<2.000	U	0.677	2.000	MS	01/09/2012	14:43	LB58758
	Antimony	0.026	<0.200	U	0.026	0.200	MS	01/09/2012	14:43	LB58758
	Arsenic	0.022	<0.100	U	0.022	0.100	MS	01/09/2012	14:43	LB58758
	Barium	0.008	<1.000	U	0.008	1.000	MS	01/09/2012	14:43	LB58758
	Beryllium	0.007	<0.100	U	0.007	0.100	MS	01/09/2012	14:43	LB58758
	Cadmium	0.009	<0.100	U	0.009	0.100	MS	01/09/2012	14:43	LB58758
	Calcium	0.635	<50.000	U	0.635	50.000	MS	01/09/2012	14:43	LB58758
	Chromium	0.011	<0.200	U	0.011	0.200	MS	01/09/2012	14:43	LB58758

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Instrument: P6

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
	Cobalt	0.006	<0.100	U	0.006	0.100	MS	01/09/2012	14:43	LB58758
	Copper	0.006	<0.200	U	0.006	0.200	MS	01/09/2012	14:43	LB58758
	Iron	1.566	<20.000	J	0.926	20.000	MS	01/09/2012	14:43	LB58758
	Lead	0.004	<0.100	U	0.004	0.100	MS	01/09/2012	14:43	LB58758
	Magnesium	0.693	<50.000	U	0.693	50.000	MS	01/09/2012	14:43	LB58758
	Manganese	0.006	<0.100	U	0.006	0.100	MS	01/09/2012	14:43	LB58758
	Nickel	0.009	<0.100	U	0.009	0.100	MS	01/09/2012	14:43	LB58758
	Potassium	0.901	<50.000	U	0.901	50.000	MS	01/09/2012	14:43	LB58758
	Selenium	0.056	<0.500	U	0.056	0.500	MS	01/09/2012	14:43	LB58758
	Silver	0.007	<0.100	U	0.007	0.100	MS	01/09/2012	14:43	LB58758
	Sodium	1.225	<50.000	U	1.225	50.000	MS	01/09/2012	14:43	LB58758
	Thallium	0.005	<0.100	U	0.005	0.100	MS	01/09/2012	14:43	LB58758
	Vanadium	0.013	<0.500	U	0.013	0.500	MS	01/09/2012	14:43	LB58758
	Zinc	0.011	<0.200	U	0.011	0.200	MS	01/09/2012	14:43	LB58758

CHEMTECH

Metals
- 5a -
MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5164-06 **Client ID:** 12SB49-0.502-02S

Percent Solids for Sample: 79.7 **Spiked ID:** C5164-07S **Percent Solids for Spike Sample:** 79.7

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	15091.5900		10555.8300		250.94	1807.5		MS
Antimony	mg/Kg	80 - 120	58.5195		0.1857	J	100.38	58.1	N	MS
Arsenic	mg/Kg	80 - 120	85.6085		5.1945		100.38	80.1		MS
Barium	mg/Kg	80 - 120	66.8883		41.5935		25.09	100.8		MS
Beryllium	mg/Kg	80 - 120	20.2635		0.4220		25.09	79.1	N	MS
Cadmium	mg/Kg	80 - 120	22.9486		0.0827	J	25.09	91.1		MS
Calcium	mg/Kg	80 - 120	676.2861		565.3702		125.47	88.4		MS
Chromium	mg/Kg	80 - 120	56.7127		17.2146		50.19	78.7	N	MS
Cobalt	mg/Kg	80 - 120	23.2748		3.6161		25.09	78.4	N	MS
Copper	mg/Kg	80 - 120	40.3890		8.8193		37.64	83.9		MS
Iron	mg/Kg	80 - 120	24883.3100		17352.5700		376.41	2000.7		MS
Lead	mg/Kg	80 - 120	128.9837		9.6901		125.47	95.1		MS
Magnesium	mg/Kg	80 - 120	2040.1510		1865.7470		250.94	69.5		MS
Manganese	mg/Kg	80 - 120	102.2961		86.0100		25.09	64.9	N	MS
Nickel	mg/Kg	80 - 120	59.5358		9.0803		62.74	80.4		MS
Potassium	mg/Kg	80 - 120	1199.6240		305.8972		1254.71	71.2	N	MS
Selenium	mg/Kg	80 - 120	228.3815		0.070	U	2000	91.0		MS
Silver	mg/Kg	80 - 120	8.8921		0.0300	J	9.41	94.2		MS
Sodium	mg/Kg	80 - 120	306.9009		30.5897	J	376.41	73.4	N	MS
Thallium	mg/Kg	80 - 120	232.0201		0.11	J	2000	92.4		MS
Vanadium	mg/Kg	80 - 120	58.1681		29.5358		37.64	76.1	N	MS
Zinc	mg/Kg	80 - 120	50.1380		29.8871		25.09	80.7		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5164-06 **Client ID:** 12SB49-0.502-02SD

Percent Solids for Sample: 79.7 **Spiked ID:** C5164-08SD **Percent Solids for Spike Sample:** 79.7

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	14860.7300		10555.8300		250.94	1715.5		MS
Antimony	mg/Kg	80 - 120	62.5596		0.1857	J	100.38	62.1	N	MS
Arsenic	mg/Kg	80 - 120	87.4028		5.1945		100.38	81.9		MS
Barium	mg/Kg	80 - 120	66.1355		41.5935		25.09	97.8		MS
Beryllium	mg/Kg	80 - 120	20.6148		0.4220		25.09	80.5		MS
Cadmium	mg/Kg	80 - 120	23.4379		0.0827	J	25.09	93.1		MS
Calcium	mg/Kg	80 - 120	724.7178		565.3702		125.47	127.0		MS
Chromium	mg/Kg	80 - 120	56.6750		17.2146		50.19	78.6	N	MS
Cobalt	mg/Kg	80 - 120	23.5634		3.6161		25.09	79.5	N	MS
Copper	mg/Kg	80 - 120	41.0163		8.8193		37.64	85.5		MS
Iron	mg/Kg	80 - 120	25219.5800		17352.5700		376.41	2090.0		MS
Lead	mg/Kg	80 - 120	129.8871		9.6901		125.47	95.8		MS
Magnesium	mg/Kg	80 - 120	2030.1130		1865.7470		250.94	65.5		MS
Manganese	mg/Kg	80 - 120	111.1920		86.0100		25.09	100.4		MS
Nickel	mg/Kg	80 - 120	60.1631		9.0803		62.74	81.4		MS
Potassium	mg/Kg	80 - 120	1212.6730		305.8972		1254.71	72.3	N	MS
Selenium	mg/Kg	80 - 120	230.8407		0.070	U	2000	92.0		MS
Silver	mg/Kg	80 - 120	9.0653		0.0300	J	9.41	96.0		MS
Sodium	mg/Kg	80 - 120	310.4141		30.5897	J	376.41	74.3	N	MS
Thallium	mg/Kg	80 - 120	235.7591		0.11	J	2000	93.9		MS
Vanadium	mg/Kg	80 - 120	57.9423		29.5358		37.64	75.5	N	MS
Zinc	mg/Kg	80 - 120	51.0289		29.8871		25.09	84.3		MS

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5161-04 **Client ID:** BZ3-SO-1-6-7S

Percent Solids for Sample: 92.4 **Spiked ID:** C5161-04S **Percent Solids for Spike Sample:** 92.4

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	34 - 153	0.2065		0.0067	J	0.22	90.8		CV

CHEMTECH

Metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5161-04 **Client ID:** BZ3-SO-1-6-7SD

Percent Solids for Sample: 92.4 **Spiked ID:** C5161-04SD **Percent Solids for Spike Sample:** 92.4

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	34 - 153	0.2050		0.0067	J	0.22	90.1		CV

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: WATER **Level:** LOW **Client ID:** 12SB49-0.502-02A

Sample ID: C5164-06 **Spiked ID:** C5164-06A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	ug/L	75 - 125	713.50		1.48	J	800.0	89.0		MS
Beryllium	ug/L	75 - 125	166.50		3.36		200.0	81.6		MS
Chromium	ug/L	75 - 125	441.00		137.20		400.0	76.0		MS
Cobalt	ug/L	75 - 125	187.70		28.82		200.0	79.4		MS
Manganese	ug/L	75 - 125	826.50		685.50		200.0	70.5		MS
Potassium	ug/L	75 - 125	9459.00		2438.00		10000.0	70.2		MS
Sodium	ug/L	75 - 125	2497.00		243.80	J	3000.0	75.1		MS
Vanadium	ug/L	75 - 125	459.50		235.40		300.0	74.7		MS

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5164-06DL **Client ID:** 12SB49-0.502-02D

Percent Solids for Sample: 79.7 **Duplicate ID** C5164-06D **Percent Solids for Spike Sample:** 79.7

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	13824.3400		13731.4900		0.7		MS
Antimony	mg/Kg	20	0.1857	J	0.2212	J	17.4		MS
Arsenic	mg/Kg	20	5.1945		5.6374		8.2		MS
Barium	mg/Kg	20	41.5935		42.0326		1.1		MS
Beryllium	mg/Kg	20	0.4220		0.4300		1.9		MS
Cadmium	mg/Kg	20	0.0827	J	0.1093	J	27.7		MS
Calcium	mg/Kg	20	565.3702		613.0490		8.1		MS
Chromium	mg/Kg	20	17.2146		17.2146		0.0		MS
Cobalt	mg/Kg	20	3.6161		3.4655		4.3		MS
Copper	mg/Kg	20	8.8193		8.9147		1.1		MS
Iron	mg/Kg	20	23696.3600		24338.7700		2.7		MS
Lead	mg/Kg	20	9.6901		9.9084		2.2		MS
Magnesium	mg/Kg	20	1865.7470		1867.0010		0.1		MS
Manganese	mg/Kg	20	86.0100		79.1468		8.3		MS
Nickel	mg/Kg	20	9.0803		9.0452		0.4		MS
Potassium	mg/Kg	20	305.8972		308.7830		0.9		MS
Selenium	mg/Kg	20	0.0703	U	0.1517	J	200.0		MS
Silver	mg/Kg	20	0.0300	J	0.0324	J	7.7		MS
Sodium	mg/Kg	20	30.5897	J	37.4530	J	20.2	*	MS
Thallium	mg/Kg	20	0.1070	J	0.1361		23.9	*	MS
Vanadium	mg/Kg	20	29.5358		28.2309		4.5		MS
Zinc	mg/Kg	20	29.8871		30.3639		1.6		MS

None
<35%

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5164-06 **Client ID:** 12SB49-0.502-02SD

Percent Solids for Sample: 79.7 **Duplicate ID** C5164-08SD **Percent Solids for Spike Sample:** 79.7

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	15091.5900		14860.7300		1.5		MS
Antimony	mg/Kg	20	58.5195		62.5596		6.7		MS
Arsenic	mg/Kg	20	85.6085		87.4028		2.1		MS
Barium	mg/Kg	20	66.8883		66.1355		1.1		MS
Beryllium	mg/Kg	20	20.2635		20.6148		1.7		MS
Cadmium	mg/Kg	20	22.9486		23.4379		2.1		MS
Calcium	mg/Kg	20	676.2861		724.7178		6.9		MS
Chromium	mg/Kg	20	56.7127		56.6750		0.1		MS
Cobalt	mg/Kg	20	23.2748		23.5634		1.2		MS
Copper	mg/Kg	20	40.3890		41.0163		1.5		MS
Iron	mg/Kg	20	24883.3100		25219.5800		1.3		MS
Lead	mg/Kg	20	128.9837		129.8871		0.7		MS
Magnesium	mg/Kg	20	2040.1510		2030.1130		0.5		MS
Manganese	mg/Kg	20	102.2961		111.1920		8.3		MS
Nickel	mg/Kg	20	59.5358		60.1631		1.0		MS
Potassium	mg/Kg	20	1199.6240		1212.6730		1.1		MS
Selenium	mg/Kg	20	228.3815		230.8407		1.1		MS
Silver	mg/Kg	20	8.8921		9.0653		1.9		MS
Sodium	mg/Kg	20	306.9009		310.4141		1.1		MS
Thallium	mg/Kg	20	232.0201		235.7591		1.6		MS
Vanadium	mg/Kg	20	58.1681		57.9423		0.4		MS
Zinc	mg/Kg	20	50.1380		51.0289		1.8		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5161-04 **Client ID:** BZ3-SO-1-6-7D

Percent Solids for Sample: 92.4 **Duplicate ID** C5161-04D **Percent Solids for Spike Sample:** 92.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.0067	J	0.0060	J	11.0		CV

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Matrix: SOIL **Sample ID:** C5161-04 **Client ID:** BZ3-SO-1-6-7SD

Percent Solids for Sample: 92.4 **Duplicate ID** C5161-04SD **Percent Solids for Spike Sample:** 92.4

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.2065		0.2050		0.7		CV

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60331BS							
Aluminum	ug/L	2000.0	1821.00		91.0	92 - 120	MS
Antimony	ug/L	800.0	736.70		92.1	89 - 118	MS
Arsenic	ug/L	800.0	755.70		94.5	80 - 120	MS
Barium	ug/L	200.0	190.80		95.4	89 - 118	MS
Beryllium	ug/L	200.0	177.50		88.8	90 - 113	MS
Cadmium	ug/L	200.0	189.80		94.9	90 - 115	MS
Calcium	ug/L	1000.0	1016.00		101.6	80 - 120	MS
Chromium	ug/L	400.0	380.70		95.2	80 - 120	MS
Cobalt	ug/L	200.0	191.30		95.6	80 - 120	MS
Copper	ug/L	300.0	294.20		98.1	92 - 120	MS
Iron	ug/L	3000.0	2911.00		97.0	80 - 120	MS
Lead	ug/L	1000.0	938.60		93.9	80 - 120	MS
Magnesium	ug/L	2000.0	1792.00		89.6	80 - 120	MS
Manganese	ug/L	200.0	193.30		96.6	80 - 120	MS
Nickel	ug/L	500.0	484.30		96.9	84 - 120	MS
Potassium	ug/L	10000.0	9377.00		93.8	80 - 120	MS
Selenium	ug/L	2000.0	1891.00		94.6	80 - 120	MS
Silver	ug/L	75.0	72.95		97.3	90 - 119	MS
Sodium	ug/L	3000.0	2784.00		92.8	80 - 120	MS
Thallium	ug/L	2000.0	1887.00		94.4	88 - 113	MS
Vanadium	ug/L	300.0	277.50		92.5	80 - 120	MS
Zinc	ug/L	200.0	197.70		98.8	82 - 119	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60337BS							
Aluminum	mg/Kg	200.0	200.9		100.4	80 - 120	MS
Antimony	mg/Kg	80.0	76.3		95.4	80 - 120	MS
Arsenic	mg/Kg	80.0	79.7		99.6	80 - 120	MS
Barium	mg/Kg	20.0	20.1		100.5	80 - 120	MS
Beryllium	mg/Kg	20.0	18.2		91.0	80 - 120	MS
Cadmium	mg/Kg	20.0	19.8		99.0	80 - 120	MS
Calcium	mg/Kg	100.0	101.9		101.9	80 - 120	MS
Chromium	mg/Kg	40.0	40.3		100.8	80 - 120	MS
Cobalt	mg/Kg	20.0	20.3		101.5	80 - 120	MS
Copper	mg/Kg	30.0	31.9		106.3	80 - 120	MS
Iron	mg/Kg	300.0	301.4		100.5	80 - 120	MS
Lead	mg/Kg	100.0	98.0		98.0	80 - 120	MS
Magnesium	mg/Kg	200.0	187.8		93.9	80 - 120	MS
Manganese	mg/Kg	20.0	20.4		102.0	80 - 120	MS
Nickel	mg/Kg	50.0	52.0		104.0	80 - 120	MS
Potassium	mg/Kg	1000.0	976.2		97.6	80 - 120	MS
Selenium	mg/Kg	200.0	200.1		100.0	80 - 120	MS
Silver	mg/Kg	7.5	7.6		101.3	80 - 120	MS
Sodium	mg/Kg	300.0	288.4		96.1	80 - 120	MS
Thallium	mg/Kg	200.0	196.5		98.2	80 - 120	MS
Vanadium	mg/Kg	30.0	29.9		99.7	80 - 120	MS
Zinc	mg/Kg	20.0	21.0		105.0	80 - 120	MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60353BS							
Mercury	ug/L	4.000	3.450		86.2	67 - 127	CV

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60357BS							
Mercury	mg/Kg	0.200	0.187		93.5	73 - 121	CV

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.
BZ3-SO-1-6-7L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Mercury	0.01	J	0.01	U	100.0		CV

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB49-0.502-02L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** C5164 **SAS No.:** C5164 **SDG No.:** C5164

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	110180.00		110000.00		0.2		MS
Antimony	1.48	J	1.71	J	15.5		MS
Arsenic	41.40		46.91		13.3		MS
Barium	331.50		334.35		0.9		MS
Beryllium	3.36		4.29	J	27.7		MS
Cadmium	0.66	J	0.65	U	100.0		MS
Calcium	4506.00		5720.00		26.9		MS
Chromium	137.20		164.20		19.7		MS
Cobalt	28.82		33.34		15.7		MS
Copper	70.29		80.80		15.0		MS
Iron	138300.00		171250.00		23.8		MS
Lead	77.23		76.45		1.0		MS
Magnesium	14870.00		17320.00		16.5		MS
Manganese	685.50		823.00		20.1		MS
Nickel	72.37		86.65		19.7		MS
Potassium	2438.00		2844.00		16.7		MS
Selenium	0.70	U	3.50	U			MS
Silver	0.24	J	0.22	J	8.3		MS
Sodium	243.80	J	244.35	J	0.2		MS
Thallium	0.85	J	0.65	J	23.5		MS
Vanadium	235.40		273.90		16.4		MS
Zinc	238.20		291.20		22.3		MS

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.87	4.0	96.8	90 - 110	CV	01/04/2012	12:26	LB58686
CCV01	Mercury	4.99	5.0	99.8	90 - 110	CV	01/04/2012	12:30	LB58686
CCV02	Mercury	5.11	5.0	102.2	90 - 110	CV	01/04/2012	12:53	LB58686
CCV03	Mercury	4.78	5.0	95.6	90 - 110	CV	01/04/2012	13:21	LB58686
CCV04	Mercury	5.05	5.0	101.0	90 - 110	CV	01/04/2012	13:45	LB58686
CCV05	Mercury	5.02	5.0	100.4	90 - 110	CV	01/04/2012	14:11	LB58686
CCV06	Mercury	4.88	5.0	97.6	90 - 110	CV	01/04/2012	14:32	LB58686
CCV07	Mercury	5.01	5.0	100.2	90 - 110	CV	01/04/2012	14:54	LB58686
CCV08	Mercury	4.83	5.0	96.6	90 - 110	CV	01/04/2012	15:14	LB58686

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.82	4.0	95.5	90 - 110	CV	01/04/2012	15:47	LB58693
CCV01	Mercury	4.77	5.0	95.4	90 - 110	CV	01/04/2012	15:51	LB58693
CCV02	Mercury	4.90	5.0	98.0	90 - 110	CV	01/04/2012	16:14	LB58693
CCV03	Mercury	4.99	5.0	99.8	90 - 110	CV	01/04/2012	16:38	LB58693
CCV04	Mercury	5.07	5.0	101.4	90 - 110	CV	01/04/2012	17:02	LB58693
CCV05	Mercury	4.99	5.0	99.8	90 - 110	CV	01/04/2012	17:29	LB58693
CCV06	Mercury	4.82	5.0	96.4	90 - 110	CV	01/04/2012	17:39	LB58693

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	518.00	504.0	102.8	90 - 110	MS	01/05/2012	13:47	LB58711
	Antimony	188.40	199.0	94.7	90 - 110	MS	01/05/2012	13:47	LB58711
	Arsenic	191.00	200.0	95.5	90 - 110	MS	01/05/2012	13:47	LB58711
	Barium	100.00	99.0	101.0	90 - 110	MS	01/05/2012	13:47	LB58711
	Beryllium	97.26	99.0	98.2	90 - 110	MS	01/05/2012	13:47	LB58711
	Cadmium	97.85	99.0	98.8	90 - 110	MS	01/05/2012	13:47	LB58711
	Calcium	2015.00	2005.0	100.5	90 - 110	MS	01/05/2012	13:47	LB58711
	Chromium	97.79	98.0	99.8	90 - 110	MS	01/05/2012	13:47	LB58711
	Cobalt	99.45	100.0	99.4	90 - 110	MS	01/05/2012	13:47	LB58711
	Copper	103.20	98.0	105.3	90 - 110	MS	01/05/2012	13:47	LB58711
	Iron	1025.00	1016.0	100.9	90 - 110	MS	01/05/2012	13:47	LB58711
	Lead	195.20	200.0	97.6	90 - 110	MS	01/05/2012	13:47	LB58711
	Magnesium	1198.00	1215.0	98.6	90 - 110	MS	01/05/2012	13:47	LB58711
	Manganese	100.30	100.0	100.3	90 - 110	MS	01/05/2012	13:47	LB58711
	Nickel	101.70	101.0	100.7	90 - 110	MS	01/05/2012	13:47	LB58711
	Potassium	1989.00	2004.0	99.3	90 - 110	MS	01/05/2012	13:47	LB58711
	Selenium	194.40	206.0	94.4	90 - 110	MS	01/05/2012	13:47	LB58711
	Silver	98.35	100.0	98.4	90 - 110	MS	01/05/2012	13:47	LB58711
	Sodium	1995.00	2019.0	98.8	90 - 110	MS	01/05/2012	13:47	LB58711
	Thallium	194.30	206.0	94.3	90 - 110	MS	01/05/2012	13:47	LB58711
	Vanadium	95.38	100.0	95.4	90 - 110	MS	01/05/2012	13:47	LB58711
	Zinc	198.60	205.0	96.9	90 - 110	MS	01/05/2012	13:47	LB58711
CCV01	Aluminum	9792.00	10000.0	97.9	90 - 110	MS	01/05/2012	14:35	LB58711
	Antimony	495.80	500.0	99.2	90 - 110	MS	01/05/2012	14:35	LB58711
	Arsenic	492.10	500.0	98.4	90 - 110	MS	01/05/2012	14:35	LB58711
	Barium	2459.00	2500.0	98.4	90 - 110	MS	01/05/2012	14:35	LB58711
	Beryllium	500.50	500.0	100.1	90 - 110	MS	01/05/2012	14:35	LB58711
	Cadmium	494.20	500.0	98.8	90 - 110	MS	01/05/2012	14:35	LB58711
	Calcium	49900.00	50000.0	99.8	90 - 110	MS	01/05/2012	14:35	LB58711
	Chromium	495.50	500.0	99.1	90 - 110	MS	01/05/2012	14:35	LB58711
	Cobalt	496.70	500.0	99.3	90 - 110	MS	01/05/2012	14:35	LB58711
	Copper	1006.00	1000.0	100.6	90 - 110	MS	01/05/2012	14:35	LB58711
	Iron	24750.00	25000.0	99.0	90 - 110	MS	01/05/2012	14:35	LB58711
	Lead	493.00	500.0	98.6	90 - 110	MS	01/05/2012	14:35	LB58711
	Magnesium	49950.00	50000.0	99.9	90 - 110	MS	01/05/2012	14:35	LB58711

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Beryllium	484.50	500.0	96.9	90 - 110	MS	01/05/2012	17:45	LB58711
	Cadmium	487.00	500.0	97.4	90 - 110	MS	01/05/2012	17:45	LB58711
	Calcium	48050.00	50000.0	96.1	90 - 110	MS	01/05/2012	17:45	LB58711
	Chromium	477.80	500.0	95.6	90 - 110	MS	01/05/2012	17:45	LB58711
	Cobalt	479.40	500.0	95.9	90 - 110	MS	01/05/2012	17:45	LB58711
	Copper	958.00	1000.0	95.8	90 - 110	MS	01/05/2012	17:45	LB58711
	Iron	23920.00	25000.0	95.7	90 - 110	MS	01/05/2012	17:45	LB58711
	Lead	479.50	500.0	95.9	90 - 110	MS	01/05/2012	17:45	LB58711
	Magnesium	47990.00	50000.0	96.0	90 - 110	MS	01/05/2012	17:45	LB58711
	Manganese	965.90	1000.0	96.6	90 - 110	MS	01/05/2012	17:45	LB58711
	Nickel	478.20	500.0	95.6	90 - 110	MS	01/05/2012	17:45	LB58711
	Potassium	23870.00	25000.0	95.5	90 - 110	MS	01/05/2012	17:45	LB58711
	Selenium	486.80	500.0	97.4	90 - 110	MS	01/05/2012	17:45	LB58711
	Silver	483.60	500.0	96.7	90 - 110	MS	01/05/2012	17:45	LB58711
	Sodium	47900.00	50000.0	95.8	90 - 110	MS	01/05/2012	17:45	LB58711
	Thallium	474.00	500.0	94.8	90 - 110	MS	01/05/2012	17:45	LB58711
	Vanadium	478.00	500.0	95.6	90 - 110	MS	01/05/2012	17:45	LB58711
	Zinc	975.40	1000.0	97.5	90 - 110	MS	01/05/2012	17:45	LB58711
CCV04	Aluminum	9542.00	10000.0	95.4	90 - 110	MS	01/05/2012	19:17	LB58711
	Antimony	483.90	500.0	96.8	90 - 110	MS	01/05/2012	19:17	LB58711
	Arsenic	480.10	500.0	96.0	90 - 110	MS	01/05/2012	19:17	LB58711
	Barium	2387.00	2500.0	95.5	90 - 110	MS	01/05/2012	19:17	LB58711
	Beryllium	489.60	500.0	97.9	90 - 110	MS	01/05/2012	19:17	LB58711
	Cadmium	487.50	500.0	97.5	90 - 110	MS	01/05/2012	19:17	LB58711
	Calcium	48300.00	50000.0	96.6	90 - 110	MS	01/05/2012	19:17	LB58711
	Chromium	480.30	500.0	96.1	90 - 110	MS	01/05/2012	19:17	LB58711
	Cobalt	481.20	500.0	96.2	90 - 110	MS	01/05/2012	19:17	LB58711
	Copper	961.60	1000.0	96.2	90 - 110	MS	01/05/2012	19:17	LB58711
	Iron	24130.00	25000.0	96.5	90 - 110	MS	01/05/2012	19:17	LB58711
	Lead	479.50	500.0	95.9	90 - 110	MS	01/05/2012	19:17	LB58711
	Magnesium	48010.00	50000.0	96.0	90 - 110	MS	01/05/2012	19:17	LB58711
	Manganese	970.90	1000.0	97.1	90 - 110	MS	01/05/2012	19:17	LB58711
	Nickel	477.00	500.0	95.4	90 - 110	MS	01/05/2012	19:17	LB58711
	Potassium	23830.00	25000.0	95.3	90 - 110	MS	01/05/2012	19:17	LB58711
	Selenium	484.80	500.0	97.0	90 - 110	MS	01/05/2012	19:17	LB58711

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	490.00	500.0	98.0	90 - 110	MS	01/05/2012	19:17	LB58711
	Sodium	48160.00	50000.0	96.3	90 - 110	MS	01/05/2012	19:17	LB58711
	Thallium	474.40	500.0	94.9	90 - 110	MS	01/05/2012	19:17	LB58711
	Vanadium	477.30	500.0	95.5	90 - 110	MS	01/05/2012	19:17	LB58711
	Zinc	978.40	1000.0	97.8	90 - 110	MS	01/05/2012	19:17	LB58711
CCV05	Aluminum	9167.00	10000.0	91.7	90 - 110	MS	01/05/2012	20:54	LB58711
	Antimony	472.70	500.0	94.5	90 - 110	MS	01/05/2012	20:54	LB58711
	Arsenic	466.80	500.0	93.4	90 - 110	MS	01/05/2012	20:54	LB58711
	Barium	2335.00	2500.0	93.4	90 - 110	MS	01/05/2012	20:54	LB58711
	Beryllium	480.10	500.0	96.0	90 - 110	MS	01/05/2012	20:54	LB58711
	Cadmium	479.20	500.0	95.8	90 - 110	MS	01/05/2012	20:54	LB58711
	Calcium	47770.00	50000.0	95.5	90 - 110	MS	01/05/2012	20:54	LB58711
	Chromium	472.30	500.0	94.5	90 - 110	MS	01/05/2012	20:54	LB58711
	Cobalt	472.30	500.0	94.5	90 - 110	MS	01/05/2012	20:54	LB58711
	Copper	949.30	1000.0	94.9	90 - 110	MS	01/05/2012	20:54	LB58711
	Iron	23920.00	25000.0	95.7	90 - 110	MS	01/05/2012	20:54	LB58711
	Lead	473.20	500.0	94.6	90 - 110	MS	01/05/2012	20:54	LB58711
	Magnesium	47360.00	50000.0	94.7	90 - 110	MS	01/05/2012	20:54	LB58711
	Manganese	957.70	1000.0	95.8	90 - 110	MS	01/05/2012	20:54	LB58711
	Nickel	470.50	500.0	94.1	90 - 110	MS	01/05/2012	20:54	LB58711
	Potassium	23370.00	25000.0	93.5	90 - 110	MS	01/05/2012	20:54	LB58711
	Selenium	470.60	500.0	94.1	90 - 110	MS	01/05/2012	20:54	LB58711
	Silver	474.20	500.0	94.8	90 - 110	MS	01/05/2012	20:54	LB58711
	Sodium	48150.00	50000.0	96.3	90 - 110	MS	01/05/2012	20:54	LB58711
	Thallium	465.40	500.0	93.1	90 - 110	MS	01/05/2012	20:54	LB58711
	Vanadium	467.00	500.0	93.4	90 - 110	MS	01/05/2012	20:54	LB58711
	Zinc	973.20	1000.0	97.3	90 - 110	MS	01/05/2012	20:54	LB58711
CCV06	Aluminum	8691.00	10000.0	86.9	90 - 110	MS	01/05/2012	22:29	LB58711
	Antimony	471.50	500.0	94.3	90 - 110	MS	01/05/2012	22:29	LB58711
	Arsenic	457.10	500.0	91.4	90 - 110	MS	01/05/2012	22:29	LB58711
	Barium	2301.00	2500.0	92.0	90 - 110	MS	01/05/2012	22:29	LB58711
	Beryllium	457.50	500.0	91.5	90 - 110	MS	01/05/2012	22:29	LB58711
	Cadmium	475.00	500.0	95.0	90 - 110	MS	01/05/2012	22:29	LB58711
	Calcium	47020.00	50000.0	94.0	90 - 110	MS	01/05/2012	22:29	LB58711
	Chromium	464.40	500.0	92.9	90 - 110	MS	01/05/2012	22:29	LB58711

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	930.80	1000.0	93.1	90 - 110	MS	01/06/2012	00:04	LB58711
ICV01	Aluminum	546.40	504.0	108.4	90 - 110	MS	01/09/2012	13:01	LB58758
	Antimony	191.20	199.0	96.1	90 - 110	MS	01/09/2012	13:01	LB58758
	Arsenic	195.60	200.0	97.8	90 - 110	MS	01/09/2012	13:01	LB58758
	Barium	100.70	99.0	101.7	90 - 110	MS	01/09/2012	13:01	LB58758
	Beryllium	98.18	99.0	99.2	90 - 110	MS	01/09/2012	13:01	LB58758
	Cadmium	99.18	99.0	100.2	90 - 110	MS	01/09/2012	13:01	LB58758
	Calcium	1995.00	2005.0	99.5	90 - 110	MS	01/09/2012	13:01	LB58758
	Chromium	100.60	98.0	102.7	90 - 110	MS	01/09/2012	13:01	LB58758
	Cobalt	101.40	100.0	101.4	90 - 110	MS	01/09/2012	13:01	LB58758
	Copper	105.50	98.0	107.7	90 - 110	MS	01/09/2012	13:01	LB58758
	Iron	1020.00	1016.0	100.4	90 - 110	MS	01/09/2012	13:01	LB58758
	Lead	200.40	200.0	100.2	90 - 110	MS	01/09/2012	13:01	LB58758
	Magnesium	1225.00	1215.0	100.8	90 - 110	MS	01/09/2012	13:01	LB58758
	Manganese	103.80	100.0	103.8	90 - 110	MS	01/09/2012	13:01	LB58758
	Nickel	103.30	101.0	102.3	90 - 110	MS	01/09/2012	13:01	LB58758
	Potassium	2059.00	2004.0	102.7	90 - 110	MS	01/09/2012	13:01	LB58758
	Selenium	198.00	206.0	96.1	90 - 110	MS	01/09/2012	13:01	LB58758
	Silver	98.64	100.0	98.6	90 - 110	MS	01/09/2012	13:01	LB58758
	Sodium	2064.00	2019.0	102.2	90 - 110	MS	01/09/2012	13:01	LB58758
	Thallium	202.70	206.0	98.4	90 - 110	MS	01/09/2012	13:01	LB58758
	Vanadium	98.38	100.0	98.4	90 - 110	MS	01/09/2012	13:01	LB58758
	Zinc	206.40	205.0	100.7	90 - 110	MS	01/09/2012	13:01	LB58758
CCV01	Aluminum	10070.00	10000.0	100.7	90 - 110	MS	01/09/2012	13:48	LB58758
X	Antimony	490.50	500.0	98.1	90 - 110	MS	01/09/2012	13:48	LB58758
	Arsenic	490.60	500.0	98.1	90 - 110	MS	01/09/2012	13:48	LB58758
	Barium	2455.00	2500.0	98.2	90 - 110	MS	01/09/2012	13:48	LB58758
	Beryllium	500.20	500.0	100.0	90 - 110	MS	01/09/2012	13:48	LB58758
	Cadmium	491.90	500.0	98.4	90 - 110	MS	01/09/2012	13:48	LB58758
	Calcium	49240.00	50000.0	98.5	90 - 110	MS	01/09/2012	13:48	LB58758
	Chromium	496.20	500.0	99.2	90 - 110	MS	01/09/2012	13:48	LB58758
	Cobalt	496.00	500.0	99.2	90 - 110	MS	01/09/2012	13:48	LB58758
	Copper	1003.00	1000.0	100.3	90 - 110	MS	01/09/2012	13:48	LB58758
	Iron	24630.00	25000.0	98.5	90 - 110	MS	01/09/2012	13:48	LB58758
	Lead	496.30	500.0	99.3	90 - 110	MS	01/09/2012	13:48	LB58758

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Magnesium	49470.00	50000.0	98.9	90 - 110	MS	01/09/2012	13:48	LB58758
	Manganese	1001.00	1000.0	100.1	90 - 110	MS	01/09/2012	13:48	LB58758
X	Nickel	500.90	500.0	100.2	90 - 110	MS	01/09/2012	13:48	LB58758
	Potassium	24730.00	25000.0	98.9	90 - 110	MS	01/09/2012	13:48	LB58758
	Selenium	494.60	500.0	98.9	90 - 110	MS	01/09/2012	13:48	LB58758
	Silver	493.70	500.0	98.7	90 - 110	MS	01/09/2012	13:48	LB58758
	Sodium	49220.00	50000.0	98.4	90 - 110	MS	01/09/2012	13:48	LB58758
	Thallium	497.30	500.0	99.5	90 - 110	MS	01/09/2012	13:48	LB58758
	Vanadium	495.10	500.0	99.0	90 - 110	MS	01/09/2012	13:48	LB58758
	Zinc	991.00	1000.0	99.1	90 - 110	MS	01/09/2012	13:48	LB58758
CCV02	Aluminum	10120.00	10000.0	101.2	90 - 110	MS	01/09/2012	14:20	LB58758
	Antimony	490.90	500.0	98.2	90 - 110	MS	01/09/2012	14:20	LB58758
	Arsenic	498.80	500.0	99.8	90 - 110	MS	01/09/2012	14:20	LB58758
	Barium	2468.00	2500.0	98.7	90 - 110	MS	01/09/2012	14:20	LB58758
	Beryllium	501.20	500.0	100.2	90 - 110	MS	01/09/2012	14:20	LB58758
	Cadmium	496.20	500.0	99.2	90 - 110	MS	01/09/2012	14:20	LB58758
	Calcium	49640.00	50000.0	99.3	90 - 110	MS	01/09/2012	14:20	LB58758
	Chromium	498.30	500.0	99.7	90 - 110	MS	01/09/2012	14:20	LB58758
	Cobalt	503.40	500.0	100.7	90 - 110	MS	01/09/2012	14:20	LB58758
	Copper	1013.00	1000.0	101.3	90 - 110	MS	01/09/2012	14:20	LB58758
	Iron	24830.00	25000.0	99.3	90 - 110	MS	01/09/2012	14:20	LB58758
	Lead	499.60	500.0	99.9	90 - 110	MS	01/09/2012	14:20	LB58758
	Magnesium	49520.00	50000.0	99.0	90 - 110	MS	01/09/2012	14:20	LB58758
	Manganese	1004.00	1000.0	100.4	90 - 110	MS	01/09/2012	14:20	LB58758
	Nickel	506.30	500.0	101.3	90 - 110	MS	01/09/2012	14:20	LB58758
	Potassium	24760.00	25000.0	99.0	90 - 110	MS	01/09/2012	14:20	LB58758
	Selenium	504.80	500.0	101.0	90 - 110	MS	01/09/2012	14:20	LB58758
	Silver	498.80	500.0	99.8	90 - 110	MS	01/09/2012	14:20	LB58758
	Sodium	48970.00	50000.0	97.9	90 - 110	MS	01/09/2012	14:20	LB58758
	Thallium	503.10	500.0	100.6	90 - 110	MS	01/09/2012	14:20	LB58758
	Vanadium	498.70	500.0	99.7	90 - 110	MS	01/09/2012	14:20	LB58758
	Zinc	998.00	1000.0	99.8	90 - 110	MS	01/09/2012	14:20	LB58758
CCV03	Aluminum	9894.00	10000.0	98.9	90 - 110	MS	01/09/2012	15:55	LB58758
	Antimony	486.00	500.0	97.2	90 - 110	MS	01/09/2012	15:55	LB58758
	Arsenic	495.40	500.0	99.1	90 - 110	MS	01/09/2012	15:55	LB58758

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Barium	2439.00	2500.0	97.6	90 - 110	MS	01/09/2012	15:55	LB58758
	Beryllium	490.20	500.0	98.0	90 - 110	MS	01/09/2012	15:55	LB58758
	Cadmium	495.60	500.0	99.1	90 - 110	MS	01/09/2012	15:55	LB58758
	Calcium	49340.00	50000.0	98.7	90 - 110	MS	01/09/2012	15:55	LB58758
	Chromium	499.80	500.0	100.0	90 - 110	MS	01/09/2012	15:55	LB58758
	Cobalt	503.50	500.0	100.7	90 - 110	MS	01/09/2012	15:55	LB58758
	Copper	1018.00	1000.0	101.8	90 - 110	MS	01/09/2012	15:55	LB58758
	Iron	24870.00	25000.0	99.5	90 - 110	MS	01/09/2012	15:55	LB58758
	Lead	499.10	500.0	99.8	90 - 110	MS	01/09/2012	15:55	LB58758
	Magnesium	49020.00	50000.0	98.0	90 - 110	MS	01/09/2012	15:55	LB58758
	Manganese	998.80	1000.0	99.9	90 - 110	MS	01/09/2012	15:55	LB58758
	Nickel	510.90	500.0	102.2	90 - 110	MS	01/09/2012	15:55	LB58758
	Potassium	24430.00	25000.0	97.7	90 - 110	MS	01/09/2012	15:55	LB58758
	Selenium	503.50	500.0	100.7	90 - 110	MS	01/09/2012	15:55	LB58758
	Silver	497.50	500.0	99.5	90 - 110	MS	01/09/2012	15:55	LB58758
	Sodium	48500.00	50000.0	97.0	90 - 110	MS	01/09/2012	15:55	LB58758
	Thallium	498.00	500.0	99.6	90 - 110	MS	01/09/2012	15:55	LB58758
	Vanadium	499.00	500.0	99.8	90 - 110	MS	01/09/2012	15:55	LB58758
	Zinc	999.10	1000.0	99.9	90 - 110	MS	01/09/2012	15:55	LB58758
CCV04	Aluminum	9538.00	10000.0	95.4	90 - 110	MS	01/09/2012	17:30	LB58758
	Antimony	460.60	500.0	92.1	90 - 110	MS	01/09/2012	17:30	LB58758
	Arsenic	473.20	500.0	94.6	90 - 110	MS	01/09/2012	17:30	LB58758
	Barium	2287.00	2500.0	91.5	90 - 110	MS	01/09/2012	17:30	LB58758
	Beryllium	477.90	500.0	95.6	90 - 110	MS	01/09/2012	17:30	LB58758
	Cadmium	465.40	500.0	93.1	90 - 110	MS	01/09/2012	17:30	LB58758
	Calcium	47270.00	50000.0	94.5	90 - 110	MS	01/09/2012	17:30	LB58758
	Chromium	478.70	500.0	95.7	90 - 110	MS	01/09/2012	17:30	LB58758
	Cobalt	483.60	500.0	96.7	90 - 110	MS	01/09/2012	17:30	LB58758
	Copper	977.30	1000.0	97.7	90 - 110	MS	01/09/2012	17:30	LB58758
	Iron	23770.00	25000.0	95.1	90 - 110	MS	01/09/2012	17:30	LB58758
	Lead	477.10	500.0	95.4	90 - 110	MS	01/09/2012	17:30	LB58758
	Magnesium	47340.00	50000.0	94.7	90 - 110	MS	01/09/2012	17:30	LB58758
	Manganese	953.50	1000.0	95.4	90 - 110	MS	01/09/2012	17:30	LB58758
	Nickel	489.50	500.0	97.9	90 - 110	MS	01/09/2012	17:30	LB58758
	Potassium	23650.00	25000.0	94.6	90 - 110	MS	01/09/2012	17:30	LB58758

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Selenium	481.50	500.0	96.3	90 - 110	MS	01/09/2012	17:30	LB58758
	Silver	473.30	500.0	94.7	90 - 110	MS	01/09/2012	17:30	LB58758
	Sodium	47590.00	50000.0	95.2	90 - 110	MS	01/09/2012	17:30	LB58758
	Thallium	477.20	500.0	95.4	90 - 110	MS	01/09/2012	17:30	LB58758
	Vanadium	478.00	500.0	95.6	90 - 110	MS	01/09/2012	17:30	LB58758
	Zinc	957.10	1000.0	95.7	90 - 110	MS	01/09/2012	17:30	LB58758
CCV05	Aluminum	9686.00	10000.0	96.9	90 - 110	MS	01/09/2012	18:33	LB58758
	Antimony	463.50	500.0	92.7	90 - 110	MS	01/09/2012	18:33	LB58758
	Arsenic	471.30	500.0	94.3	90 - 110	MS	01/09/2012	18:33	LB58758
	Barium	2288.00	2500.0	91.5	90 - 110	MS	01/09/2012	18:33	LB58758
	Beryllium	490.80	500.0	98.2	90 - 110	MS	01/09/2012	18:33	LB58758
	Cadmium	470.40	500.0	94.1	90 - 110	MS	01/09/2012	18:33	LB58758
	Calcium	47210.00	50000.0	94.4	90 - 110	MS	01/09/2012	18:33	LB58758
	Chromium	478.50	500.0	95.7	90 - 110	MS	01/09/2012	18:33	LB58758
	Cobalt	483.20	500.0	96.6	90 - 110	MS	01/09/2012	18:33	LB58758
	Copper	971.40	1000.0	97.1	90 - 110	MS	01/09/2012	18:33	LB58758
	Iron	23930.00	25000.0	95.7	90 - 110	MS	01/09/2012	18:33	LB58758
	Lead	476.50	500.0	95.3	90 - 110	MS	01/09/2012	18:33	LB58758
	Magnesium	47490.00	50000.0	95.0	90 - 110	MS	01/09/2012	18:33	LB58758
	Manganese	961.40	1000.0	96.1	90 - 110	MS	01/09/2012	18:33	LB58758
	Nickel	488.50	500.0	97.7	90 - 110	MS	01/09/2012	18:33	LB58758
	Potassium	23690.00	25000.0	94.8	90 - 110	MS	01/09/2012	18:33	LB58758
	Selenium	478.70	500.0	95.7	90 - 110	MS	01/09/2012	18:33	LB58758
	Silver	469.40	500.0	93.9	90 - 110	MS	01/09/2012	18:33	LB58758
	Sodium	47400.00	50000.0	94.8	90 - 110	MS	01/09/2012	18:33	LB58758
	Thallium	476.00	500.0	95.2	90 - 110	MS	01/09/2012	18:33	LB58758
	Vanadium	475.30	500.0	95.1	90 - 110	MS	01/09/2012	18:33	LB58758
	Zinc	959.70	1000.0	96.0	90 - 110	MS	01/09/2012	18:33	LB58758
ICV01	Aluminum	537.30	504.0	106.6	90 - 110	MS	01/17/2012	15:05	LB58874
	Antimony	193.00	199.0	97.0	90 - 110	MS	01/17/2012	15:05	LB58874
	Arsenic	197.20	200.0	98.6	90 - 110	MS	01/17/2012	15:05	LB58874
	Barium	100.20	99.0	101.2	90 - 110	MS	01/17/2012	15:05	LB58874
	Beryllium	97.59	99.0	98.6	90 - 110	MS	01/17/2012	15:05	LB58874
	Cadmium	101.20	99.0	102.2	90 - 110	MS	01/17/2012	15:05	LB58874
	Calcium	2182.00	2005.0	108.8	90 - 110	MS	01/17/2012	15:05	LB58874

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source:

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.19	0.2	95.0	0 - 200	CV	01/04/2012	12:34	LB58686
CRI01	Mercury	0.21	0.2	105.0	0 - 200	CV	01/04/2012	15:55	LB58693
CRI01	Aluminum	21.54	20.0	107.7	50 - 150	MS	01/05/2012	14:51	LB58711
	Antimony	2.15	2.0	107.5	50 - 150	MS	01/05/2012	14:51	LB58711
	Arsenic	1.07	1.0	107.0	70 - 130	MS	01/05/2012	14:51	LB58711
	Barium	9.63	10.0	96.3	70 - 130	MS	01/05/2012	14:51	LB58711
	Beryllium	1.08	1.0	108.0	70 - 130	MS	01/05/2012	14:51	LB58711
	Cadmium	0.92	1.0	92.0	70 - 130	MS	01/05/2012	14:51	LB58711
	Calcium	489.60	500.0	97.9	50 - 150	MS	01/05/2012	14:51	LB58711
	Chromium	1.88	2.0	94.0	70 - 130	MS	01/05/2012	14:51	LB58711
	Cobalt	0.98	1.0	98.0	50 - 150	MS	01/05/2012	14:51	LB58711
	Copper	2.07	2.0	103.5	70 - 130	MS	01/05/2012	14:51	LB58711
	Iron	205.50	200.0	102.8	50 - 150	MS	01/05/2012	14:51	LB58711
	Lead	0.96	1.0	96.0	50 - 150	MS	01/05/2012	14:51	LB58711
	Magnesium	477.80	500.0	95.6	50 - 150	MS	01/05/2012	14:51	LB58711
	Manganese	1.23	1.0	123.0	50 - 150	MS	01/05/2012	14:51	LB58711
	Nickel	0.81	1.0	81.0	70 - 130	MS	01/05/2012	14:51	LB58711
	Potassium	495.20	500.0	99.0	50 - 150	MS	01/05/2012	14:51	LB58711
	Selenium	4.59	5.0	91.8	70 - 130	MS	01/05/2012	14:51	LB58711
	Silver	1.03	1.0	103.0	70 - 130	MS	01/05/2012	14:51	LB58711
	Sodium	492.30	500.0	98.5	50 - 150	MS	01/05/2012	14:51	LB58711
	Thallium	0.98	1.0	98.0	50 - 150	MS	01/05/2012	14:51	LB58711
	Vanadium	4.67	5.0	93.4	70 - 130	MS	01/05/2012	14:51	LB58711
	Zinc	2.07	2.0	103.5	50 - 150	MS	01/05/2012	14:51	LB58711
CRI02	Aluminum	22.42	20.0	112.1	50 - 150	MS	01/05/2012	19:33	LB58711
	Antimony	2.13	2.0	106.5	50 - 150	MS	01/05/2012	19:33	LB58711
	Arsenic	1.04	1.0	104.0	70 - 130	MS	01/05/2012	19:33	LB58711
	Barium	9.61	10.0	96.1	70 - 130	MS	01/05/2012	19:33	LB58711
	Beryllium	0.98	1.0	98.0	70 - 130	MS	01/05/2012	19:33	LB58711
	Cadmium	0.91	1.0	91.0	70 - 130	MS	01/05/2012	19:33	LB58711
	Calcium	476.90	500.0	95.4	50 - 150	MS	01/05/2012	19:33	LB58711
	Chromium	1.93	2.0	96.5	70 - 130	MS	01/05/2012	19:33	LB58711
	Cobalt	0.94	1.0	94.0	50 - 150	MS	01/05/2012	19:33	LB58711
	Copper	2.04	2.0	102.0	70 - 130	MS	01/05/2012	19:33	LB58711
	Iron	209.40	200.0	104.7	50 - 150	MS	01/05/2012	19:33	LB58711
	Lead	0.92	1.0	92.0	50 - 150	MS	01/05/2012	19:33	LB58711
	Magnesium	473.70	500.0	94.7	50 - 150	MS	01/05/2012	19:33	LB58711
	Manganese	1.03	1.0	103.0	50 - 150	MS	01/05/2012	19:33	LB58711

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source:

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI02	Nickel	0.78	1.0	78.0	70 - 130	MS	01/05/2012	19:33	LB58711
	Potassium	491.70	500.0	98.3	50 - 150	MS	01/05/2012	19:33	LB58711
	Selenium	4.97	5.0	99.4	70 - 130	MS	01/05/2012	19:33	LB58711
	Silver	0.98	1.0	98.0	70 - 130	MS	01/05/2012	19:33	LB58711
	Sodium	490.50	500.0	98.1	50 - 150	MS	01/05/2012	19:33	LB58711
	Thallium	0.96	1.0	96.0	50 - 150	MS	01/05/2012	19:33	LB58711
	Vanadium	4.43	5.0	88.6	70 - 130	MS	01/05/2012	19:33	LB58711
	Zinc	2.01	2.0	100.5	50 - 150	MS	01/05/2012	19:33	LB58711
CRI01	Aluminum	21.05	20.0	105.2	50 - 150	MS	01/09/2012	14:04	LB58758
	Antimony	2.13	2.0	106.5	50 - 150	MS	01/09/2012	14:04	LB58758
	Arsenic	1.10	1.0	110.0	70 - 130	MS	01/09/2012	14:04	LB58758
	Barium	9.41	10.0	94.1	70 - 130	MS	01/09/2012	14:04	LB58758
	Beryllium	1.06	1.0	106.0	70 - 130	MS	01/09/2012	14:04	LB58758
	Cadmium	0.79	1.0	79.0	70 - 130	MS	01/09/2012	14:04	LB58758
	Calcium	455.20	500.0	91.0	50 - 150	MS	01/09/2012	14:04	LB58758
	Chromium	1.87	2.0	93.5	70 - 130	MS	01/09/2012	14:04	LB58758
	Cobalt	0.93	1.0	93.0	50 - 150	MS	01/09/2012	14:04	LB58758
	Copper	1.87	2.0	93.5	70 - 130	MS	01/09/2012	14:04	LB58758
	Iron	207.10	200.0	103.6	50 - 150	MS	01/09/2012	14:04	LB58758
	Lead	0.97	1.0	97.0	50 - 150	MS	01/09/2012	14:04	LB58758
	Magnesium	482.70	500.0	96.5	50 - 150	MS	01/09/2012	14:04	LB58758
	Manganese	0.93	1.0	93.0	50 - 150	MS	01/09/2012	14:04	LB58758
	Nickel	0.94	1.0	94.0	70 - 130	MS	01/09/2012	14:04	LB58758
	Potassium	487.60	500.0	97.5	50 - 150	MS	01/09/2012	14:04	LB58758
	Selenium	4.78	5.0	95.6	70 - 130	MS	01/09/2012	14:04	LB58758
	Silver	0.94	1.0	94.0	70 - 130	MS	01/09/2012	14:04	LB58758
	Sodium	489.90	500.0	98.0	50 - 150	MS	01/09/2012	14:04	LB58758
	Thallium	0.95	1.0	95.0	50 - 150	MS	01/09/2012	14:04	LB58758
	Vanadium	4.82	5.0	96.4	70 - 130	MS	01/09/2012	14:04	LB58758
	Zinc	1.92	2.0	96.0	50 - 150	MS	01/09/2012	14:04	LB58758
CRI01	Aluminum	22.69	20.0	113.4	50 - 150	MS	01/17/2012	16:08	LB58874
	Antimony	2.23	2.0	111.5	50 - 150	MS	01/17/2012	16:08	LB58874
	Arsenic	1.23	1.0	123.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Barium	10.09	10.0	100.9	70 - 130	MS	01/17/2012	16:08	LB58874
	Beryllium	1.04	1.0	104.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Cadmium	1.15	1.0	115.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Calcium	507.00	500.0	101.4	50 - 150	MS	01/17/2012	16:08	LB58874
	Chromium	2.05	2.0	102.5	70 - 130	MS	01/17/2012	16:08	LB58874
	Cobalt	0.97	1.0	97.0	50 - 150	MS	01/17/2012	16:08	LB58874
	Copper	2.20	2.0	110.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Iron	212.20	200.0	106.1	50 - 150	MS	01/17/2012	16:08	LB58874

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Initial Calibration Source:

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Lead	1.01	1.0	101.0	50 - 150	MS	01/17/2012	16:08	LB58874
	Magnesium	515.10	500.0	103.0	50 - 150	MS	01/17/2012	16:08	LB58874
	Manganese	1.04	1.0	104.0	50 - 150	MS	01/17/2012	16:08	LB58874
	Nickel	1.10	1.0	110.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Potassium	522.20	500.0	104.4	50 - 150	MS	01/17/2012	16:08	LB58874
	Selenium	4.89	5.0	97.8	70 - 130	MS	01/17/2012	16:08	LB58874
	Silver	1.02	1.0	102.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Sodium	531.40	500.0	106.3	50 - 150	MS	01/17/2012	16:08	LB58874
	Thallium	1.06	1.0	106.0	50 - 150	MS	01/17/2012	16:08	LB58874
	Vanadium	5.00	5.0	100.0	70 - 130	MS	01/17/2012	16:08	LB58874
	Zinc	2.08	2.0	104.0	50 - 150	MS	01/17/2012	16:08	LB58874

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	12:28	LB58686
CCB01	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	12:32	LB58686
CCB02	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	12:54	LB58686
CCB03	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	13:23	LB58686
CCB04	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	13:47	LB58686
CCB05	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	14:13	LB58686
CCB06	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	14:35	LB58686
CCB07	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	14:57	LB58686
CCB08	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	01/04/2012	15:16	LB58686
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	15:49	LB58693
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	15:53	LB58693
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	16:17	LB58693
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	16:40	LB58693
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	17:08	LB58693
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	17:31	LB58693
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	01/04/2012	17:41	LB58693
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	13:55	LB58711
	Antimony	0.901	+/-2.000	J	0.140	2.000	MS	01/05/2012	13:55	LB58711
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	13:55	LB58711
	Barium	0.334	+/-10.000	J	0.100	10.000	MS	01/05/2012	13:55	LB58711
	Beryllium	0.130	+/-1.000	J	0.090	1.000	MS	01/05/2012	13:55	LB58711
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	13:55	LB58711
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	13:55	LB58711
	Chromium	0.076	+/-2.000	J	0.040	2.000	MS	01/05/2012	13:55	LB58711
	Cobalt	0.107	+/-1.000	J	0.050	1.000	MS	01/05/2012	13:55	LB58711
	Copper	0.171	+/-2.000	J	0.040	2.000	MS	01/05/2012	13:55	LB58711
	Iron	10.620	+/-200.000	J	10.280	200.000	MS	01/05/2012	13:55	LB58711
	Lead	0.143	+/-1.000	J	0.040	1.000	MS	01/05/2012	13:55	LB58711
	Magnesium	6.453	+/-500.000	J	4.950	500.000	MS	01/05/2012	13:55	LB58711
	Manganese	0.141	+/-1.000	J	0.050	1.000	MS	01/05/2012	13:55	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	13:55	LB58711
	Potassium	19.180	+/-500.000	J	12.220	500.000	MS	01/05/2012	13:55	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	13:55	LB58711
	Silver	0.098	+/-1.000	J	0.030	1.000	MS	01/05/2012	13:55	LB58711
	Sodium	17.040	+/-500.000	J	5.320	500.000	MS	01/05/2012	13:55	LB58711
	Thallium	0.121	+/-1.000	J	0.020	1.000	MS	01/05/2012	13:55	LB58711
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	13:55	LB58711

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Zinc	0.192	+/-2.000	J	0.090	2.000	MS	01/05/2012	13:55	LB58711
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	14:43	LB58711
X	Antimony	0.707	+/-2.000	J	0.140	2.000	MS	01/05/2012	14:43	LB58711
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	14:43	LB58711
	Barium	0.265	+/-10.000	J	0.100	10.000	MS	01/05/2012	14:43	LB58711
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	14:43	LB58711
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	14:43	LB58711
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	14:43	LB58711
	Chromium	0.043	+/-2.000	J	0.040	2.000	MS	01/05/2012	14:43	LB58711
	Cobalt	0.055	+/-1.000	J	0.050	1.000	MS	01/05/2012	14:43	LB58711
	Copper	0.159	+/-2.000	J	0.040	2.000	MS	01/05/2012	14:43	LB58711
	Iron	13.750	+/-200.000	J	10.280	200.000	MS	01/05/2012	14:43	LB58711
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/05/2012	14:43	LB58711
	Magnesium	7.382	+/-500.000	J	4.950	500.000	MS	01/05/2012	14:43	LB58711
	Manganese	0.064	+/-1.000	J	0.050	1.000	MS	01/05/2012	14:43	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	14:43	LB58711
	Potassium	19.550	+/-500.000	J	12.220	500.000	MS	01/05/2012	14:43	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	14:43	LB58711
	Silver	0.052	+/-1.000	J	0.030	1.000	MS	01/05/2012	14:43	LB58711
	Sodium	15.410	+/-500.000	J	5.320	500.000	MS	01/05/2012	14:43	LB58711
	Thallium	0.049	+/-1.000	J	0.020	1.000	MS	01/05/2012	14:43	LB58711
	Vanadium	0.233	+/-5.000	J	0.150	5.000	MS	01/05/2012	14:43	LB58711
	Zinc	0.112	+/-2.000	J	0.090	2.000	MS	01/05/2012	14:43	LB58711
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	16:18	LB58711
	Antimony	0.646	+/-2.000	J	0.140	2.000	MS	01/05/2012	16:18	LB58711
X	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	16:18	LB58711
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/05/2012	16:18	LB58711
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	16:18	LB58711
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	16:18	LB58711
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	16:18	LB58711
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	16:18	LB58711
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	16:18	LB58711
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	16:18	LB58711
	Iron	14.880	+/-200.000	J	10.280	200.000	MS	01/05/2012	16:18	LB58711
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/05/2012	16:18	LB58711
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	16:18	LB58711
	Manganese	0.562	+/-1.000	J	0.050	1.000	MS	01/05/2012	16:18	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	16:18	LB58711
	Potassium	22.850	+/-500.000	J	12.220	500.000	MS	01/05/2012	16:18	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	16:18	LB58711
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	01/05/2012	16:18	LB58711
	Sodium	12.320	+/-500.000	J	5.320	500.000	MS	01/05/2012	16:18	LB58711

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Thallium	0.036	+/-1.000	J	0.020	1.000	MS	01/05/2012	16:18	LB58711
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	16:18	LB58711
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/05/2012	16:18	LB58711
CCB03	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	17:53	LB58711
	Antimony	0.620	+/-2.000	J	0.140	2.000	MS	01/05/2012	17:53	LB58711
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	17:53	LB58711
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/05/2012	17:53	LB58711
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	17:53	LB58711
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	17:53	LB58711
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	17:53	LB58711
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	17:53	LB58711
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	17:53	LB58711
	Copper	0.057	+/-2.000	J	0.040	2.000	MS	01/05/2012	17:53	LB58711
	Iron	13.950	+/-200.000	J	10.280	200.000	MS	01/05/2012	17:53	LB58711
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/05/2012	17:53	LB58711
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	17:53	LB58711
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	17:53	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	17:53	LB58711
	Potassium	16.260	+/-500.000	J	12.220	500.000	MS	01/05/2012	17:53	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	17:53	LB58711
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	01/05/2012	17:53	LB58711
	Sodium	7.812	+/-500.000	J	5.320	500.000	MS	01/05/2012	17:53	LB58711
	Thallium	0.020	+/-1.000	U	0.020	1.000	MS	01/05/2012	17:53	LB58711
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	17:53	LB58711
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/05/2012	17:53	LB58711
CCB04	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	19:25	LB58711
	Antimony	0.647	+/-2.000	J	0.140	2.000	MS	01/05/2012	19:25	LB58711
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/05/2012	19:25	LB58711
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/05/2012	19:25	LB58711
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	19:25	LB58711
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	19:25	LB58711
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	19:25	LB58711
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	19:25	LB58711
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	19:25	LB58711
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	19:25	LB58711
	Iron	12.490	+/-200.000	J	10.280	200.000	MS	01/05/2012	19:25	LB58711
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/05/2012	19:25	LB58711
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	19:25	LB58711
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	19:25	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	19:25	LB58711
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/05/2012	19:25	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	19:25	LB58711

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Silver	0.030	+/-1.000	U	0.030	1.000	MS	01/05/2012	19:25	LB58711
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/05/2012	19:25	LB58711
	Thallium	0.020	+/-1.000	U	0.020	1.000	MS	01/05/2012	19:25	LB58711
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	19:25	LB58711
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/05/2012	19:25	LB58711
CCB05	Aluminum	6.116	+/-20.000	J	4.970	20.000	MS	01/05/2012	21:01	LB58711
	Antimony	0.790	+/-2.000	J	0.140	2.000	MS	01/05/2012	21:01	LB58711
	Arsenic	0.309	+/-1.000	J	0.180	1.000	MS	01/05/2012	21:01	LB58711
	Barium	1.144	+/-10.000	J	0.100	10.000	MS	01/05/2012	21:01	LB58711
	Beryllium	0.195	+/-1.000	J	0.090	1.000	MS	01/05/2012	21:01	LB58711
	Cadmium	0.211	+/-1.000	J	0.130	1.000	MS	01/05/2012	21:01	LB58711
	Calcium	21.690	+/-500.000	J	9.060	500.000	MS	01/05/2012	21:01	LB58711
	Chromium	0.211	+/-2.000	J	0.040	2.000	MS	01/05/2012	21:01	LB58711
	Cobalt	0.187	+/-1.000	J	0.050	1.000	MS	01/05/2012	21:01	LB58711
	Copper	0.449	+/-2.000	J	0.040	2.000	MS	01/05/2012	21:01	LB58711
	Iron	31.360	+/-200.000	J	10.280	200.000	MS	01/05/2012	21:01	LB58711
	Lead	0.168	+/-1.000	J	0.040	1.000	MS	01/05/2012	21:01	LB58711
	Magnesium	20.850	+/-500.000	J	4.950	500.000	MS	01/05/2012	21:01	LB58711
	Manganese	0.450	+/-1.000	J	0.050	1.000	MS	01/05/2012	21:01	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	21:01	LB58711
	Potassium	15.940	+/-500.000	J	12.220	500.000	MS	01/05/2012	21:01	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	21:01	LB58711
	Silver	0.296	+/-1.000	J	0.030	1.000	MS	01/05/2012	21:01	LB58711
	Sodium	24.770	+/-500.000	J	5.320	500.000	MS	01/05/2012	21:01	LB58711
	Thallium	0.319	+/-1.000	J	0.020	1.000	MS	01/05/2012	21:01	LB58711
	Vanadium	0.420	+/-5.000	J	0.150	5.000	MS	01/05/2012	21:01	LB58711
	Zinc	0.345	+/-2.000	J	0.090	2.000	MS	01/05/2012	21:01	LB58711
CCB06	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/05/2012	22:37	LB58711
	Antimony	0.630	+/-2.000	J	0.140	2.000	MS	01/05/2012	22:37	LB58711
	Arsenic	0.190	+/-1.000	J	0.180	1.000	MS	01/05/2012	22:37	LB58711
	Barium	0.114	+/-10.000	J	0.100	10.000	MS	01/05/2012	22:37	LB58711
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/05/2012	22:37	LB58711
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/05/2012	22:37	LB58711
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/05/2012	22:37	LB58711
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	22:37	LB58711
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	22:37	LB58711
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/05/2012	22:37	LB58711
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	01/05/2012	22:37	LB58711
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/05/2012	22:37	LB58711
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/05/2012	22:37	LB58711
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	01/05/2012	22:37	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/05/2012	22:37	LB58711

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Potassium	22.420	+/-500.000	J	12.220	500.000	MS	01/05/2012	22:37	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/05/2012	22:37	LB58711
	Silver	0.033	+/-1.000	J	0.030	1.000	MS	01/05/2012	22:37	LB58711
	Sodium	19.880	+/-500.000	J	5.320	500.000	MS	01/05/2012	22:37	LB58711
	Thallium	0.348	+/-1.000	J	0.020	1.000	MS	01/05/2012	22:37	LB58711
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/05/2012	22:37	LB58711
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/05/2012	22:37	LB58711
CCB07	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/06/2012	00:12	LB58711
	Antimony	0.757	+/-2.000	J	0.140	2.000	MS	01/06/2012	00:12	LB58711
	Arsenic	0.269	+/-1.000	J	0.180	1.000	MS	01/06/2012	00:12	LB58711
	Barium	0.962	+/-10.000	J	0.100	10.000	MS	01/06/2012	00:12	LB58711
	Beryllium	0.168	+/-1.000	J	0.090	1.000	MS	01/06/2012	00:12	LB58711
	Cadmium	0.166	+/-1.000	J	0.130	1.000	MS	01/06/2012	00:12	LB58711
	Calcium	27.920	+/-500.000	J	9.060	500.000	MS	01/06/2012	00:12	LB58711
	Chromium	0.190	+/-2.000	J	0.040	2.000	MS	01/06/2012	00:12	LB58711
	Cobalt	0.160	+/-1.000	J	0.050	1.000	MS	01/06/2012	00:12	LB58711
	Copper	0.345	+/-2.000	J	0.040	2.000	MS	01/06/2012	00:12	LB58711
	Iron	16.040	+/-200.000	J	10.280	200.000	MS	01/06/2012	00:12	LB58711
	Lead	0.165	+/-1.000	J	0.040	1.000	MS	01/06/2012	00:12	LB58711
	Magnesium	18.010	+/-500.000	J	4.950	500.000	MS	01/06/2012	00:12	LB58711
	Manganese	0.769	+/-1.000	J	0.050	1.000	MS	01/06/2012	00:12	LB58711
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/06/2012	00:12	LB58711
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/06/2012	00:12	LB58711
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/06/2012	00:12	LB58711
	Silver	0.214	+/-1.000	J	0.030	1.000	MS	01/06/2012	00:12	LB58711
	Sodium	17.970	+/-500.000	J	5.320	500.000	MS	01/06/2012	00:12	LB58711
	Thallium	0.528	+/-1.000	J	0.020	1.000	MS	01/06/2012	00:12	LB58711
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/06/2012	00:12	LB58711
	Zinc	0.371	+/-2.000	J	0.090	2.000	MS	01/06/2012	00:12	LB58711
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/09/2012	13:09	LB58758
	Antimony	0.919	+/-2.000	J	0.140	2.000	MS	01/09/2012	13:09	LB58758
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/09/2012	13:09	LB58758
	Barium	0.211	+/-10.000	J	0.100	10.000	MS	01/09/2012	13:09	LB58758
	Beryllium	0.120	+/-1.000	J	0.090	1.000	MS	01/09/2012	13:09	LB58758
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/09/2012	13:09	LB58758
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/09/2012	13:09	LB58758
	Chromium	0.088	+/-2.000	J	0.040	2.000	MS	01/09/2012	13:09	LB58758
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	13:09	LB58758
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/09/2012	13:09	LB58758
	Iron	11.510	+/-200.000	J	10.280	200.000	MS	01/09/2012	13:09	LB58758
	Lead	0.118	+/-1.000	J	0.040	1.000	MS	01/09/2012	13:09	LB58758
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/09/2012	13:09	LB58758

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	13:09	LB58758
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/09/2012	13:09	LB58758
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/09/2012	13:09	LB58758
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/09/2012	13:09	LB58758
	Silver	0.080	+/-1.000	J	0.030	1.000	MS	01/09/2012	13:09	LB58758
	Sodium	7.494	+/-500.000	J	5.320	500.000	MS	01/09/2012	13:09	LB58758
	Thallium	0.130	+/-1.000	J	0.020	1.000	MS	01/09/2012	13:09	LB58758
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/09/2012	13:09	LB58758
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/09/2012	13:09	LB58758
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/09/2012	13:56	LB58758
	Antimony	0.677	+/-2.000	J	0.140	2.000	MS	01/09/2012	13:56	LB58758
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/09/2012	13:56	LB58758
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/09/2012	13:56	LB58758
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/09/2012	13:56	LB58758
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/09/2012	13:56	LB58758
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/09/2012	13:56	LB58758
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/09/2012	13:56	LB58758
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	13:56	LB58758
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/09/2012	13:56	LB58758
	Iron	14.260	+/-200.000	J	10.280	200.000	MS	01/09/2012	13:56	LB58758
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/09/2012	13:56	LB58758
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/09/2012	13:56	LB58758
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	13:56	LB58758
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/09/2012	13:56	LB58758
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/09/2012	13:56	LB58758
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/09/2012	13:56	LB58758
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	01/09/2012	13:56	LB58758
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/09/2012	13:56	LB58758
	Thallium	0.020	+/-1.000	U	0.020	1.000	MS	01/09/2012	13:56	LB58758
	Vanadium	0.251	+/-5.000	J	0.150	5.000	MS	01/09/2012	13:56	LB58758
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/09/2012	13:56	LB58758
CCB02	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/09/2012	14:28	LB58758
	Antimony	0.630	+/-2.000	J	0.140	2.000	MS	01/09/2012	14:28	LB58758
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/09/2012	14:28	LB58758
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/09/2012	14:28	LB58758
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/09/2012	14:28	LB58758
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/09/2012	14:28	LB58758
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/09/2012	14:28	LB58758
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	01/09/2012	14:28	LB58758
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	14:28	LB58758
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/09/2012	14:28	LB58758
	Iron	16.510	+/-200.000	J	10.280	200.000	MS	01/09/2012	14:28	LB58758

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/09/2012	14:28	LB58758
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/09/2012	14:28	LB58758
	Manganese	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	14:28	LB58758
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/09/2012	14:28	LB58758
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/09/2012	14:28	LB58758
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/09/2012	14:28	LB58758
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	01/09/2012	14:28	LB58758
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/09/2012	14:28	LB58758
	Thallium	0.020	+/-1.000	U	0.020	1.000	MS	01/09/2012	14:28	LB58758
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/09/2012	14:28	LB58758
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/09/2012	14:28	LB58758
CCB03	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/09/2012	16:03	LB58758
	Antimony	0.725	+/-2.000	J	0.140	2.000	MS	01/09/2012	16:03	LB58758
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/09/2012	16:03	LB58758
	Barium	0.147	+/-10.000	J	0.100	10.000	MS	01/09/2012	16:03	LB58758
	Beryllium	0.123	+/-1.000	J	0.090	1.000	MS	01/09/2012	16:03	LB58758
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/09/2012	16:03	LB58758
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/09/2012	16:03	LB58758
	Chromium	0.118	+/-2.000	J	0.040	2.000	MS	01/09/2012	16:03	LB58758
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	01/09/2012	16:03	LB58758
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	01/09/2012	16:03	LB58758
	Iron	16.270	+/-200.000	J	10.280	200.000	MS	01/09/2012	16:03	LB58758
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	01/09/2012	16:03	LB58758
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	01/09/2012	16:03	LB58758
	Manganese	0.115	+/-1.000	J	0.050	1.000	MS	01/09/2012	16:03	LB58758
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/09/2012	16:03	LB58758
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/09/2012	16:03	LB58758
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/09/2012	16:03	LB58758
	Silver	0.052	+/-1.000	J	0.030	1.000	MS	01/09/2012	16:03	LB58758
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	01/09/2012	16:03	LB58758
	Thallium	0.097	+/-1.000	J	0.020	1.000	MS	01/09/2012	16:03	LB58758
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/09/2012	16:03	LB58758
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	01/09/2012	16:03	LB58758
CCB04	Aluminum	16.940	+/-20.000	J	4.970	20.000	MS	01/09/2012	17:38	LB58758
	Antimony	0.745	+/-2.000	J	0.140	2.000	MS	01/09/2012	17:38	LB58758
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/09/2012	17:38	LB58758
	Barium	0.760	+/-10.000	J	0.100	10.000	MS	01/09/2012	17:38	LB58758
	Beryllium	0.221	+/-1.000	J	0.090	1.000	MS	01/09/2012	17:38	LB58758
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/09/2012	17:38	LB58758
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/09/2012	17:38	LB58758
	Chromium	0.237	+/-2.000	J	0.040	2.000	MS	01/09/2012	17:38	LB58758
	Cobalt	0.105	+/-1.000	J	0.050	1.000	MS	01/09/2012	17:38	LB58758

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Copper	0.248	+/-2.000	J	0.040	2.000	MS	01/09/2012	17:38	LB58758
	Iron	45.050	+/-200.000	J	10.280	200.000	MS	01/09/2012	17:38	LB58758
	Lead	0.451	+/-1.000	J	0.040	1.000	MS	01/09/2012	17:38	LB58758
	Magnesium	15.990	+/-500.000	J	4.950	500.000	MS	01/09/2012	17:38	LB58758
	Manganese	1.784	+/-1.000		0.050	1.000	MS	01/09/2012	17:38	LB58758
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/09/2012	17:38	LB58758
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/09/2012	17:38	LB58758
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/09/2012	17:38	LB58758
	Silver	0.175	+/-1.000	J	0.030	1.000	MS	01/09/2012	17:38	LB58758
	Sodium	41.670	+/-500.000	J	5.320	500.000	MS	01/09/2012	17:38	LB58758
	Thallium	0.414	+/-1.000	J	0.020	1.000	MS	01/09/2012	17:38	LB58758
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	01/09/2012	17:38	LB58758
	Zinc	2.011	+/-2.000		0.090	2.000	MS	01/09/2012	17:38	LB58758
CCB05	Aluminum	14.960	+/-20.000	J	4.970	20.000	MS	01/09/2012	18:41	LB58758
	Antimony	0.717	+/-2.000	J	0.140	2.000	MS	01/09/2012	18:41	LB58758
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	01/09/2012	18:41	LB58758
	Barium	0.687	+/-10.000	J	0.100	10.000	MS	01/09/2012	18:41	LB58758
	Beryllium	0.157	+/-1.000	J	0.090	1.000	MS	01/09/2012	18:41	LB58758
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/09/2012	18:41	LB58758
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/09/2012	18:41	LB58758
	Chromium	0.251	+/-2.000	J	0.040	2.000	MS	01/09/2012	18:41	LB58758
	Cobalt	0.083	+/-1.000	J	0.050	1.000	MS	01/09/2012	18:41	LB58758
	Copper	0.216	+/-2.000	J	0.040	2.000	MS	01/09/2012	18:41	LB58758
	Iron	43.750	+/-200.000	J	10.280	200.000	MS	01/09/2012	18:41	LB58758
	Lead	0.374	+/-1.000	J	0.040	1.000	MS	01/09/2012	18:41	LB58758
	Magnesium	13.650	+/-500.000	J	4.950	500.000	MS	01/09/2012	18:41	LB58758
	Manganese	1.293	+/-1.000		0.050	1.000	MS	01/09/2012	18:41	LB58758
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	01/09/2012	18:41	LB58758
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	01/09/2012	18:41	LB58758
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	01/09/2012	18:41	LB58758
	Silver	0.222	+/-1.000	J	0.030	1.000	MS	01/09/2012	18:41	LB58758
	Sodium	38.610	+/-500.000	J	5.320	500.000	MS	01/09/2012	18:41	LB58758
	Thallium	0.431	+/-1.000	J	0.020	1.000	MS	01/09/2012	18:41	LB58758
	Vanadium	0.367	+/-5.000	J	0.150	5.000	MS	01/09/2012	18:41	LB58758
	Zinc	1.664	+/-2.000	J	0.090	2.000	MS	01/09/2012	18:41	LB58758
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	01/17/2012	15:13	LB58874
	Antimony	0.876	+/-2.000	J	0.140	2.000	MS	01/17/2012	15:13	LB58874
	Arsenic	0.206	+/-1.000	J	0.180	1.000	MS	01/17/2012	15:13	LB58874
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	01/17/2012	15:13	LB58874
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	01/17/2012	15:13	LB58874
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	01/17/2012	15:13	LB58874
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	01/17/2012	15:13	LB58874

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	97100	100000	97.1	80 - 120%	01/05/2012	14:03	LB58711
	Antimony	1.6				01/05/2012	14:03	LB58711
	Arsenic	0.41				01/05/2012	14:03	LB58711
	Barium	1.6				01/05/2012	14:03	LB58711
	Beryllium	0.39				01/05/2012	14:03	LB58711
	Cadmium	0.28				01/05/2012	14:03	LB58711
	Calcium	100000	100000	100.0	80 - 120%	01/05/2012	14:03	LB58711
	Chromium	20.5	21	97.6	80 - 120%	01/05/2012	14:03	LB58711
	Cobalt	1.3				01/05/2012	14:03	LB58711
	Copper	8.1				01/05/2012	14:03	LB58711
	Iron	99600	100000	99.6	80 - 120%	01/05/2012	14:03	LB58711
	Lead	4.4	4	110.0	80 - 120%	01/05/2012	14:03	LB58711
	Magnesium	100000	100000	100.0	80 - 120%	01/05/2012	14:03	LB58711
	Manganese	8.3				01/05/2012	14:03	LB58711
	Nickel	6.2				01/05/2012	14:03	LB58711
	Potassium	99700	100000	99.7	80 - 120%	01/05/2012	14:03	LB58711
	Selenium	0.048				01/05/2012	14:03	LB58711
	Silver	0.14				01/05/2012	14:03	LB58711
	Sodium	101000	100000	101.0	80 - 120%	01/05/2012	14:03	LB58711
	Thallium	0.21				01/05/2012	14:03	LB58711
	Vanadium	0.12				01/05/2012	14:03	LB58711
	Zinc	12.6				01/05/2012	14:03	LB58711
ICSAB01	Aluminum	95200	100000	95.2	80 - 120%	01/05/2012	14:11	LB58711
	Antimony	21.5	22	97.7	80 - 120%	01/05/2012	14:11	LB58711
	Arsenic	20.0	19	105.3	80 - 120%	01/05/2012	14:11	LB58711
	Barium	21.8	22	99.1	80 - 120%	01/05/2012	14:11	LB58711
	Beryllium	21.2	20	106.0	80 - 120%	01/05/2012	14:11	LB58711
	Cadmium	20.1	20	100.5	80 - 120%	01/05/2012	14:11	LB58711
	Calcium	99100	100000	99.1	80 - 120%	01/05/2012	14:11	LB58711
	Chromium	40.0	40	100.0	80 - 120%	01/05/2012	14:11	LB58711
	Cobalt	20.9	20	104.5	80 - 120%	01/05/2012	14:11	LB58711
	Copper	27.7	25	110.8	80 - 120%	01/05/2012	14:11	LB58711
	Iron	97700	100000	97.7	80 - 120%	01/05/2012	14:11	LB58711
	Lead	24.3	25	97.2	80 - 120%	01/05/2012	14:11	LB58711
	Magnesium	98100	100000	98.1	80 - 120%	01/05/2012	14:11	LB58711
	Manganese	28.1	27	104.1	80 - 120%	01/05/2012	14:11	LB58711
	Nickel	25.6	24	106.7	80 - 120%	01/05/2012	14:11	LB58711
	Potassium	98500	100000	98.5	80 - 120%	01/05/2012	14:11	LB58711
	Selenium	20.0	19	105.3	80 - 120%	01/05/2012	14:11	LB58711
	Silver	19.5	18	108.3	80 - 120%	01/05/2012	14:11	LB58711
	Sodium	99800	100000	99.8	80 - 120%	01/05/2012	14:11	LB58711
	Thallium	19.8	21	94.3	80 - 120%	01/05/2012	14:11	LB58711
	Vanadium	19.4	19	102.1	80 - 120%	01/05/2012	14:11	LB58711
	Zinc	31.8	29	109.7	80 - 120%	01/05/2012	14:11	LB58711
ICSA01	Aluminum	96600	100000	96.6	80 - 120%	01/09/2012	13:16	LB58758
	Antimony	1.6				01/09/2012	13:16	LB58758

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Arsenic	0.21				01/09/2012	13:16	LB58758
	Barium	1.5				01/09/2012	13:16	LB58758
	Beryllium	0.46				01/09/2012	13:16	LB58758
	Cadmium	0.044				01/09/2012	13:16	LB58758
	Calcium	97000	100000	97.0	80 - 120%	01/09/2012	13:16	LB58758
	Chromium	20.1	21	95.7	80 - 120%	01/09/2012	13:16	LB58758
	Cobalt	1.2				01/09/2012	13:16	LB58758
	Copper	7.9				01/09/2012	13:16	LB58758
	Iron	90900	100000	90.9	80 - 120%	01/09/2012	13:16	LB58758
	Lead	4.3	4	107.5	80 - 120%	01/09/2012	13:16	LB58758
	Magnesium	97100	100000	97.1	80 - 120%	01/09/2012	13:16	LB58758
	Manganese	8.3				01/09/2012	13:16	LB58758
	Nickel	6.2				01/09/2012	13:16	LB58758
	Potassium	96800	100000	96.8	80 - 120%	01/09/2012	13:16	LB58758
	Selenium	-0.94				01/09/2012	13:16	LB58758
	Silver	0.067				01/09/2012	13:16	LB58758
	Sodium	98700	100000	98.7	80 - 120%	01/09/2012	13:16	LB58758
	Thallium	0.17				01/09/2012	13:16	LB58758
	Vanadium	0.035				01/09/2012	13:16	LB58758
	Zinc	11.8				01/09/2012	13:16	LB58758
ICSAB01	Aluminum	95800	100000	95.8	80 - 120%	01/09/2012	13:24	LB58758
	Antimony	20.7	22	94.1	80 - 120%	01/09/2012	13:24	LB58758
	Arsenic	19.7	19	103.7	80 - 120%	01/09/2012	13:24	LB58758
	Barium	21.7	22	98.6	80 - 120%	01/09/2012	13:24	LB58758
	Beryllium	20.5	20	102.5	80 - 120%	01/09/2012	13:24	LB58758
	Cadmium	19.6	20	98.0	80 - 120%	01/09/2012	13:24	LB58758
	Calcium	97100	100000	97.1	80 - 120%	01/09/2012	13:24	LB58758
	Chromium	40.0	40	100.0	80 - 120%	01/09/2012	13:24	LB58758
	Cobalt	20.5	20	102.5	80 - 120%	01/09/2012	13:24	LB58758
	Copper	27.8	25	111.2	80 - 120%	01/09/2012	13:24	LB58758
	Iron	90600	100000	90.6	80 - 120%	01/09/2012	13:24	LB58758
	Lead	24.2	25	96.8	80 - 120%	01/09/2012	13:24	LB58758
	Magnesium	96800	100000	96.8	80 - 120%	01/09/2012	13:24	LB58758
	Manganese	28.4	27	105.2	80 - 120%	01/09/2012	13:24	LB58758
	Nickel	25.5	24	106.2	80 - 120%	01/09/2012	13:24	LB58758
	Potassium	97200	100000	97.2	80 - 120%	01/09/2012	13:24	LB58758
	Selenium	19.4	19	102.1	80 - 120%	01/09/2012	13:24	LB58758
	Silver	19.0	18	105.6	80 - 120%	01/09/2012	13:24	LB58758
	Sodium	98900	100000	98.9	80 - 120%	01/09/2012	13:24	LB58758
	Thallium	19.8	21	94.3	80 - 120%	01/09/2012	13:24	LB58758
	Vanadium	19.6	19	103.2	80 - 120%	01/09/2012	13:24	LB58758
	Zinc	31.5	29	108.6	80 - 120%	01/09/2012	13:24	LB58758
ICSA01	Aluminum	96200	100000	96.2	80 - 120%	01/17/2012	15:21	LB58874
	Antimony	1.4				01/17/2012	15:21	LB58874
	Arsenic	0.41				01/17/2012	15:21	LB58874
	Barium	1.2				01/17/2012	15:21	LB58874

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C5164 **SAS No.:** C5164

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Beryllium	0.37				01/17/2012	15:21	LB58874
	Cadmium	0.49				01/17/2012	15:21	LB58874
	Calcium	98500	100000	98.5	80 - 120%	01/17/2012	15:21	LB58874
	Chromium	19.7	21	93.8	80 - 120%	01/17/2012	15:21	LB58874
	Cobalt	1.2				01/17/2012	15:21	LB58874
	Copper	8.0				01/17/2012	15:21	LB58874
	Iron	97100	100000	97.1	80 - 120%	01/17/2012	15:21	LB58874
	Lead	4.3	4	107.5	80 - 120%	01/17/2012	15:21	LB58874
	Magnesium	97100	100000	97.1	80 - 120%	01/17/2012	15:21	LB58874
	Manganese	7.8				01/17/2012	15:21	LB58874
	Nickel	6.0				01/17/2012	15:21	LB58874
	Potassium	97600	100000	97.6	80 - 120%	01/17/2012	15:21	LB58874
	Selenium	-0.30				01/17/2012	15:21	LB58874
	Silver	0.035				01/17/2012	15:21	LB58874
	Sodium	98300	100000	98.3	80 - 120%	01/17/2012	15:21	LB58874
	Thallium	0.11				01/17/2012	15:21	LB58874
	Vanadium	-0.067				01/17/2012	15:21	LB58874
	Zinc	12.0				01/17/2012	15:21	LB58874
ICSAB01	Aluminum	97700	100000	97.7	80 - 120%	01/17/2012	15:29	LB58874
	Antimony	21.3	22	96.8	80 - 120%	01/17/2012	15:29	LB58874
	Arsenic	20.6	19	108.4	80 - 120%	01/17/2012	15:29	LB58874
	Barium	21.7	22	98.6	80 - 120%	01/17/2012	15:29	LB58874
	Beryllium	20.5	20	102.5	80 - 120%	01/17/2012	15:29	LB58874
	Cadmium	20.2	20	101.0	80 - 120%	01/17/2012	15:29	LB58874
	Calcium	100000	100000	100.0	80 - 120%	01/17/2012	15:29	LB58874
	Chromium	39.4	40	98.5	80 - 120%	01/17/2012	15:29	LB58874
	Cobalt	20.8	20	104.0	80 - 120%	01/17/2012	15:29	LB58874
	Copper	28.4	25	113.6	80 - 120%	01/17/2012	15:29	LB58874
	Iron	98500	100000	98.5	80 - 120%	01/17/2012	15:29	LB58874
	Lead	24.2	25	96.8	80 - 120%	01/17/2012	15:29	LB58874
	Magnesium	100000	100000	100.0	80 - 120%	01/17/2012	15:29	LB58874
	Manganese	28.3	27	104.8	80 - 120%	01/17/2012	15:29	LB58874
	Nickel	26.2	24	109.2	80 - 120%	01/17/2012	15:29	LB58874
	Potassium	99800	100000	99.8	80 - 120%	01/17/2012	15:29	LB58874
	Selenium	21.0	19	110.5	80 - 120%	01/17/2012	15:29	LB58874
	Silver	19.5	18	108.3	80 - 120%	01/17/2012	15:29	LB58874
	Sodium	101000	100000	101.0	80 - 120%	01/17/2012	15:29	LB58874
	Thallium	20.5	21	97.6	80 - 120%	01/17/2012	15:29	LB58874
	Vanadium	19.2	19	101.1	80 - 120%	01/17/2012	15:29	LB58874
	Zinc	32.4	29	111.7	80 - 120%	01/17/2012	15:29	LB58874

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58662

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.02	7.00	100	90-110	12/30/2011
Sample ID:	CCV1						
pH		pH	2.02	2.00	101	90-110	12/30/2011
Sample ID:	CCV2						
pH		pH	12.03	12.00	100	90-110	12/30/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Project: CTO WE05 NAS JRB Willow Grove **RunNo.:** LB58733

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60355						
Cyanide		mg/L	0.10	0.10	100	85-115	01/06/2012
Sample ID:	CCV1						
Cyanide		mg/L	0.25	0.25	100	90-110	01/06/2012
Sample ID:	CCV2						
Cyanide		mg/L	0.25	0.25	100	90-110	01/06/2012
Sample ID:	CCV3						
Cyanide		mg/L	0.26	0.25	104	90-110	01/06/2012

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58733

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58734

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB60419						
Cyanide		mg/L	0.10	0.10	100	85-115	01/06/2012
Sample ID:	CCV1						
Cyanide		mg/L	0.25	0.25	100	90-110	01/06/2012
Sample ID:	CCV2						
Cyanide		mg/L	0.27	0.25	108	90-110	01/06/2012

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB58734

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012

Chemtech Consulting Group

Analytical Review Report

Date Printed : 12/30/11
Analyst : JM
Data File : LB58662.MDB

Approved By :
Approved Date : 12/30/11
Worksheet # :

Lab Sample ID / Parameter	Client ID		Raw Amt PPB / Final Conc	Dil	Matrix	A. Date / %Rec	Prep Method / LCL	Analysis Method / UCL	RPD	Max RPD	Units	Line 1 / Line 2
pH												
CAL	**CAL**				W	12/30/11						
pH		PASS	4.000		4.000						pH	
CAL	**CAL**				W	12/30/11						
pH		PASS	7.010		7.010						pH	
CAL	**CAL**				W	12/30/11						
pH		PASS	10.040		10.04						pH	
ICV1	**ICV1**				W	12/30/11						
pH		PASS	7.020		7.02	100.0	90	110			pH	
CCV1	**CCV1**				W	12/30/11						
pH		PASS	2.020		2.02	101.0	90	110			pH	
C5164-02	**12SB28-000.5-01**			1	S	12/30/11						
pH		PASS	6.320		6.320						pH	
C5164-02D	**12SB28-000.5-01D**			1	S	12/30/11						
pH		PASS	6.330		6.330				0.2	20	pH	
CCV2	**CCV2**				W	12/30/11						
pH		PASS	12.030		12.03	100.0	90	110			pH	

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB58733BLW						
Cyanide	mg/L	< 0.005	+/-0.005	0.003	0.005	01/06/2012
Sample ID: LB58734BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	0.033	0.250	01/06/2012

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5164-02
Client ID:	12SB28-000.5-01S	**Percent Solids for Spike Sample:**	76.1

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.870		0.182	J	2.62	1	103		01/06/2012

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5164-02
Client ID:	12SB28-000.5-01SD	**Percent Solids for Spike Sample:**	76.1

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.850		0.182	J	2.62	1	102		01/06/2012

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5165-02
Client ID:	HRP-MW-8S	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/L	79-123	0.066		0.024		0.04	1	105		01/06/2012

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5165-02
Client ID:	HRP-MW-8SD	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/L	79-123	0.068		0.024		0.04	1	110		01/06/2012

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5164-02
Client ID:	12SB28-000.5-01D	**Percent Solids for Spike Sample:**	100

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	6.320		6.330		1	0.2		12/30/2011
Cyanide	mg/Kg	+/-20	0.182	J	0.196	J	1	7.4		01/06/2012

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5164-02
Client ID:	12SB28-000.5-01SD	**Percent Solids for Spike Sample:**	76.1

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.870	2.850		1	0.7		01/06/2012

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5165-02
Client ID:	HRP-MW-8D	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/L	+/-20	0.024		0.023		1	4.3		01/06/2012

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C5164
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	C5165-02
Client ID:	HRP-MW-8SD	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/L	+/-20	0.066	0.068		1	3.0		01/06/2012

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Project: CTO WE05 NAS JRB Willow Grove

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	**LB58733BSW**								
Cyanide		**mg/L**	**0.10**	**0.10**		**100**	**1**	**85-115**	**01/06/2012**

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C5164

Project: CTO WE05 NAS JRB Willow Grove

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	**LB58734BSS**								
Cyanide		**mg/Kg**	**10.00**	**9.67**		**97**	**1**	**80-110**	**01/06/2012**

CHEMTECH **Cynide Distillation Log** **PrepBatch ID : PB60419**

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume mL	PH	Sulfide	Oxidizing	Comments
C5151-05	COMPAG123	SOIL	1.0021	N/A	N/A	N/A	
C5164-02	12SB28-000.5-01	SOIL	1.0012	N/A	N/A	N/A	
C5164-02DUP	12SB28-000.5-01DUP	SOIL	1.0013	N/A	N/A	N/A	
C5164-02MS	12SB28-000.5-01MS	SOIL	1.0010	N/A	N/A	N/A	TV = 40 PPB
C5164-02MSD	12SB28-000.5-01MSD	SOIL	1.0014	N/A	N/A	N/A	TV = 40 PPB
PB60419BL	PBS01	SOIL	1.0004	N/A	N/A	N/A	
PB60419BS	LCS01	SOIL	1.0002	N/A	N/A	N/A	

*** BL=Blank BS=Blank Spike TB=TCLP Blank**

CHEMTECH **Cynide Distillation Log** **PrepBatch ID : PB60419**

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume mL	PH	Sulfide	Oxidizing	Comments
C5151-05	COMPAG123	SOIL	1.0021	N/A	N/A	N/A	
C5164-02	12SB28-000.5-01	SOIL	1.0012	N/A	N/A	N/A	
C5164-02DUP	12SB28-000.5-01DUP	SOIL	1.0013	N/A	N/A	N/A	
C5164-02MS	12SB28-000.5-01MS	SOIL	1.0010	N/A	N/A	N/A	TV=40PPB
C5164-02MSD	12SB28-000.5-01MSD	SOIL	1.0014	N/A	N/A	N/A	TV=40PPB
PB60419BL	PBS01	SOIL	1.0004	N/A	N/A	N/A	
PB60419BS	LCS01	SOIL	1.0002	N/A	N/A	N/A	

* BL=Blank BS=Blank Spike TB=TCLP Blank

CHEMTECH Cynide Distillation Log

PrepBatch ID : PB60355

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume mL	PH	Sulfide	Oxidizing	Comments
C5164-23	RB-01-122911	WATER	50	>12	- ve	- ve	
C5165-01	HRP-MW-10	WATER		>12	- ve	- ve	
C5165-02	HRP-MW-8	WATER		>12	- ve	- ve	
C5165-02DUP	HRP-MW-8DUP	WATER		>12	- ve	- ve	
C5165-03	C5165-02MS	WATER		>12	- ve	- ve	TV=40 PPB
C5165-04	C5165-02MSD	WATER		>12	- ve	- ve	TV=40 PPB
C5165-05	DUPLICATE 12-28-11	WATER		>12	- ve	- ve	
C5165-09	HRP-MW-7	WATER		>12	- ve	- ve	
C5165-10	HRP-MW-9	WATER		>12	- ve	- ve	
C5165-11	HRP-MW-6	WATER		>12	- ve	- ve	
pb60355BL	PBW01	WATER		>12	- ve	- ve	
pb60355BS	LCS01	WATER	↓	>12	- ve	- ve	

~~C4945-05 LOD~~

~~C4946-05 LOQ~~ RB 1-3-12

* BL=Blank BS=Blank Spike TB=TCLP Blank

CHEMTECH Cynide Distillation Log

PrepBatch ID : PB60355

Lab Sample ID	Client Sample ID	Matrix	Weight/ Volume ml	PH	Sulfide	Oxidizing	Comments
C5164-23	RB-01-122911	WATER	50	>12	Negative	Negative	
C5165-01	HRP-MW-10	WATER	50	>12	Negative	Negative	
C5165-02	HRP-MW-8	WATER	50	>12	Negative	Negative	
C5165-02DUP	HRP-MW-8DUP	WATER	50	>12	Negative	Negative	
C5165-03	C5165-02MS	WATER	50	>12	Negative	Negative	TV = 40PPB
C5165-04	C5165-02MSD	WATER	50	>12	Negative	Negative	TV = 40PPB
C5165-05	DUPLICATE 12-28-11	WATER	50	>12	Negative	Negative	
C5165-09	HRP-MW-7	WATER	50	>12	Negative	Negative	
C5165-10	HRP-MW-9	WATER	50	>12	Negative	Negative	
C5165-11	HRP-MW-6	WATER	50	>12	Negative	Negative	
pb60355BL	PBW01	WATER	50	>12	Negative	Negative	
pb60355BS	LCS01	WATER	50	>12	Negative	Negative	

* BL=Blank BS=Blank Spike TB=TCLP Blank

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **March 9, 2012**

FROM: **A. COGNETTI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- PAH**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – D1034

SAMPLES: 11/Soil/PAH

12SB-DUP01-010412	12SB31-0.502-02	12SB32-0.502-02
12SB33-0.502-02	12SB34-0.502-02	12SB39-000.5-01
12SB40-000.5-01	12SB41-000.5-01	12SB42-0.502-02
12SB43-0.502-02	12SB44-0.502-02	

1/Aqueous/PAH

RB-02-010412

Overview

The sample set for NASJRB Willow Grove, CTO WE05, SDG D1034 consists of eleven (11) soil environmental samples and a rinsate blank analyzed for polycyclic aromatic hydrocarbons (PAH). There is one (1) field duplicate pair contained within this SDG: 12SB31-0.502-02 and 12SB-DUP01-010412.

The samples were collected on January 4, 2012 and analyzed by ChemTech. All analyses were conducted in accordance with the SW-846 Method 8270 SIM analytical and reporting protocol.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial / continuing calibrations, laboratory method blank results, surrogate spike/internal standard recoveries, laboratory control sample results, compound identification, compound quantitation, field duplicate precision and detection limits.

Areas of concern are listed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

Major – None.

Minor

- The continuing calibration percent difference (%D) for indeno(1,2,3-cd)pyrene was greater than the 20% quality control limit and less than 50% on January 12, 2012 @ 20:08 on instrument BNA_G. The positive indeno(1,2,3-cd)pyrene results were qualified as estimated (J) in the affected samples.

- The internal standard area of perylene-d12 was less than the lower quality control limit in sample 12SB31-0.502-02. The PAHs quantified using this internal standard were qualified as estimated (J) in sample 12SB31-0.502-02. A copy of the continuing calibration raw data is included in Appendix C as a reference.

Notes

The laboratory did not report results for 2-mehylnaphthalene as requested in the SAP for Phase II RI at Site 12 - South Landfill (August 2011). The laboratory was contacted and provided the missing analyte results.

The continuing calibration %D for indeno(1,2,3-cd)pyrene was greater than the 20% quality control limit and less than 50% on January 13, 2012 @ 20:01 on instrument BNA_G. No action was taken on the nondetected indeno(1,2,3-cd)pyrene results.

The relative percent differences (RPDs) for several PAHs were outside quality control limits in the Matrix spike/Matrix Spike Duplicate (MS/MSD) of sample 12SB41-000.5-01. The PAHs were phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and benzo(g,h,i)perylene. The MS/MSD percent recoveries (%Rs) were within quality control limits. No action was taken.

Nondetected results were reported to the limit of detection (LOD).

Executive Summary

Laboratory Performance: The continuing calibration %D for indeno(1,2,3-cd)pyrene exceeded quality control limits. The internal standard area of perylene-d12 was less than the lower quality control limit in sample 12SB31-0.502-02.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to Region III modifications to U.S. EPA National Functional Guidelines for Data Validation (9/94) and SW-846 Method 8270 for Semi-Volatile Organic Compounds. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Ann Cognetti
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB31-0.502-02			12SB31-0.502-02DL			12SB32-0.502-02			12SB33-0.502-02		
SDG: D1034	LAB_ID	D1034-01			D1034-01DL			D1034-02			D1034-03		
FRACTION: PAH	SAMP_DATE	1/4/2012			1/4/2012			1/4/2012			1/4/2012		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.0			81.0			80.0			82.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		34						2.05	U		3.2	J	P
ACENAPHTHENE		190						5			13		
ACENAPHTHYLENE		83						8.7			9.3		
ANTHRACENE		270						13			28		
BENZO(A)ANTHRACENE					1500			55			140		
BENZO(A)PYRENE					1800			61			160		
BENZO(B)FLUORANTHENE					2800			91			260		
BENZO(G,H,I)PERYLENE					1100			41			100		
BENZO(K)FLUORANTHENE		990	J	N				30			82		
CHRYSENE					2400			75			220		
DIBENZO(A,H)ANTHRACENE		350	J	N				11			27		
FLUORANTHENE					6500			180			550		
FLUORENE		400						11			27		
INDENO(1,2,3-CD)PYRENE					1300			44	J	C	120	J	C
NAPHTHALENE		40						2.9	J	P	4.9		
PHENANTHRENE					5600			130			400		
PYRENE					4600			140			400		

PROJ_NO: 02014	NSAMPLE	12SB34-0.502-02			12SB39-000.5-01			12SB39-000.5-01DL			12SB40-000.5-01		
SDG: D1034	LAB_ID	D1034-04			D1034-09			D1034-09DL			D1034-10		
FRACTION: PAH	SAMP_DATE	1/4/2012			1/4/2012			1/4/2012			1/4/2012		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	83.0			73.0			73.0			73.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		2	U		4.1	J	P				3.6	J	P
ACENAPHTHENE		3.2	J	P	24						35		
ACENAPHTHYLENE		2.8	J	P	32						20		
ANTHRACENE		4.4			150						160		
BENZO(A)ANTHRACENE		22			840						510		
BENZO(A)PYRENE		22			800						470		
BENZO(B)FLUORANTHENE		47						1100			670		
BENZO(G,H,I)PERYLENE		19			490						260		
BENZO(K)FLUORANTHENE		15			370						250		
CHRYSENE		40			830						550		
DIBENZO(A,H)ANTHRACENE		5.2			140						79		
FLUORANTHENE		100						1800					
FLUORENE		6			28						52		
INDENO(1,2,3-CD)PYRENE		24	J	C	410	J	C				250	J	C
NAPHTHALENE		2	U		7.3						4.6		
PHENANTHRENE		82			570						710		
PYRENE		74						1500			990		

PROJ_NO: 02014	NSAMPLE	12SB40-000.5-01DL			12SB41-000.5-01			12SB42-0.502-02			12SB43-0.502-02		
SDG: D1034	LAB_ID	D1034-10DL			D1034-11			D1034-14			D1034-15		
FRACTION: PAH	SAMP_DATE	1/4/2012			1/4/2012			1/4/2012			1/4/2012		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	73.0			73.0			81.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE					2.7	J	P	2.1	J	P	68		
ACENAPHTHENE					12			2.05	U		120		
ACENAPHTHYLENE					16			2.05	U		55		
ANTHRACENE					66			5.3			400		
BENZO(A)ANTHRACENE					350			42			910		
BENZO(A)PYRENE					330			39			840		
BENZO(B)FLUORANTHENE					460			57					
BENZO(G,H,I)PERYLENE					190			26			590		
BENZO(K)FLUORANTHENE					170			19			400		
CHRYSENE					350			44			930		
DIBENZO(A,H)ANTHRACENE					54			7			170		
FLUORANTHENE		1300			700			86					
FLUORENE					16			2.05	U		210		
INDENO(1,2,3-CD)PYRENE					180	J	C	29			450		
NAPHTHALENE					4.1	J	P	2.05	U		70		
PHENANTHRENE					270			27					
PYRENE					570			71					

PROJ_NO: 02014	NSAMPLE	12SB43-0.502-02DL			12SB44-0.502-02			12SB-DUP01-010412					
SDG: D1034	LAB_ID	D1034-15DL			D1034-16			D1034-17					
FRACTION: PAH	SAMP_DATE	1/4/2012			1/4/2012			1/4/2012					
MEDIA: SOIL	QC_TYPE	NM			NM			NM					
	UNITS	UG/KG			UG/KG			UG/KG					
	PCT_SOLIDS	85.0			80.0			82.0					
	DUP_OF										12SB31-0.502-02		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE					7.9			23					
ACENAPHTHENE					20						120		
ACENAPHTHYLENE					24						67		
ANTHRACENE					130						200		
BENZO(A)ANTHRACENE					410						920		
BENZO(A)PYRENE					380								
BENZO(B)FLUORANTHENE		1100			500								
BENZO(G,H,I)PERYLENE					230								
BENZO(K)FLUORANTHENE					190						830		
CHRYSENE					390								
DIBENZO(A,H)ANTHRACENE					62						270		
FLUORANTHENE		2100			820								
FLUORENE					35						260		
INDENO(1,2,3-CD)PYRENE					210						800		
NAPHTHALENE					9.1						28		
PHENANTHRENE		1600			420								
PYRENE		1800			670								

PROJ_NO: 02014	NSAMPLE	12SB-DUP01-010412DL		
SDG: D1034	LAB_ID	D1034-17DL		
FRACTION: PAH	SAMP_DATE	1/4/2012		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	82.0		
	DUP_OF	12SB31-0.502-02		
PARAMETER		RESULT	VQL	QLCD
2-METHYLNAPHTHALENE				
ACENAPHTHENE				
ACENAPHTHYLENE				
ANTHRACENE				
BENZO(A)ANTHRACENE				
BENZO(A)PYRENE		1300		
BENZO(B)FLUORANTHENE		2100		
BENZO(G,H,I)PERYLENE		870		
BENZO(K)FLUORANTHENE				
CHRYSENE		1800		
DIBENZO(A,H)ANTHRACENE				
FLUORANTHENE		4900		
FLUORENE				
INDENO(1,2,3-CD)PYRENE				
NAPHTHALENE				
PHENANTHRENE		4100		
PYRENE		3400		

PROJ_NO: 02014	NSAMPLE	RB-02-010412					
SDG: D1034	LAB_ID	D1034-19					
FRACTION: PAH	SAMP_DATE	1/4/2012					
MEDIA: WATER	QC_TYPE	NM					
	UNITS	UG/L					
	PCT_SOLIDS	0.0			100.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE					0.05	U	
ACENAPHTHENE		0.05	U				
ACENAPHTHYLENE		0.05	U				
ANTHRACENE		0.05	U				
BENZO(A)ANTHRACENE		0.05	U				
BENZO(A)PYRENE		0.05	U				
BENZO(B)FLUORANTHENE		0.26	U				
BENZO(G,H,I)PERYLENE		0.05	U				
BENZO(K)FLUORANTHENE		0.26	U				
CHRYSENE		0.05	U				
DIBENZO(A,H)ANTHRACENE		0.05	U				
FLUORANTHENE		0.05	U				
FLUORENE		0.05	U				
INDENO(1,2,3-CD)PYRENE		0.05	U				
NAPHTHALENE		0.05	U				
PHENANTHRENE		0.05	U				
PYRENE		0.05	U				

Appendix B

Results as Reported by the Laboratory

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB-DUP01-010412	SDG No.:	D1034
Lab Sample ID:	D1034-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002813.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	28		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	23		0.49	4	ug/Kg
208-96-8	Acenaphthylene	67		0.49	4	ug/Kg
83-32-9	Acenaphthene	120		0.49	4	ug/Kg
86-73-7	Fluorene	260		0.49	4	ug/Kg
85-01-8	Phenanthrene	2800	E	0.49	4	ug/Kg
120-12-7	Anthracene	200		0.49	4	ug/Kg
206-44-0	Fluoranthene	3000	E	0.49	4	ug/Kg
129-00-0	Pyrene	2400	E	0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	920		0.49	4	ug/Kg
218-01-9	Chrysene	1600	E	0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	2200	E	0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	830		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	1300	E	0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	800		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	270		0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1100	E	0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.13		30 - 150	81%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.19		45 - 105	82%	SPK: 10
1718-51-0	Terphenyl-d14	8.85		30 - 125	89%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	75845	7.78			
1146-65-2	Naphthalene-d8	327279	9.96			
15067-26-2	Acenaphthene-d10	215419	12.93			
1517-22-2	Phenanthrene-d10	348421	15.39			
1719-03-5	Chrysene-d12	336446	19.76			
1520-96-3	Perylene-d12	218342	22.7			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB-DUP01-010412	SDG No.:	D1034
Lab Sample ID:	D1034-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002813.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB-DUP01-010412DL	SDG No.:	D1034
Lab Sample ID:	D1034-17DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002818.D	10	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	32	JD	4.9	40	ug/Kg
91-57-6	2-Methylnaphthalene	24	JD	4.9	40	ug/Kg
208-96-8	Acenaphthylene	89	D	4.9	40	ug/Kg
83-32-9	Acenaphthene	130	D	4.9	40	ug/Kg
86-73-7	Fluorene	280	D	4.9	40	ug/Kg
85-01-8	Phenanthrene	4100	D	4.9	40	ug/Kg
120-12-7	Anthracene	220	D	4.9	40	ug/Kg
206-44-0	Fluoranthene	4900	D	4.9	40	ug/Kg
129-00-0	Pyrene	3400	D	4.9	40	ug/Kg
56-55-3	Benzo(a)anthracene	990	D	4.9	40	ug/Kg
218-01-9	Chrysene	1800	D	4.9	40	ug/Kg
205-99-2	Benzo(b)fluoranthene	2100	D	4.9	40	ug/Kg
207-08-9	Benzo(k)fluoranthene	740	D	4.9	40	ug/Kg
50-32-8	Benzo(a)pyrene	1300	D	4.9	40	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1000	D	4.9	40	ug/Kg
53-70-3	Dibenz(a,h)anthracene	230	D	4.9	40	ug/Kg
191-24-2	Benzo(g,h,i)perylene	870	D	4.9	40	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.3		30 - 150	83%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.5		45 - 105	85%	SPK: 10
1718-51-0	Terphenyl-d14	4.8		30 - 125	48%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	67629	7.78			
1146-65-2	Naphthalene-d8	291463	9.96			
15067-26-2	Acenaphthene-d10	191255	12.93			
1517-22-2	Phenanthrene-d10	325245	15.38			
1719-03-5	Chrysene-d12	321851	19.75			
1520-96-3	Perylene-d12	296859	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB-DUP01-010412DL	SDG No.:	D1034
Lab Sample ID:	D1034-17DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002818.D	10	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB31-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002790.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	40		0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	34		0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	83		0.49	4.1	ug/Kg
83-32-9	Acenaphthene	190		0.49	4.1	ug/Kg
86-73-7	Fluorene	400		0.49	4.1	ug/Kg
85-01-8	Phenanthrene	3200	E	0.49	4.1	ug/Kg
120-12-7	Anthracene	270		0.49	4.1	ug/Kg
206-44-0	Fluoranthene	3300	E	0.49	4.1	ug/Kg
129-00-0	Pyrene	2900	E	0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	1300	E	0.49	4.1	ug/Kg
218-01-9	Chrysene	2000	E	0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	2800	E	0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	990		0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	1700	E	0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1100	E	0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	350		0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1400	E	0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.55		30 - 150	76%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.15		45 - 105	81%	SPK: 10
1718-51-0	Terphenyl-d14	9.11		30 - 125	91%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	82036	7.78			
1146-65-2	Naphthalene-d8	348298	9.96			
15067-26-2	Acenaphthene-d10	227175	12.93			
1517-22-2	Phenanthrene-d10	362229	15.39			
1719-03-5	Chrysene-d12	327941	19.75			
1520-96-3	Perylene-d12	215213	22.7			

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB31-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002790.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB31-0.502-02DL	SDG No.:	D1034
Lab Sample ID:	D1034-01DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002814.D	10	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	45	D	4.9	41	ug/Kg
91-57-6	2-Methylnaphthalene	37	JD	4.9	41	ug/Kg
208-96-8	Acenaphthylene	160	D	4.9	41	ug/Kg
83-32-9	Acenaphthene	220	D	4.9	41	ug/Kg
86-73-7	Fluorene	460	D	4.9	41	ug/Kg
85-01-8	Phenanthrene	5600	D	4.9	41	ug/Kg
120-12-7	Anthracene	340	D	4.9	41	ug/Kg
206-44-0	Fluoranthene	6500	D	4.9	41	ug/Kg
129-00-0	Pyrene	4600	D	4.9	41	ug/Kg
56-55-3	Benzo(a)anthracene	1500	D	4.9	41	ug/Kg
218-01-9	Chrysene	2400	D	4.9	41	ug/Kg
205-99-2	Benzo(b)fluoranthene	2800	D	4.9	41	ug/Kg
207-08-9	Benzo(k)fluoranthene	1000	D	4.9	41	ug/Kg
50-32-8	Benzo(a)pyrene	1800	D	4.9	41	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1300	D	4.9	41	ug/Kg
53-70-3	Dibenz(a,h)anthracene	300	D	4.9	41	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1100	D	4.9	41	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.4		30 - 150	84%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.9		45 - 105	89%	SPK: 10
1718-51-0	Terphenyl-d14	5.4		30 - 125	54%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	65676	7.78			
1146-65-2	Naphthalene-d8	283288	9.96			
15067-26-2	Acenaphthene-d10	185664	12.93			
1517-22-2	Phenanthrene-d10	314609	15.38			
1719-03-5	Chrysene-d12	310247	19.75			
1520-96-3	Perylene-d12	283485	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB31-0.502-02DL	SDG No.:	D1034
Lab Sample ID:	D1034-01DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002814.D	10	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB32-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002791.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.9	J	0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.05	U	0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	8.7		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	5		0.5	4.1	ug/Kg
86-73-7	Fluorene	11		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	130		0.5	4.1	ug/Kg
120-12-7	Anthracene	13		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	180		0.5	4.1	ug/Kg
129-00-0	Pyrene	140		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	55		0.5	4.1	ug/Kg
218-01-9	Chrysene	75		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	91		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	30		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	61		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	44		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	11		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	41		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.28		30 - 150	73%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.59		45 - 105	76%	SPK: 10
1718-51-0	Terphenyl-d14	8.52		30 - 125	85%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	66028	7.77			
1146-65-2	Naphthalene-d8	288043	9.96			
15067-26-2	Acenaphthene-d10	192541	12.93			
1517-22-2	Phenanthrene-d10	325218	15.38			
1719-03-5	Chrysene-d12	307915	19.75			
1520-96-3	Perylene-d12	294356	22.69			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB32-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002791.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB33-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002792.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.9		0.49	4	ug/Kg
91-57-6	2-Methylnaphthalene	3.2	J	0.49	4	ug/Kg
208-96-8	Acenaphthylene	9.3		0.49	4	ug/Kg
83-32-9	Acenaphthene	13		0.49	4	ug/Kg
86-73-7	Fluorene	27		0.49	4	ug/Kg
85-01-8	Phenanthrene	400		0.49	4	ug/Kg
120-12-7	Anthracene	28		0.49	4	ug/Kg
206-44-0	Fluoranthene	550		0.49	4	ug/Kg
129-00-0	Pyrene	400		0.49	4	ug/Kg
56-55-3	Benzo(a)anthracene	140		0.49	4	ug/Kg
218-01-9	Chrysene	220		0.49	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	260		0.49	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	82		0.49	4	ug/Kg
50-32-8	Benzo(a)pyrene	160		0.49	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	120		0.49	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	27		0.49	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	100		0.49	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.65		30 - 150	77%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.78		45 - 105	78%	SPK: 10
1718-51-0	Terphenyl-d14	8.53		30 - 125	85%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	74775	7.78			
1146-65-2	Naphthalene-d8	275931	9.96			
15067-26-2	Acenaphthene-d10	185935	12.93			
1517-22-2	Phenanthrene-d10	315223	15.38			
1719-03-5	Chrysene-d12	314896	19.75			
1520-96-3	Perylene-d12	299276	22.69			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB33-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	18
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002792.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB34-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002793.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2	U	0.48	4	ug/Kg
91-57-6	2-Methylnaphthalene	2	U	0.48	4	ug/Kg
208-96-8	Acenaphthylene	2.8	J	0.48	4	ug/Kg
83-32-9	Acenaphthene	3.2	J	0.48	4	ug/Kg
86-73-7	Fluorene	6		0.48	4	ug/Kg
85-01-8	Phenanthrene	82		0.48	4	ug/Kg
120-12-7	Anthracene	4.4		0.48	4	ug/Kg
206-44-0	Fluoranthene	100		0.48	4	ug/Kg
129-00-0	Pyrene	74		0.48	4	ug/Kg
56-55-3	Benzo(a)anthracene	22		0.48	4	ug/Kg
218-01-9	Chrysene	40		0.48	4	ug/Kg
205-99-2	Benzo(b)fluoranthene	47		0.48	4	ug/Kg
207-08-9	Benzo(k)fluoranthene	15		0.48	4	ug/Kg
50-32-8	Benzo(a)pyrene	22		0.48	4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	24		0.48	4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	5.2		0.48	4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	19		0.48	4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.14		30 - 150	71%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.36		45 - 105	74%	SPK: 10
1718-51-0	Terphenyl-d14	8.25		30 - 125	83%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	94618	7.78			
1146-65-2	Naphthalene-d8	360388	9.96			
15067-26-2	Acenaphthene-d10	241166	12.93			
1517-22-2	Phenanthrene-d10	408260	15.38			
1719-03-5	Chrysene-d12	379863	19.75			
1520-96-3	Perylene-d12	365028	22.69			

D1034 Revised

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB34-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-04	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	17
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002793.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB39-000.5-01	SDG No.:	D1034
Lab Sample ID:	D1034-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002794.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	7.3		0.55	4.5	ug/Kg
91-57-6	2-Methylnaphthalene	4.1	J	0.55	4.5	ug/Kg
208-96-8	Acenaphthylene	32		0.55	4.5	ug/Kg
83-32-9	Acenaphthene	24		0.55	4.5	ug/Kg
86-73-7	Fluorene	28		0.55	4.5	ug/Kg
85-01-8	Phenanthrene	570		0.55	4.5	ug/Kg
120-12-7	Anthracene	150		0.55	4.5	ug/Kg
206-44-0	Fluoranthene	1500	E	0.55	4.5	ug/Kg
129-00-0	Pyrene	1300	E	0.55	4.5	ug/Kg
56-55-3	Benzo(a)anthracene	840		0.55	4.5	ug/Kg
218-01-9	Chrysene	830		0.55	4.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	1300	E	0.55	4.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	370		0.55	4.5	ug/Kg
50-32-8	Benzo(a)pyrene	800		0.55	4.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	410		0.55	4.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	140		0.55	4.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	490		0.55	4.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.31		30 - 150	73%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.52		45 - 105	75%	SPK: 10
1718-51-0	Terphenyl-d14	8.06		30 - 125	81%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80133	7.78			
1146-65-2	Naphthalene-d8	292650	9.96			
15067-26-2	Acenaphthene-d10	194559	12.93			
1517-22-2	Phenanthrene-d10	333270	15.38			
1719-03-5	Chrysene-d12	333805	19.75			
1520-96-3	Perylene-d12	243425	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB39-000.5-01	SDG No.:	D1034
Lab Sample ID:	D1034-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002794.D	1	01/05/12	01/12/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB39-000.5-01DL	SDG No.:	D1034
Lab Sample ID:	D1034-09DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002815.D	5	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	11.5	UD	2.7	23	ug/Kg
91-57-6	2-Methylnaphthalene	11.5	UD	2.7	23	ug/Kg
208-96-8	Acenaphthylene	59	D	2.7	23	ug/Kg
83-32-9	Acenaphthene	30	D	2.7	23	ug/Kg
86-73-7	Fluorene	32	D	2.7	23	ug/Kg
85-01-8	Phenanthrene	630	D	2.7	23	ug/Kg
120-12-7	Anthracene	170	D	2.7	23	ug/Kg
206-44-0	Fluoranthene	1800	D	2.7	23	ug/Kg
129-00-0	Pyrene	1500	D	2.7	23	ug/Kg
56-55-3	Benzo(a)anthracene	940	D	2.7	23	ug/Kg
218-01-9	Chrysene	930	D	2.7	23	ug/Kg
205-99-2	Benzo(b)fluoranthene	1100	D	2.7	23	ug/Kg
207-08-9	Benzo(k)fluoranthene	420	D	2.7	23	ug/Kg
50-32-8	Benzo(a)pyrene	850	D	2.7	23	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	520	D	2.7	23	ug/Kg
53-70-3	Dibenz(a,h)anthracene	140	D	2.7	23	ug/Kg
191-24-2	Benzo(g,h,i)perylene	470	D	2.7	23	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.95		30 - 150	80%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.35		45 - 105	83%	SPK: 10
1718-51-0	Terphenyl-d14	7.05		30 - 125	71%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	68578	7.78			
1146-65-2	Naphthalene-d8	291685	9.96			
15067-26-2	Acenaphthene-d10	191576	12.93			
1517-22-2	Phenanthrene-d10	322774	15.38			
1719-03-5	Chrysene-d12	321013	19.75			
1520-96-3	Perylene-d12	294545	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB39-000.5-01DL	SDG No.:	D1034
Lab Sample ID:	D1034-09DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002815.D	5	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB40-000.5-01	SDG No.:	D1034
Lab Sample ID:	D1034-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002795.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.6		0.55	4.5	ug/Kg
91-57-6	2-Methylnaphthalene	3.6	J	0.55	4.5	ug/Kg
208-96-8	Acenaphthylene	20		0.55	4.5	ug/Kg
83-32-9	Acenaphthene	35		0.55	4.5	ug/Kg
86-73-7	Fluorene	52		0.55	4.5	ug/Kg
85-01-8	Phenanthrene	710		0.55	4.5	ug/Kg
120-12-7	Anthracene	160		0.55	4.5	ug/Kg
206-44-0	Fluoranthene	1200	E	0.55	4.5	ug/Kg
129-00-0	Pyrene	990		0.55	4.5	ug/Kg
56-55-3	Benzo(a)anthracene	510		0.55	4.5	ug/Kg
218-01-9	Chrysene	550		0.55	4.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	670		0.55	4.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	250		0.55	4.5	ug/Kg
50-32-8	Benzo(a)pyrene	470		0.55	4.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	250		0.55	4.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	79		0.55	4.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	260		0.55	4.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.32		30 - 150	83%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.39		45 - 105	84%	SPK: 10
1718-51-0	Terphenyl-d14	9.06		30 - 125	91%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	85974	7.78			
1146-65-2	Naphthalene-d8	322688	9.96			
15067-26-2	Acenaphthene-d10	211688	12.93			
1517-22-2	Phenanthrene-d10	346810	15.38			
1719-03-5	Chrysene-d12	334715	19.75			
1520-96-3	Perylene-d12	273043	22.7			

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB40-000.5-01	SDG No.:	D1034
Lab Sample ID:	D1034-10	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002795.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB40-000.5-01DL	SDG No.:	D1034
Lab Sample ID:	D1034-10DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002816.D	5	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	11.5	UD	2.7	23	ug/Kg
91-57-6	2-Methylnaphthalene	11.5	UD	2.7	23	ug/Kg
208-96-8	Acenaphthylene	34	D	2.7	23	ug/Kg
83-32-9	Acenaphthene	39	D	2.7	23	ug/Kg
86-73-7	Fluorene	57	D	2.7	23	ug/Kg
85-01-8	Phenanthrene	750	D	2.7	23	ug/Kg
120-12-7	Anthracene	160	D	2.7	23	ug/Kg
206-44-0	Fluoranthene	1300	D	2.7	23	ug/Kg
129-00-0	Pyrene	1100	D	2.7	23	ug/Kg
56-55-3	Benzo(a)anthracene	580	D	2.7	23	ug/Kg
218-01-9	Chrysene	570	D	2.7	23	ug/Kg
205-99-2	Benzo(b)fluoranthene	630	D	2.7	23	ug/Kg
207-08-9	Benzo(k)fluoranthene	230	D	2.7	23	ug/Kg
50-32-8	Benzo(a)pyrene	470	D	2.7	23	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	300	D	2.7	23	ug/Kg
53-70-3	Dibenz(a,h)anthracene	80	D	2.7	23	ug/Kg
191-24-2	Benzo(g,h,i)perylene	260	D	2.7	23	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.4		30 - 150	84%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.75		45 - 105	88%	SPK: 10
1718-51-0	Terphenyl-d14	7.4		30 - 125	74%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	70920	7.78			
1146-65-2	Naphthalene-d8	301716	9.96			
15067-26-2	Acenaphthene-d10	198897	12.93			
1517-22-2	Phenanthrene-d10	332711	15.38			
1719-03-5	Chrysene-d12	327413	19.75			
1520-96-3	Perylene-d12	305749	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB40-000.5-01DL	SDG No.:	D1034
Lab Sample ID:	D1034-10DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002816.D	5	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB41-000.5-01	SDG No.:	D1034
Lab Sample ID:	D1034-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002796.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	4.1	J	0.55	4.5	ug/Kg
91-57-6	2-Methylnaphthalene	2.7	J	0.55	4.5	ug/Kg
208-96-8	Acenaphthylene	16		0.55	4.5	ug/Kg
83-32-9	Acenaphthene	12		0.55	4.5	ug/Kg
86-73-7	Fluorene	16		0.55	4.5	ug/Kg
85-01-8	Phenanthrene	270		0.55	4.5	ug/Kg
120-12-7	Anthracene	66		0.55	4.5	ug/Kg
206-44-0	Fluoranthene	700		0.55	4.5	ug/Kg
129-00-0	Pyrene	570		0.55	4.5	ug/Kg
56-55-3	Benzo(a)anthracene	350		0.55	4.5	ug/Kg
218-01-9	Chrysene	350		0.55	4.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	460		0.55	4.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	170		0.55	4.5	ug/Kg
50-32-8	Benzo(a)pyrene	330		0.55	4.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	180		0.55	4.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	54		0.55	4.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	190		0.55	4.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.09		30 - 150	81%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.07		45 - 105	81%	SPK: 10
1718-51-0	Terphenyl-d14	8.47		30 - 125	85%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	88630	7.78			
1146-65-2	Naphthalene-d8	326718	9.96			
15067-26-2	Acenaphthene-d10	209715	12.93			
1517-22-2	Phenanthrene-d10	348939	15.38			
1719-03-5	Chrysene-d12	344097	19.75			
1520-96-3	Perylene-d12	286814	22.7			

D1034 Revised

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB41-000.5-01	SDG No.:	D1034
Lab Sample ID:	D1034-11	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	27
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002796.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB42-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002810.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	2.05	U	0.49	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	2.1	J	0.49	4.1	ug/Kg
208-96-8	Acenaphthylene	2.05	U	0.49	4.1	ug/Kg
83-32-9	Acenaphthene	2.05	U	0.49	4.1	ug/Kg
86-73-7	Fluorene	2.05	U	0.49	4.1	ug/Kg
85-01-8	Phenanthrene	27		0.49	4.1	ug/Kg
120-12-7	Anthracene	5.3		0.49	4.1	ug/Kg
206-44-0	Fluoranthene	86		0.49	4.1	ug/Kg
129-00-0	Pyrene	71		0.49	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	42		0.49	4.1	ug/Kg
218-01-9	Chrysene	44		0.49	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	57		0.49	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	19		0.49	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	39		0.49	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	29		0.49	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	7		0.49	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	26		0.49	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.77		30 - 150	78%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.68		45 - 105	77%	SPK: 10
1718-51-0	Terphenyl-d14	8.24		30 - 125	82%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	81265	7.78			
1146-65-2	Naphthalene-d8	336415	9.96			
15067-26-2	Acenaphthene-d10	218342	12.93			
1517-22-2	Phenanthrene-d10	362974	15.38			
1719-03-5	Chrysene-d12	359257	19.75			
1520-96-3	Perylene-d12	337137	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB42-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002810.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB43-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002811.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	70		0.47	3.9	ug/Kg
91-57-6	2-Methylnaphthalene	68		0.47	3.9	ug/Kg
208-96-8	Acenaphthylene	55		0.47	3.9	ug/Kg
83-32-9	Acenaphthene	120		0.47	3.9	ug/Kg
86-73-7	Fluorene	210		0.47	3.9	ug/Kg
85-01-8	Phenanthrene	1400	E	0.47	3.9	ug/Kg
120-12-7	Anthracene	400		0.47	3.9	ug/Kg
206-44-0	Fluoranthene	1800	E	0.47	3.9	ug/Kg
129-00-0	Pyrene	1600	E	0.47	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	910		0.47	3.9	ug/Kg
218-01-9	Chrysene	930		0.47	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	1200	E	0.47	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	400		0.47	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	840		0.47	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	450		0.47	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	170		0.47	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	590		0.47	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.3		30 - 150	83%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.21		45 - 105	82%	SPK: 10
1718-51-0	Terphenyl-d14	8.91		30 - 125	89%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	94567	7.78			
1146-65-2	Naphthalene-d8	343391	9.96			
15067-26-2	Acenaphthene-d10	215069	12.93			
1517-22-2	Phenanthrene-d10	346566	15.38			
1719-03-5	Chrysene-d12	334664	19.76			
1520-96-3	Perylene-d12	226872	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB43-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002811.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
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LOD = Limit of Detection
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB43-0.502-02DL	SDG No.:	D1034
Lab Sample ID:	D1034-15DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002817.D	5	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	69	D	2.3	19	ug/Kg
91-57-6	2-Methylnaphthalene	69	D	2.3	19	ug/Kg
208-96-8	Acenaphthylene	63	D	2.3	19	ug/Kg
83-32-9	Acenaphthene	120	D	2.3	19	ug/Kg
86-73-7	Fluorene	220	D	2.3	19	ug/Kg
85-01-8	Phenanthrene	1600	D	2.3	19	ug/Kg
120-12-7	Anthracene	400	D	2.3	19	ug/Kg
206-44-0	Fluoranthene	2100	D	2.3	19	ug/Kg
129-00-0	Pyrene	1800	D	2.3	19	ug/Kg
56-55-3	Benzo(a)anthracene	960	D	2.3	19	ug/Kg
218-01-9	Chrysene	930	D	2.3	19	ug/Kg
205-99-2	Benzo(b)fluoranthene	1100	D	2.3	19	ug/Kg
207-08-9	Benzo(k)fluoranthene	390	D	2.3	19	ug/Kg
50-32-8	Benzo(a)pyrene	840	D	2.3	19	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	480	D	2.3	19	ug/Kg
53-70-3	Dibenz(a,h)anthracene	130	D	2.3	19	ug/Kg
191-24-2	Benzo(g,h,i)perylene	450	D	2.3	19	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.9		30 - 150	79%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.3		45 - 105	83%	SPK: 10
1718-51-0	Terphenyl-d14	6.9		30 - 125	69%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	78315	7.78			
1146-65-2	Naphthalene-d8	335806	9.96			
15067-26-2	Acenaphthene-d10	216578	12.93			
1517-22-2	Phenanthrene-d10	358495	15.38			
1719-03-5	Chrysene-d12	352610	19.75			
1520-96-3	Perylene-d12	320209	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB43-0.502-02DL	SDG No.:	D1034
Lab Sample ID:	D1034-15DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	15
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002817.D	5	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB44-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002812.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	9.1		0.5	4.1	ug/Kg
91-57-6	2-Methylnaphthalene	7.9		0.5	4.1	ug/Kg
208-96-8	Acenaphthylene	24		0.5	4.1	ug/Kg
83-32-9	Acenaphthene	20		0.5	4.1	ug/Kg
86-73-7	Fluorene	35		0.5	4.1	ug/Kg
85-01-8	Phenanthrene	420		0.5	4.1	ug/Kg
120-12-7	Anthracene	130		0.5	4.1	ug/Kg
206-44-0	Fluoranthene	820		0.5	4.1	ug/Kg
129-00-0	Pyrene	670		0.5	4.1	ug/Kg
56-55-3	Benzo(a)anthracene	410		0.5	4.1	ug/Kg
218-01-9	Chrysene	390		0.5	4.1	ug/Kg
205-99-2	Benzo(b)fluoranthene	500		0.5	4.1	ug/Kg
207-08-9	Benzo(k)fluoranthene	190		0.5	4.1	ug/Kg
50-32-8	Benzo(a)pyrene	380		0.5	4.1	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	210		0.5	4.1	ug/Kg
53-70-3	Dibenz(a,h)anthracene	62		0.5	4.1	ug/Kg
191-24-2	Benzo(g,h,i)perylene	230		0.5	4.1	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.44		30 - 150	84%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.28		45 - 105	83%	SPK: 10
1718-51-0	Terphenyl-d14	9.04		30 - 125	90%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	80110	7.77			
1146-65-2	Naphthalene-d8	296402	9.96			
15067-26-2	Acenaphthene-d10	195938	12.93			
1517-22-2	Phenanthrene-d10	323154	15.38			
1719-03-5	Chrysene-d12	313550	19.75			
1520-96-3	Perylene-d12	263331	22.7			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB44-0.502-02	SDG No.:	D1034
Lab Sample ID:	D1034-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	20
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002812.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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* = Values outside of QC limits
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D1034 Revised

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	RB-02-010412	SDG No.:	D1034
Lab Sample ID:	D1034-19	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002830.D	1	01/13/12	01/14/12	PB60573

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	0.05	U	0.021	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.021	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.021	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.021	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.021	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.021	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.021	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.021	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.021	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.021	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.26	U	0.021	0.52	ug/L
207-08-9	Benzo(k)fluoranthene	0.26	U	0.021	0.52	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.021	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.021	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.021	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.021	0.1	ug/L
SURROGATES						
4165-60-0	Nitrobenzene-d5	6.8		40 - 110	68%	SPK: 10
321-60-8	2-Fluorobiphenyl	6.78		50 - 110	68%	SPK: 10
1718-51-0	Terphenyl-d14	9.32		50 - 135	93%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	91054	7.75			
1146-65-2	Naphthalene-d8	344934	9.93			
15067-26-2	Acenaphthene-d10	238089	12.91			
1517-22-2	Phenanthrene-d10	402632	15.35			
1719-03-5	Chrysene-d12	365317	19.71			
1520-96-3	Perylene-d12	343025	22.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	RB-02-010412	SDG No.:	D1034
Lab Sample ID:	D1034-19	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002830.D	1	01/13/12	01/14/12	PB60573

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

D1034 Revised

Appendix C

Support Documentation

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager: Andy Frebowitz
Chemtech Project # D1034
Test Name: SVOC-SIM,SVOC-SIMGroup1

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 01/05/2012.
1 Water sample was received on 01/05/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Metals Group3, SVOC-SIM and SVOC-SIMGroup1. This data package contains results for SVOC-SIM and SVOC-SIMGroup1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOC-SIM and SVOC-SIMGroup1 was based on method 8270-Modified and extraction was done based on method 3510.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements except for 12SB31-0.502-02.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD for {D1034-13MSD} with File ID: BG002798.D recoveries met criteria except for Benzo(a)anthracene[31%], Benzo(a)pyrene[37%], Benzo(b)fluoranthene[59%], Benzo(g,h,i)perylene[28%], Chrysene[34%], Fluoranthene[65%], Indeno(1,2,3-cd)pyrene[24%], Phenanthrene[25%] and Pyrene[49%] .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .
The Continuous Calibration File ID BG002789.D met the requirements except for Indeno(1,2,3-cd)pyrene.This compound failed marginally.The Continuous Calibration File ID BG002823.D met the requirements except for Indeno(1,2,3-cd)pyrene.
The Tuning criteria met requirements.

Samples 12SB31-0.502-02, 12SB39-000.5-01, 12SB40-000.5-01, 12SB43-0.502-02 and 12SB-DUP01-010412 were diluted due to high concentrations.

E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <20% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 20% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.26 11:34:43 -05'00'

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : D1034

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
D1034-01	12SB31-0.502-02
D1034-02	12SB32-0.502-02
D1034-03	12SB33-0.502-02
D1034-04	12SB34-0.502-02
D1034-05	12SB35-000.5-01
D1034-06	12SB36-000.5-01
D1034-07	12SB37-000.5-01
D1034-08	12SB38-000.5-01
D1034-09	12SB39-000.5-01
D1034-10	12SB40-000.5-01
D1034-11	12SB41-000.5-01
D1034-12	D1034-11MS
D1034-13	D1034-11MSD
D1034-14	12SB42-0.502-02
D1034-15	12SB43-0.502-02
D1034-16	12SB44-0.502-02
D1034-17	12SB-DUP01-010412
D1034-18	12SB-DUP02-010412
D1034-19	RB-02-010412

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.01.26 11:34:56 -05'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1034
QUOTE NO.
COC Number 021239

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 283 1170 FAX: 610 4919645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 5
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 283 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH Sim 8oz glass; 2 Lead Only 4oz glass; 3 4 5 6 7 8 9

PRESERVATIVES

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9
1.	12SB31-0.5-02-02	Soil		✓	1/4/12	0935		1								
2.	12SB32-0.5-02-02	Soil		✓	1/4/12	0955		1								
3.	12SB33-0.5-02-02	Soil		✓	1/4/12	1010		1								
4.	12SB34-0.5-02-02	Soil		✓	1/4/12	1020		1								
5.	12SB35-0.0-0.5-01	Soil		✓	1/4/12	1100			1							
6.	12SB36-0.0-0.5-01	Soil		✓	1/4/12	1110			1							
7.	12SB37-0.0-0.5-01	Soil		✓	1/4/12	1115			1							
8.	12SB38-0.0-0.5-01	Soil		✓	1/4/12	1120			1							
9.	12SB39-0.0-0.5-01	Soil		✓	1/4/12	1140		1								
10.	12SB40-0.0-0.5-01	Soil		✓	1/4/12	1145		1								

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	1/4/12 1730	4.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Eddy	1/5/12 9:20	3. BS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1034
QUOTE NO.
COC Number 021241

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 6104919645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 1 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH Sim 8oz Glass
2 Lead Only 4oz Glass
3 PAH Sim 1 Liter Glass
4 Lead Only 500mL poly HNO3
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
11,12,13.	12SB41-000.5-01	Soil		✓	1/4/12	1150		2									Do MS/MSD
14.	12SB42-0.5-02	Soil		✓	1/4/12	1225		1									
15.	12SB43-0.5-02	Soil		✓	1/4/12	1250		1									
16.	12SB44-0.5-02	Soil		✓	1/4/12	1305		1									
17.	12SB-DUP01-010412	Soil		✓	1/4/12	1200		1									
18.	12SB-DUP02-010412	Soil		✓	1/4/12	1300			1								
19.	RB-02-010412	Aq		✓	1/4/12	1600				2	1						
8.																	
9.																	
10.																	

← Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	1/4/12 1730	1.
2.		2.
3. Fedex	1/5/12 9:30	3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

HOLDTIME

SDG D1034

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB36-000.5-01	D1034-06	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB37-000.5-01	D1034-07	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB38-000.5-01	D1034-08	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB-DUP02-010412	D1034-18	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB35-000.5-01	D1034-05	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	UG/L	RB-02-010412	D1034-19	NM	1/4/2012	1/6/2012	1/9/2012	2	3	5
SIM	UG/KG	12SB39-000.5-01	D1034-09DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB31-0.502-02	D1034-01	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB31-0.502-02	D1034-01DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB32-0.502-02	D1034-02	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB33-0.502-02	D1034-03	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB39-000.5-01	D1034-09	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB40-000.5-01	D1034-10	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB40-000.5-01	D1034-10DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB41-000.5-01	D1034-11	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/KG	12SB42-0.502-02	D1034-14	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB43-0.502-02	D1034-15	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB43-0.502-02	D1034-15DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB44-0.502-02	D1034-16	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB-DUP01-010412	D1034-17	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB-DUP01-010412	D1034-17DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB34-0.502-02	D1034-04	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/L	RB-02-010412	D1034-19	NM	1/4/2012	1/13/2012	1/14/2012	9	1	10

FIELD DUPLICATE PRECISION				
ANALYTE	**12SB31-0.502-02**	**12SB-DUP01-010412**	**RPD**	**DIFFERENCE**
2-Methylnaphthalene	34	23	38.60	11
Acenaphthene	190	120	45.16	70
Acenaphthylene	83	67	21.33	16
Anthracene	270	200	29.79	70
Benzo(a)anthracene	1500	920	47.93	580
Benzo(a)pyrene	1800	1300	32.26	500
Benzo(b)fluoranthene	2800	2100	28.57	700
Benzo(g,h,i)perylene	1100	870	23.35	230
Benzo(k)fluoranthene	990	830	17.58	160
Chyrsene	2400	1800	28.57	600
Dibenzo(a,h)anthracene	350	270	25.81	80
Fluoranthene	6500	4900	28.07	1600
Fluorene	400	260	42.42	140
Indeno(1,2,3-cd)pyrene	1300	800	47.62	500
Naphthalene	40	28	35.29	12
Phenanthrene	5600	4100	30.93	1500
Pyrene	4600	3400	30.00	1200

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1034 SDG NO.: D1034

Lab File ID: BG002711.D DFTPP Injection Date: 01/10/2012

Instrument ID: BNA_G DFTPP Injection Time: 12:55

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.3
68	Less than 2.0% of mass 69	0.3 (0.7) 1
69	Mass 69 relative abundance	42
70	Less than 2.0% of mass 69	0.1 (0.2) 1
127	40.0 - 60.0% of mass 198	40.5
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1% of mass 198	3.4
441	Present, but less than mass 443	9.8
442	Greater than 40% of mass 198	82.3
443	17.0 - 23.0% of mass 442	15.1 (18.3) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.1	0.1 PPM BNA ICC	BG002714.D	01/10/2012	14:55
02	SSTD0.5	0.5 PPM BNA ICC	BG002715.D	01/10/2012	15:34
03	SSTD2.5	2.5 PPM BNA ICC	BG002716.D	01/10/2012	16:13
04	SSTD010	10 PPM BNA ICC	BG002717.D	01/10/2012	16:52
05	SSTD025	25 PPM BNA ICC	BG002718.D	01/10/2012	17:31

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG No.: D1034

Instrument ID: BNA_G Calibration Date(s): 01/10/2012 01/10/2012

Calibration Time(s): 14:55 17:31

LAB FILE ID: RRF0.1 = BG002714.D RRF0.5 = BG002715.D RRF02.5 = BG002716.D
RRF010 = BG002717.D RRF025 = BG002718.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF02.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.697	4.720	4.145	4.193	3.516		4.255	11.6
2-Methylnapthalene	3.145	3.296	2.960	3.065	2.668		3.027	7.8
Acenaphthylene	6.915	7.128	6.256	6.553	5.495		6.469	9.9
Acenaphthene	1.271	1.173	1.022	1.064	0.948		1.096	11.6
Fluorene	1.436	1.482	1.287	1.362	1.135		1.340	10.2
Phenanthrene	5.118	4.988	4.352	4.481	3.726		4.533	12.3
Anthracene	4.799	4.894	4.433	4.584	3.828		4.508	9.3
Fluoranthene	5.433	5.520	4.934	5.135	4.175		5.039	10.7
Pyrene	5.997	5.852	5.148	5.361	4.460		5.364	11.4
Benzo(a)anthracene	5.705	5.293	4.590	4.702	4.034		4.865	13.3
Chrysene	5.164	5.026	4.435	4.460	3.749		4.567	12.3
Benzo(b)fluoranthene	12.086	11.779	10.600	11.665	11.144		11.455	5.1
Benzo(k)fluoranthene	11.485	12.268	11.055	11.921	10.344		11.415	6.6
Benzo(a)pyrene	11.048	11.125	10.189	11.182	10.136		10.736	4.9
Indeno(1,2,3-cd)pyrene	3.533	3.731	3.640	3.853	3.100		3.571	8.1
Dibenzo(a,h)anthracene	0.836	0.899	0.897	0.955	0.789		0.875	7.3
Benzo(g,h,i)perylene	3.793	3.740	3.608	3.591	3.073		3.561	8.0
Nitrobenzene-d5	0.380	0.375	0.346	0.382	0.353		0.367	4.5
2-Fluorobiphenyl	1.596	1.581	1.387	1.452	1.223		1.448	10.6
Terphenyl-d14	1.162	1.059	0.751	0.775	0.664		0.882	24.5

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1034 SDG NO.: D1034

Lab File ID: BG002788.D DFTPP Injection Date: 01/12/2012

Instrument ID: BNA_G DFTPP Injection Time: 19:27

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	34.3
68	Less than 2.0% of mass 69	0.7 (2) 1
69	Mass 69 relative abundance	37.6
70	Less than 2.0% of mass 69	0.2 (0.6) 1
127	40.0 - 60.0% of mass 198	42.3
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 1% of mass 198	4
441	Present, but less than mass 443	7.8
442	Greater than 40% of mass 198	71.4
443	17.0 - 23.0% of mass 442	14.1 (19.8) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002789.D	01/12/2012	20:08
02	12SB31-0.502-02	D1034-01	BG002790.D	01/12/2012	20:48
03	12SB32-0.502-02	D1034-02	BG002791.D	01/12/2012	21:28
04	12SB33-0.502-02	D1034-03	BG002792.D	01/12/2012	22:08
05	12SB34-0.502-02	D1034-04	BG002793.D	01/12/2012	22:47
06	12SB39-000.5-01	D1034-09	BG002794.D	01/12/2012	23:27
07	12SB40-000.5-01	D1034-10	BG002795.D	01/13/2012	00:06
08	12SB41-000.5-01	D1034-11	BG002796.D	01/13/2012	00:46
09	12SB41-000.5-01MS	D1034-12MS	BG002797.D	01/13/2012	01:25
10	12SB41-000.5-01MSD	D1034-13MSD	BG002798.D	01/13/2012	02:05
11	PB60409B	PB60409B	BG002803.D	01/13/2012	05:22
12	PB60409BS	PB60409BS	BG002804.D	01/13/2012	06:01

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG No.: D1034

Instrument ID: BNA_G Calibration Date/Time: 01/12/2012 20:08

Lab File ID: BG002789.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF02.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	4.001		6.0	20.0
2-Methylnapthalene	3.027	2.885		4.7	20.0
Acenaphthylene	6.469	6.192		4.3	20.0
Acenaphthene	1.096	0.981		10.5	20.0
Fluorene	1.340	1.262		5.8	20.0
Phenanthrene	4.533	4.207		7.2	20.0
Anthracene	4.508	4.262		5.5	20.0
Fluoranthene	5.039	4.606		8.6	20.0
Pyrene	5.364	5.009		6.6	20.0
Benzo(a)anthracene	4.865	4.457		8.4	20.0
Chrysene	4.567	4.281		6.3	20.0
Benzo(b)fluoranthene	11.455	10.236		10.6	20.0
Benzo(k)fluoranthene	11.415	10.520		7.8	20.0
Benzo(a)pyrene	10.736	9.956		7.3	20.0
Indeno(1,2,3-cd)pyrene	3.571	4.313		20.8	20.0
Dibenzo(a,h)anthracene	0.875	0.960		9.8	20.0
Benzo(g,h,i)perylene	3.561	3.864		8.5	20.0
Nitrobenzene-d5	0.367	0.316		13.8	20.0
2-Fluorobiphenyl	1.448	1.378		4.8	20.0
Terphenyl-d14	0.882	0.731		17.2	20.0

All other compounds must meet a minimum RRF of 0.010.

D1034 Revised

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG011212\
Data File : BG002789.D
Acq On : 12 Jan 2012 20:08
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 03:50:39 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	79	-0.04
2	I	Naphthalene-d8	5.000	5.000	0.0	90	-0.04
3	S	Nitrobenzene-d5	2.500	2.154	13.8	83	-0.05
4		Naphthalene	2.500	2.351	6.0	87	-0.05
5		2-Methylnapthalene	2.500	2.383	4.7	88	-0.04
6		1-Methylnapthalene	2.500	2.401	4.0	90	-0.04
7	I	Acenaphthene-d10	5.000	5.000	0.0	89	-0.04
8	S	2-Fluorobiphenyl	2.500	2.380	4.8	88	-0.04
9		Acenaphthylene	2.500	2.393	4.3	88	-0.04
10		Acenaphthene	2.500	2.238	10.5	85	-0.03
11		Fluorene	2.500	2.353	5.9	87	-0.04
12	I	Phenanthrene-d10	5.000	5.000	0.0	89	-0.04
13		Phenanthrene	2.500	2.320	7.2	86	-0.04
14		Anthracene	2.500	2.364	5.4	86	-0.04
15		Fluoranthene	2.500	2.285	8.6	83	-0.04
16	I	Chrysene-d12	5.000	5.000	0.0	86	-0.04
17		Pyrene	2.500	2.335	6.6	83	-0.04
18	S	Terphenyl-d14	2.500	2.272	9.1	83	-0.04
19		Benzo(a)anthracene	2.500	2.291	8.4	83	-0.03
20		Chrysene	2.500	2.344	6.2	83	-0.03
21		Indeno(1,2,3-cd)pyrene	2.500	3.019	-20.8#	102	-0.10
22	I	Perylene-d12	5.000	5.000	0.0	94	-0.07
23		Benzo(b)fluoranthene	2.500	2.234	10.6	91	-0.06
24		Benzo(k)fluoranthene	2.500	2.304	7.8	90	-0.06
25		Benzo(a)pyrene	2.500	2.318	7.3	92	-0.06
26		Dibenzo(a,h)anthracene	2.500	2.743	-9.7	101	-0.10
27		Benzo(g,h,i)perylene	2.500	2.713	-8.5	101	-0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60409B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

Lab File ID: BG002803.D Lab Sample ID: PB60409B

Instrument ID: BNA_G Date Extracted: 01/05/2012

Matrix: (soil/water) SOIL Date Analyzed: 01/13/2012

Level: (low/med) LOW Time Analyzed: 05:22

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12SB-DUP01-010412	D1034-17	BG002813.D	01/13/2012
12SB44-0.502-02	D1034-16	BG002812.D	01/13/2012
12SB43-0.502-02	D1034-15	BG002811.D	01/13/2012
12SB42-0.502-02	D1034-14	BG002810.D	01/13/2012
PB60409BS	PB60409BS	BG002804.D	01/13/2012
12SB41-000.5-01MSD	D1034-13MSD	BG002798.D	01/13/2012
12SB41-000.5-01MS	D1034-12MS	BG002797.D	01/13/2012
12SB41-000.5-01	D1034-11	BG002796.D	01/13/2012
12SB40-000.5-01	D1034-10	BG002795.D	01/13/2012
12SB39-000.5-01	D1034-09	BG002794.D	01/12/2012
12SB34-0.502-02	D1034-04	BG002793.D	01/12/2012
12SB33-0.502-02	D1034-03	BG002792.D	01/12/2012
12SB32-0.502-02	D1034-02	BG002791.D	01/12/2012
12SB31-0.502-02	D1034-01	BG002790.D	01/12/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60409B	SDG No.:	D1034
Lab Sample ID:	PB60409B	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	0
Sample Wt/Vol:	30.01 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002803.D	1	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.65	U	0.4	3.3	ug/Kg
91-57-6	2-Methylnaphthalene	1.65	U	0.4	3.3	ug/Kg
208-96-8	Acenaphthylene	1.65	U	0.4	3.3	ug/Kg
83-32-9	Acenaphthene	1.65	U	0.4	3.3	ug/Kg
86-73-7	Fluorene	1.65	U	0.4	3.3	ug/Kg
85-01-8	Phenanthrene	1.65	U	0.4	3.3	ug/Kg
120-12-7	Anthracene	1.65	U	0.4	3.3	ug/Kg
206-44-0	Fluoranthene	1.65	U	0.4	3.3	ug/Kg
129-00-0	Pyrene	1.65	U	0.4	3.3	ug/Kg
56-55-3	Benzo(a)anthracene	1.65	U	0.4	3.3	ug/Kg
218-01-9	Chrysene	1.65	U	0.4	3.3	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.65	U	0.4	3.3	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.65	U	0.4	3.3	ug/Kg
50-32-8	Benzo(a)pyrene	1.65	U	0.4	3.3	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.65	U	0.4	3.3	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.65	U	0.4	3.3	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.65	U	0.4	3.3	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.52		30 - 150	85%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.29		45 - 105	83%	SPK: 10
1718-51-0	Terphenyl-d14	9.6		30 - 125	96%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	72230	7.78			
1146-65-2	Naphthalene-d8	304288	9.96			
15067-26-2	Acenaphthene-d10	199309	12.93			
1517-22-2	Phenanthrene-d10	331175	15.39			
1719-03-5	Chrysene-d12	324844	19.75			
1520-96-3	Perylene-d12	296803	22.7			

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1034 SDG NO.: D1034

Lab File ID: BG002808.D DFTPP Injection Date: 01/13/2012

Instrument ID: BNA_G DFTPP Injection Time: 08:41

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	34.5
68	Less than 2.0% of mass 69	0.6 (1.6) 1
69	Mass 69 relative abundance	40.1
70	Less than 2.0% of mass 69	0.0 (0.0) 1
127	40.0 - 60.0% of mass 198	41.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.3
275	10.0 - 30.0% of mass 198	23.2
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	14.8
442	Greater than 40% of mass 198	74.3
443	17.0 - 23.0% of mass 442	15.1 (20.3) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002809.D	01/13/2012	09:22
02	12SB42-0.502-02	D1034-14	BG002810.D	01/13/2012	10:01
03	12SB43-0.502-02	D1034-15	BG002811.D	01/13/2012	10:40
04	12SB44-0.502-02	D1034-16	BG002812.D	01/13/2012	11:20
05	12SB-DUP01-010412	D1034-17	BG002813.D	01/13/2012	11:59
06	12SB31-0.502-02DL	D1034-01DL	BG002814.D	01/13/2012	12:38
07	12SB39-000.5-01DL	D1034-09DL	BG002815.D	01/13/2012	13:17
08	12SB40-000.5-01DL	D1034-10DL	BG002816.D	01/13/2012	13:56
09	12SB43-0.502-02DL	D1034-15DL	BG002817.D	01/13/2012	14:36
10	12SB-DUP01-010412DL	D1034-17DL	BG002818.D	01/13/2012	15:15

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG No.: D1034

Instrument ID: BNA_G Calibration Date/Time: 01/13/2012 09:22

Lab File ID: BG002809.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF02.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	4.018		5.6	20.0
2-Methylnapthalene	3.027	2.873		5.1	20.0
Acenaphthylene	6.469	6.146		5.0	20.0
Acenaphthene	1.096	1.008		8.1	20.0
Fluorene	1.340	1.270		5.2	20.0
Phenanthrene	4.533	4.189		7.6	20.0
Anthracene	4.508	4.234		6.1	20.0
Fluoranthene	5.039	4.588		9.0	20.0
Pyrene	5.364	4.777		10.9	20.0
Benzo(a)anthracene	4.865	4.428		9.0	20.0
Chrysene	4.567	4.320		5.4	20.0
Benzo(b)fluoranthene	11.455	10.697		6.6	20.0
Benzo(k)fluoranthene	11.415	10.282		9.9	20.0
Benzo(a)pyrene	10.736	10.027		6.6	20.0
Indeno(1,2,3-cd)pyrene	3.571	3.844		7.7	20.0
Dibenzo(a,h)anthracene	0.875	0.887		1.3	20.0
Benzo(g,h,i)perylene	3.561	3.463		2.7	20.0
Nitrobenzene-d5	0.367	0.346		5.8	20.0
2-Fluorobiphenyl	1.448	1.387		4.2	20.0
Terphenyl-d14	0.882	0.697		20.9	20.0

All other compounds must meet a minimum RRF of 0.010.

D1034 Revised

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA G\DATA\BG011212\
Data File : BG002809.D
Acq On : 13 Jan 2012 9:22
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 10:35:38 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	78	-0.04
2	I	Naphthalene-d8	5.000	5.000	0.0	88	-0.04
3	S	Nitrobenzene-d5	2.500	2.353	5.9	88	-0.05
4		Naphthalene	2.500	2.361	5.6	85	-0.04
5		2-Methylnapthalene	2.500	2.373	5.1	86	-0.04
6		1-Methylnapthalene	2.500	2.372	5.1	87	-0.04
7	I	Acenaphthene-d10	5.000	5.000	0.0	84	-0.04
8	S	2-Fluorobiphenyl	2.500	2.395	4.2	84	-0.04
9		Acenaphthylene	2.500	2.375	5.0	82	-0.04
10		Acenaphthene	2.500	2.299	8.0	83	-0.03
11		Fluorene	2.500	2.370	5.2	83	-0.04
12	I	Phenanthrene-d10	5.000	5.000	0.0	82	-0.04
13		Phenanthrene	2.500	2.311	7.6	79	-0.04
14		Anthracene	2.500	2.348	6.1	78	-0.04
15		Fluoranthene	2.500	2.276	9.0	76	-0.04
16	I	Chrysene-d12	5.000	5.000	0.0	82	-0.04
17		Pyrene	2.500	2.227	10.9	76	-0.04
18	S	Terphenyl-d14	2.500	2.147	14.1	76	-0.03
19		Benzo(a)anthracene	2.500	2.276	9.0	79	-0.03
20		Chrysene	2.500	2.365	5.4	80	-0.03
21		Indeno(1,2,3-cd)pyrene	2.500	2.691	-7.6	87	-0.10
22	I	Perylene-d12	5.000	5.000	0.0	87	-0.06
23		Benzo(b)fluoranthene	2.500	2.335	6.6	88	-0.06
24		Benzo(k)fluoranthene	2.500	2.252	9.9	81	-0.06
25		Benzo(a)pyrene	2.500	2.335	6.6	86	-0.06
26		Dibenzo(a,h)anthracene	2.500	2.532	-1.3	86	-0.10
27		Benzo(g,h,i)perylene	2.500	2.431	2.8	84	-0.10

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1034 SDG NO.: D1034

Lab File ID: BG002822.D DFTPP Injection Date: 01/13/2012

Instrument ID: BNA_G DFTPP Injection Time: 19:20

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37
68	Less than 2.0% of mass 69	0.5 (1.3) 1
69	Mass 69 relative abundance	40.3
70	Less than 2.0% of mass 69	0.4 (1) 1
127	40.0 - 60.0% of mass 198	43.7
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	18.8
365	Greater than 1% of mass 198	2.8
441	Present, but less than mass 443	9.4
442	Greater than 40% of mass 198	83
443	17.0 - 23.0% of mass 442	12.6 (15.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BG002823.D	01/13/2012	20:01
02	RB-02-010412	D1034-19	BG002830.D	01/14/2012	00:36
03	PB60573B	PB60573B	BG002836.D	01/14/2012	04:29
04	PB60573BS	PB60573BS	BG002837.D	01/14/2012	05:08
05	PB60573BSD	PB60573BSD	BG002838.D	01/14/2012	05:46

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG No.: D1034

Instrument ID: BNA_G Calibration Date/Time: 01/13/2012 20:01

Lab File ID: BG002823.D Init. Calib. Date(s): 01/10/2012 01/10/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:55 17:31

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	RRF	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.255	3.986		6.3	20.0
2-Methylnapthalene	3.027	2.951		2.5	20.0
Acenaphthylene	6.469	6.226		3.8	20.0
Acenaphthene	1.096	1.016		7.3	20.0
Fluorene	1.340	1.276		4.8	20.0
Phenanthrene	4.533	4.231		6.7	20.0
Anthracene	4.508	4.272		5.2	20.0
Fluoranthene	5.039	4.485		11.0	20.0
Pyrene	5.364	5.247		2.2	20.0
Benzo(a)anthracene	4.865	4.505		7.4	20.0
Chrysene	4.567	4.330		5.2	20.0
Benzo(b)fluoranthene	11.455	10.660		6.9	20.0
Benzo(k)fluoranthene	11.415	10.161		11.0	20.0
Benzo(a)pyrene	10.736	10.013		6.7	20.0
Indeno(1,2,3-cd)pyrene	3.571	4.313		20.8	20.0
Dibenzo(a,h)anthracene	0.875	0.954		9.1	20.0
Benzo(g,h,i)perylene	3.561	3.794		6.5	20.0
Nitrobenzene-d5	0.367	0.353		3.9	20.0
2-Fluorobiphenyl	1.448	1.377		4.9	20.0
Terphenyl-d14	0.882	0.774		12.2	20.0

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA G\Data\BG011312\
Data File : BG002823.D
Acq On : 13 Jan 2012 20:01
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 16 01:35:03 2012
Quant Method : Z:\HPCHEM1\BNA G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 13 12:33:32 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	85	-0.07
2	I	Naphthalene-d8	5.000	5.000	0.0	84	-0.07
3	S	Nitrobenzene-d5	2.500	2.400	4.0	86	-0.07
4		Naphthalene	2.500	2.342	6.3	81	-0.07
5		2-Methylnapthalene	2.500	2.437	2.5	84	-0.07
6		1-Methylnapthalene	2.500	2.442	2.3	85	-0.07
7	I	Acenaphthene-d10	5.000	5.000	0.0	82	-0.07
8	S	2-Fluorobiphenyl	2.500	2.378	4.9	81	-0.07
9		Acenaphthylene	2.500	2.406	3.8	82	-0.07
.0		Acenaphthene	2.500	2.319	7.2	82	-0.06
.1		Fluorene	2.500	2.379	4.8	81	-0.06
.2	I	Phenanthrene-d10	5.000	5.000	0.0	84	-0.08
.3		Phenanthrene	2.500	2.333	6.7	82	-0.07
.4		Anthracene	2.500	2.369	5.2	81	-0.08
.5		Fluoranthene	2.500	2.225	11.0	77	-0.07
.6	I	Chrysene-d12	5.000	5.000	0.0	74	-0.08
.7		Pyrene	2.500	2.446	2.2	75	-0.08
.8	S	Terphenyl-d14	2.500	2.437	2.5	76	-0.07
.9		Benzo(a)anthracene	2.500	2.315	7.4	73	-0.08
20		Chrysene	2.500	2.371	5.2	72	-0.08
21		Indeno(1,2,3-cd)pyrene	2.500	3.019	-20.8#	88	-0.21
22	I	Perylene-d12	5.000	5.000	0.0	81	-0.12
23		Benzo(b)fluoranthene	2.500	2.326	7.0	82	-0.12
24		Benzo(k)fluoranthene	2.500	2.226	11.0	75	-0.12
25		Benzo(a)pyrene	2.500	2.332	6.7	80	-0.12
26		Dibenzo(a,h)anthracene	2.500	2.726	-9.0	86	-0.21
27		Benzo(g,h,i)perylene	2.500	2.664	-6.6	85	-0.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB60573B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

Lab File ID: BG002836.D Lab Sample ID: PB60573B

Instrument ID: BNA_G Date Extracted: 01/13/2012

Matrix: (soil/water) WATER Date Analyzed: 01/14/2012

Level: (low/med) LOW Time Analyzed: 04:29

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
PB60573BSD	PB60573BSD	BG002838.D	01/14/2012
PB60573BS	PB60573BS	BG002837.D	01/14/2012
RB-02-010412	D1034-19	BG002830.D	01/14/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB60573B	SDG No.:	D1034
Lab Sample ID:	PB60573B	Matrix:	WATER
Analytical Method:	SW8270C	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002836.D	1	01/13/12	01/14/12	PB60573

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	0.05	U	0.02	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.25	U	0.02	0.5	ug/L
207-08-9	Benzo(k)fluoranthene	0.25	U	0.02	0.5	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.1	ug/L
SURROGATES						
4165-60-0	Nitrobenzene-d5	10.2		40 - 110	102%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.68		50 - 110	97%	SPK: 10
1718-51-0	Terphenyl-d14	12.1		50 - 135	121%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	83215	7.75			
1146-65-2	Naphthalene-d8	312581	9.93			
15067-26-2	Acenaphthene-d10	218687	12.9			
1517-22-2	Phenanthrene-d10	372869	15.35			
1719-03-5	Chrysene-d12	344224	19.71			
1520-96-3	Perylene-d12	316743	22.62			

CHEMTECH

Surrogate Summary

SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
D1034-01	12SB31-0.502-02	Nitrobenzene-d5	10	7.55	76		30	150
		2-Fluorobiphenyl	10	8.15	81		45	105
		Terphenyl-d14	10	9.11	91		30	125
D1034-01DL	12SB31-0.502-02DL	Nitrobenzene-d5	10	8.40	84		30	150
		2-Fluorobiphenyl	10	8.90	89		45	105
		Terphenyl-d14	10	5.40	54		30	125
D1034-02	12SB32-0.502-02	Nitrobenzene-d5	10	7.28	73		30	150
		2-Fluorobiphenyl	10	7.59	76		45	105
		Terphenyl-d14	10	8.52	85		30	125
D1034-03	12SB33-0.502-02	Nitrobenzene-d5	10	7.65	77		30	150
		2-Fluorobiphenyl	10	7.78	78		45	105
		Terphenyl-d14	10	8.53	85		30	125
D1034-04	12SB34-0.502-02	Nitrobenzene-d5	10	7.14	71		30	150
		2-Fluorobiphenyl	10	7.36	74		45	105
		Terphenyl-d14	10	8.25	83		30	125
D1034-09	12SB39-000.5-01	Nitrobenzene-d5	10	7.31	73		30	150
		2-Fluorobiphenyl	10	7.52	75		45	105
		Terphenyl-d14	10	8.06	81		30	125
D1034-09DL	12SB39-000.5-01DL	Nitrobenzene-d5	10	7.95	80		30	150
		2-Fluorobiphenyl	10	8.35	83		45	105
		Terphenyl-d14	10	7.05	71		30	125
D1034-10	12SB40-000.5-01	Nitrobenzene-d5	10	8.32	83		30	150
		2-Fluorobiphenyl	10	8.39	84		45	105
		Terphenyl-d14	10	9.06	91		30	125
D1034-10DL	12SB40-000.5-01DL	Nitrobenzene-d5	10	8.40	84		30	150
		2-Fluorobiphenyl	10	8.75	88		45	105
		Terphenyl-d14	10	7.40	74		30	125
D1034-11	12SB41-000.5-01	Nitrobenzene-d5	10	8.09	81		30	150
		2-Fluorobiphenyl	10	8.07	81		45	105
		Terphenyl-d14	10	8.47	85		30	125
D1034-12MS	12SB41-000.5-01MS	Nitrobenzene-d5	10	8.47	85		30	150
		2-Fluorobiphenyl	10	8.42	84		45	105
		Terphenyl-d14	10	9.12	91		30	125
D1034-13MSD	12SB41-000.5-01MSD	Nitrobenzene-d5	10	7.56	76		30	150
		2-Fluorobiphenyl	10	6.43	64		45	105
		Terphenyl-d14	10	8.09	81		30	125
D1034-14	12SB42-0.502-02	Nitrobenzene-d5	10	7.77	78		30	150
		2-Fluorobiphenyl	10	7.68	77		45	105
		Terphenyl-d14	10	8.24	82		30	125
D1034-15	12SB43-0.502-02	Nitrobenzene-d5	10	8.30	83		30	150
		2-Fluorobiphenyl	10	8.21	82		45	105
		Terphenyl-d14	10	8.91	89		30	125
D1034-15DL	12SB43-0.502-02DL	Nitrobenzene-d5	10	7.90	79		30	150
		2-Fluorobiphenyl	10	8.30	83		45	105
		Terphenyl-d14	10	6.90	69		30	125
D1034-16	12SB44-0.502-02	Nitrobenzene-d5	10	8.44	84		30	150
		2-Fluorobiphenyl	10	8.28	83		45	105
		Terphenyl-d14	10	9.04	90		30	125
D1034-17	12SB-DUP01-010412	Nitrobenzene-d5	10	8.13	81		30	150
		2-Fluorobiphenyl	10	8.19	82		45	105
		Terphenyl-d14	10	8.85	89		30	125
D1034-17DL	12SB-DUP01-010412DL	Nitrobenzene-d5	10	8.30	83		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
D1034-17DL	12SB-DUP01-010412DL	2-Fluorobiphenyl	10	8.50	85		45	105
		Terphenyl-d14	10	4.80	48		30	125
PB60409B	PB60409B	Nitrobenzene-d5	10	8.52	85		30	150
		2-Fluorobiphenyl	10	8.29	83		45	105
		Terphenyl-d14	10	9.60	96		30	125
PB60409BS	PB60409BS	Nitrobenzene-d5	10	6.34	63		30	150
		2-Fluorobiphenyl	10	6.22	62		45	105
		Terphenyl-d14	10	6.49	65		30	125

CHEMTECH

Surrogate Summary

SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
D1034-19	RB-02-010412	Nitrobenzene-d5	10	6.80	68		40	110
		2-Fluorobiphenyl	10	6.78	68		50	110
		Terphenyl-d14	10	9.32	93		50	135
PB60573B	PB60573B	Nitrobenzene-d5	10	10.21	102		40	110
		2-Fluorobiphenyl	10	9.68	97		50	110
		Terphenyl-d14	10	12.08	121		50	135
PB60573BS	PB60573BS	Nitrobenzene-d5	10	7.89	79		40	110
		2-Fluorobiphenyl	10	7.59	76		50	110
		Terphenyl-d14	10	8.49	85		50	135
PB60573BSD	PB60573BSD	Nitrobenzene-d5	10	7.43	74		40	110
		2-Fluorobiphenyl	10	6.97	70		50	110
		Terphenyl-d14	10	8.05	81		50	135

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: D1034-12MS	**Client Sample ID: 12SB41-000.5-01MS**									
Naphthalene	460	4.1	400	86				23	160	
2-Methylnaphthalene	460	2.7	410	89				37	139	
Acenaphthylene	460	16	420	88				28	155	
Acenaphthene	460	12	430	91				32	146	
Fluorene	460	16	420	88				17	166	
Phenanthrene	460	270	620	76				30	149	
Anthracene	460	66	460	86				27	158	
Fluoranthene	460	700	1000	65				26	155	
Pyrene	460	570	920	76				22	173	
Benzo(a)anthracene	460	350	710	78				27	159	
Chrysene	460	350	720	80				23	166	
Benzo(b)fluoranthene	460	460	900	96				21	171	
Benzo(k)fluoranthene	460	170	600	93				26	165	
Benzo(a)pyrene	460	330	740	89				26	157	
Indeno(1,2,3-cd)pyrene	460	180	570	85				10	188	
Dibenz(a,h)anthracene	460	54	480	93				18	147	
Benzo(g,h,i)perylene	460	190	620	93				10	177	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: D1034-13MSD	**Client Sample ID: 12SB41-000.5-01MSD**									
Naphthalene	460	4.1	360	77		11		23	160	20
2-Methylnaphthalene	460	2.7	380	82		8		37	139	20
Acenaphthylene	460	16	380	79		11		28	155	20
Acenaphthene	460	12	380	80		13		32	146	20
Fluorene	460	16	370	77		13		17	166	20
Phenanthrene	460	270	540	59		25	*	30	149	20
Anthracene	460	66	400	73		16		27	158	20
Fluoranthene	460	700	850	33		65	*	26	155	20
Pyrene	460	570	780	46		49	*	22	173	20
Benzo(a)anthracene	460	350	610	57		31	*	27	159	20
Chrysene	460	350	610	57		34	*	23	166	20
Benzo(b)fluoranthene	460	460	700	52		59	*	21	171	20
Benzo(k)fluoranthene	460	170	540	80		15		26	165	20
Benzo(a)pyrene	460	330	610	61		37	*	26	157	20
Indeno(1,2,3-cd)pyrene	460	180	490	67		24	*	10	188	20
Dibenz(a,h)anthracene	460	54	410	77		19		18	147	20
Benzo(g,h,i)perylene	460	190	510	70		28	*	10	177	20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60409BS	Naphthalene	330	220	67				51	114	
	2-Methylnaphthalene	330	220	67				54	111	
	Acenaphthylene	330	230	70				54	113	
	Acenaphthene	330	220	67				54	113	
	Fluorene	330	230	70				56	113	
	Phenanthrene	330	220	67				56	113	
	Anthracene	330	230	70				56	113	
	Fluoranthene	330	220	67				54	117	
	Pyrene	330	210	64				58	117	
	Benzo(a)anthracene	330	220	67				57	112	
	Chrysene	330	220	67				59	114	
	Benzo(b)fluoranthene	330	230	70				53	120	
	Benzo(k)fluoranthene	330	220	67				56	117	
	Benzo(a)pyrene	330	230	70				56	117	
	Indeno(1,2,3-cd)pyrene	330	260	79				49	120	
	Dibenz(a,h)anthracene	330	250	76				52	119	
	Benzo(g,h,i)perylene	330	230	70				53	119	

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: D1034

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB60573BS	Naphthalene	10	8.0	80				42	115	
	2-Methylnaphthalene	10	8.4	84				20	150	
	Acenaphthylene	10	8.3	83				52	118	
	Acenaphthene	10	8.3	83				51	118	
	Fluorene	10	8.2	82				52	121	
	Phenanthrene	10	8.1	81				55	126	
	Anthracene	10	8.4	84				59	122	
	Fluoranthene	10	8.2	82				61	127	
	Pyrene	10	8.4	84				62	128	
	Benzo(a)anthracene	10	8.0	80				52	136	
	Chrysene	10	8.1	81				55	136	
	Benzo(b)fluoranthene	10	8.4	84				48	149	
	Benzo(k)fluoranthene	10	8.0	80				54	138	
	Benzo(a)pyrene	10	8.4	84				55	139	
	Indeno(1,2,3-cd)pyrene	10	10	100				10	145	
	Dibenz(a,h)anthracene	10	9.5	95				45	150	
	Benzo(g,h,i)perylene	10	8.9	89				54	138	
PB60573BSD	Naphthalene	10	7.6	76	5			42	115	20
	2-Methylnaphthalene	10	7.9	79	6			20	150	20
	Acenaphthylene	10	7.7	77	8			52	118	20
	Acenaphthene	10	7.8	78	6			51	118	20
	Fluorene	10	7.8	78	5			52	121	20
	Phenanthrene	10	7.8	78	4			55	126	20
	Anthracene	10	8.0	80	5			59	122	20
	Fluoranthene	10	7.9	79	4			61	127	20
	Pyrene	10	8.2	82	2			62	128	20
	Benzo(a)anthracene	10	7.9	79	1			52	136	20
	Chrysene	10	7.9	79	3			55	136	20
	Benzo(b)fluoranthene	10	8.1	81	4			48	149	20
	Benzo(k)fluoranthene	10	7.7	77	4			54	138	20
	Benzo(a)pyrene	10	8.1	81	4			55	139	20
	Indeno(1,2,3-cd)pyrene	10	10	100	0			10	145	20
	Dibenz(a,h)anthracene	10	9.3	93	2			45	150	20
	Benzo(g,h,i)perylene	10	8.6	86	3			54	138	20

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

EPA Sample No.: SSTD2.5 Date Analyzed: 01/12/2012

Lab File ID: BG002789.D Time Analyzed: 20:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	104181	7.78	437385	9.96	296863	12.93
	UPPER LIMIT	208362	8.28000	874770	10.46	593726	13.43
	LOWER LIMIT	52090.5	7.28	218692.5	9.46	148431.5	12.43
	EPA SAMPLE NO.						
01	12SB31-0.502-02	82036	7.78	348298	9.96	227175	12.93
02	12SB32-0.502-02	66028	7.77	288043	9.96	192541	12.93
03	12SB33-0.502-02	74775	7.78	275931	9.96	185935	12.93
04	12SB34-0.502-02	94618	7.78	360388	9.96	241166	12.93
05	12SB39-000.5-01	80133	7.78	292650	9.96	194559	12.93
06	12SB40-000.5-01	85974	7.78	322688	9.96	211688	12.93
07	12SB41-000.5-01	88630	7.78	326718	9.96	209715	12.93
08	12SB41-000.5-01MS	80900	7.78	335492	9.96	218310	12.93
09	12SB41-000.5-01MSD	79777	7.78	290354	9.96	222866	12.93
10	PB60409B	72230	7.78	304288	9.96	199309	12.93
11	PB60409BS	92750	7.78	338215	9.96	223257	12.93

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

EPA Sample No.: SSTD2.5 Date Analyzed: 01/13/2012

Lab File ID: BG002809.D Time Analyzed: 09:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	103072	7.78	426424	9.96	279560	12.93
	UPPER LIMIT	206144	8.28000	852848	10.46	559120	13.43
	LOWER LIMIT	51536	7.28	213212	9.46	139780	12.43
	EPA SAMPLE NO.						
01	12SB42-0.502-02	81265	7.78	336415	9.96	218342	12.93
02	12SB43-0.502-02	94567	7.78	343391	9.96	215069	12.93
03	12SB44-0.502-02	80110	7.77	296402	9.96	195938	12.93
04	12SB-DUP01-010412	75845	7.78	327279	9.96	215419	12.93
05	12SB31-0.502-02DL	65676	7.78	283288	9.96	185664	12.93
06	12SB39-000.5-01DL	68578	7.78	291685	9.96	191576	12.93
07	12SB40-000.5-01DL	70920	7.78	301716	9.96	198897	12.93
08	12SB43-0.502-02DL	78315	7.78	335806	9.96	216578	12.93
09	12SB-DUP01-010412DL	67629	7.78	291463	9.96	191255	12.93

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

EPA Sample No.: SSTD2.5 Date Analyzed: 01/13/2012

Lab File ID: BG002823.D Time Analyzed: 20:01

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	111801	7.75	406589	9.93	273964	12.9
	UPPER LIMIT	223602	8.25	813178	10.43	547928	13.4
	LOWER LIMIT	55900.5	7.25	203294.5	9.43	136982	12.4
	EPA SAMPLE NO.						
01	RB-02-010412	91054	7.75	344934	9.93	238089	12.91
02	PB60573B	83215	7.75	312581	9.93	218687	12.90
03	PB60573BS	90474	7.75	335835	9.93	225197	12.90
04	PB60573BSD	103103	7.75	381937	9.93	256016	12.90

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

EPA Sample No.: SSTD2.5 Date Analyzed: 01/12/2012

Lab File ID: BG002789.D Time Analyzed: 20:08

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	515103	15.38	497090	19.75	469084	22.69
	UPPER LIMIT	1030206	15.88	994180	20.25	938168	23.19
	LOWER LIMIT	257551.5	14.88	248545	19.25	234542	22.19
	EPA SAMPLE NO.						
01	12SB31-0.502-02	362229	15.39	327941	19.75	215213 *	22.70
02	12SB32-0.502-02	325218	15.38	307915	19.75	294356	22.69
03	12SB33-0.502-02	315223	15.38	314896	19.75	299276	22.69
04	12SB34-0.502-02	408260	15.38	379863	19.75	365028	22.69
05	12SB39-000.5-01	333270	15.38	333805	19.75	243425	22.70
06	12SB40-000.5-01	346810	15.38	334715	19.75	273043	22.70
07	12SB41-000.5-01	348939	15.38	344097	19.75	286814	22.70
08	12SB41-000.5-01MS	356205	15.38	345506	19.75	273746	22.70
09	12SB41-000.5-01MSD	366050	15.39	355789	19.75	295244	22.70
10	PB60409B	331175	15.39	324844	19.75	296803	22.70
11	PB60409BS	372294	15.38	373522	19.75	348337	22.70

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

EPA Sample No.: SSTD2.5 Date Analyzed: 01/13/2012

Lab File ID: BG002809.D Time Analyzed: 09:22

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	472444	15.38	475026	19.75	435158	22.7
	UPPER LIMIT	944888	15.88	950052	20.25	870316	23.2
	LOWER LIMIT	236222	14.88	237513	19.25	217579	22.2
	EPA SAMPLE NO.						
01	12SB42-0.502-02	362974	15.38	359257	19.75	337137	22.70
02	12SB43-0.502-02	346566	15.38	334664	19.76	226872	22.70
03	12SB44-0.502-02	323154	15.38	313550	19.75	263331	22.70
04	12SB-DUP01-010412	348421	15.39	336446	19.76	218342	22.70
05	12SB31-0.502-02DL	314609	15.38	310247	19.75	283485	22.70
06	12SB39-000.5-01DL	322774	15.38	321013	19.75	294545	22.70
07	12SB40-000.5-01DL	332711	15.38	327413	19.75	305749	22.70
08	12SB43-0.502-02DL	358495	15.38	352610	19.75	320209	22.70
09	12SB-DUP01-010412DL	325245	15.38	321851	19.75	296859	22.70

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG NO.: D1034

EPA Sample No.: SSTD2.5 Date Analyzed: 01/13/2012

Lab File ID: BG002823.D Time Analyzed: 20:01

Instrument ID: BNA_G GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	486920	15.35	428964	19.71	404375	22.63
	UPPER LIMIT	973840	15.85	857928	20.21	808750	23.13
	LOWER LIMIT	243460	14.85	214482	19.21	202187.5	22.13
	EPA SAMPLE NO.						
01	RB-02-010412	402632	15.35	365317	19.71	343025	22.62
02	PB60573B	372869	15.35	344224	19.71	316743	22.62
03	PB60573BS	383263	15.35	362050	19.71	334015	22.62
04	PB60573BSD	430195	15.35	399962	19.71	373587	22.62

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Internal Std Reference

Data Path : Z:\HPCHEM1\BNA_G\DATA\BG011212\
Data File : BG002789.D
Acq On : 12 Jan 2012 20:08
Operator : HNP
Sample : 2.5 PPM BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 13 03:50:39 2012
Quant Method : Z:\HPCHEM1\BNA_G\Method\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Thu Jan 12 02:11:08 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	5.000	5.000	0.0	79	-0.04
2	I	Naphthalene-d8	5.000	5.000	0.0	90	-0.04
3	S	Nitrobenzene-d5	2.500	2.154	13.8	83	-0.05
4		Naphthalene	2.500	2.351	6.0	87	-0.05
5		2-Methylnapthalene	2.500	2.383	4.7	88	-0.04
6		1-Methylnapthalene	2.500	2.401	4.0	90	-0.04
7	I	Acenaphthene-d10	5.000	5.000	0.0	89	-0.04
8	S	2-Fluorobiphenyl	2.500	2.380	4.8	88	-0.04
9		Acenaphthylene	2.500	2.393	4.3	88	-0.04
.0		Acenaphthene	2.500	2.238	10.5	85	-0.03
.1		Fluorene	2.500	2.353	5.9	87	-0.04
.2	I	Phenanthrene-d10	5.000	5.000	0.0	89	-0.04
.3		Phenanthrene	2.500	2.320	7.2	86	-0.04
.4		Anthracene	2.500	2.364	5.4	86	-0.04
.5		Fluoranthene	2.500	2.285	8.6	83	-0.04
.6	I	Chrysene-d12	5.000	5.000	0.0	86	-0.04
.7		Pyrene	2.500	2.335	6.6	83	-0.04
.8	S	Terphenyl-d14	2.500	2.272	9.1	83	-0.04
.9		Benzo(a)anthracene	2.500	2.291	8.4	83	-0.03
:0		Chrysene	2.500	2.344	6.2	83	-0.03
:1		Indeno(1,2,3-cd)pyrene	2.500	3.019	-20.8#	102	-0.10
:2	I	Perylene-d12	5.000	5.000	0.0	94	-0.07
:3		Benzo(b)fluoranthene	2.500	2.234	10.6	91	-0.06
:4		Benzo(k)fluoranthene	2.500	2.304	7.8	90	-0.06
:5		Benzo(a)pyrene	2.500	2.318	7.3	92	-0.06
:6		Dibenzo(a,h)anthracene	2.500	2.743	-9.7	101	-0.10
:7		Benzo(g,h,i)perylene	2.500	2.713	-8.5	101	-0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0

TETRA TECH **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT	JOB NUMBER		
NASJRB Willow Grove	SDG D1034		
SUBJECT: Sample Calculation			
BASED ON	DRAWING NUMBER		
BY: Ann Cognetti	CHECKED BY	APPROVED BY	DATE: February 23, 2012

Sample 12SB31-0.502-02, fluoranthene

$$\frac{5052246}{314609} * 10 * \frac{1\,L}{30.04\,g} * \frac{5}{5.039} * \frac{1}{0.81} * 1000 = 6548.7\ ug/kg$$

Sample Calculation

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB31-0.502-02DL	SDG No.:	D1034
Lab Sample ID:	D1034-01DL	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	19
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIM
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG002814.D	10	01/05/12	01/13/12	PB60409

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	45	D	4.9	41	ug/Kg
208-96-8	Acenaphthylene	160	D	4.9	41	ug/Kg
83-32-9	Acenaphthene	220	D	4.9	41	ug/Kg
86-73-7	Fluorene	460	D	4.9	41	ug/Kg
85-01-8	Phenanthrene	5600	D	4.9	41	ug/Kg
120-12-7	Anthracene	340	D	4.9	41	ug/Kg
206-44-0	Fluoranthene	6500	D	4.9	41	ug/Kg
129-00-0	Pyrene	4600	D	4.9	41	ug/Kg
56-55-3	Benzo(a)anthracene	1500	D	4.9	41	ug/Kg
218-01-9	Chrysene	2400	D	4.9	41	ug/Kg
205-99-2	Benzo(b)fluoranthene	2800	D	4.9	41	ug/Kg
207-08-9	Benzo(k)fluoranthene	1000	D	4.9	41	ug/Kg
50-32-8	Benzo(a)pyrene	1800	D	4.9	41	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1300	D	4.9	41	ug/Kg
53-70-3	Dibenz(a,h)anthracene	300	D	4.9	41	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1100	D	4.9	41	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.4		30 - 150	84%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.9		45 - 105	89%	SPK: 10
1718-51-0	Terphenyl-d14	5.4		30 - 125	54%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	65676	7.78			
1146-65-2	Naphthalene-d8	283288	9.96			
15067-26-2	Acenaphthene-d10	185664	12.93			
1517-22-2	Phenanthrene-d10	314609	15.38			
1719-03-5	Chrysene-d12	310247	19.75			
1520-96-3	Perylene-d12	283485	22.7			

Data Path : \\TSCLIENT\Z\HPCHEM1\BNA G\DATA\BG011212\
Data File : BG002814.D
Acq On : 13 Jan 2012 12:38
Operator : HNP
Sample : D1034-01DL 10X
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jan 13 13:51:28 2012
Quant Method : \\TSCLIENT\Z\HPCHEM1\BNA G\METHOD\SIMPAH-BG011012.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Fri Jan 13 12:33:32 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.78	152	65676	5.00	ng		-0.04
2) Naphthalene-d8	9.96	136	283288	5.00	ng		-0.04
7) Acenaphthene-d10	12.93	164	185664	5.00	ng		-0.04
12) Phenanthrene-d10	15.38	188	314609	5.00	ng		-0.04
16) Chrysene-d12	19.75	240	310247	5.00	ng		-0.04
22) Perylene-d12	22.70	264	283485	5.00	ng		-0.06
System Monitoring Compounds							
3) Nitrobenzene-d5	8.71	82	17555	0.84	ng		-0.05
8) 2-Fluorobiphenyl	11.81	172	48009	0.89	ng		-0.04
18) Terphenyl-d14	18.01	244	41942	0.54	ng		-0.04
Target Compounds							Qvalue
4) Naphthalene	9.99	128	26274	0.11	ng		99
5) 2-Methylnapthalene	11.18	142	15751	0.09	ng		98
6) 1-Methylnapthalene	11.35	142	20963	0.13	ng		99
9) Acenaphthylene	12.69	152	92049	0.38	ng		99
10) Acenaphthene	12.99	154	21666	0.53	ng		97
11) Fluorene	13.84	166	56297	1.13	ng		98
13) Phenanthrene	15.42	178	3900274	13.67	ng		99
14) Anthracene	15.50	178	231473	0.82	ng		99
15) Fluoranthene	17.39	202	5052246	15.93	ng		98
17) Pyrene	17.76	202	3696510	11.11	ng		97
19) Benzo(a)anthracene	19.79	228	1643691	5.45	ng		93
20) Chrysene	19.79	228	1643691	5.80	ng		96
21) Indeno(1,2,3-cd)pyrene	26.07	276	680821	3.07	ng	#	91
23) Benzo(b)fluoranthene	21.77	252	4436704	6.83	ng	#	97
24) Benzo(k)fluoranthene	21.77	252	4436704	6.86	ng	#	97
25) Benzo(a)pyrene	22.55	252	2675921	4.40	ng		98
26) Dibenzo(a,h)anthracene	26.15	278	36402	0.73	ng		99
27) Benzo(g,h,i)perylene	27.12	276	560215	2.77	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1034 SAS No.: D1034 SDG No.: D1034

Instrument ID: BNA_G Calibration Date(s): 01/10/2012 01/10/2012

Calibration Time(s): 14:55 17:31

LAB FILE ID: RRF0.1 = BG002714.D RRF0.5 = BG002715.D RRF2.5 = BG002716.D
RRF010 = BG002717.D RRF025 = BG002718.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF010	RRF025	RRF	RRF	% RSD
Naphthalene	4.697	4.720	4.145	4.193	3.516		4.255	11.6
Acenaphthylene	6.915	7.128	6.256	6.553	5.495		6.469	9.9
Acenaphthene	1.271	1.173	1.022	1.064	0.948		1.096	11.6
Fluorene	1.436	1.482	1.287	1.362	1.135		1.340	10.2
Phenanthrene	5.118	4.988	4.352	4.481	3.726		4.533	12.3
Anthracene	4.799	4.894	4.433	4.584	3.828		4.508	9.3
Fluoranthene	5.433	5.520	4.934	5.135	4.175		5.039	10.7
Pyrene	5.997	5.852	5.148	5.361	4.460		5.364	11.4
Benzo(a)anthracene	5.705	5.293	4.590	4.702	4.034		4.865	13.3
Chrysene	5.164	5.026	4.435	4.460	3.749		4.567	12.3
Benzo(b)fluoranthene	12.086	11.779	10.600	11.665	11.144		11.455	5.1
Benzo(k)fluoranthene	11.485	12.268	11.055	11.921	10.344		11.415	6.6
Benzo(a)pyrene	11.048	11.125	10.189	11.182	10.136		10.736	4.9
Indeno(1,2,3-cd)pyrene	3.533	3.731	3.640	3.853	3.100		3.571	8.1
Dibenzo(a,h)anthracene	0.836	0.899	0.897	0.955	0.789		0.875	7.3
Benzo(g,h,i)perylene	3.793	3.740	3.608	3.591	3.073		3.561	8.0
Nitrobenzene-d5	0.380	0.375	0.346	0.382	0.353		0.367	4.5
2-Fluorobiphenyl	1.596	1.581	1.387	1.452	1.223		1.448	10.6
Terphenyl-d14	1.162	1.059	0.751	0.775	0.664		0.882	24.5

All other compounds must meet a minimum RRF of 0.010.

Tetra Tech **INTERNAL CORRESPONDENCE**

TO:	**A. FREBOWITZ**	**DATE:**	**March 8, 2012**
FROM:	**MEGAN CARSON**	**COPIES:**	**DV FILE**
SUBJECT:	**INORGANIC DATA VALIDATION –LEAD NASJRB WILLOW GROVE, CTO WE05 SAMPLE DELIVERY GROUP (SDG) – D1034**		

SAMPLES: 5/Soil/

12SB-DUP02-010412	12SB35-000.5-01	12SB36-000.5-01
12SB37-000.5-01	12SB38-000.5-01	

1/Water/
RB-02-010412

Overview

The sample set for NASJRB Willow Grove, SDG D1034, consists of five (5) soil environmental samples and one (1) rinsate blank. This SDG contained one field duplicate pair: 12SB-DUP02-010412/12SB35-000.5-01.

All samples were analyzed for lead. The samples were collected by Tetra Tech on January 4th, 2012 and analyzed by Chemtech. Metals analyses were conducted using method 6010.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, initial and continuing calibration data, laboratory method / preparation blank analyses, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- No minor problems were noted.

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

The CRDL standard analyzed on 1/06/12 had a percent recovery >110% for lead. Sample RB-02-010412 was affected. No validation action was warranted as sample result was non-detected.

The CRDL standard analyzed on 1/09/12 had a percent recovery <90% for lead. Samples 12SB-DUP02-010412 , 12SB35-000.5-01, 12SB36-000.5-01, 12SB37-000.5-01, and 12SB38-000.5-01 were affected. No validation action was warranted as sample results were greater than 2X LOQ.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12SB35-000.5-01			12SB36-000.5-01			12SB37-000.5-01			12SB38-000.5-01		
SDG: D1034	LAB_ID	D1034-05			D1034-06			D1034-07			D1034-08		
FRACTION: M	SAMP_DATE	1/4/2012			1/4/2012			1/4/2012			1/4/2012		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	63.2			70.1			79.0			79.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LEAD		138			295			51.5			67.9		

PROJ_NO: 02014	NSAMPLE	12SB-DUP02-010412		
SDG: D1034	LAB_ID	D1034-18		
FRACTION: M	SAMP_DATE	1/4/2012		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	61.6		
	DUP_OF	12SB35-000.5-01		
PARAMETER		RESULT	VQL	QLCD
LEAD		107		

PROJ_NO: 02014	NSAMPLE	RB-02-010412		
SDG: D1034	LAB_ID	D1034-19		
FRACTION: M	SAMP_DATE	1/4/2012		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	100.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
LEAD		3	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	RB-02-010412	SDG No.:	LB58762
Lab Sample ID:	D1034-19	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	3	U	1	2.6	6	ug/L	01/06/12	01/09/12	SW6010B

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB-DUP02-010412	SDG No.:	LB58729
Lab Sample ID:	D1034-18	Matrix:	SOIL
Level (low/med):	low	% Solid:	61.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	107		1	0.161	0.805	mg/Kg	01/06/12	01/06/12	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB35-000.5-1	SDG No.:	LB58729
Lab Sample ID:	D1034-05	Matrix:	SOIL
Level (low/med):	low	% Solid:	63.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	138		1	0.19	0.949	mg/Kg	01/06/12	01/06/12	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB36-000.5-1	SDG No.:	LB58729
Lab Sample ID:	D1034-06	Matrix:	SOIL
Level (low/med):	low	% Solid:	70.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	295		1	0.171	0.856	mg/Kg	01/06/12	01/06/12	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB37-000.5-1	SDG No.:	LB58729
Lab Sample ID:	D1034-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	79

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	51.5		1	0.133	0.666	mg/Kg	01/06/12	01/06/12	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/04/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	01/05/12
Client Sample ID:	12SB38-000.5-1	SDG No.:	LB58729
Lab Sample ID:	D1034-08	Matrix:	SOIL
Level (low/med):	low	% Solid:	79.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	67.9		1	0.146	0.73	mg/Kg	01/06/12	01/06/12	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	No
Comments:	Metals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1034
QUOTE NO.
COC Number 021239

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 283 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 5
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 283 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH SIM 8oz Glass
2 Lead Only 4oz Glass
3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB31-0.5-0.5-02	Soil		✓	1/4/12	0935		1									
2.	12SB32-0.5-0.5-02	Soil		✓	1/4/12	0955		1									
3.	12SB33-0.5-0.5-02	Soil		✓	1/4/12	1010		1									
4.	12SB34-0.5-0.5-02	Soil		✓	1/4/12	1020		1									
5.	12SB35-0.0-0.5-01	Soil		✓	1/4/12	1100			1								
6.	12SB36-0.0-0.5-01	Soil		✓	1/4/12	1110			1								
7.	12SB37-0.0-0.5-01	Soil		✓	1/4/12	1115			1								
8.	12SB38-0.0-0.5-01	Soil		✓	1/4/12	1120			1								
9.	12SB39-0.0-0.5-01	Soil		✓	1/4/12	1140		1									
10.	12SB40-0.0-0.5-01	Soil		✓	1/4/12	1145		1									

PRESERVATIVES — ← Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	1/4/12 1730	
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fedex	1/5/12 9:20	3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revised 3/2011 D1034 Sheet

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1034
QUOTE NO.
COC Number 021241

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 6104919645

CLIENT PROJECT INFORMATION
PROJECT NAME: NASJRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 1 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS
1 PAH Sim 8oz Glass
2 Lead Only 4oz Glass
3 PAH Sim Liter Glass
4 Lead Only 500ml poly HNO3
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
11,12,13.	12SB41-000.5-01	Soil		✓	1/4/12	1150		2									Do MS/MSD
14.	12SB42-0.5-02	Soil		✓	1/4/12	1225		1									
15.	12SB43-0.5-02	Soil		✓	1/4/12	1250		1									
16.	12SB44-0.5-02	Soil		✓	1/4/12	1305		1									
17.	12SB-DUP01-010412	Soil		✓	1/4/12	1200		1									
18.	12SB-DUP02-010412	Soil		✓	1/4/12	1300			1								
19.	RB-02-010412	Aq		✓	1/4/12	1600				X	1						
8.																	
9.																	
10.																	

PRESERVATIVES — Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	1/4/12 1730	1.
RELINQUISHED BY 2. [signature]	DATE/TIME	RECEIVED BY 2.
RELINQUISHED BY 3. Fedex	DATE/TIME 1/5/12 9:20	RECEIVED FOR LAB BY 3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4-oz jar for percent solid.
Comments:

Cooler Temp. 4.0°C
Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revised 4/07 D1034 SheaC

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Project Manger : Andy Frebowitz
Chemtech Project # D1034
Test Name: Metals Group3

A. Number of Samples and Date of Receipt:
18 Solid samples were received on 01/05/2012.
1 Water sample was received on 01/05/2012.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Metals Group3, SVOC-SIM and SVOC-SIMGroup1. This data package contains results for Metals Group3.

C. Analytical Techniques:
The analysis of Metals Group3 was based on method 6010B and digestion based on method 3050 (soils) and 3010 (waters).

D. QA/ QC Samples:
The Holding Times were met for all analysis.

The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_ Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor 2012.01.26 12:32:59 -05'00'

NASJRB WILLOW GROVE
SOIL DATA
D1034

FRACTION	CHEMICAL	12SB-DUP02-010412	UNITS	12SB35-000.5-01	RPD	D
M	LEAD	107	MG/KG	138	25.31	31.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

ample Name: D1034-06 Acquired: 1/6/2012 14:46:59 Type: Unk
ethod: ICP P5(v57) Mode: CONC Corr. Factor: 1.000000
ser: admin Custom ID1: Custom ID2: Custom ID3:
omment:

12SB36-000.5-01

lem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
nits	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vg	.0738188	-.001945	2.069742	.0096347	.0248529	54.76159	.5706954
tddev	.0016646	.000667	.001562	.0001790	.0009274	.09622	.0029570
RSD	2.254989	34.28767	.0754545	1.857799	3.731386	.1757103	.5181394
l	.0749958	-.002416	2.068638	.0097612	.0255086	54.82963	.5727863
2	.0726417	-.001473	2.070846	.0095081	.0241971	54.69355	.5686045

lem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
nits	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vg	.0047675	.0122115	10.68979	.1033646	.0464722	.0939426	103.9820
tddev	.0001375	.0000805	.03367	.0002019	.0000527	.0000333	.0928
RSD	2.883756	.6593263	.3149881	.1953150	.1133230	.0354074	.0892666
l	.0048647	.0122685	10.71359	.1035074	.0465094	.0939662	103.9164
2	.0046703	.0121546	10.66598	.1032219	.0464349	.0939191	104.0477

lem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
nits	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vg	2.825402	9.288885	.0657421	-.002826	.8188713	.1709623	.5455638
tddev	.001363	.041773	.0005427	.000030	.0126979	.0002809	.0029760
RSD	.0482496	.4497149	.8255319	1.066225	1.550654	.1643001	.5454899
l	2.826366	9.318423	.0653583	-.002804	.8098926	.1711609	.5476682
2	2.824438	9.259346	.0661258	-.002847	.8278501	.1707637	.5434594

lem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
nits	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vg	3.092986	2.515732	-.005977	.0050264	1.396712	5.789464	-.000954
tddev	.029110	.006473	.000619	.0001236	.000980	.002678	.001093
RSD	.9411764	.2572916	10.36430	2.459383	.0701818	.0462542	114.5174
l	3.072402	2.520309	-.006415	.0051138	1.397405	5.787570	-.001727
2	3.113571	2.511155	-.005539	.0049390	1.396019	5.791357	-.000182

$$2.088742\frac{mg}{L} \times \frac{0.1L}{1.0g} \times \frac{1000g}{1Kg} \times \frac{1}{0.701905} = 295.2\frac{mg}{Kg}$$

Reported as 295mg/kg

From: Frebowitz, Andy [Andy.Frebowitz@tetratech.com]
Sent: Friday, January 06, 2012 12:47 AM
To: Elizabeth Griffiths
Subject: RE: D1034

Elizabeth- the jars are right on all the ones listed below.

Sorry for any confusion-

Andy

From: Elizabeth Griffiths [mailto:egriffiths@chemtech.net]
Sent: Thursday, January 05, 2012 2:13 PM
To: Frebowitz, Andy
Subject: D1034

HI Andy,

Please see below

12SB35-0.502-01 - 12SB35-000.5-01 on jars

12SB36-0.502-01 - 12SB36-000.5-01 on jars

12SB37-0.502-01 - 12SB37-000.5-01 on jars

12SB38-0.502-01 - 12SB38-000.5-01 on jars

12SB39-0.502-01 - 12SB39-000.5-01 on jars

12SB40-0.502-01 - 12SB40-000.5-01 on jars

12SB41-0.502-01 - 12SB41-000.5-01 on jars

Which IDs to follow?

Thanks!

Elizabeth Griffiths
Project Manager
CHEMTECH
284 Sheffield St | Mountainside, NJ 07092
7210 Corporate Court | Frederick, MD 21703
NJ Direct: 908-728-3145 | MD Direct: 240-215-4321
egriffiths@chemtech.net | www.chemtech.net

HOLDTIME

SDG D1034

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12SB36-000.5-01	D1034-06	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB37-000.5-01	D1034-07	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB38-000.5-01	D1034-08	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB-DUP02-010412	D1034-18	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	MG/KG	12SB35-000.5-01	D1034-05	NM	1/4/2012	1/6/2012	1/6/2012	2	0	2
M	UG/L	RB-02-010412	D1034-19	NM	1/4/2012	1/6/2012	1/9/2012	2	3	5
SIM	UG/KG	12SB39-000.5-01	D1034-09DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB31-0.502-02	D1034-01	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB31-0.502-02	D1034-01DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB32-0.502-02	D1034-02	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB33-0.502-02	D1034-03	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB39-000.5-01	D1034-09	NM	1/4/2012	1/5/2012	1/12/2012	1	7	8
SIM	UG/KG	12SB40-000.5-01	D1034-10	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB40-000.5-01	D1034-10DL	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9
SIM	UG/KG	12SB41-000.5-01	D1034-11	NM	1/4/2012	1/5/2012	1/13/2012	1	8	9

CHEMTECH

Metals

- 10 -

METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Instrument ID: P5 **Date:** 02/14/2009 **Preparation Method:**

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Lead	220.35	2.60	6.0	

Analyte	Wave- length (nm)	MDL mg/Kg	CRQL mg/Kg	Date: 02/14/2009
Lead	220.35	0.12	0.60	

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Method:** P

Case No.: D1034 **SAS No.:** D1034

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60413**						
D1034-05	12SB35-000.5-1	SAM	SOIL	01/06/2012	1.00	100.0	63.20
D1034-05D	12SB35-000.5-1D	DUP	SOIL	01/06/2012	1.00	100.0	63.20
D1034-05S	12SB35-000.5-1S	MS	SOIL	01/06/2012	1.00	100.0	63.20
D1034-05SD	12SB35-000.5-1SD	MSD	SOIL	01/06/2012	1.00	100.0	63.20
D1034-06	12SB36-000.5-1	SAM	SOIL	01/06/2012	1.00	100.0	70.10
D1034-07	12SB37-000.5-1	SAM	SOIL	01/06/2012	1.14	100.0	79.00
D1034-08	12SB38-000.5-1	SAM	SOIL	01/06/2012	1.03	100.0	79.80
D1034-18	12SB-DUP02-010412	SAM	SOIL	01/06/2012	1.21	100.0	61.60
PB60413BL	PB60413BL	MB	SOIL	01/06/2012	1.00	100.0	100.00
PB60413BS	PB60413BS	LCS	SOIL	01/06/2012	1.00	100.0	100.00

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Method:** P

Case No.: D1034 **SAS No.:** D1034

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB60422**						
D1034-19	RB-02-010412	SAM	WATER	01/06/2012	50.0	50.0	
PB60422BL	PB60422BL	MB	WATER	01/06/2012	50.0	50.0	
PB60422BS	PB60422BS	LCS	WATER	01/06/2012	50.0	50.0	

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Instrument: P5

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB60413BL		**SOIL**		**Batch Number:**		**PB60413**		**Prep Date:**	**01/06/2012**	
	Lead	0.120	<0.600	U	0.120	0.600	P	01/06/2012	14:11	LB58729
PB60422BL		**WATER**		**Batch Number:**		**PB60422**		**Prep Date:**	**01/06/2012**	
	Lead	2.600	<6.000	U	2.600	6.000	P	01/09/2012	16:56	LB58762

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Matrix: SOIL **Sample ID:** D1034-05 **Client ID:** 12SB35-000.5-1S

Percent Solids for Sample: 63.2 **Spiked ID:** D1034-05S **Percent Solids for Spike Sample:** 63.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	mg/Kg	66 - 125	286.9576		138.1605		158.23	94.0		P

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Matrix: SOIL **Sample ID:** D1034-05 **Client ID:** 12SB35-000.5-1SD

Percent Solids for Sample: 63.2 **Spiked ID:** D1034-05SD **Percent Solids for Spike Sample:** 63.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	mg/Kg	66 - 125	284.3349		138.1605		158.23	92.4		P

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Matrix: SOIL **Sample ID:** D1034-05 **Client ID:** 12SB35-000.5-1D

Percent Solids for Sample: 63.2 **Duplicate ID** D1034-05D **Percent Solids for Spike Sample:** 63.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Lead	mg/Kg	20	138.1605		138.2925		0.1		P

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Matrix: SOIL **Sample ID:** D1034-05 **Client ID:** 12SB35-000.5-1SD

Percent Solids for Sample: 63.2 **Duplicate ID** D1034-05SD **Percent Solids for Spike Sample:** 63.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Lead	mg/Kg	20	286.9576		284.3349		0.9		P

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60413BS							
Lead	mg/Kg	100.0	98.4		98.4	82 - 117	P

CHEMTECH

Metals
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LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB60422BS							
Lead	ug/L	1000.0	973.13		97.3	83 - 119	P

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12SB35-000.5-1L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1034 **SAS No.:** D1034 **SDG No.:** D1034

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Lead	873.17		897.26		2.8		P

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1034 **SAS No.:** D1034 **SDG No.:** D1034

Instrument ID Number: P5 **Method:** P **Run Number:** LB58729

Start Date: 01/06/2012 **End Date:** 01/06/2012

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1145													X											
S1	1	1148													X											
S2	1	1150																								
S3	1	1153													X											
S4	1	1156													X											
S5	1	1159													X											
ICV01	1	1201													X											
ICB01	1	1204													X											
CRI01	1	1207													X											
CRI02	1	1210																								
ICSA01	1	1212													X											
ICSAB01	1	1215													X											
CCV01	1	1218													X											
CCB01	1	1221													X											
CCV02	1	1251													X											
CCB02	1	1254													X											
CCV03	1	1324													X											
CCB03	1	1327													X											
CCV04	1	1357													X											
CCB04	1	1400													X											
PB60413BL	1	1411													X											
PB60413BS	1	1414													X											
12SB35-000.5-1	1	1425													X											
12SB35-000.5-1D	1	1427													X											
CCV05	1	1430													X											
CCB05	1	1433													X											
12SB35-000.5-1L	5	1436													X											
12SB35-000.5-1S	1	1438													X											
12SB35-000.5-1SD	1	1441													X											
12SB35-000.5-1A	1	1444																								
12SB36-000.5-1	1	1446													X											
12SB37-000.5-1	1	1449													X											
12SB38-000.5-1	1	1452													X											
12SB-DUP02-010412	1	1455													X											
CCV06	1	1457													X											
CCB06	1	1500													X											
CCV07	1	1520													X											
CCB07	1	1523													X											

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1034 **SAS No.:** D1034 **SDG No.:** D1034

Instrument ID Number: P5 **Method:** P **Run Number:** LB58762

Start Date: 01/09/2012 **End Date:** 01/09/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1247													X											
S1	1	1250													X											
S2	1	1253																								
S3	1	1256													X											
S4	1	1258													X											
S5	1	1301													X											
ICV01	1	1304													X											
ICB01	1	1306													X											
CRI01	1	1309													X											
CRI02	1	1312																								
ICSA01	1	1315													X											
ICSAB01	1	1318													X											
CCV01	1	1320													X											
CCB01	1	1323													X											
CCV02	1	1354													X											
CCB02	1	1356													X											
CCV03	1	1408													X											
CCB03	1	1410													X											
CCV04	1	1512													X											
CCB04	1	1514													X											
CCV05	1	1544													X											
CCB05	1	1547													X											
CCV06	1	1618													X											
CCB06	1	1620													X											
CCV07	1	1651													X											
CCB07	1	1654													X											
PB60422BL	1	1656													X											
PB60422BS	1	1659													X											
CCV08	1	1755													X											
CCB08	1	1758													X											
CCV09	1	1823													X											
CCB09	1	1825													X											
RB-02-010412	1	1851													X											
CCV10	1	1856													X											
CCB10	1	1859													X											
CCV11	1	1933													X											
CCB11	1	1935													X											
CCV12	1	2003													X											
CCB12	1	2006													X											
CCV13	1	2033													X											
CCB13	1	2036													X											

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Lead	990.74	1002.0	98.9	90 - 110	P	01/06/2012	12:01	LB58729
CCV01	Lead	4999.89	5000.0	100.0	90 - 110	P	01/06/2012	12:18	LB58729
CCV02	Lead	5018.34	5000.0	100.4	90 - 110	P	01/06/2012	12:51	LB58729
CCV03	Lead	5041.20	5000.0	100.8	90 - 110	P	01/06/2012	13:24	LB58729
CCV04	Lead	5096.88	5000.0	101.9	90 - 110	P	01/06/2012	13:57	LB58729
CCV05	Lead	5079.48	5000.0	101.6	90 - 110	P	01/06/2012	14:30	LB58729
CCV06	Lead	5095.92	5000.0	101.9	90 - 110	P	01/06/2012	14:57	LB58729
CCV07	Lead	5017.34	5000.0	100.3	90 - 110	P	01/06/2012	15:20	LB58729
ICV01	Lead	979.62	1002.0	97.8	90 - 110	P	01/09/2012	13:04	LB58762
CCV01	Lead	5064.42	5000.0	101.3	90 - 110	P	01/09/2012	13:20	LB58762
CCV02	Lead	5054.10	5000.0	101.1	90 - 110	P	01/09/2012	13:54	LB58762
CCV03	Lead	5049.51	5000.0	101.0	90 - 110	P	01/09/2012	14:08	LB58762
CCV04	Lead	5113.67	5000.0	102.3	90 - 110	P	01/09/2012	15:12	LB58762
CCV05	Lead	5067.84	5000.0	101.4	90 - 110	P	01/09/2012	15:44	LB58762
CCV06	Lead	5063.01	5000.0	101.3	90 - 110	P	01/09/2012	16:18	LB58762
CCV07	Lead	5070.14	5000.0	101.4	90 - 110	P	01/09/2012	16:51	LB58762
CCV08	Lead	4990.50	5000.0	99.8	90 - 110	P	01/09/2012	17:55	LB58762
CCV09	Lead	5043.36	5000.0	100.9	90 - 110	P	01/09/2012	18:23	LB58762
CCV10	Lead	5012.83	5000.0	100.3	90 - 110	P	01/09/2012	18:56	LB58762
CCV11	Lead	5155.70	5000.0	103.1	90 - 110	P	01/09/2012	19:33	LB58762
CCV12	Lead	4994.83	5000.0	99.9	90 - 110	P	01/09/2012	20:03	LB58762
CCV13	Lead	5033.87	5000.0	100.7	90 - 110	P	01/09/2012	20:33	LB58762

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Initial Calibration Source:

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Lead	7.58	6.0	126.3	50 - 150	P	01/06/2012	12:07	LB58729
CRI01	Lead	5.24	6.0	87.3	50 - 150	P	01/09/2012	13:09	LB58762

CHEMTECH

Metals
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INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

ICS Source: EPA **Instrument ID:** P5

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Lead	12.1				01/06/2012	12:12	LB58729
ICSAB01	Lead	60.1	61	98.5	80 - 120%	01/06/2012	12:15	LB58729
ICSA01	Lead	8.3				01/09/2012	13:15	LB58762
ICSAB01	Lead	59.0	61	96.7	80 - 120%	01/09/2012	13:18	LB58762

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1034

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1034 **SAS No.:** D1034

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	12:04	LB58729
CCB01	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	12:21	LB58729
CCB02	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	12:54	LB58729
CCB03	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	13:27	LB58729
CCB04	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	14:00	LB58729
CCB05	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	14:33	LB58729
CCB06	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	15:00	LB58729
CCB07	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/06/2012	15:23	LB58729
ICB01	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	13:06	LB58762
CCB01	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	13:23	LB58762
CCB02	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	13:56	LB58762
CCB03	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	14:10	LB58762
CCB04	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	15:14	LB58762
CCB05	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	15:47	LB58762
CCB06	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	16:20	LB58762
CCB07	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	16:54	LB58762
CCB08	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	17:58	LB58762
CCB09	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	18:25	LB58762
CCB10	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	18:59	LB58762
CCB11	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	19:35	LB58762
CCB12	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	20:06	LB58762
CCB13	Lead	2.6	+/-6.0	U	2.6	6.0	P	01/09/2012	20:36	LB58762

Tetra Tech INC **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **APRIL 23, 2012**

FROM: **J. KALINYAK** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION - VOC / SVOC / PAH / PEST / PCB**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) D1768

SAMPLES: 19 / Aqueous / VOC

02MW01I	02MW01S	02MW02S
02MW03I	02MW03SI	02MW04I
02MW04S	12GW-DUP01	12GW-DUP02
12MW010	12MW01S	12MW020
12MW02S	12MW030	12MW03S
12MW040	12MW04S	12RB01
TRIPBLANK		

10 / Aqueous / SVOC / PAH / PEST / PCB

12GW-DUP01	12MW010	12MW01S
12MW020	12MW02S	12MW030
12MW03S	12MW040	12MW04S
12RB01		

Overview

The sample set for NASJRB Willow Grove, CTO WE05, SDG D1768 consisted of nineteen (19) aqueous samples including one (1) aqueous trip blank sample and one (1) rinse blank sample. All nineteen aqueous samples were analyzed for volatile organic compounds (VOC). Ten (10) of the samples were analyzed for semi-volatile organic compounds (SVOC), for polynuclear aromatic hydrocarbons (PAH), pesticides (PEST), and polychlorinated biphenyls (PCB) as listed above. Two (2) field duplicate sample pairs were included in the sample delivery group (SDG): 12GW-DUP01 / 12MW03S and 12GW-DUP02 / 12MW02S.

The samples were collected by Tetra Tech on March 6, 7, and 8, 2012 and analyzed by Chemtech Environmental Services, Inc. All analyses were conducted in accordance with EPA SW-846 Methods 8260B for VOCs, 8270D Full Scan for SVOCs, 8270D Selected Ion Monitoring (SIM) for PAHs, 8082A for PCBs, and 8081B for PEST, analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, matrix spike/matrix spike duplicate results, internal standard recoveries, field duplicate precision chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major Problems

- The VOC initial calibration average relative response factor (RRF) was less than the 0.05 the quality control limit for 1,4-dioxane on instrument MSVOAG on 03/05/12 and on instrument MSVOA_R on 03/07/12. All of the continuing calibration verification (CCV) RRFs for both instruments were also less than the 0.05 quality control limit.
  Affected Samples: All samples
  Action: The sample non-detected results for 1,4-dioxane were qualified rejected, (UR).

Minor Problems

- The VOC CCV percent differences (%Ds) were greater than 20% and greater than the 50% quality control limit for tetrachloroethene for instrument MSVOA_R on 03/09/12 @ 23:49 for samples as listed below.

  Affected Samples:

12GW-DUP01	12GW-DUP02	12MW02S
12MW030	12MW03S	12MW040
12MW04S	12RB01	TRIPBLANK

  Action: The non-detected tetrachloroethene sample results were qualified estimated, (UJ).

- The VOC batch VBG0309W1 laboratory control sample (LCS) percent recoveries (%Rs) were less than the quality control limit for 1,2,3-trichlorobenzene and 1,4-dioxane.

  Affected samples:

02MW01I	02MW01S	02MW02S
02MW03I	02MW03SI	02MW04I
02MW04S	12MW010	12MW01S
12MW020		

  Action: The sample 1,2,3-trichlorobenzene non-detected results were qualified estimated, (UJ). The 1,4-dioxane non-detected sample results were rejected for the criteria non-compliance and no further validation action was necessary.

- The VOC batch VBG0309W1 LCS %Rs were less than the quality control limit for 1,2,3-trichlorobenzene and 1,4-dioxane and the %R for tetrachloroethene was greater than the quality control limit.

  Affected samples:

12GW-DUP01	12GW-DUP02	12MW02S
12MW030	12MW03S	12MW040
12MW04S	12RB01	TRIPBLANK

  Action: The sample 1,2,3-trichlorobenzene non-detected results were qualified estimated, (UJ). The 1,4-dioxane non-detected sample results were rejected for the criteria non-compliance and no further validation action was necessary. The sample tetrachloroethene results were non-detected and were not qualified for this issue.

- The VOC matrix spike (MS) and the MS duplicate (MSD) for spiked sample 12MW01S had %Rs less than the quality control limit for 1,2,3-trichlorobenzene and 1,4-dioxane. The non-detected 1,2,3-trichlorobenzene result for the sample was qualified estimated, (UJ). The 1,4-dioxane non-detected sample result was rejected for the criteria non-compliance and no further validation action was necessary.

- Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

Notes

The VOC CCV %D was greater than the 20% and less than 50% quality control limit for chloromethane for instrument MSVOAG on 03/09/12 @ 12:49 for samples as listed below.

Affected Samples:

02MW01I	02MW01S	02MW02S
02MW03I	02MW03SI	02MW04I
02MW04S	12MW010	12MW01S
12MW020		

Action: The samples had non-detected results for chloromethane and were not qualified.

The VOC CCV %Ds were greater than the 20% and less than the 50% quality control limit for carbon tetrachloride, 1,2-dichloroethane, bromodichloromethane, 1,4-dioxane, dibromochloromethane, bromoform, and 1,2,3-trichlorobenzene on 03/09/12 @ 23:49 for instrument MSVOA_R for samples as listed below.

Affected Samples:

12GW-DUP01	12GW-DUP02	12MW02S
12MW030	12MW03S	12MW040
12MW04S	12RB01	TRIPBLANK

Action: The samples had non-detected for carbon tetrachloride, 1,2-dichloroethane, bromodichloromethane, dibromochloromethane, bromoform, and 1,2,3-trichlorobenzene which were not qualified. The 1,4-dioxane non-detected sample results were rejected for the criteria non-compliance and no further validation action was necessary.

The VOC MS and the MSD for spiked sample 12MW01S had %Rs for bromodichloromethane greater than the quality control limit and the MS had a %R greater than the quality control limit for carbon tetrachloride. The sample results were non-detected for bromodichloromethane and carbon tetrachloride and no validation action was necessary.

The SVOC CCV %D was greater than the 20% quality control limit and less than 50% for 2,4-dinitrophenol for instrument BNA_F on 03/13/12 @ 15:20.

Affected samples:

12GW-DUP01	12MW010	12MW01S
12MW020	12MW02S	12MW030
12MW03S	12MW040	12MW04S
12RB01		

Action: No validation action was necessary as the analyte results for 2,4-dinitrophenol were non-detected.

The SVOC CCV %D was greater than the 20% quality control limit and less than 50% for 2,4-dinitrophenol and >20% and <50% for 4,6-dinitro-2-methylphenol for instrument BNA_F on 03/14/12 at 04:15.

Affected samples: No samples were affected as only the LCS and LCSD were affected

Action: No validation action was necessary as no samples were affected.

The SVOC CCV %D was greater than the 20% quality control limit and less than 50% for 2,4-dinitrophenol for instrument BNA_F on 03/15/12 at 14:17.

Affected samples: 12MW02S re-analysis

Action: No validation action was necessary as the sample re-analysis results were not validated/reported.

The MSD %Rs were greater than the quality control limit for bis(2-chloroethoxy)methane, 2-chloronaphthalene, acenaphthylene, dibenzofuran, 4,6-dinitro-2-methylphenol, and hexachlorobenzene for spiked sample 12MW01S. The sample results were non-detected and were not qualified.

The sample 12MW010 surrogate 2,4,6-tribromophenol %R was greater than the quality control limit. No validation action was necessary for a single surrogate non-compliance.

The sample 12MW02S %Rs were greater than the quality control limit for nitrobenzene-d5, 2-fluorobiphenyl, and 2,4,6-tribromophenol. The sample was re-analyzed with similar results. The original sample results were validated/reported.

Actions: Sample non-detected analyte results were not qualified for surrogate %Rs greater than the quality control limit.

The PEST CCV %Ds were greater than the 20% quality control limit as listed below 03/12/12 @ 17:32.

Analytes	ZB-MR1 %D	ZB-MR2 %D
Methoxychlor	24.0	------

Affected Samples: All samples

Action: Methoxychlor was non-detected in the samples and no validation action was necessary as the alternate column was compliant.

The PEST CCV %Ds were greater than the 20% quality control limit as listed below on 03/12/12 @ 19:21.

Analytes	ZB-MR1 %D	ZB-MR2 %D
Methoxychlor	24.0	------
4,4'-DDT	24.0	------

Affected Samples:

12GW-DUP01	12MW030	12MW03S
12MW040	12MW04S	12RB01

Action: Methoxychlor and 4,4'-DDT were non-detected in the samples and no validation action was necessary as the alternate column was compliant.

The PEST performance evaluation mixture (PEM) %Ds were greater than the 25% quality control limit as listed below on 03/12/12 @ 19:35.

Analytes	ZB-MR1 %D	ZB-MR2 %D
Gamma-BHC	30.0	------
4,4'-DDT	------	27.0

Affected Samples: All samples

Action: Gamma-BHC and 4,4'-DDT were non-detected in the samples and no validation action was necessary as the alternate column was compliant.

The laboratory reported non-detected sample results to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: VOC non-detected 1,4-dixoane sample results were rejected due to calibration and CCV RRF criteria non-compliances. VOC tetrachloroethene non-detected results were qualified for a CCV %D non-compliance. VOC sample 1,2,3-trichlorobenzene non-detected results were qualified for LCS %R and MS/MSD %R non-compliances.

Other Factors Affecting Data Quality: Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

The data for these analyses were reviewed with reference to EPA SW-846 Methods 8260B, 8270D, 8082A, and 8081B, and the Region III EPA Functional Guidelines for Organic Data Validation (9/94).

TetraTech
Joseph Kalinyak
Data Validator/Environmental Scientist

TetraTech
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	02MW01I			02MW01S			02MW02S			02MW03I		
SDG: D1768	LAB_ID	D1768-02			D1768-01			D1768-03			D1768-04		
FRACTION: OV	SAMP_DATE	3/8/2012			3/8/2012			3/7/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE	0.5	UJ	E	0.5	UJ	DE	0.5	UJ	E	0.5	UJ	E
1,2,4-TRICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE	0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE	2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE	2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE	2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE	2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE	0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM	0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE	0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE	0.5	U		0.5	U		0.5	U		0.61	J	P
CHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROFORM	0.5	U		0.5	U		0.5	U		0.77	J	P
CHLOROMETHANE	0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.93	J	P
CIS-1,3-DICHLOROPROPENE	0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE	0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	02MW03SI			02MW04I			02MW04S			12GW-DUP01		
SDG: D1768	LAB_ID	D1768-05			D1768-07			D1768-06			D1768-19		
FRACTION: OV	SAMP_DATE	3/8/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										12MW03S		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	UJ	E	0.5	UJ	E	0.5	UJ	E	0.5	UJ	E
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROFORM		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP02			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-20			D1768-08			D1768-09			D1768-12		
FRACTION: OV	SAMP_DATE	3/7/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW02S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	UJ	E	0.5	UJ	E	0.5	UJ	E	0.5	UJ	E
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROFORM		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: OV	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	UJ	E	0.5	UJ	E	0.5	UJ	E	0.5	UJ	E
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROFORM		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01			TRIPBLANK		
SDG: D1768	LAB_ID	D1768-17			D1768-18			D1768-21		
FRACTION: OV	SAMP_DATE	3/6/2012			3/7/2012			3/8/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	UJ	E	0.5	UJ	E	0.5	UJ	E
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U	
CHLOROFORM		0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	02MW01I			02MW01S			02MW02S			02MW03I		
SDG: D1768	LAB_ID	D1768-02			D1768-01			D1768-03			D1768-04		
FRACTION: OV	SAMP_DATE	3/8/2012			3/8/2012			3/7/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOTAL XYLENES		1.5	U		1.5	U		1.5	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		2		
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	02MW03SI			02MW04I			02MW04S			12GW-DUP01		
SDG: D1768	LAB_ID	D1768-05			D1768-07			D1768-06			D1768-19		
FRACTION: OV	SAMP_DATE	3/8/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										12MW03S		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	UJ	C
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOTAL XYLENES		1.5	U		1.5	U		1.5	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		4.1			0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP02			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-20			D1768-08			D1768-09			D1768-12		
FRACTION: OV	SAMP_DATE	3/7/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW02S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	C	0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOTAL XYLENES		1.5	U		1.5	U		1.5	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: OV	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOTAL XYLENES		1.5	U		1.5	U		1.5	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01			TRIPBLANK		
SDG: D1768	LAB_ID	D1768-17			D1768-18			D1768-21		
FRACTION: OV	SAMP_DATE	3/6/2012			3/7/2012			3/8/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
TOLUENE		0.5	U		0.5	U		0.5	U	
TOTAL XYLENES		1.5	U		1.5	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: OS	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL	5	U		5	U		5	U		5	U	
1,2,4,5-TETRACHLOROBENZENE	5	U		5	U		5	U		5	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	5	U		5	U		5	U		5	U	
2,3,4,6-TETRACHLOROPHENOL	5	U		5	U		5	U		5	U	
2,4,5-TRICHLOROPHENOL	5	U		5	U		5	U		5	U	
2,4,6-TRICHLOROPHENOL	5	U		5	U		5	U		5	U	
2,4-DICHLOROPHENOL	5	U		5	U		5	U		5	U	
2,4-DIMETHYLPHENOL	5	U		5	U		5	U		5	U	
2,4-DINITROPHENOL	5	U		5	U		5	U		5	U	
2,4-DINITROTOLUENE	5	U		5	U		5	U		5	U	
2,6-DINITROTOLUENE	5	U		5	U		5	U		5	U	
2-CHLORONAPHTHALENE	5	U		5	U		5	U		5	U	
2-CHLOROPHENOL	5	U		5	U		5	U		5	U	
2-METHYLPHENOL	5	U		5	U		5	U		5	U	
2-NITROANILINE	5	U		5	U		5	U		5	U	
2-NITROPHENOL	5	U		5	U		5	U		5	U	
3&4-METHYLPHENOL	5	U		5	U		5	U		5	U	
3-NITROANILINE	5	U		5	U		5	U		5	U	
4,6-DINITRO-2-METHYLPHENOL	5	U		5	U		5	U		5	U	
4-BROMOPHENYL PHENYL ETHER	5	U		5	U		5	U		5	U	
4-CHLORO-3-METHYLPHENOL	5	U		5	U		5	U		5	U	
4-CHLOROANILINE	5	U		5	U		5	U		5	U	
4-CHLOROPHENYL PHENYL ETHER	5	U		5	U		5	U		5	U	
4-NITROANILINE	5	U		5	U		5	U		5	U	
4-NITROPHENOL	5	U		5	U		5	U		5	U	
ACENAPHTHENE	5	U		5	U		5	U		5	U	
ACENAPHTHYLENE	5	U		5	U		5	U		5	U	
ACETOPHENONE	5	U		5	U		5	U		5	U	
ATRAZINE	5	U		5	U		5	U		5	U	
BENZALDEHYDE	5	U		5	U		5	U		5	U	
BIS(2-CHLOROETHOXY)METHANE	5	U		5	U		5	U		5	U	
BIS(2-CHLOROETHYL)ETHER	5	U		5	U		5	U		5	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYL BENZYL PHTHALATE	5	U		5	U		5	U		5	U	
CAPROLACTAM	5	U		5	U		5	U		5	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: OS	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		5	U		5	U		5	U		5	U	
1,2,4,5-TETRACHLOROBENZENE		5	U		5	U		5	U		5	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		5	U		5	U		5	U		5	U	
2,3,4,6-TETRACHLOROPHENOL		5	U		5	U		5	U		5	U	
2,4,5-TRICHLOROPHENOL		5	U		5	U		5	U		5	U	
2,4,6-TRICHLOROPHENOL		5	U		5	U		5	U		5	U	
2,4-DICHLOROPHENOL		5	U		5	U		5	U		5	U	
2,4-DIMETHYLPHENOL		5	U		5	U		5	U		5	U	
2,4-DINITROPHENOL		5	U		5	U		5	U		5	U	
2,4-DINITROTOLUENE		5	U		5	U		5	U		5	U	
2,6-DINITROTOLUENE		5	U		5	U		5	U		5	U	
2-CHLORONAPHTHALENE		5	U		5	U		5	U		5	U	
2-CHLOROPHENOL		5	U		5	U		5	U		5	U	
2-METHYLPHENOL		5	U		5	U		5	U		5	U	
2-NITROANILINE		5	U		5	U		5	U		5	U	
2-NITROPHENOL		5	U		5	U		5	U		5	U	
3&4-METHYLPHENOL		5	U		5	U		5	U		5	U	
3-NITROANILINE		5	U		5	U		5	U		5	U	
4,6-DINITRO-2-METHYLPHENOL		5	U		5	U		5	U		5	U	
4-BROMOPHENYL PHENYL ETHER		5	U		5	U		5	U		5	U	
4-CHLORO-3-METHYLPHENOL		5	U		5	U		5	U		5	U	
4-CHLOROANILINE		5	U		5	U		5	U		5	U	
4-CHLOROPHENYL PHENYL ETHER		5	U		5	U		5	U		5	U	
4-NITROANILINE		5	U		5	U		5	U		5	U	
4-NITROPHENOL		5	U		5	U		5	U		5	U	
ACENAPHTHENE		5	U		5	U		5	U		5	U	
ACENAPHTHYLENE		5	U		5	U		5	U		5	U	
ACETOPHENONE		5	U		5	U		5	U		5	U	
ATRAZINE		5	U		5	U		5	U		5	U	
BENZALDEHYDE		5	U		5	U		5	U		5	U	
BIS(2-CHLOROETHOXY)METHANE		5	U		5	U		5	U		5	U	
BIS(2-CHLOROETHYL)ETHER		5	U		5	U		5	U		5	U	
BIS(2-ETHYLHEXYL)PHTHALATE		5	U		5	U		5	U		5	U	
BUTYL BENZYL PHTHALATE		5	U		5	U		5	U		5	U	
CAPROLACTAM		5	U		5	U		5	U		5	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: OS	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1-BIPHENYL		5	U		5	U	
1,2,4,5-TETRACHLOROBENZENE		5	U		5	U	
2,2'-OXYBIS(1-CHLOROPROPANE)		5	U		5	U	
2,3,4,6-TETRACHLOROPHENOL		5	U		5	U	
2,4,5-TRICHLOROPHENOL		5	U		5	U	
2,4,6-TRICHLOROPHENOL		5	U		5	U	
2,4-DICHLOROPHENOL		5	U		5	U	
2,4-DIMETHYLPHENOL		5	U		5	U	
2,4-DINITROPHENOL		5	U		5	U	
2,4-DINITROTOLUENE		5	U		5	U	
2,6-DINITROTOLUENE		5	U		5	U	
2-CHLORONAPHTHALENE		5	U		5	U	
2-CHLOROPHENOL		5	U		5	U	
2-METHYLPHENOL		5	U		5	U	
2-NITROANILINE		5	U		5	U	
2-NITROPHENOL		5	U		5	U	
3&4-METHYLPHENOL		5	U		5	U	
3-NITROANILINE		5	U		5	U	
4,6-DINITRO-2-METHYLPHENOL		5	U		5	U	
4-BROMOPHENYL PHENYL ETHER		5	U		5	U	
4-CHLORO-3-METHYLPHENOL		5	U		5	U	
4-CHLOROANILINE		5	U		5	U	
4-CHLOROPHENYL PHENYL ETHER		5	U		5	U	
4-NITROANILINE		5	U		5	U	
4-NITROPHENOL		5	U		5	U	
ACENAPHTHENE		5	U		5	U	
ACENAPHTHYLENE		5	U		5	U	
ACETOPHENONE		5	U		5	U	
ATRAZINE		5	U		5	U	
BENZALDEHYDE		5	U		5	U	
BIS(2-CHLOROETHOXY)METHANE		5	U		5	U	
BIS(2-CHLOROETHYL)ETHER		5	U		5	U	
BIS(2-ETHYLHEXYL)PHTHALATE		5	U		5	U	
BUTYL BENZYL PHTHALATE		5	U		5	U	
CAPROLACTAM		5	U		5	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: OS	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBAZOLE		5	U		5	U		5	U		5	U	
DIBENZOFURAN		5	U		5	U		5	U		5	U	
DIETHYL PHTHALATE		5	U		5	U		5	U		5	U	
DIMETHYL PHTHALATE		5	U		5	U		5	U		5	U	
DI-N-BUTYL PHTHALATE		5	U		5	U		5	U		5	U	
DI-N-OCTYL PHTHALATE		5	U		5	U		5	U		5	U	
HEXACHLOROBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
HEXACHLOROCYCLOPENTADIENE		5	U		5	U		5	U		5	U	
HEXACHLOROETHANE		5	U		5	U		5	U		5	U	
ISOPHORONE		5	U		5	U		5	U		5	U	
NITROBENZENE		5	U		5	U		5	U		5	U	
N-NITROSO-DI-N-PROPYLAMINE		5	U		5	U		5	U		5	U	
N-NITROSODIPHENYLAMINE		5	U		5	U		5	U		5	U	
PENTACHLOROPHENOL		5	U		5	U		5	U		5	U	
PHENANTHRENE		5	U		5	U		5	U		5	U	
PHENOL		5	U		5	U		5	U		5	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: OS	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBAZOLE		5	U		5	U		5	U		5	U	
DIBENZOFURAN		5	U		5	U		5	U		5	U	
DIETHYL PHTHALATE		5	U		5	U		5	U		5	U	
DIMETHYL PHTHALATE		5	U		5	U		5	U		5	U	
DI-N-BUTYL PHTHALATE		5	U		5	U		5	U		5	U	
DI-N-OCTYL PHTHALATE		5	U		5	U		5	U		5	U	
HEXACHLOROBENZENE		5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U		5	U		5	U	
HEXACHLOROCYCLOPENTADIENE		5	U		5	U		5	U		5	U	
HEXACHLOROETHANE		5	U		5	U		5	U		5	U	
ISOPHORONE		5	U		5	U		5	U		5	U	
NITROBENZENE		5	U		5	U		5	U		5	U	
N-NITROSO-DI-N-PROPYLAMINE		5	U		5	U		5	U		5	U	
N-NITROSODIPHENYLAMINE		5	U		5	U		5	U		5	U	
PENTACHLOROPHENOL		5	U		5	U		5	U		5	U	
PHENANTHRENE		5	U		5	U		5	U		5	U	
PHENOL		5	U		5	U		5	U		5	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: OS	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBAZOLE		5	U		5	U	
DIBENZOFURAN		5	U		5	U	
DIETHYL PHTHALATE		5	U		5	U	
DIMETHYL PHTHALATE		5	U		5	U	
DI-N-BUTYL PHTHALATE		5	U		5	U	
DI-N-OCTYL PHTHALATE		5	U		5	U	
HEXACHLOROBENZENE		5	U		5	U	
HEXACHLOROBUTADIENE		5	U		5	U	
HEXACHLOROCYCLOPENTADIENE		5	U		5	U	
HEXACHLOROETHANE		5	U		5	U	
ISOPHORONE		5	U		5	U	
NITROBENZENE		5	U		5	U	
N-NITROSO-DI-N-PROPYLAMINE		5	U		5	U	
N-NITROSODIPHENYLAMINE		5	U		5	U	
PENTACHLOROPHENOL		5	U		5	U	
PHENANTHRENE		5	U		5	U	
PHENOL		5	U		5	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: PAH	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.05	U		0.05	U		0.05	U		0.05	U	
ACENAPHTHENE		0.05	U		0.05	U		0.05	U		0.05	U	
ACENAPHTHYLENE		0.05	U		0.05	U		0.05	U		0.05	U	
ANTHRACENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(A)ANTHRACENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(A)PYRENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(B)FLUORANTHENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(G,H,I)PERYLENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(K)FLUORANTHENE		0.05	U		0.05	U		0.05	U		0.05	U	
CHRYSENE		0.05	U		0.05	U		0.05	U		0.05	U	
DIBENZO(A,H)ANTHRACENE		0.05	U		0.05	U		0.05	U		0.05	U	
FLUORANTHENE		0.06	J	P	0.05	U		0.05	U		0.05	U	
FLUORENE		0.05	U		0.05	U		0.05	U		0.05	U	
INDENO(1,2,3-CD)PYRENE		0.05	U		0.05	U		0.05	U		0.05	U	
NAPHTHALENE		0.05	U		0.05	U		0.05	U		0.05	U	
PHENANTHRENE		0.05	U		0.05	U		0.05	U		0.05	U	
PYRENE		0.07	J	P	0.05	U		0.05	U		0.05	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: PAH	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.05	U		0.05	U		0.05	U		0.05	U	
ACENAPHTHENE		0.05	U		0.05	U		0.05	U		0.05	U	
ACENAPHTHYLENE		0.05	U		0.05	U		0.05	U		0.05	U	
ANTHRACENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(A)ANTHRACENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(A)PYRENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(B)FLUORANTHENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(G,H,I)PERYLENE		0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(K)FLUORANTHENE		0.05	U		0.05	U		0.05	U		0.05	U	
CHRYSENE		0.05	U		0.05	U		0.05	U		0.05	U	
DIBENZO(A,H)ANTHRACENE		0.05	U		0.05	U		0.05	U		0.05	U	
FLUORANTHENE		0.05	U		0.05	U		0.062	J	P	0.05	U	
FLUORENE		0.05	U		0.05	U		0.05	U		0.05	U	
INDENO(1,2,3-CD)PYRENE		0.05	U		0.05	U		0.05	U		0.05	U	
NAPHTHALENE		0.05	U		0.05	U		0.05	U		0.05	U	
PHENANTHRENE		0.061	J	P	0.05	U		0.05	U		0.05	U	
PYRENE		0.05	U		0.05	U		0.062	J	P	0.05	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: PAH	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.05	U		0.05	U	
ACENAPHTHENE		0.05	U		0.05	U	
ACENAPHTHYLENE		0.05	U		0.05	U	
ANTHRACENE		0.05	U		0.05	U	
BENZO(A)ANTHRACENE		0.05	U		0.05	U	
BENZO(A)PYRENE		0.05	U		0.05	U	
BENZO(B)FLUORANTHENE		0.05	U		0.05	U	
BENZO(G,H,I)PERYLENE		0.05	U		0.05	U	
BENZO(K)FLUORANTHENE		0.05	U		0.05	U	
CHRYSENE		0.05	U		0.05	U	
DIBENZO(A,H)ANTHRACENE		0.05	U		0.05	U	
FLUORANTHENE		0.05	U		0.05	U	
FLUORENE		0.05	U		0.05	U	
INDENO(1,2,3-CD)PYRENE		0.05	U		0.05	U	
NAPHTHALENE		0.05	U		0.05	U	
PHENANTHRENE		0.05	U		0.05	U	
PYRENE		0.05	U		0.05	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: PEST	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
4,4'-DDE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
4,4'-DDT		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ALDRIN		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ALPHA-BHC		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ALPHA-CHLORDANE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
BETA-BHC		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
DELTA-BHC		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
DIELDRIN		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ENDOSULFAN I		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ENDOSULFAN II		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ENDOSULFAN SULFATE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ENDRIN		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ENDRIN ALDEHYDE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
ENDRIN KETONE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
GAMMA-BHC (LINDANE)		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
GAMMA-CHLORDANE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
HEPTACHLOR		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
HEPTACHLOR EPOXIDE		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
METHOXYCHLOR		0.0255	U		0.0255	U		0.0255	U		0.0255	U	
TOXAPHENE		0.255	U		0.255	U		0.255	U		0.255	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: PEST	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.0255	U		0.0255	U		0.0255	U		0.026	U	
4,4'-DDE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
4,4'-DDT		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ALDRIN		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ALPHA-BHC		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ALPHA-CHLORDANE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
BETA-BHC		0.0255	U		0.0255	U		0.0255	U		0.026	U	
DELTA-BHC		0.0255	U		0.0255	U		0.0255	U		0.026	U	
DIELDRIN		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ENDOSULFAN I		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ENDOSULFAN II		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ENDOSULFAN SULFATE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ENDRIN		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ENDRIN ALDEHYDE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
ENDRIN KETONE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
GAMMA-BHC (LINDANE)		0.0255	U		0.0255	U		0.0255	U		0.026	U	
GAMMA-CHLORDANE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
HEPTACHLOR		0.0255	U		0.0255	U		0.0255	U		0.026	U	
HEPTACHLOR EPOXIDE		0.0255	U		0.0255	U		0.0255	U		0.026	U	
METHOXYCHLOR		0.0255	U		0.0255	U		0.0255	U		0.026	U	
TOXAPHENE		0.255	U		0.255	U		0.255	U		0.26	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: PEST	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
4,4'-DDD		0.0255	U		0.026	U	
4,4'-DDE		0.0255	U		0.026	U	
4,4'-DDT		0.0255	U		0.026	U	
ALDRIN		0.0255	U		0.026	U	
ALPHA-BHC		0.0255	U		0.026	U	
ALPHA-CHLORDANE		0.0255	U		0.026	U	
BETA-BHC		0.0255	U		0.026	U	
DELTA-BHC		0.0255	U		0.026	U	
DIELDRIN		0.0255	U		0.026	U	
ENDOSULFAN I		0.0255	U		0.026	U	
ENDOSULFAN II		0.0255	U		0.026	U	
ENDOSULFAN SULFATE		0.0255	U		0.026	U	
ENDRIN		0.0255	U		0.026	U	
ENDRIN ALDEHYDE		0.0255	U		0.026	U	
ENDRIN KETONE		0.0255	U		0.026	U	
GAMMA-BHC (LINDANE)		0.0255	U		0.026	U	
GAMMA-CHLORDANE		0.0255	U		0.026	U	
HEPTACHLOR		0.0255	U		0.026	U	
HEPTACHLOR EPOXIDE		0.0255	U		0.026	U	
METHOXYCHLOR		0.0255	U		0.026	U	
TOXAPHENE		0.255	U		0.26	U	

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: PCB	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.25	U		0.25	U		0.255	U		0.25	U	
AROCLOR-1221		0.25	U		0.25	U		0.255	U		0.25	U	
AROCLOR-1232		0.25	U		0.25	U		0.255	U		0.25	U	
AROCLOR-1242		0.25	U		0.25	U		0.255	U		0.25	U	
AROCLOR-1248		0.25	U		0.25	U		0.255	U		0.25	U	
AROCLOR-1254		0.25	U		0.25	U		0.255	U		0.25	U	
AROCLOR-1260		0.25	U		0.25	U		0.255	U		0.25	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: PCB	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.255	U		0.26	U		0.25	U		0.25	U	
AROCLOR-1221		0.255	U		0.26	U		0.25	U		0.25	U	
AROCLOR-1232		0.255	U		0.26	U		0.25	U		0.25	U	
AROCLOR-1242		0.255	U		0.26	U		0.25	U		0.25	U	
AROCLOR-1248		0.255	U		0.26	U		0.25	U		0.25	U	
AROCLOR-1254		0.255	U		0.26	U		0.25	U		0.25	U	
AROCLOR-1260		0.255	U		0.26	U		0.25	U		0.25	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: PCB	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.26	U		0.255	U	
AROCLOR-1221		0.26	U		0.255	U	
AROCLOR-1232		0.26	U		0.255	U	
AROCLOR-1242		0.26	U		0.255	U	
AROCLOR-1248		0.26	U		0.255	U	
AROCLOR-1254		0.26	U		0.255	U	
AROCLOR-1260		0.26	U		0.255	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW011	SDG No.:	D1768
Lab Sample ID:	D1768-02	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041197.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW01I	SDG No.:	D1768
Lab Sample ID:	D1768-02	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041197.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	46.1		70 - 120		92%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		85 - 115		97%	SPK: 50
2037-26-5	Toluene-d8	52.5		85 - 120		105%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.2		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	532799	3.83				
540-36-3	1,4-Difluorobenzene	946556	4.63				
3114-55-4	Chlorobenzene-d5	840540	9.62				
3855-82-1	1,4-Dichlorobenzene-d4	300606	13.32				

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW011	SDG No.:	D1768
Lab Sample ID:	D1768-02	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041197.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-01	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041196.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-01	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041196.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	46.8		70 - 120		94%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		85 - 115		96%	SPK: 50
2037-26-5	Toluene-d8	50.7		85 - 120		101%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.1		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	530934	3.84				
540-36-3	1,4-Difluorobenzene	956793	4.63				
3114-55-4	Chlorobenzene-d5	845667	9.62				
3855-82-1	1,4-Dichlorobenzene-d4	318676	13.33				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-01	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041196.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-03	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041198.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-03	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041198.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	46.9		70 - 120		94%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		85 - 115		97%	SPK: 50
2037-26-5	Toluene-d8	51.6		85 - 120		103%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.4		75 - 120		103%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	524678	3.83				
540-36-3	1,4-Difluorobenzene	941442	4.62				
3114-55-4	Chlorobenzene-d5	847878	9.62				
3855-82-1	1,4-Dichlorobenzene-d4	331696	13.32				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-03	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041198.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW03I	SDG No.:	D1768
Lab Sample ID:	D1768-04	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041199.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.61	J	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.93	J	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.77	J	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	2		0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW03I	SDG No.:	D1768
Lab Sample ID:	D1768-04	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041199.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	46.8		70 - 120		94%	SPK: 50
1868-53-7	Dibromofluoromethane	46.1		85 - 115		92%	SPK: 50
2037-26-5	Toluene-d8	50.7		85 - 120		101%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.9		75 - 120		104%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	507068	3.83				
540-36-3	1,4-Difluorobenzene	953253	4.62				
3114-55-4	Chlorobenzene-d5	836650	9.62				
3855-82-1	1,4-Dichlorobenzene-d4	303894	13.33				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW03I	SDG No.:	D1768
Lab Sample ID:	D1768-04	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041199.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW03SI	SDG No.:	D1768
Lab Sample ID:	D1768-05	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041200.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	4.1		0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW03SI	SDG No.:	D1768
Lab Sample ID:	D1768-05	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041200.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	45.9		70 - 120		92%	SPK: 50
1868-53-7	Dibromofluoromethane	46.5		85 - 115		93%	SPK: 50
2037-26-5	Toluene-d8	50.2		85 - 120		100%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.9		75 - 120		98%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	529610	3.83				
540-36-3	1,4-Difluorobenzene	963282	4.62				
3114-55-4	Chlorobenzene-d5	834503	9.61				
3855-82-1	1,4-Dichlorobenzene-d4	316045	13.33				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW03SI	SDG No.:	D1768
Lab Sample ID:	D1768-05	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041200.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW04I	SDG No.:	D1768
Lab Sample ID:	D1768-07	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041202.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW04I	SDG No.:	D1768
Lab Sample ID:	D1768-07	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041202.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	46.3		70 - 120		93%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		85 - 115		96%	SPK: 50
2037-26-5	Toluene-d8	52.1		85 - 120		104%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.5		75 - 120		101%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	522085	3.83				
540-36-3	1,4-Difluorobenzene	918082	4.62				
3114-55-4	Chlorobenzene-d5	805628	9.61				
3855-82-1	1,4-Dichlorobenzene-d4	293489	13.32				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW04I	SDG No.:	D1768
Lab Sample ID:	D1768-07	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041202.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-06	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041201.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-06	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041201.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	45.7		70 - 120		91%	SPK: 50
1868-53-7	Dibromofluoromethane	46.1		85 - 115		92%	SPK: 50
2037-26-5	Toluene-d8	50.9		85 - 120		102%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.8		75 - 120		98%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	515153	3.83				
540-36-3	1,4-Difluorobenzene	933888	4.62				
3114-55-4	Chlorobenzene-d5	811774	9.61				
3855-82-1	1,4-Dichlorobenzene-d4	298205	13.32				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	02MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-06	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041201.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004171.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004171.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	51.1		70 - 120		102%	SPK: 50
1868-53-7	Dibromofluoromethane	51		85 - 115		102%	SPK: 50
2037-26-5	Toluene-d8	47.7		85 - 120		95%	SPK: 50
460-00-4	4-Bromofluorobenzene	51		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	724213	7.58				
540-36-3	1,4-Difluorobenzene	1073540	8.5				
3114-55-4	Chlorobenzene-d5	1037060	11.31				
3855-82-1	1,4-Dichlorobenzene-d4	581767	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004171.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP02	SDG No.:	D1768
Lab Sample ID:	D1768-20	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004172.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP02	SDG No.:	D1768
Lab Sample ID:	D1768-20	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004172.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	51.6		70 - 120		103%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115		102%	SPK: 50
2037-26-5	Toluene-d8	46.8		85 - 120		94%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.9		75 - 120		100%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	713208	7.57				
540-36-3	1,4-Difluorobenzene	1081000	8.5				
3114-55-4	Chlorobenzene-d5	1035460	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	589221	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP02	SDG No.:	D1768
Lab Sample ID:	D1768-20	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004172.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041203.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041203.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	47.4		70 - 120		95%	SPK: 50
1868-53-7	Dibromofluoromethane	46.2		85 - 115		92%	SPK: 50
2037-26-5	Toluene-d8	48.5		85 - 120		97%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.8		75 - 120		98%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	503294	3.83				
540-36-3	1,4-Difluorobenzene	936632	4.62				
3114-55-4	Chlorobenzene-d5	791018	9.61				
3855-82-1	1,4-Dichlorobenzene-d4	278478	13.32				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041203.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041204.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041204.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	49.6		70 - 120		99%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		85 - 115		94%	SPK: 50
2037-26-5	Toluene-d8	51.1		85 - 120		102%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.4		75 - 120		103%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	490933	3.83				
540-36-3	1,4-Difluorobenzene	902654	4.63				
3114-55-4	Chlorobenzene-d5	796414	9.61				
3855-82-1	1,4-Dichlorobenzene-d4	297770	13.32				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041204.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041205.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041205.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	47.3		70 - 120		95%	SPK: 50
1868-53-7	Dibromofluoromethane	45.9		85 - 115		92%	SPK: 50
2037-26-5	Toluene-d8	49.1		85 - 120		98%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.9		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	493869	3.83				
540-36-3	1,4-Difluorobenzene	892612	4.62				
3114-55-4	Chlorobenzene-d5	770026	9.61				
3855-82-1	1,4-Dichlorobenzene-d4	288329	13.32				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041205.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004165.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004165.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	50.7		70 - 120		101%	SPK: 50
1868-53-7	Dibromofluoromethane	52.6		85 - 115		105%	SPK: 50
2037-26-5	Toluene-d8	48.1		85 - 120		96%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.6		75 - 120		105%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	734580	7.58				
540-36-3	1,4-Difluorobenzene	1085740	8.5				
3114-55-4	Chlorobenzene-d5	1078960	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	625569	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004165.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004166.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004166.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	50.9		70 - 120		102%	SPK: 50
1868-53-7	Dibromofluoromethane	51.1		85 - 115		102%	SPK: 50
2037-26-5	Toluene-d8	47.8		85 - 120		96%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.9		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	735081	7.58				
540-36-3	1,4-Difluorobenzene	1097490	8.5				
3114-55-4	Chlorobenzene-d5	1059420	11.31				
3855-82-1	1,4-Dichlorobenzene-d4	614620	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004166.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004167.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004167.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	51.4		70 - 120		103%	SPK: 50
1868-53-7	Dibromofluoromethane	51.8		85 - 115		104%	SPK: 50
2037-26-5	Toluene-d8	48		85 - 120		96%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.5		75 - 120		103%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	737345	7.58				
540-36-3	1,4-Difluorobenzene	1097370	8.5				
3114-55-4	Chlorobenzene-d5	1065430	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	616308	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004167.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004168.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004168.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	50.5		70 - 120		101%	SPK: 50
1868-53-7	Dibromofluoromethane	51.6		85 - 115		103%	SPK: 50
2037-26-5	Toluene-d8	47.8		85 - 120		96%	SPK: 50
460-00-4	4-Bromofluorobenzene	51		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	727349	7.58				
540-36-3	1,4-Difluorobenzene	1084270	8.5				
3114-55-4	Chlorobenzene-d5	1047430	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	601194	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004168.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004169.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004169.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	51.1		70 - 120		102%	SPK: 50
1868-53-7	Dibromofluoromethane	50.7		85 - 115		101%	SPK: 50
2037-26-5	Toluene-d8	47.7		85 - 120		95%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.1		75 - 120		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	736654	7.57				
540-36-3	1,4-Difluorobenzene	1095440	8.5				
3114-55-4	Chlorobenzene-d5	1036640	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	601042	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004169.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004170.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004170.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	51.2		70 - 120		102%	SPK: 50
1868-53-7	Dibromofluoromethane	52.2		85 - 115		104%	SPK: 50
2037-26-5	Toluene-d8	48.8		85 - 120		98%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.1		75 - 120		104%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	730593	7.57				
540-36-3	1,4-Difluorobenzene	1061650	8.5				
3114-55-4	Chlorobenzene-d5	1023450	11.31				
3855-82-1	1,4-Dichlorobenzene-d4	591900	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004170.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	TRIPBLANK	SDG No.:	D1768
Lab Sample ID:	D1768-21	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004173.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	TRIPBLANK	SDG No.:	D1768
Lab Sample ID:	D1768-21	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004173.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	UQ	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	UQ	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	UQ	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	51.9		70 - 120		104%	SPK: 50
1868-53-7	Dibromofluoromethane	52.5		85 - 115		105%	SPK: 50
2037-26-5	Toluene-d8	48.4		85 - 120		97%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.6		75 - 120		101%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	709754	7.58				
540-36-3	1,4-Difluorobenzene	1052390	8.5				
3114-55-4	Chlorobenzene-d5	1001130	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	593137	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/08/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	TRIPBLANK	SDG No.:	D1768
Lab Sample ID:	D1768-21	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004173.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054196.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.77	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.55	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.54	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.68	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.52	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.71	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.55	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.66	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.56	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.7	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054196.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.74	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.6	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.51	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	58.2		20 - 110		39%	SPK: 150
13127-88-3	Phenol-d5	37.1		10 - 160		25%	SPK: 150
4165-60-0	Nitrobenzene-d5	97.1		40 - 110		97%	SPK: 100
321-60-8	2-Fluorobiphenyl	100		50 - 110		100%	SPK: 100
118-79-6	2,4,6-Tribromophenol	174		40 - 125		116%	SPK: 150
1718-51-0	Terphenyl-d14	98.8		50 - 135		99%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	96953	4.52				
1146-65-2	Naphthalene-d8	359216	6.37				
15067-26-2	Acenaphthene-d10	183553	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054196.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	277454	11.69				
1719-03-5	Chrysene-d12	209083	15.04				
1520-96-3	Perylene-d12	185040	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054185.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.78	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.56	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.55	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.69	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.53	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.72	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.56	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.67	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.57	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.71	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054185.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.75	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.61	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.52	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	62.5		20 - 110		42%	SPK: 150
13127-88-3	Phenol-d5	40.9		10 - 160		27%	SPK: 150
4165-60-0	Nitrobenzene-d5	106		40 - 110		106%	SPK: 100
321-60-8	2-Fluorobiphenyl	106		50 - 110		106%	SPK: 100
118-79-6	2,4,6-Tribromophenol	190	*	40 - 125		127%	SPK: 150
1718-51-0	Terphenyl-d14	97		50 - 135		97%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	93374	4.52				
1146-65-2	Naphthalene-d8	343702	6.37				
15067-26-2	Acenaphthene-d10	178482	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054185.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	266781	11.69				
1719-03-5	Chrysene-d12	198387	15.04				
1520-96-3	Perylene-d12	179029	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054186.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.77	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.55	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.54	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.68	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.52	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.71	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.55	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.66	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.56	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.7	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054186.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.74	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.6	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.51	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	56.6		20 - 110		38%	SPK: 150
13127-88-3	Phenol-d5	36.4		10 - 160		24%	SPK: 150
4165-60-0	Nitrobenzene-d5	93.7		40 - 110		94%	SPK: 100
321-60-8	2-Fluorobiphenyl	95.8		50 - 110		96%	SPK: 100
118-79-6	2,4,6-Tribromophenol	170		40 - 125		113%	SPK: 150
1718-51-0	Terphenyl-d14	87.7		50 - 135		88%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	95383	4.52				
1146-65-2	Naphthalene-d8	357054	6.37				
15067-26-2	Acenaphthene-d10	185524	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054186.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	278918	11.69				
1719-03-5	Chrysene-d12	212743	15.04				
1520-96-3	Perylene-d12	187724	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054189.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.79	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.56	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.55	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.39	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.26	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.69	5	10	ug/L
78-59-1	Isophorone	5	U	0.31	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.53	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.72	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.56	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.67	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.26	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.41	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.57	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.41	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.5	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.71	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.33	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054189.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1.1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.39	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.76	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.61	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.41	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.8	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.27	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.52	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	65.7		20 - 110		44%	SPK: 150
13127-88-3	Phenol-d5	43.3		10 - 160		29%	SPK: 150
4165-60-0	Nitrobenzene-d5	101		40 - 110		102%	SPK: 100
321-60-8	2-Fluorobiphenyl	101		50 - 110		101%	SPK: 100
118-79-6	2,4,6-Tribromophenol	178		40 - 125		119%	SPK: 150
1718-51-0	Terphenyl-d14	99.5		50 - 135		99%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	93400	4.53				
1146-65-2	Naphthalene-d8	350930	6.37				
15067-26-2	Acenaphthene-d10	184637	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054189.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	271595	11.69				
1719-03-5	Chrysene-d12	200166	15.04				
1520-96-3	Perylene-d12	183427	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054190.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.78	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.56	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.55	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.69	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.53	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.72	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.56	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.67	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.57	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.71	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054190.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.75	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.61	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.52	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	71.2		20 - 110		47%	SPK: 150
13127-88-3	Phenol-d5	45.6		10 - 160		30%	SPK: 150
4165-60-0	Nitrobenzene-d5	114	*	40 - 110		114%	SPK: 100
321-60-8	2-Fluorobiphenyl	114	*	50 - 110		114%	SPK: 100
118-79-6	2,4,6-Tribromophenol	204	*	40 - 125		136%	SPK: 150
1718-51-0	Terphenyl-d14	108		50 - 135		109%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	90465	4.53				
1146-65-2	Naphthalene-d8	341227	6.37				
15067-26-2	Acenaphthene-d10	177321	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054190.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	263448	11.69				
1719-03-5	Chrysene-d12	196660	15.04				
1520-96-3	Perylene-d12	176859	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02SRE	SDG No.:	D1768
Lab Sample ID:	D1768-13RE	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054225.D	1	03/12/12	03/15/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.78	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.56	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.55	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.69	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.53	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.72	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.56	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.67	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.57	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.71	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02SRE	SDG No.:	D1768
Lab Sample ID:	D1768-13RE	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054225.D	1	03/12/12	03/15/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.75	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.61	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.52	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	68.1		20 - 110		45%	SPK: 150
13127-88-3	Phenol-d5	45		10 - 160		30%	SPK: 150
4165-60-0	Nitrobenzene-d5	112	*	40 - 110		113%	SPK: 100
321-60-8	2-Fluorobiphenyl	113	*	50 - 110		114%	SPK: 100
118-79-6	2,4,6-Tribromophenol	204	*	40 - 125		137%	SPK: 150
1718-51-0	Terphenyl-d14	108		50 - 135		108%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	97012	4.49				
1146-65-2	Naphthalene-d8	365299	6.34				
15067-26-2	Acenaphthene-d10	189081	9.34				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02SRE	SDG No.:	D1768
Lab Sample ID:	D1768-13RE	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054225.D	1	03/12/12	03/15/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	281556	11.64				
1719-03-5	Chrysene-d12	209301	14.99				
1520-96-3	Perylene-d12	188113	16.58				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054191.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.79	5	10	ug/L
108-95-2	Phenol	5	U	0.22	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.57	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.56	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.25	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.18	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.39	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.21	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.26	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.7	5	10	ug/L
78-59-1	Isophorone	5	U	0.31	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.54	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.73	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.57	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.68	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.26	5	10	ug/L
105-60-2	Caprolactam	5	U	2.1	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.41	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.25	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.58	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.41	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.51	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.23	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.72	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.33	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.22	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054191.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.2	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2.1	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.25	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1.1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.39	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.22	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.76	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.62	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.24	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.19	5	10	ug/L
1912-24-9	Atrazine	5	U	0.41	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.8	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.27	5	10	ug/L
86-74-8	Carbazole	5	U	0.23	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2.1	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.2	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.53	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.21	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.21	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	58.6		20 - 110		39%	SPK: 150
13127-88-3	Phenol-d5	37.5		10 - 160		25%	SPK: 150
4165-60-0	Nitrobenzene-d5	97		40 - 110		97%	SPK: 100
321-60-8	2-Fluorobiphenyl	99.8		50 - 110		100%	SPK: 100
118-79-6	2,4,6-Tribromophenol	180		40 - 125		120%	SPK: 150
1718-51-0	Terphenyl-d14	94.1		50 - 135		94%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	97729	4.52				
1146-65-2	Naphthalene-d8	359269	6.37				
15067-26-2	Acenaphthene-d10	184043	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054191.D	1	03/12/12	03/13/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	273833	11.69				
1719-03-5	Chrysene-d12	207890	15.04				
1520-96-3	Perylene-d12	187142	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054192.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.79	5	10	ug/L
108-95-2	Phenol	5	U	0.22	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.57	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.56	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.25	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.18	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.39	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.21	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.26	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.7	5	10	ug/L
78-59-1	Isophorone	5	U	0.31	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.54	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.73	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.57	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.68	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.26	5	10	ug/L
105-60-2	Caprolactam	5	U	2.1	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.41	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.25	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.58	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.41	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.51	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.23	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.72	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.33	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.22	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054192.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.2	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2.1	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.25	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1.1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.39	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.22	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.76	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.62	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.24	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.19	5	10	ug/L
1912-24-9	Atrazine	5	U	0.41	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.8	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.27	5	10	ug/L
86-74-8	Carbazole	5	U	0.23	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2.1	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.2	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.53	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.21	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.21	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	54.6		20 - 110		36%	SPK: 150
13127-88-3	Phenol-d5	34.6		10 - 160		23%	SPK: 150
4165-60-0	Nitrobenzene-d5	91.3		40 - 110		91%	SPK: 100
321-60-8	2-Fluorobiphenyl	93.9		50 - 110		94%	SPK: 100
118-79-6	2,4,6-Tribromophenol	163		40 - 125		109%	SPK: 150
1718-51-0	Terphenyl-d14	85.4		50 - 135		85%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	89173	4.53				
1146-65-2	Naphthalene-d8	331931	6.37				
15067-26-2	Acenaphthene-d10	171338	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054192.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	257272	11.69				
1719-03-5	Chrysene-d12	196621	15.04				
1520-96-3	Perylene-d12	175673	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054193.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.79	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.56	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.55	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.39	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.26	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.69	5	10	ug/L
78-59-1	Isophorone	5	U	0.31	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.53	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.72	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.56	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.67	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.26	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.41	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.57	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.41	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.5	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.71	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.33	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054193.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1.1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.39	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.76	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.61	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.41	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.8	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.27	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.52	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	63.3		20 - 110		42%	SPK: 150
13127-88-3	Phenol-d5	40.2		10 - 160		27%	SPK: 150
4165-60-0	Nitrobenzene-d5	105		40 - 110		105%	SPK: 100
321-60-8	2-Fluorobiphenyl	106		50 - 110		107%	SPK: 100
118-79-6	2,4,6-Tribromophenol	187		40 - 125		125%	SPK: 150
1718-51-0	Terphenyl-d14	99.3		50 - 135		99%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	88914	4.53				
1146-65-2	Naphthalene-d8	329672	6.37				
15067-26-2	Acenaphthene-d10	170207	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054193.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	256713	11.69				
1719-03-5	Chrysene-d12	191290	15.04				
1520-96-3	Perylene-d12	167421	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	960 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054194.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.8	5	10	ug/L
108-95-2	Phenol	5	U	0.22	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.57	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.56	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.25	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.18	5	10	ug/L
98-86-2	Acetophenone	5	U	0.15	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.4	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.21	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.26	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.71	5	10	ug/L
78-59-1	Isophorone	5	U	0.31	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.54	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.74	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.57	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.69	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	3	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.26	5	10	ug/L
105-60-2	Caprolactam	5	U	2.1	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.42	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.25	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.58	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.42	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.16	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.17	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.51	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.23	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.73	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.33	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.22	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	960 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054194.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.2	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2.1	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.25	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1.1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.4	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.22	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.77	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.62	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.24	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.19	5	10	ug/L
1912-24-9	Atrazine	5	U	0.42	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.8	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.27	5	10	ug/L
86-74-8	Carbazole	5	U	0.23	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2.1	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.2	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.17	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.53	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.21	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.21	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	56.5		20 - 110		38%	SPK: 150
13127-88-3	Phenol-d5	36		10 - 160		24%	SPK: 150
4165-60-0	Nitrobenzene-d5	89.8		40 - 110		90%	SPK: 100
321-60-8	2-Fluorobiphenyl	91.7		50 - 110		92%	SPK: 100
118-79-6	2,4,6-Tribromophenol	158		40 - 125		106%	SPK: 150
1718-51-0	Terphenyl-d14	86.4		50 - 135		86%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	97179	4.52				
1146-65-2	Naphthalene-d8	371918	6.37				
15067-26-2	Acenaphthene-d10	192836	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	960 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054194.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	284656	11.69				
1719-03-5	Chrysene-d12	219224	15.04				
1520-96-3	Perylene-d12	190638	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054195.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.78	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.56	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.55	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.69	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.53	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.72	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.56	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.67	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.57	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.71	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054195.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.75	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.61	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.52	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	56.3		20 - 110		38%	SPK: 150
13127-88-3	Phenol-d5	36.4		10 - 160		24%	SPK: 150
4165-60-0	Nitrobenzene-d5	99.3		40 - 110		99%	SPK: 100
321-60-8	2-Fluorobiphenyl	99.9		50 - 110		100%	SPK: 100
118-79-6	2,4,6-Tribromophenol	179		40 - 125		120%	SPK: 150
1718-51-0	Terphenyl-d14	103		50 - 135		103%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	99013	4.52				
1146-65-2	Naphthalene-d8	369434	6.37				
15067-26-2	Acenaphthene-d10	192517	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054195.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	286181	11.69				
1719-03-5	Chrysene-d12	207869	15.04				
1520-96-3	Perylene-d12	171903	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076084.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.06	J	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.07	J	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	100		40 - 110		100%	SPK: 100
321-60-8	2-Fluorobiphenyl	82.5		50 - 110		82%	SPK: 100
1718-51-0	Terphenyl-d14	101		50 - 135		102%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	45709	8.76				
1146-65-2	Naphthalene-d8	182293	10.93				
15067-26-2	Acenaphthene-d10	101784	13.91				
1517-22-2	Phenanthrene-d10	175324	16.38				
1719-03-5	Chrysene-d12	150629	20.87				
1520-96-3	Perylene-d12	113228	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076084.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076073.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	73.8		40 - 110		74%	SPK: 100
321-60-8	2-Fluorobiphenyl	60.5		50 - 110		61%	SPK: 100
1718-51-0	Terphenyl-d14	67.9		50 - 135		68%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	56065	8.76				
1146-65-2	Naphthalene-d8	230839	10.93				
15067-26-2	Acenaphthene-d10	129255	13.9				
1517-22-2	Phenanthrene-d10	222826	16.38				
1719-03-5	Chrysene-d12	194603	20.87				
1520-96-3	Perylene-d12	151321	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076073.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076074.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	84.1		40 - 110		84%	SPK: 100
321-60-8	2-Fluorobiphenyl	69.1		50 - 110		69%	SPK: 100
1718-51-0	Terphenyl-d14	76.7		50 - 135		77%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	54475	8.76				
1146-65-2	Naphthalene-d8	221184	10.93				
15067-26-2	Acenaphthene-d10	122709	13.91				
1517-22-2	Phenanthrene-d10	213175	16.38				
1719-03-5	Chrysene-d12	191141	20.87				
1520-96-3	Perylene-d12	149444	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076074.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076077.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	79.8		40 - 110		80%	SPK: 100
321-60-8	2-Fluorobiphenyl	65.2		50 - 110		65%	SPK: 100
1718-51-0	Terphenyl-d14	72		50 - 135		72%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	57211	8.76				
1146-65-2	Naphthalene-d8	234476	10.92				
15067-26-2	Acenaphthene-d10	130467	13.91				
1517-22-2	Phenanthrene-d10	227595	16.38				
1719-03-5	Chrysene-d12	210509	20.87				
1520-96-3	Perylene-d12	168895	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076077.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
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D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076078.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.061	J	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	73.7		40 - 110		74%	SPK: 100
321-60-8	2-Fluorobiphenyl	62.1		50 - 110		62%	SPK: 100
1718-51-0	Terphenyl-d14	70.6		50 - 135		71%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	50980	8.76				
1146-65-2	Naphthalene-d8	210063	10.92				
15067-26-2	Acenaphthene-d10	117708	13.91				
1517-22-2	Phenanthrene-d10	202705	16.38				
1719-03-5	Chrysene-d12	178859	20.87				
1520-96-3	Perylene-d12	140220	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076078.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
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J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076079.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.021	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.021	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.021	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.021	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.021	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.021	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.021	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.021	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.021	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.021	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.021	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.021	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.021	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	91		40 - 110		91%	SPK: 100
321-60-8	2-Fluorobiphenyl	75.7		50 - 110		76%	SPK: 100
1718-51-0	Terphenyl-d14	84.6		50 - 135		85%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	48666	8.76				
1146-65-2	Naphthalene-d8	198350	10.93				
15067-26-2	Acenaphthene-d10	110092	13.91				
1517-22-2	Phenanthrene-d10	192307	16.38				
1719-03-5	Chrysene-d12	168144	20.87				
1520-96-3	Perylene-d12	131146	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076079.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076080.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.021	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.021	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.021	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.021	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.021	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.021	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.062	J	0.021	0.05	0.1	ug/L
129-00-0	Pyrene	0.062	J	0.021	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.021	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.021	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.021	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.021	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.021	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.021	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	90.2		40 - 110		90%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.2		50 - 110		74%	SPK: 100
1718-51-0	Terphenyl-d14	82.6		50 - 135		83%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	47268	8.76				
1146-65-2	Naphthalene-d8	192352	10.93				
15067-26-2	Acenaphthene-d10	107803	13.91				
1517-22-2	Phenanthrene-d10	186534	16.38				
1719-03-5	Chrysene-d12	162184	20.87				
1520-96-3	Perylene-d12	124862	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076080.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076081.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	78.9		40 - 110		79%	SPK: 100
321-60-8	2-Fluorobiphenyl	63.2		50 - 110		63%	SPK: 100
1718-51-0	Terphenyl-d14	72.4		50 - 135		72%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	53109	8.76				
1146-65-2	Naphthalene-d8	214261	10.93				
15067-26-2	Acenaphthene-d10	122673	13.91				
1517-22-2	Phenanthrene-d10	208520	16.38				
1719-03-5	Chrysene-d12	178341	20.87				
1520-96-3	Perylene-d12	137321	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	980 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076081.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	960 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076082.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.021	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.021	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.021	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.021	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.021	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.021	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.021	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.021	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.021	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.021	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.021	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.021	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.021	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	86.2		40 - 110		86%	SPK: 100
321-60-8	2-Fluorobiphenyl	70.8		50 - 110		71%	SPK: 100
1718-51-0	Terphenyl-d14	80.6		50 - 135		81%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	53335	8.76				
1146-65-2	Naphthalene-d8	216516	10.92				
15067-26-2	Acenaphthene-d10	122243	13.91				
1517-22-2	Phenanthrene-d10	211938	16.38				
1719-03-5	Chrysene-d12	185155	20.87				
1520-96-3	Perylene-d12	142617	24.7				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	960 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076082.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076083.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	87.5		40 - 110		88%	SPK: 100
321-60-8	2-Fluorobiphenyl	73.8		50 - 110		74%	SPK: 100
1718-51-0	Terphenyl-d14	89.2		50 - 135		89%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	49595	8.76				
1146-65-2	Naphthalene-d8	190770	10.93				
15067-26-2	Acenaphthene-d10	101103	13.9				
1517-22-2	Phenanthrene-d10	175980	16.38				
1719-03-5	Chrysene-d12	158410	20.87				
1520-96-3	Perylene-d12	117662	24.71				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	990 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076083.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008936.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0088	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.005	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.102	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	13.6		30 - 135		68%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.9		25 - 140		90%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008936.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008923.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0088	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.005	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.102	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	12.6		30 - 135		63%	SPK: 20
877-09-8	Tetrachloro-m-xylene	16.8		25 - 140		84%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008923.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008924.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0088	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.005	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.102	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	13.7		30 - 135		69%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.3		25 - 140		92%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008924.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008927.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0088	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.005	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.102	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	15		30 - 135		75%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.4		25 - 140		87%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008927.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	990 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008928.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0087	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0047	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.004	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0042	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0045	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.0049	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.101	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	12.9		30 - 135		65%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.8		25 - 140		94%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	990 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008928.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008931.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0088	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.005	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.102	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	15.7		30 - 135		79%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.6		25 - 140		98%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008931.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008932.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0088	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.005	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.102	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	14.7		30 - 135		73%	SPK: 20
877-09-8	Tetrachloro-m-xylene	20.5		25 - 140		103%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008932.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	970 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008933.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0053	0.026	0.052	ug/L
319-85-7	beta-BHC	0.026	U	0.0089	0.026	0.052	ug/L
319-86-8	delta-BHC	0.026	U	0.0058	0.026	0.052	ug/L
58-89-9	gamma-BHC	0.026	U	0.0057	0.026	0.052	ug/L
76-44-8	Heptachlor	0.026	U	0.0071	0.026	0.052	ug/L
309-00-2	Aldrin	0.026	U	0.0064	0.026	0.052	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0069	0.026	0.052	ug/L
959-98-8	Endosulfan I	0.026	U	0.0063	0.026	0.052	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.052	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.052	ug/L
72-20-8	Endrin	0.026	U	0.006	0.026	0.052	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0057	0.026	0.052	ug/L
72-54-8	4,4-DDD	0.026	U	0.0073	0.026	0.052	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0062	0.026	0.052	ug/L
50-29-3	4,4-DDT	0.026	U	0.0061	0.026	0.052	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.052	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0059	0.026	0.052	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.052	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.0051	0.026	0.052	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0052	0.026	0.052	ug/L
8001-35-2	Toxaphene	0.26	U	0.103	0.26	0.52	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	14.2		30 - 135		71%	SPK: 20
877-09-8	Tetrachloro-m-xylene	17.3		25 - 140		86%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	970 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008933.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	990 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008934.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0052	0.026	0.051	ug/L
319-85-7	beta-BHC	0.026	U	0.0087	0.026	0.051	ug/L
319-86-8	delta-BHC	0.026	U	0.0057	0.026	0.051	ug/L
58-89-9	gamma-BHC	0.026	U	0.0056	0.026	0.051	ug/L
76-44-8	Heptachlor	0.026	U	0.007	0.026	0.051	ug/L
309-00-2	Aldrin	0.026	U	0.0063	0.026	0.051	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0068	0.026	0.051	ug/L
959-98-8	Endosulfan I	0.026	U	0.0062	0.026	0.051	ug/L
60-57-1	Dieldrin	0.026	U	0.0047	0.026	0.051	ug/L
72-55-9	4,4-DDE	0.026	U	0.004	0.026	0.051	ug/L
72-20-8	Endrin	0.026	U	0.0059	0.026	0.051	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0056	0.026	0.051	ug/L
72-54-8	4,4-DDD	0.026	U	0.0072	0.026	0.051	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0061	0.026	0.051	ug/L
50-29-3	4,4-DDT	0.026	U	0.006	0.026	0.051	ug/L
72-43-5	Methoxychlor	0.026	U	0.0042	0.026	0.051	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0058	0.026	0.051	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0045	0.026	0.051	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.0049	0.026	0.051	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0051	0.026	0.051	ug/L
8001-35-2	Toxaphene	0.255	U	0.101	0.255	0.51	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	14.7		30 - 135		74%	SPK: 20
877-09-8	Tetrachloro-m-xylene	18.5		25 - 140		92%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	990 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008934.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	970 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008935.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.026	U	0.0053	0.026	0.052	ug/L
319-85-7	beta-BHC	0.026	U	0.0089	0.026	0.052	ug/L
319-86-8	delta-BHC	0.026	U	0.0058	0.026	0.052	ug/L
58-89-9	gamma-BHC	0.026	U	0.0057	0.026	0.052	ug/L
76-44-8	Heptachlor	0.026	U	0.0071	0.026	0.052	ug/L
309-00-2	Aldrin	0.026	U	0.0064	0.026	0.052	ug/L
1024-57-3	Heptachlor epoxide	0.026	U	0.0069	0.026	0.052	ug/L
959-98-8	Endosulfan I	0.026	U	0.0063	0.026	0.052	ug/L
60-57-1	Dieldrin	0.026	U	0.0048	0.026	0.052	ug/L
72-55-9	4,4-DDE	0.026	U	0.0041	0.026	0.052	ug/L
72-20-8	Endrin	0.026	U	0.006	0.026	0.052	ug/L
33213-65-9	Endosulfan II	0.026	U	0.0057	0.026	0.052	ug/L
72-54-8	4,4-DDD	0.026	U	0.0073	0.026	0.052	ug/L
1031-07-8	Endosulfan Sulfate	0.026	U	0.0062	0.026	0.052	ug/L
50-29-3	4,4-DDT	0.026	U	0.0061	0.026	0.052	ug/L
72-43-5	Methoxychlor	0.026	U	0.0043	0.026	0.052	ug/L
53494-70-5	Endrin ketone	0.026	U	0.0059	0.026	0.052	ug/L
7421-93-4	Endrin aldehyde	0.026	U	0.0046	0.026	0.052	ug/L
5103-71-9	alpha-Chlordane	0.026	U	0.0051	0.026	0.052	ug/L
5103-74-2	gamma-Chlordane	0.026	U	0.0052	0.026	0.052	ug/L
8001-35-2	Toxaphene	0.26	U	0.103	0.26	0.52	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	11.3		30 - 135		56%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.3		25 - 140		97%	SPK: 20

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	970 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008935.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006878.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	21.9		35 - 137		110%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.6		40 - 135		108%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006865.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	23.4		35 - 137		117%	SPK: 20
2051-24-3	Decachlorobiphenyl	20		40 - 135		100%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006866.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.255	U	0.098	0.255	0.51	ug/L
11104-28-2	Aroclor-1221	0.255	U	0.194	0.255	0.51	ug/L
11141-16-5	Aroclor-1232	0.255	U	0.153	0.255	0.51	ug/L
53469-21-9	Aroclor-1242	0.255	U	0.091	0.255	0.51	ug/L
12672-29-6	Aroclor-1248	0.255	U	0.245	0.255	0.51	ug/L
11097-69-1	Aroclor-1254	0.255	U	0.045	0.255	0.51	ug/L
11096-82-5	Aroclor-1260	0.255	U	0.083	0.255	0.51	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	23.1		35 - 137		116%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.1		40 - 135		106%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006871.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	23.1		35 - 137		116%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.4		40 - 135		112%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	990 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006872.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.255	U	0.097	0.255	0.51	ug/L
11104-28-2	Aroclor-1221	0.255	U	0.192	0.255	0.51	ug/L
11141-16-5	Aroclor-1232	0.255	U	0.152	0.255	0.51	ug/L
53469-21-9	Aroclor-1242	0.255	U	0.09	0.255	0.51	ug/L
12672-29-6	Aroclor-1248	0.255	U	0.242	0.255	0.51	ug/L
11097-69-1	Aroclor-1254	0.255	U	0.044	0.255	0.51	ug/L
11096-82-5	Aroclor-1260	0.255	U	0.082	0.255	0.51	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	24.6		35 - 137		123%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.1		40 - 135		111%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	960 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006873.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.26	U	0.1	0.26	0.52	ug/L
11104-28-2	Aroclor-1221	0.26	U	0.198	0.26	0.52	ug/L
11141-16-5	Aroclor-1232	0.26	U	0.156	0.26	0.52	ug/L
53469-21-9	Aroclor-1242	0.26	U	0.093	0.26	0.52	ug/L
12672-29-6	Aroclor-1248	0.26	U	0.25	0.26	0.52	ug/L
11097-69-1	Aroclor-1254	0.26	U	0.046	0.26	0.52	ug/L
11096-82-5	Aroclor-1260	0.26	U	0.084	0.26	0.52	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	22.7		35 - 137		114%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.5		40 - 135		107%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006874.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	23.4		35 - 137		117%	SPK: 20
2051-24-3	Decachlorobiphenyl	21.7		40 - 135		108%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006875.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	21.5		35 - 137		108%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.2		40 - 135		81%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	970 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006876.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.26	U	0.099	0.26	0.52	ug/L
11104-28-2	Aroclor-1221	0.26	U	0.196	0.26	0.52	ug/L
11141-16-5	Aroclor-1232	0.26	U	0.155	0.26	0.52	ug/L
53469-21-9	Aroclor-1242	0.26	U	0.092	0.26	0.52	ug/L
12672-29-6	Aroclor-1248	0.26	U	0.247	0.26	0.52	ug/L
11097-69-1	Aroclor-1254	0.26	U	0.045	0.26	0.52	ug/L
11096-82-5	Aroclor-1260	0.26	U	0.084	0.26	0.52	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	20.9		35 - 137		105%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.9		40 - 135		85%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	980 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : 6		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006877.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.255	U	0.098	0.255	0.51	ug/L
11104-28-2	Aroclor-1221	0.255	U	0.194	0.255	0.51	ug/L
11141-16-5	Aroclor-1232	0.255	U	0.153	0.255	0.51	ug/L
53469-21-9	Aroclor-1242	0.255	U	0.091	0.255	0.51	ug/L
12672-29-6	Aroclor-1248	0.255	U	0.245	0.255	0.51	ug/L
11097-69-1	Aroclor-1254	0.255	U	0.045	0.255	0.51	ug/L
11096-82-5	Aroclor-1260	0.255	U	0.083	0.255	0.51	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	22.7		35 - 137		113%	SPK: 20
2051-24-3	Decachlorobiphenyl	11.9		40 - 135		59%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
OS	UG/L	12RB01	D1768-18	NM	3/7/2012	3/12/2012	3/14/2012	5	2	7
OS	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
OS	UG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/14/2012	5	2	7
OS	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
OS	UG/L	12MW030	D1768-14	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
OS	UG/L	12MW02S	D1768-13RE	NM	3/6/2012	3/12/2012	3/15/2012	6	3	9
OS	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
OS	UG/L	12MW020	D1768-12	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
OS	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
OS	UG/L	12MW010	D1768-08	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
OS	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
OV	UG/L	02MW01S	D1768-01	NM	3/8/2012	3/9/2012	3/9/2012	1	0	1
OV	UG/L	02MW02S	D1768-03	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	12MW040	D1768-16	NM	3/7/2012	3/10/2012	3/10/2012	3	0	3
OV	UG/L	02MW01I	D1768-02	NM	3/8/2012	3/9/2012	3/9/2012	1	0	1
OV	UG/L	TRIPBLANK	D1768-21	NM	3/8/2012	3/10/2012	3/10/2012	2	0	2
OV	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/10/2012	3/10/2012	4	0	4

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/10/2012	3/10/2012	4	0	4
OV	UG/L	12MW030	D1768-14	NM	3/6/2012	3/10/2012	3/10/2012	4	0	4
OV	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/10/2012	3/10/2012	4	0	4
OV	UG/L	12MW020	D1768-12	NM	3/6/2012	3/9/2012	3/9/2012	3	0	3
OV	UG/L	12MW010	D1768-08	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	12GW-DUP02	D1768-20	NM	3/7/2012	3/10/2012	3/10/2012	3	0	3
OV	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/10/2012	3/10/2012	4	0	4
OV	UG/L	02MW04S	D1768-06	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	02MW04I	D1768-07	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	02MW03SI	D1768-05	NM	3/8/2012	3/9/2012	3/9/2012	1	0	1
OV	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	02MW03I	D1768-04	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	12RB01	D1768-18	NM	3/7/2012	3/10/2012	3/10/2012	3	0	3
SIM	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
SIM	UG/L	12MW010	D1768-08	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
SIM	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
SIM	UG/L	12MW020	D1768-12	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
SIM	UG/L	12RB01	D1768-18	NM	3/7/2012	3/12/2012	3/14/2012	5	2	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
SIM	UG/L	12MW030	D1768-14	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
SIM	UG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/14/2012	5	2	7
SIM	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
SIM	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
PCB	UG/L	12MW030	D1768-14	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PCB	UG/L	12RB01	D1768-18	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PCB	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PCB	UG/L	12MW010	D1768-08	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PCB	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PCB	UG/L	12MW020	D1768-12	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PCB	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PCB	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PCB	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PCB	UG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PEST	UG/L	12RB01	D1768-18	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PEST	UG/L	12MW010	D1768-08	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PEST	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PEST	UG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PEST	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PEST	UG/L	12MW030	D1768-14	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PEST	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PEST	UG/L	12MW020	D1768-12	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6
PEST	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/12/2012	3/12/2012	5	0	5
PEST	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/12/2012	3/12/2012	6	0	6

CHEMTECH
CHAIN OF CUSTODY RECORD

B120217

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1768
QUOTE NO.
COC Number 022188

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: TETRA TECH, INC
ADDRESS: 234 MAIL BLVD., SUITE 260
CITY: KING of PRUSSIA STATE: PA ZIP: 19406
ATTENTION: ANDY FREBOWITZ
PHONE: 610-382-1170 FAX: 610-491-9645

CLIENT PROJECT INFORMATION

PROJECT NAME: CTO WE05 NAS JRB Willow Grove
PROJECT NO.: LOCATION:
PROJECT MANAGER: FREBOWITZ
e-mail: ANDY.FREBOWITZ@TETRATECH.COM
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: TETRA TECH PO#:
ADDRESS: 661 ANDERSON DR.
CITY: PITTSBURGH STATE: PA ZIP: 15220
ATTENTION: ACCT. PAYABLE PHONE: 412-921-8361

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: 10 DAYS *
EDD: 10 DAYS *
PREAPPROVED TAT: ☐ YES ☒ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☒ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 VOC
2 METAL/MERCURY
3 DISSOLVED METALS
4 CYANIDE
5 SVOC
6 PEST/PCB
7 DIOXIN/FURAN
8
9

CHEMTECH SAMPLE ID (KR 3/9/12)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES HCl A (1)	HNO3 B (2)	HNO3 B (3)	NaOH D (4)	E (5)	E (6)	E (7)	E (8)	(9)	COMMENTS
1.	02MW01S ✓	W		X	3/8/12	1040	2	X									
2.	02MW01I ✓				3/8/12	0920	2	X									
3.	02MW02S20120307 ✓				3/7/12	1305	2	X									SAMPLE ID 02MW02S
4.	02MW03I20120307 ✓				3/7/12	1545	2	X									02MW03I
5.	02MW03SI20120308 ✓				3/8/12	0915	2	X									02MW03SI
6.	02MW04S ✓				3/7/12	1520	2	X									
7.	02MW04I ✓				3/7/12	1350	2	X									
8.	12MW01S ✓				3/7/12	1200	8	X	X		X	X	X	X			
9. (22,23,24, 10, 11)	12MW01S ✓				3/7/12	0940	27	X	X	X	X	X	X	X			MS/MSD
10.	12MW02S ✓				3/6/12	1430	9										

PRESERVATIVES: A-HCl B-HNO3 C-H2SO4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY:
1. [signature]	3/8/12 1600	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY:
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY:
3. Fed Ex	3/9/12 9:20	3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

D1768

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1768
QUOTE NO.
COC Number 022189

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: TETRA TECH
ADDRESS: 234 MALL BLVD, SUITE 260
CITY: KING of PRUSSIA STATE: PA ZIP: 19406
ATTENTION: ANDY FREBOWITZ
PHONE 610-382-1100 FAX: 610-491-9643

CLIENT PROJECT INFORMATION

PROJECT NAME:
PROJECT NO.: LOCATION:
PROJECT MANAGER:
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 VOC
2 METALS/MERCURY
3 DISSOLVED METALS
4 CYANIDE
5 SVOC
6 NEST/PCB
7 DIOXIN/FURAN
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES A 1	B 2	B 3	D 4	E 5	E 6	E 7	8	9	COMMENTS
1. 13.	12MW02S ✓	W		X	3/6/12	1210	9	X	X		X	X	X	X			
2. 14, 25.	12MW030201203062 ✓				3/6/12	1503	10	X	X	X	X	X	X	X		✓	Sample ID 12MW030
3. 15.	12MW035 20120306 ✓				3/6/12	11:00	9	X	X		X	X	X	X		✓	12MW035
4. 16, 26.	12MW040 20120307 ✓				3/7/12	1010	10	X	X	X	X	X	X	X		✓	12MW040
5. 17.	12MW048 ✓				3/6/12	1045	9	X	X		X	X	X	X			
6. 18, 27.	12RB01 ✓				3/7/12	0800	10	X	X	X	X	X	X	X			
7. 19.	12GW-DUP01 ✓				3/6/12	0000	9	X	X		X	X	X	X			
8. 20	12GW-DUP02 ✓				3/7/12	0000	2	X									
9. 21.	TRIP BLANK ✓				3/8/12	1300	2	X									
10.																	

PRESERVATIVES — Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

	RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	JS Tomaselli	3/8/12 1600	
2.	RELINQUISHED BY	DATE/TIME	RECEIVED BY
3.	RELINQUISHED BY: Fed Ex	DATE/TIME: 3/9/12 9:20	RECEIVED FOR LAB BY:

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007 D1768

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

From: Frebowitz, Andy [Andy.Frebowitz@tetratech.com]
Sent: Saturday, March 10, 2012 1:44 AM
To: Elizabeth Griffiths
Cc: kenny@chemtech.net
Subject: RE: D1768

Everything but dioxin/furan for that sample.

Thanks

Andy

From: Elizabeth Griffiths [mailto:egriffiths@chemtech.net]
Sent: Friday, March 09, 2012 3:01 PM
To: Frebowitz, Andy
Cc: kenny@chemtech.net
Subject: D1768

Hi Andy,

For sample 12MW020, please confirm that you want VOC, metals/mercury, cyanide, svoc, pest/pcb and dioxin/furan.

Thanks!

Elizabeth

Elizabeth Griffiths
Project Manager
CHEMTECH
284 Sheffield St | Mountainside, NJ 07092
7210 Corporate Court | Frederick, MD 21703
NJ Direct: 908-728-3145 | MD Direct: 240-215-4321
egriffiths@chemtech.net | www.chemtech.net

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CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : D1768

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
D1768-01	02MW01S
D1768-02	02MW01I
D1768-03	02MW02S
D1768-04	02MW03I
D1768-05	02MW03SI
D1768-06	02MW04S
D1768-07	02MW04I
D1768-08	12MW010
D1768-09	12MW01S
D1768-10	D1768-09MS
D1768-11	D1768-09MSD
D1768-12	12MW020
D1768-13	12MW02S
D1768-14	12MW030
D1768-15	12MW03S
D1768-16	12MW040
D1768-17	12MW04S
D1768-18	12RB01
D1768-19	12GW-DUP01
D1768-20	12GW-DUP02
D1768-21	TRIPBLANK
D1768-22	12MW01S
D1768-23	D1768-22MS
D1768-24	D1768-22MSD
D1768-25	12MW030
D1768-26	12MW040
D1768-27	12RB01

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:58:16 -05'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_R were done using GC column RXI-624SIL MS 30m 0.25mm 1.4um 872456The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12MW01SMSD [Dibromofluoromethane-117%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {D1768-10MS} for File ID: VR004174.D recoveries met the requirements for all compounds except for 1,2,3-Trichlorobenzene [32%], 1,4-Dioxane [49%], Bromodichloromethane [132%] and Carbon Tetrachloride [152%] .
The MSD {D1768-11MSD} for File ID: VR004175.D recoveries met the acceptable requirements except for 1,2,3-Trichlorobenzene [36%] and Bromodichloromethane [122%] .
The RPD recoveries met criteria.
The Blank Spike for {BSG0309W1} for File ID: VG041187.D met requirements for all samples except for 1,2,3-Trichlorobenzene[55%], 1,4-Dioxane[13%] .
The Blank Spike for {BSR0309W3} for File ID: VR004152.D met requirements for all samples except for Tetrachloroethene [195%], 1,4-Dioxane [50%] and 1,2,3-Trichlorobenzene [55%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.

The Initial Calibration Verification met the requirements.
The Continuous Calibration File ID VG041184.D met the requirements except for Chloromethane but it was not detected in any samples .
The Continuous Calibration File ID VR004150.D met the requirements except for Carbon Tetrachloride,1,2-Dichloroethane, Bromodichloromethane, Dibromochloromethane, Tetrachloroethene, Bromoform and 1,2,3-Trichlorobenzene. These compounds were not detected in any of the samples .
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:58:01 -05'00'

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VG041074.D BFB Injection Date: 03/05/2012

Instrument ID: MSVOAG BFB Injection Time: 11:45

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.3
75	30.0 - 60.0% of mass 95	40.1
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.2 (0.2) 1
174	50.0 - 100.0% of mass 95	80
175	5.0 - 9.0% of mass 174	5.5 (6.9) 1
176	95.0 - 101.0% of mass 174	77.9 (97.4) 1
177	5.0 - 9.0% of mass 176	5 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD200	200 PPB ICC	VG041075.D	03/05/2012	12:30
VSTD100	100 PPB ICC	VG041076.D	03/05/2012	12:56
VSTD050	50 PPB ICC	VG041077.D	03/05/2012	13:22
VSTD020	20 PPB ICC	VG041078.D	03/05/2012	13:47
VSTD005	5 PPB ICC	VG041079.D	03/05/2012	14:13
VSTD001	1 PPB ICC	VG041080.D	03/05/2012	14:39

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOAG Calibration Date(s): 03/05/2012 03/05/2012

Heated Purge: (Y/N) N Calibration Time(s): 12:30 14:39

GC Column: RTX-VMS ID: 0.18 (mm)

LAB FILE ID: RRF005 = VG041079.D RRF001 = VG041080.D RRF020 = VG041078.D
RRF050 = VG041077.D RRF100 = VG041076.D RRF200 = VG041075.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF200	RRF	% RSD	
Dichlorodifluoromethane	0.560	0.634	0.483	0.477	0.501	0.445	0.517	13.3	
Chloromethane	1.390	1.561	1.165	1.068	1.073	0.983	1.207	18.4	L
Vinyl Chloride	1.148	1.136	0.927	0.863	0.883	0.795	0.959	15.5	L
Bromomethane	0.691	0.653	0.608	0.550	0.538	0.418	0.576	16.9	Q
Chloroethane	0.515	0.609	0.490	0.405	0.368	0.244	0.439	29.1	Q
Trichlorofluoromethane	1.062	0.958	0.917	0.908	0.952	0.860	0.943	7.2	
1,1,2-Trichlorotrifluoroethane	0.639	0.677	0.566	0.546	0.590	0.552	0.595	8.9	
1,1-Dichloroethene	0.641	0.703	0.638	0.633	0.632	0.613	0.643	4.8	
Acetone	0.216	0.360	0.183	0.168	0.153	0.153	0.206	38.5	L
Carbon Disulfide	2.418	2.640	2.307	2.217	2.174	1.982	2.29	9.8	
Methyl tert-butyl Ether	1.813	1.976	1.720	1.674	1.590	1.442	1.703	10.8	
Methyl Acetate	2.317	2.823	2.150	1.958	1.819	1.672	2.123	19.4	L
Methylene Chloride	0.865	0.970	0.768	0.786	0.775	0.747	0.819	10.3	
trans-1,2-Dichloroethene	0.785	0.741	0.722	0.681	0.700	0.680	0.718	5.6	
1,1-Dichloroethane	1.413	1.536	1.392	1.325	1.300	1.265	1.372	7.1	
Cyclohexane	1.466	1.750	1.431	1.336	1.341	1.195	1.42	13.2	
2-Butanone	0.543	0.662	0.530	0.510	0.474	0.416	0.522	15.7	L
Carbon Tetrachloride	0.389	0.391	0.388	0.388	0.372	0.355	0.381	3.7	
cis-1,2-Dichloroethene	0.817	0.963	0.803	0.761	0.782	0.742	0.812	9.7	
Bromochloromethane	0.846	0.885	0.845	0.770	0.764	0.724	0.806	7.6	
Chloroform	1.313	1.161	1.205	1.209	1.163	1.103	1.192	5.9	
1,1,1-Trichloroethane	0.913	0.939	0.849	0.830	0.845	0.785	0.86	6.6	
Methylcyclohexane	0.598	0.651	0.582	0.571	0.554	0.513	0.578	8	
Benzene	1.299	1.305	1.341	1.307	1.231	1.180	1.277	4.7	
1,2-Dichloroethane	0.355	0.409	0.346	0.344	0.323	0.311	0.348	9.8	
Trichloroethene	0.349	0.368	0.343	0.340	0.318	0.309	0.338	6.3	
1,2-Dichloropropane	0.397	0.416	0.394	0.391	0.366	0.340	0.384	7	
Bromodichloromethane	0.458	0.446	0.437	0.433	0.427	0.405	0.435	4.1	
4-Methyl-2-Pentanone	0.491	0.519	0.473	0.441	0.380	0.324	0.438	16.8	Q

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOAG Calibration Date(s): 03/05/2012 03/05/2012

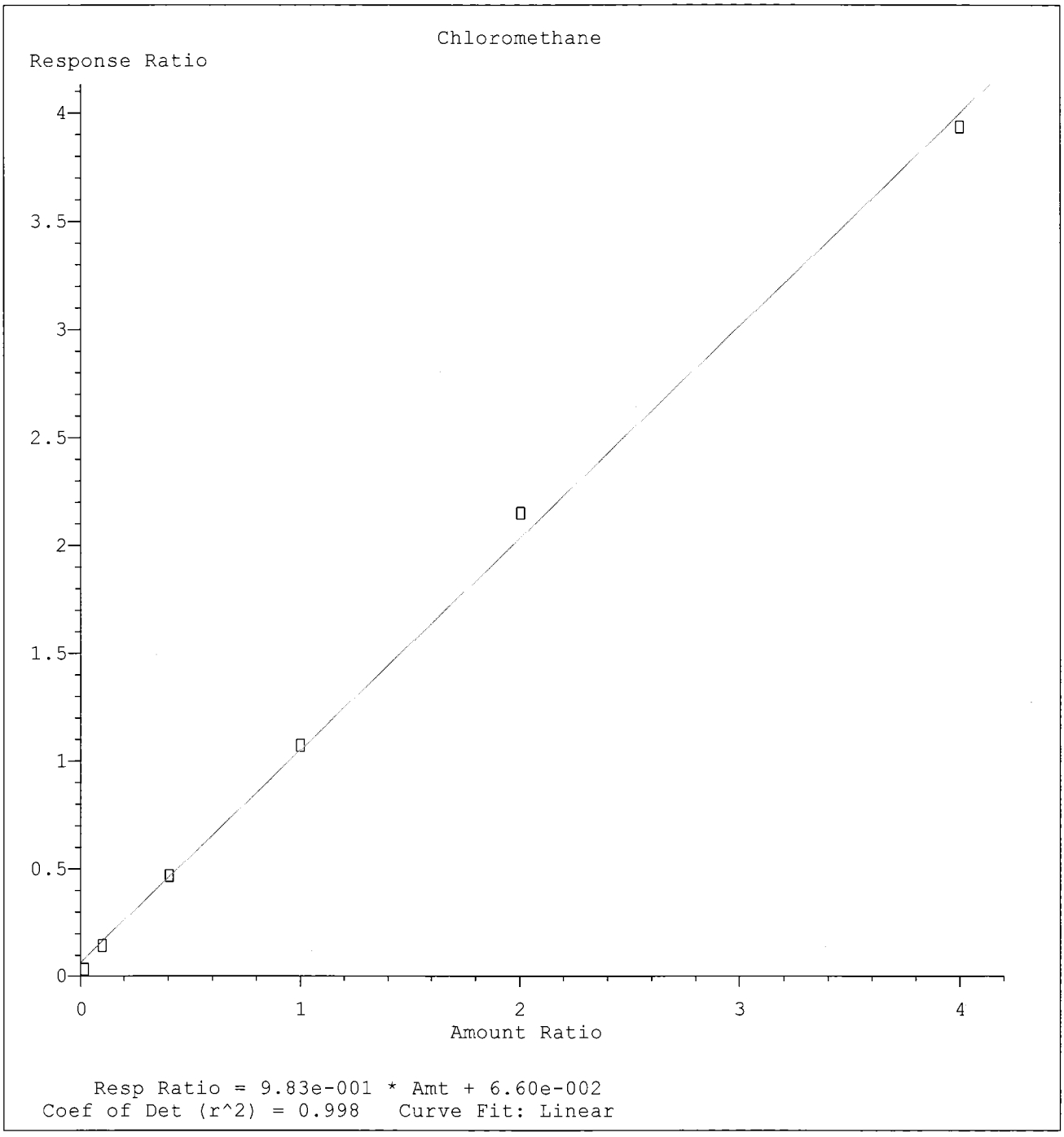
Heated Purge: (Y/N) N Calibration Time(s): 12:30 14:39

GC Column: RTX-VMS ID: 0.18 (mm)

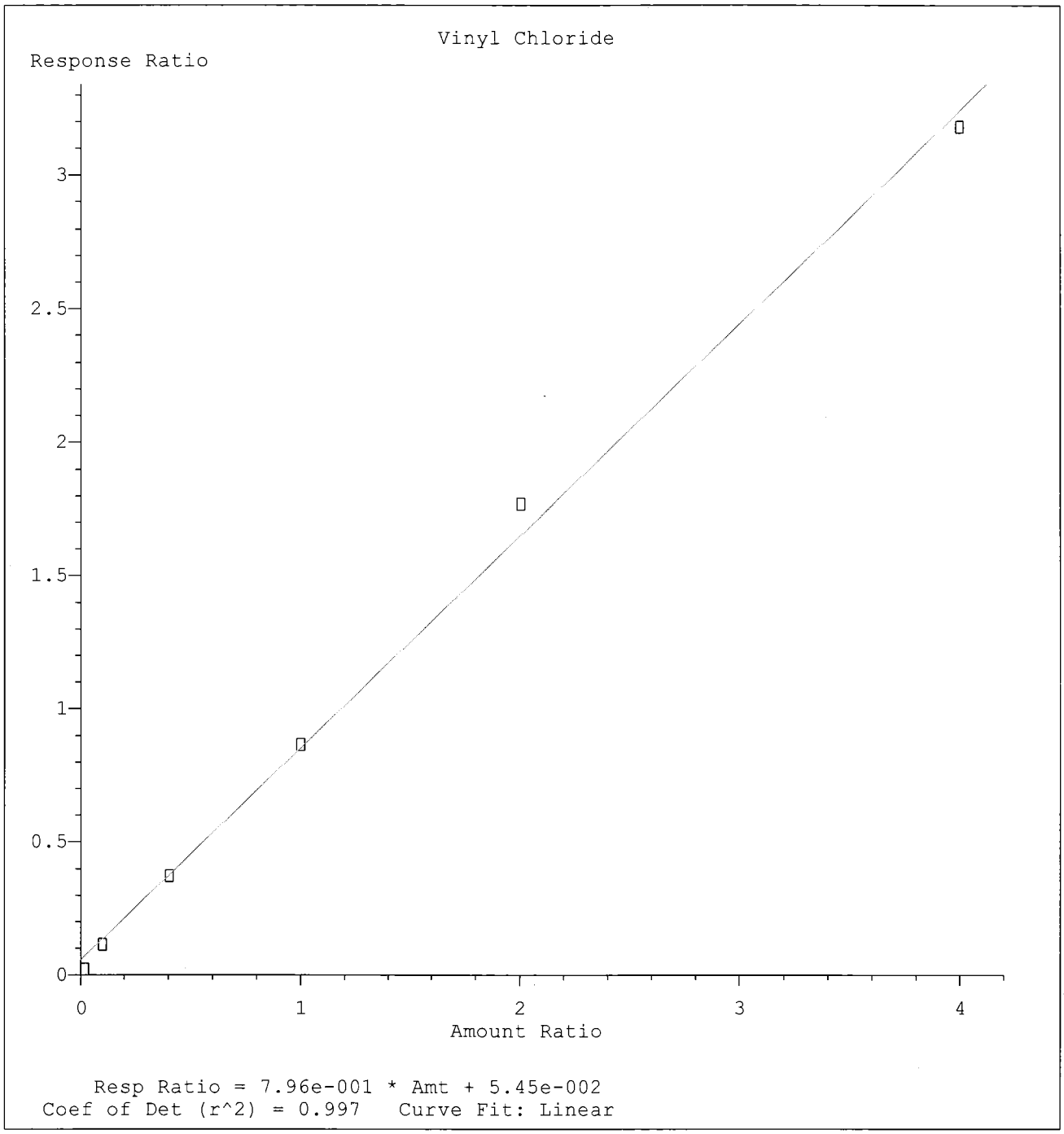
LAB FILE ID: RRF005 = VG041079.D RRF001 = VG041080.D RRF020 = VG041078.D
RRF050 = VG041077.D RRF100 = VG041076.D RRF200 = VG041075.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF200	$\overline{RRF}$	% RSD	
Toluene	0.735	0.698	0.705	0.703	0.683	0.633	0.693	4.9	
t-1,3-Dichloropropene	0.484	0.455	0.488	0.501	0.468	0.427	0.47	5.7	
cis-1,3-Dichloropropene	0.532	0.526	0.561	0.561	0.551	0.533	0.544	2.9	
1,1,2-Trichloroethane	0.328	0.344	0.311	0.306	0.282	0.250	0.303	11	
2-Hexanone	0.385	0.365	0.354	0.319	0.297	0.219	0.323	18.6	→ Q
Dibromochloromethane	0.349	0.371	0.370	0.383	0.353	0.326	0.359	5.6	
1,2-Dibromoethane	0.333	0.305	0.363	0.347	0.314	0.286	0.325	8.7	
Tetrachloroethene	0.340	0.352	0.296	0.298	0.282	0.248	0.303	12.6	
Chlorobenzene	1.094	1.110	1.039	1.065	1.012	0.923	1.04	6.5	
Ethyl Benzene	1.702	1.769	1.625	1.660	1.631	1.437	1.637	6.8	
m/p-Xylenes	0.664	0.609	0.625	0.674	0.653	0.590	0.636	5.2	
o-Xylene	0.614	0.581	0.602	0.622	0.594	0.563	0.596	3.7	
Styrene	1.095	1.089	1.103	1.106	1.071	0.988	1.075	4.1	
Bromoform	0.240	0.218	0.256	0.269	0.257	0.247	0.248	7.2	
Isopropylbenzene	4.572	4.576	4.297	4.205	4.195	3.593	4.24	8.5	
1,1,2,2-Tetrachloroethane	1.304	1.372	1.272	1.244	1.142	1.047	1.23	9.5	
1,3-Dichlorobenzene	1.764	1.840	1.695	1.753	1.633	1.557	1.707	5.9	
1,4-Dichlorobenzene	1.784	2.031	1.700	1.743	1.673	1.527	1.743	9.5	
1,2-Dichlorobenzene	1.705	1.673	1.566	1.560	1.451	1.361	1.553	8.4	
1,2-Dibromo-3-Chloropropane	0.168	0.176	0.126	0.124	0.116	0.104	0.136	21.5	→ L
1,2,4-Trichlorobenzene	1.136	1.221	0.989	0.888	0.805	0.802	0.974	18	→ L
1,2,3-Trichlorobenzene	1.202	1.568	0.904	0.780	0.656	0.647	0.959	37.7	→ L
1,2-Dichloroethane-d4	0.626	0.702	0.605	0.574	0.559	0.516	0.597	10.7	
Dibromofluoromethane	0.439	0.522	0.464	0.435	0.418	0.421	0.45	8.7	
Toluene-d8	1.214	1.630	1.185	1.092	1.065	0.980	1.194	19.2	
4-Bromofluorobenzene	0.489	0.661	0.465	0.428	0.386	0.389	0.47	21.7	
1,4-Dioxane	0.006	0.010	0.003	0.002	0.002	0.001	0.004	84.08	→ Q

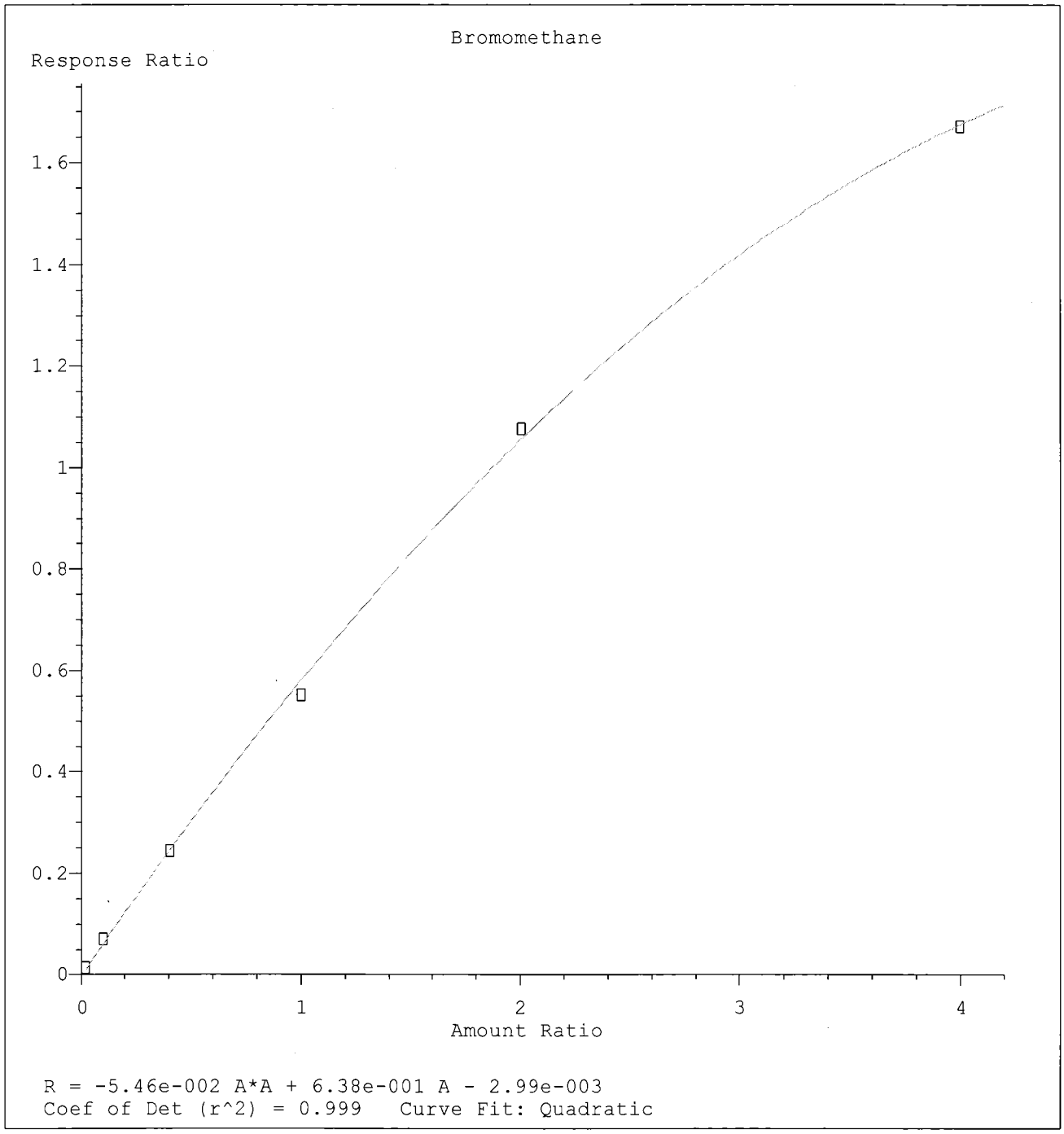
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



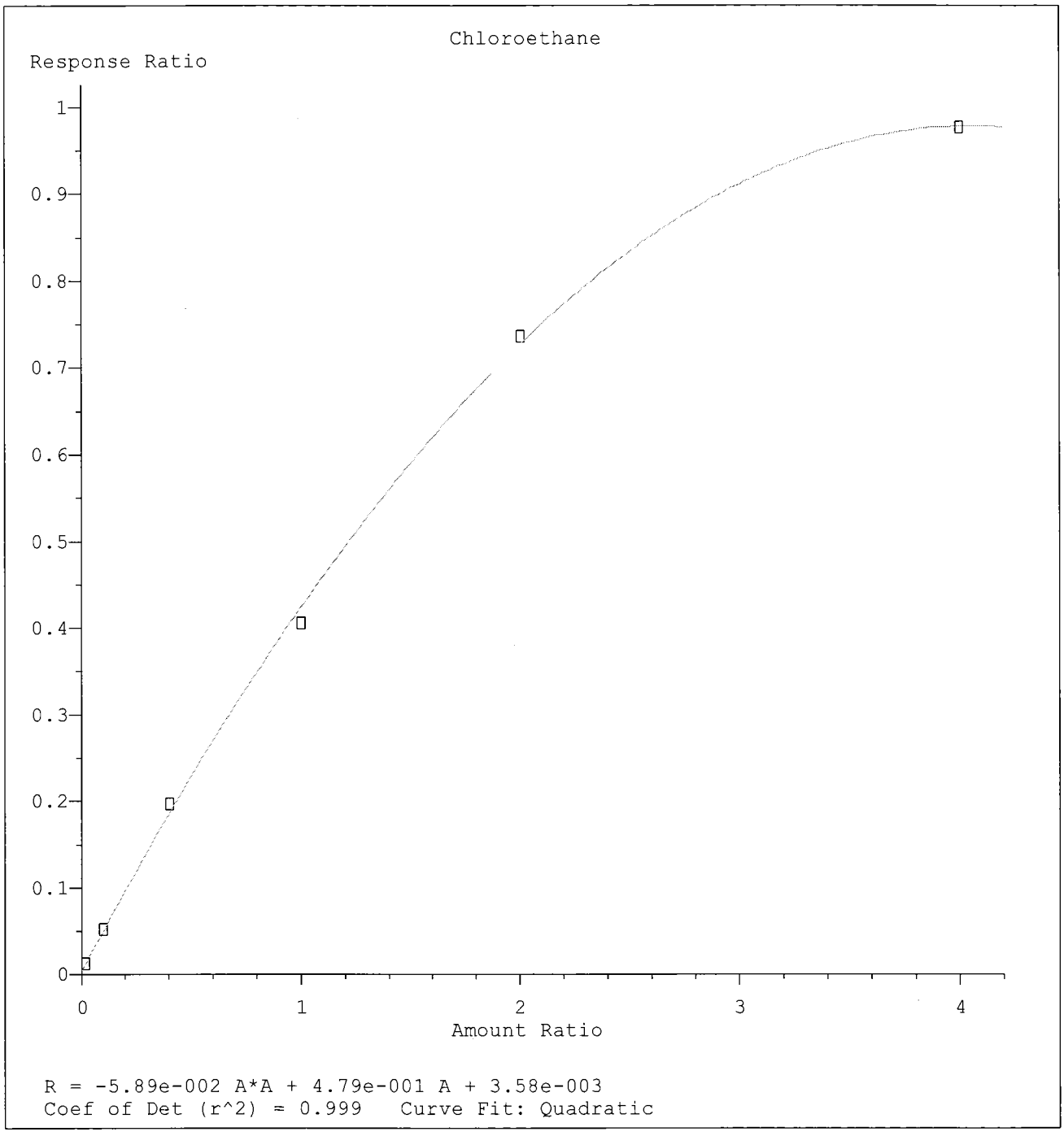
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



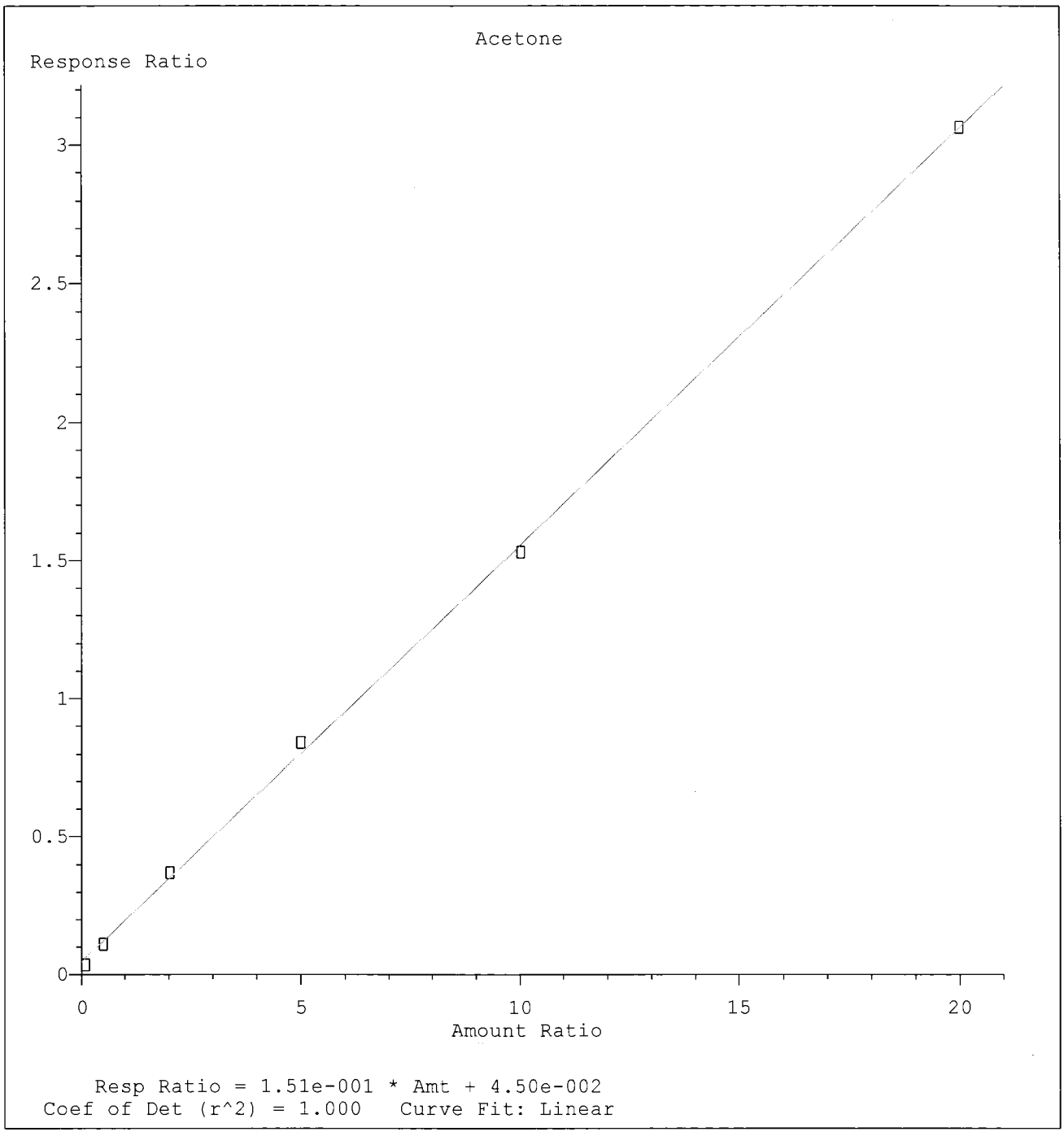
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



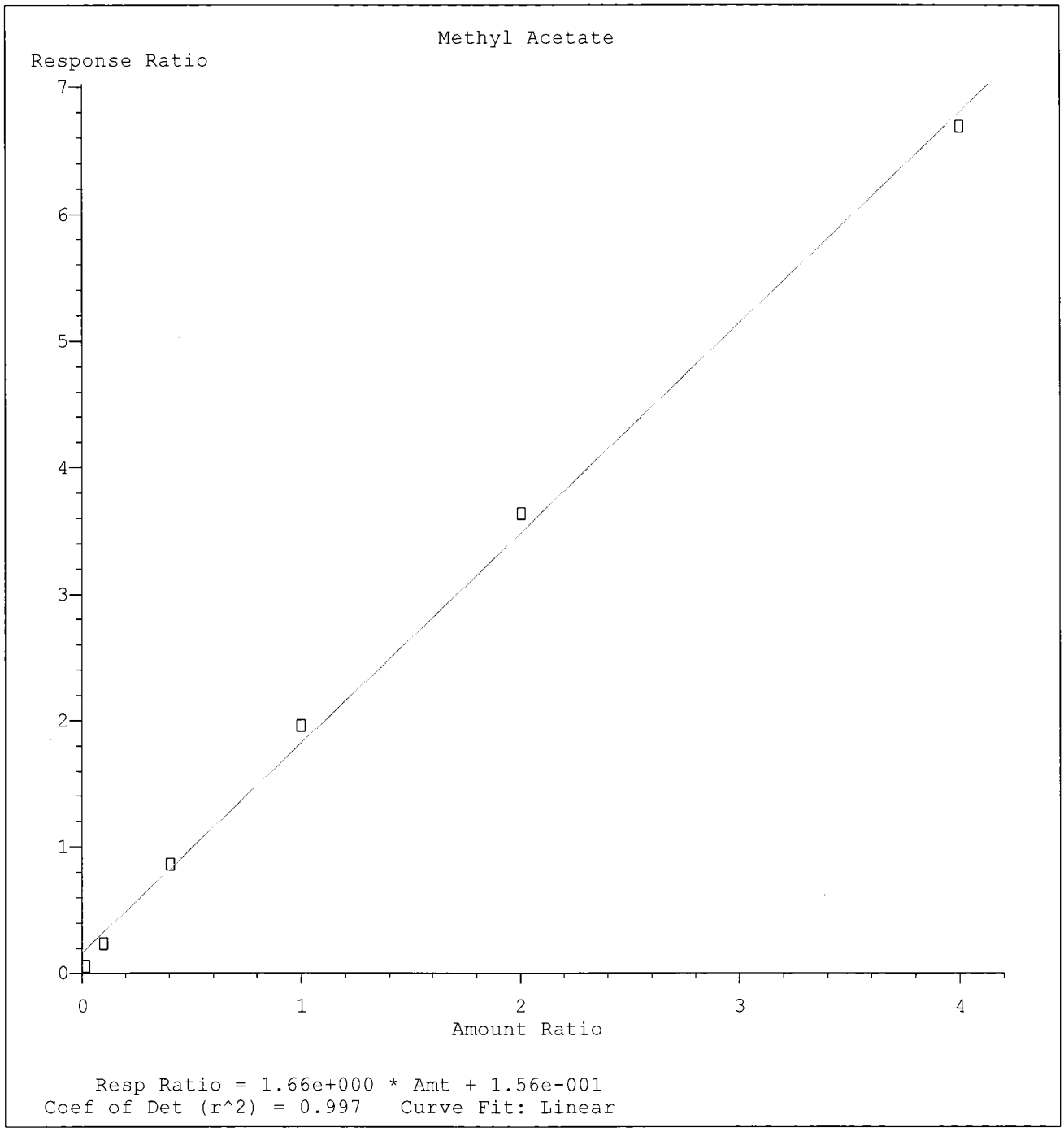
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



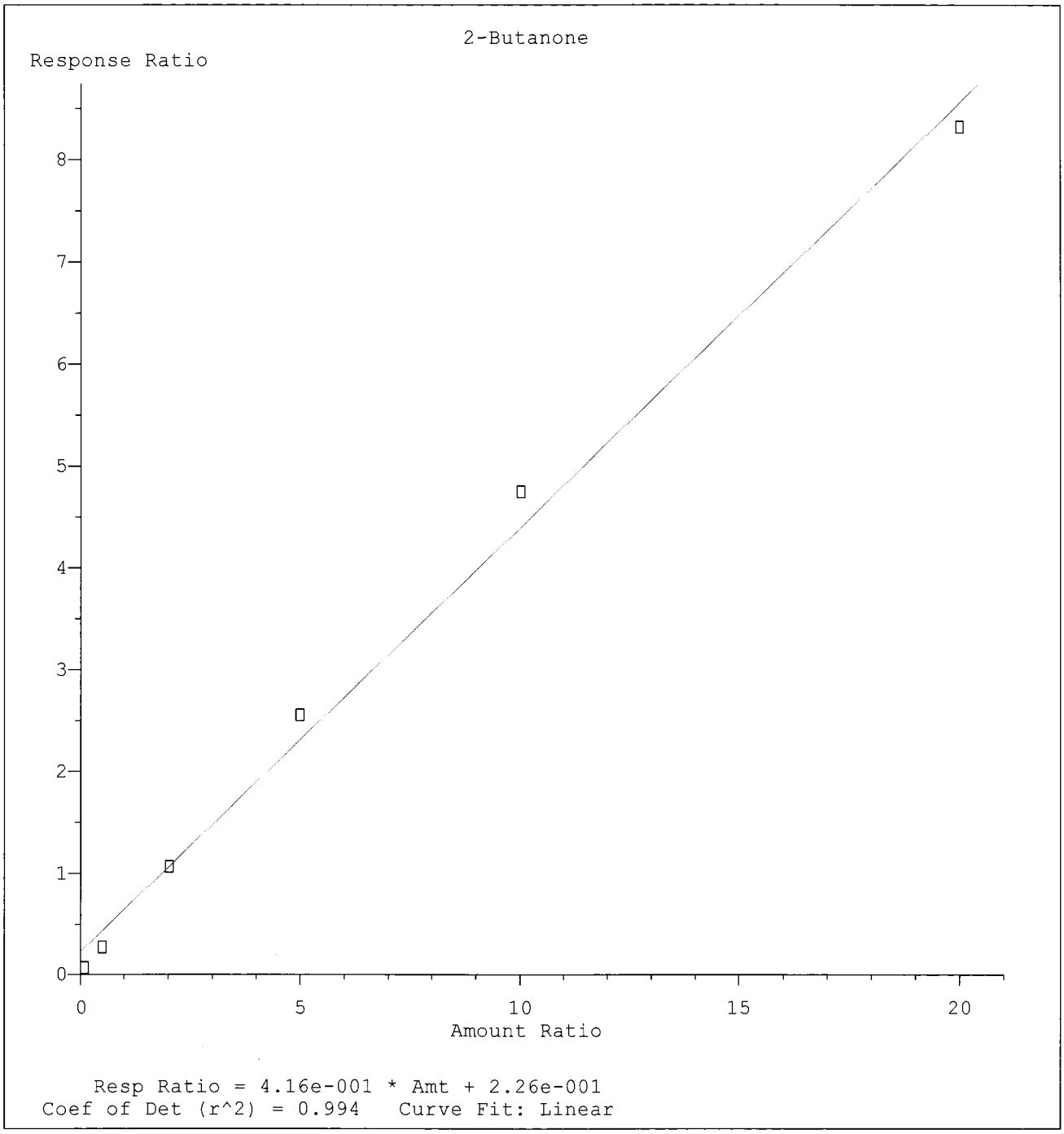
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



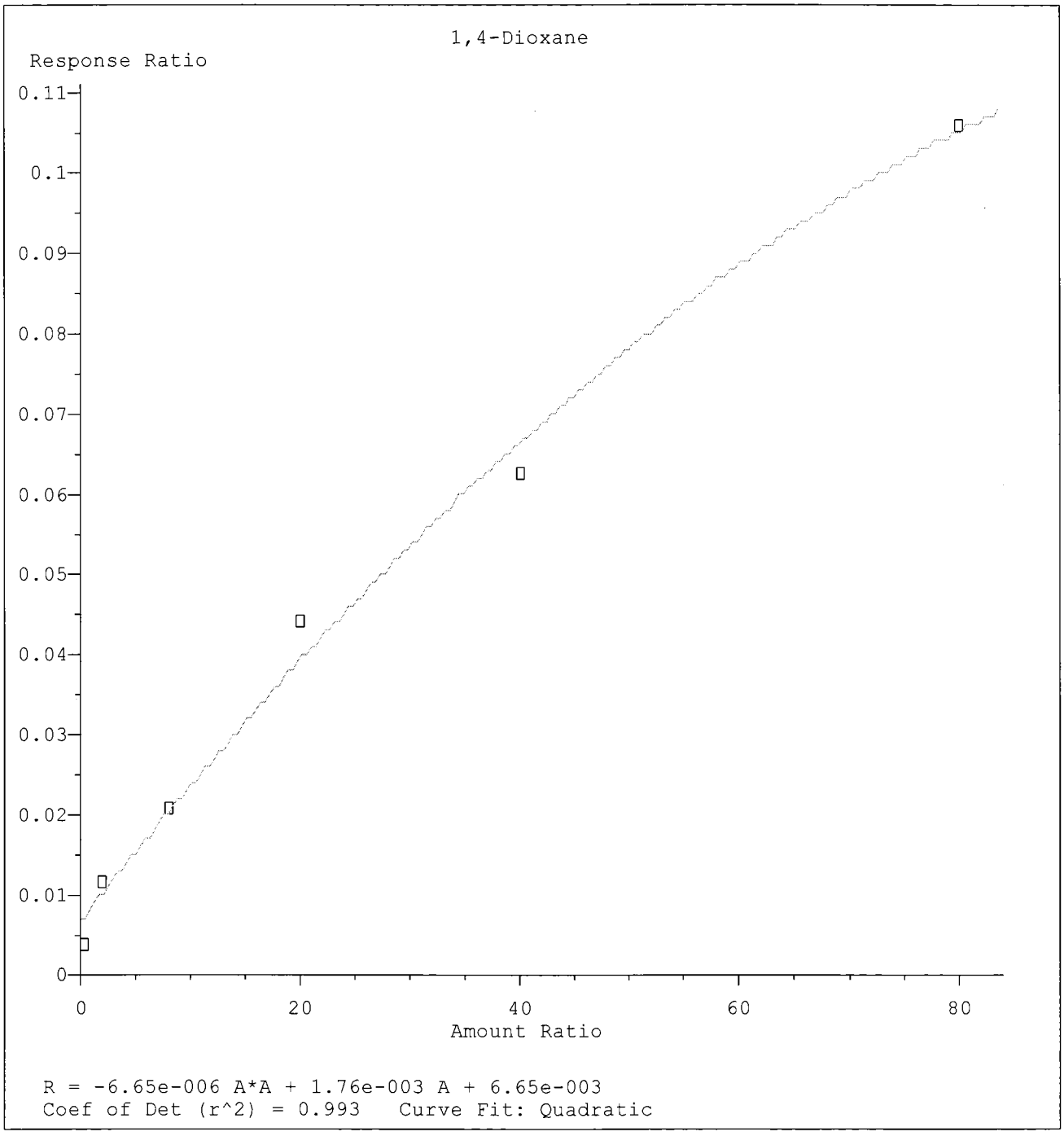
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



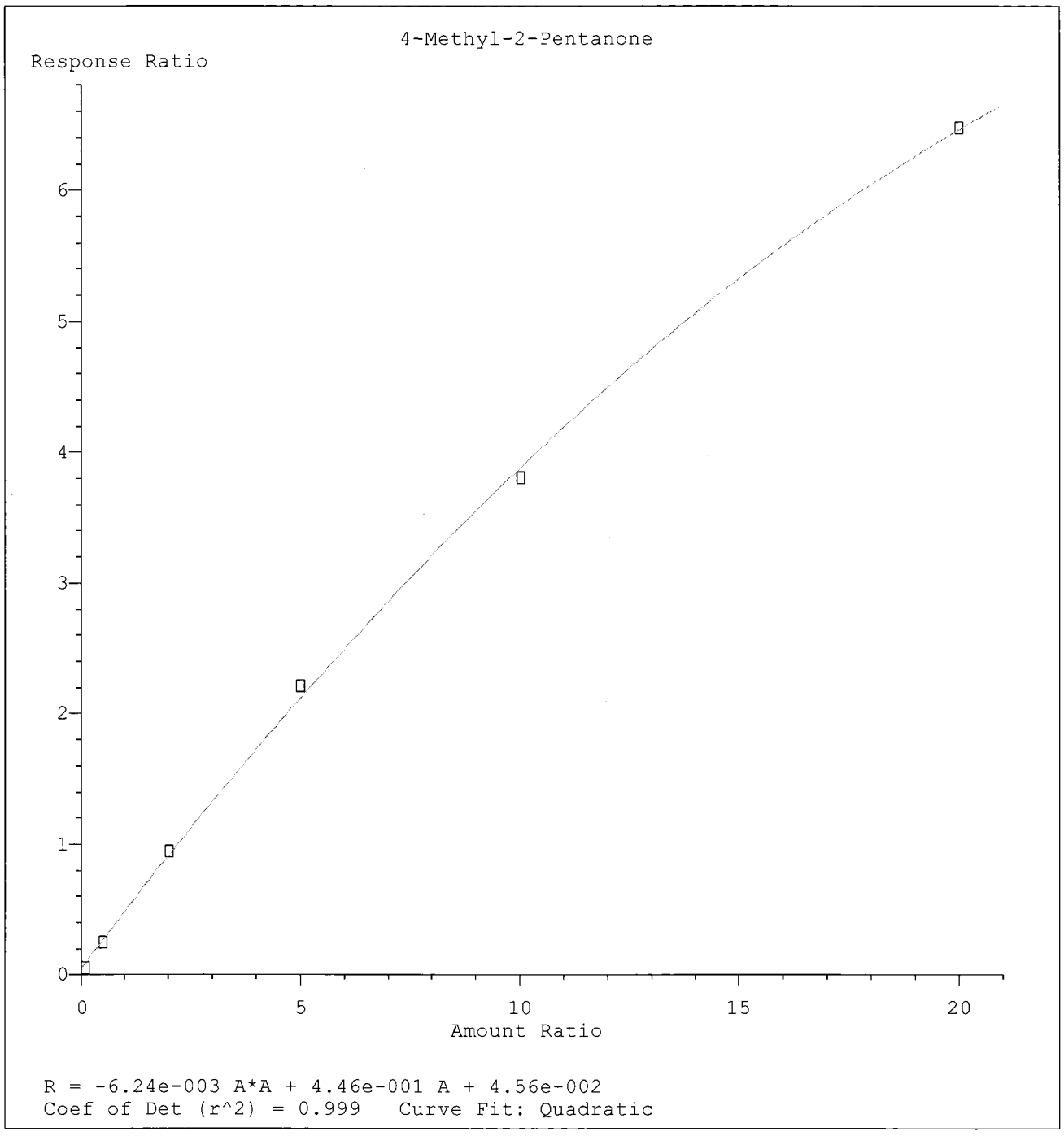
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



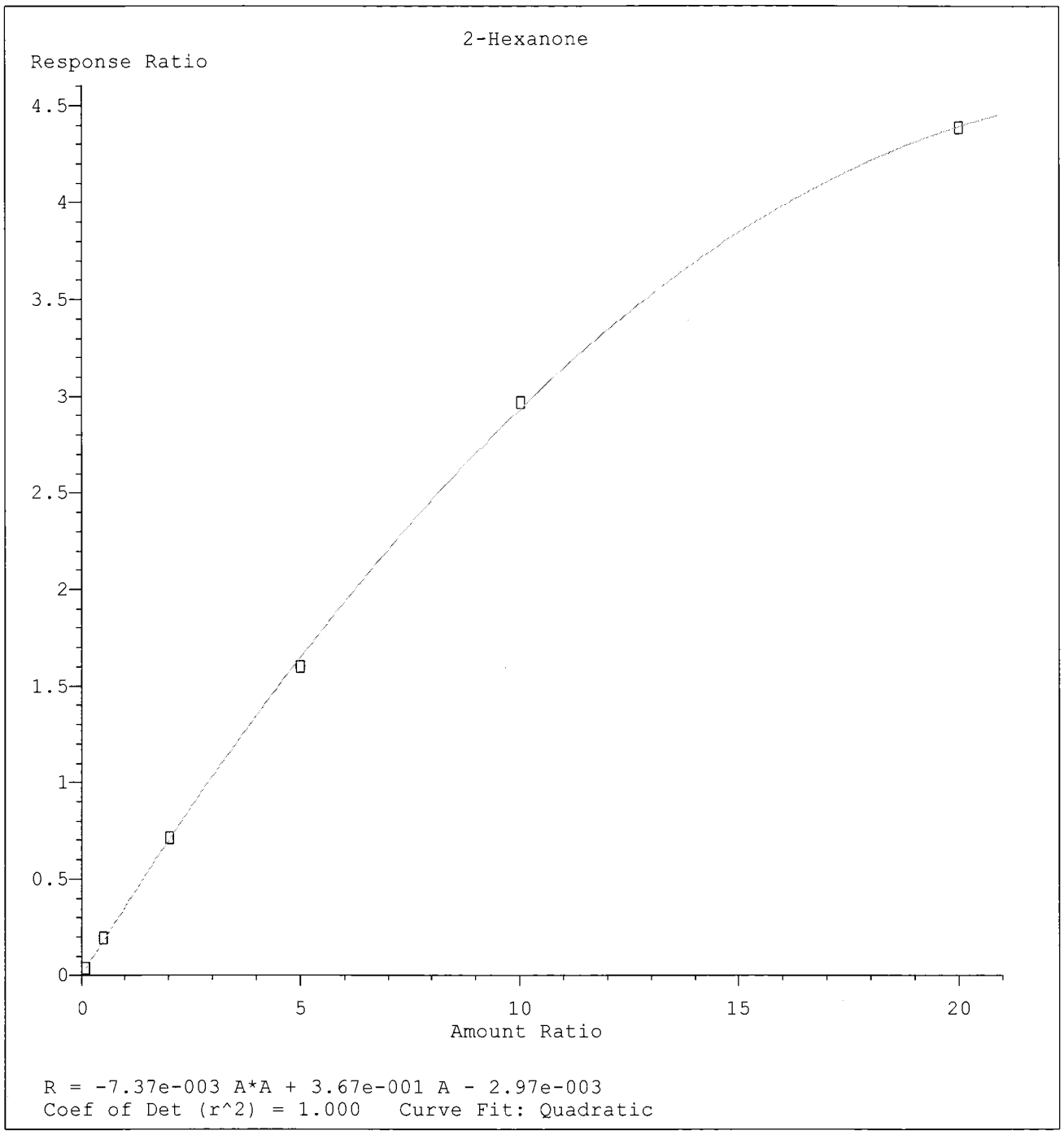
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



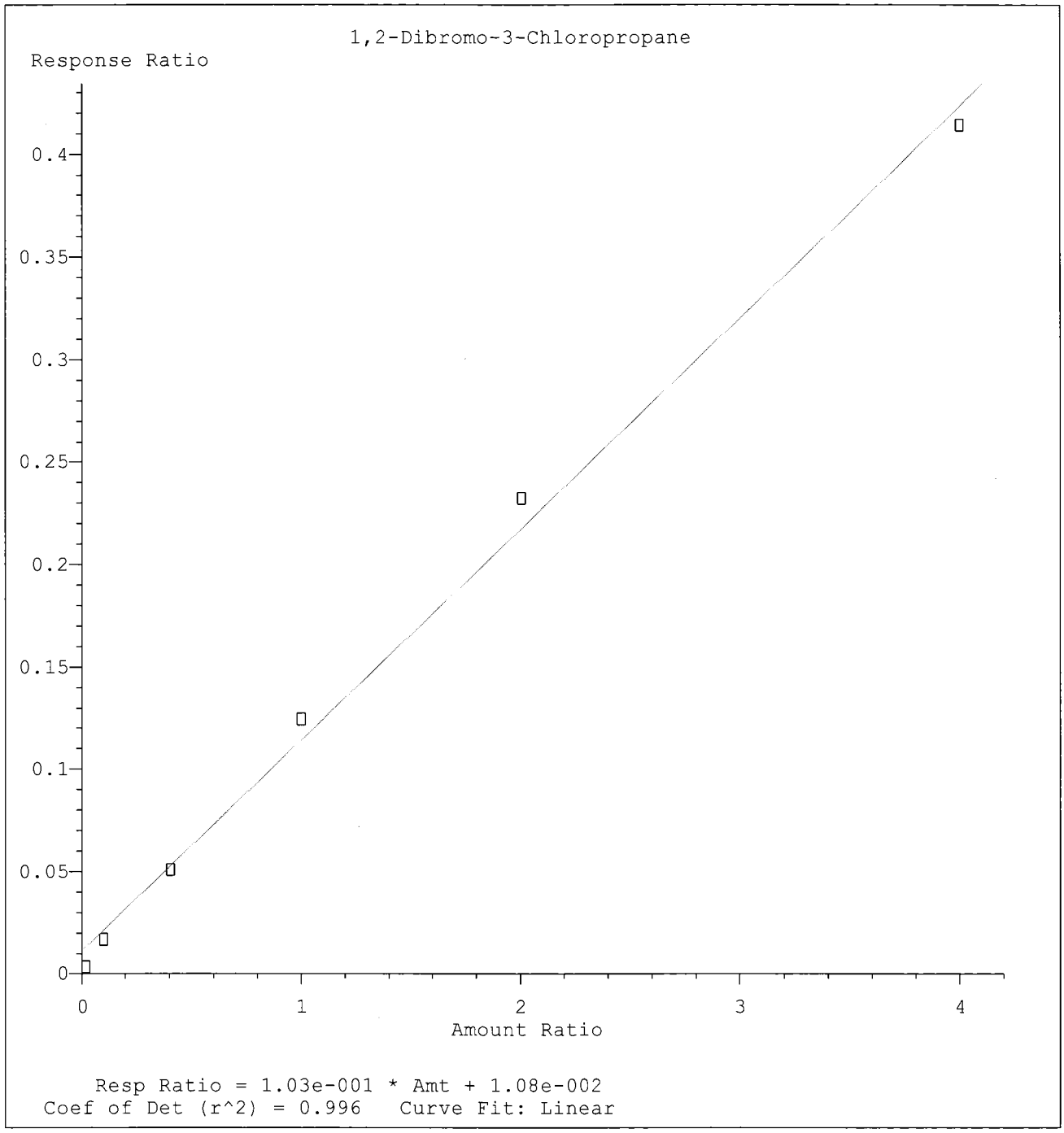
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



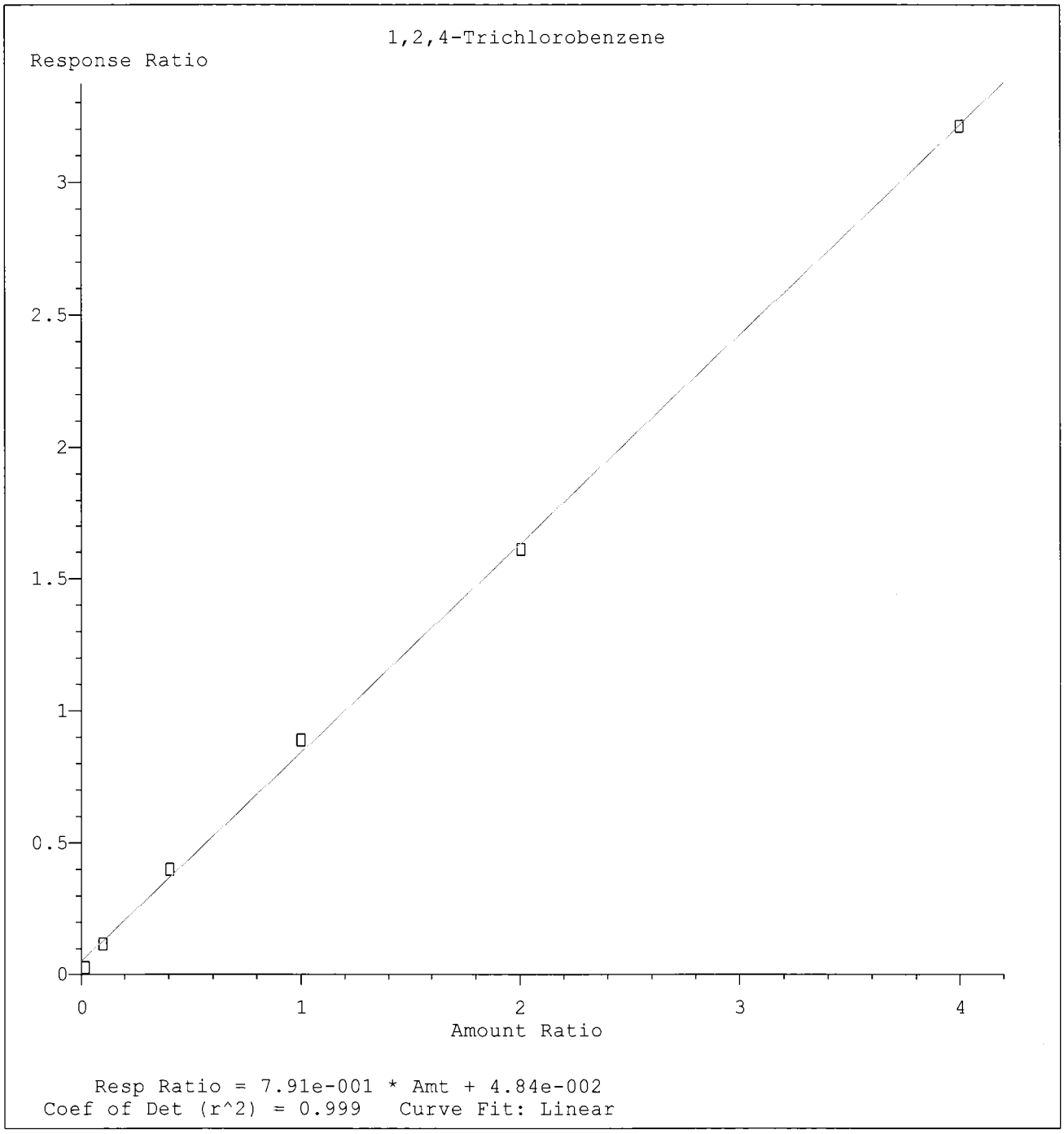
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



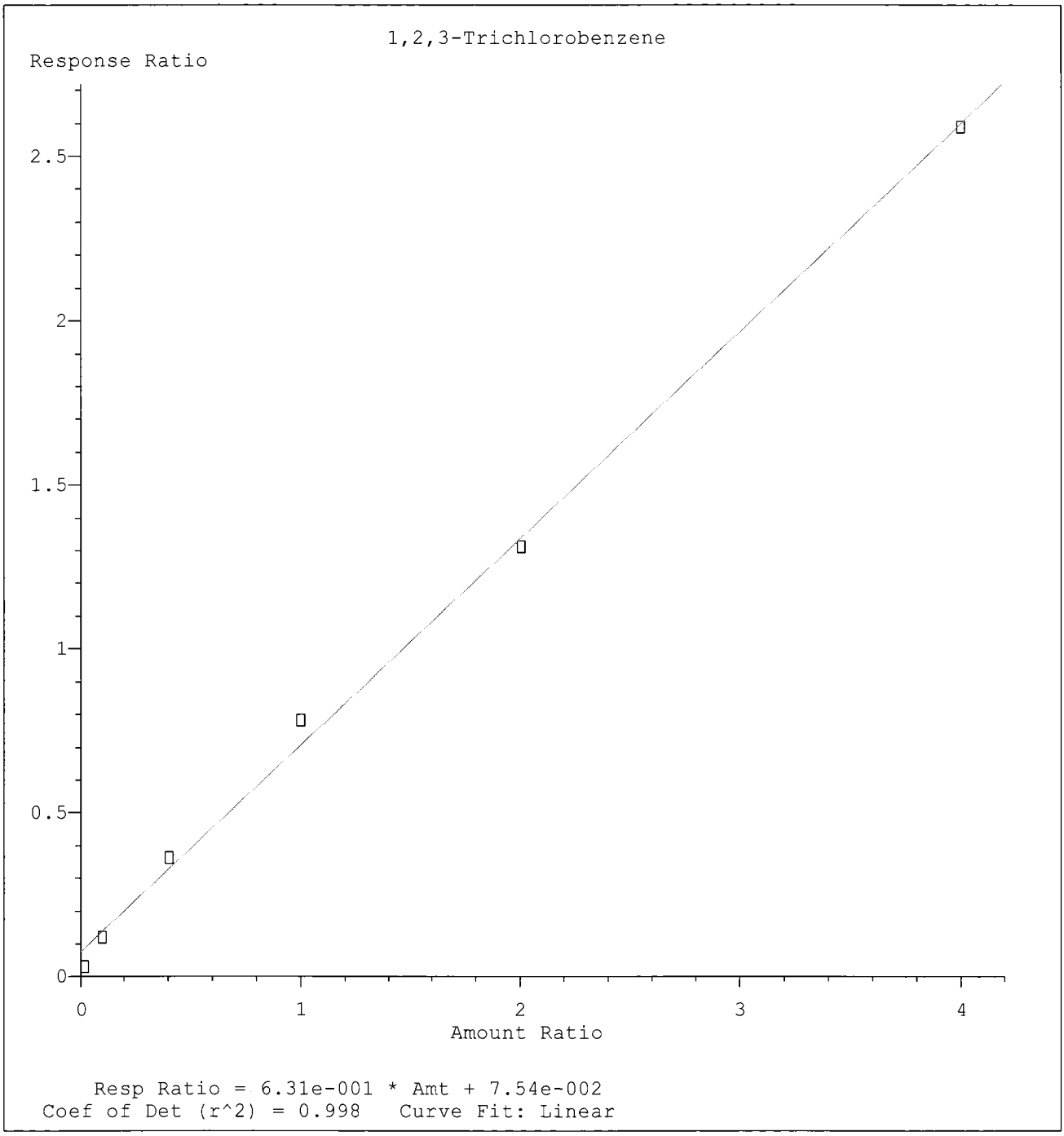
Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012



Method Name: \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Calibration Table Last Updated: Mon Mar 05 15:08:29 2012

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VG041183.D BFB Injection Date: 03/09/2012

Instrument ID: MSVOAG BFB Injection Time: 11:14

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.7
75	30.0 - 60.0% of mass 95	38.4
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.1 (0.1) 1
174	50.0 - 100.0% of mass 95	70.8
175	5.0 - 9.0% of mass 174	5.2 (7.3) 1
176	95.0 - 101.0% of mass 174	68.7 (97.1) 1
177	5.0 - 9.0% of mass 176	4 (5.8) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ~~ANALYZED~~	TIME ANALYZED
VSTD050	50 PPB CCC	VG041184.D	03/09/2012	12:49
VBG0309W1	VBG0309W1	VG041186.D	03/09/2012	14:06
BSG0309W1	BSG0309W1	VG041187.D	03/09/2012	14:32
02MW01S	D1768-01	VG041196.D	03/09/2012	18:29
02MW01I	D1768-02	VG041197.D	03/09/2012	18:55
02MW02S	D1768-03	VG041198.D	03/09/2012	19:20
02MW03I	D1768-04	VG041199.D	03/09/2012	19:46
02MW03SI	D1768-05	VG041200.D	03/09/2012	20:12
02MW04S	D1768-06	VG041201.D	03/09/2012	20:38
02MW04I	D1768-07	VG041202.D	03/09/2012	21:04
12MW010	D1768-08	VG041203.D	03/09/2012	21:30
12MW01S	D1768-09	VG041204.D	03/09/2012	21:55
12MW020	D1768-12	VG041205.D	03/09/2012	22:21

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOAG Calibration Date/Time: 03/09/2012 12:49

Lab File ID: VG041184.D Init. Calib. Date(s): 03/05/2012 03/05/2012

Heated Purge: (Y/N) N Init. Calib. Time(s): 12:30 14:39

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.517	0.443		-14.31	
Chloromethane	1.207	1.292	0.1	7.04	
Vinyl Chloride	0.959	0.983		2.5	20
Bromomethane	0.576	0.562		-2.43	
Chloroethane	0.439	0.426		-2.96	
Trichlorofluoromethane	0.943	0.946		0.32	
1,1,2-Trichlorotrifluoroethane	0.595	0.583		-2.02	
1,1-Dichloroethene	0.643	0.670		4.2	20
Acetone	0.206	0.177		-14.08	
Carbon Disulfide	2.29	1.880		-17.9	
Methyl tert-butyl Ether	1.703	1.763		3.52	
Methyl Acetate	2.123	2.053		-3.3	
Methylene Chloride	0.819	0.842		2.81	
trans-1,2-Dichloroethene	0.718	0.724		0.84	
1,1-Dichloroethane	1.372	1.491	0.1	8.67	
Cyclohexane	1.42	1.394		-1.83	
2-Butanone	0.522	0.461		-11.69	
Carbon Tetrachloride	0.381	0.402		5.51	
cis-1,2-Dichloroethene	0.812	0.863		6.28	
Bromochloromethane	0.806	0.896		11.17	
Chloroform	1.192	1.235		3.61	20
1,1,1-Trichloroethane	0.86	0.875		1.74	
Methylcyclohexane	0.578	0.593		2.6	
Benzene	1.277	1.299		1.72	
1,2-Dichloroethane	0.348	0.350		0.57	
Trichloroethene	0.338	0.347		2.66	
1,2-Dichloropropane	0.384	0.399		3.91	20
Bromodichloromethane	0.435	0.425		-2.3	
4-Methyl-2-Pentanone	0.438	0.418		-4.57	
Toluene	0.693	0.709		2.31	20
t-1,3-Dichloropropene	0.47	0.412		-12.34	
cis-1,3-Dichloropropene	0.544	0.499		-8.27	
1,1,2-Trichloroethane	0.303	0.283		-6.6	
2-Hexanone	0.323	0.280		-13.31	
Dibromochloromethane	0.359	0.356		-0.84	
1,2-Dibromoethane	0.325	0.332		2.15	
Tetrachloroethene	0.303	0.276		-8.91	
Chlorobenzene	1.04	0.964	0.3	-7.31	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOAG Calibration Date/Time: 03/09/2012 12:49

Lab File ID: VG041184.D Init. Calib. Date(s): 03/05/2012 03/05/2012

Heated Purge: (Y/N) N Init. Calib. Time(s): 12:30 14:39

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Ethyl Benzene	1.637	1.541		-5.86	20
m/p-Xylenes	0.636	0.615		-3.3	
o-Xylene	0.596	0.592		-0.67	
Styrene	1.075	1.070		-0.47	
Bromoform	0.248	0.224	0.1	-9.68	
Isopropylbenzene	4.24	3.925		-7.43	
1,1,2,2-Tetrachloroethane	1.23	1.112	0.3	-9.59	
1,3-Dichlorobenzene	1.707	1.622		-4.98	
1,4-Dichlorobenzene	1.743	1.670		-4.19	
1,2-Dichlorobenzene	1.553	1.486		-4.31	
1,2-Dibromo-3-Chloropropane	0.136	0.108		-20.59	
1,2,4-Trichlorobenzene	0.974	0.854		-12.32	
1,2,3-Trichlorobenzene	0.959	0.676		-29.51	
1,2-Dichloroethane-d4	0.597	0.557		-6.7	
Dibromofluoromethane	0.45	0.476		5.78	
Toluene-d8	1.194	1.106		-7.37	
4-Bromofluorobenzene	0.47	0.463		-1.49	
1,4-Dioxane	0.004	0.002		-50	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG030912\
Data File : VG041184.D
Acq On : 9 Mar 2012 12:49
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 2 Sample Multiplier: 1

Instrument : MSVOA_G
ClientSampleId : VSTD050

Quant Time: Mar 10 06:46:32 2012
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Quant Title : SW846 8260
QLast Update : Mon Mar 05 15:08:29 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	90	0.00
2	T	Dichlorodifluoromethane	50.000	42.906	14.2	84	0.00
3	P	Chloromethane	50.000	62.397	-24.8#	109	0.00
4	C	Vinyl Chloride	50.000	58.298	-16.6#	103	-0.01
5	T	Bromomethane	50.000	48.266	3.5	92	0.00
6	T	Chloroethane	50.000	50.255	-0.5	95	0.00
7	T	Trichlorofluoromethane	50.000	50.168	-0.3	94	0.00
8	T	Diethyl Ether	50.000	50.928	-1.9	95	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	49.010	2.0	96	0.00
10	T	Methyl Iodide	50.000	51.405	-2.8	95	0.00
11	T	Tert-butyl alcohol	250.000	361.535	-44.6#	107	0.00
12	CM	1,1-Dichloroethene	50.000	52.036	-4.1#	95	0.00
13	T	Acrolein	250.000	6.312	97.5#	5	0.00
14	T	Allyl chloride	50.000	44.909	10.2	82	0.00
15	T	Acrylonitrile	250.000	296.093	-18.4	96	0.00
16	T	Acetone	250.000	277.675	-11.1	95	0.00
17	T	Carbon Disulfide	50.000	41.053	17.9	76	0.00
18	T	Methyl Acetate	50.000	57.074	-14.1	94	0.00
19	T	Methyl tert-butyl Ether	50.000	51.769	-3.5	95	0.00
20	T	Methylene Chloride	50.000	51.420	-2.8	96	0.00
21	T	trans-1,2-Dichloroethene	50.000	50.422	-0.8	96	0.00
22	T	Diisopropyl ether	50.000	53.784	-7.6	98	0.00
23	T	Vinyl Acetate	250.000	232.604	7.0	82	0.00
24	P	1,1-Dichloroethane	50.000	54.345	-8.7	101	0.00
25	T	2-Butanone	250.000	249.570	0.2	81	0.00
26	T	2,2-Dichloropropane	50.000	52.389	-4.8	97	0.00
27	T	cis-1,2-Dichloroethene	50.000	53.163	-6.3	102	0.00
28	T	Bromochloromethane	50.000	55.582	-11.2	105	0.00
29	C	Chloroform	50.000	51.797	-3.6#	92	0.00
30	T	Cyclohexane	50.000	49.093	1.8	94	0.00
31	T	1,1,1-Trichloroethane	50.000	50.851	-1.7	95	0.00
32	S	1,2-Dichloroethane-d4	50.000	46.631	6.7	87	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	88	0.01
34	S	Dibromofluoromethane	50.000	52.896	-5.8	96	0.00
35	T	1,1-Dichloropropene	50.000	48.708	2.6	87	0.00
36	T	Ethyl Acetate	50.000	45.236	9.5	80	0.00
37	T	Carbon Tetrachloride	50.000	52.764	-5.5	91	0.00
38	T	Methylcyclohexane	50.000	51.316	-2.6	91	0.00
39	TM	Benzene	50.000	50.865	-1.7	87	0.00
40	T	Methacrylonitrile	50.000	51.099	-2.2	90	0.00
41	TM	1,2-Dichloroethane	50.000	50.216	-0.4	89	0.00
42	T	Isopropyl Acetate	50.000	48.741	2.5	84	0.02
43	TM	Trichloroethene	50.000	51.319	-2.6	90	0.00
44	C	1,2-Dichloropropane	50.000	51.876	-3.8#	90	0.01
45	T	Dibromomethane	50.000	47.549	4.9	86	0.00

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG030912\
Data File : VG041184.D
Acq On : 9 Mar 2012 12:49
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 2 Sample Multiplier: 1

Instrument : MSVOA_G
ClientSampleId : VSTD050

Quant Time: Mar 10 06:46:32 2012
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Quant Title : SW846 8260
QLast Update : Mon Mar 05 15:08:29 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	48.887	2.2	86	0.01
47	T	Methyl methacrylate	50.000	46.075	7.8	78	0.01
48	T	1,4-Dioxane	1000.000	923.685	7.6	74	0.02
49	S	Toluene-d8	50.000	53.014	-6.0	89	0.00
50	T	4-Methyl-2-Pentanone	250.000	246.209	1.5	83	0.00
51	CM	Toluene	50.000	51.181	-2.4#	89	0.00
52	T	t-1,3-Dichloropropene	50.000	43.816	12.4	72	0.00
53	T	cis-1,3-Dichloropropene	50.000	45.842	8.3	78	0.00
54	T	1,1,2-Trichloroethane	50.000	46.572	6.9	81	0.00
55	T	Ethyl methacrylate	50.000	49.417	1.2	82	0.00
56	T	1,3-Dichloropropane	50.000	49.939	0.1	85	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	225.433	9.8	76	0.00
58	T	2-Hexanone	250.000	208.637	16.5	77	0.00
59	T	Dibromochloromethane	50.000	49.607	0.8	82	0.00
60	T	1,2-Dibromoethane	50.000	51.171	-2.3	84	0.00
61	S	4-Bromofluorobenzene	50.000	57.743	-15.5	95	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	99	0.00
63	T	Tetrachloroethene	50.000	45.567	8.9	91	0.00
64	PM	Chlorobenzene	50.000	46.328	7.3	89	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	49.468	1.1	96	0.00
66	C	Ethyl Benzene	50.000	47.054	5.9#	91	0.00
67	T	m/p-Xylenes	100.000	96.678	3.3	90	0.00
68	T	o-Xylene	50.000	49.681	0.6	94	0.00
69	T	Styrene	50.000	49.777	0.4	95	0.00
70	P	Bromoform	50.000	45.265	9.5	82	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	104	0.00
72	T	Isopropylbenzene	50.000	46.294	7.4	97	0.01
73	T	N-amyl acetate	50.000	46.492	7.0	89	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	45.179	9.6	93	0.00
75	T	1,2,3-Trichloropropane	50.000	44.941	10.1	90	0.00
76	T	Bromobenzene	50.000	48.716	2.6	98	0.00
77	T	n-propylbenzene	50.000	47.289	5.4	96	0.00
78	T	2-Chlorotoluene	50.000	47.720	4.6	97	0.00
79	T	1,3,5-Trimethylbenzene	50.000	48.857	2.3	100	0.00
80	T	4-Chlorotoluene	50.000	47.948	4.1	96	0.00
81	T	tert-Butylbenzene	50.000	49.418	1.2	102	0.00
82	T	1,2,4-Trimethylbenzene	50.000	49.293	1.4	103	0.00
83	T	sec-Butylbenzene	50.000	47.338	5.3	94	0.00
84	T	p-Isopropyltoluene	50.000	49.828	0.3	99	0.00
85	T	1,3-Dichlorobenzene	50.000	47.511	5.0	96	0.00
86	T	1,4-Dichlorobenzene	50.000	47.904	4.2	99	0.00
87	T	n-Butylbenzene	50.000	49.050	1.9	102	0.00
88	T	Hexachloroethane	50.000	43.736	12.5	88	0.00
89	T	1,2-Dichlorobenzene	50.000	47.858	4.3	99	0.00

Data Path : W:\HPCHEM1\MSVOA_G\DATA\VG030912\
Data File : VG041184.D
Acq On : 9 Mar 2012 12:49
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5mL,MSVOA_G
ALS Vial : 2 Sample Multiplier: 1

Instrument : MSVOA_G
ClientSampleId : VSTD050

Quant Time: Mar 10 06:46:32 2012
Quant Method : \\TERASTORAGE\VOASRV\HPCHEM1\MSVOA_G\METHOD\82G030512W.M
Quant Title : SW846 8260
QLast Update : Mon Mar 05 15:08:29 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
90	T	1,2-Dibromo-3-Chloropropane	50.000	46.863	6.3	90	0.00
91	T	1,2,4-Trichlorobenzene	50.000	50.864	-1.7	100	0.00
92	T	Hexachlorobutadiene	50.000	48.856	2.3	96	0.00
93	T	Naphthalene	50.000	46.344	7.3	86	0.00
94	T	1,2,3-Trichlorobenzene	50.000	47.634	4.7	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VR004089.D BFB Injection Date: 03/07/2012

Instrument ID: MSVOA_R BFB Injection Time: 10:12

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.9
75	30.0 - 60.0% of mass 95	48.8
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	80.5
175	5.0 - 9.0% of mass 174	6.7 (8.3) 1
176	95.0 - 101.0% of mass 174	79.8 (99.2) 1
177	5.0 - 9.0% of mass 176	5.2 (6.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD200	200 PPB ICC	VR004090.D	03/07/2012	13:01
VSTD100	100 PPB ICC	VR004091.D	03/07/2012	13:24
VSTD050	50 PPB ICC	VR004092.D	03/07/2012	13:48
VSTD020	20 PPB ICC	VR004093.D	03/07/2012	14:12
VSTD005	5 PPB ICC	VR004094.D	03/07/2012	14:36
VSTD001	1 PPB ICC	VR004095.D	03/07/2012	15:56

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOA_R Calibration Date(s): 03/07/2012 03/07/2012

Heated Purge: (Y/N) N Calibration Time(s): 13:01 15:56

GC Column: RXI-624 ID: 0.25 (mm)

LAB FILE ID: RRF005 = VR004094.D RRF001 = VR004095.D RRF020 = VR004093.D
RRF050 = VR004092.D RRF100 = VR004091.D RRF200 = VR004090.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF200	RRF	% RSD
Dichlorodifluoromethane	0.522	0.551	0.426	0.467	0.481	0.521	0.495	9.2
Chloromethane	0.353	0.353	0.333	0.360	0.381	0.348	0.355	4.5
Vinyl Chloride	0.341	0.347	0.316	0.348	0.343	0.321	0.336	4.1
Bromomethane	0.476	0.528	0.403	0.406	0.365	0.379	0.426	14.8
Chloroethane	0.349	0.390	0.315	0.334	0.326	0.312	0.338	8.5
Trichlorofluoromethane	0.810	0.871	0.713	0.788	0.803	0.867	0.809	7.2
1,1,2-Trichlorotrifluoroethane	0.450	0.499	0.403	0.436	0.418	0.417	0.437	7.9
1,1-Dichloroethene	0.440	0.443	0.379	0.412	0.399	0.383	0.409	6.7
Acetone	0.096	0.104	0.090	0.091	0.086	0.077	0.091	10
Carbon Disulfide	1.114	1.071	1.043	1.169	1.150	1.148	1.116	4.5
Methyl tert-butyl Ether	1.346	1.305	1.239	1.293	1.220	1.162	1.261	5.3
Methyl Acetate	0.621	0.597	0.562	0.578	0.540	0.480	0.563	8.8
Methylene Chloride	0.496	0.613	0.435	0.472	0.447	0.439	0.484	13.9
trans-1,2-Dichloroethene	0.480	0.530	0.438	0.445	0.422	0.416	0.455	9.4
1,1-Dichloroethane	0.831	0.812	0.750	0.803	0.775	0.776	0.791	3.7
Cyclohexane	0.924	1.607	0.733	0.722	0.700	0.676	0.894	40.3
2-Butanone	0.117	0.105	0.110	0.109	0.101	0.084	0.104	10.9
Carbon Tetrachloride	0.373	0.382	0.355	0.358	0.366	0.368	0.367	2.7
cis-1,2-Dichloroethene	0.556	0.565	0.500	0.525	0.496	0.466	0.518	7.4
Bromochloromethane	0.321	0.315	0.340	0.315	0.297	0.290	0.313	5.7
Chloroform	0.892	0.873	0.832	0.871	0.857	0.896	0.87	2.7
1,1,1-Trichloroethane	0.785	0.889	0.729	0.771	0.771	0.834	0.797	7.1
Methylcyclohexane	0.603	0.664	0.533	0.530	0.507	0.458	0.549	13.3
Benzene	1.221	1.296	1.099	1.087	1.027	0.911	1.107	12.4
1,2-Dichloroethane	0.421	0.456	0.388	0.389	0.382	0.371	0.401	7.9
Trichloroethene	0.368	0.388	0.338	0.333	0.324	0.307	0.343	8.6
1,2-Dichloropropane	0.290	0.284	0.261	0.257	0.242	0.211	0.257	11.3
Bromodichloromethane	0.385	0.374	0.384	0.399	0.399	0.391	0.388	2.6
4-Methyl-2-Pentanone	0.167	0.147	0.160	0.154	0.144	0.118	0.148	11.6
Toluene	0.896	1.169	0.786	0.775	0.727	0.624	0.829	22.7
t-1,3-Dichloropropene	0.451	0.450	0.441	0.452	0.444	0.377	0.436	6.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOA_R Calibration Date(s): 03/07/2012 03/07/2012

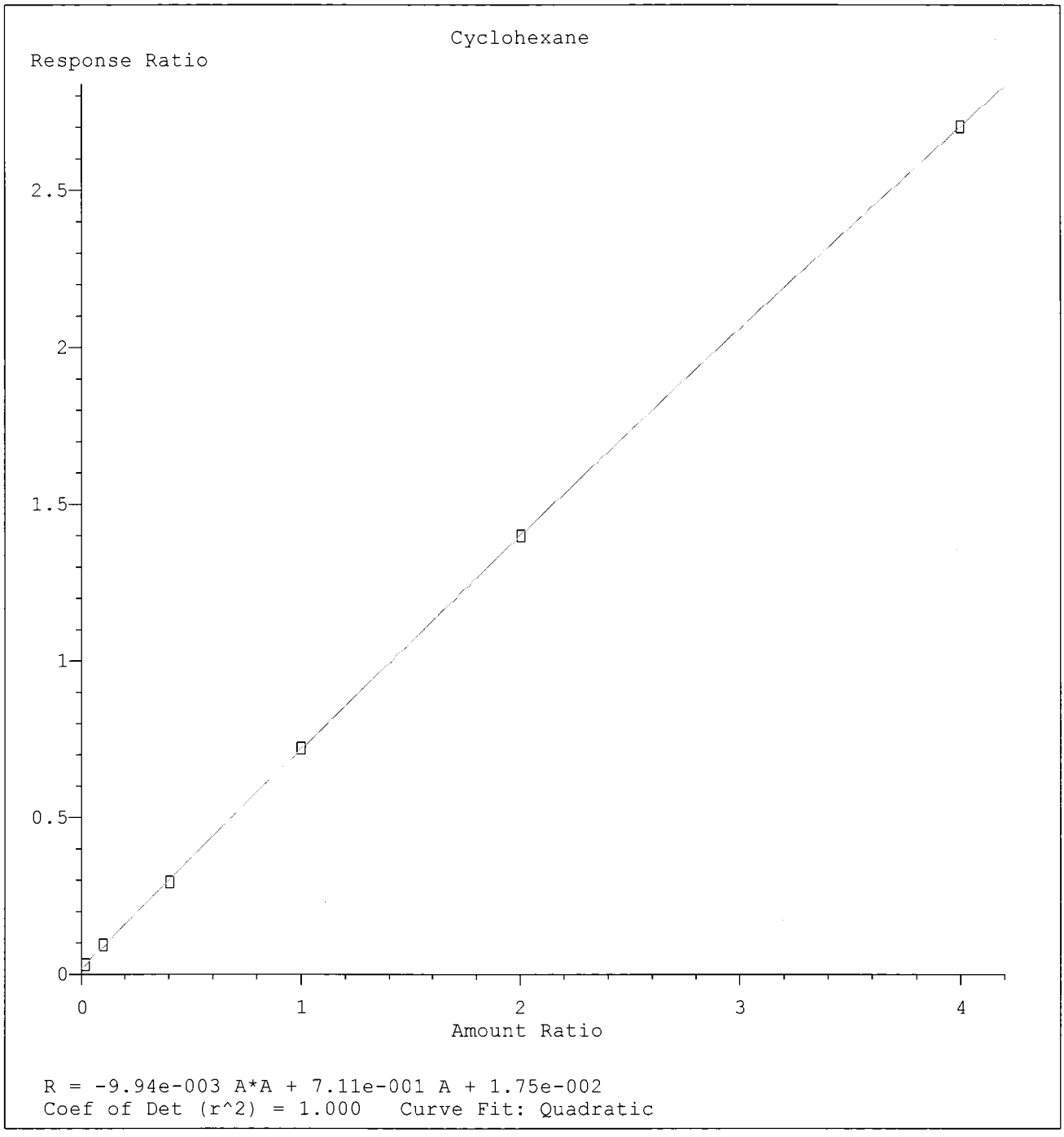
Heated Purge: (Y/N) N Calibration Time(s): 13:01 15:56

GC Column: RXI-624 ID: 0.25 (mm)

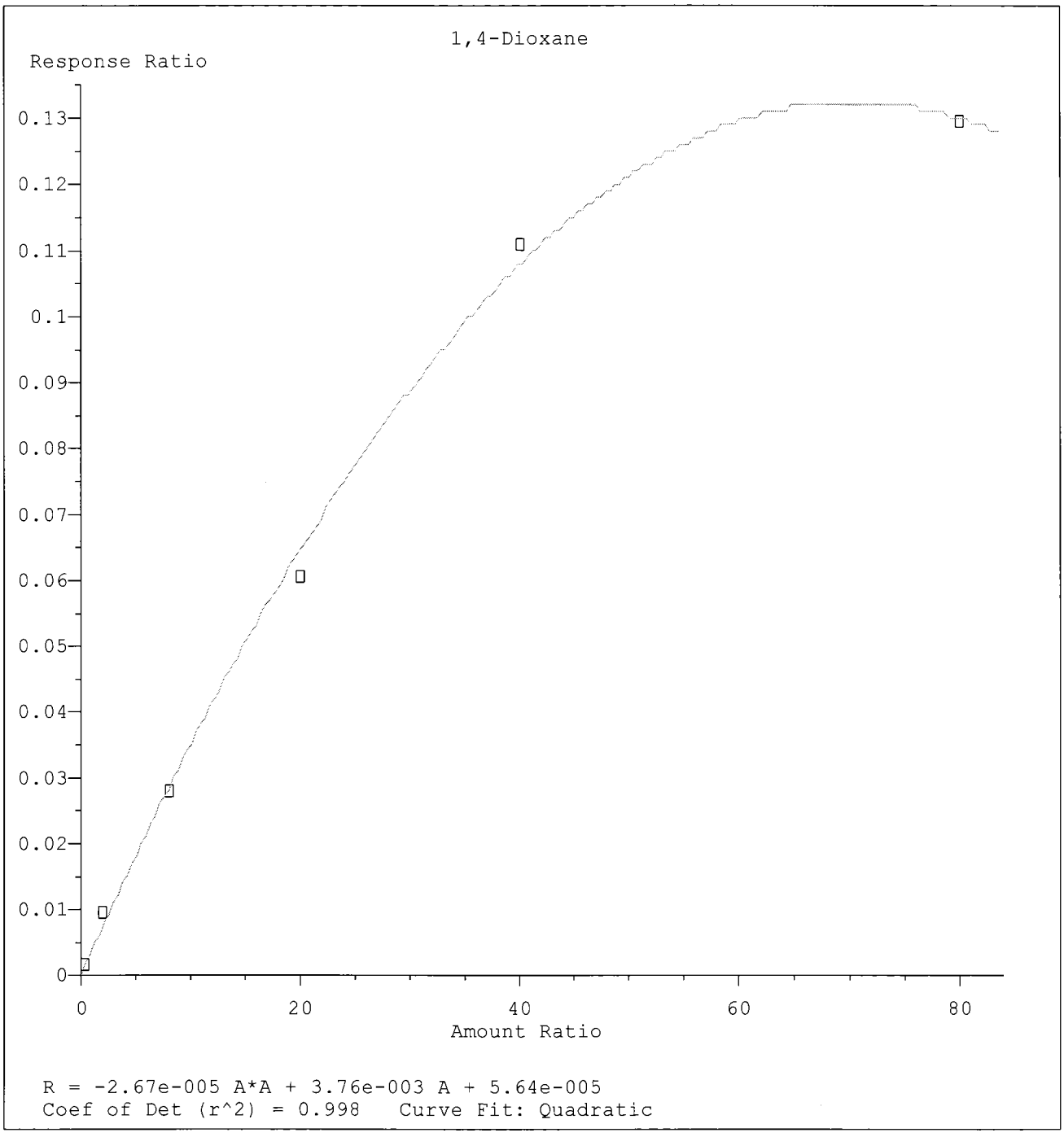
LAB FILE ID: RRF005 = VR004094.D RRF001 = VR004095.D RRF020 = VR004093.D
RRF050 = VR004092.D RRF100 = VR004091.D RRF200 = VR004090.D

COMPOUND	RRF005	RRF001	RRF020	RRF050	RRF100	RRF200	$\overline{RRF}$	% RSD
cis-1,3-Dichloropropene	0.499	0.470	0.485	0.492	0.479	0.438	0.477	4.5
1,1,2-Trichloroethane	0.278	0.265	0.253	0.246	0.238	0.185	0.244	13.3
2-Hexanone	0.117	0.099	0.112	0.109	0.103		0.108	6.7
Dibromochloromethane	0.262	0.269	0.267	0.284	0.288	0.246	0.269	5.7
1,2-Dibromoethane	0.263	0.248	0.243	0.245	0.238	0.193	0.238	9.9
Tetrachloroethene	0.359	0.404	0.308	0.306	0.290		0.333	14.1
Chlorobenzene	1.135	1.207	1.031	1.040	0.988	0.913	1.052	10
Ethyl Benzene	1.854	2.022	1.650	1.652	1.515	1.343	1.673	14.4
m/p-Xylenes	0.766	0.812	0.682	0.669	0.600		0.706	11.9
o-Xylene	0.747	0.783	0.685	0.677	0.613	0.529	0.672	13.6
Styrene	1.165	1.052	1.121	1.124	1.002	0.883	1.058	9.8
Bromoform	0.168	0.156	0.172	0.191	0.185	0.183	0.176	7.4
Isopropylbenzene	3.630	3.589	3.423	3.569	3.428	3.269	3.485	3.9
1,1,2,2-Tetrachloroethane	0.626	0.589	0.594	0.613	0.575	0.501	0.583	7.5
1,3-Dichlorobenzene	1.846	1.911	1.658	1.627	1.473	1.293	1.635	14.1
1,4-Dichlorobenzene	1.838	2.040	1.659	1.662	1.596	1.478	1.712	11.6
1,2-Dichlorobenzene	1.675	1.780	1.545	1.541	1.476	1.355	1.562	9.5
1,2-Dibromo-3-Chloropropane	0.112	0.104	0.116	0.121	0.125	0.113	0.115	6.5
1,2,4-Trichlorobenzene	1.155	1.173	1.118	1.124	1.099	0.986	1.109	5.9
1,2,3-Trichlorobenzene	0.901	0.852	0.887	0.885	0.860	0.759	0.857	6
1,2-Dichloroethane-d4	0.564	0.640	0.533	0.547	0.544	0.547	0.562	7
Dibromofluoromethane	0.282	0.313	0.281	0.276	0.263	0.254	0.278	7.2
Toluene-d8	1.284	1.511	1.214	1.196	1.145	1.010	1.227	13.6
4-Bromofluorobenzene	0.559	0.638	0.505	0.499	0.466		0.533	12.6
1,4-Dioxane	0.005	0.004	0.003	0.003	0.003	0.002	0.003	32.95

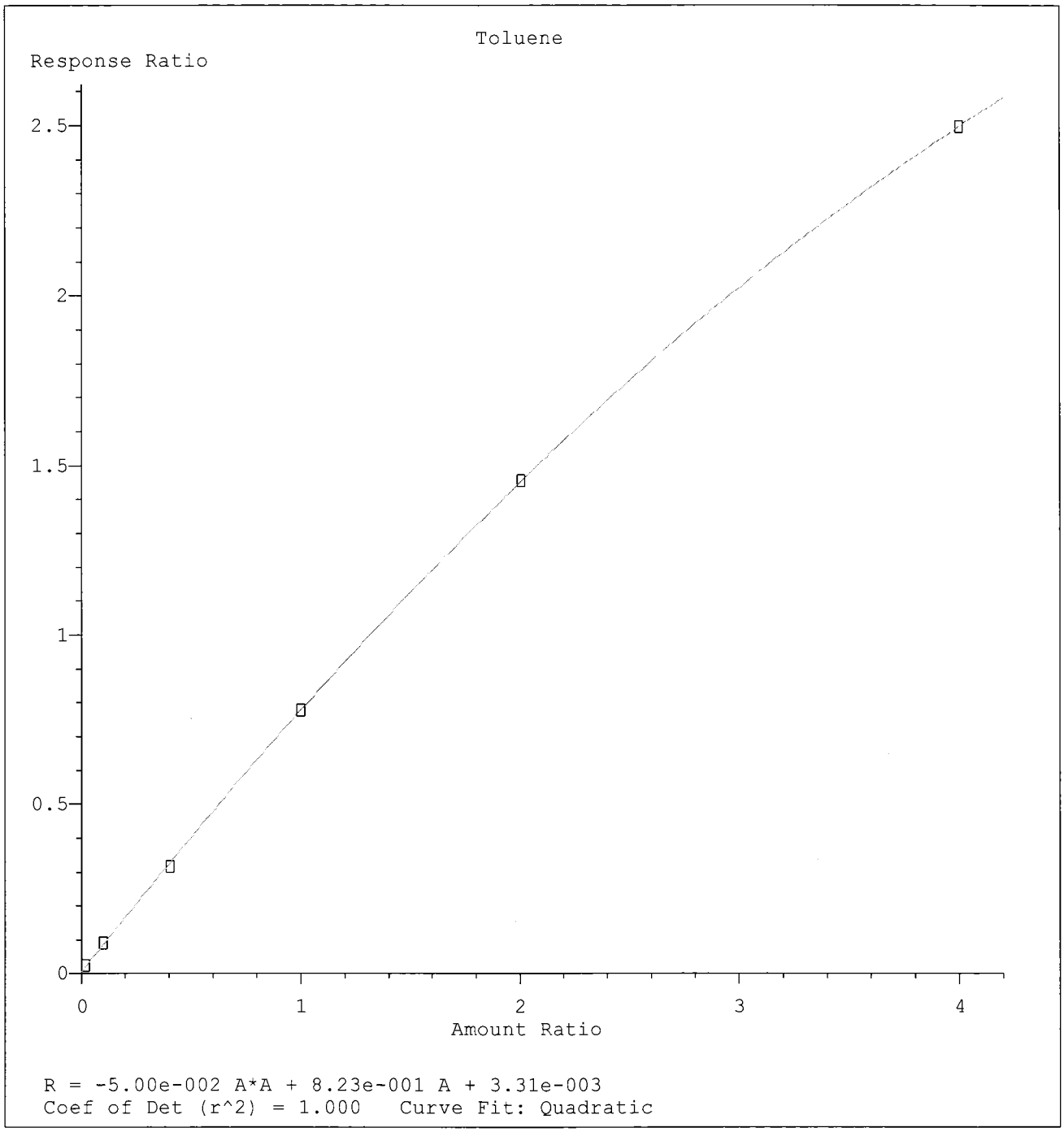
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.



Method Name: W:\HPCHEM1\MSVOA_R\METHOD\82R030712W.M
Calibration Table Last Updated: Wed Mar 07 17:54:42 2012



Method Name: W:\HPCHEM1\MSVOA_R\METHOD\82R030712W.M
Calibration Table Last Updated: Wed Mar 07 17:54:42 2012



Method Name: W:\HPCHEM1\MSVOA_R\METHOD\82R030712W.M
Calibration Table Last Updated: Wed Mar 07 17:54:42 2012

CHEMTECH

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VR004149.D BFB Injection Date: 03/09/2012

Instrument ID: MSVOA_R BFB Injection Time: 23:02

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.6
75	30.0 - 60.0% of mass 95	53.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.0 (0.0) 1
174	50.0 - 100.0% of mass 95	79.2
175	5.0 - 9.0% of mass 174	6.3 (8) 1
176	95.0 - 101.0% of mass 174	77 (97.2) 1
177	5.0 - 9.0% of mass 176	5.1 (6.6) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTD050	50 PPB CCC	VR004150.D	03/09/2012	23:49
VBR0309W2	VBR0309W2	VR004151.D	03/10/2012	00:36
BSR0309W3	BSR0309W3	VR004152.D	03/10/2012	01:00
12MW02S	D1768-13	VR004165.D	03/10/2012	06:04
12MW030	D1768-14	VR004166.D	03/10/2012	06:27
12MW03S	D1768-15	VR004167.D	03/10/2012	06:51
12MW040	D1768-16	VR004168.D	03/10/2012	07:14
12MW04S	D1768-17	VR004169.D	03/10/2012	07:37
12RB01	D1768-18	VR004170.D	03/10/2012	08:00
12GW-DUP01	D1768-19	VR004171.D	03/10/2012	08:23
12GW-DUP02	D1768-20	VR004172.D	03/10/2012	08:46
TRIPBLANK	D1768-21	VR004173.D	03/10/2012	09:09
12MW01SMS	D1768-10MS	VR004174.D	03/10/2012	09:33
12MW01SMSD	D1768-11MSD	VR004175.D	03/10/2012	09:56

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOA_R Calibration Date/Time: 03/09/2012 23:49

Lab File ID: VR004150.D Init. Calib. Date(s): 03/07/2012 03/07/2012

Heated Purge: (Y/N) N Init. Calib. Time(s): 13:01 15:56

GC Column: RXI-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Dichlorodifluoromethane	0.495	0.396		-20	
Chloromethane	0.355	0.298	0.1	-16.06	
Vinyl Chloride	0.336	0.312		-7.14	20
Bromomethane	0.426	0.389		-8.69	
Chloroethane	0.338	0.314		-7.1	
Trichlorofluoromethane	0.809	0.882		9.02	
1,1,2-Trichlorotrifluoroethane	0.437	0.387		-11.44	
1,1-Dichloroethene	0.409	0.381		-6.85	20
Acetone	0.091	0.098		7.69	
Carbon Disulfide	1.116	0.985		-11.74	
Methyl tert-butyl Ether	1.261	1.240		-1.67	
Methyl Acetate	0.563	0.510		-9.41	
Methylene Chloride	0.484	0.430		-11.16	
trans-1,2-Dichloroethene	0.455	0.425		-6.59	
1,1-Dichloroethane	0.791	0.782	0.1	-1.14	
Cyclohexane	0.894	0.628		-29.75	
2-Butanone	0.104	0.099		-4.81	
Carbon Tetrachloride	0.367	0.493		34.33	
cis-1,2-Dichloroethene	0.518	0.496		-4.25	
Bromochloromethane	0.313	0.292		-6.71	
Chloroform	0.87	0.942		8.28	20
1,1,1-Trichloroethane	0.797	0.902		13.17	
Methylcyclohexane	0.549	0.466		-15.12	
Benzene	1.107	1.131		2.17	
1,2-Dichloroethane	0.401	0.488		21.7	
Trichloroethene	0.343	0.397		15.74	
1,2-Dichloropropane	0.257	0.267		3.89	20
Bromodichloromethane	0.388	0.490		26.29	
4-Methyl-2-Pentanone	0.148	0.158		6.76	
Toluene	0.829	0.810		-2.29	20
t-1,3-Dichloropropene	0.436	0.500		14.68	
cis-1,3-Dichloropropene	0.477	0.525		10.06	
1,1,2-Trichloroethane	0.244	0.262		7.38	
2-Hexanone	0.108	0.115		6.48	
Dibromochloromethane	0.269	0.346		28.62	
1,2-Dibromoethane	0.238	0.260		9.24	
Tetrachloroethene	0.333	0.592		77.78	
Chlorobenzene	1.052	1.095	0.3	4.09	

CHEMTECH

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: MSVOA_R Calibration Date/Time: 03/09/2012 23:49

Lab File ID: VR004150.D Init. Calib. Date(s): 03/07/2012 03/07/2012

Heated Purge: (Y/N) N Init. Calib. Time(s): 13:01 15:56

GC Column: RXI-624 ID: 0.25 (mm)

COMPOUND	RRF	RRF050	MIN RRF	%D	MAX%D
Ethyl Benzene	1.673	1.746		4.36	20
m/p-Xylenes	0.706	0.703		-0.42	
o-Xylene	0.672	0.708		5.36	
Styrene	1.058	1.169		10.49	
Bromoform	0.176	0.217	0.1	23.3	
Isopropylbenzene	3.485	3.405		-2.3	
1,1,2,2-Tetrachloroethane	0.583	0.475	0.3	-18.52	
1,3-Dichlorobenzene	1.635	1.690		3.36	
1,4-Dichlorobenzene	1.712	1.739		1.58	
1,2-Dichlorobenzene	1.562	1.595		2.11	
1,2-Dibromo-3-Chloropropane	0.115	0.111		-3.48	
1,2,4-Trichlorobenzene	1.109	1.078		-2.8	
1,2,3-Trichlorobenzene	0.857	0.597		-30.34	
1,2-Dichloroethane-d4	0.562	0.587		4.45	
Dibromofluoromethane	0.278	0.308		10.79	
Toluene-d8	1.227	1.253		2.12	
4-Bromofluorobenzene	0.533	0.557		4.5	
1,4-Dioxane	0.003	0.002		-33.33	

All other compounds must meet a minimum RRF of 0.010.

Data Path : W:\HPCHEM1\MSVOA_R\DATA\VR030912\
Data File : VR004150.D
Acq On : 9 Mar 2012 23:49
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5 mL, MSVOA_R
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 10 04:53:28 2012
Quant Method : W:\HPCHEM1\MSVOA_R\METHOD\82R030712W.M
Quant Title : SW846 8260
QLast Update : Wed Mar 07 17:54:42 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	50.000	50.000	0.0	86	0.00
2	T	Dichlorodifluoromethane	50.000	39.995	20.0#	73	0.00
3	P	Chloromethane	50.000	42.030	15.9	71	0.00
4	C	Vinyl Chloride	50.000	46.378	7.2#	77	0.00
5	T	Bromomethane	50.000	45.686	8.6	83	0.00
6	T	Chloroethane	50.000	46.473	7.1	81	0.00
7	T	Trichlorofluoromethane	50.000	54.506	-9.0	96	0.00
8	T	Diethyl Ether	50.000	43.134	13.7	74	0.00
9	T	1,1,2-Trichlorotrifluoroeth	50.000	44.268	11.5	77	0.01
10	T	Methyl Iodide	50.000	51.549	-3.1	84	0.00
11	T	~~Tert butyl alcohol~~	250.000	172.638	~~30.9#~~	63	0.00
12	CM	1,1-Dichloroethene	50.000	46.529	6.9#	80	0.00
13	T	Acrolein	250.000	298.351	-19.3	104	0.00
14	T	Allyl chloride	50.000	50.489	-1.0	84	0.00
15	T	Acrylonitrile	250.000	219.238	12.3	73	0.00
16	T	Acetone	250.000	269.809	-7.9	93	0.00
17	T	Carbon Disulfide	50.000	44.132	11.7	73	0.00
18	T	Methyl Acetate	50.000	45.272	9.5	76	0.01
19	T	Methyl tert-butyl Ether	50.000	49.193	1.6	83	0.00
20	T	Methylene Chloride	50.000	44.467	11.1	79	0.01
21	T	trans-1,2-Dichloroethene	50.000	46.713	6.6	82	0.00
22	T	Diisopropyl ether	50.000	49.521	1.0	84	0.00
23	T	~~Vinyl Acetate~~	250.000	127.188	~~49.1#~~	40	0.00
24	P	1,1-Dichloroethane	50.000	49.411	1.2	84	0.00
25	T	2-Butanone	250.000	237.665	4.9	78	0.00
26	T	2,2-Dichloropropane	50.000	49.799	0.4	85	0.00
27	T	cis-1,2-Dichloroethene	50.000	47.831	4.3	81	0.00
28	T	Bromochloromethane	50.000	46.705	6.6	80	0.00
29	C	Chloroform	50.000	54.100	-8.2#	93	0.01
30	T	Cyclohexane	50.000	43.453	13.1	75	0.00
31	T	1,1,1-Trichloroethane	50.000	56.640	-13.3	101	0.00
32	S	1,2-Dichloroethane-d4	50.000	52.160	-4.3	93	0.00
33	I	1,4-Difluorobenzene	50.000	50.000	0.0	77	0.00
34	S	Dibromofluoromethane	50.000	55.394	-10.8	86	0.00
35	T	1,1-Dichloropropene	50.000	54.815	-9.6	87	0.00
36	T	Ethyl Acetate	50.000	48.274	3.5	74	0.00
37	T	Carbon Tetrachloride	50.000	67.225	-34.4#	106	0.00
38	T	Methylcyclohexane	50.000	42.473	15.1	68	0.00
39	TM	Benzene	50.000	51.070	-2.1	80	0.00
40	T	Methacrylonitrile	50.000	53.743	-7.5	81	0.00
41	TM	1,2-Dichloroethane	50.000	60.816	-21.6#	97	0.00
42	T	Isopropyl Acetate	50.000	51.935	-3.9	77	0.00
43	TM	Trichloroethene	50.000	57.860	-15.7	92	0.00
44	C	1,2-Dichloropropane	50.000	51.923	-3.8#	80	0.00
45	T	Dibromomethane	50.000	54.136	-8.3	85	0.00

Data Path : W:\HPCHEM1\MSVOA_R\DATA\VR030912\
Data File : VR004150.D
Acq On : 9 Mar 2012 23:49
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5 mL, MSVOA_R
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 10 04:53:28 2012
Quant Method : W:\HPCHEM1\MSVOA_R\METHOD\82R030712W.M
Quant Title : SW846 8260
QLast Update : Wed Mar 07 17:54:42 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	T	Bromodichloromethane	50.000	63.022	-26.0#	94	0.00
47	T	Methyl methacrylate	50.000	53.656	-7.3	81	0.00
48	T	1,4-Dioxane	1000.000	696.708	30.3#	60	0.00
49	S	Toluene-d8	50.000	51.091	-2.2	81	0.00
50	T	4-Methyl-2-Pentanone	250.000	267.299	-6.9	79	0.00
51	CM	Toluene	50.000	52.342	-4.7#	80	0.00
52	T	t-1,3-Dichloropropene	50.000	57.376	-14.8	85	0.00
53	T	cis-1,3-Dichloropropene	50.000	54.983	-10.0	82	0.00
54	T	1,1,2-Trichloroethane	50.000	53.747	-7.5	82	0.00
55	T	Ethyl methacrylate	50.000	53.358	-6.7	74	0.00
56	T	1,3-Dichloropropane	50.000	53.738	-7.5	82	0.00
57	T	2-Chloroethyl Vinyl ether	250.000	230.472	7.8	68	0.00
58	T	2-Hexanone	250.000	265.991	-6.4	81	0.00
59	T	Dibromochloromethane	50.000	64.192	-28.4#	94	0.00
60	T	1,2-Dibromoethane	50.000	54.634	-9.3	82	0.00
61	S	4-Bromofluorobenzene	50.000	52.212	-4.4	86	0.00
62	I	Chlorobenzene-d5	50.000	50.000	0.0	81	0.00
63	T	Tetrachloroethene	50.000	88.728	77.5#	157	0.00
64	PM	Chlorobenzene	50.000	52.019	-4.0	86	0.00
65	T	1,1,1,2-Tetrachloroethane	50.000	60.605	-21.2#	96	0.00
66	C	Ethyl Benzene	50.000	52.195	-4.4#	86	0.00
67	T	m/p-Xylenes	100.000	99.606	0.4	85	0.00
68	T	o-Xylene	50.000	52.672	-5.3	85	0.00
69	T	Styrene	50.000	55.239	-10.5	84	0.00
70	P	Bromoform	50.000	61.885	-23.8#	93	0.00
71	I	1,4-Dichlorobenzene-d4	50.000	50.000	0.0	93	0.00
72	T	Isopropylbenzene	50.000	48.858	2.3	89	0.00
73	T	N-amyl acetate	50.000	46.849	6.3	79	0.00
74	P	1,1,2,2-Tetrachloroethane	50.000	40.747	18.5	72	0.00
75	T	1,2,3-Trichloropropane	50.000	43.700	12.6	77	0.00
76	T	Bromobenzene	50.000	50.515	-1.0	91	0.00
77	T	n-propylbenzene	50.000	47.888	4.2	87	0.00
78	T	2-Chlorotoluene	50.000	51.071	-2.1	92	0.00
79	T	1,3,5-Trimethylbenzene	50.000	53.570	-7.1	95	0.00
80	T	trans-1,4-Dichloro-2-butene	50.000	44.192	11.6	74	0.00
81	T	4-Chlorotoluene	50.000	49.679	0.6	92	0.00
82	T	tert-Butylbenzene	50.000	49.787	0.4	91	0.00
83	T	1,2,4-Trimethylbenzene	50.000	53.979	-8.0	98	0.00
84	T	sec-Butylbenzene	50.000	49.014	2.0	91	0.00
85	T	p-Isopropyltoluene	50.000	51.135	-2.3	96	0.00
86	T	1,3-Dichlorobenzene	50.000	51.676	-3.4	97	0.00
87	T	1,4-Dichlorobenzene	50.000	50.781	-1.6	97	0.00
88	T	n-Butylbenzene	50.000	49.041	1.9	91	0.00
89	T	Hexachloroethane	50.000	54.949	-9.9	98	0.00

Data Path : W:\HPCHEM1\MSVOA_R\DATA\VR030912\
Data File : VR004150.D
Acq On : 9 Mar 2012 23:49
Operator : ZQ
Sample : 50 PPB CCC
Misc : 5 mL, MSVOA_R
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 10 04:53:28 2012
Quant Method : W:\HPCHEM1\MSVOA_R\METHOD\82R030712W.M
Quant Title : SW846 8260
QLast Update : Wed Mar 07 17:54:42 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
)0	T	1,2-Dichlorobenzene	50.000	51.047	-2.1	96	0.00
)1	T	1,2-Dibromo-3-Chloropropane	50.000	48.144	3.7	86	0.00
)2	T	1,2,4-Trichlorobenzene	50.000	48.610	2.8	89	0.00
)3	T	Hexachlorobutadiene	50.000	48.585	2.8	91	0.00
)4	T	Naphthalene	50.000	45.488	9.0	78	0.00
)5	T	1,2,3-Trichlorobenzene	50.000	34.801	-30.4#	63	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBG0309W1

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VG041186.D Lab Sample ID: VBG0309W1

Date Analyzed: 03/09/2012 Time Analyzed: 14:06

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOAG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSG0309W1	BSG0309W1	VG041187.D	03/09/2012
02MW01S	D1768-01	VG041196.D	03/09/2012
02MW01I	D1768-02	VG041197.D	03/09/2012
02MW02S	D1768-03	VG041198.D	03/09/2012
02MW03I	D1768-04	VG041199.D	03/09/2012
02MW03SI	D1768-05	VG041200.D	03/09/2012
02MW04S	D1768-06	VG041201.D	03/09/2012
02MW04I	D1768-07	VG041202.D	03/09/2012
12MW010	D1768-08	VG041203.D	03/09/2012
12MW01S	D1768-09	VG041204.D	03/09/2012
12MW020	D1768-12	VG041205.D	03/09/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG0309W1	SDG No.:	D1768
Lab Sample ID:	VBG0309W1	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041186.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG0309W1	SDG No.:	D1768
Lab Sample ID:	VBG0309W1	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041186.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	U	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	45.8		70 - 120		92%	SPK: 50
1868-53-7	Dibromofluoromethane	46.9		85 - 115		94%	SPK: 50
2037-26-5	Toluene-d8	50.9		85 - 120		102%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.7		75 - 120		97%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	539630	3.85				
540-36-3	1,4-Difluorobenzene	1004230	4.64				
3114-55-4	Chlorobenzene-d5	857174	9.62				
3855-82-1	1,4-Dichlorobenzene-d4	304349	13.33				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBG0309W1	SDG No.:	D1768
Lab Sample ID:	VBG0309W1	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG041186.D	1		03/09/12	VG030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH Client: Tetra Tech NUS, Inc.

Lab Code: CHEM Cas No: D1768 SAS No : D1768 SDG No: D1768

Matrix Spike - EPA Sample No : BSG0309W1 Analytical Method: EPA SW846 8260 Datafile : VG041187.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(35-124)
Chloromethane	20		24	120	(40-125)
Vinyl Chloride	20		22	110	(50-144)
Bromomethane	20		21	105	(44-145)
Chloroethane	20		23	115	(60-135)
Trichlorofluoromethane	20		20	100	(60-137)
1,1,2-Trichlorotrifluoroethane	20		20	100	(52-142)
1,1-Dichloroethene	20		20	100	(70-130)
Acetone	100		83	83	(50-140)
Carbon Disulfide	20		16	80	(36-155)
Methyl tert-butyl Ether	20		21	105	(65-125)
Methyl Acetate	20		21	105	(51-158)
Methylene Chloride	20		21	105	(61-138)
trans-1,2-Dichloroethene	20		20	100	(60-137)
1,1-Dichloroethane	20		21	105	(70-135)
Cyclohexane	20		21	105	(56-141)
2-Butanone	100		90	90	(56-150)
Carbon Tetrachloride	20		21	105	(65-138)
cis-1,2-Dichloroethene	20		20	100	(70-125)
Bromochloromethane	20		23	115	(65-130)
Chloroform	20		21	105	(67-135)
1,1,1-Trichloroethane	20		20	100	(65-130)
Methylcyclohexane	20		21	105	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		20	100	(70-130)
Trichloroethene	20		21	105	(70-125)
1,2-Dichloropropane	20		22	110	(75-125)
Bromodichloromethane	20		20	100	(75-120)
4-Methyl-2-Pentanone	100		100	100	(63-135)
Toluene	20		22	110	(75-120)
t-1,3-Dichloropropene	20		18	90	(66-135)
cis-1,3-Dichloropropene	20		18	90	(70-130)
1,1,2-Trichloroethane	20		20	100	(75-125)
2-Hexanone	100		100	100	(56-130)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : BSG0309W1 **Analytical Method:** EPA SW846 8260 **Datafile :** VG041187.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dibromochloromethane	20		19	95	(64-135)
1,2-Dibromoethane	20		22	110	(80-120)
Tetrachloroethene	20		23	115	(45-178)
Chlorobenzene	20		21	105	(80-120)
Ethyl Benzene	20		21	105	(75-125)
m/p-Xylenes	40		41	103	(75-130)
o-Xylene	20		20	100	(80-120)
Styrene	20		20	100	(65-135)
Bromoform	20		18	90	(70-130)
Isopropylbenzene	20		20	100	(75-125)
1,1,2,2-Tetrachloroethane	20		20	100	(65-130)
1,3-Dichlorobenzene	20		19	95	(75-125)
1,4-Dichlorobenzene	20		19	95	(75-125)
1,2-Dichlorobenzene	20		18	90	(70-120)
1,2-Dibromo-3-Chloropropane	20		14	70	(54-130)
1,2,4-Trichlorobenzene	20		13	65	(65-133)
1,2,3-Trichlorobenzene	20		11	55*	(60-135)
1,4-Dioxane	400		53	13*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 2 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

Comments: _____

CHEMTECH

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBR0309W2

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VR004151.D Lab Sample ID: VBR0309W2

Date Analyzed: 03/10/2012 Time Analyzed: 00:36

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: MSVOA_R

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
BSR0309W3	BSR0309W3	VR004152.D	03/10/2012
12MW02S	D1768-13	VR004165.D	03/10/2012
12MW030	D1768-14	VR004166.D	03/10/2012
12MW03S	D1768-15	VR004167.D	03/10/2012
12MW040	D1768-16	VR004168.D	03/10/2012
12MW04S	D1768-17	VR004169.D	03/10/2012
12RB01	D1768-18	VR004170.D	03/10/2012
12GW-DUP01	D1768-19	VR004171.D	03/10/2012
12GW-DUP02	D1768-20	VR004172.D	03/10/2012
TRIPBLANK	D1768-21	VR004173.D	03/10/2012
12MW01SMS	D1768-10MS	VR004174.D	03/10/2012
12MW01SMSD	D1768-11MSD	VR004175.D	03/10/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBR0309W2	SDG No.:	D1768
Lab Sample ID:	VBR0309W2	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004151.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	0.5	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	0.5	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	0.5	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	0.5	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	0.5	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	0.5	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	0.5	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	0.5	1	ug/L
67-64-1	Acetone	2.5	U	0.5	2.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	0.5	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	0.5	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	0.5	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	0.5	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	0.5	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	0.5	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	0.5	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	2.5	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	0.5	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	0.5	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	0.5	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	0.5	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	0.5	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	0.5	1	ug/L
71-43-2	Benzene	0.5	U	0.32	0.5	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	0.5	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	0.5	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	0.5	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	0.5	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	2.5	5	ug/L
108-88-3	Toluene	0.5	U	0.37	0.5	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	0.5	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBR0309W2	SDG No.:	D1768
Lab Sample ID:	VBR0309W2	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004151.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	0.5	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	0.5	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	2.5	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.52	0.5	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	0.5	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	0.5	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	0.5	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	0.5	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	1	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	0.5	1	ug/L
100-42-5	Styrene	0.5	U	0.36	0.5	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	0.5	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	0.5	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	0.5	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	0.5	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	0.5	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	0.5	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	0.5	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	0.5	1	ug/L
1330-20-7	Total Xylenes	1.5	U	1.4	1.5	3	ug/L
123-91-1	1,4-Dioxane	20	U	20	20	20	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	49.8		70 - 120		100%	SPK: 50
1868-53-7	Dibromofluoromethane	50.1		85 - 115		100%	SPK: 50
2037-26-5	Toluene-d8	48.4		85 - 120		97%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.7		75 - 120		107%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	777901	7.57				
540-36-3	1,4-Difluorobenzene	1192030	8.5				
3114-55-4	Chlorobenzene-d5	1192710	11.32				
3855-82-1	1,4-Dichlorobenzene-d4	747171	13.26				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	VBR0309W2	SDG No.:	D1768
Lab Sample ID:	VBR0309W2	Matrix:	WATER
Analytical Method:	SW8260C	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RXI-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VR004151.D	1		03/10/12	VR030912

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : BSR0309W3 **Analytical Method:** EPA SW846 8260 **Datafile :** VR004152.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dichlorodifluoromethane	20		18	90	(35-124)
Chloromethane	20		16	80	(40-125)
Vinyl Chloride	20		19	95	(50-144)
Bromomethane	20		17	85	(44-145)
Chloroethane	20		19	95	(60-135)
Trichlorofluoromethane	20		23	115	(60-137)
1,1,2-Trichlorotrifluoroethane	20		20	100	(52-142)
1,1-Dichloroethene	20		19	95	(70-130)
Acetone	100		100	100	(50-140)
Carbon Disulfide	20		17	85	(36-155)
Methyl tert-butyl Ether	20		20	100	(65-125)
Methyl Acetate	20		18	90	(51-158)
Methylene Chloride	20		18	90	(61-138)
trans-1,2-Dichloroethene	20		19	95	(60-137)
1,1-Dichloroethane	20		20	100	(70-135)
Cyclohexane	20		19	95	(56-141)
2-Butanone	100		90	90	(56-150)
Carbon Tetrachloride	20		27	135	(65-138)
cis-1,2-Dichloroethene	20		19	95	(70-125)
Bromochloromethane	20		19	95	(65-130)
Chloroform	20		22	110	(67-135)
1,1,1-Trichloroethane	20		23	115	(65-130)
Methylcyclohexane	20		18	90	(56-137)
Benzene	20		21	105	(80-120)
1,2-Dichloroethane	20		25	125	(70-130)
Trichloroethene	20		24	120	(70-125)
1,2-Dichloropropane	20		22	110	(75-125)
Bromodichloromethane	20		24	120	(75-120)
4-Methyl-2-Pentanone	100		110	110	(63-135)
Toluene	20		21	105	(75-120)
t-1,3-Dichloropropene	20		22	110	(66-135)
cis-1,3-Dichloropropene	20		22	110	(70-130)
1,1,2-Trichloroethane	20		22	110	(75-125)
2-Hexanone	100		100	100	(56-130)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

CHEMTECH

WATER VOLATILE LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : BSR0309W3 **Analytical Method:** EPA SW846 8260 **Datafile :** VR004152.D

COMPOUND	SPIKE ADDED (ug/L)	CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMITS REC
Dibromochloromethane	20		25	125	(64-135)
1,2-Dibromoethane	20		23	115	(80-120)
Tetrachloroethene	20		39	195*	(45-178)
Chlorobenzene	20		22	110	(80-120)
Ethyl Benzene	20		22	110	(75-125)
m/p-Xylenes	40		42	105	(75-130)
o-Xylene	20		22	110	(80-120)
Styrene	20		23	115	(65-135)
Bromoform	20		23	115	(70-130)
Isopropylbenzene	20		21	105	(75-125)
1,1,2,2-Tetrachloroethane	20		17	85	(65-130)
1,3-Dichlorobenzene	20		23	115	(75-125)
1,4-Dichlorobenzene	20		22	110	(75-125)
1,2-Dichlorobenzene	20		22	110	(70-120)
1,2-Dibromo-3-Chloropropane	20		17	85	(54-130)
1,2,4-Trichlorobenzene	20		20	100	(65-133)
1,2,3-Trichlorobenzene	20		11	55*	(60-135)
1,4-Dioxane	400		200	50*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 3 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

Comments: _____

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : D1768-10 **Analytical Method:** EPA SW846 8260 **Datafile :** VR004174.D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMITS REC
Dichlorodifluoromethane	50	0	52	104	(30-155)
Chloromethane	50	0	42	84	(40-125)
Vinyl Chloride	50	0	49	98	(50-145)
Bromomethane	50	0	45	90	(34-145)
Chloroethane	50	0	47	94	(60-135)
Trichlorofluoromethane	50	0	64	128	(60-145)
1,1,2-Trichlorotrifluoroethane	50	0	52	104	(47-152)
1,1-Dichloroethene	50	0	50	100	(70-130)
Acetone	250	0	190	76	(40-140)
Carbon Disulfide	50	0	46	92	(35-160)
Methyl tert-butyl Ether	50	0	49	98	(65-125)
Methyl Acetate	50	0	39	78	(29-176)
Methylene Chloride	50	0	46	92	(55-140)
trans-1,2-Dichloroethene	50	0	50	100	(60-140)
1,1-Dichloroethane	50	0	53	106	(70-135)
Cyclohexane	50	0	51	102	(42-159)
2-Butanone	250	0	200	80	(47-150)
Carbon Tetrachloride	50	0	76	152*	(65-140)
cis-1,2-Dichloroethene	50	0	50	100	(70-125)
Bromochloromethane	50	0	50	100	(66-130)
Chloroform	50	0	61	122	(65-135)
1,1,1-Trichloroethane	50	0	65	130	(65-130)
Methylcyclohexane	50	0	47	94	(41-152)
Benzene	50	0	52	104	(80-120)
1,2-Dichloroethane	50	0	65	130	(70-130)
Trichloroethene	50	0	56	112	(70-125)
1,2-Dichloropropane	50	0	54	108	(75-125)
Bromodichloromethane	50	0	66	132*	(75-120)
4-Methyl-2-Pentanone	250	0	240	96	(60-135)
Toluene	50	0	54	108	(75-120)
t-1,3-Dichloropropene	50	0	54	108	(55-140)
cis-1,3-Dichloropropene	50	0	53	106	(70-130)
1,1,2-Trichloroethane	50	0	52	104	(75-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : D1768-10 **Analytical Method:** EPA SW846 8260 **Datafile :** VR004174.D

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMITS REC
2-Hexanone	250	0	220	88	(55-130)
Dibromochloromethane	50	0	65	130	(60-135)
1,2-Dibromoethane	50	0	54	108	(80-120)
Tetrachloroethene	50	0	53	106	(45-148)
Chlorobenzene	50	0	55	110	(80-120)
Ethyl Benzene	50	0	55	110	(75-125)
m/p-Xylenes	100	0	100	100	(75-130)
o-Xylene	50	0	56	112	(80-120)
Styrene	50	0	57	114	(65-135)
Bromoform	50	0	61	122	(70-130)
Isopropylbenzene	50	0	55	110	(75-125)
1,1,2,2-Tetrachloroethane	50	0	43	86	(65-130)
1,3-Dichlorobenzene	50	0	54	108	(75-125)
1,4-Dichlorobenzene	50	0	54	108	(75-125)
1,2-Dichlorobenzene	50	0	53	106	(70-120)
1,2-Dibromo-3-Chloropropane	50	0	43	86	(50-130)
1,2,4-Trichlorobenzene	50	0	44	88	(65-135)
1,2,3-Trichlorobenzene	50	0	16	32*	(55-137)
1,4-Dioxane	1000	0	490	49*	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 4 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : D1768-11 **Analytical Method:** EPA SW846 8260 **Datafile :** VR004175.D

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % (ug/L)	MSD %	QC LIMITS RPD	QC LIMITS REC
Dichlorodifluoromethane	50	48	96	8	20	(30-155)
Chloromethane	50	45	90	7	20	(40-125)
Vinyl Chloride	50	51	102	4	20	(50-145)
Bromomethane	50	46	92	2	20	(34-145)
Chloroethane	50	46	92	2	20	(60-135)
Trichlorofluoromethane	50	60	120	6	20	(60-145)
1,1,2-Trichlorotrifluoroethane	50	50	100	4	20	(47-152)
1,1-Dichloroethene	50	50	100	0	20	(70-130)
Acetone	250	200	80	5	20	(40-140)
Carbon Disulfide	50	46	92	0	20	(35-160)
Methyl tert-butyl Ether	50	49	98	0	20	(65-125)
Methyl Acetate	50	38	76	3	20	(29-176)
Methylene Chloride	50	46	92	0	20	(55-140)
trans-1,2-Dichloroethene	50	49	98	2	20	(60-140)
1,1-Dichloroethane	50	52	104	2	20	(70-135)
Cyclohexane	50	49	98	4	20	(42-159)
2-Butanone	250	200	80	0	20	(47-150)
Carbon Tetrachloride	50	70	140	8	20	(65-140)
cis-1,2-Dichloroethene	50	50	100	0	20	(70-125)
Bromochloromethane	50	49	98	2	20	(66-130)
Chloroform	50	59	118	3	20	(65-135)
1,1,1-Trichloroethane	50	60	120	8	20	(65-130)
Methylcyclohexane	50	45	90	4	20	(41-152)
Benzene	50	51	102	2	20	(80-120)
1,2-Dichloroethane	50	59	118	10	20	(70-130)
Trichloroethene	50	54	108	4	20	(70-125)
1,2-Dichloropropane	50	50	100	8	20	(75-125)
Bromodichloromethane	50	61	122*	8	20	(75-120)
4-Methyl-2-Pentanone	250	230	92	4	20	(60-135)
Toluene	50	51	102	6	20	(75-120)
t-1,3-Dichloropropene	50	52	104	4	20	(55-140)
cis-1,3-Dichloropropene	50	52	104	2	20	(70-130)
1,1,2-Trichloroethane	50	49	98	6	20	(75-125)

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMTECH **Client:** Tetra Tech NUS, Inc.

Lab Code: CHEM **Cas No:** D1768 **SAS No :** D1768 **SDG No:** D1768

Matrix Spike - EPA Sample No : D1768-11 **Analytical Method:** EPA SW846 8260 **Datafile :** VR004175.D

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % (ug/L)	%	QC LIMITS RPD	REC
2-Hexanone	250	210	84	5	20	(55-130)
Dibromochloromethane	50	60	120	8	20	(60-135)
1,2-Dibromoethane	50	50	100	8	20	(80-120)
Tetrachloroethene	50	50	100	6	20	(45-148)
Chlorobenzene	50	53	106	4	20	(80-120)
Ethyl Benzene	50	53	106	4	20	(75-125)
m/p-Xylenes	100	100	100	0	20	(75-130)
o-Xylene	50	53	106	6	20	(80-120)
Styrene	50	56	112	2	20	(65-135)
Bromoform	50	57	114	7	20	(70-130)
Isopropylbenzene	50	53	106	4	20	(75-125)
1,1,2,2-Tetrachloroethane	50	43	86	0	20	(65-130)
1,3-Dichlorobenzene	50	52	104	4	20	(75-125)
1,4-Dichlorobenzene	50	51	102	6	20	(75-125)
1,2-Dichlorobenzene	50	51	102	4	20	(70-120)
1,2-Dibromo-3-Chloropropane	50	43	86	0	20	(50-130)
1,2,4-Trichlorobenzene	50	44	88	0	20	(65-135)
1,2,3-Trichlorobenzene	50	18	36*	12	20	(55-137)
1,4-Dioxane	1000	520	52*	6	20	(70-130)

RPD : 0 Out of 52 outside limits

Spike Recovery : 3 Out of 52 outside limits

 # Column to be used to flag recovery and RPD values with an asterisk

*** Values outside of QC limits**

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
BSG0309W1	BSG0309W1	1,2-Dichloroethane-d4	50	49.06	98		70	120
		Dibromofluoromethane	50	51.28	103		85	115
		Toluene-d8	50	52.62	105		85	120
		4-Bromofluorobenzene	50	54.2	108		75	120
BSR0309W3	BSR0309W3	1,2-Dichloroethane-d4	50	51.37	103		70	120
		Dibromofluoromethane	50	53.17	106		85	115
		Toluene-d8	50	50.12	100		85	120
		4-Bromofluorobenzene	50	49.59	99		75	120
D1768-01	02MW01S	1,2-Dichloroethane-d4	50	46.81	94		70	120
		Dibromofluoromethane	50	47.87	96		85	115
		Toluene-d8	50	50.74	101		85	120
		4-Bromofluorobenzene	50	51.1	102		75	120
D1768-02	02MW01I	1,2-Dichloroethane-d4	50	46.1	92		70	120
		Dibromofluoromethane	50	48.26	97		85	115
		Toluene-d8	50	52.47	105		85	120
		4-Bromofluorobenzene	50	51.23	102		75	120
D1768-03	02MW02S	1,2-Dichloroethane-d4	50	46.9	94		70	120
		Dibromofluoromethane	50	48.34	97		85	115
		Toluene-d8	50	51.55	103		85	120
		4-Bromofluorobenzene	50	51.35	103		75	120
D1768-04	02MW03I	1,2-Dichloroethane-d4	50	46.84	94		70	120
		Dibromofluoromethane	50	46.13	92		85	115
		Toluene-d8	50	50.71	101		85	120
		4-Bromofluorobenzene	50	51.86	104		75	120
D1768-05	02MW03SI	1,2-Dichloroethane-d4	50	45.87	92		70	120
		Dibromofluoromethane	50	46.52	93		85	115
		Toluene-d8	50	50.21	100		85	120
		4-Bromofluorobenzene	50	48.92	98		75	120
D1768-06	02MW04S	1,2-Dichloroethane-d4	50	45.74	91		70	120
		Dibromofluoromethane	50	46.11	92		85	115
		Toluene-d8	50	50.91	102		85	120
		4-Bromofluorobenzene	50	48.8	98		75	120
D1768-07	02MW04I	1,2-Dichloroethane-d4	50	46.3	93		70	120
		Dibromofluoromethane	50	47.93	96		85	115
		Toluene-d8	50	52.08	104		85	120
		4-Bromofluorobenzene	50	50.52	101		75	120
D1768-08	12MW010	1,2-Dichloroethane-d4	50	47.44	95		70	120
		Dibromofluoromethane	50	46.18	92		85	115
		Toluene-d8	50	48.54	97		85	120
		4-Bromofluorobenzene	50	48.83	98		75	120
D1768-09	12MW01S	1,2-Dichloroethane-d4	50	49.64	99		70	120
		Dibromofluoromethane	50	47.23	94		85	115
		Toluene-d8	50	51.08	102		85	120
		4-Bromofluorobenzene	50	51.42	103		75	120
D1768-10MS	12MW01SMS	1,2-Dichloroethane-d4	50	55.33	111		70	120
		Dibromofluoromethane	50	57.16	114		85	115
		Toluene-d8	50	49.79	100		85	120
		4-Bromofluorobenzene	50	49.38	99		75	120
D1768-11MSD	12MW01SMSD	1,2-Dichloroethane-d4	50	55.06	110		70	120
		Dibromofluoromethane	50	58.58	117	*	85	115
		Toluene-d8	50	50.7	101		85	120
		4-Bromofluorobenzene	50	48.38	97		75	120

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW846 8260

Lab Sample ID	Client ID	Parameter	Spike	Result	Recovery	Qual	Limits Low	Limits High
D1768-12	12MW020	1,2-Dichloroethane-d4	50	47.33	95		70	120
		Dibromofluoromethane	50	45.88	92		85	115
		Toluene-d8	50	49.07	98		85	120
		4-Bromofluorobenzene	50	50.94	102		75	120
D1768-13	12MW02S	1,2-Dichloroethane-d4	50	50.7	101		70	120
		Dibromofluoromethane	50	52.64	105		85	115
		Toluene-d8	50	48.11	96		85	120
		4-Bromofluorobenzene	50	52.58	105		75	120
D1768-14	12MW030	1,2-Dichloroethane-d4	50	50.92	102		70	120
		Dibromofluoromethane	50	51.1	102		85	115
		Toluene-d8	50	47.8	96		85	120
		4-Bromofluorobenzene	50	50.94	102		75	120
D1768-15	12MW03S	1,2-Dichloroethane-d4	50	51.45	103		70	120
		Dibromofluoromethane	50	51.79	104		85	115
		Toluene-d8	50	48.05	96		85	120
		4-Bromofluorobenzene	50	51.48	103		75	120
D1768-16	12MW040	1,2-Dichloroethane-d4	50	50.46	101		70	120
		Dibromofluoromethane	50	51.55	103		85	115
		Toluene-d8	50	47.8	96		85	120
		4-Bromofluorobenzene	50	51.03	102		75	120
D1768-17	12MW04S	1,2-Dichloroethane-d4	50	51.06	102		70	120
		Dibromofluoromethane	50	50.7	101		85	115
		Toluene-d8	50	47.68	95		85	120
		4-Bromofluorobenzene	50	51.14	102		75	120
D1768-18	12RB01	1,2-Dichloroethane-d4	50	51.19	102		70	120
		Dibromofluoromethane	50	52.17	104		85	115
		Toluene-d8	50	48.76	98		85	120
		4-Bromofluorobenzene	50	52.08	104		75	120
D1768-19	12GW-DUP01	1,2-Dichloroethane-d4	50	51.09	102		70	120
		Dibromofluoromethane	50	50.98	102		85	115
		Toluene-d8	50	47.7	95		85	120
		4-Bromofluorobenzene	50	50.95	102		75	120
D1768-20	12GW-DUP02	1,2-Dichloroethane-d4	50	51.58	103		70	120
		Dibromofluoromethane	50	51.21	102		85	115
		Toluene-d8	50	46.8	94		85	120
		4-Bromofluorobenzene	50	49.93	100		75	120
D1768-21	TRIPBLANK	1,2-Dichloroethane-d4	50	51.91	104		70	120
		Dibromofluoromethane	50	52.49	105		85	115
		Toluene-d8	50	48.42	97		85	120
		4-Bromofluorobenzene	50	50.63	101		75	120
VBG0309W1	VBG0309W1	1,2-Dichloroethane-d4	50	45.8	92		70	120
		Dibromofluoromethane	50	46.91	94		85	115
		Toluene-d8	50	50.9	102		85	120
		4-Bromofluorobenzene	50	48.69	97		75	120
VBR0309W2	VBR0309W2	1,2-Dichloroethane-d4	50	49.85	100		70	120
		Dibromofluoromethane	50	50.12	100		85	115
		Toluene-d8	50	48.38	97		85	120
		4-Bromofluorobenzene	50	53.71	107		75	120

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VG041184.D Date Analyzed: 03/09/2012

Instrument ID: MSVOAG Time Analyzed: 12:49

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	539648	3.84	985353	4.65	915244	9.63
UPPER LIMIT	1079296	4.34	1970706	5.15	1830488	10.13
LOWER LIMIT	269824	3.34	492676.5	4.15	457622	9.13
EPA SAMPLE NO.						
BSG0309W1	543166	3.84	992625	4.63	842832	9.62
02MW01S	530934	3.84	956793	4.63	845667	9.62
02MW01I	532799	3.83	946556	4.63	840540	9.62
02MW02S	524678	3.83	941442	4.62	847878	9.62
02MW03I	507068	3.83	953253	4.62	836650	9.62
02MW03SI	529610	3.83	963282	4.62	834503	9.61
02MW04S	515153	3.83	933888	4.62	811774	9.61
02MW04I	522085	3.83	918082	4.62	805628	9.61
12MW010	503294	3.83	936632	4.62	791018	9.61
12MW01S	490933	3.83	902654	4.63	796414	9.61
12MW020	493869	3.83	892612	4.62	770026	9.61
VBG0309W1	539630	3.85	1004233	4.64	857174	9.62

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VR004150.D Date Analyzed: 03/09/2012

Instrument ID: MSVOA_R Time Analyzed: 23:49

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	827900	7.57	1215170	8.50	1142837	11.31
UPPER LIMIT	1655800	8.07	2430340	9	2285674	11.81
LOWER LIMIT	413950	7.07	607585	8	571418.5	10.81
EPA SAMPLE NO.						
BSR0309W3	807862	7.57	1188935	8.50	1111463	11.31
12MW01SMS	707355	7.57	1068381	8.50	952755	11.32
12MW01SMSD	906805	7.57	1383764	8.50	1202221	11.32
12MW02S	734580	7.58	1085744	8.50	1078956	11.32
12MW030	735081	7.58	1097492	8.50	1059415	11.31
12MW03S	737345	7.58	1097367	8.50	1065426	11.32
12MW040	727349	7.58	1084274	8.50	1047432	11.32
12MW04S	736654	7.57	1095435	8.50	1036638	11.32
12RB01	730593	7.57	1061648	8.50	1023448	11.31
12GW-DUP01	724213	7.58	1073539	8.50	1037061	11.31
12GW-DUP02	713208	7.57	1081002	8.50	1035464	11.32
TRIPBLANK	709754	7.58	1052391	8.50	1001127	11.32
VBR0309W2	777901	7.57	1192026	8.50	1192714	11.32

IS1 = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VG041184.D Date Analyzed: 03/09/2012

Instrument ID: MSVOAG Time Analyzed: 12:49

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	361074	13.34				
UPPER LIMIT	722148	13.84				
LOWER LIMIT	180537	12.84				
EPA SAMPLE NO.						
BSG0309W1	313302	13.33				
02MW01S	318676	13.33				
02MW01I	300606	13.32				
02MW02S	331696	13.32				
02MW03I	303894	13.33				
02MW03SI	316045	13.33				
02MW04S	298205	13.32				
02MW04I	293489	13.32				
12MW010	278478	13.32				
12MW01S	297770	13.32				
12MW020	288329	13.32				
VBG0309W1	304349	13.33				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: VR004150.D Date Analyzed: 03/09/2012

Instrument ID: MSVOA_R Time Analyzed: 23:49

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

	IS4 AREA #	RT #				
12 HOUR STD	676934	13.26				
UPPER LIMIT	1353868	13.76				
LOWER LIMIT	338467	12.76				
EPA SAMPLE NO.						
BSR0309W3	621800	13.26				
12MW01SMS	530081	13.26				
12MW01SMSD	655534	13.26				
12MW02S	625569	13.26				
12MW030	614620	13.26				
12MW03S	616308	13.26				
12MW040	601194	13.26				
12MW04S	601042	13.26				
12RB01	591900	13.26				
12GW-DUP01	581767	13.26				
12GW-DUP02	589221	13.26				
TRIPBLANK	593137	13.26				
VBR0309W2	747171	13.26				

IS4 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: SVOCMS Group1

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for SVOCMS Group1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_F using GC Column RTX-5 SILMS which is 20 meters, 0.18 mm ID, 0.36 um df, Catalog # 42704.The analysis of SVOCMS Group1 was based on method 8270D and extraction was done based on method 3510.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for 12MW010 [2,4,6-Tribromophenol - 127%], 12MW02S [2,4,6-Tribromophenol - 136%, 2-Fluorobiphenyl - 114%, Nitrobenzene-d5 - 114%], 12MW02SRE [2,4,6-Tribromophenol - 137%, 2-Fluorobiphenyl - 114% and Nitrobenzene-d5 - 113%].
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD {D1768-11MSD} with File ID: BF054188.D recoveries met the acceptable requirements except for 2-Chloronaphthalene [106%], 4,6-Dinitro-2-methylphenol [136%], Acenaphthylene [106%], bis(2-Chloroethoxy)methane [106%], Dibenzofuran [106%] and Hexachlorobenzene [114%].
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Initial Calibration Verification met the requirements.
The Continuous Calibration File ID BF054175.D met the requirements except for 2,4-Dinitrophenol but it was not detected in any of the samples.
The Continuous Calibration File ID BF054199.D met the requirements except for 2,4-Dinitrophenol and 4,6-Dinitro-2-methylphenol but they were not detected in any of the samples.

The Continuous Calibration File ID BF054199.D met the requirements except for 2,4-Dinitrophenol and 4,6-Dinitro-2-methylphenol but they were not detected in any of the samples.
The Continuous Calibration File ID BF054218.D met the requirements except for 2,4-Dinitrophenol but it was not detected in any samples.
The Tuning criteria met requirements.

E. Additional Comments:
Sample 12MW02S was reanalyzed to confirm the surrogate failure.

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.04.03 13:51:07 -05'00'

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1768 SDG NO.: D1768

Lab File ID: BF053968.D DFTPP Injection Date: 03/05/2012

Instrument ID: BNA_F DFTPP Injection Time: 16:08

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	50.6
68	Less than 2.0% of mass 69	0.6 (1.3) 1
69	Mass 69 relative abundance	48.1
70	Less than 2.0% of mass 69	0.2 (0.4) 1
127	10.0 - 80.0% of mass 198	61.8
197	Less than 2.0% of mass 198	0.1
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.6
275	10.0 - 60.0% of mass 198	23
365	Greater than 1% of mass 198	3
441	Present, but less than mass 443	10.6
442	Greater than 50% of mass 198	62.9
443	15.0 - 24.0% of mass 442	12.5 (19.8) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 ng BNA ICC	BF053969.D	03/05/2012	16:39
02	SSTD025	25 ng BNA ICC	BF053970.D	03/05/2012	17:11
03	SSTD040	40 ng BNA ICC	BF053971.D	03/05/2012	17:43
04	SSTD050	50 ng BNA ICC	BF053972.D	03/05/2012	18:15
05	SSTD060	60 ng BNA ICC	BF053973.D	03/05/2012	18:46
06	SSTD080	80 ng BNA ICC	BF053974.D	03/05/2012	19:19

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date(s): 03/05/2012 03/05/2012

Calibration Time(s): 16:39 19:19

LAB FILE ID: RRF010 = BF053969.D RRF025 = BF053970.D RRF040 = BF053971.D
RRF050 = BF053972.D RRF060 = BF053973.D RRF080 = BF053974.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
Benzaldehyde	1.244	1.256	1.237	1.155	1.143	0.997	1.172	8.4
Phenol	1.980	1.876	1.804	1.711	1.715	1.624	1.785	7.2
bis(2-Chloroethyl)ether	1.592	1.560	1.489	1.433	1.419	1.352	1.474	6.1
2-Chlorophenol	1.548	1.498	1.435	1.374	1.383	1.317	1.426	6.0
2-Methylphenol	1.108	1.126	1.087	1.060	1.058	1.028	1.078	3.4
2,2-oxybis(1-Chloropropane)	2.124	2.042	1.950	1.873	1.883	1.774	1.941	6.5
Acetophenone	0.515	0.512	0.503	0.486	0.485	0.465	0.494	3.9
3+4-Methylphenols	1.435	1.441	1.423	1.358	1.379	1.319	1.393	3.5
n-Nitroso-di-n-propylamine	1.033	1.031	1.009	0.974	0.986	0.967	1.000	2.9
Hexachloroethane	0.613	0.623	0.593	0.568	0.585	0.554	0.590	4.4
Nitrobenzene	0.419	0.411	0.397	0.385	0.383	0.364	0.393	5.2
Isophorone	0.688	0.698	0.696	0.685	0.683	0.667	0.686	1.6
2-Nitrophenol	0.182	0.197	0.205	0.200	0.201	0.196	0.197	4.0
2,4-Dimethylphenol	0.334	0.344	0.341	0.334	0.333	0.321	0.335	2.4
bis(2-Chloroethoxy)methane	0.468	0.471	0.460	0.453	0.451	0.432	0.456	3.1
2,4-Dichlorophenol	0.271	0.286	0.285	0.281	0.279	0.268	0.278	2.7
4-Chloroaniline	0.448	0.457	0.454	0.446	0.441	0.421	0.445	2.9
Hexachlorobutadiene	0.150	0.154	0.149	0.148	0.147	0.141	0.148	2.9
Caprolactam	0.073	0.091	0.099	0.099	0.104	0.101	0.094	12.2
4-Chloro-3-methylphenol	0.274	0.287	0.294	0.293	0.292	0.284	0.287	2.6
Hexachlorocyclopentadiene	0.270	0.297	0.293	0.287	0.289	0.280	0.286	3.4
2,4,6-Trichlorophenol	0.296	0.341	0.344	0.343	0.344	0.337	0.334	5.6
2,4,5-Trichlorophenol	0.319	0.358	0.356	0.352	0.355	0.349	0.348	4.2
1,1-Biphenyl	1.598	1.558	1.454	1.391	1.372	1.288	1.443	8.2
2-Chloronaphthalene	1.278	1.243	1.171	1.131	1.113	1.051	1.164	7.2
2-Nitroaniline	0.341	0.363	0.364	0.354	0.364	0.353	0.357	2.6
Dimethylphthalate	1.321	1.337	1.266	1.228	1.224	1.172	1.258	5.0
Acenaphthylene	1.973	1.954	1.831	1.767	1.743	1.645	1.819	7.0
2,6-Dinitrotoluene	0.297	0.311	0.303	0.290	0.288	0.276	0.294	4.1
3-Nitroaniline	0.326	0.363	0.353	0.349	0.356	0.349	0.349	3.6
Acenaphthene	1.162	1.167	1.109	1.079	1.074	1.026	1.103	5.0
2,4-Dinitrophenol	0.007	0.027	0.053	0.068	0.084	0.096	0.056	60.7
4-Nitrophenol	0.193	0.248	0.254	0.253	0.261	0.262	0.245	10.6
Dibenzofuran	1.682	1.661	1.597	1.543	1.533	1.460	1.579	5.3

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

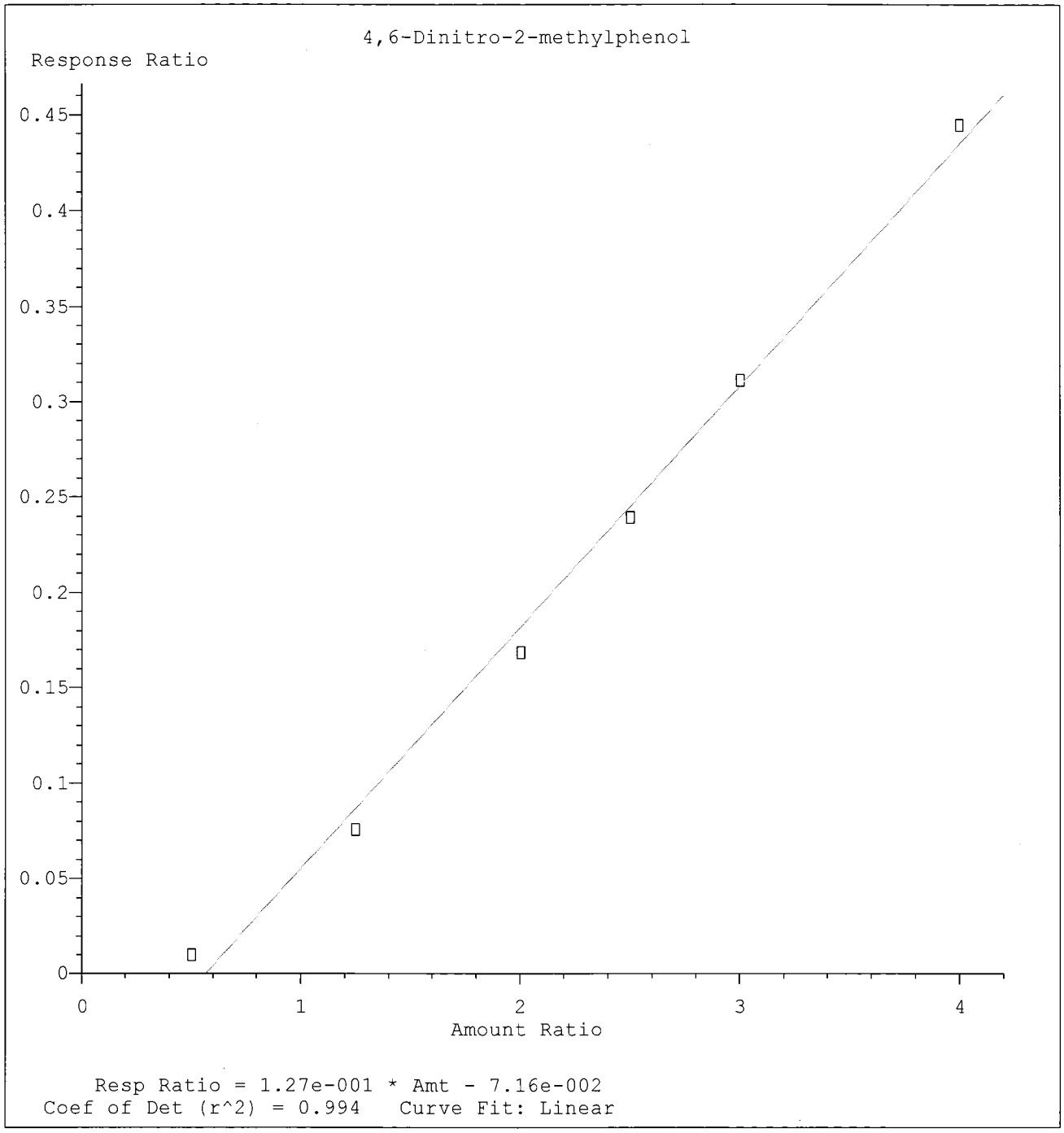
Instrument ID: BNA_F Calibration Date(s): 03/05/2012 03/05/2012

Calibration Time(s): 16:39 19:19

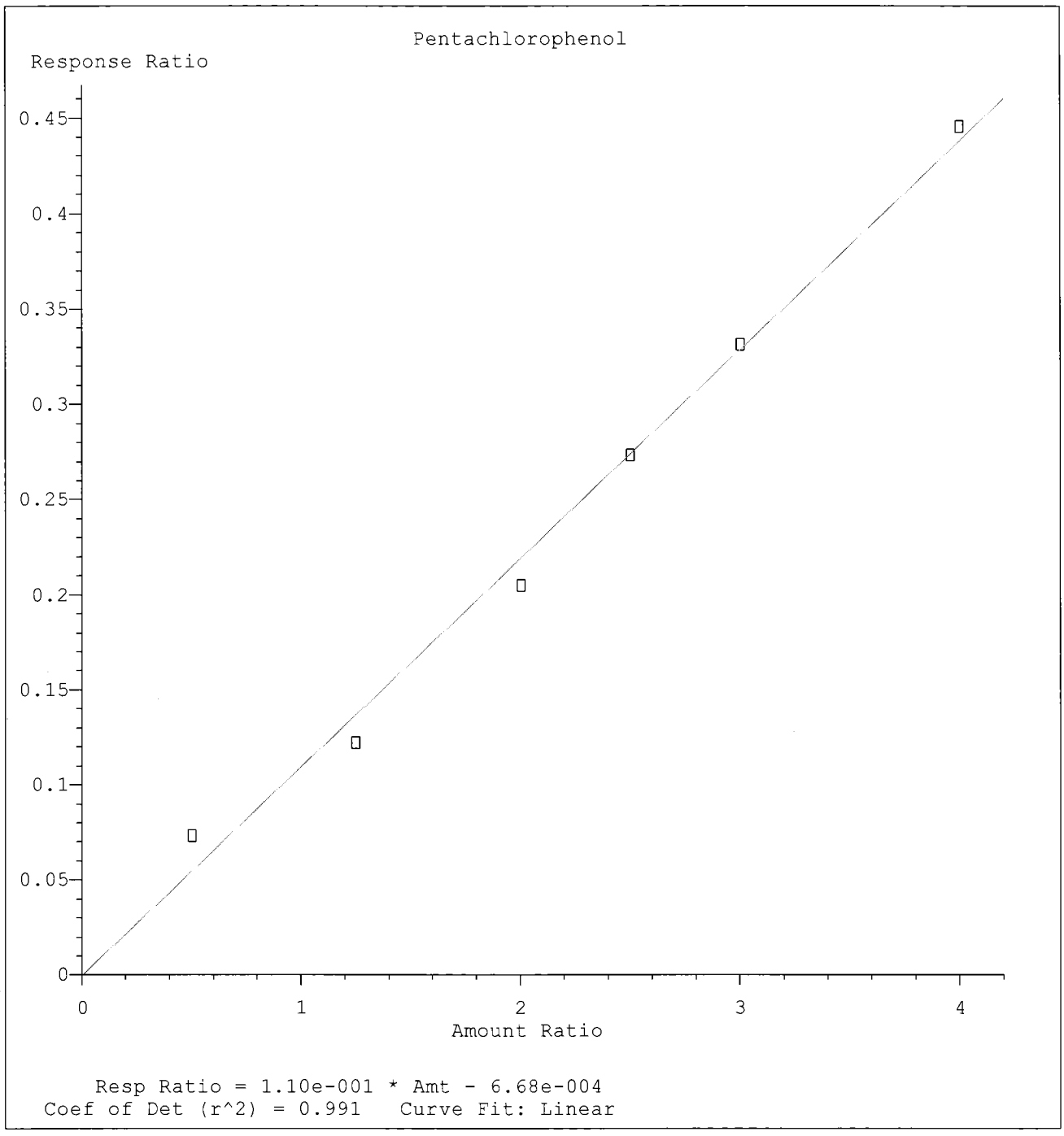
LAB FILE ID: RRF010 = BF053969.D RRF025 = BF053970.D RRF040 = BF053971.D
RRF050 = BF053972.D RRF060 = BF053973.D RRF080 = BF053974.D

COMPOUND	RRF010	RRF025	RRF040	RRF050	RRF060	RRF080	RRF	% RSD
2,4-Dinitrotoluene	0.346	0.389	0.384	0.373	0.378	0.366	0.373	4.1
Diethylphthalate	1.305	1.300	1.252	1.227	1.226	1.184	1.249	3.7
4-Chlorophenyl-phenylether	0.579	0.576	0.558	0.543	0.543	0.522	0.554	3.9
4-Nitroaniline	0.289	0.322	0.318	0.318	0.326	0.322	0.316	4.3
4,6-Dinitro-2-methylphenol	0.020	0.060	0.084	0.096	0.104	0.111	0.079	43.1 → L
n-Nitrosodiphenylamine	0.751	0.732	0.718	0.700	0.688	0.657	0.708	4.7
4-Bromophenyl-phenylether	0.193	0.191	0.188	0.185	0.182	0.176	0.186	3.4
Hexachlorobenzene	0.197	0.193	0.189	0.184	0.182	0.175	0.187	4.3
Atrazine	0.180	0.180	0.182	0.180	0.181	0.176	0.180	1.1
Pentachlorophenol	0.146	0.098	0.102	0.109	0.110	0.111	0.113	15.1 → L
Phenanthrene	1.153	1.102	1.053	1.035	1.016	0.961	1.053	6.4
Carbazole	1.075	1.087	1.048	1.028	1.014	0.969	1.037	4.1
Di-n-butylphthalate	1.204	1.288	1.244	1.235	1.216	1.164	1.225	3.4
Butylbenzylphthalate	0.628	0.694	0.704	0.711	0.734	0.726	0.699	5.4
Bis(2-ethylhexyl)phthalate	0.812	0.909	0.921	0.922	0.952	0.946	0.910	5.6
Di-n-octyl phthalate	1.254	1.495	1.579	1.574	1.645	1.644	1.532	9.6
1,2,4,5-Tetrachlorobenzene	0.514	0.518	0.489	0.472	0.473	0.447	0.485	5.6
2,3,4,6-Tetrachlorophenol	0.216	0.245	0.242	0.242	0.246	0.243	0.239	4.8
2-Fluorophenol	1.455	1.451	1.416	1.361	1.365	1.301	1.392	4.3
Phenol-d5	1.806	1.766	1.692	1.624	1.626	1.558	1.679	5.6
Nitrobenzene-d5	0.401	0.393	0.380	0.372	0.366	0.350	0.377	4.9
2-Fluorobiphenyl	1.418	1.356	1.252	1.196	1.171	1.094	1.248	9.7
2,4,6-Tribromophenol	0.109	0.119	0.118	0.119	0.120	0.118	0.117	3.4
Terphenyl-d14	0.783	0.765	0.734	0.721	0.724	0.693	0.737	4.4

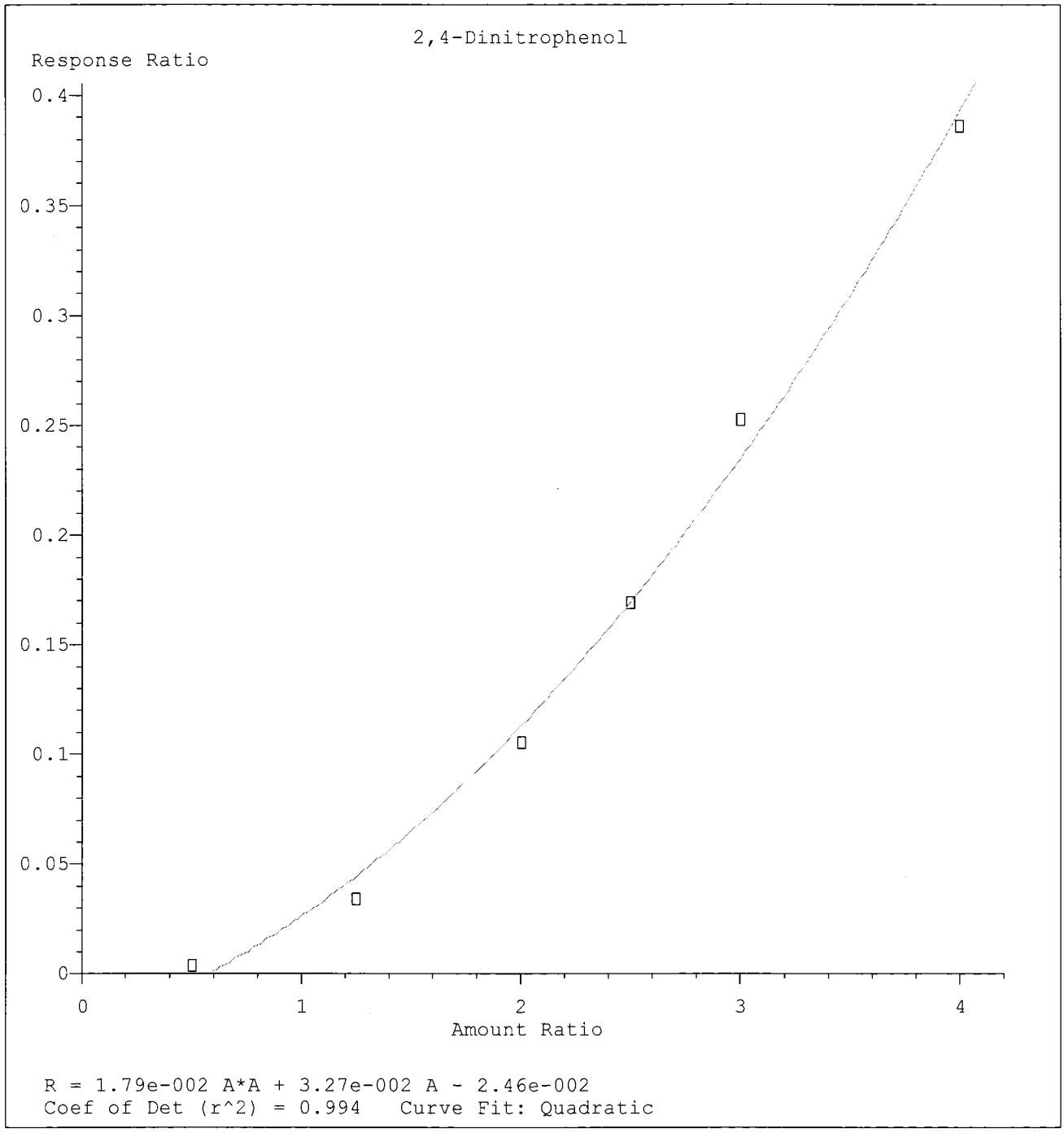
All other compounds must meet a minimum RRF of 0.010.



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Calibration Table Last Updated: Tue Mar 06 01:55:41 2012



Method Name: Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Calibration Table Last Updated: Tue Mar 06 01:56:04 2012



Method Name: \\TSCLIENT\Z\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Calibration Table Last Updated: Tue Mar 06 12:47:09 2012

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1768 SDG NO.: D1768

Lab File ID: BF054174.D DFTPP Injection Date: 03/13/2012

Instrument ID: BNA_F DFTPP Injection Time: 14:49

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	46.3
68	Less than 2.0% of mass 69	0.5 (1) 1
69	Mass 69 relative abundance	47
70	Less than 2.0% of mass 69	0.3 (0.7) 1
127	10.0 - 80.0% of mass 198	61
197	Less than 2.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.4
275	10.0 - 60.0% of mass 198	22.7
365	Greater than 1% of mass 198	3.5
441	Present, but less than mass 443	11.3
442	Greater than 50% of mass 198	71.1
443	15.0 - 24.0% of mass 442	13.5 (19) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF054175.D	03/13/2012	15:20
02	12MW010	D1768-08	BF054185.D	03/13/2012	20:41
03	12MW01S	D1768-09	BF054186.D	03/13/2012	21:13
04	12MW01SMS	D1768-10MS	BF054187.D	03/13/2012	21:46
05	12MW01SMSD	D1768-11MSD	BF054188.D	03/13/2012	22:19
06	12MW020	D1768-12	BF054189.D	03/13/2012	22:51
07	12MW02S	D1768-13	BF054190.D	03/13/2012	23:24
08	12MW030	D1768-14	BF054191.D	03/13/2012	23:57
09	12MW03S	D1768-15	BF054192.D	03/14/2012	00:29
10	12MW040	D1768-16	BF054193.D	03/14/2012	01:02
11	12MW04S	D1768-17	BF054194.D	03/14/2012	01:34
12	12RB01	D1768-18	BF054195.D	03/14/2012	02:06
13	12GW-DUP01	D1768-19	BF054196.D	03/14/2012	02:38

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date/Time: 03/13/2012 15:20

Lab File ID: BF054175.D Init. Calib. Date(s): 03/05/2012 03/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:19

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.172	1.114		4.9	
Phenol	1.785	1.720		3.6	20.0
bis(2-Chloroethyl)ether	1.474	1.381		6.3	
2-Chlorophenol	1.426	1.387		2.7	
2-Methylphenol	1.078	1.081		0.2	
2,2-oxybis(1-Chloropropane)	1.941	1.739		10.4	
Acetophenone	0.494	0.485		1.9	
3+4-Methylphenols	1.393	1.414		1.5	
n-Nitroso-di-n-propylamine	1.000	0.982	0.050	1.8	
Hexachloroethane	0.590	0.569		3.5	
Nitrobenzene	0.393	0.375		4.6	
Isophorone	0.686	0.682		0.5	
2-Nitrophenol	0.197	0.205		3.9	20.0
2,4-Dimethylphenol	0.335	0.338		0.9	
bis(2-Chloroethoxy)methane	0.456	0.445		2.5	
2,4-Dichlorophenol	0.278	0.291		4.8	20.0
4-Chloroaniline	0.445	0.452		1.5	
Hexachlorobutadiene	0.148	0.150		1.1	20.0
Caprolactam	0.094	0.106		12.5	
4-Chloro-3-methylphenol	0.287	0.304		5.9	20.0
Hexachlorocyclopentadiene	0.286	0.263	0.050	8.1	
2,4,6-Trichlorophenol	0.334	0.348		4.1	20.0
2,4,5-Trichlorophenol	0.348	0.358		2.9	
1,1-Biphenyl	1.443	1.381		4.3	
2-Chloronaphthalene	1.164	1.131		2.8	
2-Nitroaniline	0.357	0.343		4.0	
Dimethylphthalate	1.258	1.240		1.5	
Acenaphthylene	1.819	1.755		3.5	
2,6-Dinitrotoluene	0.294	0.285		3.2	
3-Nitroaniline	0.349	0.349		0.0	
Acenaphthene	1.103	1.075		2.5	20.0
2,4-Dinitrophenol	0.056	0.084	0.050	49.8	
4-Nitrophenol	0.245	0.269	0.050	9.7	
Dibenzofuran	1.579	1.542		2.4	
2,4-Dinitrotoluene	0.373	0.377		1.2	
Diethylphthalate	1.249	1.224		2.0	
4-Chlorophenyl-phenylether	0.554	0.555		0.2	
4-Nitroaniline	0.316	0.324		2.5	

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date/Time: 03/13/2012 15:20

Lab File ID: BF054175.D Init. Calib. Date(s): 03/05/2012 03/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:19

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
4,6-Dinitro-2-methylphenol	0.079	0.093		17.7	
n-Nitrosodiphenylamine	0.708	0.688		2.8	20.0
4-Bromophenyl-phenylether	0.186	0.187		0.6	
Hexachlorobenzene	0.187	0.191		2.0	
Atrazine	0.180	0.208		15.5	
Pentachlorophenol	0.113	0.113		0.0	20.0
Phenanthrene	1.053	1.032		2.0	
Carbazole	1.037	1.034		0.3	
Di-n-butylphthalate	1.225	1.277		4.3	
Butylbenzylphthalate	0.699	0.713		2.0	
Bis(2-ethylhexyl)phthalate	0.910	0.929		2.1	
Di-n-octyl phthalate	1.532	1.585		3.5	20.0
1,2,4,5-Tetrachlorobenzene	0.485	0.474		2.3	
2,3,4,6-Tetrachlorophenol	0.239	0.257		7.7	
2-Fluorophenol	1.392	1.349		3.1	
Phenol-d5	1.679	1.648		1.9	
Nitrobenzene-d5	0.377	0.363		3.8	
2-Fluorobiphenyl	1.248	1.189		4.7	
2,4,6-Tribromophenol	0.117	0.127		8.8	
Terphenyl-d14	0.737	0.737		0.0	

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1768 SDG NO.: D1768

Lab File ID: BF054198.D DFTPP Injection Date: 03/14/2012

Instrument ID: BNA_F DFTPP Injection Time: 03:43

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	43.4
68	Less than 2.0% of mass 69	0.5 (1) 1
69	Mass 69 relative abundance	46.5
70	Less than 2.0% of mass 69	0.3 (0.6) 1
127	10.0 - 80.0% of mass 198	60.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7
275	10.0 - 60.0% of mass 198	24.1
365	Greater than 1% of mass 198	2.7
441	Present, but less than mass 443	11.2
442	Greater than 50% of mass 198	74.8
443	15.0 - 24.0% of mass 442	14 (18.7) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF054199.D	03/14/2012	04:15
02	PB61642BS	PB61642BS	BF054200.D	03/14/2012	04:47
03	PB61642B	PB61642B	BF054212.D	03/14/2012	11:04

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date/Time: 03/14/2012 04:15

Lab File ID: BF054199.D Init. Calib. Date(s): 03/05/2012 03/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:19

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.172	1.093		6.7	
Phenol	1.785	1.699		4.8	20.0
bis(2-Chloroethyl)ether	1.474	1.366		7.3	
2-Chlorophenol	1.426	1.364		4.3	
2-Methylphenol	1.078	1.050		2.6	
2,2-oxybis(1-Chloropropane)	1.941	1.642		15.4	
Acetophenone	0.494	0.487		1.5	
3+4-Methylphenols	1.393	1.375		1.3	
n-Nitroso-di-n-propylamine	1.000	0.944	0.050	5.6	
Hexachloroethane	0.590	0.555		5.9	
Nitrobenzene	0.393	0.370		5.8	
Isophorone	0.686	0.675		1.6	
2-Nitrophenol	0.197	0.203		3.2	20.0
2,4-Dimethylphenol	0.335	0.328		2.2	
bis(2-Chloroethoxy)methane	0.456	0.437		4.2	
2,4-Dichlorophenol	0.278	0.282		1.5	20.0
4-Chloroaniline	0.445	0.442		0.7	
Hexachlorobutadiene	0.148	0.149		0.7	20.0
Caprolactam	0.094	0.105		11.4	
4-Chloro-3-methylphenol	0.287	0.294		2.5	20.0
Hexachlorocyclopentadiene	0.286	0.258	0.050	9.9	
2,4,6-Trichlorophenol	0.334	0.354		6.1	20.0
2,4,5-Trichlorophenol	0.348	0.363		4.3	
1,1-Biphenyl	1.443	1.411		2.2	
2-Chloronaphthalene	1.164	1.140		2.1	
2-Nitroaniline	0.357	0.342		4.3	
Dimethylphthalate	1.258	1.257		0.1	
Acenaphthylene	1.819	1.788		1.7	
2,6-Dinitrotoluene	0.294	0.289		1.9	
3-Nitroaniline	0.349	0.355		1.7	
Acenaphthene	1.103	1.077		2.4	20.0
2,4-Dinitrophenol	0.056	0.130	0.050	131.6	
4-Nitrophenol	0.245	0.269	0.050	9.8	
Dibenzofuran	1.579	1.574		0.3	
2,4-Dinitrotoluene	0.373	0.384		2.9	
Diethylphthalate	1.249	1.238		0.9	
4-Chlorophenyl-phenylether	0.554	0.560		1.1	
4-Nitroaniline	0.316	0.328		3.7	
4,6-Dinitro-2-methylphenol	0.079	0.120		51.5	
n-Nitrosodiphenylamine	0.708	0.692		2.3	20.0
4-Bromophenyl-phenylether	0.186	0.185		0.7	

Form VII SV-1

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date/Time: 03/14/2012 04:15

Lab File ID: BF054199.D Init. Calib. Date(s): 03/05/2012 03/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:19

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.187	0.191		2.3	
Atrazine	0.180	0.206		14.7	
Pentachlorophenol	0.113	0.123		9.1	20.0
Phenanthrene	1.053	1.034		1.8	
Carbazole	1.037	1.032		0.5	
Di-n-butylphthalate	1.225	1.260		2.9	
Butylbenzylphthalate	0.699	0.709		1.5	
Bis(2-ethylhexyl)phthalate	0.910	0.926		1.8	
Di-n-octyl phthalate	1.532	1.518		0.9	20.0
1,2,4,5-Tetrachlorobenzene	0.485	0.482		0.7	
2,3,4,6-Tetrachlorophenol	0.239	0.257		7.5	
2-Fluorophenol	1.392	1.352		2.9	
Phenol-d5	1.679	1.617		3.7	
Nitrobenzene-d5	0.377	0.355		5.9	
2-Fluorobiphenyl	1.248	1.214		2.8	
2,4,6-Tribromophenol	0.117	0.132		13.0	
Terphenyl-d14	0.737	0.745		1.0	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF031412\
Data File : BF054199.D
Acq On : 14 Mar 2012 4:15
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 15 02:22:17 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Mar 06 13:15:14 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	104	-0.20
2		1,4-Dioxane	40.000	36.712	8.2	97	-0.13
3		Pyridine	40.000	36.505	8.7	94	-0.15
4		n-Nitrosodimethylamine	40.000	34.413	14.0	89	-0.14
5	S	2-Fluorophenol	80.000	77.715	2.9	100	-0.17
6		Aniline	40.000	38.439	3.9	100	-0.19
7	S	Phenol-d5	80.000	77.031	3.7	100	-0.18
8		2-Chlorophenol	40.000	38.268	4.3	99	-0.20
9		Benzaldehyde	40.000	37.301	6.7	92	-0.19
0	C	Phenol	40.000	38.083	4.8	98	-0.18
1		bis(2-Chloroethyl)ether	40.000	37.061	7.3	96	-0.19
2	S	2-Chlorophenol-d4	80.000	77.167	3.5	101	-0.19
3		1,3-Dichlorobenzene	40.000	38.459	3.9	100	-0.20
4	C	1,4-Dichlorobenzene	40.000	39.259	1.9	102	-0.20
5	s	1,2-Dichlorobenzene-d4	80.000	78.252	2.2	102	-0.20
6		1,2-Dichlorobenzene	40.000	39.391	1.5	103	-0.20
7		Benzyl Alcohol	40.000	37.418	6.5	97	-0.19
8		2,2'-oxybis(1-Chloropropane	40.000	33.846	15.4	88	-0.21
9		2-Methylphenol	40.000	38.966	2.6	101	-0.19
0		Hexachloroethane	40.000	37.652	5.9	98	-0.21
1	P	n-Nitroso-di-n-propylamine	40.000	37.774	5.6	98	-0.20
2		3+4-Methylphenols	40.000	39.482	1.3	101	-0.19
3	I	Naphthalene-d8	20.000	20.000	0.0	105	-0.22
4		Acetophenone	40.000	39.393	1.5	102	-0.20
5	S	Nitrobenzene-d5	80.000	75.290	5.9	98	-0.21
6		Nitrobenzene	40.000	37.653	5.9	98	-0.21
7		Isophorone	40.000	39.365	1.6	102	-0.21
8	C	2-Nitrophenol	40.000	41.322	-3.3	104	-0.22
9		2,4-Dimethylphenol	40.000	39.150	2.1	101	-0.21
0		bis(2-Chloroethoxy)methane	40.000	38.324	4.2	100	-0.21
1	C	2,4-Dichlorophenol	40.000	40.581	-1.5	104	-0.22
2		1,2,4-Trichlorobenzene	40.000	39.964	0.1	105	-0.22
3		Naphthalene	40.000	39.289	1.8	102	-0.23
4		Benzoic acid	40.000	69.984	-75.0#	415	-0.26
5		4-Chloroaniline	40.000	39.784	0.5	102	-0.22
6	C	Hexachlorobutadiene	40.000	40.196	-0.5	105	-0.22
7		Caprolactam	40.000	44.375	-10.9	112	-0.21
8	C	4-Chloro-3-methylphenol	40.000	40.961	-2.4	105	-0.22
9		2-Methylnaphthalene	40.000	39.869	0.3	104	-0.23
0	I	Acenaphthene-d10	20.000	20.000	0.0	107	-0.25
1		1,2,4,5-Tetrachlorobenzene	40.000	39.719	0.7	106	-0.24
2	P	Hexachlorocyclopentadiene	40.000	36.064	9.8	94	-0.24
3	S	2,4,6-Tribromophenol	80.000	90.374	-13.0	120	-0.21
4	C	2,4,6-Trichlorophenol	40.000	42.446	-6.1	111	-0.23

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF031412\
Data File : BF054199.D
Acq On : 14 Mar 2012 4:15
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 15 02:22:17 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Mar 06 13:15:14 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	41.719	-4.3	109	-0.23
46	S	2-Fluorobiphenyl	80.000	77.795	2.8	104	-0.23
47		1,1'-Biphenyl	40.000	39.090	2.3	104	-0.23
48		2-Chloronaphthalene	40.000	39.161	2.1	104	-0.24
49		2-Nitroaniline	40.000	38.319	4.2	101	-0.23
50		Acenaphthylene	40.000	39.316	1.7	105	-0.25
51		Dimethylphthalate	40.000	39.954	0.1	106	-0.23
52		2,6-Dinitrotoluene	40.000	39.233	1.9	102	-0.23
53	C	Acenaphthene	40.000	39.058	2.4	104	-0.24
54		3-Nitroaniline	40.000	40.654	-1.6	108	-0.24
55	P	2,4-Dinitrophenol	40.000	63.446	-58.6#	265	-0.23
56		Dibenzofuran	40.000	39.855	0.4	106	-0.24
57	P	4-Nitrophenol	40.000	43.881	-9.7	114	-0.21
58		2,4-Dinitrotoluene	40.000	41.220	-3.0	107	-0.22
59		Fluorene	40.000	39.403	1.5	104	-0.22
60		2,3,4,6-Tetrachlorophenol	40.000	42.994	-7.5	114	-0.22
61		Diethylphthalate	40.000	39.663	0.8	106	-0.20
62		4-Chlorophenyl-phenylether	40.000	40.484	-1.2	108	-0.21
63		4-Nitroaniline	40.000	41.501	-3.8	111	-0.21
64		Azobenzene	40.000	37.323	6.7	100	-0.21
65	I	Phenanthrene-d10	20.000	20.000	0.0	110	-0.20
66		4,6-Dinitro-2-methylphenol	40.000	49.110	-22.8	156	-0.21
67	c	n-Nitrosodiphenylamine	40.000	39.107	2.2	106	-0.21
68		4-Bromophenyl-phenylether	40.000	39.789	0.5	108	-0.20
69		Hexachlorobenzene	40.000	40.955	-2.4	111	-0.21
70		Atrazine	40.000	45.924	-14.8	125	-0.18
71	C	Pentachlorophenol	40.000	45.078	-12.7	132	-0.20
72		Phenanthrene	40.000	39.284	1.8	108	-0.20
73		Anthracene	40.000	39.545	1.1	108	-0.20
74		Carbazole	40.000	39.807	0.5	108	-0.19
75		Di-n-butylphthalate	40.000	41.146	-2.9	111	-0.18
76	C	Fluoranthene	40.000	40.121	-0.3	109	-0.19
77	I	Chrysene-d12	20.000	20.000	0.0	112	-0.19
78		Benzidine	40.000	36.815	8.0	98	-0.19
79		Pyrene	40.000	39.525	1.2	110	-0.20
80	S	Terphenyl-d14	80.000	80.871	-1.1	113	-0.19
81		Butylbenzylphthalate	40.000	40.558	-1.4	113	-0.18
82		Benzo(a)anthracene	40.000	38.803	3.0	108	-0.19
83		3,3'-Dichlorobenzidine	40.000	39.835	0.4	110	-0.19
84		Chrysene	40.000	39.275	1.8	108	-0.19
85		Bis(2-ethylhexyl)phthalate	40.000	40.699	-1.7	112	-0.17
86	c	Di-n-octyl phthalate	40.000	39.641	0.9	107	-0.17
87		Indeno(1,2,3-cd)pyrene	40.000	37.774	5.6	106	-0.31

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF031412\
Data File : BF054199.D
Acq On : 14 Mar 2012 4:15
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 15 02:22:17 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Mar 06 13:15:14 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
88	I	Perylene-d12	20.000	20.000	0.0	111	-0.20
89		Benzo(b)fluoranthene	40.000	37.467	6.3	102	-0.19
90		Benzo(k)fluoranthene	40.000	40.083	-0.2	113	-0.19
91	C	Benzo(a)pyrene	40.000	39.770	0.6	108	-0.20
92		Dibenzo(a,h)anthracene	40.000	38.876	2.8	107	-0.31
93		Benzo(g,h,i)perylene	40.000	37.885	5.3	104	-0.35

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1768 SDG NO.: D1768

Lab File ID: BF054217.D DFTPP Injection Date: 03/15/2012

Instrument ID: BNA_F DFTPP Injection Time: 13:46

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	46.4
68	Less than 2.0% of mass 69	0.2 (0.5) 1
69	Mass 69 relative abundance	50
70	Less than 2.0% of mass 69	0.2 (0.4) 1
127	10.0 - 80.0% of mass 198	62.9
197	Less than 2.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 60.0% of mass 198	23.8
365	Greater than 1% of mass 198	2.6
441	Present, but less than mass 443	11.5
442	Greater than 50% of mass 198	73.5
443	15.0 - 24.0% of mass 442	14.3 (19.5) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 ng BNA CCC	BF054218.D	03/15/2012	14:17
02	12MW02SRE	D1768-13RE	BF054225.D	03/15/2012	17:52

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date/Time: 03/15/2012 14:17

Lab File ID: BF054218.D Init. Calib. Date(s): 03/05/2012 03/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:19

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Benzaldehyde	1.172	1.104		5.8	
Phenol	1.785	1.716		3.9	20.0
bis(2-Chloroethyl)ether	1.474	1.376		6.7	
2-Chlorophenol	1.426	1.410		1.1	
2-Methylphenol	1.078	1.079		0.1	
2,2-oxybis(1-Chloropropane)	1.941	1.707		12.0	
Acetophenone	0.494	0.494		0.1	
3+4-Methylphenols	1.393	1.396		0.2	
n-Nitroso-di-n-propylamine	1.000	0.973	0.050	2.7	
Hexachloroethane	0.590	0.578		2.1	
Nitrobenzene	0.393	0.380		3.4	
Isophorone	0.686	0.683		0.4	
2-Nitrophenol	0.197	0.207		5.2	20.0
2,4-Dimethylphenol	0.335	0.336		0.2	
bis(2-Chloroethoxy)methane	0.456	0.453		0.7	
2,4-Dichlorophenol	0.278	0.290		4.2	20.0
4-Chloroaniline	0.445	0.454		2.0	
Hexachlorobutadiene	0.148	0.155		4.7	20.0
Caprolactam	0.094	0.107		13.5	
4-Chloro-3-methylphenol	0.287	0.304		5.8	20.0
Hexachlorocyclopentadiene	0.286	0.288	0.050	0.5	
2,4,6-Trichlorophenol	0.334	0.357		6.8	20.0
2,4,5-Trichlorophenol	0.348	0.364		4.5	
1,1-Biphenyl	1.443	1.437		0.4	
2-Chloronaphthalene	1.164	1.165		0.1	
2-Nitroaniline	0.357	0.353		1.1	
Dimethylphthalate	1.258	1.279		1.7	
Acenaphthylene	1.819	1.815		0.2	
2,6-Dinitrotoluene	0.294	0.295		0.4	
3-Nitroaniline	0.349	0.360		3.2	
Acenaphthene	1.103	1.109		0.5	20.0
2,4-Dinitrophenol	0.056	0.102	0.050	81.3	
4-Nitrophenol	0.245	0.270	0.050	10.3	
Dibenzofuran	1.579	1.594		0.9	
2,4-Dinitrotoluene	0.373	0.381		2.2	
Diethylphthalate	1.249	1.259		0.8	
4-Chlorophenyl-phenylether	0.554	0.566		2.2	
4-Nitroaniline	0.316	0.331		4.8	
4,6-Dinitro-2-methylphenol	0.079	0.109		38.4	
n-Nitrosodiphenylamine	0.708	0.713		0.7	20.0
4-Bromophenyl-phenylether	0.186	0.188		1.2	

Form VII SV-1

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_F Calibration Date/Time: 03/15/2012 14:17

Lab File ID: BF054218.D Init. Calib. Date(s): 03/05/2012 03/05/2012

EPA Sample No.: SSTD040 Init. Calib. Time(s): 16:39 19:19

GC Column: RTX-5 ID: 0.18 (mm)

COMPOUND	RRF	RRF040	MIN RRF	%D	MAX%D
Hexachlorobenzene	0.187	0.198		5.7	
Atrazine	0.180	0.213		18.5	
Pentachlorophenol	0.113	0.117		3.7	20.0
Phenanthrene	1.053	1.050		0.3	
Carbazole	1.037	1.047		1.0	
Di-n-butylphthalate	1.225	1.288		5.1	
Butylbenzylphthalate	0.699	0.733		4.8	
Bis(2-ethylhexyl)phthalate	0.910	0.951		4.5	
Di-n-octyl phthalate	1.532	1.594		4.1	20.0
1,2,4,5-Tetrachlorobenzene	0.485	0.491		1.3	
2,3,4,6-Tetrachlorophenol	0.239	0.267		11.6	
2-Fluorophenol	1.392	1.335		4.1	
Phenol-d5	1.679	1.639		2.4	
Nitrobenzene-d5	0.377	0.365		3.2	
2-Fluorobiphenyl	1.248	1.235		1.0	
2,4,6-Tribromophenol	0.117	0.131		11.9	
Terphenyl-d14	0.737	0.755		2.4	

All other compounds must meet a minimum RRF of 0.010.

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF031512\
Data File : BF054218.D
Acq On : 15 Mar 2012 14:17
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 16 04:16:11 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Mar 06 13:15:14 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	107	-0.23
2		1,4-Dioxane	40.000	34.722	13.2	95	-0.15
3		Pyridine	40.000	35.710	10.7	94	-0.17
4		n-Nitrosodimethylamine	40.000	32.802	18.0	87	-0.16
5	S	2-Fluorophenol	80.000	76.748	4.1	101	-0.20
6		Aniline	40.000	39.156	2.1	105	-0.22
7	S	Phenol-d5	80.000	78.102	2.4	104	-0.21
8		2-Chlorophenol	40.000	39.556	1.1	105	-0.22
9		Benzaldehyde	40.000	37.681	5.8	96	-0.22
10	C	Phenol	40.000	38.451	3.9	102	-0.21
11		bis(2-Chloroethyl)ether	40.000	37.332	6.7	99	-0.21
12	S	2-Chlorophenol-d4	80.000	78.472	1.9	105	-0.22
13		1,3-Dichlorobenzene	40.000	39.224	1.9	105	-0.23
14	C	1,4-Dichlorobenzene	40.000	39.449	1.4	105	-0.23
15	s	1,2-Dichlorobenzene-d4	80.000	79.735	0.3	106	-0.23
16		1,2-Dichlorobenzene	40.000	40.190	-0.5	108	-0.23
17		Benzyl Alcohol	40.000	38.419	4.0	102	-0.22
18		2,2'-oxybis(1-Chloropropane	40.000	35.179	12.1	94	-0.23
19		2-Methylphenol	40.000	40.051	-0.1	106	-0.22
20		Hexachloroethane	40.000	39.192	2.0	104	-0.24
21	P	n-Nitroso-di-n-propylamine	40.000	38.921	2.7	103	-0.23
22		3+4-Methylphenols	40.000	40.087	-0.2	105	-0.22
23	I	Naphthalene-d8	20.000	20.000	0.0	108	-0.26
24		Acetophenone	40.000	40.013	-0.0	106	-0.23
25	S	Nitrobenzene-d5	80.000	77.444	3.2	104	-0.24
26		Nitrobenzene	40.000	38.623	3.4	103	-0.24
27		Isophorone	40.000	39.821	0.4	106	-0.24
28	C	2-Nitrophenol	40.000	42.121	-5.3	110	-0.25
29		2,4-Dimethylphenol	40.000	40.104	-0.3	107	-0.24
30		bis(2-Chloroethoxy)methane	40.000	39.698	0.8	106	-0.24
31	C	2,4-Dichlorophenol	40.000	41.640	-4.1	110	-0.25
32		1,2,4-Trichlorobenzene	40.000	40.875	-2.2	110	-0.26
33		Naphthalene	40.000	39.980	0.1	107	-0.26
34		Benzoic acid	40.000	54.385	-36.0#	253	-0.32
35		4-Chloroaniline	40.000	40.855	-2.1	108	-0.26
36	C	Hexachlorobutadiene	40.000	41.796	-4.5	112	-0.26
37		Caprolactam	40.000	45.204	-13.0	117	-0.25
38	C	4-Chloro-3-methylphenol	40.000	42.277	-5.7	112	-0.26
39		2-Methylnaphthalene	40.000	40.263	-0.7	108	-0.27
40	I	Acenaphthene-d10	20.000	20.000	0.0	111	-0.29
41		1,2,4,5-Tetrachlorobenzene	40.000	40.488	-1.2	112	-0.28
42	P	Hexachlorocyclopentadiene	40.000	40.225	-0.6	109	-0.28
43	S	2,4,6-Tribromophenol	80.000	89.497	-11.9	124	-0.26
44	C	2,4,6-Trichlorophenol	40.000	42.718	-6.8	115	-0.28

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF031512\
Data File : BF054218.D
Acq On : 15 Mar 2012 14:17
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 16 04:16:11 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Mar 06 13:15:14 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
45		2,4,5-Trichlorophenol	40.000	41.788	-4.5	114	-0.27
46	S	2-Fluorobiphenyl	80.000	79.197	1.0	110	-0.27
47		1,1'-Biphenyl	40.000	39.811	0.5	110	-0.28
48		2-Chloronaphthalene	40.000	40.024	-0.1	111	-0.28
49		2-Nitroaniline	40.000	39.622	0.9	108	-0.28
50		Acenaphthylene	40.000	39.915	0.2	110	-0.29
51		Dimethylphthalate	40.000	40.682	-1.7	112	-0.27
52		2,6-Dinitrotoluene	40.000	40.121	-0.3	108	-0.28
53	C	Acenaphthene	40.000	40.221	-0.6	111	-0.29
54		3-Nitroaniline	40.000	41.241	-3.1	114	-0.28
55	P	2,4-Dinitrophenol	40.000	55.338	-38.3#	215	-0.28
56		Dibenzofuran	40.000	40.360	-0.9	111	-0.28
57	P	4-Nitrophenol	40.000	44.077	-10.2	119	-0.25
58		2,4-Dinitrotoluene	40.000	40.911	-2.3	110	-0.27
59		Fluorene	40.000	39.832	0.4	109	-0.26
60		2,3,4,6-Tetrachlorophenol	40.000	44.652	-11.6	123	-0.27
61		Diethylphthalate	40.000	40.340	-0.9	112	-0.25
62		4-Chlorophenyl-phenylether	40.000	40.922	-2.3	113	-0.26
63		4-Nitroaniline	40.000	41.937	-4.8	116	-0.25
64		Azobenzene	40.000	38.590	3.5	107	-0.25
65	I	Phenanthrene-d10	20.000	20.000	0.0	113	-0.24
66		4,6-Dinitro-2-methylphenol	40.000	45.832	-14.6	147	-0.25
67	c	n-Nitrosodiphenylamine	40.000	40.301	-0.8	113	-0.25
68		4-Bromophenyl-phenylether	40.000	40.571	-1.4	114	-0.24
69		Hexachlorobenzene	40.000	42.329	-5.8	119	-0.25
70		Atrazine	40.000	47.438	-18.6	133	-0.23
71	C	Pentachlorophenol	40.000	42.867	-7.2	130	-0.24
72		Phenanthrene	40.000	39.872	0.3	113	-0.24
73		Anthracene	40.000	40.266	-0.7	114	-0.24
74		Carbazole	40.000	40.397	-1.0	113	-0.23
75		Di-n-butylphthalate	40.000	42.053	-5.1	117	-0.22
76	C	Fluoranthene	40.000	41.379	-3.4	116	-0.24
77	I	Chrysene-d12	20.000	20.000	0.0	115	-0.25
78		Benzidine	40.000	39.773	0.6	109	-0.23
79		Pyrene	40.000	40.588	-1.5	116	-0.24
80	S	Terphenyl-d14	80.000	81.950	-2.4	118	-0.23
81		Butylbenzylphthalate	40.000	41.915	-4.8	120	-0.23
82		Benzo(a)anthracene	40.000	40.036	-0.1	115	-0.25
83		3,3'-Dichlorobenzidine	40.000	41.149	-2.9	117	-0.24
84		Chrysene	40.000	39.657	0.9	112	-0.25
85		Bis(2-ethylhexyl)phthalate	40.000	41.765	-4.4	119	-0.22
86	c	Di-n-octyl phthalate	40.000	41.633	-4.1	116	-0.23
87		Indeno(1,2,3-cd)pyrene	40.000	40.014	-0.0	116	-0.42

Data Path : Z:\HPCHEM1\BNA_F\DATA\BF031512\
Data File : BF054218.D
Acq On : 15 Mar 2012 14:17
Operator : QM
Sample : 40 ng BNA CCC
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 16 04:16:11 2012
Quant Method : Z:\HPCHEM1\BNA_F\METHOD\8270-BF030512.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Tue Mar 06 13:15:14 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
38	I	Perylene-d12	20.000	20.000	0.0	116	-0.27
39		Benzo(b)fluoranthene	40.000	38.912	2.7	110	-0.25
40		Benzo(k)fluoranthene	40.000	41.277	-3.2	122	-0.25
41	C	Benzo(a)pyrene	40.000	40.983	-2.5	116	-0.26
42		Dibenzo(a,h)anthracene	40.000	39.854	0.4	114	-0.42
43		Benzo(g,h,i)perylene	40.000	39.432	1.4	113	-0.47

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB61642B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: BF054212.D Lab Sample ID: PB61642B

Instrument ID: BNA_F Date Extracted: 03/12/2012

Matrix: (soil/water) WATER Date Analyzed: 03/14/2012

Level: (low/med) LOW Time Analyzed: 11:04

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12GW-DUP01	D1768-19	BF054196.D	03/14/2012
12RB01	D1768-18	BF054195.D	03/14/2012
12MW04S	D1768-17	BF054194.D	03/14/2012
12MW040	D1768-16	BF054193.D	03/14/2012
12MW03S	D1768-15	BF054192.D	03/14/2012
12MW030	D1768-14	BF054191.D	03/13/2012
12MW02S	D1768-13	BF054190.D	03/13/2012
12MW020	D1768-12	BF054189.D	03/13/2012
12MW01SMSD	D1768-11MSD	BF054188.D	03/13/2012
12MW01SMS	D1768-10MS	BF054187.D	03/13/2012
12MW01S	D1768-09	BF054186.D	03/13/2012
12MW010	D1768-08	BF054185.D	03/13/2012
PB61642BS	PB61642BS	BF054200.D	03/14/2012

COMMENTS:

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61642B	SDG No.:	D1768
Lab Sample ID:	PB61642B	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054212.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
100-52-7	Benzaldehyde	5	U	0.77	5	10	ug/L
108-95-2	Phenol	5	U	0.21	5	10	ug/L
111-44-4	bis(2-Chloroethyl)ether	5	U	0.55	5	10	ug/L
95-57-8	2-Chlorophenol	5	U	0.54	5	10	ug/L
95-48-7	2-Methylphenol	5	U	0.24	5	10	ug/L
108-60-1	2,2-oxybis(1-Chloropropane)	5	U	0.17	5	10	ug/L
98-86-2	Acetophenone	5	U	0.14	5	10	ug/L
65794-96-9	3+4-Methylphenols	5	U	0.38	5	10	ug/L
621-64-7	N-Nitroso-di-n-propylamine	5	U	0.2	5	10	ug/L
67-72-1	Hexachloroethane	5	U	0.25	5	10	ug/L
98-95-3	Nitrobenzene	5	U	0.68	5	10	ug/L
78-59-1	Isophorone	5	U	0.3	5	10	ug/L
88-75-5	2-Nitrophenol	5	U	0.52	5	10	ug/L
105-67-9	2,4-Dimethylphenol	5	U	0.71	5	10	ug/L
111-91-1	bis(2-Chloroethoxy)methane	5	U	0.55	5	10	ug/L
120-83-2	2,4-Dichlorophenol	5	U	0.66	5	10	ug/L
106-47-8	4-Chloroaniline	5	U	2.9	5	10	ug/L
87-68-3	Hexachlorobutadiene	5	U	0.25	5	10	ug/L
105-60-2	Caprolactam	5	U	2	5	10	ug/L
59-50-7	4-Chloro-3-methylphenol	5	U	0.4	5	10	ug/L
77-47-4	Hexachlorocyclopentadiene	5	U	0.24	5	10	ug/L
88-06-2	2,4,6-Trichlorophenol	5	U	0.56	5	10	ug/L
95-95-4	2,4,5-Trichlorophenol	5	U	0.4	5	10	ug/L
92-52-4	1,1-Biphenyl	5	U	0.15	5	10	ug/L
91-58-7	2-Chloronaphthalene	5	U	0.16	5	10	ug/L
88-74-4	2-Nitroaniline	5	U	0.49	5	10	ug/L
131-11-3	Dimethylphthalate	5	U	0.22	5	10	ug/L
208-96-8	Acenaphthylene	5	U	0.7	5	10	ug/L
606-20-2	2,6-Dinitrotoluene	5	U	0.32	5	10	ug/L
99-09-2	3-Nitroaniline	5	U	1.1	5	10	ug/L
83-32-9	Acenaphthene	5	U	0.21	5	10	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61642B	SDG No.:	D1768
Lab Sample ID:	PB61642B	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054212.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
51-28-5	2,4-Dinitrophenol	5	U	2.1	5	10	ug/L
100-02-7	4-Nitrophenol	5	U	2	5	10	ug/L
132-64-9	Dibenzofuran	5	U	0.24	5	10	ug/L
121-14-2	2,4-Dinitrotoluene	5	U	1	5	10	ug/L
84-66-2	Diethylphthalate	5	U	0.38	5	10	ug/L
7005-72-3	4-Chlorophenyl-phenylether	5	U	0.21	5	10	ug/L
100-01-6	4-Nitroaniline	5	U	1.4	5	10	ug/L
534-52-1	4,6-Dinitro-2-methylphenol	5	U	0.74	5	10	ug/L
86-30-6	N-Nitrosodiphenylamine	5	U	0.6	5	10	ug/L
101-55-3	4-Bromophenyl-phenylether	5	U	0.23	5	10	ug/L
118-74-1	Hexachlorobenzene	5	U	0.18	5	10	ug/L
1912-24-9	Atrazine	5	U	0.4	5	10	ug/L
87-86-5	Pentachlorophenol	5	U	1.7	5	10	ug/L
85-01-8	Phenanthrene	5	U	0.26	5	10	ug/L
86-74-8	Carbazole	5	U	0.22	5	10	ug/L
84-74-2	Di-n-butylphthalate	5	U	2	5	10	ug/L
85-68-7	Butylbenzylphthalate	5	U	0.19	5	10	ug/L
117-81-7	bis(2-Ethylhexyl)phthalate	5	U	0.16	5	10	ug/L
117-84-0	Di-n-octyl phthalate	5	U	0.51	5	10	ug/L
95-94-3	1,2,4,5-Tetrachlorobenzene	5	U	0.2	5	10	ug/L
58-90-2	2,3,4,6-Tetrachlorophenol	5	U	0.2	5	10	ug/L
SURROGATES							
367-12-4	2-Fluorophenol	111		20 - 110		75%	SPK: 150
13127-88-3	Phenol-d5	119		10 - 160		80%	SPK: 150
4165-60-0	Nitrobenzene-d5	80.8		40 - 110		81%	SPK: 100
321-60-8	2-Fluorobiphenyl	84.8		50 - 110		85%	SPK: 100
118-79-6	2,4,6-Tribromophenol	125		40 - 125		84%	SPK: 150
1718-51-0	Terphenyl-d14	85.2		50 - 135		85%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	100215	4.52				
1146-65-2	Naphthalene-d8	378123	6.37				
15067-26-2	Acenaphthene-d10	190533	9.38				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61642B	SDG No.:	D1768
Lab Sample ID:	PB61642B	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOCMS Group1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BF054212.D	1	03/12/12	03/14/12	PB61642

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
1517-22-2	Phenanthrene-d10	286881	11.69				
1719-03-5	Chrysene-d12	224149	15.04				
1520-96-3	Perylene-d12	204327	16.65				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB61642BS	Benzaldehyde	50	22	44				10	161	
	Phenol	50	41	82				10	132	
	bis(2-Chloroethyl)ether	50	41	82				38	110	
	2-Chlorophenol	50	42	84				35	105	
	2-Methylphenol	50	44	88				40	110	
	2,2-oxybis(1-Chloropropane)	50	40	80				46	118	
	Acetophenone	50	47	94				57	116	
	3+4-Methylphenols	50	44	88				30	110	
	N-Nitroso-di-n-propylamine	50	43	86				49	120	
	Hexachloroethane	50	41	82				30	100	
	Nitrobenzene	50	42	84				45	110	
	Isophorone	50	44	88				50	110	
	2-Nitrophenol	50	47	94				49	115	
	2,4-Dimethylphenol	50	43	86				30	110	
	bis(2-Chloroethoxy)methane	50	43	86				48	105	
	2,4-Dichlorophenol	50	45	90				50	105	
	4-Chloroaniline	50	11	22				15	110	
	Hexachlorobutadiene	50	46	92				33	105	
	Caprolactam	50	52	104				10	161	
	4-Chloro-3-methylphenol	50	46	92				45	110	
	Hexachlorocyclopentadiene	100	90	90				10	155	
	2,4,6-Trichlorophenol	50	47	94				50	115	
	2,4,5-Trichlorophenol	50	46	92				50	110	
	1,1-Biphenyl	50	46	92				58	115	
	2-Chloronaphthalene	50	44	88				52	105	
	2-Nitroaniline	50	44	88				62	115	
	Dimethylphthalate	50	45	90				25	125	
	Acenaphthylene	50	45	90				52	105	
	2,6-Dinitrotoluene	50	44	88				65	115	
	3-Nitroaniline	50	23	46				20	120	
	Acenaphthene	50	45	90				51	110	
	2,4-Dinitrophenol	100	110	110				15	136	
	4-Nitrophenol	100	94	94				10	161	
	Dibenzofuran	50	45	90				61	105	
	2,4-Dinitrotoluene	50	46	92				68	120	
	Diethylphthalate	50	43	86				51	120	
	4-Chlorophenyl-phenylether	50	46	92				62	110	
	4-Nitroaniline	50	42	84				66	120	
	4,6-Dinitro-2-methylphenol	50	58	116				40	130	
	N-Nitrosodiphenylamine	50	45	90				64	110	
	4-Bromophenyl-phenylether	50	47	94				63	115	
	Hexachlorobenzene	50	47	94				50	110	
	Atrazine	50	60	120				61	132	
	Pentachlorophenol	100	95	95				40	115	
	Phenanthrene	50	44	88				55	115	
	Carbazole	50	45	90				70	115	

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Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB61642BS	Di-n-butylphthalate	50	47	94				72	115	
	Butylbenzylphthalate	50	47	94				66	115	
	bis(2-Ethylhexyl)phthalate	50	46	92				69	125	
	Di-n-octyl phthalate	50	47	94				66	131	
	1,2,4,5-Tetrachlorobenzene	50	46	92				70	130	
	2,3,4,6-Tetrachlorophenol	50	50	100				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: D1768-10MS	**Client Sample ID: 12MW01SMS**									
Benzaldehyde	50	0	27	54				10	160	
Phenol	50	0	13	26				10	161	
bis(2-Chloroethyl)ether	50	0	46	92				35	110	
2-Chlorophenol	50	0	37	74				35	105	
2-Methylphenol	50	0	31	62				40	110	
2,2-oxybis(1-Chloropropane)	50	0	44	88				30	130	
Acetophenone	50	0	51	102				42	139	
3+4-Methylphenols	50	0	26	52				30	110	
N-Nitroso-di-n-propylamine	50	0	48	96				35	130	
Hexachloroethane	50	0	40	80				30	100	
Nitrobenzene	50	0	46	92				45	110	
Isophorone	50	0	48	96				50	110	
2-Nitrophenol	50	0	49	98				40	115	
2,4-Dimethylphenol	50	0	39	78				30	110	
bis(2-Chloroethoxy)methane	50	0	47	94				45	105	
2,4-Dichlorophenol	50	0	45	90				50	105	
4-Chloroaniline	50	0	11	22				15	110	
Hexachlorobutadiene	50	0	46	92				25	105	
Caprolactam	50	0	7.8	16				10	160	
4-Chloro-3-methylphenol	50	0	43	86				45	110	
Hexachlorocyclopentadiene	100	0	90	90				10	145	
2,4,6-Trichlorophenol	50	0	51	102				50	115	
2,4,5-Trichlorophenol	50	0	49	98				50	110	
1,1-Biphenyl	50	0	50	100				35	142	
2-Chloronaphthalene	50	0	48	96				50	105	
2-Nitroaniline	50	0	49	98				50	115	
Dimethylphthalate	50	0	50	100				25	125	
Acenaphthylene	50	0	49	98				50	105	
2,6-Dinitrotoluene	50	0	49	98				50	115	
3-Nitroaniline	50	0	17	34				20	125	
Acenaphthene	50	0	49	98				45	110	
2,4-Dinitrophenol	100	0	120	120				15	140	
4-Nitrophenol	100	0	36	36				10	161	
Dibenzofuran	50	0	49	98				55	105	
2,4-Dinitrotoluene	50	0	52	104				50	120	
Diethylphthalate	50	0	49	98				40	120	
4-Chlorophenyl-phenylether	50	0	51	102				50	110	
4-Nitroaniline	50	0	45	90				35	120	
4,6-Dinitro-2-methylphenol	50	0	62	124				40	130	
N-Nitrosodiphenylamine	50	0	49	98				50	110	
4-Bromophenyl-phenylether	50	0	52	104				50	115	
Hexachlorobenzene	50	0	53	106				50	110	
Atrazine	50	0	65	130				25	169	
Pentachlorophenol	100	0	100	100				40	115	
Phenanthrene	50	0	49	98				50	115	
Carbazole	50	0	49	98				50	115	
Di-n-butylphthalate	50	0	52	104				55	115	
Butylbenzylphthalate	50	0	52	104				45	115	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
bis(2-Ethylhexyl)phthalate	50	0	52	104				40	125	
Di-n-octyl phthalate	50	0	53	106				35	135	
1,2,4,5-Tetrachlorobenzene	50	0	50	100				70	130	
2,3,4,6-Tetrachlorophenol	50	0	53	106				70	130	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: D1768-11MSD	**Client Sample ID: 12MW01SMSD**									
Benzaldehyde	50	0	30	60		11		10	160	20
Phenol	50	0	15	30		14		10	161	20
bis(2-Chloroethyl)ether	50	0	51	102		10		35	110	20
2-Chlorophenol	50	0	41	82		10		35	105	20
2-Methylphenol	50	0	34	68		9		40	110	20
2,2-oxybis(1-Chloropropane)	50	0	49	98		11		30	130	20
Acetophenone	50	0	56	112		9		42	139	20
3+4-Methylphenols	50	0	30	60		14		30	110	20
N-Nitroso-di-n-propylamine	50	0	53	106		10		35	130	20
Hexachloroethane	50	0	45	90		12		30	100	20
Nitrobenzene	50	0	51	102		10		45	110	20
Isophorone	50	0	54	108		12		50	110	20
2-Nitrophenol	50	0	56	112		13		40	115	20
2,4-Dimethylphenol	50	0	44	88		12		30	110	20
bis(2-Chloroethoxy)methane	50	0	53	106	*	12		45	105	20
2,4-Dichlorophenol	50	0	51	102		13		50	105	20
4-Chloroaniline	50	0	11	22		0		15	110	20
Hexachlorobutadiene	50	0	52	104		12		25	105	20
Caprolactam	50	0	8.9	18		12		10	160	20
4-Chloro-3-methylphenol	50	0	48	96		11		45	110	20
Hexachlorocyclopentadiene	100	0	98	98		9		10	145	20
2,4,6-Trichlorophenol	50	0	56	112		9		50	115	20
2,4,5-Trichlorophenol	50	0	54	108		10		50	110	20
1,1-Biphenyl	50	0	54	108		8		35	142	20
2-Chloronaphthalene	50	0	53	106	*	10		50	105	20
2-Nitroaniline	50	0	53	106		8		50	115	20
Dimethylphthalate	50	0	54	108		8		25	125	20
Acenaphthylene	50	0	53	106	*	8		50	105	20
2,6-Dinitrotoluene	50	0	55	110		12		50	115	20
3-Nitroaniline	50	0	18	36		6		20	125	20
Acenaphthene	50	0	53	106		8		45	110	20
2,4-Dinitrophenol	100	0	130	130		8		15	140	20
4-Nitrophenol	100	0	39	39		8		10	161	20
Dibenzofuran	50	0	53	106	*	8		55	105	20
2,4-Dinitrotoluene	50	0	57	114		9		50	120	20
Diethylphthalate	50	0	53	106		8		40	120	20
4-Chlorophenyl-phenylether	50	0	55	110		8		50	110	20
4-Nitroaniline	50	0	49	98		9		35	120	20
4,6-Dinitro-2-methylphenol	50	0	68	136	*	9		40	130	20
N-Nitrosodiphenylamine	50	0	54	108		10		50	110	20
4-Bromophenyl-phenylether	50	0	57	114		9		50	115	20
Hexachlorobenzene	50	0	57	114	*	7		50	110	20
Atrazine	50	0	73	146		12		25	169	20
Pentachlorophenol	100	0	110	110		10		40	115	20
Phenanthrene	50	0	53	106		8		50	115	20
Carbazole	50	0	54	108		10		50	115	20
Di-n-butylphthalate	50	0	56	112		7		55	115	20
Butylbenzylphthalate	50	0	57	114		9		45	115	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
bis(2-Ethylhexyl)phthalate	50	0	58	116		11		40	125	20
Di-n-octyl phthalate	50	0	59	118		11		35	135	20
1,2,4,5-Tetrachlorobenzene	50	0	54	108		8		70	130	20
2,3,4,6-Tetrachlorophenol	50	0	60	120		12		70	130	20

CHEMTECH

Surrogate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
D1768-08	12MW010	2-Fluorophenol	150	62.51	42		20	110
		Phenol-d5	150	40.87	27		10	160
		Nitrobenzene-d5	100	106.30	106		40	110
		2-Fluorobiphenyl	100	106.20	106		50	110
		2,4,6-Tribromophenol	150	190.37	127	*	40	125
		Terphenyl-d14	100	97.05	97		50	135
D1768-09	12MW01S	2-Fluorophenol	150	56.60	38		20	110
		Phenol-d5	150	36.38	24		10	160
		Nitrobenzene-d5	100	93.68	94		40	110
		2-Fluorobiphenyl	100	95.77	96		50	110
		2,4,6-Tribromophenol	150	170.11	113		40	125
		Terphenyl-d14	100	87.73	88		50	135
D1768-10MS	12MW01SMS	2-Fluorophenol	150	60.96	41		20	110
		Phenol-d5	150	39.37	26		10	160
		Nitrobenzene-d5	100	96.63	97		40	110
		2-Fluorobiphenyl	100	98.48	98		50	110
		2,4,6-Tribromophenol	150	173.32	116		40	125
		Terphenyl-d14	100	91.13	91		50	135
D1768-11MSD	12MW01SMSD	2-Fluorophenol	150	64.87	43		20	110
		Phenol-d5	150	42.46	28		10	160
		Nitrobenzene-d5	100	103.76	104		40	110
		2-Fluorobiphenyl	100	103.13	103		50	110
		2,4,6-Tribromophenol	150	185.42	124		40	125
		Terphenyl-d14	100	95.27	95		50	135
D1768-12	12MW020	2-Fluorophenol	150	65.72	44		20	110
		Phenol-d5	150	43.27	29		10	160
		Nitrobenzene-d5	100	101.94	102		40	110
		2-Fluorobiphenyl	100	101.01	101		50	110
		2,4,6-Tribromophenol	150	178.58	119		40	125
		Terphenyl-d14	100	99.48	99		50	135
D1768-13	12MW02S	2-Fluorophenol	150	71.16	47		20	110
		Phenol-d5	150	45.63	30		10	160
		Nitrobenzene-d5	100	114.07	114	*	40	110
		2-Fluorobiphenyl	100	114.28	114	*	50	110
		2,4,6-Tribromophenol	150	204.51	136	*	40	125
		Terphenyl-d14	100	108.75	109		50	135
D1768-13RE	12MW02SRE	2-Fluorophenol	150	68.12	45		20	110
		Phenol-d5	150	45.05	30		10	160
		Nitrobenzene-d5	100	112.95	113	*	40	110
		2-Fluorobiphenyl	100	113.83	114	*	50	110
		2,4,6-Tribromophenol	150	204.99	137	*	40	125
		Terphenyl-d14	100	108.49	108		50	135
D1768-14	12MW030	2-Fluorophenol	150	58.57	39		20	110
		Phenol-d5	150	37.46	25		10	160
		Nitrobenzene-d5	100	97.04	97		40	110
		2-Fluorobiphenyl	100	99.79	100		50	110
		2,4,6-Tribromophenol	150	180.23	120		40	125
		Terphenyl-d14	100	94.06	94		50	135
D1768-15	12MW03S	2-Fluorophenol	150	54.57	36		20	110
		Phenol-d5	150	34.63	23		10	160
		Nitrobenzene-d5	100	91.30	91		40	110
		2-Fluorobiphenyl	100	93.91	94		50	110

CHEMTECH

Surrogate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
D1768-15	12MW03S	2,4,6-Tribromophenol	150	163.64	109		40	125
		Terphenyl-d14	100	85.40	85		50	135
D1768-16	12MW040	2-Fluorophenol	150	63.27	42		20	110
		Phenol-d5	150	40.15	27		10	160
		Nitrobenzene-d5	100	105.20	105		40	110
		2-Fluorobiphenyl	100	106.51	107		50	110
		2,4,6-Tribromophenol	150	187.77	125		40	125
		Terphenyl-d14	100	99.34	99		50	135
D1768-17	12MW04S	2-Fluorophenol	150	56.50	38		20	110
		Phenol-d5	150	36.04	24		10	160
		Nitrobenzene-d5	100	89.75	90		40	110
		2-Fluorobiphenyl	100	91.68	92		50	110
		2,4,6-Tribromophenol	150	158.42	106		40	125
		Terphenyl-d14	100	86.37	86		50	135
D1768-18	12RB01	2-Fluorophenol	150	56.29	38		20	110
		Phenol-d5	150	36.41	24		10	160
		Nitrobenzene-d5	100	99.26	99		40	110
		2-Fluorobiphenyl	100	99.88	100		50	110
		2,4,6-Tribromophenol	150	179.62	120		40	125
		Terphenyl-d14	100	103.40	103		50	135
D1768-19	12GW-DUP01	2-Fluorophenol	150	58.15	39		20	110
		Phenol-d5	150	37.10	25		10	160
		Nitrobenzene-d5	100	97.10	97		40	110
		2-Fluorobiphenyl	100	100.31	100		50	110
		2,4,6-Tribromophenol	150	174.69	116		40	125
		Terphenyl-d14	100	98.80	99		50	135
PB61642B	PB61642B	2-Fluorophenol	150	111.91	75		20	110
		Phenol-d5	150	119.73	80		10	160
		Nitrobenzene-d5	100	80.79	81		40	110
		2-Fluorobiphenyl	100	84.76	85		50	110
		2,4,6-Tribromophenol	150	125.49	84		40	125
		Terphenyl-d14	100	85.17	85		50	135
PB61642BS	PB61642BS	2-Fluorophenol	150	126.63	84		20	110
		Phenol-d5	150	134.31	90		10	160
		Nitrobenzene-d5	100	91.98	92		40	110
		2-Fluorobiphenyl	100	93.95	94		50	110
		2,4,6-Tribromophenol	150	165.33	110		40	125
		Terphenyl-d14	100	101.44	101		50	135

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD040 Date Analyzed: 03/13/2012

Lab File ID: BF054175.D Time Analyzed: 15:20

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	87105	4.53	316604	6.38	166953	9.39
	UPPER LIMIT	174210	5.03	633208	6.88	333906	9.89
	LOWER LIMIT	43552.5	4.03	158302	5.88	83476.5	8.89
	EPA SAMPLE NO.						
01	12RB01	99013	4.52	369434	6.37	192517	9.38
02	12GW-DUP01	96953	4.52	359216	6.37	183553	9.38
03	12MW04S	97179	4.52	371918	6.37	192836	9.38
04	12MW010	93374	4.52	343702	6.37	178482	9.38
05	12MW01S	95383	4.52	357054	6.37	185524	9.38
06	12MW01SMS	95101	4.53	344165	6.37	170116	9.39
07	12MW01SMSD	89108	4.52	321874	6.37	163583	9.39
08	12MW020	93400	4.53	350930	6.37	184637	9.38
09	12MW02S	90465	4.53	341227	6.37	177321	9.38
10	12MW030	97729	4.52	359269	6.37	184043	9.38
11	12MW03S	89173	4.53	331931	6.37	171338	9.38
12	12MW040	88914	4.53	329672	6.37	170207	9.38

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD040 Date Analyzed: 03/14/2012

Lab File ID: BF054199.D Time Analyzed: 04:15

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	96194	4.53	345069	6.38	174149	9.39
	UPPER LIMIT	192388	5.03	690138	6.88	348298	9.89
	LOWER LIMIT	48097	4.03	172534.5	5.88	87074.5	8.89
	EPA SAMPLE NO.						
01	PB61642BS	95971	4.53	345187	6.37	172562	9.38
02	PB61642B	100215	4.52	378123	6.37	190533	9.38

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD040 Date Analyzed: 03/15/2012

Lab File ID: BF054218.D Time Analyzed: 14:17

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	98706	4.5	355788	6.34	180704	9.34
	UPPER LIMIT	197412	5	711576	6.84	361408	9.84
	LOWER LIMIT	49353	4	177894	5.84	90352	8.84
	EPA SAMPLE NO.						
01	12MW02SRE	97012	4.49	365299	6.34	189081	9.34

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD040 Date Analyzed: 03/13/2012

Lab File ID: BF054175.D Time Analyzed: 15:20

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	257188	11.69	198709	15.05	178043	16.66
	UPPER LIMIT	514376	12.19	397418	15.55	356086	17.16
	LOWER LIMIT	128594	11.19	99354.5	14.55	89021.5	16.16
	EPA SAMPLE NO.						
01	12RB01	286181	11.69	207869	15.04	171903	16.65
02	12GW-DUP01	277454	11.69	209083	15.04	185040	16.65
03	12MW04S	284656	11.69	219224	15.04	190638	16.65
04	12MW010	266781	11.69	198387	15.04	179029	16.65
05	12MW01S	278918	11.69	212743	15.04	187724	16.65
06	12MW01SMS	257108	11.69	191760	15.05	178724	16.65
07	12MW01SMSD	248246	11.69	184540	15.05	170208	16.65
08	12MW020	271595	11.69	200166	15.04	183427	16.65
09	12MW02S	263448	11.69	196660	15.04	176859	16.65
10	12MW030	273833	11.69	207890	15.04	187142	16.65
11	12MW03S	257272	11.69	196621	15.04	175673	16.65
12	12MW040	256713	11.69	191290	15.04	167421	16.65

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD040 Date Analyzed: 03/14/2012

Lab File ID: BF054199.D Time Analyzed: 04:15

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	269043	11.69	208328	15.05	191681	16.65
	UPPER LIMIT	538086	12.19	416656	15.55	383362	17.15
	LOWER LIMIT	134521.5	11.19	104164	14.55	95840.5	16.15
	EPA SAMPLE NO.						
01	PB61642BS	258271	11.69	188974	15.05	174932	16.65
02	PB61642B	286881	11.69	224149	15.04	204327	16.65

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD040 Date Analyzed: 03/15/2012

Lab File ID: BF054218.D Time Analyzed: 14:17

Instrument ID: BNA_F GC Column: RTX-5 ID: 0.18 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	277961	11.65	214721	14.99	199703	16.58
	UPPER LIMIT	555922	12.15	429442	15.49	399406	17.08
	LOWER LIMIT	138980.5	11.15	107360.5	14.49	99851.5	16.08
	EPA SAMPLE NO.						
01	12MW02SRE	281556	11.64	209301	14.99	188113	16.58

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: SVOC-SIMGroup1

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for SVOC-SIMGroup1.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_E using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOC-SIMGroup1 was based on method 8270-Modified and extraction was done based on method 3510.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Initial Calibration Verification met the requirements .
The Continuous Calibration met the requirements .
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:

Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:57:41 -05'00'

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1768 SDG NO.: D1768

Lab File ID: BE075744.D DFTPP Injection Date: 02/29/2012

Instrument ID: BNA_E DFTPP Injection Time: 12:13

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.5
68	Less than 2.0% of mass 69	0.4 (1.2) 1
69	Mass 69 relative abundance	36.5
70	Less than 2.0% of mass 69	0.1 (0.3) 1
127	40.0 - 60.0% of mass 198	50.6
197	Less than 1.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	7.6
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	9.6
442	Greater than 40% of mass 198	60
443	17.0 - 23.0% of mass 442	10.1 (16.9) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD0.10	0.1 PPM BNA ICC	BE075746.D	02/29/2012	14:04
02	SSTD0.50	0.5 PPM BNA ICC	BE075747.D	02/29/2012	14:51
03	SSTD2.50	2.5 PPM BNA ICC	BE075748.D	02/29/2012	15:36
04	SSTD010	10 PPM BNA ICC	BE075749.D	02/29/2012	16:24
05	SSTD025	25 PPM BNA ICC	BE075750.D	02/29/2012	17:09

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_E Calibration Date(s): 02/29/2012 02/29/2012

Calibration Time(s): 14:04 17:09

LAB FILE ID: RRF0.1 = BE075746.D RRF0.5 = BE075747.D RRF2.5 = BE075748.D
RRF10 = BE075749.D RRF25 = BE075750.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF10	RRF25	RRF	RRF	% RSD
Naphthalene	4.712	4.616	3.989	4.093	3.535		4.189	11.5
2-Methylnapthalene	3.165	3.076	2.728	2.872	2.500		2.868	9.3
Acenaphthylene	7.147	7.086	6.495	7.167	6.274		6.834	6.1
Acenaphthene	1.473	1.270	1.108	1.144	1.015		1.202	14.7
Fluorene	1.498	1.502	1.361	1.437	1.214		1.402	8.6
Phenanthrene	5.292	5.025	4.409	4.591	3.893		4.642	11.7
Anthracene	4.316	4.353	4.143	4.593	3.955		4.272	5.6
Fluoranthene	5.027	4.733	4.338	4.797	4.097		4.598	8.1
Pyrene	5.803	5.340	4.792	5.196	4.576		5.142	9.3
Benzo(a)anthracene	5.313	4.536	4.121	4.549	4.090		4.522	10.9
Chrysene	5.675	5.059	4.375	4.571	3.954		4.727	14.0
Benzo(b)fluoranthene	11.468	10.660	9.908	11.813	10.625		10.895	6.9
Benzo(k)fluoranthene	11.426	10.878	11.097	12.350	11.205		11.391	5.0
Benzo(a)pyrene	8.991	8.655	8.839	10.755	10.132		9.474	9.7
Indeno(1,2,3-cd)pyrene	3.361	3.200	3.157	3.926	3.876		3.504	10.6
Dibenzo(a,h)anthracene	0.879	0.876	0.898	1.106	1.052		0.962	11.3
Benzo(g,h,i)perylene	4.229	3.812	3.702	4.378	4.176		4.059	7.1
Nitrobenzene-d5	0.331	0.310	0.273	0.313	0.304		0.306	6.8
2-Fluorobiphenyl	1.667	1.627	1.405	1.472	1.290		1.492	10.5
Terphenyl-d14	1.129	1.013	0.722	0.760	0.667		0.858	23.4

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM SAS No.: D1768 SDG NO.: D1768

Lab File ID: BE076069.D DFTPP Injection Date: 03/13/2012

Instrument ID: BNA_E DFTPP Injection Time: 16:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.5
68	Less than 2.0% of mass 69	0.4 (0.9) 1
69	Mass 69 relative abundance	44.7
70	Less than 2.0% of mass 69	0.3 (0.8) 1
127	40.0 - 60.0% of mass 198	53.1
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	22
365	Greater than 1% of mass 198	2.5
441	Present, but less than mass 443	10.9
442	Greater than 40% of mass 198	63.5
443	17.0 - 23.0% of mass 442	12.2 (19.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD2.5	2.5 PPM BNA CCC	BE076070.D	03/13/2012	17:13
02	PB61641BS	PB61641BS	BE076071.D	03/13/2012	17:57
03	PB61641B	PB61641B	BE076072.D	03/13/2012	18:45
04	12MW010	D1768-08	BE076073.D	03/13/2012	19:33
05	12MW01S	D1768-09	BE076074.D	03/13/2012	20:21
06	12MW01SMS	D1768-10MS	BE076075.D	03/13/2012	21:08
07	12MW01SMSD	D1768-11MSD	BE076076.D	03/13/2012	21:56
08	12MW020	D1768-12	BE076077.D	03/13/2012	22:44
09	12MW02S	D1768-13	BE076078.D	03/13/2012	23:32
10	12MW030	D1768-14	BE076079.D	03/14/2012	00:19
11	12MW03S	D1768-15	BE076080.D	03/14/2012	01:07
12	12MW040	D1768-16	BE076081.D	03/14/2012	01:55
13	12MW04S	D1768-17	BE076082.D	03/14/2012	02:40
14	12RB01	D1768-18	BE076083.D	03/14/2012	03:27
15	12GW-DUP01	D1768-19	BE076084.D	03/14/2012	04:15

CHEMTECH

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_E Calibration Date/Time: 03/13/2012 17:13

Lab File ID: BE076070.D Init. Calib. Date(s): 02/29/2012 02/29/2012

EPA Sample No.: SSTD2.5 Init. Calib. Time(s): 14:04 17:09

GC Column: RXI-5 ID: 0.25 (mm)

COMPOUND	$\overline{\text{RRF}}$	RRF2.5	MIN RRF	%D	MAX%D
Naphthalene	4.189	3.912		6.6	20.0
2-Methylnapthalene	2.868	2.622		8.6	20.0
Acenaphthylene	6.834	6.281		8.1	20.0
Acenaphthene	1.202	1.082		10.0	20.0
Fluorene	1.402	1.329		5.2	20.0
Phenanthrene	4.642	4.517		2.7	20.0
Anthracene	4.272	4.138		3.1	20.0
Fluoranthene	4.598	4.319		6.1	20.0
Pyrene	5.142	5.036		2.1	20.0
Benzo(a)anthracene	4.522	4.092		9.5	20.0
Chrysene	4.727	4.445		6.0	20.0
Benzo(b)fluoranthene	10.895	9.087		16.6	20.0
Benzo(k)fluoranthene	11.391	11.184		1.8	20.0
Benzo(a)pyrene	9.474	8.541		9.8	20.0
Indeno(1,2,3-cd)pyrene	3.504	3.231		7.8	20.0
Dibenzo(a,h)anthracene	0.962	0.809		15.9	20.0
Benzo(g,h,i)perylene	4.059	3.595		11.4	20.0
Nitrobenzene-d5	0.306	0.318		4.0	20.0
2-Fluorobiphenyl	1.492	1.404		5.9	20.0
Terphenyl-d14	0.858	0.726		15.4	20.0

All other compounds must meet a minimum RRF of 0.010.

CHEMTECH

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB61641B

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab File ID: BE076072.D Lab Sample ID: PB61641B

Instrument ID: BNA_E Date Extracted: 03/12/2012

Matrix: (soil/water) WATER Date Analyzed: 03/13/2012

Level: (low/med) LOW Time Analyzed: 18:45

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
12GW-DUP01	D1768-19	BE076084.D	03/14/2012
12RB01	D1768-18	BE076083.D	03/14/2012
12MW04S	D1768-17	BE076082.D	03/14/2012
12MW040	D1768-16	BE076081.D	03/14/2012
12MW03S	D1768-15	BE076080.D	03/14/2012
12MW030	D1768-14	BE076079.D	03/14/2012
12MW02S	D1768-13	BE076078.D	03/13/2012
12MW020	D1768-12	BE076077.D	03/13/2012
12MW01SMSD	D1768-11MSD	BE076076.D	03/13/2012
12MW01SMS	D1768-10MS	BE076075.D	03/13/2012
12MW01S	D1768-09	BE076074.D	03/13/2012
12MW010	D1768-08	BE076073.D	03/13/2012
PB61641BS	PB61641BS	BE076071.D	03/13/2012

COMMENTS:

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61641B	SDG No.:	D1768
Lab Sample ID:	PB61641B	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076072.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.02	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.02	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.02	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.02	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.02	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.02	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
129-00-0	Pyrene	0.05	U	0.02	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.02	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.02	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.02	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.02	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.02	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.02	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.02	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	6.97		40 - 110		70%	SPK: 10
321-60-8	2-Fluorobiphenyl	6.69		50 - 110		67%	SPK: 10
1718-51-0	Terphenyl-d14	8.19		50 - 135		82%	SPK: 10
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	47549	8.76				
1146-65-2	Naphthalene-d8	201006	10.93				
15067-26-2	Acenaphthene-d10	115200	13.91				
1517-22-2	Phenanthrene-d10	198005	16.38				
1719-03-5	Chrysene-d12	168705	20.87				
1520-96-3	Perylene-d12	130299	24.71				

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61641B	SDG No.:	D1768
Lab Sample ID:	PB61641B	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076072.D	1	03/12/12	03/13/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB61641BS	Naphthalene	10	8.6	86				42	115	
	2-Methylnaphthalene	10	8.8	88				20	150	
	Acenaphthylene	10	9.8	98				52	118	
	Acenaphthene	10	9.0	90				51	118	
	Fluorene	10	9.4	94				52	121	
	Phenanthrene	10	9.5	95				55	126	
	Anthracene	10	10	100				59	122	
	Fluoranthene	10	9.6	96				61	127	
	Pyrene	10	9.6	96				62	128	
	Benzo(a)anthracene	10	9.1	91				52	136	
	Chrysene	10	8.9	89				55	136	
	Benzo(b)fluoranthene	10	9.1	91				48	149	
	Benzo(k)fluoranthene	10	11	110				54	138	
	Benzo(a)pyrene	10	10	100				55	139	
	Indeno(1,2,3-cd)pyrene	10	9.8	98				10	145	
	Dibenz(a,h)anthracene	10	10	100				45	150	
	Benzo(g,h,i)perylene	10	9.8	98				54	138	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Lab Sample ID: D1768-11MSD	**Client Sample ID: 12MW01SMSD**									
Naphthalene	10	0	7.9	79		6		10	169	20
2-Methylnaphthalene	10	0	8.2	82		8		25	151	20
Acenaphthylene	10	0	9.4	94		6		25	162	20
Acenaphthene	10	0	8.9	89		10		19	166	20
Fluorene	10	0	9.2	92		8		18	171	20
Phenanthrene	10	0	9.5	95		5		29	168	20
Anthracene	10	0	10	100		10		20	176	20
Fluoranthene	10	0	9.8	98		12		23	174	20
Pyrene	10	0	9.6	96		14		19	182	20
Benzo(a)anthracene	10	0	9.2	92		8		33	165	20
Chrysene	10	0	9.0	90		10		37	163	20
Benzo(b)fluoranthene	10	0	9.5	95		5		39	171	20
Benzo(k)fluoranthene	10	0	10	100		18		36	171	20
Benzo(a)pyrene	10	0	10	100		18		36	165	20
Indeno(1,2,3-cd)pyrene	10	0	10	100		10		10	179	20
Dibenz(a,h)anthracene	10	0	10	100		10		23	172	20
Benzo(g,h,i)perylene	10	0	10	100		10		10	183	20

CHEMTECH

Surrogate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	High
D1768-08	12MW010	Nitrobenzene-d5	100	73.80	74		40	110
		2-Fluorobiphenyl	100	60.51	61		50	110
		Terphenyl-d14	100	67.89	68		50	135
D1768-09	12MW01S	Nitrobenzene-d5	100	84.08	84		40	110
		2-Fluorobiphenyl	100	69.13	69		50	110
		Terphenyl-d14	100	76.66	77		50	135
D1768-10MS	12MW01SMS	Nitrobenzene-d5	10	8.37	84		40	110
		2-Fluorobiphenyl	10	7.71	77		50	110
		Terphenyl-d14	10	9.19	92		50	135
D1768-11MSD	12MW01SMSD	Nitrobenzene-d5	10	7.84	78		40	110
		2-Fluorobiphenyl	10	6.95	70		50	110
		Terphenyl-d14	10	8.12	81		50	135
D1768-12	12MW020	Nitrobenzene-d5	100	79.81	80		40	110
		2-Fluorobiphenyl	100	65.21	65		50	110
		Terphenyl-d14	100	71.95	72		50	135
D1768-13	12MW02S	Nitrobenzene-d5	100	73.73	74		40	110
		2-Fluorobiphenyl	100	62.12	62		50	110
		Terphenyl-d14	100	70.60	71		50	135
D1768-14	12MW030	Nitrobenzene-d5	100	90.99	91		40	110
		2-Fluorobiphenyl	100	75.69	76		50	110
		Terphenyl-d14	100	84.61	85		50	135
D1768-15	12MW03S	Nitrobenzene-d5	100	90.19	90		40	110
		2-Fluorobiphenyl	100	74.15	74		50	110
		Terphenyl-d14	100	82.59	83		50	135
D1768-16	12MW040	Nitrobenzene-d5	100	78.93	79		40	110
		2-Fluorobiphenyl	100	63.16	63		50	110
		Terphenyl-d14	100	72.35	72		50	135
D1768-17	12MW04S	Nitrobenzene-d5	100	86.19	86		40	110
		2-Fluorobiphenyl	100	70.85	71		50	110
		Terphenyl-d14	100	80.61	81		50	135
D1768-18	12RB01	Nitrobenzene-d5	100	87.52	88		40	110
		2-Fluorobiphenyl	100	73.84	74		50	110
		Terphenyl-d14	100	89.19	89		50	135
D1768-19	12GW-DUP01	Nitrobenzene-d5	100	100.00	100		40	110
		2-Fluorobiphenyl	100	82.46	82		50	110
		Terphenyl-d14	100	101.63	102		50	135
PB61641B	PB61641B	Nitrobenzene-d5	10	6.97	70		40	110
		2-Fluorobiphenyl	10	6.69	67		50	110
		Terphenyl-d14	10	8.19	82		50	135
PB61641BS	PB61641BS	Nitrobenzene-d5	10	8.96	90		40	110
		2-Fluorobiphenyl	10	7.83	78		50	110
		Terphenyl-d14	10	8.81	88		50	135

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary
SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Lab Sample ID: D1768-10MS	**Client Sample ID: 12MW01SMS**									
Naphthalene	10	0	8.4	84				10	169	
2-Methylnaphthalene	10	0	8.9	89				25	151	
Acenaphthylene	10	0	10	100				25	162	
Acenaphthene	10	0	9.8	98				19	166	
Fluorene	10	0	10	100				18	171	
Phenanthrene	10	0	10	100				29	168	
Anthracene	10	0	11	110				20	176	
Fluoranthene	10	0	11	110				23	174	
Pyrene	10	0	11	110				19	182	
Benzo(a)anthracene	10	0	10	100				33	165	
Chrysene	10	0	9.9	99				37	163	
Benzo(b)fluoranthene	10	0	10	100				39	171	
Benzo(k)fluoranthene	10	0	12	120				36	171	
Benzo(a)pyrene	10	0	12	120				36	165	
Indeno(1,2,3-cd)pyrene	10	0	11	110				10	179	
Dibenz(a,h)anthracene	10	0	11	110				23	172	
Benzo(g,h,i)perylene	10	0	11	110				10	183	

CHEMTECH

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD2.5 Date Analyzed: 03/13/2012

Lab File ID: BE076070.D Time Analyzed: 17:13

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	64912	8.76	278597	10.93	159539	13.9
	UPPER LIMIT	129824	9.26	557194	11.43	319078	14.4
	LOWER LIMIT	32456	8.26	139298.5	10.43	79769.5	13.4
	EPA SAMPLE NO.						
01	PB61641BS	49448	8.76	214426	10.92	124749	13.91
02	PB61641B	47549	8.76	201006	10.93	115200	13.91
03	12MW010	56065	8.76	230839	10.93	129255	13.90
04	12MW01S	54475	8.76	221184	10.93	122709	13.91
05	12MW01SMS	50037	8.76	217518	10.92	122673	13.91
06	12MW01SMSD	50189	8.76	219349	10.93	126215	13.90
07	12RB01	49595	8.76	190770	10.93	101103	13.90
08	12GW-DUP01	45709	8.76	182293	10.93	101784	13.91
09	12MW020	57211	8.76	234476	10.92	130467	13.91
10	12MW02S	50980	8.76	210063	10.92	117708	13.91
11	12MW030	48666	8.76	198350	10.93	110092	13.91
12	12MW03S	47268	8.76	192352	10.93	107803	13.91
13	12MW040	53109	8.76	214261	10.93	122673	13.91
14	12MW04S	53335	8.76	216516	10.92	122243	13.91

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

EPA Sample No.: SSTD2.5 Date Analyzed: 03/13/2012

Lab File ID: BE076070.D Time Analyzed: 17:13

Instrument ID: BNA_E GC Column: RXI-5 ID: 0.25 (mm)

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	269346	16.38	251437	20.87	195744	24.7
	UPPER LIMIT	538692	16.88	502874	21.37	391488	25.2
	LOWER LIMIT	134673	15.88	125718.5	20.37	97872	24.2
	EPA SAMPLE NO.						
01	PB61641BS	205016	16.38	198874	20.87	150103	24.71
02	PB61641B	198005	16.38	168705	20.87	130299	24.71
03	12MW010	222826	16.38	194603	20.87	151321	24.70
04	12MW01S	213175	16.38	191141	20.87	149444	24.70
05	12MW01SMS	203957	16.38	196859	20.87	151237	24.70
06	12MW01SMSD	206352	16.38	198485	20.87	152833	24.70
07	12RB01	175980	16.38	158410	20.87	117662	24.71
08	12GW-DUP01	175324	16.38	150629	20.87	113228	24.70
09	12MW020	227595	16.38	210509	20.87	168895	24.70
10	12MW02S	202705	16.38	178859	20.87	140220	24.70
11	12MW030	192307	16.38	168144	20.87	131146	24.70
12	12MW03S	186534	16.38	162184	20.87	124862	24.70
13	12MW040	208520	16.38	178341	20.87	137321	24.70
14	12MW04S	211938	16.38	185155	20.87	142617	24.70

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT UPPER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: PESTICIDE Group1

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for PESTICIDE Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_D. The front column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog #: 7HM-G017-11. The rear column is ZBMR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalog # 7HM-G016-17.The analysis of PESTICIDE Group1s was based on method 8081B and extraction was done based on method 3510.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PD008918.D met the requirements except for alpha-BHC and Decachlorobiphenyl are failing in 1st column but passing in 2nd column.
The Continuous Calibration File ID PD008930.D met the requirements except for Decachlorobiphenyl is failing in 1st column but passing in 2nd column while Heptachlor, Heptachlor epoxide, Endosulfan I, Dieldrin, 4,4-DDE, Endosulfan II, Endrin, Endosulfan Sulfate, 4,4-DDT, Methoxychlor, Endrin ketone, Endrin aldehyde, alpha-Chlordane and gamma-Chlordane are failing in 2nd column but passing in 1st column. The associated samples did not show any positive hits for these compounds. No further corrective action was taken.
The Continuous Calibration File ID PD008938.D met the requirements except for Decachlorobiphenyl is failing in 1st column but passing in 2nd column while 4,4-DDE,

4,4-DDT, Aldrin, alpha-BHC, alpha-Chlordane, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin aldehyde, Endrin ketone, gamma-Chlordane, Heptachlor, Heptachlor epoxide and Methoxychlor are failing in 2nd column but passing in 1st column. The associated samples did not show any positive hits for these compounds. No further corrective action was taken.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature___ Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:57:28 -05'00'

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: D1768

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR1 ID: 0.32 (mm) Inst. Calib. Date(s): 03/06/2012 03/06/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	03/06/2012	14:07	PD008784.D	8.94	3.92
PEM01	PEM01	03/06/2012	14:20	PD008785.D	8.94	3.92
RESC01	RESCHK	03/06/2012	14:34	PD008786.D	8.95	3.92
100 PPB PEST STD	100 PPB PEST STD	03/06/2012	14:47	PD008787.D	8.95	3.92
75 PPB PEST STD	75 PPB PEST STD	03/06/2012	15:01	PD008788.D	8.95	3.92
50 PPB PEST STD	50 PPB PEST STD	03/06/2012	15:15	PD008789.D	8.94	3.92
25 PPB PEST STD	25 PPB PEST STD	03/06/2012	15:28	PD008790.D	8.94	3.92
5 PPB PEST STD	5 PPB PEST STD	03/06/2012	15:42	PD008791.D	8.94	3.92
TOX 500	TOX	03/06/2012	16:09	PD008793.D	8.95	3.92
CHLOR 500	CHLOR 500	03/06/2012	16:23	PD008794.D	8.95	3.92
PIBLK02	I.BLK02	03/12/2012	09:56	PD008916.D	8.95	3.91
PEM02	PEM02	03/12/2012	10:10	PD008917.D	8.95	3.92
CCAL01	STD 25	03/12/2012	10:23	PD008918.D	8.95	3.92
PB61640BL	PB61640BL	03/12/2012	15:01	PD008919.D	8.96	3.92
PB61640BS	PB61640BS	03/12/2012	15:15	PD008920.D	8.95	3.92
12MW010	D1768-08	03/12/2012	15:56	PD008923.D	8.95	3.92
12MW01S	D1768-09	03/12/2012	16:09	PD008924.D	8.95	3.92
12MW01SMS	D1768-10MS	03/12/2012	16:23	PD008925.D	8.95	3.92
12MW01SMSD	D1768-11MSD	03/12/2012	16:37	PD008926.D	8.95	3.92
12MW020	D1768-12	03/12/2012	16:50	PD008927.D	8.95	3.92
12MW02S	D1768-13	03/12/2012	17:04	PD008928.D	8.95	3.92
PIBLK03	I.BLK03	03/12/2012	17:18	PD008929.D	8.95	3.92
CCAL02	STD 25	03/12/2012	17:32	PD008930.D	8.95	3.92
12MW030	D1768-14	03/12/2012	17:45	PD008931.D	8.95	3.92
12MW03S	D1768-15	03/12/2012	17:59	PD008932.D	8.95	3.92
12MW040	D1768-16	03/12/2012	18:13	PD008933.D	8.95	3.91
12MW04S	D1768-17	03/12/2012	18:26	PD008934.D	8.95	3.92
12RB01	D1768-18	03/12/2012	18:40	PD008935.D	8.95	3.92
12GW-DUP01	D1768-19	03/12/2012	18:54	PD008936.D	8.95	3.92
PIBLK04	I.BLK04	03/12/2012	19:07	PD008937.D	8.95	3.92
CCAL03	STD 25	03/12/2012	19:21	PD008938.D	8.95	3.92
PEM03	PEM03	03/12/2012	19:35	PD008939.D	8.95	3.92

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CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_D **Calibration Date(s):** 03/06/2012 03/06/2012

Calibration Times: 14:47 15:42

GC Column: ZB-MR1 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PD008791.D **CF 025 =** PD008790.D

CF 050 = PD008789.D **CF 075 =** PD008788.D **CF 100 =** PD008787.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	3429601220	3219301840	3135311342	3008536072	3028664703	3164283035	5
Tetrachloro-m-xylene	4676396540	4295531720	4197562976	4050312080	4151903567	4274341377	6
alpha-BHC	65424729200	66570156600	67643583620	67043250773	68784492130	67093242465	2
beta-BHC	27614209800	26150493720	25407351640	24167092373	24727759170	25613381341	5
delta-BHC	70499498600	64372146160	64443837000	62251850320	64334973640	65180461144	5
gamma-BHC (Lindane)	66121514000	61971334920	62047721160	60169958293	62101448260	62482395327	4
Heptachlor	58711274600	54939582120	54149561680	51725958120	52953517850	54495978874	5
Aldrin	59740014000	55477187760	54531457740	51981753573	53230010110	54992084637	5
Heptachlor epoxide	54787164200	50630448960	49232889340	46625552560	47314648810	49718140774	7
Endosulfan I	50779871200	47528715080	46182528220	43918349147	44605227940	46602938317	6
Dieldrin	55008815000	51523667080	50432500940	48121236600	49001602570	50817564438	5
4,4-DDE	54443993200	50210973400	49065776000	46990648747	48108184740	49763915217	6
Endrin	44872242000	42925384600	42603465060	40348549800	40990667700	42348061832	4
Endosulfan II	48243063600	42565749200	42949578520	39257524493	39166026990	42436388561	9
4,4-DDD	45156450600	41476443120	48223649460	44031653920	43414370820	44460513584	6
Endosulfan sulfate	41014980200	37601233240	36790257020	35216584587	35506871960	37225985401	6
4,4-DDT	40838329800	39280511560	39254010880	38123026827	39023413050	39303858423	2
Methoxychlor	18207804400	17458641680	17115494840	16312618693	16367540300	17092419983	5
Endrin ketone	44586040800	41344530440	40192552260	38400805800	38595976120	40623981084	6
Endrin aldehyde	36993243400	35539163160	33674201000	31945914907	32207573540	34072019201	6
alpha-Chlordane	53582815200	49448696880	48541040040	46220204773	47338011530	49026153685	6
gamma-Chlordane	53732599800	50082061040	49105646660	46724721720	47667446640	49462495172	5

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RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_D **Calibration Date(s):** 03/06/2012 03/06/2012

Calibration Times: 14:47 15:42

GC Column: ZB-MR1 ID: 0.32 (mm)

LAB FILE ID: RT 005 = PD008791.D RT 025 = PD008790.D

RT 050 = PD008789.D RT 075 = PD008788.D RT 100 = PD008787.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	8.94	8.94	8.94	8.95	8.95	8.94	8.84	9.04
Tetrachloro-m-xylene	3.92	3.92	3.92	3.92	3.92	3.92	3.82	4.02
alpha-BHC	4.30	4.30	4.30	4.30	4.30	4.30	4.25	4.35
beta-BHC	4.75	4.75	4.75	4.75	4.75	4.75	4.70	4.80
delta-BHC	4.96	4.96	4.96	4.96	4.96	4.96	4.91	5.01
gamma-BHC (Lindane)	4.58	4.58	4.58	4.58	4.58	4.58	4.53	4.63
Heptachlor	5.09	5.09	5.09	5.09	5.09	5.09	5.04	5.14
Aldrin	5.39	5.39	5.39	5.39	5.39	5.39	5.34	5.44
Heptachlor epoxide	5.78	5.78	5.78	5.78	5.78	5.78	5.71	5.85
Endosulfan I	6.13	6.13	6.13	6.13	6.13	6.13	6.06	6.20
Dieldrin	6.38	6.38	6.38	6.39	6.39	6.38	6.31	6.45
4,4-DDE	6.24	6.24	6.24	6.24	6.24	6.24	6.17	6.31
Endrin	6.60	6.60	6.60	6.60	6.60	6.60	6.53	6.67
Endosulfan II	6.81	6.81	6.81	6.81	6.81	6.81	6.74	6.88
4,4-DDD	6.73	6.73	6.73	6.73	6.73	6.73	6.66	6.80
Endosulfan sulfate	7.15	7.15	7.15	7.15	7.15	7.15	7.08	7.22
4,4-DDT	7.03	7.03	7.03	7.03	7.03	7.03	6.96	7.10
Methoxychlor	7.48	7.48	7.48	7.48	7.48	7.48	7.41	7.55
Endrin ketone	7.62	7.62	7.62	7.62	7.62	7.62	7.55	7.69
Endrin aldehyde	6.93	6.93	6.93	6.93	6.93	6.93	6.86	7.00
alpha-Chlordane	6.08	6.08	6.08	6.08	6.08	6.08	6.01	6.15
gamma-Chlordane	6.01	6.01	6.01	6.01	6.01	6.01	5.94	6.08

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INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_D **Date(s) Analyzed:** 03/06/2012 03/06/2012

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	6.29	6.24	6.34	1261435000
		2	6.87	6.82	6.92	1691404000
		3	7.06	7.01	7.11	3702679000
		4	7.58	7.53	7.63	1878606000
		5	7.90	7.85	7.95	1073071000

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CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 03/06/2012 03/06/2012

Client Sample No.: CCAL01 **Date Analyzed:** 03/12/2012

Lab Sample No.: STD 25 **Data File :** PD008918.D **Time Analyzed:** 10:23

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.298	4.250	4.350	0.025	0.025	0.0
beta-BHC	4.746	4.700	4.800	0.025	0.025	0.0
delta-BHC	4.960	4.910	5.010	0.024	0.025	4.0
gamma-BHC (Lindane)	4.579	4.530	4.630	0.025	0.025	0.0
Heptachlor	5.089	5.040	5.140	0.026	0.025	4.0
Aldrin	5.393	5.340	5.440	0.026	0.025	4.0
Heptachlor epoxide	5.776	5.710	5.850	0.025	0.025	0.0
Endosulfan I	6.130	6.060	6.200	0.025	0.025	0.0
Dieldrin	6.385	6.310	6.450	0.025	0.025	0.0
4,4-DDE	6.242	6.170	6.310	0.025	0.025	0.0
Endrin	6.600	6.530	6.670	0.025	0.025	0.0
Endosulfan II	6.807	6.740	6.880	0.026	0.025	4.0
4,4-DDD	6.726	6.660	6.800	0.023	0.025	8.0
Endosulfan sulfate	7.153	7.080	7.220	0.025	0.025	0.0
4,4-DDT	7.026	6.960	7.100	0.025	0.025	0.0
Methoxychlor	7.483	7.410	7.550	0.025	0.025	0.0
Endrin ketone	7.617	7.550	7.690	0.025	0.025	0.0
Endrin aldehyde	6.929	6.860	7.000	0.025	0.025	0.0
alpha-Chlordane	6.082	6.010	6.150	0.025	0.025	0.0
gamma-Chlordane	6.010	5.940	6.080	0.025	0.025	0.0
Decachlorobiphenyl	8.945	8.840	9.040	0.024	0.025	4.0
Tetrachloro-m-xylene	3.915	3.820	4.020	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 03/06/2012 03/06/2012

Continuing Calib Time: 10:23 **Initial Calibration Time(s):** 14:47 15:42

GC Column: ZB-MR1 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.95	8.94	8.84	9.04	-0.01
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.01
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.96	4.96	4.91	5.01	0.00
gamma-BHC (Lindane)	4.58	4.58	4.53	4.63	0.00
Heptachlor	5.09	5.09	5.04	5.14	0.00
Aldrin	5.39	5.39	5.34	5.44	0.00
Heptachlor epoxide	5.78	5.78	5.71	5.85	0.00
Endosulfan I	6.13	6.13	6.06	6.20	0.00
Dieldrin	6.39	6.38	6.31	6.45	-0.01
4,4-DDE	6.24	6.24	6.17	6.31	0.00
Endrin	6.60	6.60	6.53	6.67	0.00
Endosulfan II	6.81	6.81	6.74	6.88	0.00
4,4-DDD	6.73	6.73	6.66	6.80	0.00
Endosulfan sulfate	7.15	7.15	7.08	7.22	0.00
4,4-DDT	7.03	7.03	6.96	7.10	0.00
Methoxychlor	7.48	7.48	7.41	7.55	0.00
Endrin ketone	7.62	7.62	7.55	7.69	0.00
Endrin aldehyde	6.93	6.93	6.86	7.00	0.00
alpha-Chlordane	6.08	6.08	6.01	6.15	0.00
gamma-Chlordane	6.01	6.01	5.94	6.08	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 03/06/2012 03/06/2012

Client Sample No.: CCAL02 **Date Analyzed:** 03/12/2012

Lab Sample No.: STD 25 **Data File :** PD008930.D **Time Analyzed:** 17:32

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.299	4.250	4.350	0.028	0.025	12.0
beta-BHC	4.747	4.700	4.800	0.027	0.025	8.0
delta-BHC	4.961	4.910	5.010	0.027	0.025	8.0
gamma-BHC (Lindane)	4.580	4.530	4.630	0.027	0.025	8.0
Heptachlor	5.090	5.040	5.140	0.029	0.025	16.0
Aldrin	5.393	5.340	5.440	0.028	0.025	12.0
Heptachlor epoxide	5.777	5.710	5.850	0.029	0.025	16.0
Endosulfan I	6.131	6.060	6.200	0.029	0.025	16.0
Dieldrin	6.386	6.310	6.450	0.029	0.025	16.0
4,4-DDE	6.243	6.170	6.310	0.029	0.025	16.0
Endrin	6.601	6.530	6.670	0.030	0.025	20.0
Endosulfan II	6.807	6.740	6.880	0.029	0.025	16.0
4,4-DDD	6.727	6.660	6.800	0.026	0.025	4.0
Endosulfan sulfate	7.154	7.080	7.220	0.030	0.025	20.0
4,4-DDT	7.026	6.960	7.100	0.030	0.025	20.0
Methoxychlor	7.484	7.410	7.550	0.031	0.025	24.0
Endrin ketone	7.618	7.550	7.690	0.030	0.025	20.0
Endrin aldehyde	6.931	6.860	7.000	0.029	0.025	16.0
alpha-Chlordane	6.084	6.010	6.150	0.029	0.025	16.0
gamma-Chlordane	6.011	5.940	6.080	0.029	0.025	16.0
Decachlorobiphenyl	8.947	8.840	9.040	0.028	0.025	12.0
Tetrachloro-m-xylene	3.916	3.820	4.020	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 03/06/2012 03/06/2012

Continuing Calib Time: 17:32 **Initial Calibration Time(s):** 14:47 15:42

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.95	8.94	8.84	9.04	-0.01
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.96	4.96	4.91	5.01	0.00
gamma-BHC (Lindane)	4.58	4.58	4.53	4.63	0.00
Heptachlor	5.09	5.09	5.04	5.14	0.00
Aldrin	5.39	5.39	5.34	5.44	0.00
Heptachlor epoxide	5.78	5.78	5.71	5.85	0.00
Endosulfan I	6.13	6.13	6.06	6.20	0.00
Dieldrin	6.39	6.38	6.31	6.45	-0.01
4,4-DDE	6.24	6.24	6.17	6.31	0.00
Endrin	6.60	6.60	6.53	6.67	0.00
Endosulfan II	6.81	6.81	6.74	6.88	0.00
4,4-DDD	6.73	6.73	6.66	6.80	0.00
Endosulfan sulfate	7.15	7.15	7.08	7.22	0.00
4,4-DDT	7.03	7.03	6.96	7.10	0.00
Methoxychlor	7.48	7.48	7.41	7.55	0.00
Endrin ketone	7.62	7.62	7.55	7.69	0.00
Endrin aldehyde	6.93	6.93	6.86	7.00	0.00
alpha-Chlordane	6.08	6.08	6.01	6.15	0.00
gamma-Chlordane	6.01	6.01	5.94	6.08	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: ZB-MR1 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 03/06/2012 03/06/2012

Client Sample No.: CCAL03 **Date Analyzed:** 03/12/2012

Lab Sample No.: STD 25 **Data File :** PD008938.D **Time Analyzed:** 19:21

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	4.299	4.250	4.350	0.029	0.025	16.0
beta-BHC	4.747	4.700	4.800	0.027	0.025	8.0
delta-BHC	4.961	4.910	5.010	0.027	0.025	8.0
gamma-BHC (Lindane)	4.580	4.530	4.630	0.027	0.025	8.0
Heptachlor	5.090	5.040	5.140	0.029	0.025	16.0
Aldrin	5.394	5.340	5.440	0.029	0.025	16.0
Heptachlor epoxide	5.777	5.710	5.850	0.029	0.025	16.0
Endosulfan I	6.131	6.060	6.200	0.029	0.025	16.0
Dieldrin	6.386	6.310	6.450	0.029	0.025	16.0
4,4-DDE	6.243	6.170	6.310	0.029	0.025	16.0
Endrin	6.602	6.530	6.670	0.030	0.025	20.0
Endosulfan II	6.807	6.740	6.880	0.029	0.025	16.0
4,4-DDD	6.727	6.660	6.800	0.026	0.025	4.0
Endosulfan sulfate	7.154	7.080	7.220	0.030	0.025	20.0
4,4-DDT	7.026	6.960	7.100	0.031	0.025	24.0
Methoxychlor	7.483	7.410	7.550	0.031	0.025	24.0
Endrin ketone	7.618	7.550	7.690	0.030	0.025	20.0
Endrin aldehyde	6.930	6.860	7.000	0.030	0.025	20.0
alpha-Chlordane	6.085	6.010	6.150	0.029	0.025	16.0
gamma-Chlordane	6.011	5.940	6.080	0.029	0.025	16.0
Decachlorobiphenyl	8.948	8.840	9.040	0.028	0.025	12.0
Tetrachloro-m-xylene	3.916	3.820	4.020	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 03/06/2012 03/06/2012

Continuing Calib Time: 19:21 **Initial Calibration Time(s):** 14:47 15:42

GC Column: ZB-MR1 **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.95	8.94	8.84	9.04	-0.01
Tetrachloro-m-xylene	3.92	3.92	3.82	4.02	0.00
alpha-BHC	4.30	4.30	4.25	4.35	0.00
beta-BHC	4.75	4.75	4.70	4.80	0.00
delta-BHC	4.96	4.96	4.91	5.01	0.00
gamma-BHC (Lindane)	4.58	4.58	4.53	4.63	0.00
Heptachlor	5.09	5.09	5.04	5.14	0.00
Aldrin	5.39	5.39	5.34	5.44	0.00
Heptachlor epoxide	5.78	5.78	5.71	5.85	0.00
Endosulfan I	6.13	6.13	6.06	6.20	0.00
Dieldrin	6.39	6.38	6.31	6.45	-0.01
4,4-DDE	6.24	6.24	6.17	6.31	0.00
Endrin	6.60	6.60	6.53	6.67	0.00
Endosulfan II	6.81	6.81	6.74	6.88	0.00
4,4-DDD	6.73	6.73	6.66	6.80	0.00
Endosulfan sulfate	7.15	7.15	7.08	7.22	0.00
4,4-DDT	7.03	7.03	6.96	7.10	0.00
Methoxychlor	7.48	7.48	7.41	7.55	0.00
Endrin ketone	7.62	7.62	7.55	7.69	0.00
Endrin aldehyde	6.93	6.93	6.86	7.00	0.00
alpha-Chlordane	6.09	6.08	6.01	6.15	-0.01
gamma-Chlordane	6.01	6.01	5.94	6.08	0.00

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: D1768

Project: CTO WE85 NAS JRB Willow Grove Instrument ID: ECD_D

GC Column: ZB-MR2 ID: 0.32 (mm) Inst. Calib. Date(s): 03/06/2012 03/06/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	DCB RT #	TCX RT #
PIBLK01	I.BLK01	03/06/2012	14:07	PD008784.D	8.05	3.33
PEM01	PEM01	03/06/2012	14:20	PD008785.D	8.05	3.33
RESC01	RESCHK	03/06/2012	14:34	PD008786.D	8.05	3.33
100 PPB PEST STD	100 PPB PEST STD	03/06/2012	14:47	PD008787.D	8.05	3.33
75 PPB PEST STD	75 PPB PEST STD	03/06/2012	15:01	PD008788.D	8.05	3.33
50 PPB PEST STD	50 PPB PEST STD	03/06/2012	15:15	PD008789.D	8.05	3.33
25 PPB PEST STD	25 PPB PEST STD	03/06/2012	15:28	PD008790.D	8.05	3.33
5 PPB PEST STD	5 PPB PEST STD	03/06/2012	15:42	PD008791.D	8.05	3.33
TOX 500	TOX	03/06/2012	16:09	PD008793.D	8.05	3.33
CHLOR 500	CHLOR 500	03/06/2012	16:23	PD008794.D	8.05	3.33
PIBLK02	I.BLK02	03/12/2012	09:56	PD008916.D	8.05	3.33
PEM02	PEM02	03/12/2012	10:10	PD008917.D	8.05	3.33
CCAL01	STD 25	03/12/2012	10:23	PD008918.D	8.05	3.33
PB61640BL	PB61640BL	03/12/2012	15:01	PD008919.D	8.07	3.34
PB61640BS	PB61640BS	03/12/2012	15:15	PD008920.D	8.06	3.33
12MW010	D1768-08	03/12/2012	15:56	PD008923.D	8.05	3.33
12MW01S	D1768-09	03/12/2012	16:09	PD008924.D	8.05	3.33
12MW01SMS	D1768-10MS	03/12/2012	16:23	PD008925.D	8.05	3.33
12MW01SMSD	D1768-11MSD	03/12/2012	16:37	PD008926.D	8.05	3.33
12MW020	D1768-12	03/12/2012	16:50	PD008927.D	8.05	3.33
12MW02S	D1768-13	03/12/2012	17:04	PD008928.D	8.05	3.33
PIBLK03	I.BLK03	03/12/2012	17:18	PD008929.D	8.05	3.33
CCAL02	STD 25	03/12/2012	17:32	PD008930.D	8.05	3.33
12MW030	D1768-14	03/12/2012	17:45	PD008931.D	8.05	3.33
12MW03S	D1768-15	03/12/2012	17:59	PD008932.D	8.05	3.33
12MW040	D1768-16	03/12/2012	18:13	PD008933.D	8.05	3.33
12MW04S	D1768-17	03/12/2012	18:26	PD008934.D	8.05	3.33
12RB01	D1768-18	03/12/2012	18:40	PD008935.D	8.05	3.33
12GW-DUP01	D1768-19	03/12/2012	18:54	PD008936.D	8.05	3.33
PIBLK04	I.BLK04	03/12/2012	19:07	PD008937.D	8.05	3.33
CCAL03	STD 25	03/12/2012	19:21	PD008938.D	8.05	3.33
PEM03	PEM03	03/12/2012	19:35	PD008939.D	8.05	3.33

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_D **Calibration Date(s):** 03/06/2012 03/06/2012

Calibration Times: 14:47 15:42

GC Column: ZB-MR2 **ID:** 0.32 (mm)

LAB FILE ID: **CF 005 =** PD008791.D **CF 025 =** PD008790.D

CF 050 = PD008789.D **CF 075 =** PD008788.D **CF 100 =** PD008787.D

COMPOUND	CF 005	CF 025	CF 050	CF 075	CF 100	CF	% RSD
Decachlorobiphenyl	17345762560	15521489088	14992537968	13264315720	14753676232	15175556314	10
Tetrachloro-m-xylene	13220796260	12335403600	12087213474	11661764555	12272156025	12315466783	5
alpha-BHC	230599037200	220100579200	154502754500	178689726840	187562627840	194290945116	16
beta-BHC	103375958400	91163335000	85728637160	82420036080	82387176890	89015028706	10
delta-BHC	231057496400	219191018520	219819884840	220561841773	231746426200	224475333547	3
gamma-BHC (Lindane)	253496431400	215291501040	219737061080	205824659720	220252755070	222920481662	8
Heptachlor	197874251000	183567684240	177289445180	168284661080	174282215760	180259651452	6
Aldrin	217359956200	194818603000	191406314460	182557087240	190290643400	195286520860	7
Heptachlor epoxide	210835147200	188040303880	178255143240	168336691387	170302842380	183154025617	9
Endosulfan I	207559633800	183415927120	173205201620	161290165853	161528781040	177399941887	11
Dieldrin	224866936800	201980694320	191068666160	179911523133	183986894740	196362943031	9
4,4-DDE	216423229200	197770903360	190903668460	178080972880	182905593800	193216873540	8
Endrin	178766789600	163668988920	158277448780	141375770800	143728476240	157163494868	10
Endosulfan II	188705229000	167706991760	155818335460	134875200160	146961190670	158813389410	13
4,4-DDD	168682591800	153753294400	142564319480	124244312240	133551044770	144559112538	12
Endosulfan sulfate	178033590400	157319330920	148364765100	126360325880	141121865360	150239975532	13
4,4-DDT	161186958400	154807511760	149427202900	131305446267	144306302430	148206684351	8
Methoxychlor	73576206600	68045914800	63945395060	52411290627	58672643010	63330290019	13
Endrin ketone	186824051600	164855634040	153361797940	126500909373	142823692150	154873217021	15
Endrin aldehyde	156623891200	138463704400	128711206320	110672590907	120319128160	130958104197	13
alpha-Chlordane	212229522200	192924984400	186125923260	176687839093	182508285010	190095310793	7
gamma-Chlordane	208773625800	197360587200	190700458080	181458288053	188945783240	193447748475	5

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_D **Calibration Date(s):** 03/06/2012 03/06/2012

Calibration Times: 14:47 15:42

GC Column: ZB-MR2 ID: 0.32 (mm)

LAB FILE ID: **RT 005 =** PD008791.D **RT 025 =** PD008790.D

RT 050 = PD008789.D **RT 075 =** PD008788.D **RT 100 =** PD008787.D

COMPOUND	RT 005	RT 025	RT 050	RT 075	RT 100	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Decachlorobiphenyl	8.05	8.05	8.05	8.05	8.05	8.05	7.95	8.15
Tetrachloro-m-xylene	3.33	3.33	3.33	3.33	3.33	3.33	3.23	3.43
alpha-BHC	3.76	3.76	3.77	3.76	3.77	3.76	3.71	3.81
beta-BHC	4.29	4.29	4.29	4.29	4.29	4.29	4.24	4.34
delta-BHC	4.49	4.49	4.49	4.49	4.49	4.49	4.44	4.54
gamma-BHC (Lindane)	4.04	4.04	4.04	4.04	4.04	4.04	3.99	4.09
Heptachlor	4.33	4.33	4.33	4.33	4.33	4.33	4.28	4.38
Aldrin	4.58	4.58	4.58	4.58	4.58	4.58	4.53	4.63
Heptachlor epoxide	5.02	5.02	5.02	5.02	5.02	5.02	4.95	5.09
Endosulfan I	5.35	5.35	5.35	5.35	5.35	5.35	5.28	5.42
Dieldrin	5.60	5.60	5.60	5.60	5.60	5.60	5.53	5.67
4,4-DDE	5.47	5.47	5.47	5.47	5.47	5.47	5.40	5.54
Endrin	5.85	5.85	5.85	5.85	5.85	5.85	5.78	5.92
Endosulfan II	6.13	6.13	6.13	6.13	6.13	6.13	6.06	6.20
4,4-DDD	5.99	5.99	5.99	5.98	5.98	5.98	5.91	6.05
Endosulfan sulfate	6.51	6.51	6.51	6.51	6.51	6.51	6.44	6.58
4,4-DDT	6.22	6.22	6.22	6.22	6.22	6.22	6.15	6.29
Methoxychlor	6.78	6.78	6.78	6.78	6.77	6.77	6.70	6.84
Endrin ketone	7.00	7.00	7.00	7.00	7.00	7.00	6.93	7.07
Endrin aldehyde	6.30	6.30	6.30	6.30	6.30	6.30	6.23	6.37
alpha-Chlordane	5.30	5.30	5.30	5.30	5.30	5.30	5.23	5.37
gamma-Chlordane	5.24	5.24	5.24	5.24	5.24	5.24	5.17	5.31

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_D **Date(s) Analyzed:** 03/06/2012 03/06/2012

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
Toxaphene	0.5000	1	5.56	5.51	5.61	3968170000
		2	5.83	5.78	5.88	6797000000
		3	6.41	6.36	6.46	9888660000
		4	6.89	6.84	6.94	5607570000
		5	7.19	7.14	7.24	5473332000

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 03/06/2012 03/06/2012

Client Sample No.: CCAL01 **Date Analyzed:** 03/12/2012

Lab Sample No.: STD 25 **Data File :** PD008918.D **Time Analyzed:** 10:23

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.763	3.710	3.810	0.029	0.025	16.0
beta-BHC	4.293	4.240	4.340	0.024	0.025	4.0
delta-BHC	4.494	4.440	4.540	0.024	0.025	4.0
gamma-BHC (Lindane)	4.043	3.990	4.090	0.026	0.025	4.0
Heptachlor	4.334	4.280	4.380	0.027	0.025	8.0
Aldrin	4.575	4.530	4.630	0.027	0.025	8.0
Heptachlor epoxide	5.020	4.950	5.090	0.026	0.025	4.0
Endosulfan I	5.355	5.280	5.420	0.026	0.025	4.0
Dieldrin	5.598	5.530	5.670	0.025	0.025	0.0
4,4-DDE	5.471	5.400	5.540	0.025	0.025	0.0
Endrin	5.854	5.780	5.920	0.025	0.025	0.0
Endosulfan II	6.129	6.060	6.200	0.025	0.025	0.0
4,4-DDD	5.986	5.910	6.050	0.026	0.025	4.0
Endosulfan sulfate	6.510	6.440	6.580	0.025	0.025	0.0
4,4-DDT	6.224	6.150	6.290	0.026	0.025	4.0
Methoxychlor	6.777	6.700	6.840	0.025	0.025	0.0
Endrin ketone	7.002	6.930	7.070	0.024	0.025	4.0
Endrin aldehyde	6.299	6.230	6.370	0.025	0.025	0.0
alpha-Chlordane	5.302	5.230	5.370	0.025	0.025	0.0
gamma-Chlordane	5.244	5.170	5.310	0.025	0.025	0.0
Decachlorobiphenyl	8.053	7.950	8.150	0.020	0.025	20.0
Tetrachloro-m-xylene	3.328	3.230	3.430	0.025	0.025	0.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 03/06/2012 03/06/2012

Continuing Calib Time: 10:23 **Initial Calibration Time(s):** 14:47 15:42

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.05	8.05	7.95	8.15	0.00
Tetrachloro-m-xylene	3.33	3.33	3.23	3.43	0.00
alpha-BHC	3.76	3.76	3.71	3.81	0.00
beta-BHC	4.29	4.29	4.24	4.34	0.00
delta-BHC	4.49	4.49	4.44	4.54	0.00
gamma-BHC (Lindane)	4.04	4.04	3.99	4.09	0.00
Heptachlor	4.33	4.33	4.28	4.38	0.00
Aldrin	4.58	4.58	4.53	4.63	0.01
Heptachlor epoxide	5.02	5.02	4.95	5.09	0.00
Endosulfan I	5.36	5.35	5.28	5.42	-0.01
Dieldrin	5.60	5.60	5.53	5.67	0.00
4,4-DDE	5.47	5.47	5.40	5.54	0.00
Endrin	5.85	5.85	5.78	5.92	0.00
Endosulfan II	6.13	6.13	6.06	6.20	0.00
4,4-DDD	5.99	5.98	5.91	6.05	-0.01
Endosulfan sulfate	6.51	6.51	6.44	6.58	0.00
4,4-DDT	6.22	6.22	6.15	6.29	0.00
Methoxychlor	6.78	6.77	6.70	6.84	-0.01
Endrin ketone	7.00	7.00	6.93	7.07	0.00
Endrin aldehyde	6.30	6.30	6.23	6.37	0.00
alpha-Chlordane	5.30	5.30	5.23	5.37	0.00
gamma-Chlordane	5.24	5.24	5.17	5.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 03/06/2012 03/06/2012

Client Sample No.: CCAL02 **Date Analyzed:** 03/12/2012

Lab Sample No.: STD 25 **Data File :** PD008930.D **Time Analyzed:** 17:32

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.764	3.710	3.810	0.028	0.025	12.0
beta-BHC	4.294	4.240	4.340	0.023	0.025	8.0
delta-BHC	4.494	4.440	4.540	0.024	0.025	4.0
gamma-BHC (Lindane)	4.044	3.990	4.090	0.026	0.025	4.0
Heptachlor	4.335	4.280	4.380	0.027	0.025	8.0
Aldrin	4.578	4.530	4.630	0.025	0.025	0.0
Heptachlor epoxide	5.020	4.950	5.090	0.025	0.025	0.0
Endosulfan I	5.356	5.280	5.420	0.025	0.025	0.0
Dieldrin	5.598	5.530	5.670	0.025	0.025	0.0
4,4-DDE	5.472	5.400	5.540	0.024	0.025	4.0
Endrin	5.856	5.780	5.920	0.025	0.025	0.0
Endosulfan II	6.130	6.060	6.200	0.025	0.025	0.0
4,4-DDD	5.988	5.910	6.050	0.026	0.025	4.0
Endosulfan sulfate	6.512	6.440	6.580	0.025	0.025	0.0
4,4-DDT	6.226	6.150	6.290	0.026	0.025	4.0
Methoxychlor	6.778	6.700	6.840	0.026	0.025	4.0
Endrin ketone	7.004	6.930	7.070	0.024	0.025	4.0
Endrin aldehyde	6.300	6.230	6.370	0.024	0.025	4.0
alpha-Chlordane	5.303	5.230	5.370	0.025	0.025	0.0
gamma-Chlordane	5.244	5.170	5.310	0.025	0.025	0.0
Decachlorobiphenyl	8.054	7.950	8.150	0.020	0.025	20.0
Tetrachloro-m-xylene	3.329	3.230	3.430	0.024	0.025	4.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 03/06/2012 03/06/2012

Continuing Calib Time: 17:32 **Initial Calibration Time(s):** 14:47 15:42

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.05	8.05	7.95	8.15	0.00
Tetrachloro-m-xylene	3.33	3.33	3.23	3.43	0.00
alpha-BHC	3.76	3.76	3.71	3.81	0.00
beta-BHC	4.29	4.29	4.24	4.34	0.00
delta-BHC	4.49	4.49	4.44	4.54	0.00
gamma-BHC (Lindane)	4.04	4.04	3.99	4.09	0.00
Heptachlor	4.34	4.33	4.28	4.38	-0.01
Aldrin	4.58	4.58	4.53	4.63	0.00
Heptachlor epoxide	5.02	5.02	4.95	5.09	0.00
Endosulfan I	5.36	5.35	5.28	5.42	-0.01
Dieldrin	5.60	5.60	5.53	5.67	0.00
4,4-DDE	5.47	5.47	5.40	5.54	0.00
Endrin	5.86	5.85	5.78	5.92	-0.01
Endosulfan II	6.13	6.13	6.06	6.20	0.00
4,4-DDD	5.99	5.98	5.91	6.05	-0.01
Endosulfan sulfate	6.51	6.51	6.44	6.58	0.00
4,4-DDT	6.23	6.22	6.15	6.29	-0.01
Methoxychlor	6.78	6.77	6.70	6.84	-0.01
Endrin ketone	7.00	7.00	6.93	7.07	0.00
Endrin aldehyde	6.30	6.30	6.23	6.37	0.00
alpha-Chlordane	5.30	5.30	5.23	5.37	0.00
gamma-Chlordane	5.24	5.24	5.17	5.31	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: ZB-MR2 **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 03/06/2012 03/06/2012

Client Sample No.: CCAL03 **Date Analyzed:** 03/12/2012

Lab Sample No.: STD 25 **Data File :** PD008938.D **Time Analyzed:** 19:21

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
alpha-BHC	3.764	3.710	3.810	0.027	0.025	8.0
beta-BHC	4.294	4.240	4.340	0.023	0.025	8.0
delta-BHC	4.495	4.440	4.540	0.023	0.025	8.0
gamma-BHC (Lindane)	4.045	3.990	4.090	0.026	0.025	4.0
Heptachlor	4.335	4.280	4.380	0.026	0.025	4.0
Aldrin	4.578	4.530	4.630	0.025	0.025	0.0
Heptachlor epoxide	5.021	4.950	5.090	0.024	0.025	4.0
Endosulfan I	5.357	5.280	5.420	0.025	0.025	0.0
Dieldrin	5.599	5.530	5.670	0.024	0.025	4.0
4,4-DDE	5.473	5.400	5.540	0.025	0.025	0.0
Endrin	5.856	5.780	5.920	0.025	0.025	0.0
Endosulfan II	6.131	6.060	6.200	0.024	0.025	4.0
4,4-DDD	5.989	5.910	6.050	0.026	0.025	4.0
Endosulfan sulfate	6.512	6.440	6.580	0.025	0.025	0.0
4,4-DDT	6.226	6.150	6.290	0.026	0.025	4.0
Methoxychlor	6.778	6.700	6.840	0.026	0.025	4.0
Endrin ketone	7.003	6.930	7.070	0.024	0.025	4.0
Endrin aldehyde	6.301	6.230	6.370	0.024	0.025	4.0
alpha-Chlordane	5.304	5.230	5.370	0.024	0.025	4.0
gamma-Chlordane	5.245	5.170	5.310	0.024	0.025	4.0
Decachlorobiphenyl	8.054	7.950	8.150	0.020	0.025	20.0
Tetrachloro-m-xylene	3.329	3.230	3.430	0.023	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 03/06/2012 03/06/2012

Continuing Calib Time: 19:21 **Initial Calibration Time(s):** 14:47 15:42

GC Column: ZB-MR2 **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Decachlorobiphenyl	8.05	8.05	7.95	8.15	0.00
Tetrachloro-m-xylene	3.33	3.33	3.23	3.43	0.00
alpha-BHC	3.76	3.76	3.71	3.81	0.00
beta-BHC	4.29	4.29	4.24	4.34	0.00
delta-BHC	4.50	4.49	4.44	4.54	-0.01
gamma-BHC (Lindane)	4.05	4.04	3.99	4.09	-0.01
Heptachlor	4.34	4.33	4.28	4.38	-0.01
Aldrin	4.58	4.58	4.53	4.63	0.00
Heptachlor epoxide	5.02	5.02	4.95	5.09	0.00
Endosulfan I	5.36	5.35	5.28	5.42	-0.01
Dieldrin	5.60	5.60	5.53	5.67	0.00
4,4-DDE	5.47	5.47	5.40	5.54	0.00
Endrin	5.86	5.85	5.78	5.92	-0.01
Endosulfan II	6.13	6.13	6.06	6.20	0.00
4,4-DDD	5.99	5.98	5.91	6.05	-0.01
Endosulfan sulfate	6.51	6.51	6.44	6.58	0.00
4,4-DDT	6.23	6.22	6.15	6.29	-0.01
Methoxychlor	6.78	6.77	6.70	6.84	-0.01
Endrin ketone	7.00	7.00	6.93	7.07	0.00
Endrin aldehyde	6.30	6.30	6.23	6.37	0.00
alpha-Chlordane	5.30	5.30	5.23	5.37	0.00
gamma-Chlordane	5.25	5.24	5.17	5.31	-0.01

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB61640BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab Sample ID: PB61640BL Lab File ID: PD008919.D

Matrix: (soil/water) WATER Extraction: (Type) SEPF

Sulfur Cleanup: (Y/N) N Date Extracted: 03/12/2012

Date Analyzed (1): 03/12/2012 Date Analyzed (2): 03/12/2012

Time Analyzed (1): 15:01 Time Analyzed (2): 15:01

Instrument ID (1): ECD_D Instrument ID (2): ECD_D

GC Column (1): ZB-MR2 ID: 0.32 (mm) GC Column (2): ZB-MR1 ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB61640BS	PB61640BS	PD008920.D	03/12/2012	03/12/2012
12MW010	D1768-08	PD008923.D	03/12/2012	03/12/2012
12MW01S	D1768-09	PD008924.D	03/12/2012	03/12/2012
12MW01SMS	D1768-10MS	PD008925.D	03/12/2012	03/12/2012
12MW01SMSD	D1768-11MSD	PD008926.D	03/12/2012	03/12/2012
12MW020	D1768-12	PD008927.D	03/12/2012	03/12/2012
12MW02S	D1768-13	PD008928.D	03/12/2012	03/12/2012
12MW030	D1768-14	PD008931.D	03/12/2012	03/12/2012
12MW03S	D1768-15	PD008932.D	03/12/2012	03/12/2012
12MW040	D1768-16	PD008933.D	03/12/2012	03/12/2012
12MW04S	D1768-17	PD008934.D	03/12/2012	03/12/2012
12RB01	D1768-18	PD008935.D	03/12/2012	03/12/2012
12GW-DUP01	D1768-19	PD008936.D	03/12/2012	03/12/2012

COMMENTS:

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61640BL	SDG No.:	D1768
Lab Sample ID:	PB61640BL	Matrix:	WATER
Analytical Method:	SW8081B	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PESTICIDE Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PD008919.D	1	03/12/12	03/12/12	PB61640

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
319-84-6	alpha-BHC	0.025	U	0.0051	0.025	0.05	ug/L
319-85-7	beta-BHC	0.025	U	0.0086	0.025	0.05	ug/L
319-86-8	delta-BHC	0.025	U	0.0056	0.025	0.05	ug/L
58-89-9	gamma-BHC	0.025	U	0.0055	0.025	0.05	ug/L
76-44-8	Heptachlor	0.025	U	0.0069	0.025	0.05	ug/L
309-00-2	Aldrin	0.025	U	0.0062	0.025	0.05	ug/L
1024-57-3	Heptachlor epoxide	0.025	U	0.0067	0.025	0.05	ug/L
959-98-8	Endosulfan I	0.025	U	0.0061	0.025	0.05	ug/L
60-57-1	Dieldrin	0.025	U	0.0047	0.025	0.05	ug/L
72-55-9	4,4-DDE	0.025	U	0.004	0.025	0.05	ug/L
72-20-8	Endrin	0.025	U	0.0058	0.025	0.05	ug/L
33213-65-9	Endosulfan II	0.025	U	0.0055	0.025	0.05	ug/L
72-54-8	4,4-DDD	0.025	U	0.0071	0.025	0.05	ug/L
1031-07-8	Endosulfan Sulfate	0.025	U	0.006	0.025	0.05	ug/L
50-29-3	4,4-DDT	0.025	U	0.0059	0.025	0.05	ug/L
72-43-5	Methoxychlor	0.025	U	0.0042	0.025	0.05	ug/L
53494-70-5	Endrin ketone	0.025	U	0.0057	0.025	0.05	ug/L
7421-93-4	Endrin aldehyde	0.025	U	0.0045	0.025	0.05	ug/L
5103-71-9	alpha-Chlordane	0.025	U	0.0049	0.025	0.05	ug/L
5103-74-2	gamma-Chlordane	0.025	U	0.005	0.025	0.05	ug/L
8001-35-2	Toxaphene	0.25	U	0.1	0.25	0.5	ug/L
SURROGATES							
2051-24-3	Decachlorobiphenyl	16.4		30 - 135		82%	SPK: 20
877-09-8	Tetrachloro-m-xylene	19.1		25 - 140		95%	SPK: 20

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB61640BS	alpha-BHC	0.5000	0.56	112				85	130	
	beta-BHC	0.5000	0.53	106				83	125	
	delta-BHC	0.5000	0.55	110				69	135	
	gamma-BHC (Lindane)	0.5000	0.55	110				82	129	
	Heptachlor	0.5000	0.59	118				79	127	
	Aldrin	0.5000	0.59	118				79	126	
	Heptachlor epoxide	0.5000	0.56	112				81	124	
	Endosulfan I	0.5000	0.55	110				85	110	
	Dieldrin	0.5000	0.55	110				83	125	
	4,4-DDE	0.5000	0.55	110				80	127	
	Endrin	0.5000	0.55	110				81	128	
	Endosulfan II	0.5000	0.55	110				82	123	
	4,4-DDD	0.5000	0.57	114				77	131	
	Endosulfan sulfate	0.5000	0.56	112				76	129	
	4,4-DDT	0.5000	0.59	118				80	133	
	Methoxychlor	0.5000	0.56	112				76	137	
	Endrin ketone	0.5000	0.55	110				80	125	
	Endrin aldehyde	0.5000	0.55	110				82	127	
	alpha-Chlordane	0.5000	0.56	112				82	125	
	gamma-Chlordane	0.5000	0.57	114				82	125	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12MW01SMS**										
D1768-10MS	alpha-BHC	0.5155	0	0.58	113				60	130	
	beta-BHC	0.5155	0	0.52	101				65	125	
	delta-BHC	0.5155	0	0.55	107				45	135	
	gamma-BHC (Lindane)	0.5155	0	0.57	111				39	135	
	Heptachlor	0.5155	0	0.57	111				40	130	
	Aldrin	0.5155	0	0.55	107				45	140	
	Heptachlor epoxide	0.5155	0	0.56	109				60	130	
	Endosulfan I	0.5155	0	0.56	109				50	110	
	Dieldrin	0.5155	0	0.57	111				60	130	
	4,4-DDE	0.5155	0	0.54	105				36	140	
	Endrin	0.5155	0	0.59	115				55	135	
	Endosulfan II	0.5155	0	0.60	117				30	130	
	4,4-DDD	0.5155	0	0.50	97				25	150	
	Endosulfan sulfate	0.5155	0	0.58	113				55	135	
	4,4-DDT	0.5155	0	0.57	111				45	140	
	Methoxychlor	0.5155	0	0.62	120				55	150	
	Endrin ketone	0.5155	0	0.58	113				75	125	
	Endrin aldehyde	0.5155	0	0.58	113				55	135	
	alpha-Chlordane	0.5155	0	0.56	109				65	125	
	gamma-Chlordane	0.5155	0	0.54	105				60	125	
Client Sample ID:	**12MW01SMSD**										
D1768-11MSD	alpha-BHC	0.5155	0	0.57	111		2		60	130	20
	beta-BHC	0.5155	0	0.52	101		0		65	125	20
	delta-BHC	0.5155	0	0.55	107		0		45	135	20
	gamma-BHC (Lindane)	0.5155	0	0.57	111		0		39	135	20
	Heptachlor	0.5155	0	0.57	111		0		40	130	20
	Aldrin	0.5155	0	0.55	107		0		45	140	20
	Heptachlor epoxide	0.5155	0	0.57	111		2		60	130	20
	Endosulfan I	0.5155	0	0.56	109		0		50	110	20
	Dieldrin	0.5155	0	0.57	111		0		60	130	20
	4,4-DDE	0.5155	0	0.54	105		0		36	140	20
	Endrin	0.5155	0	0.60	117		2		55	135	20
	Endosulfan II	0.5155	0	0.60	117		0		30	130	20
	4,4-DDD	0.5155	0	0.49	95		2		25	150	20
	Endosulfan sulfate	0.5155	0	0.58	113		0		55	135	20
	4,4-DDT	0.5155	0	0.57	111		0		45	140	20
	Methoxychlor	0.5155	0	0.62	120		0		55	150	20
	Endrin ketone	0.5155	0	0.58	113		0		75	125	20
	Endrin aldehyde	0.5155	0	0.58	113		0		55	135	20

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
D1768-11MSD	alpha-Chlordane	0.5155	0	0.55	107		2		65	125	20
	gamma-Chlordane	0.5155	0	0.54	105		0		60	125	20

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PD008784.D	PIBLK-PD008784.D	Decachlorobiphenyl	1	20	21	105		10	192
		Tetrachloro-m-xylene	1	20	21.78	109		10	172
		Decachlorobiphenyl	2	20	19.38	97		10	192
		Tetrachloro-m-xylene	2	20	19.47	97		10	172
I.BLK-PD008916.D	PIBLK-PD008916.D	Decachlorobiphenyl	1	20	15.83	79		10	192
		Tetrachloro-m-xylene	1	20	23.57	118		10	172
		Decachlorobiphenyl	2	20	17.71	89		10	192
		Tetrachloro-m-xylene	2	20	20.12	101		10	172
PB61640BL	PB61640BL	Decachlorobiphenyl	1	20	16.44	82		30	135
		Tetrachloro-m-xylene	1	20	19.06	95		25	140
		Decachlorobiphenyl	2	20	19.34	97		30	135
		Tetrachloro-m-xylene	2	20	20.53	103		25	140
PB61640BS	PB61640BS	Decachlorobiphenyl	1	20	14.95	75		30	135
		Tetrachloro-m-xylene	1	20	21.2	106		25	140
		Decachlorobiphenyl	2	20	20.71	104		30	135
		Tetrachloro-m-xylene	2	20	21.17	106		25	140
D1768-08	12MW010	Decachlorobiphenyl	1	20	12.6	63		30	135
		Tetrachloro-m-xylene	1	20	16.83	84		25	140
		Decachlorobiphenyl	2	20	17.29	86		30	135
		Tetrachloro-m-xylene	2	20	19.3	97		25	140
D1768-09	12MW01S	Decachlorobiphenyl	1	20	13.72	69		30	135
		Tetrachloro-m-xylene	1	20	18.32	92		25	140
		Decachlorobiphenyl	2	20	19.03	95		30	135
		Tetrachloro-m-xylene	2	20	21.06	105		25	140
D1768-10MS	12MW01SMS	Decachlorobiphenyl	1	20	14.43	72		30	135
		Tetrachloro-m-xylene	1	20	19.25	96		25	140
		Decachlorobiphenyl	2	20	19.95	100		30	135
		Tetrachloro-m-xylene	2	20	22.55	113		25	140
D1768-11MSD	12MW01SMSD	Decachlorobiphenyl	1	20	14.32	72		30	135
		Tetrachloro-m-xylene	1	20	18.93	95		25	140
		Decachlorobiphenyl	2	20	19.88	99		30	135
		Tetrachloro-m-xylene	2	20	22.35	112		25	140
D1768-12	12MW020	Decachlorobiphenyl	1	20	15	75		30	135
		Tetrachloro-m-xylene	1	20	17.36	87		25	140
		Decachlorobiphenyl	2	20	21.1	106		30	135
		Tetrachloro-m-xylene	2	20	21.48	107		25	140
D1768-13	12MW02S	Decachlorobiphenyl	1	20	12.93	65		30	135
		Tetrachloro-m-xylene	1	20	18.85	94		25	140
		Decachlorobiphenyl	2	20	18.49	92		30	135
		Tetrachloro-m-xylene	2	20	22.41	112		25	140
I.BLK-PD008929.D	PIBLK-PD008929.D	Decachlorobiphenyl	1	20	16.03	80		10	192
		Tetrachloro-m-xylene	1	20	19.01	95		10	172
		Decachlorobiphenyl	2	20	21.78	109		10	192
		Tetrachloro-m-xylene	2	20	21.58	108		10	172

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8081

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
D1768-14	12MW030	Decachlorobiphenyl	1	20	15.71	79		30	135
		Tetrachloro-m-xylene	1	20	19.59	98		25	140
		Decachlorobiphenyl	2	20	22.36	112		30	135
		Tetrachloro-m-xylene	2	20	23.42	117		25	140
D1768-15	12MW03S	Decachlorobiphenyl	1	20	14.67	73		30	135
		Tetrachloro-m-xylene	1	20	20.54	103		25	140
		Decachlorobiphenyl	2	20	21.1	106		30	135
		Tetrachloro-m-xylene	2	20	23.64	118		25	140
D1768-16	12MW040	Decachlorobiphenyl	1	20	14.15	71		30	135
		Tetrachloro-m-xylene	1	20	17.26	86		25	140
		Decachlorobiphenyl	2	20	19.64	98		30	135
		Tetrachloro-m-xylene	2	20	21.24	106		25	140
D1768-17	12MW04S	Decachlorobiphenyl	1	20	14.7	74		30	135
		Tetrachloro-m-xylene	1	20	18.49	92		25	140
		Decachlorobiphenyl	2	20	20.76	104		30	135
		Tetrachloro-m-xylene	2	20	22.32	112		25	140
D1768-18	12RB01	Decachlorobiphenyl	1	20	11.26	56		30	135
		Tetrachloro-m-xylene	1	20	19.3	97		25	140
		Decachlorobiphenyl	2	20	15.37	77		30	135
		Tetrachloro-m-xylene	2	20	22.8	114		25	140
D1768-19	12GW-DUP01	Decachlorobiphenyl	1	20	13.58	68		30	135
		Tetrachloro-m-xylene	1	20	17.94	90		25	140
		Decachlorobiphenyl	2	20	19.08	95		30	135
		Tetrachloro-m-xylene	2	20	20.87	104		25	140
I.BLK-PD008937.D	PIBLK-PD008937.D	Decachlorobiphenyl	1	20	15.83	79		10	192
		Tetrachloro-m-xylene	1	20	18.34	92		10	172
		Decachlorobiphenyl	2	20	22.06	110		10	192
		Tetrachloro-m-xylene	2	20	21.59	108		10	172

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD030612\
Data File : PD008786.D
Acq On : 06 Mar 2012 14:34
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD030612.M
Title : GC Extractables
Last Update : Wed Mar 07 01:28:03 2012
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.328	5.243	100.00%
5.243	5.355	100.00%
5.355	5.470	99.25%
5.470	5.597	100.00%
5.597	6.510	100.00%
6.510	6.776	100.00%
6.776	7.001	100.00%
7.001	8.052	100.00%

ignal #2

3.915	6.010	100.00%
6.010	6.130	100.00%
6.130	6.241	100.00%
6.241	6.385	100.00%
6.385	7.152	100.00%
7.152	7.483	100.00%
7.483	7.616	100.00%
7.616	8.945	100.00%

030612.M Wed Mar 07 02:31:24 2012 GC/MS

Sample: PEM
Data File: PD008785.D **Date Acquired** 3/6/2012 14:20
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
					Down
Endrin	5.85	7557246365	8070604769	513358404	**6.36**
Endrin aldehyde	6.30	65373464.51			
Endrin ketone	7.00	447984939.5			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.60	1969477893	2087782017	118304124	**5.67**
Endrin aldehyde #2	6.93	19855015.98			
Endrin ketone #2	7.62	98449108.2			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.22	1.137819E+010	1.17975855E+010	419395257	**3.55**
4,4'-DDE	5.47	205371691.3			
4,4'-DDD	5.99	214023565.2			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.03	3741046154	3818206443	77160289.8	**2.02**
4,4'-DDE #2	6.24	37897675.59			
4,4'-DDD #2	6.72	39262614.16			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 03/06/2012 03/06/2012

Client Sample No. (PEM): PEM - PD008785.D Date Analyzed: 03/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 14:20

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.051	7.950	8.150	0.021	0.020	5.0
Tetrachloro-m-xylene	3.328	3.230	3.430	0.021	0.020	5.0
alpha-BHC	3.763	3.710	3.810	0.012	0.010	20.0
beta-BHC	4.293	4.240	4.340	0.012	0.010	20.0
gamma-BHC (Lindane)	4.043	3.990	4.090	0.013	0.010	30.0
Endrin	5.854	5.780	5.920	0.048	0.050	4.0
4,4-DDT	6.219	6.150	6.290	0.077	0.100	23.0
Methoxychlor	6.776	6.700	6.840	0.204	0.250	18.4

Client Sample No. (PEM): PEM - PD008785.D Date Analyzed: 03/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 14:20

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.944	8.840	9.040	0.020	0.020	0.0
Tetrachloro-m-xylene	3.915	3.820	4.020	0.020	0.020	0.0
alpha-BHC	4.298	4.250	4.350	0.009	0.010	10.0
beta-BHC	4.746	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.579	4.530	4.630	0.010	0.010	0.0
Endrin	6.599	6.530	6.670	0.047	0.050	6.0
4,4-DDT	7.025	6.960	7.100	0.095	0.100	5.0
Methoxychlor	7.482	7.410	7.550	0.225	0.250	10.0

Sample: PEM
Data File: PD008917.D **Date Acquired** 3/12/2012 10:10
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	7910593868	8385154119	474560252	**5.66**
Endrin aldehyde	6.30	66856529.64			
Endrin ketone	7.00	407703721.9			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.60	1862685448	1972739823	110054375	**5.58**
Endrin aldehyde #2	6.93	20612966.98			
Endrin ketone #2	7.62	89441407.94			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.22	1.256602E+010	1.27859257E+010	219902549	**1.72**
4,4'-DDE	5.47	71518929.19			
4,4'-DDD	5.99	148383620			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.03	3984655988	4012980998	28325009.4	**0.71**
4,4'-DDE #2	6.24	8576651.597			
4,4'-DDD #2	6.73	19748357.85			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 03/06/2012 03/06/2012

Client Sample No. (PEM): PEM - PD008917.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.053	7.950	8.150	0.017	0.020	15.0
Tetrachloro-m-xylene	3.327	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.762	3.710	3.810	0.012	0.010	20.0
beta-BHC	4.293	4.240	4.340	0.011	0.010	10.0
gamma-BHC (Lindane)	4.042	3.990	4.090	0.011	0.010	10.0
Endrin	5.855	5.780	5.920	0.050	0.050	0.0
4,4-DDT	6.221	6.150	6.290	0.085	0.100	15.0
Methoxychlor	6.777	6.700	6.840	0.205	0.250	18.0

Client Sample No. (PEM): PEM - PD008917.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.945	8.840	9.040	0.019	0.020	5.0
Tetrachloro-m-xylene	3.915	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.298	4.250	4.350	0.010	0.010	0.0
beta-BHC	4.746	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.579	4.530	4.630	0.010	0.010	0.0
Endrin	6.599	6.530	6.670	0.044	0.050	12.0
4,4-DDT	7.026	6.960	7.100	0.101	0.100	1.0
Methoxychlor	7.483	7.410	7.550	0.231	0.250	7.6

Sample: PEM
Data File: PD008939.D **Date Acquired** 3/12/2012 19:35
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down Down
Endrin	5.86	7494737876	7937423482	442685606	**5.58**
Endrin aldehyde	6.30	59513349.86			
Endrin ketone	7.00	383172256			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.60	2351317005	2496903038	145586033	**5.83**
Endrin aldehyde #2	6.93	23422256.49			
Endrin ketone #2	7.62	122163776.3			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.192167E+010	1.2072869E+010	151203102	**1.25**
4,4'-DDE	5.47	60855530.72			
4,4'-DDD	5.99	90347571.3			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.03	5000484185	5030556955	30072769.7	**0.60**
4,4'-DDE #2	6.24	8169987.809			
4,4'-DDD #2	6.73	21902781.92			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 03/06/2012 03/06/2012

Client Sample No. (PEM): PEM - PD008939.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 19:35

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.054	7.950	8.150	0.017	0.020	15.0
Tetrachloro-m-xylene	3.329	3.230	3.430	0.020	0.020	0.0
alpha-BHC	3.764	3.710	3.810	0.011	0.010	10.0
beta-BHC	4.294	4.240	4.340	0.010	0.010	0.0
gamma-BHC (Lindane)	4.045	3.990	4.090	0.013	0.010	30.0
Endrin	5.856	5.780	5.920	0.048	0.050	4.0
4,4-DDT	6.228	6.150	6.290	0.080	0.100	20.0
Methoxychlor	6.778	6.700	6.840	0.210	0.250	16.0

Client Sample No. (PEM): PEM - PD008939.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 19:35

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.947	8.840	9.040	0.023	0.020	15.0
Tetrachloro-m-xylene	3.916	3.820	4.020	0.023	0.020	15.0
alpha-BHC	4.299	4.250	4.350	0.012	0.010	20.0
beta-BHC	4.747	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.580	4.530	4.630	0.011	0.010	10.0
Endrin	6.600	6.530	6.670	0.056	0.050	12.0
4,4-DDT	7.027	6.960	7.100	0.127	0.100	27.0
Methoxychlor	7.484	7.410	7.550	0.297	0.250	18.8

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: PCB

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082A and extraction was done based on method 3510.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PC006858.D met the requirements except for Aroclor-1260 (Peak-05) and Decachlorobiphenyl are failing in 2nd column but passing in 1st column.
The Continuous Calibration File ID PC006869.D met the requirements except for Decachlorobiphenyl is failing in 2nd column but passing in 1st column.
The Continuous Calibration File ID PC006880.D met the requirements except for Decachlorobiphenyl is failing in 2nd column but passing in 1st column.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:57:15 -05'00'

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: D1768

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 02/28/2012 02/28/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	02/28/2012	15:44	PC006663.D	1.52	8.34
1660 1000 PPB	1660 1000 PPB	02/28/2012	16:01	PC006664.D	1.52	8.33
1660 750 PPB	1660 750 PPB	02/28/2012	16:17	PC006665.D	1.52	8.33
1660 500 PPB	1660 500 PPB	02/28/2012	16:33	PC006666.D	1.52	8.33
1660 250 PPB	1660 250 PPB	02/28/2012	16:50	PC006667.D	1.52	8.33
1660 50 PPB	1660 50 PPB	02/28/2012	17:06	PC006668.D	1.52	8.34
AR122101	AR1221 500 PPB	02/28/2012	17:22	PC006669.D	1.52	8.33
AR123201	AR1232 500 PPB	02/28/2012	17:38	PC006670.D	1.51	8.34
AR124201	AR1242 500 PPB	02/28/2012	17:55	PC006671.D	1.52	8.34
AR124801	AR1248 500 PPB	02/28/2012	18:11	PC006672.D	1.52	8.34
AR125401	AR1254 500 PPB	02/28/2012	18:27	PC006673.D	1.52	8.33
PIBLK02	I.BLK02	03/12/2012	12:20	PC006857.D	1.52	8.33
CCAL01	1660 250	03/12/2012	12:36	PC006858.D	1.52	8.33
PB61639BL	PB61639BL	03/12/2012	15:38	PC006863.D	1.52	8.33
PB61639BS	PB61639BS	03/12/2012	15:55	PC006864.D	1.52	8.34
12MW010	D1768-08	03/12/2012	16:11	PC006865.D	1.53	8.34
12MW01S	D1768-09	03/12/2012	16:27	PC006866.D	1.52	8.33
12MW01SMS	D1768-10MS	03/12/2012	16:44	PC006867.D	1.53	8.34
PIBLK03	I.BLK03	03/12/2012	17:00	PC006868.D	1.52	8.34
CCAL02	1660 250	03/12/2012	17:16	PC006869.D	1.53	8.33
12MW01SMSD	D1768-11MSD	03/12/2012	17:33	PC006870.D	1.51	8.34
12MW020	D1768-12	03/12/2012	17:49	PC006871.D	1.53	8.34
12MW02S	D1768-13	03/12/2012	18:05	PC006872.D	1.53	8.34
12MW030	D1768-14	03/12/2012	18:21	PC006873.D	1.53	8.34
12MW03S	D1768-15	03/12/2012	18:38	PC006874.D	1.52	8.34
12MW040	D1768-16	03/12/2012	18:54	PC006875.D	1.53	8.34
12MW04S	D1768-17	03/12/2012	19:10	PC006876.D	1.53	8.34
12RB01	D1768-18	03/12/2012	19:27	PC006877.D	1.53	8.34
12GW-DUP01	D1768-19	03/12/2012	19:43	PC006878.D	1.53	8.34
PIBLK04	I.BLK04	03/12/2012	19:59	PC006879.D	1.53	8.34
CCAL03	1660 250	03/12/2012	20:15	PC006880.D	1.52	8.34

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006668.D **CF 250 =** PC006667.D

CF 500 = PC006666.D **CF 750 =** PC006665.D **CF 1000 =** PC006664.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1276560	1381644	1261122	1222193	1204497	1269203	5
Decachlorobiphenyl	1864300	1680124	1466450	1350485	1260889	1524450	16
AR1016 (1)	58956	57526	53403	50597	48639	53824	8
AR1016 (2)	124316	124600	123677	109447	105558	117520	8
AR1016 (3)	53186	52967	47113	45256	43668	48438	9
AR1016 (4)	51742	51366	47136	46751	45909	48581	6
AR1016 (5)	33288	30659	28648	29195	28906	30139	6
AR1260 (1)	78902	78506	69314	66572	65748	71809	9
AR1260 (2)	144350	140218	136224	131035	117122	133790	8
AR1260 (3)	132042	136152	121858	118891	114269	124642	7
AR1260 (4)	180754	178154	164428	157706	151805	166569	8
AR1260 (5)	83120	90396	81878	80556	78188	82828	6

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006668.D RT 250 = PC006667.D

RT 500 = PC006666.D RT 750 = PC006665.D RT 1000 = PC006664.D

COMPOUND	RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene	1.52	1.52	1.52	1.52	1.52	1.52	1.47	1.57
Decachlorobiphenyl	8.34	8.33	8.33	8.33	8.33	8.33	8.23	8.43
AR1016 (1)	2.19	2.18	2.18	2.18	2.18	2.18	2.13	2.23
AR1016 (2)	2.68	2.67	2.67	2.66	2.66	2.67	2.62	2.72
AR1016 (3)	2.83	2.82	2.82	2.82	2.81	2.82	2.77	2.87
AR1016 (4)	3.30	3.29	3.29	3.29	3.28	3.29	3.24	3.34
AR1016 (5)	3.75	3.74	3.74	3.74	3.74	3.74	3.69	3.79
AR1260 (1)	4.82	4.81	4.81	4.81	4.81	4.81	4.76	4.86
AR1260 (2)	5.19	5.18	5.18	5.18	5.18	5.18	5.13	5.23
AR1260 (3)	5.55	5.55	5.54	5.54	5.54	5.54	5.49	5.59
AR1260 (4)	6.46	6.45	6.45	6.45	6.45	6.45	6.40	6.50
AR1260 (5)	6.83	6.83	6.82	6.82	6.82	6.82	6.77	6.87

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Date(s) Analyzed:** 02/28/2012 02/28/2012

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.68	1.63	1.73	18657
		2	1.84	1.79	1.89	54883
		3	1.15	1.10	1.20	11081
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.84	1.79	1.89	31159
		2	2.18	2.13	2.23	21677
		3	2.67	2.62	2.72	45660
		4	2.82	2.77	2.87	17271
		5	3.05	3.00	3.10	24211
AR1242	0.5000	1	2.18	2.13	2.23	45740
		2	2.67	2.62	2.72	113745
		3	2.83	2.78	2.88	52135
		4	3.83	3.78	3.88	61228
		5	4.08	4.03	4.13	62320
AR1248	0.5000	1	2.67	2.62	2.72	58495
		2	3.05	3.00	3.10	82427
		3	3.29	3.24	3.34	55231
		4	3.82	3.77	3.87	96530
		5	4.08	4.03	4.13	60672
AR1254	0.5000	1	3.74	3.69	3.79	43550
		2	4.08	4.03	4.13	82676
		3	4.57	4.52	4.62	80498
		4	4.94	4.89	4.99	60951
		5	5.55	5.50	5.60	65545

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL01 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006858.D **Time Analyzed:** 12:36

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.186	2.130	2.230	0.272	0.250	8.8
AR1016 (2)	2.667	2.620	2.720	0.262	0.250	4.8
AR1016 (3)	2.819	2.770	2.870	0.235	0.250	6.0
AR1016 (4)	3.290	3.240	3.340	0.254	0.250	1.6
AR1016 (5)	3.744	3.690	3.790	0.263	0.250	5.2
AR1260 (1)	4.811	4.760	4.860	0.258	0.250	3.2
AR1260 (2)	5.181	5.130	5.230	0.272	0.250	8.8
AR1260 (3)	5.542	5.490	5.590	0.251	0.250	0.4
AR1260 (4)	6.451	6.400	6.500	0.249	0.250	0.4
AR1260 (5)	6.821	6.770	6.870	0.246	0.250	1.6
Tetrachloro-m-xylene	1.524	1.470	1.570	0.026	0.025	4.0
Decachlorobiphenyl	8.333	8.230	8.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 12:36 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.52	1.52	1.47	1.57	0.00
Decachlorobiphenyl	8.33	8.33	8.23	8.43	0.00
AR1016 (1)	2.19	2.18	2.13	2.23	-0.01
AR1016 (2)	2.67	2.67	2.62	2.72	0.00
AR1016 (3)	2.82	2.82	2.77	2.87	0.00
AR1016 (4)	3.29	3.29	3.24	3.34	0.00
AR1016 (5)	3.74	3.74	3.69	3.79	0.00
AR1260 (1)	4.81	4.81	4.76	4.86	0.00
AR1260 (2)	5.18	5.18	5.13	5.23	0.00
AR1260 (3)	5.54	5.54	5.49	5.59	0.00
AR1260 (4)	6.45	6.45	6.40	6.50	0.00
AR1260 (5)	6.82	6.82	6.77	6.87	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL02 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006869.D **Time Analyzed:** 17:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.186	2.130	2.230	0.265	0.250	6.0
AR1016 (2)	2.668	2.620	2.720	0.266	0.250	6.4
AR1016 (3)	2.820	2.770	2.870	0.238	0.250	4.8
AR1016 (4)	3.290	3.240	3.340	0.260	0.250	4.0
AR1016 (5)	3.743	3.690	3.790	0.222	0.250	11.2
AR1260 (1)	4.810	4.760	4.860	0.252	0.250	0.8
AR1260 (2)	5.180	5.130	5.230	0.235	0.250	6.0
AR1260 (3)	5.543	5.490	5.590	0.268	0.250	7.2
AR1260 (4)	6.452	6.400	6.500	0.263	0.250	5.2
AR1260 (5)	6.821	6.770	6.870	0.260	0.250	4.0
Tetrachloro-m-xylene	1.525	1.470	1.570	0.026	0.025	4.0
Decachlorobiphenyl	8.334	8.230	8.430	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 17:16 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.53	1.52	1.47	1.57	0.00
Decachlorobiphenyl	8.33	8.33	8.23	8.43	0.00
AR1016 (1)	2.19	2.18	2.13	2.23	-0.01
AR1016 (2)	2.67	2.67	2.62	2.72	0.00
AR1016 (3)	2.82	2.82	2.77	2.87	0.00
AR1016 (4)	3.29	3.29	3.24	3.34	0.00
AR1016 (5)	3.74	3.74	3.69	3.79	0.00
AR1260 (1)	4.81	4.81	4.76	4.86	0.00
AR1260 (2)	5.18	5.18	5.13	5.23	0.00
AR1260 (3)	5.54	5.54	5.49	5.59	0.00
AR1260 (4)	6.45	6.45	6.40	6.50	0.00
AR1260 (5)	6.82	6.82	6.77	6.87	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL03 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006880.D **Time Analyzed:** 20:15

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.184	2.130	2.230	0.263	0.250	5.2
AR1016 (2)	2.666	2.620	2.720	0.276	0.250	10.4
AR1016 (3)	2.818	2.770	2.870	0.255	0.250	2.0
AR1016 (4)	3.289	3.240	3.340	0.258	0.250	3.2
AR1016 (5)	3.742	3.690	3.790	0.245	0.250	2.0
AR1260 (1)	4.810	4.760	4.860	0.263	0.250	5.2
AR1260 (2)	5.182	5.130	5.230	0.274	0.250	9.6
AR1260 (3)	5.543	5.490	5.590	0.269	0.250	7.6
AR1260 (4)	6.452	6.400	6.500	0.265	0.250	6.0
AR1260 (5)	6.822	6.770	6.870	0.260	0.250	4.0
Tetrachloro-m-xylene	1.522	1.470	1.570	0.026	0.025	4.0
Decachlorobiphenyl	8.335	8.230	8.430	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 20:15 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.52	1.52	1.47	1.57	0.00
Decachlorobiphenyl	8.34	8.33	8.23	8.43	-0.01
AR1016 (1)	2.18	2.18	2.13	2.23	0.00
AR1016 (2)	2.67	2.67	2.62	2.72	0.00
AR1016 (3)	2.82	2.82	2.77	2.87	0.00
AR1016 (4)	3.29	3.29	3.24	3.34	0.00
AR1016 (5)	3.74	3.74	3.69	3.79	0.00
AR1260 (1)	4.81	4.81	4.76	4.86	0.00
AR1260 (2)	5.18	5.18	5.13	5.23	0.00
AR1260 (3)	5.54	5.54	5.49	5.59	0.00
AR1260 (4)	6.45	6.45	6.40	6.50	0.00
AR1260 (5)	6.82	6.82	6.77	6.87	0.00

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: D1768

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 02/28/2012 02/28/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	02/28/2012	15:44	PC006663.D	1.96	9.85
1660 1000 PPB	1660 1000 PPB	02/28/2012	16:01	PC006664.D	1.95	9.85
1660 750 PPB	1660 750 PPB	02/28/2012	16:17	PC006665.D	1.96	9.85
1660 500 PPB	1660 500 PPB	02/28/2012	16:33	PC006666.D	1.96	9.85
1660 250 PPB	1660 250 PPB	02/28/2012	16:50	PC006667.D	1.96	9.85
1660 50 PPB	1660 50 PPB	02/28/2012	17:06	PC006668.D	1.96	9.85
AR122101	AR1221 500 PPB	02/28/2012	17:22	PC006669.D	1.96	9.85
AR123201	AR1232 500 PPB	02/28/2012	17:38	PC006670.D	1.95	9.85
AR124201	AR1242 500 PPB	02/28/2012	17:55	PC006671.D	1.96	9.85
AR124801	AR1248 500 PPB	02/28/2012	18:11	PC006672.D	1.96	9.85
AR125401	AR1254 500 PPB	02/28/2012	18:27	PC006673.D	1.96	9.85
PIBLK02	I.BLK02	03/12/2012	12:20	PC006857.D	1.96	9.85
CCAL01	1660 250	03/12/2012	12:36	PC006858.D	1.96	9.85
PB61639BL	PB61639BL	03/12/2012	15:38	PC006863.D	1.96	9.85
PB61639BS	PB61639BS	03/12/2012	15:55	PC006864.D	1.96	9.85
12MW010	D1768-08	03/12/2012	16:11	PC006865.D	1.97	9.85
12MW01S	D1768-09	03/12/2012	16:27	PC006866.D	1.95	9.85
12MW01SMS	D1768-10MS	03/12/2012	16:44	PC006867.D	1.96	9.85
PIBLK03	I.BLK03	03/12/2012	17:00	PC006868.D	1.96	9.85
CCAL02	1660 250	03/12/2012	17:16	PC006869.D	1.96	9.85
12MW01SMSD	D1768-11MSD	03/12/2012	17:33	PC006870.D	1.95	9.85
12MW020	D1768-12	03/12/2012	17:49	PC006871.D	1.96	9.85
12MW02S	D1768-13	03/12/2012	18:05	PC006872.D	1.96	9.85
12MW030	D1768-14	03/12/2012	18:21	PC006873.D	1.96	9.85
12MW03S	D1768-15	03/12/2012	18:38	PC006874.D	1.96	9.85
12MW040	D1768-16	03/12/2012	18:54	PC006875.D	1.96	9.85
12MW04S	D1768-17	03/12/2012	19:10	PC006876.D	1.96	9.85
12RB01	D1768-18	03/12/2012	19:27	PC006877.D	1.96	9.85
12GW-DUP01	D1768-19	03/12/2012	19:43	PC006878.D	1.96	9.85
PIBLK04	I.BLK04	03/12/2012	19:59	PC006879.D	1.96	9.85
CCAL03	1660 250	03/12/2012	20:15	PC006880.D	1.96	9.85

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006668.D **CF 250 =** PC006667.D

CF 500 = PC006666.D **CF 750 =** PC006665.D **CF 1000 =** PC006664.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4471480	4547364	4067400	3893951	3864519	4168943	8
Decachlorobiphenyl	5977040	5325892	5004950	4579245	4016237	4980673	15
AR1016 (1)	183104	182917	159816	166646	161752	170847	7
AR1016 (2)	402754	388856	358118	338027	326963	362944	9
AR1016 (3)	167292	183951	164085	157420	155685	165686	7
AR1016 (4)	130520	142395	131103	128170	128463	132130	4
AR1016 (5)	150502	157577	141339	135847	136650	144383	7
AR1260 (1)	296452	290642	263663	253051	245296	269821	8
AR1260 (2)	320902	340714	312464	294001	284288	310474	7
AR1260 (3)	480338	456066	422261	399081	390473	429644	9
AR1260 (4)	606690	606238	530098	497966	477940	543786	11
AR1260 (5)	377638	455079	399627	403019	385377	404148	7

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006668.D RT 250 = PC006667.D

RT 500 = PC006666.D RT 750 = PC006665.D RT 1000 = PC006664.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.96	1.96	1.96	1.96	1.95	1.96	1.91	2.01
Decachlorobiphenyl		9.85	9.85	9.85	9.85	9.85	9.85	9.75	9.95
AR1016	(1)	2.99	2.99	2.99	2.99	2.98	2.99	2.94	3.04
AR1016	(2)	3.55	3.55	3.55	3.55	3.55	3.55	3.50	3.60
AR1016	(3)	3.73	3.72	3.72	3.72	3.72	3.72	3.67	3.77
AR1016	(4)	3.86	3.86	3.85	3.85	3.85	3.85	3.80	3.90
AR1016	(5)	4.50	4.50	4.50	4.50	4.50	4.50	4.45	4.55
AR1260	(1)	6.06	6.06	6.06	6.06	6.05	6.06	6.01	6.11
AR1260	(2)	6.36	6.36	6.36	6.36	6.36	6.36	6.31	6.41
AR1260	(3)	6.84	6.84	6.84	6.83	6.83	6.83	6.78	6.88
AR1260	(4)	7.74	7.74	7.74	7.74	7.74	7.74	7.69	7.79
AR1260	(5)	8.23	8.23	8.23	8.23	8.23	8.23	8.18	8.28

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Date(s) Analyzed:** 02/28/2012 02/28/2012

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.28	2.23	2.33	52602
		2	2.44	2.39	2.49	31811
		3	2.50	2.45	2.55	132421
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.50	2.45	2.55	87622
		2	2.98	2.93	3.03	68936
		3	3.55	3.50	3.60	143163
		4	3.72	3.67	3.77	64747
		5	3.85	3.80	3.90	49006
AR1242	0.5000	1	2.99	2.94	3.04	144990
		2	3.55	3.50	3.60	323592
		3	3.72	3.67	3.77	139301
		4	3.86	3.81	3.91	110431
		5	4.50	4.45	4.55	120892
AR1248	0.5000	1	3.55	3.50	3.60	177444
		2	4.34	4.29	4.39	200782
		3	4.50	4.45	4.55	163523
		4	4.86	4.81	4.91	152980
		5	4.91	4.86	4.96	200811
AR1254	0.5000	1	5.18	5.13	5.23	190548
		2	5.25	5.20	5.30	159640
		3	5.79	5.74	5.84	293083
		4	6.11	6.06	6.16	219073
		5	6.84	6.79	6.89	292747

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL01 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006858.D **Time Analyzed:** 12:36

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.989	2.940	3.040	0.262	0.250	4.8
AR1016 (2)	3.552	3.500	3.600	0.275	0.250	10.0
AR1016 (3)	3.725	3.670	3.770	0.274	0.250	9.6
AR1016 (4)	3.855	3.800	3.900	0.270	0.250	8.0
AR1016 (5)	4.499	4.450	4.550	0.267	0.250	6.8
AR1260 (1)	6.055	6.010	6.110	0.267	0.250	6.8
AR1260 (2)	6.361	6.310	6.410	0.280	0.250	12.0
AR1260 (3)	6.834	6.780	6.880	0.271	0.250	8.4
AR1260 (4)	7.736	7.690	7.790	0.273	0.250	9.2
AR1260 (5)	8.229	8.180	8.280	0.297	0.250	18.8
Tetrachloro-m-xylene	1.961	1.910	2.010	0.026	0.025	4.0
Decachlorobiphenyl	9.847	9.750	9.950	0.030	0.025	20.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 12:36 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.96	1.96	1.91	2.01	0.00
Decachlorobiphenyl	9.85	9.85	9.75	9.95	0.00
AR1016 (1)	2.99	2.99	2.94	3.04	0.00
AR1016 (2)	3.55	3.55	3.50	3.60	0.00
AR1016 (3)	3.73	3.72	3.67	3.77	0.00
AR1016 (4)	3.86	3.85	3.80	3.90	-0.01
AR1016 (5)	4.50	4.50	4.45	4.55	0.00
AR1260 (1)	6.06	6.06	6.01	6.11	0.01
AR1260 (2)	6.36	6.36	6.31	6.41	0.00
AR1260 (3)	6.83	6.83	6.78	6.88	0.00
AR1260 (4)	7.74	7.74	7.69	7.79	0.00
AR1260 (5)	8.23	8.23	8.18	8.28	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL02 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006869.D **Time Analyzed:** 17:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.990	2.940	3.040	0.242	0.250	3.2
AR1016 (2)	3.553	3.500	3.600	0.264	0.250	5.6
AR1016 (3)	3.726	3.670	3.770	0.255	0.250	2.0
AR1016 (4)	3.856	3.800	3.900	0.250	0.250	0.0
AR1016 (5)	4.500	4.450	4.550	0.254	0.250	1.6
AR1260 (1)	6.055	6.010	6.110	0.265	0.250	6.0
AR1260 (2)	6.360	6.310	6.410	0.278	0.250	11.2
AR1260 (3)	6.834	6.780	6.880	0.272	0.250	8.8
AR1260 (4)	7.738	7.690	7.790	0.279	0.250	11.6
AR1260 (5)	8.230	8.180	8.280	0.276	0.250	10.4
Tetrachloro-m-xylene	1.962	1.910	2.010	0.026	0.025	4.0
Decachlorobiphenyl	9.850	9.750	9.950	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 17:16 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.96	1.96	1.91	2.01	0.00
Decachlorobiphenyl	9.85	9.85	9.75	9.95	0.00
AR1016 (1)	2.99	2.99	2.94	3.04	0.00
AR1016 (2)	3.55	3.55	3.50	3.60	0.00
AR1016 (3)	3.73	3.72	3.67	3.77	-0.01
AR1016 (4)	3.86	3.85	3.80	3.90	-0.01
AR1016 (5)	4.50	4.50	4.45	4.55	0.00
AR1260 (1)	6.06	6.06	6.01	6.11	0.01
AR1260 (2)	6.36	6.36	6.31	6.41	0.00
AR1260 (3)	6.83	6.83	6.78	6.88	0.00
AR1260 (4)	7.74	7.74	7.69	7.79	0.00
AR1260 (5)	8.23	8.23	8.18	8.28	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL03 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006880.D **Time Analyzed:** 20:15

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.989	2.940	3.040	0.238	0.250	4.8
AR1016 (2)	3.552	3.500	3.600	0.261	0.250	4.4
AR1016 (3)	3.725	3.670	3.770	0.251	0.250	0.4
AR1016 (4)	3.856	3.800	3.900	0.247	0.250	1.2
AR1016 (5)	4.499	4.450	4.550	0.250	0.250	0.0
AR1260 (1)	6.056	6.010	6.110	0.244	0.250	2.4
AR1260 (2)	6.361	6.310	6.410	0.281	0.250	12.4
AR1260 (3)	6.835	6.780	6.880	0.250	0.250	0.0
AR1260 (4)	7.739	7.690	7.790	0.277	0.250	10.8
AR1260 (5)	8.232	8.180	8.280	0.287	0.250	14.8
Tetrachloro-m-xylene	1.960	1.910	2.010	0.026	0.025	4.0
Decachlorobiphenyl	9.850	9.750	9.950	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 20:15 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.96	1.96	1.91	2.01	0.00
Decachlorobiphenyl	9.85	9.85	9.75	9.95	0.00
AR1016 (1)	2.99	2.99	2.94	3.04	0.00
AR1016 (2)	3.55	3.55	3.50	3.60	0.00
AR1016 (3)	3.73	3.72	3.67	3.77	0.00
AR1016 (4)	3.86	3.85	3.80	3.90	-0.01
AR1016 (5)	4.50	4.50	4.45	4.55	0.00
AR1260 (1)	6.06	6.06	6.01	6.11	0.00
AR1260 (2)	6.36	6.36	6.31	6.41	0.00
AR1260 (3)	6.84	6.83	6.78	6.88	-0.01
AR1260 (4)	7.74	7.74	7.69	7.79	0.00
AR1260 (5)	8.23	8.23	8.18	8.28	0.00

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB61639BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab Sample ID: PB61639BL Lab File ID: PC006863.D

Matrix: (soil/water) WATER Extraction: (Type) SEPF

Sulfur Cleanup: (Y/N) N Date Extracted: 03/12/2012

Date Analyzed (1): 03/12/2012 Date Analyzed (2): 03/12/2012

Time Analyzed (1): 15:38 Time Analyzed (2): 15:38

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB61639BS	PB61639BS	PC006864.D	03/12/2012	03/12/2012
12MW010	D1768-08	PC006865.D	03/12/2012	03/12/2012
12MW01S	D1768-09	PC006866.D	03/12/2012	03/12/2012
12MW01SMS	D1768-10MS	PC006867.D	03/12/2012	03/12/2012
12MW01SMSD	D1768-11MSD	PC006870.D	03/12/2012	03/12/2012
12MW020	D1768-12	PC006871.D	03/12/2012	03/12/2012
12MW02S	D1768-13	PC006872.D	03/12/2012	03/12/2012
12MW030	D1768-14	PC006873.D	03/12/2012	03/12/2012
12MW03S	D1768-15	PC006874.D	03/12/2012	03/12/2012
12MW040	D1768-16	PC006875.D	03/12/2012	03/12/2012
12MW04S	D1768-17	PC006876.D	03/12/2012	03/12/2012
12RB01	D1768-18	PC006877.D	03/12/2012	03/12/2012
12GW-DUP01	D1768-19	PC006878.D	03/12/2012	03/12/2012

COMMENTS:

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61639BL	SDG No.:	D1768
Lab Sample ID:	PB61639BL	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006863.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	22.1		35 - 137		111%	SPK: 20
2051-24-3	Decachlorobiphenyl	22		40 - 135		110%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB61639BS	AR1016	2.000	2.1	105				56	149	
	AR1260	2.000	2.3	115				66	147	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	Limits RPD
Client Sample ID:	**12MW01SMS**										
D1768-10MS	AR1016	2.062	0	2.2	107				65	145	
	AR1260	2.062	0	2.4	116				65	145	
Client Sample ID:	**12MW01SMSD**										
D1768-11MSD	AR1016	2.105	0	2.4	114		2		65	145	20
	AR1260	2.105	0	2.5	119		6		65	145	20

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006663.D	PIBLK-PC006663.D	Tetrachloro-m-xylene	1	20	22.1	111		35	137
		Decachlorobiphenyl	1	20	19.91	100		40	135
		Tetrachloro-m-xylene	2	20	22.15	111		35	137
		Decachlorobiphenyl	2	20	17.04	85		40	135
I.BLK-PC006857.D	PIBLK-PC006857.D	Tetrachloro-m-xylene	1	20	21.72	109		35	137
		Decachlorobiphenyl	1	20	23.19	116		40	135
		Tetrachloro-m-xylene	2	20	22.49	112		35	137
		Decachlorobiphenyl	2	20	26.72	134		40	135
PB61639BL	PB61639BL	Tetrachloro-m-xylene	1	20	22.13	111		35	137
		Decachlorobiphenyl	1	20	22.02	110		40	135
		Tetrachloro-m-xylene	2	20	22.41	112		35	137
		Decachlorobiphenyl	2	20	19.7	99		40	135
PB61639BS	PB61639BS	Tetrachloro-m-xylene	1	20	22.66	113		35	137
		Decachlorobiphenyl	1	20	23.7	119		40	135
		Tetrachloro-m-xylene	2	20	22.34	112		35	137
		Decachlorobiphenyl	2	20	23.97	120		40	135
D1768-08	12MW010	Tetrachloro-m-xylene	1	20	23.41	117		35	137
		Decachlorobiphenyl	1	20	20.01	100		40	135
		Tetrachloro-m-xylene	2	20	22.1	111		35	137
		Decachlorobiphenyl	2	20	21.2	106		40	135
D1768-09	12MW01S	Tetrachloro-m-xylene	1	20	23.11	116		35	137
		Decachlorobiphenyl	1	20	21.12	106		40	135
		Tetrachloro-m-xylene	2	20	23.29	116		35	137
		Decachlorobiphenyl	2	20	22.81	114		40	135
D1768-10MS	12MW01SMS	Tetrachloro-m-xylene	1	20	24.56	123		35	137
		Decachlorobiphenyl	1	20	20.66	103		40	135
		Tetrachloro-m-xylene	2	20	23.39	117		35	137
		Decachlorobiphenyl	2	20	23.03	115		40	135
I.BLK-PC006868.D	PIBLK-PC006868.D	Tetrachloro-m-xylene	1	20	23.58	118		35	137
		Decachlorobiphenyl	1	20	24.58	123		40	135
		Tetrachloro-m-xylene	2	20	23.64	118		35	137
		Decachlorobiphenyl	2	20	25.91	130		40	135
D1768-11MSD	12MW01SMSD	Tetrachloro-m-xylene	1	20	24.18	121		35	137
		Decachlorobiphenyl	1	20	21.17	106		40	135
		Tetrachloro-m-xylene	2	20	23.35	117		35	137
		Decachlorobiphenyl	2	20	23.28	116		40	135
D1768-12	12MW020	Tetrachloro-m-xylene	1	20	23.11	116		35	137
		Decachlorobiphenyl	1	20	22.36	112		40	135
		Tetrachloro-m-xylene	2	20	23.19	116		35	137
		Decachlorobiphenyl	2	20	24.29	121		40	135
D1768-13	12MW02S	Tetrachloro-m-xylene	1	20	24.56	123		35	137
		Decachlorobiphenyl	1	20	22.11	111		40	135
		Tetrachloro-m-xylene	2	20	24.4	122		35	137
		Decachlorobiphenyl	2	20	23.58	118		40	135

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
D1768-14	12MW030	Tetrachloro-m-xylene	1	20	22.7	114		35	137
		Decachlorobiphenyl	1	20	21.46	107		40	135
		Tetrachloro-m-xylene	2	20	22.44	112		35	137
		Decachlorobiphenyl	2	20	23.22	116		40	135
D1768-15	12MW03S	Tetrachloro-m-xylene	1	20	23.38	117		35	137
		Decachlorobiphenyl	1	20	21.67	108		40	135
		Tetrachloro-m-xylene	2	20	23.79	119		35	137
		Decachlorobiphenyl	2	20	23.3	117		40	135
D1768-16	12MW040	Tetrachloro-m-xylene	1	20	21.53	108		35	137
		Decachlorobiphenyl	1	20	16.21	81		40	135
		Tetrachloro-m-xylene	2	20	21.13	106		35	137
		Decachlorobiphenyl	2	20	17.57	88		40	135
D1768-17	12MW04S	Tetrachloro-m-xylene	1	20	20.91	105		35	137
		Decachlorobiphenyl	1	20	16.91	85		40	135
		Tetrachloro-m-xylene	2	20	20.56	103		35	137
		Decachlorobiphenyl	2	20	17.99	90		40	135
D1768-18	12RB01	Tetrachloro-m-xylene	1	20	22.66	113		35	137
		Decachlorobiphenyl	1	20	11.88	59		40	135
		Tetrachloro-m-xylene	2	20	22.08	110		35	137
		Decachlorobiphenyl	2	20	12.65	63		40	135
D1768-19	12GW-DUP01	Tetrachloro-m-xylene	1	20	21.92	110		35	137
		Decachlorobiphenyl	1	20	21.59	108		40	135
		Tetrachloro-m-xylene	2	20	22.74	114		35	137
		Decachlorobiphenyl	2	20	22.94	115		40	135
I.BLK-PC006879.D	PIBLK-PC006879.D	Tetrachloro-m-xylene	1	20	23.86	119		35	137
		Decachlorobiphenyl	1	20	25.08	125		40	135
		Tetrachloro-m-xylene	2	20	23.36	117		35	137
		Decachlorobiphenyl	2	20	26.13	131		40	135

APPENDIX C

SUPPORT DOCUMENTATION

FIELD DUPLICATE PRECISON <30%

	12GW-DUP01 UG/L	12MW03S UG/L	RPD	
FLUORANTHENE	0.06	0.062	-3.28	SATISFACTORY
PYRENE	0.07	0.062	12.12	SATISFACTORY

PAH CALCULATION	**SAMPLE 12MW03S**		
TARGET ANALYTE	fluoranthene		
ANALYTE RESPONSE	9642		
INTERNAL STANDARD	phenanthrene-d10		
I.S. RESPONSE	162184		
I.S. CONCENTRATION	5	ng	
ANALYTE CAL. RELATIVE RESPONSE FACTOR (RRF)	4.598		
VOLUME OF FINAL EXTRACT	1000	ul	
VOLUME OF INITIAL EXTRACT	970	ml	
DILUTION FACTOR (DF)	1		
(ANALYTE RESPONSE) X (I.S. CONCENTRATION) X DF X Vol final / (I.S. RESPONSE) X (CAL. RRF) X (vol. initial)	=	0.0666	ng/ml or ug/l

Quantitation Report (QT Reviewed)

Data Path : Z:\HPCHEM1\BNA_E\DATA\BE031312\
Data File : BE076080.D
Acq On : 14 Mar 2012 1:07
Operator : QM
Sample : D1768-15
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 14 03:36:42 2012
Quant Method : Z:\HPCHEM1\BNA_E\METHOD\SIMPAH-BE022912.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Feb 29 17:51:20 2012
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.76	152	47268	5.00	ng	-0.03
2) Naphthalene-d8	10.93	136	192352	5.00	ng	-0.02
7) Acenaphthene-d10	13.91	164	107803	5.00	ng	-0.03
12) Phenanthrene-d10	16.38	188	186534	5.00	ng	-0.04
16) Chrysene-d12	20.87	240	162184	5.00	ng	-0.05
22) Perylene-d12	24.70	264	124862	5.00	ng	-0.10
System Monitoring Compounds						
3) Nitrobenzene-d5	9.67	82	1062754	90.19	ng	-0.03
8) 2-Fluorobiphenyl	12.75	172	2385823	74.15	ng	-0.03
18) Terphenyl-d14	19.00	244	1795240	82.59	ng	-0.03
Target Compounds						Qvalue
15) Fluoranthene	18.40	202	9642	0.06	ng	99
17) Pyrene	18.78	202	9632	0.06	ng	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Analytical Method:	SW8270D	% Moisture:	100
Sample Wt/Vol:	970 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	SEPF Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : 6

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BE076080.D	1	03/12/12	03/14/12	PB61641

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
91-20-3	Naphthalene	0.05	U	0.021	0.05	0.1	ug/L
91-57-6	2-Methylnaphthalene	0.05	U	0.012	0.05	0.1	ug/L
208-96-8	Acenaphthylene	0.05	U	0.021	0.05	0.1	ug/L
83-32-9	Acenaphthene	0.05	U	0.021	0.05	0.1	ug/L
86-73-7	Fluorene	0.05	U	0.021	0.05	0.1	ug/L
85-01-8	Phenanthrene	0.05	U	0.021	0.05	0.1	ug/L
120-12-7	Anthracene	0.05	U	0.021	0.05	0.1	ug/L
206-44-0	Fluoranthene	0.062	J	0.021	0.05	0.1	ug/L
129-00-0	Pyrene	0.062	J	0.021	0.05	0.1	ug/L
56-55-3	Benzo(a)anthracene	0.05	U	0.021	0.05	0.1	ug/L
218-01-9	Chrysene	0.05	U	0.021	0.05	0.1	ug/L
205-99-2	Benzo(b)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
207-08-9	Benzo(k)fluoranthene	0.05	U	0.021	0.05	0.1	ug/L
50-32-8	Benzo(a)pyrene	0.05	U	0.021	0.05	0.1	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.05	U	0.021	0.05	0.1	ug/L
53-70-3	Dibenz(a,h)anthracene	0.05	U	0.021	0.05	0.1	ug/L
191-24-2	Benzo(g,h,i)perylene	0.05	U	0.021	0.05	0.1	ug/L
SURROGATES							
4165-60-0	Nitrobenzene-d5	90.2		40 - 110		90%	SPK: 100
321-60-8	2-Fluorobiphenyl	74.2		50 - 110		74%	SPK: 100
1718-51-0	Terphenyl-d14	82.6		50 - 135		83%	SPK: 100
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	47268	8.76				
1146-65-2	Naphthalene-d8	192352	10.93				
15067-26-2	Acenaphthene-d10	107803	13.91				
1517-22-2	Phenanthrene-d10	186534	16.38				
1719-03-5	Chrysene-d12	162184	20.87				
1520-96-3	Perylene-d12	124862	24.7				

Chromatographic Resolution Report

Data Path : P:\HPCHEM1\Ecd_D\Data\PD030612\
Data File : PD008786.D
Acq On : 06 Mar 2012 14:34
Operator : JJ
Sample : RESCHK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e

Method : P:\HPCHEM1\Ecd_D\Method\PD030612.M
Title : GC Extractables
Last Update : Wed Mar 07 01:28:03 2012
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

RT#1	RT#2	Resolution
3.328	5.243	100.00%
5.243	5.355	100.00%
5.355	5.470	99.25%
5.470	5.597	100.00%
5.597	6.510	100.00%
6.510	6.776	100.00%
6.776	7.001	100.00%
7.001	8.052	100.00%

ignal #2

3.915	6.010	100.00%
6.010	6.130	100.00%
6.130	6.241	100.00%
6.241	6.385	100.00%
6.385	7.152	100.00%
7.152	7.483	100.00%
7.483	7.616	100.00%
7.616	8.945	100.00%

030612.M Wed Mar 07 02:31:24 2012 GC/MS

Sample: PEM
Data File: PD008785.D **Date Acquired** 3/6/2012 14:20
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.85	7557246365	8070604769	513358404	**6.36**
Endrin aldehyde	6.30	65373464.51			
Endrin ketone	7.00	447984939.5			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.60	1969477893	2087782017	118304124	**5.67**
Endrin aldehyde #2	6.93	19855015.98			
Endrin ketone #2	7.62	98449108.2			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.22	1.137819E+010	1.17975855E+010	419395257	**3.55**
4,4'-DDE	5.47	205371691.3			
4,4'-DDD	5.99	214023565.2			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.03	3741046154	3818206443	77160289.8	**2.02**
4,4'-DDE #2	6.24	37897675.59			
4,4'-DDD #2	6.72	39262614.16			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 03/06/2012 03/06/2012

Client Sample No. (PEM): PEM - PD008785.D Date Analyzed: 03/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 14:20

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.051	7.950	8.150	0.021	0.020	5.0
Tetrachloro-m-xylene	3.328	3.230	3.430	0.021	0.020	5.0
alpha-BHC	3.763	3.710	3.810	0.012	0.010	20.0
beta-BHC	4.293	4.240	4.340	0.012	0.010	20.0
gamma-BHC (Lindane)	4.043	3.990	4.090	0.013	0.010	30.0
Endrin	5.854	5.780	5.920	0.048	0.050	4.0
4,4-DDT	6.219	6.150	6.290	0.077	0.100	23.0
Methoxychlor	6.776	6.700	6.840	0.204	0.250	18.4

Client Sample No. (PEM): PEM - PD008785.D Date Analyzed: 03/06/2012

Lab Sample No.(PEM): PEM Time Analyzed: 14:20

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.944	8.840	9.040	0.020	0.020	0.0
Tetrachloro-m-xylene	3.915	3.820	4.020	0.020	0.020	0.0
alpha-BHC	4.298	4.250	4.350	0.009	0.010	10.0
beta-BHC	4.746	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.579	4.530	4.630	0.010	0.010	0.0
Endrin	6.599	6.530	6.670	0.047	0.050	6.0
4,4-DDT	7.025	6.960	7.100	0.095	0.100	5.0
Methoxychlor	7.482	7.410	7.550	0.225	0.250	10.0

Sample: PEM
Data File: PD008917.D **Date Acquired** 3/12/2012 10:10
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	7910593868	8385154119	474560252	**5.66**
Endrin aldehyde	6.30	66856529.64			
Endrin ketone	7.00	407703721.9			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.60	1862685448	1972739823	110054375	**5.58**
Endrin aldehyde #2	6.93	20612966.98			
Endrin ketone #2	7.62	89441407.94			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.22	1.256602E+010	1.27859257E+010	219902549	**1.72**
4,4'-DDE	5.47	71518929.19			
4,4'-DDD	5.99	148383620			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.03	3984655988	4012980998	28325009.4	**0.71**
4,4'-DDE #2	6.24	8576651.597			
4,4'-DDD #2	6.73	19748357.85			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 03/06/2012 03/06/2012

Client Sample No. (PEM): PEM - PD008917.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.053	7.950	8.150	0.017	0.020	15.0
Tetrachloro-m-xylene	3.327	3.230	3.430	0.022	0.020	10.0
alpha-BHC	3.762	3.710	3.810	0.012	0.010	20.0
beta-BHC	4.293	4.240	4.340	0.011	0.010	10.0
gamma-BHC (Lindane)	4.042	3.990	4.090	0.011	0.010	10.0
Endrin	5.855	5.780	5.920	0.050	0.050	0.0
4,4-DDT	6.221	6.150	6.290	0.085	0.100	15.0
Methoxychlor	6.777	6.700	6.840	0.205	0.250	18.0

Client Sample No. (PEM): PEM - PD008917.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 10:10

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.945	8.840	9.040	0.019	0.020	5.0
Tetrachloro-m-xylene	3.915	3.820	4.020	0.021	0.020	5.0
alpha-BHC	4.298	4.250	4.350	0.010	0.010	0.0
beta-BHC	4.746	4.700	4.800	0.010	0.010	0.0
gamma-BHC (Lindane)	4.579	4.530	4.630	0.010	0.010	0.0
Endrin	6.599	6.530	6.670	0.044	0.050	12.0
4,4-DDT	7.026	6.960	7.100	0.101	0.100	1.0
Methoxychlor	7.483	7.410	7.550	0.231	0.250	7.6

Sample: PEM
Data File: PD008939.D **Date Acquired** 3/12/2012 19:35
Operator: JJ

ENDRIN BREAK DOWN

Column #1

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin	5.86	7494737876	7937423482	442685606	**5.58**
Endrin aldehyde	6.30	59513349.86			
Endrin ketone	7.00	383172256			

Column #2

Name	RT	Response	Response [E+EA+EK]	Response [EA+EK]	% Break Down
Endrin #2	6.60	2351317005	2496903038	145586033	**5.83**
Endrin aldehyde #2	6.93	23422256.49			
Endrin ketone #2	7.62	122163776.3			

DDT BREAK DOWN

Column #1

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT	6.23	1.192167E+010	1.2072869E+010	151203102	**1.25**
4,4'-DDE	5.47	60855530.72			
4,4'-DDD	5.99	90347571.3			

Column #2

Name	RT	Response	Response [DDT+DDE+DDD]	Response [DDE+DDD]	% Break Down
4,4'-DDT #2	7.03	5000484185	5030556955	30072769.7	**0.60**
4,4'-DDE #2	6.24	8169987.809			
4,4'-DDD #2	6.73	21902781.92			

CHEMTECH

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

GC Column: ZB-MR2 ID: 0.32 (mm) Initi. Calib. Date(s): 03/06/2012 03/06/2012

Client Sample No. (PEM): PEM - PD008939.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 19:35

1

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.054	7.950	8.150	0.017	0.020	15.0
Tetrachloro-m-xylene	3.329	3.230	3.430	0.020	0.020	0.0
alpha-BHC	3.764	3.710	3.810	0.011	0.010	10.0
beta-BHC	4.294	4.240	4.340	0.010	0.010	0.0
gamma-BHC (Lindane)	4.045	3.990	4.090	0.013	0.010	30.0
Endrin	5.856	5.780	5.920	0.048	0.050	4.0
4,4-DDT	6.228	6.150	6.290	0.080	0.100	20.0
Methoxychlor	6.778	6.700	6.840	0.210	0.250	16.0

Client Sample No. (PEM): PEM - PD008939.D Date Analyzed: 03/12/2012

Lab Sample No.(PEM): PEM Time Analyzed: 19:35

2

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
Decachlorobiphenyl	8.947	8.840	9.040	0.023	0.020	15.0
Tetrachloro-m-xylene	3.916	3.820	4.020	0.023	0.020	15.0
alpha-BHC	4.299	4.250	4.350	0.012	0.010	20.0
beta-BHC	4.747	4.700	4.800	0.011	0.010	10.0
gamma-BHC (Lindane)	4.580	4.530	4.630	0.011	0.010	10.0
Endrin	6.600	6.530	6.670	0.056	0.050	12.0
4,4-DDT	7.027	6.960	7.100	0.127	0.100	27.0
Methoxychlor	7.484	7.410	7.550	0.297	0.250	18.8

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: PCB

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for PCB.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCBs was based on method 8082A and extraction was done based on method 3510.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID PC006858.D met the requirements except for Aroclor-1260 (Peak-05) and Decachlorobiphenyl are failing in 2nd column but passing in 1st column.
The Continuous Calibration File ID PC006869.D met the requirements except for Decachlorobiphenyl is failing in 2nd column but passing in 1st column.
The Continuous Calibration File ID PC006880.D met the requirements except for Decachlorobiphenyl is failing in 2nd column but passing in 1st column.

E. Additional Comments:

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:57:15 -05'00'

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: D1768

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest ID: 0.32 (mm) Inst. Calib. Date(s): 02/28/2012 02/28/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	02/28/2012	15:44	PC006663.D	1.52	8.34
1660 1000 PPB	1660 1000 PPB	02/28/2012	16:01	PC006664.D	1.52	8.33
1660 750 PPB	1660 750 PPB	02/28/2012	16:17	PC006665.D	1.52	8.33
1660 500 PPB	1660 500 PPB	02/28/2012	16:33	PC006666.D	1.52	8.33
1660 250 PPB	1660 250 PPB	02/28/2012	16:50	PC006667.D	1.52	8.33
1660 50 PPB	1660 50 PPB	02/28/2012	17:06	PC006668.D	1.52	8.34
AR122101	AR1221 500 PPB	02/28/2012	17:22	PC006669.D	1.52	8.33
AR123201	AR1232 500 PPB	02/28/2012	17:38	PC006670.D	1.51	8.34
AR124201	AR1242 500 PPB	02/28/2012	17:55	PC006671.D	1.52	8.34
AR124801	AR1248 500 PPB	02/28/2012	18:11	PC006672.D	1.52	8.34
AR125401	AR1254 500 PPB	02/28/2012	18:27	PC006673.D	1.52	8.33
PIBLK02	I.BLK02	03/12/2012	12:20	PC006857.D	1.52	8.33
CCAL01	1660 250	03/12/2012	12:36	PC006858.D	1.52	8.33
PB61639BL	PB61639BL	03/12/2012	15:38	PC006863.D	1.52	8.33
PB61639BS	PB61639BS	03/12/2012	15:55	PC006864.D	1.52	8.34
12MW010	D1768-08	03/12/2012	16:11	PC006865.D	1.53	8.34
12MW01S	D1768-09	03/12/2012	16:27	PC006866.D	1.52	8.33
12MW01SMS	D1768-10MS	03/12/2012	16:44	PC006867.D	1.53	8.34
PIBLK03	I.BLK03	03/12/2012	17:00	PC006868.D	1.52	8.34
CCAL02	1660 250	03/12/2012	17:16	PC006869.D	1.53	8.33
12MW01SMSD	D1768-11MSD	03/12/2012	17:33	PC006870.D	1.51	8.34
12MW020	D1768-12	03/12/2012	17:49	PC006871.D	1.53	8.34
12MW02S	D1768-13	03/12/2012	18:05	PC006872.D	1.53	8.34
12MW030	D1768-14	03/12/2012	18:21	PC006873.D	1.53	8.34
12MW03S	D1768-15	03/12/2012	18:38	PC006874.D	1.52	8.34
12MW040	D1768-16	03/12/2012	18:54	PC006875.D	1.53	8.34
12MW04S	D1768-17	03/12/2012	19:10	PC006876.D	1.53	8.34
12RB01	D1768-18	03/12/2012	19:27	PC006877.D	1.53	8.34
12GW-DUP01	D1768-19	03/12/2012	19:43	PC006878.D	1.53	8.34
PIBLK04	I.BLK04	03/12/2012	19:59	PC006879.D	1.53	8.34
CCAL03	1660 250	03/12/2012	20:15	PC006880.D	1.52	8.34

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

LAB FILE ID: **CF 50 =** PC006668.D **CF 250 =** PC006667.D

CF 500 = PC006666.D **CF 750 =** PC006665.D **CF 1000 =** PC006664.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	1276560	1381644	1261122	1222193	1204497	1269203	5
Decachlorobiphenyl	1864300	1680124	1466450	1350485	1260889	1524450	16
AR1016 (1)	58956	57526	53403	50597	48639	53824	8
AR1016 (2)	124316	124600	123677	109447	105558	117520	8
AR1016 (3)	53186	52967	47113	45256	43668	48438	9
AR1016 (4)	51742	51366	47136	46751	45909	48581	6
AR1016 (5)	33288	30659	28648	29195	28906	30139	6
AR1260 (1)	78902	78506	69314	66572	65748	71809	9
AR1260 (2)	144350	140218	136224	131035	117122	133790	8
AR1260 (3)	132042	136152	121858	118891	114269	124642	7
AR1260 (4)	180754	178154	164428	157706	151805	166569	8
AR1260 (5)	83120	90396	81878	80556	78188	82828	6

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006668.D RT 250 = PC006667.D

RT 500 = PC006666.D RT 750 = PC006665.D RT 1000 = PC006664.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.52	1.52	1.52	1.52	1.52	1.52	1.47	1.57
Decachlorobiphenyl		8.34	8.33	8.33	8.33	8.33	8.33	8.23	8.43
AR1016	(1)	2.19	2.18	2.18	2.18	2.18	2.18	2.13	2.23
AR1016	(2)	2.68	2.67	2.67	2.66	2.66	2.67	2.62	2.72
AR1016	(3)	2.83	2.82	2.82	2.82	2.81	2.82	2.77	2.87
AR1016	(4)	3.30	3.29	3.29	3.29	3.28	3.29	3.24	3.34
AR1016	(5)	3.75	3.74	3.74	3.74	3.74	3.74	3.69	3.79
AR1260	(1)	4.82	4.81	4.81	4.81	4.81	4.81	4.76	4.86
AR1260	(2)	5.19	5.18	5.18	5.18	5.18	5.18	5.13	5.23
AR1260	(3)	5.55	5.55	5.54	5.54	5.54	5.54	5.49	5.59
AR1260	(4)	6.46	6.45	6.45	6.45	6.45	6.45	6.40	6.50
AR1260	(5)	6.83	6.83	6.82	6.82	6.82	6.82	6.77	6.87

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Date(s) Analyzed:** 02/28/2012 02/28/2012

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	1.68	1.63	1.73	18657
		2	1.84	1.79	1.89	54883
		3	1.15	1.10	1.20	11081
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	1.84	1.79	1.89	31159
		2	2.18	2.13	2.23	21677
		3	2.67	2.62	2.72	45660
		4	2.82	2.77	2.87	17271
		5	3.05	3.00	3.10	24211
AR1242	0.5000	1	2.18	2.13	2.23	45740
		2	2.67	2.62	2.72	113745
		3	2.83	2.78	2.88	52135
		4	3.83	3.78	3.88	61228
		5	4.08	4.03	4.13	62320
AR1248	0.5000	1	2.67	2.62	2.72	58495
		2	3.05	3.00	3.10	82427
		3	3.29	3.24	3.34	55231
		4	3.82	3.77	3.87	96530
		5	4.08	4.03	4.13	60672
AR1254	0.5000	1	3.74	3.69	3.79	43550
		2	4.08	4.03	4.13	82676
		3	4.57	4.52	4.62	80498
		4	4.94	4.89	4.99	60951
		5	5.55	5.50	5.60	65545

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL01 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006858.D **Time Analyzed:** 12:36

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.186	2.130	2.230	0.272	0.250	8.8
AR1016 (2)	2.667	2.620	2.720	0.262	0.250	4.8
AR1016 (3)	2.819	2.770	2.870	0.235	0.250	6.0
AR1016 (4)	3.290	3.240	3.340	0.254	0.250	1.6
AR1016 (5)	3.744	3.690	3.790	0.263	0.250	5.2
AR1260 (1)	4.811	4.760	4.860	0.258	0.250	3.2
AR1260 (2)	5.181	5.130	5.230	0.272	0.250	8.8
AR1260 (3)	5.542	5.490	5.590	0.251	0.250	0.4
AR1260 (4)	6.451	6.400	6.500	0.249	0.250	0.4
AR1260 (5)	6.821	6.770	6.870	0.246	0.250	1.6
Tetrachloro-m-xylene	1.524	1.470	1.570	0.026	0.025	4.0
Decachlorobiphenyl	8.333	8.230	8.430	0.027	0.025	8.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 12:36 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.52	1.52	1.47	1.57	0.00
Decachlorobiphenyl	8.33	8.33	8.23	8.43	0.00
AR1016 (1)	2.19	2.18	2.13	2.23	-0.01
AR1016 (2)	2.67	2.67	2.62	2.72	0.00
AR1016 (3)	2.82	2.82	2.77	2.87	0.00
AR1016 (4)	3.29	3.29	3.24	3.34	0.00
AR1016 (5)	3.74	3.74	3.69	3.79	0.00
AR1260 (1)	4.81	4.81	4.76	4.86	0.00
AR1260 (2)	5.18	5.18	5.13	5.23	0.00
AR1260 (3)	5.54	5.54	5.49	5.59	0.00
AR1260 (4)	6.45	6.45	6.40	6.50	0.00
AR1260 (5)	6.82	6.82	6.77	6.87	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL02 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006869.D **Time Analyzed:** 17:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.186	2.130	2.230	0.265	0.250	6.0
AR1016 (2)	2.668	2.620	2.720	0.266	0.250	6.4
AR1016 (3)	2.820	2.770	2.870	0.238	0.250	4.8
AR1016 (4)	3.290	3.240	3.340	0.260	0.250	4.0
AR1016 (5)	3.743	3.690	3.790	0.222	0.250	11.2
AR1260 (1)	4.810	4.760	4.860	0.252	0.250	0.8
AR1260 (2)	5.180	5.130	5.230	0.235	0.250	6.0
AR1260 (3)	5.543	5.490	5.590	0.268	0.250	7.2
AR1260 (4)	6.452	6.400	6.500	0.263	0.250	5.2
AR1260 (5)	6.821	6.770	6.870	0.260	0.250	4.0
Tetrachloro-m-xylene	1.525	1.470	1.570	0.026	0.025	4.0
Decachlorobiphenyl	8.334	8.230	8.430	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 17:16 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.53	1.52	1.47	1.57	0.00
Decachlorobiphenyl	8.33	8.33	8.23	8.43	0.00
AR1016 (1)	2.19	2.18	2.13	2.23	-0.01
AR1016 (2)	2.67	2.67	2.62	2.72	0.00
AR1016 (3)	2.82	2.82	2.77	2.87	0.00
AR1016 (4)	3.29	3.29	3.24	3.34	0.00
AR1016 (5)	3.74	3.74	3.69	3.79	0.00
AR1260 (1)	4.81	4.81	4.76	4.86	0.00
AR1260 (2)	5.18	5.18	5.13	5.23	0.00
AR1260 (3)	5.54	5.54	5.49	5.59	0.00
AR1260 (4)	6.45	6.45	6.40	6.50	0.00
AR1260 (5)	6.82	6.82	6.77	6.87	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL03 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006880.D **Time Analyzed:** 20:15

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.184	2.130	2.230	0.263	0.250	5.2
AR1016 (2)	2.666	2.620	2.720	0.276	0.250	10.4
AR1016 (3)	2.818	2.770	2.870	0.255	0.250	2.0
AR1016 (4)	3.289	3.240	3.340	0.258	0.250	3.2
AR1016 (5)	3.742	3.690	3.790	0.245	0.250	2.0
AR1260 (1)	4.810	4.760	4.860	0.263	0.250	5.2
AR1260 (2)	5.182	5.130	5.230	0.274	0.250	9.6
AR1260 (3)	5.543	5.490	5.590	0.269	0.250	7.6
AR1260 (4)	6.452	6.400	6.500	0.265	0.250	6.0
AR1260 (5)	6.822	6.770	6.870	0.260	0.250	4.0
Tetrachloro-m-xylene	1.522	1.470	1.570	0.026	0.025	4.0
Decachlorobiphenyl	8.335	8.230	8.430	0.028	0.025	12.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 20:15 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.52	1.52	1.47	1.57	0.00
Decachlorobiphenyl	8.34	8.33	8.23	8.43	-0.01
AR1016 (1)	2.18	2.18	2.13	2.23	0.00
AR1016 (2)	2.67	2.67	2.62	2.72	0.00
AR1016 (3)	2.82	2.82	2.77	2.87	0.00
AR1016 (4)	3.29	3.29	3.24	3.34	0.00
AR1016 (5)	3.74	3.74	3.69	3.79	0.00
AR1260 (1)	4.81	4.81	4.76	4.86	0.00
AR1260 (2)	5.18	5.18	5.13	5.23	0.00
AR1260 (3)	5.54	5.54	5.49	5.59	0.00
AR1260 (4)	6.45	6.45	6.40	6.50	0.00
AR1260 (5)	6.82	6.82	6.77	6.87	0.00

CHEMTECH

Analytical Sequence

Client: Tetra Tech NUS, Inc. SDG No.: D1768

Project: CTO WE05 NAS JRB Willow Grove Instrument ID: ECD_C

GC Column: RTX-CLPest II ID: 0.32 (mm) Inst. Calib. Date(s): 02/28/2012 02/28/2012

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	DATAFILE	TCX RT #	DCB RT #
PIBLK01	I.BLK01	02/28/2012	15:44	PC006663.D	1.96	9.85
1660 1000 PPB	1660 1000 PPB	02/28/2012	16:01	PC006664.D	1.95	9.85
1660 750 PPB	1660 750 PPB	02/28/2012	16:17	PC006665.D	1.96	9.85
1660 500 PPB	1660 500 PPB	02/28/2012	16:33	PC006666.D	1.96	9.85
1660 250 PPB	1660 250 PPB	02/28/2012	16:50	PC006667.D	1.96	9.85
1660 50 PPB	1660 50 PPB	02/28/2012	17:06	PC006668.D	1.96	9.85
AR122101	AR1221 500 PPB	02/28/2012	17:22	PC006669.D	1.96	9.85
AR123201	AR1232 500 PPB	02/28/2012	17:38	PC006670.D	1.95	9.85
AR124201	AR1242 500 PPB	02/28/2012	17:55	PC006671.D	1.96	9.85
AR124801	AR1248 500 PPB	02/28/2012	18:11	PC006672.D	1.96	9.85
AR125401	AR1254 500 PPB	02/28/2012	18:27	PC006673.D	1.96	9.85
PIBLK02	I.BLK02	03/12/2012	12:20	PC006857.D	1.96	9.85
CCAL01	1660 250	03/12/2012	12:36	PC006858.D	1.96	9.85
PB61639BL	PB61639BL	03/12/2012	15:38	PC006863.D	1.96	9.85
PB61639BS	PB61639BS	03/12/2012	15:55	PC006864.D	1.96	9.85
12MW010	D1768-08	03/12/2012	16:11	PC006865.D	1.97	9.85
12MW01S	D1768-09	03/12/2012	16:27	PC006866.D	1.95	9.85
12MW01SMS	D1768-10MS	03/12/2012	16:44	PC006867.D	1.96	9.85
PIBLK03	I.BLK03	03/12/2012	17:00	PC006868.D	1.96	9.85
CCAL02	1660 250	03/12/2012	17:16	PC006869.D	1.96	9.85
12MW01SMSD	D1768-11MSD	03/12/2012	17:33	PC006870.D	1.95	9.85
12MW020	D1768-12	03/12/2012	17:49	PC006871.D	1.96	9.85
12MW02S	D1768-13	03/12/2012	18:05	PC006872.D	1.96	9.85
12MW030	D1768-14	03/12/2012	18:21	PC006873.D	1.96	9.85
12MW03S	D1768-15	03/12/2012	18:38	PC006874.D	1.96	9.85
12MW040	D1768-16	03/12/2012	18:54	PC006875.D	1.96	9.85
12MW04S	D1768-17	03/12/2012	19:10	PC006876.D	1.96	9.85
12RB01	D1768-18	03/12/2012	19:27	PC006877.D	1.96	9.85
12GW-DUP01	D1768-19	03/12/2012	19:43	PC006878.D	1.96	9.85
PIBLK04	I.BLK04	03/12/2012	19:59	PC006879.D	1.96	9.85
CCAL03	1660 250	03/12/2012	20:15	PC006880.D	1.96	9.85

CHEMTECH

CALIBRATION FACTOR OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Instrument ID: ECD_C Calibration Date(s): 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: CF 50 = PC006668.D CF 250 = PC006667.D

CF 500 = PC006666.D CF 750 = PC006665.D CF 1000 = PC006664.D

COMPOUND	CF 50	CF 250	CF 500	CF 750	CF 1000	CF	% RSD
Tetrachloro-m-xylene	4471480	4547364	4067400	3893951	3864519	4168943	8
Decachlorobiphenyl	5977040	5325892	5004950	4579245	4016237	4980673	15
AR1016 (1)	183104	182917	159816	166646	161752	170847	7
AR1016 (2)	402754	388856	358118	338027	326963	362944	9
AR1016 (3)	167292	183951	164085	157420	155685	165686	7
AR1016 (4)	130520	142395	131103	128170	128463	132130	4
AR1016 (5)	150502	157577	141339	135847	136650	144383	7
AR1260 (1)	296452	290642	263663	253051	245296	269821	8
AR1260 (2)	320902	340714	312464	294001	284288	310474	7
AR1260 (3)	480338	456066	422261	399081	390473	429644	9
AR1260 (4)	606690	606238	530098	497966	477940	543786	11
AR1260 (5)	377638	455079	399627	403019	385377	404148	7

CHEMTECH

RETENTION TIMES OF INITIAL CALIBRATION

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Calibration Date(s):** 02/28/2012 02/28/2012

Calibration Times: 16:01 17:06

GC Column: RTX-CLPest II ID: 0.32 (mm)

LAB FILE ID: RT 50 = PC006668.D RT 250 = PC006667.D

RT 500 = PC006666.D RT 750 = PC006665.D RT 1000 = PC006664.D

COMPOUND		RT 50	RT 250	RT 500	RT 750	RT 1000	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Tetrachloro-m-xylene		1.96	1.96	1.96	1.96	1.95	1.96	1.91	2.01
Decachlorobiphenyl		9.85	9.85	9.85	9.85	9.85	9.85	9.75	9.95
AR1016	(1)	2.99	2.99	2.99	2.99	2.98	2.99	2.94	3.04
AR1016	(2)	3.55	3.55	3.55	3.55	3.55	3.55	3.50	3.60
AR1016	(3)	3.73	3.72	3.72	3.72	3.72	3.72	3.67	3.77
AR1016	(4)	3.86	3.86	3.85	3.85	3.85	3.85	3.80	3.90
AR1016	(5)	4.50	4.50	4.50	4.50	4.50	4.50	4.45	4.55
AR1260	(1)	6.06	6.06	6.06	6.06	6.05	6.06	6.01	6.11
AR1260	(2)	6.36	6.36	6.36	6.36	6.36	6.36	6.31	6.41
AR1260	(3)	6.84	6.84	6.84	6.83	6.83	6.83	6.78	6.88
AR1260	(4)	7.74	7.74	7.74	7.74	7.74	7.74	7.69	7.79
AR1260	(5)	8.23	8.23	8.23	8.23	8.23	8.23	8.18	8.28

CHEMTECH

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Instrument ID: ECD_C **Date(s) Analyzed:** 02/28/2012 02/28/2012

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR
AR1221	0.5000	1	2.28	2.23	2.33	52602
		2	2.44	2.39	2.49	31811
		3	2.50	2.45	2.55	132421
		4	0.00			0
		5	0.00			0
AR1232	0.5000	1	2.50	2.45	2.55	87622
		2	2.98	2.93	3.03	68936
		3	3.55	3.50	3.60	143163
		4	3.72	3.67	3.77	64747
		5	3.85	3.80	3.90	49006
AR1242	0.5000	1	2.99	2.94	3.04	144990
		2	3.55	3.50	3.60	323592
		3	3.72	3.67	3.77	139301
		4	3.86	3.81	3.91	110431
		5	4.50	4.45	4.55	120892
AR1248	0.5000	1	3.55	3.50	3.60	177444
		2	4.34	4.29	4.39	200782
		3	4.50	4.45	4.55	163523
		4	4.86	4.81	4.91	152980
		5	4.91	4.86	4.96	200811
AR1254	0.5000	1	5.18	5.13	5.23	190548
		2	5.25	5.20	5.30	159640
		3	5.79	5.74	5.84	293083
		4	6.11	6.06	6.16	219073
		5	6.84	6.79	6.89	292747

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL01 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006858.D **Time Analyzed:** 12:36

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.989	2.940	3.040	0.262	0.250	4.8
AR1016 (2)	3.552	3.500	3.600	0.275	0.250	10.0
AR1016 (3)	3.725	3.670	3.770	0.274	0.250	9.6
AR1016 (4)	3.855	3.800	3.900	0.270	0.250	8.0
AR1016 (5)	4.499	4.450	4.550	0.267	0.250	6.8
AR1260 (1)	6.055	6.010	6.110	0.267	0.250	6.8
AR1260 (2)	6.361	6.310	6.410	0.280	0.250	12.0
AR1260 (3)	6.834	6.780	6.880	0.271	0.250	8.4
AR1260 (4)	7.736	7.690	7.790	0.273	0.250	9.2
AR1260 (5)	8.229	8.180	8.280	0.297	0.250	18.8
Tetrachloro-m-xylene	1.961	1.910	2.010	0.026	0.025	4.0
Decachlorobiphenyl	9.847	9.750	9.950	0.030	0.025	20.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 12:36 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.96	1.96	1.91	2.01	0.00
Decachlorobiphenyl	9.85	9.85	9.75	9.95	0.00
AR1016 (1)	2.99	2.99	2.94	3.04	0.00
AR1016 (2)	3.55	3.55	3.50	3.60	0.00
AR1016 (3)	3.73	3.72	3.67	3.77	0.00
AR1016 (4)	3.86	3.85	3.80	3.90	-0.01
AR1016 (5)	4.50	4.50	4.45	4.55	0.00
AR1260 (1)	6.06	6.06	6.01	6.11	0.01
AR1260 (2)	6.36	6.36	6.31	6.41	0.00
AR1260 (3)	6.83	6.83	6.78	6.88	0.00
AR1260 (4)	7.74	7.74	7.69	7.79	0.00
AR1260 (5)	8.23	8.23	8.18	8.28	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL02 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006869.D **Time Analyzed:** 17:16

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.990	2.940	3.040	0.242	0.250	3.2
AR1016 (2)	3.553	3.500	3.600	0.264	0.250	5.6
AR1016 (3)	3.726	3.670	3.770	0.255	0.250	2.0
AR1016 (4)	3.856	3.800	3.900	0.250	0.250	0.0
AR1016 (5)	4.500	4.450	4.550	0.254	0.250	1.6
AR1260 (1)	6.055	6.010	6.110	0.265	0.250	6.0
AR1260 (2)	6.360	6.310	6.410	0.278	0.250	11.2
AR1260 (3)	6.834	6.780	6.880	0.272	0.250	8.8
AR1260 (4)	7.738	7.690	7.790	0.279	0.250	11.6
AR1260 (5)	8.230	8.180	8.280	0.276	0.250	10.4
Tetrachloro-m-xylene	1.962	1.910	2.010	0.026	0.025	4.0
Decachlorobiphenyl	9.850	9.750	9.950	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 17:16 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 **(mm)**

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.96	1.96	1.91	2.01	0.00
Decachlorobiphenyl	9.85	9.85	9.75	9.95	0.00
AR1016 (1)	2.99	2.99	2.94	3.04	0.00
AR1016 (2)	3.55	3.55	3.50	3.60	0.00
AR1016 (3)	3.73	3.72	3.67	3.77	-0.01
AR1016 (4)	3.86	3.85	3.80	3.90	-0.01
AR1016 (5)	4.50	4.50	4.45	4.55	0.00
AR1260 (1)	6.06	6.06	6.01	6.11	0.01
AR1260 (2)	6.36	6.36	6.31	6.41	0.00
AR1260 (3)	6.83	6.83	6.78	6.88	0.00
AR1260 (4)	7.74	7.74	7.69	7.79	0.00
AR1260 (5)	8.23	8.23	8.18	8.28	0.00

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

GC Column: RTX-CLPest II **ID:** 0.32 (mm) **Initi. Calib. Date(s):** 02/28/2012 02/28/2012

Client Sample No.: CCAL03 **Date Analyzed:** 03/12/2012

Lab Sample No.: 1660 250 **Data File :** PC006880.D **Time Analyzed:** 20:15

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT(ng)	NOM AMOUNT(ng)	%D
AR1016 (1)	2.989	2.940	3.040	0.238	0.250	4.8
AR1016 (2)	3.552	3.500	3.600	0.261	0.250	4.4
AR1016 (3)	3.725	3.670	3.770	0.251	0.250	0.4
AR1016 (4)	3.856	3.800	3.900	0.247	0.250	1.2
AR1016 (5)	4.499	4.450	4.550	0.250	0.250	0.0
AR1260 (1)	6.056	6.010	6.110	0.244	0.250	2.4
AR1260 (2)	6.361	6.310	6.410	0.281	0.250	12.4
AR1260 (3)	6.835	6.780	6.880	0.250	0.250	0.0
AR1260 (4)	7.739	7.690	7.790	0.277	0.250	10.8
AR1260 (5)	8.232	8.180	8.280	0.287	0.250	14.8
Tetrachloro-m-xylene	1.960	1.910	2.010	0.026	0.025	4.0
Decachlorobiphenyl	9.850	9.750	9.950	0.029	0.025	16.0

CHEMTECH

CALIBRATION VERIFICATION SUMMARY

Contract: TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG NO.:** D1768

Continuing Calib Date: 03/12/2012 **Initial Calibration Date(s):** 02/28/2012 02/28/2012

Continuing Calib Time: 20:15 **Initial Calibration Time(s):** 16:01 17:06

GC Column: RTX-CLPest II **ID:** 0.32 (mm)

COMPOUND	CCAL RT	AVG RT	RT WINDOW FROM	RT WINDOW TO	DIFF RT
Tetrachloro-m-xylene	1.96	1.96	1.91	2.01	0.00
Decachlorobiphenyl	9.85	9.85	9.75	9.95	0.00
AR1016 (1)	2.99	2.99	2.94	3.04	0.00
AR1016 (2)	3.55	3.55	3.50	3.60	0.00
AR1016 (3)	3.73	3.72	3.67	3.77	0.00
AR1016 (4)	3.86	3.85	3.80	3.90	-0.01
AR1016 (5)	4.50	4.50	4.45	4.55	0.00
AR1260 (1)	6.06	6.06	6.01	6.11	0.00
AR1260 (2)	6.36	6.36	6.31	6.41	0.00
AR1260 (3)	6.84	6.83	6.78	6.88	-0.01
AR1260 (4)	7.74	7.74	7.69	7.79	0.00
AR1260 (5)	8.23	8.23	8.18	8.28	0.00

CHEMTECH

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB61639BL

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG NO.: D1768

Lab Sample ID: PB61639BL Lab File ID: PC006863.D

Matrix: (soil/water) WATER Extraction: (Type) SEPF

Sulfur Cleanup: (Y/N) N Date Extracted: 03/12/2012

Date Analyzed (1): 03/12/2012 Date Analyzed (2): 03/12/2012

Time Analyzed (1): 15:38 Time Analyzed (2): 15:38

Instrument ID (1): ECD_C Instrument ID (2): ECD_C

GC Column (1): RTX-CLPest ID: 0.32 (mm) GC Column (2): RTX-CLPest II ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
PB61639BS	PB61639BS	PC006864.D	03/12/2012	03/12/2012
12MW010	D1768-08	PC006865.D	03/12/2012	03/12/2012
12MW01S	D1768-09	PC006866.D	03/12/2012	03/12/2012
12MW01SMS	D1768-10MS	PC006867.D	03/12/2012	03/12/2012
12MW01SMSD	D1768-11MSD	PC006870.D	03/12/2012	03/12/2012
12MW020	D1768-12	PC006871.D	03/12/2012	03/12/2012
12MW02S	D1768-13	PC006872.D	03/12/2012	03/12/2012
12MW030	D1768-14	PC006873.D	03/12/2012	03/12/2012
12MW03S	D1768-15	PC006874.D	03/12/2012	03/12/2012
12MW040	D1768-16	PC006875.D	03/12/2012	03/12/2012
12MW04S	D1768-17	PC006876.D	03/12/2012	03/12/2012
12RB01	D1768-18	PC006877.D	03/12/2012	03/12/2012
12GW-DUP01	D1768-19	PC006878.D	03/12/2012	03/12/2012

COMMENTS:

CHEMTECH 284 Sheffield Street. Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	
Client Sample ID:	PB61639BL	SDG No.:	D1768
Lab Sample ID:	PB61639BL	Matrix:	WATER
Analytical Method:	SW8082A	% Moisture:	100 Decanted:
Sample Wt/Vol:	1000 Units: mL	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH :		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC006863.D	1	03/12/12	03/12/12	PB61639

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
12674-11-2	Aroclor-1016	0.25	U	0.096	0.25	0.5	ug/L
11104-28-2	Aroclor-1221	0.25	U	0.19	0.25	0.5	ug/L
11141-16-5	Aroclor-1232	0.25	U	0.15	0.25	0.5	ug/L
53469-21-9	Aroclor-1242	0.25	U	0.089	0.25	0.5	ug/L
12672-29-6	Aroclor-1248	0.25	U	0.24	0.25	0.5	ug/L
11097-69-1	Aroclor-1254	0.25	U	0.044	0.25	0.5	ug/L
11096-82-5	Aroclor-1260	0.25	U	0.081	0.25	0.5	ug/L
SURROGATES							
877-09-8	Tetrachloro-m-xylene	22.1		35 - 137		111%	SPK: 20
2051-24-3	Decachlorobiphenyl	22		40 - 135		110%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH

Laboratory Control Sample/Laboratory Control Sample Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Parameter	Spike	Result	Rec	RPD	Qual	RPD Qual	Limits Low	Limits High	RPD
PB61639BS	AR1016	2.000	2.1	105				56	149	
	AR1260	2.000	2.3	115				66	147	

CHEMTECH

Matrix Spike/Matrix Spike Duplicate Summary

SW-846

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID:	Parameter	Spike	Sample Result	Result	Rec	Rec Qual	RPD	RPD Qual	Limits Low	Limits High	RPD
Client Sample ID:	**12MW01SMS**										
D1768-10MS	AR1016	2.062	0	2.2	107				65	145	
	AR1260	2.062	0	2.4	116				65	145	
Client Sample ID:	**12MW01SMSD**										
D1768-11MSD	AR1016	2.105	0	2.4	114		2		65	145	20
	AR1260	2.105	0	2.5	119		6		65	145	20

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
I.BLK-PC006663.D	PIBLK-PC006663.D	Tetrachloro-m-xylene	1	20	22.1	111		35	137
		Decachlorobiphenyl	1	20	19.91	100		40	135
		Tetrachloro-m-xylene	2	20	22.15	111		35	137
		Decachlorobiphenyl	2	20	17.04	85		40	135
I.BLK-PC006857.D	PIBLK-PC006857.D	Tetrachloro-m-xylene	1	20	21.72	109		35	137
		Decachlorobiphenyl	1	20	23.19	116		40	135
		Tetrachloro-m-xylene	2	20	22.49	112		35	137
		Decachlorobiphenyl	2	20	26.72	134		40	135
PB61639BL	PB61639BL	Tetrachloro-m-xylene	1	20	22.13	111		35	137
		Decachlorobiphenyl	1	20	22.02	110		40	135
		Tetrachloro-m-xylene	2	20	22.41	112		35	137
		Decachlorobiphenyl	2	20	19.7	99		40	135
PB61639BS	PB61639BS	Tetrachloro-m-xylene	1	20	22.66	113		35	137
		Decachlorobiphenyl	1	20	23.7	119		40	135
		Tetrachloro-m-xylene	2	20	22.34	112		35	137
		Decachlorobiphenyl	2	20	23.97	120		40	135
D1768-08	12MW010	Tetrachloro-m-xylene	1	20	23.41	117		35	137
		Decachlorobiphenyl	1	20	20.01	100		40	135
		Tetrachloro-m-xylene	2	20	22.1	111		35	137
		Decachlorobiphenyl	2	20	21.2	106		40	135
D1768-09	12MW01S	Tetrachloro-m-xylene	1	20	23.11	116		35	137
		Decachlorobiphenyl	1	20	21.12	106		40	135
		Tetrachloro-m-xylene	2	20	23.29	116		35	137
		Decachlorobiphenyl	2	20	22.81	114		40	135
D1768-10MS	12MW01SMS	Tetrachloro-m-xylene	1	20	24.56	123		35	137
		Decachlorobiphenyl	1	20	20.66	103		40	135
		Tetrachloro-m-xylene	2	20	23.39	117		35	137
		Decachlorobiphenyl	2	20	23.03	115		40	135
I.BLK-PC006868.D	PIBLK-PC006868.D	Tetrachloro-m-xylene	1	20	23.58	118		35	137
		Decachlorobiphenyl	1	20	24.58	123		40	135
		Tetrachloro-m-xylene	2	20	23.64	118		35	137
		Decachlorobiphenyl	2	20	25.91	130		40	135
D1768-11MSD	12MW01SMSD	Tetrachloro-m-xylene	1	20	24.18	121		35	137
		Decachlorobiphenyl	1	20	21.17	106		40	135
		Tetrachloro-m-xylene	2	20	23.35	117		35	137
		Decachlorobiphenyl	2	20	23.28	116		40	135
D1768-12	12MW020	Tetrachloro-m-xylene	1	20	23.11	116		35	137
		Decachlorobiphenyl	1	20	22.36	112		40	135
		Tetrachloro-m-xylene	2	20	23.19	116		35	137
		Decachlorobiphenyl	2	20	24.29	121		40	135
D1768-13	12MW02S	Tetrachloro-m-xylene	1	20	24.56	123		35	137
		Decachlorobiphenyl	1	20	22.11	111		40	135
		Tetrachloro-m-xylene	2	20	24.4	122		35	137
		Decachlorobiphenyl	2	20	23.58	118		40	135

CHEMTECH

Surrogate Summary

SDG No.: D1768

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8082

Lab Sample ID	Client ID	Parameter	Column	Spike	Result	Recovery	Qual	Limits Low	Limits High
D1768-14	12MW030	Tetrachloro-m-xylene	1	20	22.7	114		35	137
		Decachlorobiphenyl	1	20	21.46	107		40	135
		Tetrachloro-m-xylene	2	20	22.44	112		35	137
		Decachlorobiphenyl	2	20	23.22	116		40	135
D1768-15	12MW03S	Tetrachloro-m-xylene	1	20	23.38	117		35	137
		Decachlorobiphenyl	1	20	21.67	108		40	135
		Tetrachloro-m-xylene	2	20	23.79	119		35	137
		Decachlorobiphenyl	2	20	23.3	117		40	135
D1768-16	12MW040	Tetrachloro-m-xylene	1	20	21.53	108		35	137
		Decachlorobiphenyl	1	20	16.21	81		40	135
		Tetrachloro-m-xylene	2	20	21.13	106		35	137
		Decachlorobiphenyl	2	20	17.57	88		40	135
D1768-17	12MW04S	Tetrachloro-m-xylene	1	20	20.91	105		35	137
		Decachlorobiphenyl	1	20	16.91	85		40	135
		Tetrachloro-m-xylene	2	20	20.56	103		35	137
		Decachlorobiphenyl	2	20	17.99	90		40	135
D1768-18	12RB01	Tetrachloro-m-xylene	1	20	22.66	113		35	137
		Decachlorobiphenyl	1	20	11.88	59		40	135
		Tetrachloro-m-xylene	2	20	22.08	110		35	137
		Decachlorobiphenyl	2	20	12.65	63		40	135
D1768-19	12GW-DUP01	Tetrachloro-m-xylene	1	20	21.92	110		35	137
		Decachlorobiphenyl	1	20	21.59	108		40	135
		Tetrachloro-m-xylene	2	20	22.74	114		35	137
		Decachlorobiphenyl	2	20	22.94	115		40	135
I.BLK-PC006879.D	PIBLK-PC006879.D	Tetrachloro-m-xylene	1	20	23.86	119		35	137
		Decachlorobiphenyl	1	20	25.08	125		40	135
		Tetrachloro-m-xylene	2	20	23.36	117		35	137
		Decachlorobiphenyl	2	20	26.13	131		40	135

APPENDIX C

SUPPORT DOCUMENTATION

FIELD DUPLICATE PRECISON <30%

	12GW-DUP01 UG/L	12MW03S UG/L	RPD	
FLUORANTHENE	0.06	0.062	-3.28	SATISFACTORY
PYRENE	0.07	0.062	12.12	SATISFACTORY

PAH CALCULATION	SAMPLE 12MW03S		
TARGET ANALYTE	fluoranthene		
ANALYTE RESPONSE	9642		
INTERNAL STANDARD	phenanthrene-d10		
I.S. RESPONSE	162184		
I.S. CONCENTRATION	5	ng	
ANALYTE CAL. RELATIVE RESPONSE FACTOR (RRF)	4.598		
VOLUME OF FINAL EXTRACT	1000	ul	
VOLUME OF INITIAL EXTRACT	970	ml	
DILUTION FACTOR (DF)	1		
(ANALYTE RESPONSE) X (I.S. CONCENTRATION) X DF X Vol final / (I.S. RESPONSE) X (CAL. RRF) X (vol. initial)	=	0.0666	ng/ml or ug/l

CHEMTECH

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: TETR06

Lab Code: CHEM Case No.: D1768 SAS No.: D1768 SDG No.: D1768

Instrument ID: BNA_E Calibration Date(s): 02/29/2012 02/29/2012

Calibration Time(s): 14:04 17:09

LAB FILE ID: RRF0.1 = BE075746.D RRF0.5 = BE075747.D RRF2.5 = BE075748.D
RRF10 = BE075749.D RRF25 = BE075750.D RRF =

COMPOUND	RRF0.1	RRF0.5	RRF2.5	RRF10	RRF25	RRF	RRF	% RSD
Naphthalene	4.712	4.616	3.989	4.093	3.535		4.189	11.5
2-Methylnapthalene	3.165	3.076	2.728	2.872	2.500		2.868	9.3
Acenaphthylene	7.147	7.086	6.495	7.167	6.274		6.834	6.1
Acenaphthene	1.473	1.270	1.108	1.144	1.015		1.202	14.7
Fluorene	1.498	1.502	1.361	1.437	1.214		1.402	8.6
Phenanthrene	5.292	5.025	4.409	4.591	3.893		4.642	11.7
Anthracene	4.316	4.353	4.143	4.593	3.955		4.272	5.6
Fluoranthene	5.027	4.733	4.338	4.797	4.097		4.598	8.1
Pyrene	5.803	5.340	4.792	5.196	4.576		5.142	9.3
Benzo(a)anthracene	5.313	4.536	4.121	4.549	4.090		4.522	10.9
Chrysene	5.675	5.059	4.375	4.571	3.954		4.727	14.0
Benzo(b)fluoranthene	11.468	10.660	9.908	11.813	10.625		10.895	6.9
Benzo(k)fluoranthene	11.426	10.878	11.097	12.350	11.205		11.391	5.0
Benzo(a)pyrene	8.991	8.655	8.839	10.755	10.132		9.474	9.7
Indeno(1,2,3-cd)pyrene	3.361	3.200	3.157	3.926	3.876		3.504	10.6
Dibenzo(a,h)anthracene	0.879	0.876	0.898	1.106	1.052		0.962	11.3
Benzo(g,h,i)perylene	4.229	3.812	3.702	4.378	4.176		4.059	7.1
Nitrobenzene-d5	0.331	0.310	0.273	0.313	0.304		0.306	6.8
2-Fluorobiphenyl	1.667	1.627	1.405	1.472	1.290		1.492	10.5
Terphenyl-d14	1.129	1.013	0.722	0.760	0.667		0.858	23.4

All other compounds must meet a minimum RRF of 0.010.

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **May 22, 2012**

FROM: **MEGAN CARSON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL TOTAL AND FILTERED METALS AND CYANIDE**
NASJRB WILLOW GROVE, CTO WE05
SAMPLE DELIVERY GROUP (SDG) – D1768

SAMPLES: 10/Aqueous/

12GW-DUP01	12MW010	12MW01S
12MW020	12MW02S	12MW030
12MW03S	12MW040	12MW04S
12RB01		

Overview

The sample set for NASJRB Willow Grove, SDG D1768, consists of nine (9) aqueous environmental samples and one rinsate blank. This SDG contained one field duplicate pair: 12GW-DUP01/12MW03S.

All samples were analyzed for target analyte list (TAL) metals and cyanide. Samples 12MW01S, 12MW030, 12MW040, and 12RB01 were also analyzed for filtered TAL metals (except for mercury). The samples were collected by Tetra Tech on March 6th and 7th and analyzed by Chemtech. Metals analyses were conducted using method 6020. Mercury analyses were conducted using method 7470A. Cyanide analyses were conducted using method 9012B.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, internal standard recoveries, field duplicate results, ICP interference results, matrix spike / matrix spike duplicate results, laboratory control sample results, ICP serial dilution results, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems

- No major problems were noted.

Minor Problems

- The following contaminants were detected in calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	6.09 ug/L	30.4 ug/L
Antimony	0.79 ug/L	3.95 ug/L
Barium	0.23 ug/L	1.15 ug/L
Beryllium	0.11 ug/L	0.55 ug/L
Chromium	0.092 ug/L	0.46 ug/L
Cobalt	0.078 ug/L	0.39 ug/L
Iron	13.38 ug/L	66.9 ug/L
Lead	0.10 ug/L	0.5 ug/L
Manganese	0.25 ug/L	1.25 ug/L
Magnesium	6.4 ug/L	32 ug/L
Silver	0.079 ug/L	0.39 ug/L
Thallium	0.44 ug/L	2.2 ug/L
Sodium	7.78 ug/L	38.9 ug/L

  An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. All samples in the SDG were affected. Positive results less than the blank action level were qualified "B" as a result of blank contamination.

- The CRDL standard had a percent recovery <90% for mercury and percent recoveries >110% for aluminum and zinc. All samples were affected. A positive aluminum result < 2X LOQ was qualified as biased high (K). Non-detected mercury results were qualified as biased low (UL).

- The matrix spike and matrix spike duplicate had a percent recovery < 80% for total sodium. The post digestion spike had a percent recovery <80% for sodium. All samples analyzed for total metals were affected. Positive results were qualified as either biased low (L) or estimated (J) due to conflicting directional bias.

- The lab duplicate had a relative percent difference > 30% for total nickel and a difference > CRDL for total chromium. All samples analyzed for total metals were affected. Positive results were qualified as estimated (J).

- The serial dilution had a percent difference > 10% for total chromium and nickel. All samples analyzed for total metals were affected. Positive results were qualified as estimated (J).

- The matrix spike and matrix spike duplicate had a percent recovery < 80% for filtered sodium and a percent recovery <80% for filtered manganese (MS only). The post digestion spike had a percent recovery <80% for sodium. All samples analyzed for filtered metals were affected. Positive sodium results were qualified as either biased low (L) or estimated (J). No validation action was warranted for manganese as the non-compliance occurred in the MS only.

- Field duplicate pair 12GW-DUP01/12MW03S had a relative percent difference > 30% for nickel and a difference > 2X LOQ for zinc. All samples analyzed for total metals were affected. Positive results were qualified as estimated (J).

Notes

Positive results greater than the MDL but less than the LOQ were qualified as estimated (J).

Executive Summary

Laboratory Performance: Calibration and preparation blank contamination resulted in the qualification of sample results. Continuing calibration/CRDL standard non-compliances resulted in the qualification of sample results. Lab duplicate non-compliances for total chromium and total nickel resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Matrix spike non-compliances resulted in the qualification of sample results. Serial dilution non-compliances resulted in the qualification of sample results.

The data for these analyses were reviewed with reference to Region III modifications to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April, 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Megan Carson
Chemist/Data Validator

Tetra Tech
Joseph Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: M	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		38.1	K	C	26.3	B	A	48.5			8570		
ANTIMONY		0.19	B	A	0.16	B	A	0.21	B	A	0.26	B	A
ARSENIC		0.23	J	P	0.5	U		0.5	U		2.7		
BARIUM		157			64.9			111			29.7		
BERYLLIUM		0.5	U		0.5	U		0.5	U		0.41	B	A
CADMIUM		0.5	U		0.5	U		0.5	U		0.5	U	
CALCIUM		41700			29000			47300			199	J	P
CHROMIUM		2.6	J	FI	3.6	J	FI	2.9	J	FI	14.7	J	FI
COBALT		0.51	J	P	0.088	B	A	2.5			3.6		
COPPER		2			1.2	J	P	1.3	J	P	7.1		
IRON		271			168	J	P	377			12200		
LEAD		0.16	B	A	0.81	J	P	0.23	B	A	5.1		
MAGNESIUM		17300			12100			12300			1550		
MANGANESE		1680			21.2			630			86.5		
MERCURY		0.1	UL	C	0.1	UL	C	0.1	UL	C	0.1	UL	C
NICKEL		5.3	J	FGI	2.1	J	FGI	5.5	J	FGI	7.7	J	FGI
POTASSIUM		13300			1220			1960			301	J	P
SELENIUM		2.5	U		2.5	U		2.5	U		2.5	U	
SILVER		0.5	U		0.5	U		0.5	U		0.5	U	
SODIUM		6670	L	D	17100	L	D	11900	L	D	18.6	B	A
THALLIUM		0.19	B	A	0.5	B	A	0.42	B	A	1.5	B	A
VANADIUM		2.5	U		2.5	U		0.32	J	P	19.2		
ZINC		7.3	J	G	11.1	J	G	19.6	J	G	20	J	G

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: M	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		59.6			1600			42.6			213		
ANTIMONY		0.25	B	A	0.26	B	A	0.59	B	A	0.46	B	A
ARSENIC		0.66	J	P	0.5	U		0.29	J	P	0.5	U	
BARIUM		310			117			156			75.5		
BERYLLIUM		0.5	U		0.2	B	A	0.5	U		0.5	U	
CADMIUM		0.14	J	P	0.15	J	P	0.21	J	P	0.17	J	P
CALCIUM		46200			40100			41300			25300		
CHROMIUM		3.4	J	FI	24.6	J	FI	4.6	J	FI	7.5	J	FI
COBALT		1.5			2.6			0.56	J	P	0.85	J	P
COPPER		0.91	J	P	2.9			2			1.6	J	P
IRON		477			1970			311			438		
LEAD		0.19	B	A	0.87	J	P	0.39	B	A	0.86	J	P
MAGNESIUM		11100			22200			16900			8090		
MANGANESE		662			896			1630			128		
MERCURY		0.1	UL	C	0.1	UL	C	0.1	UL	C	0.1	UL	C
NICKEL		3.8	J	FGI	20.3	J	FGI	7.7	J	FGI	18.6	J	FGI
POTASSIUM		2760			43300			13100			1960		
SELENIUM		0.96	J	P	2.5	U		2.5	U		0.78	J	P
SILVER		0.5	U		0.5	U		0.032	B	A	0.5	U	
SODIUM		8430	L	D	5960	L	D	6620	L	D	6990	L	D
THALLIUM		0.88	B	A	0.53	B	A	0.65	B	A	0.33	B	A
VANADIUM		0.81	J	P	2.7	J	P	2.5	U		2.5	U	
ZINC		14.2	J	G	16	J	G	20.7	J	G	51.1	J	G

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: M	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		207			10	U	
ANTIMONY		0.22	B	A	1	U	
ARSENIC		0.5	U		0.45	J	P
BARIUM		179			0.86	J	P
BERYLLIUM		0.5	U		0.5	U	
CADMIUM		0.5	U		0.5	U	
CALCIUM		36900			262	J	P
CHROMIUM		4.8	J	FI	2.3	J	FI
COBALT		0.56	J	P	0.5	U	
COPPER		2	J	P	0.59	J	P
IRON		1040			33.8	J	P
LEAD		0.33	B	A	0.19	J	P
MAGNESIUM		16900			31.4	J	P
MANGANESE		165			1.1		
MERCURY		0.1	UL	C	0.1	UL	C
NICKEL		7.9	J	FGI	1.1	J	FGI
POTASSIUM		10000			57.3	J	P
SELENIUM		2.5	U		2.5	U	
SILVER		0.5	U		0.5	U	
SODIUM		7100	L	D	84.4	J	DP
THALLIUM		0.25	B	A	0.21	J	P
VANADIUM		2.5	U		2.5	U	
ZINC		14	J	G	12.8	J	G

PROJ_NO: 02014	NSAMPLE	12MW01S			12MW030			12MW040			12RB01		
SDG: D1768	LAB_ID	D1768-22			D1768-25			D1768-26			D1768-27		
FRACTION: MF	SAMP_DATE	3/7/2012			3/6/2012			3/7/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		18.6	B	A	309			14	B	A	10	U	
ANTIMONY		0.25	B	A	0.2	B	A	0.3	B	A	0.32	J	P
ARSENIC		0.44	J	P	0.5	U		0.37	J	P	0.5	U	
BARIUM		113			96.5			73.4			0.74	J	P
BERYLLIUM		0.5	U		0.5	U		0.5	U		0.5	U	
CADMIUM		0.5	U		0.5	U		0.14	J	P	0.5	U	
CALCIUM		47000			41200			25800			247	J	P
CHROMIUM		2.7			7.8			2.7			2.4		
COBALT		2.7			1.1			0.29	B	A	0.5	U	
COPPER		1.1	J	P	1.8	J	P	1.2	J	P	0.77	J	P
IRON		294			540			138	J	P	30.1	J	P
LEAD		0.11	B	A	0.3	B	A	0.21	B	A	0.31	J	P
MAGNESIUM		12100			22400			8300			38.2	J	P
MANGANESE		676			782			126			0.68	J	P
NICKEL		6.5			14.1			3.4			1.1		
POTASSIUM		1950			38000			1770			47.7	J	P
SELENIUM		2.5	U		2.5	U		1.4	J	P	2.5	U	
SILVER		0.5	U		0.5	U		0.5	U		0.5	U	
SODIUM		11900	L	D	5970	L	D	7390	L	D	92.6	J	DP
THALLIUM		0.15	B	A	0.17	B	A	0.15	B	A	1.5		
VANADIUM		2.5	U		2.5	U		2.5	U		2.5	U	
ZINC		14.8			11.9			20.6			9.8		

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1768	LAB_ID	D1768-19			D1768-08			D1768-09			D1768-12		
FRACTION: MISC	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW03S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.0025	U		0.0025	U		0.0025	U		0.0025	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12MW030			12MW03S			12MW040		
SDG: D1768	LAB_ID	D1768-13			D1768-14			D1768-15			D1768-16		
FRACTION: MISC	SAMP_DATE	3/6/2012			3/6/2012			3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.0025	U		0.0025	U		0.0025	U		0.0025	U	

PROJ_NO: 02014	NSAMPLE	12MW04S			12RB01		
SDG: D1768	LAB_ID	D1768-17			D1768-18		
FRACTION: MISC	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYANIDE		0.0025	U		0.0025	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	38.1		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.19	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.23	J	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	157		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	41700		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	2.6	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.51	J	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	2		1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	271		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.16	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	17300		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	1680	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	5.3	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	13300		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	6670	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.19	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	7.3	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	26.3		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.16	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	64.9		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	29000		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	3.6	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.088	J	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	1.2	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	168	J	1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.81	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	12100		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	21.2	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	2.1	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	1220		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	17100	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.5	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	11.1	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
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OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	48.5		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.21	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	111		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	47300		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	2.9	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	2.5		1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	1.3	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	377		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.23	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	12300		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	630	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	5.5	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	1960		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	11900	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.42	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	0.32	J	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	19.6	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	8570		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.26	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	2.7		1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	29.7		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.41	J	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	199	J	1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	14.7	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	3.6		1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	7.1		1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	12200		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	5.1		1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	1550		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	86.5	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	7.7	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	301	J	1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	18.6	JN	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	1.5		1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	19.2		1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	20	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	59.6		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.25	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.66	J	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	310		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.14	J	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	46200		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	3.4	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	1.5		1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	0.91	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	477		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.19	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	11100		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	662	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	3.8	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	2760		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	0.96	J	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	8430	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.88	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	0.81	J	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	14.2	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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Q = indicates LCS control criteria did not meet requirements

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N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	1600		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.26	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	117		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.2	J	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.15	J	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	40100		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	24.6	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	2.6		1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	2.9		1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	1970		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.87	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	22200		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	896	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	20.3	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	43300		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	5960	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.53	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.7	J	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	16	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Brown	Clarity Before:	Cloudy	Texture:	
Color After:	Yellow	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
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J = Estimated Value
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	42.6		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.59	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.29	J	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	156		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.21	J	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	41300		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	4.6	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.56	J	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	2		1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	311		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.39	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	16900		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	1630	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	7.7	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	13100		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.032	J	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	6620	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.65	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	20.7	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	213		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.46	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	75.5		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.17	J	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	25300		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	7.5	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.85	J	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	1.6	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	438		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.86	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	8090		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	128	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	18.6	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	1960		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	0.78	J	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	6990	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.33	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	51.1	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Brown	Clarity Before:	Cloudy	Texture:	
Color After:	Yellow	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	207		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.22	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	179		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	36900		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	4.8	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.56	J	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	2	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	1040		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.33	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	16900		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	165	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	7.9	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	10000		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	7100	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.25	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	14	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

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LOQ = Limit of Quantitation
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LOD = Limit of Detection
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N = Presumptive Evidence of a Compound
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10	U	1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	1	U	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.45	J	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	0.86	J	1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	262	J	1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	2.3	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.5	U	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	0.59	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	33.8	J	1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.19	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	31.4	J	1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	1.1	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-97-6	Mercury	0.1	U	1	0.092	0.1	0.2	ug/L	03/13/12	03/14/12	SW7470A
7440-02-0	Nickel	1.1	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	57.3	J	1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	84.4	JN	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.21	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	12.8	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	METALS-TAL				

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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-22	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	18.6	J	1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.25	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.44	J	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	113		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	47000		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	2.7	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	2.7		1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	1.1	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	294		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.11	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	12100		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	676	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-02-0	Nickel	6.5	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	1950		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	11900	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.15	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	14.8	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Dissolved ICPMS-TAL Metals				

U = Not Detected
LOQ = Limit of Quantitation
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-25	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	309		1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.2	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	96.5		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	41200		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	7.8	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	1.1		1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	1.8	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	540		1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.3	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	22400		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	782	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-02-0	Nickel	14.1	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	38000		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	5970	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.17	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	11.9	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Brown	Clarity Before:	Cloudy	Texture:	
Color After:	Yellow	Clarity After:	Clear	Artifacts:	
Comments:	Dissolved ICPMS-TAL Metals				

U = Not Detected
LOQ = Limit of Quantitation
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-26	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	14	J	1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.3	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.37	J	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	73.4		1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.14	J	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	25800		1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	2.7	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.29	J	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	1.2	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	138	J	1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.21	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	8300		1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	126	N	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-02-0	Nickel	3.4	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	1770		1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	1.4	J	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	7390	N	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	0.15	J	1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	20.6	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Dissolved ICPMS-TAL Metals				

U = Not Detected
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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-27	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	10	U	1	5	10	20	ug/L	03/14/12	03/15/12	SW6020
7440-36-0	Antimony	0.32	J	1	0.14	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-38-2	Arsenic	0.5	U	1	0.18	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-39-3	Barium	0.74	J	1	0.1	5	10	ug/L	03/14/12	03/15/12	SW6020
7440-41-7	Beryllium	0.5	U	1	0.09	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-43-9	Cadmium	0.5	U	1	0.13	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-70-2	Calcium	247	J	1	9.1	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-47-3	Chromium	2.4	*	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7440-48-4	Cobalt	0.5	U	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-50-8	Copper	0.77	J	1	0.04	1	2	ug/L	03/14/12	03/15/12	SW6020
7439-89-6	Iron	30.1	J	1	10.3	100	200	ug/L	03/14/12	03/15/12	SW6020
7439-92-1	Lead	0.31	J	1	0.04	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7439-95-4	Magnesium	38.2	J	1	5	250	500	ug/L	03/14/12	03/15/12	SW6020
7439-96-5	Manganese	0.68	JN	1	0.05	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-02-0	Nickel	1.1	*	1	0.06	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-09-7	Potassium	47.7	J	1	12.2	250	500	ug/L	03/14/12	03/15/12	SW6020
7782-49-2	Selenium	2.5	U	1	0.7	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-22-4	Silver	0.5	U	1	0.03	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-23-5	Sodium	92.6	JN	1	5.3	250	500	ug/L	03/14/12	03/15/12	SW6020
7440-28-0	Thallium	1.5		1	0.02	0.5	1	ug/L	03/14/12	03/15/12	SW6020
7440-62-2	Vanadium	2.5	U	1	0.15	2.5	5	ug/L	03/14/12	03/15/12	SW6020
7440-66-6	Zinc	9.8	*	1	0.09	1	2	ug/L	03/14/12	03/15/12	SW6020

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Dissolved ICPMS-TAL Metals				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12GW-DUP01	SDG No.:	D1768
Lab Sample ID:	D1768-19	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW010	SDG No.:	D1768
Lab Sample ID:	D1768-08	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW01S	SDG No.:	D1768
Lab Sample ID:	D1768-09	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW020	SDG No.:	D1768
Lab Sample ID:	D1768-12	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW02S	SDG No.:	D1768
Lab Sample ID:	D1768-13	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW030	SDG No.:	D1768
Lab Sample ID:	D1768-14	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW03S	SDG No.:	D1768
Lab Sample ID:	D1768-15	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW040	SDG No.:	D1768
Lab Sample ID:	D1768-16	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/06/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12MW04S	SDG No.:	D1768
Lab Sample ID:	D1768-17	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	03/07/12
Project:	CTO WE05 NAS JRB Willow Grove	Date Received:	03/09/12
Client Sample ID:	12RB01	SDG No.:	D1768
Lab Sample ID:	D1768-18	Matrix:	WATER
		% Solid:	0

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.003	U	1	0.003	0.003	0.005	mg/L	03/12/12	03/13/12	9012B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range
N =Spiked sample recovery not within control limits

APPENDIX C

SUPPORT DOCUMENTATION

CHEMTECH
CHAIN OF CUSTODY RECORD

B1202117

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1768
QUOTE NO.
COC Number 022188

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: TETRA TECH, INC
ADDRESS: 234 MALL BLVD., SUITE 260
CITY: KING of PRUSSIA STATE: PA ZIP: 19406
ATTENTION: ANDY FREBOWITZ
PHONE: 610-382-1170 FAX: 610-491-9644

CLIENT PROJECT INFORMATION
PROJECT NAME: CTO WEQS NAS JRB Willow Grove
PROJECT NO.: LOCATION:
PROJECT MANAGER: FREBOWITZ
e-mail: ANDY.FREBOWITZ@TETRATECH.COM
PHONE: FAX:

CLIENT BILLING INFORMATION
BILL TO: TETRA TECH PO#:
ADDRESS: 661 ANDERSON DR.
CITY: PITTSBURGH STATE: PA ZIP: 15220
ATTENTION: ACCT. PAYABLE PHONE: 412-921-8361

DATA TURNAROUND INFORMATION
FAX: DAYS *
HARD COPY: 10 DAYS *
EDD: 10 DAYS *
PREAPPROVED TAT: ☐ YES ☒ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☒ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS
1 VOC
2 METAL/MERCURY DISSOLVED METALS
3 CYANIDE
4 SVOC
5 PEST/PCB
6 DIOXIN/FURAN
7
8
9

CHEMTECH SAMPLE ID (KR 3/9/12)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1 HCl A	2 HNO3 B3	3 HNO3 B3	4 NaOH D	5 E	6 E	7 E	8 E	9	COMMENTS
1.	02MW01Φ	W		X	3/8/12	1040	2	X									
2.	02MW01I				3/8/12	0920	2	X									
3.	02MW02Φ20120307				3/7/12	1305	2	X									Sample ID 02MW02Φ
4.	02MW03I20120307				3/7/12	1545	2	X									02MW03I
5.	02MW03ΦI20120308				3/8/12	0915	2	X									02MW03ΦI
6.	02MW04Φ				3/7/12	1520	2	X									
7.	02MW04I				3/7/12	1350	2	X									
8.	12MW01Φ				3/7/12	1200	8	X	X		X	X	X	X			
9. 22,23,24,10,11;	12MW01Φ				3/7/12	0940	27	X	X	X	X	X	X	X			MS/MSD
10.	12MW02Φ				3/6/12	1430	9		8								

PRESERVATIVES
A-HCl B-HNO3 C-H2SO4 D-NaOH E-ICE F-Other

COMMENTS
← Specify Preservatives

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Tom Lewis	3/8/12 1600	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. Fed Ex	3/9/12 9:20	3. Ken Lewis

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

D1768

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. D1768
QUOTE NO.
COC Number 022189

CLIENT INFORMATION (REPORT TO BE SENT TO)

COMPANY: TETRA TECH
ADDRESS: 234 MALL BLVD, SUITE 260
CITY: KING of PRUSSIA STATE: PA ZIP: 19406
ATTENTION: ANDY FREBOWITZ
PHONE 610-382-1100 FAX: 610-491-9643

CLIENT PROJECT INFORMATION

PROJECT NAME:
PROJECT NO.: LOCATION:
PROJECT MANAGER:
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 VOC
2 METALS / MERCURY
3 DISSOLVED METALS
4 CYANIDE
5 SVOC
6 PEST / PCB
7 DIOXIN / FURAN
8
9

CHEMTECH SAMPLE (KR 39 9/12)	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES A 1	B 2	B 3	D 4	E 5	E 6	E 7	8	9	COMMENTS
1. B.	12MW02S	W		X	3/6/12	1210	9	X	X		X	X	X	X			
2. 14, 25.	12MW030201203060				3/6/12	1005	10	X	X	X	X	X	X	X			Sample ID 12MW030
3. 15.	12MW035 20120306				3/6/12	11:00	9	X	X		X	X	X	X			12MW035
4. 16, 26.	12MW040 20120307				3/7/12	1010	10	X	X	X	X	X	X	X			12MW040
5. 17.	12MW04S				3/6/12	1045	9	X	X		X	X	X	X			
6. 18, 27.	12RB01				3/7/12	0800	10	X	X	X	X	X	X	X			
7. 19.	12GW-DUP01				3/6/12	0000	9	X	X		X	X	X	X			
8. 20	12GW-DUP02				3/7/12	0000	2	X									
9. 21.	TRIP BLANK				3/8/12	1300	2	X									
10.																	

COMMENTS ← Specify Preservatives
A - HCl B - HNO_3 C - H_2SO_4 D - NaOH E - ICE F - Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. JS Tomaselli	3/8/12 1600	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	3/9/12 9:20	3. Ken Kuhn

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: yes

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☒ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

FedEx Express **NEW** Package US Airbill

8759 3871 7790 0215 Form ID No.

FedEx Copy

1 From

Date 3/6/12 Sender's FedEx Account Number 1516-4340-0

Sender's Name JOE TOMASSACCI Phone 610 491-96[illegible]

Company TETRA TECH NUS INC GOVT

Address 234 MALL BLVD STE 260 Dept/Floor/Suite/Room

City KING OF PRUSSIA State PA ZIP 19406-2954

2 Your Internal Billing Reference 112602011 owea.0205

3 To Recipient's Name SAMPLE RECEIVING HEMTECH Phone 789-5900

Company CHEMTECH

Address 41 SHEFFIELD ST. Dept/Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City MOUNTAINSIDE State NJ ZIP 07092

0439140775

8759 3871 7790

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- 06 ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- 01 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- 05 ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- 49 ☐ **NEW** FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- 03 ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- 20 ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* 03 ☐ FedEx Box 04 ☐ FedEx Tube 01 ☐ Other

6 Special Handling and Delivery Signature Options

03 ☐ **SATURDAY DELIVERY**

- ☐ No Signature Required — Package may be left without obtaining a signature for delivery.
- 10 ☐ Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- 34 ☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods?

One box must be checked.

☐ No 04 ☐ Yes — As per attached Shipper's Declaration. ☐ Yes — Shipper's Declaration not required. 06 ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

- 01 ☐ HOLD Weekday — FedEx location address REQUIRED. **NOT available for** FedEx First Overnight.
- HOLD Saturday ☒ — FedEx location address REQUIRED. **Available ONLY for** FedEx Priority Overnight and FedEx 2Day to select locations.
- 31 ☐

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip Acct. No ☐

1 ☐ Sender Acct. No. in Section 1 will be billed. 2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†	Credit Card Auth.
6	369 lbs.	$ .00	

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

611

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D1768

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: Dissolved ICPMS-TAL Metals,Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for Dissolved ICPMS-TAL Metals,Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Dissolved ICPMS-TAL Metals,Metals ICP-TAL was based on method 6020, digestion based on method 3010 (waters). The analysis and digestion of Mercury was based on method 7470A.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Chromium, Nickel and Zinc.
The Matrix Spike analysis met criteria for all samples except for Sodium.
The Matrix Spike Duplicate analysis met criteria for all samples except for Manganese, and Sodium.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature____ Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:57:04 -05'00'

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project # N/A
Chemtech Project # D1768
Test Name: Cyanide

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for Cyanide.

C. Analytical Techniques:
The analysis of Cyanide was based on method 9012B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature___ Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.04.02 14:11:35 -05'00'

12mw015

reported as 47300441

D1768-09 03/15/2012 02:52:15 AM

User Pre-dilution: 1.000

Run	Time	6Li	9Be	10B	13C	23Na	24Mg	25Mg	26Mg	27Al
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	82%	0.043	32.480	0.000	11940.000	12380.000	12570.000	12800.000	48.690
2	02:54:38	84%	0.046	37.750	0.000	11870.000	12350.000	12680.000	12930.000	48.710
3	02:55:49	85%	0.045	31.050	0.000	11870.000	12200.000	12510.000	12730.000	48.210
x		84%	0.045	33.760	0.000	11900.000	12310.000	12590.000	12820.000	48.540
σ		2%	0.001	3.527	0.000	39.070	96.390	88.580	104.800	0.278
%RSD		2	3.280	10.450	0.000	0.328	0.783	0.704	0.818	0.572

Run	Time	28Si	31P	34S	37Cl	39K	43Ca	44Ca	45Sc	47Ti
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	6550.000	22.720	0.000	0.000	1966.000	46480.000	47210.000	74%	1.827
2	02:54:38	6582.000	19.800	0.000	0.000	1966.000	47230.000	47830.000	75%	2.279
3	02:55:49	6480.000	21.560	0.000	0.000	1932.000	45670.000	46730.000	77%	2.082
x		6537.000	21.360	0.000	0.000	1955.000	46460.000	47260.000	75%	2.062
σ		51.980	1.473	0.000	0.000	19.400	778.800	553.000	2%	0.227
%RSD		0.795	6.894	0.000	0.000	0.993	1.676	1.170	2	10.990

Run	Time	51V	52Cr	53Cl O	54Fe	55Mn	56Fe	57Fe	59Co	60Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	-0.400	2.897	284.200	178.000	631.500	162.000	369.300	2.416	5.337
2	02:54:38	0.103	2.816	298.200	173.100	634.900	163.700	381.600	2.552	5.503
3	02:55:49	1.257	2.849	299.400	168.300	622.300	158.200	381.000	2.486	5.538
x		0.320	2.854	293.900	173.100	629.600	161.300	377.300	2.485	5.459
σ		0.850	0.041	8.473	4.859	6.532	2.791	6.942	0.068	0.108
%RSD		265.600	1.441	2.883	2.806	1.038	1.730	1.840	2.739	1.968

Run	Time	63Cu	65Cu	66Zn	75As	77Se	77Ar Cl	78Se	82Se	83Kr
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	1.265	1.414	19.860	0.642	0.272	1.906	-1.821	0.275	3.609
2	02:54:38	1.395	1.338	19.420	-0.643	-0.150	2.116	-1.131	-0.151	5.425
3	02:55:49	1.293	1.311	19.550	-1.300	0.452	2.231	-1.864	0.457	2.017
x		1.318	1.354	19.610	-0.434	0.191	2.084	-1.605	0.194	3.684
σ		0.068	0.054	0.227	0.988	0.309	0.165	0.411	0.312	1.705
%RSD		5.185	3.957	1.156	227.800	161.600	7.900	25.630	161.000	46.290

Run	Time	86Sr	88Sr	90Zr	91Zr	94Mo	95Mo	96Mo	97Mo	98Mo
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	194.800	191.000	1.658	2.110	1.234	0.288	0.568	0.295	0.366
2	02:54:38	192.100	191.600	1.277	1.821	1.121	0.366	0.504	0.273	0.302
3	02:55:49	191.000	190.600	1.074	1.668	0.795	0.349	0.433	0.449	0.402
x		192.600	191.100	1.336	1.866	1.050	0.334	0.502	0.339	0.357
σ		1.927	0.540	0.296	0.225	0.228	0.041	0.067	0.096	0.051
%RSD		1.000	0.283	22.170	12.030	21.680	12.240	13.440	28.370	14.260

Run	Time	99Ru	103Rh	106Cd	107Ag	108Mo O	108Cd	109Ag	111Cd	118Sn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	0.001	69%	0.940	0.009	-0.369	0.274	0.001	0.065	0.073
2	02:54:38	0.001	70%	0.718	0.010	-0.286	0.201	0.008	0.114	0.093
3	02:55:49	0.001	70%	1.239	0.007	-0.534	0.267	0.010	0.157	0.102
x		0.001	70%	0.966	0.009	-0.397	0.247	0.006	0.112	0.090
σ		0.000	1%	0.261	0.001	0.126	0.041	0.004	0.046	0.015
%RSD		7.793	1	27.050	15.450	31.750	16.390	70.050	41.170	16.500

Run	Time	121Sb	135Ba	137Ba	159Tb	165Ho	203Tl	205Tl	206Pb	207Pb
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	02:53:27	0.175	110.300	110.500	70%	70%	0.409	0.411	0.194	0.264
2	02:54:38	0.198	110.900	111.400	71%	71%	0.391	0.446	0.255	0.201
3	02:55:49	0.266	111.000	110.900	71%	71%	0.432	0.413	0.249	0.205
x		0.213	110.700	110.900	71%	71%	0.411	0.423	0.233	0.223
σ		0.047	0.371	0.445	0%	1%	0.021	0.019	0.033	0.035
%RSD		22.210	0.335	0.401	1	1	5.088	4.589	14.330	15.780

Run	Time	208Pb	209Bi	232Th	238U
		ppb	ppb	ppb	ppb
1	02:53:27	0.223	69%	0.009	0.443
2	02:54:38	0.238	70%	0.004	0.434
3	02:55:49	0.222	70%	0.002	0.439
x		0.228	70%	0.005	0.439
σ		0.009	1%	0.004	0.004
%RSD		3.934	1	71.980	0.977

NASJRB WILLOW GROVE
WATER DATA
D1768

FRACTION	CHEMICAL	12GW-DUP01	UNITS	12MW03S	RPD	D
M	ALUMINUM	38.1	UG/L	42.6	11.15	4.50
M	ANTIMONY	0.19 J	UG/L	0.59 J	102.56	OK 0.40
M	ARSENIC	0.23 J	UG/L	0.29 J	23.08	0.06
M	BARIUM	157	UG/L	156	0.64	1.00
M	CADMIUM	ND	UG/L	0.21 J	200.00	OK 0.21
M	CALCIUM	41700	UG/L	41300	0.96	400.00
M	CHROMIUM	2.6	UG/L	4.6	55.56	OK 2.00
M	COBALT	0.51 J	UG/L	0.56 J	9.35	0.05
M	COPPER	2	UG/L	2	0.00	0.00
M	IRON	271	UG/L	311	13.75	40.00
M	LEAD	0.16 J	UG/L	0.39 J	83.64	OK 0.23
M	MAGNESIUM	17300	UG/L	16900	2.34	400.00
M	MANGANESE	1680	UG/L	1630	3.02	50.00
M	NICKEL	5.3	UG/L	7.7	36.92	2.40
M	POTASSIUM	13300	UG/L	13100	1.52	200.00
M	SILVER	ND	UG/L	0.032 J	200.00	OK 0.03
M	SODIUM	6670	UG/L	6620	0.75	50.00
M	THALLIUM	0.19 J	UG/L	0.65 J	109.52	OK 0.46
M	ZINC	7.3	UG/L	20.7	95.71	13.40

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

From: Frebowitz, Andy [Andy.Frebowitz@tetratech.com]
Sent: Saturday, March 10, 2012 1:44 AM
To: Elizabeth Griffiths
Cc: kenny@chemtech.net
Subject: RE: D1768

Everything but dioxin/furan for that sample.

Thanks

Andy

From: Elizabeth Griffiths [mailto:egriffiths@chemtech.net]
Sent: Friday, March 09, 2012 3:01 PM
To: Frebowitz, Andy
Cc: kenny@chemtech.net
Subject: D1768

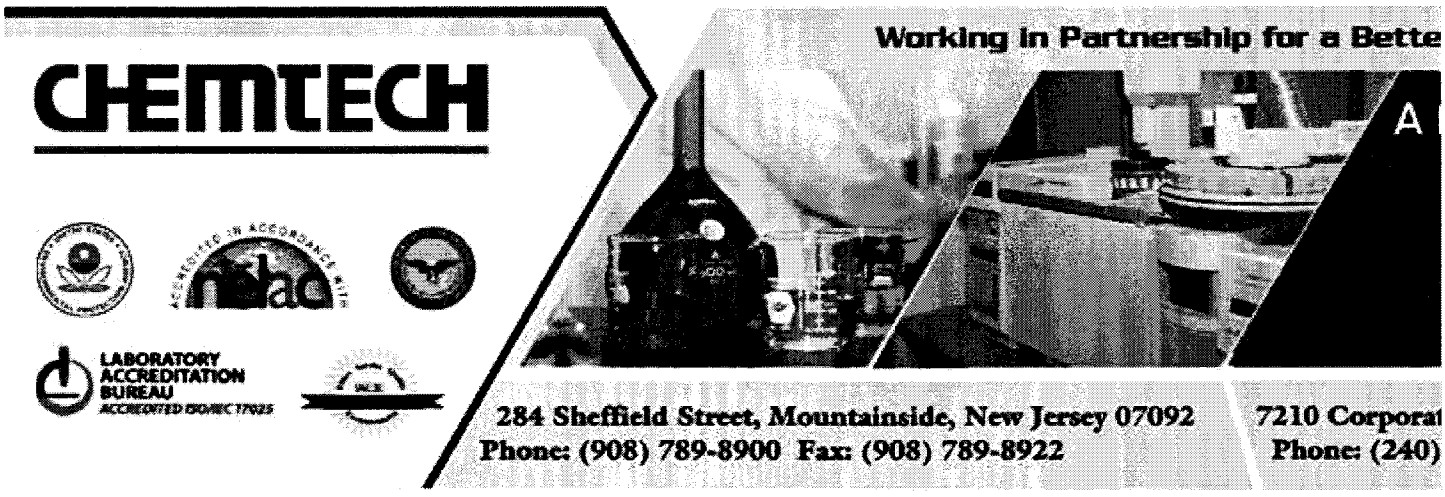
Hi Andy,

For sample 12MW020, please confirm that you want VOC, metals/mercury, cyanide, svoc, pest/pcb and dioxin/furan.

Thanks!

Elizabeth

Elizabeth Griffiths
Project Manager
CHEMTECH
284 Sheffield St | Mountainside, NJ 07092
7210 Corporate Court | Frederick, MD 21703
NJ Direct: 908-728-3145 | MD Direct: 240-215-4321
egriffiths@chemtech.net | www.chemtech.net



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I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 3/2/12 (MM)

HOLDTIME

SDG D1768

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	UG/L	12RB01	D1768-18	NM	3/7/2012	3/13/2012	3/14/2012	6	1	7
HG	UG/L	12MW040	D1768-16	NM	3/7/2012	3/13/2012	3/14/2012	6	1	7
HG	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/13/2012	3/14/2012	7	1	8
HG	UG/L	12MW030	D1768-14	NM	3/6/2012	3/13/2012	3/14/2012	7	1	8
HG	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/13/2012	3/14/2012	7	1	8
HG	UG/L	12MW020	D1768-12	NM	3/6/2012	3/13/2012	3/14/2012	7	1	8
HG	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/13/2012	3/14/2012	6	1	7
HG	UG/L	12MW010	D1768-08	NM	3/7/2012	3/13/2012	3/14/2012	6	1	7
HG	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/13/2012	3/14/2012	7	1	8
HG	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/13/2012	3/14/2012	7	1	8
M	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
M	UG/L	12MW010	D1768-08	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
M	UG/L	12MW020	D1768-12	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9
M	UG/L	12MW030	D1768-14	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9
M	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	12MW040	D1768-16	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
M	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9
M	UG/L	12RB01	D1768-18	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
M	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9
M	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9
MF	UG/L	12MW040	D1768-26	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
MF	UG/L	12RB01	D1768-27	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
MF	UG/L	12MW030	D1768-25	NM	3/6/2012	3/14/2012	3/15/2012	8	1	9
MF	UG/L	12MW01S	D1768-22	NM	3/7/2012	3/14/2012	3/15/2012	7	1	8
CN	MG/L	12MW04S	D1768-17	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
CN	MG/L	12MW030	D1768-14	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
CN	MG/L	12MW02S	D1768-13	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
CN	MG/L	12MW020	D1768-12	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
CN	MG/L	12MW01S	D1768-09	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
CN	MG/L	12MW010	D1768-08	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
CN	MG/L	12MW03S	D1768-15	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
CN	MG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
CN	MG/L	12RB01	D1768-18	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CN	MG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
OS	UG/L	12RB01	D1768-18	NM	3/7/2012	3/12/2012	3/14/2012	5	2	7
OS	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
OS	UG/L	12MW040	D1768-16	NM	3/7/2012	3/12/2012	3/14/2012	5	2	7
OS	UG/L	12MW03S	D1768-15	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
OS	UG/L	12MW030	D1768-14	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
OS	UG/L	12MW02S	D1768-13RE	NM	3/6/2012	3/12/2012	3/15/2012	6	3	9
OS	UG/L	12MW02S	D1768-13	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
OS	UG/L	12MW020	D1768-12	NM	3/6/2012	3/12/2012	3/13/2012	6	1	7
OS	UG/L	12GW-DUP01	D1768-19	NM	3/6/2012	3/12/2012	3/14/2012	6	2	8
OS	UG/L	12MW010	D1768-08	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
OS	UG/L	12MW01S	D1768-09	NM	3/7/2012	3/12/2012	3/13/2012	5	1	6
OV	UG/L	02MW01S	D1768-01	NM	3/8/2012	3/9/2012	3/9/2012	1	0	1
OV	UG/L	02MW02S	D1768-03	NM	3/7/2012	3/9/2012	3/9/2012	2	0	2
OV	UG/L	12MW040	D1768-16	NM	3/7/2012	3/10/2012	3/10/2012	3	0	3
OV	UG/L	02MW01I	D1768-02	NM	3/8/2012	3/9/2012	3/9/2012	1	0	1
OV	UG/L	TRIPBLANK	D1768-21	NM	3/8/2012	3/10/2012	3/10/2012	2	0	2
OV	UG/L	12MW04S	D1768-17	NM	3/6/2012	3/10/2012	3/10/2012	4	0	4

CHEMTECH

Metals

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LINEAR RANGES

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Instrument ID: P6 **Date:** 02/06/2012

Analyte	Integration Time (sec)	LDR ug/L
Aluminum	0.01	200000
Antimony	0.1	1000
Arsenic	0.001	1900
Barium	0.1	5000
Beryllium	0.1	1000
Cadmium	0.1	1000
Calcium	0.001	200000
Chromium	0.1	1000
Cobalt	0.1	2000
Copper	0.1	5200
Iron	0.001	190000
Lead	0.1	5000
Magnesium	0.001	200000
Manganese	0.1	5000
Nickel	0.1	2000
Potassium	0.001	200000
Selenium	0.1	3000
Silver	0.1	1000
Sodium	0.001	200000
Thallium	0.1	3000
Vanadium	0.1	1000
Zinc	0.1	5000

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Metals

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METHOD DETECTION LIMITS

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Instrument ID: P6 **Date:** 02/14/2009 **Preparation Method:**

Analyte	Mass	MDL ug/L	CRQL ug/L	Date: 02/14/2009
Aluminum	27	4.97	20	
Antimony	121	0.14	2	
Arsenic	75	0.18	1	
Barium	137	0.10	10	
Beryllium	9	0.09	1	
Cadmium	111	0.13	1	
Calcium	44	9.06	500	
Chromium	52	0.04	2	
Cobalt	59	0.05	1	
Copper	63	0.04	2	
Iron	57	10.28	200	
Lead	208	0.04	1	
Magnesium	24	4.95	500	
Manganese	55	0.05	1	
Nickel	60	0.06	1	
Potassium	39	12.22	500	
Selenium	82	0.70	5	
Silver	107	0.03	1	
Sodium	23	5.32	500	
Thallium	205	0.02	1	
Vanadium	51	0.15	5	
Zinc	66	0.09	2	

Analyte	Wave- length (nm)	MDL ug/L	CRQL ug/L	Date: 01/15/2009
Mercury	253.70	0.0915	0.2000	

CHEMTECH

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Method:** CV

Case No.: D1768 **SAS No.:** D1768

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB61677**						
D1768-08	12MW010	SAM	WATER	03/13/2012	30.0	30.0	
D1768-09	12MW01S	SAM	WATER	03/13/2012	30.0	30.0	
D1768-09D	12MW01SD	DUP	WATER	03/13/2012	30.0	30.0	
D1768-10S	12MW01SS	MS	WATER	03/13/2012	30.0	30.0	
D1768-11SD	12MW01SSD	MSD	WATER	03/13/2012	30.0	30.0	
D1768-12	12MW020	SAM	WATER	03/13/2012	30.0	30.0	
D1768-13	12MW02S	SAM	WATER	03/13/2012	30.0	30.0	
D1768-14	12MW030	SAM	WATER	03/13/2012	30.0	30.0	
D1768-15	12MW03S	SAM	WATER	03/13/2012	30.0	30.0	
D1768-16	12MW040	SAM	WATER	03/13/2012	30.0	30.0	
D1768-17	12MW04S	SAM	WATER	03/13/2012	30.0	30.0	
D1768-18	12RB01	SAM	WATER	03/13/2012	30.0	30.0	
D1768-19	12GW-DUP01	SAM	WATER	03/13/2012	30.0	30.0	
PB61677BL	PB61677BL	MB	WATER	03/13/2012	30.0	30.0	
PB61677BS	PB61677BS	LCS	WATER	03/13/2012	30.0	30.0	

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Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Method:** MS

Case No.: D1768 **SAS No.:** D1768

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB61690**						
D1768-08	12MW010	SAM	WATER	03/14/2012	50.0	50.0	
D1768-09	12MW01S	SAM	WATER	03/14/2012	50.0	50.0	
D1768-09D	12MW01SD	DUP	WATER	03/14/2012	50.0	50.0	
D1768-10S	12MW01SS	MS	WATER	03/14/2012	50.0	50.0	
D1768-11SD	12MW01SSD	MSD	WATER	03/14/2012	50.0	50.0	
D1768-12	12MW020	SAM	WATER	03/14/2012	50.0	50.0	
D1768-13	12MW02S	SAM	WATER	03/14/2012	50.0	50.0	
D1768-14	12MW030	SAM	WATER	03/14/2012	50.0	50.0	
D1768-15	12MW03S	SAM	WATER	03/14/2012	50.0	50.0	
D1768-16	12MW040	SAM	WATER	03/14/2012	50.0	50.0	
D1768-17	12MW04S	SAM	WATER	03/14/2012	50.0	50.0	
D1768-18	12RB01	SAM	WATER	03/14/2012	50.0	50.0	
D1768-19	12GW-DUP01	SAM	WATER	03/14/2012	50.0	50.0	
D1768-22	12MW01S	SAM	WATER	03/14/2012	50.0	50.0	
D1768-22D	12MW01SD	DUP	WATER	03/14/2012	50.0	50.0	
D1768-23S	12MW01SS	MS	WATER	03/14/2012	50.0	50.0	
D1768-24SD	12MW01SSD	MSD	WATER	03/14/2012	50.0	50.0	
D1768-25	12MW030	SAM	WATER	03/14/2012	50.0	50.0	
D1768-26	12MW040	SAM	WATER	03/14/2012	50.0	50.0	
D1768-27	12RB01	SAM	WATER	03/14/2012	50.0	50.0	
PB61690BL	PB61690BL	MB	WATER	03/14/2012	50.0	50.0	
PB61690BS	PB61690BS	LCS	WATER	03/14/2012	50.0	50.0	

CHEMTECH

Metals
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PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Instrument: P6

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	MDL ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB61690BL		**WATER**		**Batch Number:**	**PB61690**			**Prep Date:**	**03/14/2012**	
	Aluminum	4.970	<20.000	U	4.970	20.000	MS	03/14/2012	21:12	LB59713
	Antimony	0.140	<2.000	U	0.140	2.000	MS	03/14/2012	21:12	LB59713
	Arsenic	0.180	<1.000	U	0.180	1.000	MS	03/14/2012	21:12	LB59713
	Barium	0.100	<10.000	U	0.100	10.000	MS	03/14/2012	21:12	LB59713
	Beryllium	0.090	<1.000	U	0.090	1.000	MS	03/14/2012	21:12	LB59713
	Cadmium	0.130	<1.000	U	0.130	1.000	MS	03/14/2012	21:12	LB59713
	Calcium	9.060	<500.000	U	9.060	500.000	MS	03/14/2012	21:12	LB59713
	Chromium	0.040	<2.000	U	0.040	2.000	MS	03/14/2012	21:12	LB59713
	Cobalt	0.050	<1.000	U	0.050	1.000	MS	03/14/2012	21:12	LB59713
	Copper	0.040	<2.000	U	0.040	2.000	MS	03/14/2012	21:12	LB59713
	Iron	10.280	<200.000	U	10.280	200.000	MS	03/14/2012	21:12	LB59713
	Lead	0.040	<1.000	U	0.040	1.000	MS	03/14/2012	21:12	LB59713
	Magnesium	4.950	<500.000	U	4.950	500.000	MS	03/14/2012	21:12	LB59713
	Manganese	0.124	<1.000	J	0.050	1.000	MS	03/14/2012	21:12	LB59713
	Nickel	0.060	<1.000	U	0.060	1.000	MS	03/14/2012	21:12	LB59713
	Potassium	12.220	<500.000	U	12.220	500.000	MS	03/14/2012	21:12	LB59713
	Selenium	0.700	<5.000	U	0.700	5.000	MS	03/14/2012	21:12	LB59713
	Silver	0.030	<1.000	U	0.030	1.000	MS	03/14/2012	21:12	LB59713
	Sodium	5.320	<500.000	U	5.320	500.000	MS	03/14/2012	21:12	LB59713
	Thallium	0.140	<1.000	J	0.020	1.000	MS	03/14/2012	21:12	LB59713
	Vanadium	0.150	<5.000	U	0.150	5.000	MS	03/14/2012	21:12	LB59713
	Zinc	0.090	<2.000	U	0.090	2.000	MS	03/14/2012	21:12	LB59713
PB61677BL		**WATER**		**Batch Number:**	**PB61677**			**Prep Date:**	**03/13/2012**	
	Mercury	0.092	<0.200	U	0.092	0.200	CV	03/14/2012	13:05	LB59716

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-09 **Client ID:** 12MW01SS

Percent Solids for Sample: 0 **Spiked ID:** D1768-10S **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	80 - 120	2030.0000		48.5400		2000.00	99.1		MS
Antimony	ug/L	87 - 120	747.5000		0.2130	J	800.00	93.4		MS
Arsenic	ug/L	90 - 119	755.8000		0.1800	U	800.00	94.5		MS
Barium	ug/L	80 - 120	297.1000		110.9000		200.00	93.1		MS
Beryllium	ug/L	87 - 118	183.0000		0.0900	U	200.00	91.5		MS
Cadmium	ug/L	92 - 113	192.6000		0.1300	U	200.00	96.3		MS
Calcium	ug/L	80 - 120	46370.0000		47260.0000		1000.00	-89.0		MS
Chromium	ug/L	86 - 111	386.9000		2.8540		400.00	96.0		MS
Cobalt	ug/L	80 - 120	195.5000		2.4850		200.00	96.5		MS
Copper	ug/L	82 - 115	302.2000		1.3180	J	300.00	100.3		MS
Iron	ug/L	80 - 120	3272.0000		377.3000		3000.00	96.5		MS
Lead	ug/L	92 - 116	974.4000		0.2280	J	1000.00	97.4		MS
Magnesium	ug/L	80 - 120	13030.0000		12310.0000		2000.00	36.0		MS
Manganese	ug/L	80 - 120	809.2000		629.6000		200.00	89.8		MS
Nickel	ug/L	83 - 112	498.1000		5.4590		500.00	98.5		MS
Mercury	ug/L	80 - 120	3.7900		0.0915	U	4.00	94.8		CV
Potassium	ug/L	80 - 120	11260.0000		1955.0000		10000.00	93.0		MS
Selenium	ug/L	80 - 120	1913.0000		0.7000	U	2000.00	95.6		MS
Silver	ug/L	80 - 120	73.5000		0.0300	U	75.00	98.0		MS
Sodium	ug/L	80 - 120	13520.0000		11900.0000		3000.00	54.0	N	MS
Thallium	ug/L	86 - 117	1936.0000		0.4230	J	2000.00	96.8		MS
Vanadium	ug/L	80 - 120	284.1000		0.3200	J	300.00	94.6		MS
Zinc	ug/L	80 - 120	202.1000		19.6100		200.00	91.2		MS

CHEMTECH

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-09 **Client ID:** 12MW01SSD

Percent Solids for Sample: 0 **Spiked ID:** D1768-11SD **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	80 - 120	1995.0000		48.5400		2000.00	97.3		MS
Antimony	ug/L	87 - 120	740.2000		0.2130	J	800.00	92.5		MS
Arsenic	ug/L	90 - 119	746.8000		0.1800	U	800.00	93.4		MS
Barium	ug/L	80 - 120	295.0000		110.9000		200.00	92.0		MS
Beryllium	ug/L	87 - 118	180.5000		0.0900	U	200.00	90.2		MS
Cadmium	ug/L	92 - 113	190.0000		0.1300	U	200.00	95.0		MS
Calcium	ug/L	80 - 120	46610.0000		47260.0000		1000.00	-65.0		MS
Chromium	ug/L	86 - 111	382.4000		2.8540		400.00	94.9		MS
Cobalt	ug/L	80 - 120	194.1000		2.4850		200.00	95.8		MS
Copper	ug/L	82 - 115	299.4000		1.3180	J	300.00	99.4		MS
Iron	ug/L	80 - 120	3249.0000		377.3000		3000.00	95.7		MS
Lead	ug/L	92 - 116	961.2000		0.2280	J	1000.00	96.1		MS
Magnesium	ug/L	80 - 120	13000.0000		12310.0000		2000.00	34.5		MS
Manganese	ug/L	80 - 120	808.5000		629.6000		200.00	89.4		MS
Nickel	ug/L	83 - 112	495.5000		5.4590		500.00	98.0		MS
Mercury	ug/L	80 - 120	3.5800		0.0915	U	4.00	89.5		CV
Potassium	ug/L	80 - 120	11200.0000		1955.0000		10000.00	92.4		MS
Selenium	ug/L	80 - 120	1899.0000		0.7000	U	2000.00	95.0		MS
Silver	ug/L	80 - 120	72.8600		0.0300	U	75.00	97.1		MS
Sodium	ug/L	80 - 120	13500.0000		11900.0000		3000.00	53.3	N	MS
Thallium	ug/L	86 - 117	1910.0000		0.4230	J	2000.00	95.5		MS
Vanadium	ug/L	80 - 120	279.2000		0.3200	J	300.00	93.0		MS
Zinc	ug/L	80 - 120	205.6000		19.6100		200.00	93.0		MS

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Level:** LOW **Client ID:** 12MW01SA

Sample ID: D1768-09 **Spiked ID:** D1768-09A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Sodium	ug/L	80 - 120	13940.00		11900.00		3000.0	68.0		MS

CHEMTECH

MS/MSD

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-09 **Client ID:** 12MW01SSD

Percent Solids for Sample: 0 **Duplicate ID** D1768-11SD **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	ug/L	20	2030.0000		1995.0000		1.7		MS
Antimony	ug/L	20	747.5000		740.2000		1.0		MS
Arsenic	ug/L	20	755.8000		746.8000		1.2		MS
Barium	ug/L	20	297.1000		295.0000		0.7		MS
Beryllium	ug/L	20	183.0000		180.5000		1.4		MS
Cadmium	ug/L	20	192.6000		190.0000		1.4		MS
Calcium	ug/L	20	46370.0000		46610.0000		0.5		MS
Chromium	ug/L	20	386.9000		382.4000		1.2		MS
Cobalt	ug/L	20	195.5000		194.1000		0.7		MS
Copper	ug/L	20	302.2000		299.4000		0.9		MS
Iron	ug/L	20	3272.0000		3249.0000		0.7		MS
Lead	ug/L	20	974.4000		961.2000		1.4		MS
Magnesium	ug/L	20	13030.0000		13000.0000		0.2		MS
Manganese	ug/L	20	809.2000		808.5000		0.1		MS
Nickel	ug/L	20	498.1000		495.5000		0.5		MS
Mercury	ug/L	20	3.7900		3.5800		5.7		CV
Potassium	ug/L	20	11260.0000		11200.0000		0.5		MS
Selenium	ug/L	20	1913.0000		1899.0000		0.7		MS
Silver	ug/L	20	73.5000		72.8600		0.9		MS
Sodium	ug/L	20	13520.0000		13500.0000		0.1		MS
Thallium	ug/L	20	1936.0000		1910.0000		1.4		MS
Vanadium	ug/L	20	284.1000		279.2000		1.7		MS
Zinc	ug/L	20	202.1000		205.6000		1.7		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-09 **Client ID:** 12MW01SD

Percent Solids for Sample: 0 **Duplicate ID** D1768-09D **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	ug/L	20	48.5400		50.1900		3.3		MS
Antimony	ug/L	20	0.2130	J	0.2470	J	14.8		MS
Arsenic	ug/L	20	0.1800	U	0.7350	J	200.0		MS
Barium	ug/L	20	110.9000		111.9000		0.9		MS
Beryllium	ug/L	20	0.0900	U	0.0900	U			MS
Cadmium	ug/L	20	0.1300	U	0.1300	U			MS
Calcium	ug/L	20	47260.0000		47370.0000		0.2		MS
Chromium	ug/L	20	2.8540		9.3760		106.7	*	MS
Cobalt	ug/L	20	2.4850		2.5840		3.9		MS
Copper	ug/L	20	1.3180	J	1.2400	J	6.1		MS
Iron	ug/L	20	377.3000		400.8000		6.0		MS
Lead	ug/L	20	0.2280	J	0.2390	J	4.7		MS
Magnesium	ug/L	20	12310.0000		12310.0000		0.0		MS
Manganese	ug/L	20	629.6000		629.7000		0.0		MS
Nickel	ug/L	20	5.4590		8.4080		42.5	*	MS
Mercury	ug/L	20	0.0915	U	0.0915	U			CV
Potassium	ug/L	20	1955.0000		1968.0000		0.7		MS
Selenium	ug/L	20	0.7000	U	0.7000	U			MS
Silver	ug/L	20	0.0300	U	0.0300	U			MS
Sodium	ug/L	20	11900.0000		11920.0000		0.2		MS
Thallium	ug/L	20	0.4230	J	0.3730	J	12.6		MS
Vanadium	ug/L	20	0.3200	J	0.1500	U	200.0		MS
Zinc	ug/L	20	19.6100		18.4100		6.3		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

12MW01SL

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG No.:** D1768

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	48.54		57.10	J	17.6	OK	MS
Antimony	0.21	J	0.70	U	100.0	OK	MS
Arsenic	0.18	U	0.90	U			MS
Barium	110.90		111.45		0.5		MS
Beryllium	0.09	U	0.45	U			MS
Cadmium	0.13	U	0.65	U			MS
Calcium	47260.00		47640.00		0.8		MS
Chromium	2.85		2.51	J	11.9		MS
Cobalt	2.49		2.48	J	0.4		MS
Copper	1.32	J	0.37	J	72.0	OK	MS
Iron	377.30		385.05	J	2.1		MS
Lead	0.23	J	0.20	U	100.0	OK	MS
Magnesium	12310.00		12680.00		3.0		MS
Manganese	629.60		640.00		1.7		MS
Nickel	5.46		4.73	J	13.4		MS
Mercury	0.09	U	0.46	U			CV
Potassium	1955.00		1965.00	J	0.5		MS
Selenium	0.70	U	3.50	U			MS
Silver	0.03	U	0.15	U			MS
Sodium	11900.00		12330.00		3.6		MS
Thallium	0.42	J	1.47	J	250.0	OK	MS
Vanadium	0.32	J	0.75	U	100.0	OK	MS
Zinc	19.61		17.72		9.6		MS

CHEMTECH

Metals
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MATRIX SPIKE SUMMARY

MF

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-22 **Client ID:** 12MW01SS

Percent Solids for Sample: 0 **Spiked ID:** D1768-23S **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	80 - 120	2030.0000		18.6100	J	2000.00	100.6		MS
Antimony	ug/L	87 - 120	772.4000		0.2480	J	800.00	96.5		MS
Arsenic	ug/L	90 - 119	780.1000		0.4380	J	800.00	97.5		MS
Barium	ug/L	80 - 120	304.2000		113.2000		200.00	95.5		MS
Beryllium	ug/L	87 - 118	185.1000		0.0900	U	200.00	92.6		MS
Cadmium	ug/L	92 - 113	195.1000		0.1300	U	200.00	97.6		MS
Calcium	ug/L	80 - 120	47470.0000		47030.0000		1000.00	44.0		MS
Chromium	ug/L	86 - 111	400.9000		2.6840		400.00	99.6		MS
Cobalt	ug/L	80 - 120	201.1000		2.6890		200.00	99.2		MS
Copper	ug/L	82 - 115	313.3000		1.1200	J	300.00	104.1		MS
Iron	ug/L	80 - 120	3280.0000		294.3000		3000.00	99.5		MS
Lead	ug/L	92 - 116	994.8000		0.1080	J	1000.00	99.5		MS
Magnesium	ug/L	80 - 120	13190.0000		12110.0000		2000.00	54.0		MS
Manganese	ug/L	80 - 120	837.0000		675.5000		200.00	80.8		MS
Nickel	ug/L	83 - 112	514.7000		6.5270		500.00	101.6		MS
Potassium	ug/L	80 - 120	11600.0000		1950.0000		10000.00	96.5		MS
Selenium	ug/L	80 - 120	1959.0000		0.7000	U	2000.00	98.0		MS
Silver	ug/L	80 - 120	75.2900		0.0300	U	75.00	100.4		MS
Sodium	ug/L	80 - 120	13740.0000		11930.0000		3000.00	60.3	N	MS
Thallium	ug/L	86 - 117	1969.0000		0.1480	J	2000.00	98.4		MS
Vanadium	ug/L	80 - 120	291.5000		0.1500	U	300.00	97.2		MS
Zinc	ug/L	80 - 120	217.2000		14.7800		200.00	101.2		MS

CHEMTECH

MF

Metals
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MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-22 **Client ID:** 12MW01SSD

Percent Solids for Sample: 0 **Spiked ID:** D1768-24SD **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	80 - 120	2012.0000		18.6100	J	2000.00	99.7		MS
Antimony	ug/L	87 - 120	773.5000		0.2480	J	800.00	96.7		MS
Arsenic	ug/L	90 - 119	776.8000		0.4380	J	800.00	97.0		MS
Barium	ug/L	80 - 120	304.6000		113.2000		200.00	95.7		MS
Beryllium	ug/L	87 - 118	184.2000		0.0900	U	200.00	92.1		MS
Cadmium	ug/L	92 - 113	196.2000		0.1300	U	200.00	98.1		MS
Calcium	ug/L	80 - 120	47030.0000		47030.0000		1000.00	0.0		MS
Chromium	ug/L	86 - 111	396.9000		2.6840		400.00	98.6		MS
Cobalt	ug/L	80 - 120	199.5000		2.6890		200.00	98.4		MS
Copper	ug/L	82 - 115	311.1000		1.1200	J	300.00	103.3		MS
Iron	ug/L	80 - 120	3281.0000		294.3000		3000.00	99.6		MS
Lead	ug/L	92 - 116	997.3000		0.1080	J	1000.00	99.7		MS
Magnesium	ug/L	80 - 120	13160.0000		12110.0000		2000.00	52.5		MS
Manganese	ug/L	80 - 120	831.0000		675.5000		200.00	77.8	N	MS
Nickel	ug/L	83 - 112	509.4000		6.5270		500.00	100.6		MS
Potassium	ug/L	80 - 120	11420.0000		1950.0000		10000.00	94.7		MS
Selenium	ug/L	80 - 120	1957.0000		0.7000	U	2000.00	97.8		MS
Silver	ug/L	80 - 120	75.6600		0.0300	U	75.00	100.9		MS
Sodium	ug/L	80 - 120	13670.0000		11930.0000		3000.00	58.0	N	MS
Thallium	ug/L	86 - 117	1967.0000		0.1480	J	2000.00	98.3		MS
Vanadium	ug/L	80 - 120	290.4000		0.1500	U	300.00	96.8		MS
Zinc	ug/L	80 - 120	211.2000		14.7800		200.00	98.2		MS

CHEMTECH

Metals
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POST DIGEST SPIKE SUMMARY

MF

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Level:** LOW **Client ID:** 12MW01SA

Sample ID: D1768-22 **Spiked ID:** D1768-22A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Manganese	ug/L	80 - 120	859.70		675.50		200.0	92.1		MS
Sodium	ug/L	80 - 120	13750.00		11930.00		3000.0	60.7		MS

CHEMTECH

Metals

MF

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-22 **Client ID:** 12MW01SSD

Percent Solids for Sample: 0 **Duplicate ID** D1768-24SD **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	ug/L	20	2030.0000		2012.0000		0.9		MS
Antimony	ug/L	20	772.4000		773.5000		0.1		MS
Arsenic	ug/L	20	780.1000		776.8000		0.4		MS
Barium	ug/L	20	304.2000		304.6000		0.1		MS
Beryllium	ug/L	20	185.1000		184.2000		0.5		MS
Cadmium	ug/L	20	195.1000		196.2000		0.6		MS
Calcium	ug/L	20	47470.0000		47030.0000		0.9		MS
Chromium	ug/L	20	400.9000		396.9000		1.0		MS
Cobalt	ug/L	20	201.1000		199.5000		0.8		MS
Copper	ug/L	20	313.3000		311.1000		0.7		MS
Iron	ug/L	20	3280.0000		3281.0000		0.0		MS
Lead	ug/L	20	994.8000		997.3000		0.3		MS
Magnesium	ug/L	20	13190.0000		13160.0000		0.2		MS
Manganese	ug/L	20	837.0000		831.0000		0.7		MS
Nickel	ug/L	20	514.7000		509.4000		1.0		MS
Potassium	ug/L	20	11600.0000		11420.0000		1.6		MS
Selenium	ug/L	20	1959.0000		1957.0000		0.1		MS
Silver	ug/L	20	75.2900		75.6600		0.5		MS
Sodium	ug/L	20	13740.0000		13670.0000		0.5		MS
Thallium	ug/L	20	1969.0000		1967.0000		0.1		MS
Vanadium	ug/L	20	291.5000		290.4000		0.4		MS
Zinc	ug/L	20	217.2000		211.2000		2.8		MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

MF

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Matrix: WATER **Sample ID:** D1768-22 **Client ID:** 12MW01SD

Percent Solids for Sample: 0 **Duplicate ID** D1768-22D **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	ug/L	20	18.6100	J	18.7400	J	0.7		MS
Antimony	ug/L	20	0.2480	J	0.2530	J	2.0		MS
Arsenic	ug/L	20	0.4380	J	0.1800	U	200.0		MS
Barium	ug/L	20	113.2000		113.7000		0.4		MS
Beryllium	ug/L	20	0.0900	U	0.0900	U			MS
Cadmium	ug/L	20	0.1300	U	0.1300	U			MS
Calcium	ug/L	20	47030.0000		47160.0000		0.3		MS
Chromium	ug/L	20	2.6840		2.8200		4.9		MS
Cobalt	ug/L	20	2.6890		2.7030		0.5		MS
Copper	ug/L	20	1.1200	J	1.3110	J	15.7		MS
Iron	ug/L	20	294.3000		288.9000		1.9		MS
Lead	ug/L	20	0.1080	J	0.2110	J	64.6 JK		MS
Magnesium	ug/L	20	12110.0000		12230.0000		1.0		MS
Manganese	ug/L	20	675.5000		682.7000		1.1		MS
Nickel	ug/L	20	6.5270		5.7310		13.0		MS
Potassium	ug/L	20	1950.0000		1961.0000		0.6		MS
Selenium	ug/L	20	0.7000	U	0.7000	U			MS
Silver	ug/L	20	0.0300	U	0.0300	U			MS
Sodium	ug/L	20	11930.0000		12050.0000		1.0		MS
Thallium	ug/L	20	0.1480	J	0.1440	J	2.7		MS
Vanadium	ug/L	20	0.1500	U	0.1500	U			MS
Zinc	ug/L	20	14.7800		19.6000		28.0	*	MS

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

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ICP SERIAL DILUTIONS MF

SAMPLE NO.

12MW01SL

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG No.:** D1768

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	18.61	J	31.29	J	68.1	OK	MS
Antimony	0.25	J	0.70	U	100.0	OK	MS
Arsenic	0.44	J	0.90	U	100.0	OK	MS
Barium	113.20		112.50		0.6		MS
Beryllium	0.09	U	0.45	U			MS
Cadmium	0.13	U	0.65	U			MS
Calcium	47030.00		47420.00		0.8		MS
Chromium	2.68		2.66	J	0.7		MS
Cobalt	2.69		2.65	J	1.5		MS
Copper	1.12	J	0.52	J	53.6	OK	MS
Iron	294.30		306.40	J	4.1		MS
Lead	0.11	J	0.21	J	90.9	OK	MS
Magnesium	12110.00		12610.00		4.1		MS
Manganese	675.50		689.00		2.0		MS
Nickel	6.53		6.71		2.8		MS
Potassium	1950.00		1980.50	J	1.6		MS
Selenium	0.70	U	3.50	U			MS
Silver	0.03	U	0.15	U			MS
Sodium	11930.00		12385.00		3.8		MS
Thallium	0.15	J	0.58	J	286.7	OK	MS
Vanadium	0.15	U	0.75	U			MS
Zinc	14.78		12.15		17.8		MS

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB61677BS							
Mercury	ug/L	4.000	3.650		91.2	80 - 120	CV

LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB61690BS							
Aluminum	ug/L	2000.0	1982.00		99.1	92 - 120	MS
Antimony	ug/L	800.0	768.10		96.0	89 - 118	MS
Arsenic	ug/L	800.0	786.50		98.3	80 - 120	MS
Barium	ug/L	200.0	200.30		100.2	89 - 118	MS
Beryllium	ug/L	200.0	187.40		93.7	90 - 113	MS
Cadmium	ug/L	200.0	202.10		101.0	90 - 115	MS
Calcium	ug/L	1000.0	1062.00		106.2	80 - 120	MS
Chromium	ug/L	400.0	416.60		104.2	80 - 120	MS
Cobalt	ug/L	200.0	209.20		104.6	80 - 120	MS
Copper	ug/L	300.0	328.00		109.3	92 - 120	MS
Iron	ug/L	3000.0	3190.00		106.3	80 - 120	MS
Lead	ug/L	1000.0	1021.00		102.1	80 - 120	MS
Magnesium	ug/L	2000.0	2009.00		100.4	80 - 120	MS
Manganese	ug/L	200.0	216.00		108.0	80 - 120	MS
Nickel	ug/L	500.0	535.50		107.1	84 - 120	MS
Potassium	ug/L	10000.0	10300.00		103.0	80 - 120	MS
Selenium	ug/L	2000.0	1975.00		98.8	80 - 120	MS
Silver	ug/L	75.0	77.14		102.9	90 - 119	MS
Sodium	ug/L	3000.0	3011.00		100.4	80 - 120	MS
Thallium	ug/L	2000.0	2057.00		102.8	88 - 113	MS
Vanadium	ug/L	300.0	306.40		102.1	80 - 120	MS
Zinc	ug/L	200.0	214.70		107.4	82 - 119	MS

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG No.:** D1768

Instrument ID Number: CV2 **Method:** CV **Run Number:** LB59716

Start Date: 03/14/2012 **End Date:** 03/14/2012

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Std01Rep1	1	1235																X								
Std02Rep1	1	1238																X								
Std03Rep1	1	1240																X								
Std04Rep1	1	1242																X								
Std05Rep1	1	1244																X								
Std06Rep1	1	1247																X								
ICV01	1	1250																X								
ICB01	1	1252																X								
CCV01	1	1254																X								
CCB01	1	1256																X								
CRI01	1	1258																X								
PB61677BL	1	1305																X								
PB61677BS	1	1307																X								
12MW010	1	1310																X								
12MW01S	1	1312																X								
12MW01SD	1	1316																X								
CCV02	1	1318																X								
CCB02	1	1320																X								
12MW01SL	5	1323																X								
12MW01SS	1	1325																X								
12MW01SSD	1	1327																X								
12MW01SA	1	1330																								
12MW020	1	1332																X								
12MW02S	1	1334																X								
12MW030	1	1337																X								
12MW03S	1	1340																X								
CCV03	1	1342																X								
CCB03	1	1344																X								
12MW040	1	1346																X								
12MW04S	1	1348																X								
12RB01	1	1350																X								
12GW-DUP01	1	1352																X								
CCV04	1	1415																X								
CCB04	1	1421																X								
CCV05	1	1437																X								
CCB05	1	1441																X								

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG No.:** D1768

Instrument ID Number: P6 **Method:** MS **Run Number:** LB59713

Start Date: 03/14/2012 **End Date:** 03/15/2012

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	1223		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S1	1	1231		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S2	1	1239		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S3	1	1247		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S4	1	1255		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S5	1	1303		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV01	1	1333		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICB01	1	1341		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSA01	1	1349		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB01	1	1357		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV01	1	1421		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB01	1	1429		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI01	1	1437		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV02	1	1558		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB02	1	1606		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV03	1	1734		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB03	1	1742		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV04	1	1911		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB04	1	1919		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV05	1	2048		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB05	1	2056		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB61690BL	1	2112		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PB61690BS	1	2128		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV06	1	2225		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB06	1	2233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV07	1	0002		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB07	1	0010		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV08	1	0139		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB08	1	0147		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW010	1	0244		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01S	1	0252		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SD	1	0300		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SL	5	0308		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV09	1	0316		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB09	1	0324		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SS	1	0348		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SSD	1	0357		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SA	1	0405																					X				
12MW020	1	0413		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW02S	1	0421		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW030	1	0429		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

Metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab Code: CHEM **Case No.:** D1768 **SAS No.:** D1768 **SDG No.:** D1768

Instrument ID Number: P6 **Method:** MS **Run Number:** LB59713

Start Date: 03/14/2012 **End Date:** 03/15/2012

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV10	1	0453		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB10	1	0502		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW03S	1	0510		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW040	1	0518		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW04S	1	0526		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12RB01	1	0534		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12GW-DUP01	1	0542		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW030	1	0550		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW040	1	0558		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01S	1	0606		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SD	1	0615		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SL	5	0623		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV11	1	0631		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB11	1	0639		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SS	1	0647		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SSD	1	0655		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
12MW01SA	1	0703															X						X				
12RB01	1	0711		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV12	1	0808		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB12	1	0816		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV13	1	0930		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB13	1	0938		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCV14	1	1105		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB14	1	1113		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	4.19	4.0	104.8	90 - 110	CV	03/14/2012	12:50	LB59716
CCV01	Mercury	5.05	5.0	101.0	90 - 110	CV	03/14/2012	12:54	LB59716
CCV02	Mercury	4.98	5.0	99.6	90 - 110	CV	03/14/2012	13:18	LB59716
CCV03	Mercury	4.82	5.0	96.4	90 - 110	CV	03/14/2012	13:42	LB59716
CCV04	Mercury	4.76	5.0	95.2	90 - 110	CV	03/14/2012	14:15	LB59716
CCV05	Mercury	4.91	5.0	98.2	90 - 110	CV	03/14/2012	14:37	LB59716

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	536.90	504.0	106.5	90 - 110	MS	03/14/2012	13:33	LB59713
	Antimony	181.80	199.0	91.4	90 - 110	MS	03/14/2012	13:33	LB59713
	Arsenic	184.00	200.0	92.0	90 - 110	MS	03/14/2012	13:33	LB59713
	Barium	95.93	99.0	96.9	90 - 110	MS	03/14/2012	13:33	LB59713
	Beryllium	93.77	99.0	94.7	90 - 110	MS	03/14/2012	13:33	LB59713
	Cadmium	96.75	99.0	97.7	90 - 110	MS	03/14/2012	13:33	LB59713
	Calcium	2048.00	2005.0	102.1	90 - 110	MS	03/14/2012	13:33	LB59713
	Chromium	94.59	98.0	96.5	90 - 110	MS	03/14/2012	13:33	LB59713
	Cobalt	96.63	100.0	96.6	90 - 110	MS	03/14/2012	13:33	LB59713
	Copper	99.80	98.0	101.8	90 - 110	MS	03/14/2012	13:33	LB59713
	Iron	1003.00	1016.0	98.7	90 - 110	MS	03/14/2012	13:33	LB59713
	Lead	191.80	200.0	95.9	90 - 110	MS	03/14/2012	13:33	LB59713
	Magnesium	1237.00	1215.0	101.8	90 - 110	MS	03/14/2012	13:33	LB59713
	Manganese	100.90	100.0	100.9	90 - 110	MS	03/14/2012	13:33	LB59713
	Nickel	98.74	101.0	97.8	90 - 110	MS	03/14/2012	13:33	LB59713
	Potassium	1949.00	2004.0	97.3	90 - 110	MS	03/14/2012	13:33	LB59713
	Selenium	186.60	206.0	90.6	90 - 110	MS	03/14/2012	13:33	LB59713
	Silver	95.74	100.0	95.7	90 - 110	MS	03/14/2012	13:33	LB59713
	Sodium	1941.00	2019.0	96.1	90 - 110	MS	03/14/2012	13:33	LB59713
	Thallium	194.50	206.0	94.4	90 - 110	MS	03/14/2012	13:33	LB59713
	Vanadium	93.62	100.0	93.6	90 - 110	MS	03/14/2012	13:33	LB59713
	Zinc	196.40	205.0	95.8	90 - 110	MS	03/14/2012	13:33	LB59713
CCV01	Aluminum	10220.00	10000.0	102.2	90 - 110	MS	03/14/2012	14:21	LB59713
	Antimony	489.40	500.0	97.9	90 - 110	MS	03/14/2012	14:21	LB59713
	Arsenic	494.10	500.0	98.8	90 - 110	MS	03/14/2012	14:21	LB59713
	Barium	2467.00	2500.0	98.7	90 - 110	MS	03/14/2012	14:21	LB59713
	Beryllium	509.80	500.0	102.0	90 - 110	MS	03/14/2012	14:21	LB59713
	Cadmium	492.80	500.0	98.6	90 - 110	MS	03/14/2012	14:21	LB59713
	Calcium	50240.00	50000.0	100.5	90 - 110	MS	03/14/2012	14:21	LB59713
	Chromium	497.90	500.0	99.6	90 - 110	MS	03/14/2012	14:21	LB59713
	Cobalt	505.30	500.0	101.1	90 - 110	MS	03/14/2012	14:21	LB59713
	Copper	1015.00	1000.0	101.5	90 - 110	MS	03/14/2012	14:21	LB59713
	Iron	25740.00	25000.0	103.0	90 - 110	MS	03/14/2012	14:21	LB59713
	Lead	504.90	500.0	101.0	90 - 110	MS	03/14/2012	14:21	LB59713
	Magnesium	51040.00	50000.0	102.1	90 - 110	MS	03/14/2012	14:21	LB59713

CHEMTECH

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Manganese	987.30	1000.0	98.7	90 - 110	MS	03/14/2012	14:21	LB59713
	Nickel	508.50	500.0	101.7	90 - 110	MS	03/14/2012	14:21	LB59713
	Potassium	25130.00	25000.0	100.5	90 - 110	MS	03/14/2012	14:21	LB59713
	Selenium	503.60	500.0	100.7	90 - 110	MS	03/14/2012	14:21	LB59713
	Silver	496.30	500.0	99.3	90 - 110	MS	03/14/2012	14:21	LB59713
	Sodium	49990.00	50000.0	100.0	90 - 110	MS	03/14/2012	14:21	LB59713
	Thallium	500.50	500.0	100.1	90 - 110	MS	03/14/2012	14:21	LB59713
	Vanadium	495.30	500.0	99.1	90 - 110	MS	03/14/2012	14:21	LB59713
	Zinc	991.10	1000.0	99.1	90 - 110	MS	03/14/2012	14:21	LB59713
CCV02	Aluminum	9826.00	10000.0	98.3	90 - 110	MS	03/14/2012	15:58	LB59713
	Antimony	487.80	500.0	97.6	90 - 110	MS	03/14/2012	15:58	LB59713
	Arsenic	496.10	500.0	99.2	90 - 110	MS	03/14/2012	15:58	LB59713
	Barium	2474.00	2500.0	99.0	90 - 110	MS	03/14/2012	15:58	LB59713
	Beryllium	502.30	500.0	100.5	90 - 110	MS	03/14/2012	15:58	LB59713
	Cadmium	498.30	500.0	99.7	90 - 110	MS	03/14/2012	15:58	LB59713
	Calcium	50710.00	50000.0	101.4	90 - 110	MS	03/14/2012	15:58	LB59713
	Chromium	504.30	500.0	100.9	90 - 110	MS	03/14/2012	15:58	LB59713
	Cobalt	509.40	500.0	101.9	90 - 110	MS	03/14/2012	15:58	LB59713
	Copper	1021.00	1000.0	102.1	90 - 110	MS	03/14/2012	15:58	LB59713
	Iron	25980.00	25000.0	103.9	90 - 110	MS	03/14/2012	15:58	LB59713
	Lead	504.20	500.0	100.8	90 - 110	MS	03/14/2012	15:58	LB59713
	Magnesium	49900.00	50000.0	99.8	90 - 110	MS	03/14/2012	15:58	LB59713
	Manganese	1007.00	1000.0	100.7	90 - 110	MS	03/14/2012	15:58	LB59713
	Nickel	514.20	500.0	102.8	90 - 110	MS	03/14/2012	15:58	LB59713
	Potassium	25430.00	25000.0	101.7	90 - 110	MS	03/14/2012	15:58	LB59713
	Selenium	501.80	500.0	100.4	90 - 110	MS	03/14/2012	15:58	LB59713
	Silver	482.90	500.0	96.6	90 - 110	MS	03/14/2012	15:58	LB59713
	Sodium	50590.00	50000.0	101.2	90 - 110	MS	03/14/2012	15:58	LB59713
	Thallium	506.00	500.0	101.2	90 - 110	MS	03/14/2012	15:58	LB59713
	Vanadium	503.20	500.0	100.6	90 - 110	MS	03/14/2012	15:58	LB59713
	Zinc	997.90	1000.0	99.8	90 - 110	MS	03/14/2012	15:58	LB59713
CCV03	Aluminum	9664.00	10000.0	96.6	90 - 110	MS	03/14/2012	17:34	LB59713
	Antimony	489.30	500.0	97.9	90 - 110	MS	03/14/2012	17:34	LB59713
	Arsenic	497.30	500.0	99.5	90 - 110	MS	03/14/2012	17:34	LB59713
	Barium	2489.00	2500.0	99.6	90 - 110	MS	03/14/2012	17:34	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Beryllium	508.70	500.0	101.7	90 - 110	MS	03/14/2012	17:34	LB59713
	Cadmium	498.50	500.0	99.7	90 - 110	MS	03/14/2012	17:34	LB59713
	Calcium	50990.00	50000.0	102.0	90 - 110	MS	03/14/2012	17:34	LB59713
	Chromium	510.60	500.0	102.1	90 - 110	MS	03/14/2012	17:34	LB59713
	Cobalt	512.00	500.0	102.4	90 - 110	MS	03/14/2012	17:34	LB59713
	Copper	1027.00	1000.0	102.7	90 - 110	MS	03/14/2012	17:34	LB59713
	Iron	26220.00	25000.0	104.9	90 - 110	MS	03/14/2012	17:34	LB59713
	Lead	508.10	500.0	101.6	90 - 110	MS	03/14/2012	17:34	LB59713
	Magnesium	49870.00	50000.0	99.7	90 - 110	MS	03/14/2012	17:34	LB59713
	Manganese	1029.00	1000.0	102.9	90 - 110	MS	03/14/2012	17:34	LB59713
	Nickel	516.30	500.0	103.3	90 - 110	MS	03/14/2012	17:34	LB59713
	Potassium	25800.00	25000.0	103.2	90 - 110	MS	03/14/2012	17:34	LB59713
	Selenium	497.70	500.0	99.5	90 - 110	MS	03/14/2012	17:34	LB59713
	Silver	485.10	500.0	97.0	90 - 110	MS	03/14/2012	17:34	LB59713
	Sodium	51830.00	50000.0	103.7	90 - 110	MS	03/14/2012	17:34	LB59713
	Thallium	510.70	500.0	102.1	90 - 110	MS	03/14/2012	17:34	LB59713
	Vanadium	505.50	500.0	101.1	90 - 110	MS	03/14/2012	17:34	LB59713
	Zinc	1011.00	1000.0	101.1	90 - 110	MS	03/14/2012	17:34	LB59713
CCV04	Aluminum	10080.00	10000.0	100.8	90 - 110	MS	03/14/2012	19:11	LB59713
	Antimony	488.20	500.0	97.6	90 - 110	MS	03/14/2012	19:11	LB59713
	Arsenic	496.70	500.0	99.3	90 - 110	MS	03/14/2012	19:11	LB59713
	Barium	2471.00	2500.0	98.8	90 - 110	MS	03/14/2012	19:11	LB59713
	Beryllium	511.10	500.0	102.2	90 - 110	MS	03/14/2012	19:11	LB59713
	Cadmium	495.50	500.0	99.1	90 - 110	MS	03/14/2012	19:11	LB59713
	Calcium	51570.00	50000.0	103.1	90 - 110	MS	03/14/2012	19:11	LB59713
	Chromium	506.80	500.0	101.4	90 - 110	MS	03/14/2012	19:11	LB59713
	Cobalt	513.20	500.0	102.6	90 - 110	MS	03/14/2012	19:11	LB59713
	Copper	1033.00	1000.0	103.3	90 - 110	MS	03/14/2012	19:11	LB59713
	Iron	26030.00	25000.0	104.1	90 - 110	MS	03/14/2012	19:11	LB59713
	Lead	508.20	500.0	101.6	90 - 110	MS	03/14/2012	19:11	LB59713
	Magnesium	51010.00	50000.0	102.0	90 - 110	MS	03/14/2012	19:11	LB59713
	Manganese	1022.00	1000.0	102.2	90 - 110	MS	03/14/2012	19:11	LB59713
	Nickel	519.80	500.0	104.0	90 - 110	MS	03/14/2012	19:11	LB59713
	Potassium	25880.00	25000.0	103.5	90 - 110	MS	03/14/2012	19:11	LB59713
	Selenium	500.70	500.0	100.1	90 - 110	MS	03/14/2012	19:11	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Silver	473.10	500.0	94.6	90 - 110	MS	03/14/2012	19:11	LB59713
	Sodium	51440.00	50000.0	102.9	90 - 110	MS	03/14/2012	19:11	LB59713
	Thallium	513.10	500.0	102.6	90 - 110	MS	03/14/2012	19:11	LB59713
	Vanadium	507.90	500.0	101.6	90 - 110	MS	03/14/2012	19:11	LB59713
	Zinc	998.40	1000.0	99.8	90 - 110	MS	03/14/2012	19:11	LB59713
CCV05	Aluminum	10110.00	10000.0	101.1	90 - 110	MS	03/14/2012	20:48	LB59713
	Antimony	488.50	500.0	97.7	90 - 110	MS	03/14/2012	20:48	LB59713
	Arsenic	496.30	500.0	99.3	90 - 110	MS	03/14/2012	20:48	LB59713
	Barium	2472.00	2500.0	98.9	90 - 110	MS	03/14/2012	20:48	LB59713
	Beryllium	519.30	500.0	103.9	90 - 110	MS	03/14/2012	20:48	LB59713
	Cadmium	497.90	500.0	99.6	90 - 110	MS	03/14/2012	20:48	LB59713
	Calcium	50470.00	50000.0	100.9	90 - 110	MS	03/14/2012	20:48	LB59713
	Chromium	509.90	500.0	102.0	90 - 110	MS	03/14/2012	20:48	LB59713
	Cobalt	516.00	500.0	103.2	90 - 110	MS	03/14/2012	20:48	LB59713
	Copper	1038.00	1000.0	103.8	90 - 110	MS	03/14/2012	20:48	LB59713
	Iron	26330.00	25000.0	105.3	90 - 110	MS	03/14/2012	20:48	LB59713
	Lead	512.70	500.0	102.5	90 - 110	MS	03/14/2012	20:48	LB59713
	Magnesium	51630.00	50000.0	103.3	90 - 110	MS	03/14/2012	20:48	LB59713
	Manganese	1028.00	1000.0	102.8	90 - 110	MS	03/14/2012	20:48	LB59713
	Nickel	521.20	500.0	104.2	90 - 110	MS	03/14/2012	20:48	LB59713
	Potassium	25920.00	25000.0	103.7	90 - 110	MS	03/14/2012	20:48	LB59713
	Selenium	501.50	500.0	100.3	90 - 110	MS	03/14/2012	20:48	LB59713
	Silver	471.30	500.0	94.3	90 - 110	MS	03/14/2012	20:48	LB59713
	Sodium	51990.00	50000.0	104.0	90 - 110	MS	03/14/2012	20:48	LB59713
	Thallium	511.70	500.0	102.3	90 - 110	MS	03/14/2012	20:48	LB59713
	Vanadium	509.90	500.0	102.0	90 - 110	MS	03/14/2012	20:48	LB59713
	Zinc	1011.00	1000.0	101.1	90 - 110	MS	03/14/2012	20:48	LB59713
CCV06	Aluminum	9982.00	10000.0	99.8	90 - 110	MS	03/14/2012	22:25	LB59713
	Antimony	496.00	500.0	99.2	90 - 110	MS	03/14/2012	22:25	LB59713
	Arsenic	497.80	500.0	99.6	90 - 110	MS	03/14/2012	22:25	LB59713
	Barium	2458.00	2500.0	98.3	90 - 110	MS	03/14/2012	22:25	LB59713
	Beryllium	516.60	500.0	103.3	90 - 110	MS	03/14/2012	22:25	LB59713
	Cadmium	499.60	500.0	99.9	90 - 110	MS	03/14/2012	22:25	LB59713
	Calcium	50630.00	50000.0	101.3	90 - 110	MS	03/14/2012	22:25	LB59713
	Chromium	514.00	500.0	102.8	90 - 110	MS	03/14/2012	22:25	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cobalt	516.10	500.0	103.2	90 - 110	MS	03/14/2012	22:25	LB59713
	Copper	1036.00	1000.0	103.6	90 - 110	MS	03/14/2012	22:25	LB59713
	Iron	26270.00	25000.0	105.1	90 - 110	MS	03/14/2012	22:25	LB59713
	Lead	510.10	500.0	102.0	90 - 110	MS	03/14/2012	22:25	LB59713
	Magnesium	51350.00	50000.0	102.7	90 - 110	MS	03/14/2012	22:25	LB59713
	Manganese	1049.00	1000.0	104.9	90 - 110	MS	03/14/2012	22:25	LB59713
	Nickel	521.50	500.0	104.3	90 - 110	MS	03/14/2012	22:25	LB59713
	Potassium	26120.00	25000.0	104.5	90 - 110	MS	03/14/2012	22:25	LB59713
	Selenium	500.00	500.0	100.0	90 - 110	MS	03/14/2012	22:25	LB59713
	Silver	506.30	500.0	101.3	90 - 110	MS	03/14/2012	22:25	LB59713
	Sodium	52160.00	50000.0	104.3	90 - 110	MS	03/14/2012	22:25	LB59713
	Thallium	509.00	500.0	101.8	90 - 110	MS	03/14/2012	22:25	LB59713
	Vanadium	509.50	500.0	101.9	90 - 110	MS	03/14/2012	22:25	LB59713
	Zinc	1015.00	1000.0	101.5	90 - 110	MS	03/14/2012	22:25	LB59713
CCV07	Aluminum	9962.00	10000.0	99.6	90 - 110	MS	03/15/2012	00:02	LB59713
	Antimony	486.80	500.0	97.4	90 - 110	MS	03/15/2012	00:02	LB59713
	Arsenic	489.30	500.0	97.9	90 - 110	MS	03/15/2012	00:02	LB59713
	Barium	2412.00	2500.0	96.5	90 - 110	MS	03/15/2012	00:02	LB59713
	Beryllium	514.10	500.0	102.8	90 - 110	MS	03/15/2012	00:02	LB59713
	Cadmium	492.90	500.0	98.6	90 - 110	MS	03/15/2012	00:02	LB59713
	Calcium	49780.00	50000.0	99.6	90 - 110	MS	03/15/2012	00:02	LB59713
	Chromium	506.60	500.0	101.3	90 - 110	MS	03/15/2012	00:02	LB59713
	Cobalt	511.30	500.0	102.3	90 - 110	MS	03/15/2012	00:02	LB59713
	Copper	1026.00	1000.0	102.6	90 - 110	MS	03/15/2012	00:02	LB59713
	Iron	26200.00	25000.0	104.8	90 - 110	MS	03/15/2012	00:02	LB59713
	Lead	506.10	500.0	101.2	90 - 110	MS	03/15/2012	00:02	LB59713
	Magnesium	50830.00	50000.0	101.7	90 - 110	MS	03/15/2012	00:02	LB59713
	Manganese	1031.00	1000.0	103.1	90 - 110	MS	03/15/2012	00:02	LB59713
	Nickel	513.80	500.0	102.8	90 - 110	MS	03/15/2012	00:02	LB59713
	Potassium	25600.00	25000.0	102.4	90 - 110	MS	03/15/2012	00:02	LB59713
	Selenium	494.10	500.0	98.8	90 - 110	MS	03/15/2012	00:02	LB59713
	Silver	496.60	500.0	99.3	90 - 110	MS	03/15/2012	00:02	LB59713
	Sodium	51060.00	50000.0	102.1	90 - 110	MS	03/15/2012	00:02	LB59713
	Thallium	507.30	500.0	101.5	90 - 110	MS	03/15/2012	00:02	LB59713
	Vanadium	504.20	500.0	100.8	90 - 110	MS	03/15/2012	00:02	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Zinc	1006.00	1000.0	100.6	90 - 110	MS	03/15/2012	00:02	LB59713
CCV08	Aluminum	10180.00	10000.0	101.8	90 - 110	MS	03/15/2012	01:39	LB59713
	Antimony	487.00	500.0	97.4	90 - 110	MS	03/15/2012	01:39	LB59713
	Arsenic	495.20	500.0	99.0	90 - 110	MS	03/15/2012	01:39	LB59713
	Barium	2423.00	2500.0	96.9	90 - 110	MS	03/15/2012	01:39	LB59713
	Beryllium	526.50	500.0	105.3	90 - 110	MS	03/15/2012	01:39	LB59713
	Cadmium	495.40	500.0	99.1	90 - 110	MS	03/15/2012	01:39	LB59713
	Calcium	50280.00	50000.0	100.6	90 - 110	MS	03/15/2012	01:39	LB59713
	Chromium	510.10	500.0	102.0	90 - 110	MS	03/15/2012	01:39	LB59713
	Cobalt	518.50	500.0	103.7	90 - 110	MS	03/15/2012	01:39	LB59713
	Copper	1036.00	1000.0	103.6	90 - 110	MS	03/15/2012	01:39	LB59713
	Iron	26350.00	25000.0	105.4	90 - 110	MS	03/15/2012	01:39	LB59713
	Lead	511.60	500.0	102.3	90 - 110	MS	03/15/2012	01:39	LB59713
	Magnesium	51940.00	50000.0	103.9	90 - 110	MS	03/15/2012	01:39	LB59713
	Manganese	1038.00	1000.0	103.8	90 - 110	MS	03/15/2012	01:39	LB59713
	Nickel	524.30	500.0	104.9	90 - 110	MS	03/15/2012	01:39	LB59713
	Potassium	25820.00	25000.0	103.3	90 - 110	MS	03/15/2012	01:39	LB59713
	Selenium	498.70	500.0	99.7	90 - 110	MS	03/15/2012	01:39	LB59713
	Silver	502.00	500.0	100.4	90 - 110	MS	03/15/2012	01:39	LB59713
	Sodium	51780.00	50000.0	103.6	90 - 110	MS	03/15/2012	01:39	LB59713
	Thallium	509.40	500.0	101.9	90 - 110	MS	03/15/2012	01:39	LB59713
	Vanadium	509.50	500.0	101.9	90 - 110	MS	03/15/2012	01:39	LB59713
	Zinc	1014.00	1000.0	101.4	90 - 110	MS	03/15/2012	01:39	LB59713
CCV09	Aluminum	10330.00	10000.0	103.3	90 - 110	MS	03/15/2012	03:16	LB59713
	Antimony	488.80	500.0	97.8	90 - 110	MS	03/15/2012	03:16	LB59713
	Arsenic	495.70	500.0	99.1	90 - 110	MS	03/15/2012	03:16	LB59713
	Barium	2437.00	2500.0	97.5	90 - 110	MS	03/15/2012	03:16	LB59713
	Beryllium	531.00	500.0	106.2	90 - 110	MS	03/15/2012	03:16	LB59713
	Cadmium	496.20	500.0	99.2	90 - 110	MS	03/15/2012	03:16	LB59713
	Calcium	50190.00	50000.0	100.4	90 - 110	MS	03/15/2012	03:16	LB59713
	Chromium	510.40	500.0	102.1	90 - 110	MS	03/15/2012	03:16	LB59713
	Cobalt	514.50	500.0	102.9	90 - 110	MS	03/15/2012	03:16	LB59713
	Copper	1032.00	1000.0	103.2	90 - 110	MS	03/15/2012	03:16	LB59713
	Iron	26130.00	25000.0	104.5	90 - 110	MS	03/15/2012	03:16	LB59713
	Lead	508.60	500.0	101.7	90 - 110	MS	03/15/2012	03:16	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Magnesium	52360.00	50000.0	104.7	90 - 110	MS	03/15/2012	03:16	LB59713
	Manganese	1039.00	1000.0	103.9	90 - 110	MS	03/15/2012	03:16	LB59713
	Nickel	516.90	500.0	103.4	90 - 110	MS	03/15/2012	03:16	LB59713
	Potassium	25690.00	25000.0	102.8	90 - 110	MS	03/15/2012	03:16	LB59713
	Selenium	497.50	500.0	99.5	90 - 110	MS	03/15/2012	03:16	LB59713
	Silver	503.60	500.0	100.7	90 - 110	MS	03/15/2012	03:16	LB59713
	Sodium	51340.00	50000.0	102.7	90 - 110	MS	03/15/2012	03:16	LB59713
	Thallium	509.70	500.0	101.9	90 - 110	MS	03/15/2012	03:16	LB59713
	Vanadium	509.30	500.0	101.9	90 - 110	MS	03/15/2012	03:16	LB59713
	Zinc	1006.00	1000.0	100.6	90 - 110	MS	03/15/2012	03:16	LB59713
CCV10	Aluminum	10300.00	10000.0	103.0	90 - 110	MS	03/15/2012	04:53	LB59713
	Antimony	494.30	500.0	98.9	90 - 110	MS	03/15/2012	04:53	LB59713
	Arsenic	500.10	500.0	100.0	90 - 110	MS	03/15/2012	04:53	LB59713
	Barium	2447.00	2500.0	97.9	90 - 110	MS	03/15/2012	04:53	LB59713
	Beryllium	528.00	500.0	105.6	90 - 110	MS	03/15/2012	04:53	LB59713
	Cadmium	499.80	500.0	100.0	90 - 110	MS	03/15/2012	04:53	LB59713
	Calcium	50660.00	50000.0	101.3	90 - 110	MS	03/15/2012	04:53	LB59713
	Chromium	513.50	500.0	102.7	90 - 110	MS	03/15/2012	04:53	LB59713
	Cobalt	515.40	500.0	103.1	90 - 110	MS	03/15/2012	04:53	LB59713
	Copper	1040.00	1000.0	104.0	90 - 110	MS	03/15/2012	04:53	LB59713
	Iron	26210.00	25000.0	104.8	90 - 110	MS	03/15/2012	04:53	LB59713
	Lead	511.40	500.0	102.3	90 - 110	MS	03/15/2012	04:53	LB59713
	Magnesium	52100.00	50000.0	104.2	90 - 110	MS	03/15/2012	04:53	LB59713
	Manganese	1039.00	1000.0	103.9	90 - 110	MS	03/15/2012	04:53	LB59713
	Nickel	520.60	500.0	104.1	90 - 110	MS	03/15/2012	04:53	LB59713
	Potassium	25860.00	25000.0	103.4	90 - 110	MS	03/15/2012	04:53	LB59713
	Selenium	505.50	500.0	101.1	90 - 110	MS	03/15/2012	04:53	LB59713
	Silver	507.80	500.0	101.6	90 - 110	MS	03/15/2012	04:53	LB59713
	Sodium	51820.00	50000.0	103.6	90 - 110	MS	03/15/2012	04:53	LB59713
	Thallium	511.00	500.0	102.2	90 - 110	MS	03/15/2012	04:53	LB59713
	Vanadium	510.00	500.0	102.0	90 - 110	MS	03/15/2012	04:53	LB59713
	Zinc	1019.00	1000.0	101.9	90 - 110	MS	03/15/2012	04:53	LB59713
CCV11	Aluminum	10210.00	10000.0	102.1	90 - 110	MS	03/15/2012	06:31	LB59713
	Antimony	494.60	500.0	98.9	90 - 110	MS	03/15/2012	06:31	LB59713
	Arsenic	500.50	500.0	100.1	90 - 110	MS	03/15/2012	06:31	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV11	Barium	2432.00	2500.0	97.3	90 - 110	MS	03/15/2012	06:31	LB59713
	Beryllium	526.20	500.0	105.2	90 - 110	MS	03/15/2012	06:31	LB59713
	Cadmium	499.80	500.0	100.0	90 - 110	MS	03/15/2012	06:31	LB59713
	Calcium	50390.00	50000.0	100.8	90 - 110	MS	03/15/2012	06:31	LB59713
	Chromium	511.80	500.0	102.4	90 - 110	MS	03/15/2012	06:31	LB59713
	Cobalt	513.10	500.0	102.6	90 - 110	MS	03/15/2012	06:31	LB59713
	Copper	1037.00	1000.0	103.7	90 - 110	MS	03/15/2012	06:31	LB59713
	Iron	26290.00	25000.0	105.2	90 - 110	MS	03/15/2012	06:31	LB59713
	Lead	509.50	500.0	101.9	90 - 110	MS	03/15/2012	06:31	LB59713
	Magnesium	52030.00	50000.0	104.1	90 - 110	MS	03/15/2012	06:31	LB59713
	Manganese	1041.00	1000.0	104.1	90 - 110	MS	03/15/2012	06:31	LB59713
	Nickel	516.90	500.0	103.4	90 - 110	MS	03/15/2012	06:31	LB59713
	Potassium	25460.00	25000.0	101.8	90 - 110	MS	03/15/2012	06:31	LB59713
	Selenium	502.00	500.0	100.4	90 - 110	MS	03/15/2012	06:31	LB59713
	Silver	505.80	500.0	101.2	90 - 110	MS	03/15/2012	06:31	LB59713
	Sodium	51380.00	50000.0	102.8	90 - 110	MS	03/15/2012	06:31	LB59713
	Thallium	508.60	500.0	101.7	90 - 110	MS	03/15/2012	06:31	LB59713
	Vanadium	507.30	500.0	101.5	90 - 110	MS	03/15/2012	06:31	LB59713
	Zinc	1020.00	1000.0	102.0	90 - 110	MS	03/15/2012	06:31	LB59713
CCV12	Aluminum	10220.00	10000.0	102.2	90 - 110	MS	03/15/2012	08:08	LB59713
	Antimony	495.20	500.0	99.0	90 - 110	MS	03/15/2012	08:08	LB59713
	Arsenic	502.80	500.0	100.6	90 - 110	MS	03/15/2012	08:08	LB59713
	Barium	2435.00	2500.0	97.4	90 - 110	MS	03/15/2012	08:08	LB59713
	Beryllium	524.80	500.0	105.0	90 - 110	MS	03/15/2012	08:08	LB59713
	Cadmium	501.10	500.0	100.2	90 - 110	MS	03/15/2012	08:08	LB59713
	Calcium	50110.00	50000.0	100.2	90 - 110	MS	03/15/2012	08:08	LB59713
	Chromium	508.00	500.0	101.6	90 - 110	MS	03/15/2012	08:08	LB59713
	Cobalt	513.80	500.0	102.8	90 - 110	MS	03/15/2012	08:08	LB59713
	Copper	1034.00	1000.0	103.4	90 - 110	MS	03/15/2012	08:08	LB59713
	Iron	26210.00	25000.0	104.8	90 - 110	MS	03/15/2012	08:08	LB59713
	Lead	512.30	500.0	102.5	90 - 110	MS	03/15/2012	08:08	LB59713
	Magnesium	51760.00	50000.0	103.5	90 - 110	MS	03/15/2012	08:08	LB59713
	Manganese	1041.00	1000.0	104.1	90 - 110	MS	03/15/2012	08:08	LB59713
	Nickel	519.70	500.0	103.9	90 - 110	MS	03/15/2012	08:08	LB59713
	Potassium	25430.00	25000.0	101.7	90 - 110	MS	03/15/2012	08:08	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV12	Selenium	504.10	500.0	100.8	90 - 110	MS	03/15/2012	08:08	LB59713
	Silver	505.60	500.0	101.1	90 - 110	MS	03/15/2012	08:08	LB59713
	Sodium	51180.00	50000.0	102.4	90 - 110	MS	03/15/2012	08:08	LB59713
	Thallium	509.90	500.0	102.0	90 - 110	MS	03/15/2012	08:08	LB59713
	Vanadium	506.30	500.0	101.3	90 - 110	MS	03/15/2012	08:08	LB59713
	Zinc	1024.00	1000.0	102.4	90 - 110	MS	03/15/2012	08:08	LB59713
CCV13	Aluminum	10180.00	10000.0	101.8	90 - 110	MS	03/15/2012	09:30	LB59713
	Antimony	499.40	500.0	99.9	90 - 110	MS	03/15/2012	09:30	LB59713
	Arsenic	503.80	500.0	100.8	90 - 110	MS	03/15/2012	09:30	LB59713
	Barium	2456.00	2500.0	98.2	90 - 110	MS	03/15/2012	09:30	LB59713
	Beryllium	523.10	500.0	104.6	90 - 110	MS	03/15/2012	09:30	LB59713
	Cadmium	502.90	500.0	100.6	90 - 110	MS	03/15/2012	09:30	LB59713
	Calcium	50520.00	50000.0	101.0	90 - 110	MS	03/15/2012	09:30	LB59713
	Chromium	512.20	500.0	102.4	90 - 110	MS	03/15/2012	09:30	LB59713
	Cobalt	516.70	500.0	103.3	90 - 110	MS	03/15/2012	09:30	LB59713
	Copper	1036.00	1000.0	103.6	90 - 110	MS	03/15/2012	09:30	LB59713
	Iron	26380.00	25000.0	105.5	90 - 110	MS	03/15/2012	09:30	LB59713
	Lead	509.70	500.0	101.9	90 - 110	MS	03/15/2012	09:30	LB59713
	Magnesium	51930.00	50000.0	103.9	90 - 110	MS	03/15/2012	09:30	LB59713
	Manganese	1048.00	1000.0	104.8	90 - 110	MS	03/15/2012	09:30	LB59713
	Nickel	518.10	500.0	103.6	90 - 110	MS	03/15/2012	09:30	LB59713
	Potassium	25710.00	25000.0	102.8	90 - 110	MS	03/15/2012	09:30	LB59713
	Selenium	503.00	500.0	100.6	90 - 110	MS	03/15/2012	09:30	LB59713
	Silver	504.60	500.0	100.9	90 - 110	MS	03/15/2012	09:30	LB59713
	Sodium	51610.00	50000.0	103.2	90 - 110	MS	03/15/2012	09:30	LB59713
	Thallium	506.80	500.0	101.4	90 - 110	MS	03/15/2012	09:30	LB59713
	Vanadium	508.80	500.0	101.8	90 - 110	MS	03/15/2012	09:30	LB59713
	Zinc	1026.00	1000.0	102.6	90 - 110	MS	03/15/2012	09:30	LB59713
CCV14	Aluminum	10160.00	10000.0	101.6	90 - 110	MS	03/15/2012	11:05	LB59713
	Antimony	499.60	500.0	99.9	90 - 110	MS	03/15/2012	11:05	LB59713
	Arsenic	504.20	500.0	100.8	90 - 110	MS	03/15/2012	11:05	LB59713
	Barium	2450.00	2500.0	98.0	90 - 110	MS	03/15/2012	11:05	LB59713
	Beryllium	524.60	500.0	104.9	90 - 110	MS	03/15/2012	11:05	LB59713
	Cadmium	501.60	500.0	100.3	90 - 110	MS	03/15/2012	11:05	LB59713
	Calcium	50670.00	50000.0	101.3	90 - 110	MS	03/15/2012	11:05	LB59713

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV14	Chromium	514.30	500.0	102.9	90 - 110	MS	03/15/2012	11:05	LB59713
	Cobalt	516.40	500.0	103.3	90 - 110	MS	03/15/2012	11:05	LB59713
	Copper	1040.00	1000.0	104.0	90 - 110	MS	03/15/2012	11:05	LB59713
	Iron	26410.00	25000.0	105.6	90 - 110	MS	03/15/2012	11:05	LB59713
	Lead	511.00	500.0	102.2	90 - 110	MS	03/15/2012	11:05	LB59713
	Magnesium	52030.00	50000.0	104.1	90 - 110	MS	03/15/2012	11:05	LB59713
	Manganese	1054.00	1000.0	105.4	90 - 110	MS	03/15/2012	11:05	LB59713
	Nickel	519.20	500.0	103.8	90 - 110	MS	03/15/2012	11:05	LB59713
	Potassium	25890.00	25000.0	103.6	90 - 110	MS	03/15/2012	11:05	LB59713
	Selenium	507.00	500.0	101.4	90 - 110	MS	03/15/2012	11:05	LB59713
	Silver	507.00	500.0	101.4	90 - 110	MS	03/15/2012	11:05	LB59713
	Sodium	51980.00	50000.0	104.0	90 - 110	MS	03/15/2012	11:05	LB59713
	Thallium	506.20	500.0	101.2	90 - 110	MS	03/15/2012	11:05	LB59713
	Vanadium	509.70	500.0	101.9	90 - 110	MS	03/15/2012	11:05	LB59713
	Zinc	1039.00	1000.0	103.9	90 - 110	MS	03/15/2012	11:05	LB59713

CHEMTECH

Metals

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CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Aluminum	24.22	20.0	121.1	50 - 150	MS	03/14/2012	14:37	LB59713
	Antimony	2.11	2.0	105.5	50 - 150	MS	03/14/2012	14:37	LB59713
	Arsenic	1.01	1.0	101.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Barium	10.00	10.0	100.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Beryllium	1.05	1.0	105.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Cadmium	1.03	1.0	103.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Calcium	491.60	500.0	98.3	50 - 150	MS	03/14/2012	14:37	LB59713
	Chromium	2.02	2.0	101.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Cobalt	1.01	1.0	101.0	50 - 150	MS	03/14/2012	14:37	LB59713
	Copper	2.15	2.0	107.5	70 - 130	MS	03/14/2012	14:37	LB59713
	Iron	211.90	200.0	106.0	50 - 150	MS	03/14/2012	14:37	LB59713
	Lead	1.02	1.0	102.0	50 - 150	MS	03/14/2012	14:37	LB59713
	Magnesium	541.80	500.0	108.4	50 - 150	MS	03/14/2012	14:37	LB59713
	Manganese	1.06	1.0	106.0	50 - 150	MS	03/14/2012	14:37	LB59713
	Nickel	0.94	1.0	94.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Potassium	532.30	500.0	106.5	50 - 150	MS	03/14/2012	14:37	LB59713
	Selenium	4.63	5.0	92.6	70 - 130	MS	03/14/2012	14:37	LB59713
	Silver	0.98	1.0	98.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Sodium	525.50	500.0	105.1	50 - 150	MS	03/14/2012	14:37	LB59713
	Thallium	1.02	1.0	102.0	50 - 150	MS	03/14/2012	14:37	LB59713
	Vanadium	4.75	5.0	95.0	70 - 130	MS	03/14/2012	14:37	LB59713
	Zinc	2.27	2.0	113.5	50 - 150	MS	03/14/2012	14:37	LB59713
CRI01	Mercury	0.12	0.2	60.0	70 - 130	CV	03/14/2012	12:58	LB59716

CHEMTECH

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/14/2012	13:41	LB59713
	Antimony	0.936	+/-2.000	J	0.140	2.000	MS	03/14/2012	13:41	LB59713
	Arsenic	0.336	+/-1.000	J	0.180	1.000	MS	03/14/2012	13:41	LB59713
	Barium	0.559	+/-10.000	J	0.100	10.000	MS	03/14/2012	13:41	LB59713
	Beryllium	0.200	+/-1.000	J	0.090	1.000	MS	03/14/2012	13:41	LB59713
	Cadmium	0.305	+/-1.000	J	0.130	1.000	MS	03/14/2012	13:41	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/14/2012	13:41	LB59713
	Chromium	0.188	+/-2.000	J	0.040	2.000	MS	03/14/2012	13:41	LB59713
	Cobalt	0.201	+/-1.000	J	0.050	1.000	MS	03/14/2012	13:41	LB59713
	Copper	0.296	+/-2.000	J	0.040	2.000	MS	03/14/2012	13:41	LB59713
	Iron	11.520	+/-200.000	J	10.280	200.000	MS	03/14/2012	13:41	LB59713
	Lead	0.352	+/-1.000	J	0.040	1.000	MS	03/14/2012	13:41	LB59713
	Magnesium	12.350	+/-500.000	J	4.950	500.000	MS	03/14/2012	13:41	LB59713
	Manganese	0.313	+/-1.000	J	0.050	1.000	MS	03/14/2012	13:41	LB59713
	Nickel	0.144	+/-1.000	J	0.060	1.000	MS	03/14/2012	13:41	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/14/2012	13:41	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/14/2012	13:41	LB59713
	Silver	0.183	+/-1.000	J	0.030	1.000	MS	03/14/2012	13:41	LB59713
	Sodium	7.704	+/-500.000	J	5.320	500.000	MS	03/14/2012	13:41	LB59713
	Thallium	0.310	+/-1.000	J	0.020	1.000	MS	03/14/2012	13:41	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/14/2012	13:41	LB59713
	Zinc	0.149	+/-2.000	J	0.090	2.000	MS	03/14/2012	13:41	LB59713
CCB01	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/14/2012	14:29	LB59713
	Antimony	0.642	+/-2.000	J	0.140	2.000	MS	03/14/2012	14:29	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/14/2012	14:29	LB59713
X	Barium	0.322	+/-10.000	J	0.100	10.000	MS	03/14/2012	14:29	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/14/2012	14:29	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/14/2012	14:29	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/14/2012	14:29	LB59713
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/14/2012	14:29	LB59713
	Cobalt	0.059	+/-1.000	J	0.050	1.000	MS	03/14/2012	14:29	LB59713
	Copper	0.057	+/-2.000	J	0.040	2.000	MS	03/14/2012	14:29	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/14/2012	14:29	LB59713
	Lead	0.066	+/-1.000	J	0.040	1.000	MS	03/14/2012	14:29	LB59713
	Magnesium	7.687	+/-500.000	J	4.950	500.000	MS	03/14/2012	14:29	LB59713
	Manganese	0.060	+/-1.000	J	0.050	1.000	MS	03/14/2012	14:29	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/14/2012	14:29	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/14/2012	14:29	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/14/2012	14:29	LB59713

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB07	Lead	0.054	+/-1.000	J	0.040	1.000	MS	03/15/2012	00:10	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	00:10	LB59713
	Manganese	0.175	+/-1.000	J	0.050	1.000	MS	03/15/2012	00:10	LB59713
X	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	00:10	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	00:10	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	00:10	LB59713
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	03/15/2012	00:10	LB59713
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	03/15/2012	00:10	LB59713
	Thallium	0.569	+/-1.000	J	0.020	1.000	MS	03/15/2012	00:10	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	00:10	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	00:10	LB59713
CCB08	Aluminum	6.095	+/-20.000	J	4.970	20.000	MS	03/15/2012	01:47	LB59713
	Antimony	0.791	+/-2.000	J	0.140	2.000	MS	03/15/2012	01:47	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	01:47	LB59713
	Barium	0.193	+/-10.000	J	0.100	10.000	MS	03/15/2012	01:47	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/15/2012	01:47	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	01:47	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	01:47	LB59713
	Chromium	0.092	+/-2.000	J	0.040	2.000	MS	03/15/2012	01:47	LB59713
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	03/15/2012	01:47	LB59713
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	01:47	LB59713
	Iron	13.380	+/-200.000	J	10.280	200.000	MS	03/15/2012	01:47	LB59713
	Lead	0.103	+/-1.000	J	0.040	1.000	MS	03/15/2012	01:47	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	01:47	LB59713
	Manganese	0.259	+/-1.000	J	0.050	1.000	MS	03/15/2012	01:47	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	01:47	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	01:47	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	01:47	LB59713
	Silver	0.064	+/-1.000	J	0.030	1.000	MS	03/15/2012	01:47	LB59713
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	03/15/2012	01:47	LB59713
	Thallium	0.290	+/-1.000	J	0.020	1.000	MS	03/15/2012	01:47	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	01:47	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	01:47	LB59713
CCB09	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/15/2012	03:24	LB59713
	Antimony	0.732	+/-2.000	J	0.140	2.000	MS	03/15/2012	03:24	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	03:24	LB59713
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	03/15/2012	03:24	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/15/2012	03:24	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	03:24	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	03:24	LB59713
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	03:24	LB59713
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	03/15/2012	03:24	LB59713

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB09	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	03:24	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/15/2012	03:24	LB59713
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	03/15/2012	03:24	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	03:24	LB59713
	Manganese	0.145	+/-1.000	J	0.050	1.000	MS	03/15/2012	03:24	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	03:24	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	03:24	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	03:24	LB59713
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	03/15/2012	03:24	LB59713
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	03/15/2012	03:24	LB59713
	Thallium	0.346	+/-1.000	J	0.020	1.000	MS	03/15/2012	03:24	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	03:24	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	03:24	LB59713
CCB10	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/15/2012	05:02	LB59713
	Antimony	0.776	+/-2.000	J	0.140	2.000	MS	03/15/2012	05:02	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	05:02	LB59713
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	03/15/2012	05:02	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/15/2012	05:02	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	05:02	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	05:02	LB59713
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	05:02	LB59713
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	03/15/2012	05:02	LB59713
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	05:02	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/15/2012	05:02	LB59713
	Lead	0.043	+/-1.000	J	0.040	1.000	MS	03/15/2012	05:02	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	05:02	LB59713
	Manganese	0.186	+/-1.000	J	0.050	1.000	MS	03/15/2012	05:02	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	05:02	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	05:02	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	05:02	LB59713
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	03/15/2012	05:02	LB59713
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	03/15/2012	05:02	LB59713
	Thallium	0.434	+/-1.000	J	0.020	1.000	MS	03/15/2012	05:02	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	05:02	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	05:02	LB59713
CCB11	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/15/2012	06:39	LB59713
	Antimony	0.764	+/-2.000	J	0.140	2.000	MS	03/15/2012	06:39	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	06:39	LB59713
	Barium	0.152	+/-10.000	J	0.100	10.000	MS	03/15/2012	06:39	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/15/2012	06:39	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	06:39	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	06:39	LB59713

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB11	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	06:39	LB59713
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	03/15/2012	06:39	LB59713
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	06:39	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/15/2012	06:39	LB59713
	Lead	0.055	+/-1.000	J	0.040	1.000	MS	03/15/2012	06:39	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	06:39	LB59713
	Manganese	0.247	+/-1.000	J	0.050	1.000	MS	03/15/2012	06:39	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	06:39	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	06:39	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	06:39	LB59713
	Silver	0.049	+/-1.000	J	0.030	1.000	MS	03/15/2012	06:39	LB59713
	Sodium	5.598	+/-500.000	J	5.320	500.000	MS	03/15/2012	06:39	LB59713
	Thallium	0.276	+/-1.000	J	0.020	1.000	MS	03/15/2012	06:39	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	06:39	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	06:39	LB59713
CCB12	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/15/2012	08:16	LB59713
	Antimony	0.789	+/-2.000	J	0.140	2.000	MS	03/15/2012	08:16	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	08:16	LB59713
	Barium	0.239	+/-10.000	J	0.100	10.000	MS	03/15/2012	08:16	LB59713
	Beryllium	0.112	+/-1.000	J	0.090	1.000	MS	03/15/2012	08:16	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	08:16	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	08:16	LB59713
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	08:16	LB59713
	Cobalt	0.078	+/-1.000	J	0.050	1.000	MS	03/15/2012	08:16	LB59713
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	08:16	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/15/2012	08:16	LB59713
	Lead	0.092	+/-1.000	J	0.040	1.000	MS	03/15/2012	08:16	LB59713
	Magnesium	6.408	+/-500.000	J	4.950	500.000	MS	03/15/2012	08:16	LB59713
	Manganese	0.237	+/-1.000	J	0.050	1.000	MS	03/15/2012	08:16	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	08:16	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	08:16	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	08:16	LB59713
	Silver	0.079	+/-1.000	J	0.030	1.000	MS	03/15/2012	08:16	LB59713
	Sodium	7.781	+/-500.000	J	5.320	500.000	MS	03/15/2012	08:16	LB59713
	Thallium	0.440	+/-1.000	J	0.020	1.000	MS	03/15/2012	08:16	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	08:16	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	08:16	LB59713
CCB13	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/15/2012	09:38	LB59713
	Antimony	0.775	+/-2.000	J	0.140	2.000	MS	03/15/2012	09:38	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	09:38	LB59713
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	03/15/2012	09:38	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/15/2012	09:38	LB59713

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB13	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	09:38	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	09:38	LB59713
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	09:38	LB59713
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	03/15/2012	09:38	LB59713
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	09:38	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/15/2012	09:38	LB59713
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	03/15/2012	09:38	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	09:38	LB59713
	Manganese	0.094	+/-1.000	J	0.050	1.000	MS	03/15/2012	09:38	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	09:38	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	09:38	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	09:38	LB59713
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	03/15/2012	09:38	LB59713
	Sodium	5.531	+/-500.000	J	5.320	500.000	MS	03/15/2012	09:38	LB59713
	Thallium	0.346	+/-1.000	J	0.020	1.000	MS	03/15/2012	09:38	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	09:38	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	09:38	LB59713
CCB14	Aluminum	4.970	+/-20.000	U	4.970	20.000	MS	03/15/2012	11:13	LB59713
	Antimony	0.733	+/-2.000	J	0.140	2.000	MS	03/15/2012	11:13	LB59713
	Arsenic	0.180	+/-1.000	U	0.180	1.000	MS	03/15/2012	11:13	LB59713
	Barium	0.100	+/-10.000	U	0.100	10.000	MS	03/15/2012	11:13	LB59713
	Beryllium	0.090	+/-1.000	U	0.090	1.000	MS	03/15/2012	11:13	LB59713
	Cadmium	0.130	+/-1.000	U	0.130	1.000	MS	03/15/2012	11:13	LB59713
	Calcium	9.060	+/-500.000	U	9.060	500.000	MS	03/15/2012	11:13	LB59713
	Chromium	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	11:13	LB59713
	Cobalt	0.050	+/-1.000	U	0.050	1.000	MS	03/15/2012	11:13	LB59713
	Copper	0.040	+/-2.000	U	0.040	2.000	MS	03/15/2012	11:13	LB59713
	Iron	10.280	+/-200.000	U	10.280	200.000	MS	03/15/2012	11:13	LB59713
	Lead	0.040	+/-1.000	U	0.040	1.000	MS	03/15/2012	11:13	LB59713
	Magnesium	4.950	+/-500.000	U	4.950	500.000	MS	03/15/2012	11:13	LB59713
	Manganese	0.069	+/-1.000	J	0.050	1.000	MS	03/15/2012	11:13	LB59713
	Nickel	0.060	+/-1.000	U	0.060	1.000	MS	03/15/2012	11:13	LB59713
	Potassium	12.220	+/-500.000	U	12.220	500.000	MS	03/15/2012	11:13	LB59713
	Selenium	0.700	+/-5.000	U	0.700	5.000	MS	03/15/2012	11:13	LB59713
	Silver	0.030	+/-1.000	U	0.030	1.000	MS	03/15/2012	11:13	LB59713
	Sodium	5.320	+/-500.000	U	5.320	500.000	MS	03/15/2012	11:13	LB59713
	Thallium	0.222	+/-1.000	J	0.020	1.000	MS	03/15/2012	11:13	LB59713
	Vanadium	0.150	+/-5.000	U	0.150	5.000	MS	03/15/2012	11:13	LB59713
	Zinc	0.090	+/-2.000	U	0.090	2.000	MS	03/15/2012	11:13	LB59713
ICB01	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	03/14/2012	12:52	LB59716
CCB01	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	03/14/2012	12:56	LB59716
CCB02	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	03/14/2012	13:20	LB59716

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	03/14/2012	13:44	LB59716
CCB04	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	03/14/2012	14:21	LB59716
CCB05	Mercury	0.09	+/-0.20	U	0.09	0.20	CV	03/14/2012	14:41	LB59716

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Contract: TETR06 **Lab Code:** CHEM **Case No.:** D1768 **SAS No.:** D1768

ICS Source: EPA **Instrument ID:** P6

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	98300	100000	98.3	80 - 120%	03/14/2012	13:49	LB59713
	Antimony	1.4				03/14/2012	13:49	LB59713
	Arsenic	0.26				03/14/2012	13:49	LB59713
	Barium	1.4				03/14/2012	13:49	LB59713
	Beryllium	0.31				03/14/2012	13:49	LB59713
	Cadmium	0.29				03/14/2012	13:49	LB59713
	Calcium	98900	100000	98.9	80 - 120%	03/14/2012	13:49	LB59713
	Chromium	20.4	21	97.1	80 - 120%	03/14/2012	13:49	LB59713
	Cobalt	1.2				03/14/2012	13:49	LB59713
	Copper	8.3				03/14/2012	13:49	LB59713
	Iron	95700	100000	95.7	80 - 120%	03/14/2012	13:49	LB59713
	Lead	4.6	4	115.0	80 - 120%	03/14/2012	13:49	LB59713
	Magnesium	98900	100000	98.9	80 - 120%	03/14/2012	13:49	LB59713
	Manganese	8.2				03/14/2012	13:49	LB59713
	Nickel	6.2				03/14/2012	13:49	LB59713
	Potassium	99000	100000	99.0	80 - 120%	03/14/2012	13:49	LB59713
	Selenium	0.0050				03/14/2012	13:49	LB59713
	Silver	0.12				03/14/2012	13:49	LB59713
	Sodium	99400	100000	99.4	80 - 120%	03/14/2012	13:49	LB59713
	Thallium	0.18				03/14/2012	13:49	LB59713
	Vanadium	0.11				03/14/2012	13:49	LB59713
	Zinc	11.9				03/14/2012	13:49	LB59713
ICSAB01	Aluminum	97300	100000	97.3	80 - 120%	03/14/2012	13:57	LB59713
	Antimony	20.9	22	95.0	80 - 120%	03/14/2012	13:57	LB59713
	Arsenic	19.7	19	103.7	80 - 120%	03/14/2012	13:57	LB59713
	Barium	21.5	22	97.7	80 - 120%	03/14/2012	13:57	LB59713
	Beryllium	20.8	20	104.0	80 - 120%	03/14/2012	13:57	LB59713
	Cadmium	20.1	20	100.5	80 - 120%	03/14/2012	13:57	LB59713
	Calcium	98600	100000	98.6	80 - 120%	03/14/2012	13:57	LB59713
	Chromium	40.1	40	100.2	80 - 120%	03/14/2012	13:57	LB59713
	Cobalt	21.1	20	105.5	80 - 120%	03/14/2012	13:57	LB59713
	Copper	28.3	25	113.2	80 - 120%	03/14/2012	13:57	LB59713
	Iron	95600	100000	95.6	80 - 120%	03/14/2012	13:57	LB59713
	Lead	24.8	25	99.2	80 - 120%	03/14/2012	13:57	LB59713
	Magnesium	98700	100000	98.7	80 - 120%	03/14/2012	13:57	LB59713
	Manganese	29.2	27	108.1	80 - 120%	03/14/2012	13:57	LB59713
	Nickel	25.8	24	107.5	80 - 120%	03/14/2012	13:57	LB59713
	Potassium	99700	100000	99.7	80 - 120%	03/14/2012	13:57	LB59713
	Selenium	19.3	19	101.6	80 - 120%	03/14/2012	13:57	LB59713
	Silver	19.2	18	106.7	80 - 120%	03/14/2012	13:57	LB59713
	Sodium	100000	100000	100.0	80 - 120%	03/14/2012	13:57	LB59713
	Thallium	20.5	21	97.6	80 - 120%	03/14/2012	13:57	LB59713
	Vanadium	19.6	19	103.2	80 - 120%	03/14/2012	13:57	LB59713
	Zinc	31.5	29	108.6	80 - 120%	03/14/2012	13:57	LB59713

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE05 NAS JRB Willow Grove
Project Manager : Elizabeth Griffith
Chemtech Project # D1768
Test Name: Cyanide

A. Number of Samples and Date of Receipt:
27 Water samples were received on 03/09/2012.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Dissolved ICPMS-TAL Metals, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group1, SVOC-SIMGroup1, SVOCMS Group1 and VOCMS Group1. This data package contains results for Cyanide.

C. Analytical Techniques:
The analysis of Cyanide was based on method 9012B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature Mildred V Reyes Mildred V. Reyes, QA/QC Supervisor
2012.04.02 12:08:45 -05'00'

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	D1768
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB59704

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICVPB61658						
Cyanide		mg/L	0.09	0.10	90	85-115	03/13/2012
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	03/13/2012
Sample ID:	CCV2						
Cyanide		mg/L	0.24	0.25	96	90-110	03/13/2012
Sample ID:	CCV3						
Cyanide		mg/L	0.24	0.25	96	90-110	03/13/2012

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	D1768
Project:	CTO WE05 NAS JRB Willow Grove	**RunNo.:**	LB59704

Analyte		Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID:	ICB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	03/13/2012
Sample ID:	CCB1						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	03/13/2012
Sample ID:	CCB2						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	03/13/2012
Sample ID:	CCB3						
Cyanide		mg/L	< 0.005	+/-0.005	0.003	0.005	03/13/2012

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	Result	Acceptance Limits	MDL	RDL	Analysis Date
Sample ID: LB59704BLW						
Cyanide	mg/L	< 0.005	+/-0.005	0.003	0.005	03/13/2012

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	D1768
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	D1768-09
Client ID:	12MW01SS	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/L	79-123	0.039		0.003	U	0.04	1	98		03/13/2012

CHEMTECH

Matrix Spike Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	D1768
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	D1768-09
Client ID:	12MW01SSD	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/L	79-123	0.039		0.003	U	0.04	1	98		03/13/2012

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	D1768
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	D1768-09
Client ID:	12MW01SD	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/L	+/-20	0.003	U	0.003	U	1	0		03/13/2012

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	D1768
Project:	CTO WE05 NAS JRB Willow Grove	**Sample ID:**	D1768-09
Client ID:	12MW01SSD	**Percent Solids for Spike Sample:**	0

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/L	+/-20	0.039	0.039		1	0		03/13/2012

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** D1768

Project: CTO WE05 NAS JRB Willow Grove

Analyte	Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID **LB59704BSW**								
Cyanide	mg/L	0.10	0.10		100	1	85-115	03/13/2012

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE: JULY 3, 2012**

FROM: **EDWARD SEDLMYER** **CC:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PCDD / PCDF**
NASJRB WILLOW GROVE
SDG: D1769

SAMPLES: 6 / aqueous / PCDD / PCDF

12GW-DUP01	12MW010	12MW01S
12MW020	12MW02S	12RB01

Overview

The sample set for the NASJRB Willow Grove; SDG D1769 consists of five (5) aqueous environmental samples and one (1) rinse blank. The samples were analyzed for polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF). One field duplicate pair was included in this SDG: (12MW02S / 12GW-DUP01).

The samples were collected by Tetra Tech on March 6 and 7, 2012 and analyzed by Columbia Analytical Services. All analyses were conducted in accordance with SW-846 Method 8290 analytical and reporting protocol.

The findings in this report are based upon a general review of all available data including: data completeness, system performance, holding times, initial / continuing calibrations, laboratory method blank results, surrogate spike/internal standard recoveries, blank spike results, field duplicate results, matrix spike/matrix spike duplicate results, window defining mixture, estimated maximum possible concentrations, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Minor Problems

- The following congeners were detected in the laboratory method blanks at the following maximum concentrations:

Congener	Concentration	Level
1,2,3,7,8-PeCDD[(1)]	1.13 pg/L	5.65 pg/L
1,2,3,6,7,8-HxCDD[(1)]	1.14 pg/L	5.7 pg/L
1,2,3,7,8,9-HxCDD[(1)]	0.738 pg/L	3.69 pg/L
1,2,3,4,6,7,8-HpCDD[(1)]	1.78 pg/L	8.9 pg/L
OCDD[(1)]	5.87 pg/L	29.35 pg/L
1,2,3,4,7,8-HxCDF[(1)]	0.444 pg/L	2.22 pg/L
1,2,3,6,7,8-HxCDF[(1)]	0.976 pg/L	4.88 pg/L
1,2,3,7,8,9-HxCDF[(1)]	0.578 pg/L	2.89 pg/L
2,3,4,6,7,8-HxCDF[(1)]	0.367 pg/L	1.835 pg/L

1,2,3,4,6,7,8-HpCDF[1]	1.41 pg/L	7.05 pg/L
1,2,3,4,7,8,9-HpCDF[1]	0.542 pg/L	2.71 pg/L
OCDF[1]	2.54 pg/L	12.7 pg/L
Total PeCDD[1]	1.13 pg/L	5.65 pg/L
Total HxCDD[1]	1.88 pg/L	9.4 pg/L
Total TCDF[1]	2.35 pg/L	11.75 pg/L
Total HxCDF[1]	0.578 pg/L	2.89 pg/L
Total HpCDF[1]	1.95 pg/L	9.75 pg/L
1,2,3,4,6,7,8-HpCDD[2]	1.67 pg/L	8.35 pg/L
OCDD[2]	15.3 pg/L	76.5 pg/L
OCDF[2]	7.1 pg/L	35.5 pg/L
Total HpCDD[2]	2.0 pg/L	10.0 pg/L

1 - These compounds were detected in method blank P216916 (batch 153587) and associated with all samples except for 12MW020.

2 - These compounds were detected in method blank P217039 (batch 154855) and associated with sample 12MW020.

An action level of 5X the maximum contaminant concentration was used to evaluate sample data for blank contamination. Sample aliquots and dilutions, if applicable, were taken into consideration when evaluating for blank contamination. The positive results less than the action level for all samples, except 12RB01, were qualified "B" due to blank contamination.

- The 2,3,7,8-TCDD result in sample 12GW-DUP01 was reported as an EMPC by the laboratory because the ion abundances were outside the quality control criteria. The 2,3,7,8-TCDD result for sample 12GW-DUP01 has been qualified as estimated, (J).

- The 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, and 1,2,3,7,8,9-HxCDF results in sample 12RB01 were reported as EMPCs by the laboratory because the ion abundance was outside the quality control criteria. The aforementioned congeners for sample 12RB01 have been qualified as estimated, (J).

- All internal standards had recoveries less than 40% in sample 12MW010. The positive and nondetected results for all congeners were qualified as biased low (L) and (UL), respectively.

- The 13C-2,3,7,8-TCDD, 13C-1,2,3,6,7,8-HxCDD, 13C-OCDD, 13C-2,3,7,8-TCDF, 13C-1,2,3,4,7,8-HxCDF, and 13C-1,2,3,4,6,7,8-HpCDF internal standards had recoveries less than 40% in sample 12MW02S. The nondetected congeners quantitated using the aforementioned internal standards were qualified as biased low (UL).

Calculations

Sample calculations of positive results were calculated using the following equation:

$$\text{Concentration} = \frac{[(A_x)\,(pg_{is})]}{[(A_{is})\,(RRF)\,(W_s)]}$$

where: A_x = area of the quantitation ion of the analyte of interest.

pgi_s = amount of internal standard in pg.

A_{is} = area of internal standard peak.

RRF = relative response factor of initial calibration standard.

W_s = for solid samples weight in grams; for aqueous samples volume in L.

Verification for concentration of 2,3,7,8-TCDD in sample 12RB01 = 5.51 pg/L

$$\text{Conc. OCDD} = \frac{[(584.7^{area})\ (5000\ pg)]}{[(504400^{area})\ (1.195)\ (0.880L)}$$

Conc. OCDD = 5.51 pg/L

ADDITIONAL COMMENTS

The 13C-OCDD internal standard had a recovery less than 40% in sample 12GW-DUP01. No action was taken on this basis because the OCDD result was previously qualified due to blank contamination.

Sample 12MW020 was re-exctracted on 4/4/12 because of low internal standard recoveries. No action was taken on this basis.

Several congeners in several samples were qualified "B" due to blank contamination that were also reported as EMPCs by the laboratory. No action was taken on EMPC noncompliance in these cases.

The TEQs are calculated using only positive results.

EXECUTIVE SUMMARY

Laboratory Performance: Several congeners were detected in the laboratory blank resulting in qualification of the data. Internal standard recovery noncompliances resulted in qualification of the data.

Other Factors Affecting Data Quality: Several EMPCs resulted in qualification of the data.

The data for these analyses were reviewed with reference to U.S. EPA National Functional Guidelines for Dioxin/Furan Data Validation (Sept/2005) and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech
Edward Sedlmyer
Chemist/Data Validator

Tetra Tech

Joseph A. Samchuck
Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12GW-DUP01			12MW010			12MW01S			12MW020		
SDG: D1769	LAB_ID	E1200219-006			E1200219-001			E1200219-002			E1200219-003		
FRACTION: DIOX	SAMP_DATE	3/6/2012			3/7/2012			3/7/2012			3/6/2012		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	PG/L			PG/L			PG/L			PG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	12MW02S											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD		24.3	B	A	17	B	A	15	B	A	42.1	B	A
1,2,3,4,6,7,8,9-OCDF		2.15	B	A	2.36	B	A	9.07	B	A	6.6	B	A
1,2,3,4,6,7,8-HPCDD		2.04	B	A	2.23	B	A	1.63	B	A	3.06	B	A
1,2,3,4,6,7,8-HPCDF		1.23	B	A	1.61	B	A	1.82	B	A	26	U	
1,2,3,4,7,8,9-HPCDF		26	U		26	UL	N01	26	U		26	U	
1,2,3,4,7,8-HXCDD		0.7	J	P	26	UL	N01	0.617	J	P	26	U	
1,2,3,4,7,8-HXCDF		0.504	B	A	1.66	B	A	0.565	B	A	26	U	
1,2,3,6,7,8-HXCDD		1.06	B	A	2.04	B	A	1.13	B	A	26	U	
1,2,3,6,7,8-HXCDF		1.14	B	A	2.02	B	A	0.947	B	A	26	U	
1,2,3,7,8,9-HXCDD		0.503	B	A	26	UL	N01	0.569	B	A	26	U	
1,2,3,7,8,9-HXCDF		26	U		26	UL	N01	26	U		26	U	
1,2,3,7,8-PECDD		26	U		26	UL	N01	0.946	B	A	26	U	
1,2,3,7,8-PECDF		26	U		26	UL	N01	1.16	J	P	26	U	
2,3,4,6,7,8-HXCDF		0.519	B	A	26	UL	N01	0.627	B	A	26	U	
2,3,4,7,8-PECDF		26	U		26	UL	N01	26	U		26	U	
2,3,7,8-TCDD		0.482	J	W	10.4	UL	N01	10.4	U		10.4	U	
2,3,7,8-TCDF		10.4	U		10.4	UL	N01	10.4	U		10.4	U	
TEQ		0.965			0.616	L	N01	1.47			0.0452		
TOTAL HPCDD		4.01	J	P	2.23	J	PN01	1.63	J	P	8.4	B	A
TOTAL HPCDF		1.23	B	A	26	UL	N01	1.82	B	A	26	U	
TOTAL HXCDD		1.76	B	A	2.04	B	A	1.13	B	A	5.68	B	A
TOTAL HXCDF		1.14	B	A	3.67	J	PN01	0.565	B	A	26	U	
TOTAL PECDD		26	U		26	UL	N01	0.946	B	A	26	U	
TOTAL PECDF		26	U		26	UL	N01	1.16	J	P	26	U	
TOTAL TCDD		10.4	U		10.4	UL	N01	10.4	U		10.4	U	
TOTAL TCDF		10.4	U		10.4	UL	N01	10.4	U		10.4	U	

PROJ_NO: 02014	NSAMPLE	12MW02S			12RB01		
SDG: D1769	LAB_ID	E1200219-004			E1200219-005		
FRACTION: DIOX	SAMP_DATE	3/6/2012			3/7/2012		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	PG/L			PG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD		14.8	B	A	5.51	J	P
1,2,3,4,6,7,8,9-OCDF		2.3	B	A	2.4	J	P
1,2,3,4,6,7,8-HPCDD		1.89	B	A	1.96	J	P
1,2,3,4,6,7,8-HPCDF		1.06	B	A	1.36	J	P
1,2,3,4,7,8,9-HPCDF		25.5	UL	N01	0.448	J	P
1,2,3,4,7,8-HXCDD		25.5	UL	N01	28.4	U	
1,2,3,4,7,8-HXCDF		0.782	B	A	0.607	J	PW
1,2,3,6,7,8-HXCDD		1.26	B	A	1.38	J	P
1,2,3,6,7,8-HXCDF		1.52	B	A	1.05	J	P
1,2,3,7,8,9-HXCDD		25.5	UL	N01	0.699	J	P
1,2,3,7,8,9-HXCDF		25.5	UL	N01	0.301	J	PW
1,2,3,7,8-PECDD		25.5	U		0.831	J	PW
1,2,3,7,8-PECDF		25.5	U		0.65	J	PW
2,3,4,6,7,8-HXCDF		25.5	UL	N01	0.523	J	P
2,3,4,7,8-PECDF		25.5	U		28.4	U	
2,3,7,8-TCDD		10.2	UL	N01	11.4	U	
2,3,7,8-TCDF		10.2	UL	N01	11.4	U	
TEQ		0.391			1.35		
TOTAL HPCDD		1.71	J	P	3.46	J	P
TOTAL HPCDF		25.5	UL	N01	1.81	J	P
TOTAL HXCDD		1.26	B	A	2.08	J	P
TOTAL HXCDF		2.31	B	A	1.85	J	P
TOTAL PECDD		25.5	U		28.4	U	
TOTAL PECDF		25.5	U		28.4	U	
TOTAL TCDD		10.2	UL	N01	11.4	U	
TOTAL TCDF		10.2	UL	N01	11.4	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 0000
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12GW-DUP01	**Units:**	pg/L
Lab Code:	E1200219-006	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 1236
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216939	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**0.482**	JK	0.139	10.4	0.24	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.109	26.0			1
1,2,3,4,7,8-HxCDD	**0.700**	J	0.143	26.0	1.34	0.998	1
1,2,3,6,7,8-HxCDD	**1.06**	BJ	0.132	26.0	1.21	1.000	1
1,2,3,7,8,9-HxCDD	**0.503**	BJK	0.131	26.0	1.63	1.008	1
1,2,3,4,6,7,8-HpCDD	**2.04**	BJ	0.0959	26.0	0.91	1.000	1
OCDD	**24.3**	BJ	0.0834	52.1	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.100	10.4			1
1,2,3,7,8-PeCDF	ND	U	0.0823	26.0			1
2,3,4,7,8-PeCDF	ND	U	0.0855	26.0			1
1,2,3,4,7,8-HxCDF	**0.504**	BJK	0.110	26.0	0.93	1.000	1
1,2,3,6,7,8-HxCDF	**1.14**	BJ	0.100	26.0	1.22	1.003	1
1,2,3,7,8,9-HxCDF	ND	U	0.123	26.0			1
2,3,4,6,7,8-HxCDF	**0.519**	BJK	0.114	26.0	1.47	1.016	1
1,2,3,4,6,7,8-HpCDF	**1.23**	BJ	0.118	26.0	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.153	26.0			1
OCDF	**2.15**	BJ	0.117	52.1	0.83	1.005	1
Total Tetra-Dioxins	ND	U	0.139	10.4			1
Total Penta-Dioxins	ND	U	0.109	26.0			1
Total Hexa-Dioxins	**1.76**	J	0.132	26.0	1.34		1
Total Hepta-Dioxins	**4.01**	J	0.0959	26.0	0.98		1
Total Tetra-Furans	ND	U	0.100	10.4			1
Total Penta-Furans	ND	U	0.0855	26.0			1
Total Hexa-Furans	**1.14**	J	0.100	26.0	1.22		1
Total Hepta-Furans	**1.23**	J	0.118	26.0	1.09		1

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 0000
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12GW-DUP01	**Units:**	Percent
Lab Code:	E1200219-006	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 1236
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216939	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	441.182	44		40-135	0.77	1.006
13C-1,2,3,7,8-PeCDD	1000	549.629	55		40-135	1.60	1.153
13C-1,2,3,6,7,8-HxCDD	2500	1247.580	50		40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1319.068	53		40-135	1.06	1.069
13C-OCDD	5000	1967.013	39	Y	40-135	0.91	1.153
13C-2,3,7,8-TCDF	1000	448.394	45		40-135	0.78	0.981
13C-1,2,3,7,8-PeCDF	1000	464.129	46		40-135	1.59	1.118
13C-1,2,3,4,7,8-HxCDF	2500	1172.633	47		40-135	0.53	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1233.107	49		40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	404.367	51		40-135	NA	1.007

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 0000
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12GW-DUP01	**Units:**	pg/L
Lab Code:	E1200219-006	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.482**	0.139	10.4	1	1	0.482
1,2,3,7,8-PeCDD	ND	0.109	26.0	1	1	
1,2,3,4,7,8-HxCDD	**0.700**	0.143	26.0	1	0.1	0.0700
1,2,3,6,7,8-HxCDD	**1.06**	0.132	26.0	1	0.1	0.106
1,2,3,7,8,9-HxCDD	**0.503**	0.131	26.0	1	0.1	0.0503
1,2,3,4,6,7,8-HpCDD	**2.04**	0.0959	26.0	1	0.01	0.0204
OCDD	**24.3**	0.0834	52.1	1	0.0003	0.00729
2,3,7,8-TCDF	ND	0.100	10.4	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0823	26.0	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0855	26.0	1	0.3	
1,2,3,4,7,8-HxCDF	**0.504**	0.110	26.0	1	0.1	0.0504
1,2,3,6,7,8-HxCDF	**1.14**	0.100	26.0	1	0.1	0.114
1,2,3,7,8,9-HxCDF	ND	0.123	26.0	1	0.1	
2,3,4,6,7,8-HxCDF	**0.519**	0.114	26.0	1	0.1	0.0519
1,2,3,4,6,7,8-HpCDF	**1.23**	0.118	26.0	1	0.01	0.0123
1,2,3,4,7,8,9-HpCDF	ND	0.153	26.0	1	0.01	
OCDF	**2.15**	0.117	52.1	1	0.0003	0.000645
		Total TEQ				0.965

2005 WHO TEFs, ND = 0

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 1200
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW010	**Units:**	pg/L
Lab Code:	E1200219-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 0818
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216934	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.569	10.4			1
1,2,3,7,8-PeCDD	ND	U	0.317	26.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.471	26.0			1
1,2,3,6,7,8-HxCDD	**2.04**	BJ	0.433	26.0	1.14	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.431	26.0			1
1,2,3,4,6,7,8-HpCDD	**2.23**	BJ	0.242	26.0	1.01	1.000	1
OCDD	**17.0**	BJ	0.890	52.1	0.94	1.000	1
2,3,7,8-TCDF	ND	U	0.512	10.4			1
1,2,3,7,8-PeCDF	ND	U	0.365	26.0			1
2,3,4,7,8-PeCDF	ND	U	0.381	26.0			1
1,2,3,4,7,8-HxCDF	**1.66**	BJ	0.198	26.0	1.23	1.000	1
1,2,3,6,7,8-HxCDF	**2.02**	BJ	0.182	26.0	1.19	1.003	1
1,2,3,7,8,9-HxCDF	ND	U	0.223	26.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.207	26.0			1
1,2,3,4,6,7,8-HpCDF	**1.61**	BJK	0.398	26.0	0.85	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.516	26.0			1
OCDF	**2.36**	BJK	0.862	52.1	0.60	1.004	1
Total Tetra-Dioxins	ND	U	0.569	10.4			1
Total Penta-Dioxins	ND	U	0.317	26.0			1
Total Hexa-Dioxins	**2.04**	J	0.433	26.0	1.14		1
Total Hepta-Dioxins	**2.23**	J	0.242	26.0	1.01		1
Total Tetra-Furans	ND	U	0.512	10.4			1
Total Penta-Furans	ND	U	0.381	26.0			1
Total Hexa-Furans	**3.67**	J	0.182	26.0	1.23		1
Total Hepta-Furans	ND	U	0.398	26.0			1

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 1200
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW010	**Units:**	Percent
Lab Code:	E1200219-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 0818
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216934	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	249.003	25	Y	40-135	0.78	1.006
13C-1,2,3,7,8-PeCDD	1000	351.551	35	Y	40-135	1.59	1.152
13C-1,2,3,6,7,8-HxCDD	2500	749.616	30	Y	40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	775.908	31	Y	40-135	1.08	1.069
13C-OCDD	5000	1159.833	23	Y	40-135	0.91	1.153
13C-2,3,7,8-TCDF	1000	249.519	25	Y	40-135	0.78	0.981
13C-1,2,3,7,8-PeCDF	1000	330.035	33	Y	40-135	1.62	1.118
13C-1,2,3,4,7,8-HxCDF	2500	780.319	31	Y	40-135	0.52	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	755.674	30	Y	40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	222.218	28	Y	40-135	NA	1.007

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 1200
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW010	**Units:**	pg/L
Lab Code:	E1200219-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.569	10.4	1	1	
1,2,3,7,8-PeCDD	ND	0.317	26.0	1	1	
1,2,3,4,7,8-HxCDD	ND	0.471	26.0	1	0.1	
1,2,3,6,7,8-HxCDD	**2.04**	0.433	26.0	1	0.1	0.204
1,2,3,7,8,9-HxCDD	ND	0.431	26.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**2.23**	0.242	26.0	1	0.01	0.0223
OCDD	**17.0**	0.890	52.1	1	0.0003	0.00510
2,3,7,8-TCDF	ND	0.512	10.4	1	0.1	
1,2,3,7,8-PeCDF	ND	0.365	26.0	1	0.03	
2,3,4,7,8-PeCDF	ND	0.381	26.0	1	0.3	
1,2,3,4,7,8-HxCDF	**1.66**	0.198	26.0	1	0.1	0.166
1,2,3,6,7,8-HxCDF	**2.02**	0.182	26.0	1	0.1	0.202
1,2,3,7,8,9-HxCDF	ND	0.223	26.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.207	26.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.61**	0.398	26.0	1	0.01	0.0161
1,2,3,4,7,8,9-HpCDF	ND	0.516	26.0	1	0.01	
OCDF	**2.36**	0.862	52.1	1	0.0003	0.000708
		Total TEQ				0.616

2005 WHO TEFs, ND = 0

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 0940
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW01S	**Units:**	pg/L
Lab Code:	E1200219-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 0910
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216935	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.117	10.4			1
1,2,3,7,8-PeCDD	**0.946**	BJ	0.0625	26.0	1.57	1.000	1
1,2,3,4,7,8-HxCDD	**0.617**	J	0.0886	26.0	1.05	0.999	1
1,2,3,6,7,8-HxCDD	**1.13**	BJ	0.0813	26.0	1.08	1.000	1
1,2,3,7,8,9-HxCDD	**0.569**	BJK	0.0803	26.0	1.47	1.008	1
1,2,3,4,6,7,8-HpCDD	**1.63**	BJ	0.0771	26.0	1.08	1.000	1
OCDD	**15.0**	BJ	0.122	52.1	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.145	10.4			1
1,2,3,7,8-PeCDF	**1.16**	J	0.0844	26.0	1.35	1.000	1
2,3,4,7,8-PeCDF	ND	U	0.0876	26.0			1
1,2,3,4,7,8-HxCDF	**0.565**	BJ	0.0709	26.0	1.07	1.000	1
1,2,3,6,7,8-HxCDF	**0.947**	BJK	0.0646	26.0	1.01	1.003	1
1,2,3,7,8,9-HxCDF	ND	U	0.0803	26.0			1
2,3,4,6,7,8-HxCDF	**0.627**	BJK	0.0740	26.0	1.51	1.015	1
1,2,3,4,6,7,8-HpCDF	**1.82**	BJ	0.113	26.0	1.17	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.145	26.0			1
OCDF	**9.07**	BJ	0.182	52.1	0.96	1.005	1
Total Tetra-Dioxins	ND	U	0.117	10.4			1
Total Penta-Dioxins	**0.946**	J	0.0625	26.0	1.57		1
Total Hexa-Dioxins	**1.13**	J	0.0813	26.0	1.08		1
Total Hepta-Dioxins	**1.63**	J	0.0771	26.0	1.08		1
Total Tetra-Furans	ND	U	0.145	10.4			1
Total Penta-Furans	**1.16**	J	0.0876	26.0	1.35		1
Total Hexa-Furans	**0.565**	J	0.0646	26.0	1.07		1
Total Hepta-Furans	**1.82**	J	0.113	26.0	1.17		1

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 0940
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW01S	**Units:**	Percent
Lab Code:	E1200219-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 0910
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216935	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	468.537	47		40-135	0.79	1.007
13C-1,2,3,7,8-PeCDD	1000	685.772	69		40-135	1.58	1.153
13C-1,2,3,6,7,8-HxCDD	2500	1374.156	55		40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1377.531	55		40-135	1.06	1.069
13C-OCDD	5000	2028.571	41		40-135	0.90	1.153
13C-2,3,7,8-TCDF	1000	474.249	47		40-135	0.77	0.981
13C-1,2,3,7,8-PeCDF	1000	515.944	52		40-135	1.59	1.118
13C-1,2,3,4,7,8-HxCDF	2500	1306.594	52		40-135	0.53	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1267.367	51		40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	401.849	50		40-135	NA	1.007

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 0940
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW01S	**Units:**	pg/L
Lab Code:	E1200219-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.117	10.4	1	1	
1,2,3,7,8-PeCDD	**0.946**	0.0625	26.0	1	1	0.946
1,2,3,4,7,8-HxCDD	**0.617**	0.0886	26.0	1	0.1	0.0617
1,2,3,6,7,8-HxCDD	**1.13**	0.0813	26.0	1	0.1	0.113
1,2,3,7,8,9-HxCDD	**0.569**	0.0803	26.0	1	0.1	0.0569
1,2,3,4,6,7,8-HpCDD	**1.63**	0.0771	26.0	1	0.01	0.0163
OCDD	**15.0**	0.122	52.1	1	0.0003	0.00450
2,3,7,8-TCDF	ND	0.145	10.4	1	0.1	
1,2,3,7,8-PeCDF	**1.16**	0.0844	26.0	1	0.03	0.0348
2,3,4,7,8-PeCDF	ND	0.0876	26.0	1	0.3	
1,2,3,4,7,8-HxCDF	**0.565**	0.0709	26.0	1	0.1	0.0565
1,2,3,6,7,8-HxCDF	**0.947**	0.0646	26.0	1	0.1	0.0947
1,2,3,7,8,9-HxCDF	ND	0.0803	26.0	1	0.1	
2,3,4,6,7,8-HxCDF	**0.627**	0.0740	26.0	1	0.1	0.0627
1,2,3,4,6,7,8-HpCDF	**1.82**	0.113	26.0	1	0.01	0.0182
1,2,3,4,7,8,9-HpCDF	ND	0.145	26.0	1	0.01	
OCDF	**9.07**	0.182	52.1	1	0.0003	0.00272
		Total TEQ				1.47

2005 WHO TEFs, ND = 0

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 1430
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW020	**Units:**	pg/L
Lab Code:	E1200219-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	4/6/12 1040
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	4/4/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P217038	**Blank File Name:**	P217039
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P217031

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.256	10.4			1
1,2,3,7,8-PeCDD	ND	U	0.199	26.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.349	26.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.321	26.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.319	26.0			1
1,2,3,4,6,7,8-HpCDD	**3.06**	BJ	0.202	26.0	1.05	1.000	1
OCDD	**42.1**	BJ	0.510	52.1	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.158	10.4			1
1,2,3,7,8-PeCDF	ND	U	0.169	26.0			1
2,3,4,7,8-PeCDF	ND	U	0.176	26.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.178	26.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.162	26.0			1
1,2,3,7,8,9-HxCDF	ND	U	0.199	26.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.185	26.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.384	26.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.496	26.0			1
OCDF	**6.60**	BJK	0.386	52.1	0.68	1.004	1
Total Tetra-Dioxins	ND	U	0.256	10.4			1
Total Penta-Dioxins	ND	U	0.199	26.0			1
Total Hexa-Dioxins	**5.68**	J	0.321	26.0	1.12		1
Total Hepta-Dioxins	**8.40**	J	0.202	26.0	1.11		1
Total Tetra-Furans	ND	U	0.158	10.4			1
Total Penta-Furans	ND	U	0.176	26.0			1
Total Hexa-Furans	ND	U	0.162	26.0			1
Total Hepta-Furans	ND	U	0.384	26.0			1

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 1430
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW020	**Units:**	Percent
Lab Code:	E1200219-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	4/6/12 1040
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	4/4/12
Sample Amount:	960mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P217038	**Blank File Name:**	P217039
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P217031

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	414.706	41		40-135	0.78	1.007
13C-1,2,3,7,8-PeCDD	1000	612.408	61		40-135	1.58	1.152
13C-1,2,3,6,7,8-HxCDD	2500	1361.434	54		40-135	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1442.769	58		40-135	1.06	1.069
13C-OCDD	5000	2226.227	45		40-135	0.91	1.154
13C-2,3,7,8-TCDF	1000	440.660	44		40-135	0.78	0.981
13C-1,2,3,7,8-PeCDF	1000	532.645	53		40-135	1.56	1.118
13C-1,2,3,4,7,8-HxCDF	2500	1439.436	58		40-135	0.52	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1282.395	51		40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	378.185	47		40-135	NA	1.007

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 1430
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW020	**Units:**	pg/L
Lab Code:	E1200219-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.256	10.4	1	1	
1,2,3,7,8-PeCDD	ND	0.199	26.0	1	1	
1,2,3,4,7,8-HxCDD	ND	0.349	26.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.321	26.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.319	26.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**3.06**	0.202	26.0	1	0.01	0.0306
OCDD	**42.1**	0.510	52.1	1	0.0003	0.0126
2,3,7,8-TCDF	ND	0.158	10.4	1	0.1	
1,2,3,7,8-PeCDF	ND	0.169	26.0	1	0.03	
2,3,4,7,8-PeCDF	ND	0.176	26.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.178	26.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.162	26.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.199	26.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.185	26.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.384	26.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.496	26.0	1	0.01	
OCDF	**6.60**	0.386	52.1	1	0.0003	0.00198
		Total TEQ				0.0452

2005 WHO TEFs, ND = 0

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 1210
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW02S	**Units:**	pg/L
Lab Code:	E1200219-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 1052
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	980mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216937	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.315	10.2			1
1,2,3,7,8-PeCDD	ND	U	0.390	25.5			1
1,2,3,4,7,8-HxCDD	ND	U	0.394	25.5			1
1,2,3,6,7,8-HxCDD	**1.26**	BJ	0.362	25.5	1.12	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.360	25.5			1
1,2,3,4,6,7,8-HpCDD	**1.89**	BJK	0.179	25.5	1.21	1.000	1
OCDD	**14.8**	BJ	0.217	51.0	0.88	1.001	1
2,3,7,8-TCDF	ND	U	0.182	10.2			1
1,2,3,7,8-PeCDF	ND	U	0.276	25.5			1
2,3,4,7,8-PeCDF	ND	U	0.287	25.5			1
1,2,3,4,7,8-HxCDF	**0.782**	BJ	0.197	25.5	1.09	1.000	1
1,2,3,6,7,8-HxCDF	**1.52**	BJ	0.180	25.5	1.10	1.003	1
1,2,3,7,8,9-HxCDF	ND	U	0.222	25.5			1
2,3,4,6,7,8-HxCDF	ND	U	0.206	25.5			1
1,2,3,4,6,7,8-HpCDF	**1.06**	BJK	0.262	25.5	1.83	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.339	25.5			1
OCDF	**2.30**	BJK	0.347	51.0	0.53	1.005	1
Total Tetra-Dioxins	ND	U	0.315	10.2			1
Total Penta-Dioxins	ND	U	0.390	25.5			1
Total Hexa-Dioxins	**1.26**	J	0.362	25.5	1.12		1
Total Hepta-Dioxins	**1.71**	J	0.179	25.5	1.16		1
Total Tetra-Furans	ND	U	0.182	10.2			1
Total Penta-Furans	ND	U	0.287	25.5			1
Total Hexa-Furans	**2.31**	J	0.180	25.5	1.09		1
Total Hepta-Furans	ND	U	0.262	25.5			1

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 1210
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW02S	**Units:**	Percent
Lab Code:	E1200219-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 1052
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	980mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216937	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	333.542	33	Y	40-135	0.78	1.007
13C-1,2,3,7,8-PeCDD	1000	444.258	44		40-135	1.58	1.153
13C-1,2,3,6,7,8-HxCDD	2500	933.583	37	Y	40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1025.697	41		40-135	1.06	1.069
13C-OCDD	5000	1594.022	32	Y	40-135	0.90	1.153
13C-2,3,7,8-TCDF	1000	338.663	34	Y	40-135	0.77	0.981
13C-1,2,3,7,8-PeCDF	1000	414.917	41		40-135	1.57	1.118
13C-1,2,3,4,7,8-HxCDF	2500	916.148	37	Y	40-135	0.52	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	956.264	38	Y	40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	454.254	57		40-135	NA	1.007

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 6/12 1210
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12MW02S	**Units:**	pg/L
Lab Code:	E1200219-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.315	10.2	1	1	
1,2,3,7,8-PeCDD	ND	0.390	25.5	1	1	
1,2,3,4,7,8-HxCDD	ND	0.394	25.5	1	0.1	
1,2,3,6,7,8-HxCDD	**1.26**	0.362	25.5	1	0.1	0.126
1,2,3,7,8,9-HxCDD	ND	0.360	25.5	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.89**	0.179	25.5	1	0.01	0.0189
OCDD	**14.8**	0.217	51.0	1	0.0003	0.00444
2,3,7,8-TCDF	ND	0.182	10.2	1	0.1	
1,2,3,7,8-PeCDF	ND	0.276	25.5	1	0.03	
2,3,4,7,8-PeCDF	ND	0.287	25.5	1	0.3	
1,2,3,4,7,8-HxCDF	**0.782**	0.197	25.5	1	0.1	0.0782
1,2,3,6,7,8-HxCDF	**1.52**	0.180	25.5	1	0.1	0.152
1,2,3,7,8,9-HxCDF	ND	0.222	25.5	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.206	25.5	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.06**	0.262	25.5	1	0.01	0.0106
1,2,3,4,7,8,9-HpCDF	ND	0.339	25.5	1	0.01	
OCDF	**2.30**	0.347	51.0	1	0.0003	0.000690
		Total TEQ				0.391

2005 WHO TEFs, ND = 0

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 0800
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12RB01	**Units:**	pg/L
Lab Code:	E1200219-005	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 1144
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	880mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216938	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.121	11.4			1
1,2,3,7,8-PeCDD	**0.831**	BJK	0.104	28.4	1.24	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.135	28.4			1
1,2,3,6,7,8-HxCDD	**1.38**	BJ	0.124	28.4	1.21	1.000	1
1,2,3,7,8,9-HxCDD	**0.699**	BJ	0.123	28.4	1.06	1.008	1
1,2,3,4,6,7,8-HpCDD	**1.96**	BJ	0.0716	28.4	0.98	1.000	1
OCDD	**5.51**	BJ	0.0910	56.8	0.84	1.001	1
2,3,7,8-TCDF	ND	U	0.0978	11.4			1
1,2,3,7,8-PeCDF	**0.650**	JK	0.0773	28.4	1.09	1.000	1
2,3,4,7,8-PeCDF	ND	U	0.0807	28.4			1
1,2,3,4,7,8-HxCDF	**0.607**	BJK	0.0535	28.4	1.48	1.001	1
1,2,3,6,7,8-HxCDF	**1.05**	BJ	0.0489	28.4	1.28	1.003	1
1,2,3,7,8,9-HxCDF	**0.301**	BJK	0.0603	28.4	1.44	1.035	1
2,3,4,6,7,8-HxCDF	**0.523**	BJ	0.0557	28.4	1.27	1.016	1
1,2,3,4,6,7,8-HpCDF	**1.36**	BJ	0.0864	28.4	0.95	1.000	1
1,2,3,4,7,8,9-HpCDF	**0.448**	BJ	0.112	28.4	1.11	1.035	1
OCDF	**2.40**	BJ	0.214	56.8	0.83	1.005	1
Total Tetra-Dioxins	ND	U	0.121	11.4			1
Total Penta-Dioxins	ND	U	0.104	28.4			1
Total Hexa-Dioxins	**2.08**	J	0.124	28.4	1.21		1
Total Hepta-Dioxins	**3.46**	J	0.0716	28.4	1.07		1
Total Tetra-Furans	ND	U	0.0978	11.4			1
Total Penta-Furans	ND	U	0.0807	28.4			1
Total Hexa-Furans	**1.85**	J	0.0489	28.4	1.28		1
Total Hepta-Furans	**1.81**	J	0.0864	28.4	0.95		1

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 0800
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12RB01	**Units:**	Percent
Lab Code:	E1200219-005	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/23/12 1144
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	880mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216938	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216930

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	439.848	44		40-135	0.78	1.006
13C-1,2,3,7,8-PeCDD	1000	625.538	63		40-135	1.59	1.153
13C-1,2,3,6,7,8-HxCDD	2500	1326.823	53		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1418.883	57		40-135	1.05	1.069
13C-OCDD	5000	2068.015	41		40-135	0.90	1.153
13C-2,3,7,8-TCDF	1000	424.969	42		40-135	0.78	0.981
13C-1,2,3,7,8-PeCDF	1000	484.632	48		40-135	1.59	1.118
13C-1,2,3,4,7,8-HxCDF	2500	1246.535	50		40-135	0.52	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1322.173	53		40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	399.064	50		40-135	NA	1.007

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/ 7/12 0800
Sample Matrix:	Water	**Date Received:**	3/13/12
Sample Name:	12RB01	**Units:**	pg/L
Lab Code:	E1200219-005	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.121	11.4	1	1	
1,2,3,7,8-PeCDD	**0.831**	0.104	28.4	1	1	0.831
1,2,3,4,7,8-HxCDD	ND	0.135	28.4	1	0.1	
1,2,3,6,7,8-HxCDD	**1.38**	0.124	28.4	1	0.1	0.138
1,2,3,7,8,9-HxCDD	**0.699**	0.123	28.4	1	0.1	0.0699
1,2,3,4,6,7,8-HpCDD	**1.96**	0.0716	28.4	1	0.01	0.0196
OCDD	**5.51**	0.0910	56.8	1	0.0003	0.00165
2,3,7,8-TCDF	ND	0.0978	11.4	1	0.1	
1,2,3,7,8-PeCDF	**0.650**	0.0773	28.4	1	0.03	0.0195
2,3,4,7,8-PeCDF	ND	0.0807	28.4	1	0.3	
1,2,3,4,7,8-HxCDF	**0.607**	0.0535	28.4	1	0.1	0.0607
1,2,3,6,7,8-HxCDF	**1.05**	0.0489	28.4	1	0.1	0.105
1,2,3,7,8,9-HxCDF	**0.301**	0.0603	28.4	1	0.1	0.0301
2,3,4,6,7,8-HxCDF	**0.523**	0.0557	28.4	1	0.1	0.0523
1,2,3,4,6,7,8-HpCDF	**1.36**	0.0864	28.4	1	0.01	0.0136
1,2,3,4,7,8,9-HpCDF	**0.448**	0.112	28.4	1	0.01	0.00448
OCDF	**2.40**	0.214	56.8	1	0.0003	0.000720
		Total TEQ				1.35

2005 WHO TEFs, ND = 0

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG D1769

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
DIOX	%	12RB01	E1200219-005	NM	3/7/2012	3/15/2012	3/23/2012	8	8	16
DIOX	%	12MW02S	E1200219-004	NM	3/6/2012	3/15/2012	3/23/2012	9	8	17
DIOX	%	12MW020	E1200219-003	NM	3/6/2012	4/4/2012	4/6/2012	29	2	31
DIOX	%	12MW01S	E1200219-002	NM	3/7/2012	3/15/2012	3/23/2012	8	8	16
DIOX	%	12MW010	E1200219-001	NM	3/7/2012	3/15/2012	3/23/2012	8	8	16
DIOX	%	12GW-DUP01	E1200219-006	NM	3/6/2012	3/15/2012	3/23/2012	9	8	17
DIOX	PG/L	12RB01	E1200219-005	NM	3/7/2012	3/15/2012	3/23/2012	8	8	16
DIOX	PG/L	12MW02S	E1200219-004	NM	3/6/2012	3/15/2012	3/23/2012	9	8	17
DIOX	PG/L	12MW020	E1200219-003	NM	3/6/2012	4/4/2012	4/6/2012	29	2	31
DIOX	PG/L	12MW01S	E1200219-002	NM	3/7/2012	3/15/2012	3/23/2012	8	8	16
DIOX	PG/L	12MW010	E1200219-001	NM	3/7/2012	3/15/2012	3/23/2012	8	8	16
DIOX	PG/L	12GW-DUP01	E1200219-006	NM	3/6/2012	3/15/2012	3/23/2012	9	8	17

NASJRB WILLOW GROVE
WATER DATA
D1769

FRACTION	CHEMICAL	12MW02S	UNITS	12GW-DUP01	RPD	D	
DIOX	1,2,3,4,6,7,8,9-OCDD	14.8 B	PG/L	24.3 B	48.59	9.50	Blank
DIOX	1,2,3,4,6,7,8,9-OCDF	2.3 B	PG/L	2.15 B	6.74	0.15	
DIOX	1,2,3,4,6,7,8-HPCDD	1.89 B	PG/L	2.04 B	7.63	0.15	
DIOX	1,2,3,4,6,7,8-HPCDF	1.06 B	PG/L	1.23 B	14.85	0.17	
DIOX	1,2,3,4,7,8-HXCDD	ND	PG/L	0.7 J	200.00	0.70	o.K >2xRL
DIOX	1,2,3,4,7,8-HXCDF	0.782 B	PG/L	0.504 B	43.23	0.28	Blank
DIOX	1,2,3,6,7,8-HXCDD	1.26 B	PG/L	1.06 B	17.24	0.20	
DIOX	1,2,3,6,7,8-HXCDF	1.52 B	PG/L	1.14 B	28.57	0.38	
DIOX	1,2,3,7,8,9-HXCDD	ND	PG/L	0.503 B	200.00	0.50	Blank
DIOX	2,3,4,6,7,8-HXCDF	ND	PG/L	0.519 B	200.00	0.52	1
DIOX	2,3,7,8-TCDD	ND	PG/L	0.482 J	200.00	0.48	o.K >2xRL
~~DIOX~~	~~TEQ~~	~~0.391~~	~~PG/L~~	~~0.965~~	~~84.66~~	~~0.57~~	
DIOX	TOTAL HPCDD	1.71 J	PG/L	4.01 J	80.42	2.30	o.K >2xRL
DIOX	TOTAL HPCDF	ND	PG/L	1.23 B	200.00	1.23	Blank
DIOX	TOTAL HXCDD	1.26 B	PG/L	1.76 B	33.11	0.50	1
DIOX	TOTAL HXCDF	2.31 B	PG/L	1.14 B	67.83	1.17	

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

DATA PACKAGE

PROJECT NAME : CTO WE05 NAS JRB WILLOW GROVE

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : D1769

ATTENTION : Andy Frebowitz

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : D1769

Project ID : CTO WE05 NAS JRB Willow Grove

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
D1769-01	12MW010
D1769-02	12MW01S
D1769-03	D1769-02MS
D1769-04	D1769-02MSD
D1769-05	12MW020
D1769-06	12MW02S
D1769-11	12RB01
D1769-12	12GW-DUP01

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2012.04.13 07:54:03 -05'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

COLUMBIA ANALYTICAL SERVICES, INC

Client:	Chemtech Consulting Group, Inc.	**Service Request No.:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove	**Date Received:**	03/13/12
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six water samples were received for analysis at Columbia Analytical Services on 03/13/12.

The following discrepancies were noted upon initial sample inspection: no custody seals on cooler. The exceptions are also noted on the cooler receipt and preservation form included in this data package.

The samples were received at 1°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Re-extraction

Sample E1200219-003 (12MW020) was originally extracted on batch EQ1200145, but required re-extraction due to low labeled standard recoveries. The sample was re-extracted on batch EQ1200174. The valid results are reported from the second extraction. The results from the first extraction are not included in this report.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1200145-01 contained low levels of various compounds at or below the Method Reporting Limit (MRL).

The Method Blank EQ1200174-01 contained low levels of 1234678-HpCDD, OCDD, and OCDF at or below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with 'B' flags.

MS/MSD

EQ1200145: A Laboratory Control Spike (LCS) sample was analyzed and reported in addition to an MS/MSD for this extraction batch. The batch quality control criteria were met.

EQ1200174: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch. Insufficient sample volume was provided to perform MS/MSD. The batch quality control criteria were met.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The MRL = DoD LOQ, but the EDL is not directly correlated to LOD. The LOD is instrument and prep-method specific. ND compounds are reported to the LOD. LOD information can be found in the tables accompanying this report.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by CAS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1200219-001	12MW010	3/7/12	12:00
E1200219-002	12MW01S	3/7/12	09:40
E1200219-003	12MW020	3/6/12	14:30
E1200219-004	12MW02S	3/6/12	12:10
E1200219-005	12RB01	3/7/12	08:00
E1200219-006	12GW-DUP01	3/6/12	00:00

Superset Summary

Service Request: E1200219 **SuperSet Reference:** 12-0000208001 rev 00

8290/PCDD PCDF

Calibrations: 08/17/11

Data Files:

Raw Data	*Begin CCAL*	*Method Blank*	*Lab ID*
P216884	P216882	P216885	EQ1200145-02
P216886	P216882	P216885	EQ1200145-03
P216887	P216882	P216885	EQ1200145-04
P216916	P216914	P216916	EQ1200145-01
P216934	P216930	P216916	E1200219-001
P216935	P216930	P216916	E1200219-002
P216937	P216930	P216916	E1200219-004
P216938	P216930	P216916	E1200219-005
P216939	P216930	P216916	E1200219-006
P217038	P217031	P217039	E1200219-003
P217039	P217031	P217039	EQ1200174-01
P217040	P217031	P217039	EQ1200174-02
P217041	P217031	P217039	EQ1200174-03

Laboratory Certifications
2012-2013

STATE/PROGRAM	AGENCY	CERT#	EXP DATE	CERTIFIED?
DoD ELAP	A2LA	2897.01	11/30/12	Yes
ISO 17025	A2LA	2897.01	11/30/12	Yes
ARIZONA	AZ-DHS	AZ0725	05/27/12	Yes
ARKANSAS	ADEQ	10-035-0	06/16/12	Yes
CALIFORNIA	CA-ELAP	2452	02/28/13	Yes
FLORIDA/NELAP	FL-DOHS	E87611	06/30/12	Yes
HAWAII	HI-DOH	N/A	06/30/12	Yes
ILLINOIS/NELAP	IL-EPA	002611	10/26/12	Yes
LOUISIANA/NELAP	LELAP	03048	06/30/12	Yes
LOUISIANA/NELAP	LDHH	LA100032	12/31/12	Yes
MAINE	ME-DOHS	2010041	06/05/12	Yes
MICHIGAN	MIDEQ	9971	06/30/12	Yes
MINNESOTA	MDH	048-999-427	12/31/12	Yes
NEVADA	NDEP	TX014112010A	07/31/12	Yes (Extension)
NEW JERSEY	NJDEP	TX008	06/30/12	Yes
NEW MEXICO	NMED-DWB	N/A	06/30/12	Yes
NEW YORK/NELAP	NY-DOH	11707	04/1/12	Yes
OKLAHOMA	OKDEQ	2010-022	08/31/12	Yes
OREGON/NELAP	ORELAP	TX200002-006	03/24/12	Yes
PENNSYLVANIA/NELAP	PLAP	002	06/30/12	Yes
TENNESSEE	TNDEC	04016	06/30/12	Yes
TEXAS/NELAP	TCEQ	T104704216-10-1	06/30/12	Yes
UTAH/NELAP	UTELCP	COLU2	06/30/12	Yes
SOIL IMPORT PERMIT	USDA	P330-12-00002	01/13/15	Yes
WASHINGTON/NELAP	WA-Ecology	C819-10	11/14/12	Yes
WEST VIRGINIA	WVDEP	347	06/30/12	Yes

Abbreviations, Acronyms & Definitions

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
MRL	Method Reporting Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent Recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
RRT	Relative Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-Noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

Data Qualifier Flags – Dioxin/Furans

- **B** Indicates the associated analyte is found in the method blank, as well as in the sample.

- **C** Confirmation of the TCDF compound: When 2378-TCDF is detected on the DB-5 column, confirmation analyses are performed on a second column (DB-225). The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result should be used in determining the TEQ value for TCDF.

- **E** Indicates an estimated value – used when the analyte concentration exceeds the upper end of the linear calibration range.

- **J** Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).

- **K** EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

- **U** Indicates the compound was analyzed and not detected.

- **Y** Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y'. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

- **ND** Indicates concentration is reported as 'Not Detected.'

- **S** Peak is saturated; data not reportable.

- **P** Indicates chlorodiphenyl ether interference present at the retention time of the target compound.

- **Q** Lock-mass interference by chlorodiphenyl ether compounds.

E1200219

CHEMTECH

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
WWW.CHEMTECH.NET

CHAIN OF CUSTODY RECORD

Sub Lab INFORMATION	CLIENT PROJECT INFORMATION		CLIENT BILLING INFORMATION
COMPANY : Columbia Analytical Services	ORDER ID : D1769		BILL TO: CHEMTECH PO# :
ADDRESS : 19408 Park Row Suite 320	PROJECT ID:CTO WE05 NAS JRB Willow Grove		ADDRESS : 284, Sheffield Street
CITY:Houston State :TX ZIP :77084	PROJECT MANAGER Elizabeth		CITY: Mountainside State : NJ ZIP : 07092
E-mail :	E-mail : egriffiths@chemtech.net		ATTENTION :Elizabet
PHONE :281-994-2960	PHONE : (908) 789 8900	FAX: (908) 789 8922	PHONE : (908) 789 8900 FAX : (908) 789 8922

EDD : ADAPT **Report :** USEPA CLP **Comment :**

ID	CLIENT SAMPLE IDENTIFICATION	SAMPLE MATRIX	ANALYSIS	Preservative	Method	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	TAT DAYS
05	12MW020	Water	Dioxin (sub)	Cool 4 deg C	8290	03/06/2012	14:30:00	1	5

51 of 666

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGES POSSESSION INCLUDING COURIER DELIVERY

RELINQUIESHED BY SAMPLER:	DATETIME:	RECEIVED BY:	Conditions of bottles or Coolers at receipt:	Cooler Temp
1.		1.	952 bubblewrap gelpacks No seal 12A1704V1395498601 4°C ☐ Compliant ☐ Non Compliant	Ice or Cooler?
RELINQUIESHED BY: 2.	DATETIME:	RECEIVED BY: 2.		
RELINQUIESHED BY: 3.	DATETIME: 4.3.12 0945	RECEIVED BY: 3.	Page 1 of 1 ☐ OVERNIGHT ☐ OVERNIGHT	Shipment Complete: ☐ YES ☐ NO

E1200219

CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
WWW.CHEMTECH.NET

Sub Lab INFORMATION	CLIENT PROJECT INFORMATION		CLIENT BILLING INFORMATION
COMPANY : Columbia Analytical Services	ORDER ID : D1769		BILL TO: CHEMTECH PO# :
ADDRESS : 19408 Park Row Suite 320	PROJECT ID:CTO WE05 NAS JRB Willow Grove		ADDRESS : 284, Sheffield Street
CITY:Houston State :TX ZIP :77084	PROJECT MANAGER Elizabeth		CITY: Mountainside State : NJ ZIP : 07092
E-mail :	E-mail : egriffiths@chemtech.net		ATTENTION :Elizabet
PHONE :281-994-2960	PHONE : (908) 789 8900	FAX: (908) 789 8922	PHONE : (908) 789 8900 FAX : (908) 789 8922

EDD : SEDD 2A **Report :** USEPA CLP **Comment :**

52 of 666

ID	CLIENT SAMPLE IDENTIFICATION	SAMPLE MATRIX	ANALYSIS	Preservative	Method	SAMPLE COLLECTION		# OF BOTTLES	TAT DAYS
						DATE	TIME		
01	12MW010	Water	Dioxin (sub)	Cool 4 deg C	8290	03/07/2012	12:00:00	8	15
02	12MW01S	Water	Dioxin (sub)	Cool 4 deg C	8290	03/07/2012	09:40:00	8	15
03	12M[illegible]1SMS	Water	Dioxin (sub)	Cool 4 deg C	8290	03/07/2012	09:40:00	8	15
04	12MW01SMSD	Water	Dioxin (sub)	Cool 4 deg C	8290	03/07/2012	09:40:00	8	15
05	12MW020	Water	Dioxin (sub)	Cool 4 deg C	8290	03/06/2012	14:30:00	8	15
06	12MW02S	Water	Dioxin (sub)	Cool 4 deg C	8290	03/06/2012	12:10:00	8	15
11	12RB01	Water	Dioxin (sub)	Cool 4 deg C	8290	03/07/2012	08:00:00	8	15
12	12GW-DUP01	Water	Dioxin (sub)	Cool 4 deg C	8290	03/06/2012	00:00:00	8	15

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGES POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER: 1.	DATETIME:	RECEIVED BY: 1.	Conditions of bottles or Coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp ___ Ice or Cooler? ___ No seal outside wrap w/ice baggies Therm ID: 101915976 UPS 12A1704V1396914293
RELINQUISHED BY: 2.	DATETIME:	RECEIVED BY: 2.	
RELINQUISHED BY: 3.	DATETIME: 3 13 12 942	RECEIVED BY: 3. [signature]	Page 1 of 1 ☐ OVERNIGHT ☐ OVERNIGHT Shipment Complete: ☐ YES ☐ NO

Columbia Analytical Services

Cooler Receipt Form

Project Chemist: MC

Client/Project: Chemtech; 12MW010

Service Request: E1200219

Date/Time Received: 03/13/12 09:42:00

Date/Time Logged in: 03/13/12 11:33:00

Technician: AL

Technician: AL

1. Method of delivery: ○ US Mail ○ Fed Ex ◉ UPS ○ DHL ○ Courier ○ Client

2. Samples received in: ◉ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ◉ No ○ N/A

Were they intact? ○ Yes ○ No ◉ N/A

Were they signed and dated? ○ Yes ○ No ◉ N/A

If yes, how many and where?

4. Method of delivery: ○ Inserts ☑ Baggies ☑ Bubble Wrap ○ Gel Packs ☑ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ◉ No

Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?	Filed
1ZA1704V1396914293		Mar 13, 2012	0942	AL	1/1	☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ◉ Yes ○ No ○ N/A

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ◉ Yes ○ No ○ N/A

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ◉ Yes ○ No ○ N/A

9. Were appropriate bottles/containers and volumes received for the requested tests? ◉ Yes ○ No ○ N/A

10. Did sample labels and tags agree with custody documents? ◉ Yes ○ No ○ N/A

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Broken	Date	Technician
			☐	☐		
			☐	☐		
			☐	☐		
			☐	☐		

Notes, Discrepancies, & Resolutions:

Print Form

Reset Form

Columbia Analytical Services

Cooler Receipt Form

Project Chemist: MC

Client/Project: Chemtech; 12MW020

Service Request: E1200219

Date/Time Received: 04/03/12 09:45:00

Date/Time Logged in: 04/03/12 11:40:00

Technician: AL

Technician: AL

1. Method of delivery: ○ US Mail ○ Fed Ex ◉ UPS ○ DHL ○ Courier ○ Client

2. Samples received in: ◉ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ◉ No ○ N/A

Were they intact? ○ Yes ○ No ◉ N/A

Were they signed and dated? ○ Yes ○ No ◉ N/A

If yes, how many and where?

4. Method of delivery: ○ Inserts ○ Baggies ☑ Bubble Wrap ☑ Gel Packs ○ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ◉ No

Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?	Filed
1ZA1704V1395498601		Apr 3, 2012	0952	AL	4/4	☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ◉ Yes ○ No ○ N/A

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ◉ Yes ○ No ○ N/A

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ◉ Yes ○ No ○ N/A

9. Were appropriate bottles/containers and volumes received for the requested tests? ◉ Yes ○ No ○ N/A

10. Did sample labels and tags agree with custody documents? ◉ Yes ○ No ○ N/A

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Broken	Date	Technician
			☐	☐		
			☐	☐		
			☐	☐		
			☐	☐		

Notes, Discrepancies, & Resolutions:

Print Form

Reset Form

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1200219 | (DB-5) | DB-225 | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
03/26/12	JC	-001, -002, -003, -004, -005, -006

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
03/27/12	LKL	001 → 006

-003_ Needs Re-extract!

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1200219 (DB-5) DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 3/20/12 Analyst: ee Samples: MS, DMS

Second Level - Data Review – to be filled by person doing peer review

Date: 03/21/12 Analyst: [signature] Samples: ES145:03,04 (MS, DMS)

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1200219 (DB-5) DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
04/09/12	JC	-003RE

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
04/10/12	LKL	003RE

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1200145-01	**Basis:**	NA

Batch 153587

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/22/12 0829
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216916	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216914

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.349	10.0			1
1,2,3,7,8-PeCDD	**1.13**	J	0.199	25.0	1.51	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.118	25.0			1
1,2,3,6,7,8-HxCDD	**1.14**	J	0.108	25.0	1.36	1.000	1
1,2,3,7,8,9-HxCDD	**0.738**	J	0.108	25.0	1.25	1.008	1
1,2,3,4,6,7,8-HpCDD	**1.78**	JK	0.139	25.0	1.21	1.000	1
OCDD	**5.87**	J	0.273	50.0	0.79	1.000	1
2,3,7,8-TCDF	ND	U	0.185	10.0			1
1,2,3,7,8-PeCDF	ND	U	0.141	25.0			1
2,3,4,7,8-PeCDF	ND	U	0.148	25.0			1
1,2,3,4,7,8-HxCDF	**0.444**	JK	0.111	25.0	0.80	1.000	1
1,2,3,6,7,8-HxCDF	**0.976**	JK	0.101	25.0	0.99	1.003	1
1,2,3,7,8,9-HxCDF	**0.578**	J	0.125	25.0	1.09	1.034	1
2,3,4,6,7,8-HxCDF	**0.367**	JK	0.115	25.0	0.80	1.016	1
1,2,3,4,6,7,8-HpCDF	**1.41**	J	0.138	25.0	1.13	1.000	1
1,2,3,4,7,8,9-HpCDF	**0.542**	J	0.178	25.0	0.91	1.035	1
OCDF	**2.54**	J	0.273	50.0	0.89	1.005	1
Total Tetra-Dioxins	ND	U	0.349	10.0			1
Total Penta-Dioxins	**1.13**	J	0.199	25.0	1.51		1
Total Hexa-Dioxins	**1.88**	J	0.108	25.0	1.36		1
Total Hepta-Dioxins	ND	U	0.139	25.0			1
Total Tetra-Furans	**2.35**	J	0.185	10.0	0.85		1
Total Penta-Furans	ND	U	0.148	25.0			1
Total Hexa-Furans	**0.578**	J	0.101	25.0	1.09		1
Total Hepta-Furans	**1.95**	J	0.138	25.0	1.13		1

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1200145-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	3/22/12 0829
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	3/15/12
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P216916	**Blank File Name:**	P216916
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P216914

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	234.673	23	Y	40-135	0.79	1.006
13C-1,2,3,7,8-PeCDD	1000	426.079	43		40-135	1.58	1.152
13C-1,2,3,6,7,8-HxCDD	2500	1155.029	46		40-135	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1173.241	47		40-135	1.04	1.069
13C-OCDD	5000	1621.384	32	Y	40-135	0.90	1.153
13C-2,3,7,8-TCDF	1000	225.093	23	Y	40-135	0.77	0.981
13C-1,2,3,7,8-PeCDF	1000	331.174	33	Y	40-135	1.56	1.118
13C-1,2,3,4,7,8-HxCDF	2500	1118.291	45		40-135	0.52	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1085.181	43		40-135	0.45	1.045
37Cl-2,3,7,8-TCDD	800	328.878	41		40-135	NA	1.007

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Analyzed:**	3/20/12
Sample Matrix:	Water		

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Units:**	pg/L
Prep Method:	Method Sep Funnel/Jar	**Basis:**	NA
		Extraction Lot:	153587

Lab Control Sample
EQ1200145-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,3,7,8-TCDD	219	200	110	50 - 150
1,2,3,7,8-PeCDD	562	500	112	50 - 150
1,2,3,4,7,8-HxCDD	609	500	122	50 - 150
1,2,3,6,7,8-HxCDD	576	500	115	50 - 150
1,2,3,7,8,9-HxCDD	575	500	115	50 - 150
1,2,3,4,6,7,8-HpCDD	530	500	106	50 - 150
OCDD	921	1000	92	50 - 150
2,3,7,8-TCDF	224	200	112	50 - 150
1,2,3,7,8-PeCDF	579	500	116	50 - 150
2,3,4,7,8-PeCDF	620	500	124	50 - 150
1,2,3,4,7,8-HxCDF	572	500	114	50 - 150
1,2,3,6,7,8-HxCDF	568	500	114	50 - 150
1,2,3,7,8,9-HxCDF	519	500	104	50 - 150
2,3,4,6,7,8-HxCDF	526	500	105	50 - 150
1,2,3,4,6,7,8-HpCDF	595	500	119	50 - 150
1,2,3,4,7,8,9-HpCDF	705	500	141	50 - 150
OCDF	1220	1000	122	50 - 150

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

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QA/QC Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	3/7/12
Sample Matrix:	Water	**Date Received:**	3/13/12
		Date Analyzed:	3/20/12

Matrix Spike Summary

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Sample Name:	12MW01S	**Units:**	pg/L
Lab Code:	E1200219-002	**Basis:**	NA

Analytical Method: 8290
Prep Method: Method Sep Funnel/Jar

		12MW01SMS Matrix Spike EQ1200145-03			12MW01SDMS Duplicate Matrix Spike EQ1200145-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,7,8-TCDD	ND	224	208	108	236	208	113	50 - 150	5	20
1,2,3,7,8-PeCDD	0.946	586	521	112	602	521	115	50 - 150	3	20
1,2,3,4,7,8-HxCDD	0.617	629	521	121	640	521	123	50 - 150	2	20
1,2,3,6,7,8-HxCDD	1.13	607	521	116	603	521	116	50 - 150	<1	20
1,2,3,7,8,9-HxCDD	0.569	590	521	113	605	521	116	50 - 150	3	20
1,2,3,4,6,7,8-HpCDD	1.63	550	521	105	554	521	106	50 - 150	<1	20
OCDD	15.0	980	1040	93	993	1040	94	50 - 150	1	20
2,3,7,8-TCDF	ND	234	208	113	237	208	114	50 - 150	<1	20
1,2,3,7,8-PeCDF	1.16	613	521	117	617	521	118	50 - 150	<1	20
2,3,4,7,8-PeCDF	ND	601	521	115	596	521	114	50 - 150	<1	20
1,2,3,4,7,8-HxCDF	0.565	589	521	113	608	521	117	50 - 150	3	20
1,2,3,6,7,8-HxCDF	0.947	589	521	113	602	521	115	50 - 150	2	20
1,2,3,7,8,9-HxCDF	ND	537	521	103	563	521	108	50 - 150	5	20
2,3,4,6,7,8-HxCDF	0.627	507	521	97	477	521	91	50 - 150	6	20
1,2,3,4,6,7,8-HpCDF	1.82	619	521	118	629	521	120	50 - 150	2	20
1,2,3,4,7,8,9-HpCDF	ND	720	521	138	744	521	143	50 - 150	4	20
OCDF	9.07	1260	1040	120	1300	1040	123	50 - 150	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1200174-01	**Basis:**	NA

batch 154855

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	4/6/12 1153
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	4/4/12
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P217039	**Blank File Name:**	P217039
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P217031

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.132	10.0			1
1,2,3,7,8-PeCDD	ND	U	0.119	25.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.315	25.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.289	25.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.287	25.0			1
1,2,3,4,6,7,8-HpCDD	**1.67**	JK	0.230	25.0	0.85	1.001	1
OCDD	**15.3**	J	0.253	50.0	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.0761	10.0			1
1,2,3,7,8-PeCDF	ND	U	0.193	25.0			1
2,3,4,7,8-PeCDF	ND	U	0.201	25.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.175	25.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.160	25.0			1
1,2,3,7,8,9-HxCDF	ND	U	0.198	25.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.183	25.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.264	25.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.342	25.0			1
OCDF	**7.10**	J	0.277	50.0	0.88	1.005	1
Total Tetra-Dioxins	ND	U	0.132	10.0			1
Total Penta-Dioxins	ND	U	0.119	25.0			1
Total Hexa-Dioxins	ND	U	0.289	25.0			1
Total Hepta-Dioxins	**2.00**	J	0.230	25.0	1.02		1
Total Tetra-Furans	ND	U	0.0761	10.0			1
Total Penta-Furans	ND	U	0.201	25.0			1
Total Hexa-Furans	ND	U	0.160	25.0			1
Total Hepta-Furans	ND	U	0.264	25.0			1

COLUMBIA ANALYTICAL SERVICES, INC.
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Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1200219
Project:	CTO WE05 NAS JRB Willow Grove/D1769	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1200174-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	4/6/12 1153
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	4/4/12
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5
Data File Name:	P217039	**Blank File Name:**	P217039
ICAL Date:	08/17/11	**Cal Ver. File Name:**	P217031

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	511.254	51		40-135	0.80	1.007
13C-1,2,3,7,8-PeCDD	1000	673.726	67		40-135	1.57	1.152
13C-1,2,3,6,7,8-HxCDD	2500	1346.537	54		40-135	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1348.630	54		40-135	1.06	1.069
13C-OCDD	5000	1968.947	39	Y	40-135	0.90	1.153
13C-2,3,7,8-TCDF	1000	563.460	56		40-135	0.77	0.981
13C-1,2,3,7,8-PeCDF	1000	604.637	60		40-135	1.56	1.118
13C-1,2,3,4,7,8-HxCDF	2500	1443.315	58		40-135	0.52	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1195.269	48		40-135	0.44	1.045
37Cl-2,3,7,8-TCDD	800	445.069	56		40-135	NA	1.007

Client: Chemtech Consulting Group, Inc. **Service Request:** E1200219
Project: CTO WE05 NAS JRB Willow Grove/D1769 **Date Analyzed:** 4/ 6/12
Sample Matrix: Water

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290 **Units:** pg/L
Prep Method: Method Sep Funnel/Jar **Basis:** NA

Extraction Lot: 154855

	Lab Control Sample EQ1200174-02			Duplicate Lab Control Sample EQ1200174-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,7,8-TCDD	239	200	119	245	200	123	50 - 150	3	20
1,2,3,7,8-PeCDD	552	500	110	559	500	112	50 - 150	2	20
1,2,3,4,7,8-HxCDD	603	500	121	648	500	130	50 - 150	7	20
1,2,3,6,7,8-HxCDD	554	500	111	533	500	107	50 - 150	4	20
1,2,3,7,8,9-HxCDD	577	500	115	589	500	118	50 - 150	3	20
1,2,3,4,6,7,8-HpCDD	500	500	100	516	500	103	50 - 150	3	20
OCDD	871	1000	87	890	1000	89	50 - 150	2	20
2,3,7,8-TCDF	229	200	115	239	200	119	50 - 150	3	20
1,2,3,7,8-PeCDF	567	500	113	590	500	118	50 - 150	4	20
2,3,4,7,8-PeCDF	562	500	112	601	500	120	50 - 150	7	20
1,2,3,4,7,8-HxCDF	535	500	107	544	500	109	50 - 150	2	20
1,2,3,6,7,8-HxCDF	516	500	103	520	500	104	50 - 150	<1	20
1,2,3,7,8,9-HxCDF	519	500	104	547	500	109	50 - 150	5	20
2,3,4,6,7,8-HxCDF	562	500	112	580	500	116	50 - 150	4	20
1,2,3,4,6,7,8-HpCDF	533	500	107	555	500	111	50 - 150	4	20
1,2,3,4,7,8,9-HpCDF	668	500	134	691	500	138	50 - 150	3	20
OCDF	1130	1000	113	1160	1000	116	50 - 150	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Initial Calibration QC Checklist

ICAL Name: P1108178290I

Date: 17 Aug 11

Method: 1613 / (8290) / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: cee Second QC: LL

File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, August 17, 2011 09:24:49 Central Daylight Time

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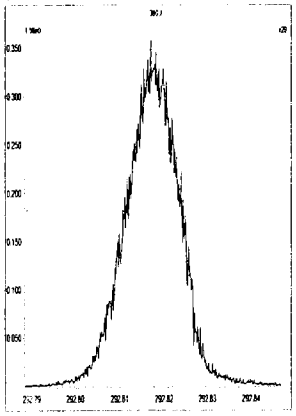

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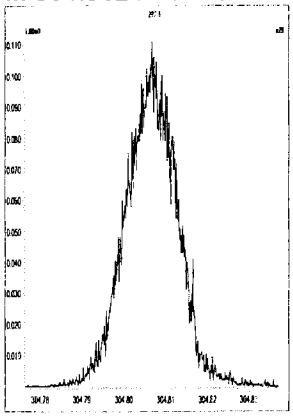

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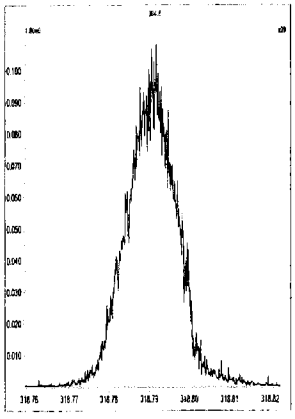

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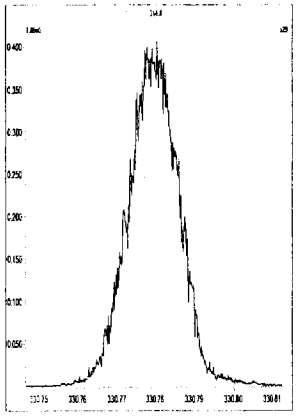

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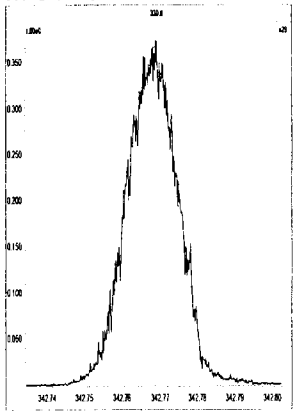
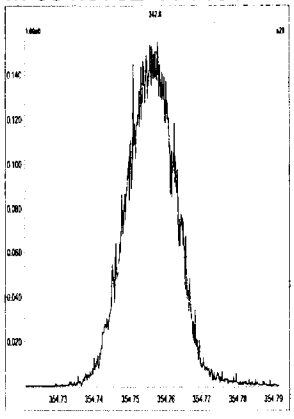
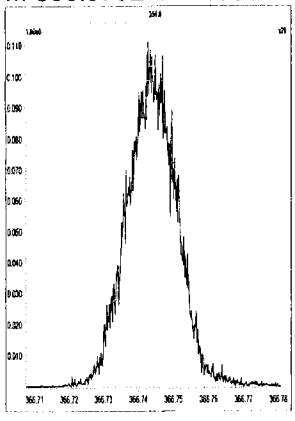


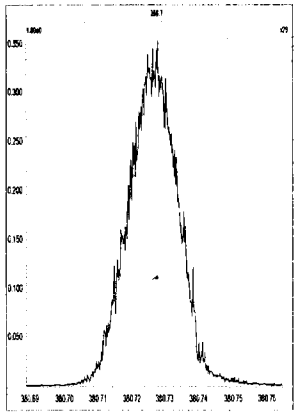
M 354.9792 R 11012



M 366.9792 R 12560



M 380.9760 R 11468



File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

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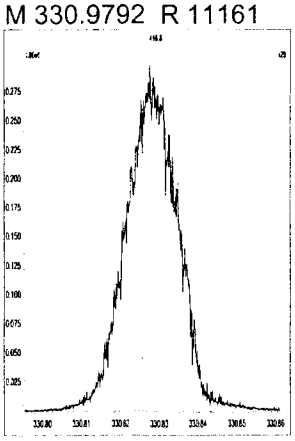
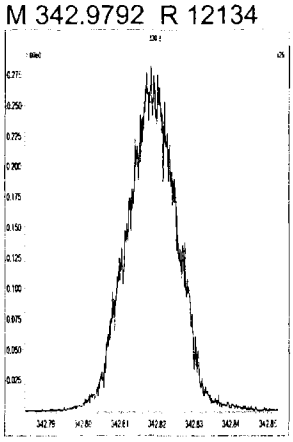
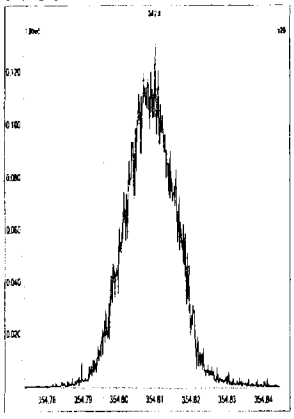
M 330.9792 R 11161



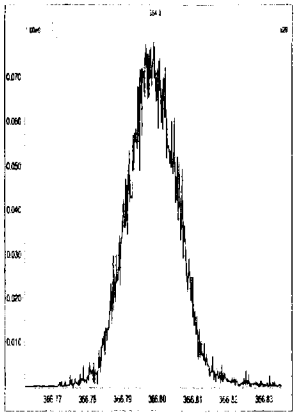
M 342.9792 R 12134



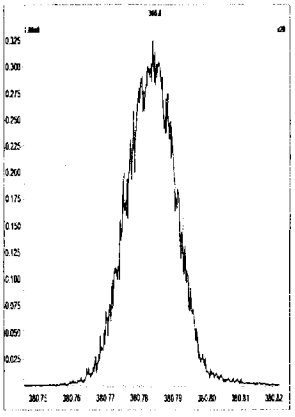
M 354.9792 R 11738



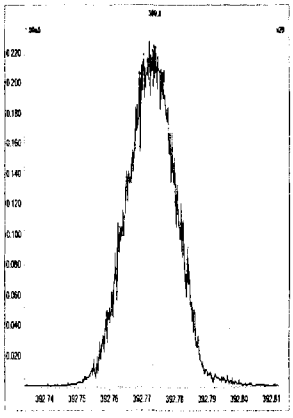
M 366.9792 R 11573



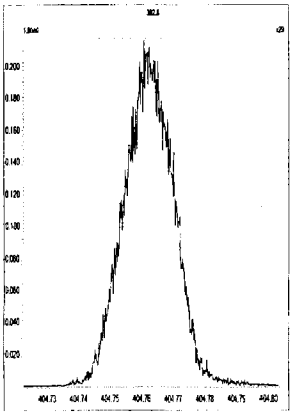
M 380.9760 R 11794



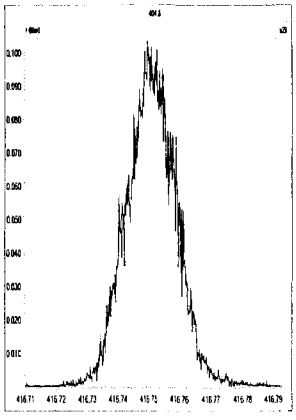
M 392.9760 R 12136



M 404.9760 R 11960



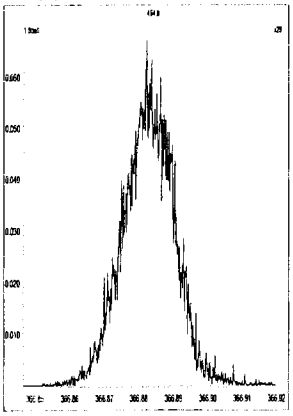
M 416.9760 R 11793



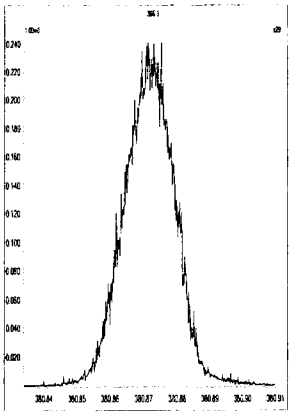
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, August 17, 2011 09:25:43 Central Daylight Time

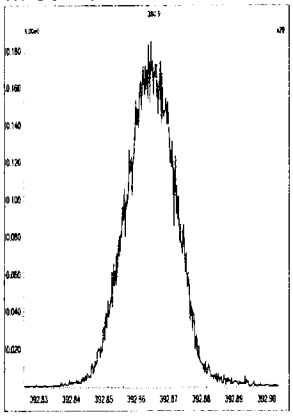
M 366.9792 R 11157



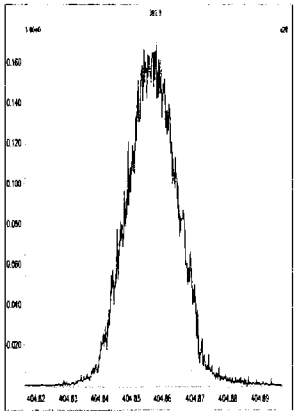
M 380.9760 R 11628



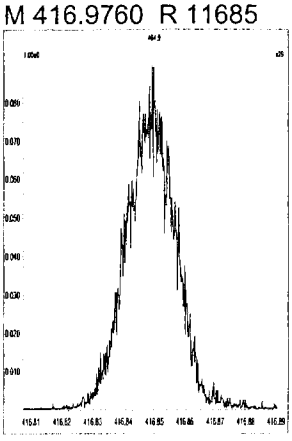
M 392.9760 R 11795



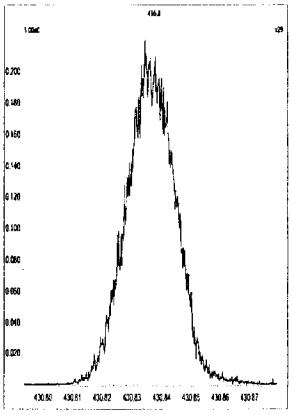
M 404.9760 R 12078



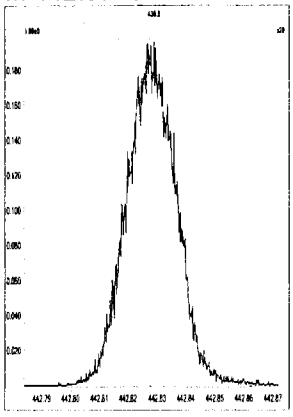
M 416.9760 R 11685



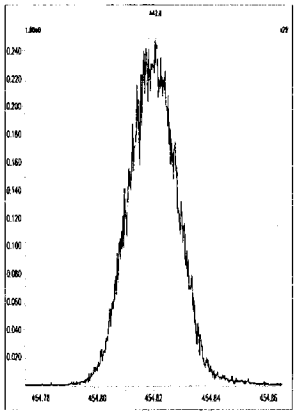
M 430.9728 R 11846



M 442.9728 R 11416



M 454.9728 R 11576



File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

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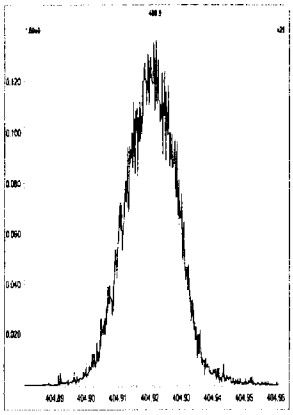
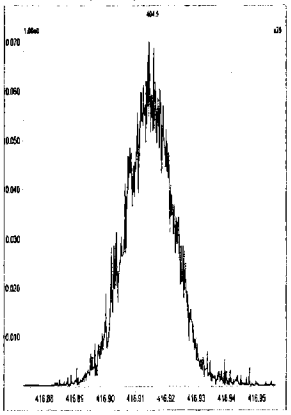
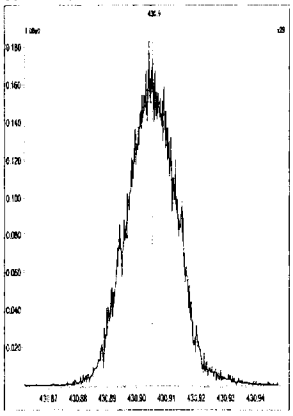
M 404.9760 R 11209



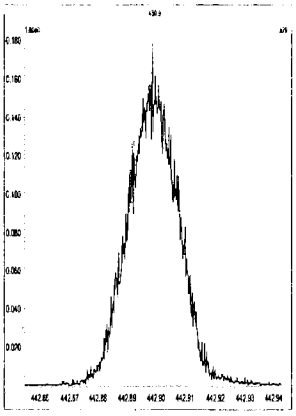
M 416.9760 R 12078



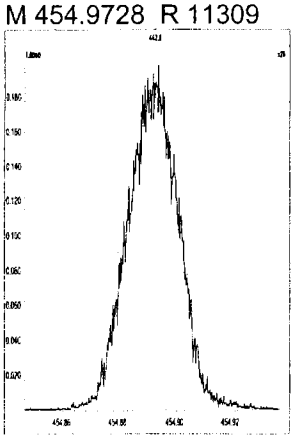
M 430.9728 R 11682



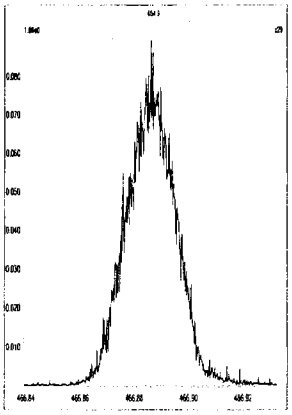
M 442.9728 R 11794



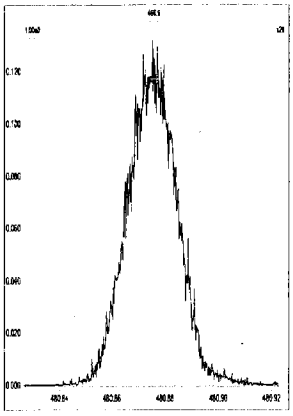
M 454.9728 R 11309



M 466.9728 R 12194



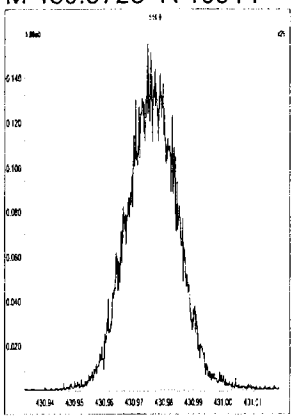
M 480.9696 R 12564



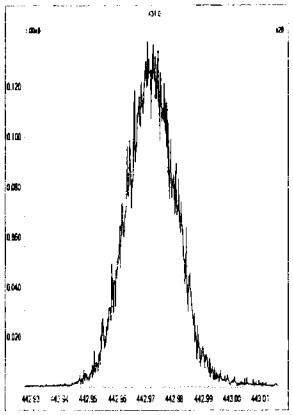
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, August 17, 2011 09:27:18 Central Daylight Time

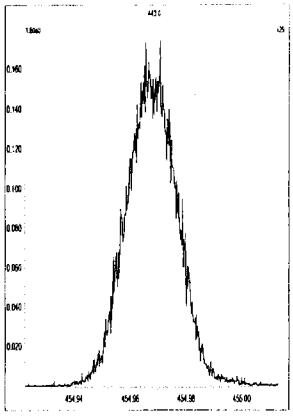
M 430.9728 R 10914



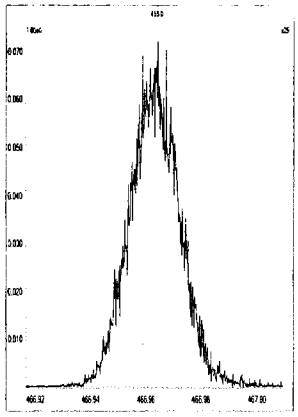
M 442.9728 R 11013



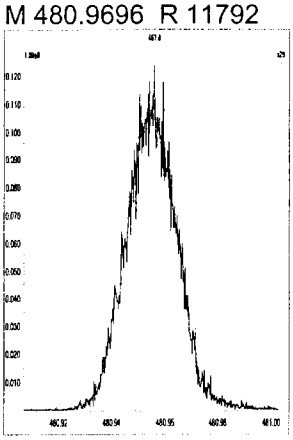
M 454.9728 R 11213



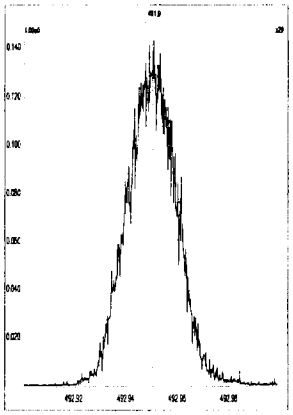
M 466.9728 R 11962



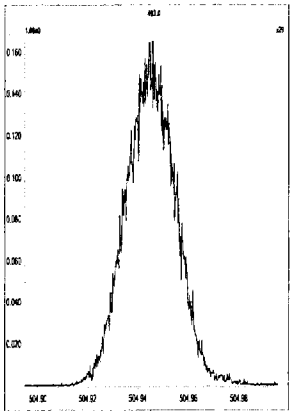
M 480.9696 R 11792



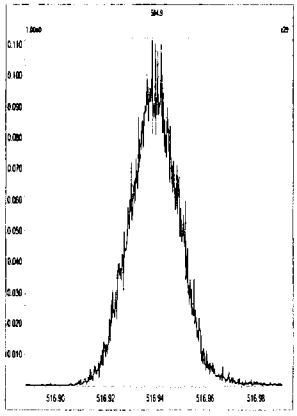
M 492.9696 R 12193



M 504.9696 R 11261



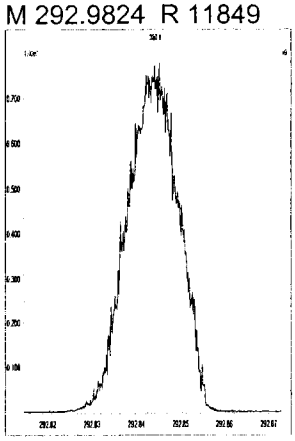
M 516.9697 R 11627



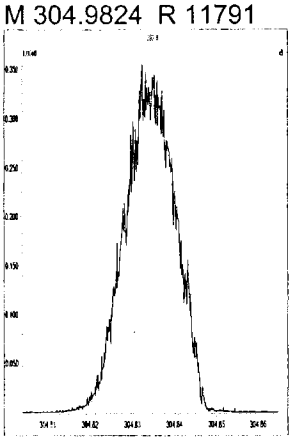
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, August 17, 2011 19:24:59 Central Daylight Time

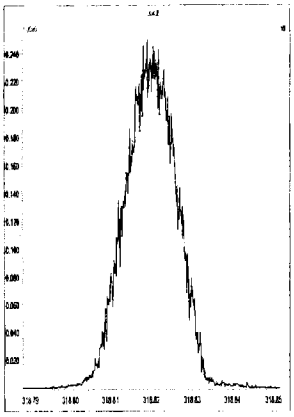
M 292.9824 R 11849



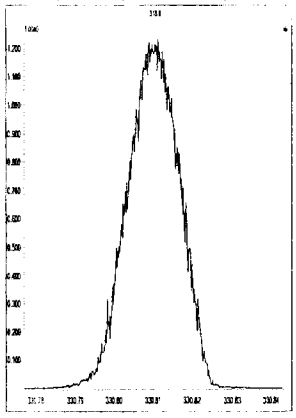
M 304.9824 R 11791



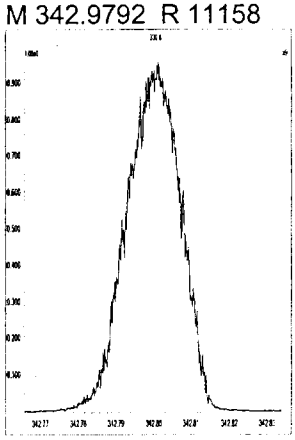
M 318.9792 R 11684



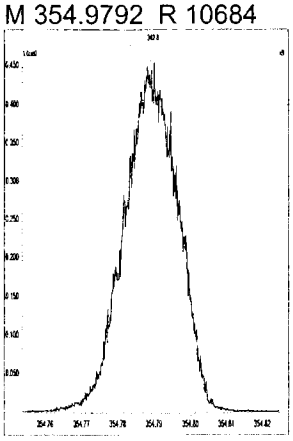
M 330.9792 R 11682



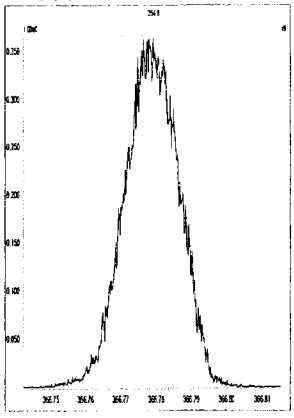
M 342.9792 R 11158



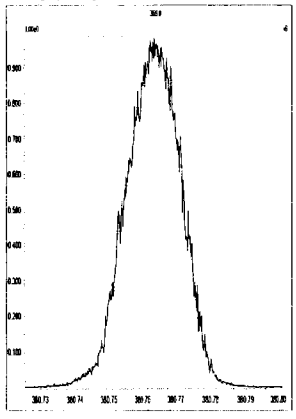
M 354.9792 R 10684



M 366.9792 R 10774



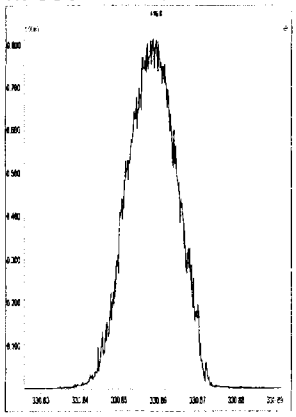
M 380.9760 R 10966



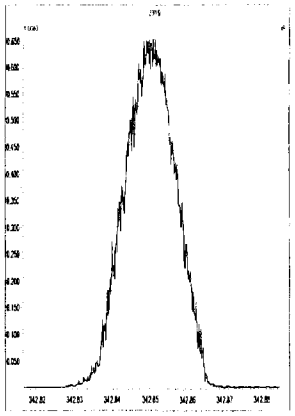
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, August 17, 2011 19:25:26 Central Daylight Time

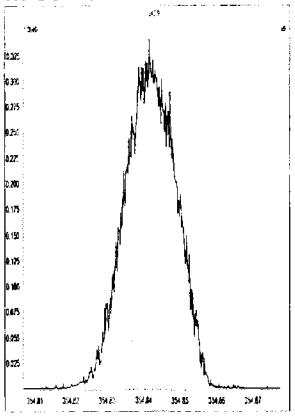
M 330.9792 R 12191



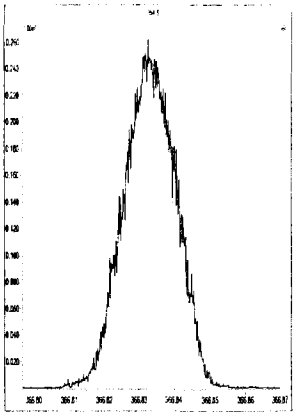
M 342.9792 R 11681



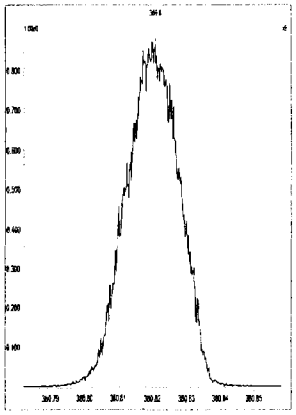
M 354.9792 R 11789



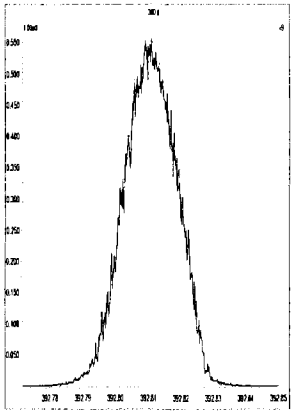
M 366.9792 R 11363



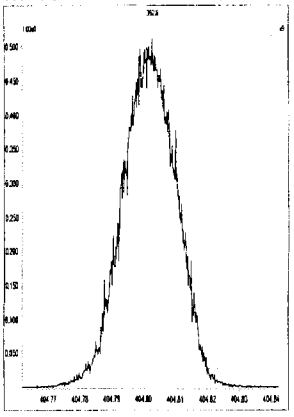
M 380.9760 R 11362



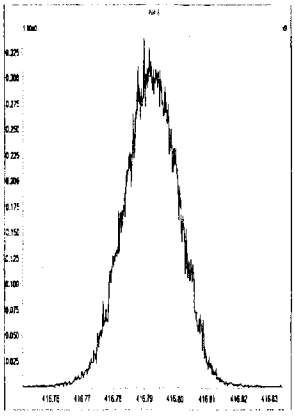
M 392.9760 R 11108



M 404.9760 R 11061



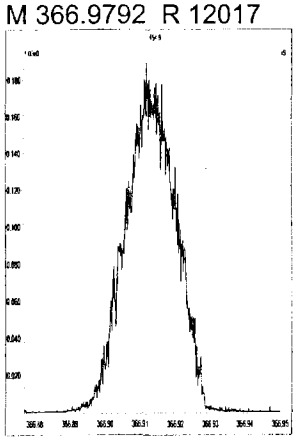
M 416.9760 R 10458



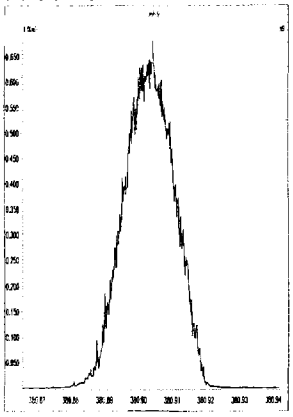
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, August 17, 2011 19:25:45 Central Daylight Time

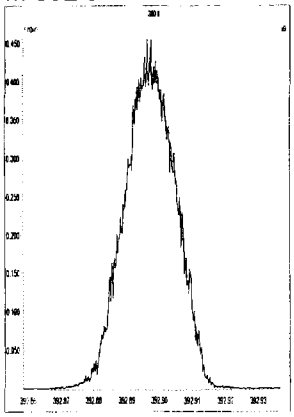
M 366.9792 R 12017



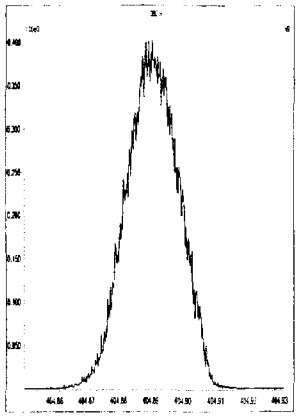
M 380.9760 R 11793



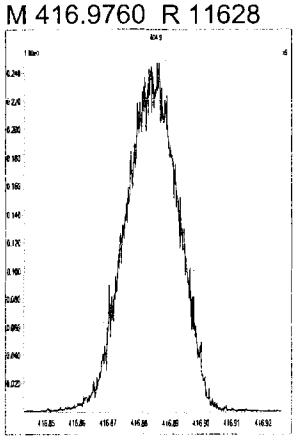
M 392.9760 R 12135



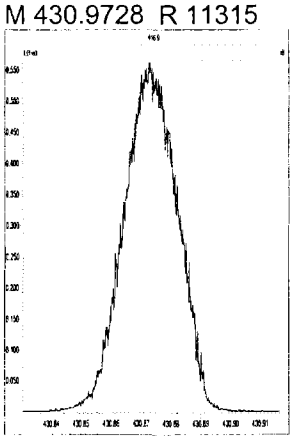
M 404.9760 R 11417



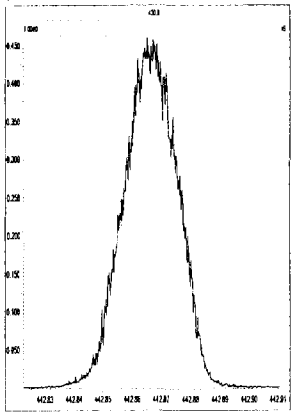
M 416.9760 R 11628



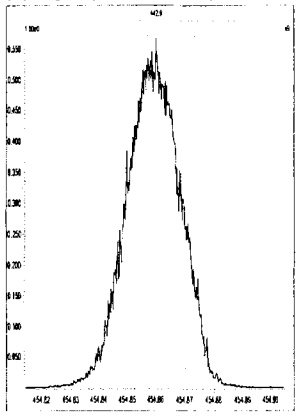
M 430.9728 R 11315



M 442.9728 R 10966



M 454.9728 R 10729



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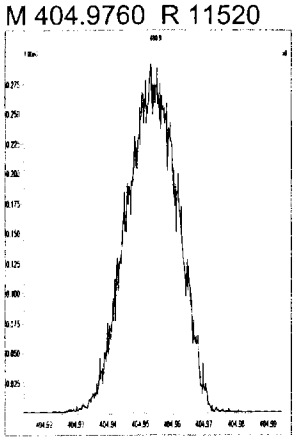
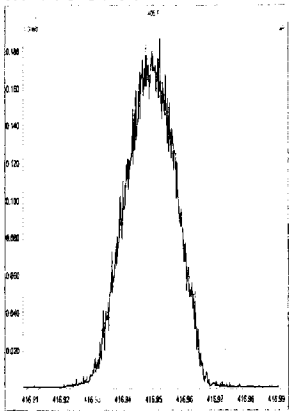
Printed: Wednesday, August 17, 2011 19:26:02 Central Daylight Time

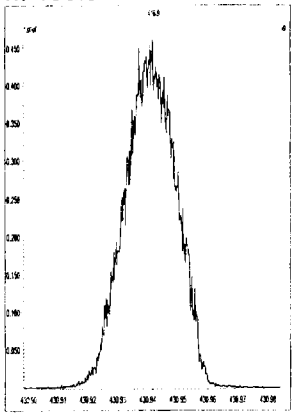
M 404.9760 R 11520



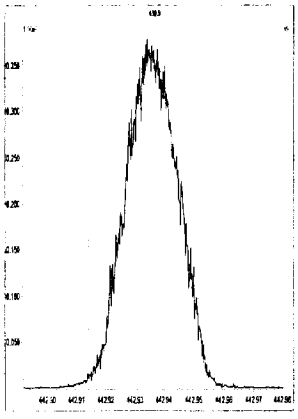
M 416.9760 R 11959



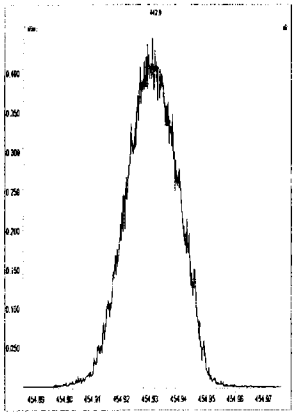
M 430.9728 R 11849



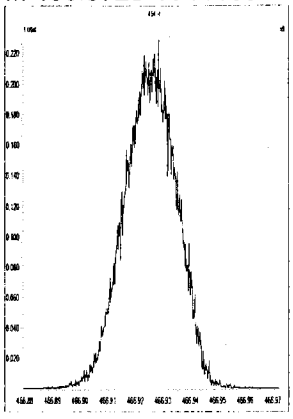
M 442.9728 R 11847



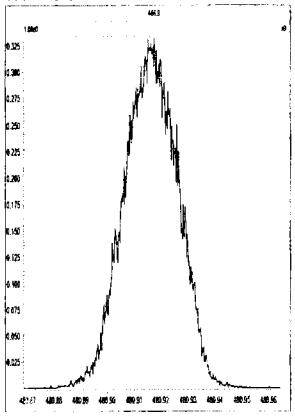
M 454.9728 R 11361



M 466.9728 R 11160



M 480.9696 R 11159



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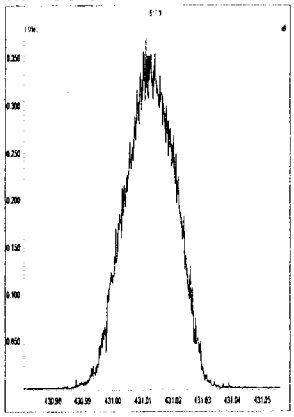
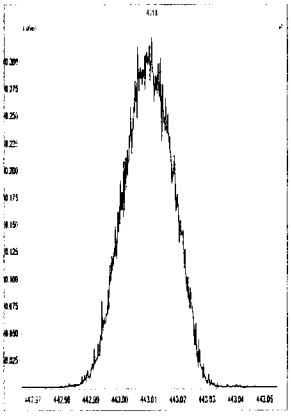
Printed: Wednesday, August 17, 2011 19:26:20 Central Daylight Time

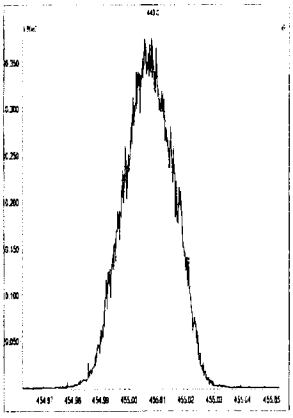
M 430.9728 R 12134



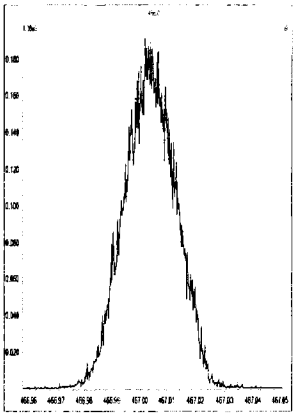
M 442.9728 R 11469



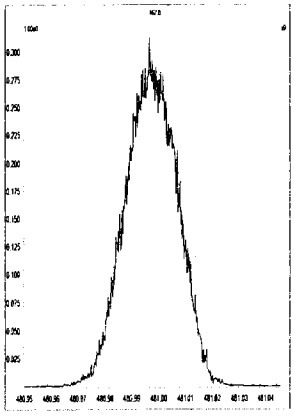
M 454.9728 R 11627



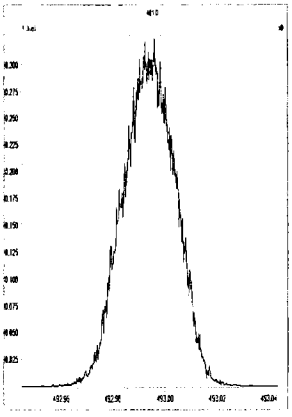
M 466.9728 R 11113



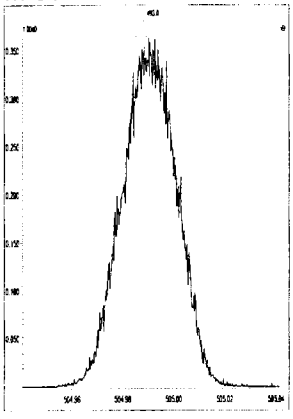
M 480.9696 R 11262



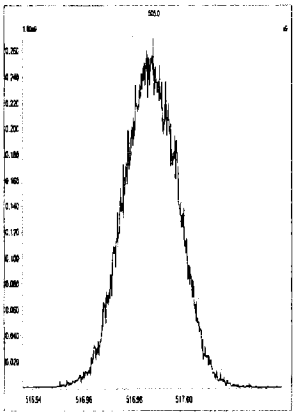
M 492.9696 R 11061



M 504.9696 R 10824



M 516.9697 R 10730



5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: db5 ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 08/17/11

Init. Calib.Times: 09:28:00

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	D11-100-5	P214087	17-AUG-11	09:28:00
CCAL HRCC1	D11-99-5	P214088	17-AUG-11	11:26:48
CCAL HRCC2	D11-99-4	P214089	17-AUG-11	12:23:03
CCAL HRCC3	D11-99-3	P214090	17-AUG-11	13:16:38
CCAL HRCC4	D11-99-2	P214091	17-AUG-11	14:32:37
CCAL HRCC5	D11-99-1	P214092	17-AUG-11	15:30:03
CCAL HRCC6	D11-100-1	P214093	17-AUG-11	16:24:01

Sample List Report | **MassLynx 4.1**

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2110817.SPL
Last Modified: Wednesday, August 17, 2011 19:27:52 Central Daylight Time
Printed: Thursday, August 18, 2011 04:56:15 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

C:P110817 8290I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	08/17/11	09:28	P214087	WINDOW DEFINE	D11-100-5	[illegible]	HRMS CHECK 09:24	8290CAS
2		11:26	P214088	ICAL HRCC1	D11-99-5			8290CAS
3		12:23	P214089	ICAL HRCC2	D11-99-4			8290CAS
4		13:16	P214090	ICAL HRCC3	D11-99-3			8290CAS
5		14:32	P214091	ICAL HRCC4	D11-99-2			8290CAS
6		15:30	P214092	ICAL HRCC5	D11-99-1			8290CAS
7		16:24	P214093	ICAL HRCC6	D11-100-4			8290CAS
8		17:48	P214094	CCAL HRCC3	D12-14-1			8290CAS
9		19:28	P214095	8290 INT STOCK D12-41-1A	8290 INT STOCK D12-41-1A		HRMS CHECK 19:24	8290CAS
10			---	---	---			8290CAS
11			---	---	---			8290CAS
12			---	---	---			8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20	---	---	---	---	---	---	---	8290CAS
21	---	---	---	---	---	---	---	8290CAS
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25	---	---	---	---	---	---	---	8290CAS
26	---	---	---	---	---	---	---	8290CAS
27	---	---	---	---	---	---	---	8290CAS
28	---	---	---	---	---	---	---	8290CAS
29	---	---	---	---	---	---	---	8290CAS
30	---	---	---	---	---	---	---	8290CAS
31	---	---	---	---	---	---	---	---
32	---	---	---	---	---	---	Reviewed by: CEE 8/17/11	---

039

FORM 3A
PCDD/PCDF INITIAL CALIBRATION RELATIVE RESPONSES

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

HRCC1 Data Filename: P214088 HRCC4 Data Filename: P214091

HRCC2 Data Filename: P214089 HRCC5 Data Filename: P214092

HRCC3 Data Filename: P214090 HRCC6 Data Filename: P214092

	RELATIVE RESPONSE (RR)						MEAN RR	Cv (RSD) (1)
NATIVE ANALYTES	HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6		
2,3,7,8-TCDD	0.95	0.90	0.87	0.91	0.91	0.91	0.91	2.74
1,2,3,7,8-PeCDD	0.86	0.83	0.84	0.85	0.83	0.87	0.85	1.86
1,2,3,4,7,8-HxCDD	0.85	0.88	0.84	0.86	0.88	0.93	0.87	3.51
1,2,3,6,7,8-HxCDD	0.99	0.93	0.95	0.98	0.93	0.93	0.95	2.78
1,2,3,7,8,9-HxCDD	0.95	0.96	0.95	0.96	0.93	0.98	0.96	1.64
1,2,3,4,6,7,8-HpCDD	0.97	1.08	0.97	0.97	0.97	0.99	0.99	4.39
OCDD	1.15	1.62	1.26	1.05	1.04	1.05	1.20	18.77
2,3,7,8-TCDF	0.87	0.85	0.84	0.86	0.88	0.88	0.86	1.87
1,2,3,7,8-PeCDF	0.87	0.86	0.86	0.89	0.89	0.90	0.88	2.15
2,3,4,7,8-PeCDF	0.87	0.81	0.80	0.88	0.86	0.86	0.85	4.08
1,2,3,4,7,8-HxCDF	1.05	1.10	1.06	1.07	1.09	1.12	1.08	2.59
1,2,3,6,7,8-HxCDF	1.17	1.13	1.17	1.24	1.20	1.22	1.19	3.13
1,2,3,7,8,9-HxCDF	0.99	0.93	0.91	0.97	0.98	1.00	0.96	3.58
2,3,4,6,7,8-HxCDF	0.98	1.02	1.00	1.07	1.06	1.11	1.04	4.55
1,2,3,4,6,7,8-HpCDF	1.25	1.29	1.23	1.25	1.25	1.26	1.25	1.55
1,2,3,4,7,8,9-HpCDF	0.96	0.94	0.95	0.95	1.01	1.01	0.97	3.22
OCDF	1.14	1.12	1.09	1.13	1.15	1.17	1.13	2.32

(1) The %RSD for the 17 unlabeled standard must not exceed +/- 20%, see Section 7.7.2.1, Method 8290.

8290F3AU6

FORM 3B
PCDD/PCDF INITIAL CALIBRATION RELATIVE RESPONSES

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

HCC1 Data Filename: P214088 HCC4 Data Filename: P214091

HCC2 Data Filename: P214089 HCC5 Data Filename: P214092

HCC3 Data Filename: P214090 HCC6 Data Filename: P214093

	RELATIVE RESPONSE (RR)						MEAN RR	Cv (RSD) (1)
	HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6		
LABELED COMPOUNDS								
13C-2,3,7,8-TCDD	0.95	0.90	0.90	0.95	0.98	1.03	0.95	5.10
13C-1,2,3,7,8-PeCDD	0.84	0.78	0.78	0.88	0.88	0.89	0.84	6.32
13C-1,2,3,6,7,8-HxCDD	0.94	0.96	0.96	0.97	0.97	0.92	0.95	1.89
13C-1,2,3,4,6,7,8-HpCDD	0.84	0.80	0.79	0.85	0.84	0.79	0.82	3.59
13C-OCDD	0.73	0.63	0.61	0.66	0.71	0.67	0.67	6.83
13C-2,3,7,8-TCDF	1.19	1.07	1.06	1.15	1.17	1.21	1.14	5.53
13C-1,2,3,7,8-PeCDF	1.11	1.03	1.02	1.15	1.14	1.21	1.11	6.52
13C-1,2,3,4,7,8-HxCDF	1.04	1.06	1.04	1.06	1.03	1.00	1.03	2.04
13C-1,2,3,4,6,7,8-HpCDF	0.84	0.83	0.83	0.89	0.86	0.82	0.85	3.07
CLEANUP STANDARD								
37Cl-2,3,7,8-TCDD	1.04	0.99	0.99	1.04	1.08	1.20	1.06	7.40

(1) The %RSD for the nine labeled reference compounds must not exceed +/- 30%, see Section 7.7.2.1, Method 8290.

8290F3B6

FORM 3C
PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE RATIOS

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

HCC1 Data Filename: P214088 HCC4 Data Filename: P214091

HCC2 Data Filename: P214089 HCC5 Data Filename: P214092

HCC3 Data Filename: P214090 HCC3 Data Filename: P214090

	M/Z'S FORMING RATIO	ION ABUNDANCE RATIO						QC LIMITS (2)
		HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6	
NATIVE ANALYTES								
2,3,7,8-TCDD	M/M+2	0.69	0.77	0.75	0.77	0.77	0.77	0.65-0.89
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.44	1.55	1.53	1.54	1.55	1.32-1.78
1,2,3,4,7,8-HxCDD	M+2/M+4	1.15	1.22	1.24	1.24	1.25	1.33	1.05-1.43
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.24	1.26	1.25	1.25	1.18	1.05-1.43
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.32	1.20	1.28	1.25	1.25	1.05-1.43
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	1.05	1.03	1.03	1.04	1.03	0.88-1.20
OCDD	M+2/M+4	0.90	0.91	0.88	0.88	0.89	0.89	0.76-1.02
2,3,7,8-TCDF	M/M+2	0.67	0.72	0.79	0.76	0.75	0.76	0.65-0.89
1,2,3,7,8-PeCDF	M+2/M+4	1.64	1.52	1.52	1.54	1.54	1.55	1.32-1.78
2,3,4,7,8-PeCDF	M+2/M+4	1.36	1.56	1.52	1.55	1.53	1.54	1.32-1.78
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.21	1.21	1.23	1.23	1.23	1.05-1.43
1,2,3,6,7,8-HxCDF	M+2/M+4	1.15	1.22	1.19	1.23	1.23	1.23	1.05-1.43
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.21	1.23	1.25	1.23	1.23	1.05-1.43
2,3,4,6,7,8-HxCDF	M+2/M+4	1.14	1.20	1.24	1.23	1.21	1.23	1.05-1.43
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.98	0.99	1.01	1.01	1.02	1.02	0.88-1.20
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.99	1.05	1.02	1.01	1.02	1.02	0.88-1.20
OCDF	M+2/M+4	0.92	0.91	0.91	0.90	0.90	0.90	0.76-1.02

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits from Table 8, Method 8290.

8290F3C6

FORM 3D
PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE RATIOS

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

HRCC1 Data Filename: P214088 HRCC4 Data Filename: P214091

HRCC2 Data Filename: P214089 HRCC5 Data Filename: P214092

HRCC3 Data Filename: P214090 HRCC3 Data Filename: P214093

LABELED COMPOUNDS	M/Z'S FORMING RATIO	ION ABUNDANCE RATIO HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6	QC LIMITS (2)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.79	0.77	0.78	0.79	0.79	0.65-0.89
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.55	1.58	1.61	1.57	1.55	1.32-1.78
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.25	1.26	1.26	1.25	1.27	1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	1.05	1.05	1.07	1.07	1.05	0.88-1.20
13C-OCDD	M+2/M+4	0.90	0.89	0.89	0.90	0.90	0.90	0.76-1.02
13C-2,3,7,8-TCDF	M/M+2	0.77	0.79	0.79	0.78	0.78	0.79	0.65-0.89
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.56	1.59	1.57	1.58	1.61	1.32-1.78
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.52	0.52	0.52	0.52	0.52	0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.45	0.45	0.45	0.45	0.44	0.37-0.51

(1) See Table 6, Method 8290, for m/z specifications.Method 8290.

(2) Ion Abundance Ratio Control Limits from Table 8,

8290F3D6

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P214087
Date Analyzed: 17-AUG-2011
Time Analyzed: 09:28:00

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:52	29:52
TCDD	25:36	29:51
PeCDF	30:08	34:05
PeCDD	31:32	33:55
HxCDF	34:58	37:19
HxCDD	35:28	36:59
HpCDF	38:41	39:59
HpCDD	38:56	39:34

% Valley 2378-TCDD: 6 %

RW/ HRCC3 Daily Calibration QC Checklist

Calibration File Name: P216882-P216888 Beginning / Ending

Date: 20 Mar 12

Method: (8290) / Tetra / TCDD Only / TCDF Conf

Retention Window/Column Performance Check:	**Analyst**	**Second Check**
Windows labeled for first and last eluting compounds	—	✓
Column performance shows less than or equal to 25% valley between column specific 2378 isomer and the closest eluters	—	✓
No QC ion deflections affect column specific 2378 isomer or the closest eluters	—	✓

HRCC3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	—	✓
All relative abundance ratios meet method criteria	—	✓
No QC ion deflections greater than 20%	—	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	—	✓
Signal-to-noise of all target analytes and associated labeled standards at least 10:1	—	✓
Ending Calibration injected prior to end of 12 hour clock	—	✓

Analyst: CEE Second QC: SA

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 08/17/11

Init. Calib.Times: 09:28:00

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		P216881	20-MAR-12	07:27:35
CCAL HRCC3	CCAL HRCC3	P216882	20-MAR-12	08:23:09
CCAL HRCC3	CCAL HRCC3	P216888	20-MAR-12	15:07:18
LCS	EQ1200145-02	P216883	20-MAR-12	09:17:11
LCS	EQ1200145-02	P216884	20-MAR-12	11:38:35
METHOD BLANK	EQ1200145-01	P216885	20-MAR-12	12:33:03
12MW01S MS	EQ1200145-03	P216886	20-MAR-12	13:21:37
12MW01S DMS	EQ1200145-04	P216887	20-MAR-12	14:13:09

E1200219

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2120320.SPL

Last Modified: Tuesday, March 20, 2012 16:20:13 Central Daylight Time

Printed: Tuesday, March 20, 2012 16:30:15 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

C:P216882RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	03/20/12	06:32	P216880	WINDOW DEFINE	D12-56-2		HRMS Check 06:30	8290CAS	8290CAS
2		07:27	P216881	WINDOW DEFINE	D12-56-2			8290CAS	8290CAS
3		08:23	P216882	CCAL HRCC3	D11-99-3			8290CAS	8290CAS
4		09:17	P216883	EQ1200145-02	LCS			8290CAS	8290CAS
5		11:38	P216884	EQ1200145-02	LCS			8290CAS	8290CAS
6		12:33	P216885	EQ1200145-01	MB			8290CAS	8290CAS
7		13:27	P216886	EQ1200145-03	12MW01S MS			8290CAS	8290CAS
8		14:13	P216887	EQ1200145-04	12MW01S DMS			8290CAS	8290CAS
9		15:07	P216888	CCAL HRCC3-B	D11-99-3		HRMS Check 16:22	8290CAS	8290CAS
10			---	---	---			8290CAS	8290CAS
11			---	---	---			8290CAS	8290CAS
12			---	---	---			8290CAS	8290CAS
13			---	---	---			8290CAS	8290CAS
14			---	---	---			8290CAS	8290CAS
15			---	---	---			8290CAS	8290CAS
16			---	---	---			8290CAS	8290CAS
17			---	---	---			TCDFCAS	8290CAS
18			---	---	---			TCDFCAS	8290CAS
19			---	---	---			TCDFCAS	8290CAS
20			---	---	---			---	---
21			---	---	---			---	---
22	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	TCDFCAS	tcdf
24	---	---	---	---	---	---	---	TCDFCAS	tcdf
25	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	TCDFCAS	tcdf
27	---	---	---	---	---	---	---	TCDFCAS	8290CAS
28	---	---	---	---	---	---	---	TCDFCAS	8290CAS
29	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	8290CAS	8290CAS
31	---	---	---	---	---	---	---	8290CAS	8280CAS
32	---	---	---	---	---	---		---	---

Reviewed by: [signature]

3/20/12

369 of 666

047

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, March 20, 2012 06:30:34 Central Daylight Time

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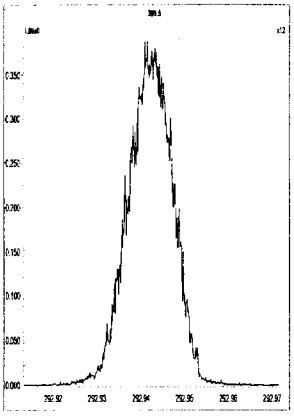
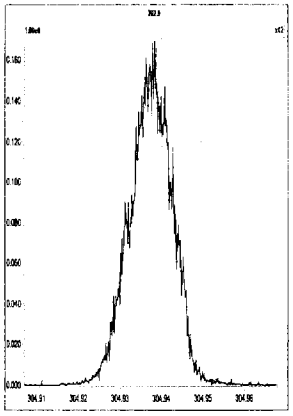
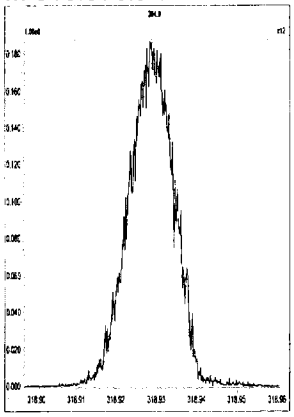


M 304.9824 R 13589



M 318.9792 R 13441



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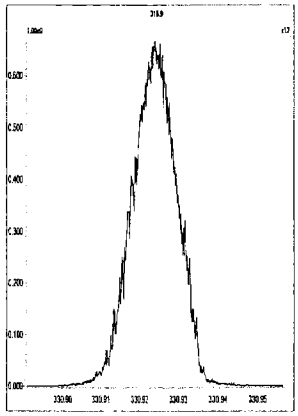
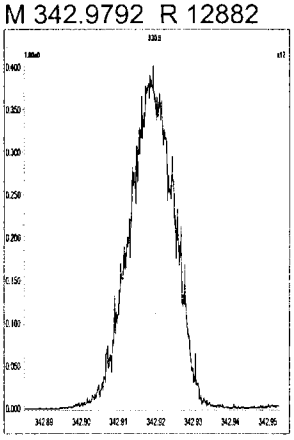
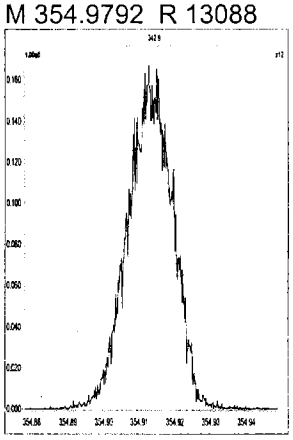


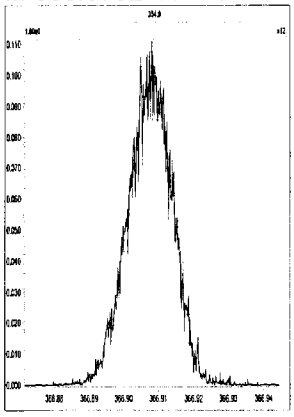
M 342.9792 R 12882



M 354.9792 R 13088



M 366.9792 R 13511



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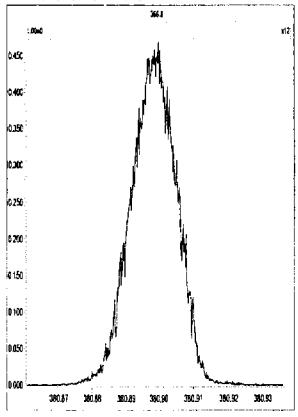

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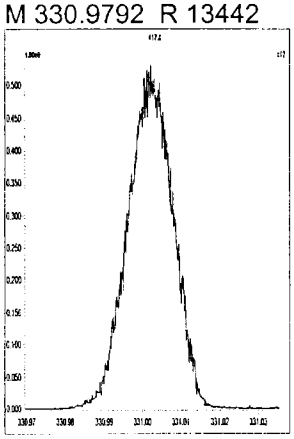
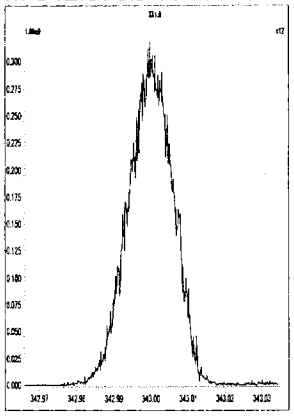
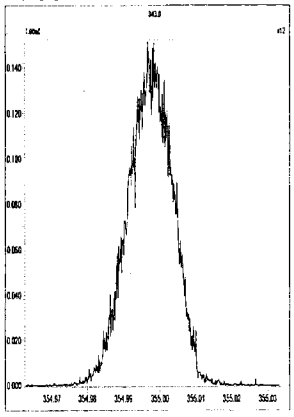


M 342.9792 R 13088



M 354.9792 R 13018



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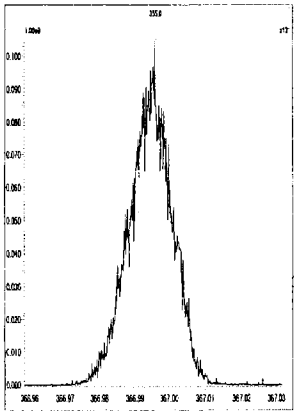
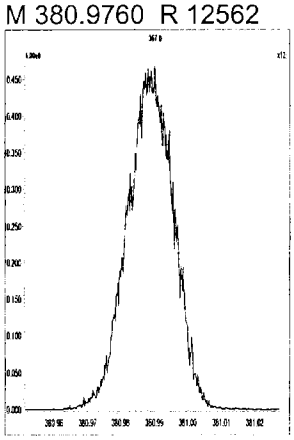


M 380.9760 R 12562



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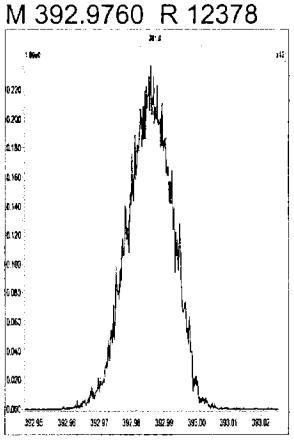

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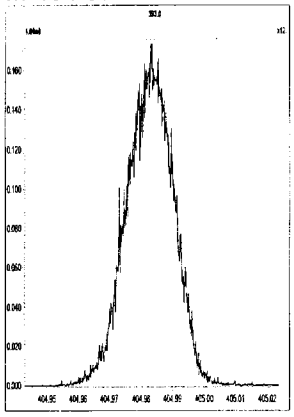
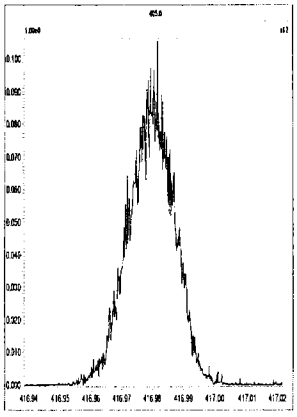


M 416.9760 R 12436



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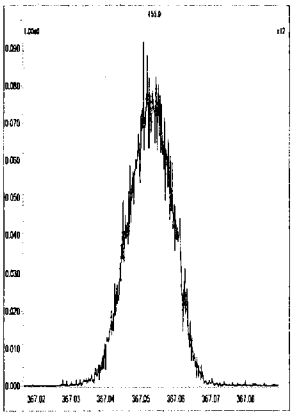

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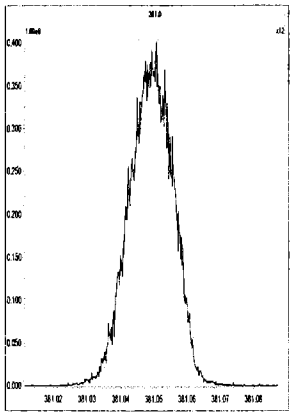

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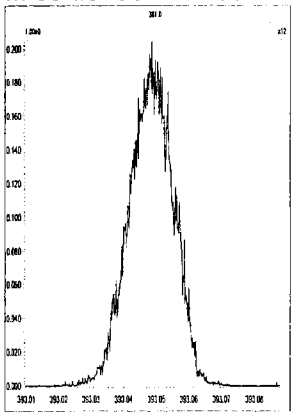
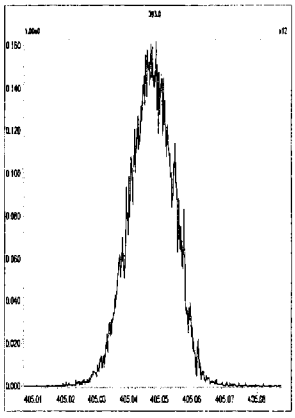


M 404.9760 R 14042



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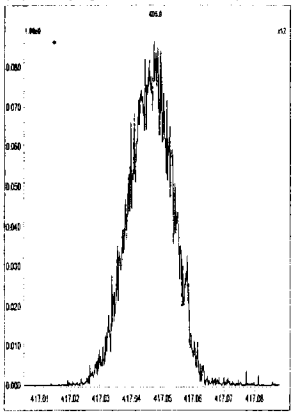
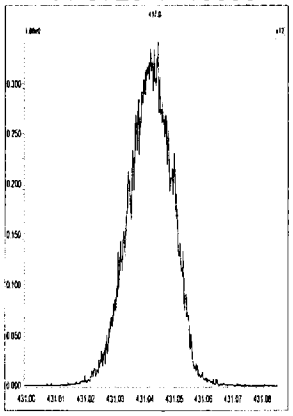
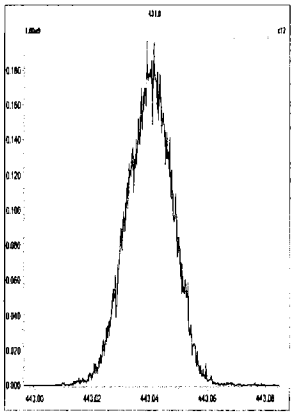


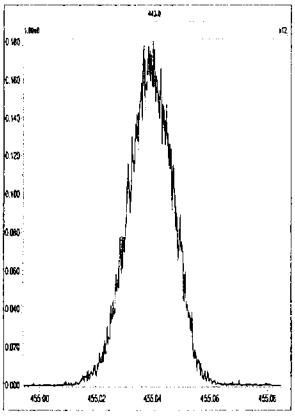
M 430.9728 R 13093



M 442.9728 R 12688



M 454.9728 R 12821



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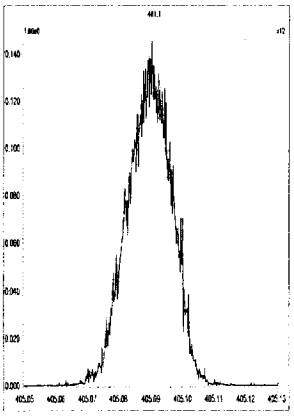

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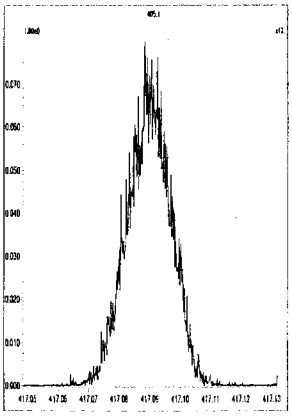

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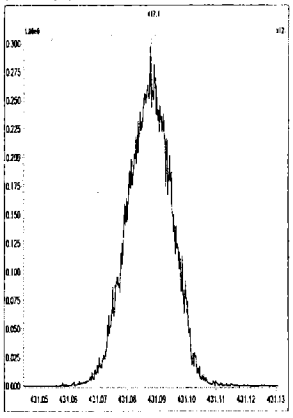

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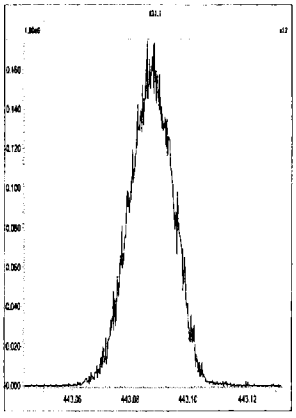

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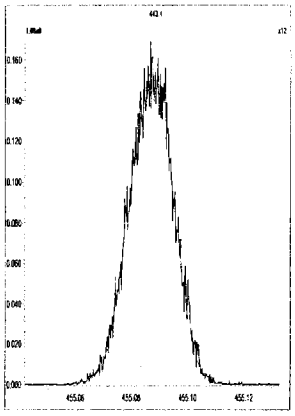

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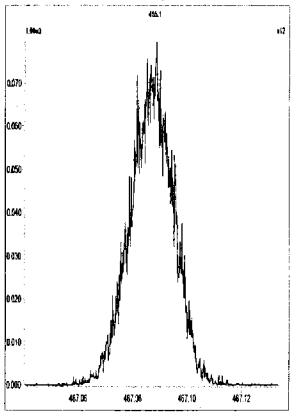

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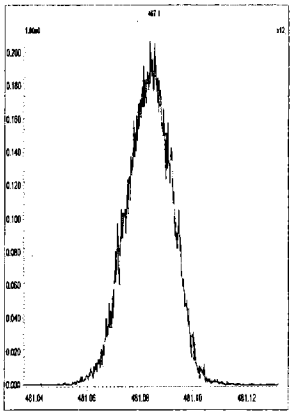

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Printed: Tuesday, March 20, 2012 06:32:10 Central Daylight Time

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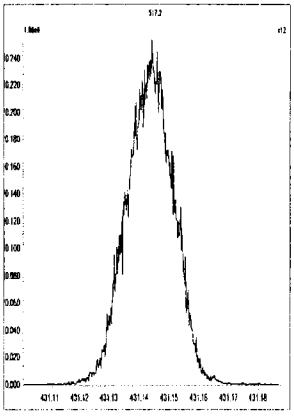

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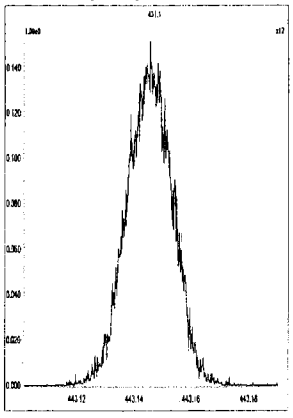

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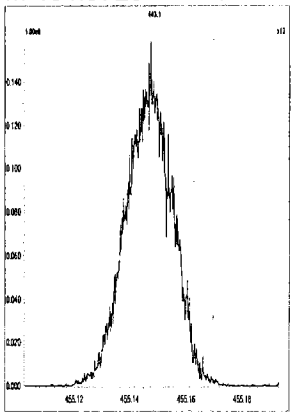

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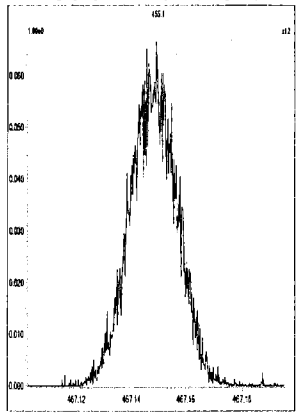

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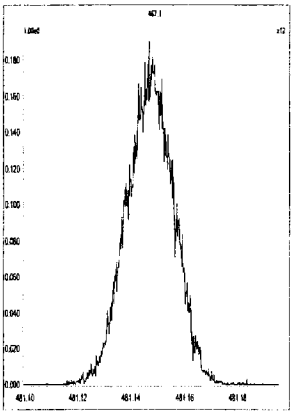

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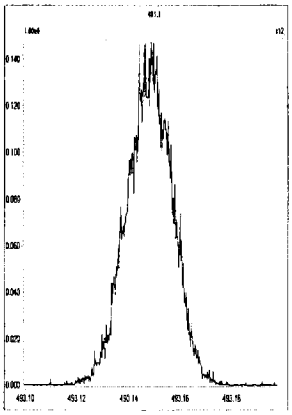

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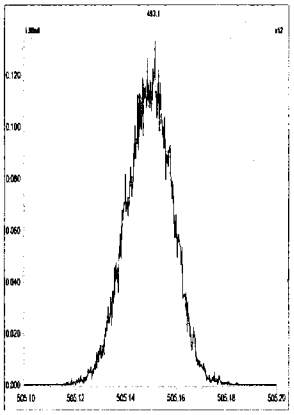

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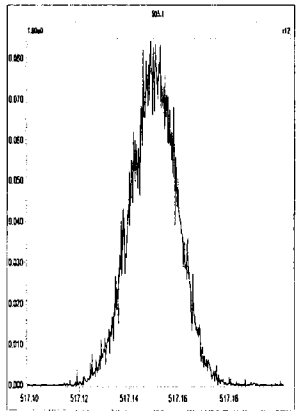

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Printed: Tuesday, March 20, 2012 16:22:51 Central Daylight Time

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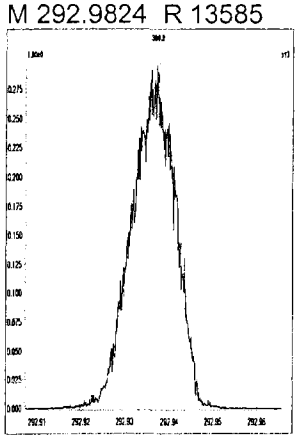

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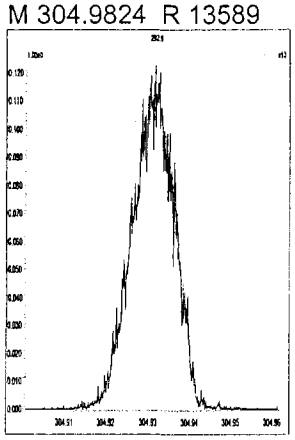
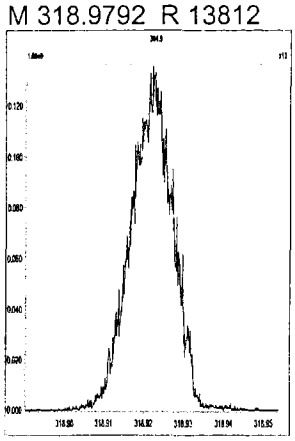


M 318.9792 R 13812



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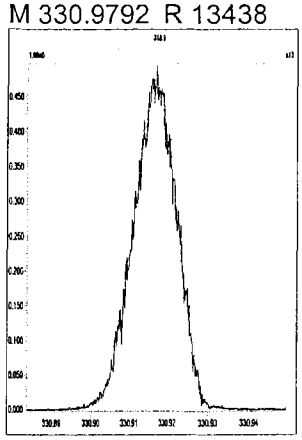

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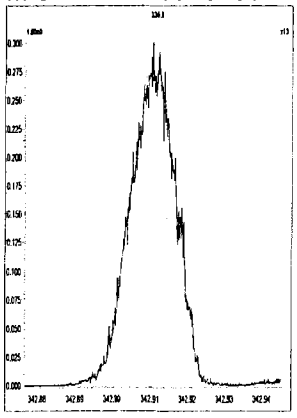

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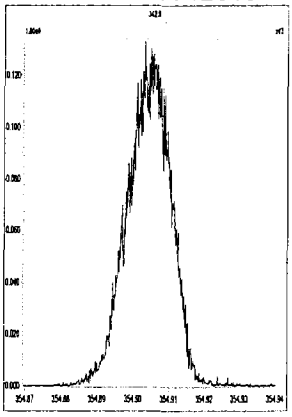

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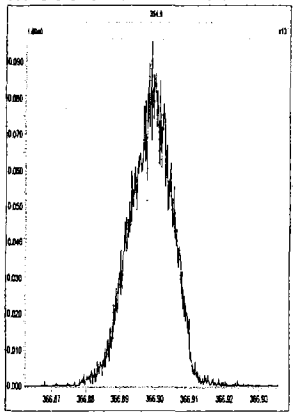
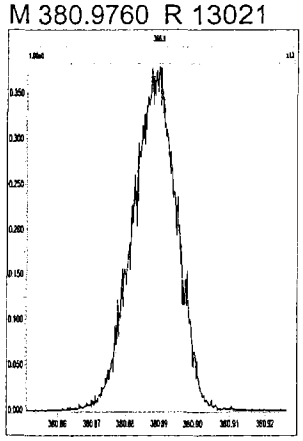


M 380.9760 R 13021



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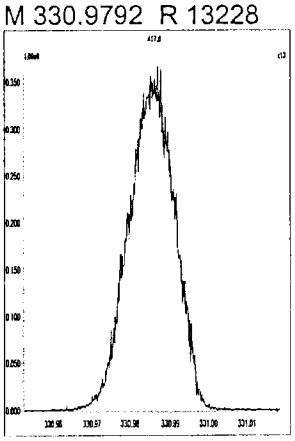
Printed: Tuesday, March 20, 2012 16:23:43 Central Daylight Time

M 330.9792 R 13228



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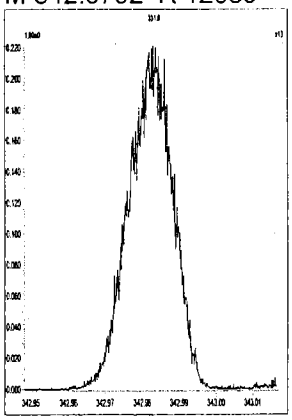

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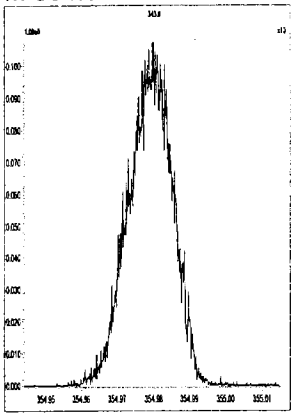

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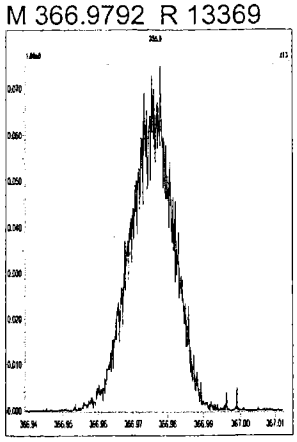
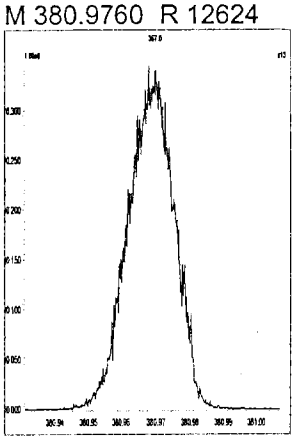
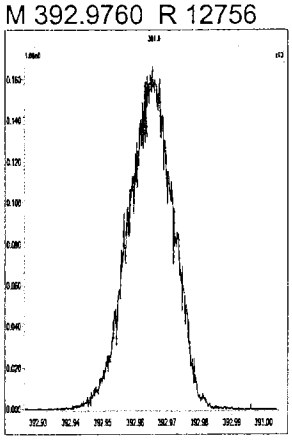


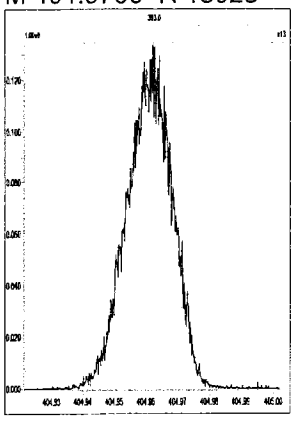
M 380.9760 R 12624



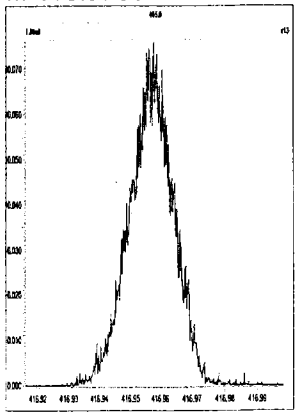
M 392.9760 R 12756



M 404.9760 R 13025



M 416.9760 R 12823



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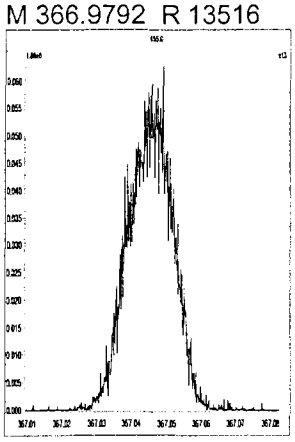
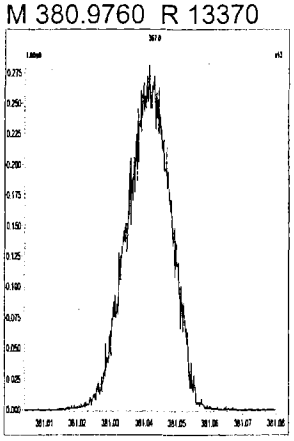
Printed: Tuesday, March 20, 2012 16:24:26 Central Daylight Time

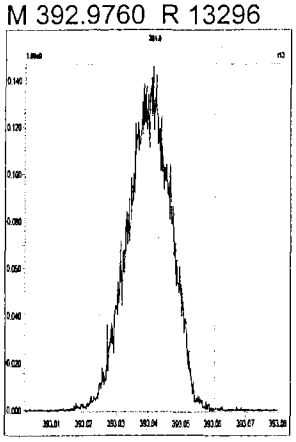
M 366.9792 R 13516



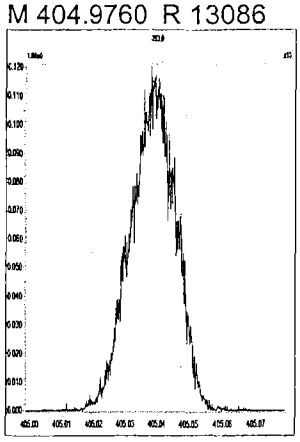
M 380.9760 R 13370



M 392.9760 R 13296



M 404.9760 R 13086



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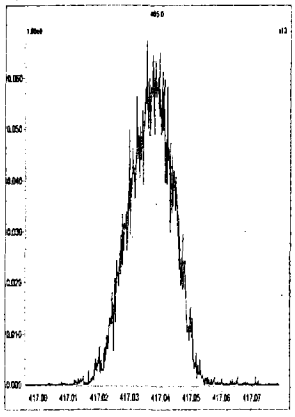
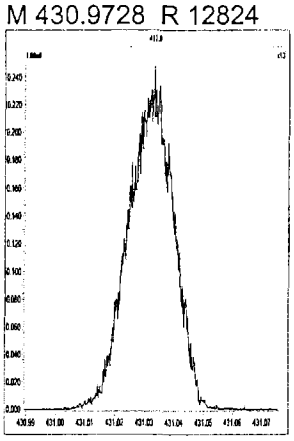


M 430.9728 R 12824



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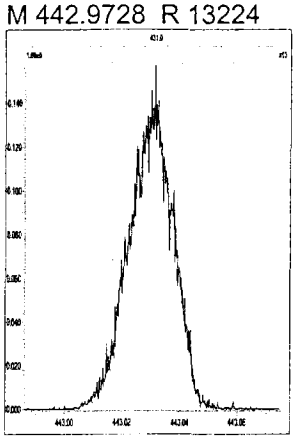
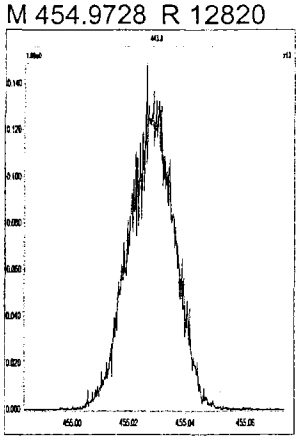


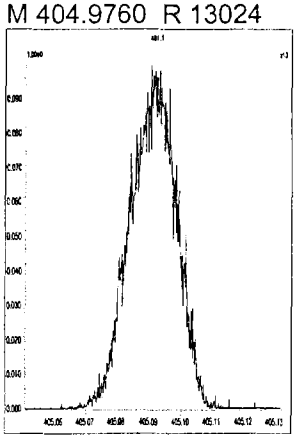
M 454.9728 R 12820



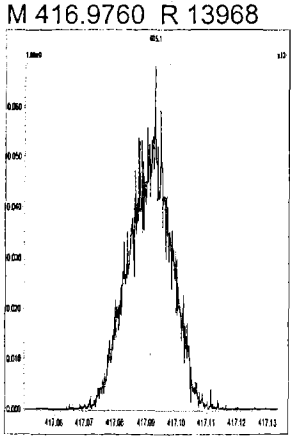
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, March 20, 2012 16:25:08 Central Daylight Time

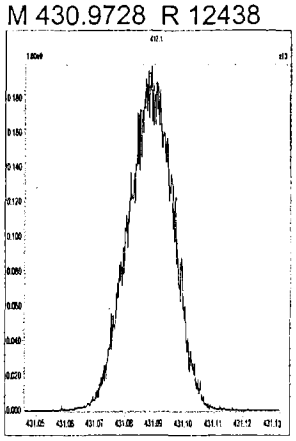
M 404.9760 R 13024



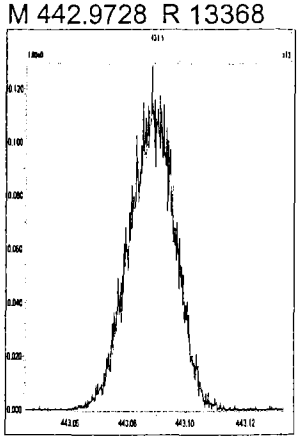
M 416.9760 R 13968



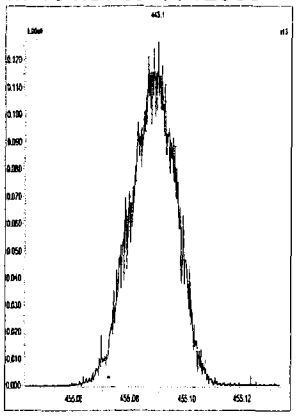
M 430.9728 R 12438



M 442.9728 R 13368



M 454.9728 R 12888



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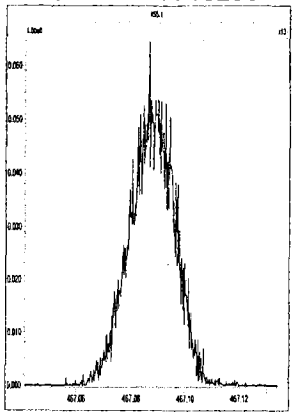
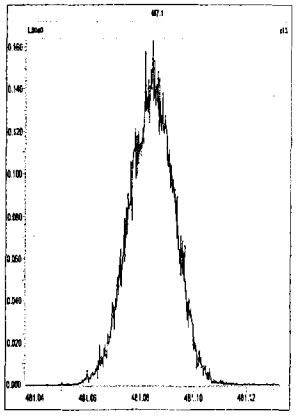


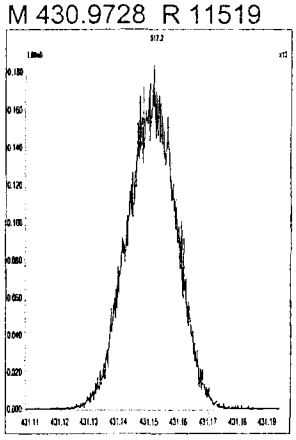
M 480.9696 R 12198



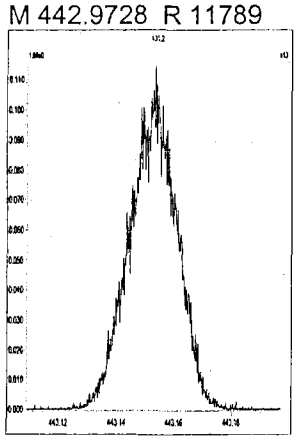
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, March 20, 2012 16:25:52 Central Daylight Time

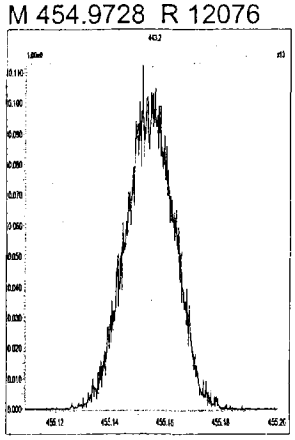
M 430.9728 R 11519



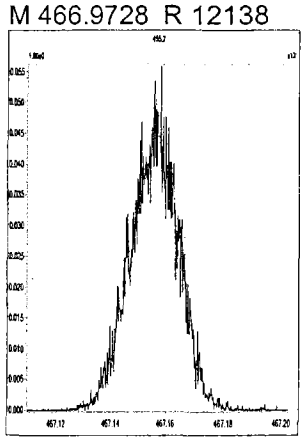
M 442.9728 R 11789



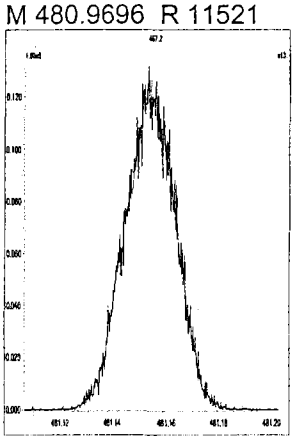
M 454.9728 R 12076



M 466.9728 R 12138



M 480.9696 R 11521



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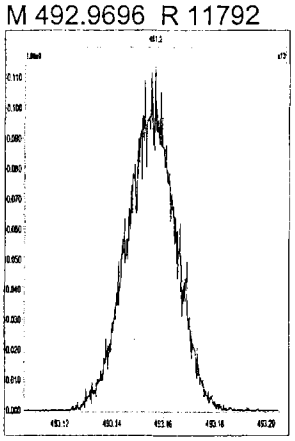
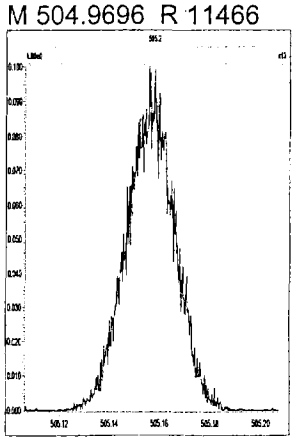
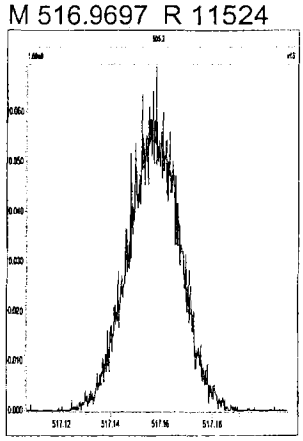


M 504.9696 R 11466



M 516.9697 R 11524



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P216881
Date Analyzed: 20-MAR-2012
Time Analyzed: 07:27:35

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	26:01	31:23
TCDD	27:34	31:20
PeCDF	31:37	35:17
PeCDD	32:53	35:08
HxCDF	36:07	38:22
HxCDD	36:35	38:02
HpCDF	39:47	41:10
HpCDD	40:02	40:43

% Valley 2378-TCDD: 16 %

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

VER Data Filename: P216882 Analysis Date: 20-MAR-12 Time: 08:23:09

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	0.94	0.91	3.07
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	0.85	0.85	0.80
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.90	0.87	3.03
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.98	0.95	3.53
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	1.01	0.96	5.20
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	0.99	0.99	-0.23
OCDD	M+2/M+4	0.89	0.76-1.02	1.07	1.20	-10.23
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	0.87	0.86	0.99
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.89	0.88	1.36
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.92	0.85	8.27
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.15	1.08	5.97
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.22	1.19	3.04
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	1.03	0.96	6.68
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.17	1.04	12.24
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	1.31	1.25	4.58
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	1.08	0.97	11.03
OCDF	M+2/M+4	0.91	0.76-1.02	1.18	1.13	3.79

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

VER Data Filename: P216882 Analysis Date: 20-MAR-12 Time: 08:23:09

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.89	0.95	-5.99
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.98	0.84	16.80
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.93	0.95	-2.04
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.84	0.82	2.51
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.68	0.67	2.17
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.12	1.14	-1.86
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.25	1.11	12.68
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	1.03	1.03	-0.33
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.88	0.85	4.06
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				1.00	1.06	-5.21

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

VER Data Filename: P216888 Analysis Date: 20-MAR-12 Time: 15:07:18

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.91	0.91	0.02
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	0.86	0.85	1.22
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.91	0.87	4.66
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	0.95	0.95	0.37
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	0.98	0.96	2.95
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	1.00	0.99	0.84
OCDD	M+2/M+4	0.89	0.76-1.02	1.07	1.20	-10.69
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	0.88	0.86	2.26
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	0.91	0.88	2.83
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.93	0.85	9.46
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.15	1.08	6.33
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.20	1.19	1.37
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	1.01	0.96	4.84
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.17	1.04	12.90
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	1.31	1.25	4.38
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	1.06	0.97	9.56
OCDF	M+2/M+4	0.90	0.76-1.02	1.21	1.13	6.42

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: DB-5

VER Data Filename: P216888 Analysis Date: 20-MAR-12 Time: 15:07:18

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.89	0.95	-6.08
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	0.89	0.84	5.86
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.94	0.95	-1.15
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.82	0.82	-0.09
13C-OCDD	M+2/M+4	0.91	0.76-1.02	0.64	0.67	-4.41
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.09	1.14	-4.64
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.13	1.11	1.47
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.05	1.03	1.47
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.88	0.85	4.03
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				0.98	1.06	-6.93

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

RW/ HRCC3 Daily Calibration QC Checklist

Calibration File Name: P216914 - P216923

Circle one: (Beginning) / (Ending)

Date: 03/22/12

Method: (8290) / Tetra / TCDD Only / TCDF Conf

Retention Window/Column Performance Check:	**Analyst**	**Second Check**
Windows labeled for first and last eluting compounds	✓	✓
Column performance shows less than or equal to 25% valley between column specific 2378 isomer and the closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or the closest eluters	✓	✓

HRCC3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
Signal-to-noise of all target analytes and associated labeled standards at least 2.5:1	✓	✓
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: Client No.: SDG No.:

GC Column: db5 ID: 0.25 (mm) Instrument ID: AutoSpec-Premier

Init. Calib. Date: 08/17/11

Init. Calib.Times: 09:28

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	WINDOW DEFINE	P216913	22-MAR-12	05:37:02
CCAL HRCC3-A	CCAL HRCC3-A	P216914	22-MAR-12	06:38:31
METHOD BLANK	EQ1200143-01	P216915	22-MAR-12	07:40:38
METHOD BLANK	EQ1200145-01	P216916	22-MAR-12	08:29:32
GS4	J1201134-001	P216917	22-MAR-12	09:21:04
M10A	J1201134-002	P216918	22-MAR-12	10:12:28
X18	J1201134-003	P216919	22-MAR-12	11:03:59
Y11	J1201134-004	P216920	22-MAR-12	11:55:29
X03	J1201134-007	P216921	22-MAR-12	12:46:54
MW-2	E1200210-001	P216922	22-MAR-12	13:48:10
CCAL HRCC3-B	CCAL HRCC3-B	P216923	22-MAR-12	14:36:38

E1200219

416 of 666

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2120322.SPL
Last Modified: Thursday, March 22, 2012 13:47:40 Central Daylight Time
Printed: Thursday, March 22, 2012 15:45:26 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

G:\P216914RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	03/21/12	18:12	P216911	CCAL HRCC3-A	D11-99-3		DO NOT USE	8290CAS	8290CAS
2		19:03	P216912	WINDOW DEFINE	D12-56-2		DO NOT USE	8290CAS	8290CAS
3	03/22/12	05:37	P216913	WINDOW DEFINE	D12-56-2		HRMS Check 05:34	8290CAS	8290CAS
4		06:38	P216914	CCAL HRCC3-A	D11-99-3			8290CAS	8290CAS
5		07:40	P216915	EQ1200143-01	MB			8290CAS	8290CAS
6		08:29	P216916	EQ1200145-01	MB			8290CAS	8290CAS
7		09:21	P216917	J1201134-001	GS4			8290CAS	8290CAS
8		10:12	P216918	J1201134-002	M10A			8290CAS	8290CAS
9		11:03	P216919	J1201134-003	X18			8290CAS	8290CAS
10		11:55	P216920	J1201134-004	Y11			8290CAS	8290CAS
11		12:46	P216921	J1201134-007	X03			8290CAS	8290CAS
12		13:48	P216922	E1200210-001	MW-2			8290CAS	8290CAS
13		14:36	P216923	CCAL HRCC3-B	D11-99-3		HRMS Check 15:47	8290CAS	8290CAS
14			---	---	---			8290CAS	8290CAS
15			---	---	---			8290CAS	8290CAS
16			---	---	---			8290CAS	8290CAS
17			---	---	---			TCDFCAS	8290CAS
18			---	---	---			TCDFCAS	8290CAS
19			---	---	---			TCDFCAS	8290CAS
20			---	---	---			---	---
21			---	---	---			---	---
22	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	TCDFCAS	tcdf
24	---	---	---	---	---	---	---	TCDFCAS	tcdf
25	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	TCDFCAS	tcdf
27	---	---	---	---	---	---	---	TCDFCAS	8290CAS
28	---	---	---	---	---	---	---	TCDFCAS	8290CAS
29	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	8290CAS	8290CAS
31	---	---	---	---	---	---	---	8290CAS	8280CAS
32	---	---	---	---	---	---	Reviewed by: JC 03/23/12	---	---

050

File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

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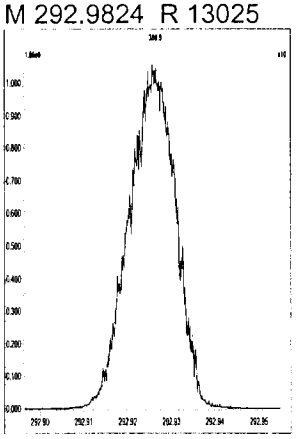
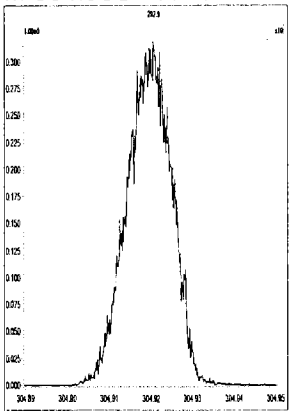


M 304.9824 R 13022



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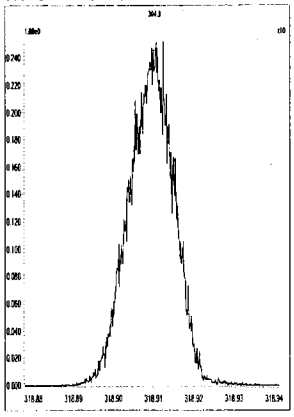

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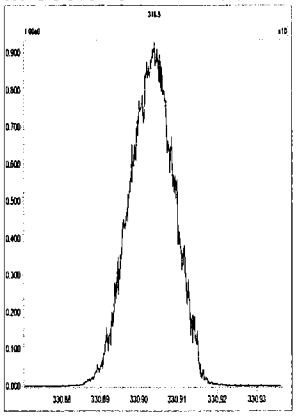

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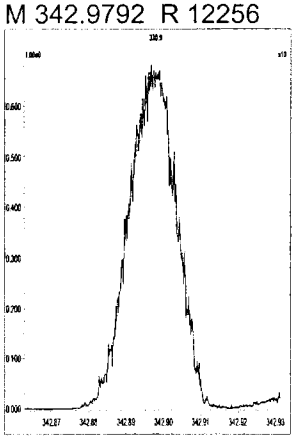

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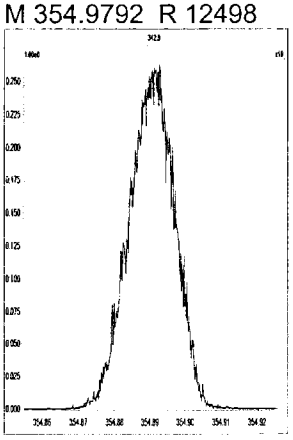

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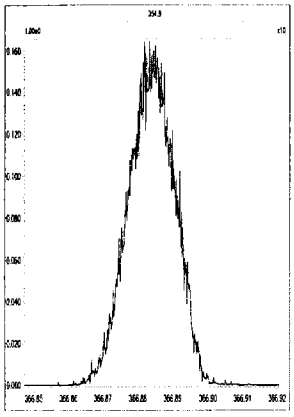

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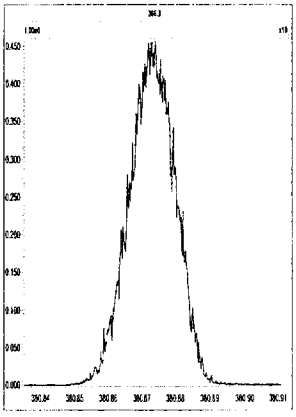

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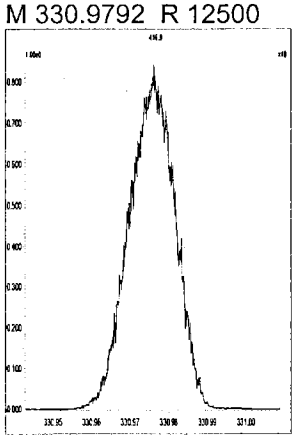
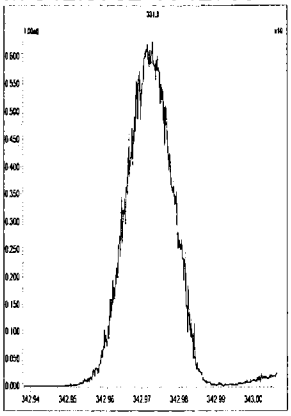
M 330.9792 R 12500



M 342.9792 R 12753



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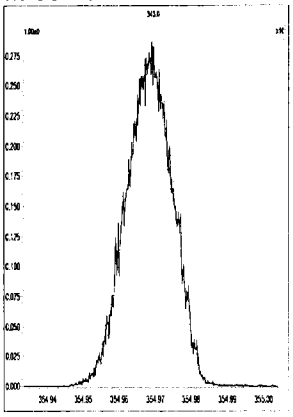

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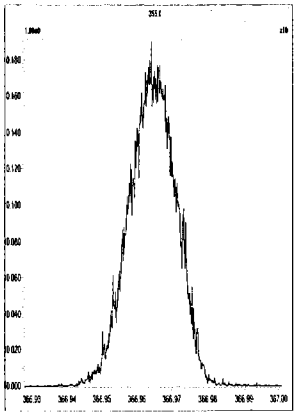

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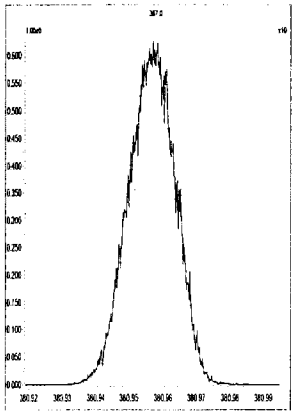

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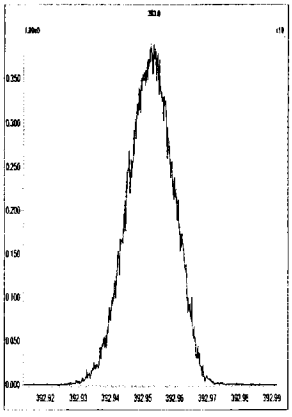
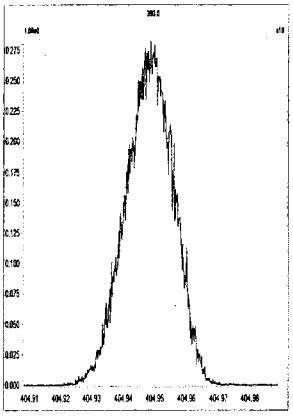
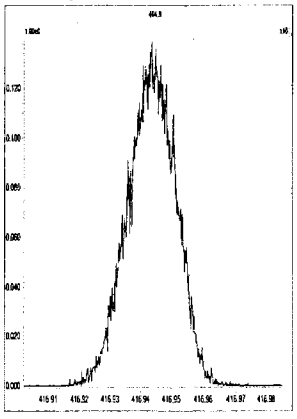


M 404.9760 R 11847



M 416.9760 R 11850



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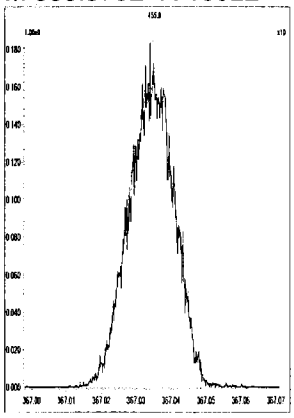
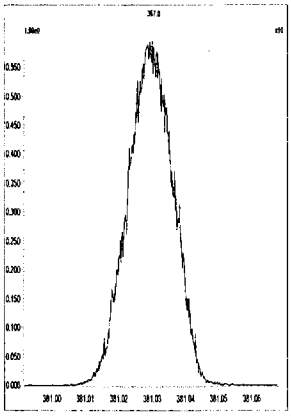
M 366.9792 R 13022



M 380.9760 R 12821



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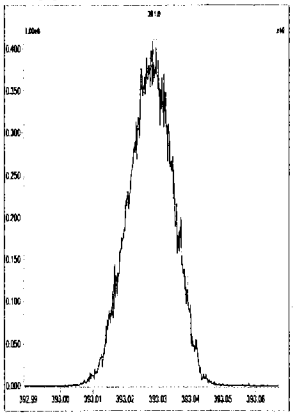
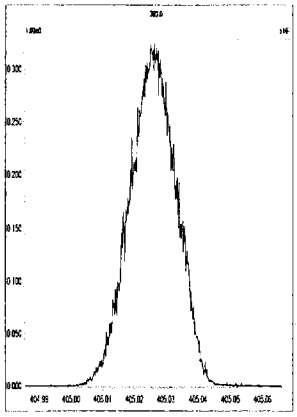


M 404.9760 R 12196



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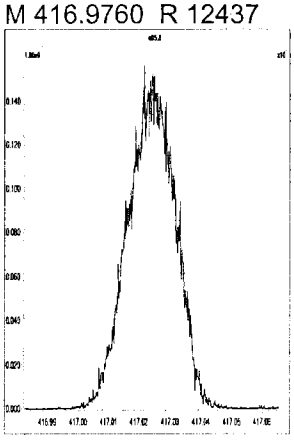
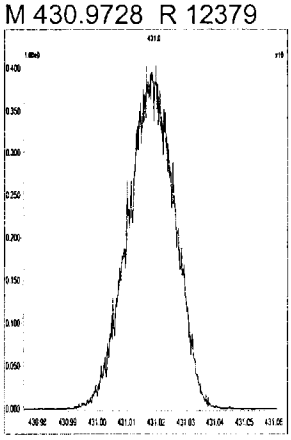
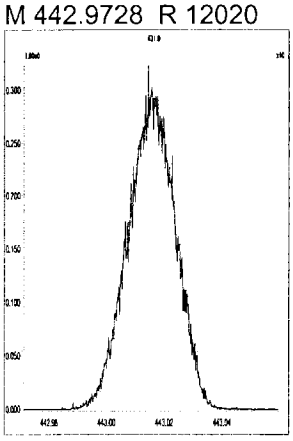


M 430.9728 R 12379



M 442.9728 R 12020



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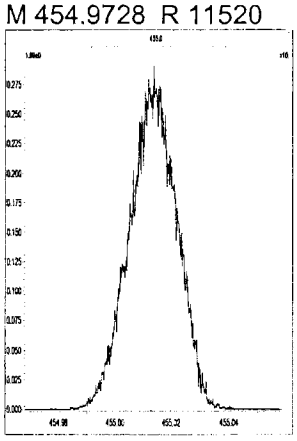

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Printed: Thursday, March 22, 2012 05:36:21 Central Daylight Time

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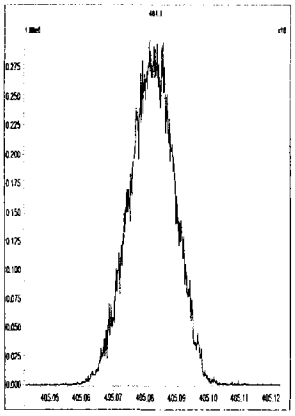

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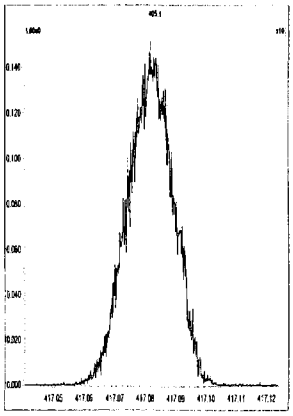

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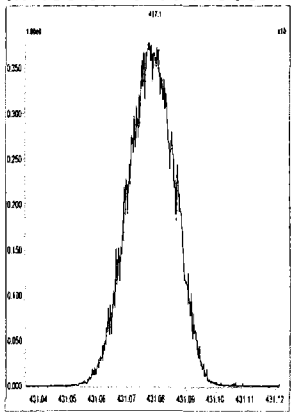

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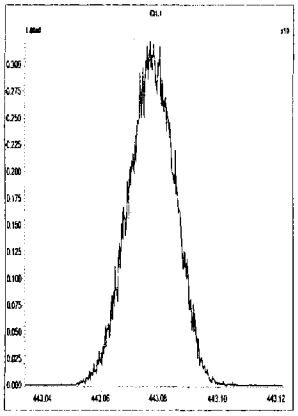

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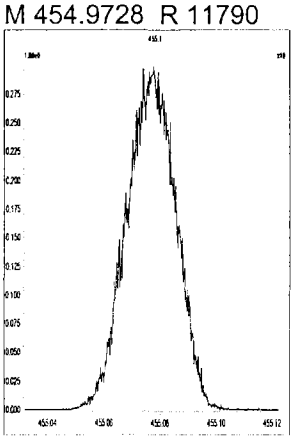

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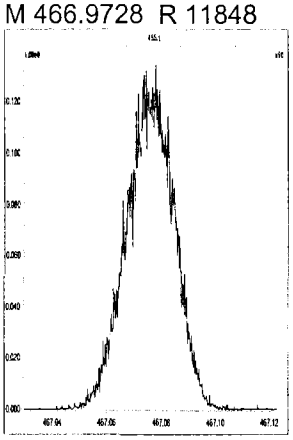

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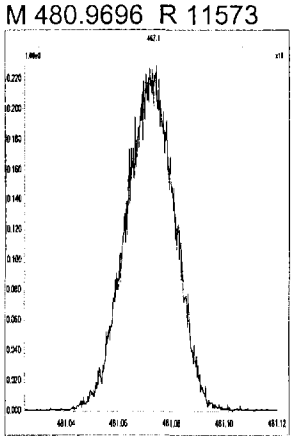

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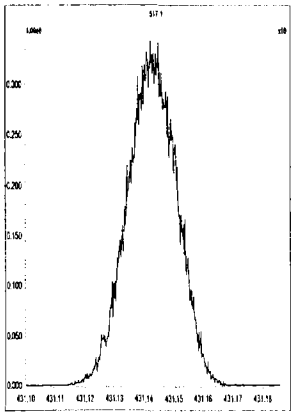
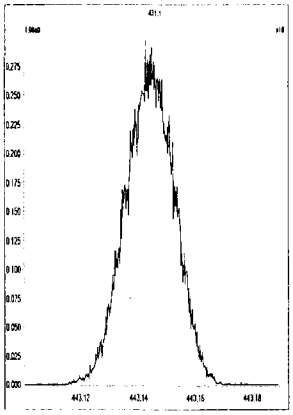
Printed: Thursday, March 22, 2012 05:36:43 Central Daylight Time

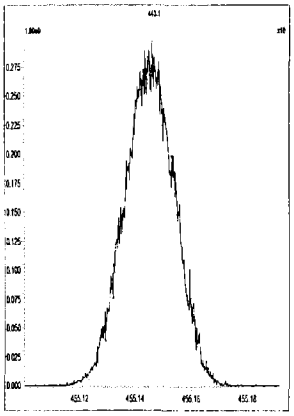
M 430.9728 R 11625



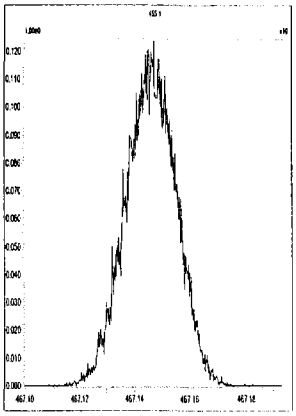
M 442.9728 R 11312



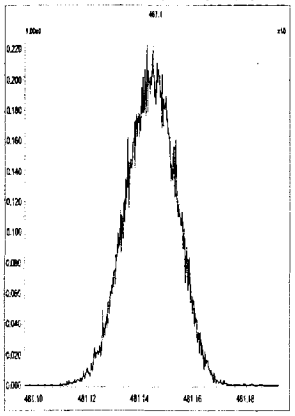
M 454.9728 R 11467



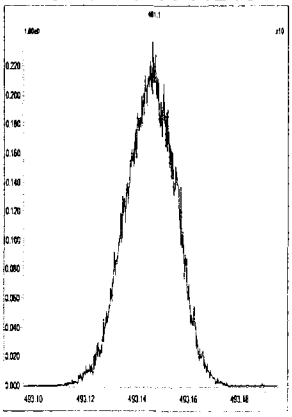
M 466.9728 R 11684



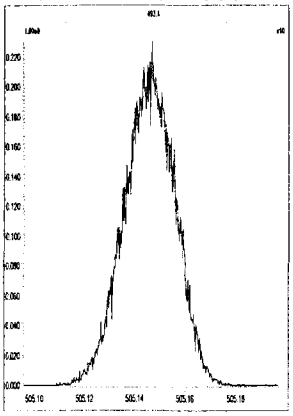
M 480.9696 R 10870



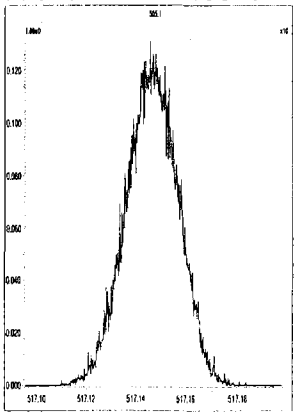
M 492.9696 R 11210



M 504.9696 R 10502



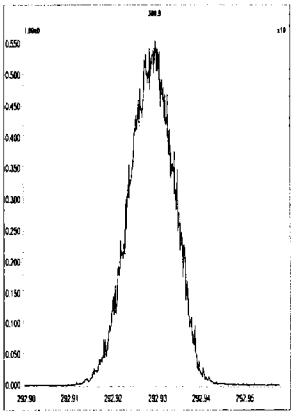
M 516.9697 R 10826



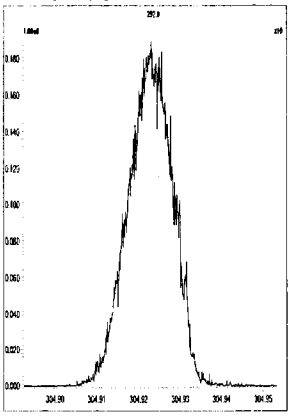
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, March 22, 2012 15:47:38 Central Daylight Time

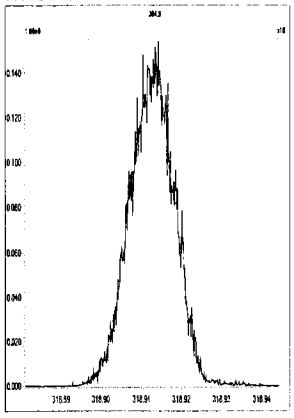
M 292.9824 R 12951



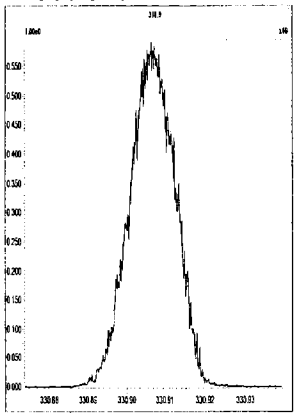
M 304.9824 R 13160



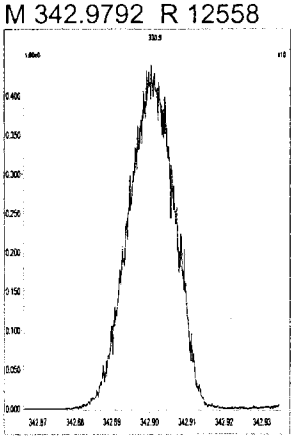
M 318.9792 R 13020



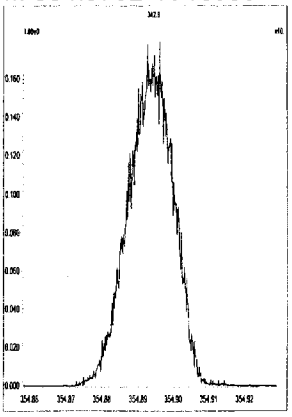
M 330.9792 R 12624



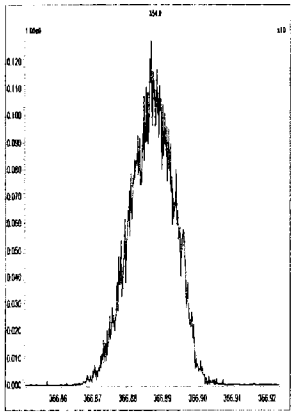
M 342.9792 R 12558



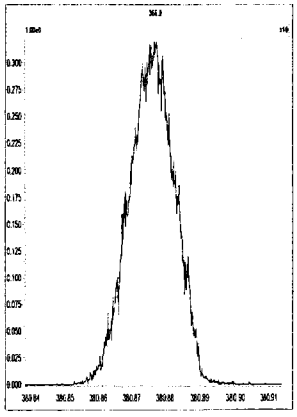
M 354.9792 R 13088



M 366.9792 R 13023



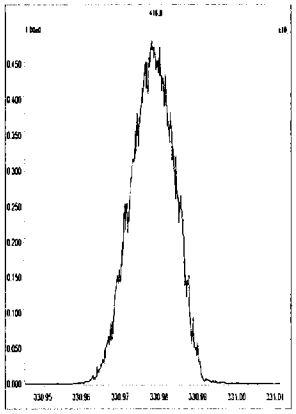
M 380.9760 R 13089



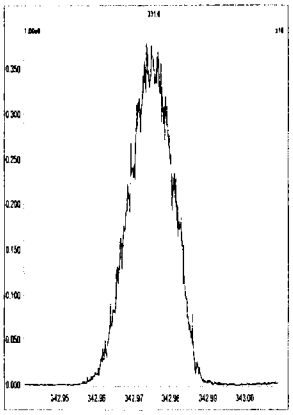
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, March 22, 2012 15:48:51 Central Daylight Time

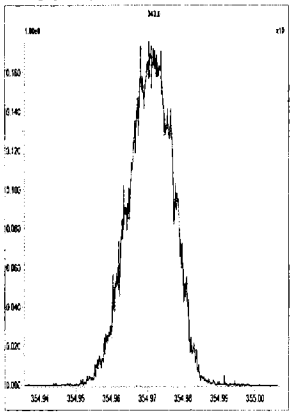
M 330.9792 R 12755



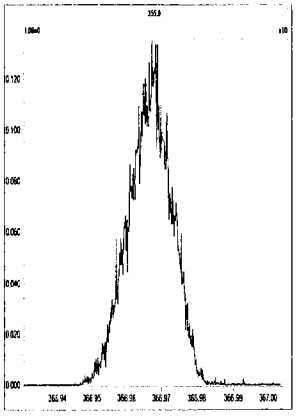
M 342.9792 R 13445



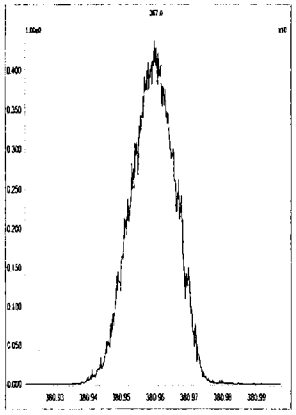
M 354.9792 R 12949



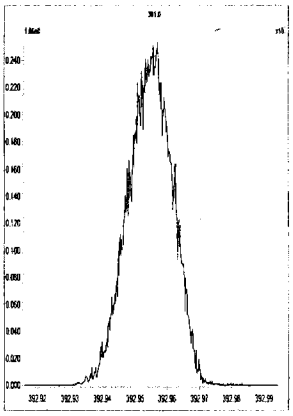
M 366.9792 R 13157



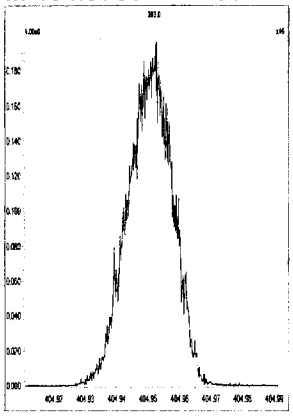
M 380.9760 R 12956



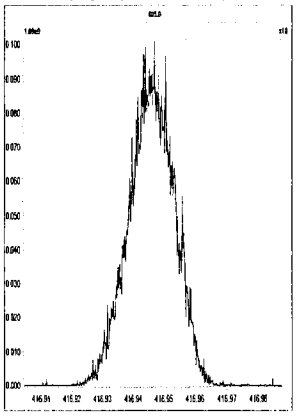
M 392.9760 R 12882



M 404.9760 R 12952



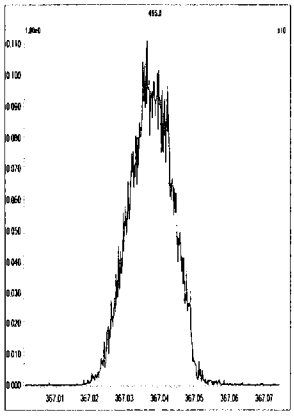
M 416.9760 R 12312



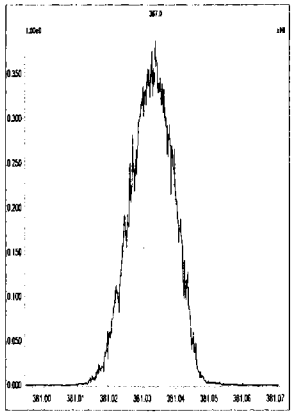
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, March 22, 2012 15:49:48 Central Daylight Time

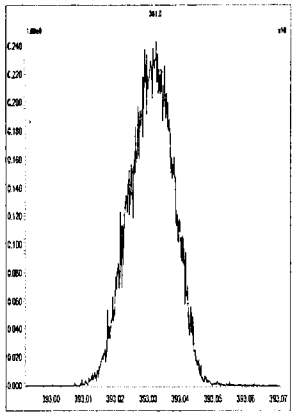
M 366.9792 R 13365



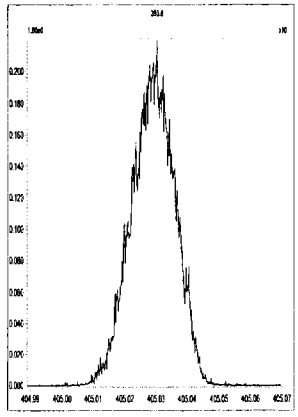
M 380.9760 R 13656



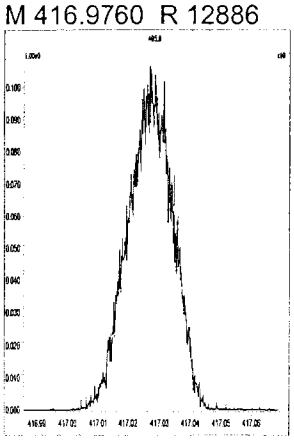
M 392.9760 R 12630



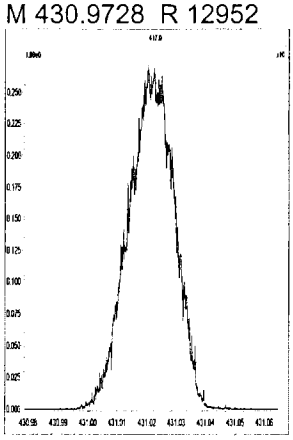
M 404.9760 R 13224



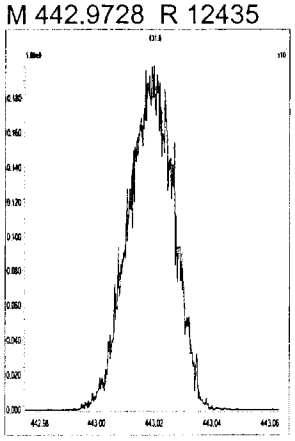
M 416.9760 R 12886



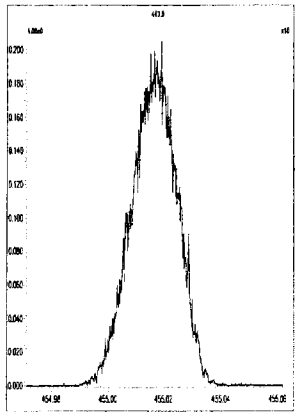
M 430.9728 R 12952



M 442.9728 R 12435



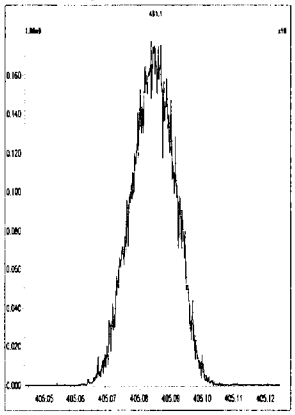
M 454.9728 R 12820



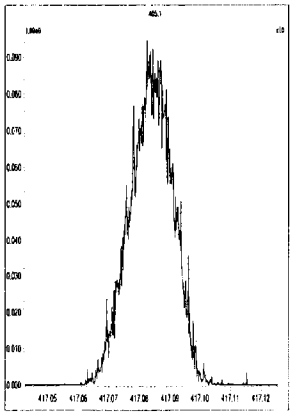
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, March 22, 2012 15:50:49 Central Daylight Time

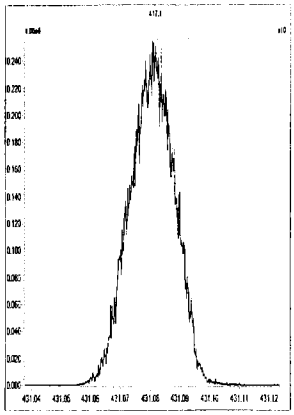
M 404.9760 R 13512



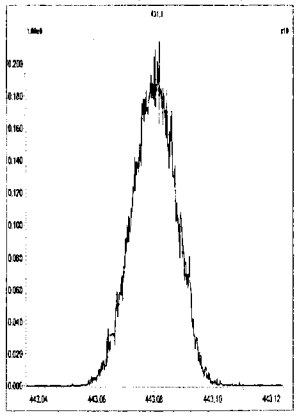
M 416.9760 R 13017



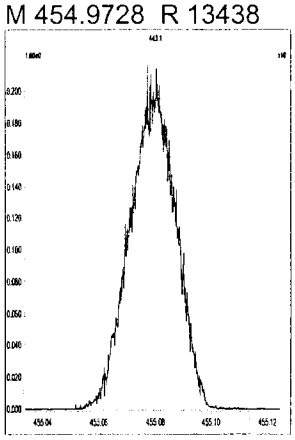
M 430.9728 R 13298



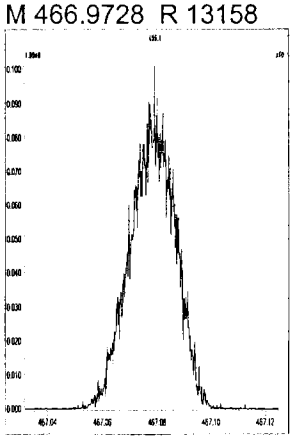
M 442.9728 R 12758



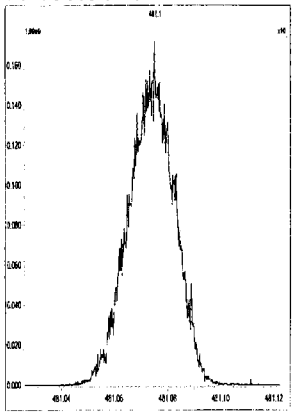
M 454.9728 R 13438



M 466.9728 R 13158



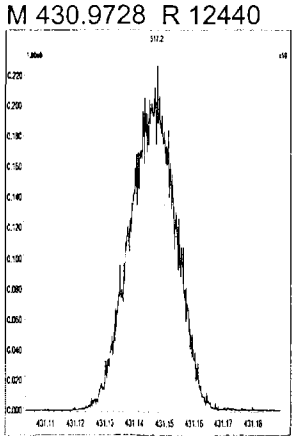
M 480.9696 R 12375



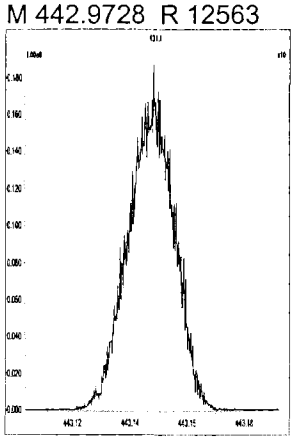
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, March 22, 2012 15:51:49 Central Daylight Time

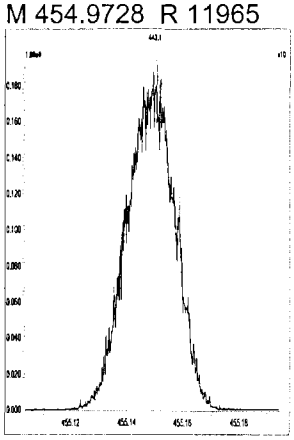
M 430.9728 R 12440



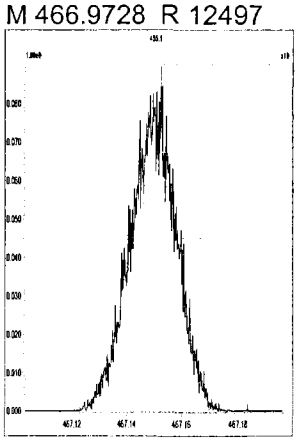
M 442.9728 R 12563



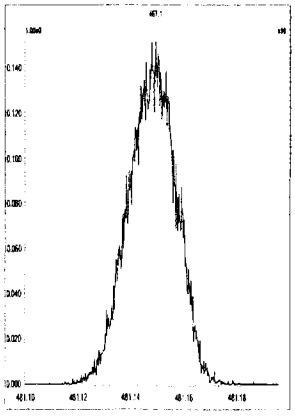
M 454.9728 R 11965



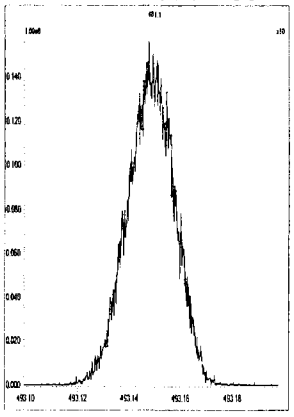
M 466.9728 R 12497



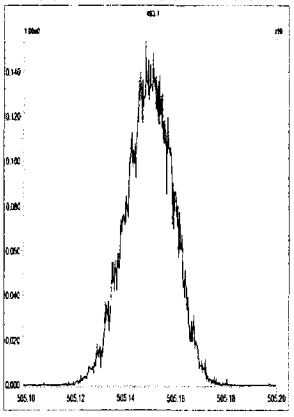
M 480.9696 R 12196



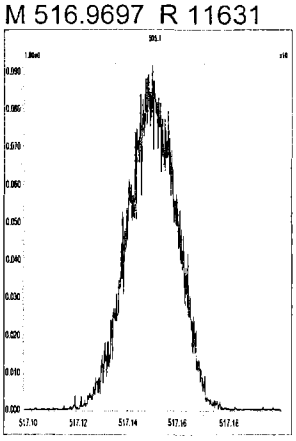
M 492.9696 R 11736



M 504.9696 R 11790



M 516.9697 R 11631



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P216913
Date Analyzed: 22-MAR-2012
Time Analyzed: 05:37:02

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:49	31:15
TCDD	27:25	31:13
PeCDF	31:28	35:10
PeCDD	32:46	35:01
HxCDF	35:59	38:16
HxCDD	36:28	37:56
HpCDF	39:40	41:02
HpCDD	39:55	40:35

% Valley 2378-TCDD: 10 %

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: db5

VER Data Filename: P216914 Analysis Date: 22-MAR-12 Time: 06:38:31

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.74	0.65-0.89	1.00	0.91	9.93
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.88	0.85	4.53
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.93	0.87	6.41
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.93	0.95	-1.69
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	0.99	0.96	3.21
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	0.99	0.99	0.05
OCDD	M+2/M+4	0.90	0.76-1.02	1.09	1.20	-8.65
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	0.89	0.86	2.68
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	0.91	0.88	3.86
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.90	0.85	6.85
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.16	1.08	7.33
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.18	1.19	-0.82
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	1.03	0.96	6.72
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.12	1.04	8.07
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	1.32	1.25	4.99
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	1.03	0.97	6.66
OCDF	M+2/M+4	0.91	0.76-1.02	1.18	1.13	3.74

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: db5

VER Data Filename: P216914 Analysis Date: 22-MAR-12 Time: 06:38:31

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	0.86	0.95	-9.60
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.84	0.84	-0.42
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.96	0.95	0.24
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.83	0.82	1.77
13C-OCDD	M+2/M+4	0.91	0.76-1.02	0.63	0.67	-5.02
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.17	1.14	2.91
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.14	1.11	2.24
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.05	1.03	1.15
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.87	0.85	3.30
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				0.99	1.06	-6.47

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: db5

VER Data Filename: P216923 Analysis Date: 22-MAR-12 Time: 14:36:38

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	0.94	0.91	3.04
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	0.84	0.85	-0.69
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.92	0.87	5.44
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.89	0.95	-6.84
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	0.93	0.96	-2.53
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	0.97	0.99	-2.51
OCDD	M+2/M+4	0.89	0.76-1.02	1.08	1.20	-9.75
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	0.85	0.86	-1.28
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.87	0.88	-1.49
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	0.93	0.85	9.60
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	1.11	1.08	2.11
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	1.14	1.19	-4.22
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	0.95	0.96	-1.08
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	1.11	1.04	7.05
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	1.25	1.25	-0.63
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	0.95	0.97	-2.51
OCDF	M+2/M+4	0.88	0.76-1.02	1.08	1.13	-4.75

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-04 GC Column ID: db5

VER Data Filename: P216923 Analysis Date: 22-MAR-12 Time: 14:36:38

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.86	0.95	-9.26
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	0.91	0.84	8.24
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.97	0.95	2.24
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.81	0.82	-0.85
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.59	0.67	-11.08
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	1.05	1.14	-7.64
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.08	1.11	-2.97
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.01	1.03	-2.88
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.82	0.85	-2.97
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				0.96	1.06	-9.28

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

RW/ HRCC3 Daily Calibration QC Checklist

Calibration File Name: P216930-P216942 Circle one: Beginning / Ending

Date: 03/23/12

Method: 8290 / Tetra / TCDD Only / TCDF Conf

Retention Window/Column Performance Check:	**Analyst**	**Second Check**
Windows labeled for first and last eluting compounds	✓	✓
Column performance shows less than or equal to 25% valley between column specific 2378 isomer and the closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or the closest eluters	✓	✓

HRCC3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
Signal-to-noise of all target analytes and associated labeled standards at least 2.5:1	✓	✓
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: Client No.: SDG No.:

GC Column: db5 ID: 0.25 (mm) Instrument ID: AutoSpec-Premier

Init. Calib. Date: 08/17/11

Init. Calib.Times: 09:28

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	WINDOW DEFINE	P216931	23-MAR-12	05:34:07
CCAL HRCC3-A	CCAL HRCC3-A	P216930	23-MAR-12	04:36:05
LCS	EQ1200143-02	P216941	23-MAR-12	14:20:52
METHOD BLANK	EQ1200143-01	P216932	23-MAR-12	06:37:32
2090-GW-970	E1200179-004DL	P216940	23-MAR-12	13:27:32
COMPOSITE	K1201877-008	P216933	23-MAR-12	07:27:01
12MW010	E1200219-001	P216934	23-MAR-12	08:18:32
12MW01S	E1200219-002	P216935	23-MAR-12	09:10:03
12MW020	E1200219-003	P216936	23-MAR-12	10:01:35
12MW02S	E1200219-004	P216937	23-MAR-12	10:52:59
12RB01	E1200219-005	P216938	23-MAR-12	11:44:30
12GW-DUP01	E1200219-006	P216939	23-MAR-12	12:36:00
CCAL HRCC3-B	CCAL HRCC3-B	P216942	23-MAR-12	15:22:11

E1200219

463 of 666

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2120323.SPL
Last Modified: Friday, March 23, 2012 06:37:25 Central Daylight Time
Printed: Friday, March 23, 2012 16:30:12 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

G:\P216930RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	03/23/12	04:36	P216930	CCAL HRCC3-A	~~D11-99-3~~ D12-83-2		HRMS check 04:34	8290CAS	8290CAS
2		05:34	P216931	WINDOW DEFINE	D12-56-2			8290CAS	8290CAS
3		06:37	P216932	EQ1200143-01	MB			8290CAS	8290CAS
4		07:27	P216933	K1201877-008	Composite			8290CAS	8290CAS
5		08:18	P216934	E1200219-001	12MW010			8290CAS	8290CAS
6		09:10	P216935	E1200219-002	12MW01S			8290CAS	8290CAS
7		10:01	P216936	E1200219-003	12MW020			8290CAS	8290CAS
8		10:52	P216937	E1200219-004	12MW02S			8290CAS	8290CAS
9		11:44	P216938	E1200219-005	12RB01			8290CAS	8290CAS
10		12:36	P216939	E1200219-006	12GW-DUP01			8290CAS	8290CAS
11		13:27	P216940	E1200179-004DL	2090-GW-970		1:20	8290CAS	8290CAS
12		14:20	P216941	EQ1200143-02	LCS			8290CAS	8290CAS
13		15:22	P216942	CCAL HRCC3-B	~~D11-99-3~~		HRMS check 16:31	8290CAS	8290CAS
14			---	---	D12-83-2			8290CAS	8290CAS
15			---	---	---			8290CAS	8290CAS
16			---	---	---			8290CAS	8290CAS
17			---	---	---			TCDFCAS	8290CAS
18			---	---	---			TCDFCAS	8290CAS
19			---	---	---			TCDFCAS	8290CAS
20			---	---	---			---	---
21			---	---	---			---	---
22	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	TCDFCAS	tcdf
24	---	---	---	---	---	---	---	TCDFCAS	tcdf
25	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	TCDFCAS	tcdf
27	---	---	---	---	---	---	---	TCDFCAS	8290CAS
28	---	---	---	---	---	---	---	TCDFCAS	8290CAS
29	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	8290CAS	8290CAS
31	---	---	---	---	---	---	---	8290CAS	8280CAS
32	---	---	---	---	---	---	Reviewed by: JC 03/26/12	---	---

D12-83-2 ~~D2~~ 03/26/12

File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, March 23, 2012 04:34:08 Central Daylight Time

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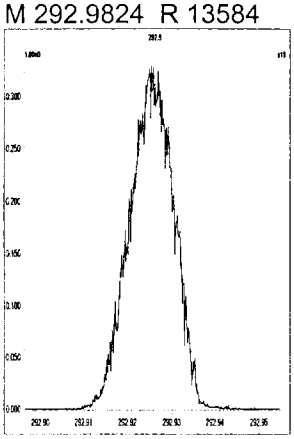

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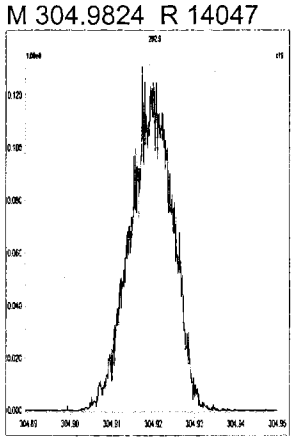

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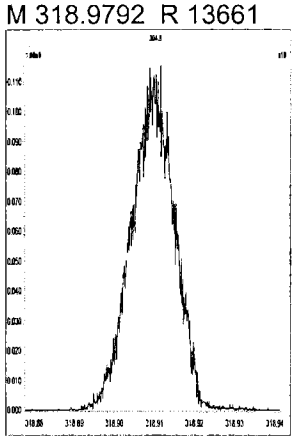

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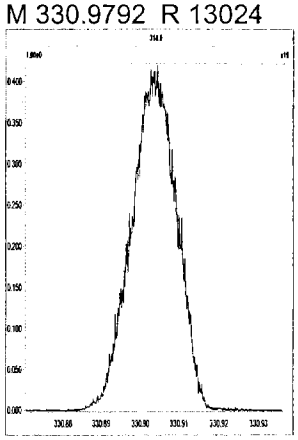

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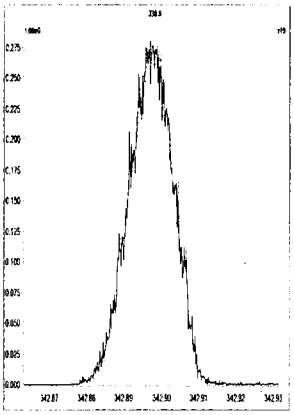

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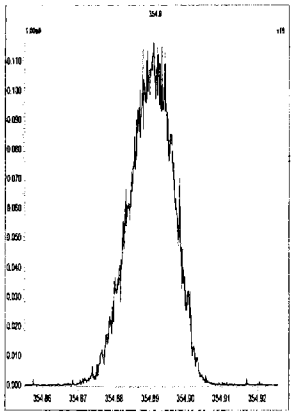

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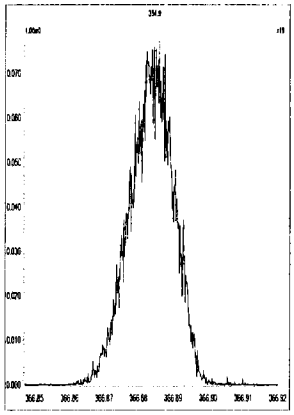
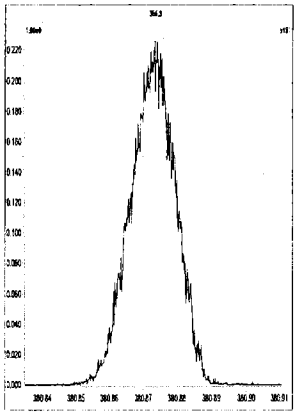


M 380.9760 R 12500



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Printed: Friday, March 23, 2012 04:34:31 Central Daylight Time

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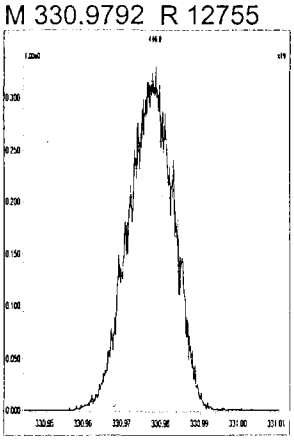

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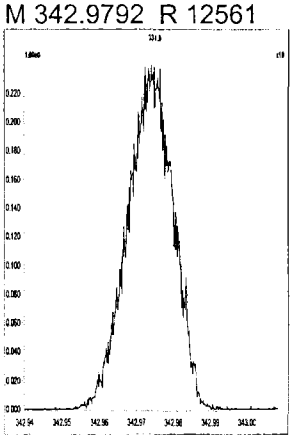

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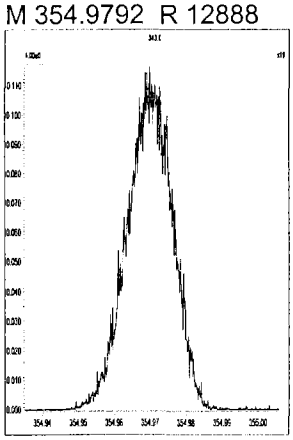

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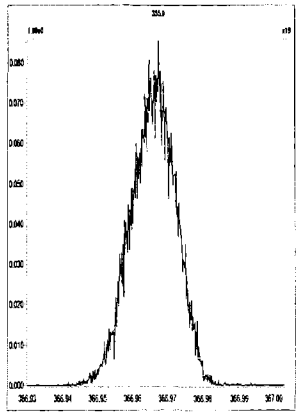

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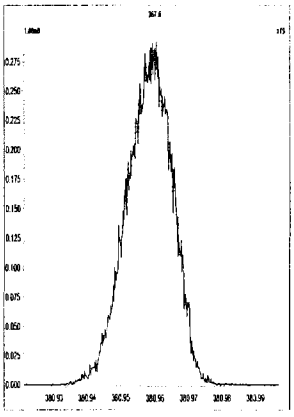

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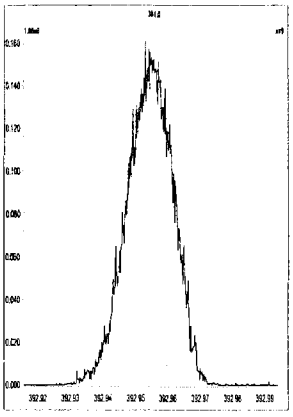

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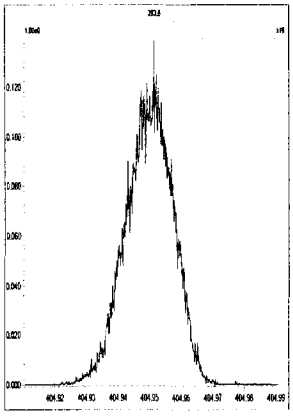

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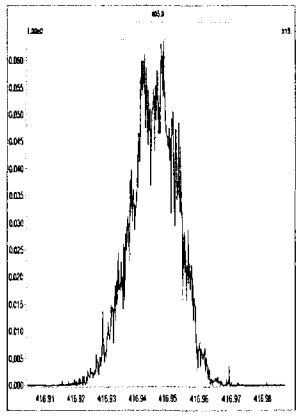

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Printed: Friday, March 23, 2012 04:34:49 Central Daylight Time

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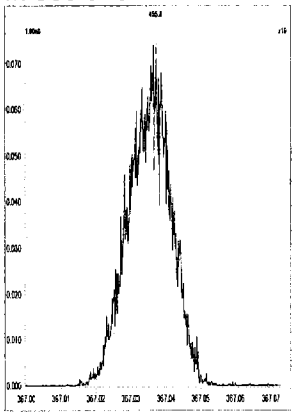

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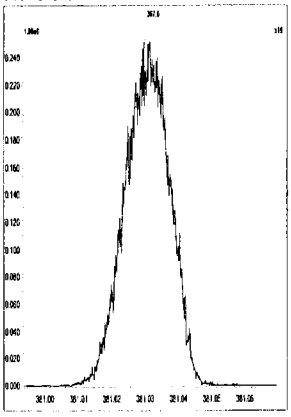

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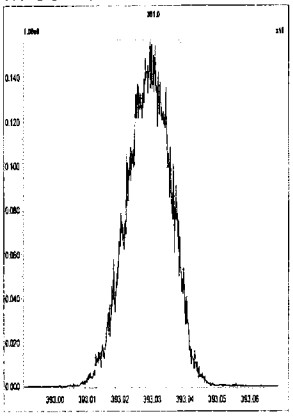

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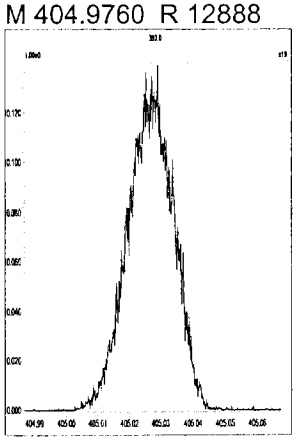

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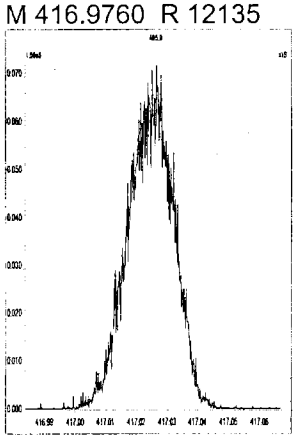

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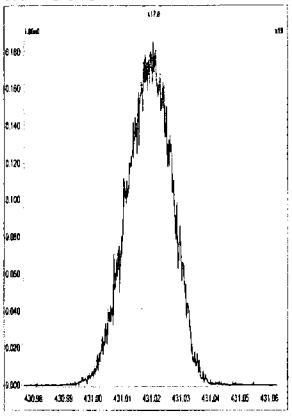

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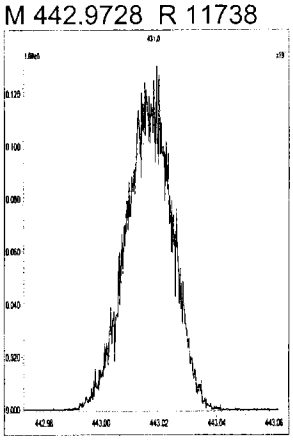
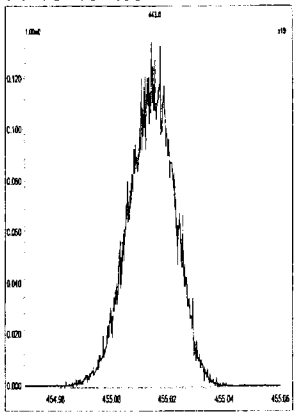


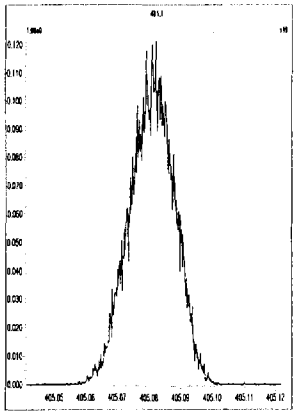
M 454.9728 R 12254



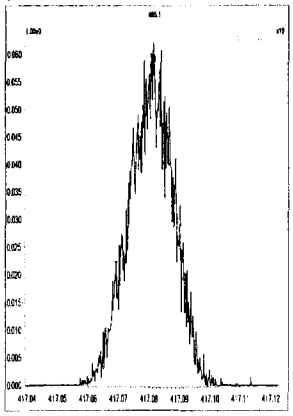
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, March 23, 2012 04:35:10 Central Daylight Time

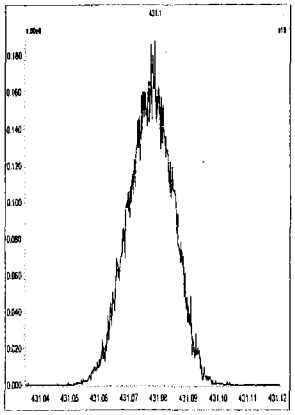
M 404.9760 R 13296



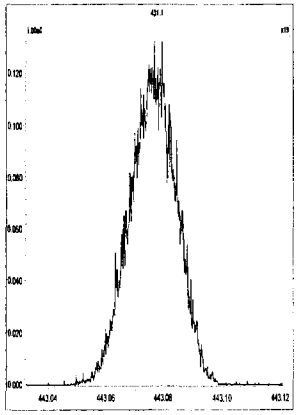
M 416.9760 R 13299



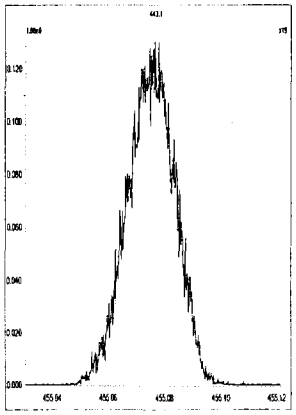
M 430.9728 R 12376



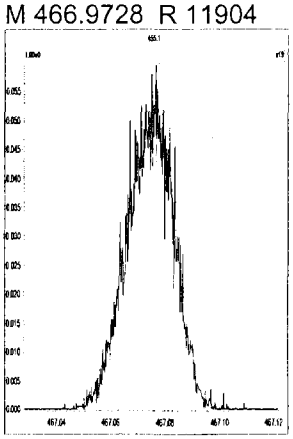
M 442.9728 R 12314



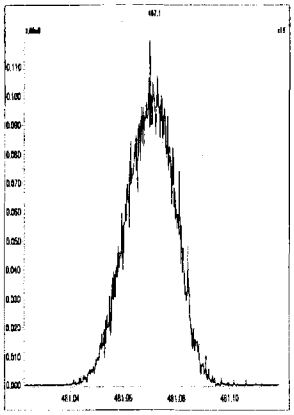
M 454.9728 R 12074



M 466.9728 R 11904



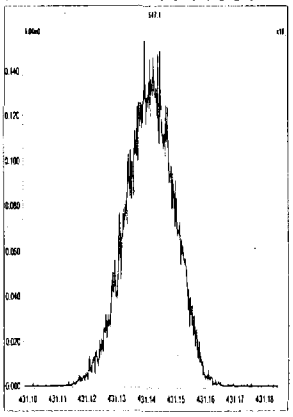
M 480.9696 R 12076



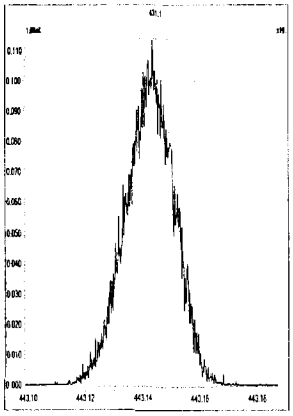
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, March 23, 2012 04:35:32 Central Daylight Time

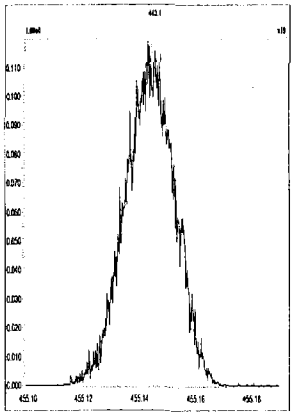
M 430.9728 R 11850



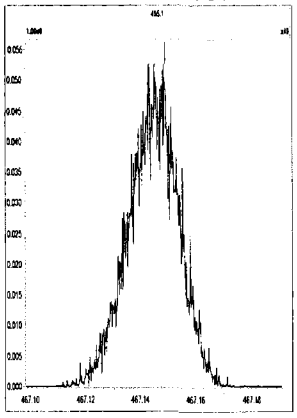
M 442.9728 R 11161



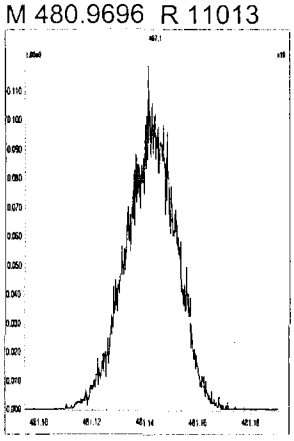
M 454.9728 R 11160



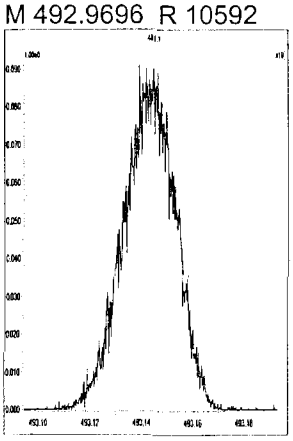
M 466.9728 R 10777



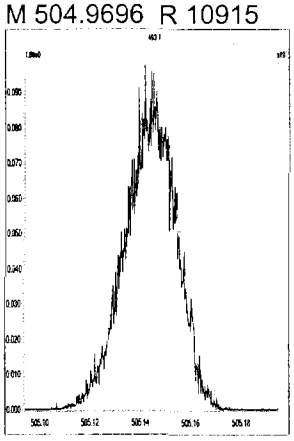
M 480.9696 R 11013



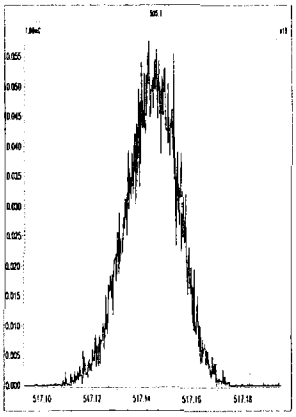
M 492.9696 R 10592



M 504.9696 R 10915



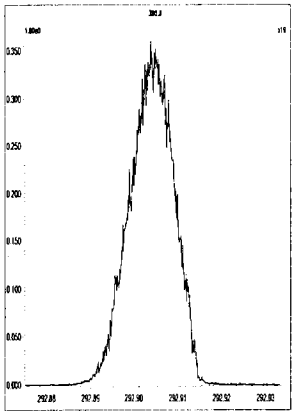
M 516.9697 R 10545



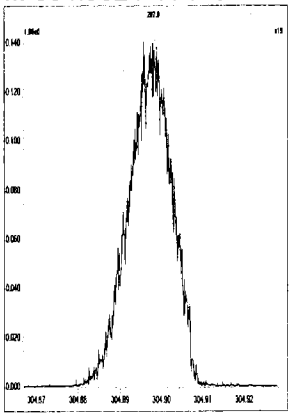
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, March 23, 2012 16:31:38 Central Daylight Time

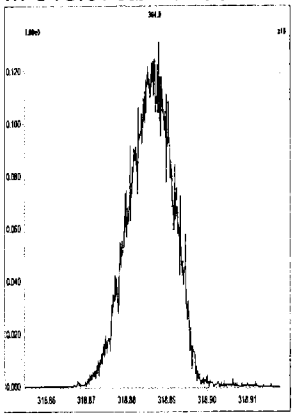
M 292.9824 R 13086



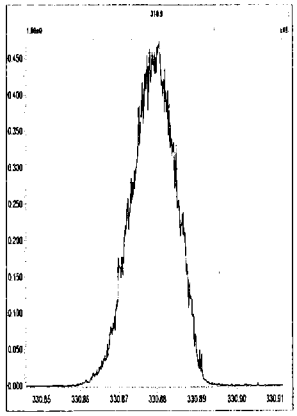
M 304.9824 R 13662



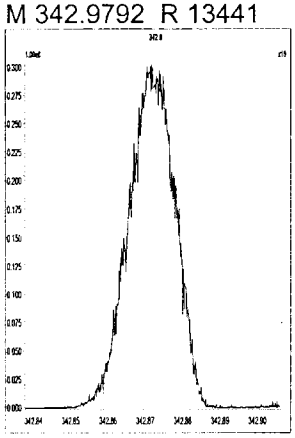
M 318.9792 R 13367



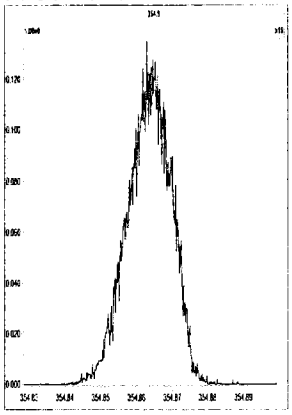
M 330.9792 R 12687



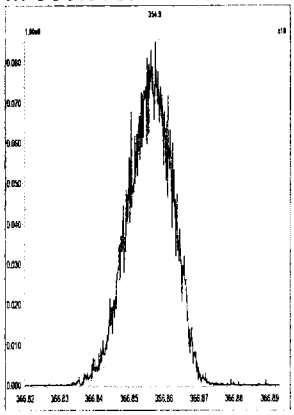
M 342.9792 R 13441



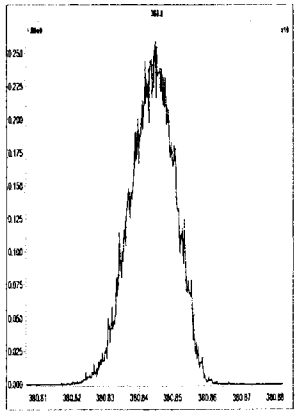
M 354.9792 R 12956



M 366.9792 R 13228



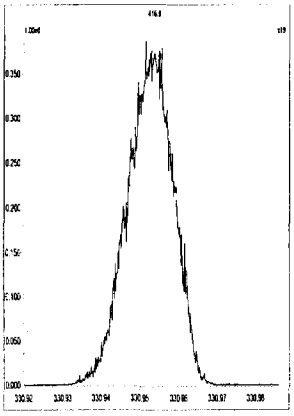
M 380.9760 R 12380



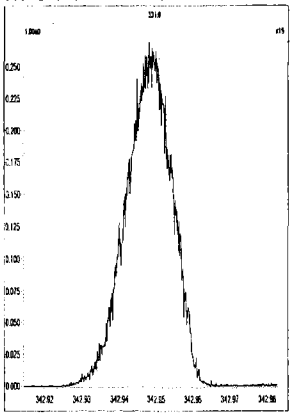
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, March 23, 2012 16:32:22 Central Daylight Time

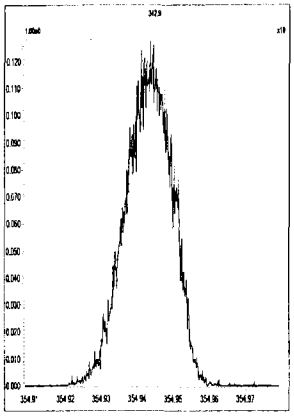
M 330.9792 R 12568



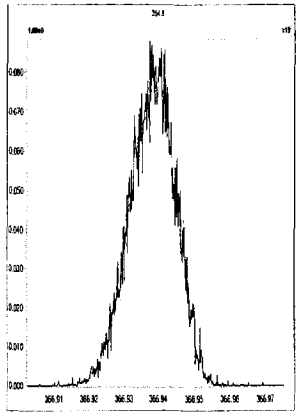
M 342.9792 R 12693



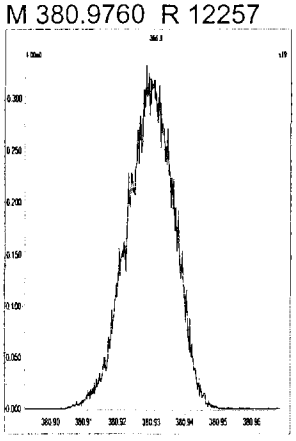
M 354.9792 R 12078



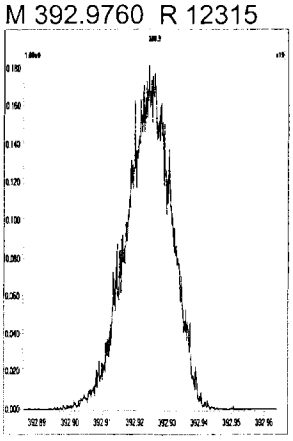
M 366.9792 R 12253



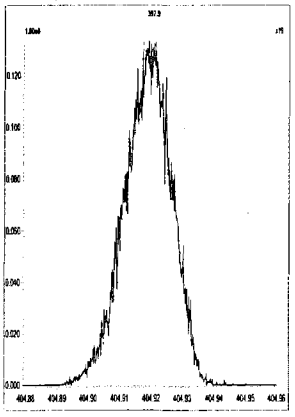
M 380.9760 R 12257



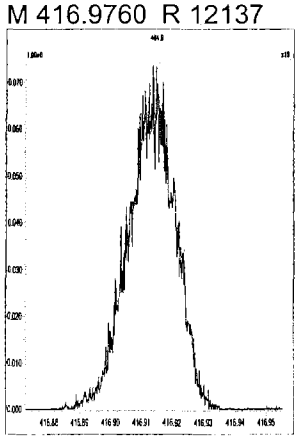
M 392.9760 R 12315



M 404.9760 R 11572



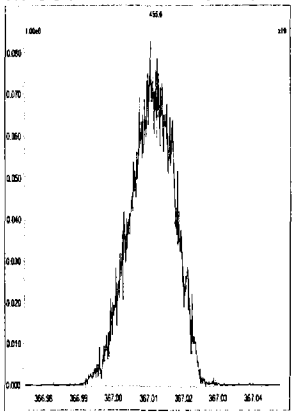
M 416.9760 R 12137



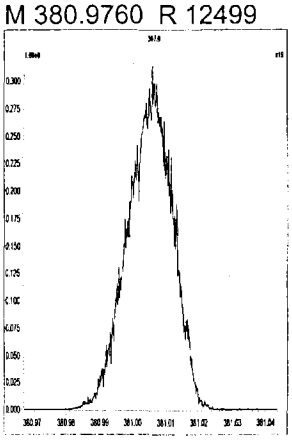
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, March 23, 2012 16:33:14 Central Daylight Time

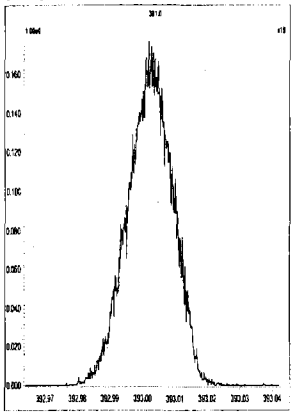
M 366.9792 R 13228



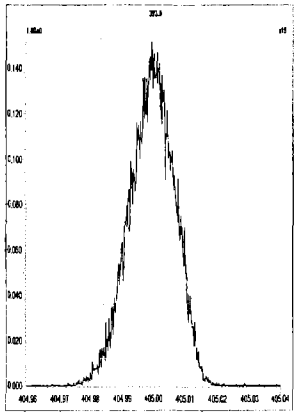
M 380.9760 R 12499



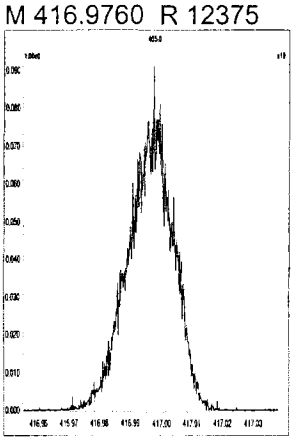
M 392.9760 R 12823



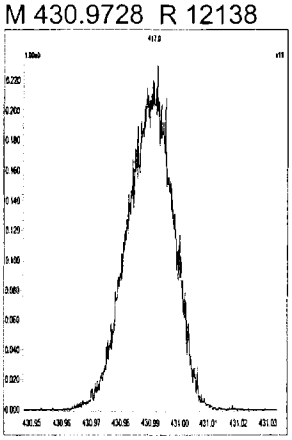
M 404.9760 R 12438



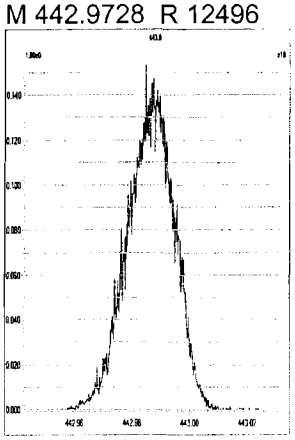
M 416.9760 R 12375



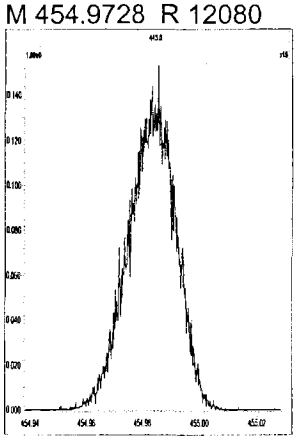
M 430.9728 R 12138



M 442.9728 R 12496



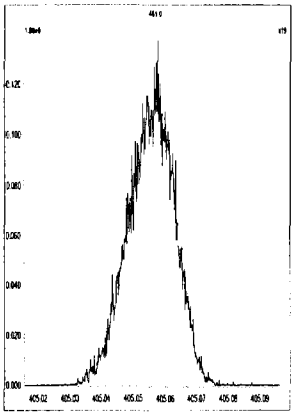
M 454.9728 R 12080



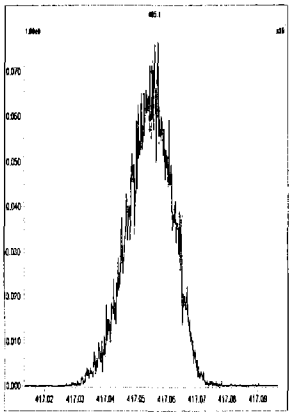
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, March 23, 2012 16:38:15 Central Daylight Time

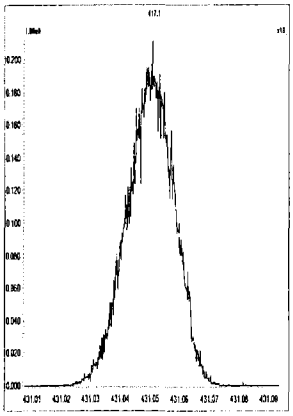
M 404.9760 R 12193



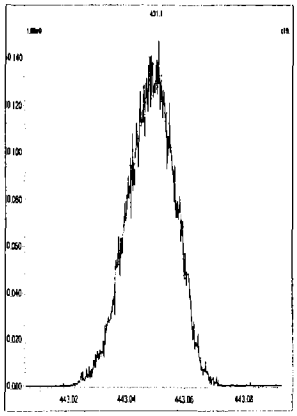
M 416.9760 R 12438



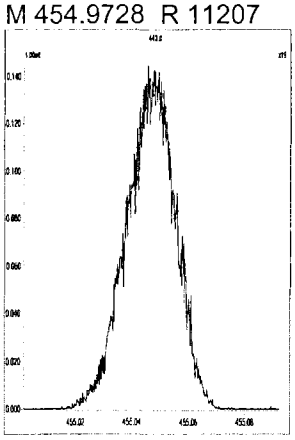
M 430.9728 R 11681



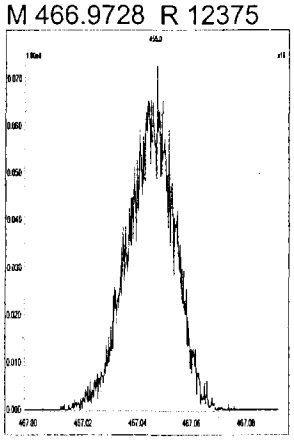
M 442.9728 R 11735



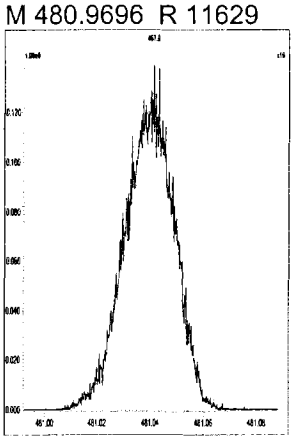
M 454.9728 R 11207



M 466.9728 R 12375



M 480.9696 R 11629



File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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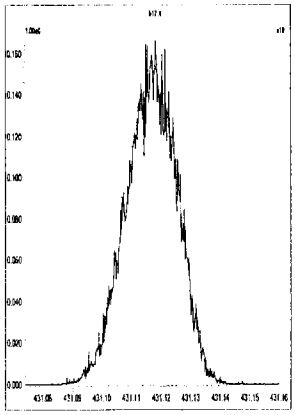
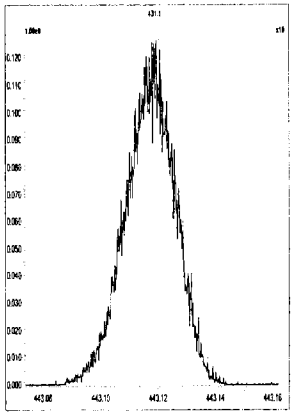
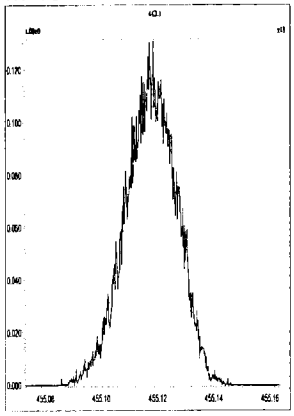
M 430.9728 R 11112



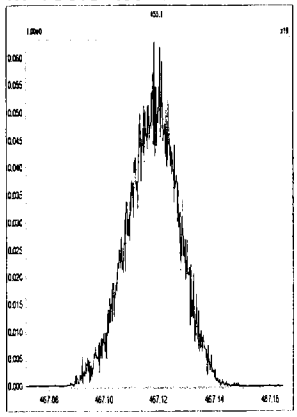
M 442.9728 R 10822



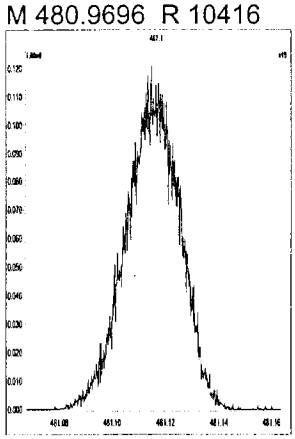
M 454.9728 R 10637



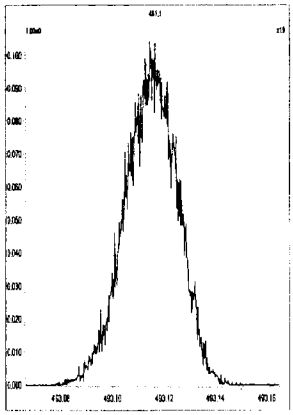
M 466.9728 R 11211



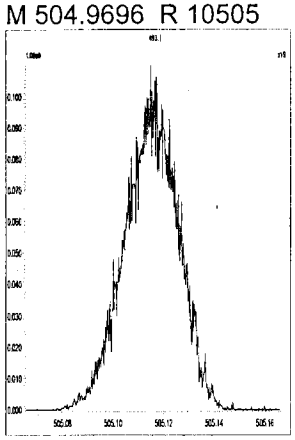
M 480.9696 R 10416



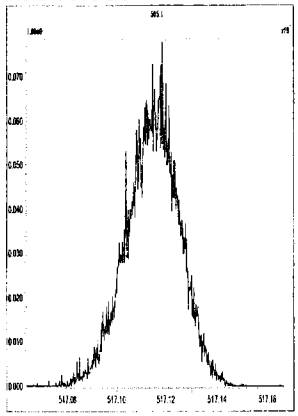
M 492.9696 R 10206



M 504.9696 R 10505



M 516.9697 R 10686



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P216931
Date Analyzed: 23-MAR-2012
Time Analyzed: 05:34:07

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:48	31:13
TCDD	27:23	31:12
PeCDF	31:28	35:09
PeCDD	32:44	34:59
HxCDF	35:59	38:15
HxCDD	36:28	37:55
HpCDF	39:39	41:01
HpCDD	39:54	40:34

% Valley 2378-TCDD: 7 %

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P216930 Analysis Date: 23-MAR-12 Time: 04:36:05

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	0.95	0.91	3.89
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.84	0.85	-0.89
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.90	0.87	3.19
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.89	0.95	-6.26
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	0.92	0.96	-3.62
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.94	0.99	-4.87
OCDD	M+2/M+4	0.88	0.76-1.02	1.02	1.20	-14.44
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	0.83	0.86	-3.40
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.86	0.88	-2.11
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.98	0.85	16.09
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	1.09	1.08	0.96
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	1.16	1.19	-1.87
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	0.95	0.96	-0.76
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.13	1.04	8.59
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	1.25	1.25	-0.03
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.99	0.88-1.20	0.99	0.97	1.78
OCDF	M+2/M+4	0.89	0.76-1.02	1.06	1.13	-6.23

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P216930 Analysis Date: 23-MAR-12 Time: 04:36:05

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.85	0.95	-10.82
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	0.90	0.84	7.12
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	0.96	0.95	1.01
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	0.83	0.82	2.03
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.64	0.67	-4.64
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	1.05	1.14	-7.67
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.05	1.11	-5.86
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	0.97	1.03	-6.42
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.82	0.85	-3.44
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				0.96	1.06	-8.70

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P216942 Analysis Date: 23-MAR-12 Time: 15:22:11

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	0.99	0.91	8.34
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	0.86	0.85	1.49
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.86	0.87	-0.99
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.96	0.95	0.72
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	0.92	0.96	-4.17
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	0.97	0.99	-2.01
OCDD	M+2/M+4	0.89	0.76-1.02	1.06	1.20	-11.22
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	0.88	0.86	1.67
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.88	0.88	-0.21
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.90	0.85	6.47
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	1.12	1.08	3.82
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	1.15	1.19	-3.15
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	0.96	0.96	0.12
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	1.21	1.04	15.97
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	1.25	1.25	-0.70
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	0.98	0.97	0.69
OCDF	M+2/M+4	0.90	0.76-1.02	1.10	1.13	-2.95

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P216942 Analysis Date: 23-MAR-12 Time: 15:22:11

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.87	0.95	-8.06
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.90	0.84	6.70
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	1.01	0.95	5.44
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.82	0.82	0.45
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.64	0.67	-4.34
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.13	1.14	-1.34
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.15	1.11	3.61
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.02	1.03	-1.80
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	0.86	0.85	1.22
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				1.00	1.06	-5.22

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

RW/ HRCC3 Daily Calibration QC Checklist

Calibration File Name: P217031 - P217042 Circle one: Beginning / Ending

Date: 04/06/12

Method: (8290) / Tetra / TCDD Only / TCDF Conf

Retention Window/Column Performance Check:	**Analyst**	**Second Check**
Windows labeled for first and last eluting compounds	✓	✓
Column performance shows less than or equal to 25% valley between column specific 2378 isomer and the closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or the closest eluters	✓	✓

HRCC3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
Signal-to-noise of all target analytes and associated labeled standards at least 2.5:1	✓	✓
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: Client No.: SDG No.:

GC Column: db5 ID: 0.25 (mm) Instrument ID: AutoSpec-Premier

Init. Calib. Date: 08/17/11

Init. Calib.Times: 09:28:00

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	WINDOW DEFINE	P217032	6-APR-12	04:59:04
CCAL HRCC3	CCAL HRCC3	P217031	6-APR-12	03:28:41
SYSTEM BLANK	SYSTEM BLANK	P217033	6-APR-12	06:02:42
LCS	EQ1200158-02	P217034	6-APR-12	07:01:25
METHOD BLANK	EQ1200158-01	P217035	6-APR-12	08:08:53
COMPOSITE	K1202341-008	P217036	6-APR-12	08:57:53
B-68-A-3.5-B	K1202571-001	P217037	6-APR-12	09:49:23
12MW020	E1200219-003RE	P217038	6-APR-12	10:40:48
METHOD BLANK	EQ1200174-01	P217039	6-APR-12	11:53:44
LCS	EQ1200174-02	P217040	6-APR-12	12:42:17
DLCS	EQ1200174-03	P217041	6-APR-12	13:33:44
CCAL HRCC3-B	CCAL HRCC3-B	P217042	6-APR-12	14:25:10

E1200219

511 of 666

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2120406.SPL
Last Modified: Friday, April 06, 2012 10:35:28 Central Daylight Time
Printed: Friday, April 06, 2012 15:22:09 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

G:\P217031RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	04/06/12	03:28	P217031	CCAL HRCC3	D12-83-2	JL	HRMS Check 04:36	8290CAS	8290CAS
2		06:59	P217032	WINDOW DEFINE	D12-56-2			8290CAS	8290CAS
3		06:03	P217033	SYSTEM BLANK	SYSTEM BLANK			8290CAS	8290CAS
4		07:01	P217034	EQ1200158-02	LCS			8290CAS	8290CAS
5		08:08	P217035	EQ1200158-01	MB			8290CAS	8290CAS
6		08:57	P217036	K1202341-008	Composite			8290CAS	8290CAS
7		09:49	P217037	K1202571-001	B-68-A-3.5-B			8290CAS	8290CAS
8		10:40	P217038	E1200219-003RE	12MW020			8290CAS	8290CAS
9		11:53	P217039	EQ1200174-01	MB			8290CAS	8290CAS
10		12:42	P217040	EQ1200174-02	LCS			8290CAS	8290CAS
11		13:33	P217041	EQ1200174-03	DLCS			8290CAS	8290CAS
12		14:25	P217042	CCAL HRCC3-B	D12-83-2		HRMS Check 15:31	8290CAS	8290CAS
13			---	---	---			8290CAS	8290CAS
14			---	---	---			8290CAS	8290CAS
15			---	---	---			8290CAS	8290CAS
16			---	---	---			8290CAS	8290CAS
17			---	---	---			8290CAS	8290CAS
18			---	---	---			8290CAS	8290CAS
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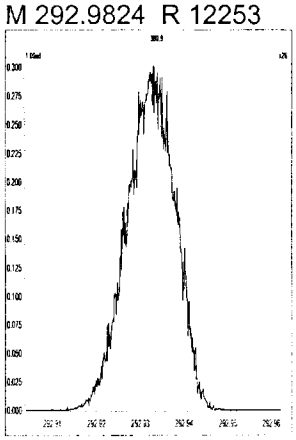
27	---	---	---	---	---	---	---	TCDFCAS	8290CAS
28	---	---	---	---	---	---	---	TCDFCAS	8290CAS
29	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	8290CAS	8290CAS
31	---	---	---	---	---	---	---	8290CAS	8280CAS
32	---	---	---	---	---	---	Reviewed by: TC	---	---

04/09/12

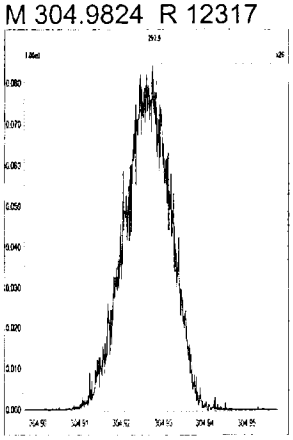
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, April 06, 2012 04:36:47 Central Daylight Time

M 292.9824 R 12253



M 304.9824 R 12317



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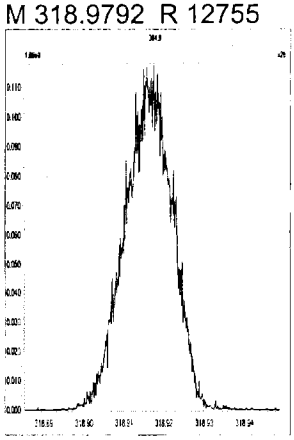

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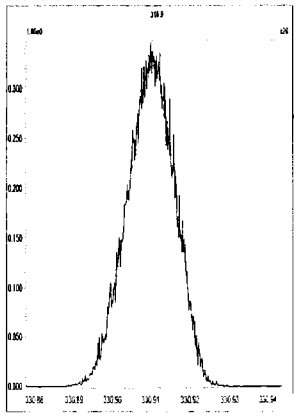
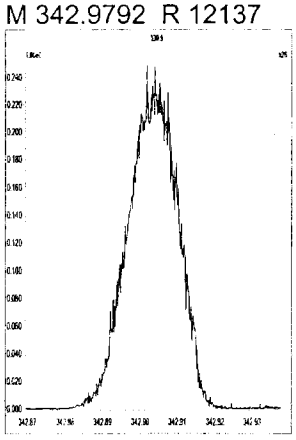
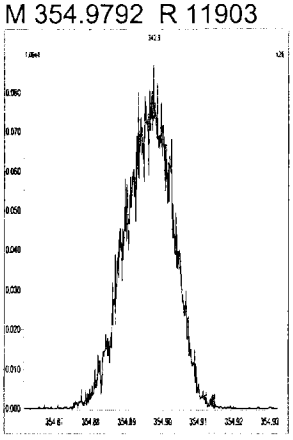


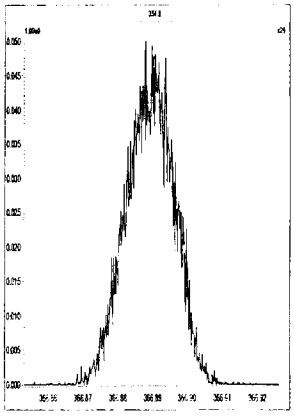
M 342.9792 R 12137



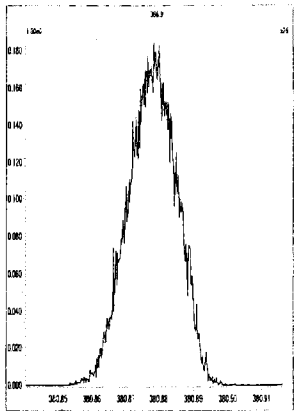
M 354.9792 R 11903



M 366.9792 R 12079



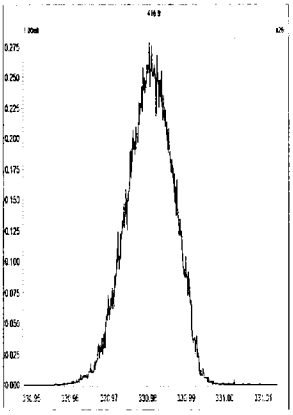
M 380.9760 R 11962



File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, April 06, 2012 04:37:35 Central Daylight Time

M 330.9792 R 12249



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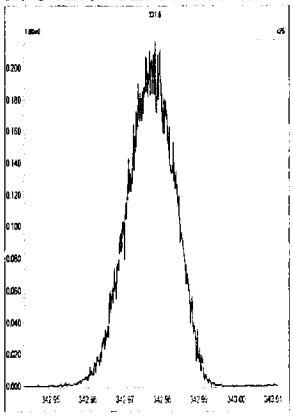
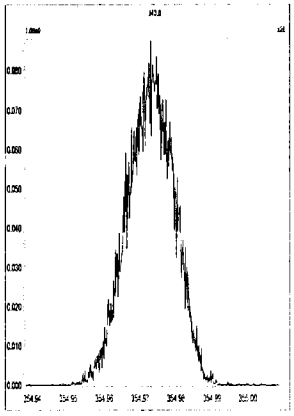
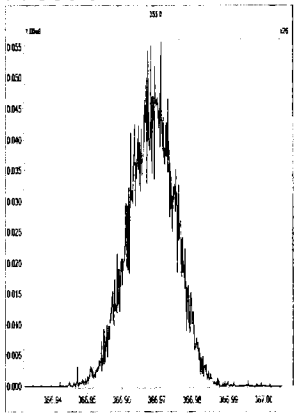


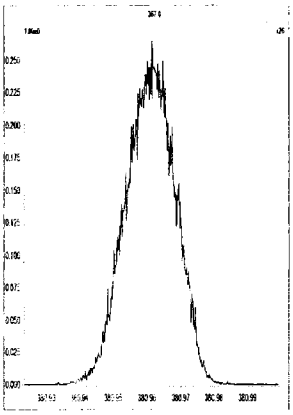
M 354.9792 R 11629



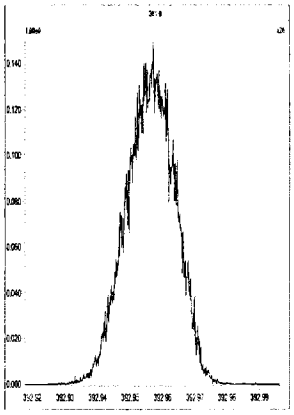
M 366.9792 R 12315



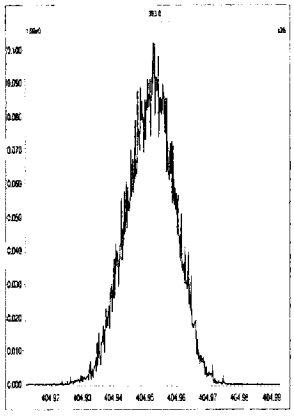
M 380.9760 R 11413



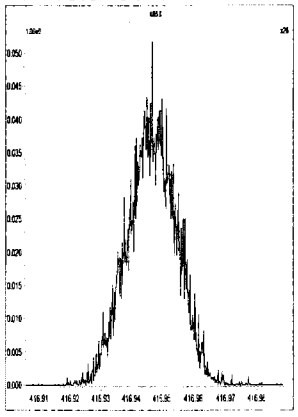
M 392.9760 R 11683



M 404.9760 R 11467



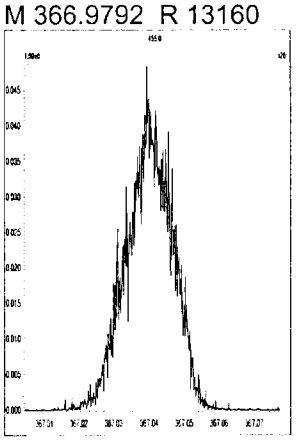
M 416.9760 R 12317



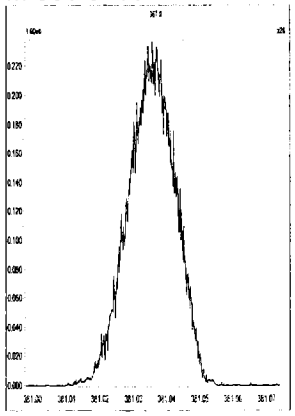
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, April 06, 2012 04:37:57 Central Daylight Time

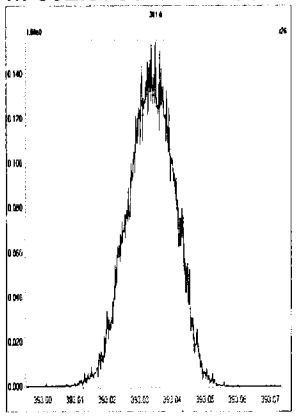
M 366.9792 R 13160



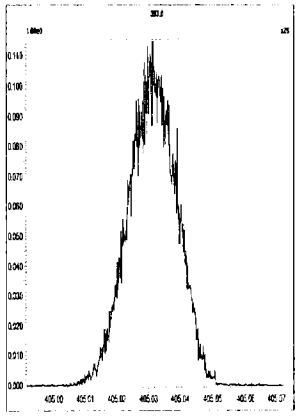
M 380.9760 R 11793



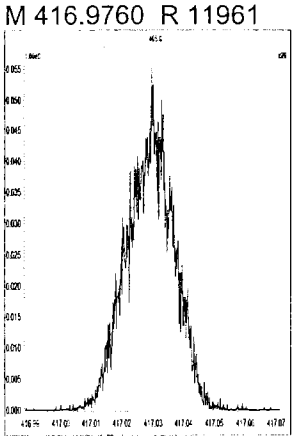
M 392.9760 R 12253



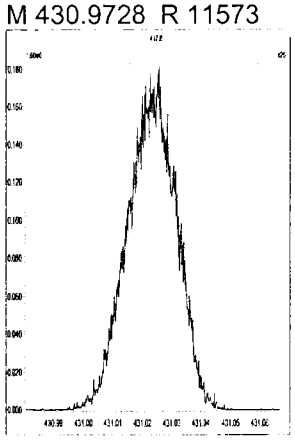
M 404.9760 R 11845



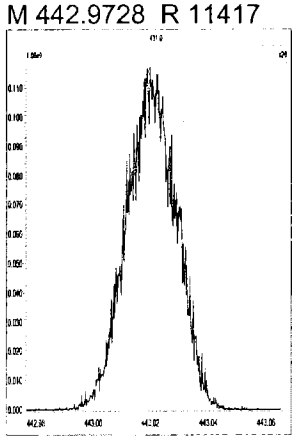
M 416.9760 R 11961



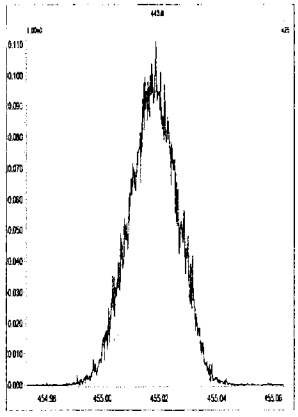
M 430.9728 R 11573



M 442.9728 R 11417



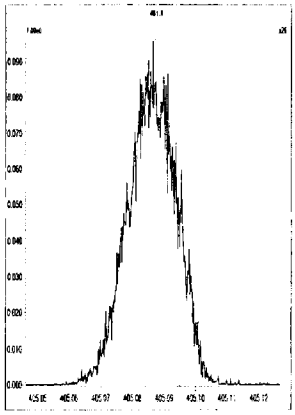
M 454.9728 R 11682



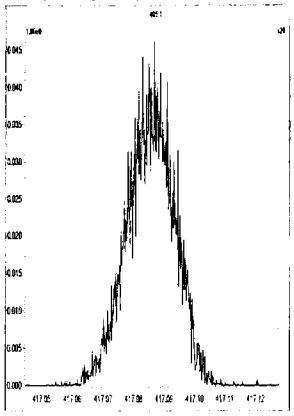
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, April 06, 2012 04:38:38 Central Daylight Time

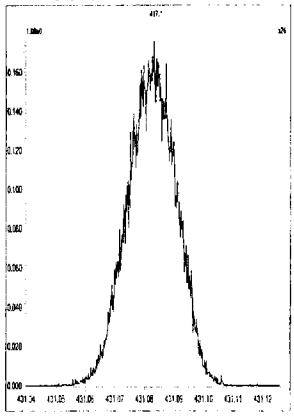
M 404.9760 R 12314



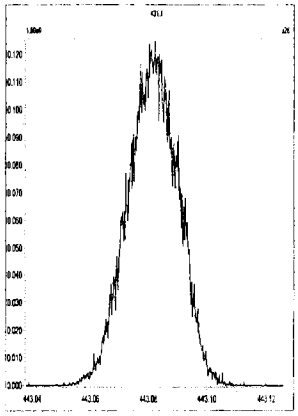
M 416.9760 R 12021



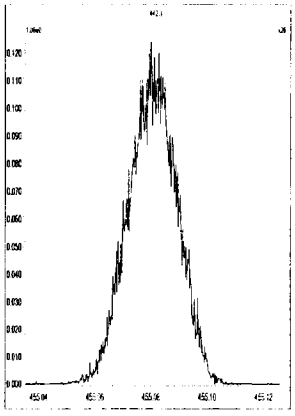
M 430.9728 R 11521



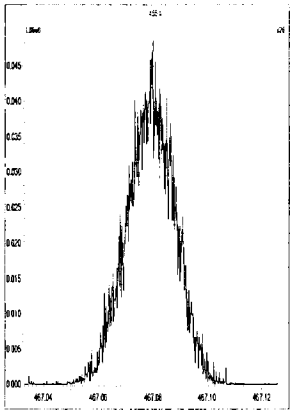
M 442.9728 R 11315



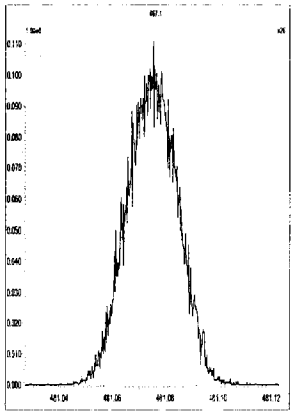
M 454.9728 R 11522



M 466.9728 R 12690



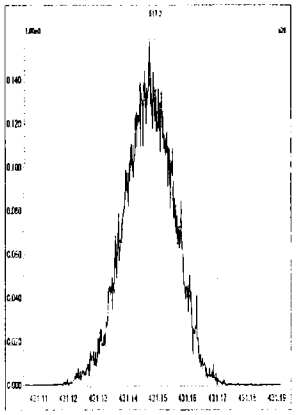
M 480.9696 R 11260



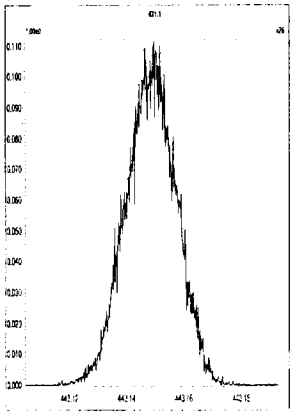
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, April 06, 2012 04:39:01 Central Daylight Time

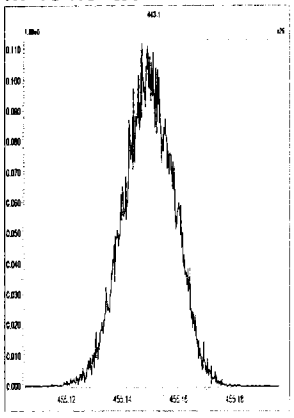
M 430.9728 R 11365



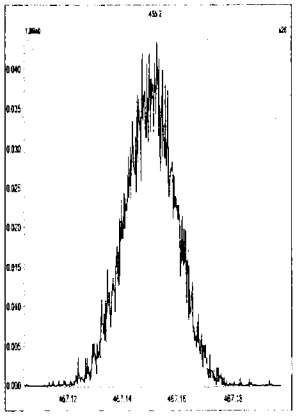
M 442.9728 R 10870



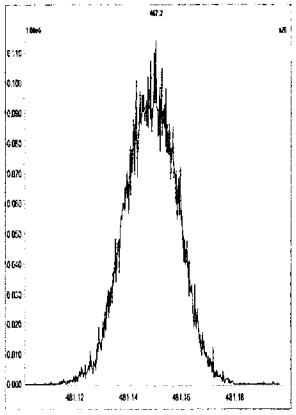
M 454.9728 R 11210



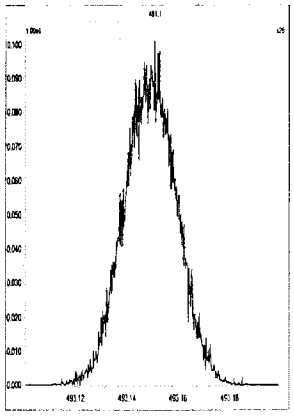
M 466.9728 R 11518



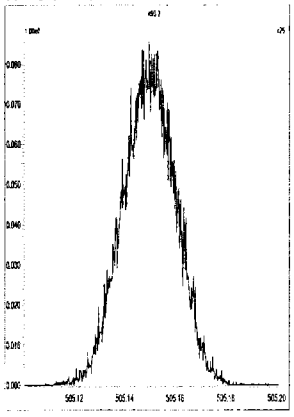
M 480.9696 R 10819



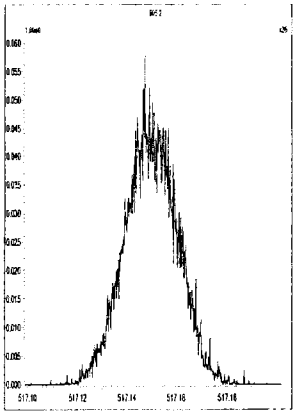
M 492.9696 R 10245



M 504.9696 R 10915



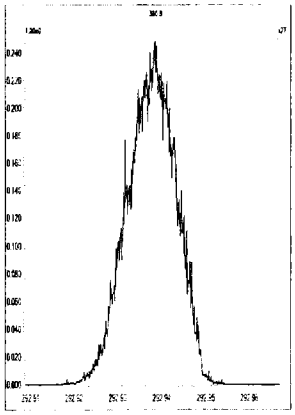
M 516.9697 R 10773



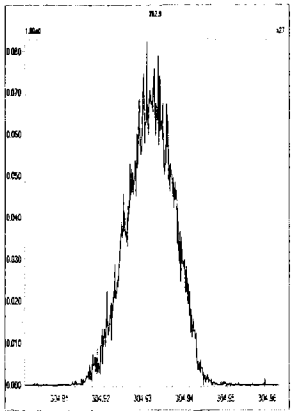
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, April 06, 2012 15:31:25 Central Daylight Time

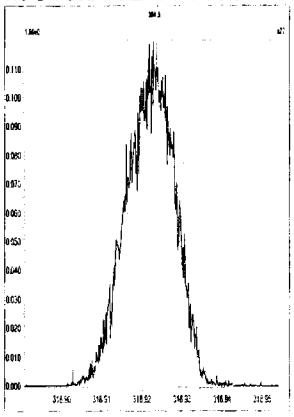
M 292.9824 R 11903



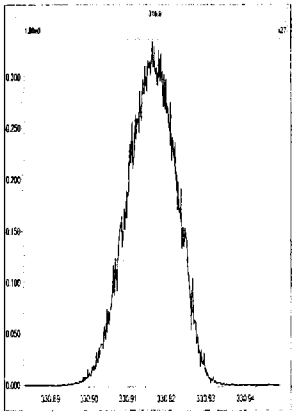
M 304.9824 R 12757



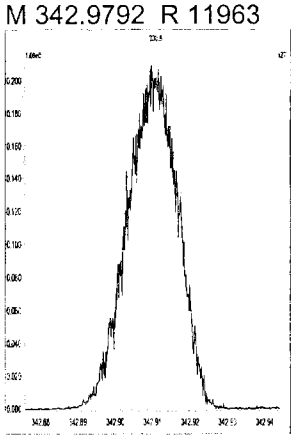
M 318.9792 R 11962



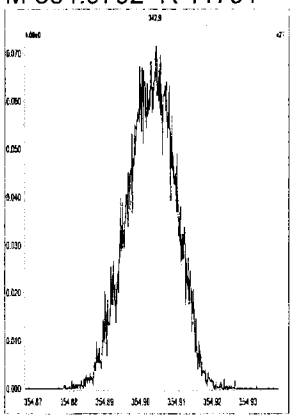
M 330.9792 R 11846



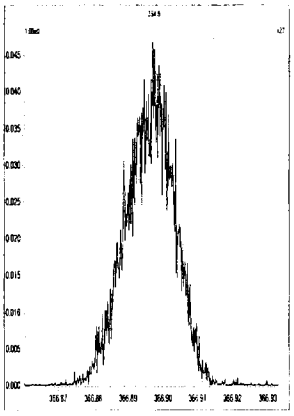
M 342.9792 R 11963



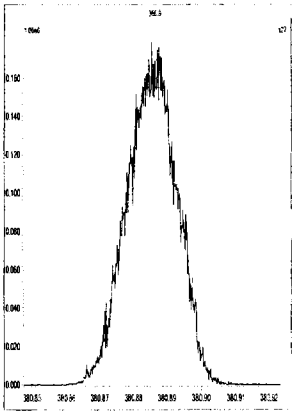
M 354.9792 R 11791



M 366.9792 R 12378



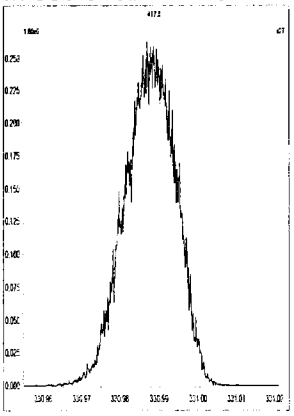
M 380.9760 R 11521



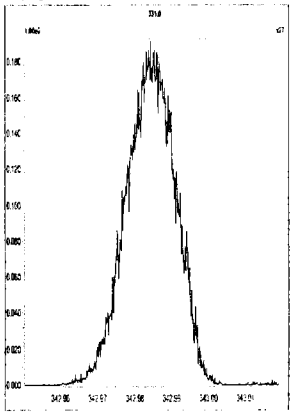
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, April 06, 2012 15:32:22 Central Daylight Time

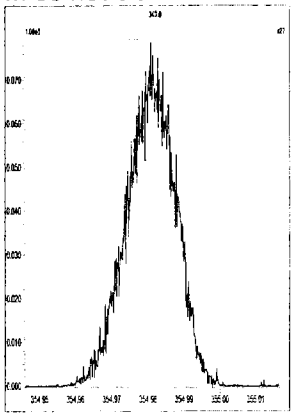
M 330.9792 R 11521



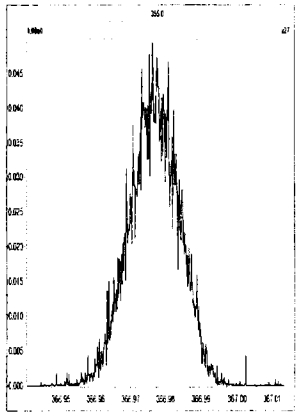
M 342.9792 R 11519



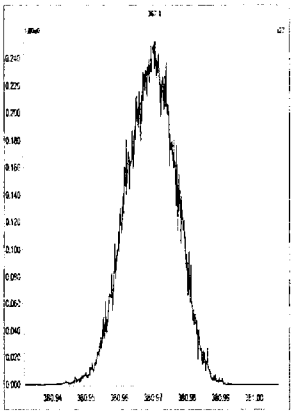
M 354.9792 R 11734



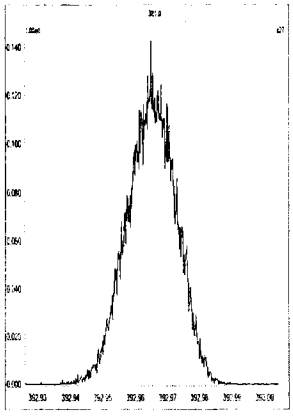
M 366.9792 R 11792



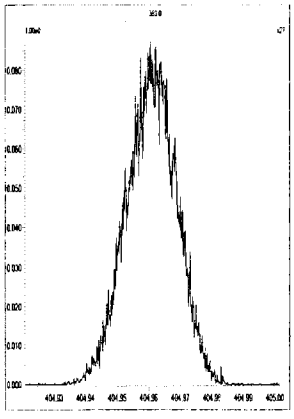
M 380.9760 R 11471



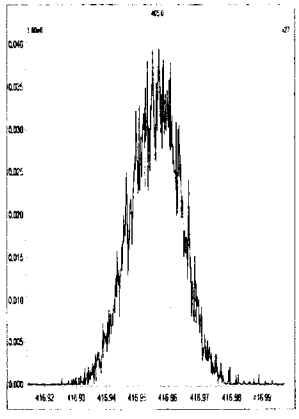
M 392.9760 R 11417



M 404.9760 R 11210



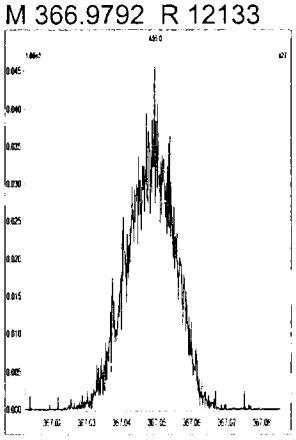
M 416.9760 R 11846



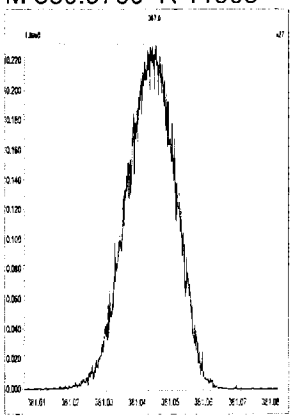
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, April 06, 2012 15:33:22 Central Daylight Time

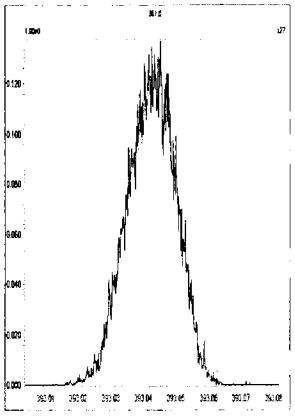
M 366.9792 R 12133



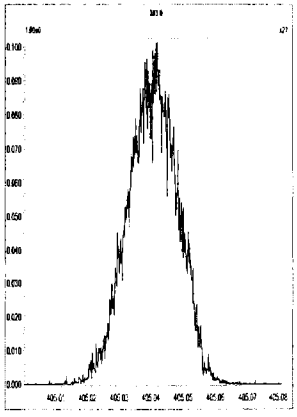
M 380.9760 R 11905



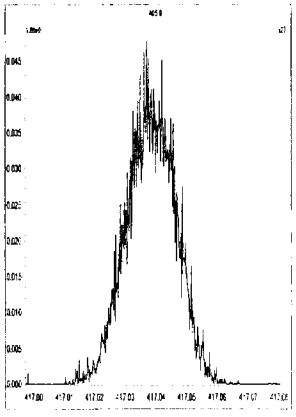
M 392.9760 R 11961



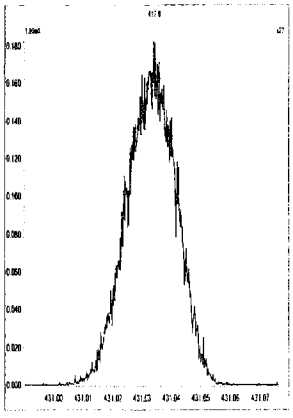
M 404.9760 R 12074



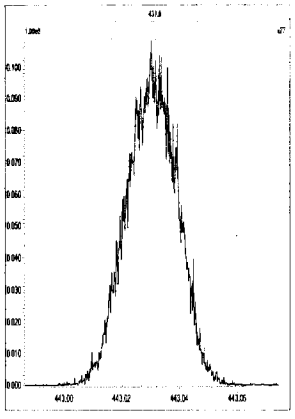
M 416.9760 R 12315



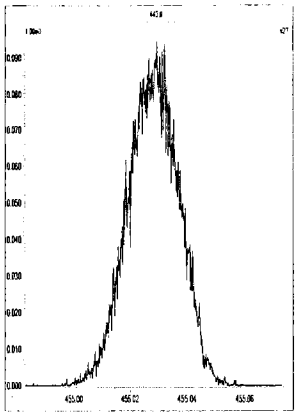
M 430.9728 R 11520



M 442.9728 R 11158



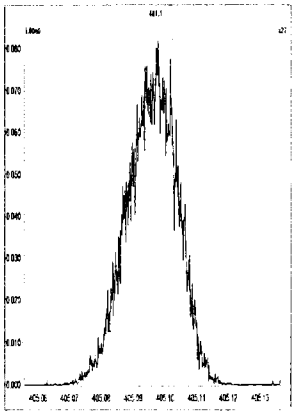
M 454.9728 R 11261



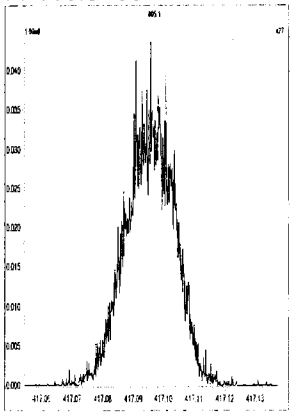
File: Experiment: 8290CAS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, April 06, 2012 15:34:20 Central Daylight Time

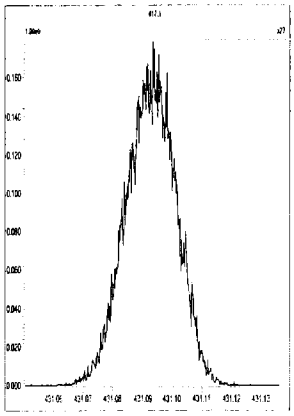
M 404.9760 R 12194



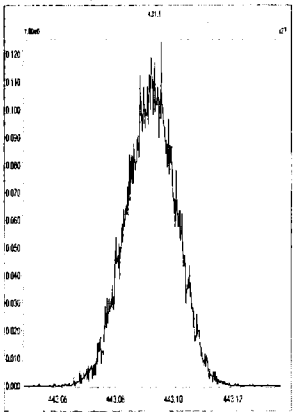
M 416.9760 R 12312



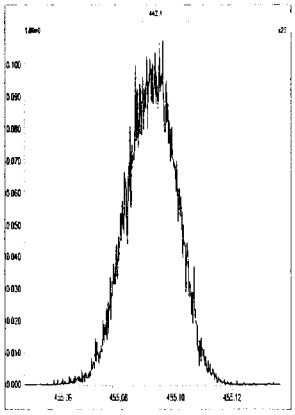
M 430.9728 R 11157



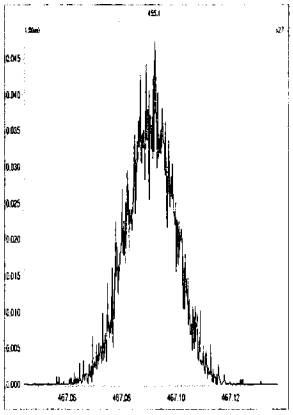
M 442.9728 R 11520



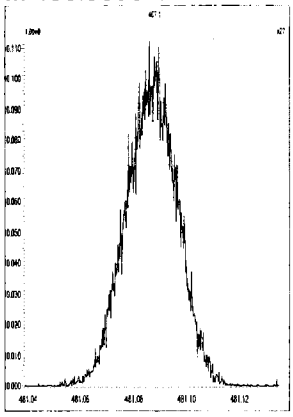
M 454.9728 R 11063



M 466.9728 R 11412



M 480.9696 R 11114



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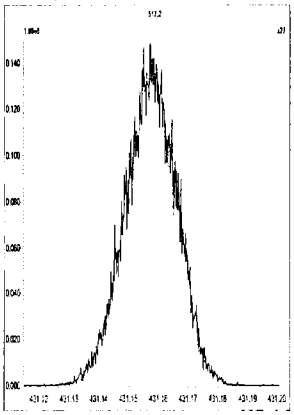
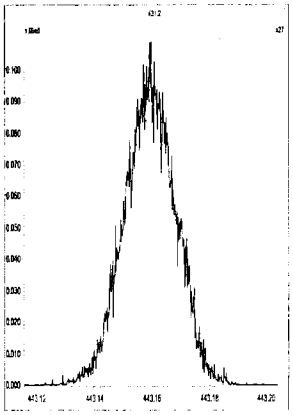
Printed: Friday, April 06, 2012 15:35:15 Central Daylight Time

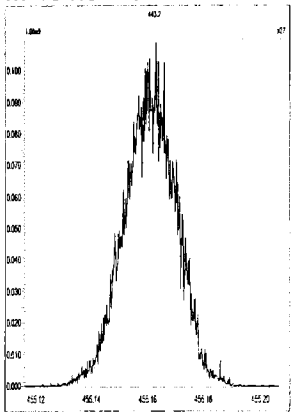
M 430.9728 R 10682



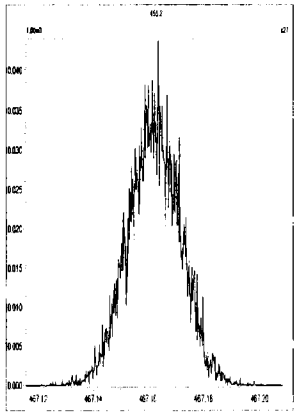
M 442.9728 R 11469



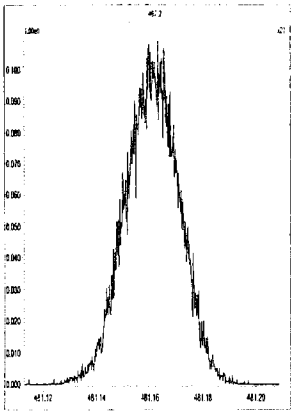
M 454.9728 R 10822



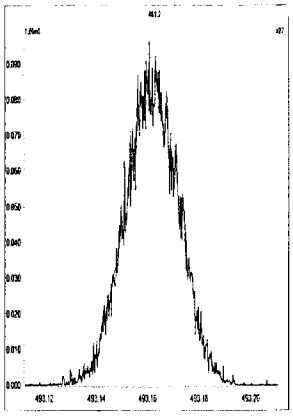
M 466.9728 R 11572



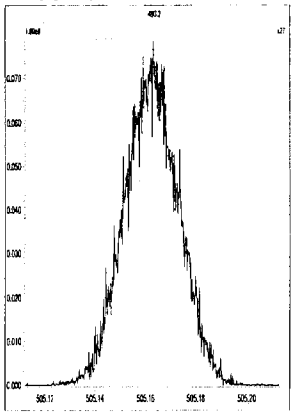
M 480.9696 R 11014



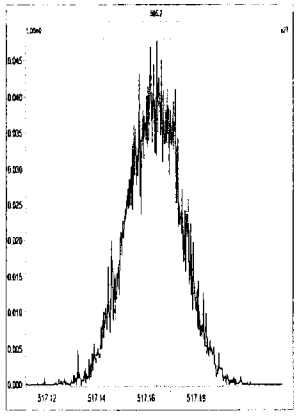
M 492.9696 R 11111



M 504.9696 R 10372



M 516.9697 R 10377



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P217032
Date Analyzed: 6-APR-2012
Time Analyzed: 04:59:04

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:51	31:17
TCDD	27:25	31:15
PeCDF	31:30	35:12
PeCDD	32:47	35:02
HxCDF	36:02	38:17
HxCDD	36:31	37:58
HpCDF	39:42	41:06
HpCDD	39:57	40:39

% Valley 2378-TCDD: 9 %

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P217031 Analysis Date: 6-APR-12 Time: 03:28:41

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	1.01	0.91	10.95
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	0.90	0.85	6.45
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.93	0.87	6.63
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.96	0.95	0.75
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	0.98	0.96	2.97
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	0.99	0.99	0.02
OCDD	M+2/M+4	0.88	0.76-1.02	1.08	1.20	-10.00
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	0.91	0.86	5.17
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.91	0.88	2.81
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.83	0.85	-1.94
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.14	1.08	5.25
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.16	1.19	-2.00
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	0.94	0.96	-1.96
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.09	1.04	4.57
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	1.25	1.25	-0.23
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	0.96	0.97	-0.97
OCDF	M+2/M+4	0.90	0.76-1.02	1.14	1.13	0.16

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P217031 Analysis Date: 6-APR-12 Time: 03:28:41

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	0.89	0.95	-6.99
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.82	0.84	-2.03
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.97	0.95	1.51
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.79	0.82	-3.99
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.56	0.67	-16.26
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	1.16	1.14	1.87
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	1.15	1.11	3.71
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.06	1.03	2.85
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.83	0.85	-2.35
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				1.02	1.06	-3.47

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P217042 Analysis Date: 6-APR-12 Time: 14:25:10

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	1.01	0.91	10.44
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.89	0.85	4.72
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.90	0.87	3.37
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.97	0.95	2.48
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	0.95	0.96	-1.03
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	0.98	0.99	-1.65
OCDD	M+2/M+4	0.89	0.76-1.02	1.07	1.20	-10.59
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	0.90	0.86	3.74
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	0.88	0.88	0.11
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.81	0.85	-3.92
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	1.11	1.08	2.51
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.14	1.19	-3.78
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	0.93	0.96	-3.14
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	1.07	1.04	3.24
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	1.24	1.25	-1.25
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	1.01	0.97	3.62
OCDF	M+2/M+4	0.89	0.76-1.02	1.13	1.13	-0.57

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 08/17/11

Instrument ID: E-HRMS-0 GC Column ID: db5

VER Data Filename: P217042 Analysis Date: 6-APR-12 Time: 14:25:10

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	0.87	0.95	-8.81
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	0.82	0.84	-2.51
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.99	0.95	4.25
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.86	0.82	4.89
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.68	0.67	1.83
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.12	1.14	-1.57
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	1.11	1.11	-0.63
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.04	1.03	0.68
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.85	0.85	0.48
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				1.00	1.06	-5.54

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

Preparation Information Benchsheet

Prep Run#: 153587 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/EBAUCH **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 3/15/12 09:55 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1200219-001	12MW010	.01	8290/PCDD PCDF		Water	960mL	clear colorless liquid
2	E1200219-002	12MW01S	.01	8290/PCDD PCDF		Water	960mL	clear colorless liquid
3	E1200219-003	12MW020	.01	8290/PCDD PCDF		Water	960mL	opaque orange liquid
4	E1200219-004	12MW02S	.01	8290/PCDD PCDF		Water	980mL	clear colorless liquid
5	E1200219-005	12RB01	.01	8290/PCDD PCDF		Water	880mL	clear colorless liquid
6	E1200219-006	12GW-DUP01	.01	8290/PCDD PCDF		Water	960mL	clear colorless liquid
7	EQ1200145-01	MB		8290/PCDD PCDF		Liquid	1000mL	
8	EQ1200145-02	LCS		8290/PCDD PCDF		Liquid	1000mL	
9	EQ1200145-03	12MW01S MS	.02	8290/PCDD PCDF		Liquid	960mL	
10	EQ1200145-04	12MW01S DMS	.03	8290/PCDD PCDF		Liquid	960mL	

Spiking Solutions

Name: 8290 Internal Working Standard Inventory ID 41518 Logbook Ref: D12-93-2 (41518) Expires On: 02/28/2013

E1200219-001	100.00µL	E1200219-002	100.00µL	E1200219-003	100.00µL	E1200219-004	100.00µL	E1200219-005	100.00µL	E1200219-006	100.00µL
EQ1200145-01	100.00µL	EQ1200145-02	100.00µL	EQ1200145-03	100.00µL	EQ1200145-04	100.00µL				

Name: 8290/1613B Cleanup Working Standard Inventory ID 41830 Logbook Ref: D12-95-3 (41830) Expires On: 03/12/2013

E1200219-001	100.00µL	E1200219-002	100.00µL	E1200219-003	100.00µL	E1200219-004	100.00µL	E1200219-005	100.00µL	E1200219-006	100.00µL
EQ1200145-01	100.00µL	EQ1200145-02	100.00µL	EQ1200145-03	100.00µL	EQ1200145-04	100.00µL				

Name: 8290 Matrix Working Standard Inventory ID 41918 Logbook Ref: D12-96-1 (41918) Expires On: 03/14/2013

EQ1200145-02	100.00µL	EQ1200145-03	100.00µL	EQ1200145-04	100.00µL

Preparation Materials

Sensafe Free Chlorine WTR CHK	C2-56-3 (29767)	Ethyl Acetate 99.9% Minimum EtOAc	C2-62-5 (35709)	Glass Wool	C2-67-2 (K93168686) (39783)
Sulfuric Acid Reagent Grade H2SO4	C2-67-1 (38675)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	C2-68-3 (51308) (39790)	Sodium Thiosulfate Anhydrous Reagent Grade NaS2O3	C2-69-2 (MKBH7658V) (40798)
Sodium Hydroxide Reagent Grade NaOH	C2-53-6 (27838)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	C2-69-4 (2351C512) (40800)	Tridecane (n-Tridecane)	C2-65-1 (37777)
Hexane (n-Hexane) 98.5% Minimum	C2-69-6 (51300) (40802)	Nonane (n-Nonane) 99%	C2-48-7 (STBB5477) (39812)	pH Paper 0-14	(1008)
Silica Gel Reagent Grade	C2-64-1 (37034)	Toluene 99.9% Minimum	C2-69-5 (51195) (40801)		

Preparation Information Benchsheet

Prep Run#: 153587 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/EBAUCH **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 3/15/12 09:55 AM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	3/15/12 09:55	Started:	3/16/12 12:00	Started:	3/16/12 12:00	Started:	3/17/12 09:55
Finished:	3/15/12 11:18	Finished:	3/16/12 12:00	Finished:	3/16/12 14:45	Finished:	3/17/12 10:25
By:	TLAFFERTY	By:	TLAFFERTY	By:	TLAFFERTY	By:	TLAFFERTY
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 154855 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/EBAUCH **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 4/4/12 09:15 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1200219-003RE	12MW020	.02	8290/PCDD PCDF	7	Water	960mL	clear orange liquid
2	EQ1200174-01	MB		8290/PCDD PCDF	5	Liquid	1000mL	
3	EQ1200174-02	LCS		8290/PCDD PCDF	5	Liquid	1000mL	
4	EQ1200174-03	DLCS		8290/PCDD PCDF	5	Liquid	1000mL	
5	K1202551-001RE	GW-0835	.04	8290/PCDD PCDF	7	Water	1040mL	clear, colorless liquid
6	K1202551-002RE	GW-0836	.04	8290/PCDD PCDF	7	Water	1040mL	clear, yellow liquid
7	K1202551-003RE	GW-0837	.04	8290/PCDD PCDF	7	Water	1040mL	clear, colorless liquid
8	K1202551-004RE	GW-0838	.04	8290/PCDD PCDF	7	Water	1040mL	clear, yellow liquid
9	K1202551-005RE	GW-0839	.04	8290/PCDD PCDF	7	Water	1040mL	clear, yellow liquid
10	K1202551-006RE	GW-0840	.04	8290/PCDD PCDF	7	Water	1040mL	clear, yellow liquid
11	K1202551-007RE	GW-0841	.04	8290/PCDD PCDF	7	Water	1040mL	clear, colorless liquid
12	K1202551-008RE	GW-0842	.04	8290/PCDD PCDF	5	Water	1040mL	clear, colorless liquid

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 41831 Logbook Ref: D12-95-4 (41831) Expires On: 03/12/2013

E1200219-003	100.00µL	EQ1200174-01	100.00µL	EQ1200174-02	100.00µL	EQ1200174-03	100.00µL	K1202551-001	100.00µL	K1202551-002	100.00µL
K1202551-003	100.00µL	K1202551-004	100.00µL	K1202551-005	100.00µL	K1202551-006	100.00µL	K1202551-007	100.00µL	K1202551-008	100.00µL

Name: 8290 Matrix Working Standard Inventory ID 41918 Logbook Ref: D13-6-3 (41918) Expires On: 04/02/2013

EQ1200174-02	100.00µL	EQ1200174-03	100.00µL

Name: 8290 Internal Working Standard Inventory ID 42724 Logbook Ref: D13-6-2 (42724) Expires On: 03/30/2013

E1200219-003	100.00µL	EQ1200174-01	100.00µL	EQ1200174-02	100.00µL	EQ1200174-03	100.00µL	K1202551-001	100.00µL	K1202551-002	100.00µL
K1202551-003	100.00µL	K1202551-004	100.00µL	K1202551-005	100.00µL	K1202551-006	100.00µL	K1202551-007	100.00µL	K1202551-008	100.00µL

Preparation Materials

Sensafe Free Chlorine WTR CHK	C2-68-6 (42516)	Carbon, High Purity	C2-66-5 (38673)	Ethyl Acetate 99.9% Minimum EtOAc	C2-62-5 (35709)
Glass Wool	C2-67-3 (K92900986) (39784)	Sulfuric Acid Reagent Grade H2SO4	C2-67-1 (38675)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	C2-70-6 (42515)
Sodium Thiosulfate Anhydrous Reagent Grade NaS2O3	C2-69-2 (MKBH7658V) (40798)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	C2-53-6 (27838)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	C2-69-4 (2351C512) (40800)	Tridecane (n-Tridecane)	C2-69-3 (MKBG6777V) (40799)	Hexane (n-Hexane) 98.5% Minimum	C2-69-6 (51300) (40802)
Nonane (n-Nonane) 99%	C2-48-7 (STBB5477) (39812)	pH Paper 0-14	(1008)	Silica Gel Reagent Grade	C2-70-1 (TH02H2EMS) (42517)
Toluene 99.9% Minimum	C2-69-5 (51195) (40801)				

Preparation Information Benchsheet

Prep Run#: 154855 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/EBAUCH **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 4/4/12 09:15 AM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	4/4/12 09:15	Started:	4/4/12 10:42	Started:	4/4/12 18:47	Started:	4/5/12 09:08
Finished:	4/4/12 10:43	Finished:	4/4/12 10:42	Finished:	4/4/12 20:10	Finished:	4/5/12 13:55
By:	TLAFFERTY	By:	EBAUCH	By:	EBAUCH	By:	EBAUCH
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: EB Date: 4/5/12

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
12RB01

Run #16 Filename P216938 Samp: 1 Inj: 1 Acquired: 23-MAR-12 11:44:30
Processed: 26-MAR-12 10:34:29 LAB. ID: E1200219-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.864
2	Unk	1,2,3,7,8-PeCDF	33:28	5.943e+01	5.438e+01	1.09	no	yes	0.881
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.846
4	Unk	1,2,3,4,7,8-HxCDF	36:55	7.201e+01	4.875e+01	1.48	no	yes	1.083
5	Unk	1,2,3,6,7,8-HxCDF	37:00	1.160e+02	9.067e+01	1.28	yes	yes	1.187
6	Unk	2,3,4,6,7,8-HxCDF	37:28	5.038e+01	3.978e+01	1.27	yes	yes	1.039
7	Unk	1,2,3,7,8,9-HxCDF	38:11	3.099e+01	2.147e+01	1.44	no	yes	0.962
8	Unk	1,2,3,4,6,7,8-HpCDF	39:38	1.197e+02	1.253e+02	0.95	yes	yes	1.255
9	Unk	1,2,3,4,7,8,9-HpCDF	41:01	3.293e+01	2.957e+01	1.11	yes	yes	0.970
10	Unk	OCDF	43:56	1.091e+02	1.320e+02	0.83	yes	yes	1.134
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	0.910
12	Unk	1,2,3,7,8-PeCDD	34:30	7.115e+01	5.752e+01	1.24	no	yes	0.846
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.873
14	Unk	1,2,3,6,7,8-HxCDD	37:39	1.171e+02	9.647e+01	1.21	yes	no	0.950
15	Unk	1,2,3,7,8,9-HxCDD	37:55	5.593e+01	5.288e+01	1.06	yes	yes	0.956
16	Unk	1,2,3,4,6,7,8-HpCDD	40:33	1.434e+02	1.466e+02	0.98	yes	yes	0.992
17	Unk	OCDD	43:45	2.675e+02	3.172e+02	0.84	yes	yes	1.195
18	IS	13C-2,3,7,8-TCDF	29:21	7.624e+04	9.811e+04	0.78	yes	no	1.141
19	IS	13C-1,2,3,7,8-PeCDF	33:28	1.190e+05	7.494e+04	1.59	yes	no	1.113
20	IS	13C-1,2,3,4,7,8-HxCDF	36:53	1.611e+05	3.107e+05	0.52	yes	no	1.035
21	IS	13C-1,2,3,4,6,7,8-HpCDF	39:37	1.276e+05	2.811e+05	0.45	yes	no	0.845
22	IS	13C-2,3,7,8-TCDD	30:07	6.581e+04	8.467e+04	0.78	yes	no	0.952
23	IS	13C-1,2,3,7,8-PeCDD	34:30	1.162e+05	7.314e+04	1.59	yes	no	0.842
24	IS	13C-1,2,3,6,7,8-HxCDD	37:38	2.589e+05	2.036e+05	1.27	yes	no	0.953
25	IS	13C-1,2,3,4,6,7,8-HpCDD	40:33	2.178e+05	2.066e+05	1.05	yes	no	0.818
26	IS	13C-OCDD	43:43	2.383e+05	2.661e+05	0.90	yes	no	0.667
27	RS/RT	13C-1,2,3,4-TCDD	29:56	1.576e+05	2.019e+05	0.78	yes	no	-
28	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:55	2.041e+05	1.616e+05	1.26	yes	no	-
29	C/Up	37Cl-2,3,7,8-TCDD	30:08	1.514e+05				no	1.055
					SUM AREA				
30	Tot	Total Tetra-Furans	NotFnd		*	*	no		0.864
31	Tot	Total Tetra-Dioxins	NotFnd		*	*	no		0.910
32	Tot	Total Penta-Furans	NotFnd		*	*	no		0.863
33	Tot	Total Penta-Dioxins	NotFnd		*	*	no		0.846
34	Tot	Total Hexa-Furans	37:00		3.467e+02	1.28	yes		1.068
35	Tot	Total Hexa-Dioxins	37:39		3.223e+02	1.21	yes		0.926
36	Tot	Total Hepta-Furans	39:38		3.075e+02	0.95	yes		1.112
37	Tot	Total Hepta-Dioxins	39:54		5.125e+02	1.07	yes		0.992

---Sample Calculation---

$$\text{OCDD} = \frac{(2.675e+02 + 3.172e+02) \times 5000 \text{ pg}}{(2.383e+05 + 2.661e+05) \times (\quad 880 \text{ mL} \quad) \times (100 \quad)/100 \times 1.20} = 5.498 \text{ pg/L}$$

LKL 03/27/12

Columbia Analytical Services, Inc.
19408 Park Row., Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE: OCTOBER 3, 2012**

FROM: **EDWARD SEDLMYER** **CC:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PCDD / PCDF**
NASJRB WILLOW GROVE
SDG: E1101252

SAMPLES: 1 / soil / PCDD / PCDF

12TP16-0608-03

Overview

The sample set for the NASJRB Willow Grove; SDG E1101252 consists of one (1) soil environmental sample. The sample was analyzed for polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF).

The sample was collected by Tetra Tech on December 19, 2011 and analyzed by Columbia Analytical Services. All analyses were conducted in accordance with SW-846 Method 8290 analytical and reporting protocol.

The findings in this report are based upon a general review of all available data including: data completeness, system performance, holding times, initial / continuing calibrations, laboratory method blank results, surrogate spike/internal standard recoveries, blank spike results, field duplicate results, matrix spike/matrix spike duplicate results, window defining mixture, ion abundance ratios, estimated maximum possible concentrations, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Minor Problems

- The following congeners were detected in the laboratory method blanks at the following maximum concentrations:

Congener	Concentration	Level
1,2,3,4,6,7,8-HpCDD	0.309 ng/kg	1.545 ng/kg
OCDD	1.15 ng/kg	11.5 ng/kg
1,2,3,4,6,7,8-HpCDF	0.201 ng/kg	1.005 ng/kg
OCDF	2.81 ng/kg	28.1 ng/kg
Total HpCDD	0.309 ng/kg	1.545 ng/kg
Total TCDF	0.404 ng/kg	2.02 ng/kg
Total HpCDF	0.293 ng/kg	1.465 ng/kg

An action level of 10X for OCDD and OCDF; 5X the maximum contaminant concentration for all other PCDD/PCDFs was used to evaluate sample data for blank contamination. Sample aliquots, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. The OCDF result for sample 12TP16-0608-03 was qualified "B" due to blank contamination.

- The 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, and 2,3,4,6,7,8-HxCDF results in sample 12TP16-0608-03 were reported as EMPCs by the laboratory because the ion abundance was outside the quality control criteria. The aforementioned congeners for sample 12TP16-0608-03 have been qualified as estimated, (J).

- The 13C-OCDD and 13C-1,2,3,4,6,7,8-HpCDF internal standards had recoveries less than 40% in sample 12TP16-0608-03. The detected OCDD, OCDF, and 1,2,3,4,6,7,8-HpCDF quantified using the aforementioned internal standards were qualified as biased low (L). The detected 1,2,3,4,7,8,9-HpCDF result was qualified as estimated (J), due to conflicting directional bias.

- The 13C-2,3,7,8-TCDF internal standard had a recovery less than 40% in the confirmation analysis of sample 12TP16-0608-03. The detected 2,3,7,8-TCDF result quantified using 13C-2,3,7,8-TCDF was qualified as estimated (J), due to conflicting directional bias.

- Positive results for 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, and 2,3,7,8-TCDF were reported with the "P" flag by the laboratory in sample 12TP16-0608-03, indicating target compound interference due to the presence of polychlorinated diphenylethers (PCDPEs). Results flagged as "P" from the laboratory are qualified as estimated (J) by the reviewer, due to the presence of interfering diphenylether peaks.

Calculations

Sample calculations of positive results were calculated using the following equation:

$$\text{Concentration} = \frac{[(A_x)\,(pg_{is})]}{[(A_{is})\,(RRF)\,(W_s)(\%Sol)]}$$

where: A_x = area of the quantitation ion of the analyte of interest.

pg_{is} = amount of internal standard in pg.

A_{is} = area of internal standard peak.

RRF = relative response factor of initial calibration standard.

W_s = for solid samples weight in grams; for aqueous samples volume in L.

%Sol = Percent solids.

Verification for concentration of 2,3,7,8-TCDF in sample 12TP16-0608-03 = 2.85 ng/kg

$$\text{Conc. 2,3,7,8-TCDF} = \frac{[(1102.4^{area})\,(1000\ pg)]}{[(52440^{area})\,(0.88)\,(9.875g)\,(0.85)]}$$

Conc. 2,3,7,8-TCDF = 2.85 ng/kg

ADDITIONAL COMMENTS

The TEQs are calculated using only positive results.

EXECUTIVE SUMMARY

Laboratory Performance: Several congeners were detected in the laboratory blank but did not result in qualification of the data. Internal standard recovery noncompliances resulted in qualification of the data.

Other Factors Affecting Data Quality: Several EMPCs resulted in qualification of the data. Polychlorinated diphenylether interferences resulted in qualification of the data.

The data for these analyses were reviewed with reference to U.S. EPA National Functional Guidelines for Dioxin/Furan Data Validation (September 2005), Region III Dioxin/Furans Validation Guidance (DRAFT March 1999), and Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech
Edward Sedlmyer
Chemist/Data Validator

Tetra Tech

Joseph A. Samchuck
Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12TP16-0608-03
SDG: E1101252	LAB_ID	E1101252-001
FRACTION: DIOX	SAMP_DATE	12/19/2011
MEDIA: SOIL	QC_TYPE	NM
	UNITS	NG/KG
	PCT_SOLIDS	85.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD	1290	L	N01
1,2,3,4,6,7,8,9-OCDF	21.3	B	A
1,2,3,4,6,7,8-HPCDD	49.3		
1,2,3,4,6,7,8-HPCDF	15.4	L	N01
1,2,3,4,7,8,9-HPCDF	1.56	J	N01P
1,2,3,4,7,8-HXCDD	1.04	J	P
1,2,3,4,7,8-HXCDF	3.89	J	Q
1,2,3,6,7,8-HXCDD	2.7	J	P
1,2,3,6,7,8-HXCDF	1.69	J	P
1,2,3,7,8,9-HXCDD	4.27		
1,2,3,7,8,9-HXCDF	1.63	U	
1,2,3,7,8-PECDD	1.09	J	PW
1,2,3,7,8-PECDF	1.51	J	PW
2,3,4,6,7,8-HXCDF	2.03	J	PQW
2,3,4,7,8-PECDF	2.59	J	PQ
2,3,7,8-TCDD	0.897	J	P
2,3,7,8-TCDF	2.85	J	N01Q
TEQ	5.71		
TOTAL HPCDD	116		
TOTAL HPCDF	32.5		
TOTAL HXCDD	38.8		
TOTAL HXCDF	21.2		
TOTAL PECDD	13.8		
TOTAL PECDF	20.6		
TOTAL TCDD	22		
TOTAL TCDF	81.1		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	12/19/11 1020
Sample Matrix:	Soil	**Date Received:**	12/21/11
Sample Name:	12TP16-0608-03	**Units:**	ng/Kg
Lab Code:	E1101252-001	**Basis:**	Dry
		Percent Solids:	85.0

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/5/12 1130
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	9.875g	**Instrument Name:**	E-HRMS-02
		GC Column:	DB-5
Data File Name:	U227770	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227768

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**0.897**	J	0.267	1.19	0.78	1.001	1
1,2,3,7,8-PeCDD	**1.09**	JK	0.389	2.98	1.89	1.000	1
1,2,3,4,7,8-HxCDD	**1.04**	J	0.341	2.98	1.10	0.998	1
1,2,3,6,7,8-HxCDD	**2.70**	J	0.300	2.98	1.43	1.000	1
1,2,3,7,8,9-HxCDD	**4.27**		0.304	2.98	1.24	1.008	1
1,2,3,4,6,7,8-HpCDD	**49.3**	B	0.424	2.98	1.05	1.000	1
OCDD	**1290**	B	0.602	5.96	0.89	1.000	1
2,3,7,8-TCDF	**11.5**	C	0.164	1.19	0.79	1.001	1
1,2,3,7,8-PeCDF	**1.51**	JK	0.308	2.98	1.88	1.000	1
2,3,4,7,8-PeCDF	**2.59**	JP	0.327	2.98	1.77	1.022	1
1,2,3,4,7,8-HxCDF	**3.89**	P	1.35	2.98	1.32	1.000	1
1,2,3,6,7,8-HxCDF	**1.69**	J	1.20	2.98	1.25	1.003	1
1,2,3,7,8,9-HxCDF	ND	U	1.63	2.98			1
2,3,4,6,7,8-HxCDF	**2.03**	JKP	1.38	2.98	1.49	1.015	1
1,2,3,4,6,7,8-HpCDF	**15.4**	B	0.607	2.98	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	**1.56**	J	0.819	2.98	1.11	1.035	1
OCDF	**21.3**	B	0.969	5.96	0.87	1.004	1
Total Tetra-Dioxins	**22.0**		0.267	1.19	0.74		1
Total Penta-Dioxins	**13.8**		0.389	2.98	1.65		1
Total Hexa-Dioxins	**38.8**		0.300	2.98	1.27		1
Total Hepta-Dioxins	**116**		0.424	2.98	1.03		1
Total Tetra-Furans	**81.1**		0.164	1.19	0.84		1
Total Penta-Furans	**20.6**		0.327	2.98	1.57		1
Total Hexa-Furans	**21.2**		1.20	2.98	1.35		1
Total Hepta-Furans	**32.5**		0.607	2.98	1.08		1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	12/19/11 1020
Sample Matrix:	Soil	**Date Received:**	12/21/11
Sample Name:	12TP16-0608-03	**Units:**	Percent
Lab Code:	E1101252-001	**Basis:**	Dry
		Percent Solids:	85.0

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/5/12 1130
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	9.875g	**Instrument Name:**	E-HRMS-02
		GC Column:	DB-5
Data File Name:	U227770	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227768

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	636.806	64		40-135	0.81	1.007
13C-1,2,3,7,8-PeCDD	1000	594.323	59		40-135	1.59	1.158
13C-1,2,3,6,7,8-HxCDD	2500	1185.406	47		40-135	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1148.955	46		40-135	1.07	1.070
13C-OCDD	5000	1719.305	34	Y	40-135	0.91	1.155
13C-2,3,7,8-TCDF	1000	579.594	58		40-135	0.80	0.980
13C-1,2,3,7,8-PeCDF	1000	588.817	59		40-135	1.58	1.123
13C-1,2,3,4,7,8-HxCDF	2500	1348.359	54		40-135	0.55	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	940.303	38	Y	40-135	0.45	1.046
37Cl-2,3,7,8-TCDD	800	504.207	63		40-135	NA	1.008

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	12/19/11 1020
Sample Matrix:	Soil	**Date Received:**	12/21/11
Sample Name:	12TP16-0608-03	**Units:**	ng/Kg
Lab Code:	E1101252-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.897**	0.267	1.19	1	1	0.897
1,2,3,7,8-PeCDD	**1.09**	0.389	2.98	1	1	1.09
1,2,3,4,7,8-HxCDD	**1.04**	0.341	2.98	1	0.1	0.104
1,2,3,6,7,8-HxCDD	**2.70**	0.300	2.98	1	0.1	0.270
1,2,3,7,8,9-HxCDD	**4.27**	0.304	2.98	1	0.1	0.427
1,2,3,4,6,7,8-HpCDD	**49.3**	0.424	2.98	1	0.01	0.493
OCDD	**1290**	0.602	5.96	1	0.0003	0.387
2,3,7,8-TCDF	**2.85**	0.433	1.19	1	0.1	0.285
1,2,3,7,8-PeCDF	**1.51**	0.308	2.98	1	0.03	0.0453
2,3,4,7,8-PeCDF	**2.59**	0.327	2.98	1	0.3	0.777
1,2,3,4,7,8-HxCDF	**3.89**	1.35	2.98	1	0.1	0.389
1,2,3,6,7,8-HxCDF	**1.69**	1.20	2.98	1	0.1	0.169
1,2,3,7,8,9-HxCDF	ND	1.63	2.98	1	0.1	
2,3,4,6,7,8-HxCDF	**2.03**	1.38	2.98	1	0.1	0.203
1,2,3,4,6,7,8-HpCDF	**15.4**	0.607	2.98	1	0.01	0.154
1,2,3,4,7,8,9-HpCDF	**1.56**	0.819	2.98	1	0.01	0.0156
OCDF	**21.3**	0.969	5.96	1	0.0003	0.00639
		Total TEQ				5.71

2005 WHO TEFs, ND = 0

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	12/19/11 1020
Sample Matrix:	Soil	**Date Received:**	12/21/11
Sample Name:	12TP16-0608-03	**Units:**	ng/Kg
Lab Code:	E1101252-001	**Basis:**	Dry
		Percent Solids:	85.0

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/10/12 1415
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	9.875g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-225
Data File Name:	P216280	**Blank File Name:**	P216270
ICAL Date:	09/09/11	**Cal Ver. File Name:**	P216269

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDF	**2.85**	P	0.433	1.19	0.70	1.000	1

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDF	1000	394.475	39	Y	40-135	0.75	1.062
37Cl-2,3,7,8-TCDD	800	482.471	60		40-135	NA	0.990

APPENDIX C

SUPPORT DOCUMENTATION

Columbia Analytical Services™ 19408 Park Row, Suite 320 | Houston, TX 77084 | 1-713-266-1599 | 1-713-266-0130 fax | www.caslab.com

January 16, 2012 Service Request No: E1101252

Mr. Kurt Hummler
Chemtech Consulting Group, Inc.
284 Sheffield Street
Mountainside, NJ 07092

Laboratory Results for: CTO WE05 NAS JRB Willow Grove/C5056

Dear Mr. Hummler:

Enclosed are the results of the sample(s) submitted to our laboratory on December 21, 2011. For your reference, these analyses have been assigned our service request number **E1101252**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2962. You may also contact me via email at MCosson@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Digitally signed by Michael Cosson
Date: 2012.01.16 09:24:32 -06'00'

Michael Cosson
Project Manager

Page 1 of _____

COLUMBIA ANALYTICAL SERVICES, INC

Client:	Chemtech Consulting Group, Inc	**Service Request No.:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Received:**	12/21/11
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One soil sample was received for analysis at Columbia Analytical Services on 12/21/11.

The following discrepancies were noted upon initial sample inspection: no custody seals on cooler. The exceptions are also noted on the cooler receipt and preservation form included in this data package.

The sample was received at 4°C in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1100606-01 contained low levels of 1234678-HpCDD, OCDD, 1234678-HpCDF and OCDF at or below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with 'B' flags.

MS/MSD

EQ1100606: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch. The batch quality control criteria were met.

C flags – 2378-TCDF Confirmation

Confirmation of the TCDF compound: When 2378-TCDF is detected on the DB-5 column, confirmation analyses are performed on a second column (DB-225.) The results from both the DB-5 column and the DB-225 column are included in this data package.

The valid result for the 2378-TCDF compound is reported from the confirmation column.

The confirmation results have been included on the Total TEQ summary pages.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Mass Spectrometer Resolution

Mass 392.9760 of U227768-U22775 Continuing Calibration image did not print out due to the automatic print out program.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by CAS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are not included in the 'Total'

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Chemtech Consulting Group, Inc. **Service Request:** E1101252
Project: CTO WE05 NAS JRB Willow Grove/C5056

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1101252-001	12TP16-0608-03	12/19/11	10:20

Data Qualifier Flags – Dioxin/Furans

- **B** Indicates the associated analyte is found in the method blank, as well as in the sample.

- **C** Confirmation of the TCDF compound: When 2378-TCDF is detected on the DB-5 column, confirmation analyses are performed on a second column (DB-225). The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result should be used in determining the TEQ value for TCDF.

- **E** Indicates an estimated value – used when the analyte concentration exceeds the upper end of the linear calibration range.

- **J** Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).

- **K** EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

- **U** Indicates the compound was analyzed and not detected.

- **Y** Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y'. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

- **ND** Indicates concentration is reported as 'Not Detected.'

- **S** Peak is saturated; data not reportable.

- **P** Indicates chlorodiphenyl ether interference present at the retention time of the target compound.

- **Q** Lock-mass interference by chlorodiphenyl ether compounds.

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1101252 (DB-5) DB-225 SPB-Octyl

First Level – Data Processing – to be filled by person generating the forms

Date:	Analyst:	Samples:
1/5/12	LCA	-001

Second Level – Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
01/06/12	LKL	-001

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1101252 | DB-5 | DB-225 | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
01/10/12	JC	-001

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
01/11/12	LKL	-001

CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
WWW.CHEMTECH.NET

Sub Lab INFORMATION	CLIENT PROJECT INFORMATION		CLIENT BILLING INFORMATION
COMPANY : Columbia Analytical Services	ORDER ID : C5056		BILL TO: CHEMTECH PO# : CTO WE05
ADDRESS : 19408 Park Row Suite 320	PROJECT ID:CTO WE05 NAS JRB Willow Grove		ADDRESS : 284, Sheffield Street
CITY:Houston State :TX ZIP :77084	PROJECT MANAGER kurt		CITY: Mountainside State : NJ ZIP : 07092
E-mail :	E-mail : khummler@chemtech.net		ATTENTION :kurt
PHONE :281-994-2960	PHONE : (908) 789 8900	FAX: (908) 789 8922	PHONE : (908) 789 8900 FAX : (908) 789 8922

EDD : SEDD 2A **Report :** USEPA CLP **Comment :**

ID	CLIENT SAMPLE IDENTIFICATION	SAMPLE MATRIX	ANALYSIS	Preservative	Method	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	TAT DAYS
03	12TP16-0608-03	Solid	Dioxin	Cool 4 deg C	8280	12/19/2011	10:20:00	1	15

Columbia Analytical Services

Opened at: 12:35

Custody Seals: None

Packing Materials: Bubble wrap/wet ice

Courier/TK#: UPS: 1ZA1704V1396689242

Temperature(oC): 4

12.21.11

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGES POSSESSION INCLUDING COURIER DELIVERY

RELINQUIESHED BY SAMPLER: 1.	DATETIME:	RECEIVED BY: 1.	Conditions of bottles or Coolers at receipt: ☐ Compliant ☐ Non Compliant	Cooler Temp ____ Ice or Cooler? ____
RELINQUIESHED BY: 2.	DATETIME:	RECEIVED BY: 2.		
RELINQUIESHED BY: 3.	DATETIME: 12 21 11 1149	RECEIVED BY: 3.	☐ OVERNIGHT ☐ OVERNIGHT	Shipment Complete: ☐ YES ☐ NO

Page 1 of 1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1100606-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/5/12 1044
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	10.216g	**Instrument Name:**	E-HRMS-02
		GC Column:	DB-5
Data File Name:	U227769	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227768

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0415	0.979			1
1,2,3,7,8-PeCDD	ND	U	0.0341	2.45			1
1,2,3,4,7,8-HxCDD	ND	U	0.0486	2.45			1
1,2,3,6,7,8-HxCDD	ND	U	0.0426	2.45			1
1,2,3,7,8,9-HxCDD	ND	U	0.0433	2.45			1
1,2,3,4,6,7,8-HpCDD	**0.309**	J	0.0683	2.45	1.01	1.000	1
OCDD	**1.15**	J	0.0649	4.89	0.96	1.000	1
2,3,7,8-TCDF	ND	U	0.0379	0.979			1
1,2,3,7,8-PeCDF	ND	U	0.0211	2.45			1
2,3,4,7,8-PeCDF	ND	U	0.0225	2.45			1
1,2,3,4,7,8-HxCDF	ND	U	0.0413	2.45			1
1,2,3,6,7,8-HxCDF	ND	U	0.0368	2.45			1
1,2,3,7,8,9-HxCDF	ND	U	0.0497	2.45			1
2,3,4,6,7,8-HxCDF	ND	U	0.0421	2.45			1
1,2,3,4,6,7,8-HpCDF	**0.201**	J	0.0470	2.45	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0635	2.45			1
OCDF	**2.81**	J	0.0605	4.89	0.83	1.005	1
Total Tetra-Dioxins	ND	U	0.0415	0.979			1
Total Penta-Dioxins	ND	U	0.0341	2.45			1
Total Hexa-Dioxins	ND	U	0.0426	2.45			1
Total Hepta-Dioxins	**0.309**	J	0.0683	2.45	1.01		1
Total Tetra-Furans	**0.404**	J	0.0379	0.979	0.75		1
Total Penta-Furans	ND	U	0.0225	2.45			1
Total Hexa-Furans	ND	U	0.0368	2.45			1
Total Hepta-Furans	**0.293**	J	0.0470	2.45	1.09		1

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1100606-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/5/12 1044
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	10.216g	**Instrument Name:**	E-HRMS-02
		GC Column:	DB-5
Data File Name:	U227769	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227768

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	631.525	63		40-135	0.80	1.007
13C-1,2,3,7,8-PeCDD	1000	657.473	66		40-135	1.59	1.159
13C-1,2,3,6,7,8-HxCDD	2500	1267.386	51		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2500	1421.776	57		40-135	1.06	1.070
13C-OCDD	5000	2356.666	47		40-135	0.90	1.154
13C-2,3,7,8-TCDF	1000	680.821	68		40-135	0.79	0.981
13C-1,2,3,7,8-PeCDF	1000	611.104	61		40-135	1.61	1.123
13C-1,2,3,4,7,8-HxCDF	2500	1382.753	55		40-135	0.53	0.972
13C-1,2,3,4,6,7,8-HpCDF	2500	1261.699	50		40-135	0.47	1.045
37Cl-2,3,7,8-TCDD	800	491.286	61		40-135	NA	1.008

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Chemtech Consulting Group, Inc. **Service Request:** E1101252
Project: CTO WE05 NAS JRB Willow Grove/C5056 **Date Analyzed:** 1/ 6/12
Sample Matrix: Soil

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290 **Units:** ng/Kg
Prep Method: Method **Basis:** Dry

Extraction Lot: 148733

	Lab Control Sample EQ1100606-02			Duplicate Lab Control Sample EQ1100606-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,7,8-TCDD	18.6	18.8	99	20.1	19.5	103	50 - 150	4	20
1,2,3,7,8-PeCDD	46.7	47.0	99	49.8	48.8	102	50 - 150	3	20
1,2,3,4,7,8-HxCDD	46.9	47.0	100	51.4	48.8	105	50 - 150	5	20
1,2,3,6,7,8-HxCDD	52.4	47.0	112	52.7	48.8	108	50 - 150	4	20
1,2,3,7,8,9-HxCDD	50.4	47.0	107	54.5	48.8	112	50 - 150	5	20
1,2,3,4,6,7,8-HpCDD	44.4	47.0	94	47.4	48.8	97	50 - 150	3	20
OCDD	87.2	93.9	93	93.3	97.5	96	50 - 150	3	20
2,3,7,8-TCDF	18.7	18.8	99	19.9	19.5	102	50 - 150	3	20
1,2,3,7,8-PeCDF	49.7	47.0	106	52.5	48.8	108	50 - 150	2	20
2,3,4,7,8-PeCDF	43.5	47.0	93	46.9	48.8	96	50 - 150	3	20
1,2,3,4,7,8-HxCDF	45.0	47.0	96	49.4	48.8	101	50 - 150	5	20
1,2,3,6,7,8-HxCDF	47.2	47.0	101	48.9	48.8	100	50 - 150	<1	20
1,2,3,7,8,9-HxCDF	43.8	47.0	93	47.3	48.8	97	50 - 150	4	20
2,3,4,6,7,8-HxCDF	43.8	47.0	93	46.5	48.8	95	50 - 150	2	20
1,2,3,4,6,7,8-HpCDF	48.4	47.0	103	50.8	48.8	104	50 - 150	<1	20
1,2,3,4,7,8,9-HpCDF	50.4	47.0	107	56.3	48.8	116	50 - 150	8	20
OCDF	94.3	93.9	100	102	97.5	105	50 - 150	5	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1100606-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/6/12 0120
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	10.649g	**Instrument Name:**	E-HRMS-02
		GC Column:	db5
Data File Name:	U227786	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227775

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**18.6**		0.0618	0.939	0.79	1.000	1
1,2,3,7,8-PeCDD	**46.7**		0.0848	2.35	1.59	1.000	1
1,2,3,4,7,8-HxCDD	**46.9**		0.124	2.35	1.26	0.999	1
1,2,3,6,7,8-HxCDD	**52.4**		0.109	2.35	1.30	1.000	1
1,2,3,7,8,9-HxCDD	**50.4**		0.109	2.35	1.23	1.008	1
1,2,3,4,6,7,8-HpCDD	**44.4**		0.154	2.35	1.09	1.000	1
OCDD	**87.2**		0.340	4.70	0.90	1.000	1
2,3,7,8-TCDF	**18.7**		0.0606	0.939	0.79	1.000	1
1,2,3,7,8-PeCDF	**49.7**		0.0536	2.35	1.60	1.001	1
2,3,4,7,8-PeCDF	**43.5**		0.0529	2.35	1.56	1.022	1
1,2,3,4,7,8-HxCDF	**45.0**		0.0643	2.35	1.21	1.000	1
1,2,3,6,7,8-HxCDF	**47.2**		0.0552	2.35	1.26	1.003	1
1,2,3,7,8,9-HxCDF	**43.8**		0.0724	2.35	1.26	1.034	1
2,3,4,6,7,8-HxCDF	**43.8**		0.0637	2.35	1.23	1.015	1
1,2,3,4,6,7,8-HpCDF	**48.4**		0.253	2.35	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	**50.4**		0.314	2.35	1.04	1.035	1
OCDF	**94.3**		0.243	4.70	0.89	1.004	1
Total Tetra-Dioxins	**18.6**		0.0618	0.939	0.79		1
Total Penta-Dioxins	**46.7**		0.0848	2.35	1.59		1
Total Hexa-Dioxins	**150**		0.109	2.35	1.26		1
Total Hepta-Dioxins	**44.4**		0.154	2.35	1.09		1
Total Tetra-Furans	**19.3**		0.0606	0.939	0.73		1
Total Penta-Furans	**94.3**		0.0529	2.35	1.73		1
Total Hexa-Furans	**180**		0.0552	2.35	1.21		1
Total Hepta-Furans	**98.8**		0.253	2.35	1.05		1

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1100606-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/6/12 0120
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	10.649g	**Instrument Name:**	E-HRMS-02
		GC Column:	db5
Data File Name:	U227786	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227775

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	726.824	73		40-135	0.79	1.008
13C-1,2,3,7,8-PeCDD	1000	738.671	74		40-135	1.58	1.157
13C-1,2,3,6,7,8-HxCDD	2500	1609.894	64		40-135	1.26	0.992
13C-1,2,3,4,6,7,8-HpCDD	2500	1646.350	66		40-135	1.08	1.071
13C-OCDD	5000	2784.938	56		40-135	0.91	1.158
13C-2,3,7,8-TCDF	1000	676.090	68		40-135	0.80	0.981
13C-1,2,3,7,8-PeCDF	1000	729.797	73		40-135	1.60	1.121
13C-1,2,3,4,7,8-HxCDF	2500	1724.867	69		40-135	0.53	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1512.190	60		40-135	0.46	1.046
37Cl-2,3,7,8-TCDD	800	540.496	68		40-135	NA	1.008

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1100606-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/6/12 0208
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	10.253g	**Instrument Name:**	E-HRMS-02
		GC Column:	db5
Data File Name:	U227787	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227775

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**20.1**		0.0574	0.975	0.79	1.000	1
1,2,3,7,8-PeCDD	**49.8**		0.0696	2.44	1.59	1.000	1
1,2,3,4,7,8-HxCDD	**51.4**		0.139	2.44	1.29	0.998	1
1,2,3,6,7,8-HxCDD	**52.7**		0.122	2.44	1.32	1.000	1
1,2,3,7,8,9-HxCDD	**54.5**		0.123	2.44	1.26	1.008	1
1,2,3,4,6,7,8-HpCDD	**47.4**		0.160	2.44	1.07	1.000	1
OCDD	**93.3**		0.317	4.88	0.91	1.000	1
2,3,7,8-TCDF	**19.9**		0.0643	0.975	0.79	1.000	1
1,2,3,7,8-PeCDF	**52.5**		0.0364	2.44	1.57	1.001	1
2,3,4,7,8-PeCDF	**46.9**		0.0360	2.44	1.58	1.022	1
1,2,3,4,7,8-HxCDF	**49.4**		0.0649	2.44	1.22	1.000	1
1,2,3,6,7,8-HxCDF	**48.9**		0.0557	2.44	1.25	1.003	1
1,2,3,7,8,9-HxCDF	**47.3**		0.0731	2.44	1.27	1.034	1
2,3,4,6,7,8-HxCDF	**46.5**		0.0644	2.44	1.29	1.015	1
1,2,3,4,6,7,8-HpCDF	**50.8**		0.193	2.44	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	**56.3**		0.240	2.44	1.03	1.035	1
OCDF	**102**		0.272	4.88	0.90	1.004	1
Total Tetra-Dioxins	**20.1**		0.0574	0.975	0.79		1
Total Penta-Dioxins	**49.8**		0.0696	2.44	1.59		1
Total Hexa-Dioxins	**159**		0.122	2.44	1.29		1
Total Hepta-Dioxins	**47.4**		0.160	2.44	1.07		1
Total Tetra-Furans	**20.9**		0.0643	0.975	0.81		1
Total Penta-Furans	**100**		0.0360	2.44	1.77		1
Total Hexa-Furans	**192**		0.0557	2.44	1.22		1
Total Hepta-Furans	**107**		0.193	2.44	1.05		1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Chemtech Consulting Group, Inc.	**Service Request:**	E1101252
Project:	CTO WE05 NAS JRB Willow Grove/C5056	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1100606-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	1/6/12 0208
Prep Method:	Method	**Date Extracted:**	12/28/11
Sample Amount:	10.253g	**Instrument Name:**	E-HRMS-02
		GC Column:	db5
Data File Name:	U227787	**Blank File Name:**	U227769
ICAL Date:	04/21/11	**Cal Ver. File Name:**	U227775

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	812.974	81		40-135	0.80	1.008
13C-1,2,3,7,8-PeCDD	1000	792.129	79		40-135	1.57	1.157
13C-1,2,3,6,7,8-HxCDD	2500	1831.141	73		40-135	1.25	0.992
13C-1,2,3,4,6,7,8-HpCDD	2500	1915.656	77		40-135	1.07	1.071
13C-OCDD	5000	3341.913	67		40-135	0.92	1.158
13C-2,3,7,8-TCDF	1000	783.944	78		40-135	0.79	0.981
13C-1,2,3,7,8-PeCDF	1000	782.711	78		40-135	1.60	1.121
13C-1,2,3,4,7,8-HxCDF	2500	1936.072	77		40-135	0.53	0.973
13C-1,2,3,4,6,7,8-HpCDF	2500	1721.864	69		40-135	0.46	1.046
37Cl-2,3,7,8-TCDD	800	612.747	77		40-135	NA	1.008

Initial Calibration QC Checklist

ICAL Name: U110421 8290I

Date: 4/21/11

Method: 1613 / (8290) / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: cee Second QC: MC

icalqc.xls 02-23-00

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: E-HRMS-02

Init. Calib. Date: 04/21/11

Init. Calib.Times: 10:01:21

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		U225234	21-APR-11	10:01:21
D11-99-5	ICAL HRCC1	U225236	21-APR-11	11:45:16
D11-99-4	ICAL HRCC2	U225237	21-APR-11	12:45:56
D11-99-3	ICAL HRCC3	U225238	21-APR-11	13:37:12
D11-99-2	ICAL HRCC4	U225239	21-APR-11	14:23:20
D11-99-1	ICAL HRCC5	U225240	21-APR-11	15:24:32
D11-100-4	ICAL HRCC6	U225241	21-APR-11	16:18:13

Sample List Report **MassLynx 4.1**

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U2110421.SPL
Last Modified: Thursday, April 21, 2011 17:17:44 Central Daylight Time
Printed: Thursday, April 21, 2011 18:18:52 Central Daylight Time

Page Position (1, 1)

U110421 8290I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	04/21/11	10:01	U225234	WINDOW DEFINE	D11-100-5	VK	HRMS CHECK 09:59	8290cas	8290CAS
2		10:58	U225235	ICAL HRCC0.5	D11-100-1			8290cas	8290CAS
3		11:45	U225236	ICAL HRCC1	D11-99-5			8290cas	8290CAS
4		12:45	U225237	ICAL HRCC2	D11-99-4			8290cas	8290CAS
5		13:37	U225238	ICAL HRCC3	D11-99-3			8290cas	8290CAS
6		14:23	U225239	ICAL HRCC4	D11-99-2			8290cas	8290CAS
7		15:24	U225240	ICAL HRCC5	D11-99-1			8290cas	8290CAS
8		16:18	U225241	ICAL HRCC6	D11-100-4		HRMS CHECK 18:28	8290cas	8290CAS
9		18:32	U225242	CCAL HRCC3 *	D12-4-1		HRMS CHECK 19:26 *	8290cas	8290CAS
10			---	---	---			8290cas	8290CAS
11			---	---	---			8290cas	8290CAS
12			---	---	---			8290cas	8290CAS
13			---	---	---			8290cas	8290CAS
14			---	---	---			8290cas	8290CAS
15			---	---	---			8290cas	8290CAS
16			---	---	---			8290cas	8290CAS
17			---	---	---			8290cas	8290CAS
18	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	8290cas	8290CAS
22	---	---	---	---	---	---	---	1668EPA	1668EPA
23	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	1668EPA	1668EPA
26	---	---	---	---	---	---	---	1668EPA	1668EPA
27	---	---	---	---	---	---	---	8290cas	---
28	---	---	---	---	---	---	---	8290cas	8290CAS
29	---	---	---	---	---	---	---	8290cas	8290CAS
30	---	---	---	---	---	---	---	8290cas	8290CAS

* not spiked with cleanup

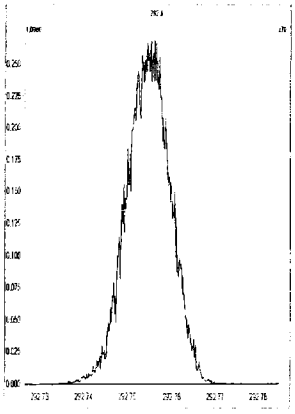
Reviewed By: CR
4/22/11

009

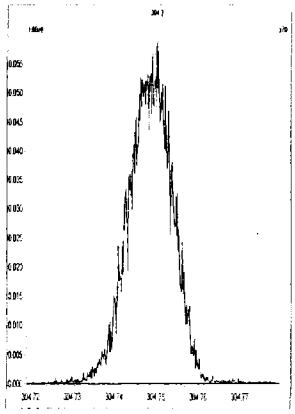
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, April 21, 2011 09:59:30 Central Daylight Time

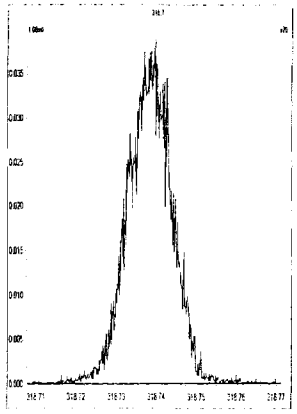
M 292.9824 R 13366



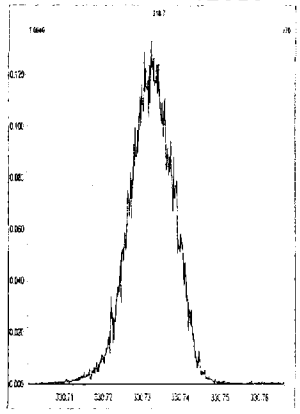
M 304.9824 R 12564



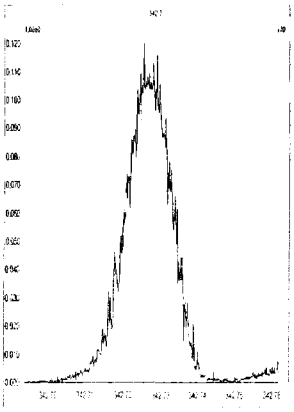
M 318.9792 R 14044



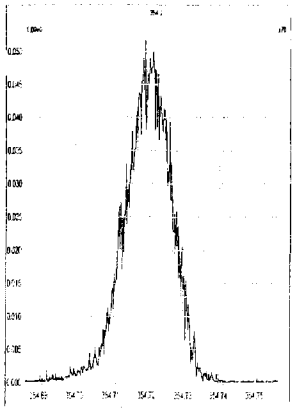
M 330.9792 R 12629



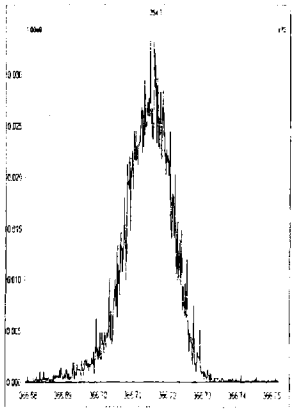
M 342.9792 R 12315



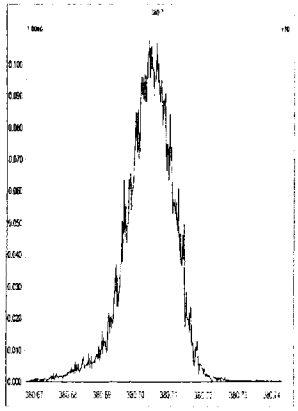
M 354.9792 R 12498



M 366.9792 R 12622



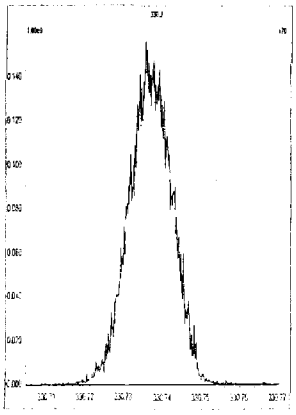
M 380.9760 R 12077



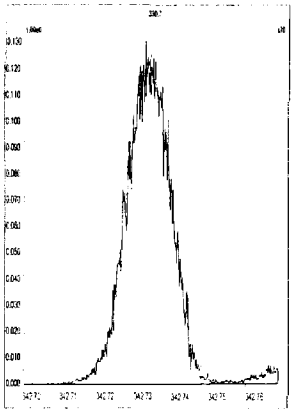
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, April 21, 2011 09:59:55 Central Daylight Time

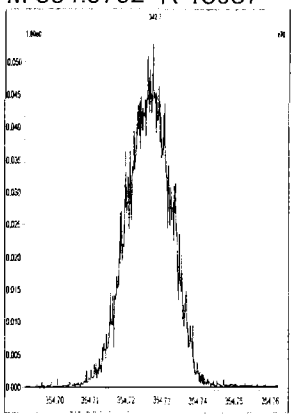
M 330.9792 R 13590



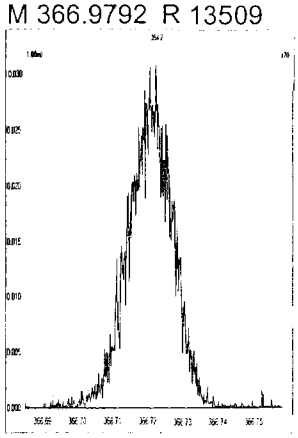
M 342.9792 R 13514



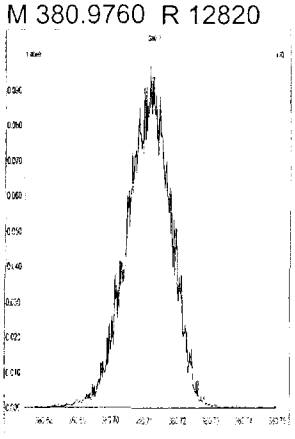
M 354.9792 R 13087



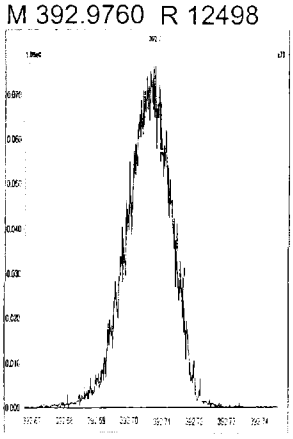
M 366.9792 R 13509



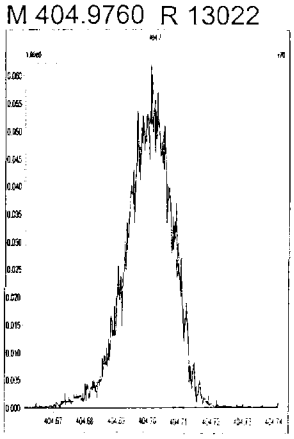
M 380.9760 R 12820



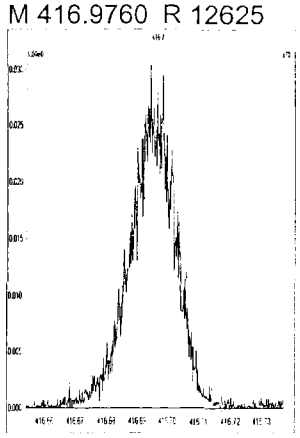
M 392.9760 R 12498



M 404.9760 R 13022



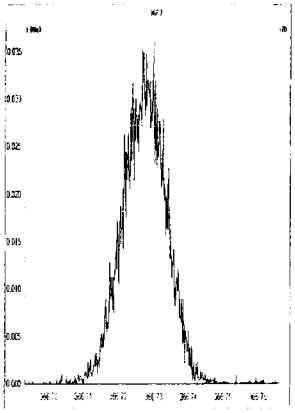
M 416.9760 R 12625



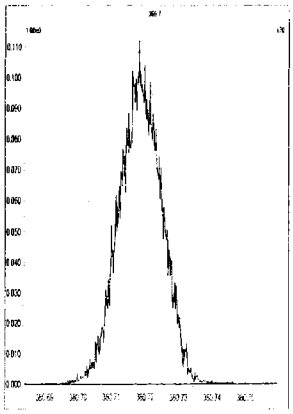
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, April 21, 2011 10:00:16 Central Daylight Time

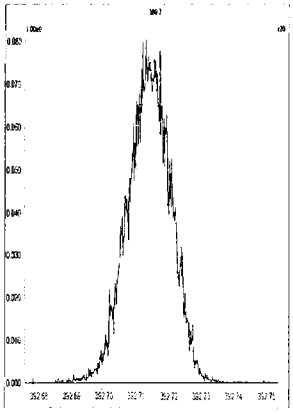
M 366.9792 R 13583



M 380.9760 R 13021



M 392.9760 R 12758



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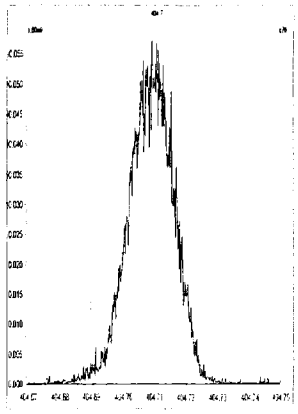

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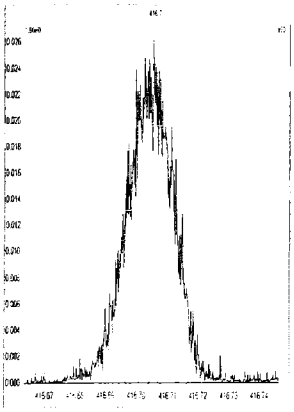
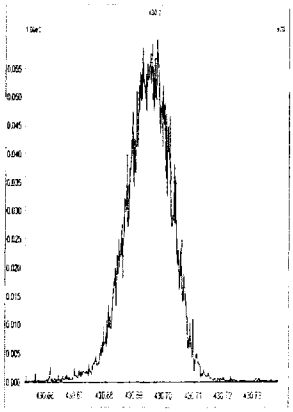
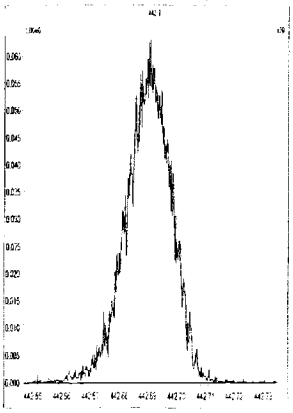


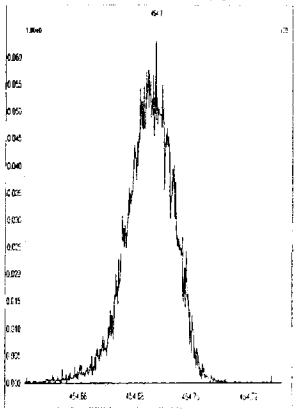
M 430.9728 R 12628



M 442.9728 R 13158



M 454.9728 R 12375



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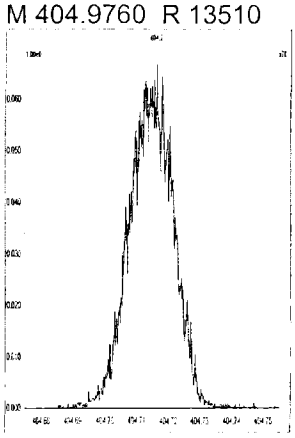
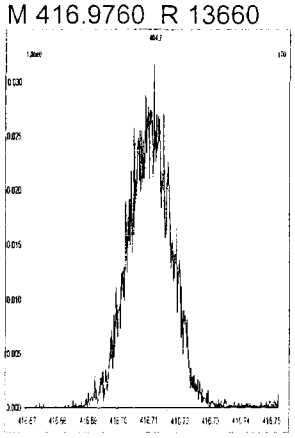
Printed: Thursday, April 21, 2011 10:00:39 Central Daylight Time

M 404.9760 R 13510



M 416.9760 R 13660



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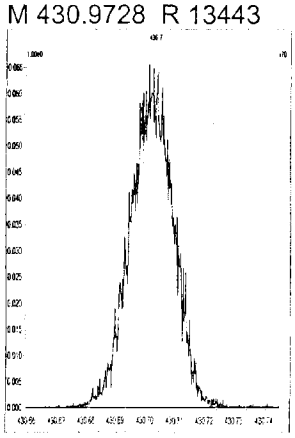
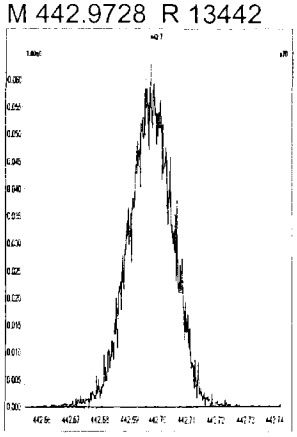
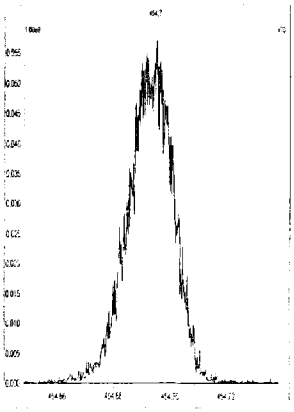


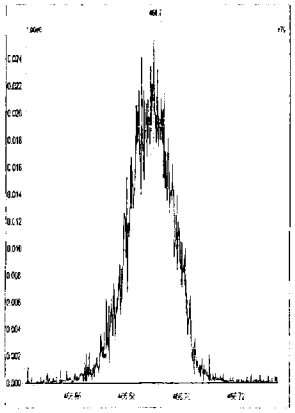
M 442.9728 R 13442



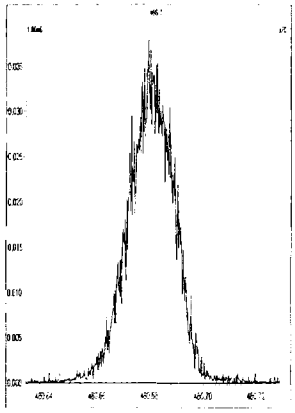
M 454.9728 R 12562



M 466.9728 R 13442



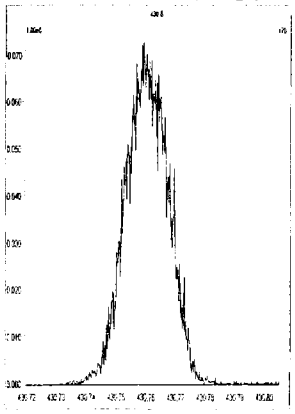
M 480.9696 R 12755



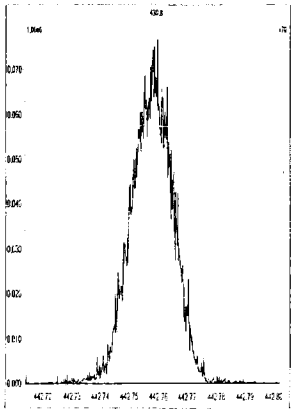
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, April 21, 2011 10:01:00 Central Daylight Time

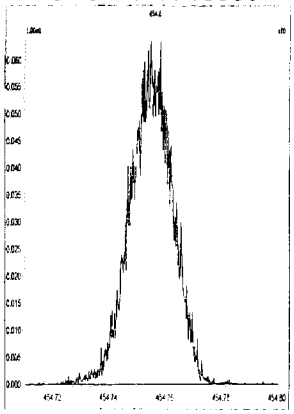
M 430.9728 R 14124



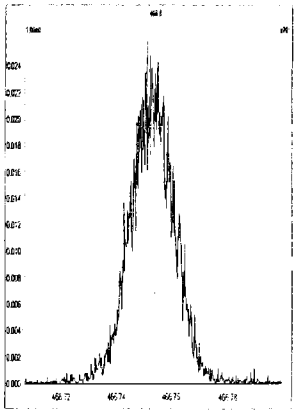
M 442.9728 R 14043



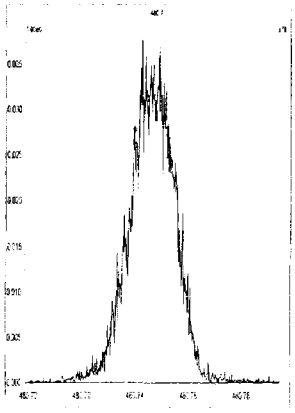
M 454.9728 R 13583



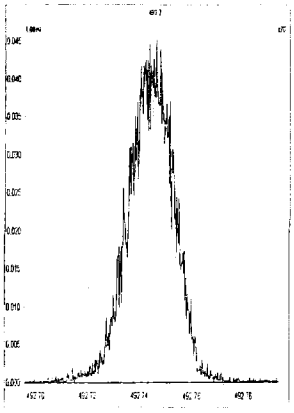
M 466.9728 R 13586



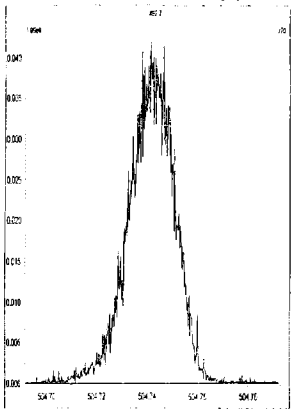
M 480.9696 R 13511



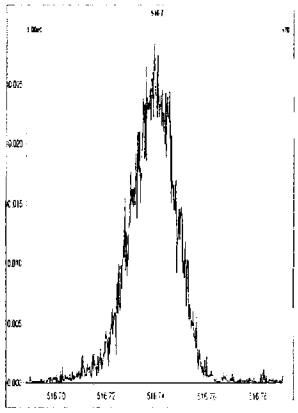
M 492.9696 R 13224



M 504.9696 R 11681



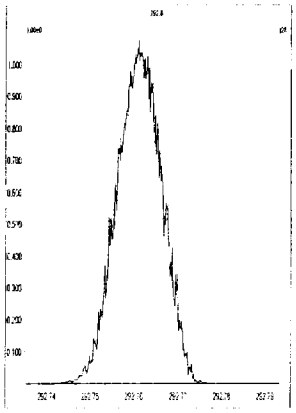
M 516.9697 R 13370



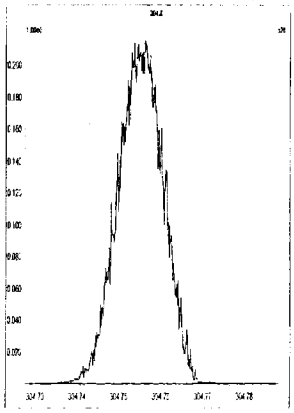
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, April 21, 2011 18:28:32 Central Daylight Time

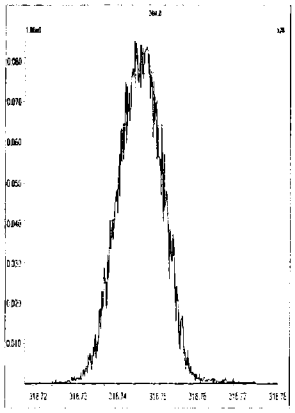
M 292.9824 R 12884



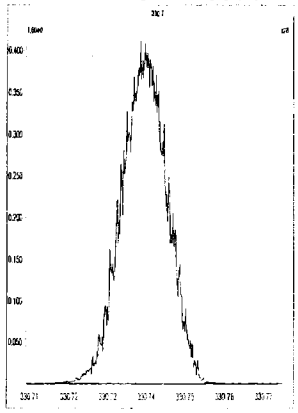
M 304.9824 R 12888



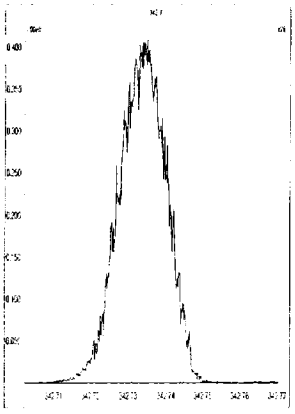
M 318.9792 R 13586



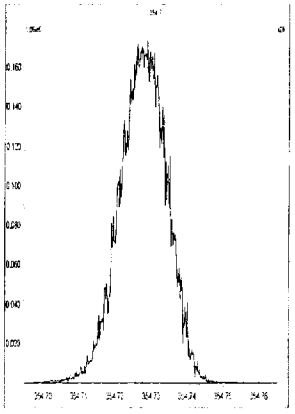
M 330.9792 R 12379



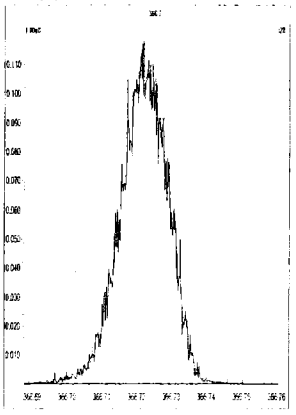
M 342.9792 R 12195



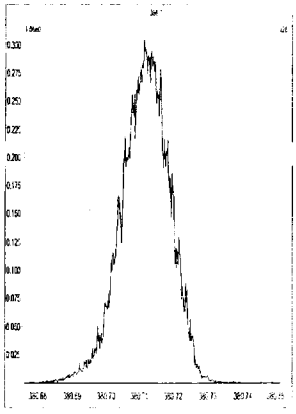
M 354.9792 R 11791



M 366.9792 R 11794



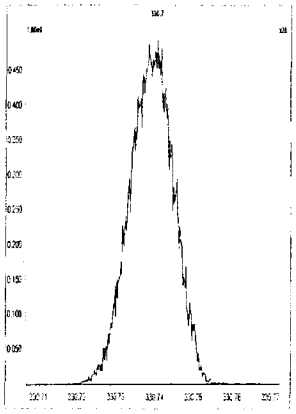
M 380.9760 R 11848



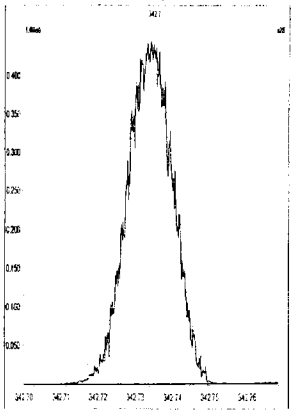
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, April 21, 2011 18:29:40 Central Daylight Time

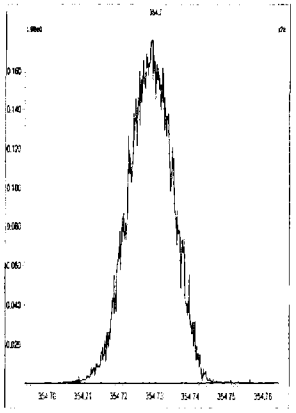
M 330.9792 R 13155



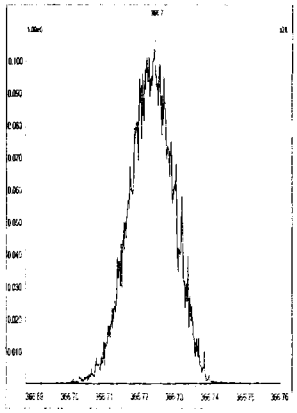
M 342.9792 R 12627



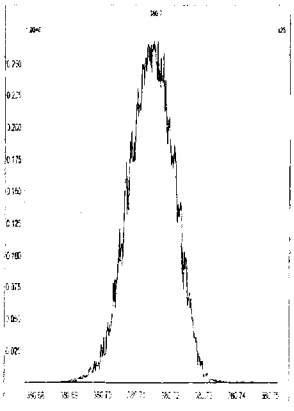
M 354.9792 R 12624



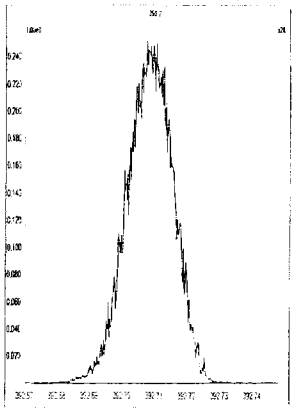
M 366.9792 R 12686



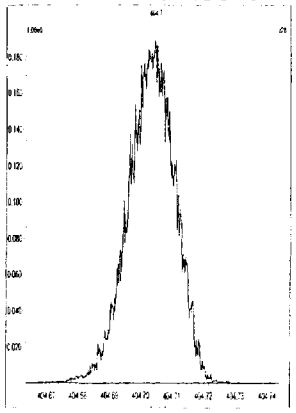
M 380.9760 R 13089



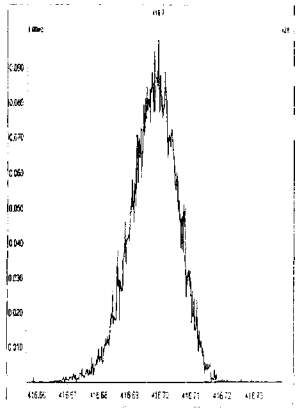
M 392.9760 R 12134



M 404.9760 R 12316



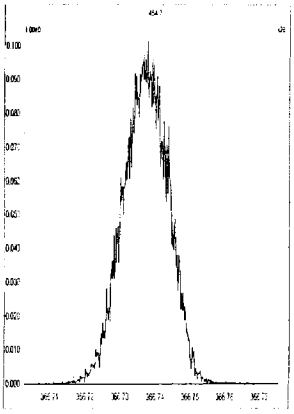
M 416.9760 R 11740



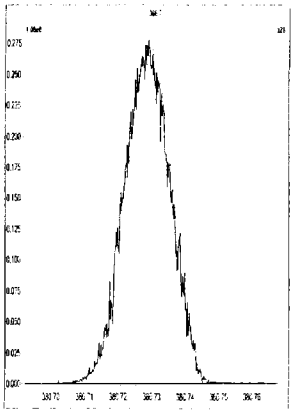
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, April 21, 2011 18:30:13 Central Daylight Time

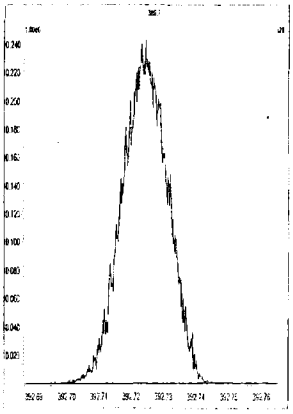
M 366.9792 R 14047



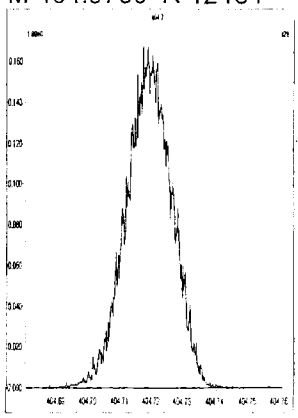
M 380.9760 R 12500



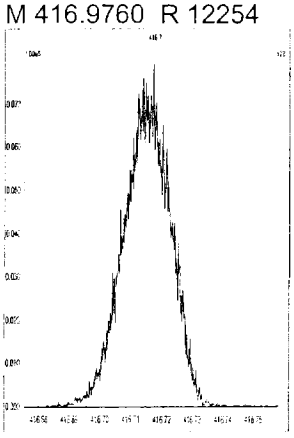
M 392.9760 R 13231



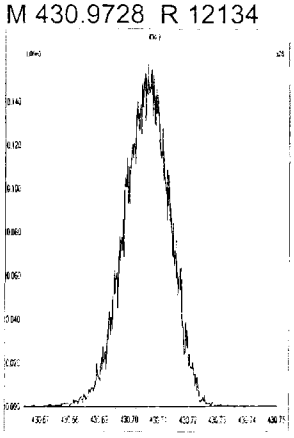
M 404.9760 R 12434



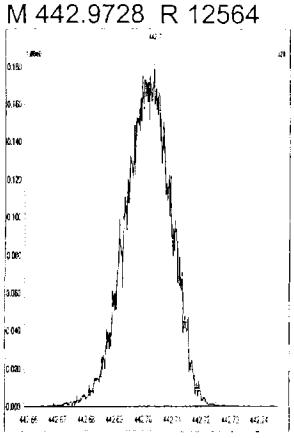
M 416.9760 R 12254



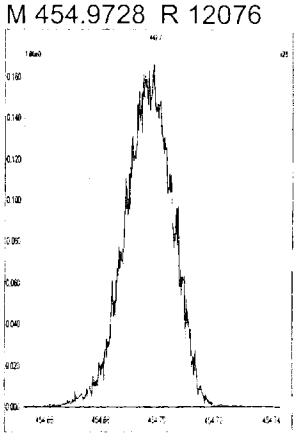
M 430.9728 R 12134



M 442.9728 R 12564



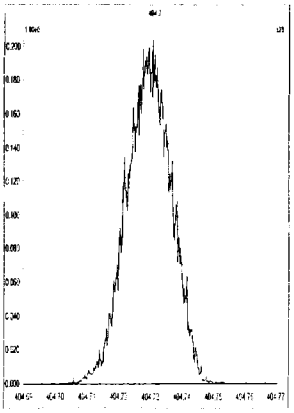
M 454.9728 R 12076



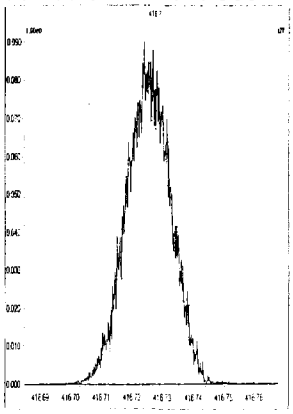
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, April 21, 2011 18:30:49 Central Daylight Time

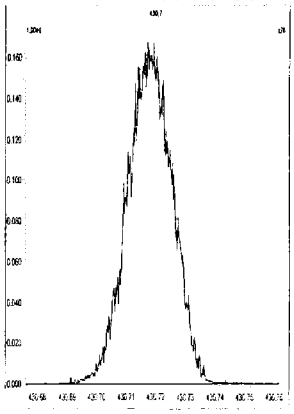
M 404.9760 R 12888



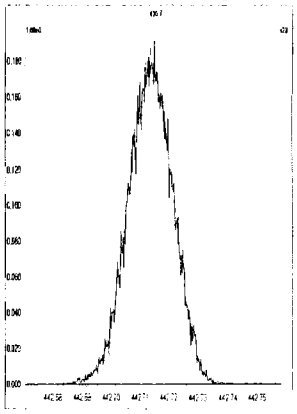
M 416.9760 R 12563



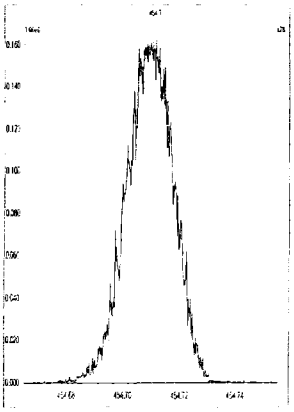
M 430.9728 R 12436



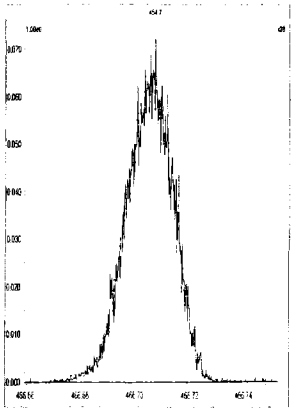
M 442.9728 R 12627



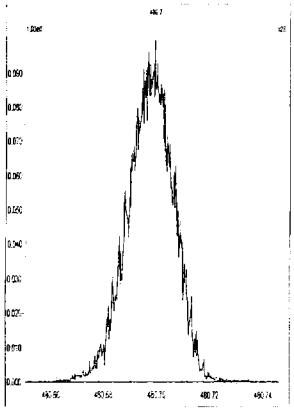
M 454.9728 R 12499



M 466.9728 R 12440



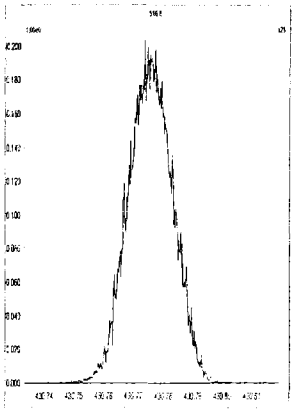
M 480.9696 R 12438



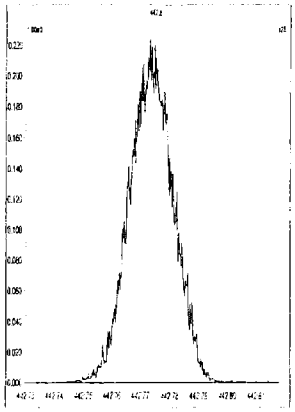
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, April 21, 2011 18:31:09 Central Daylight Time

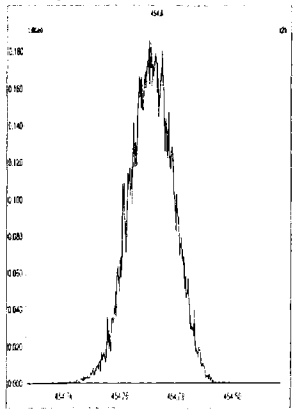
M 430.9728 R 13158



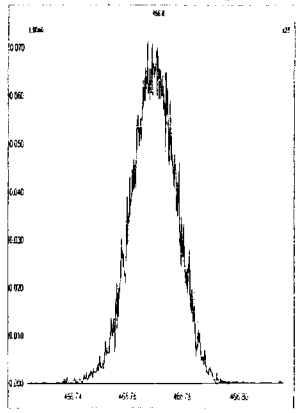
M 442.9728 R 12689



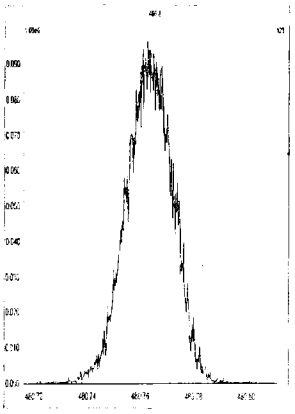
M 454.9728 R 12196



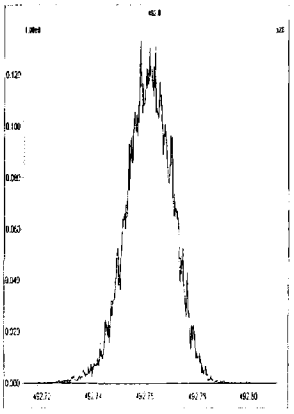
M 466.9728 R 12562



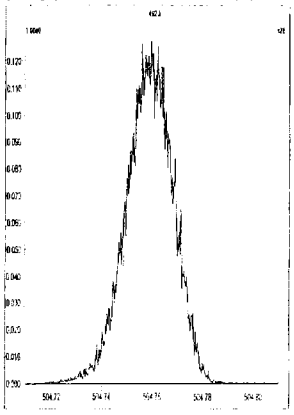
M 480.9696 R 12379



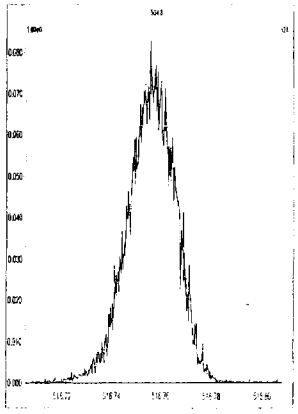
M 492.9696 R 12501



M 504.9696 R 12195

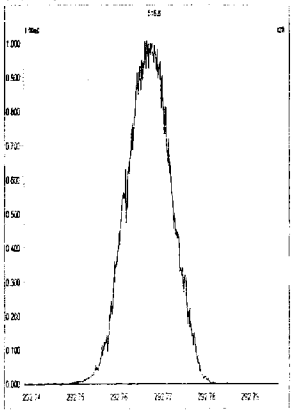


M 516.9697 R 11850

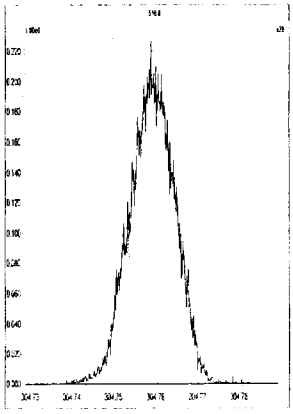


Printed: Thursday, April 21, 2011 19:26:36 Central Daylight Time

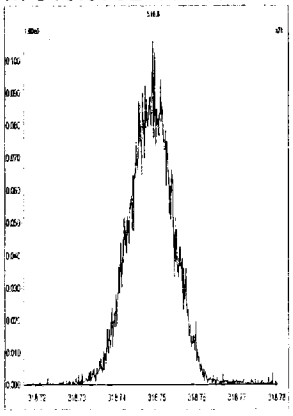
M 292.9824 R 12690



M 304.9824 R 13228



M 318.9792 R 12922



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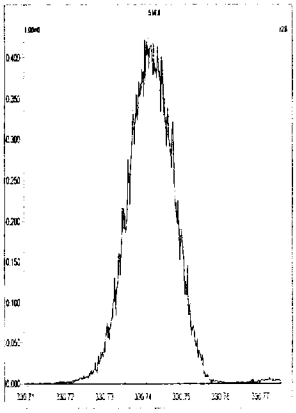

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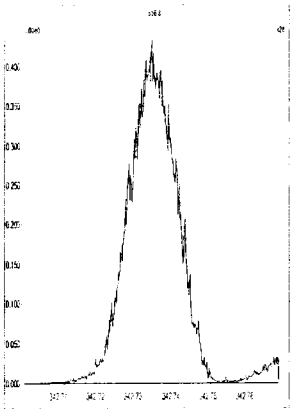

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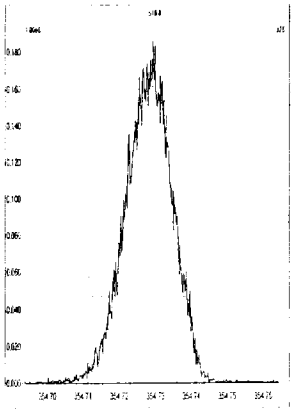

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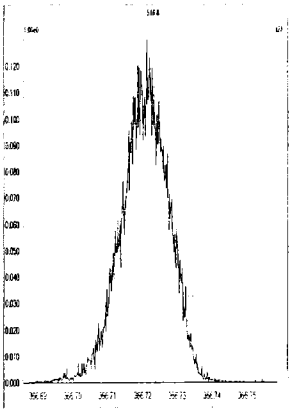
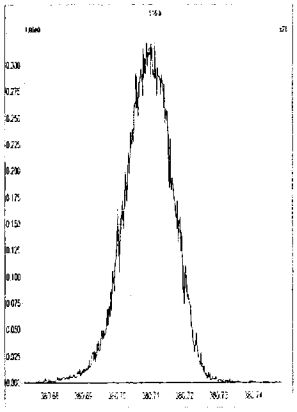


M 380.9760 R 11823



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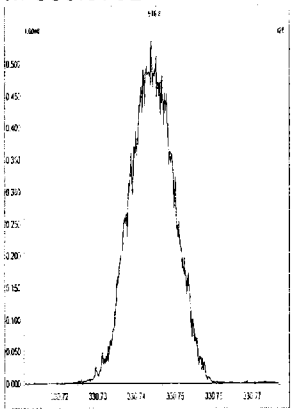

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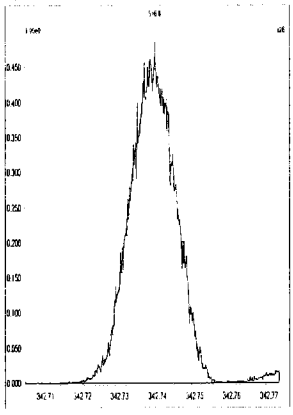

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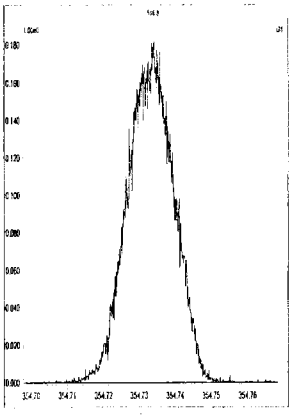

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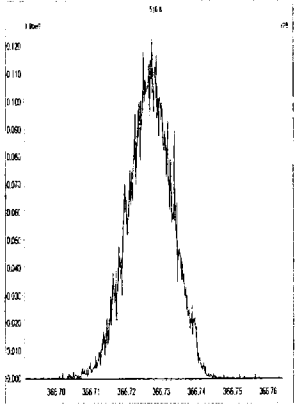
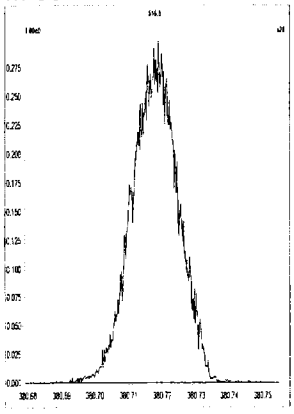


M 380.9760 R 12284



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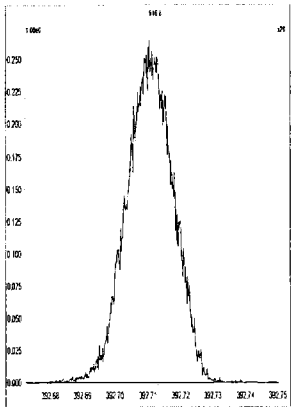

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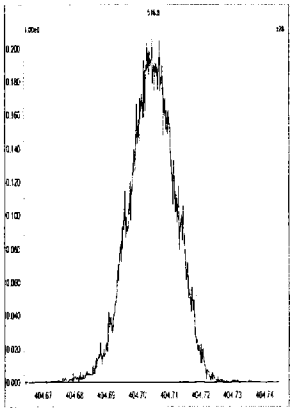

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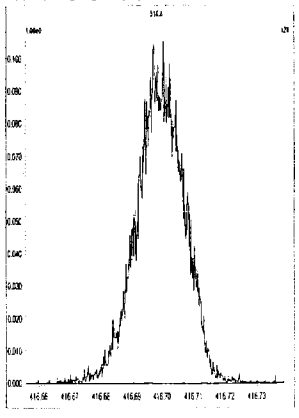

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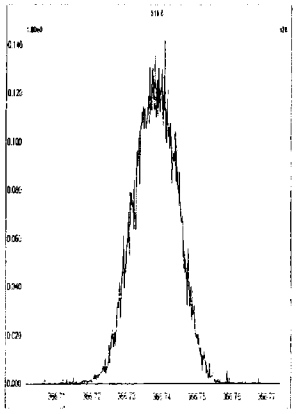
M 366.9792 R 12981



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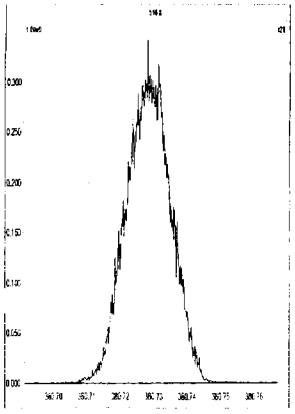

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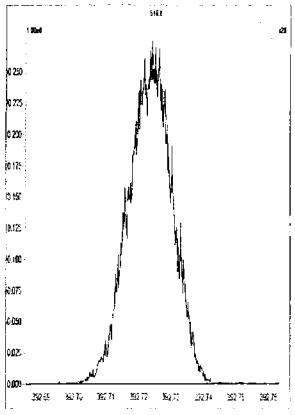
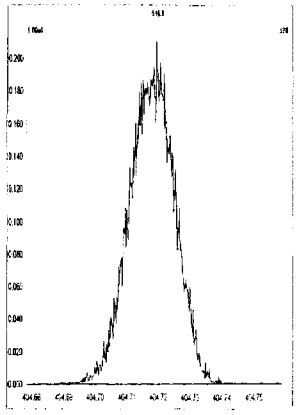


M 404.9760 R 12660



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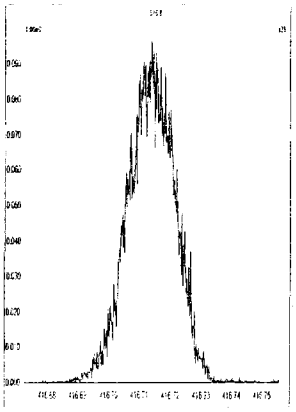

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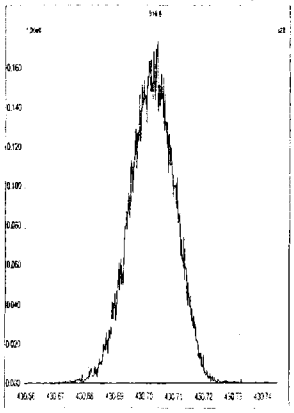

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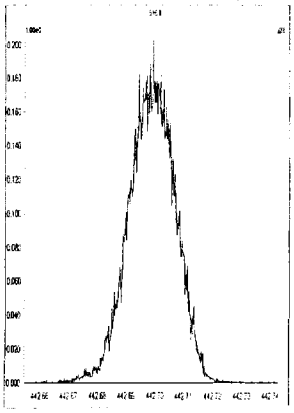

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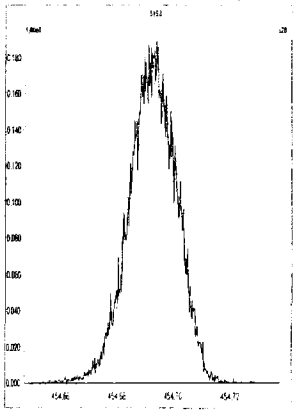

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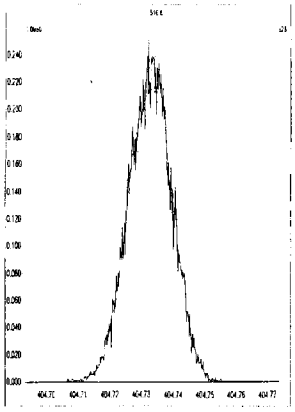
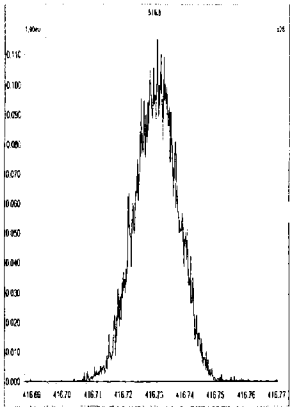


M 416.9760 R 12997



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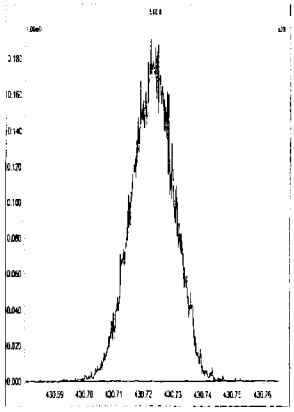

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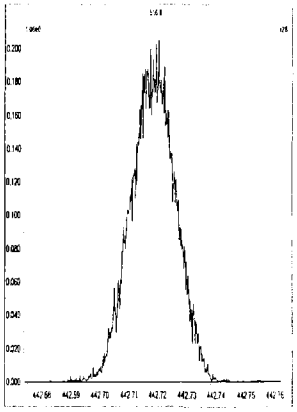

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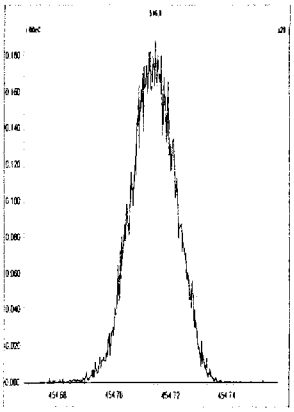
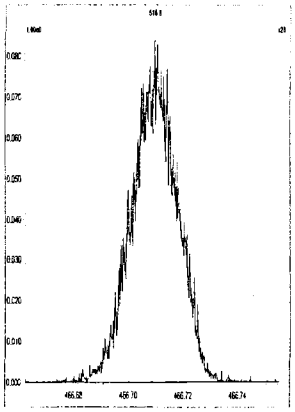


M 466.9728 R 12438



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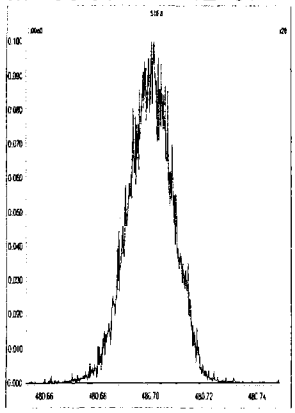

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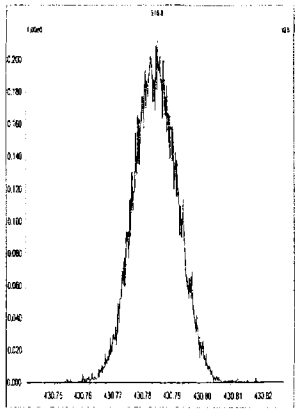

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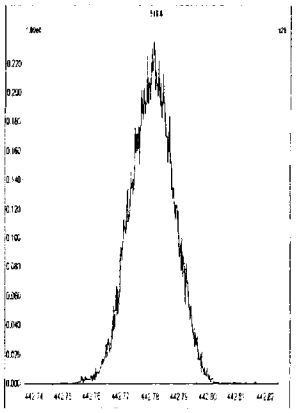

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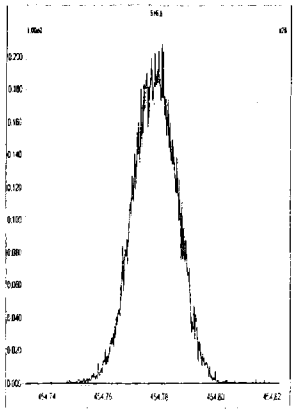

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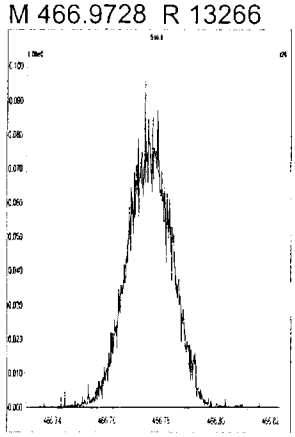
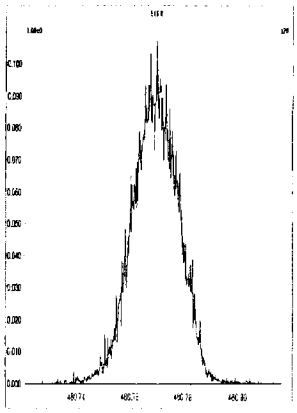
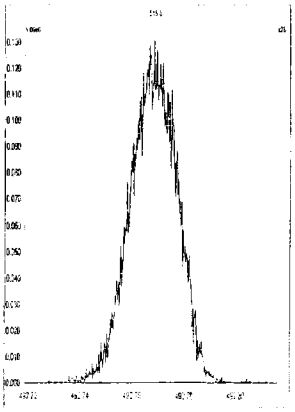


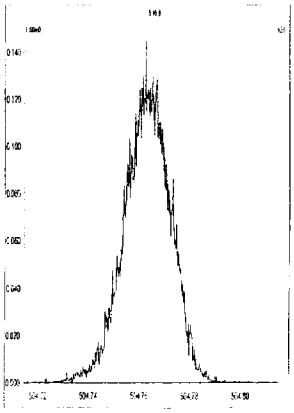
M 480.9696 R 12499



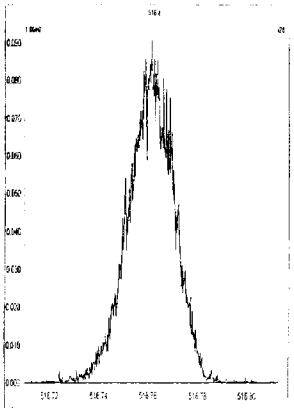
M 492.9696 R 12442



M 504.9696 R 12168



M 516.9697 R 12194



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: U225234
Date Analyzed: 21-APR-2011
Time Analyzed: 10:01:21

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:31	29:38
TCDD	25:18	29:38
PeCDF	29:55	33:53
PeCDD	31:19	33:44
HxCDF	34:46	37:07
HxCDD	35:17	36:48
HpCDF	38:29	39:46
HpCDD	38:43	39:22

% Valley 2378-TCDD: 8 %

FORM 3A
PCDD/PCDF INITIAL CALIBRATION RELATIVE RESPONSES

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

HRCC1 Data Filename: U225236 HRCC4 Data Filename: U225239

HRCC2 Data Filename: U225237 HRCC5 Data Filename: U225240

HRCC3 Data Filename: U225238 HRCC6 Data Filename: U225241

	RELATIVE RESPONSE (RR)						MEAN RR	Cv (RSD) (1)
NATIVE ANALYTES	HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6		
2,3,7,8-TCDD	0.90	0.97	0.95	0.97	0.95	0.95	0.95	2.61
1,2,3,7,8-PeCDD	0.94	0.92	0.95	0.95	0.94	0.95	0.94	1.18
1,2,3,4,7,8-HxCDD	0.92	0.88	0.92	0.97	1.01	0.97	0.94	4.87
1,2,3,6,7,8-HxCDD	1.01	1.15	1.12	1.07	1.06	1.03	1.07	4.94
1,2,3,7,8,9-HxCDD	1.05	1.07	1.10	1.06	1.05	1.03	1.06	2.20
1,2,3,4,6,7,8-HpCDD	1.06	1.04	1.07	1.08	1.08	1.10	1.07	1.79
OCDD	1.21	1.38	1.19	1.17	1.17	1.17	1.21	6.77
2,3,7,8-TCDF	0.95	1.01	1.04	1.04	1.07	1.09	1.03	4.46
1,2,3,7,8-PeCDF	1.06	1.06	1.07	1.07	1.09	1.08	1.07	1.23
2,3,4,7,8-PeCDF	0.97	0.94	1.03	1.06	1.05	1.00	1.01	4.56
1,2,3,4,7,8-HxCDF	1.21	1.21	1.23	1.24	1.22	1.26	1.23	1.60
1,2,3,6,7,8-HxCDF	1.36	1.35	1.38	1.41	1.41	1.38	1.38	1.86
1,2,3,7,8,9-HxCDF	0.97	0.96	1.02	1.08	1.05	1.05	1.02	4.65
2,3,4,6,7,8-HxCDF	1.22	1.17	1.22	1.21	1.22	1.21	1.21	1.57
1,2,3,4,6,7,8-HpCDF	1.45	1.42	1.44	1.43	1.43	1.42	1.43	0.55
1,2,3,4,7,8,9-HpCDF	0.99	1.00	1.08	1.11	1.09	1.11	1.06	4.94
OCDF	1.40	1.42	1.48	1.50	1.55	1.56	1.48	4.47

(1) The %RSD for the 17 unlabeled standard must not exceed +/- 20%, see Section 7.7.2.1, Method 8290.

8290F3A6

FORM 3B
PCDD/PCDF INITIAL CALIBRATION RELATIVE RESPONSES

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

HCC1 Data Filename: U225236 HCC4 Data Filename: U225239

HCC2 Data Filename: U225237 HCC5 Data Filename: U225240

HCC3 Data Filename: U225238 HCC6 Data Filename: U225241

	RELATIVE RESPONSE (RR)						MEAN RR	Cv (RSD) (1)
	HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6		
LABELED COMPOUNDS								
13C-2,3,7,8-TCDD	0.87	0.83	0.87	0.89	0.87	0.97	0.88	5.32
13C-1,2,3,7,8-PeCDD	0.76	0.75	0.80	0.81	0.79	0.88	0.80	5.95
13C-1,2,3,6,7,8-HxCDD	0.97	0.98	0.94	0.97	0.95	0.96	0.96	1.20
13C-1,2,3,4,6,7,8-HpCDD	0.95	0.96	0.94	0.96	0.95	0.90	0.94	2.22
13C-OCDD	0.78	0.75	0.75	0.78	0.79	0.75	0.77	2.60
13C-2,3,7,8-TCDF	1.13	1.10	1.16	1.15	1.13	1.24	1.15	4.23
13C-1,2,3,7,8-PeCDF	1.17	1.15	1.23	1.22	1.22	1.39	1.23	6.87
13C-1,2,3,4,7,8-HxCDF	1.28	1.30	1.26	1.26	1.25	1.24	1.26	1.65
13C-1,2,3,4,6,7,8-HpCDF	1.23	1.22	1.19	1.20	1.21	1.17	1.20	1.84
CLEANUP STANDARD								
37Cl-2,3,7,8-TCDD	0.96	0.92	0.96	0.98	0.94	1.13	0.98	7.63

(1) The %RSD for the nine labeled reference compounds must not exceed +/- 30%, see Section 7.7.2.1, Method 8290.

8290F3B6

FORM 3C
PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE RATIOS

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

HCC1 Data Filename: U225236 HCC4 Data Filename: U225239

HCC2 Data Filename: U225237 HCC5 Data Filename: U225240

HCC3 Data Filename: U225238 HCC6 Data Filename: U225241

NATIVE ANALYTES	M/Z'S FORMING RATIO	ION ABUNDANCE RATIO HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6	QC LIMITS (2)
2,3,7,8-TCDD	M/M+2	0.88	0.82	0.76	0.77	0.78	0.79	0.65-0.89
1,2,3,7,8-PeCDD	M+2/M+4	1.65	1.63	1.60	1.57	1.56	1.56	1.32-1.78
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.26	1.41	1.23	1.28	1.23	1.05-1.43
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.25	1.16	1.23	1.30	1.23	1.05-1.43
1,2,3,7,8,9-HxCDD	M+2/M+4	1.12	1.28	1.22	1.20	1.24	1.28	1.05-1.43
1,2,3,4,6,7,8-HpCDD	M+2/M+4	0.98	1.04	1.01	1.03	1.04	1.04	0.88-1.20
OCDD	M+2/M+4	0.93	0.91	0.89	0.90	0.90	0.91	0.76-1.02
2,3,7,8-TCDF	M/M+2	0.84	0.79	0.80	0.83	0.79	0.79	0.65-0.89
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.60	1.58	1.61	1.60	1.59	1.32-1.78
2,3,4,7,8-PeCDF	M+2/M+4	1.66	1.60	1.59	1.59	1.58	1.59	1.32-1.78
1,2,3,4,7,8-HxCDF	M+2/M+4	1.28	1.23	1.25	1.25	1.25	1.25	1.05-1.43
1,2,3,6,7,8-HxCDF	M+2/M+4	1.33	1.21	1.27	1.26	1.27	1.26	1.05-1.43
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.26	1.25	1.28	1.25	1.26	1.05-1.43
2,3,4,6,7,8-HxCDF	M+2/M+4	1.27	1.21	1.25	1.26	1.24	1.26	1.05-1.43
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.10	1.01	1.07	1.04	1.06	1.08	0.88-1.20
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	1.04	1.03	1.05	1.09	1.04	0.88-1.20
OCDF	M+2/M+4	0.93	0.90	0.91	0.92	0.91	0.91	0.76-1.02

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits from Table 8, Method 8290.

8290F3C6

FORM 3D
PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE RATIOS

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

HRCC1 Data Filename: U225236 HRCC4 Data Filename: U225239

HRCC2 Data Filename: U225237 HRCC5 Data Filename: U225240

HRCC3 Data Filename: U225238 HRCC6 Data Filename: U225241

LABELED COMPOUNDS	M/Z'S FORMING RATIO	ION ABUNDANCE RATIO HRCC1	HRCC2	HRCC3	HRCC4	HRCC5	HRCC6	QC LIMITS (2)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.80	0.77	0.79	0.78	0.81	0.65-0.89
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.55	1.56	1.54	1.52	1.55	1.32-1.78
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.24	1.24	1.25	1.24	1.25	1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	1.05	1.06	1.04	1.06	1.05	0.88-1.20
13C-OCDD	M+2/M+4	0.91	0.91	0.90	0.89	0.90	0.90	0.76-1.02
13C-2,3,7,8-TCDF	M/M+2	0.76	0.76	0.76	0.78	0.77	0.76	0.65-0.89
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.56	1.57	1.57	1.56	1.56	1.32-1.78
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.53	0.55	0.53	0.54	0.54	0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.44	0.44	0.46	0.44	0.44	0.37-0.51

(1) See Table 6, Method 8290, for m/z specifications.Method 8290.

(2) Ion Abundance Ratio Control Limits from Table 8,

8290F3D6

RW/ HRCC3 Daily Calibration QC Checklist

Calibration File Name: U227768 – U227775 Circle one: Beginning / Ending

Date: 5 Jan 12

Method: 8290 / Tetra / TCDD Only / TCDF Conf

Retention Window/Column Performance Check:	**Analyst**	**Second Check**
Windows labeled for first and last eluting compounds	—	✓
Column performance shows less than or equal to 25% valley between column specific 2378 isomer and the closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or the closest eluters	✓	✓

HRCC3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	—	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	—	✓
Signal-to-noise of all target analytes and associated labeled standards at least 10:1	✓	✓
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature]

Second QC: LKL

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: E-HRMS-02

Init. Calib. Date: 04/21/11

Init. Calib.Times: 10:01

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		U227766	5-JAN-12	07:03:29
CCAL HRCC3	CCAL HRCC3	U227768	5-JAN-12	09:48:15
METHOD BLANK	EQ1100606-01	U227769	5-JAN-12	10:44:29
12TP16-0608-03	E1101252-001	U227770	5-JAN-12	11:30:42
68SS02-1-1211	E1101259-001	U227771	5-JAN-12	12:18:33
68SS07-1-1211	E1101259-002	U227772	5-JAN-12	13:06:25
AN07416	E1101260-001	U227773	5-JAN-12	13:54:14
SLACKER GRIT-DRY	E1101261-001	U227774	5-JAN-12	14:42:07
CCAL HRCC3	CCAL HRCC3	U227775	5-JAN-12	16:09:15

E1101252

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Sample List Report — MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U2120105.SPL
Last Modified: Thursday, January 05, 2012 15:43:07 Central Standard Time
Printed: Thursday, January 05, 2012 15:43:43 Central Standard Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

C:U227768RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	01/05/12	05:58	U227765	WINDOW DEFINE	D12-56-2		DO NOT USE	8290cas	8290CAS
2		07:03	U227766	WINDOW DEFINE	D12-56-2		HRMS Check 07.01	8290cas	8290CAS
3		07:52	U227767	CCAL HRCC3-A	D11-99-3			8290cas	8290CAS
4		09:48	U227768	CCAL HRCC3-A	D11-99-3			8290cas	8290CAS
5		10:44	U227769	EQ1100606-01	MB			8290cas	8290CAS
6		11:30	U227770	E1101252-001	12TP16-0608-03			8290cas	8290CAS
7		12:18	U227771	E1101259-001	68SS02-1-1211			8290cas	8290CAS
8		13:06	U227772	E1101259-002	68SS07-1-1211			8290cas	8290CAS
9		13:54	U227773	E1101260-001	AN07416			8290cas	8290CAS
10		14:42	U227774	E1101261-001	Slacker Grit-Dry			8290cas	8290CAS
11		16:09	U227775	CCAL HRCC3-B	D11-99-3		HRMS Check 17.08	8290cas	8290CAS
12			---	---	---			8290cas	8290CAS
13			---	---	---			8290cas	8290CAS
14			---	---	---			8290cas	8290CAS
15			---	---	---			8290cas	8290CAS
16			---	---	---			8290cas	8290CAS
17			---	---	---			8290cas	8290CAS
18			---	---	---			8290cas	8290CAS
19			---	---	---			---	---
20			---	---	---			---	---
21			---	---	---			8290cas	8290CAS
22	---	---	---	---	---	---	---	8290cas	8280_CAS
23	---	---	---	---	---	---	---	8290cas	8290CAS
24	---	---	---	---	---	---	---	1668EPA	1668EPA
25	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	1668EPA	1668EPA
28	---	---	---	---	---	---	---	1668EPA	1668EPA
29	---	---	---	---	---	---	---	8290cas	---
30	---	---	---	---	---	---	---	8290cas	8290CAS
31	---	---	---	---	---	---	---	8290cas	8290CAS
32	---	---	---	---	---	---	Reviewed By: Cee	8290cas	8290CAS

1/5/12

File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 05, 2012 07:01:35 Central Standard Time

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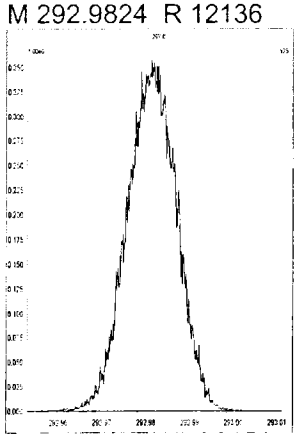
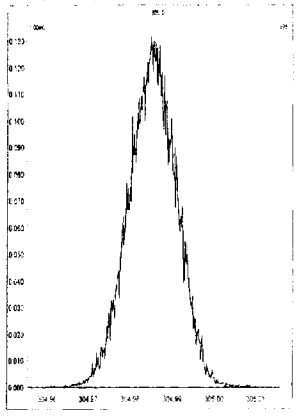
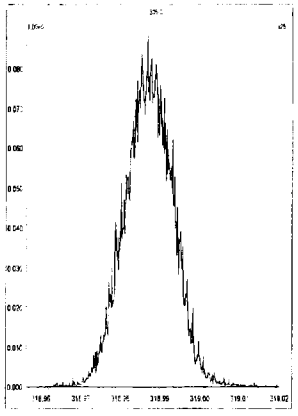


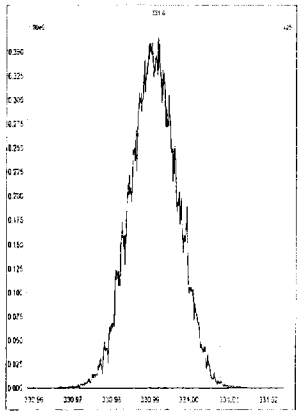
M 304.9824 R 11626



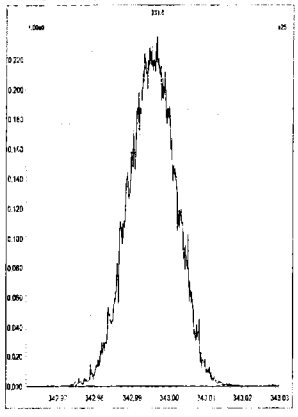
M 318.9792 R 12016



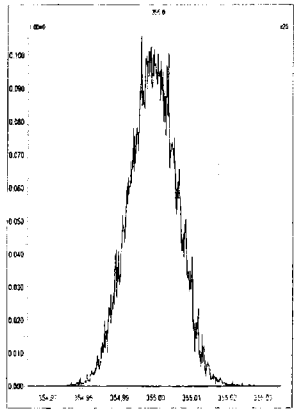
M 330.9792 R 12020



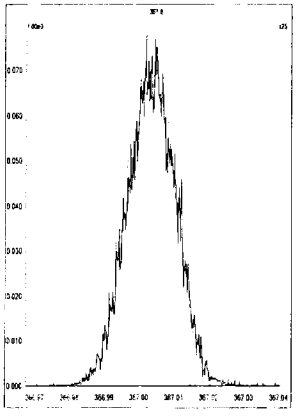
M 342.9792 R 11519



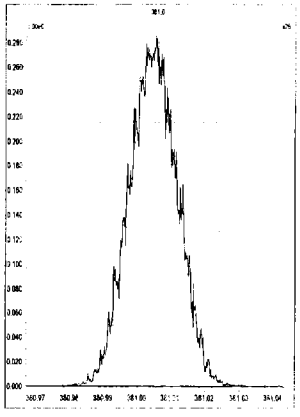
M 354.9792 R 11630



M 366.9792 R 12020



M 380.9760 R 12315



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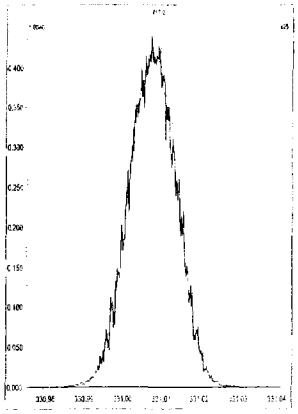
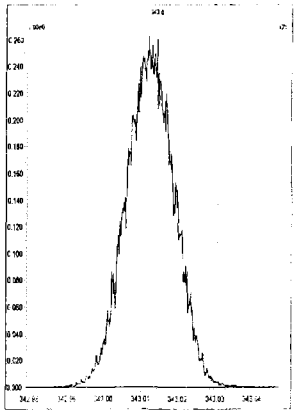
Printed: Thursday, January 05, 2012 07:02:00 Central Standard Time

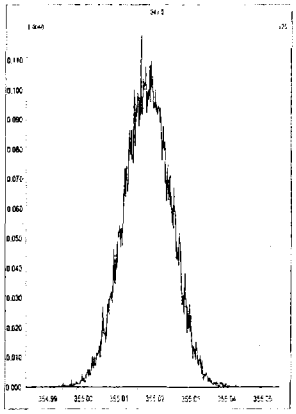
M 330.9792 R 12020



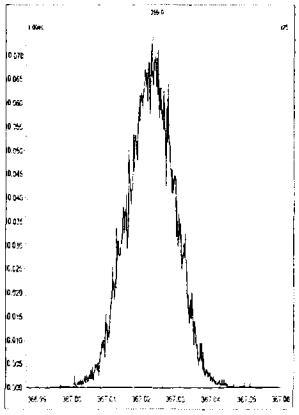
M 342.9792 R 11627



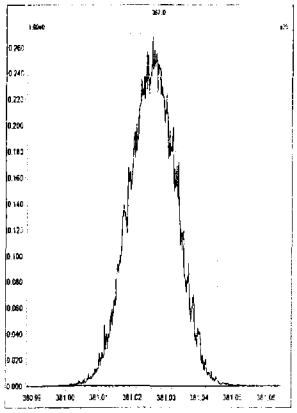
M 354.9792 R 11572



M 366.9792 R 12137

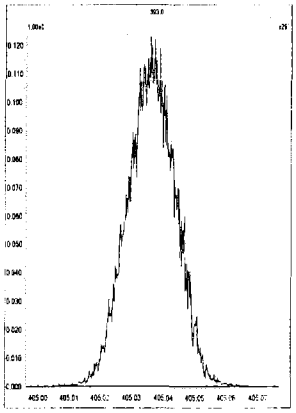


M 380.9760 R 11628

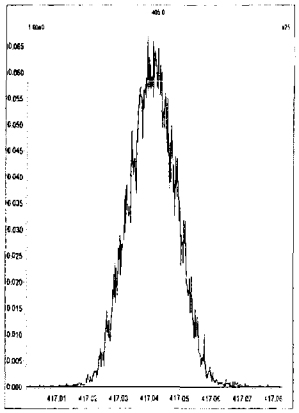


M 392.9760 R 11960

M 404.9760 R 12192



M 416.9760 R 11962



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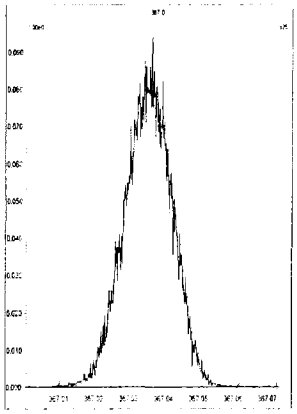
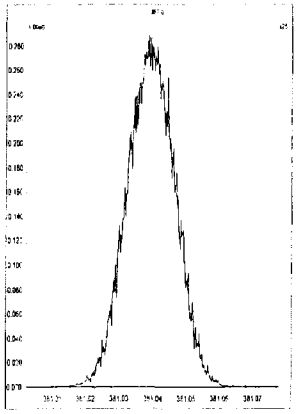
Printed: Thursday, January 05, 2012 07:02:21 Central Standard Time

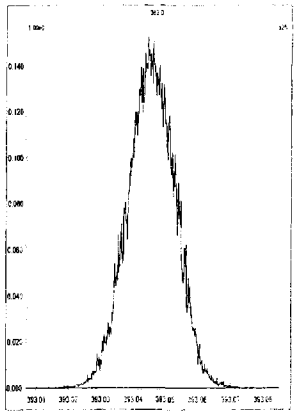
M 366.9792 R 12016



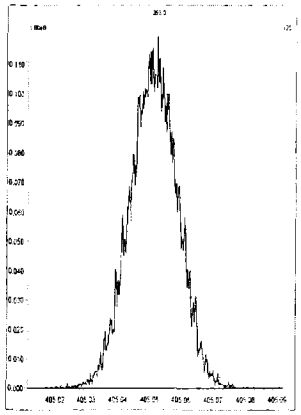
M 380.9760 R 11737



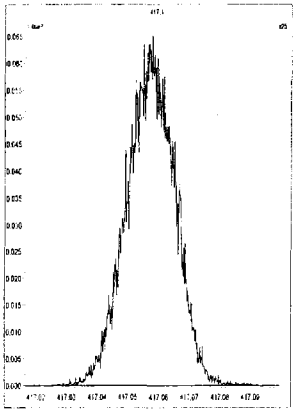
M 392.9760 R 12023



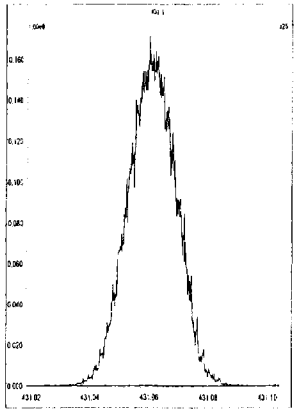
M 404.9760 R 11684



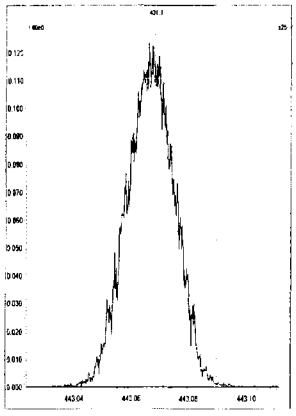
M 416.9760 R 11628



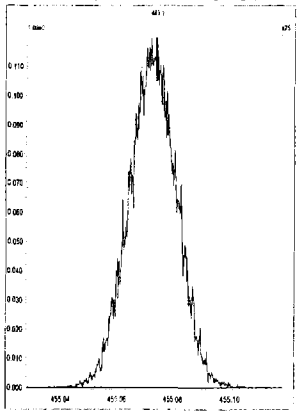
M 430.9728 R 11848



M 442.9728 R 12374



M 454.9728 R 12137



File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

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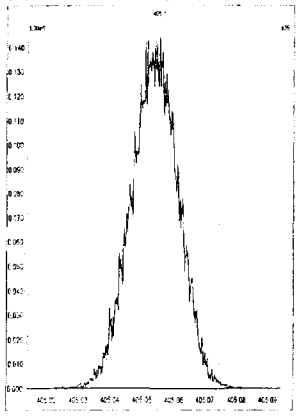
M 404.9760 R 12021



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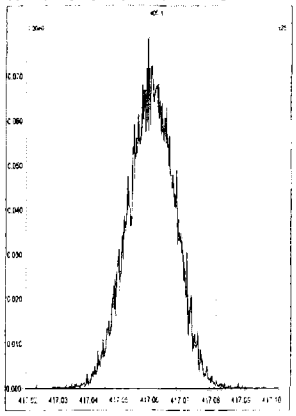

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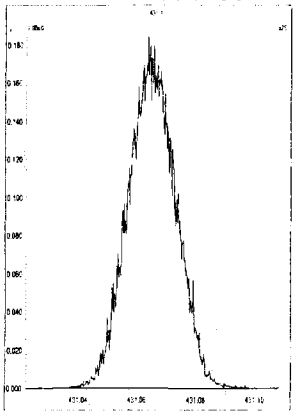

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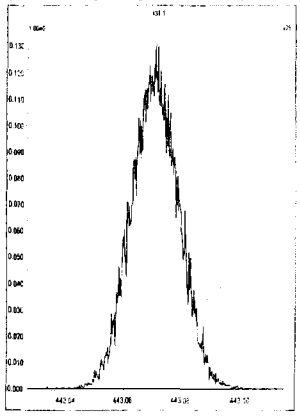

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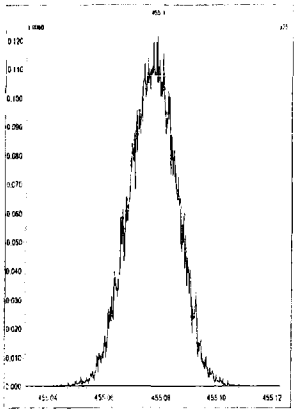

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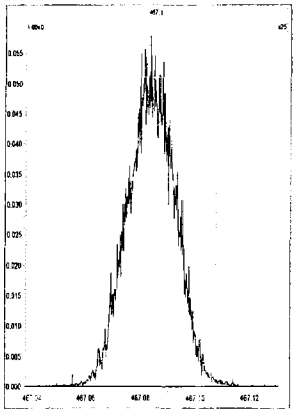

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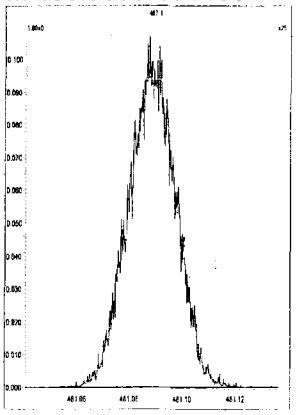

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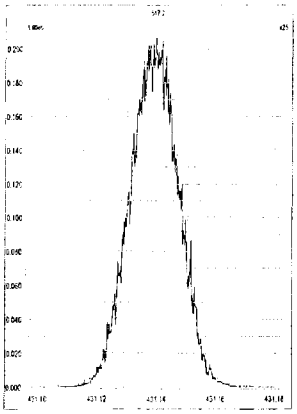
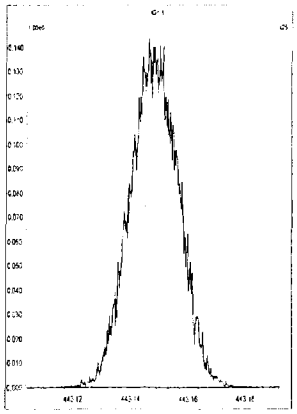
Printed: Thursday, January 05, 2012 07:03:08 Central Standard Time

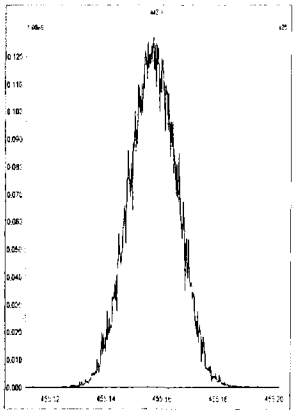
M 430.9728 R 11959



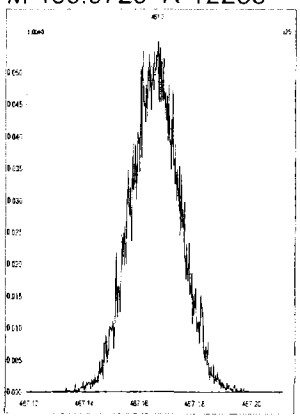
M 442.9728 R 12191



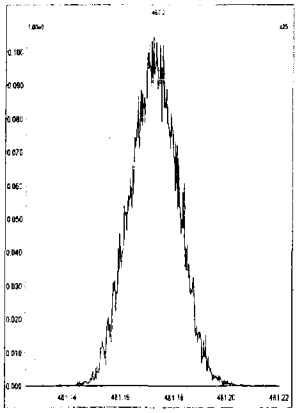
M 454.9728 R 11573



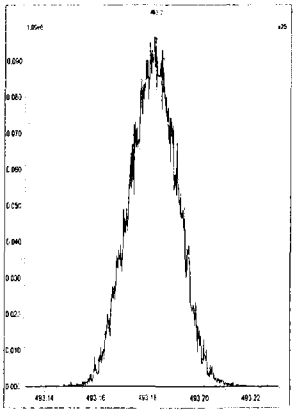
M 466.9728 R 12253



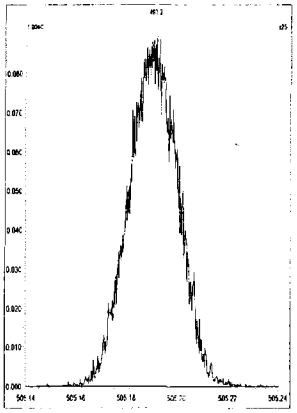
M 480.9696 R 11575



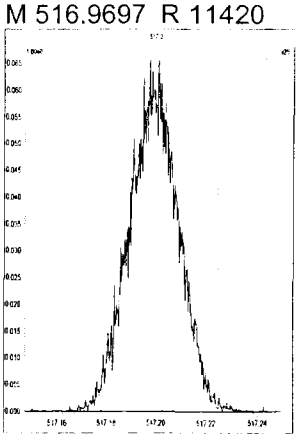
M 492.9696 R 11792



M 504.9696 R 11964



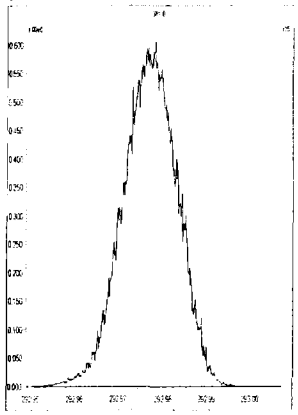
M 516.9697 R 11420



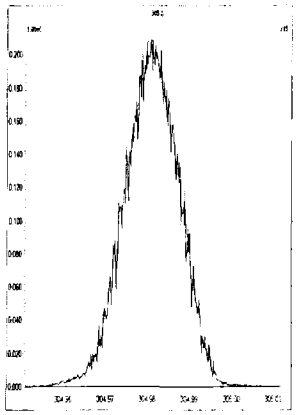
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 05, 2012 09:46:16 Central Standard Time

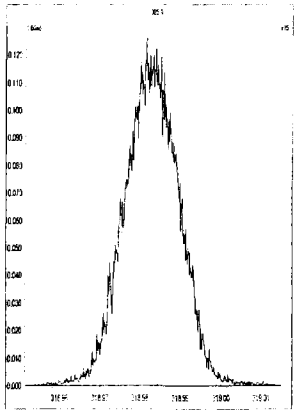
M 292.9824 R 10593



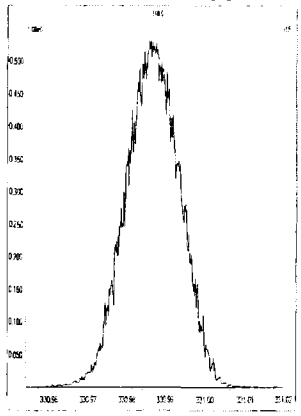
M 304.9824 R 10334



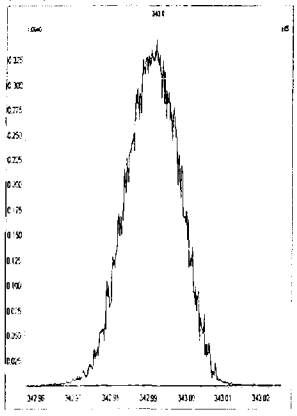
M 318.9792 R 10595



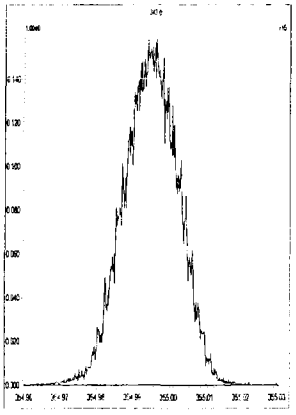
M 330.9792 R 10917



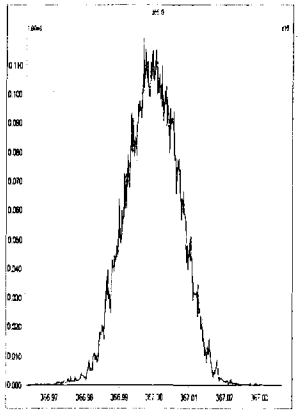
M 342.9792 R 10547



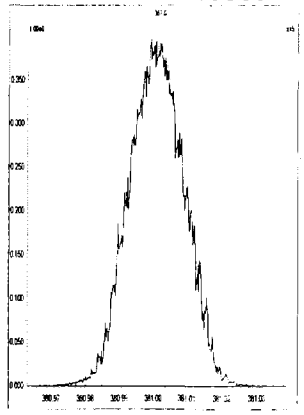
M 354.9792 R 10371



M 366.9792 R 10776



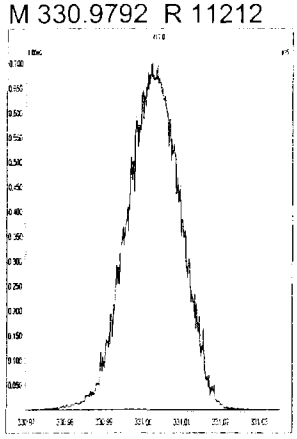
M 380.9760 R 10869



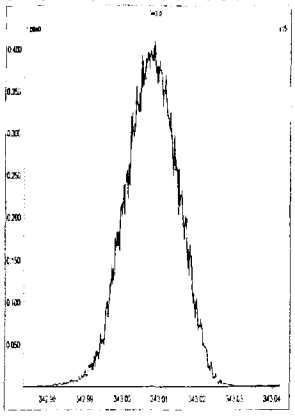
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 05, 2012 09:46:45 Central Standard Time

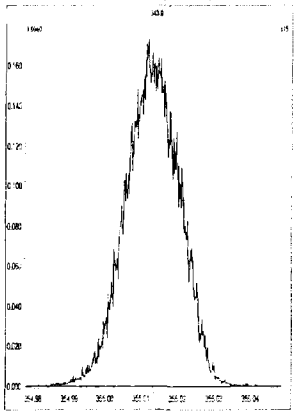
M 330.9792 R 11212



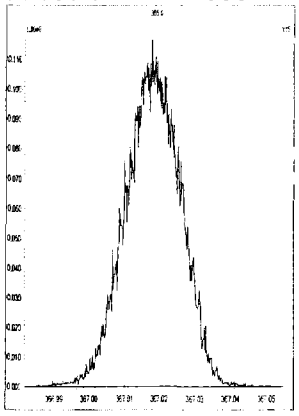
M 342.9792 R 10592



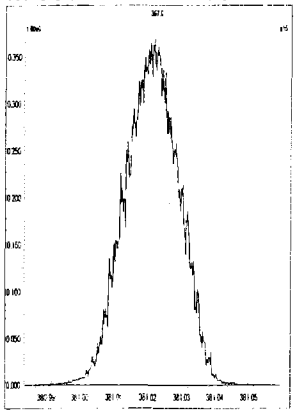
M 354.9792 R 10778



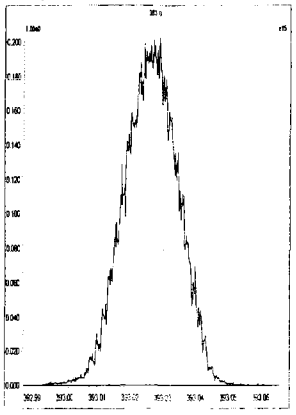
M 366.9792 R 10594



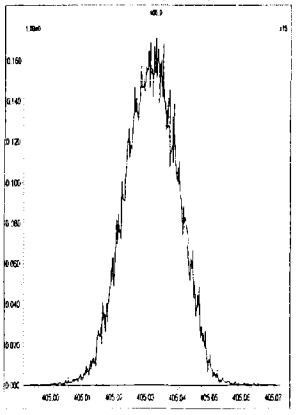
M 380.9760 R 10638



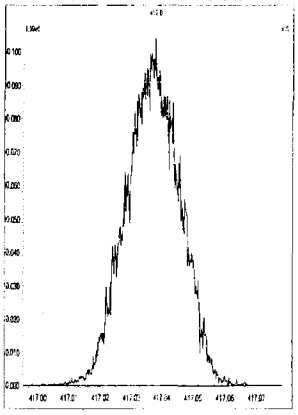
M 392.9760 R 10821



M 404.9760 R 10914



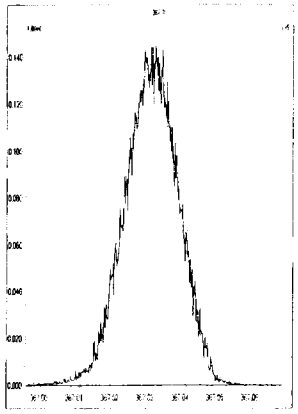
M 416.9760 R 10684



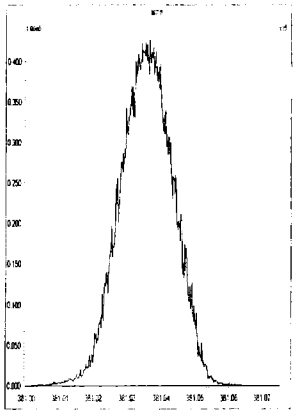
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 05, 2012 09:47:06 Central Standard Time

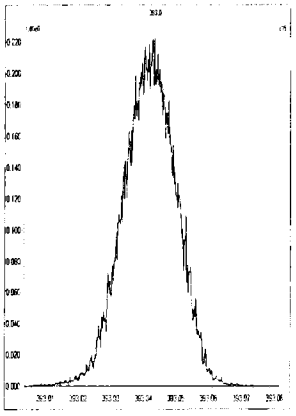
M 366.9792 R 10777



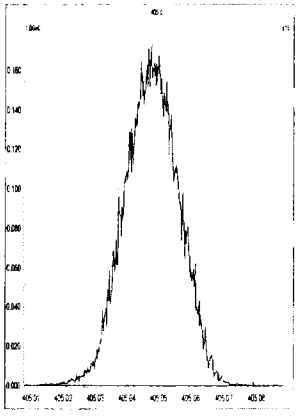
M 380.9760 R 10593



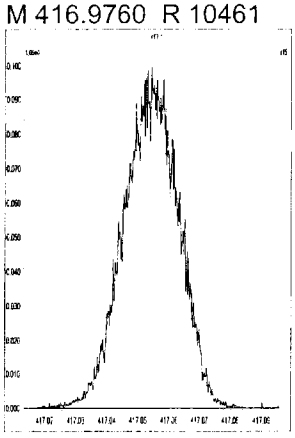
M 392.9760 R 10868



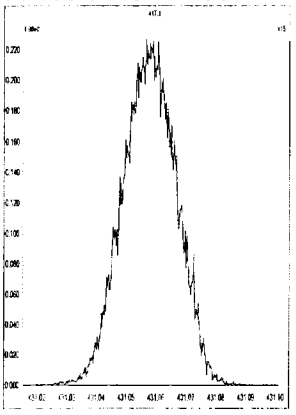
M 404.9760 R 11059



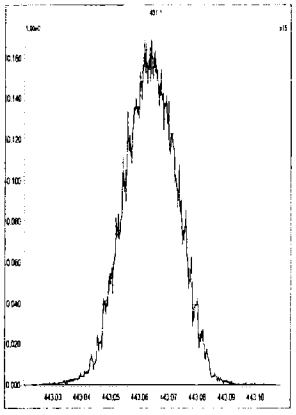
M 416.9760 R 10461



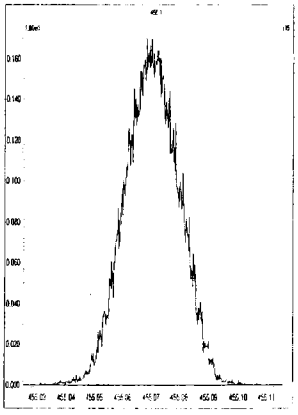
M 430.9728 R 10869



M 442.9728 R 11060



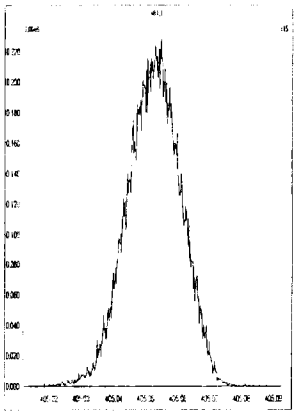
M 454.9728 R 10414



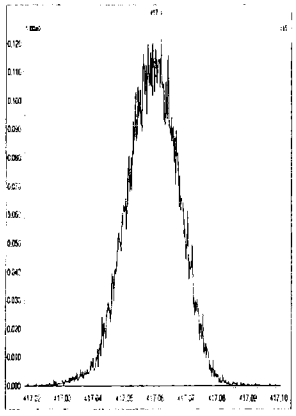
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 05, 2012 09:47:29 Central Standard Time

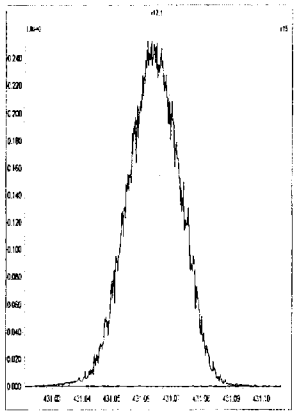
M 404.9760 R 11113



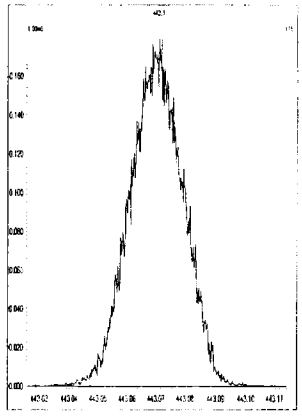
M 416.9760 R 11211



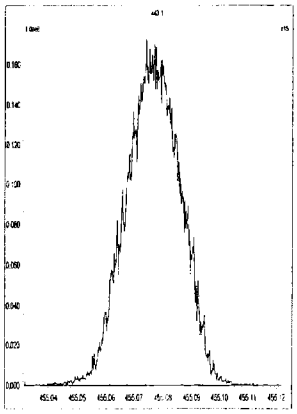
M 430.9728 R 11013



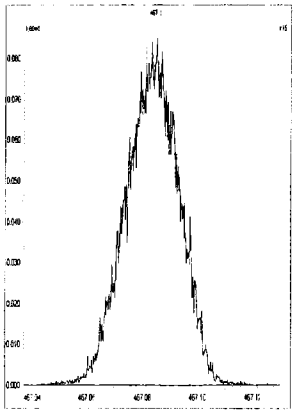
M 442.9728 R 11159



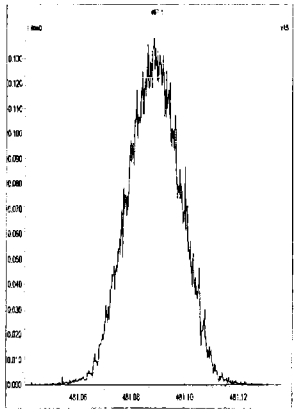
M 454.9728 R 11309



M 466.9728 R 11160



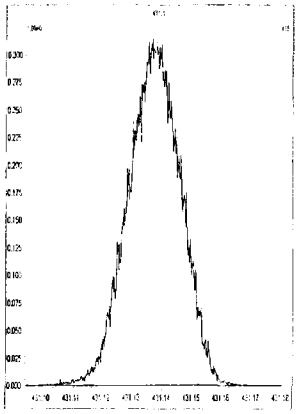
M 480.9696 R 10732



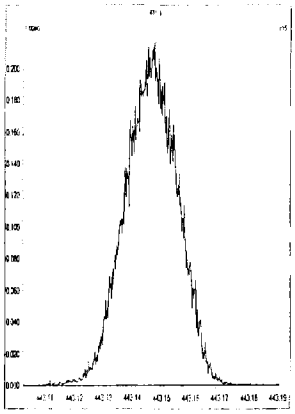
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 05, 2012 09:47:58 Central Standard Time

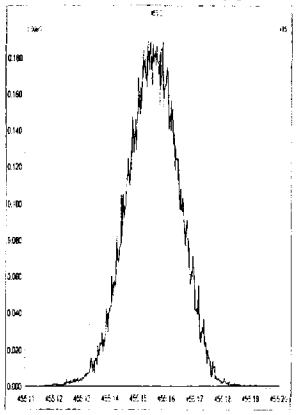
M 430.9728 R 11162



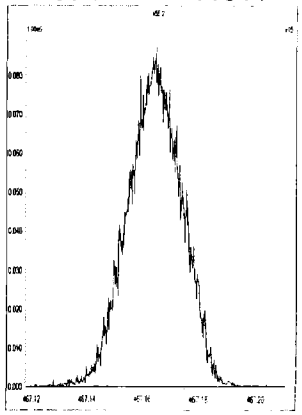
M 442.9728 R 10870



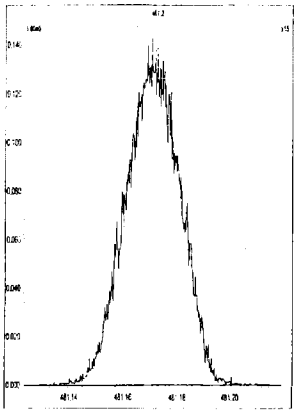
M 454.9728 R 11061



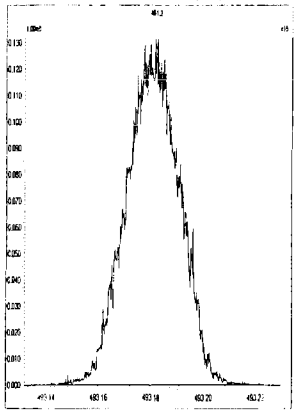
M 466.9728 R 11314



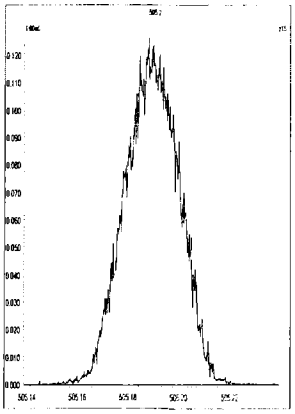
M 480.9696 R 10870



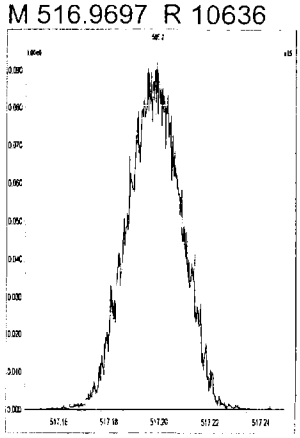
M 492.9696 R 11261



M 504.9696 R 10964



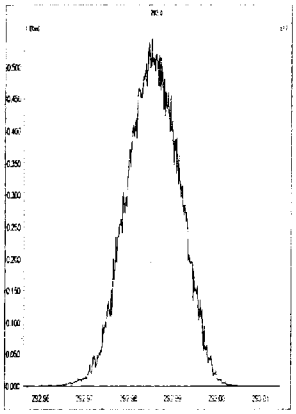
M 516.9697 R 10636



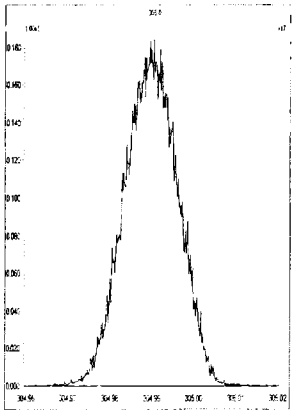
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:08:34 Central Standard Time

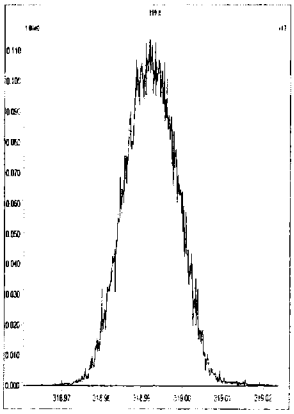
M 292.9824 R 10684



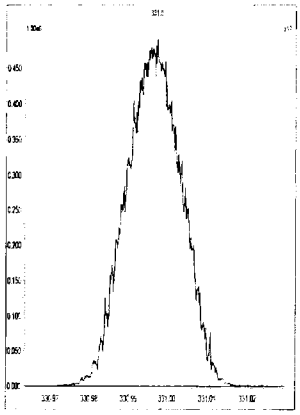
M 304.9824 R 10963



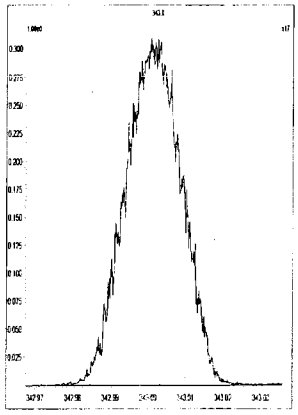
M 318.9792 R 11059



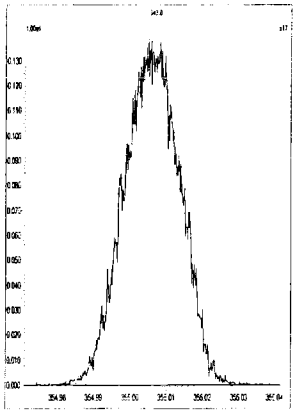
M 330.9792 R 10549



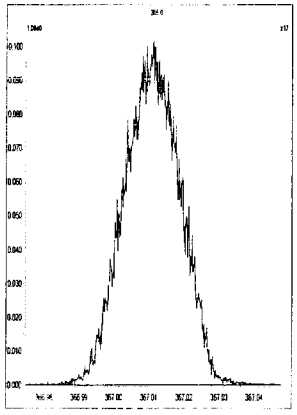
M 342.9792 R 10503



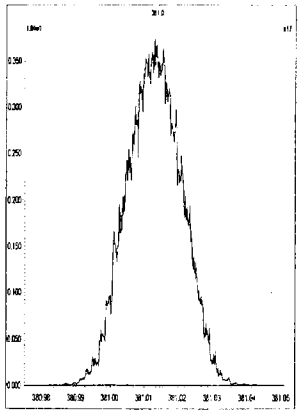
M 354.9792 R 11213



M 366.9792 R 10594



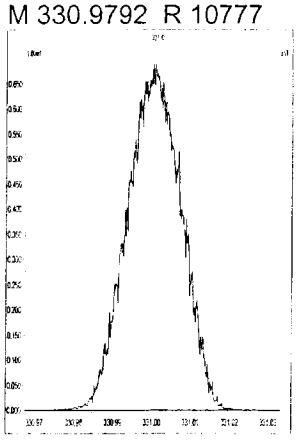
M 380.9760 R 10373



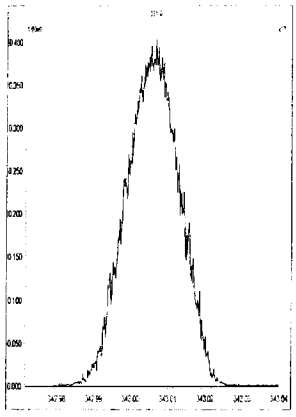
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:12:16 Central Standard Time

M 330.9792 R 10777



M 342.9792 R 10729



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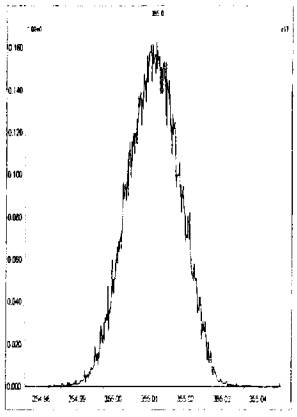
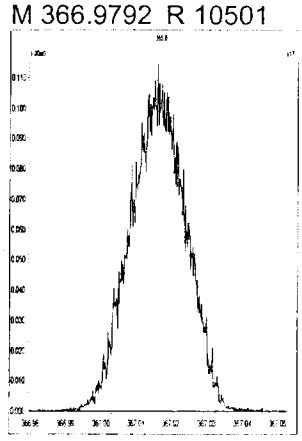
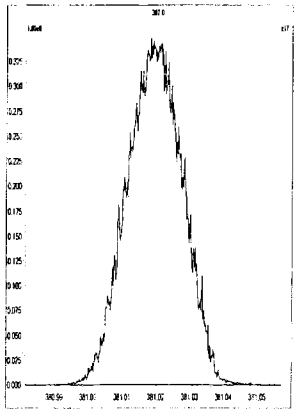


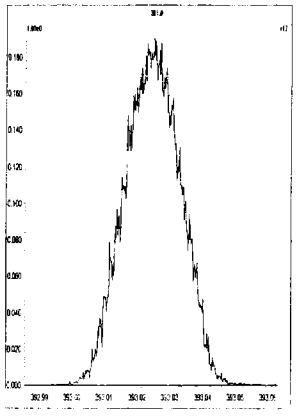
M 366.9792 R 10501



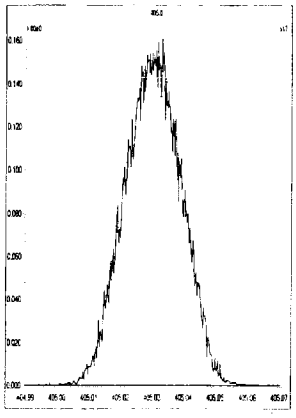
M 380.9760 R 10683



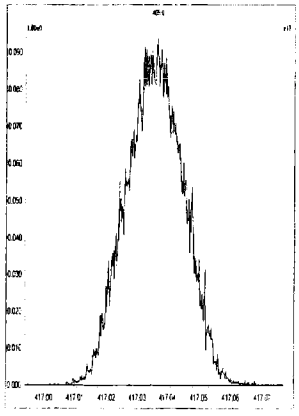
M 392.9760 R 10732



M 404.9760 R 10201



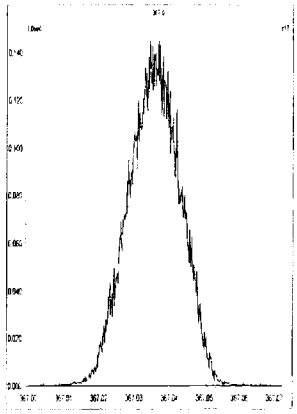
M 416.9760 R 10246



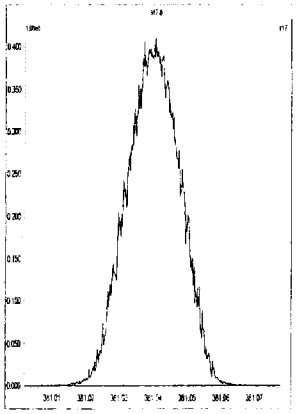
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:13:19 Central Standard Time

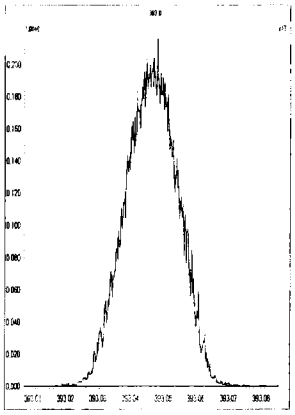
M 366.9792 R 11207



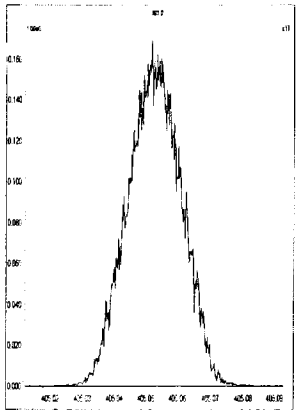
M 380.9760 R 11211



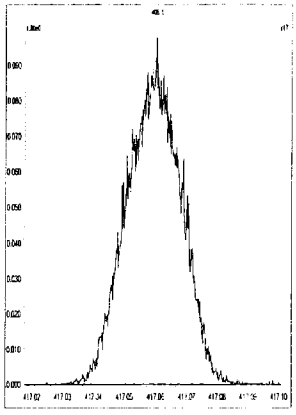
M 392.9760 R 11061



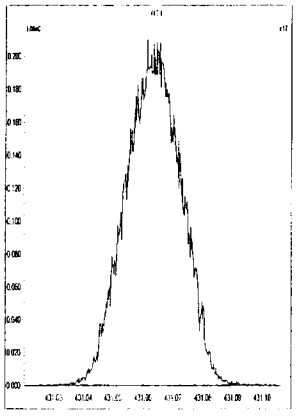
M 404.9760 R 11011



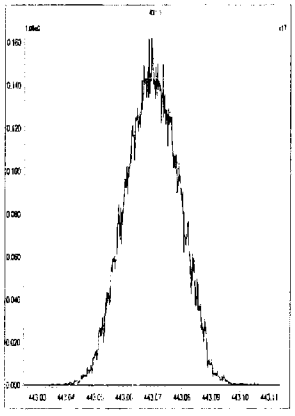
M 416.9760 R 10776



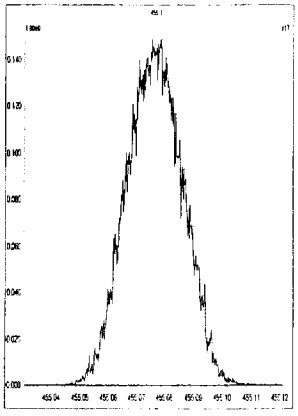
M 430.9728 R 10822



M 442.9728 R 10728



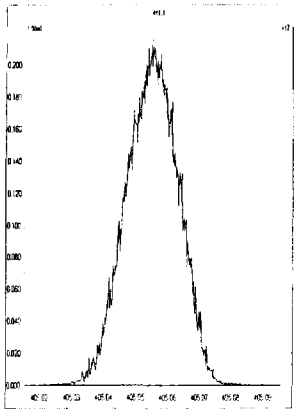
M 454.9728 R 10371



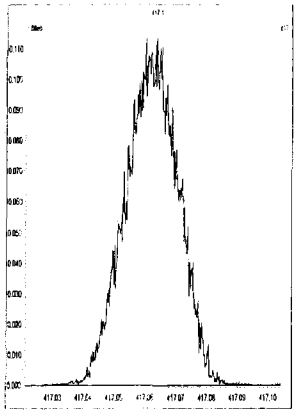
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:14:11 Central Standard Time

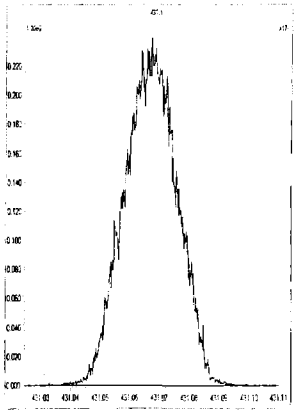
M 404.9760 R 11626



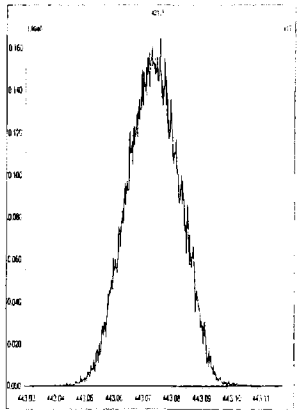
M 416.9760 R 10918



M 430.9728 R 11009



M 442.9728 R 11060



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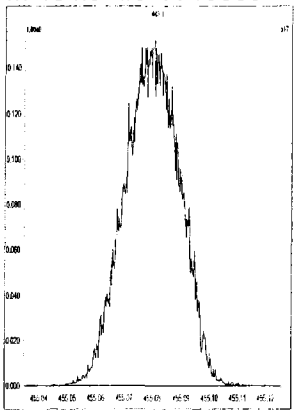
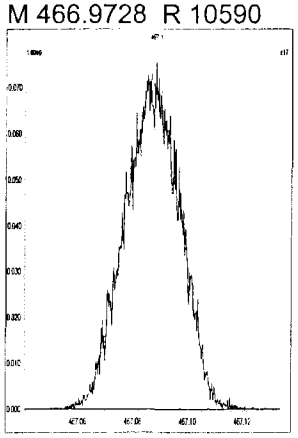


M 466.9728 R 10590



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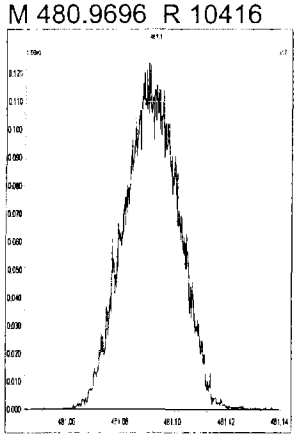
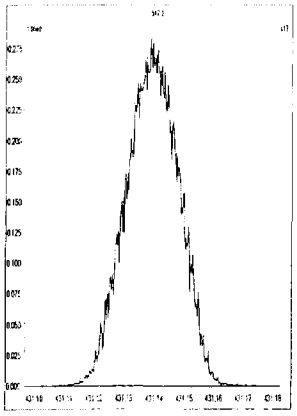


File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:15:10 Central Standard Time

M 430.9728 R 11158



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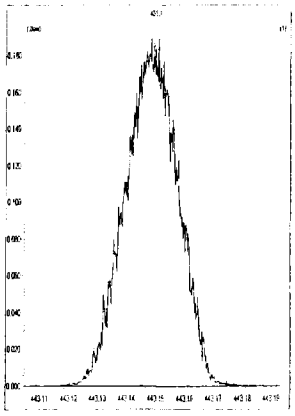

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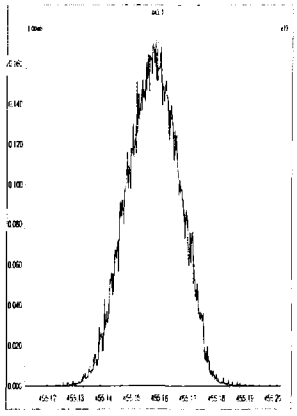
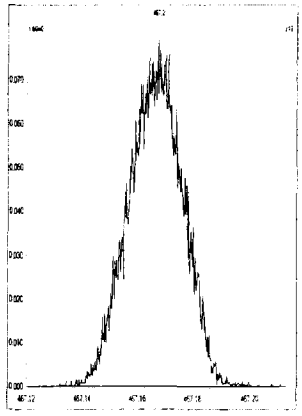


M 466.9728 R 11109



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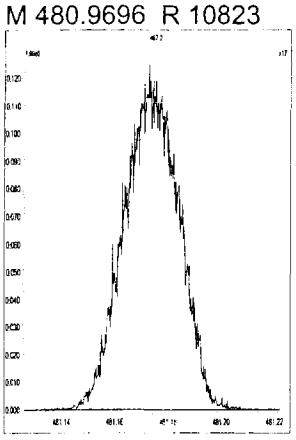
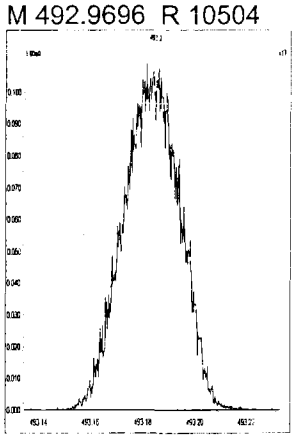
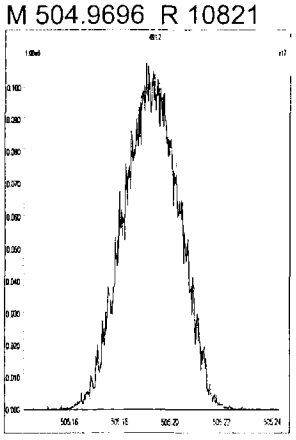


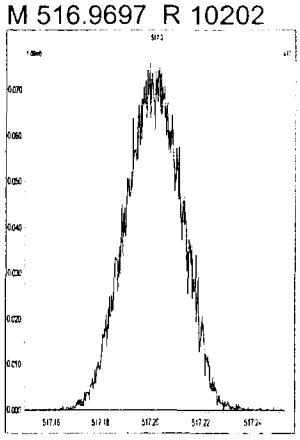
M 492.9696 R 10504



M 504.9696 R 10821



M 516.9697 R 10202



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: U227766
Date Analyzed: 5-JAN-2012
Time Analyzed: 07:03:29

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:14	30:46
TCDD	26:54	30:45
PeCDF	31:03	34:47
PeCDD	32:21	34:37
HxCDF	35:38	37:54
HxCDD	36:07	37:35
HpCDF	39:20	40:42
HpCDD	39:35	40:15

% Valley 2378-TCDD: 14 %

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

VER Data Filename: U227768 Analysis Date: 5-JAN-12 Time: 09:48:15

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	1.01	0.95	6.21
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	0.93	0.94	-0.79
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	0.96	0.94	1.55
1,2,3,6,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	1.10	1.07	2.52
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	1.10	1.06	4.08
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.12	0.88-1.20	1.13	1.07	5.14
OCDD	M+2/M+4	0.88	0.76-1.02	1.20	1.21	-1.50
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	1.07	1.03	3.60
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.11	1.07	3.36
2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.07	1.01	6.56
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.26	1.23	2.04
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.42	1.38	2.87
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	1.12	1.02	9.35
2,3,4,6,7,8-HxCDF	M+2/M+4	1.30	1.05-1.43	1.27	1.21	5.31
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	1.41	1.43	-1.19
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	1.10	1.06	3.55
OCDF	M+2/M+4	0.91	0.76-1.02	1.56	1.48	5.15

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

VER Data Filename: U227768 Analysis Date: 5-JAN-12 Time: 09:48:15

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	0.90	0.88	1.47
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	0.87	0.80	9.14
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.95	0.96	-1.00
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	0.84	0.94	-10.52
13C-OCDD	M+2/M+4	0.91	0.76-1.02	0.56	0.77	-26.62
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.29	1.15	12.13
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	1.33	1.23	8.36
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	1.27	1.26	0.52
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	1.12	1.20	-7.32
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				1.03	0.98	5.14

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

RW/ HRCC3 Daily Calibration QC Checklist

Calibration File Name: U227775-U227788

Circle one: Beginning / Ending

Date: 5-6 Jan 12

Method: 8290 / Tetra / TCDD Only / TCDF Conf

Retention Window/Column Performance Check:	**Analyst**	**Second Check**
Windows labeled for first and last eluting compounds	—	✓
Column performance shows less than or equal to 25% valley between column specific 2378 isomer and the closest eluters	—	✓
No QC ion deflections affect column specific 2378 isomer or the closest eluters	✓	✓

HRCC3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	use Avg	use Avg
All relative abundance ratios meet method criteria	—	✓
No QC ion deflections greater than 20%	—	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	—	✓
Signal-to-noise of all target analytes and associated labeled standards at least 10:1	—	✓
Ending Calibration injected prior to end of 12 hour clock	—	✓

Analyst: [signature]

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services, Houston Contract:

Lab Code: CAS Episode No.: SDG No.:

GC Column: db5 ID: 0.25 (mInstrument ID: E-HRMS-02

Init. Calib. Date: 04/21/11

Init. Calib.Times: 10:01

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		U227776	5-JAN-12	17:23:56
CCAL HRCC3		U227775	5-JAN-12	16:09:15
METHOD BLANK	EQ1100606-01	U227777	5-JAN-12	18:09:55
BOILER ASH-DRY	E1101261-002	U227778	5-JAN-12	18:57:44
PRIMARY SLUDGE-DRY	E1101261-003	U227779	5-JAN-12	19:45:35
GREEN LIQUOR DREGGS	E1101261-004	U227780	5-JAN-12	20:33:24
1122081-1	E1101253-001	U227781	5-JAN-12	21:21:14
1112262-001A	E1101268-001	U227782	5-JAN-12	22:09:06
001	E1101267-001	U227784	5-JAN-12	23:44:50
LCS	EQ1100606-02	U227786	6-JAN-12	01:20:30
DLCS	EQ1100606-03	U227787	6-JAN-12	02:08:22

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: E-HRMS-02

Init. Calib. Date: 04/21/11

Init. Calib.Times: 10:01

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		U227776	5-JAN-12	17:23:56
CCAL HRCC3	CCAL HRCC3	U227775	5-JAN-12	16:09:15
CCAL HRCC3	CCAL HRCC3	U227788	6-JAN-12	02:56:14

E1101252

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U2120105B.SPL
Last Modified: Thursday, January 05, 2012 17:23:31 Central Standard Time
Printed: Friday, January 06, 2012 04:17:26 Central Standard Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

C:U227775 CAL/RES

17:23

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	01/05/12	16:09	U227775	CCAL HRCC3-B	D11-99-3	KL	HRMS CHECK 17:08	8290cas	8290CAS
2		16:58	U227776	WINDOW DEFINE	D12-56-2			8290cas	8290CAS
3		18:09	U227777	EQ1100606-01	MB			8290cas	8290CAS
4		18:57	U227778	E1101261-002	Boiler Ash-Dry			8290cas	8290CAS
5		19:45	U227779	E1101261-003	Primary Sludge-Dry			8290cas	8290CAS
6		20:33	U227780	E1101261-004	Green Liquor Dreggs-Dry			8290cas	8290CAS
7		21:21	U227781	E1101253-001	1122081-1		NEEDS RE-INJECTION	8290cas	8290CAS
8		22:09	U227782	E1101268-001DL	1112262-001A		1:10	8290cas	8290CAS
9		00:56	U227783	TEST	TEST			8290cas	8290CAS
10		22:44	U227784	E1101267-001DL	001		1:200	8290cas	8290CAS
11	01/06/12	00:32	U227785	TEST	TEST			8290cas	8290CAS
12		01:20	U227786	EQ1100606-02	LCS ✓			8290cas	8290CAS
13		02:08	U227787	EQ1100606-03	DLCS ✓			8290cas	8290CAS
14		02:56	U227788	CCAL HRCC3-A	D11-99-3		HRMS CHECK 04:13 USE AVG.	8290cas	8290CAS
15			---	---	---			8290cas	8290CAS
16			---	---	---			8290cas	8290CAS
17			---	---	---			8290cas	8290CAS
18			---	---	---			8290cas	8290CAS
19			---	---	---			---	---
20			---	---	---			---	---
21			---	---	---			8290cas	8290CAS
22	---	---	---	---	---	---	---	8290cas	8280_CAS
23	---	---	---	---	---	---	---	8290cas	8290CAS
24	---	---	---	---	---	---	---	1668EPA	1668EPA
25	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	1668EPA	1668EPA
28	---	---	---	---	---	---	---	1668EPA	1668EPA
29	---	---	---	---	---	---	---	8290cas	---
30	---	---	---	---	---	---	---	8290cas	8290CAS
31	---	---	---	---	---	---	---	8290cas	8290CAS
32	---	---	---	---	---	---	Reviewed By: CLL	8290cas	8290CAS

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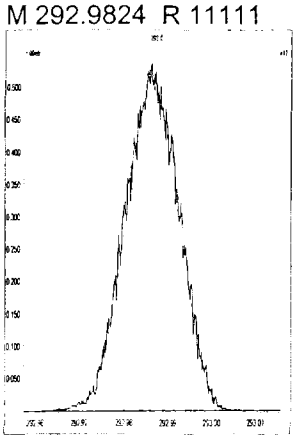
052

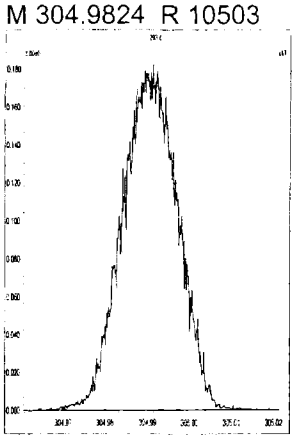
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:08:08 Central Standard Time

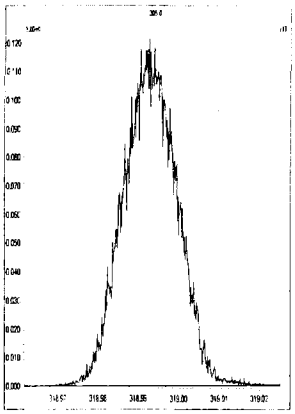
M 292.9824 R 11111



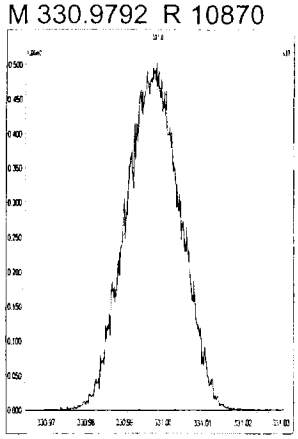
M 304.9824 R 10503



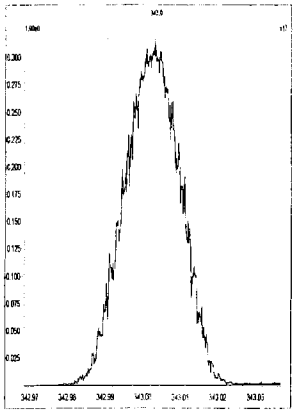
M 318.9792 R 10967



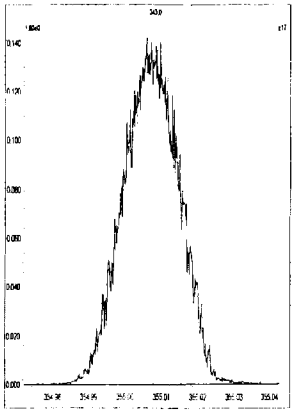
M 330.9792 R 10870



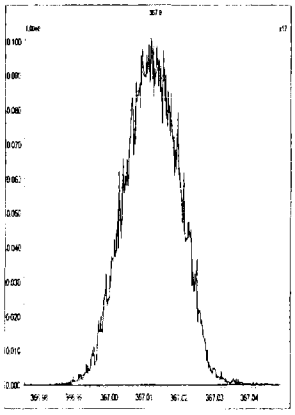
M 342.9792 R 10822



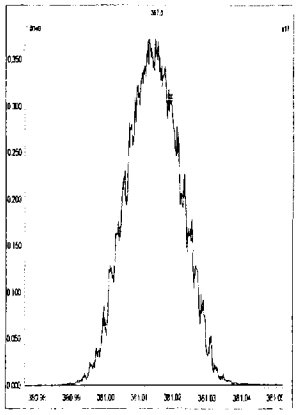
M 354.9792 R 10595



M 366.9792 R 10730



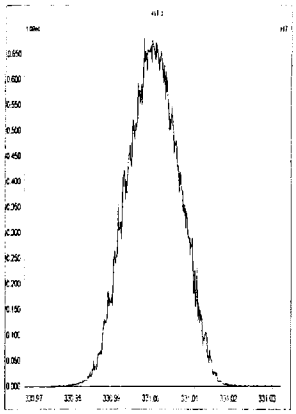
M 380.9760 R 10416



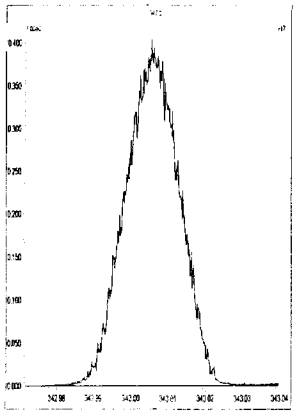
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:12:25 Central Standard Time

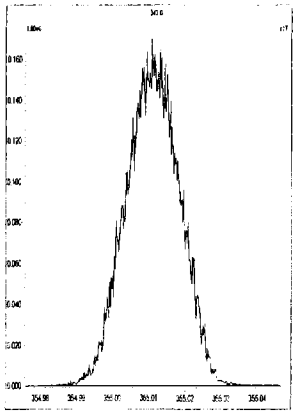
M 330.9792 R 11161



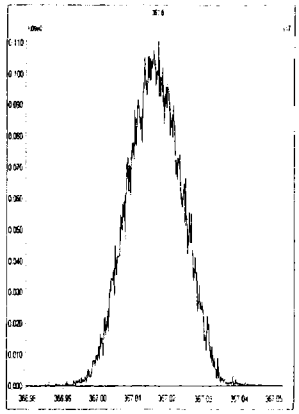
M 342.9792 R 11260



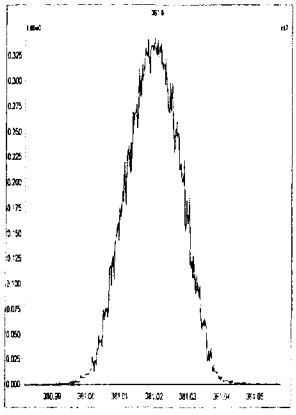
M 354.9792 R 11011



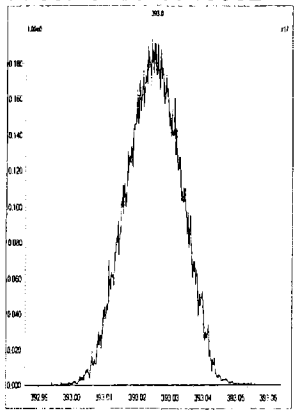
M 366.9792 R 10413



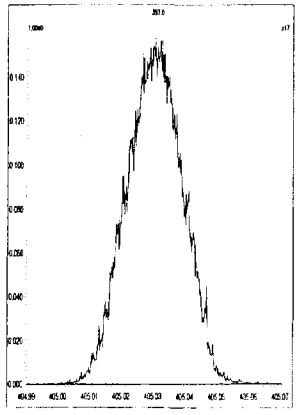
M 380.9760 R 10965



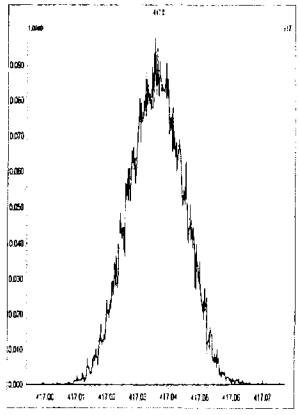
M 392.9760 R 10682



M 404.9760 R 10457



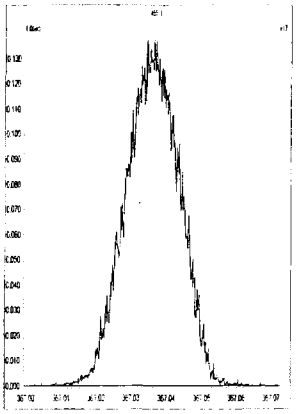
M 416.9760 R 10162



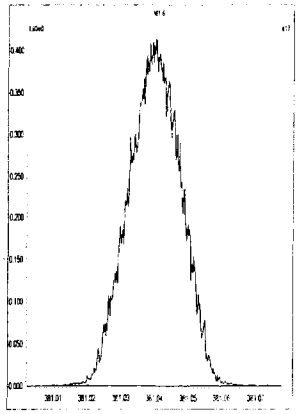
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:13:28 Central Standard Time

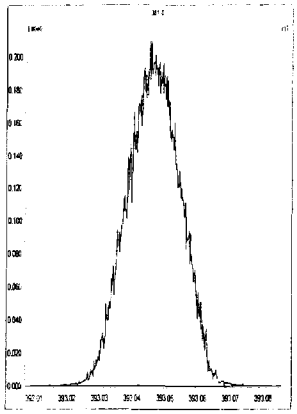
M 366.9792 R 11212



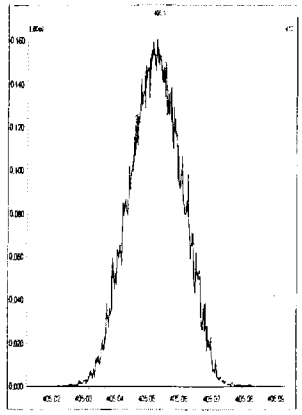
M 380.9760 R 11111



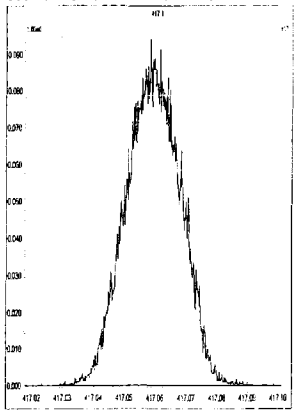
M 392.9760 R 11363



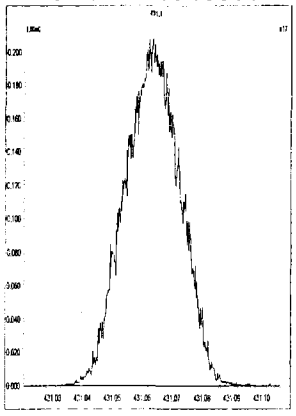
M 404.9760 R 10967



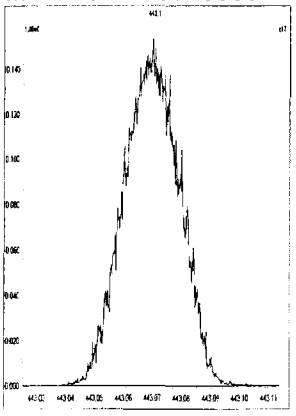
M 416.9760 R 10776



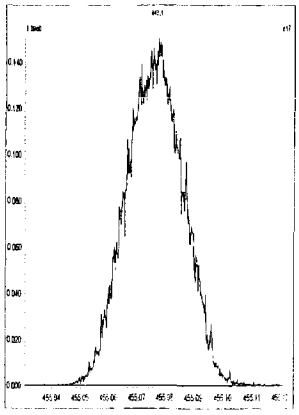
M 430.9728 R 10869



M 442.9728 R 10595



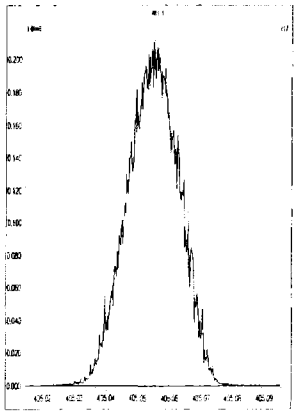
M 454.9728 R 10247



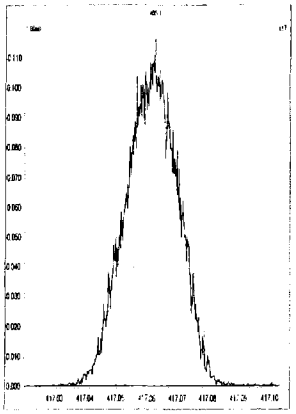
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:14:19 Central Standard Time

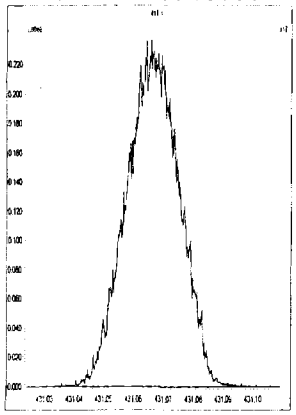
M 404.9760 R 10963



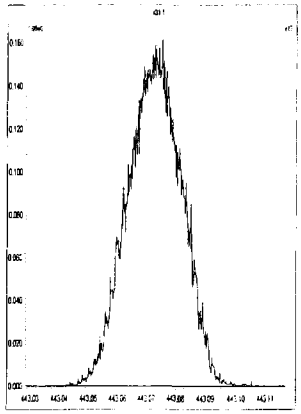
M 416.9760 R 11313



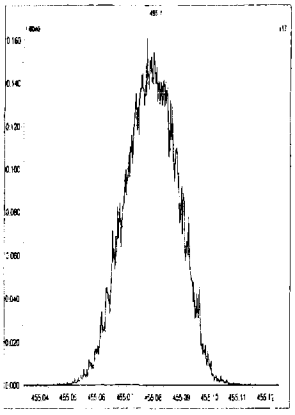
M 430.9728 R 10965



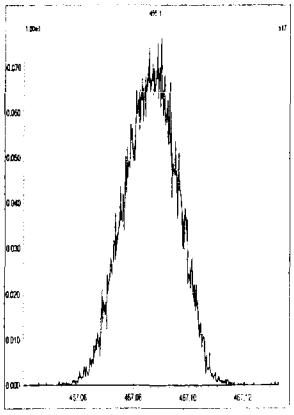
M 442.9728 R 11012



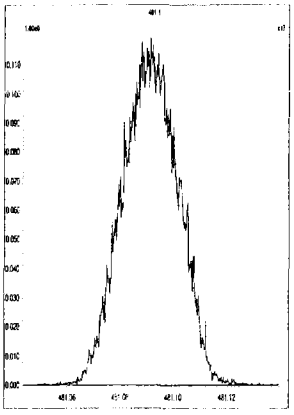
M 454.9728 R 10458



M 466.9728 R 11009



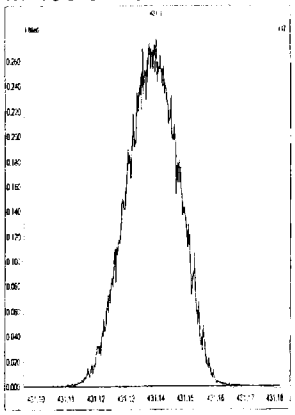
M 480.9696 R 10459



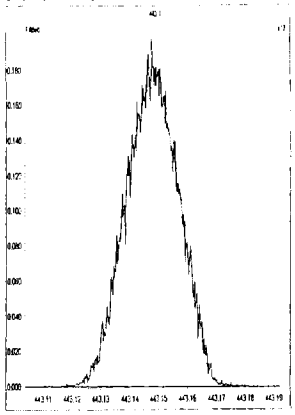
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 05, 2012 17:15:18 Central Standard Time

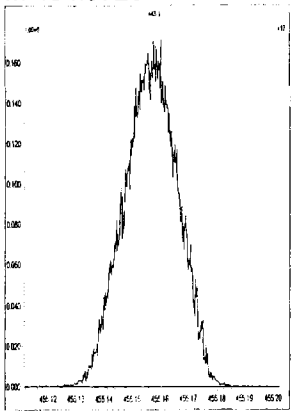
M 430.9728 R 11060



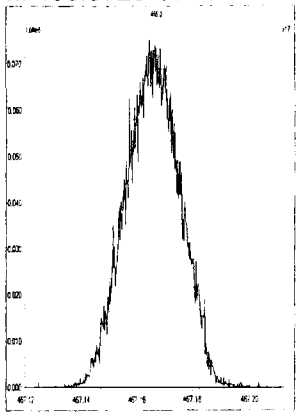
M 442.9728 R 10917



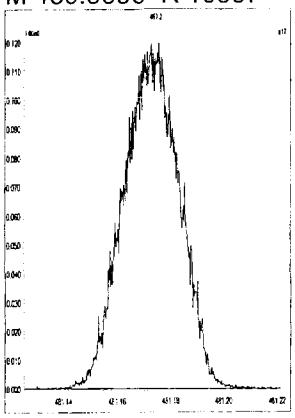
M 454.9728 R 10641



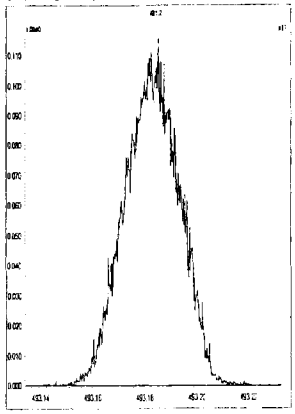
M 466.9728 R 10778



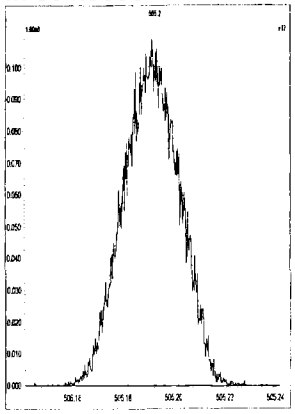
M 480.9696 R 10867



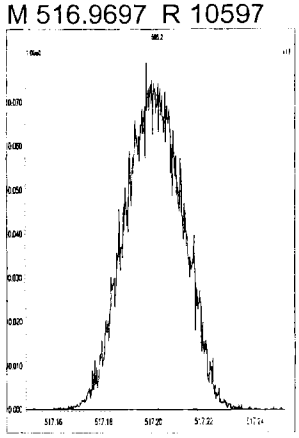
M 492.9696 R 10684



M 504.9696 R 10868



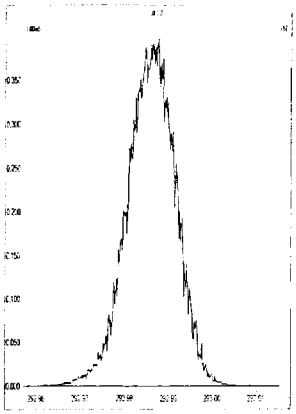
M 516.9697 R 10597



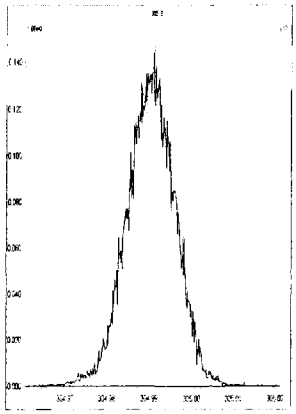
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, January 06, 2012 04:13:57 Central Standard Time

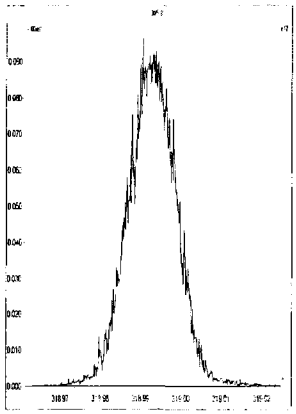
M 292.9824 R 11628



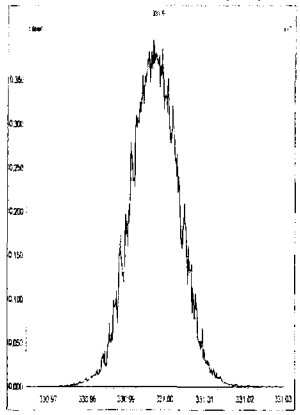
M 304.9824 R 11791



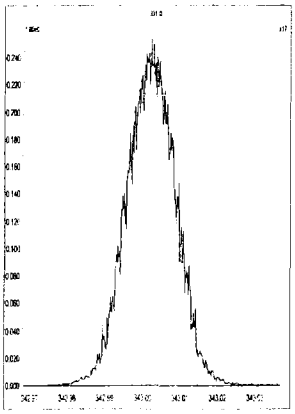
M 318.9792 R 12016



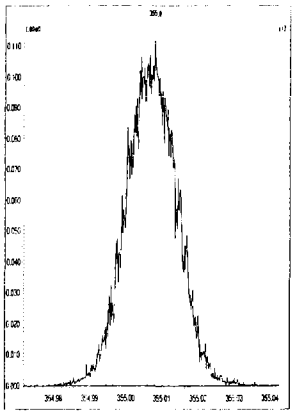
M 330.9792 R 11905



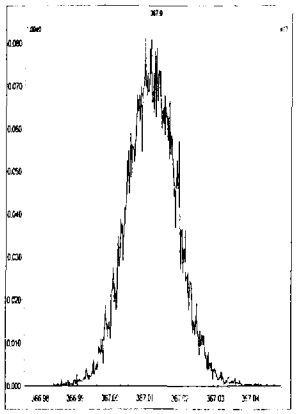
M 342.9792 R 11520



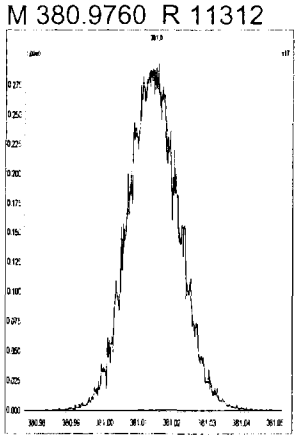
M 354.9792 R 11158



M 366.9792 R 10966



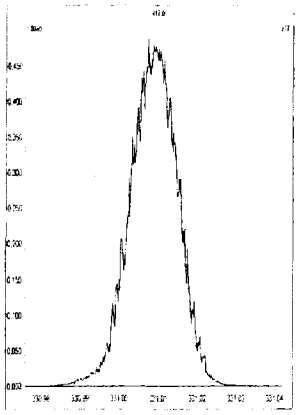
M 380.9760 R 11312



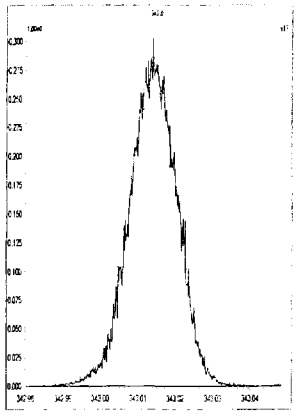
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, January 06, 2012 04:14:39 Central Standard Time

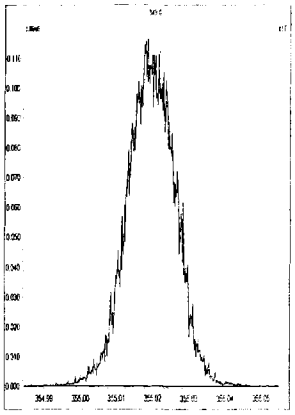
M 330.9792 R 12196



M 342.9792 R 11848



M 354.9792 R 11902



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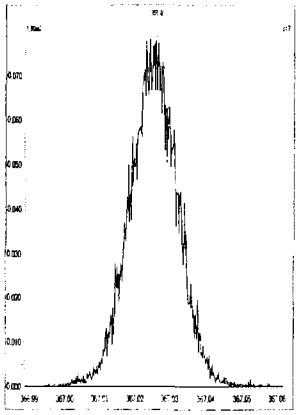
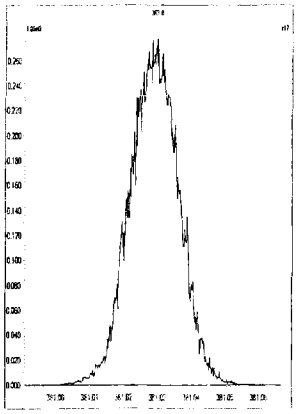


M 380.9760 R 11416



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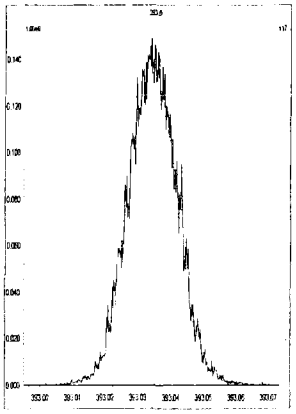
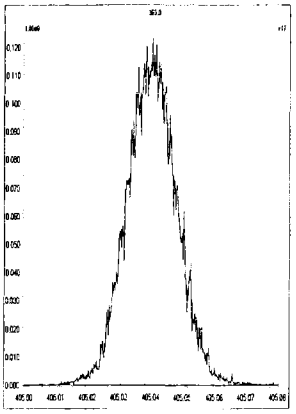
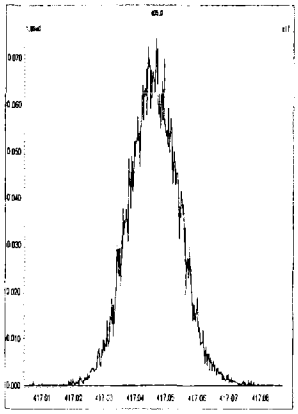


M 404.9760 R 11465



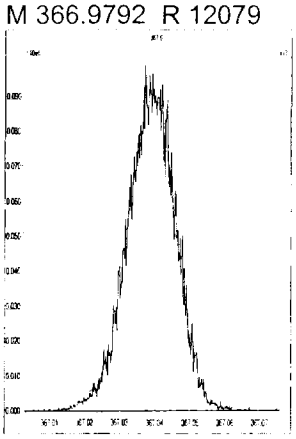
M 416.9760 R 10870



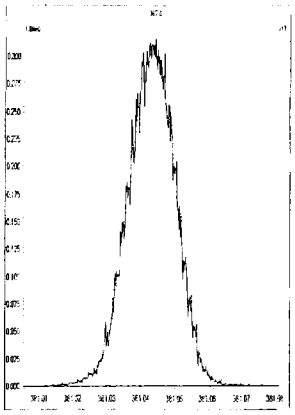
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, January 06, 2012 04:15:17 Central Standard Time

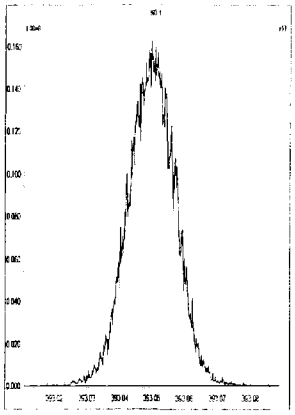
M 366.9792 R 12079



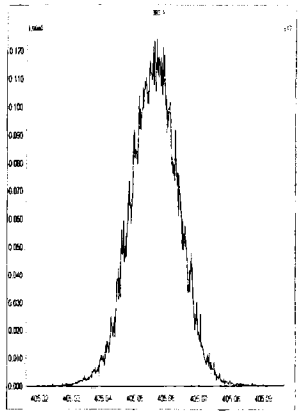
M 380.9760 R 12136



M 392.9760 R 12023



M 404.9760 R 11518



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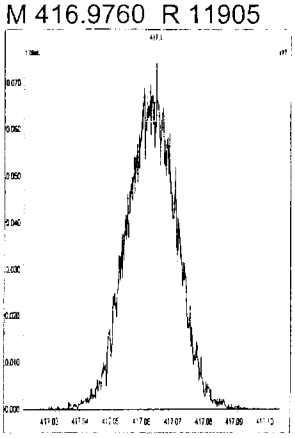
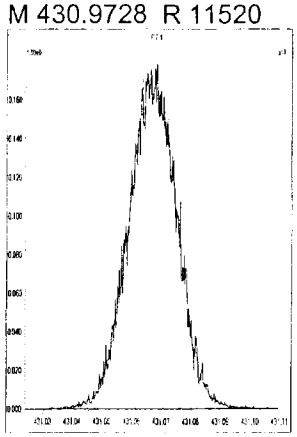
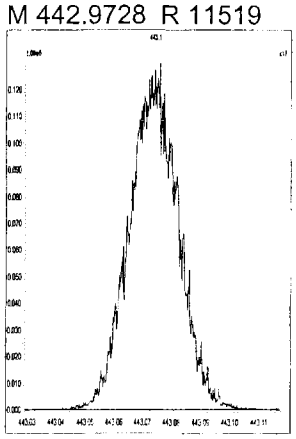


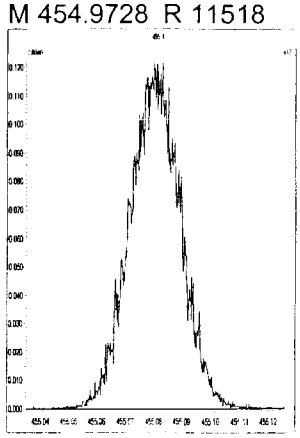
M 430.9728 R 11520



M 442.9728 R 11519



M 454.9728 R 11518



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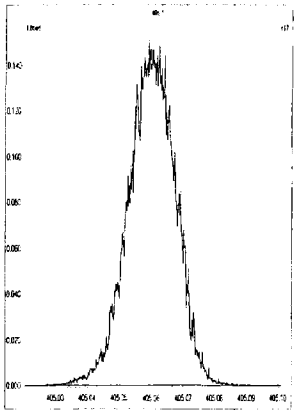
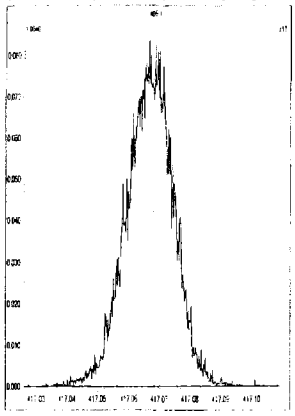
Printed: Friday, January 06, 2012 04:15:40 Central Standard Time

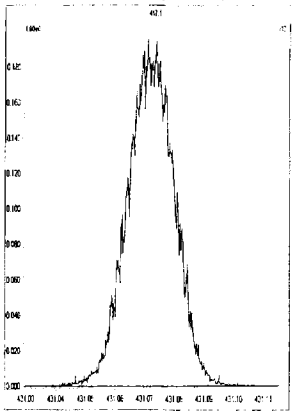
M 404.9760 R 12435



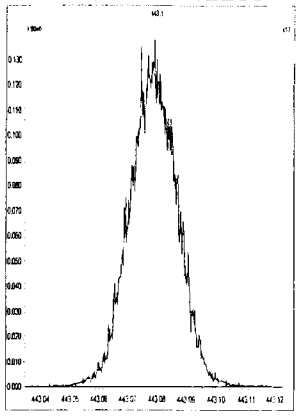
M 416.9760 R 12078



M 430.9728 R 12077



M 442.9728 R 12253



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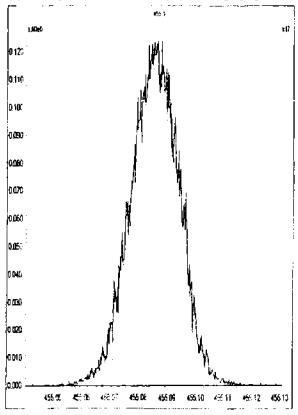

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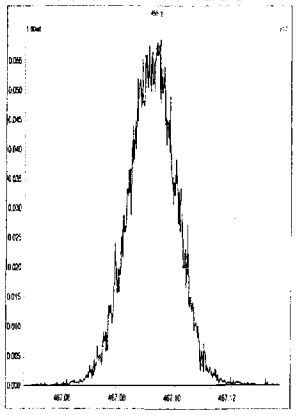
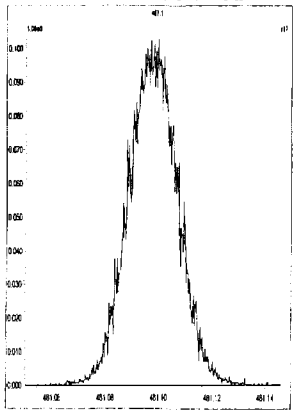


M 480.9696 R 11627



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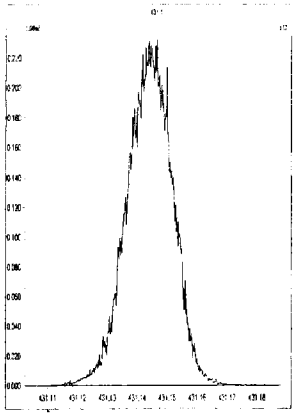
Printed: Friday, January 06, 2012 04:16:08 Central Standard Time

M 430.9728 R 12560



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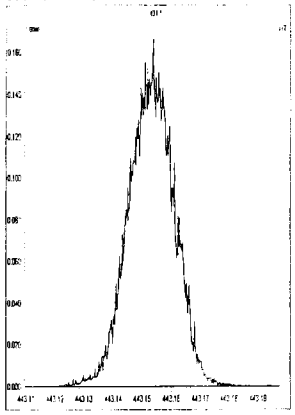
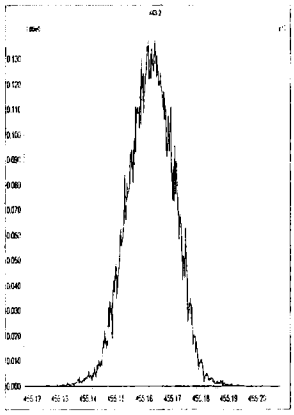
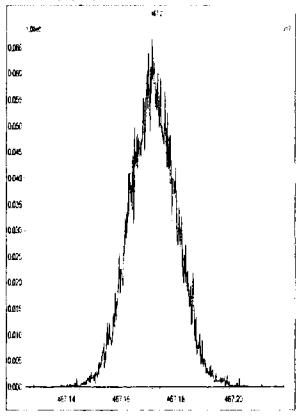


M 454.9728 R 11961



M 466.9728 R 12313



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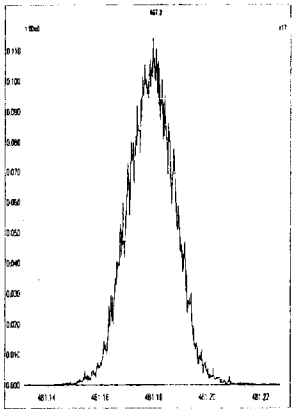

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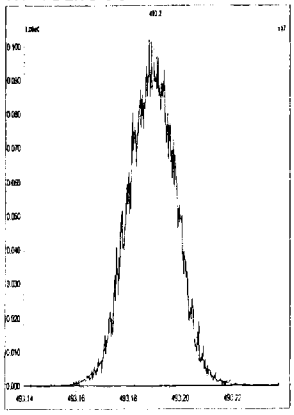
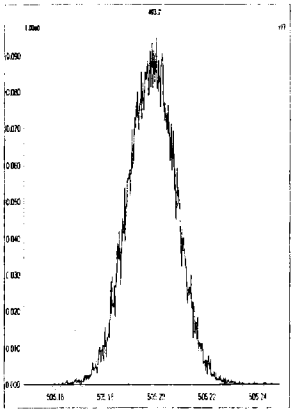
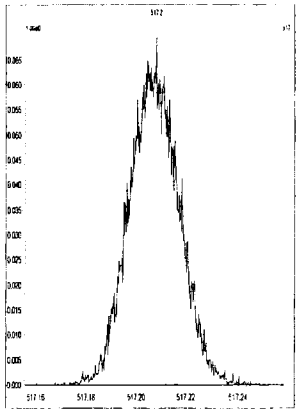


M 504.9696 R 11961



M 516.9697 R 11910



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: U227776
Date Analyzed: 5-JAN-2012
Time Analyzed: 17:23:56

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:21	30:51
TCDD	26:59	30:49
PeCDF	31:08	34:50
PeCDD	32:26	34:41
HxCDF	35:42	37:58
HxCDD	36:11	37:38
HpCDF	39:23	40:46
HpCDD	39:39	40:19

% Valley 2378-TCDD: 13 %

FORM 6A
PCDD/PCDF DAILY CALIBRATION RELATIVE RESPONSES

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

Begin CCAL Filename: U227775

End CCAL Filename: U227788

	RELATIVE RESPONSE (RR)		MEAN RR(1)	Cv (RSD)
	Begin CCAL	End CCAL		
NATIVE ANALYTES				
2,3,7,8-TCDD	0.99	1.00	1.00	0.22
1,2,3,7,8-PeCDD	0.94	0.96	0.95	1.30
1,2,3,4,7,8-HxCDD	0.96	0.95	0.95	1.10
1,2,3,6,7,8-HxCDD	1.09	1.09	1.09	0.28
1,2,3,7,8,9-HxCDD	1.10	1.07	1.08	1.89
1,2,3,4,6,7,8-HpCDD	1.12	1.10	1.11	1.11
OCDD	1.20	1.16	1.18	2.01
2,3,7,8-TCDF	1.05	1.08	1.06	1.53
1,2,3,7,8-PeCDF	1.09	1.04	1.07	3.31
2,3,4,7,8-PeCDF	1.04	1.12	1.08	5.07
1,2,3,4,7,8-HxCDF	1.19	1.26	1.23	3.95
1,2,3,6,7,8-HxCDF	1.44	1.42	1.43	1.06
1,2,3,7,8,9-HxCDF	1.09	1.08	1.09	0.67
2,3,4,6,7,8-HxCDF	1.22	1.25	1.24	1.61
1,2,3,4,6,7,8-HpCDF	1.44	1.44	1.44	0.21
1,2,3,4,7,8,9-HpCDF	1.16	1.16	1.16	0.02
OCDF	1.54	1.54	1.54	0.08

(1) Two daily mean RF values are used to compute the analyte and and labeled compouds, see Section 8.3.2.4, Method 8290.

8290F6A

FORM 6B
PCDD/PCDF DAILY CALIBRATION RELATIVE RESPONSES

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

Begin CCAL Filename: U227775

End CCAL Filename: U227788

	RELATIVE RESPONSE (RR)		MEAN RR(1)	Cv (RSD)
	Begin CCAL	End CCAL		
LABELED COMPOUNDS				
13C-2,3,7,8-TCDD	0.91	0.91	0.91	0.38
13C-1,2,3,7,8-PeCDD	0.84	0.79	0.82	3.76
13C-1,2,3,6,7,8-HxCDD	0.93	0.96	0.94	2.26
13C-1,2,3,4,6,7,8-HpCDD	0.87	0.78	0.83	7.93
13C-OCDD	0.59	0.52	0.55	9.62
13C-2,3,7,8-TCDF	1.31	1.31	1.31	0.21
13C-1,2,3,7,8-PeCDF	1.30	1.17	1.24	7.33
13C-1,2,3,4,7,8-HxCDF	1.29	1.28	1.28	0.36
13C-1,2,3,4,6,7,8-HpCDF	1.09	0.97	1.03	8.62
CLEANUP STANDARD				
37Cl-2,3,7,8-TCDD	1.05	1.04	1.04	0.76

(1) Two daily mean RF values are used to compute the analyte and labeled compounds, see Section 8.3.2.4, Method 8290.

8290F6B

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

VER Data Filename: U227775 Analysis Date: 5-JAN-12 Time: 16:09:15

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.99	0.95	5.09
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	0.94	0.94	0.32
1,2,3,4,7,8-HxCDD	M+2/M+4	1.40	1.05-1.43	0.96	0.94	1.89
1,2,3,6,7,8-HxCDD	M+2/M+4	1.14	1.05-1.43	1.09	1.07	1.13
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	1.10	1.06	3.88
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	1.12	1.07	4.65
OCDD	M+2/M+4	0.88	0.76-1.02	1.20	1.21	-1.43
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.05	1.03	1.77
1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.09	1.07	1.91
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	1.04	1.01	3.27
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	1.19	1.23	-3.12
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.44	1.38	4.06
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	1.09	1.02	7.23
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	1.22	1.21	1.42
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	1.44	1.43	0.57
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	1.16	1.06	9.30
OCDF	M+2/M+4	0.89	0.76-1.02	1.54	1.48	3.75

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%. Section 8.3.2.4.

8290F4A

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 04/21/11

Instrument ID: E-HRMS-02 GC Column ID: DB-5

VER Data Filename: U227775 Analysis Date: 5-JAN-12 Time: 16:09:15

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	0.91	0.88	2.79
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	0.84	0.80	4.74
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	0.93	0.96	-3.71
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.87	0.94	-7.32
13C-OCDD	M+2/M+4	0.91	0.76-1.02	0.59	0.77	-22.99
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.31	1.15	13.69
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	1.30	1.23	5.56
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.29	1.26	1.63
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	1.09	1.20	-9.48
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				1.05	0.98	6.46

(1) See Table 6, Method 8290, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 8, Method 8290.

(3) The beginning CCAL %RSD for the labeled standard must not exceed +/- 30%, Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Section 8.3.2.4.

8290F4B

Initial Calibration QC Checklist

ICAL Name: P110909 TCDFI

Date: 9 Sep 11

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

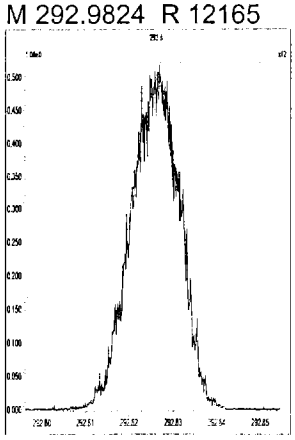
Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	NA	N/A
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	NA	N/A
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

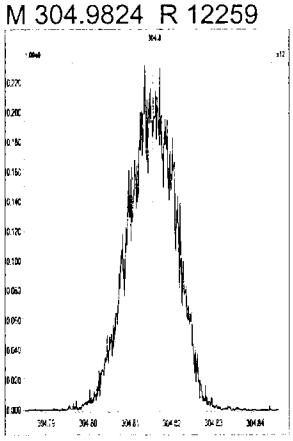
Analyst: CEE Second QC: MC

Printed: Friday, September 09, 2011 19:47:56 Central Daylight Time

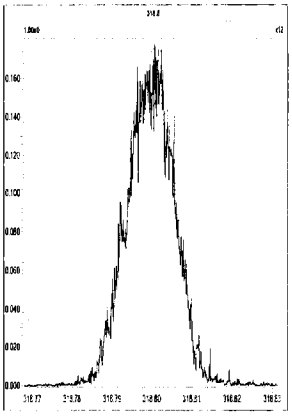
M 292.9824 R 12165



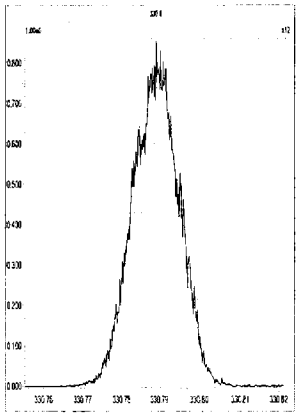
M 304.9824 R 12259



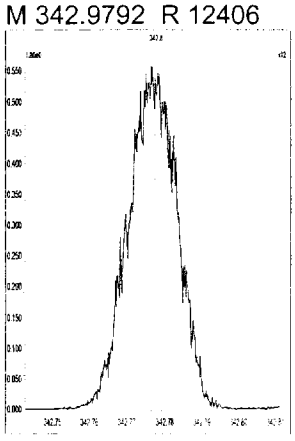
M 318.9792 R 12077



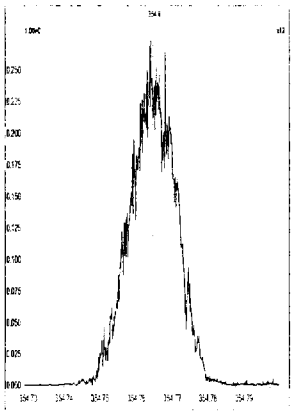
M 330.9792 R 11961



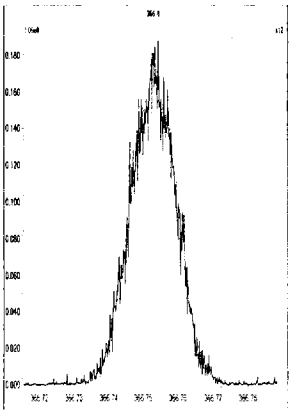
M 342.9792 R 12406



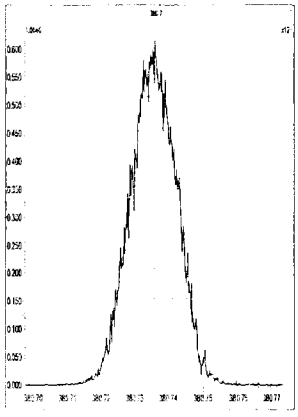
M 354.9792 R 12078



M 366.9792 R 12565



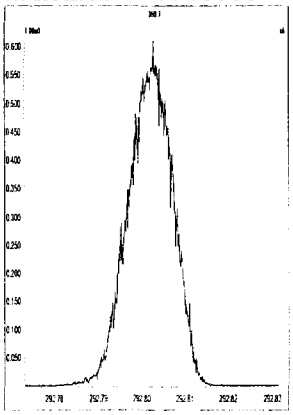
M 380.9760 R 12507



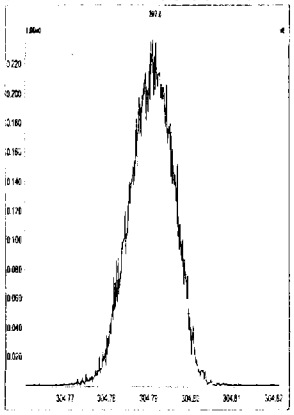
File: Experiment: tcdfcas.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, September 09, 2011 10:50:33 Central Daylight Time

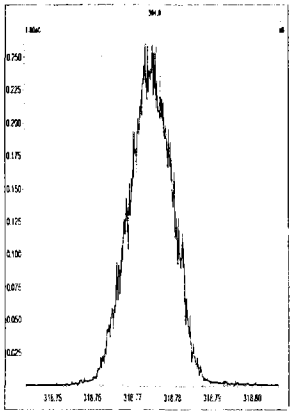
M 292.9824 R 13088



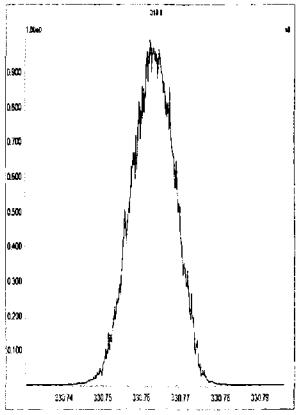
M 304.9824 R 13017



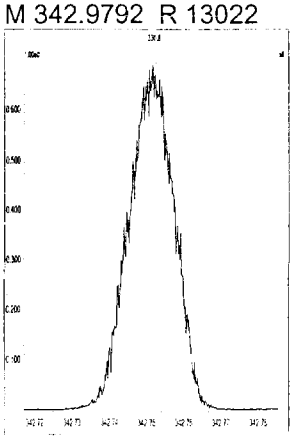
M 318.9792 R 12821



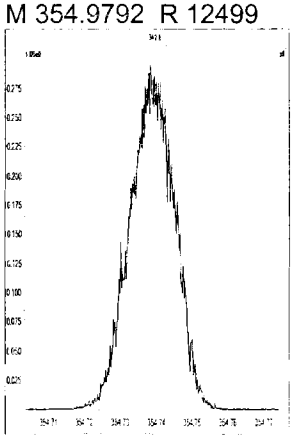
M 330.9792 R 13162



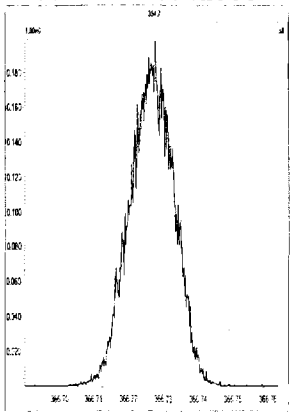
M 342.9792 R 13022



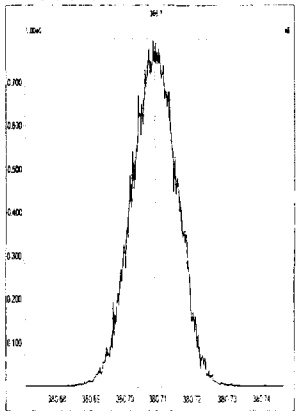
M 354.9792 R 12499



M 366.9792 R 12955



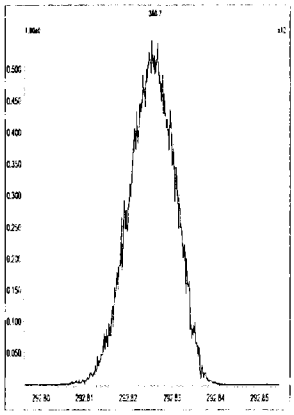
M 380.9760 R 12376



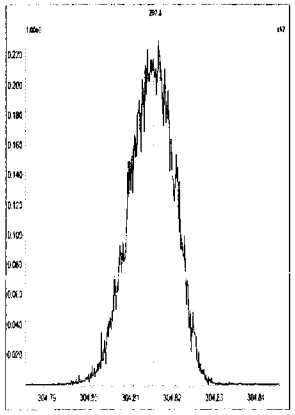
File: Experiment: tcdfcas.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, September 09, 2011 18:06:01 Central Daylight Time

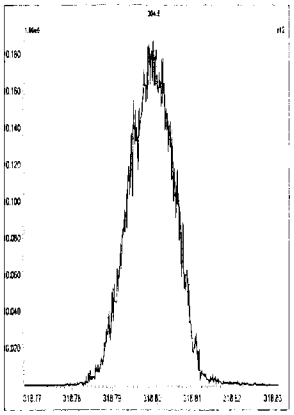
M 292.9824 R 12376



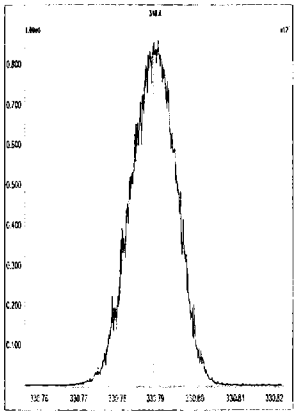
M 304.9824 R 12688



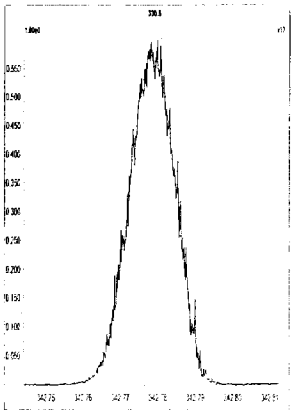
M 318.9792 R 12948



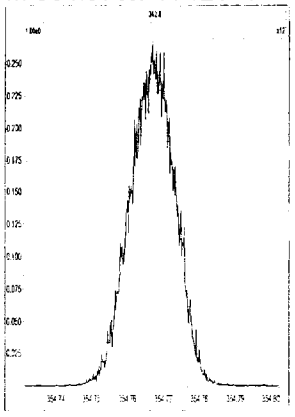
M 330.9792 R 12437



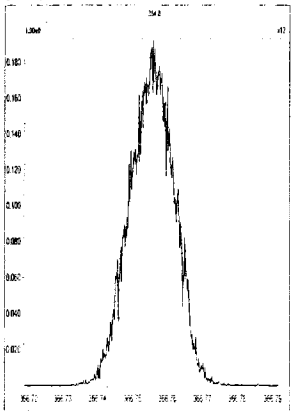
M 342.9792 R 12378



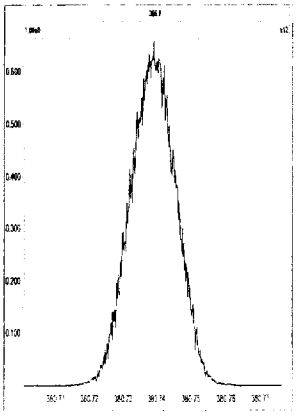
M 354.9792 R 12820



M 366.9792 R 12889



M 380.9760 R 12316



5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-225 ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 09/09/11

Init. Calib.Times: 10:55:41

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
COLUMN PERFORMANCE		P214393	9-SEP-11	10:55:41
D12-2-1BA	ICAL CS1	P214395	9-SEP-11	12:19:16
D12-2-1BB	ICAL CS2	P214396	9-SEP-11	13:39:43
D12-2-1BC	ICAL CS3	P214397	9-SEP-11	14:16:37
D12-2-1BD	ICAL CS4	P214398	9-SEP-11	14:52:45
D12-2-1BE	ICAL CS5	P214399	9-SEP-11	15:30:10
D10-83-1B	ICAL CS6	P214402	9-SEP-11	18:07:26

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2110909.SPL
Last Modified: Monday, September 12, 2011 07:34:42 Central Daylight Time
Printed: Monday, September 12, 2011 07:36:27 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

C:P110909TCDFI

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	09/09/11	10:55	P214393	COLUMN PERFORMANCE	D4-51-9	ZZ	HRMS Check 10:50	TCDFCAS	tcdfcas
2		11:46	P214394	CCAL CS3	D12-21-1B			TCDFCAS	tcdfcas
3		12:19	P214395	ICAL CS1	---			TCDFCAS	tcdfcas
4		13:39	P214396	ICAL CS2	---			TCDFCAS	tcdfcas
5		14:16	P214397	ICAL CS3	---			TCDFCAS	tcdfcas
6		14:52	P214398	ICAL CS4	---			TCDFCAS	tcdfcas
7		15:30	P214399	ICAL CS5	---			TCDFCAS	tcdfcas
8		16:06	P214400	ICAL CS6	---			TCDFCAS	tcdfcas
9		16:45	P214401	CCAL CS3 (2ND REF)	---			TCDFCAS	tcdfcas
10		18:07	P214402	ICAL CS6	---		HRMS Check 19:47	TCDFCAS	tcdfcas
11			---	---	---			TCDFCAS	tcdfcas
12			---	---	---			TCDFCAS	tcdfcas
13			---	---	---			TCDFCAS	tcdfcas
14			---	---	---			TCDFCAS	tcdfcas
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25	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	8290CAS	8290CAS
28	---	---	---	---	---	---	---	8290CAS	8290CAS
29	---	---	---	---	---	---	---	8290CAS	8290CAS
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33	---	---	---	---	---	---	---	TCDFCAS	tcdfcas
34	---	---	---	---	---	---	---	---	---
35	---	---	---	---	---	---	---	8290CAS	8290CAS
36	---	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	Reviewed by: MC	---	---

USEPA - CLP
5DFB

EPA SAMPLE NO.

PCDD/PCDF WINDOW DEFINING MIX SUMMARY

Column Perform

Lab Name: Columbia Analytical Services Contract: _____

Lab Code: TX01411 Case No.: _____ Client No.: _____ SDG No.: _____

GC Column: 30m DB-225 ID: 0.25 (mm) Lab File ID: P214393

Instrument ID: E-HRMS-04 Date Analyzed: 9 Sep 11

Time Analyzed: 10:55;41

Percent Valley deterimation for DB-5 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

1478-TCDD/2378-TCDD: _____

QUALITY COTROL (QC) LIMITS: _____

Percent Valley between the TCDD isomers must be less than or equal to 25%.

Percent Valley deterimation for DB-225 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

2347-TCDF/2378-TCDF: 16 %

QUALITY COTROL (QC) LIMITS:

Percent Valley between the TCDF/TCDF isomers must be less than or equal to 25%.

Analyst Init: MC FORM V-HR CDD-2 DLM02.0

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

E11012S2

Lab Name: Columbia Analytical Services Contract No.:
Lab Code: TX01411 Case No.: TO No.: SDG No.:
GC Column: db5 ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 09/09/11
Init. Calib. Time.: 10:55

	RR/RRF						MEAN		QC
Target Analytes	CS1	CS2	CS3	CS4	CS5	CS6	RR/RRF	%RSD	LIMITS
2,3,7,8-TCDF	0.99	0.88	0.81	0.79	0.76	1.05	0.88	13.34	+/-20%
13C-2,3,7,8-TCDF	1.29	1.31	1.29	1.31	1.26	1.30	1.29	1.41	+/-35%
37Cl-2,3,7,8-TCDD	1.04	1.01	0.87	0.91	0.86	1.13	0.97	11.15	+/-35%

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

E110125Z

Lab Name: Columbia Analytical Services Contract No.:
Lab Code: TX01411 Case No.: TO No.: SDG No.:
GC Column: db5 ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 09/09/11
Init. Calib. Time.: 10:55

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS1	CS2	CS3	CS4	CS5	CS6	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.82	0.73	0.76	0.77	0.78	0.78		0.65-0.89
13C-2,3,7,8-TCDF	316/318	0.77	0.78	0.77	0.78	0.77	0.77		0.65-0.89
37Cl-2,3,7,8-TCDD									

RW/CS3 Daily Calibration QC Checklist

Calibration File Name: P216269 - P216282

Circle one: Beginning / Ending

Date: 01/10/12

Method: 1613 / 1613E / VCP / Tetra / TCDD Only / (TCDF Conf) / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	N/A	N/A
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	N/A	N/A
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: Client No.: SDG No.:

GC Column: DB-225 ID: 0.25 (mm) Instrument ID: AutoSpec-Premier

Init. Calib. Date: 09/09/11

Init. Calib.Times: 10:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
COLUMN PERFORM	COLUMN PERFORM	P216268	10-JAN-12	06:10:47
CCAL CS3	CCAL CS3	P216269	10-JAN-12	06:43:46
INST BLANK	INST BLANK	P216270	10-JAN-12	07:46:26
SPIKED TRAP WITH X_7	DO NOT USE	P216271	10-JAN-12	08:17:08
AFC006778	E1101246-001	P216272	10-JAN-12	09:21:14
AFC006706	E1101250-001	P216273	10-JAN-12	09:58:01
SS #1	E1101258-001	P216274	10-JAN-12	10:34:42
SS #2	E1101258-002	P216275	10-JAN-12	11:11:29
SS #3	DO NOT USE	P216276	10-JAN-12	11:48:16
68SS02-1-1211	E1101259-001	P216277	10-JAN-12	12:25:03
68SS07-1-1211	E1101259-002	P216278	10-JAN-12	13:01:50
AN07416	DO NOT USE	P216279	10-JAN-12	13:38:37
12TP16-0608-03	E1101252-001	P216280	10-JAN-12	14:15:24
SLACKER GRIT-DRY	E1101261-001	P216281	10-JAN-12	14:52:10
CCAL CS3	CCAL CS3	P216282	10-JAN-12	15:56:43

E1101252

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Sample List Report | MassLynx 4.1

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2120110.SPL
Last Modified: Tuesday, January 10, 2012 15:54:46 Central Standard Time
Printed: Tuesday, January 10, 2012 16:37:22 Central Standard Time

Page Position (1, 1)

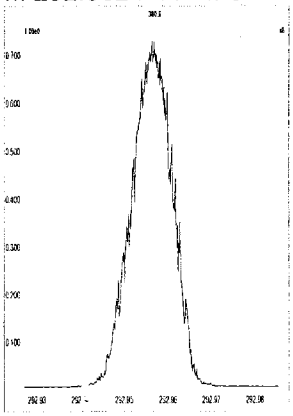
G:\P216269.RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	01/10/12	04:40	P216267	COLUMN PERFORMANCE	D4-59-2		DO NOT USE	TCDFCAS
2		06:10	P216268	COLUMN PERFORMANCE	D4-59-2		HRMS Check 06:10	TCDFCAS
3		06:43	P216269	CCAL CS3	D12-72-2			TCDFCAS
4		07:46	P216270	INST. BLANK	1613MB			TCDFCAS
5		08:17	P216271	E1101264-001	Spiked trap with XAD resin		Needs reinj.	TCDFCAS
6		09:21	P216272	E1101246-001	AFC006778			TCDFCAS
7		09:58	P216273	E1101250-001	AFC006706			TCDFCAS
8		10:34	P216274	E1101258-001	SS #1			TCDFCAS
9		11:11	P216275	E1101258-002	SS #2			TCDFCAS
10		11:48	P216276	E1101258-003	SS#3		Needs reinj.	TCDFCAS
11		12:25	P216277	E1101259-001	68SS02-1-1211			TCDFCAS
12		13:01	P216278	E1101259-002	68SS07-1-1211			TCDFCAS
13		13:38	P216279	E1101260-001	AN07416		Needs reinj.	TCDFCAS
14		14:15	P216280	E1101252-001	12TP16-0608-03			TCDFCAS
15		14:53	P216281	E1101261-001	Slacker Grit-Dry			TCDFCAS
16		15:56	P216282	CCAL CS3	D12-72-2		HRMS Check 17:09	TCDFCAS
17			---	---	---			TCDFCAS
18			---	---	---			TCDFCAS
19			---	---	---			TCDFCAS
20			---	---	---			TCDFCAS
21			---	---	---			TCDFCAS
22	---	---	---	---	---	---	---	TCDFCAS
23	---	---	---	---	---	---	---	TCDFCAS
24	---	---	---	---	---	---	---	TCDFCAS
25	---	---	---	---	---	---	---	8290CAS
26	---	---	---	---	---	---	---	TCDFCAS
27	---	---	---	---	---	---	---	TCDFCAS
28	---	---	---	---	---	---	---	TCDFCAS
29	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	8290CAS
31	---	---	---	---	---	---	---	8290CAS
32	---	---	---	---	---	---	Reviewed by: JC 01/10/12	---

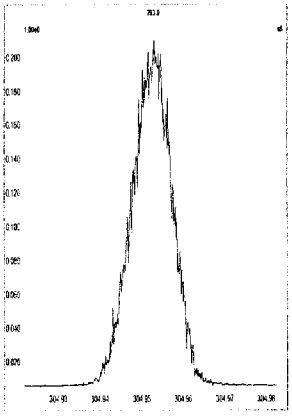
File: Experiment: tcdf.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, January 10, 2012 06:10:03 Central Standard Time

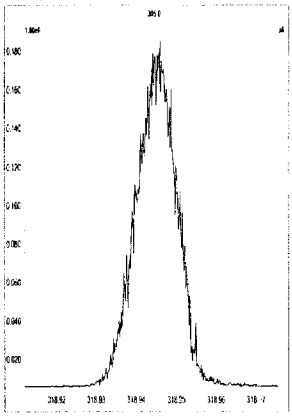
M 292.9824 R 14292



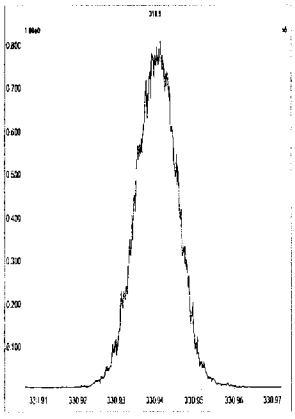
M 304.9824 R 12623



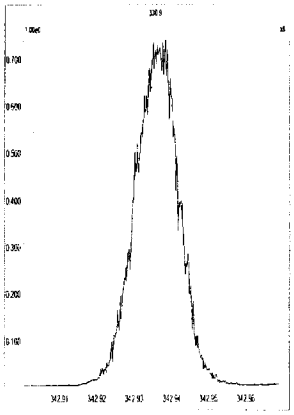
M 318.9792 R 12377



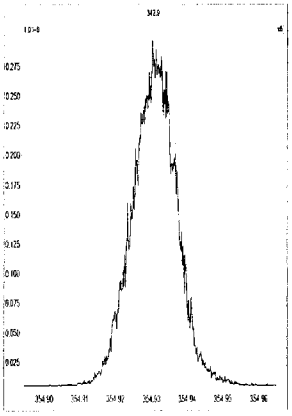
M 330.9792 R 12625



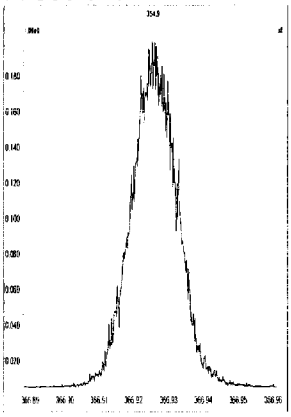
M 342.9792 R 12312



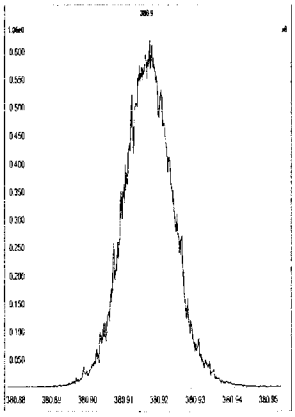
M 354.9792 R 11062



M 366.9792 R 10329



M 380.9760 R 11258



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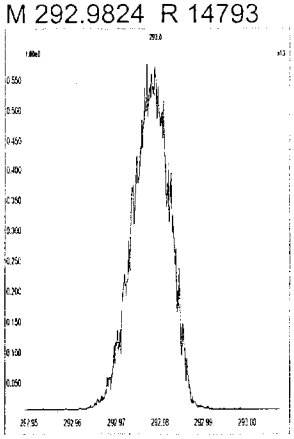
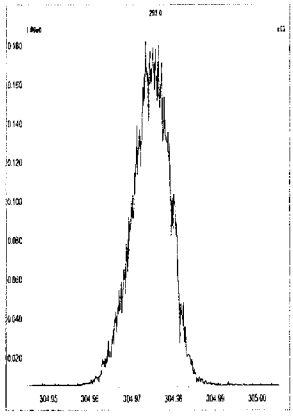
Printed: Tuesday, January 10, 2012 17:09:45 Central Standard Time

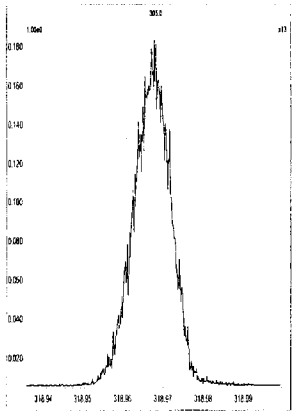
M 292.9824 R 14793



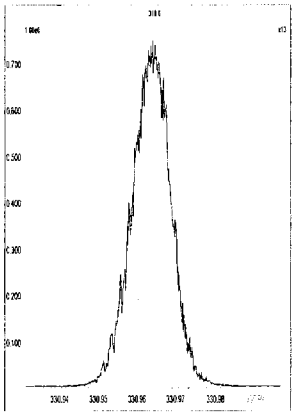
M 304.9824 R 13162



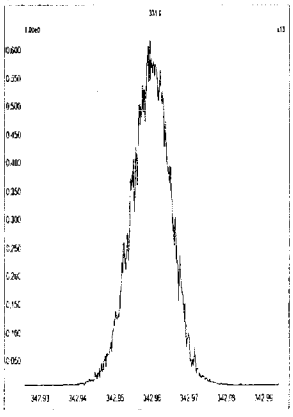
M 318.9792 R 12628



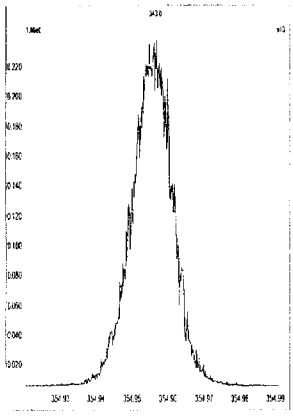
M 330.9792 R 13586



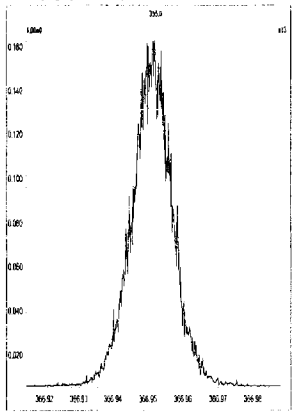
M 342.9792 R 13295



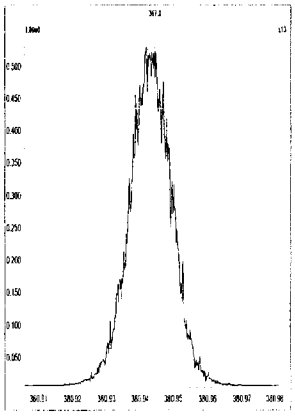
M 354.9792 R 11313



M 366.9792 R 10416



M 380.9760 R 12257



USEPA - CLP
5DFB

EPA SAMPLE NO.

PCDD/PCDF WINDOW DEFINING MIX SUMMARY

Column Perform

Lab Name: Columbia Analytical Services Contract: _____

Lab Code: TX01411 Case No.: _____ Client No.: _____ SDG No.: _____

GC Column: 30m DB-225 ID: 0.25 (mm) Lab File ID: P216268

Instrument ID: AutoSpec Premier Date Analyzed: 01/10/12

Time Analyzed: 06:10:47

Percent Valley deterimation for DB-5 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

1478-TCDD/2378-TCDD: _____

QUALITY COTROL (QC) LIMITS: _____

Percent Valley between the TCDD isomers must be less than or equal to 25%.

Percent Valley deterimation for DB-225 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

2347-TCDF/2378-TCDF: 2%

QUALITY CONTROL (QC) LIMITS:

Percent Valley between the TCDF/TCDF isomers must be less than or equal to 25%.

Analyst Init: JC FORM V-HR CDD-2 DLM02.0

FORM 4A
TCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Contract No.:

Lab Code: TX01411 Case No.: Client No: SDG No.:

Initial Calibration Date: 09/09/11

Instrument ID.: AutoSpec_Premier GC COLUMN ID: DB-225

VER Data Filename: P216269 Analysis Date: 10-JAN-12 Time: 06:43:46

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	0.83	0.88	-5.25
Labeled Compounds						
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	1.14	1.29	-11.67
Cleanup Standard						
37Cl-2,3,7,8-TCDD				0.97	0.97	0.27

12TP16-0608-03

Run #18 Filename P216280 Samp: 1 Inj: 1 Acquired: 10-JAN-12 14:15:24
Processed: 10-JAN-12 14:45:16 Sample ID: E1101252-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	
1	Unk	2,3,7,8-TCDF	23:28	4.549e+02	6.475e+02	0.70	yes	n	n
2	IS	13C-2,3,7,8-TCDF	23:28	2.254e+04	2.990e+04	0.75	yes	n	n
3	RS/RT	13C-1,2,3,4-TCDD	22:06	4.513e+04	5.769e+04	0.78	yes	n	n
4	C/Up	37Cl-2,3,7,8-TCDD	21:53	4.821e+04				n	

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	6.45e+04	3.89e+03	1.7e+01	7.70e+04	3.73e+03	2.1e+01
2	13C-2,3,7,8-TCDF	2.54e+06	2.93e+03	8.6e+02	3.41e+06	3.19e+03	1.1e+03
3	13C-1,2,3,4-TCDD	5.62e+06	5.23e+03	1.1e+03	7.21e+06	3.94e+03	1.8e+03
4	37Cl-2,3,7,8-TCDD	5.41e+06	3.88e+03	1.4e+03			

--- 2378-TCDF EDL Calculation---

$$EDL = \frac{(3.892e+03 + 3.732e+03) \times 1000 \times 2.5\ pg}{(2.535e+06 + 3.410e+06) \times (0.000\ g) \times (100 - 0.00)/100 \times 0.88} = 0.1434\ ng/kg$$

9.875 85.0

LKL 01/11/12

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **MARCH 13, 2012**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TOTAL CHROMIUM, HEXAVALENT CHROMIUM**
NASJRB WILLOW GROVE – CTO WE05
SAMPLE DELIVERY GROUPS (SDGs) – 180-7042-1, 180-6991-1, 180-6909-1, 180-6900-1, 180-6874-1, 180-7178-1

SAMPLES:

SDG 180-7042-1
5/Soils/

12TP12-0203-CS	12TP17-0.52.0-02	12TP17-000.5-01
12TP18-0506-01	12TP18-06-7-02	

SDG 180-6991-1
13/Soils/

12TP02-0405-CS	12TP03-0506-CS	12TP08-0304-CS
12TP09-0304-CS	12TP10-0405-CS	12TP14-0405-CS
12TP15-0304-CS	12TP16-0.00.5-01	12TP16-0.52.0-02
12TP16-0608-03	12TP16-0910-4	12TP-DUP-01
12TP-DUP-02		

SDG 180-6909-1
7/Soils/

12SB13-0.502-02	12SB13-000.5-01	12SB13-0304-03
12SB26-0.502-02	12SB26-000.5-01	12SB26-0304-03
12SB-DUP-05		

SDG 180-6900-1
4/Soils/

12SB09-0.502-02	12SB09-000.5-01	12SB09-0304
12SB-DUP-03		

SDG 180-6874-1
6/Soils/

12SB18-0.502-02	12SB18-000.5-01	12SB18-0304-03
12SB22-0.502-02	12SB22-000.5-01	12SB22-0304-03

SDG 180-7178-1
7/Soils/

12SB06-0.502-02	12SB06-000.5-01	12SB06-0304-03
12SB12-0.502-02	12SB12-000.5-01	12SB12-0304-03
12SB-DUP-08		

Overview

The sample set for NASJRB Willow Grove, CTO WE05, SDGs 180-7042-1, 180-6991-1, 180-6909-1, 180-6900-1, 180-6874-1 and 180-7178-1, consists of forty-two (42) soil environmental samples. Five (5) field duplicate pairs (12TP02-0405-CS / 12TP-DUP-02, 12TP16-0608-03 / 12TP-DUP01, 12SB26-000.5-01 / 12SB-DUP-05, 12SB09-0.502-02 / 12SB-DUP-03 and 12SB06-000.5-01 / 12SB-DUP-08) were included within these SDGs.

All samples were analyzed for hexavalent chromium. Samples 12TP12-0203-CS, 12TP02-0405-CS, 12TP03-0506-CS, 12TP08-0304-CS, 12TP09-0304-CS, 12TP10-0405-CS, 12TP14-0405-CS, 12TP15-0304-CS and 12TP-DUP02 were also analyzed for total chromium. The samples were collected by Tetra Tech on December 14, 15, 16, 19, 20 and 28, 2011 and analyzed by Test America - Pittsburgh under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Total chromium analyses were conducted using SW-846 method 6020. Hexavalent chromium analyses were conducted using SW-846 method 6800.

All analytes were successfully analyzed. The findings offered in this report are based upon a general review of all available data. The data review was based on data completeness, holding time, ICP/MS tune, initial and continuing calibration data, laboratory method / preparation blank analyses, laboratory duplicate precision, ICP interference results, laboratory control sample results, internal standard recoveries, field duplicate precision, detection limits and analyte quantitation.

Areas of concern with respect to data quality are listed below.

Major Problems – None.

Minor Problems

SDG 180-7042-1 – None.

SDG180-6991-1

- Field duplicate imprecision (RPD > 50%) was present for hexavalent chromium for sample pair 12TP16-0608-03 / 12TP-DUP-01. The positive results reported for hexavalent chromium for samples 12TP16-0608-03 and 12TP-DUP-01 were qualified as estimated, "J".

- It was noted in the case narrative that the hexavalent chromium result for sample 12TP03-0506-CS could not be calculated by method 6800 due to reducing matrices that convert all hexavalent chromium to trivalent chromium. A nondetected result was reported for hexavalent chromium for sample 12TP03-0506-CS and was qualified as "UJ".

- The internal standard recovery for Scandium-45 was < 70% quality control limit for sample 12TP15-0304-CS. The positive result reported for chromium for sample 12TP15-0304-CS was qualified as estimated, "J".

SDG 180-6909-1

- Field duplicate imprecision (RPD > 50%) was present for hexavalent chromium for sample pair 12SB26-000.5-01 / 12SB-DUP-05. The positive results reported for hexavalent chromium for all samples were qualified as estimated, "J".

- It was noted in the case narrative that the hexavalent chromium result for sample 12SB-DUP-05 could not be calculated by method 6800 due to reducing matrices that convert all hexavalent chromium to trivalent chromium. A nondetected result was reported for hexavalent chromium for sample 12SB-DUP-05 and was qualified as "UJ".

- Lab duplicate imprecision (RPD > 35%) was present for hexavalent chromium. The positive and nondetected results reported for hexavalent chromium were qualified as estimated, "J" and "UJ", respectively.

SDG 180-6900-1 – None.

SDG 180-6874-1 – None.

SDG 180-7178-1

- The seven day hold time from sample preparation to sample analysis was exceeded by two days for sample 12SB12-000.5-01. The positive result reported for hexavalent chromium for sample 12SB12-000.5-01 was qualified as estimated, "J".

Notes

Nondetected results are reported to the reporting limit (RL).

Executive Summary

Laboratory Performance: Lab duplicate imprecision (RPD > 35%) was present for hexavalent chromium for SDG 180-6991-1. The seven day hold time from sample preparation to sample analysis was exceeded by two days for sample 12SB12-000.5-01.

Other Factors Affecting Data Quality: Field duplicate imprecision (RPD > 50%) was present for hexavalent chromium for sample pair 12TP16-0608-03 / 12TP-DUP-01. The internal standard recovery for Scandium-45 was < 70% quality control limit for sample 12TP15-0304-CS. Field duplicate imprecision (RPD > 50%) was present for hexavalent chromium for sample pair 12SB26-000.5-01 / 12SB-DUP-05.

The data for these analyses were reviewed with reference to Region III modifications to the "National Functional Guidelines for Inorganic Data Validation", April 1993, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories " (April 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Terri L. Solomon
Environmental Scientist

Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02014	NSAMPLE	12TP12-0203-CS		
SDG: 180-7042-1	LAB_ID	180-7042-5		
FRACTION: M	SAMP_DATE	12/20/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	80.4		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
CHROMIUM		28		

PROJ_NO: 02014	NSAMPLE	12TP12-0203-CS			12TP17-0.52.0-02			12TP17-000.5-01			12TP18-0506-01		
SDG: 180-7042-1	LAB_ID	180-7042-5			180-7042-2			180-7042-1			180-7042-3		
FRACTION: MISC	SAMP_DATE	12/20/2011			12/20/2011			12/20/2011			12/20/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.4			84.7			76.3			82.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		2.8			0.3			1.8			1.1		

PROJ_NO: 02014	NSAMPLE	12TP18-0607-02		
SDG: 180-7042-1	LAB_ID	180-7042-4		
FRACTION: MISC	SAMP_DATE	12/20/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	79.7		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		1		

PROJ_NO: 02014	NSAMPLE	12TP02-0405-CS			12TP03-0506-CS			12TP08-0304-CS			12TP09-0304-CS		
SDG: 180-6991-1	LAB_ID	180-6991-4			180-6991-5			180-6991-10			180-6991-8		
FRACTION: M	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.9			83.6			82.0			77.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		13			19			25			65		

PROJ_NO: 02014	NSAMPLE	12TP10-0405-CS			12TP14-0405-CS			12TP15-0304-CS			12TP-DUP-02		
SDG: 180-6991-1	LAB_ID	180-6991-9			180-6991-6			180-6991-7			180-6991-13		
FRACTION: M	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	77.1			80.5			82.1			83.7		
	DUP_OF										12TP02-0405-CS		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM		54			39			12	J	N	12		

PROJ_NO: 02014	NSAMPLE	12TP02-0405-CS			12TP03-0506-CS			12TP08-0304-CS			12TP09-0304-CS		
SDG: 180-6991-1	LAB_ID	180-6991-4			180-6991-5			180-6991-10			180-6991-8		
FRACTION: MISC	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	81.9			83.6			82.0			77.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.38			0.12	UJ	Q	1.5			2.2		

PROJ_NO: 02014	NSAMPLE	12TP10-0405-CS			12TP14-0405-CS			12TP15-0304-CS			12TP16-0.00.5-01		
SDG: 180-6991-1	LAB_ID	180-6991-9			180-6991-6			180-6991-7			180-6991-1		
FRACTION: MISC	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	77.1			80.5			82.1			81.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		2.2			1.1			1.1			1.2		

PROJ_NO: 02014	NSAMPLE	12TP16-0.52.0-02			12TP16-0608-03			12TP16-0910-4			12TP-DUP-01		
SDG: 180-6991-1	LAB_ID	180-6991-2			180-6991-3			180-6991-11			180-6991-12		
FRACTION: MISC	SAMP_DATE	12/19/2011			12/19/2011			12/19/2011			12/19/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.6			90.0			82.1			86.2		
	DUP_OF										12TP16-0608-03		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.71			5.9	J	G	0.56			1.9	J	G

PROJ_NO: 02014	NSAMPLE	12TP-DUP-02		
SDG: 180-6991-1	LAB_ID	180-6991-13		
FRACTION: MISC	SAMP_DATE	12/19/2011		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	83.7		
	DUP_OF	12TP02-0405-CS		
PARAMETER		RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.5		

PROJ_NO: 02014	NSAMPLE	12SB13-0.502-02			12SB13-000.5-01			12SB13-0304-03			12SB26-0.502-02		
SDG: 180-6909-1	LAB_ID	180-6909-2			180-6909-1			180-6909-3			180-6909-5		
FRACTION: MISC	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.4			76.6			87.2			85.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.44	J	FG	0.45	J	FG	0.54	J	FG	0.26	J	FG

PROJ_NO: 02014	NSAMPLE	12SB26-000.5-01			12SB26-0304-03			12SB-DUP-05		
SDG: 180-6909-1	LAB_ID	180-6909-4			180-6909-6			180-6909-7		
FRACTION: MISC	SAMP_DATE	12/16/2011			12/16/2011			12/16/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	69.1			81.0			68.9		
	DUP_OF							12SB26-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.73	J	FG	1.1	J	FG	0.15	UJ	FGQ

PROJ_NO: 02014	NSAMPLE	12SB09-0.502-02			12SB09-000.5-01			12SB09-0304			12SB-DUP-03		
SDG: 180-6900-1	LAB_ID	180-6900-2			180-6900-1			180-6900-3			180-6900-4		
FRACTION: MISC	SAMP_DATE	12/15/2011			12/15/2011			12/15/2011			12/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	80.6			67.2			84.7			80.7		
	DUP_OF										12SB09-0.502-02		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		1.6			2.6			0.62			1.4		

PROJ_NO: 02014	NSAMPLE	12SB18-0.502-02			12SB18-000.5-01			12SB18-0304-03			12SB22-0.502-02		
SDG: 180-6874-1	LAB_ID	180-6874-5			180-6874-4			180-6874-6			180-6874-2		
FRACTION: MISC	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	82.5			71.4			81.1			79.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.69			1.5			0.54			1.1		

PROJ_NO: 02014	NSAMPLE	12SB22-000.5-01			12SB22-0304-03		
SDG: 180-6874-1	LAB_ID	180-6874-1			180-6874-3		
FRACTION: MISC	SAMP_DATE	12/14/2011			12/14/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	70.8			81.4		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		2.2			0.63		

PROJ_NO: 02014	NSAMPLE	12SB06-0.502-02			12SB06-000.5-01			12SB06-0304-03			12SB12-0.502-02		
SDG: 180-7178-1	LAB_ID	180-7178-5			180-7178-4			180-7178-6			180-7178-2		
FRACTION: MISC	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.8			69.5			85.7			79.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		2			3.2			0.4			1.7		

PROJ_NO: 02014	NSAMPLE	12SB12-000.5-01			12SB12-0304-03			12SB-DUP-08		
SDG: 180-7178-1	LAB_ID	180-7178-1			180-7178-3			180-7178-7		
FRACTION: MISC	SAMP_DATE	12/28/2011			12/28/2011			12/28/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	70.0			72.2			72.8		
	DUP_OF							12SB06-000.5-01		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		3.1	J	H	0.58			2.3		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP12-0203-CS
Lab Sample ID: 180-7042-5
Lab Name: TestAmerica Pittsburgh
Job No.: 180-7042-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/20/2011 16:00
Reporting Basis: DRY
Date Received: 12/22/2011 11:00
% Solids: 80.4

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	28	0.23	mg/Kg			1	6020
18540-29-9	Cr (VI)	2.8	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP17-0.52.0-02 Lab Sample ID: 180-7042-2

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG ID.:

Matrix: Solid Date Sampled: 12/20/2011 10:20

Reporting Basis: DRY Date Received: 12/22/2011 11:00

% Solids: 84.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.30	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP17-000.5-01 Lab Sample ID: 180-7042-1

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG ID.:

Matrix: Solid Date Sampled: 12/20/2011 09:50

Reporting Basis: DRY Date Received: 12/22/2011 11:00

% Solids: 76.3

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.8	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP18-0506-01 Lab Sample ID: 180-7042-3

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG ID.:

Matrix: Solid Date Sampled: 12/20/2011 12:50

Reporting Basis: DRY Date Received: 12/22/2011 11:00

% Solids: 82.9

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.1	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP18-0607-02 Lab Sample ID: 180-7042-4

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG ID.:

Matrix: Solid Date Sampled: 12/20/2011 14:30

Reporting Basis: DRY Date Received: 12/22/2011 11:00

% Solids: 79.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.0	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP-DUP-01 Lab Sample ID: 180-6991-12

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG ID.:

Matrix: Solid Date Sampled: 12/19/2011 12:00

Reporting Basis: DRY Date Received: 12/21/2011 10:30

% Solids: 86.2

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.9	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP-DUP-02 Lab Sample ID: 180-6991-13

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG ID.:

Matrix: Solid Date Sampled: 12/19/2011 12:00

Reporting Basis: DRY Date Received: 12/21/2011 10:30

% Solids: 83.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	12	0.24	mg/Kg			1	6020
18540-29-9	Cr (VI)	0.50	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP02-0405-CS
Lab Sample ID: 180-6991-4
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 14:05
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 81.9

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	13	0.24	mg/Kg			1	6020
18540-29-9	Cr (VI)	0.38	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP03-0506-CS
Lab Sample ID: 180-6991-5
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 14:15
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 83.6

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	19	0.23	mg/Kg			1	6020
18540-29-9	Cr (VI)	ND	0.12	ug/g		C	1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP08-0304-CS
Lab Sample ID: 180-6991-10
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 16:35
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 82.0

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	25	0.22	mg/Kg			1	6020
18540-29-9	Cr (VI)	1.5	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP09-0304-CS
Lab Sample ID: 180-6991-8
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 15:50
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 77.8

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	65	0.24	mg/Kg			1	6020
18540-29-9	Cr (VI)	2.2	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP10-0405-CS
Lab Sample ID: 180-6991-9
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 16:10
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 77.1

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	54	0.25	mg/Kg			1	6020
18540-29-9	Cr (VI)	2.2	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP14-0405-CS
Lab Sample ID: 180-6991-6
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 15:15
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 80.5

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	39	0.24	mg/Kg			1	6020
18540-29-9	Cr (VI)	1.1	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP15-0304-CS
Lab Sample ID: 180-6991-7
Lab Name: TestAmerica Pittsburgh
Job No.: 180-6991-1
SDG ID.:
Matrix: Solid
Date Sampled: 12/19/2011 15:35
Reporting Basis: DRY
Date Received: 12/21/2011 10:30
% Solids: 82.1

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-47-3	Chromium	12	0.23	mg/Kg			1	6020
18540-29-9	Cr (VI)	1.1	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP16-010015-01 Lab Sample ID: 180-6991-1

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG ID.:

Matrix: Solid Date Sampled: 12/19/2011 09:15

Reporting Basis: DRY Date Received: 12/21/2011 10:30

% Solids: 81.2

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.2	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP16-0152.0-02 Lab Sample ID: 180-6991-2

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG ID.:

Matrix: Solid Date Sampled: 12/19/2011 09:35

Reporting Basis: DRY Date Received: 12/21/2011 10:30

% Solids: 82.6

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.71	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP16-0608-03 Lab Sample ID: 180-6991-3

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG ID.:

Matrix: Solid Date Sampled: 12/19/2011 10:20

Reporting Basis: DRY Date Received: 12/21/2011 10:30

% Solids: 90.0

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	5.9	0.11	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12TP16-0910-4 Lab Sample ID: 180-6991-11

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG ID.:

Matrix: Solid Date Sampled: 12/19/2011 12:10

Reporting Basis: DRY Date Received: 12/21/2011 10:30

% Solids: 82.1

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.56	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB-DUP-05 Lab Sample ID: 180-6909-7

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 00:00

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 68.9

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	ND	0.15	ug/g		C	1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB13-0.502-02 Lab Sample ID: 180-6909-2

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 09:10

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 80.4

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.44	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB13-000.5-01 Lab Sample ID: 180-6909-1

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 09:00

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 76.6

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.45	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB13-0304-03 Lab Sample ID: 180-6909-3

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 09:20

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 87.2

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.54	0.11	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB26-0.502-02 Lab Sample ID: 180-6909-5

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 12:45

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 85.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.26	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB26-000.5-01 Lab Sample ID: 180-6909-4

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 12:25

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 69.1

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.73	0.14	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB26-0304-03 Lab Sample ID: 180-6909-6

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG ID.:

Matrix: Solid Date Sampled: 12/16/2011 13:00

Reporting Basis: DRY Date Received: 12/19/2011 10:00

% Solids: 81.0

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.1	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB-DUP-03 Lab Sample ID: 180-6900-4

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG ID.:

Matrix: Solid Date Sampled: 12/15/2011 12:30

Reporting Basis: DRY Date Received: 12/17/2011 09:15

% Solids: 80.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.4	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB09-0.502-02 Lab Sample ID: 180-6900-2

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG ID.:

Matrix: Solid Date Sampled: 12/15/2011 11:50

Reporting Basis: DRY Date Received: 12/17/2011 09:15

% Solids: 80.6

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.6	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB09-000.5-01 Lab Sample ID: 180-6900-1

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG ID.:

Matrix: Solid Date Sampled: 12/15/2011 11:40

Reporting Basis: DRY Date Received: 12/17/2011 09:15

% Solids: 67.2

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	2.6	0.15	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB09-0304 Lab Sample ID: 180-6900-3

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG ID.:

Matrix: Solid Date Sampled: 12/15/2011 12:00

Reporting Basis: DRY Date Received: 12/17/2011 09:15

% Solids: 84.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.62	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB18-0.502-02 Lab Sample ID: 180-6874-5

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG ID.:

Matrix: Solid Date Sampled: 12/14/2011 15:50

Reporting Basis: DRY Date Received: 12/16/2011 10:00

% Solids: 82.5

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.69	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB18-000.5-01 Lab Sample ID: 180-6874-4

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG ID.:

Matrix: Solid Date Sampled: 12/14/2011 15:40

Reporting Basis: DRY Date Received: 12/16/2011 10:00

% Solids: 71.4

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.5	0.14	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB18-0304-03 Lab Sample ID: 180-6874-6

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG ID.:

Matrix: Solid Date Sampled: 12/14/2011 16:00

Reporting Basis: DRY Date Received: 12/16/2011 10:00

% Solids: 81.1

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.54	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB22-0.502-02 Lab Sample ID: 180-6874-2

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG ID.:

Matrix: Solid Date Sampled: 12/14/2011 11:40

Reporting Basis: DRY Date Received: 12/16/2011 10:00

% Solids: 79.3

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.1	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB22-000.5-01 Lab Sample ID: 180-6874-1

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG ID.:

Matrix: Solid Date Sampled: 12/14/2011 11:30

Reporting Basis: DRY Date Received: 12/16/2011 10:00

% Solids: 70.8

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	2.2	0.14	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB22-0304-03 Lab Sample ID: 180-6874-3

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG ID.:

Matrix: Solid Date Sampled: 12/14/2011 11:50

Reporting Basis: DRY Date Received: 12/16/2011 10:00

% Solids: 81.4

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.63	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB-DUP-08 Lab Sample ID: 180-7178-7

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 12:00

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 72.8

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	2.3	0.14	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB06-0.502-02 Lab Sample ID: 180-7178-5

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 14:05

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 79.8

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	2.0	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB06-000.5-01 Lab Sample ID: 180-7178-4

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 13:40

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 69.5

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	3.2	0.14	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB06-0304-03 Lab Sample ID: 180-7178-6

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 14:20

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 85.7

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.40	0.12	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB12-0.502-02 Lab Sample ID: 180-7178-2

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 12:15

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 79.0

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	1.7	0.13	ug/g			1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB12-000.5-01 Lab Sample ID: 180-7178-1

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 11:40

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 70.0

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	3.1	0.14	ug/g		H	1	6800

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: 12SB12-0304-03 Lab Sample ID: 180-7178-3

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG ID.:

Matrix: Solid Date Sampled: 12/28/2011 12:35

Reporting Basis: DRY Date Received: 12/30/2011 10:00

% Solids: 72.2

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	0.58	0.14	ug/g			1	6800

APPENDIX C
SUPPORT DOCUMENTATION

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

(180-7042)

Chain of Custody Record

.6 #3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.2
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 7925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 2 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12/13	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
12TP17-0005-01	12/20/11	0950	G	Solid	N	Y	(2)					DO MS/MSD
12TP17-0510-02	12/20/11	1020	G	Solid	N	N	(1)					
~~12TP17-0506-03~~	~~12/20/11~~	~~1125~~	G	Solid	N	N	1	cm 12/20/11				
12TP18-0506-01	12/20/11	1250	G	Solid	N	N	(1)					
12TP18-0607-02	12/20/11	1430	G	Solid	N	N	(1)					
12TP12-0203-CS	12/20/11	1600	G	Solid	N	N	(1)	(1)				
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12/21/11 0905		[signature]	12/21/11 0905	TA
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 12/22/11 1105	Company TA PITT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

.3 (3)

Chain of Custody Record

180-6991

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: _____
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other _____

TestAmerica Laboratories, Inc.

Client Contact	Client Project Manager:	Site Contact:	Lab Contact:	COC No:
Company Name: Tetra Tech NUS	Andy Frebowitz			
Address: 234 Mall Boulevard	Telephone: 610 382 1170	Telephone:	Telephone:	1 of 2 COCs
City/State/Zip: King of Prussia, PA 19406	Email: andy.frebowitz@tetratech.com	Analysis Turnaround Time (In BUS days)	Analyses	For lab use only
Phone: 610 491 9688		TAT if different from below: ☐ 3 weeks ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Walk-in client: Lab pickup: Lab sampling:
Project Name: NASJRB Willow Grove	Method of Shipment/Carrier: Hand Delivered			Job/SDG No.:
Project Number: CTO WE05	Shipping/Tracking No:			
PO#				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite / Grab	Chromium	Chromium +6	Sample Specific Notes / Special Instructions:
12TP16-0.0015-01	12/19/11	0915				✓									N	G		1	
12TP16-0.5-2.0-02	12/19/11	0935				✓									N	G		1	
12TP16-0608-03	12/19/11	1020				✓									N	G		1	
12TP02-0405-CS	12/19/11	1405				✓									N	G	1	1	
12TP03-0506-CS	12/19/11	1415				✓									N	G	1	1	
12TP14-0405-CS	12/19/11	1515				✓									N	G	1	1	
12TP15-0304-CS	12/19/11	1535				✓									N	G	1	1	
12TP09-0304-CS	12/19/11	1550				✓									N	G	1	1	
12TP10-0405-CS	12/19/11	1610				✓									N	G	1	1	
12TP08-0304-CS	12/19/11	1635				✓									N	G	1	1	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TTNUS	12/20/11 0918		TA	12/20/11 0918
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TA	12/20/11 1600		TA-DET	12/21/11 1030
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

. 3 (3)

Chain of Custody Record

180-6991

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.11
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 11 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
Preservation Code:							N	N	D	N		
12TP16-0910-4	12/19/11	1210	G	Soil	W	N	1					
12TP-DUP-01	12/19/11	1200	G	Soil	W	N	1					
12TP-DUP-02	12/19/11	1200	G	Soil	W	N	1	1				

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	12/20/11 0918	FTNUS	[signature]	12/21/11 0918	TA
2	[signature]	12/20/11 1600	Company	[signature]	12/21/11 1030	TA PITT
3	[signature]	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

'80-6909-1

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Donald Whalen	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.5
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 382 1536	E-Mail: veronica.bortot@testamericainc.com		Page: Page 5 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
125B13-0005-01	12/16/11	0900	G	Solid	N	X	X				1	
125B13-0.502-02		0910	G	Solid	N	X	X				1	
125B13-0304-03		0920	G	Solid	N	X	X				1	
125B26-0005-01		1225	G	Solid	N	X	X				1	
125B26-0.502-02		1235	G	Solid	N	X	X				1	
125B26-0304-03		1245	G	Solid	Y	X	X				2	Do ms/msd
125B-DUP-05	↓	1300	G	Solid	N	X	X				1	
				Solid								
				Solid								
				Solid								
				Solid								

Page 2 of 267

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Donald Whalen	12/17/11 0940	Tetratech		12/17/ 0940	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 12/19/11 1040	Company TARH
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

0.1 #5 6900 6900-1

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Donald Whalen	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.10
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610-382-1536	E-Mail: veronica.bortot@testamericainc.com		Page: Page 10 of 11
Company: Tetra Tech NUS Inc		Analysis Requested		Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			Other:
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
125B09-0005-01	12/15/11	1140	G	Solid			X					
125B09-0.502-02		1150	G	Solid			X					
125B09-0304		1200	G	Solid			X					
125B-DUP-03		1230	G	Solid			X					
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								
				Water								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Donald Whalen	12/16/11 0920			12/16/11 920	TA
2		12/16/11 1610		Debbie Watson	12-17-11 9:15	TA PHX
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

0874

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

0.9#3

Chain of Custody Record

0874-1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Donald Whalen	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.1
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610-382-1536	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
12SB22-000.5-01	12/14/11	1130	G	Solid	N		X				1	
12SB22-0.502-02		1140	G	Solid	N		X				1	
12SB22-0304-03		1150	G	Solid	N		X				1	
12SB18-000.5-01		1540	G	Solid	N		X				1	
12SB18-0.502-02		1550	G	Solid	N		X				1	
12SB18-0304-03		1600	G	Solid	N		X				1	
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Donald Whalen	12/15/11			12/15/11 9:30	TA
2		12/15/11 1715	TA		12-16-11 1000	TA PITT
3						

Custody Seals Intact: ✓ Yes △ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

180-7178

Chain of Custody Record

.4 #3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.8
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 8 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:	Analysis Requested		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		N	Y	N	N	D	N		
12S1312-000.5-01	12/28/11	1140	G	Solid	N	Y	2					Do MS/MSD
12S1312-0.502-02	12/28/11	1215	G	Solid	N	N	1					
12S1312-0304-03	12/28/11	1235	G	Solid	N	N	1					
12S1306-000.5-01	12/28/11	1340	G	Solid	N	N	1					
12S1306-0.502-02	12/28/11	1405	G	Solid	N	N	1					
12S1306-0304-03	12/28/11	1420	G	Solid	N	N	1					
12S13-DUP-08	12/28/11	1200	G	Solid	N	N	1					
				Solid								
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		12/29/11 0915	TT		12/29/11 0815	TA
2		12/29/11 11:25	TA		12/30/11 10cc	TAT+7
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

HOLDTIME

SDG 180-6874-1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	MG/KG	12TP03-0506-CS	180-6991-5	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP-DUP-02	180-6991-13	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP02-0405-CS	180-6991-4	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP08-0304-CS	180-6991-10	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP09-0304-CS	180-6991-8	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP10-0405-CS	180-6991-9	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP12-0203-CS	180-7042-5	NM	12/20/2011	12/28/2011	1/6/2012	8	9	17
M	MG/KG	12TP14-0405-CS	180-6991-6	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
M	MG/KG	12TP15-0304-CS	180-6991-7	NM	12/19/2011	12/28/2011	1/6/2012	9	9	18
CR6	MG/KG	12SB13-000.5-01	180-6909-1	NM	12/16/2011	1/12/2012	1/15/2012	27	3	30
CR6	MG/KG	12SB22-0.502-02	180-6874-2	NM	12/14/2011	1/12/2012	1/14/2012	29	2	31
CR6	MG/KG	12SB26-0304-03	180-6909-6	NM	12/16/2011	1/12/2012	1/15/2012	27	3	30
CR6	MG/KG	12SB26-000.5-01	180-6909-4	NM	12/16/2011	1/12/2012	1/18/2012	27	6	33
CR6	MG/KG	12SB26-0.502-02	180-6909-5	NM	12/16/2011	1/12/2012	1/15/2012	27	3	30
CR6	MG/KG	12SB22-0304-03	180-6874-3	NM	12/14/2011	1/12/2012	1/14/2012	29	2	31

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CR6	MG/KG	12SB22-000.5-01	180-6874-1	NM	12/14/2011	1/12/2012	1/14/2012	29	2	31
CR6	MG/KG	12SB-DUP-03	180-6900-4	NM	12/15/2011	1/12/2012	1/14/2012	28	2	30
CR6	MG/KG	12SB18-0304-03	180-6874-6	NM	12/14/2011	1/12/2012	1/14/2012	29	2	31
CR6	MG/KG	12SB18-000.5-01	180-6874-4	NM	12/14/2011	1/12/2012	1/14/2012	29	2	31
CR6	MG/KG	12SB-DUP-05	180-6909-7	NM	12/16/2011	1/12/2012	1/18/2012	27	6	33
CR6	MG/KG	12SB13-0304-03	180-6909-3	NM	12/16/2011	1/12/2012	1/15/2012	27	3	30
CR6	MG/KG	12TP12-0203-CS	180-7042-5	NM	12/20/2011	1/13/2012	1/18/2012	24	5	29
CR6	MG/KG	12SB13-0.502-02	180-6909-2	NM	12/16/2011	1/12/2012	1/15/2012	27	3	30
CR6	MG/KG	12SB09-0304	180-6900-3	NM	12/15/2011	1/12/2012	1/14/2012	28	2	30
CR6	MG/KG	12SB09-000.5-01	180-6900-1	NM	12/15/2011	1/12/2012	1/14/2012	28	2	30
CR6	MG/KG	12SB18-0.502-02	180-6874-5	NM	12/14/2011	1/12/2012	1/14/2012	29	2	31
CR6	MG/KG	12TP16-0152.0-02	180-6991-2	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP-DUP-02	180-6991-13	NM	12/19/2011	1/13/2012	1/18/2012	25	5	30
CR6	MG/KG	12TP-DUP-01	180-6991-12	NM	12/19/2011	1/13/2012	1/18/2012	25	5	30
CR6	MG/KG	12TP18-0607-02	180-7042-4	NM	12/20/2011	1/13/2012	1/18/2012	24	5	29
CR6	MG/KG	12TP18-0506-01	180-7042-3	NM	12/20/2011	1/13/2012	1/18/2012	24	5	29
CR6	MG/KG	12TP17-000.5-01	180-7042-1	NM	12/20/2011	1/13/2012	1/18/2012	24	5	29
CR6	MG/KG	12TP17-0.52.0-02	180-7042-2	NM	12/20/2011	1/13/2012	1/18/2012	24	5	29

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
CR6	MG/KG	12TP09-0304-CS	180-6991-8	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP16-0608-03	180-6991-3	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP02-0405-CS	180-6991-4	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP16-010015-01	180-6991-1	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP15-0304-CS	180-6991-7	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP14-0405-CS	180-6991-6	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP10-0405-CS	180-6991-9	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12SB09-0.502-02	180-6900-2	NM	12/15/2011	1/12/2012	1/14/2012	28	2	30
CR6	MG/KG	12TP08-0304-CS	180-6991-10	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP03-0506-CS	180-6991-5	NM	12/19/2011	1/13/2012	1/17/2012	25	4	29
CR6	MG/KG	12TP16-0910-4	180-6991-11	NM	12/19/2011	1/13/2012	1/18/2012	25	5	30

METHOD SUMMARY

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7042-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
Metals (ICP/MS)	TAL PIT	SW846 6020	
Preparation, Metals			SW846 3050B
Hexavalent Chromium (SIDMS)	TAL PIT	SW846 6800	
Alkaline Digestion (Chromium, Hexavalent)			SW846 3060A
Percent Moisture	TAL PIT	EPA Moisture	

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-7042-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/22/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.6 C.

METALS
Cr (VI) exceeded the RPD limit for the duplicate of sample 12TP17-000.5-01 (180-7042-1).

GENERAL CHEMISTRY
No difficulties were encountered during the analyses.

COVER PAGE
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7042-1

SDG No.:

Project: Willow Grove - NAS JRB CTO WE05

Client Sample ID	Lab Sample ID
12TP17-000.5-01	180-7042-1
12TP17-0.52.0-02	180-7042-2
12TP18-0506-01	180-7042-3
12TP18-0607-02	180-7042-4
12TP12-0203-CS	180-7042-5

Comments:

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

Analyte	ICV 180-25480/5 01/06/2012 11:23				CCV 180-25480/10 01/06/2012 11:51				CCV 180-25480/22 01/06/2012 12:51			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	78.4		80.0	98	95.0		100	95	93.2		100	93

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

Analyte	CCV 180-25480/34 01/06/2012 13:48				CCV 180-25480/46 01/06/2012 14:49							
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	91.7		100	92	92.3		100	92				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Method: 6020 Instrument ID: X

Lab Sample ID: CRI 180-25480/7 Concentration Units: ug/L

CRQL Check Standard Source: MCRIX_00009

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Chromium	2.00	ND		95	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 180-25480/6 01/06/2012 11:31		CCB1 180-25480/11 01/06/2012 11:58		CCB2 180-25480/23 01/06/2012 12:58		CCB3 180-25480/35 01/06/2012 13:55	
		Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB4 180-25480/47 01/06/2012 14:56							
		Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND							

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 180-24699/1-A

Instrument Code: X Batch No.: 25480

CAS No.	Analyte	Concentration	C	Q	Method
7440-47-3	Chromium	ND			6020

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: PB 180-25858/1-A

Instrument Code: X Batch No.: 27117

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Lab Sample ID: ICSA 180-25480/8 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSAX_00009

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Chromium		**-0.285**	
Aluminum	*100000*	*101100*	*101*
Antimony		*0.316*	
Arsenic		*0.461*	
Barium		*0.202*	
Beryllium		*0.0210*	
Boron		*0.661*	
Cadmium		*-1.71*	
Calcium	*100000*	*105600*	*106*
Cobalt		*0.302*	
Copper		*2.92*	
Iron	*100000*	*105600*	*106*
Lead		*0.187*	
Magnesium	*100000*	*105800*	*106*
Manganese		*0.707*	
Molybdenum	*2000*	*2410*	*121*
Nickel		*0.967*	
Potassium	*100000*	*104300*	*104*
Selenium		*0.410*	
Silicon		*30.4*	
Silver		*0.755*	
Sodium	*100000*	*102200*	*102*
Strontium		*0.386*	
Thallium		*0.0450*	
Tin		*2.87*	
Titanium	*2000*	*2468*	*123*
Vanadium		*-0.462*	
Zinc		*5.85*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Lab Sample ID: ICSAB 180-25480/9 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSABX_00013

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Chromium	**20.0**	**19.9**	**99**
Aluminum	*100000*	*103033*	*103*
Antimony	*20.0*	*21.5*	*107*
Arsenic	*20.0*	*21.4*	*107*
Barium	*20.0*	*20.9*	*104*
Beryllium	*20.0*	*20.8*	*104*
Boron	*50.0*	*49.3*	*99*
Cadmium	*20.0*	*19.0*	*95*
Calcium	*100000*	*105133*	*105*
Cobalt	*20.0*	*20.2*	*101*
Copper	*20.0*	*23.3*	*117*
Iron	*100000*	*105067*	*105*
Lead	*20.0*	*21.9*	*109*
Magnesium	*100000*	*107867*	*108*
Manganese	*22.5*	*20.4*	*91*
Molybdenum	*2000*	*2408*	*120*
Nickel	*20.0*	*21.5*	*108*
Potassium	*100000*	*104733*	*105*
Selenium	*50.0*	*56.7*	*113*
Silicon	*500*	*648*	*130*
Silver	*20.0*	*21.9*	*109*
Sodium	*100000*	*105033*	*105*
Strontium	*20.0*	*20.6*	*103*
Thallium	*20.0*	*20.8*	*104*
Tin	*100*	*104*	*104*
Titanium	*2000*	*2572*	*129*
Vanadium	*20.0*	*19.5*	*98*
Zinc	*25.0*	*27.5*	*110*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

6-IN
DUPLICATES
METALS

Client ID: 12TP17-000.5-01 DU | Lab ID: 180-7042-1 DU

Lab Name: TestAmerica Pittsburgh | Job No.: 180-7042-1

SDG No.:

% Solids for Sample: 76.0 | % Solids for Duplicate: 76.0

Matrix: Solid | Concentration Units: ug/g

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Cr (VI)	0.13	1.8	1.37	27	F	6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-24699/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

Sample Matrix: Solid LCS Source: MTAPITTICPMS_00005

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Chromium	20.0	17.9		89	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-25858/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)							
	True	Found	C	%R	Limits		Q	Method
Cr (VI)	280	232		83				6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7042-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 RL Date: 01/23/2010 19:04

Prep Method: 3050B

Analyte	Wavelength/ Mass	RL (mg/Kg)	
Chromium	52	0.2	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7042-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 XMDL Date: 01/23/2010 19:04

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Chromium	52	2	0.5433

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7042-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7042-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-24699/1-A	12/28/2011 10:36	24699	1		100
LCS 180-24699/2-A	12/28/2011 10:36	24699	1		100
180-7042-5	12/28/2011 10:36	24699	00001.09		100

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
PB 180-25858/1-A	01/13/2012 07:50	25858	1.0		1.0
LCS 180-25858/2-A	01/13/2012 07:50	25858	1.0		1.0
180-7042-1	01/13/2012 07:50	25858	1.0		1.0
180-7042-1 DU	01/13/2012 07:50	25858	1.0		1.0
180-7042-2	01/13/2012 07:50	25858	1.0		1.0
180-7042-3	01/13/2012 07:50	25858	1.0		1.0
180-7042-4	01/13/2012 07:50	25858	1.0		1.0
180-7042-5	01/13/2012 07:50	25858	1.0		1.0

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes
				Cr
ITUNE 180-25480/1			10:38	
STD1 180-25480/2 IC	1		11:10	X
STD2 180-25480/3 IC	1		11:15	X
STD3 180-25480/4 IC	1		11:19	X
ICV 180-25480/5	1		11:23	X
ICB 180-25480/6	1		11:31	X
CRI 180-25480/7	1		11:35	X
ICSA 180-25480/8	1		11:39	X
ICSAB 180-25480/9	1		11:44	X
CCV 180-25480/10	1		11:51	X
CCB1 180-25480/11	1		11:58	X
MB 180-24699/1-A	1	T	12:06	X
LCS 180-24699/2-A	1	T	12:10	X
ZZZZZZ			12:14	
ZZZZZZ			12:18	
ZZZZZZ			12:22	
ZZZZZZ			12:26	
ZZZZZZ			12:31	
ZZZZZZ			12:35	
ZZZZZZ			12:39	
ZZZZZZ			12:43	
CCV 180-25480/22	1		12:51	X
CCB2 180-25480/23	1		12:58	X
ZZZZZZ			13:02	
ZZZZZZ			13:07	
ZZZZZZ			13:11	
ZZZZZZ			13:15	
ZZZZZZ			13:19	
ZZZZZZ			13:23	
ZZZZZZ			13:28	
180-7042-5	1	T	13:32	X
ZZZZZZ			13:36	
ZZZZZZ			13:40	
CCV 180-25480/34	1		13:48	X
CCB3 180-25480/35	1		13:55	X
ZZZZZZ			13:59	
ZZZZZZ			14:04	
ZZZZZZ			14:11	
ZZZZZZ			14:16	
ZZZZZZ			14:20	
ZZZZZZ			14:24	
ZZZZZZ			14:28	

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes																					
				Cr																					
ZZZZZZ			14:32																						
ZZZZZZ			14:37																						
ZZZZZZ			14:41																						
CCV 180-25480/46	1		14:49	X																					
CCB4 180-25480/47	1		14:56	X																					
ZZZZZZ			15:00																						
ZZZZZZ			15:04																						
ZZZZZZ			15:08																						
ZZZZZZ			15:13																						
ZZZZZZ			15:17																						
ZZZZZZ			15:21																						
ZZZZZZ			15:25																						
ZZZZZZ			15:29																						
ZZZZZZ			15:34																						
ZZZZZZ			15:38																						
CCV 180-25480/58			15:46																						
CCB5 180-25480/59			15:53																						
ZZZZZZ			15:57																						
ZZZZZZ			16:01																						
ZZZZZZ			16:05																						
ZZZZZZ			16:10																						
ZZZZZZ			16:14																						
ZZZZZZ			16:18																						
ZZZZZZ			16:22																						
ZZZZZZ			16:27																						
ZZZZZZ			16:31																						
ZZZZZZ			16:39																						
CCV 180-25480/70			16:46																						
CCB6 180-25480/71			16:53																						
ZZZZZZ			16:57																						
ZZZZZZ			17:01																						
ZZZZZZ			17:06																						
ZZZZZZ			17:10																						
ZZZZZZ			17:14																						
ZZZZZZ			17:18																						
ZZZZZZ			17:22																						
ZZZZZZ			17:27																						
ZZZZZZ			17:31																						
ZZZZZZ			17:35																						
CCV 180-25480/82			17:43																						
CCB7 180-25480/83			17:50																						
ZZZZZZ			17:54																						

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr																				
ZZZZZZ			17:59																					
ZZZZZZ			18:03																					
ZZZZZZ			18:07																					
ZZZZZZ			18:11																					
ZZZZZZ			18:15																					
ZZZZZZ			18:20																					
ZZZZZZ			18:24																					
ZZZZZZ			18:28																					
ZZZZZZ			18:32																					
CCV 180-25480/94			18:40																					
CCB8 180-25480/95			18:47																					
ZZZZZZ			18:52																					
ZZZZZZ			18:59																					
ZZZZZZ			19:04																					
ZZZZZZ			19:08																					
ZZZZZZ			19:19																					
ZZZZZZ			19:23																					
ZZZZZZ			19:28																					
ZZZZZZ			19:32																					
CCV 180-25480/104			19:40																					
CCB9 180-25480/105			19:47																					
ZZZZZZ			19:51																					
ZZZZZZ			19:55																					
ZZZZZZ			20:00																					
ZZZZZZ			20:04																					
ZZZZZZ			20:08																					
ZZZZZZ			20:12																					
ZZZZZZ			20:17																					
ZZZZZZ			20:21																					
ZZZZZZ			20:25																					
CCV 180-25480/115			20:33																					
CCB10 180-25480/116			20:40																					

Prep Types

T = Total/NA

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/17/2012 17:17 End Date: 01/20/2012 17:17

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr6																				
PB 180-25858/1-A	1	T	17:17	X																				
LCS 180-25858/2-A	1	T	17:17	X																				
180-7042-1	1	T	17:17	X																				
180-7042-2	1	T	17:17	X																				
180-7042-3	1	T	17:17	X																				
180-7042-4	1	T	17:17	X																				
180-7042-5	1	T	17:17	X																				
180-7042-1 DU	1	T	17:17	X																				

Prep Types
T = Total/NA

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc	Q	Element Y-89	Q	Element Rh	Q	Element In	Q
STD1 180-25480/2 IC	11:10	100		100		100		100		100	
STD2 180-25480/3 IC	11:15	84		90		90		83		84	
STD3 180-25480/4 IC	11:19	97		106		102		102		101	
ICV 180-25480/5	11:23	93		104		100		95		95	
ICB 180-25480/6	11:31	104		115		109		110		109	
CRI 180-25480/7	11:35	101		112		106		107		107	
ICSA 180-25480/8	11:39	75		76		73		71		74	
ICSAB 180-25480/9	11:44	74		79		75		72		75	
CCV 180-25480/10	11:51	86		97		91		87		88	
CCB1 180-25480/11	11:58	98		110		101		105		104	
MB 180-24699/1-A	12:06	103		109		100		103		102	
LCS 180-24699/2-A	12:10	115		76		77		69		73	
CCV 180-25480/22	12:51	96		96		88		87		86	
CCB2 180-25480/23	12:58	109		114		101		106		102	
180-7042-5	13:32	113		97		0		81		86	
CCV 180-25480/34	13:48	103		104		93		93		90	
CCB3 180-25480/35	13:55	117		115		103		109		104	
CCV 180-25480/46	14:49	105		105		94		95		92	
CCB4 180-25480/47	14:56	114		115		104		110		104	

not spiked in sample

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7042-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Tb	Q	Element Bi	Q	Element	Q	Element	Q	Element	Q
STD1 180-25480/2 IC	11:10	100		100							
STD2 180-25480/3 IC	11:15	86		89							
STD3 180-25480/4 IC	11:19	102		105							
ICV 180-25480/5	11:23	97		96							
ICB 180-25480/6	11:31	106		109							
CRI 180-25480/7	11:35	105		107							
ICSA 180-25480/8	11:39	78		73							
ICSAB 180-25480/9	11:44	77		77							
CCV 180-25480/10	11:51	93		91							
CCB1 180-25480/11	11:58	104		107							
MB 180-24699/1-A	12:06	104		123							
LCS 180-24699/2-A	12:10	91		82							
CCV 180-25480/22	12:51	92		85							
CCB2 180-25480/23	12:58	103		101							
180-7042-5	13:32	89		68							
CCV 180-25480/34	13:48	93		90							
CCB3 180-25480/35	13:55	103		101							
CCV 180-25480/46	14:49	95		94							
CCB4 180-25480/47	14:56	102		100							

does not affect Cr

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-6991-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/21/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.3 C.

TOTAL METALS

The hexavalent chromium (Cr (VI)) concentration for sample 12TP03-0506-CS (180-6991-5) could not be calculated by Method 6800 and is reported as ND. No isotopically labeled hexavalent chromium (Cr (VI)) was recovered from these samples. This observation is consistent with reducing matrices that readily convert all hexavalent chromium (Cr (VI)) to trivalent chromium (Cr (III)).

GENERAL CHEMISTRY

No difficulties were encountered during the analyses.

NASJRB WILLOW GROVE

SOIL DATA

180-6991-1

FRACTION	CHEMICAL	12TP16-0608-03	UNITS	12TP-DUP-01	RPD	D
MISC	CYANIDE	0.048 J	MG/KG	0.064 J	28.57	0.02
MISC	HEXAVALENT CHROMIUM	5.9	MG/KG	1.9	102.56	4.00
MISC	OXIDATION REDUCTION POTENTIAL	243.7	MV	228.1	6.61	15.60
MISC	PH	5.26	S.U.	7.13	30.19	1.87

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NASJRB WILLOW GROVE

SOIL DATA

180-6991-1

FRACTION	CHEMICAL	12TP02-0405-CS	UNITS	12TP-DUP-02	RPD	D
M	CHROMIUM	13	MG/KG	12	8.00	1.00
MISC	HEXAVALENT CHROMIUM	0.38	MG/KG	0.5	27.27	0.12
MISC	OXIDATION REDUCTION POTENTIAL	226.5	MV	ND	200.00	226.50
MISC	PH	7.1	S.U.	ND	200.00	7.10

Not Analyzed for

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

COVER PAGE
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6991-1

SDG No.:

Project: Willow Grove - NAS JRB CTO WE05

Client Sample ID	Lab Sample ID
12TP16-010015-01	180-6991-1
12TP16-0152.0-02	180-6991-2
12TP16-0608-03	180-6991-3
12TP02-0405-CS	180-6991-4
12TP03-0506-CS	180-6991-5
12TP14-0405-CS	180-6991-6
12TP15-0304-CS	180-6991-7
12TP09-0304-CS	180-6991-8
12TP10-0405-CS	180-6991-9
12TP08-0304-CS	180-6991-10
12TP16-0910-4	180-6991-11
12TP-DUP-01	180-6991-12
12TP-DUP-02	180-6991-13

Comments:

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

Analyte	ICV 180-25480/5 01/06/2012 11:23				CCV 180-25480/10 01/06/2012 11:51				CCV 180-25480/22 01/06/2012 12:51			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	78.4		80.0	98	95.0		100	95	93.2		100	93

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

ICV Source: MICPMSICV_00006 Concentration Units: ug/L

CCV Source: MCCV1X_00014

Analyte	CCV 180-25480/34 01/06/2012 13:48				CCV 180-25480/46 01/06/2012 14:49							
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Chromium	91.7		100	92	92.3		100	92				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Method: 6020 Instrument ID: X

Lab Sample ID: CRI 180-25480/7 Concentration Units: ug/L

CRQL Check Standard Source: MCRIX_00009

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Chromium	2.00	ND		95	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 180-25480/6 01/06/2012 11:31		CCB1 180-25480/11 01/06/2012 11:58		CCB2 180-25480/23 01/06/2012 12:58		CCB3 180-25480/35 01/06/2012 13:55	
		Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB4 180-25480/47 01/06/2012 14:56							
		Found	C	Found	C	Found	C	Found	C
Chromium	2.0	ND							

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 180-24699/1-A

Instrument Code: X Batch No.: 25480

CAS No.	Analyte	Concentration	C	Q	Method
7440-47-3	Chromium	ND			6020

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: PB 180-25858/1-A

Instrument Code: X Batch No.: 27117

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Lab Sample ID: ICSA 180-25480/8 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSAX_00009

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Chromium		**-0.285**	
Aluminum	*100000*	*101100*	*101*
Antimony		*0.316*	
Arsenic		*0.461*	
Barium		*0.202*	
Beryllium		*0.0210*	
Boron		*0.661*	
Cadmium		*-1.71*	
Calcium	*100000*	*105600*	*106*
Cobalt		*0.302*	
Copper		*2.92*	
Iron	*100000*	*105600*	*106*
Lead		*0.187*	
Magnesium	*100000*	*105800*	*106*
Manganese		*0.707*	
Molybdenum	*2000*	*2410*	*121*
Nickel		*0.967*	
Potassium	*100000*	*104300*	*104*
Selenium		*0.410*	
Silicon		*30.4*	
Silver		*0.755*	
Sodium	*100000*	*102200*	*102*
Strontium		*0.386*	
Thallium		*0.0450*	
Tin		*2.87*	
Titanium	*2000*	*2468*	*123*
Vanadium		*-0.462*	
Zinc		*5.85*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Lab Sample ID: ICSAB 180-25480/9 Instrument ID: X

Lab File ID: X20106A.xml ICS Source: MICSABX_00013

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Chromium	**20.0**	**19.9**	**99**
Aluminum	*100000*	*103033*	*103*
Antimony	*20.0*	*21.5*	*107*
Arsenic	*20.0*	*21.4*	*107*
Barium	*20.0*	*20.9*	*104*
Beryllium	*20.0*	*20.8*	*104*
Boron	*50.0*	*49.3*	*99*
Cadmium	*20.0*	*19.0*	*95*
Calcium	*100000*	*105133*	*105*
Cobalt	*20.0*	*20.2*	*101*
Copper	*20.0*	*23.3*	*117*
Iron	*100000*	*105067*	*105*
Lead	*20.0*	*21.9*	*109*
Magnesium	*100000*	*107867*	*108*
Manganese	*22.5*	*20.4*	*91*
Molybdenum	*2000*	*2408*	*120*
Nickel	*20.0*	*21.5*	*108*
Potassium	*100000*	*104733*	*105*
Selenium	*50.0*	*56.7*	*113*
Silicon	*500*	*648*	*130*
Silver	*20.0*	*21.9*	*109*
Sodium	*100000*	*105033*	*105*
Strontium	*20.0*	*20.6*	*103*
Thallium	*20.0*	*20.8*	*104*
Tin	*100*	*104*	*104*
Titanium	*2000*	*2572*	*129*
Vanadium	*20.0*	*19.5*	*98*
Zinc	*25.0*	*27.5*	*110*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-24699/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

Sample Matrix: Solid LCS Source: MTAPITTICPMS_00005

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Chromium	20.0	17.9		89	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-25858/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)							
	True	Found	C	%R	Limits		Q	Method
Cr (VI)	280	232		83				6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6991-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 RL Date: 01/23/2010 19:04

Prep Method: 3050B

Analyte	Wavelength/ Mass	RL (mg/Kg)	
Chromium	52	0.2	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6991-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6020 XMDL Date: 01/23/2010 19:04

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Chromium	52	2	0.5433

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6991-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6991-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

11-IN
LINEAR RANGES
METALS

Lab Name: TestAmerica Pittsburgh Job No: 180-6991-1

SDG No.:

Instrument ID: X Date: 03/14/2011 22:35

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Chromium		13500	6020

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-24699/1-A	12/28/2011 10:36	24699	1		100
LCS 180-24699/2-A	12/28/2011 10:36	24699	1		100
180-6991-4	12/28/2011 10:36	24699	00001.03		100
180-6991-5	12/28/2011 10:36	24699	00001.03		100
180-6991-6	12/28/2011 10:36	24699	00001.03		100
180-6991-7	12/28/2011 10:36	24699	00001.07		100
180-6991-8	12/28/2011 10:36	24699	00001.06		100
180-6991-9	12/28/2011 10:36	24699	00001.02		100
180-6991-10	12/28/2011 10:36	24699	00001.11		100
180-6991-13	12/28/2011 10:36	24699	00001.01		100

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
PB 180-25858/1-A	01/13/2012 07:50	25858	1.0		1.0
LCS 180-25858/2-A	01/13/2012 07:50	25858	1.0		1.0
180-6991-1	01/13/2012 07:50	25858	1.0		1.0
180-6991-2	01/13/2012 07:50	25858	1.0		1.0
180-6991-3	01/13/2012 07:50	25858	1.0		1.0
180-6991-4	01/13/2012 07:50	25858	1.0		1.0
180-6991-5	01/13/2012 07:50	25858	1.0		1.0
180-6991-6	01/13/2012 07:50	25858	1.0		1.0
180-6991-7	01/13/2012 07:50	25858	1.0		1.0
180-6991-8	01/13/2012 07:50	25858	1.0		1.0
180-6991-9	01/13/2012 07:50	25858	1.0		1.0
180-6991-10	01/13/2012 07:50	25858	1.0		1.0
180-6991-11	01/13/2012 07:50	25858	1.0		1.0
180-6991-12	01/13/2012 07:50	25858	1.0		1.0
180-6991-13	01/13/2012 07:50	25858	1.0		1.0

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc	Q	Element Y-89	Q	Element Rh	Q	Element In	Q
STD1 180-25480/2 IC	11:10	100		100		100		100		100	
STD2 180-25480/3 IC	11:15	84		90		90		83		84	
STD3 180-25480/4 IC	11:19	97		106		102		102		101	
ICV 180-25480/5	11:23	93		104		100		95		95	
ICB 180-25480/6	11:31	104		115		109		110		109	
CRI 180-25480/7	11:35	101		112		106		107		107	
ICSA 180-25480/8	11:39	75		76		73		71		74	
ICSAB 180-25480/9	11:44	74		79		75		72		75	
CCV 180-25480/10	11:51	86		97		91		87		88	
CCB1 180-25480/11	11:58	98		110		101		105		104	
MB 180-24699/1-A	12:06	103		109		100		103		102	
LCS 180-24699/2-A	12:10	115		76		77		69		73	
180-6991-4	12:43	109		100		0		80		82	
CCV 180-25480/22	12:51	96		96		88		87		86	
CCB2 180-25480/23	12:58	109		114		101		106		102	
180-6991-5	13:02	117		103		0		82		84	
180-6991-6	13:07	110		105		0		80		83	
180-6991-7	13:11	100		67		0		50		58	
180-6991-8	13:15	81		74		0		57		63	
180-6991-9	13:19	88		86		0		70		73	
180-6991-10	13:23	101		104		0		84		85	
180-6991-13	13:28	104		104		0		86		86	
CCV 180-25480/34	13:48	103		104		93		93		90	
CCB3 180-25480/35	13:55	117		115		103		109		104	
CCV 180-25480/46	14:49	105		105		94		95		92	
CCB4 180-25480/47	14:56	114		115		104		110		104	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

ICP-MS Instrument ID: X Start Date: 01/06/2012 End Date: 01/06/2012

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Tb	Q	Element Bi	Q	Element	Q	Element	Q	Element	Q
STD1 180-25480/2 IC	11:10	100		100							
STD2 180-25480/3 IC	11:15	86		89							
STD3 180-25480/4 IC	11:19	102		105							
ICV 180-25480/5	11:23	97		96							
ICB 180-25480/6	11:31	106		109							
CRI 180-25480/7	11:35	105		107							
ICSA 180-25480/8	11:39	78		73							
ICSAB 180-25480/9	11:44	77		77							
CCV 180-25480/10	11:51	93		91							
CCB1 180-25480/11	11:58	104		107							
MB 180-24699/1-A	12:06	104		123							
LCS 180-24699/2-A	12:10	91		82							
180-6991-4	12:43	97		75							
CCV 180-25480/22	12:51	92		85							
CCB2 180-25480/23	12:58	103		101							
180-6991-5	13:02	104		78							
180-6991-6	13:07	96		73							
180-6991-7	13:11	90		54							
180-6991-8	13:15	68		47							
180-6991-9	13:19	75		55							
180-6991-10	13:23	95		67							
180-6991-13	13:28	94		69							
CCV 180-25480/34	13:48	93		90							
CCB3 180-25480/35	13:55	103		101							
CCV 180-25480/46	14:49	95		94							
CCB4 180-25480/47	14:56	102		100							

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes
				Cr
ITUNE 180-25480/1			10:38	
STD1 180-25480/2 IC	1		11:10	X
STD2 180-25480/3 IC	1		11:15	X
STD3 180-25480/4 IC	1		11:19	X
ICV 180-25480/5	1		11:23	X
ICB 180-25480/6	1		11:31	X
CRI 180-25480/7	1		11:35	X
ICSA 180-25480/8	1		11:39	X
ICSAB 180-25480/9	1		11:44	X
CCV 180-25480/10	1		11:51	X
CCB1 180-25480/11	1		11:58	X
MB 180-24699/1-A	1	T	12:06	X
LCS 180-24699/2-A	1	T	12:10	X
ZZZZZZ			12:14	
ZZZZZZ			12:18	
ZZZZZZ			12:22	
ZZZZZZ			12:26	
ZZZZZZ			12:31	
ZZZZZZ			12:35	
ZZZZZZ			12:39	
180-6991-4	1	T	12:43	X
CCV 180-25480/22	1		12:51	X
CCB2 180-25480/23	1		12:58	X
180-6991-5	1	T	13:02	X
180-6991-6	1	T	13:07	X
180-6991-7	1	T	13:11	X
180-6991-8	1	T	13:15	X
180-6991-9	1	T	13:19	X
180-6991-10	1	T	13:23	X
180-6991-13	1	T	13:28	X
ZZZZZZ			13:32	
ZZZZZZ			13:36	
ZZZZZZ			13:40	
CCV 180-25480/34	1		13:48	X
CCB3 180-25480/35	1		13:55	X
ZZZZZZ			13:59	
ZZZZZZ			14:04	
ZZZZZZ			14:11	
ZZZZZZ			14:16	
ZZZZZZ			14:20	
ZZZZZZ			14:24	
ZZZZZZ			14:28	

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes																			
				Cr																			
ZZZZZZ			14:32																				
ZZZZZZ			14:37																				
ZZZZZZ			14:41																				
CCV 180-25480/46	1		14:49	X																			
CCB4 180-25480/47	1		14:56	X																			
ZZZZZZ			15:00																				
ZZZZZZ			15:04																				
ZZZZZZ			15:08																				
ZZZZZZ			15:13																				
ZZZZZZ			15:17																				
ZZZZZZ			15:21																				
ZZZZZZ			15:25																				
ZZZZZZ			15:29																				
ZZZZZZ			15:34																				
ZZZZZZ			15:38																				
CCV 180-25480/58			15:46																				
CCB5 180-25480/59			15:53																				
ZZZZZZ			15:57																				
ZZZZZZ			16:01																				
ZZZZZZ			16:05																				
ZZZZZZ			16:10																				
ZZZZZZ			16:14																				
ZZZZZZ			16:18																				
ZZZZZZ			16:22																				
ZZZZZZ			16:27																				
ZZZZZZ			16:31																				
ZZZZZZ			16:39																				
CCV 180-25480/70			16:46																				
CCB6 180-25480/71			16:53																				
ZZZZZZ			16:57																				
ZZZZZZ			17:01																				
ZZZZZZ			17:06																				
ZZZZZZ			17:10																				
ZZZZZZ			17:14																				
ZZZZZZ			17:18																				
ZZZZZZ			17:22																				
ZZZZZZ			17:27																				
ZZZZZZ			17:31																				
ZZZZZZ			17:35																				
CCV 180-25480/82			17:43																				
CCB7 180-25480/83			17:50																				
ZZZZZZ			17:54																				

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Instrument ID: X Method: 6020

Start Date: 01/06/2012 10:38 End Date: 01/06/2012 20:40

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr																				
ZZZZZZ			17:59																					
ZZZZZZ			18:03																					
ZZZZZZ			18:07																					
ZZZZZZ			18:11																					
ZZZZZZ			18:15																					
ZZZZZZ			18:20																					
ZZZZZZ			18:24																					
ZZZZZZ			18:28																					
ZZZZZZ			18:32																					
CCV 180-25480/94			18:40																					
CCB8 180-25480/95			18:47																					
ZZZZZZ			18:52																					
ZZZZZZ			18:59																					
ZZZZZZ			19:04																					
ZZZZZZ			19:08																					
ZZZZZZ			19:19																					
ZZZZZZ			19:23																					
ZZZZZZ			19:28																					
ZZZZZZ			19:32																					
CCV 180-25480/104			19:40																					
CCB9 180-25480/105			19:47																					
ZZZZZZ			19:51																					
ZZZZZZ			19:55																					
ZZZZZZ			20:00																					
ZZZZZZ			20:04																					
ZZZZZZ			20:08																					
ZZZZZZ			20:12																					
ZZZZZZ			20:17																					
ZZZZZZ			20:21																					
ZZZZZZ			20:25																					
CCV 180-25480/115			20:33																					
CCB10 180-25480/116			20:40																					

Prep Types
T = Total/NA

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6991-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/17/2012 17:17 End Date: 01/20/2012 17:17

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr6																				
PB 180-25858/1-A	1	T	17:17	X																				
LCS 180-25858/2-A	1	T	17:17	X																				
180-6991-1	1	T	17:17	X																				
180-6991-2	1	T	17:17	X																				
180-6991-3	1	T	17:17	X																				
180-6991-4	1	T	17:17	X																				
180-6991-5	1	T	17:17	X																				
180-6991-6	1	T	17:17	X																				
180-6991-7	1	T	17:17	X																				
180-6991-8	1	T	17:17	X																				
180-6991-9	1	T	17:17	X																				
180-6991-10	1	T	17:17	X																				
180-6991-11	1	T	17:17	X																				
180-6991-12	1	T	17:17	X																				
180-6991-13	1	T	17:17	X																				

Prep Types
T = Total/NA

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-6909-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/19/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.5 C.

METALS

The hexavalent chromium (Cr (VI)) concentration for sample 12SB-DUP-05 (180-6909-7) could not be calculated by Method 6800 and is reported as ND. No isotopically labeled hexavalent chromium (Cr (VI)) was recovered from these samples. This observation is consistent with reducing matrices that readily convert all hexavalent chromium (Cr (VI)) to trivalent chromium (Cr (III)).

Hexavalent chromium (Cr (VI)) exceeded the RPD limit for the duplicate of sample 12SB26-0304-03(180-6909-6).

GENERAL CHEMISTRY

No difficulties were encountered during the analyses.

NASJRB WILLOW GROVE

SOIL DATA

180-6909-1

FRACTION	CHEMICAL	12SB26-000.5-01	UNITS	12SB-DUP-05	RPD	D
MISC	CYANIDE	0.138 J	MG/KG	0.105 J	27.16	0.03
MISC	HEXAVALENT CHROMIUM	0.73	MG/KG	ND	200.00	0.73
MISC	OXIDATION REDUCTION POTENTIAL	255.6	MV	ND	200.00	255.60
MISC	PH	5.78	S.U.	ND	200.00	5.78

only chemical affected by this SDG

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

COVER PAGE
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6909-1

SDG No.:

Project: Willow Grove - NAS JRB CTO WE05

Client Sample ID	Lab Sample ID
12SB13-000.5-01	180-6909-1
12SB13-0.502-02	180-6909-2
12SB13-0304-03	180-6909-3
12SB26-000.5-01	180-6909-4
12SB26-0.502-02	180-6909-5
12SB26-0304-03	180-6909-6
12SB-DUP-05	180-6909-7

Comments:

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: MB 180-25786/1-A

Instrument Code: X Batch No.: 27116

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

6-IN
DUPLICATES
METALS

Client ID: 12SB26-0304-03 DU | Lab ID: 180-6909-6 DU

Lab Name: TestAmerica Pittsburgh | Job No.: 180-6909-1

SDG No.:

% Solids for Sample: 81.9 | % Solids for Duplicate: 81.9

Matrix: Solid | Concentration Units: ug/g

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Cr (VI)	0.12	1.1	0.454	80	F	6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-25786/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)							
	True	Found	C	%R	Limits		Q	Method
Cr (VI)	280	270		97				6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6909-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6909-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-25786/1-A	01/12/2012 09:00	25786	1.0		1.0
LCS 180-25786/2-A	01/12/2012 09:00	25786	1.0		1.0
180-6909-1	01/12/2012 09:00	25786	1.0		1.0
180-6909-2	01/12/2012 09:00	25786	1.0		1.0
180-6909-3	01/12/2012 09:00	25786	1.0		1.0
180-6909-4	01/12/2012 09:00	25786	1.0		1.0
180-6909-5	01/12/2012 09:00	25786	1.0		1.0
180-6909-6	01/12/2012 09:00	25786	1.0		1.0
180-6909-6 DU	01/12/2012 09:00	25786	1.0		1.0
180-6909-7	01/12/2012 09:00	25786	1.0		1.0

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6909-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/14/2012 16:44 End Date: 01/18/2012 16:44

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr6																				
MB 180-25786/1-A	1	T	16:44	X																				
LCS 180-25786/2-A	1	T	16:44	X																				
180-6909-1	1	T	16:44	X																				
180-6909-2	1	T	16:44	X																				
180-6909-3	1	T	16:44	X																				
180-6909-5	1	T	16:44	X																				
180-6909-6	1	T	16:44	X																				
180-6909-6 DU	1	T	16:44	X																				
180-6909-4	1	T	16:44	X																				
180-6909-7	1	T	16:44	X																				

Prep Types
T = Total/NA

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-6900-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/17/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.1 C.

METALS
No difficulties were encountered during the CR6 analyses.

GENERAL CHEMISTRY
No difficulties were encountered during the analyses.

NASJRB WILLOW GROVE
SOIL DATA
180-6900-1

FRACTION	CHEMICAL	12SB09-0.502-02	UNITS	12SB-DUP-03	RPD	D
MISC	CYANIDE	0.077 J	MG/KG	ND	200.00	0.08
MISC	HEXAVALENT CHROMIUM	1.6	MG/KG	1.4	13.33	0.20
MISC	OXIDATION REDUCTION POTENTIAL	275.8	MV	ND	200.00	275.80
MISC	PH	6.52	S.U.	ND	200.00	6.52

only chemical analyzed for this SDG

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

COVER PAGE
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6900-1

SDG No.:

Project: Willow Grove - NAS JRB CTO WE05

Client Sample ID	Lab Sample ID
12SB09-000.5-01	180-6900-1
12SB09-0.502-02	180-6900-2
12SB09-0304	180-6900-3
12SB-DUP-03	180-6900-4

Comments:

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: MB 180-25786/1-A

Instrument Code: X Batch No.: 27116

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

FORM III-IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-25786/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)							
	True	Found	C	%R	Limits		Q	Method
Cr (VI)	280	270		97				6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6900-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6900-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-25786/1-A	01/12/2012 09:00	25786	1.0		1.0
LCS 180-25786/2-A	01/12/2012 09:00	25786	1.0		1.0
180-6900-1	01/12/2012 09:00	25786	1.0		1.0
180-6900-2	01/12/2012 09:00	25786	1.0		1.0
180-6900-3	01/12/2012 09:00	25786	1.0		1.0
180-6900-4	01/12/2012 09:00	25786	1.0		1.0

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6900-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/14/2012 16:44 End Date: 01/18/2012 16:44

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr6																				
MB 180-25786/1-A	1	T	16:44	X																				
LCS 180-25786/2-A	1	T	16:44	X																				
180-6900-1	1	T	16:44	X																				
180-6900-2	1	T	16:44	X																				
180-6900-3	1	T	16:44	X																				
180-6900-4	1	T	16:44	X																				

Prep Types
T = Total/NA

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-6874-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/16/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.9 C.

METALS
No difficulties were encountered during the CR6 analyses.

GENERAL CHEMISTRY
No difficulties were encountered during the analyses.

COVER PAGE
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6874-1

SDG No.:

Project: Willow Grove - NAS JRB CTO WE05

Client Sample ID	Lab Sample ID
12SB22-000.5-01	180-6874-1
12SB22-0.502-02	180-6874-2
12SB22-0304-03	180-6874-3
12SB18-000.5-01	180-6874-4
12SB18-0.502-02	180-6874-5
12SB18-0304-03	180-6874-6

Comments:

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: MB 180-25786/1-A

Instrument Code: X Batch No.: 27116

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-25786/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)							
	True	Found	C	%R	Limits		Q	Method
Cr (VI)	280	270		97				6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6874-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-6874-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-25786/1-A	01/12/2012 09:00	25786	1.0		1.0
LCS 180-25786/2-A	01/12/2012 09:00	25786	1.0		1.0
180-6874-1	01/12/2012 09:00	25786	1.0		1.0
180-6874-2	01/12/2012 09:00	25786	1.0		1.0
180-6874-3	01/12/2012 09:00	25786	1.0		1.0
180-6874-4	01/12/2012 09:00	25786	1.0		1.0
180-6874-5	01/12/2012 09:00	25786	1.0		1.0
180-6874-6	01/12/2012 09:00	25786	1.0		1.0

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-6874-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/14/2012 16:44 End Date: 01/18/2012 16:44

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr6																				
MB 180-25786/1-A	1	T	16:44	X																				
LCS 180-25786/2-A	1	T	16:44	X																				
180-6874-1	1	T	16:44	X																				
180-6874-2	1	T	16:44	X																				
180-6874-3	1	T	16:44	X																				
180-6874-4	1	T	16:44	X																				
180-6874-5	1	T	16:44	X																				
180-6874-6	1	T	16:44	X																				

Prep Types
T = Total/NA

CASE NARRATIVE

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Project: Willow Grove - NAS JRB CTO WE05

Report Number: 180-7178-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/30/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.4 C.

METALS
Sample 12SB12-000.5-01 and matrix duplicate were analyzed outside of holding time.

GENERAL CHEMISTRY
No difficulties were encountered during the analyses.

NASJRB WILLOW GROVE
SOIL DATA
180-7178-1

FRACTION	CHEMICAL	12SB06-000.5-01	UNITS	12SB-DUP-08	RPD	D
MISC	CYANIDE	0.119 J	MG/KG	0.114 J	4.29	0.01
MISC	HEXAVALENT CHROMIUM	3.2	MG/KG	2.3	32.73	0.90
MISC	OXIDATION REDUCTION POTENTIAL	334.4	MV	ND	200.00	334.40
MISC	PH	4.88	S.U.	4.86	0.41	0.02

only chemical affected by this SDG

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

COVER PAGE
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7178-1

SDG No.:

Project: Willow Grove - NAS JRB CTO WE05

Client Sample ID	Lab Sample ID
12SB12-000.5-01	180-7178-1
12SB12-0.502-02	180-7178-2
12SB12-0304-03	180-7178-3
12SB06-000.5-01	180-7178-4
12SB06-0.502-02	180-7178-5
12SB06-0304-03	180-7178-6
12SB-DUP-08	180-7178-7

Comments:

Client: Tetra Tech, Inc formerly Tetra Tech NUS

Job Number: 180-7178-1

Client Sample ID: **12SB12-000.5-01**

Lab Sample ID: 180-7178-1
Client Matrix: Solid
% Moisture: 30.0

Date Sampled: 12/28/2011 1140
Date Received: 12/30/2011 1000

6800 Hexavalent Chromium (SIDMS)

Analysis Method:	6800	Analysis Batch:	180-27120	Instrument ID:	X
Prep Method:	3060A	Prep Batch:	180-26418	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.0 g
Analysis Date:	01/29/2012 1811			Final Weight/Volume:	1.0 mL
Prep Date:	01/20/2012 0720				

Analyte	DryWt Corrected: Y	Result (ug/g)	Qualifier	RL
Cr (VI)		3.1	H	0.14

hold time exceedence

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG No.:

Concentration Units: ug/g Lab Sample ID: MB 180-26418/1-A

Instrument Code: X Batch No.: 27120

CAS No.	Analyte	Concentration	C	Q	Method
18540-29-9	Cr (VI)	ND			6800

6-IN
DUPLICATES
METALS

Client ID: 12SB12-000.5-01 DU | Lab ID: 180-7178-1 DU

Lab Name: TestAmerica Pittsburgh | Job No.: 180-7178-1

SDG No.:

% Solids for Sample: 70.4 | % Solids for Duplicate: 70.4

Matrix: Solid | Concentration Units: ug/g

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Cr (VI)	0.14	3.1		3.24		3	H	6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 180-26418/2-A

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

Sample Matrix: Solid LCS Source: 6800 LCS_00002

Analyte	Solid(ug/g)							
	True	Found	C	%R	Limits		Q	Method
Cr (VI)	280	252		90				6800

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7178-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 RL Date: 01/26/2010 16:29

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (ug/g)	
Cr (VI)		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Pittsburgh Job Number: 180-7178-1

SDG Number:

Matrix: Solid Instrument ID: X

Method: 6800 XMDL Date: 01/26/2010 16:29

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		25	10

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 180-26418/1-A	01/20/2012 07:20	26418	1.0		1.0
LCS 180-26418/2-A	01/20/2012 07:20	26418	1.0		1.0
180-7178-1	01/20/2012 07:20	26418	1.0		1.0
180-7178-1 DU	01/20/2012 07:20	26418	1.0		1.0
180-7178-2	01/20/2012 07:20	26418	1.0		1.0
180-7178-3	01/20/2012 07:20	26418	1.0		1.0
180-7178-4	01/20/2012 07:20	26418	1.0		1.0
180-7178-5	01/20/2012 07:20	26418	1.0		1.0
180-7178-6	01/20/2012 07:20	26418	1.0		1.0
180-7178-7	01/20/2012 07:20	26418	1.0		1.0

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Pittsburgh Job No.: 180-7178-1

SDG No.:

Instrument ID: X Method: 6800

Start Date: 01/22/2012 18:11 End Date: 01/29/2012 18:11

Lab Sample ID	D / F	Type	Time	Analytes																				
				Cr6																				
MB 180-26418/1-A	1	T	18:11	X																				
LCS 180-26418/2-A	1	T	18:11	X																				
180-7178-2	1	T	18:11	X																				
180-7178-3	1	T	18:11	X																				
180-7178-4	1	T	18:11	X																				
180-7178-5	1	T	18:11	X																				
180-7178-6	1	T	18:11	X																				
180-7178-7	1	T	18:11	X																				
180-7178-1	1	T	18:11	X																				
180-7178-1 DU	1	T	18:11	X																				

Prep Types

T = Total/NA

APPENDIX J

HUMAN HEALTH RISK ASSESSMENT
RAGS D HUMAN HEALTH RISK TABLES

LIST OF TABLES
RAGS PART D TABLE 1
SELECTION OF EXPOSURE PATHWAYS

TABLE NO.

1.01 SELECTION OF EXPOSURE PATHWAYS - GROUNDWATER PLUME
1.02 SELECTION OF EXPOSURE PATHWAYS - SURFACE SOIL AND SOIL
1.03 SELECTION OF EXPOSURE PATHWAYS - SURFACE WATER AND SEDIMENT - CREEKS

TABLE 1.01
SELECTION OF EXPOSURE PATHWAYS - GROUNDWATER PLUME
SITE 12, NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Populations	Receptor Age	Exposure Routes	Type of Analysis	Rationale
Future	Groundwater	Groundwater	Contact with Groundwater During Construction Activities	Construction Worker	Adult	Ingestion	None	Receptor activity patterns would not result in significant exposure.
		Groundwater	Contact with Groundwater During Construction Activities	Construction Worker	Adult	Dermal	Quant	Receptor activity patterns could result in exposure.
		Vapors	Inhalation of Groundwater Vapors During Construction Activities	Construction Worker	Adult	Inhalation	Quant	Receptor activity patterns could result in exposure.
		Groundwater	Tap Water Contact with Groundwater	Resident	Adult	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Groundwater	Tap Water Contact with Groundwater	Resident	Adult	Dermal	Quant*	Dermal exposure would occur during bathing or showering.
		Vapors	Inhalation of Groundwater Vapors During Showering	Resident	Adult	Inhalation	Quant	Receptor activity patterns could result in exposure.
		Groundwater	Tap Water Contact with Groundwater	Resident	Child	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Groundwater	Tap Water Contact with Groundwater	Resident	Child	Dermal	Quant*	Dermal exposure would occur during bathing.
		Vapors	Inhalation of Groundwater Vapors During Bathing	Resident	Child	Inhalation	Qual	Receptor activity patterns could result in exposure, but bathing more likely than showering.
		Groundwater	Tap Water Contact with Groundwater	Resident	Child/Adult**	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Groundwater	Tap Water Contact with Groundwater	Resident	Child/Adult**	Dermal	Quant	Receptor activity patterns could result in exposure.
		Vapors	Inhalation of Groundwater Vapors During Showering	Resident	Child/Adult**	Inhalation	Quant	Receptor activity patterns could result in exposure.

*Adult resident is assumed to take showers. Child resident is assumed to bathe, not shower.
**Resident Child/Adult represents cumulative (lifetime) exposure only applied to cancer risk.

TABLE 1.02
SELECTION OF EXPOSURE PATHWAYS - SURFACE SOIL AND SOIL*
SITE 12, NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale
Current/Future	Surface Soil	Surface Soil	Contact with Site 12 Surface Soil	Industrial Worker	Adult	Ingestion	Quant	Current industrial land use (Site 12) could involve outdoor workers.
		Surface Soil	Contact with Site 12 Surface Soil	Industrial Worker	Adult	Dermal	Quant	Current industrial land use (Site 12) could involve outdoor workers.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Industrial Worker	Adult	Inhalation	Quant	Current industrial land use (Site 12) could involve outdoor workers.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Adult	Ingestion	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Adult	Dermal	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Recreational Person	Adult	Inhalation	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child	Ingestion	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child	Dermal	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Recreational Person	Child	Inhalation	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child/Adult**	Ingestion	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child/Adult**	Dermal	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Recreational Person	Child/Adult**	Inhalation	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
Future	Surface Soil	Surface Soil	Contact with Site 12 Surface Soil	Resident	Adult	Ingestion	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Adult	Dermal	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Resident	Adult	Inhalation	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child	Ingestion	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child	Dermal	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Resident	Child	Inhalation	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child/Adult**	Ingestion	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child/Adult**	Dermal	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Resident	Child/Adult**	Inhalation	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
Future	Soil*	Surface Soil	Contact with Site 12 Surface Soil	Industrial Worker	Adult	Ingestion	Quant	Current industrial land use (Site 12) could involve outdoor workers.
		Surface Soil	Contact with Site 12 Surface Soil	Industrial Worker	Adult	Dermal	Quant	Current industrial land use (Site 12) could involve outdoor workers.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Industrial Worker	Adult	Inhalation	Quant	Current industrial land use (Site 12) could involve outdoor workers.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Adult	Ingestion	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Adult	Dermal	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Recreational Person	Adult	Inhalation	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child	Ingestion	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child	Dermal	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Recreational Person	Child	Inhalation	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child/Adult**	Ingestion	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Recreational Person	Child/Adult**	Dermal	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Recreational Person	Child/Adult**	Inhalation	Quant	Land use is expected to remain industrial. Future recreational use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Adult	Ingestion	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Adult	Dermal	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Resident	Adult	Inhalation	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child	Ingestion	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child	Dermal	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Resident	Child	Inhalation	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child/Adult**	Ingestion	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Surface Soil	Contact with Site 12 Surface Soil	Resident	Child/Adult**	Dermal	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
		Particulates	Particulate Dust Inhalation from Site 12 Surface Soil	Resident	Child/Adult**	Inhalation	Quant	Land use is expected to remain industrial. Future residential use not predicted but is possible.
Future	Soil*	Soil*	Contact with Site 12 Soil*	Construction Worker	Adult	Ingestion	Quant	Current land use is industrial, but future construction is conceivable.
		Soil*	Contact with Site 12 Soil*	Construction Worker	Adult	Dermal	Quant	Current land use is industrial, but future construction is conceivable.
		Particulates	Particulate Dust Inhalation from Site 12 Soil*	Construction Worker	Adult	Inhalation	Quant	Current land use is industrial, but future construction is conceivable.

**Child/Adult represents cumulative (lifetime) exposure only applied to cancer risk.
"Soil*" Represents surface and subsurface soils that are mixed during future construction or landscaping.

TABLE 1.03
SELECTION OF EXPOSURE PATHWAYS - SURFACE WATER AND SEDIMENT - CREEKS
SITE 12, NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Populations	Receptor Age	Exposure Routes	Type of Analysis	Rationale
Current/Future	Sediment	Sediment	Contact with Sediment During Wading	Recreational Person	Child	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Sediment	Contact with Sediment During Wading	Recreational Person	Child	Dermal	Quant	Receptor activity patterns could result in exposure.
		Particulates	Particulate Dust Inhalation from Sediment During Wading	Recreational Person	Child	Inhalation	None	Sediments typically wet, which inhibits release of inhalable particulates.
		Sediment	Contact with Sediment During Wading	Recreational Person	Adult	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Sediment	Contact with Sediment During Wading	Recreational Person	Adult	Dermal	Quant	Receptor activity patterns could result in exposure.
		Particulates	Particulate Dust Inhalation from Sediment During Wading	Recreational Person	Adult	Inhalation	None	Sediments typically wet, which inhibits release of inhalable particulates.
		Sediment	Contact with Sediment During Wading	Recreational Person	Child/Adult**	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Sediment	Contact with Sediment During Wading	Recreational Person	Child/Adult**	Dermal	Quant	Receptor activity patterns could result in exposure.
		Particulates	Particulate Dust Inhalation from Sediment During Wading	Recreational Person	Child/Adult**	Inhalation	None	Sediments typically wet, which inhibits release of inhalable particulates.
		Sediment	Contact with Sediment During Wading	Construction Worker	Adult	Ingestion	Quant	Current land use is industrial, but future construction is conceivable.
		Sediment	Contact with Sediment During Wading	Construction Worker	Adult	Dermal	Quant	Current land use is industrial, but future construction is conceivable.
		Particulates	Particulate Dust Inhalation from Sediment During Wading	Construction Worker	Adult	Inhalation	None	Sediments typically wet, which inhibits release of inhalable particulates.
Current/Future	Surface Water	Surface Water	Contact with Surface Water During Wading	Recreational Person	Child	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Child	Dermal	Quant	Receptor activity patterns could result in exposure.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Child	Inhalation	None	Ambient inhalation exposure expected to be insignificant due to no detected VOCs.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Adult	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Adult	Dermal	Quant	Receptor activity patterns could result in exposure.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Adult	Inhalation	None	Ambient inhalation exposure expected to be insignificant due to no detected VOCs.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Child/Adult**	Ingestion	Quant	Receptor activity patterns could result in exposure.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Child/Adult**	Dermal	Quant	Receptor activity patterns could result in exposure.
		Surface Water	Contact with Surface Water During Wading	Recreational Person	Child/Adult**	Inhalation	None	Ambient inhalation exposure expected to be insignificant due to no detected VOCs.
		Surface Water	Contact with Surface Water During Wading	Construction Worker	Adult	Ingestion	Quant	Current land use is industrial, but future construction is conceivable.
		Surface Water	Contact with Surface Water During Wading	Construction Worker	Adult	Dermal	Quant	Current land use is industrial, but future construction is conceivable.
		Surface Water	Contact with Surface Water During Wading	Construction Worker	Adult	Inhalation	None	Ambient inhalation exposure expected to be insignificant due to no detected VOCs.

**Child/Adult represents cumulative (lifetime) exposure only applied to cancer risk. Two age groups are used - 6 yr exposure duration (ED) as a young child, age 0 to 6 and 24 yr. ED as an adult (ages 6 to 16 and 16 to 30).

LIST OF TABLES
RAGS PART D TABLE 2
OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs

TABLE NO.

2.01	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - CONTACT WITH SITE 12 GROUNDWATER
2.02	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - MIGRATION FROM SITE 12 SOIL TO GROUNDWATER
2.03	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - EXPOSURE TO SITE 12 SURFACE SOIL
2.03a	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - EXPOSURE TO SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
2.04	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - EXPOSURE TO SITE 12 SOIL
2.05	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SURFACE SOIL
2.06	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SOIL
2.07	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - EXPOSURE TO SITE 12 SURFACE WATER
2.08	OCCURRENCE, DISTRIBUTION AND SELECTION OF COPCs - EXPOSURE TO SITE 12 SEDIMENT

TABLE 2.01
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Points (1)	CAS Number	Chemical	Minimum Concentration (Qualifier) (2)	Maximum Concentration (Qualifier) (2)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (3)	Concentration Used for Screening (4)	Background Value (5)	Screening Toxicity Value (N/C) (6)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Tap Water Contact, Water Vapors at Showerhead, or Outdoor Contact During Construction (1)	1746-01-6	**Total 2,3,7,8-TCDD Equiv.**	0.000045	0.00147	ng/L	12MW01S-20120307	4/4	N/A	0.00147	NA	0.00052 C			**Y**	**ASL**
	7429-90-5	**Aluminum**	38.1 K	8570	ug/L	12MW02O-20120306	7/7	N/A	8570	NA	1600 N			**Y**	**ASL**
	7440-38-2	**Arsenic**	0.23 J	2.7	ug/L	12MW02O-20120306	3/8	0.5-0.5	2.7	NA	0.045 C			**Y**	**ASL**
	7440-39-3	**Barium**	29.7	310	ug/L	12MW02S-20120306	8/8	N/A	310	NA	290 N			**Y**	**ASL**
	7440-43-9	Cadmium	0.14 J	0.21 J	ug/L	12MW03S-20120306	4/8	0.5-0.5	0.21	NA	0.69 N			N	BSL
	7440-70-2	Calcium	199 J	47300	ug/L	12MW01S-20120307	8/8	N/A	47300	NA	N			N	NUT
	7440-47-3	**Chromium**	2.6 J	24.6 J	ug/L	12MW03O-20120306	8/8	N/A	24.6	NA	0.031 C			**Y**	**ASL**
	7440-48-4	**Cobalt**	0.51 J	3.6	ug/L	12MW02O-20120306	7/7	N/A	3.6	NA	0.47 N			**Y**	**ASL**
	7440-50-8	Copper	0.91 J	7.1	ug/L	12MW02O-20120306	8/8	N/A	7.1	NA	62 N			N	BSL
	7439-89-6	**Iron**	168 J	12200	ug/L	12MW02O-20120306	8/8	N/A	12200	NA	1100 N			**Y**	**ASL**
	7439-92-1	Lead	0.81 J	5.1	ug/L	12MW02O-20120306	4/4	N/A	5.1	NA	15 N			N	BSL
	7439-95-4	Magnesium	1550	22200	ug/L	12MW03O-20120306	8/8	N/A	22200	NA	N			N	NUT
	7439-96-5	**Manganese**	21.2	1680	ug/L	12MW03S-20120306-D	8/8	N/A	1680	NA	32 N			**Y**	**ASL**
	7440-02-0	Nickel	2.1 J	20.3 J	ug/L	12MW03O-20120306	8/8	N/A	20.3	NA	30 N			N	BSL
	7440-09-7	Potassium	301 J	43300	ug/L	12MW03O-20120306	8/8	N/A	43300	NA	N			N	NUT
	7782-49-2	Selenium	0.78 J	0.96 J	ug/L	12MW02S-20120306	2/8	2.5-2.5	0.96	NA	7.8 N			N	BSL
	7440-23-5	Sodium	5960 L	17100 L	ug/L	12MW01O-20120307	7/7	N/A	17100	NA	N			N	NUT
	7440-62-2	**Vanadium**	0.32 J	19.2	ug/L	12MW02O-20120306	4/8	2.5-2.5	19.2	NA	7.8 N			**Y**	**ASL**
	7440-66-6	Zinc	7.3 J	51.1 J	ug/L	12MW04O-20120307	8/8	N/A	51.1	NA	470 N			N	BSL
	206-44-0	Fluoranthene	0.06 J	0.062 J	ug/L	12MW03S-20120306	1/8	0.05-0.05	0.062	NA	63 N			N	BSL
	85-01-8	Phenanthrene	0.061 J	0.061 J	ug/L	12MW02S-20120306	1/8	0.05-0.05	0.061	NA	8.7 N			N	BSL
	129-00-0	Pyrene	0.062 J	0.07 J	ug/L	12MW03S-20120306-D	1/8	0.05-0.05	0.07	NA	8.7 N			N	BSL
	156-59-2	1,2-Dichloroethene (cis)	0.93 J	0.93 J	ug/L	02MW03I-20120307	1/14	0.5-0.5	0.93	N	2.8 N			N	BSL
	56-23-5	**Carbon Tetrachloride****	0.61 J	0.61 J	ug/L	02MW03I-20120307	1/14	0.5-0.5	0.61	NA	0.39 C			**Y**	**ASL**
	67-66-3	**Chloroform****	0.77 J	0.77 J	ug/L	02MW03I-20120307	1/14	0.5-0.5	0.77	NA	0.19 C			**Y**	**ASL**
	79-01-6	**Trichloroethene****	2	4.1	ug/L	02MW03SI-20120308	2/14	0.5-0.5	4.1	N	0.26 N			**Y**	**ASL**

Footnotes:

1 - Exposure points considered are tap water ingestion, dermal contact, showering, and construction worker dermal contact and outdoor inhalation. RSLs based on tap water are generally overprotective for construction workers. COPCs with Henry's Law constants > 1E-05 and molecular weights < 205 were considered inhalation COPCs.
2 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
3 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
4 - The maximum detected concentration is used for screening purposes.
5 - A statistical background comparison analysis was not performed so background comparison was not involved in selecting or eliminating COPCs.
6 - The EPA ORNL risk-based tap water COPC screening level for residential use is presented. The noncarcinogenic values (annotated "N") are divided by 10 to correspond to a target hazard quotient of 0.1, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, May 2013).
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level. An asterisk indicates volatile COPCs for evaluation of outdoor inhalation exposure.
8 - The RSL for hexavalent chromium was utilized for screening total chromium analysis data.
** - These COPCs were also selected for the inhalation pathway because of Henry Law constants greater than 1E-05 and molecular weights less than or equal to 205.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(8) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

Groundwater samples included in COPC screening and risk assessment:

SAMPLE I.D.	Volatiles	Semivolatiles	1,4-Dioxane	Pesticides	Metals	Dioxins/Furans
12MW01O-20120307	X	X	X	X	X	X
12MW01S-20120307	X	X	X	X	X	X
12MW02O-20120306	X	X	X	X	X	X
12MW02S-20120306	X	X	X	X	X	X
12MW02S-20120306-D	X		X			X
02MW01I-20120308	X					
02MW01S-20120308	X					
02MW03I-20120307	X					

SAMPLE I.D.	Volatiles	Semivolatiles	1,4-Dioxane	Pesticides	Metals	Dioxins/Furans
12MW03O-20120306	X	X	X	X	X	
12MW03S-20120306	X	X	X	X	X	
12MW03S-20120306-D	X	X	X	X	X	
12MW04O-20120307	X	X	X	X	X	
12MW04S-20120306	X	X	X	X	X	
02MW03SI-20120308	X					
02MW04I-20120307	X					
02MW04S-20120307	X					

TABLE 2.02
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SITE 12 SOIL TO GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Groundwater

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
Tap Water Contact or	1746-01-6	**Total 2,3,7,8-TCDD Equiv.**	5.07813	603.051	ng/kg	12TP02-0405-03	6/6	N/A	603.051	NA	0.2678 C	**Y**	**ASL**
Water Vapors at Showerhead	7429-90-5	**Aluminum**	2280	29400	mg/kg	12TP15-0304-03	186/186	N/A	29400	NA	23690 N	**Y**	**ASL**
	7440-36-0	**Antimony**	0.41 L	35.4 J	mg/kg	12TP16-0608-03	44/50	0.32-0.35	35.4	NA	0.2781 N	**Y**	**ASL**
	7440-38-2	**Arsenic**	0.76 J	108 L	mg/kg	12TP03-0506-04	185/185	N/A	108	NA	0.00134 C	**Y**	**ASL**
	7440-39-3	**Barium**	15 L	1110	mg/kg	12TP03-0506-04	186/186	N/A	1110	NA	123.6 N	**Y**	**ASL**
	7440-41-7	Beryllium	0.2 L	3.1 L	mg/kg	12TP15-0304-03	183/183	N/A	3.1	NA	13.39 N	N	BSL
	7440-43-9	**Cadmium**	0.025 J	105	mg/kg	12TP08-0304-03	107/120	0.06-0.08	105	NA	0.5356 N	**Y**	**ASL**
	7440-70-2	Calcium	166 J	67600 J	mg/kg	12TP08-0304-03	186/186	N/A	67600	NA	N	N	NUT
	7440-47-3	**Chromium**	4	192 L	mg/kg	12TP03-0506-04	194/194	N/A	192	NA	0.00061 C	**Y**	**ASL**
	7440-48-4	**Cobalt**	1.9 J	23.1	mg/kg	12TP02-0405-03	186/186	N/A	23.1	NA	0.2163 N	**Y**	**ASL**
	7440-50-8	**Copper**	2.6 J	1980	mg/kg	12TP02-0405-03	189/189	N/A	1980	NA	22.66 N	**Y**	**ASL**
	57-12-5	**Cyanide**	0.043 J	0.426	mg/kg	12SB10-0.502-02	56/135	0.12-0.21	0.426	NA	0.01446 N	**Y**	**ASL**
	18540-29-9	**Hexavalent Chromium**	0.26 J	7.4	mg/kg	12SB21-000.5-01	42/43	0.12-0.15	7.4	NA	0.00065 N	**Y**	**ASL**
	7439-89-6	**Iron**	4610 J	166000	mg/kg	SSA12-SB08D-0202.5-20071205	186/186	N/A	166000	NA	278.1 N	**Y**	**ASL**
	7439-92-1	Lead	1.6 J	7900 J	mg/kg	12TP15-0304-03	195/195	N/A	7900	NA	N	N	NTX
	7439-95-4	Magnesium	357 J	20600 J	mg/kg	12TP15-000.5-01	186/186	N/A	20600	NA	N	N	NUT
	7439-96-5	**Manganese**	29.4 J	3740	mg/kg	12TP01-0708-04	186/186	N/A	3740	NA	21.63 N	**Y**	**ASL**
	7439-97-6	**Mercury**	0.002 J	0.47 K	mg/kg	SSA12-SS07D-000.5-20071205	166/186	0.0055-0.021	0.47	NA	0.03399 N	**Y**	**ASL**
	7440-02-0	**Nickel**	2.4 L	117 J	mg/kg	12TP09-0304-03-D	186/186	N/A	117	NA	20.6 N	**Y**	**ASL**
	7440-09-7	Potassium	103 L	3500	mg/kg	12TP05-0910-04	186/186	N/A	3500	NA	N	N	NUT
	7782-49-2	**Selenium**	0.057 J	16.4 L	mg/kg	12TP12-0203-03	66/128	0.2-0.52	16.4	NA	0.412 N	**Y**	**ASL**
	7440-22-4	**Silver**	0.05 J	19.5 K	mg/kg	12TP12-0203-03	58/104	0.0455-0.14	19.5	NA	0.618 N	**Y**	**ASL**
	7440-23-5	Sodium	33.1 J	1300 K	mg/kg	12TP15-0304-03	68/68	N/A	1300	NA	N	N	NUT
	7440-28-0	**Thallium**	0.08 J	41.1 K	mg/kg	SSA12-SB08D-0202.5-20071205	77/121	0.54-0.77	41.1	NA	0.01133 N	**Y**	**ASL**
	7440-62-2	Vanadium	5.2 J	58.8	mg/kg	12TP03-0607-03	186/186	N/A	58.8	NA	65.08 N	N	BSL
	7440-66-6	**Zinc**	8.6 J	5400	mg/kg	12TP15-0304-03	186/186	N/A	5400	NA	298.7 N	**Y**	**ASL**
	72-54-8	**4,4'-DDD**	0.59 J	19 J	ug/kg	SSA12-SS03E-000.5-20071206	21/169	0.95-83	19	NA	6.61 C	**Y**	**ASL**
	72-55-9	**4,4'-DDE**	0.82 J	82	ug/kg	12TP15-000.5-01	39/174	0.95-52	82	NA	47.38 C	**Y**	**ASL**
	50-29-3	**4,4'-DDT**	0.97 J	170	ug/kg	12TP15-000.5-01	53/183	0.95-52	170	NA	69.01 C	**Y**	**ASL**
	309-00-2	**Aldrin**	0.61 J	2.4	ug/kg	12TP11-000.5-01	5/188	0.95-44	2.4	NA	0.6715 C	**Y**	**ASL**
	319-84-6	**Alpha-BHC**	0.43 J	3.2	ug/kg	12TP11-000.5-01	12/186	0.95-27	3.2	NA	0.03708 C	**Y**	**ASL**
	5103-71-9	Alpha-Chlordane	0.33 J	13 J	ug/kg	12TP05-0.502-02	25/181	0.95-27	13	NA	13.43 C	N	BSL
	11096-82-5	**Aroclor-1260**	350 J	350 J	ug/kg	12SB20-0304-03-D	1/186	9.5-270	350	NA	24.72 C	**Y**	**ASL**
	319-85-7	**Beta-BHC**	1.5 J	13 J	ug/kg	SSA12-SS10E-000.5-20071207	3/159	0.95-21	13	NA	0.1339 C	**Y**	**ASL**
	319-86-8	Delta-BHC	0.38 J	2.8 J	ug/kg	12TP08-000.5-01	24/180	0.95-27	2.8	NA	C	N	NTX
	60-57-1	**Dieldrin**	1 J	500 J	ug/kg	SSA12-SS07E-000.5-20071206	50/173	0.95-83	500	NA	0.06283 C	**Y**	**ASL**
	959-98-8	Endosulfan I	0.34 J	11 J	ug/kg	12TP03-0607-03	27/180	0.95-27	11	NA	1133 N	N	BSL
	33213-65-9	Endosulfan II	1.2 J	14 J	ug/kg	12TP03-0607-03	6/173	0.95-52	14	NA	1133 N	N	BSL
	1031-07-8	Endosulfan Sulfate	1.1 J	54 J	ug/kg	SSA12-SS15E-000.5-20071206	13/182	0.95-52	54	NA	1133 N	N	BSL
	72-20-8	Endrin	0.9 J	19 J	ug/kg	12TP11-0.502-02	8/186	0.95-52	19	NA	70.04 N	N	BSL
	007421-93-4	Endrin Aldehyde	0.58 J	27 J	ug/kg	SSA12-SS15E-000.5-20071206	42/181	0.95-52	27	NA	70.04 N	N	BSL
	53494-70-5	Endrin Ketone	0.74 J	34 J	ug/kg	12TP11-0.502-02	23/171	0.95-52	34	NA	70.04 N	N	BSL
	58-89-9	**Gamma-BHC (Lindane)**	2.3 J	2.3 J	ug/kg	SSA12-SB01D-0001-20071207	1/189	0.95-27	2.3	NA	0.2163 C	**Y**	**ASL**
	5103-74-2	**Gamma-Chlordane**	0.46 J	28 J	ug/kg	12TP11-0.502-02	20/156	0.95-27	28	NA	13.43 C	**Y**	**ASL**

TABLE 2.02
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SITE 12 SOIL TO GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Groundwater

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
Tap Water Contact or Water Vapors at Showerhead	76-44-8	**Heptachlor**	0.31 J	2.1 J	ug/kg	12TP15-000.5-01	31/177	0.95-27	2.1	NA	0.1442 C	**Y**	**ASL**
	1024-57-3	**Heptachlor Epoxide**	0.36 J	12 J	ug/kg	12TP11-0.502-02	33/177	0.95-43	12	NA	0.07004 C	**Y**	**ASL**
	72-43-5	Methoxychlor	11 J	120 J	ug/kg	12TP03-0607-03	6/178	0.95-440	120	NA	1545 N	N	BSL
	95-50-1	1,2-Dichlorobenzene	190	190	ug/kg	12TP01-0506-03	1/186	2.2-260	190	NA	278.1 N	N	BSL
	106-46-7	**1,4-Dichlorobenzene**	2.8 J	21	ug/kg	12TP01-0506-03	2/186	2.2-260	21	NA	0.412 C	**Y**	**ASL**
	91-57-6	**2-Methylnaphthalene**	0.94 J	35000 J	ug/kg	12TP01-0506-03	77/208	1.85-2200	35000	NA	144.2 N	**Y**	**ASL**
	83-32-9	**Acenaphthene**	1.6 J	5100	ug/kg	12TP09-0304-03	86/208	1.85-3800	5100	NA	4223 N	**Y**	**ASL**
	208-96-8	Acenaphthylene	0.86 J	670 J	ug/kg	12TP08-0.502-02	87/208	1.85-4400	670	NA	4120 N	N	BSL
	120-12-7	Anthracene	0.72 J	16000	ug/kg	12TP11-0.502-02	125/208	1.85-1900	16000	NA	43260 N	N	BSL
	56-55-3	**Benz(a)anthracene**	0.77 J	22000 J	ug/kg	12TP09-0304-03	145/208	1.85-1900	22000	NA	10.3 C	**Y**	**ASL**
	100-52-7	Benzaldehyde	26 J	68 J	ug/kg	12TP02-0405-03	5/104	200-6300	68	NA	339.9 N	N	BSL
	50-32-8	**Benzo(a)pyrene**	1.6 J	21000 J	ug/kg	12TP11-0.502-02	144/208	1.85-1900	21000	NA	3.605 C	**Y**	**ASL**
	205-99-2	**Benzo(b)fluoranthene**	0.75 J	19000 J	ug/kg	12TP11-0.502-02	149/208	1.85-1900	19000	NA	36.05 C	**Y**	**ASL**
	191-24-2	**Benzo(g,h,i)perylene**	0.63 J	25000	ug/kg	12TP11-0.502-02	137/208	1.85-1400	25000	NA	9785 N	**Y**	**ASL**
	207-08-9	**Benzo(k)fluoranthene**	0.8 J	30000	ug/kg	12TP11-0.502-02	147/208	1.85-1900	30000	NA	360.5 C	**Y**	**ASL**
	117-81-7	**Bis(2-ethylhexyl) Phthalate**	46 J	23000 J	ug/kg	SSA12-SB08D-0202.5-20071205	17/173	185-4400	23000	NA	1136 C	**Y**	**ASL**
	86-74-8	Carbazole	44 J	8400 J	ug/kg	12TP09-0304-03	30/186	185-6300	8400	NA	C	N	NTX
	218-01-9	**Chrysene**	0.89 J	24000 J	ug/kg	12TP09-0304-03	158/208	1.85-1900	24000	NA	1133 C	**Y**	**ASL**
	84-74-2	Di-n-butyl Phthalate	23 J	97 J	ug/kg	12TP12-000.5-01	6/186	185-4400	97	NA	1751 N	N	BSL
	117-84-0	Di-n-octyl Phthalate	48 J	150 J	ug/kg	12TP14-0.502-02	2/186	185-4400	150	NA	45452 N	N	BSL
	53-70-3	**Dibenz(a,h)anthracene**	0.77 J	12000	ug/kg	12TP11-0.502-02	110/208	1.85-1900	12000	NA	11.33 C	**Y**	**ASL**
	132-64-9	**Dibenzofuran**	29 J	4600	ug/kg	12TP09-0304-03	19/186	185-2850	4600	NA	113.3 N	**Y**	**ASL**
	131-11-3	Dimethyl Phthalate	170 J	540	ug/kg	12SB15-0.502-02	40/186	190-4400	540	NA	N	N	NTX
	206-44-0	Fluoranthene	2.3 J	48000 J	ug/kg	12TP09-0304-03	168/208	1.85-1900	48000	NA	72100 N	N	BSL
	86-73-7	**Fluorene**	0.59 J	6900	ug/kg	12TP11-0.502-02	101/208	1.85-2200	6900	NA	4120 N	**Y**	**ASL**
	193-39-5	**Indeno(1,2,3-cd)pyrene**	1.2 J	30000	ug/kg	12TP11-0.502-02	129/208	1.85-2400	30000	NA	206.6 C	**Y**	**ASL**
	91-20-3	**Naphthalene**	2.5 J	13000 J	ug/kg	12TP01-0506-03	60/208	1.85-2200	13000	NA	0.4841 C	**Y**	**ASL**
	85-01-8	**Phenanthrene**	1.6 J	48000 J	ug/kg	12TP09-0304-03	163/208	1.85-1400	48000	NA	9785 N	**Y**	**ASL**
	129-00-0	**Pyrene**	2 J	36000 J	ug/kg	12TP09-0304-03	162/208	1.85-1900	36000	NA	9785 N	**Y**	**ASL**
	87-61-6	**1,2,3-Trichlorobenzene**	3.8 J	82 J	ug/kg	12TP04-0405-03	2/151	2.2-11	82	NA	15.45 N	**Y**	**ASL**
	120-82-1	**1,2,4-Trichlorobenzene**	2.7 J	48 J	ug/kg	12TP04-0405-03	2/186	2.2-260	48	NA	2.987 N	**Y**	**ASL**
	156-59-2	**1,2-Dichloroethene (cis)**	7.6 J	14	ug/kg	12TP02-0405-03	2/186	2.2-260	14	NA	8.446 N	**Y**	**ASL**
	156-60-5	1,2-Dichloroethene (trans)	6.6 J	7.3 J	ug/kg	12TP03-0506-04	2/186	2.2-260	7.3	NA	25.75 N	N	BSL
	78-93-3	2-Butanone	5.1 J	200 J	ug/kg	12SB15-000.5-01	53/152	11-660	200	NA	1030 N	N	BSL
	591-78-6	**2-Hexanone**	14 J	14 J	ug/kg	12SB15-000.5-01	1/186	11-660	14	NA	8.137 N	**Y**	**ASL**
	67-64-1	**Acetone**	5.6 J	4600 J	ug/kg	SSA12-SB03D-1.502-20071205	116/171	11-650	4600	NA	2472 N	**Y**	**ASL**
	71-43-2	**Benzene**	1.3 J	44	ug/kg	12TP09-0304-03-D	11/186	2.2-260	44	NA	0.206 C	**Y**	**ASL**
	74-83-9	**Bromomethane**	6.3 J	78 J	ug/kg	12TP09-0304-03-D	2/186	2.2-260	78	NA	1.854 N	**Y**	**ASL**
	75-15-0	Carbon Disulfide	1.1 J	10	ug/kg	12TP03-000.5-01	18/186	2.2-260	10	NA	216.3 N	N	BSL
	108-90-7	Chlorobenzene	4 J	4 J	ug/kg	12TP06-0506-03	1/186	2.2-260	4	NA	50.47 N	N	BSL
	74-87-3	**Chloromethane**	1.2 J	130	ug/kg	12TP09-0304-03-D	9/186	2.2-260	130	NA	50.47 N	**Y**	**ASL**
	110-82-7	Cyclohexane	36	36	ug/kg	12TP13-0506-03	1/104	4.4-260	36	NA	13390 N	N	BSL
	75-71-8	Dichlorodifluoromethane	1.8 J	12	ug/kg	SSA12-SS15E-000.5-20071206	2/186	2.2-260	12	NA	309 N	N	BSL
	100-41-4	**Ethylbenzene**	1.3 J	280	ug/kg	12TP04-0405-03	4/186	2.2-260	280	NA	1.545 C	**Y**	**ASL**

TABLE 2.02
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SITE 12 SOIL TO GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Groundwater

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
Tap Water Contact or	98-82-8	Isopropylbenzene	2.9 J	540	ug/kg	12TP04-0405-03	4/186	2.2-260	540	NA	659.2 N	N	BSL
Water Vapors at Showerhead	179601-23-1	**M,p-xylene**	2.5 J	970	ug/kg	12TP04-0405-03	3/186	4.4-520	970	NA	195.7 N	**Y**	**ASL**
	79-20-9	Methyl Acetate	1.8 J	440 J	ug/kg	12SB02-000.5-01	23/104	4.6-260	440	NA	3296 N	N	BSL
	108-87-2	Methylcyclohexane	2.8 J	880	ug/kg	12TP04-0405-03	5/104	4.4-260	880	NA	N	N	NTX
	75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	12SB19-0304-03	1/186	2.2-260	2.4	NA	2.575 N	N	BSL
	95-47-6	O-xylene	110	110	ug/kg	12TP01-0506-03	1/186	2.2-260	110	NA	195.7 N	N	BSL
	127-18-4	Tetrachloroethene	3.6 J	3.7 J	ug/kg	12TP14-0405-03	2/186	2.2-260	3.7	NA	4.532 N	N	BSL
	108-88-3	Toluene	1.6 J	13	ug/kg	12TP09-0304-03-D	8/185	2.2-260	13	NA	607.7 N	N	BSL
	79-01-6	**Trichloroethene**	3.2 J	3.9 J	ug/kg	12TP14-0.502-02	2/186	2.2-260	3.9	NA	0.1648 N	**Y**	**ASL**
	75-69-4	Trichlorofluoromethane	3.8 J	3.8 J	ug/kg	SSA12-SS15E-000.5-20071206	1/186	2.2-260	3.8	NA	710.7 N	N	BSL
	75-01-4	**Vinyl Chloride**	19	19	ug/kg	12TP02-0405-03	2/186	2.2-260	19	NA	0.00546 C	**Y**	**ASL**
	1330-20-7	**Xylenes (Total)**	2.5 J	970	ug/kg	12TP04-0405-03	3/186	4.4-260	970	NA	195.7 N	**Y**	**ASL**

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background,
Separate tables are presented to show the results of background comparisons for surface soil and subsurface soil.
5 - The EPA ORNL risk-based soil to groundwater water COPC screening level for residential use is presented using a Dilution Attenuation Factor (DAF) of 1.03 and
corresponds to a target hazard quotient of 1.0, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, May 2013).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
7 - The RSL for hexavalent chromium was utilized for screening both hexavalent chromium analysis and total chromium analysis data.
8 - The RSL for methyl mercury was used because the form of mercury in soil is not known.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(9) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route
For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient

TABLE 2.02
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SITE 12 SOIL TO GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Groundwater

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
Site 12 Soil Samples:													
12SB01-0.502-02	12SB19-0.502-02		12SB43-0.502-02		12TP10-000.5-01		SSA12-SS15E-000.5-20071206			12TP03-0506-CS			
12SB01-000.5-01	12SB19-000.5-01		12SB44-0.502-02		12TP11-0.502-02		SSA12-SS16E-000.5-20071205			12TP03-0607-03			
12SB02-0.502-02	12SB20-0.502-02		12SB45-0.502-02		12TP11-000.5-01		SSA12-SS16E-000.5-20071205-D			12TP03-0809-05			
12SB02-0.502-02-D	12SB20-000.5-01		12SB45-0.502-02-D		12TP12-0.502-02		SSA12-SS17E-000.5-20071205			12TP04-0405-03			
12SB02-000.5-01	12SB20-000.5-01-D		12SB46-0.502-02		12TP12-000.5-01		SSA12-SS18E-000.5-20071205			12TP04-0607-04			
12SB03-0.502-02	12SB21-0.502-02		12SB47-0.502-02		12TP13-0.502-02		SSA12-SS19E-000.5-20071205			12TP05-0204-03			
12SB03-000.5-01	12SB21-000.5-01		12SB48-0.502-02		12TP13-000.5-01		12SB06-0304-03			12TP05-0204-03-D			
12SB04-0.502-02	12SB22-0.502-02		12SB48-0.502-02-D		12TP14-0.502-02		12SB07-0304-03			12TP05-0910-04			
12SB04-000.5-01	12SB22-000.5-01		12SB49-0.502-02		12TP14-000.5-01		12SB08-0304-03			12TP06-0506-03			
12SB05-0.502-02	12SB23-0.502-02		12SB50-0.502-02		12TP15-0.502-02		12SB09-0304			12TP06-0506-03-D			
12SB05-000.5-01	12SB23-000.5-01		12SB51-0.502-02		12TP15-000.5-01		12SB09-0304-03			12TP06-0910-04			
12SB06-0.502-02	12SB24-0.502-02		12SB52-0.502-02		12TP16-0.502-02		12SB10-0304-03			12TP07-0607-03			
12SB06-000.5-01	12SB24-000.5-01		12SB53-0.502-02		12TP16-0.520-02		12SB11-0304-03			12TP08-0304-03			
12SB06-000.5-01-D	12SB25-0.502-02		12SB54-0.502-02		12TP16-000.5-01		12SB12-0304-03			12TP08-0304-CS			
12SB07-0.502-02	12SB25-000.5-01		12SB55-0.502-02		12TP17-0.5-02-02		12SB13-0304-03			12TP09-0304-03			
12SB07-000.5-01	12SB26-0.502-02		12SB56-0.502-02		12TP17-0.52.0-02		12SB14-0304-03			12TP09-0304-03-D			
12SB08-0.502-02	12SB26-000.5-01		12SB57-000.5-01		12TP17-000.5-01		12SB15-0304-03			12TP09-0304-CS			
12SB08-000.5-01	12SB26-000.5-01-D		12SB57-000.5-01-D		SSA12-SB01D-0001-20071207		12SB16-0304-03			12TP09-0506-04			
12SB09-0.502-02	12SB27-0.502-02		12SB58-000.5-01		SSA12-SB03D-1.502-20071205		12SB16-0304-03-D			12TP09-0506-05			
12SB09-0.502-02-D	12SB27-000.5-01		12SB59-000.5-01		SSA12-SS01D-000.5-20071207		12SB17-0304-03			12TP10-0405-03			
12SB09-000.5-01	12SB28-0.502-02		12TP01-0.502-02		SSA12-SS01E-000.5-20071206		12SB18-0304-03			12TP10-0405-CS			
12SB10-0.502-02	12SB28-000.5-01		12TP01-000.5-01		SSA12-SS02D-000.5-20071207		12SB19-0304-03			12TP10-0809-04			
12SB10-000.5-01	12SB29-0.502-02		12TP02-0.502-02		SSA12-SS02E-000.5-20071206		12SB20-0304-03			12TP11-0304-03			
12SB11-0.501-02	12SB29-000.5-01		12TP02-000.5-01		SSA12-SS03D-000.5-20071205		12SB20-0304-03-D			12TP11-0506-04			
12SB11-000.5-01	12SB30-0.502-02		12TP03-0.502-02		SSA12-SS03E-000.5-20071206		12SB21-0304-03			12TP12-0203-03			
12SB12-0.502-02	12SB30-000.5-01		12TP03-0.502-02-D		SSA12-SS04D-000.5-20071205		12SB22-0304-03			12TP12-0203-CS			
12SB12-000.5-01	12SB31-0.502-02		12TP03-000.5-01		SSA12-SS04E-000.5-20071206		12SB23-0304-03			12TP12-0506-04			
12SB13-0.502-02	12SB31-0.502-02-D		12TP04-0.502-02		SSA12-SS05D-000.5-20071207		12SB24-0304-03			12TP13-0506-03			
12SB13-000.5-01	12SB32-0.502-02		12TP04-000.5-01		SSA12-SS05E-000.5-20071206		12SB25-0304-03			12TP13-0809-04			
12SB14-0.502-02	12SB33-0.502-02		12TP05-0.502-02		SSA12-SS06D-000.5-20071207		12SB26-0304-03			12TP14-0405-03			
12SB14-000.5-01	12SB34-0.502-02		12TP05-000.5-01		SSA12-SS06E-000.5-20071206		12SB28-0304-03			12TP14-0405-CS			
12SB15-0.502-02	12SB35-000.5-01		12TP06-0.502-02		SSA12-SS07D-000.5-20071205		12SB29-0304-03			12TP14-0607-04			
12SB15-000.5-01	12SB35-000.5-01-D		12TP06-000.5-01		SSA12-SS07E-000.5-20071206		12SB30-0304-03			12TP15-0304-03			
12SB15-000.5-01-D	12SB36-000.5-01		12TP07-0.502-02		SSA12-SS08D-000.5-20071205		12TP01-0506-03			12TP15-0304-CS			
12SB16-0.502-02	12SB37-000.5-01		12TP07-000.5-01		SSA12-SS08E-000.5-20071206		12TP01-0708-04			12TP15-0405-04			
12SB16-000.5-01	12SB38-000.5-01		12TP08-0.502-02		SSA12-SS09E-000.5-20071206		12TP02-0405-03			12TP16-0608-03			
12SB17-0.502-02	12SB39-000.5-01		12TP08-000.5-01		SSA12-SS10D-000.5-20071205		12TP02-0405-CS			12TP16-0608-03-D			
12SB17-000.5-01	12SB40-000.5-01		12TP09-0.502-02		SSA12-SS10E-000.5-20071207		12TP02-0405-CS-D			12TP16-0910-04			
12SB18-0.502-02	12SB41-000.5-01		12TP09-000.5-01		SSA12-SS13E-000.5-20071206		12TP02-0910-04			12TP16-0910-4			
12SB18-000.5-01	12SB42-0.502-02		12TP10-0.502-02		SSA12-SS14E-000.5-20071206		12TP03-0506-04			12TP18-0506-01			

TABLE 2.03
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Surface Soil	7429-90-5	**Aluminum**	2280	21000	mg/kg	SSA12-SS02D-000.5-20071207	122/122	N/A	21000	NA	7700 N			**Y**	**ASL**
	7440-36-0	**Antimony**	0.41 L	10.1 L	mg/kg	12SB07-000.5-01	31/32	0.32-0.32	10.1	NA	3.1 N			**Y**	**ASL**
	7440-38-2	**Arsenic**	0.96 J	29.8	mg/kg	12TP08-000.5-01	122/122	N/A	29.8	NA	0.39 C			**Y**	**ASL**
	7440-39-3	Barium	28.7 J	242	mg/kg	12TP08-0.502-02	122/122	N/A	242	NA	1500 N			N	BSL
	7440-41-7	Beryllium	0.23 L	1.3 L	mg/kg	12TP11-0.502-02	122/122	N/A	1.3	NA	16 N			N	BSL
	7440-43-9	**Cadmium**	0.04 J	9.4	mg/kg	SSA12-SS04D-000.5-20071205	76/86	0.06-0.08	9.4	NA	7 N			**Y**	**ASL**
	7440-70-2	Calcium	314 J	55800 J	mg/kg	12TP09-0.502-02	122/122	N/A	55800	NA	N			N	NUT
	7440-47-3	**Chromium**	4.7 J	38.5	mg/kg	SSA12-SS03E-000.5-20071206	122/122	N/A	38.5	NA	0.029 N			**Y**	**ASL**
	7440-48-4	**Cobalt**	2.1 J	12	mg/kg	12TP02-0.502-02	122/122	N/A	12	NA	2.3 N			**Y**	**ASL**
	7440-50-8	**Copper**	4.2 J	458	mg/kg	12TP12-000.5-01	125/125	N/A	458	NA	310 N			**Y**	**ASL**
	57-12-5	Cyanide	0.043 J	0.426	mg/kg	12SB10-0.502-02	43/85	0.13-0.21	0.426	NA	4.7 N			N	BSL
	18540-29-9	**Hexavalent Chromium**	0.26 J	7.4	mg/kg	12SB21-000.5-01	22/22	0.15-0.15	7.4	NA	0.029 N			**Y**	**ASL**
	7439-89-6	**Iron**	5810	37100	mg/kg	12TP08-000.5-01	122/122	N/A	37100	NA	5500 N			**Y**	**ASL**
	7439-92-1	**Lead**	5.4 L	1410	mg/kg	12SB52-0.502-02	131/131	N/A	1410	NA	400 N			**Y**	**ASL**
	7439-95-4	Magnesium	478	20600 J	mg/kg	12TP15-000.5-01	122/122	N/A	20600	NA	N			N	NUT
	7439-96-5	**Manganese**	106 J	1020 J	mg/kg	12TP11-0.502-02	122/122	N/A	1020	NA	180 N			**Y**	**ASL**
	7439-97-6	Mercury	0.007 J	0.47 K	mg/kg	SSA12-SS07D-000.5-20071205	116/122	0.02-0.021	0.47	NA	0.78 N			N	BSL
	7440-02-0	Nickel	3.5 J	63.5	mg/kg	SSA12-SS04D-000.5-20071205	122/122	N/A	63.5	NA	150 N			N	BSL
	7440-09-7	Potassium	163 L	2480	mg/kg	12TP09-0.502-02	122/122	N/A	2480	NA	N			N	NUT
	7782-49-2	Selenium	0.063 J	2.6 L	mg/kg	12TP03-0.502-02	47/84	0.21-0.52	2.6	NA	39 N			N	BSL
	7440-22-4	Silver	0.05 J	7.7	mg/kg	12TP08-0.502-02	43/69	0.1-0.14	7.7	NA	39 N			N	BSL
	7440-23-5	Sodium	33.1 J	549 K	mg/kg	SSA12-SB01D-0001-20071207	39/39	N/A	549	NA	N			N	NUT
	7440-28-0	**Thallium**	0.11 J	4.2 J	mg/kg	SSA12-SS02D-000.5-20071207	49/77	0.54-0.77	4.2	NA	0.078 N			**Y**	**ASL**
	7440-62-2	**Vanadium**	5.7 L	44.9	mg/kg	12TP10-0.502-02	122/122	N/A	44.9	NA	39 N			**Y**	**ASL**
	7440-66-6	Zinc	16.9 J	731	mg/kg	SSA12-SS04D-000.5-20071205	122/122	N/A	731	NA	2300 N			N	BSL
	72-54-8	4,4'-DDD	0.94 J	19 J	ug/kg	SSA12-SS03E-000.5-20071206	17/110	0.95-83	19	NA	2000 C			N	BSL
	72-55-9	4,4'-DDE	0.82 J	82	ug/kg	12TP15-000.5-01	34/116	0.95-52	82	NA	1400 C			N	BSL
	50-29-3	4,4'-DDT	1.2 J	170	ug/kg	12TP15-000.5-01	43/119	0.95-52	170	NA	1700 C			N	BSL
	309-00-2	Aldrin	0.61 J	2.4	ug/kg	12TP11-000.5-01	5/125	0.95-44	2.4	NA	29 C			N	BSL
	319-84-6	Alpha-BHC	0.43 J	3.2	ug/kg	12TP11-000.5-01	9/124	0.95-27	3.2	NA	77 C			N	BSL
	5103-71-9	Alpha-Chlordane	0.33 J	13 J	ug/kg	12TP05-0.502-02	20/117	0.95-27	13	NA	1600 C			N	BSL
	319-85-7	Beta-BHC	1.9 J	13 J	ug/kg	SSA12-SS10E-000.5-20071207	2/100	0.95-21	13	NA	270 C			N	BSL
	319-86-8	Delta-BHC	0.39 J	2.8 J	ug/kg	12TP08-000.5-01	20/118	0.95-27	2.8	NA	C			N	NTX
	60-57-1	**Dieldrin**	1 J	500 J	ug/kg	SSA12-SS07E-000.5-20071206	45/115	0.95-83	500	NA	30 C			**Y**	**ASL**
	959-98-8	Endosulfan I	0.34 J	3.9 J	ug/kg	12SB01-0.502-02	21/117	0.95-27	3.9	NA	37000 N			N	BSL
	33213-65-9	Endosulfan II	1.7 J	2.1 J	ug/kg	12TP01-000.5-01	2/112	0.95-52	2.1	NA	37000 N			N	BSL
	1031-07-8	Endosulfan Sulfate	1.5 J	54 J	ug/kg	SSA12-SS15E-000.5-20071206	10/120	0.95-52	54	NA	37000 N			N	BSL
	72-20-8	Endrin	0.9 J	19 J	ug/kg	12TP11-0.502-02	6/122	0.95-52	19	NA	1800 N			N	BSL
	007421-93-4	Endrin Aldehyde	0.58 J	27 J	ug/kg	SSA12-SS15E-000.5-20071206	34/120	0.95-52	27	NA	1800 N			N	BSL
	53494-70-5	Endrin Ketone	0.74 J	34 J	ug/kg	12TP11-0.502-02	18/116	0.95-52	34	NA	1800 N			N	BSL
	58-89-9	Gamma-BHC (Lindane)	2.3 J	2.3 J	ug/kg	SSA12-SB01D-0001-20071207	1/125	0.95-27	2.3	NA	520 C			N	BSL

TABLE 2.03
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Surface Soil	5103-74-2	Gamma-Chlordane	0.46 J	28 J	ug/kg	12TP11-0.502-02	12/100	0.95-27	28	NA	1600 C			N	BSL
	76-44-8	Heptachlor	0.31 J	2.1 J	ug/kg	12TP15-000.5-01	24/119	0.95-27	2.1	NA	110 C			N	BSL
	1024-57-3	Heptachlor Epoxide	0.37 J	12 J	ug/kg	12TP11-0.502-02	23/115	0.95-43	12	NA	53 C			N	BSL
	72-43-5	Methoxychlor	13 J	41 J	ug/kg	SSA12-SS15E-000.5-20071206	3/118	0.95-440	41	NA	31000 N			N	BSL
	91-57-6	2-Methylnaphthalene	1.2 J	990 K	ug/kg	12SB10-0.502-02	58/144	1.9-2200	990	NA	23000 N			N	BSL
	83-32-9	Acenaphthene	1.6 J	3200	ug/kg	12TP11-0.502-02	69/144	1.9-2200	3200	NA	340000 N			N	BSL
	208-96-8	Acenaphthylene	0.86 J	670 J	ug/kg	12TP08-0.502-02	76/144	1.9-2200	670	NA	230000 N			N	BSL
	120-12-7	Anthracene	0.72 J	16000	ug/kg	12TP11-0.502-02	100/144	1.9-270	16000	NA	1700000 N			N	BSL
	56-55-3	**Benz(a)anthracene**	1.3 J	21000 J	ug/kg	12TP11-0.502-02	112/144	1.95-270	21000	NA	150 C			**Y**	**ASL**
	100-52-7	Benzaldehyde	26 J	40 J	ug/kg	12TP14-0.502-02	3/68	200-2200	40	NA	780000 N			N	BSL
	50-32-8	**Benzo(a)pyrene**	2.3 J	21000 J	ug/kg	12TP11-0.502-02	116/144	1.95-240	21000	NA	15 C			**Y**	**ASL**
	205-99-2	**Benzo(b)fluoranthene**	1.3 J	19000 J	ug/kg	12TP11-0.502-02	116/144	1.95-270	19000	NA	150 C			**Y**	**ASL**
	191-24-2	Benzo(g,h,i)perylene	0.74 J	25000	ug/kg	12TP11-0.502-02	109/144	1.95-270	25000	NA	170000 N			N	BSL
	207-08-9	**Benzo(k)fluoranthene**	1.1 J	30000	ug/kg	12TP11-0.502-02	118/144	1.95-240	30000	NA	1500 C			**Y**	**ASL**
	117-81-7	Bis(2-ethylhexyl) Phthalate	46 J	1500	ug/kg	SSA12-SS13E-000.5-20071206	12/116	190-2200	1500	NA	35000 C			N	BSL
	86-74-8	Carbazole	44 J	8200	ug/kg	12TP11-0.502-02	22/122	190-4200	8200	NA	C			N	NTX
	218-01-9	**Chrysene**	1.4 J	22000 J	ug/kg	12TP11-0.502-02	124/144	1.95-240	22000	NA	15000 C			**Y**	**ASL**
	84-74-2	Di-n-butyl Phthalate	28 J	97 J	ug/kg	12TP12-000.5-01	5/122	190-2200	97	NA	610000 N			N	BSL
	117-84-0	Di-n-octyl Phthalate	48 J	150 J	ug/kg	12TP14-0.502-02	2/122	190-2200	150	NA	N			N	NTX
	53-70-3	**Dibenz(a,h)anthracene**	0.77 J	12000	ug/kg	12TP11-0.502-02	91/144	1.9-270	12000	NA	15 C			**Y**	**ASL**
	132-64-9	Dibenzofuran	29 J	3700	ug/kg	12TP11-0.502-02	12/122	190-2200	3700	NA	7800 N			N	BSL
	131-11-3	Dimethyl Phthalate	170 J	540	ug/kg	12SB15-0.502-02	28/122	190-2200	540	NA	N			N	NTX
	206-44-0	Fluoranthene	2.4 J	44000 J	ug/kg	12TP11-0.502-02	132/144	1.95-230	44000	NA	230000 N			N	BSL
	86-73-7	Fluorene	0.59 J	6900	ug/kg	12TP11-0.502-02	80/144	1.9-2200	6900	NA	230000 N			N	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	2.9 J	30000	ug/kg	12TP11-0.502-02	105/144	1.95-270	30000	NA	150 C			**Y**	**ASL**
	91-20-3	Naphthalene	2.5 J	660 J	ug/kg	12TP11-0.502-02	45/144	1.9-2200	660	NA	3600 C			N	BSL
	85-01-8	Phenanthrene	1.6 J	39000 K	ug/kg	12SB10-0.502-02	127/144	1.95-240	39000	NA	170000 N			N	BSL
	129-00-0	Pyrene	2.1 J	35000 J	ug/kg	12TP11-0.502-02	129/144	1.95-240	35000	NA	170000 N			N	BSL
	78-93-3	2-Butanone	5.5 J	200 J	ug/kg	12SB15-000.5-01	40/94	11.5-660	200	NA	2800000 N			N	BSL
	591-78-6	2-Hexanone	14 J	14 J	ug/kg	12SB15-000.5-01	1/122	11-660	14	NA	21000 N			N	BSL
	67-64-1	Acetone	5.6 J	4600 J	ug/kg	SSA12-SB03D-1.502-20071205	89/120	11.5-20.5	4600	NA	6100000 N			N	BSL
	71-43-2	Benzene	2.2 J	2.2 J	ug/kg	SSA12-SS09E-000.5-20071206	1/122	2.35-260	2.2	NA	1100 C			N	BSL
	75-15-0	Carbon Disulfide	1.4 J	10	ug/kg	12TP03-000.5-01	8/122	2.35-260	10	NA	82000 N			N	BSL
	74-87-3	Chloromethane	1.2 J	2.3 J	ug/kg	12TP05-0.502-02	5/122	2.35-260	2.3	NA	12000 N			N	BSL
	75-71-8	Dichlorodifluoromethane	1.8 J	12	ug/kg	SSA12-SS15E-000.5-20071206	2/122	2.35-260	12	NA	9400 N			N	BSL
	98-82-8	Isopropylbenzene	2.9 J	2.9 J	ug/kg	12SB18-000.5-01	1/122	2.35-260	2.9	NA	210000 N			N	BSL
	79-20-9	Methyl Acetate	3 J	440 J	ug/kg	12SB02-000.5-01	20/68	4.6-9.8	440	NA	7800000 N			N	BSL
	127-18-4	Tetrachloroethene	3.6 J	3.6 J	ug/kg	12TP14-0.502-02	1/122	2.35-260	3.6	NA	8600 N			N	BSL
	108-88-3	Toluene	1.6 J	2 J	ug/kg	12SB01-0.502-02	2/122	2.35-260	2	NA	500000 N			N	BSL
	79-01-6	Trichloroethene	3.9 J	3.9 J	ug/kg	12TP14-0.502-02	1/122	2.35-260	3.9	NA	440 N			N	BSL
	75-69-4	Trichlorofluoromethane	3.8 J	3.8 J	ug/kg	SSA12-SS15E-000.5-20071206	1/122	2.35-260	3.8	NA	79000 N			N	BSL

TABLE 2.03
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background, a separate table is presented to show the effects of background for on eliminating COPCs.
5 - The EPA ORNL risk-based tap water COPC screening level for residential use is presented. The noncarcinogenic values (annotated "N") are divided by 10 to correspond to a target hazard quotient of 0.1, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, May 2013).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
7 - The RSL for hexavalent chromium was utilized for screening both hexavalent chromium analysis and total chromium analysis data.
8 - The RSL for methyl mercury was used because the form of mercury in soil is not known.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(9) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route

For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

Site 12 Soil Samples:

12SB01-0.502-02	12SB11-000.5-01	12SB22-000.5-01	12SB35-000.5-01-D	12SB57-000.5-01	12TP10-000.5-01	SSA12-SS03E-000.5-20071206
12SB01-000.5-01	12SB12-0.502-02	12SB23-0.502-02	12SB36-000.5-01	12SB57-000.5-01-D	12TP11-0.502-02	SSA12-SS04D-000.5-20071205
12SB02-0.502-02	12SB12-000.5-01	12SB23-000.5-01	12SB37-000.5-01	12SB58-000.5-01	12TP11-000.5-01	SSA12-SS04E-000.5-20071206
12SB02-0.502-02-D	12SB13-0.502-02	12SB24-0.502-02	12SB38-000.5-01	12SB59-000.5-01	12TP12-0.502-02	SSA12-SS05D-000.5-20071207
12SB02-000.5-01	12SB13-000.5-01	12SB24-000.5-01	12SB39-000.5-01	12TP01-0.502-02	12TP12-000.5-01	SSA12-SS05E-000.5-20071206
12SB03-0.502-02	12SB14-0.502-02	12SB25-0.502-02	12SB40-000.5-01	12TP01-000.5-01	12TP13-0.502-02	SSA12-SS06D-000.5-20071207
12SB03-000.5-01	12SB14-000.5-01	12SB25-000.5-01	12SB41-000.5-01	12TP02-0.502-02	12TP13-000.5-01	SSA12-SS06E-000.5-20071206
12SB04-0.502-02	12SB15-0.502-02	12SB26-0.502-02	12SB42-0.502-02	12TP02-000.5-01	12TP14-0.502-02	SSA12-SS07D-000.5-20071205
12SB04-000.5-01	12SB15-000.5-01	12SB26-000.5-01	12SB43-0.502-02	12TP03-0.502-02	12TP14-000.5-01	SSA12-SS07E-000.5-20071206
12SB05-0.502-02	12SB15-000.5-01-D	12SB26-000.5-01-D	12SB44-0.502-02	12TP03-0.502-02-D	12TP15-0.502-02	SSA12-SS08D-000.5-20071205
12SB05-000.5-01	12SB16-0.502-02	12SB27-0.502-02	12SB45-0.502-02	12TP03-000.5-01	12TP15-000.5-01	SSA12-SS08E-000.5-20071206
12SB06-0.502-02	12SB16-000.5-01	12SB27-000.5-01	12SB45-0.502-02-D	12TP04-0.502-02	12TP16-0.502-02	SSA12-SS09E-000.5-20071206
12SB06-000.5-01	12SB17-0.502-02	12SB28-0.502-02	12SB46-0.502-02	12TP04-000.5-01	12TP16-0.520-02	SSA12-SS10D-000.5-20071205
12SB06-000.5-01-D	12SB17-000.5-01	12SB28-000.5-01	12SB47-0.502-02	12TP05-0.502-02	12TP16-000.5-01	SSA12-SS10E-000.5-20071207
12SB07-0.502-02	12SB18-0.502-02	12SB29-0.502-02	12SB48-0.502-02	12TP05-000.5-01	12TP17-0.5-02-02	SSA12-SS13E-000.5-20071206
12SB07-000.5-01	12SB18-000.5-01	12SB29-000.5-01	12SB48-0.502-02-D	12TP06-0.502-02	12TP17-0.52.0-02	SSA12-SS14E-000.5-20071206
12SB08-0.502-02	12SB19-0.502-02	12SB30-0.502-02	12SB49-0.502-02	12TP06-000.5-01	12TP17-000.5-01	SSA12-SS15E-000.5-20071206
12SB08-000.5-01	12SB19-000.5-01	12SB30-000.5-01	12SB50-0.502-02	12TP07-0.502-02	SSA12-SB01D-0001-20071207	SSA12-SS16E-000.5-20071205
12SB09-0.502-02	12SB20-0.502-02	12SB31-0.502-02	12SB51-0.502-02	12TP07-000.5-01	SSA12-SB03D-1.502-20071205	SSA12-SS16E-000.5-20071205-D
12SB09-0.502-02-D	12SB20-000.5-01	12SB31-0.502-02-D	12SB52-0.502-02	12TP08-0.502-02	SSA12-SS01D-000.5-20071207	SSA12-SS17E-000.5-20071205
12SB09-000.5-01	12SB20-000.5-01-D	12SB32-0.502-02	12SB53-0.502-02	12TP08-000.5-01	SSA12-SS01E-000.5-20071206	SSA12-SS18E-000.5-20071205
12SB10-0.502-02	12SB21-0.502-02	12SB33-0.502-02	12SB54-0.502-02	12TP09-0.502-02	SSA12-SS02D-000.5-20071207	SSA12-SS19E-000.5-20071205
12SB10-000.5-01	12SB21-000.5-01	12SB34-0.502-02	12SB55-0.502-02	12TP09-000.5-01	SSA12-SS02E-000.5-20071206	
12SB11-0.501-02	12SB22-0.502-02	12SB35-000.5-01	12SB56-0.502-02	12TP10-0.502-02	SSA12-SS03D-000.5-20071205	

TABLE 2.03a
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE SOIL
WITH METALS ELIMINATED THAT ARE WITHIN THE RANGE OF BACKGROUND
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Surface Soil	7429-90-5	**Aluminum**	2280	21000	mg/kg	SSA12-SS02D-000.5-20071207	122/122	N/A	21000	NA	7700 N			**Y**	**ASL**
	7440-36-0	**Antimony**	0.41 L	10.1 L	mg/kg	12SB07-000.5-01	31/32	0.32-0.32	10.1	NA	3.1 N			**Y**	**ASL**
	7440-38-2	Arsenic	0.96 J	29.8	mg/kg	12TP08-000.5-01	122/122	N/A	29.8	NA	0.39 C			N	BKG
	7440-39-3	Barium	28.7 J	242	mg/kg	12TP08-0.502-02	122/122	N/A	242	NA	1500 N			N	BSL
	7440-41-7	Beryllium	0.23 L	1.3 L	mg/kg	12TP11-0.502-02	122/122	N/A	1.3	NA	16 N			N	BSL
	7440-43-9	**Cadmium**	0.04 J	9.4	mg/kg	SSA12-SS04D-000.5-20071205	76/86	0.06-0.08	9.4	NA	7 N			**Y**	**ASL**
	7440-70-2	Calcium	314 J	55800 J	mg/kg	12TP09-0.502-02	122/122	N/A	55800	NA	N			N	NUT
	7440-47-3	**Chromium**	4.7 J	38.5	mg/kg	SSA12-SS03E-000.5-20071206	122/122	N/A	38.5	NA	0.029 N			**Y**	**ASL**
	7440-48-4	Cobalt	2.1 J	12	mg/kg	12TP02-0.502-02	122/122	N/A	12	NA	2.3 N			N	BKG
	7440-50-8	**Copper**	4.2 J	458	mg/kg	12TP12-000.5-01	125/125	N/A	458	NA	310 N			**Y**	**ASL**
	57-12-5	Cyanide	0.043 J	0.426	mg/kg	12SB10-0.502-02	43/85	0.13-0.21	0.426	NA	4.7 N			N	BSL
	18540-29-9	**Hexavalent Chromium**	0.26 J	7.4	mg/kg	12SB21-000.5-01	22/22	0.15-0.15	7.4	NA	0.029 N			**Y**	**ASL**
	7439-89-6	**Iron**	5810	37100	mg/kg	12TP08-000.5-01	122/122	N/A	37100	NA	5500 N			**Y**	**ASL**
	7439-92-1	**Lead**	5.4 L	1410	mg/kg	12SB52-0.502-02	131/131	N/A	1410	NA	400 N			**Y**	**ASL**
	7439-95-4	Magnesium	478	20600 J	mg/kg	12TP15-000.5-01	122/122	N/A	20600	NA	N			N	NUT
	7439-96-5	Manganese	106 J	1020 J	mg/kg	12TP11-0.502-02	122/122	N/A	1020	NA	180 N			N	BKG
	7439-97-6	Mercury	0.007 J	0.47 K	mg/kg	SSA12-SS07D-000.5-20071205	116/122	0.02-0.021	0.47	NA	0.78 N			N	BSL
	7440-02-0	Nickel	3.5 J	63.5	mg/kg	SSA12-SS04D-000.5-20071205	122/122	N/A	63.5	NA	150 N			N	BSL
	7440-09-7	Potassium	163 L	2480	mg/kg	12TP09-0.502-02	122/122	N/A	2480	NA	N			N	NUT
	7782-49-2	Selenium	0.063 J	2.6 L	mg/kg	12TP03-0.502-02	47/84	0.21-0.52	2.6	NA	39 N			N	BSL
	7440-22-4	Silver	0.05 J	7.7	mg/kg	12TP08-0.502-02	43/69	0.1-0.14	7.7	NA	39 N			N	BSL
	7440-23-5	Sodium	33.1 J	549 K	mg/kg	SSA12-SB01D-0001-20071207	39/39	N/A	549	NA	N			N	NUT
	7440-28-0	**Thallium**	0.11 J	4.2 J	mg/kg	SSA12-SS02D-000.5-20071207	49/77	0.54-0.77	4.2	NA	0.078 N			**Y**	**ASL**
	7440-62-2	**Vanadium**	5.7 L	44.9	mg/kg	12TP10-0.502-02	122/122	N/A	44.9	NA	39 N			**Y**	**ASL**
	7440-66-6	Zinc	16.9 J	731	mg/kg	SSA12-SS04D-000.5-20071205	122/122	N/A	731	NA	2300 N			N	BSL
	72-54-8	4,4'-DDD	0.94 J	19 J	ug/kg	SSA12-SS03E-000.5-20071206	17/110	0.95-83	19	NA	2000 C			N	BSL
	72-55-9	4,4'-DDE	0.82 J	82	ug/kg	12TP15-000.5-01	34/116	0.95-52	82	NA	1400 C			N	BSL
	50-29-3	4,4'-DDT	1.2 J	170	ug/kg	12TP15-000.5-01	43/119	0.95-52	170	NA	1700 C			N	BSL
	309-00-2	Aldrin	0.61 J	2.4	ug/kg	12TP11-000.5-01	5/125	0.95-44	2.4	NA	29 C			N	BSL
	319-84-6	Alpha-BHC	0.43 J	3.2	ug/kg	12TP11-000.5-01	9/124	0.95-27	3.2	NA	77 C			N	BSL
	5103-71-9	Alpha-Chlordane	0.33 J	13 J	ug/kg	12TP05-0.502-02	20/117	0.95-27	13	NA	1600 C			N	BSL
	319-85-7	Beta-BHC	1.9 J	13 J	ug/kg	SSA12-SS10E-000.5-20071207	2/100	0.95-21	13	NA	270 C			N	BSL
	319-86-8	Delta-BHC	0.39 J	2.8 J	ug/kg	12TP08-000.5-01	20/118	0.95-27	2.8	NA	C			N	NTX
	60-57-1	**Dieldrin**	1 J	500 J	ug/kg	SSA12-SS07E-000.5-20071206	45/115	0.95-83	500	NA	30 C			**Y**	**ASL**
	959-98-8	Endosulfan I	0.34 J	3.9 J	ug/kg	12SB01-0.502-02	21/117	0.95-27	3.9	NA	37000 N			N	BSL
	33213-65-9	Endosulfan II	1.7 J	2.1 J	ug/kg	12TP01-000.5-01	2/112	0.95-52	2.1	NA	37000 N			N	BSL
	1031-07-8	Endosulfan Sulfate	1.5 J	54 J	ug/kg	SSA12-SS15E-000.5-20071206	10/120	0.95-52	54	NA	37000 N			N	BSL
	72-20-8	Endrin	0.9 J	19 J	ug/kg	12TP11-0.502-02	6/122	0.95-52	19	NA	1800 N			N	BSL
	007421-93-4	Endrin Aldehyde	0.58 J	27 J	ug/kg	SSA12-SS15E-000.5-20071206	34/120	0.95-52	27	NA	1800 N			N	BSL
	53494-70-5	Endrin Ketone	0.74 J	34 J	ug/kg	12TP11-0.502-02	18/116	0.95-52	34	NA	1800 N			N	BSL
	58-89-9	Gamma-BHC (Lindane)	2.3 J	2.3 J	ug/kg	SSA12-SB01D-0001-20071207	1/125	0.95-27	2.3	NA	520 C			N	BSL

TABLE 2.03a
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE SOIL
WITH METALS ELIMINATED THAT ARE WITHIN THE RANGE OF BACKGROUND
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Surface Soil	5103-74-2	Gamma-Chlordane	0.46 J	28 J	ug/kg	12TP11-0.502-02	12/100	0.95-27	28	NA	1600 C			N	BSL
	76-44-8	Heptachlor	0.31 J	2.1 J	ug/kg	12TP15-000.5-01	24/119	0.95-27	2.1	NA	110 C			N	BSL
	1024-57-3	Heptachlor Epoxide	0.37 J	12 J	ug/kg	12TP11-0.502-02	23/115	0.95-43	12	NA	53 C			N	BSL
	72-43-5	Methoxychlor	13 J	41 J	ug/kg	SSA12-SS15E-000.5-20071206	3/118	0.95-440	41	NA	31000 N			N	BSL
	91-57-6	2-Methylnaphthalene	1.2 J	990 K	ug/kg	12SB10-0.502-02	58/144	1.9-2200	990	NA	23000 N			N	BSL
	83-32-9	Acenaphthene	1.6 J	3200	ug/kg	12TP11-0.502-02	69/144	1.9-2200	3200	NA	340000 N			N	BSL
	208-96-8	Acenaphthylene	0.86 J	670 J	ug/kg	12TP08-0.502-02	76/144	1.9-2200	670	NA	230000 N			N	BSL
	120-12-7	Anthracene	0.72 J	16000	ug/kg	12TP11-0.502-02	100/144	1.9-270	16000	NA	1700000 N			N	BSL
	56-55-3	**Benz(a)anthracene**	1.3 J	21000 J	ug/kg	12TP11-0.502-02	112/144	1.95-270	21000	NA	150 C			**Y**	**ASL**
	100-52-7	Benzaldehyde	26 J	40 J	ug/kg	12TP14-0.502-02	3/68	200-2200	40	NA	780000 N			N	BSL
	50-32-8	**Benzo(a)pyrene**	2.3 J	21000 J	ug/kg	12TP11-0.502-02	116/144	1.95-240	21000	NA	15 C			**Y**	**ASL**
	205-99-2	**Benzo(b)fluoranthene**	1.3 J	19000 J	ug/kg	12TP11-0.502-02	116/144	1.95-270	19000	NA	150 C			**Y**	**ASL**
	191-24-2	Benzo(g,h,i)perylene	0.74 J	25000	ug/kg	12TP11-0.502-02	109/144	1.95-270	25000	NA	170000 N			N	BSL
	207-08-9	**Benzo(k)fluoranthene**	1.1 J	30000	ug/kg	12TP11-0.502-02	118/144	1.95-240	30000	NA	1500 C			**Y**	**ASL**
	117-81-7	Bis(2-ethylhexyl) Phthalate	46 J	1500	ug/kg	SSA12-SS13E-000.5-20071206	12/116	190-2200	1500	NA	35000 C			N	BSL
	86-74-8	Carbazole	44 J	8200	ug/kg	12TP11-0.502-02	22/122	190-4200	8200	NA	C			N	NTX
	218-01-9	**Chrysene**	1.4 J	22000 J	ug/kg	12TP11-0.502-02	124/144	1.95-240	22000	NA	15000 C			**Y**	**ASL**
	84-74-2	Di-n-butyl Phthalate	28 J	97 J	ug/kg	12TP12-000.5-01	5/122	190-2200	97	NA	610000 N			N	BSL
	117-84-0	Di-n-octyl Phthalate	48 J	150 J	ug/kg	12TP14-0.502-02	2/122	190-2200	150	NA	N			N	NTX
	53-70-3	**Dibenz(a,h)anthracene**	0.77 J	12000	ug/kg	12TP11-0.502-02	91/144	1.9-270	12000	NA	15 C			**Y**	**ASL**
	132-64-9	Dibenzofuran	29 J	3700	ug/kg	12TP11-0.502-02	12/122	190-2200	3700	NA	7800 N			N	BSL
	131-11-3	Dimethyl Phthalate	170 J	540	ug/kg	12SB15-0.502-02	28/122	190-2200	540	NA	N			N	NTX
	206-44-0	Fluoranthene	2.4 J	44000 J	ug/kg	12TP11-0.502-02	132/144	1.95-230	44000	NA	230000 N			N	BSL
	86-73-7	Fluorene	0.59 J	6900	ug/kg	12TP11-0.502-02	80/144	1.9-2200	6900	NA	230000 N			N	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	2.9 J	30000	ug/kg	12TP11-0.502-02	105/144	1.95-270	30000	NA	150 C			**Y**	**ASL**
	91-20-3	Naphthalene	2.5 J	660 J	ug/kg	12TP11-0.502-02	45/144	1.9-2200	660	NA	3600 C			N	BSL
	85-01-8	Phenanthrene	1.6 J	39000 K	ug/kg	12SB10-0.502-02	127/144	1.95-240	39000	NA	170000 N			N	BSL
	129-00-0	Pyrene	2.1 J	35000 J	ug/kg	12TP11-0.502-02	129/144	1.95-240	35000	NA	170000 N			N	BSL
	78-93-3	2-Butanone	5.5 J	200 J	ug/kg	12SB15-000.5-01	40/94	11.5-660	200	NA	2800000 N			N	BSL
	591-78-6	2-Hexanone	14 J	14 J	ug/kg	12SB15-000.5-01	1/122	11-660	14	NA	21000 N			N	BSL
	67-64-1	Acetone	5.6 J	4600 J	ug/kg	SSA12-SB03D-1.502-20071205	89/120	11.5-20.5	4600	NA	6100000 N			N	BSL
	71-43-2	Benzene	2.2 J	2.2 J	ug/kg	SSA12-SS09E-000.5-20071206	1/122	2.35-260	2.2	NA	1100 C			N	BSL
	75-15-0	Carbon Disulfide	1.4 J	10	ug/kg	12TP03-000.5-01	8/122	2.35-260	10	NA	82000 N			N	BSL
	74-87-3	Chloromethane	1.2 J	2.3 J	ug/kg	12TP05-0.502-02	5/122	2.35-260	2.3	NA	12000 N			N	BSL
	75-71-8	Dichlorodifluoromethane	1.8 J	12	ug/kg	SSA12-SS15E-000.5-20071206	2/122	2.35-260	12	NA	9400 N			N	BSL
	98-82-8	Isopropylbenzene	2.9 J	2.9 J	ug/kg	12SB18-000.5-01	1/122	2.35-260	2.9	NA	210000 N			N	BSL
	79-20-9	Methyl Acetate	3 J	440 J	ug/kg	12SB02-000.5-01	20/68	4.6-9.8	440	NA	7800000 N			N	BSL
	127-18-4	Tetrachloroethene	3.6 J	3.6 J	ug/kg	12TP14-0.502-02	1/122	2.35-260	3.6	NA	8600 N			N	BSL
	108-88-3	Toluene	1.6 J	2 J	ug/kg	12SB01-0.502-02	2/122	2.35-260	2	NA	500000 N			N	BSL
	79-01-6	Trichloroethene	3.9 J	3.9 J	ug/kg	12TP14-0.502-02	1/122	2.35-260	3.9	NA	440 N			N	BSL
	75-69-4	Trichlorofluoromethane	3.8 J	3.8 J	ug/kg	SSA12-SS15E-000.5-20071206	1/122	2.35-260	3.8	NA	79000 N			N	BSL

TABLE 2.03a
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE SOIL
WITH METALS ELIMINATED THAT ARE WITHIN THE RANGE OF BACKGROUND
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed and COPCs were selected after elimination of metals statistically not above background, a separate table is presented to show the effects of background for on eliminating COPCs.
5 - The EPA ORNL risk-based tap water COPC screening level for residential use is presented. The noncarcinogenic values (annotated "N") are divided by 10 to correspond to a target hazard quotient of 0.1, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, May 2013).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
7 - The RSL for hexavalent chromium was utilized for screening both hexavalent chromium analysis and total chromium analysis data.
8 - The RSL for methyl mercury was used because the form of mercury in soil is not known.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(9) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route
For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

Site 12 Soil Samples:

12SB01-0.502-02	12SB11-000.5-01	12SB22-000.5-01	12SB35-000.5-01-D	12SB57-000.5-01	12TP10-000.5-01	SSA12-SS03E-000.5-20071206
12SB01-000.5-01	12SB12-0.502-02	12SB23-0.502-02	12SB36-000.5-01	12SB57-000.5-01-D	12TP11-0.502-02	SSA12-SS04D-000.5-20071205
12SB02-0.502-02	12SB12-000.5-01	12SB23-000.5-01	12SB37-000.5-01	12SB58-000.5-01	12TP11-000.5-01	SSA12-SS04E-000.5-20071206
12SB02-0.502-02-D	12SB13-0.502-02	12SB24-0.502-02	12SB38-000.5-01	12SB59-000.5-01	12TP12-0.502-02	SSA12-SS05D-000.5-20071207
12SB02-000.5-01	12SB13-000.5-01	12SB24-000.5-01	12SB39-000.5-01	12TP01-0.502-02	12TP12-000.5-01	SSA12-SS05E-000.5-20071206
12SB03-0.502-02	12SB14-0.502-02	12SB25-0.502-02	12SB40-000.5-01	12TP01-000.5-01	12TP13-0.502-02	SSA12-SS06D-000.5-20071207
12SB03-000.5-01	12SB14-000.5-01	12SB25-000.5-01	12SB41-000.5-01	12TP02-0.502-02	12TP13-000.5-01	SSA12-SS06E-000.5-20071206
12SB04-0.502-02	12SB15-0.502-02	12SB26-0.502-02	12SB42-0.502-02	12TP02-000.5-01	12TP14-0.502-02	SSA12-SS07D-000.5-20071205
12SB04-000.5-01	12SB15-000.5-01	12SB26-000.5-01	12SB43-0.502-02	12TP03-0.502-02	12TP14-000.5-01	SSA12-SS07E-000.5-20071206
12SB05-0.502-02	12SB15-000.5-01-D	12SB26-000.5-01-D	12SB44-0.502-02	12TP03-0.502-02-D	12TP15-0.502-02	SSA12-SS08D-000.5-20071205
12SB05-000.5-01	12SB16-0.502-02	12SB27-0.502-02	12SB45-0.502-02	12TP03-000.5-01	12TP15-000.5-01	SSA12-SS08E-000.5-20071206
12SB06-0.502-02	12SB16-000.5-01	12SB27-000.5-01	12SB45-0.502-02-D	12TP04-0.502-02	12TP16-0.502-02	SSA12-SS09E-000.5-20071206
12SB06-000.5-01	12SB17-0.502-02	12SB28-0.502-02	12SB46-0.502-02	12TP04-000.5-01	12TP16-0.520-02	SSA12-SS10D-000.5-20071205
12SB06-000.5-01-D	12SB17-000.5-01	12SB28-000.5-01	12SB47-0.502-02	12TP05-0.502-02	12TP16-000.5-01	SSA12-SS10E-000.5-20071207
12SB07-0.502-02	12SB18-0.502-02	12SB29-0.502-02	12SB48-0.502-02	12TP05-000.5-01	12TP17-0.5-02-02	SSA12-SS13E-000.5-20071206
12SB07-000.5-01	12SB18-000.5-01	12SB29-000.5-01	12SB48-0.502-02-D	12TP06-0.502-02	12TP17-0.52.0-02	SSA12-SS14E-000.5-20071206
12SB08-0.502-02	12SB19-0.502-02	12SB30-0.502-02	12SB49-0.502-02	12TP06-000.5-01	12TP17-000.5-01	SSA12-SS15E-000.5-20071206
12SB08-000.5-01	12SB19-000.5-01	12SB30-000.5-01	12SB50-0.502-02	12TP07-0.502-02	SSA12-SB01D-0001-20071207	SSA12-SS16E-000.5-20071205
12SB09-0.502-02	12SB20-0.502-02	12SB31-0.502-02	12SB51-0.502-02	12TP07-000.5-01	SSA12-SB03D-1.502-20071205	SSA12-SS16E-000.5-20071205-D
12SB09-0.502-02-D	12SB20-000.5-01	12SB31-0.502-02-D	12SB52-0.502-02	12TP08-0.502-02	SSA12-SS01D-000.5-20071207	SSA12-SS17E-000.5-20071205
12SB09-000.5-01	12SB20-000.5-01-D	12SB32-0.502-02	12SB53-0.502-02	12TP08-000.5-01	SSA12-SS01E-000.5-20071206	SSA12-SS18E-000.5-20071205
12SB10-0.502-02	12SB21-0.502-02	12SB33-0.502-02	12SB54-0.502-02	12TP09-0.502-02	SSA12-SS02D-000.5-20071207	SSA12-SS19E-000.5-20071205
12SB10-000.5-01	12SB21-000.5-01	12SB34-0.502-02	12SB55-0.502-02	12TP09-000.5-01	SSA12-SS02E-000.5-20071206	
12SB11-0.501-02	12SB22-0.502-02	12SB35-000.5-01	12SB56-0.502-02	12TP10-0.502-02	SSA12-SS03D-000.5-20071205	

TABLE 2.04
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Soil	1746-01-6	**Total 2,3,7,8-TCDD Equiv.**	5.07813	603.051	ng/kg	12TP02-0405-03	6/6	N/A	603.051	NA	4.5 C			**Y**	**ASL**
	7429-90-5	**Aluminum**	2280	29400	mg/kg	12TP15-0304-03	186/186	N/A	29400	NA	7700 N			**Y**	**ASL**
	7440-36-0	**Antimony**	0.41 L	35.4 J	mg/kg	12TP16-0608-03	44/50	0.32-0.35	35.4	NA	3.1 N			**Y**	**ASL**
	7440-38-2	**Arsenic**	0.76 J	108 L	mg/kg	12TP03-0506-04	185/185	N/A	108	NA	0.39 C			**Y**	**ASL**
	7440-39-3	Barium	15 L	1110	mg/kg	12TP03-0506-04	186/186	N/A	1110	NA	1500 N			N	BSL
	7440-41-7	Beryllium	0.2 L	3.1 L	mg/kg	12TP15-0304-03	183/183	N/A	3.1	NA	16 N			N	BSL
	7440-43-9	**Cadmium**	0.025 J	105	mg/kg	12TP08-0304-03	107/120	0.06-0.08	105	NA	7 N			**Y**	**ASL**
	7440-70-2	Calcium	166 J	67600 J	mg/kg	12TP08-0304-03	186/186	N/A	67600	NA	N			N	NUT
	7440-47-3	**Chromium**	4	192 L	mg/kg	12TP03-0506-04	194/194	N/A	192	NA	0.029 N			**Y**	**ASL**
	7440-48-4	**Cobalt**	1.9 J	23.1	mg/kg	12TP02-0405-03	186/186	N/A	23.1	NA	2.3 N			**Y**	**ASL**
	7440-50-8	**Copper**	2.6 J	1980	mg/kg	12TP02-0405-03	189/189	N/A	1980	NA	310 N			**Y**	**ASL**
	57-12-5	Cyanide	0.043 J	0.426	mg/kg	12SB10-0.502-02	56/135	0.12-0.21	0.426	NA	4.7 N			N	BSL
	18540-29-9	**Hexavalent Chromium**	0.26 J	7.4	mg/kg	12SB21-000.5-01	42/43	0.12-0.15	7.4	NA	0.029 N			**Y**	**ASL**
	7439-89-6	**Iron**	4610 J	166000	mg/kg	SSA12-SB08D-0202.5-20071205	186/186	N/A	166000	NA	5500 N			**Y**	**ASL**
	7439-92-1	**Lead**	1.6 J	7900 J	mg/kg	12TP15-0304-03	195/195	N/A	7900	NA	400 N			**Y**	**ASL**
	7439-95-4	Magnesium	357 J	20600 J	mg/kg	12TP15-000.5-01	186/186	N/A	20600	NA	N			N	NUT
	7439-96-5	**Manganese**	29.4 J	3740	mg/kg	12TP01-0708-04	186/186	N/A	3740	NA	180 N			**Y**	**ASL**
	7439-97-6	Mercury	0.002 J	0.47 K	mg/kg	SSA12-SS07D-000.5-20071205	166/186	0.0055-0.021	0.47	NA	0.78 N			N	BSL
	7440-02-0	Nickel	2.4 L	117 J	mg/kg	12TP09-0304-03-D	186/186	N/A	117	NA	150 N			N	BSL
	7440-09-7	Potassium	103 L	3500	mg/kg	12TP05-0910-04	186/186	N/A	3500	NA	N			N	NUT
	7782-49-2	Selenium	0.057 J	16.4 L	mg/kg	12TP12-0203-03	66/128	0.2-0.52	16.4	NA	39 N			N	BSL
	7440-22-4	Silver	0.05 J	19.5 K	mg/kg	12TP12-0203-03	58/104	0.0455-0.14	19.5	NA	39 N			N	BSL
	7440-23-5	Sodium	33.1 J	1300 K	mg/kg	12TP15-0304-03	68/68	N/A	1300	NA	N			N	NUT
	7440-28-0	**Thallium**	0.08 J	41.1 K	mg/kg	SSA12-SB08D-0202.5-20071205	77/121	0.54-0.77	41.1	NA	0.078 N			**Y**	**ASL**
	7440-62-2	**Vanadium**	5.2 J	58.8	mg/kg	12TP03-0607-03	186/186	N/A	58.8	NA	39 N			**Y**	**ASL**
	7440-66-6	**Zinc**	8.6 J	5400	mg/kg	12TP15-0304-03	186/186	N/A	5400	NA	2300 N			**Y**	**ASL**
	72-54-8	4,4'-DDD	0.59 J	19 J	ug/kg	SSA12-SS03E-000.5-20071206	21/169	0.95-83	19	NA	2000 C			N	BSL
	72-55-9	4,4'-DDE	0.82 J	82	ug/kg	12TP15-000.5-01	39/174	0.95-52	82	NA	1400 C			N	BSL
	50-29-3	4,4'-DDT	0.97 J	170	ug/kg	12TP15-000.5-01	53/183	0.95-52	170	NA	1700 C			N	BSL
	309-00-2	Aldrin	0.61 J	2.4	ug/kg	12TP11-000.5-01	5/188	0.95-44	2.4	NA	29 C			N	BSL
	319-84-6	Alpha-BHC	0.43 J	3.2	ug/kg	12TP11-000.5-01	12/186	0.95-27	3.2	NA	77 C			N	BSL
	5103-71-9	Alpha-Chlordane	0.33 J	13 J	ug/kg	12TP05-0.502-02	25/181	0.95-27	13	NA	1600 C			N	BSL
	11096-82-5	**Aroclor-1260**	350 J	350 J	ug/kg	12SB20-0304-03-D	1/186	9.5-270	350	NA	220 C			**Y**	**ASL**
	319-85-7	Beta-BHC	1.5 J	13 J	ug/kg	SSA12-SS10E-000.5-20071207	3/159	0.95-21	13	NA	270 C			N	BSL
	319-86-8	Delta-BHC	0.38 J	2.8 J	ug/kg	12TP08-000.5-01	24/180	0.95-27	2.8	NA	C			N	NTX
	60-57-1	**Dieldrin**	1 J	500 J	ug/kg	SSA12-SS07E-000.5-20071206	50/173	0.95-83	500	NA	30 C			**Y**	**ASL**
	959-98-8	Endosulfan I	0.34 J	11 J	ug/kg	12TP03-0607-03	27/180	0.95-27	11	NA	37000 N			N	BSL
	33213-65-9	Endosulfan II	1.2 J	14 J	ug/kg	12TP03-0607-03	6/173	0.95-52	14	NA	37000 N			N	BSL
	1031-07-8	Endosulfan Sulfate	1.1 J	54 J	ug/kg	SSA12-SS15E-000.5-20071206	13/182	0.95-52	54	NA	37000 N			N	BSL
	72-20-8	Endrin	0.9 J	19 J	ug/kg	12TP11-0.502-02	8/186	0.95-52	19	NA	1800 N			N	BSL
	007421-93-4	Endrin Aldehyde	0.58 J	27 J	ug/kg	SSA12-SS15E-000.5-20071206	42/181	0.95-52	27	NA	1800 N			N	BSL
	53494-70-5	Endrin Ketone	0.74 J	34 J	ug/kg	12TP11-0.502-02	23/171	0.95-52	34	NA	1800 N			N	BSL
	58-89-9	Gamma-BHC (Lindane)	2.3 J	2.3 J	ug/kg	SSA12-SB01D-0001-20071207	1/189	0.95-27	2.3	NA	520 C			N	BSL
	5103-74-2	Gamma-Chlordane	0.46 J	28 J	ug/kg	12TP11-0.502-02	20/156	0.95-27	28	NA	1600 C			N	BSL
	76-44-8	Heptachlor	0.31 J	2.1 J	ug/kg	12TP15-000.5-01	31/177	0.95-27	2.1	NA	110 C			N	BSL
	1024-57-3	Heptachlor Epoxide	0.36 J	12 J	ug/kg	12TP11-0.502-02	33/177	0.95-43	12	NA	53 C			N	BSL

TABLE 2.04
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Soil	72-43-5	Methoxychlor	11 J	120 J	ug/kg	12TP03-0607-03	6/178	0.95-440	120	NA	31000 N			N	BSL
	95-50-1	1,2-Dichlorobenzene	190	190	ug/kg	12TP01-0506-03	1/186	2.2-260	190	NA	190000 N			N	BSL
	106-46-7	1,4-Dichlorobenzene	2.8 J	21	ug/kg	12TP01-0506-03	2/186	2.2-260	21	NA	2400 C			N	BSL
	91-57-6	**2-Methylnaphthalene**	0.94 J	35000 J	ug/kg	12TP01-0506-03	77/208	1.85-2200	35000	NA	23000 N			**Y**	**ASL**
	83-32-9	Acenaphthene	1.6 J	5100	ug/kg	12TP09-0304-03	86/208	1.85-3800	5100	NA	340000 N			N	BSL
	208-96-8	Acenaphthylene	0.86 J	670 J	ug/kg	12TP08-0.502-02	87/208	1.85-4400	670	NA	230000 N			N	BSL
	120-12-7	Anthracene	0.72 J	16000	ug/kg	12TP11-0.502-02	125/208	1.85-1900	16000	NA	1700000 N			N	BSL
	56-55-3	**Benz(a)anthracene**	0.77 J	22000 J	ug/kg	12TP09-0304-03	145/208	1.85-1900	22000	NA	150 C			**Y**	**ASL**
	100-52-7	Benzaldehyde	26 J	68 J	ug/kg	12TP02-0405-03	5/104	200-6300	68	NA	780000 N			N	BSL
	50-32-8	**Benzo(a)pyrene**	1.6 J	21000 J	ug/kg	12TP11-0.502-02	144/208	1.85-1900	21000	NA	15 C			**Y**	**ASL**
	205-99-2	**Benzo(b)fluoranthene**	0.75 J	19000 J	ug/kg	12TP11-0.502-02	149/208	1.85-1900	19000	NA	150 C			**Y**	**ASL**
	191-24-2	Benzo(g,h,i)perylene	0.63 J	25000	ug/kg	12TP11-0.502-02	137/208	1.85-1400	25000	NA	170000 N			N	BSL
	207-08-9	**Benzo(k)fluoranthene**	0.8 J	30000	ug/kg	12TP11-0.502-02	147/208	1.85-1900	30000	NA	1500 C			**Y**	**ASL**
	117-81-7	Bis(2-ethylhexyl) Phthalate	46 J	23000 J	ug/kg	SSA12-SB08D-0202.5-20071205	17/173	185-4400	23000	NA	35000 C			N	BSL
	86-74-8	Carbazole	44 J	8400 J	ug/kg	12TP09-0304-03	30/186	185-6300	8400	NA	C			N	NTX
	218-01-9	**Chrysene**	0.89 J	24000 J	ug/kg	12TP09-0304-03	158/208	1.85-1900	24000	NA	15000 C			**Y**	**ASL**
	84-74-2	Di-n-butyl Phthalate	23 J	97 J	ug/kg	12TP12-000.5-01	6/186	185-4400	97	NA	610000 N			N	BSL
	117-84-0	Di-n-octyl Phthalate	48 J	150 J	ug/kg	12TP14-0.502-02	2/186	185-4400	150	NA	N			N	NTX
	53-70-3	**Dibenz(a,h)anthracene**	0.77 J	12000	ug/kg	12TP11-0.502-02	110/208	1.85-1900	12000	NA	15 C			**Y**	**ASL**
	132-64-9	Dibenzofuran	29 J	4600	ug/kg	12TP09-0304-03	19/186	185-2850	4600	NA	7800 N			N	BSL
	131-11-3	Dimethyl Phthalate	170 J	540	ug/kg	12SB15-0.502-02	40/186	190-4400	540	NA	N			N	NTX
	206-44-0	Fluoranthene	2.3 J	48000 J	ug/kg	12TP09-0304-03	168/208	1.85-1900	48000	NA	230000 N			N	BSL
	86-73-7	Fluorene	0.59 J	6900	ug/kg	12TP11-0.502-02	101/208	1.85-2200	6900	NA	230000 N			N	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	1.2 J	30000	ug/kg	12TP11-0.502-02	129/208	1.85-2400	30000	NA	150 C			**Y**	**ASL**
	91-20-3	**Naphthalene**	2.5 J	13000 J	ug/kg	12TP01-0506-03	60/208	1.85-2200	13000	NA	3600 C			**Y**	**ASL**
	85-01-8	Phenanthrene	1.6 J	48000 J	ug/kg	12TP09-0304-03	163/208	1.85-1400	48000	NA	170000 N			N	BSL
	129-00-0	Pyrene	2 J	36000 J	ug/kg	12TP09-0304-03	162/208	1.85-1900	36000	NA	170000 N			N	BSL
	87-61-6	1,2,3-Trichlorobenzene	3.8 J	82 J	ug/kg	12TP04-0405-03	2/151	2.2-11	82	NA	4900 N			N	BSL
	120-82-1	1,2,4-Trichlorobenzene	2.7 J	48 J	ug/kg	12TP04-0405-03	2/186	2.2-260	48	NA	6200 N			N	BSL
	156-59-2	1,2-Dichloroethene (cis)	7.6 J	14	ug/kg	12TP02-0405-03	2/186	2.2-260	14	NA	16000 N			N	BSL
	156-60-5	1,2-Dichloroethene (trans)	6.6 J	7.3 J	ug/kg	12TP03-0506-04	2/186	2.2-260	7.3	NA	15000 N			N	BSL
	78-93-3	2-Butanone	5.1 J	200 J	ug/kg	12SB15-000.5-01	53/152	11-660	200	NA	2800000 N			N	BSL
	591-78-6	2-Hexanone	14 J	14 J	ug/kg	12SB15-000.5-01	1/186	11-660	14	NA	21000 N			N	BSL
	67-64-1	Acetone	5.6 J	4600 J	ug/kg	SSA12-SB03D-1.502-20071205	116/171	11-650	4600	NA	6100000 N			N	BSL
	71-43-2	Benzene	1.3 J	44	ug/kg	12TP09-0304-03-D	11/186	2.2-260	44	NA	1100 C			N	BSL
	74-83-9	Bromomethane	6.3 J	78 J	ug/kg	12TP09-0304-03-D	2/186	2.2-260	78	NA	730 N			N	BSL
	75-15-0	Carbon Disulfide	1.1 J	10	ug/kg	12TP03-000.5-01	18/186	2.2-260	10	NA	82000 N			N	BSL
	108-90-7	Chlorobenzene	4 J	4 J	ug/kg	12TP06-0506-03	1/186	2.2-260	4	NA	29000 N			N	BSL
	74-87-3	Chloromethane	1.2 J	130	ug/kg	12TP09-0304-03-D	9/186	2.2-260	130	NA	12000 N			N	BSL
	110-82-7	Cyclohexane	36	36	ug/kg	12TP13-0506-03	1/104	4.4-260	36	NA	700000 N			N	BSL
	75-71-8	Dichlorodifluoromethane	1.8 J	12	ug/kg	SSA12-SS15E-000.5-20071206	2/186	2.2-260	12	NA	9400 N			N	BSL
	100-41-4	Ethylbenzene	1.3 J	280	ug/kg	12TP04-0405-03	4/186	2.2-260	280	NA	5400 C			N	BSL
	98-82-8	Isopropylbenzene	2.9 J	540	ug/kg	12TP04-0405-03	4/186	2.2-260	540	NA	210000 N			N	BSL
	179601-23-1	M,p-xylene	2.5 J	970	ug/kg	12TP04-0405-03	3/186	4.4-520	970	NA	63000 N			N	BSL
	79-20-9	Methyl Acetate	1.8 J	440 J	ug/kg	12SB02-000.5-01	23/104	4.6-260	440	NA	7800000 N			N	BSL
	108-87-2	Methylcyclohexane	2.8 J	880	ug/kg	12TP04-0405-03	5/104	4.4-260	880	NA	N			N	NTX

TABLE 2.04
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Soil	75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	12SB19-0304-03	1/186	2.2-260	2.4	NA	5600 N			N	BSL
	95-47-6	O-xylene	110	110	ug/kg	12TP01-0506-03	1/186	2.2-260	110	NA	69000 N			N	BSL
	127-18-4	Tetrachloroethene	3.6 J	3.7 J	ug/kg	12TP14-0405-03	2/186	2.2-260	3.7	NA	8600 N			N	BSL
	108-88-3	Toluene	1.6 J	13	ug/kg	12TP09-0304-03-D	8/185	2.2-260	13	NA	500000 N			N	BSL
	79-01-6	Trichloroethene	3.2 J	3.9 J	ug/kg	12TP14-0.502-02	2/186	2.2-260	3.9	NA	440 N			N	BSL
	75-69-4	Trichlorofluoromethane	3.8 J	3.8 J	ug/kg	SSA12-SS15E-000.5-20071206	1/186	2.2-260	3.8	NA	79000 N			N	BSL
	75-01-4	Vinyl Chloride	19	19	ug/kg	12TP02-0405-03	2/186	2.2-260	19	NA	60 C			N	BSL
	1330-20-7	Xylenes (Total)	2.5 J	970	ug/kg	12TP04-0405-03	3/186	4.4-260	970	NA	63000 N			N	BSL

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background, a separate table is presented to show the effects of background for on eliminating COPCs.
5 - The EPA ORNL risk-based tap water COPC screening level for residential use is presented. The noncarcinogenic values (annotated "N") are divided by 10 to correspond to a target hazard quotient of 0.1, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, May 2013).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
7 - The RSL for hexavalent chromium was utilized for screening both hexavalent chromium analysis and total chromium analysis data.
8 - The RSL for methyl mercury was used because the form of mercury in soil is not known.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(9) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route

For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

TABLE 2.04
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (9)
Site 12 Soil Samples:															
12SB01-0.502-02	12SB19-0.502-02	12SB43-0.502-02	12TP10-000.5-01	SSA12-SS15E-000.5-20071206	12TP03-0506-CS	12TP18-0607-02									
12SB01-000.5-01	12SB19-000.5-01	12SB44-0.502-02	12TP11-0.502-02	SSA12-SS16E-000.5-20071205	12TP03-0607-03	SSA12-SB02D-0202.5-20071207									
12SB02-0.502-02	12SB20-0.502-02	12SB45-0.502-02	12TP11-000.5-01	SSA12-SS16E-000.5-20071205-D	12TP03-0809-05	SSA12-SB02D-0202.5-20071207-D									
12SB02-0.502-02-D	12SB20-000.5-01	12SB45-0.502-02-D	12TP12-0.502-02	SSA12-SS17E-000.5-20071205	12TP04-0405-03	SSA12-SB04D-0202.5-20071205									
12SB02-000.5-01	12SB20-000.5-01-D	12SB46-0.502-02	12TP12-000.5-01	SSA12-SS18E-000.5-20071205	12TP04-0607-04	SSA12-SB05D-0202.5-20071207									
12SB03-0.502-02	12SB21-0.502-02	12SB47-0.502-02	12TP13-0.502-02	SSA12-SS19E-000.5-20071205	12TP05-0204-03	SSA12-SB06D-0202.5-20071207									
12SB03-000.5-01	12SB21-000.5-01	12SB48-0.502-02	12TP13-000.5-01	12SB06-0304-03	12TP05-0204-03-D	SSA12-SB07D-0202.5-20071205									
12SB04-0.502-02	12SB22-0.502-02	12SB48-0.502-02-D	12TP14-0.502-02	12SB07-0304-03	12TP05-0910-04	SSA12-SB08D-0202.5-20071205									
12SB04-000.5-01	12SB22-000.5-01	12SB49-0.502-02	12TP14-000.5-01	12SB08-0304-03	12TP06-0506-03	SSA12-SB10D-0202.5-20071205									
12SB05-0.502-02	12SB23-0.502-02	12SB50-0.502-02	12TP15-0.502-02	12SB09-0304	12TP06-0506-03-D										
12SB05-000.5-01	12SB23-000.5-01	12SB51-0.502-02	12TP15-000.5-01	12SB09-0304-03	12TP06-0910-04										
12SB06-0.502-02	12SB24-0.502-02	12SB52-0.502-02	12TP16-0.502-02	12SB10-0304-03	12TP07-0607-03										
12SB06-000.5-01	12SB24-000.5-01	12SB53-0.502-02	12TP16-0.520-02	12SB11-0304-03	12TP08-0304-03										
12SB06-000.5-01-D	12SB25-0.502-02	12SB54-0.502-02	12TP16-000.5-01	12SB12-0304-03	12TP08-0304-CS										
12SB07-0.502-02	12SB25-000.5-01	12SB55-0.502-02	12TP17-0.5-02-02	12SB13-0304-03	12TP09-0304-03										
12SB07-000.5-01	12SB26-0.502-02	12SB56-0.502-02	12TP17-0.52.0-02	12SB14-0304-03	12TP09-0304-03-D										
12SB08-0.502-02	12SB26-000.5-01	12SB57-000.5-01	12TP17-000.5-01	12SB15-0304-03	12TP09-0304-CS										
12SB08-000.5-01	12SB26-000.5-01-D	12SB57-000.5-01-D	SSA12-SB01D-0001-20071207	12SB16-0304-03	12TP09-0506-04										
12SB09-0.502-02	12SB27-0.502-02	12SB58-000.5-01	SSA12-SB03D-1.502-20071205	12SB16-0304-03-D	12TP09-0506-05										
12SB09-0.502-02-D	12SB27-000.5-01	12SB59-000.5-01	SSA12-SS01D-000.5-20071207	12SB17-0304-03	12TP10-0405-03										
12SB09-000.5-01	12SB28-0.502-02	12TP01-0.502-02	SSA12-SS01E-000.5-20071206	12SB18-0304-03	12TP10-0405-CS										
12SB10-0.502-02	12SB28-000.5-01	12TP01-000.5-01	SSA12-SS02D-000.5-20071207	12SB19-0304-03	12TP10-0809-04										
12SB10-000.5-01	12SB29-0.502-02	12TP02-0.502-02	SSA12-SS02E-000.5-20071206	12SB20-0304-03	12TP11-0304-03										
12SB11-0.501-02	12SB29-000.5-01	12TP02-000.5-01	SSA12-SS03D-000.5-20071205	12SB20-0304-03-D	12TP11-0506-04										
12SB11-000.5-01	12SB30-0.502-02	12TP03-0.502-02	SSA12-SS03E-000.5-20071206	12SB21-0304-03	12TP12-0203-03										
12SB12-0.502-02	12SB30-000.5-01	12TP03-0.502-02-D	SSA12-SS04D-000.5-20071205	12SB22-0304-03	12TP12-0203-CS										
12SB12-000.5-01	12SB31-0.502-02	12TP03-000.5-01	SSA12-SS04E-000.5-20071206	12SB23-0304-03	12TP12-0506-04										
12SB13-0.502-02	12SB31-0.502-02-D	12TP04-0.502-02	SSA12-SS05D-000.5-20071207	12SB24-0304-03	12TP13-0506-03										
12SB13-000.5-01	12SB32-0.502-02	12TP04-000.5-01	SSA12-SS05E-000.5-20071206	12SB25-0304-03	12TP13-0809-04										
12SB14-0.502-02	12SB33-0.502-02	12TP05-0.502-02	SSA12-SS06D-000.5-20071207	12SB26-0304-03	12TP14-0405-03										
12SB14-000.5-01	12SB34-0.502-02	12TP05-000.5-01	SSA12-SS06E-000.5-20071206	12SB28-0304-03	12TP14-0405-CS										
12SB15-0.502-02	12SB35-000.5-01	12TP06-0.502-02	SSA12-SS07D-000.5-20071205	12SB29-0304-03	12TP14-0607-04										
12SB15-000.5-01	12SB35-000.5-01-D	12TP06-000.5-01	SSA12-SS07E-000.5-20071206	12SB30-0304-03	12TP15-0304-03										
12SB15-000.5-01-D	12SB36-000.5-01	12TP07-0.502-02	SSA12-SS08D-000.5-20071205	12TP01-0506-03	12TP15-0304-CS										
12SB16-0.502-02	12SB37-000.5-01	12TP07-000.5-01	SSA12-SS08E-000.5-20071206	12TP01-0708-04	12TP15-0405-04										
12SB16-000.5-01	12SB38-000.5-01	12TP08-0.502-02	SSA12-SS09E-000.5-20071206	12TP02-0405-03	12TP16-0608-03										
12SB17-0.502-02	12SB39-000.5-01	12TP08-000.5-01	SSA12-SS10D-000.5-20071205	12TP02-0405-CS	12TP16-0608-03-D										
12SB17-000.5-01	12SB40-000.5-01	12TP09-0.502-02	SSA12-SS10E-000.5-20071207	12TP02-0405-CS-D	12TP16-0910-04										
12SB18-0.502-02	12SB41-000.5-01	12TP09-000.5-01	SSA12-SS13E-000.5-20071206	12TP02-0910-04	12TP16-0910-4										
12SB18-000.5-01	12SB42-0.502-02	12TP10-0.502-02	SSA12-SS14E-000.5-20071206	12TP03-0506-04	12TP18-0506-01										

TABLE 2.05
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Site 12 Surface Soil Emissions to Ambient Air	7429-90-5	Aluminum	2280	21000	mg/kg	SSA12-SS02D-000.5-20071207	122/122	N/A	21000	NA	710000 N			N	BSL
	7440-36-0	Antimony	0.41 L	10.1 L	mg/kg	12SB07-000.5-01	31/32	0.32-0.32	10.1	NA	N			N	NTX
	7440-38-2	Arsenic	0.96 J	29.8	mg/kg	12TP08-000.5-01	122/122	N/A	29.8	NA	770 C			N	BSL
	7440-39-3	Barium	28.7 J	242	mg/kg	12TP08-0.502-02	122/122	N/A	242	NA	71000 N			N	BSL
	7440-41-7	Beryllium	0.23 L	1.3 L	mg/kg	12TP11-0.502-02	122/122	N/A	1.3	NA	2800 N			N	BSL
	7440-43-9	Cadmium	0.04 J	9.4	mg/kg	SSA12-SS04D-000.5-20071205	76/86	0.06-0.08	9.4	NA	180 N			N	BSL
	7440-70-2	Calcium	314 J	55800 J	mg/kg	12TP09-0.502-02	122/122	N/A	55800	NA	N			N	NUT
	7440-47-3	**Chromium**	4.7 J	38.5	mg/kg	SSA12-SS03E-000.5-20071206	122/122	N/A	38.5	NA	1.6 N			**Y**	**ASL**
	7440-48-4	Cobalt	2.1 J	12	mg/kg	12TP02-0.502-02	122/122	N/A	12	NA	370 C			N	BSL
	7440-50-8	Copper	4.2 J	458	mg/kg	12TP12-000.5-01	125/125	N/A	458	NA	N			N	NTX
	57-12-5	Cyanide	0.043 J	0.426	mg/kg	12SB10-0.502-02	43/85	0.13-0.21	0.426	NA	N			N	NTX
	18540-29-9	**Hexavalent Chromium**	0.26 J	7.4	mg/kg	12SB21-000.5-01	22/22	0.15-0.15	7.4	NA	1.6 N			**Y**	**ASL**
	7439-89-6	Iron	5810	37100	mg/kg	12TP08-000.5-01	122/122	N/A	37100	NA	N			N	NTX
	7439-92-1	Lead	5.4 L	1410	mg/kg	12SB52-0.502-02	131/131	N/A	1410	NA	N			N	NTX
	7439-95-4	Magnesium	478	20600 J	mg/kg	12TP15-000.5-01	122/122	N/A	20600	NA	N			N	NUT
	7439-96-5	Manganese	106 J	1020 J	mg/kg	12TP11-0.502-02	122/122	N/A	1020	NA	7100 N			N	BSL
	7439-97-6	Mercury	0.007 J	0.47 K	mg/kg	SSA12-SS07D-000.5-20071205	116/122	0.02-0.021	0.47	NA	N			N	NTX
	7440-02-0	Nickel	3.5 J	63.5	mg/kg	SSA12-SS04D-000.5-20071205	122/122	N/A	63.5	NA	13000 C			N	BSL
	7440-09-7	Potassium	163 L	2480	mg/kg	12TP09-0.502-02	122/122	N/A	2480	NA	N			N	NUT
	7782-49-2	Selenium	0.063 J	2.6 L	mg/kg	12TP03-0.502-02	47/84	0.21-0.52	2.6	NA	2800000 N			N	BSL
	7440-22-4	Silver	0.05 J	7.7	mg/kg	12TP08-0.502-02	43/69	0.1-0.14	7.7	NA	N			N	NTX
	7440-23-5	Sodium	33.1 J	549 K	mg/kg	SSA12-SB01D-0001-20071207	39/39	N/A	549	NA	N			N	NUT
	7440-28-0	Thallium	0.11 J	4.2 J	mg/kg	SSA12-SS02D-000.5-20071207	49/77	0.54-0.77	4.2	NA	N			N	NTX
	7440-62-2	Vanadium	5.7 L	44.9	mg/kg	12TP10-0.502-02	122/122	N/A	44.9	NA	N			N	NTX
	7440-66-6	Zinc	16.9 J	731	mg/kg	SSA12-SS04D-000.5-20071205	122/122	N/A	731	NA	N			N	NTX
	72-54-8	4,4'-DDD	0.94 J	19 J	ug/kg	SSA12-SS03E-000.5-20071206	17/110	0.95-83	19	NA	48000000 C			N	BSL
	72-55-9	4,4'-DDE	0.82 J	82	ug/kg	12TP15-000.5-01	34/116	0.95-52	82	NA	34000000 C			N	BSL
	50-29-3	4,4'-DDT	1.2 J	170	ug/kg	12TP15-000.5-01	43/119	0.95-52	170	NA	34000000 C			N	BSL
	309-00-2	Aldrin	0.61 J	2.4	ug/kg	12TP11-000.5-01	5/125	0.95-44	2.4	NA	680000000 C			N	BSL
	319-84-6	Alpha-BHC	0.43 J	3.2	ug/kg	12TP11-000.5-01	9/124	0.95-27	3.2	NA	1800000 C			N	BSL
	5103-71-9	Alpha-Chlordane	0.33 J	13 J	ug/kg	12TP05-0.502-02	20/117	0.95-27	13	NA	33000000 C			N	BSL
	319-85-7	Beta-BHC	1.9 J	13 J	ug/kg	SSA12-SS10E-000.5-20071207	2/100	0.95-21	13	NA	1800000 C			N	BSL
	319-86-8	Delta-BHC	0.39 J	2.8 J	ug/kg	12TP08-000.5-01	20/118	0.95-27	2.8	NA	1840 C			N	BSL
	60-57-1	Dieldrin	1 J	500 J	ug/kg	SSA12-SS07E-000.5-20071206	45/115	0.95-83	500	NA	720000 C			N	BSL
	959-98-8	Endosulfan I	0.34 J	3.9 J	ug/kg	12SB01-0.502-02	21/117	0.95-27	3.9	NA	N			N	NTX
	33213-65-9	Endosulfan II	1.7 J	2.1 J	ug/kg	12TP01-000.5-01	2/112	0.95-52	2.1	NA	N			N	NTX
	1031-07-8	Endosulfan Sulfate	1.5 J	54 J	ug/kg	SSA12-SS15E-000.5-20071206	10/120	0.95-52	54	NA	N			N	NTX
	72-20-8	Endrin	0.9 J	19 J	ug/kg	12TP11-0.502-02	6/122	0.95-52	19	NA	N			N	NTX
	007421-93-4	Endrin Aldehyde	0.58 J	27 J	ug/kg	SSA12-SS15E-000.5-20071206	34/120	0.95-52	27	NA	N			N	NTX
	53494-70-5	Endrin Ketone	0.74 J	34 J	ug/kg	12TP11-0.502-02	18/116	0.95-52	34	NA	N			N	NTX
	58-89-9	Gamma-BHC (Lindane)	2.3 J	2.3 J	ug/kg	SSA12-SB01D-0001-20071207	1/125	0.95-27	2.3	NA	11000000 C			N	BSL
	5103-74-2	Gamma-Chlordane	0.46 J	28 J	ug/kg	12TP11-0.502-02	12/100	0.95-27	28	NA	33000000 C			N	BSL
	76-44-8	Heptachlor	0.31 J	2.1 J	ug/kg	12TP15-000.5-01	24/119	0.95-27	2.1	NA	2500000 C			N	BSL

TABLE 2.05
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Site 12 Surface Soil Emissions to Ambient Air	1024-57-3	Heptachlor Epoxide	0.37 J	12 J	ug/kg	12TP11-0.502-02	23/115	0.95-43	12	NA	1300000 C			N	BSL
	72-43-5	Methoxychlor	13 J	41 J	ug/kg	SSA12-SS15E-000.5-20071206	3/118	0.95-440	41	NA	N			N	NTX
	91-57-6	2-Methylnaphthalene	1.2 J	990 K	ug/kg	12SB10-0.502-02	58/144	1.9-2200	990	NA	N			N	NTX
	83-32-9	Acenaphthene	1.6 J	3200	ug/kg	12TP11-0.502-02	69/144	1.9-2200	3200	NA	N			N	NTX
	208-96-8	Acenaphthylene	0.86 J	670 J	ug/kg	12TP08-0.502-02	76/144	1.9-2200	670	NA	N			N	NTX
	120-12-7	Anthracene	0.72 J	16000	ug/kg	12TP11-0.502-02	100/144	1.9-270	16000	NA	N			N	NTX
	56-55-3	Benz(a)anthracene	1.3 J	21000 J	ug/kg	12TP11-0.502-02	112/144	1.95-270	21000	NA	12000000 C			N	BSL
	100-52-7	Benzaldehyde	26 J	40 J	ug/kg	12TP14-0.502-02	3/68	200-2200	40	NA	N			N	NTX
	50-32-8	Benzo(a)pyrene	2.3 J	21000 J	ug/kg	12TP11-0.502-02	116/144	1.95-240	21000	NA	1200000 C			N	BSL
	205-99-2	Benzo(b)fluoranthene	1.3 J	19000 J	ug/kg	12TP11-0.502-02	116/144	1.95-270	19000	NA	12000000 C			N	BSL
	191-24-2	Benzo(g,h,i)perylene	0.74 J	25000	ug/kg	12TP11-0.502-02	109/144	1.95-270	25000	NA	N			N	NTX
	207-08-9	Benzo(k)fluoranthene	1.1 J	30000	ug/kg	12TP11-0.502-02	118/144	1.95-240	30000	NA	12000000 C			N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	46 J	1500	ug/kg	SSA12-SS13E-000.5-20071206	12/116	190-2200	1500	NA	C			N	NTX
	86-74-8	Carbazole	44 J	8200	ug/kg	12TP11-0.502-02	22/122	190-4200	8200	NA	C			N	NTX
	218-01-9	Chrysene	1.4 J	22000 J	ug/kg	12TP11-0.502-02	124/144	1.95-240	22000	NA	120000000 C			N	BSL
	84-74-2	Di-n-butyl Phthalate	28 J	97 J	ug/kg	12TP12-000.5-01	5/122	190-2200	97	NA	N			N	NTX
	117-84-0	Di-n-octyl Phthalate	48 J	150 J	ug/kg	12TP14-0.502-02	2/122	190-2200	150	NA	N			N	NTX
	53-70-3	Dibenz(a,h)anthracene	0.77 J	12000	ug/kg	12TP11-0.502-02	91/144	1.9-270	12000	NA	1100000 C			N	BSL
	132-64-9	Dibenzofuran	29 J	3700	ug/kg	12TP11-0.502-02	12/122	190-2200	3700	NA	N			N	NTX
	131-11-3	Dimethyl Phthalate	170 J	540	ug/kg	12SB15-0.502-02	28/122	190-2200	540	NA	N			N	NTX
	206-44-0	Fluoranthene	2.4 J	44000 J	ug/kg	12TP11-0.502-02	132/144	1.95-230	44000	NA	N			N	NTX
	86-73-7	Fluorene	0.59 J	6900	ug/kg	12TP11-0.502-02	80/144	1.9-2200	6900	NA	N			N	NTX
	193-39-5	Indeno(1,2,3-cd)pyrene	2.9 J	30000	ug/kg	12TP11-0.502-02	105/144	1.95-270	30000	NA	12000000 C			N	BSL
	91-20-3	Naphthalene	2.5 J	660 J	ug/kg	12TP11-0.502-02	45/144	1.9-2200	660	NA	3600 C			N	BSL
	85-01-8	Phenanthrene	1.6 J	39000 K	ug/kg	12SB10-0.502-02	127/144	1.95-240	39000	NA	N			N	NTX
	129-00-0	Pyrene	2.1 J	35000 J	ug/kg	12TP11-0.502-02	129/144	1.95-240	35000	NA	N			N	NTX
	78-93-3	2-Butanone	5.5 J	200 J	ug/kg	12SB15-000.5-01	40/94	11.5-660	200	NA	6800000 N			N	BSL
	591-78-6	2-Hexanone	14 J	14 J	ug/kg	12SB15-000.5-01	1/122	11-660	14	NA	45000 N			N	BSL
	67-64-1	Acetone	5.6 J	4600 J	ug/kg	SSA12-SB03D-1.502-20071205	89/120	11.5-20.5	4600	NA	47000000 N			N	BSL
	71-43-2	Benzene	2.2 J	2.2 J	ug/kg	SSA12-SS09E-000.5-20071206	1/122	2.35-260	2.2	NA	1200 C			N	BSL
	75-15-0	Carbon Disulfide	1.4 J	10	ug/kg	12TP03-000.5-01	8/122	2.35-260	10	NA	92000 N			N	BSL
	74-87-3	Chloromethane	1.2 J	2.3 J	ug/kg	12TP05-0.502-02	5/122	2.35-260	2.3	NA	12000 N			N	BSL
	75-71-8	Dichlorodifluoromethane	1.8 J	12	ug/kg	SSA12-SS15E-000.5-20071206	2/122	2.35-260	12	NA	9400 N			N	BSL
	98-82-8	Isopropylbenzene	2.9 J	2.9 J	ug/kg	12SB18-000.5-01	1/122	2.35-260	2.9	NA	280000 N			N	BSL
	79-20-9	Methyl Acetate	3 J	440 J	ug/kg	12SB02-000.5-01	20/68	4.6-9.8	440	NA	N			N	NTX
	127-18-4	Tetrachloroethene	3.6 J	3.6 J	ug/kg	12TP14-0.502-02	1/122	2.35-260	3.6	NA	11000 N			N	BSL
	108-88-3	Toluene	1.6 J	2 J	ug/kg	12SB01-0.502-02	2/122	2.35-260	2	NA	2400000 N			N	BSL
	79-01-6	Trichloroethene	3.9 J	3.9 J	ug/kg	12TP14-0.502-02	1/122	2.35-260	3.9	NA	500 N			N	BSL
	75-69-4	Trichlorofluoromethane	3.8 J	3.8 J	ug/kg	SSA12-SS15E-000.5-20071206	1/122	2.35-260	3.8	NA	81000 N			N	BSL

TABLE 2.05
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background, so background comparison was not involved in selecting or eliminating COPCs.
5 - The soil-to-air screening level was obtained from the EPA residential soil table, columns titled "Inhalation SL". Noncarcinogenic values (annotated "N") are divided by 10 to correspond to a target hazard quotient of 0.1, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, November, 2013). Source: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/docs/ressoil_sl_table_run_NOV2013.xls
6 - The soil to air screening levels are based upon the more conservative of either fugitive dust emissions or volatilization from soil.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(8) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route

Site 12 Soil Samples:

12SB01-0.502-02	12SB11-000.5-01	12SB22-000.5-01	12SB35-000.5-01-D	12SB57-000.5-01	12TP10-000.5-01	SSA12-SS03E-000.5-20071206
12SB01-000.5-01	12SB12-0.502-02	12SB23-0.502-02	12SB36-000.5-01	12SB57-000.5-01-D	12TP11-0.502-02	SSA12-SS04D-000.5-20071205
12SB02-0.502-02	12SB12-000.5-01	12SB23-000.5-01	12SB37-000.5-01	12SB58-000.5-01	12TP11-000.5-01	SSA12-SS04E-000.5-20071206
12SB02-0.502-02-D	12SB13-0.502-02	12SB24-0.502-02	12SB38-000.5-01	12SB59-000.5-01	12TP12-0.502-02	SSA12-SS05D-000.5-20071207
12SB02-000.5-01	12SB13-000.5-01	12SB24-000.5-01	12SB39-000.5-01	12TP01-0.502-02	12TP12-000.5-01	SSA12-SS05E-000.5-20071206
12SB03-0.502-02	12SB14-0.502-02	12SB25-0.502-02	12SB40-000.5-01	12TP01-000.5-01	12TP13-0.502-02	SSA12-SS06D-000.5-20071207
12SB03-000.5-01	12SB14-000.5-01	12SB25-000.5-01	12SB41-000.5-01	12TP02-0.502-02	12TP13-000.5-01	SSA12-SS06E-000.5-20071206
12SB04-0.502-02	12SB15-0.502-02	12SB26-0.502-02	12SB42-0.502-02	12TP02-000.5-01	12TP14-0.502-02	SSA12-SS07D-000.5-20071205
12SB04-000.5-01	12SB15-000.5-01	12SB26-000.5-01	12SB43-0.502-02	12TP03-0.502-02	12TP14-000.5-01	SSA12-SS07E-000.5-20071206
12SB05-0.502-02	12SB15-000.5-01-D	12SB26-000.5-01-D	12SB44-0.502-02	12TP03-0.502-02-D	12TP15-0.502-02	SSA12-SS08D-000.5-20071205
12SB05-000.5-01	12SB16-0.502-02	12SB27-0.502-02	12SB45-0.502-02	12TP03-000.5-01	12TP15-000.5-01	SSA12-SS08E-000.5-20071206
12SB06-0.502-02	12SB16-000.5-01	12SB27-000.5-01	12SB45-0.502-02-D	12TP04-0.502-02	12TP16-0.502-02	SSA12-SS09E-000.5-20071206
12SB06-000.5-01	12SB17-0.502-02	12SB28-0.502-02	12SB46-0.502-02	12TP04-000.5-01	12TP16-0.520-02	SSA12-SS10D-000.5-20071205
12SB06-000.5-01-D	12SB17-000.5-01	12SB28-000.5-01	12SB47-0.502-02	12TP05-0.502-02	12TP16-000.5-01	SSA12-SS10E-000.5-20071207
12SB07-0.502-02	12SB18-0.502-02	12SB29-0.502-02	12SB48-0.502-02	12TP05-000.5-01	12TP17-0.5-02-02	SSA12-SS13E-000.5-20071206
12SB07-000.5-01	12SB18-000.5-01	12SB29-000.5-01	12SB48-0.502-02-D	12TP06-0.502-02	12TP17-0.52.0-02	SSA12-SS14E-000.5-20071206
12SB08-0.502-02	12SB19-0.502-02	12SB30-0.502-02	12SB49-0.502-02	12TP06-000.5-01	12TP17-000.5-01	SSA12-SS15E-000.5-20071206
12SB08-000.5-01	12SB19-000.5-01	12SB30-000.5-01	12SB50-0.502-02	12TP07-0.502-02	SSA12-SB01D-0001-20071207	SSA12-SS16E-000.5-20071205
12SB09-0.502-02	12SB20-0.502-02	12SB31-0.502-02	12SB51-0.502-02	12TP07-000.5-01	SSA12-SB03D-1.502-20071205	SSA12-SS16E-000.5-20071205-D
12SB09-0.502-02-D	12SB20-000.5-01	12SB31-0.502-02-D	12SB52-0.502-02	12TP08-0.502-02	SSA12-SS01D-000.5-20071207	SSA12-SS17E-000.5-20071205
12SB09-000.5-01	12SB20-000.5-01-D	12SB32-0.502-02	12SB53-0.502-02	12TP08-000.5-01	SSA12-SS01E-000.5-20071206	SSA12-SS18E-000.5-20071205
12SB10-0.502-02	12SB21-0.502-02	12SB33-0.502-02	12SB54-0.502-02	12TP09-0.502-02	SSA12-SS02D-000.5-20071207	SSA12-SS19E-000.5-20071205
12SB10-000.5-01	12SB21-000.5-01	12SB34-0.502-02	12SB55-0.502-02	12TP09-000.5-01	SSA12-SS02E-000.5-20071206	
12SB11-0.501-02	12SB22-0.502-02	12SB35-000.5-01	12SB56-0.502-02	12TP10-0.502-02	SSA12-SS03D-000.5-20071205	

TABLE 2.06
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Site 12 Soil	1746-01-6	**Total 2,3,7,8-TCDD Equiv.**	5.07813	603.051	ng/kg	12TP02-0405-03	6/6	N/A	603.051	NA	87 C			**Y**	**ASL**
Emissions to Ambient Air	7429-90-5	Aluminum	2280	29400	mg/kg	12TP15-0304-03	186/186	N/A	29400	NA	710000 N			N	BSL
	7440-36-0	Antimony	0.41 L	35.4 J	mg/kg	12TP16-0608-03	44/50	0.32-0.35	35.4	NA	N			N	NTX
	7440-38-2	Arsenic	0.76 J	108 L	mg/kg	12TP03-0506-04	185/185	N/A	108	NA	770 C			N	BSL
	7440-39-3	Barium	15 L	1110	mg/kg	12TP03-0506-04	186/186	N/A	1110	NA	71000 N			N	BSL
	7440-41-7	Beryllium	0.2 L	3.1 L	mg/kg	12TP15-0304-03	183/183	N/A	3.1	NA	2800 N			N	BSL
	7440-43-9	Cadmium	0.025 J	105	mg/kg	12TP08-0304-03	107/120	0.06-0.08	105	NA	180 N			N	BSL
	7440-70-2	Calcium	166 J	67600 J	mg/kg	12TP08-0304-03	186/186	N/A	67600	NA	N			N	NUT
	7440-47-3	**Chromium**	4	192 L	mg/kg	12TP03-0506-04	194/194	N/A	192	NA	1.6 N			**Y**	**ASL**
	7440-48-4	Cobalt	1.9 J	23.1	mg/kg	12TP02-0405-03	186/186	N/A	23.1	NA	370 C			N	BSL
	7440-50-8	Copper	2.6 J	1980	mg/kg	12TP02-0405-03	189/189	N/A	1980	NA	N			N	NTX
	57-12-5	Cyanide	0.043 J	0.426	mg/kg	12SB10-0.502-02	56/135	0.12-0.21	0.426	NA	N			N	NTX
	18540-29-9	**Hexavalent Chromium**	0.26 J	7.4	mg/kg	12SB21-000.5-01	42/43	0.12-0.15	7.4	NA	1.6 N			**Y**	**ASL**
	7439-89-6	Iron	4610 J	166000	mg/kg	SSA12-SB08D-0202.5-20071205	186/186	N/A	166000	NA	N			N	NTX
	7439-92-1	Lead	1.6 J	7900 J	mg/kg	12TP15-0304-03	195/195	N/A	7900	NA	N			N	NTX
	7439-95-4	Magnesium	357 J	20600 J	mg/kg	12TP15-000.5-01	186/186	N/A	20600	NA	N			N	NUT
	7439-96-5	Manganese	29.4 J	3740	mg/kg	12TP01-0708-04	186/186	N/A	3740	NA	7100 N			N	BSL
	7439-97-6	Mercury	0.002 J	0.47 K	mg/kg	SSA12-SS07D-000.5-20071205	166/186	0.0055-0.021	0.47	NA	N			N	NTX
	7440-02-0	Nickel	2.4 L	117 J	mg/kg	12TP09-0304-03-D	186/186	N/A	117	NA	13000 C			N	BSL
	7440-09-7	Potassium	103 L	3500	mg/kg	12TP05-0910-04	186/186	N/A	3500	NA	N			N	NUT
	7782-49-2	Selenium	0.057 J	16.4 L	mg/kg	12TP12-0203-03	66/128	0.2-0.52	16.4	NA	2800000 N			N	BSL
	7440-22-4	Silver	0.05 J	19.5 K	mg/kg	12TP12-0203-03	58/104	0.0455-0.14	19.5	NA	N			N	NTX
	7440-23-5	Sodium	33.1 J	1300 K	mg/kg	12TP15-0304-03	68/68	N/A	1300	NA	N			N	NUT
	7440-28-0	Thallium	0.08 J	41.1 K	mg/kg	SSA12-SB08D-0202.5-20071205	77/121	0.54-0.77	41.1	NA	N			N	NTX
	7440-62-2	Vanadium	5.2 J	58.8	mg/kg	12TP03-0607-03	186/186	N/A	58.8	NA	N			N	NTX
	7440-66-6	Zinc	8.6 J	5400	mg/kg	12TP15-0304-03	186/186	N/A	5400	NA	N			N	NTX
	72-54-8	4,4'-DDD	0.59 J	19 J	ug/kg	SSA12-SS03E-000.5-20071206	21/169	0.95-83	19	NA	48000000 C			N	BSL
	72-55-9	4,4'-DDE	0.82 J	82	ug/kg	12TP15-000.5-01	39/174	0.95-52	82	NA	34000000 C			N	BSL
	50-29-3	4,4'-DDT	0.97 J	170	ug/kg	12TP15-000.5-01	53/183	0.95-52	170	NA	34000000 C			N	BSL
	309-00-2	Aldrin	0.61 J	2.4	ug/kg	12TP11-000.5-01	5/188	0.95-44	2.4	NA	680000000 C			N	BSL
	319-84-6	Alpha-BHC	0.43 J	3.2	ug/kg	12TP11-000.5-01	12/186	0.95-27	3.2	NA	1800000 C			N	BSL
	5103-71-9	Alpha-Chlordane	0.33 J	13 J	ug/kg	12TP05-0.502-02	25/181	0.95-27	13	NA	33000000 C			N	BSL
	11096-82-5	Aroclor-1260	350 J	350 J	ug/kg	12SB20-0304-03-D	1/186	9.5-270	350	NA	5800000 C			N	BSL
	319-85-7	Beta-BHC	1.5 J	13 J	ug/kg	SSA12-SS10E-000.5-20071207	3/159	0.95-21	13	NA	1800000 C			N	BSL
	319-86-8	Delta-BHC	0.38 J	2.8 J	ug/kg	12TP08-000.5-01	24/180	0.95-27	2.8	NA	1840 C			N	BSL
	60-57-1	Dieldrin	1 J	500 J	ug/kg	SSA12-SS07E-000.5-20071206	50/173	0.95-83	500	NA	720000 C			N	BSL
	959-98-8	Endosulfan I	0.34 J	11 J	ug/kg	12TP03-0607-03	27/180	0.95-27	11	NA	N			N	NTX
	33213-65-9	Endosulfan II	1.2 J	14 J	ug/kg	12TP03-0607-03	6/173	0.95-52	14	NA	N			N	NTX
	1031-07-8	Endosulfan Sulfate	1.1 J	54 J	ug/kg	SSA12-SS15E-000.5-20071206	13/182	0.95-52	54	NA	N			N	NTX
	72-20-8	Endrin	0.9 J	19 J	ug/kg	12TP11-0.502-02	8/186	0.95-52	19	NA	N			N	NTX
	007421-93-4	Endrin Aldehyde	0.58 J	27 J	ug/kg	SSA12-SS15E-000.5-20071206	42/181	0.95-52	27	NA	N			N	NTX
	53494-70-5	Endrin Ketone	0.74 J	34 J	ug/kg	12TP11-0.502-02	23/171	0.95-52	34	NA	N			N	NTX
	58-89-9	Gamma-BHC (Lindane)	2.3 J	2.3 J	ug/kg	SSA12-SB01D-0001-20071207	1/189	0.95-27	2.3	NA	11000000 C			N	BSL

TABLE 2.06
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Site 12 Soil	5103-74-2	Gamma-Chlordane	0.46 J	28 J	ug/kg	12TP11-0.502-02	20/156	0.95-27	28	NA	33000000 C			N	BSL
Emissions to Ambient Air	76-44-8	Heptachlor	0.31 J	2.1 J	ug/kg	12TP15-000.5-01	31/177	0.95-27	2.1	NA	2500000 C			N	BSL
	1024-57-3	Heptachlor Epoxide	0.36 J	12 J	ug/kg	12TP11-0.502-02	33/177	0.95-43	12	NA	1300000 C			N	BSL
	72-43-5	Methoxychlor	11 J	120 J	ug/kg	12TP03-0607-03	6/178	0.95-440	120	NA	N			N	NTX
	120-82-1	1,2,4-Trichlorobenzene	2.7 J	48 J	ug/kg	12TP04-0405-03	2/186	2.2-260	48	NA	6700 N			N	BSL
	95-50-1	1,2-Dichlorobenzene	190	190	ug/kg	12TP01-0506-03	1/186	2.2-260	190	NA	260000 N			N	BSL
	106-46-7	1,4-Dichlorobenzene	2.8 J	21	ug/kg	12TP01-0506-03	2/186	2.2-260	21	NA	2500 C			N	BSL
	91-57-6	2-Methylnaphthalene	0.94 J	35000 J	ug/kg	12TP01-0506-03	77/208	1.85-2200	35000	NA	N			N	NTX
	83-32-9	Acenaphthene	1.6 J	5100	ug/kg	12TP09-0304-03	86/208	1.85-3800	5100	NA	N			N	NTX
	208-96-8	Acenaphthylene	0.86 J	670 J	ug/kg	12TP08-0.502-02	87/208	1.85-4400	670	NA	N			N	NTX
	120-12-7	Anthracene	0.72 J	16000	ug/kg	12TP11-0.502-02	125/208	1.85-1900	16000	NA	N			N	NTX
	56-55-3	Benz(a)anthracene	0.77 J	22000 J	ug/kg	12TP09-0304-03	145/208	1.85-1900	22000	NA	12000000 C			N	BSL
	100-52-7	Benzaldehyde	26 J	68 J	ug/kg	12TP02-0405-03	5/104	200-6300	68	NA	N			N	NTX
	50-32-8	Benzo(a)pyrene	1.6 J	21000 J	ug/kg	12TP11-0.502-02	144/208	1.85-1900	21000	NA	1200000 C			N	BSL
	205-99-2	Benzo(b)fluoranthene	0.75 J	19000 J	ug/kg	12TP11-0.502-02	149/208	1.85-1900	19000	NA	12000000 C			N	BSL
	191-24-2	Benzo(g,h,i)perylene	0.63 J	25000	ug/kg	12TP11-0.502-02	137/208	1.85-1400	25000	NA	N			N	NTX
	207-08-9	Benzo(k)fluoranthene	0.8 J	30000	ug/kg	12TP11-0.502-02	147/208	1.85-1900	30000	NA	12000000 C			N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	46 J	23000 J	ug/kg	SSA12-SB08D-0202.5-20071205	17/173	185-4400	23000	NA	C			N	NTX
	86-74-8	Carbazole	44 J	8400 J	ug/kg	12TP09-0304-03	30/186	185-6300	8400	NA	C			N	NTX
	218-01-9	Chrysene	0.89 J	24000 J	ug/kg	12TP09-0304-03	158/208	1.85-1900	24000	NA	120000000 C			N	BSL
	84-74-2	Di-n-butyl Phthalate	23 J	97 J	ug/kg	12TP12-000.5-01	6/186	185-4400	97	NA	N			N	NTX
	117-84-0	Di-n-octyl Phthalate	48 J	150 J	ug/kg	12TP14-0.502-02	2/186	185-4400	150	NA	N			N	NTX
	53-70-3	Dibenz(a,h)anthracene	0.77 J	12000	ug/kg	12TP11-0.502-02	110/208	1.85-1900	12000	NA	1100000 C			N	BSL
	132-64-9	Dibenzofuran	29 J	4600	ug/kg	12TP09-0304-03	19/186	185-2850	4600	NA	N			N	NTX
	131-11-3	Dimethyl Phthalate	170 J	540	ug/kg	12SB15-0.502-02	40/186	190-4400	540	NA	N			N	NTX
	206-44-0	Fluoranthene	2.3 J	48000 J	ug/kg	12TP09-0304-03	168/208	1.85-1900	48000	NA	N			N	NTX
	86-73-7	Fluorene	0.59 J	6900	ug/kg	12TP11-0.502-02	101/208	1.85-2200	6900	NA	N			N	NTX
	193-39-5	Indeno(1,2,3-cd)pyrene	1.2 J	30000	ug/kg	12TP11-0.502-02	129/208	1.85-2400	30000	NA	12000000 C			N	BSL
	91-20-3	**Naphthalene**	2.5 J	13000 J	ug/kg	12TP01-0506-03	60/208	1.85-2200	13000	NA	3600 C			**Y**	**ASL**
	85-01-8	Phenanthrene	1.6 J	48000 J	ug/kg	12TP09-0304-03	163/208	1.85-1400	48000	NA	N			N	NTX
	129-00-0	Pyrene	2 J	36000 J	ug/kg	12TP09-0304-03	162/208	1.85-1900	36000	NA	N			N	NTX
	87-61-6	1,2,3-Trichlorobenzene	3.8 J	82 J	ug/kg	12TP04-0405-03	2/151	2.2-11	82	NA	N			N	NTX
	156-59-2	1,2-Dichloroethene (cis)	7.6 J	14	ug/kg	12TP02-0405-03	2/186	2.2-260	14	NA	N			N	NTX
	156-60-5	1,2-Dichloroethene (trans)	6.6 J	7.3 J	ug/kg	12TP03-0506-04	2/186	2.2-260	7.3	NA	17000 N			N	BSL
	78-93-3	2-Butanone	5.1 J	200 J	ug/kg	12SB15-000.5-01	53/152	11-660	200	NA	6800000 N			N	BSL
	591-78-6	2-Hexanone	14 J	14 J	ug/kg	12SB15-000.5-01	1/186	11-660	14	NA	45000 N			N	BSL
	67-64-1	Acetone	5.6 J	4600 J	ug/kg	SSA12-SB03D-1.502-20071205	116/171	11-650	4600	NA	47000000 N			N	BSL
	71-43-2	Benzene	1.3 J	44	ug/kg	12TP09-0304-03-D	11/186	2.2-260	44	NA	1200 C			N	BSL
	74-83-9	Bromomethane	6.3 J	78 J	ug/kg	12TP09-0304-03-D	2/186	2.2-260	78	NA	780 N			N	BSL
	75-15-0	Carbon Disulfide	1.1 J	10	ug/kg	12TP03-000.5-01	18/186	2.2-260	10	NA	92000 N			N	BSL
	108-90-7	Chlorobenzene	4 J	4 J	ug/kg	12TP06-0506-03	1/186	2.2-260	4	NA	36000 N			N	BSL
	74-87-3	Chloromethane	1.2 J	130	ug/kg	12TP09-0304-03-D	9/186	2.2-260	130	NA	12000 N			N	BSL
	110-82-7	Cyclohexane	36	36	ug/kg	12TP13-0506-03	1/104	4.4-260	36	NA	700000 N			N	BSL
	75-71-8	Dichlorodifluoromethane	1.8 J	12	ug/kg	SSA12-SS15E-000.5-20071206	2/186	2.2-260	12	NA	9400 N			N	BSL
	100-41-4	Ethylbenzene	1.3 J	280	ug/kg	12TP04-0405-03	4/186	2.2-260	280	NA	5900 C			N	BSL
	98-82-8	Isopropylbenzene	2.9 J	540	ug/kg	12TP04-0405-03	4/186	2.2-260	540	NA	280000 N			N	BSL
	179601-23-1	M,p-xylene	2.5 J	970	ug/kg	12TP04-0405-03	3/186	4.4-520	970	NA	65000 N			N	BSL

TABLE 2.06
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Site 12 Soil Emissions to Ambient Air	79-20-9	Methyl Acetate	1.8 J	440 J	ug/kg	12SB02-000.5-01	23/104	4.6-260	440	NA	N			N	NTX
	108-87-2	Methylcyclohexane	2.8 J	880	ug/kg	12TP04-0405-03	5/104	4.4-260	880	NA	N			N	NTX
	75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	12SB19-0304-03	1/186	2.2-260	2.4	NA	23000 N			N	BSL
	95-47-6	O-xylene	110	110	ug/kg	12TP01-0506-03	1/186	2.2-260	110	NA	72000 N			N	BSL
	127-18-4	Tetrachloroethene	3.6 J	3.7 J	ug/kg	12TP14-0405-03	2/186	2.2-260	3.7	NA	11000 N			N	BSL
	108-88-3	Toluene	1.6 J	13	ug/kg	12TP09-0304-03-D	8/185	2.2-260	13	NA	2400000 N			N	BSL
	79-01-6	Trichloroethene	3.2 J	3.9 J	ug/kg	12TP14-0.502-02	2/186	2.2-260	3.9	NA	500 N			N	BSL
	75-69-4	Trichlorofluoromethane	3.8 J	3.8 J	ug/kg	SSA12-SS15E-000.5-20071206	1/186	2.2-260	3.8	NA	81000 N			N	BSL
	75-01-4	Vinyl Chloride	19	19	ug/kg	12TP02-0405-03	2/186	2.2-260	19	NA	170 C			N	BSL
	1330-20-7	Xylenes (Total)	2.5 J	970	ug/kg	12TP04-0405-03	3/186	4.4-260	970	NA	65000 N			N	BSL

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.

2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.

3 - The maximum detected concentration is used for screening purposes.

4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background, so background comparison was not involved in selecting or eliminating COPCs.

5 - The soil-to-air screening level was obtained from the EPA residential soil table, columns titled "Inhalation SL". Noncarcinogenic values (annotated "N") are divided by 10 to correspond to a target hazard quotient of 0.1, or an incremental cancer risk of 1.0E-06 for carcinogens (annotated "C") (USEPA Region 3, November 2013). Source: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/docs/ressoil_sl_table_run_NOV2013.xls

6 - The soil to air screening levels are based upon the more conservative of either fugitive dust emissions or volatilization from soil.

7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(8) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route

For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

TABLE 2.06
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Air

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (6)	COPC Flag (7)	Rationale for Contaminant Selection or Deletion (8)
Site 12 Soil Samples:															

12SB01-0.502-02
12SB01-000.5-01
12SB02-0.502-02
12SB02-0.502-02-D
12SB02-000.5-01
12SB03-0.502-02
12SB03-000.5-01
12SB04-0.502-02
12SB04-000.5-01
12SB05-0.502-02
12SB05-000.5-01
12SB06-0.502-02
12SB06-000.5-01
12SB06-000.5-01-D
12SB07-0.502-02
12SB07-000.5-01
12SB08-0.502-02
12SB08-000.5-01
12SB09-0.502-02
12SB09-0.502-02-D
12SB09-000.5-01
12SB10-0.502-02
12SB10-000.5-01
12SB11-0.501-02
12SB11-000.5-01
12SB12-0.502-02
12SB12-000.5-01
12SB13-0.502-02
12SB13-000.5-01
12SB14-0.502-02
12SB14-000.5-01
12SB15-0.502-02
12SB15-000.5-01
12SB15-000.5-01-D
12SB16-0.502-02
12SB16-000.5-01
12SB17-0.502-02
12SB17-000.5-01
12SB18-0.502-02
12SB18-000.5-01

12SB19-0.502-02
12SB19-000.5-01
12SB20-0.502-02
12SB20-000.5-01
12SB20-000.5-01-D
12SB21-0.502-02
12SB21-000.5-01
12SB22-0.502-02
12SB22-000.5-01
12SB23-0.502-02
12SB23-000.5-01
12SB24-0.502-02
12SB24-000.5-01
12SB25-0.502-02
12SB25-000.5-01
12SB26-0.502-02
12SB26-000.5-01
12SB26-000.5-01-D
12SB27-0.502-02
12SB27-000.5-01
12SB28-0.502-02
12SB28-000.5-01
12SB29-0.502-02
12SB29-000.5-01
12SB30-0.502-02
12SB30-000.5-01
12SB31-0.502-02
12SB31-0.502-02-D
12SB32-0.502-02
12SB33-0.502-02
12SB34-0.502-02
12SB35-000.5-01
12SB35-000.5-01-D
12SB36-000.5-01
12SB37-000.5-01
12SB38-000.5-01
12SB39-000.5-01
12SB40-000.5-01
12SB41-000.5-01
12SB42-0.502-02

12SB43-0.502-02
12SB44-0.502-02
12SB45-0.502-02
12SB45-0.502-02-D
12SB46-0.502-02
12SB47-0.502-02
12SB48-0.502-02
12SB48-0.502-02-D
12SB49-0.502-02
12SB50-0.502-02
12SB51-0.502-02
12SB52-0.502-02
12SB53-0.502-02
12SB54-0.502-02
12SB55-0.502-02
12SB56-0.502-02
12SB57-000.5-01
12SB57-000.5-01-D
12SB58-000.5-01
12SB59-000.5-01
12TP01-0.502-02
12TP01-000.5-01
12TP02-0.502-02
12TP02-000.5-01
12TP03-0.502-02
12TP03-0.502-02-D
12TP03-000.5-01
12TP04-0.502-02
12TP04-000.5-01
12TP05-0.502-02
12TP05-000.5-01
12TP06-0.502-02
12TP06-000.5-01
12TP07-0.502-02
12TP07-000.5-01
12TP08-0.502-02
12TP08-000.5-01
12TP09-0.502-02
12TP09-000.5-01
12TP10-0.502-02

12TP10-000.5-01
12TP11-0.502-02
12TP11-000.5-01
12TP12-0.502-02
12TP12-000.5-01
12TP13-0.502-02
12TP13-000.5-01
12TP14-0.502-02
12TP14-000.5-01
12TP15-0.502-02
12TP15-000.5-01
12TP16-0.502-02
12TP16-0.520-02
12TP16-000.5-01
12TP17-0.5-02-02
12TP17-0.52.0-02
12TP17-000.5-01
SSA12-SB01D-0001-20071207
SSA12-SB03D-1.502-20071205
SSA12-SS01D-000.5-20071207
SSA12-SS01E-000.5-20071206
SSA12-SS02D-000.5-20071207
SSA12-SS02E-000.5-20071206
SSA12-SS03D-000.5-20071205
SSA12-SS03E-000.5-20071206
SSA12-SS04D-000.5-20071205
SSA12-SS04E-000.5-20071206
SSA12-SS05D-000.5-20071207
SSA12-SS05E-000.5-20071206
SSA12-SS06D-000.5-20071207
SSA12-SS06E-000.5-20071206
SSA12-SS07D-000.5-20071205
SSA12-SS07E-000.5-20071206
SSA12-SS08D-000.5-20071205
SSA12-SS08E-000.5-20071206
SSA12-SS09E-000.5-20071206
SSA12-SS10D-000.5-20071205
SSA12-SS10E-000.5-20071207
SSA12-SS13E-000.5-20071206
SSA12-SS14E-000.5-20071206

SSA12-SS15E-000.5-20071206
SSA12-SS16E-000.5-20071205
SSA12-SS16E-000.5-20071205-D
SSA12-SS17E-000.5-20071205
SSA12-SS18E-000.5-20071205
SSA12-SS19E-000.5-20071205
12SB06-0304-03
12SB07-0304-03
12SB08-0304-03
12SB09-0304
12SB09-0304-03
12SB10-0304-03
12SB11-0304-03
12SB12-0304-03
12SB13-0304-03
12SB14-0304-03
12SB15-0304-03
12SB16-0304-03
12SB16-0304-03-D
12SB17-0304-03
12SB18-0304-03
12SB19-0304-03
12SB20-0304-03
12SB20-0304-03-D
12SB21-0304-03
12SB22-0304-03
12SB23-0304-03
12SB24-0304-03
12SB25-0304-03
12SB26-0304-03
12SB28-0304-03
12SB29-0304-03
12SB30-0304-03
12TP01-0506-03
12TP01-0708-04
12TP02-0405-03
12TP02-0405-CS
12TP02-0405-CS-D
12TP02-0910-04
12TP03-0506-04

12TP03-0506-CS
12TP03-0607-03
12TP03-0809-05
12TP04-0405-03
12TP04-0607-04
12TP05-0204-03
12TP05-0204-03-D
12TP05-0910-04
12TP06-0506-03
12TP06-0506-03-D
12TP06-0910-04
12TP07-0607-03
12TP08-0304-03
12TP08-0304-CS
12TP09-0304-03
12TP09-0304-03-D
12TP09-0304-CS
12TP09-0506-04
12TP09-0506-05
12TP10-0405-03
12TP10-0405-CS
12TP10-0809-04
12TP11-0304-03
12TP11-0506-04
12TP12-0203-03
12TP12-0203-CS
12TP12-0506-04
12TP13-0506-03
12TP13-0809-04
12TP14-0405-03
12TP14-0405-CS
12TP14-0607-04
12TP15-0304-03
12TP15-0304-CS
12TP15-0405-04
12TP16-0608-03
12TP16-0608-03-D
12TP16-0910-04
12TP16-0910-4
12TP18-0506-01

12TP18-0607-02
SSA12-SB02D-0202.5-20071207
SSA12-SB02D-0202.5-20071207-D
SSA12-SB04D-0202.5-20071205
SSA12-SB05D-0202.5-20071207
SSA12-SB06D-0202.5-20071207
SSA12-SB07D-0202.5-20071205
SSA12-SB08D-0202.5-20071205
SSA12-SB10D-0202.5-20071205

TABLE 2.07
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
Site 12 Surface Water	7429-90-5	**Aluminum**	2700	31800	ug/L	12SW07	2/3	34.2-34.2	31800	NA	16000 N			**Y**	**ASL**
	7440-36-0	Antimony	4.7	4.7	ug/L	12SW07	1/7	2.9-2.9	4.7	NA	6 N			N	BSL
	7440-38-2	**Arsenic**	10.6	10.6	ug/L	12SW07	1/7	2.9-2.9	10.6	NA	0.45 C			**Y**	**ASL**
	7440-39-3	Barium	49.9 J	434 J	ug/L	12SW07	7/7	N/A	434	NA	2900 N			N	BSL
	7440-41-7	Beryllium	3.1	3.1	ug/L	12SW07	1/4	0.23-0.23	3.1	NA	16 N			N	BSL
	7440-43-9	Cadmium	1.1	1.1	ug/L	12SW07	1/7	0.34-0.34	1.1	NA	6.9 N			N	BSL
	7440-70-2	Calcium	12800	39900	ug/L	12SW07	7/7	N/A	39900	NA	N			N	NUT
	7440-47-3	**Chromium**	1.9	37.8	ug/L	12SW07	2/7	0.95-0.95	37.8	NA	0.31 C			**Y**	**ASL**
	7440-48-4	**Cobalt**	32.6	32.6	ug/L	12SW07	1/3	0.75-0.75	32.6	NA	4.7 N			**Y**	**ASL**
	7440-50-8	Copper	6.6	57.4	ug/L	12SW07	2/7	1.5-1.5	57.4	NA	620 N			N	BSL
	57-12-5	**Cyanide**	3.2 L	48.8 J	ug/L	12SW02	5/7	3-3	48.8	NA	1.4 N			**Y**	**ASL**
	7439-89-6	**Iron**	120 K	44700	ug/L	12SW07	7/7	N/A	44700	NA	11000 N			**Y**	**ASL**
	7439-92-1	**Lead**	2.3	88	ug/L	12SW07	4/7	1.8-1.8	88	NA	15 N			**Y**	**ASL**
	7439-95-4	Magnesium	2040	13100	ug/L	12SW07	7/7	N/A	13100	NA	N			N	NUT
	7439-96-5	**Manganese**	16.4 J	2100 J	ug/L	12SW01	7/7	N/A	2100	NA	320 N			**Y**	**ASL**
	7439-97-6	Mercury	0.2	0.2	ug/L	12SW07	1/7	0.1-0.1	0.2	NA	1.6 N			N	BSL
	7440-02-0	Nickel	0.97	31.8	ug/L	12SW07	3/7	0.96-0.96	31.8	NA	300 N			N	BSL
	7440-09-7	Potassium	905 J	4460 J	ug/L	12SW07	7/7	N/A	4460	NA	N			N	NUT
	7440-23-5	Sodium	4200	37900	ug/L	12SW02-D	6/6	N/A	37900	NA	N			N	NUT
	7440-62-2	**Vanadium**	6.5	88.8	ug/L	12SW07	2/5	0.68-0.68	88.8	NA	63 N			**Y**	**ASL**
	7440-66-6	Zinc	1 L	253 L	ug/L	12SW07	7/7	N/A	253	NA	4700 N			N	BSL
	72-54-8	4,4'-DDD	0.015 J	0.015 J	ug/L	12SW07	1/7	0.1-0.11	0.015	NA	0.27 C			N	BSL
	72-55-9	4,4'-DDE	0.021 J	0.021 J	ug/L	12SW07	1/7	0.1-0.11	0.021	NA	2 C			N	BSL
	50-29-3	4,4'-DDT	0.019 J	0.019 J	ug/L	12SW07	1/7	0.1-0.11	0.019	NA	2 C			N	BSL
	309-00-2	Aldrin	0.015 J	0.015 J	ug/L	12SW07	1/7	0.05-0.056	0.015	NA	0.04 C			N	BSL
	5103-71-9	Alpha-Chlordane	0.058 J	0.058 J	ug/L	12SW07	1/7	0.05-0.056	0.058	NA	1.9 C			N	BSL
	319-85-7	Beta-BHC	0.007 J	0.0089 J	ug/L	12SW02-D	1/7	0.05-0.054	0.0089	NA	0.22 C			N	BSL
	60-57-1	**Dieldrin**	0.0029 J	1.6	ug/L	12SW07	5/7	0.1-0.1	1.6	NA	0.015 C			**Y**	**ASL**
	959-98-8	Endosulfan I	0.063 J	0.063 J	ug/L	12SW07	1/7	0.05-0.056	0.063	NA	78 N			N	BSL
	007421-93-4	Endrin Aldehyde	0.037 J	0.037 J	ug/L	12SW07	1/7	0.1-0.11	0.037	NA	1.7 N			N	BSL
	1024-57-3	Heptachlor Epoxide	0.0079 J	0.0079 J	ug/L	12SW08	1/7	0.05-0.056	0.0079	NA	0.033 C			N	BSL
	72-43-5	Methoxychlor	0.28 J	0.28 J	ug/L	12SW07	1/7	0.5-0.56	0.28	NA	27 N			N	BSL

TABLE 2.07
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
	91-57-6	2-Methylnaphthalene	0.029 J	0.029 J	ug/L	12SW07	1/7	0.2-0.22	0.029	NA	27 N			N	BSL
	208-96-8	Acenaphthylene	0.035 J	0.15 J	ug/L	12SW07	2/7	0.2-0.22	0.15	NA	400 N			N	BSL
	120-12-7	Anthracene	0.041 J	1.2 J	ug/L	12SW07	2/7	0.2-0.22	1.2	NA	1300 N			N	BSL
	56-55-3	**Benz(a)anthracene**	0.043 J	6.3	ug/L	12SW07	3/7	0.21-0.22	6.3	NA	0.29 C			**Y**	**ASL**
	100-52-7	Benzaldehyde	1.5 J	1.5 J	ug/L	12SW07	1/7	5-5.6	1.5	NA	1500 N			N	BSL
	50-32-8	**Benzo(a)pyrene**	0.049 J	7.1	ug/L	12SW07	3/7	0.21-0.22	7.1	NA	0.029 C			**Y**	**ASL**
	205-99-2	**Benzo(b)fluoranthene**	0.053 J	6.5	ug/L	12SW07	3/7	0.21-0.22	6.5	NA	0.29 C			**Y**	**ASL**
	191-24-2	Benzo(g,h,i)perylene	0.033 J	4.4 J	ug/L	12SW07	3/7	0.21-0.22	4.4	NA	87 N			N	BSL
	207-08-9	**Benzo(k)fluoranthene**	0.047 J	4.8 J	ug/L	12SW07	3/7	0.21-0.22	4.8	NA	2.9 C			**Y**	**ASL**
	218-01-9	Chrysene	0.05 J	7.6	ug/L	12SW07	3/7	0.21-0.22	7.6	NA	29 C			N	BSL
	53-70-3	**Dibenz(a,h)anthracene**	0.02 J	0.21 J	ug/L	12SW07	2/7	0.2-0.22	0.21	NA	0.029 C			**Y**	**ASL**
	206-44-0	Fluoranthene	0.078 J	13	ug/L	12SW07	3/7	0.21-0.22	13	NA	630 N			N	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	0.038 J	5 J	ug/L	12SW07	3/7	0.21-0.22	5	NA	0.29 C			**Y**	**ASL**
	85-01-8	Phenanthrene	0.04 J	4.8 J	ug/L	12SW07	2/7	0.21-0.22	4.8	NA	87 N			N	BSL
	129-00-0	Pyrene	0.079 J	12	ug/L	12SW07	3/7	0.21-0.22	12	NA	87 N			N	BSL
	75-25-2	Bromoform	0.17 J	0.22 J	ug/L	12SW02	3/7	0.5-0.5	0.22	NA	79 C			N	BSL
	67-66-3	Chloroform	0.12 J	0.14 J	ug/L	12SW02	1/7	0.5-0.5	0.14	NA	1.9 C			N	BSL
	124-48-1	Dibromochloromethane	0.14 J	0.24 J	ug/L	12SW02	2/7	0.5-0.5	0.24	NA	1.5 C			N	BSL

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background, a separate table is presented to show the effects of background for on eliminating COPCs.
5 - The EPA ORNL risk-based tap water COPC screening level for residential tap water use is multiplied by 10 to account for lower intake from incidental contact with surface water. The noncarcinogenic values (annotated "N") are then divided by 10 to correspond to a target hazard quotient of 0.1, while RSLs for carcinogens (annotated "C") correspond to an incremental cancer risk of 1.0E-06 (USEPA Region 3, May 2013).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
8 - The RSL for hexavalent chromium was utilized because the form of chromium in surface water is not known.

Surface Water Samples:

12SW01	12SW03	12SW07
12SW02	12SW04	12SW08
12SW02-D	12SW05	

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(7) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route

For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

TABLE 2.08
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
Site 12 Sediment	7429-90-5	Aluminum	5400	16700	mg/kg	12SD06	8/8	N/A	16700	NA	77000 N			N	BSL
	7440-36-0	Antimony	0.47 J	2.2 J	mg/kg	12SD08	8/8	N/A	2.2	NA	31 N			N	BSL
	7440-38-2	**Arsenic**	2.8	7.2	mg/kg	12SD06	8/8	N/A	7.2	NA	3.9 C			**Y**	**ASL**
	7440-39-3	Barium	58.2	838	mg/kg	12SD02	8/8	N/A	838	NA	15000 N			N	BSL
	7440-41-7	Beryllium	0.43	1.2 K	mg/kg	12SD02	8/8	N/A	1.2	NA	160 N			N	BSL
	7440-43-9	Cadmium	0.07	2.1	mg/kg	12SD02	8/8	N/A	2.1	NA	70 N			N	BSL
	7440-70-2	Calcium	717	5970	mg/kg	12SD03	8/8	N/A	5970	NA	N			N	NUT
	7440-47-3	**Chromium**	11	22.3	mg/kg	12SD06	8/8	N/A	22.3	NA	0.29 N			**Y**	**ASL**
	7440-48-4	**Cobalt**	3.4	37.1	mg/kg	12SD02	8/8	N/A	37.1	NA	23 N			**Y**	**ASL**
	7440-50-8	Copper	7.2	44.7	mg/kg	12SD02	8/8	N/A	44.7	NA	3100 N			N	BSL
	7439-89-6	Iron	10800 L	24000 L	mg/kg	12SD02	8/8	N/A	24000	NA	55000 N			N	BSL
	7439-92-1	Lead	14.9	90	mg/kg	12SD04	8/8	N/A	90	NA	400 N			N	BSL
	7439-95-4	Magnesium	930	2740	mg/kg	12SD03	8/8	N/A	2740	NA	N			N	NUT
	7439-96-5	**Manganese**	129 L	17400 L	mg/kg	12SD02	8/8	N/A	17400	NA	1800 N			**Y**	**ASL**
	7439-97-6	Mercury	0.023	0.11	mg/kg	12SD08	7/8	0.019-0.02	0.11	NA	7.8 N			N	BSL
	7440-02-0	Nickel	5.5	28.4	mg/kg	12SD02	8/8	N/A	28.4	NA	1500 N			N	BSL
	7440-09-7	Potassium	356 L	1490 L	mg/kg	12SD08	8/8	N/A	1490	NA	N			N	NUT
	7440-22-4	Silver	0.47	0.47	mg/kg	12SD02	1/8	0.11-0.19	0.47	NA	390 N			N	BSL
	7440-28-0	**Thallium**	1 L	13.3	mg/kg	12SD02	3/8	0.66-1	13.3	NA	0.78 N			**Y**	**ASL**
	7440-62-2	Vanadium	17	36.5	mg/kg	12SD06	8/8	N/A	36.5	NA	390 N			N	BSL
	7440-66-6	Zinc	25	269	mg/kg	12SD02	8/8	N/A	269	NA	23000 N			N	BSL
	72-54-8	4,4'-DDD	4 J	4 J	ug/kg	12SD01	1/7	4.2-6.6	4	NA	20000 C			N	BSL
	72-55-9	4,4'-DDE	5.2 J	6.5 J	ug/kg	12SD08	3/7	4.2-5.9	6.5	NA	14000 C			N	BSL
	50-29-3	4,4'-DDT	1.4 J	5.2 J	ug/kg	12SD06	6/8	4.2-4.3	5.2	NA	17000 C			N	BSL
	309-00-2	Aldrin	0.43 J	0.43 J	ug/kg	12SD01	2/8	2.1-3.4	0.43	NA	290 C			N	BSL
	319-84-6	Alpha-BHC	0.63 J	0.68 J	ug/kg	12SD03	3/6	2.2-3	0.68	NA	770 C			N	BSL
	5103-71-9	Alpha-Chlordane	4.8 J	12 J	ug/kg	12SD02	3/7	2.2-3.4	12	NA	16000 C			N	BSL
	319-85-7	Beta-BHC	16 J	16 J	ug/kg	12SD03-D	1/8	1.1-23	16	NA	2700 C			N	BSL
	319-86-8	Delta-BHC	0.49 J	0.49 J	ug/kg	12SD01	1/7	2.2-3	0.49	NA	C			N	NTX
	60-57-1	Dieldrin	0.77 J	55	ug/kg	12SD07	6/7	4.2-4.2	55	NA	300 C			N	BSL
	959-98-8	Endosulfan I	1.7 J	1.7 J	ug/kg	12SD01	1/5	2.2-3.4	1.7	NA	370000 N			N	BSL
	1031-07-8	Endosulfan Sulfate	1.5 J	1.5 J	ug/kg	12SD07	1/8	4.1-6.6	1.5	NA	370000 N			N	BSL
	007421-93-4	Endrin Aldehyde	1.5 J	7.5 J	ug/kg	12SD02	4/7	4.2-5.9	7.5	NA	18000 N			N	BSL
	53494-70-5	Endrin Ketone	2.4 J	17 J	ug/kg	12SD02	3/7	4.2-6.6	17	NA	18000 N			N	BSL
	5103-74-2	Gamma-Chlordane	3.7 J	16 J	ug/kg	12SD02	3/5	2.2-2.2	16	NA	16000 C			N	BSL
	76-44-8	Heptachlor	0.45 J	1 J	ug/kg	12SD07	2/7	2.1-3.4	1	NA	1100 C			N	BSL
	1024-57-3	Heptachlor Epoxide	0.72 J	4.5 J	ug/kg	12SD01	4/7	2.2-2.2	4.5	NA	530 C			N	BSL
	91-57-6	2-Methylnaphthalene	2.7 J	11	ug/kg	12SD04	4/8	340-1200	11	NA	230000 N			N	BSL
	83-32-9	Acenaphthene	1.1 J	200 J	ug/kg	12SD03-D	4/8	11-1200	200	NA	3400000 N			N	BSL
	208-96-8	Acenaphthylene	2.7 J	150 J	ug/kg	12SD03-D	6/8	930-1200	150	NA	2300000 N			N	BSL

TABLE 2.08
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - EXPOSURE TO SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point(s)	CAS Number	Chemical	Minimum Concentration (Qualifier) (1)	Maximum Concentration (Qualifier) (1)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits (2)	Concentration Used for Screening (3)	Background Value (4)	Screening Toxicity Value (N/C) (5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (6)	Rationale for Contaminant Selection or Deletion (7)
	120-12-7	Anthracene	2.2 J	900	ug/kg	12SD03-D	8/8	N/A	900	NA	17000000 N			N	BSL
	56-55-3	**Benz(a)anthracene**	10 J	3500 J	ug/kg	12SD03-D	8/8	N/A	3500	NA	1500 C			**Y**	**ASL**
	50-32-8	**Benzo(a)pyrene**	13	3500 J	ug/kg	12SD03-D	8/8	N/A	3500	NA	150 C			**Y**	**ASL**
	205-99-2	**Benzo(b)fluoranthene**	14	4800 J	ug/kg	12SD03-D	8/8	N/A	4800	NA	1500 C			**Y**	**ASL**
	191-24-2	Benzo(g,h,i)perylene	10 J	1400	ug/kg	12SD03-D	8/8	N/A	1400	NA	1700000 N			N	BSL
	207-08-9	Benzo(k)fluoranthene	15	3500 J	ug/kg	12SD02	8/8	N/A	3500	NA	15000 C			N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	79 J	460 J	ug/kg	12SD02	5/8	220-280	460	NA	350000 C			N	BSL
	86-74-8	Carbazole	120 J	440 J	ug/kg	12SD02	4/8	220-300	440	NA	C			N	NTX
	218-01-9	Chrysene	15	4200 J	ug/kg	12SD03-D	8/8	N/A	4200	NA	150000 C			N	BSL
	84-74-2	Di-n-butyl Phthalate	82 J	340 J	ug/kg	12SD02	2/8	220-930	340	NA	6100000 N			N	BSL
	53-70-3	**Dibenz(a,h)anthracene**	2.4 J	750	ug/kg	12SD03-D	8/8	N/A	750	NA	150 C			**Y**	**ASL**
	132-64-9	Dibenzofuran	82 J	210 J	ug/kg	12SD03-D	1/8	220-1200	210	NA	78000 N			N	BSL
	206-44-0	Fluoranthene	33 J	10000 J	ug/kg	12SD03-D	8/8	N/A	10000	NA	2300000 N			N	BSL
	86-73-7	Fluorene	0.87 J	340 J	ug/kg	12SD03-D	7/8	1200-1200	340	NA	2300000 N			N	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	11	1900	ug/kg	12SD03-D	8/8	N/A	1900	NA	1500 C			**Y**	**ASL**
	91-20-3	Naphthalene	2 J	5.4 J	ug/kg	12SD06	4/8	340-1200	5.4	NA	36000 C			N	BSL
	85-01-8	Phenanthrene	11	5800 J	ug/kg	12SD03-D	8/8	N/A	5800	NA	1700000 N			N	BSL
	129-00-0	Pyrene	29 J	8600 J	ug/kg	12SD03-D	8/8	N/A	8600	NA	1700000 N			N	BSL
	78-93-3	2-Butanone	6.2 J	51 J	ug/kg	12SD01	5/8	800-1500	51	NA	28000000 N			N	BSL
	67-64-1	Acetone	59 J	380 J	ug/kg	12SD01	5/8	800-1500	380	NA	61000000 N			N	BSL
	75-15-0	Carbon Disulfide	1.9 J	28 J	ug/kg	12SD03	2/8	7.1-590	28	NA	820000 N			N	BSL
	74-87-3	Chloromethane	6.6 J	6.6 J	ug/kg	12SD01	1/8	5.6-590	6.6	NA	120000 N			N	BSL
	79-20-9	Methyl Acetate	12 J	2300 J	ug/kg	12SD01	7/8	5.6-6.2	2300	NA	78000000 N			N	BSL

Footnotes:

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits or sample-specific instrument detection limits.
3 - The maximum detected concentration is used for screening purposes.
4 - A background comparison analysis was performed but in this table COPCs were selected without elimination of metals statistically not above background, a separate table is presented to show the effects of background for on eliminating COPCs.
5 - The EPA ORNL risk-based COPC screening level for residential soil contact is multiplied by 10 to account for lower contact rate during recreation. The noncarcinogenic values (annotated "N") are then divided by 10 to correspond to a target hazard quotient of 0.1, to correspond to a target hazard quotient of 0.1, while RSLs for carcinogens (annotated "C") correspond to an incremental cancer risk of 1.0E-06 (USEPA Region 3, May 2013).
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
8 - The RSL for hexavalent chromium was utilized because the form of chromium in sediment is not known.
9 - The RSL for methyl mercury was used because the form of mercury in sediment is not known.

Sediment Samples:

12SD01	12SD03-D	12SD06
12SD02	12SD04	12SD07
12SD03	12SD05	12SD08

Definitions:

ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
C = Carcinogen
N = Non-Carcinogenic
J = Estimated Value

(7) Rationale Codes:

For Selection as a COPC:
ASL = Above Screening Level (and Background, if applicable)
NoSCR = No Screening Level applicable for this exposure route
For Elimination as a COPC:
BSL = Below Screening Level
BKG = Below Background Based on Statistical Tests
NUT = Essential Nutrient
NTX = No Toxicity Data

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TABLE 3.01
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Tap Water Contact,	Total 2,3,7,8-TCDD Equiv.	ug/L	0.000774	NA	0.00147	0.00147	ng/L	Max	n<5,use Max
Water Vapors at Showerhead,	Aluminum	ug/L	1530	13400	8570	13400	ug/L	99% Chebyshev (Mean, Sd) UCL	Lognormal Dist; 1.5 < σ ≤ 2.0; n < 20; ND = 0%
or Outdoor Contact	Arsenic	ug/L	1.22	2.70	2.70	2.70	ug/L	Maximum	Number of detects=3; Max = 95% KM % Bootstrap UCL
During Construction (1)	Barium	ug/L	131	189	310	189	ug/L	95% Student's-t UCL	Normal; All n; ND = 0%
	Chromium	ug/L	8.26	15.2	24.6 J	15.2	ug/L	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Cobalt	ug/L	1.74	2.61	3.60	2.61	ug/L	95% Student's-t UCL	Normal; All n; ND = 0%
	Iron	ug/L	2120	6630	12200	6630	ug/L	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Manganese	ug/L	534	912	1680	912	ug/L	95% Student's-t UCL	Normal; All n; ND = 0%
	Vanadium	ug/L	5.76	7.89	19.2	7.89	ug/L	95% KM (t) UCL	Approx. Gamma; k ≤ 1; All n; ND ≥ 50%
	Carbon Tetrachloride	ug/L	0.276	NA	0.61 J	0.61	ug/L	Maximum	Number of detects = 1; Use Max
	Chloroform**	ug/L	0.287	NA	0.77 J	0.77	ug/L	Maximum	Number of detects = 1; Use Max
	Trichloroethene (mutagenic)**	ug/L	0.65	NA	4.1	4.1	ug/L	Maximum	Number of detects = 1; Use Max
	Trichloroethene (nonmutagenic)**	ug/L	0.65	NA	4.1	4.1	ug/L	Maximum	Number of detects = 2; Use Max

(1) Only COPCs with Henry's Law constants > 1E-05 and molecular weights < 205 were considered inhalation COPCs, and have been footnoted (**).

TABLE 3.02
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SOIL-TO-GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Tap Water Contact or Water Vapors at Showerhead	Total 2,3,7,8-TCDD Equiv.	ng/kg	150	776	603	776	ng/kg	95% Approximate Gamma UCL	Approx. Gamma; 0.1 ≤ k < 0.5; All n; ND = 0%
	Aluminum	mg/kg	12200	12800	29400	12800	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Antimony	mg/kg	4.6	8.46	35.4	8.46	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Arsenic	mg/kg	6.24	5.60	108	5.60	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Barium	mg/kg	105.00	NA*	1110	NA*	mg/kg	NA*	NA*
	Cadmium	mg/kg	4.0	10.6	105	10.6	mg/kg	97.5% KM (Chebyshev) UCL	Non-disc dist; 1.5 < σ ≤ 2.0; n ≥ 40; ND < 50%
	Chromium (total - all data)	mg/kg	17.4	27.4	192	27.4	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.66	2.62	7.4	2.62	mg/kg	95% KM (Chebyshev) UCL	Approx. Gamma;1 < k ≤ 2; All n; ND < 10%
	Chromium (total - paired data)	mg/kg	18.6	21.4	65	21.4	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 10%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	3.35	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative
	Cobalt	mg/kg	6.83	7.20	23.1	7.20	mg/kg	95% Student's-t UCL	Non-disc Dist; σ ≤ 0.5; All n; ND = 0%
	Copper	mg/kg	57.7	119	1980	119	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 1.0<σ≤1.5; All n; ND = 0%
	Cyanide	mg/kg	0.1	NA*	0.426	NA*	mg/kg	NA*	NA*
	Iron	mg/kg	20100	22000	166000	22000	mg/kg	95% Student's-t UCL	Non-disc Dist; σ ≤ 0.5; All n; ND = 0%
	Manganese	mg/kg	457	575	3740	575	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Mercury	mg/kg	0.0655	NA*	0.47 K	NA*	mg/kg	NA*	NA*
	Nickel	mg/kg	12.9	NA*	117 J	NA*	mg/kg	NA*	NA*
	Selenium	mg/kg	0.584	NA*	16.4 L	NA*	mg/kg	NA*	NA*
	Silver	mg/kg	1.03	NA*	19.5 K	NA*	mg/kg	NA*	NA*
	Thallium	mg/kg	2.5	3.19	41.1	3.19	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Zinc	mg/kg	202	425	5400	425	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 1.0<σ≤1.5; All n; ND = 0%
	4,4'-DDE	ug/kg	3	NA*	82	NA*	ug/kg	NA*	NA*
	4,4'-DDT	ug/kg	4	NA*	170	NA*	ug/kg	NA*	NA*
	Aldrin	ug/kg	1.1	NA*	2.4	NA*	ug/kg	NA*	NA*
	Alpha-BHC	ug/kg	1.0	NA*	3.2	NA*	ug/kg	NA*	NA*
	Alpha-Chlordane	ug/kg	1.3	NA*	13 J	NA*	ug/kg	NA*	NA*
	Aroclor-1260	ug/kg	350	NA	350	350	ug/kg	Maximum	Number of detects = 1; use Max
	Beta-BHC	ug/kg	1	NA*	13 J	NA*	ug/kg	NA*	NA*
	Dieldrin	ug/kg	36.1	19.2	500	19.2	ug/kg	95% KM (BCA) UCL	Lognormal Dist; 1.0 < σ ≤ 1.5;+J44 All n; ND≥50%
	Gamma-BHC (Lindane)	ug/kg	1.0	NA*	2.3 J	NA*	ug/kg	NA*	NA*

TABLE 3.02
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SOIL-TO-GROUNDWATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Tap Water Contact or Water Vapors at Showerhead	Gamma-Chlordane	ug/kg	1.6	NA*	28 J	NA*	ug/kg	NA*	NA*
	Heptachlor	ug/kg	0.9	NA*	2.1 J	NA*	ug/kg	NA*	NA*
	Heptachlor Epoxide	ug/kg	1.3	NA*	12 J	NA*	ug/kg	NA*	NA*
	1,4-Dichlorobenzene	ug/kg	4.6	NA*	21	NA*	ug/kg	NA*	NA*
	2-Methylnaphthalene	ug/kg	545	1260	35000	1260	ug/kg	97.5% KM (Chebyshev) UCL	Non-disc Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Acenaphthene	ug/kg	114	NA*	5100	NA*	ug/kg	NA*	NA*
	Benz(a)anthracene	ug/kg	1130	1850	22000	1850	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(a)pyrene	ug/kg	1040	1650	21000	1650	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(b)fluoranthene	ug/kg	1090	1690	19000	1690	ug/kg	97.5% KM (Chebyshev) UCL	Non-disc Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(g,h,i)perylene	ug/kg	437	NA*	25000	NA*	ug/kg	NA*	NA*
	Benzo(k)fluoranthene	ug/kg	1030	1890	30000	1890	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Bis(2-ethylhexyl) Phthalate	ug/kg	323	NA*	23000 J	NA*	ug/kg	NA*	NA*
	Chrysene	ug/kg	1140	2010	24000	2010	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Dibenz(a,h)anthracene	ug/kg	340	576	12000	576	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Dibenzofuran	ug/kg	203	NA*	4600	NA*	ug/kg	NA*	NA*
	Fluorene	ug/kg	152	NA*	6900	NA*	ug/kg	NA*	NA*
	Indeno(1,2,3-cd)pyrene	ug/kg	808	1490	30000	1490	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Naphthalene	ug/kg	370	411	13000	411.0	ug/kg	95% KM (Chebyshev) UCL	Non-disc Dist; 1.5 < σ ≤ 2.0; n ≥ 40 to 50; ND≥50%
	Phenanthrene	ug/kg	1180	NA*	48000 J	NA*	ug/kg	NA*	NA*
	Pyrene	ug/kg	1510	NA*	36000 J	NA*	ug/kg	NA*	NA*
	1,2,3-Trichlorobenzene	ug/kg	3	NA*	82 J	NA*	ug/kg	NA*	NA*
	1,2,4-Trichlorobenzene	ug/kg	4	NA*	48 J	NA*	ug/kg	NA*	NA*
	1,2-Dichloroethene (cis)	ug/kg	5	NA*	14	NA*	ug/kg	NA*	NA*
	2-Hexanone	ug/kg	13	NA*	14 J	NA*	ug/kg	NA*	NA*
	Acetone	ug/kg	162	NA*	4600 J	NA*	ug/kg	NA*	NA*
	Benzene	ug/kg	5	NA*	44	NA*	ug/kg	NA*	NA*
	Bromomethane	ug/kg	5	NA*	78 J	NA*	ug/kg	NA*	NA*
	Chloromethane	ug/kg	5	NA*	130	NA*	ug/kg	NA*	NA*
	Ethylbenzene	ug/kg	5	NA*	280	NA*	ug/kg	NA*	NA*
	M,p-xylene	ug/kg	14	NA*	970	NA*	ug/kg	NA*	NA*
	Trichloroethene	ug/kg	5	NA*	3.9 J	NA*	ug/kg	NA*	NA*
	Vinyl Chloride	ug/kg	5	NA*	19	NA*	ug/kg	NA*	NA*
	Xylenes (Total)	ug/kg	12	NA*	970	NA*	ug/kg	NA*	NA*

NA* - EPCs for soil-to-groundwater COPCs were not calculated separately because risk analysis was qualitative. (The only EPCs shown are those for substances also selected as COPCs for direct contact with soil exposure.)

TABLE 3.03
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Surface Soil	Aluminum	mg/kg	11600	12200	21000	12200	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Antimony	mg/kg	1.56	2.88	10.1	2.88	mg/kg	95% KM (Chebyshev) UCL	Approx. Gamma;1 < k ≤ 2; All n; ND < 10%
	Arsenic	mg/kg	5.14	5.60	29.8	5.60	mg/kg	95% Student's-t UCL	Non-disc dist; σ < 0.5; All n; ND = 0%
	Cadmium	mg/kg	0.98	1.60	9.4	1.60	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Chromium (total - all data)	mg/kg	17.1	18.0	38.5	18.0	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.79	2.45	7.4	2.45	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Chromium (total - paired data)	mg/kg	15.0	17.0	22.2	17.0	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	2.59	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative
	Cobalt	mg/kg	6.09	6.35	12	6.35	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Copper	mg/kg	25.2	44.1	458	44.1	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Iron	mg/kg	16900	17800	37100	17800	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Lead	mg/kg	72.0	73.0	1410	72.0	mg/kg	Arithmetic Mean	IEUBK Model uses arithmetic mean
	Manganese	mg/kg	402	431	1020	431	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Thallium	mg/kg	1.87	1.92	4.2	1.92	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Vanadium	mg/kg	24.2	25.3	44.9	25.3	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Dieldrin	ug/kg	38.4	28.4	500	28.4	ug/kg	95% KM (BCA) UCL	Lognormal dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND ≥ 50%
	Benz(a)anthracene	ug/kg	1100	2040	21000	2040	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Benzo(a)pyrene	ug/kg	1000	1940	21000	1940	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Benzo(b)fluoranthene	ug/kg	1090	1990	19000	1990	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Benzo(k)fluoranthene	ug/kg	980	2280	30000	2280	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Chrysene	ug/kg	1100	2200	22000	2200	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Dibenz(a,h)anthracene	ug/kg	334	756	12000	756	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Indeno(1,2,3-cd)pyrene	ug/kg	803	1940	30000	1940	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%

TABLE 3.03a
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SURFACE SOIL, OMITTING BACKGROUND COPCS
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Surface Soil	Aluminum	mg/kg	11600	12200	21000	12200	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Antimony	mg/kg	1.56	2.88	10.1	2.88	mg/kg	95% KM (Chebyshev) UCL	Approx. Gamma;1 < k ≤ 2; All n; ND < 10%
	Arsenic	mg/kg	5.14	5.60	29.8	5.60	mg/kg	95% Student's-t UCL	Non-disc dist; σ < 0.5; All n; ND = 0%
	Cadmium	mg/kg	0.98	1.60	9.4	1.60	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Chromium (total - all data)	mg/kg	17.1	18.0	38.5	18.0	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.79	2.45	7.4	2.45	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Chromium (total - paired data)	mg/kg	15.0	17.0	22.2	17.0	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	2.59	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative
	Cobalt	mg/kg	6.09	6.35	12	6.35	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Copper	mg/kg	25.2	44.1	458	44.1	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Iron	mg/kg	16900	17800	37100	17800	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Lead	mg/kg	72.0	73.0	1410	72.0	mg/kg	Arithmetic Mean	IEUBK Model uses arithmetic mean
	Manganese	mg/kg	402	431	1020	431	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Thallium	mg/kg	1.87	1.92	4.2	1.92	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Vanadium	mg/kg	24.2	25.3	44.9	25.3	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Dieldrin	ug/kg	38.4	28.4	500	28.4	ug/kg	95% KM (BCA) UCL	Lognormal dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND ≥ 50%
	Benz(a)anthracene	ug/kg	1100	2040	21000	2040	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Benzo(a)pyrene	ug/kg	1000	1940	21000	1940	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Benzo(b)fluoranthene	ug/kg	1090	1990	19000	1990	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Benzo(k)fluoranthene	ug/kg	980	2280	30000	2280	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Chrysene	ug/kg	1100	2200	22000	2200	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Dibenz(a,h)anthracene	ug/kg	334	756	12000	756	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%
	Indeno(1,2,3-cd)pyrene	ug/kg	803	1940	30000	1940	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal dist; σ > 2.0 to 3.0; n ≥ 50 to 60; ND > 0%

TABLE 3.04
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Soil	Total 2,3,7,8-TCDD Equiv.	ng/kg	150	776	603	776	ng/kg	95% Approximate Gamma UCL	Approx. Gamma; 0.1 ≤ k < 0.5; All n; ND = 0%
	Aluminum	mg/kg	12200	12800	29400	12800	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Antimony	mg/kg	4.58	8.46	35.4	8.46	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Arsenic	mg/kg	6.24	9.64	108	9.64	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Cadmium	mg/kg	3.99	10.6	105	10.6	mg/kg	97.5% KM (Chebyshev) UCL	Non-disc dist; 1.5 < σ ≤ 2.0; n ≥ 40; ND < 50%
	Chromium (total - all data)	mg/kg	21.0	27.4	192	27.4	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.66	2.62	7.4	2.62	mg/kg	95% KM (Chebyshev) UCL	Approx. Gamma;1 < k ≤ 2; All n; ND < 10%
	Chromium (total - paired data)	mg/kg	18.6	21.4	65	21.4	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 10%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	3.35	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative
	Cobalt	mg/kg	6.83	7.20	23.1	7.20	mg/kg	95% Student's-t UCL	Non-disc Dist; σ ≤ 0.5; All n; ND = 0%
	Copper	mg/kg	57.7	119	1980	119	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 1.0<σ≤1.5; All n; ND = 0%
	Iron	mg/kg	20100	22000	166000	22000	mg/kg	95% Student's-t UCL	Non-disc Dist; σ ≤ 0.5; All n; ND = 0%
	Lead	mg/kg	185	426	7900	185	mg/kg	Mean-N	IEUBK uses average
	Manganese	mg/kg	457	575	3740	575	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Thallium	mg/kg	2.5	3.19	41.1	3.19	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Vanadium	mg/kg	24.8	25.8	58.8	25.8	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Zinc	mg/kg	202	425	5400	425	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 1.0<σ≤1.5; All n; ND = 0%
	Aroclor-1260	ug/kg	350	NA	350	350	ug/kg	Maximum	Number of detects = 1; use Max
	Dieldrin	ug/kg	36.1	19.2	500	19.2	ug/kg	95% KM (BCA) UCL	Lognormal Dist; 1.0 < σ ≤ 1.5;+J44 All n; ND≥50%
	2-Methylnaphthalene	ug/kg	545	1260	35000	1260	ug/kg	97.5% KM (Chebyshev) UCL	Non-disc Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benz(a)anthracene	ug/kg	1130	1850	22000	1850	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(a)pyrene	ug/kg	1040	1650	21000	1650	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(b)fluoranthene	ug/kg	1090	1690	19000	1690	ug/kg	97.5% KM (Chebyshev) UCL	Non-disc Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(k)fluoranthene	ug/kg	1030	1890	30000	1890	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Chrysene	ug/kg	1140	2010	24000	2010	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Dibenz(a,h)anthracene	ug/kg	340	576	12000	576	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Indeno(1,2,3-cd)pyrene	ug/kg	808	1490	30000	1490	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Naphthalene	ug/kg	370	411	13000	411	ug/kg	95% KM (Chebyshev) UCL	Non-disc Dist; 1.5 < σ ≤ 2.0; n ≥ 40 to 50; ND≥50%

TABLE 3.04a
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SOIL, OMITTING BACKGROUND COPCS
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Soil	Total 2,3,7,8-TCDD Equiv.	ng/kg	150	776	603	776	ng/kg	95% Approximate Gamma UCL	Approx. Gamma; 0.1 ≤ k < 0.5; All n; ND = 0%
	Aluminum	mg/kg	12200	12800	29400	12800	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Antimony	mg/kg	4.58	8.46	35.4	8.46	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Arsenic	mg/kg	6.24	9.64	108	9.64	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Cadmium	mg/kg	3.99	10.6	105	10.6	mg/kg	97.5% KM (Chebyshev) UCL	Non-disc dist; 1.5 < σ ≤ 2.0; n ≥ 40; ND < 50%
	Chromium (total - all data)	mg/kg	21.0	27.4	192	27.4	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.66	2.62	7.4	2.62	mg/kg	95% KM (Chebyshev) UCL	Approx. Gamma;1 < k ≤ 2; All n; ND < 10%
	Chromium (total - paired data)	mg/kg	18.6	21.4	65	21.4	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 10%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	3.35	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative
	Cobalt	mg/kg	6.83	7.20	23.1	7.20	mg/kg	95% Student's-t UCL	Non-disc Dist; σ ≤ 0.5; All n; ND = 0%
	Copper	mg/kg	57.7	119	1980	119	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 1.0<σ≤1.5; All n; ND = 0%
	Iron	mg/kg	20100	22000	166000	22000	mg/kg	95% Student's-t UCL	Non-disc Dist; σ ≤ 0.5; All n; ND = 0%
	Lead	mg/kg	185	426	7900	185	mg/kg	Mean-N	IEUBK uses average
	Manganese	mg/kg	457	575	3740	575	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Thallium	mg/kg	2.5	3.19	41.1	3.19	mg/kg	95% KM (Chebyshev) UCL	Non-disc dist; 1.0 < σ ≤ 1.5; n ≥ 40; ND < 50%
	Vanadium	mg/kg	24.8	25.8	58.8	25.8	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Zinc	mg/kg	202	425	5400	425	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 1.0<σ≤1.5; All n; ND = 0%
	Aroclor-1260	ug/kg	350	NA	350	350	ug/kg	Maximum	Number of detects = 1; use Max
	Dieldrin	ug/kg	36.1	19.2	500	19.2	ug/kg	95% KM (BCA) UCL	Lognormal Dist; 1.0 < σ ≤ 1.5;+J44 All n; ND≥50%
	2-Methylnaphthalene	ug/kg	545	1260	35000	1260	ug/kg	97.5% KM (Chebyshev) UCL	Non-disc Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benz(a)anthracene	ug/kg	1130	1850	22000	1850	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(a)pyrene	ug/kg	1040	1650	21000	1650	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(b)fluoranthene	ug/kg	1090	1690	19000	1690	ug/kg	97.5% KM (Chebyshev) UCL	Non-disc Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Benzo(k)fluoranthene	ug/kg	1030	1890	30000	1890	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Chrysene	ug/kg	1140	2010	24000	2010	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Dibenz(a,h)anthracene	ug/kg	340	576	12000	576	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Indeno(1,2,3-cd)pyrene	ug/kg	808	1490	30000	1490	ug/kg	97.5% KM (Chebyshev) UCL	Lognormal Dist; 2.0<σ≤3.0; n≥50-60; ND≥0%
	Naphthalene	ug/kg	370	411	13000	411	ug/kg	95% KM (Chebyshev) UCL	Non-disc Dist; 1.5 < σ ≤ 2.0; n ≥ 40 to 50; ND≥50%

TABLE 3.05
EXPOSURE POINT CONCENTRATION SUMMARY - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Surface Soil	Chromium (total - all data)	mg/kg	17.1	18	38.5	18	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
Emissions to Ambient Air	Chromium (total - all data)	mg/kg	17.1	18.0	38.5	18.0	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.79	2.45	7.4	2.45	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 0%
	Chromium (total - paired data)	mg/kg	15.0	17.0	22.2	17.0	mg/kg	95% Student's-t UCL	Normal; σ < 0.5; All n; ND = 0%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	2.59	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative

TABLE 3.06
EXPOSURE POINT CONCENTRATION SUMMARY - SOIL TO AIR PATHWAY EXPOSURE TO SITE 12 SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Soil	Total 2,3,7,8-TCDD Equiv.	ng/kg	150	776	603	776	ng/kg	95% Approximate Gamma UCL	Approx. Gamma; 0.1 ≤ k < 0.5; All n; ND = 0%
Emissions to Ambient Air	Chromium (total - all data)	mg/kg	21.0	27.4	192	27.4	mg/kg	95% Chebyshev(Mean, Sd) UCL	Non-disc dist; 0.5<σ≤1.0; All n; ND = 0%
	Chromium (hexavalent)	mg/kg	1.66	2.62	7.4	2.62	mg/kg	95% KM (Chebyshev) UCL	Approx. Gamma;1 < k ≤ 2; All n; ND < 10%
	Chromium (total - paired data)	mg/kg	18.6	21.4	65	21.4	mg/kg	95% Approximate Gamma UCL	Approx. Gamma; k ≥ 0.5; All n; ND = 10%
	Chromium (total - adjusted UCL)	mg/kg	--	--	--	3.35	mg/kg	(Cr - tot UCL) x (hex UCL/tot paired UCL)	assumes hex / total distribution representative
	Naphthalene	ug/kg	370	411	13000	411	ug/kg	95% KM (Chebyshev) UCL	Non-disc Dist; 1.5 < σ ≤ 2.0; n ≥ 40 to 50; ND≥50%

TABLE 3.07
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SURFACE WATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface Water Contact	Aluminum	ug/L	11500	NA	31800	31800	ug/L	Max	n=3, use Max
	Arsenic	ug/L	10.6	NA	10.6	10.6	ug/L	Max	No. of detects=1, Max = 3.7 x DL
	Chromium	ug/L	19.9	73.8	37.8	37.8	ug/L	Max	No. of detects=2, Max = 40 x DL
	Cobalt	ug/L	32.6	NA	32.6	32.6	ug/L	Max	No. of detects=1, Max = 43 x DL
	Cyanide	ug/L	13.7	51.9	48.8	51.9	ug/L	97.5% KM (Chebyshev) UCL	Lognormal Dist; 1.0 < σ ≤ 1.5; n < 40; ND < 50%
	Iron	ug/L	7130	69500	44700	69500	ug/L	99% Chebyshev (Mean, Sd) UCL	Lognormal Dist; 1.5 < σ ≤ 2.0; n < 20; ND = 0%
	Lead	ug/L	15.0	40.3	88	15.0	ug/L	Mean-N	IEUBK Uses AVG
	Manganese	ug/L	987	1680	2100 J	1680	ug/L	95% Student's-t UCL	Normal; All n; ND = 0%
	Vanadium	ug/L	47.7	153	88.8	88.8	ug/L	Max	No. of detects=2, Max = 130 x DL
	Dieldrin	ug/L	0.329	2.58	1.6	2.58	ug/L	99% KM (Chebyshev) UCL	Lognormal Dist; σ > 2.0 to 3.0; n < 50 to 60; ND > 0%
	Benz(a)anthracene	ug/L	2.13	11.0	6.3	11.0	ug/L	99% KM (Chebyshev) UCL	Non-disc Dist; σ > 2.0 to 3.0; n < 50 to 60; ND > 0%
	Benzo(a)pyrene	ug/L	2.42	12.4	7.1	12.4	ug/L	99% KM (Chebyshev) UCL	Lognormal Dist; σ > 2.0 to 3.0; n < 50 to 60; ND > 0%
	Benzo(b)fluoranthene	ug/L	2.22	11.3	6.5	11.3	ug/L	99% KM (Chebyshev) UCL	Lognormal Dist; σ > 2.0 to 3.0; n < 50 to 60; ND > 0%
	Benzo(k)fluoranthene	ug/L	1.66	8.36	4.8 J	8.36	ug/L	99% KM (Chebyshev) UCL	Lognormal Dist; σ > 2.0 to 3.0; n < 50 to 60; ND > 0%
	Dibenz(a,h)anthracene	ug/L	0.116	0.239	0.21 J	0.21	ug/L	Max	No. of detects=2, Max = DL
	Indeno(1,2,3-cd)pyrene	ug/L	1.74	2.35	5 J	2.35	ug/L	95% KM (t)	Normal Dist.; All n; ND > 0%

TABLE 3.08
EXPOSURE POINT CONCENTRATION SUMMARY - EXPOSURE TO SITE 12 SEDIMENT
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 12 Sediment	Arsenic	mg/kg	4.25	5.34	7.2	5.34	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Chromium	mg/kg	16.0	18.5	22.3	18.5	mg/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Cobalt	mg/kg	10.4	20.9	37.1	20.9	mg/kg	95% H-UCL	Lognormal Dist; 0.5 < σ ≤ 1.0; All n; ND = 0%
	Manganese	mg/kg	2790	15500	17400	15500	mg/kg	95% Adjusted Gamma UCL	Gamma dist; 0.1 ≤ k < 0.5; All n
	Thallium	mg/kg	5.4	13.3	13.3	13.3	mg/kg	Maximum	Number of detects=3; Max = 95% KM % Bootstrap UCL
	Benzo(a)anthracene	ug/kg	1200	2090	3500	2090	ug/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Benzo(a)pyrene	ug/kg	1290	2240	3500	2240	ug/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Benzo(b)fluoranthene	ug/kg	1470	2620	4800	2620	ug/kg	95% Student's-t UCL	Normal; All n; ND = 0%
	Dibenz(a,h)anthracene	ug/kg	292	994	750	994	ug/kg	95% Adjusted Gamma UCL	Gamma dist; 0.1 ≤ k < 0.5; All n
	Indeno(1,2,3-cd)pyrene	ug/kg	724	1250	1900	1250	ug/kg	95% Student's-t UCL	Normal; All n; ND = 0%

LIST OF TABLES
RAGS PART D TABLE 4
VALUES USED FOR DAILY INTAKE CALCULATIONS

TABLE NO.	
	REASONABLE MAXIMUM EXPOSURES
4.01.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 GROUNDWATER
4.02.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
4.03.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER
4.04.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 SOIL*
4.05.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 SOIL*
4.06.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 SOIL*
4.07.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SOIL*
4.08.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*
4.09.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*
4.10.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SURFACE WATER
4.11.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
4.12.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
4.13.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SEDIMENT
4.14.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT
4.15.RME	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT
	CENTRAL TENDENCY EXPOSURES
4.01.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 GROUNDWATER
4.02.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
4.03.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER
4.04.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 SOIL*
4.05.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 SOIL*
4.06.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 SOIL*
4.07.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SOIL*
4.08.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*
4.09.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*
4.10.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SURFACE WATER
4.11.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
4.12.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
4.13.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SEDIMENT
4.14.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT
4.15.CTE	VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT

TABLE 4.01.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	Site 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-W	Ingestion Rate of Groundwater	1.29	L/day	USEPA, 1997	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Resident	Child	Site 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	USEPA, 2004	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	1	hours/event	USEPA, 2004	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	350	events/year	USEPA, 2004	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	6	years	USEPA, 2004	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

TABLE 4.02.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Site 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-W	Ingestion Rate of Groundwater	2	L/day	USEPA, 1997	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	Site 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	USEPA, 2004	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	0.5	hours/event	USEPA, 2006	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	350	events/year	USEPA, 2004	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	24	years	USEPA, 2004	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2006: Recommended by Region 3 EPA.

TABLE 4.02a.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Inhalation of Vapors During Showering	EF	Exposure Frequency	350	days/year	USEPA, 2004	EC (mg/m3) = (EC-event x ET x EF x ED) / (AT)
				ED	Exposure Duration	24	years	USEPA, 2004	(Exposure Concentration equivalent to continuous exposure over averaging period)
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	where:
				AT-N	Averaging Time (Non-Cancer)	210240	hours	USEPA, 2009	AT-C = 24 hrs/day x 365 days/yr x 70 years & AT-N = 24 hrs/day x 365 days/yr x ED yrs
				ET	Exposure Time	derived	hours/day	USEPA, 2009	ET (hours/day) = (Dt min/shower / (60 min/hr)) x (1 shower / day)
				EC-event	Exposure Concentration equivalent to steady exposure during 1 shower	Derived	mg/m3	USEPA, 2009	EC-event (mg/m3) = (S x Q) / (Ra x CF1 x Dt)
				CF1	Conversion Factor	1000	ug/mg		(Exposure Concentration equivalent to steady exposure during one shower event)
				Q	Function of Air Exchange Rate & Time in Shower & Shower Room	15.68	min	Calculated	
				Ds	Duration of Shower	30	min	USEPA, 2006	where: Q = Ds + [(exp(-Ra x Dt))/Ra] - [(exp(Ra x (Ds - Dt)))/Ra]
				Dt	Total Time in Shower Room (considered the Micro-Event Time - ET)	60	min	USEPA, 2006	
				Ra	Rate of Air Exchange	0.01667	1/min	Fos&Chr, 1987	
				S	Indoor VOC Generation Rate	Chemical Specific	ug/m3/min	Fos&Chr, 1987	where: S = CWD x FR/SV
				FR	Shower Flow Rate	10	l/min	USEPA, 2006	
				SV	Shower Room Air Volume	12	m3	USEPA, 2006	
				CWD	Chemical Concentration Leaving Water Droplet after time ts	Chemical Specific	ug/l	Fos&Chr, 1987	where: CWD = CW x {1-exp[-KaL x ts x (6/d) x CF2 x CF3]}
				CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002a	
				CF2	Conversion Factor	1/3600	hr/sec		
				CF3	Conversion Factor	10	mm/cm		
				ts	Shower Droplet Time	0.5	sec	USEPA, 2006	
				d	Shower Droplet Diameter	1	mm	Fos&Chr, 1987	
				KaL	Adjusted overall mass transfer coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: KaL = KL/SQRT[(T1 x us)/(Ts x u1)]
				T1	Calibration Water Temperature of KL	293	K	Fos&Chr, 1987	
				Ts	Shower Water Temperature	318	K	Fos&Chr, 1987	
				u1	Water Viscosity at T1	1.002	centipose	Fos&Chr, 1987	
				us	Water Viscosity at Ts	0.596	centipose	Fos&Chr, 1987	

TABLE 4.02a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Inhalation of Vapors During Showering	KL	Mass Transfer Coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: KL = 1/[(1/KL) + ((R x T)/(H x kg))]
				R	Ideal Gas law Constant	8.21E-05	atm m3/mole/K	Fos&Chr, 1987	
				T	Absolute Temperature	293	K	Fos&Chr, 1987	
				H	Henry's law Constant	Chemical Specific	atm m3/mole	USEPA, 2002b	
				kg	Gas-film Mass Transfer Coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: kg = kH x SQRT[MWH/MW]
				kl	Liquid-film Mass Transfer Coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: kl = kC x SQRT[MWC/MW]
				kH	Gas-film Mass Transfer Coefficient for Water	3000	cm/hr	Fos&Chr, 1987	
				kC	Liquid-film Mass Transfer Coefficient for Carbon Dioxide	20	cm/hr	Fos&Chr, 1987	
				MWH	Molecular Weight of Water	18	g/mole	Fos&Chr, 1987	
				MWC	Molecular Weight of Carbon Dioxide	44	g/mole	Fos&Chr, 1987	
				MW	Molecular Weight of COPC	Chemical Specific	g/mole	Fos&Chr, 1987	

Sources

USEPA, 2001. Fact Sheet. Correcting the Henry's Law Constant for Soil Temperature, from website: http://www.USEPA.gov/superfund/programs/risk/airmodel/factsheet.pdf

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2006: Recommended by Region 3 EPA.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

Foster, S. A. and P.C. Chrostowski. 1987. Inhalation Exposures to Volatile Organic Contaminants in the Shower. Presented at the 80th Annual Meeting of the Air Pollution Control Association. New York, NY. June.

Default Henry's Law Constants (HLCs) at 25 degrees C obtained from EPA, 1996. See appendix for conversion of HLCs to showering temperature using EPA, 2001.

TABLE 4.03.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Worker	Adult	Site 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,077	cm2	USEPA, 1997, see (c)	$\frac{CW \times SA \times KP \times Function(ET) \times EV \times EF \times ED \times CF1 \times CF2}{(BW \times AT)}$
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	2	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	130	events/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	1	year	(b)	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Contact with groundwater for 2 hours out of 8 hour workday.

(b). Professional Judgment. 6 months exposure is 26 weeks per year, 5 days per week, for one year exposure duration.

(c). Professional Judgment. Assumes shallow standing water in excavation area allowing contact with hands (904 cm2) and forearms (1173 cm2).

TABLE 4.03a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	Inhalation of Ambient Air VOCs from Groundwater	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	EC (mg/m3) = (CW x VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Groundwater	Chemical-Specific	l/m3	ASTM, 1995	(Exposure Concentration equivalent to continuous exposure over averaging period)
				ET	Exposure Time	2	hours/day	(a)	Where VF = function of soil properties, Henrys Law &Diffusion Coef.
				EF	Exposure Frequency	130	days/year	(b)	Model Equations From ASTM E 1739 -95, 1995
				ED	Exposure Duration	1	year	(b)	
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	8760	hours	USEPA, 2009	

Sources:

American Society for Testing and Materials (ASTM). 1995. Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. ASTM Designation E 1739 – 95. West Comshohocken, PA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Inhalation of ambient air VOCs in excavation area containing standing groundwater for 2 hours each workday.

(b). Professional Judgment. 6 months exposure is 26 weeks per year, 5 days per week, for one year exposure duration.

TABLE 4.04.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	Site 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	$\frac{CS \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
				FI	Fraction Ingested	1	unitless	(a)	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Resident	Child	Site 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	$\frac{CS \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

TABLE 4.04a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	12	hours/day	(a)	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	52560	hours	USEPA, 2009	
Inhalation	Resident	Child	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	12	hours/day	(a)	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	6	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	52560	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 12 Hours per day of outdoor exposure based on entire day spent at residence.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.05.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 2002b, 2006	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA Region 3, 2006: Background Information for Risk-Based Concentration Table.

(a). Professional Judgment. Fraction ingested is 100% from source.

TABLE 4.05a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	12	hours/day	(a)	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	210240	hours	USEPA, 2009	
Inhalation	Resident	Adult	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	12	hours/day	(a)	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED	Exposure Duration	24	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	210240	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 12 Hours per day of outdoor exposure based on entire day spent at residence.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.06.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 2002b, 2006	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IR-S x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	250	days/year	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
Dermal	Industrial Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	250	days/year	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA Region 3, 2006:Risk-Based Concentration Table, April.

(a). Professional Judgment. Fraction ingested is 100% from source.

TABLE 4.06a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Worker	Adult	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	250	days/year	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	219000	hours	USEPA, 2009	
Inhalation	Industrial Worker	Adult	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	250	days/year	USEPA, 2004	
				ED	Exposure Duration	25	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	219000	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Assumes full time outdoor worker.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.07.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	330	mg/day	USEPA, 2002b	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IR-S x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	130	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	130	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. 6 months exposure is 26 weeks per year, 5 days per week, for one year exposure duration.

TABLE 4.07a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	130	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	8760	hours	USEPA, 2009	
Inhalation	Construction Worker	Adult	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	130	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	8760	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. 6 months exposure is 26 weeks per year, 5 days per week, for one year exposure duration.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.08.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Child	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Recreational Person	Child	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. Assumes 3 days per week from May through October, one day per week for November through April.

TABLE 4.08a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational Person	Child	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	3	hours/day	(a)	
				EF	Exposure Frequency	104	days/year	(c)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	52560	hours	USEPA, 2009	
Inhalation	Recreational Person	Child	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	3	hours/day	(a)	
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	52560	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 3 Hours per day of outdoor exposure based on activities at neighborhood ball park or playground.

(b). Professional Judgment. Assumes 3 days per week from May through October, one day per week for November through April.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.09.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 2002b, 2006	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational Person	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA Region 3, 2006: Background Information for Risk-Based Concentration Table.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. Assumes 3 days per week from May through October, one day per week for November through April.

TABLE 4.09a.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational Person	Adult	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	3	hours/day	(a)	
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	24	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	210240	hours	USEPA, 2009	
Inhalation	Recreational Person	Adult	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	3	hours/day	(a)	
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	24	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	210240	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 3 Hours per day of outdoor exposure based on activities at neighborhood baseball field or park.

(b). Professional Judgment. Assumes 3 days per week from May through October, one day per week for November through April.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.10.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				IR-W	Ingestion Rate of Surface Water	liters/day	0.005	(a)	
				CF	Conversion factor	0.001	ug/mg	- -	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	130	events/year	(b)	BW x AT
				ED	Exposure Duration	1	year	(b)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,077	cm2	USEPA, 1997, see (c)	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	2	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	130	events/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	1	year	(b)	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment.

(b). Professional Judgment. 6 months exposure is 26 weeks per year, 5 days per week, for one year exposure duration.

(c). Professional Judgment. Assumes shallow creek with less than 12 inches of water allowing contact with hands (904 cm2) and forearms (1173 cm2).

TABLE 4.11.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Child	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				IR-W	Ingestion Rate of Surface Water	liters/day	0.005	(a)	
				CF	Conversion factor	0.001	ug/mg	- -	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	52	events/year	(b)	BW x AT
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Recreational Person	Child	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,222	cm2	USEPA, 1997, see (c)	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	2	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	52	days/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	6	years	USEPA, 2004	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment.

(b). Professional Judgment. Assumes 2 days per week from May through October.

(c). Professional Judgment. Assumes shallow creek with less than 12 inches of water allowing contact with hands (430 cm2), forearms (472 cm2), lower legs (779 cm2), and feet (541 cm2).

TABLE 4.12.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				IR-W	Ingestion Rate of Surface Water	liters/day	0.005	(a)	
				CF	Conversion factor	0.001	ug/mg	- -	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	52	events/year	(b)	BW x AT
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational Person	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,077	cm2	USEPA, 1997, see (c)	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	2	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	52	days/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	24	years	USEPA, 2004	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment.

(b). Professional Judgment. Assumes 2 days per week from May through October.

(c). Professional Judgment. Assumes shallow creek with less than 12 inches of water allowing contact with hands (904 cm2) and forearms (1173 cm2).

TABLE 4.13.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	330	mg/day	USEPA, 2002b	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IR-S x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	130	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	130	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. 6 months exposure is 26 weeks per year, 5 days per week, for one year exposure duration.

Table 4.14.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Child	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	(a)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(b)	BW x AT
				EF	Exposure Frequency	52	days/year	(c)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Recreational Person	Child	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(c)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Assume sediment incidental ingestion is one-half value for soil incidental ingestion due to anticipated shorter exposure time per day.

(b). Professional Judgment. Fraction ingested is 100% from source.

(c). Professional Judgment. Assumes 2 days per week from May through October.

TABLE 4.15.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	(a)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(b)	BW x AT
				EF	Exposure Frequency	52	days/year	(c)	
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational Person	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(c)	
				ED	Exposure Duration	24	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Assume sediment incidental ingestion is one-half value for soil incidental ingestion due to anticipated shorter exposure time per day.

(b). Professional Judgment. Fraction ingested is 100% from source.

(c). Professional Judgment. Assumes 2 days per week from May through October.

TABLE 4.01.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 GROUNDWATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	SITE 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
b				CF	Conversion Factor	0.001	mg/ug	--	
				IR-W	Ingestion Rate of Groundwater	0.74	L/day	USEPA, 1997	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED	Exposure Duration	2	years	USEPA, 1993	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Resident	Child	SITE 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	USEPA, 2004	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	0.33	hours/event	USEPA, 2004	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	350	events/year	USEPA, 2004	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	2	years	USEPA, 1993	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

TABLE 4.02.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	SITE 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-W	Ingestion Rate of Groundwater	1.4	L/day	USEPA, 1997	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Resident	Adult	SITE 12	CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	USEPA, 2004	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	0.167	hours/event	USEPA, 1997	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	350	events/year	USEPA, 2004	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	7	years	USEPA, 1997	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

TABLE 4.02a.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
CENTRAL TENDENCY EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Inhalation of Vapors During Showering	EF	Exposure Frequency	350	days/year	USEPA, 2004	EC (mg/m3) = (EC-event x ET x EF x ED) / (AT)
				ED	Exposure Duration	7	years	USEPA, 1997	(Exposure Concentration equivalent to continuous exposure over averaging period)
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	where:
				AT-N	Averaging Time (Non-Cancer)	61320	hours	USEPA, 2009	AT-C = 24 hrs/day x 365 days/yr x 70 years & AT-N = 24 hrs/day x 365 days/yr x ED yrs
				ET	Exposure Time	derived	hours/day	USEPA, 2009	ET (hours/day) = (Dt min/shower / (60 min/hr)) x (1 shower / day)
				EC-event	Exposure Concentration equivalent to steady exposure during 1 shower	Derived	mg/m3	USEPA, 2009	EC-event (mg/m3) = (S x Q) / (Ra x CF1 x Dt)
				CF1	Conversion Factor	1000	ug/mg		(Exposure Concentration equivalent to steady exposure during one shower event)
				Q	Function of Air Exchange Rate & Time in Shower & Shower Room	2.7897	min	Fos&Chr, 1987	
				Ds	Duration of Shower	10	min	USEPA, 1997	where: Q = Ds + [(exp(-Ra x Dt))/Ra] - [(exp(Ra x (Ds - Dt)))/Ra]
				Dt	Total Time in Shower Room	20	min	USEPA, 1997	
				Ra	Rate of Air Exchange	0.01667	1/min	Fos&Chr, 1987	
				S	Indoor VOC Generation Rate	Chemical Specific	ug/m3/min	Fos&Chr, 1987	where: S = CWD x FR/SV
				FR	Shower Flow Rate	10	l/min	Prof. Judgment	
				SV	Shower Room Air Volume	12	m3	USEPA, 1997	
				CWD	Chemical Concentration Leaving Water Droplet after time ts	Chemical Specific	ug/l	Fos&Chr, 1987	where: CWD = CW x {1-exp[-KaL x ts x (6/d) x CF2 x CF3]}
				CW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/l	USEPA, 2002a	
				CF2	Conversion Factor	1/3600	hr/sec		
				CF3	Conversion Factor	10	mm/cm		
				ts	Shower Droplet Time	0.5	sec	Fos&Chr, 1987	
				d	Shower Droplet Diameter	1	mm	Fos&Chr, 1987	
				KaL	Adjusted overall mass transfer coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: KaL = KL/SQRT[(T1 x us)/(Ts x u1)]
				T1	Calibration Water Temperature of KL	293	K	Fos&Chr, 1987	
				Ts	Shower Water Temperature	318	K	Fos&Chr, 1987	
				u1	Water Viscosity at T1	1.002	centipose	Fos&Chr, 1987	
				us	Water Viscosity at Ts	0.596	centipose	Fos&Chr, 1987	

TABLE 4.02a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Inhalation of Vapors During Showering	KL	Mass Transfer Coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: KL = 1/[(1/Kl) + ((R x T)/(H x kg))]
				R	Ideal Gas law Constant	8.21E-05	atm m3/mole/K	Fos&Chr, 1987	
				T	Absolute Temperature	293	K	Fos&Chr, 1987	
				H	Henry's law Constant	Chemical Specific	atm m3/mole	USEPA, 2002b	
				kg	Gas-film Mass Transfer Coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: kg = kH x SQRT[MWH/MW]
				kl	Liquid-film Mass Transfer Coefficient	Chemical Specific	cm/hr	Fos&Chr, 1987	where: kl = kC x SQRT[MWC/MW]
				kH	Gas-film Mass Transfer Coefficient for Water	3000	cm/hr	Fos&Chr, 1987	
				kC	Liquid-film Mass Transfer Coefficient for Carbon Dioxide	20	cm/hr	Fos&Chr, 1987	
				MWH	Molecular Weight of Water	18	g/mole	Fos&Chr, 1987	
				MWC	Molecular Weight of Carbon Dioxide	44	g/mole	Fos&Chr, 1987	
				MW	Molecular Weight of COPC	Chemical Specific	g/mole	Fos&Chr, 1987	

Sources

(a). Professional Judgment. Inhalation rate (IR) during showering corresponds to light acitivity (1.0 m3/hr) based on IR estimates for activity categories presented in EPA, 1997.

USEPA, 2001. Fact Sheet. Correcting the Henry's Law Constant for Soil Temperature, from website: http://www.USEPA.gov/superfund/programs/risk/airmodel/factsheet.pdf

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

Foster, S. A. and P.C. Chrostowski. 1987. Inhalation Exposures to Volatile Organic Contaminants in the Shower. Presented at the 80th Annual Meeting of the Air Pollution Control Association. New York, NY. June.

Default Henry's Law Constants (HLCs) at 25 degrees C obtained from EPA, 1996. See appendix for conversion of HLCs to showering temperature using EPA, 2001.

TABLE 4.03.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Worker	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,077	cm2	USEPA, 1997, see (c)	$\frac{CW \times SA \times KP \times Function(ET) \times EV \times EF \times ED \times CF1 \times CF2}{(BW \times AT)}$
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	1	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	43	events/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	1	year	(b)	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Contact with groundwater for 2 hours out of 8 hour workday.

(b). Professional Judgment. 2 months exposure is 5 days per week, for one year exposure duration.

(c). Professional Judgment. Assumes shallow standing water in excavation area allowing contact with hands (904 cm2) and forearms (1173 cm2).

TABLE 4.03a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	Inhalation of Ambient Air VOCs from Groundwater	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	EC (mg/m3) = (CW x VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Groundwater	Chemical-Specific	l/m3	ASTM, 1995	(Exposure Concentration equivalent to continuous exposure over averaging period)
				ET	Exposure Time	1	hours/day	(a)	Where VF = function of soil properties, Henrys Law &Diffusion Coef.
				EF	Exposure Frequency	43	days/year	(b)	Model Equations From ASTM E 1739 -95, 1995
				ED	Exposure Duration	1	year	(b)	
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	8760	hours	USEPA, 2009	

Sources:

American Society for Testing and Materials (ASTM). 1995. Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. ASTM Designation E 1739 – 95. West Comshohocken, PA.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Inhalation of ambient air VOCs in excavation area containing standing groundwater for 2 hours out of 8 hour workday.

(b). Professional Judgment. 2 months exposure is 5 days per week, for one year exposure duration.

TABLE 4.04.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	2	years	USEPA, 1993	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Resident	Child	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	2	years	USEPA, 1993	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

TABLE 4.04a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RESIDENT CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	Particulate Dust Inhalation from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	6	hours/day	(a)	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	2	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	17520	hours	USEPA, 2009	
Inhalation	Resident	Child	Inhalation of Ambient air VOCs from Site 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	6	hours/day	(a)	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	2	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	17520	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 6 Hours per day of outdoor exposure based on entire day spent at residence. One-half of RME value.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.05.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Resident	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

TABLE 4.05a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RESIDENT CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Particulate Dust Inhalation from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	6	hours/day	(a)	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	7	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	61320	hours	USEPA, 2009	
Inhalation	Resident	Adult	Inhalation of Ambient air VOCs from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	6	hours/day	(a)	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED	Exposure Duration	7	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	61320	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Value is one-half of RME value.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.06.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	(b)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IR-S x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	219	days/year	USEPA, 2004	
				ED	Exposure Duration	9	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
Dermal	Industrial Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	219	days/year	USEPA, 2004	
				ED	Exposure Duration	9	years	USEPA, 2004	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. Assume CTE value is one-half of RME value.

TABLE 4.06a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Worker	Adult	Particulate Dust Inhalation from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	219	days/year	USEPA, 2004	
				ED	Exposure Duration	9	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	78840	hours	USEPA, 2009	
Inhalation	Industrial Worker	Adult	Inhalation of Ambient air VOCs from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	219	days/year	USEPA, 2004	
				ED	Exposure Duration	9	years	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	78840	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Assumes full time outdoor worker.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.07.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	165	mg/day	(a)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IR-S x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(b)	BW x AT
				EF	Exposure Frequency	43	days/year	(c)	
				ED	Exposure Duration	1	years	(c)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	43	days/year	(c)	
				ED	Exposure Duration	1	years	(c)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Assume CTE value is one-half of RME value.

(b). Professional Judgment. Fraction ingested is 100% from source.

(c). Professional Judgment. 2 months exposure is 5 days per week, for one year exposure duration.

TABLE 4.07a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	Particulate Dust Inhalation from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	43	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	8760	hours	USEPA, 2009	
Inhalation	Construction Worker	Adult	Inhalation of Ambient air VOCs from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	8	hours/day	(a)	
				EF	Exposure Frequency	43	days/year	(b)	
				ED	Exposure Duration	1	years	(b)	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	8760	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. 2 months exposure is 5 days per week, for one year exposure duration.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.08.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Child	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Recreational Person	Child	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	104	days/year	(b)	
				ED	Exposure Duration	6	years	USEPA, 2004	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. Assumes 3 days per week from May through October, one day per week for November through April.

TABLE 4.08a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational Person	Child	Particulate Dust Inhalation from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	2	hours/day	(a)	
				EF	Exposure Frequency	52	days/year	(c)	
				ED	Exposure Duration	2	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	17520	hours	USEPA, 2009	
Inhalation	Recreational Person	Child	Inhalation of Ambient air VOCs from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	2	hours/day	(a)	
				EF	Exposure Frequency	52	days/year	(b)	
				ED	Exposure Duration	2	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	17520	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 2 Hours per day of outdoor exposure based on activities at neighborhood ball park or playground.

(b). Professional Judgment. CTE value one-half of RME value.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.09.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1997	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(a)	BW x AT
				EF	Exposure Frequency	52	days/year	(b)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational Person	Adult	SITE 12	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(b)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Fraction ingested is 100% from source.

(b). Professional Judgment. CTE value is one-half of RME value.

TABLE 4.09a.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SOIL*

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Medium: Soil*
Exposure Medium: Soil*

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational Person	Adult	Particulate Dust Inhalation from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/PEF x CF1) x ET x EF x ED / AT
				PEF	Particulate Emission Factor from Soil	3.371E+09**	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	2	hours/day	(a)	
				EF	Exposure Frequency	52	days/year	(b)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	61320	hours	USEPA, 2009	
Inhalation	Recreational Person	Adult	Inhalation of Ambient air VOCs from SITE 12 Soil*	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	EC (mg/m3) = (CS/VF x CF1) x ET x EF x ED / AT
				VF	Volatilization Factor from Soil	chemical specific	m3/kg	USEPA, 2002b	(Exposure Concentration equivalent to continuous exposure over averaging period)
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				ET	Exposure Time	2	hours/day	(a)	
				EF	Exposure Frequency	52	days/year	(b)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	
				AT-N	Averaging Time (Non-Cancer)	61320	hours	USEPA, 2009	

"Soil*" Represents surface and subsurface soils that are mixed as a result of construction or landscaping activities.

These exposure parameters are also valid for contact with Surface Soil.

Sources:

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. (Application of guidance to PEF and VF calculation is presented in text.)

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002. (Note RAGS Part F specifies inhalation averaging time should be in hours rather than days.)

(a). Professional Judgment. 2 Hours per day of outdoor exposure based on activities at neighborhood baseball field or park.

(b). Professional Judgment. CTE value one-half of RME value.

**A PEF value of 3.371E+09 is used for the site, based on a source size of 7 acres.

TABLE 4.10.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SURFACE WATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				IR-W	Ingestion Rate of Surface Water	liters/day	0.002	(a)	
				CF	Conversion factor	0.001	ug/mg	- -	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	43	events/year	(b)	BW x AT
				ED	Exposure Duration	1	year	(b)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,077	cm2	USEPA, 1997, see (c)	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	1	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	43	events/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	1	year	(b)	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. One event per day. CTE ingestion rate and CTE exposure time are one-half of RME values.

(b). Professional Judgment. 2 months exposure is 5 days per week, for one year exposure duration.

(c). Professional Judgment. Assumes shallow creek with less than 12 inches of water allowing contact with hands (904 cm2) and forearms (1173 cm2).

TABLE 4.11.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Child	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				IR-W	Ingestion Rate of Surface Water	liters/day	0.002	(a)	
				CF	Conversion factor	0.001	ug/mg	- -	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	26	events/year	(b)	BW x AT
				ED	Exposure Duration	2	years	USEPA, 1993	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Recreational Person	Child	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	971	cm2	USEPA, 1997, see (c)	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	2	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	26	days/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	2	years	USEPA, 1993	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment.

(b). Professional Judgment. Assumes 1 days per week from May through October.

(c). Professional Judgment. Assumes shallow creek with less than 12 inches of water allowing contact with hands (430 cm2) and feet (541 cm2).

TABLE 4.12.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				IR-W	Ingestion Rate of Surface Water	liters/day	0.002	(a)	
				CF	Conversion factor	0.001	ug/mg	- -	CW x CF x IR-W x EF x ED
				EF	Exposure Frequency	26	events/year	(b)	BW x AT
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational Person	Adult	SITE 12	CW	Chemical Concentration in Water	Max or 95% UCL	ug/L	USEPA, 2002	Dermal Absorbed Dose (mg/kg-day) =
				SA	Skin Surface Available for Contact	2,077	cm2	USEPA, 1997, see (c)	CW x SA x KP x Function(ET) x EV x EF x ED x CF1 x CF2
				KP	Permeability Constant (Dermal for Liquids)	Chemical-Specific	cm/hr	USEPA, 2004	(BW x AT)
				FA	Fraction Absorbed (Unitless)	Chemical-Specific	cm/hr	USEPA, 2004	
				EV	Event Frequency	1	events/day	(a)	Where: Function(ET) = ET for inorganics, or
				ET	Exposure Time	2	hours/event	(a)	FA x 2 x (6 x Tau x ET / PI)^0.5 for organics where ET < T*
				EF	Exposure Frequency	26	days/year	(b)	FA x [ET/(1+B) + Tau x (2+6B+6B^2)/(1+B)^2] for organics, ET > T*.
				ED	Exposure Duration	7	years	USEPA, 1997	See EPA,2004 for chemical-specific constants Tau, B, T*
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				CF2	Conversion Factor 2	0.001	l/cm3	--	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment.

(b). Professional Judgment. Assumes 1 day per week from May through October.

(c). Professional Judgment. Assumes shallow creek with less than 12 inches of water allowing contact with hands (904 cm2) and forearms (1173 cm2).

TABLE 4.13.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	165	mg/day	(a)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IR-S x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(b)	BW x AT
				EF	Exposure Frequency	43	days/year	(c)	
				ED	Exposure Duration	1	years	(c)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Worker	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	43	days/year	(c)	
				ED	Exposure Duration	1	years	(c)	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Assume CTE value is one-half of RME value.

(b). Professional Judgment. Fraction ingested is 100% from source.

(c). Professional Judgment. 2 months exposure is 5 days per week, for one year exposure duration.

TABLE 4.14.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Child	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	(a)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(b)	BW x AT
				EF	Exposure Frequency	26	days/year	(c)	
				ED	Exposure Duration	2	years	USEPA, 1993	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Recreational Person	Child	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	971	cm2	(d)	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(c)	
				ED	Exposure Duration	2	years	USEPA, 1993	
				BW	Body Weight	15	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. CTE value one-half of RME value.

(b). Professional Judgment. Fraction ingested is 100% from source.

(c). Professional Judgment. Assumes 1 day per week from May through October.

(d). Professional Judgment. Assumes sediment contact with feet (541 cm2) and hands (430 cm2)

TABLE 4.15.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational Person	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	25	mg/day	(a)	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(b)	BW x AT
				EF	Exposure Frequency	26	days/year	(c)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational Person	Adult	SITE 12	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,077	cm2	(d)	CS x CF3 x SA x SSAF x DABS x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.20	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(c)	
				ED	Exposure Duration	7	years	USEPA, 1997	
				BW	Body Weight	70	kg	USEPA, 2004	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1997. Exposure Factors Handbook. Update to Exposure Factors Handbook. EPA/600/8-89/043 - May 1989. Office of Research and Development.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

(a). Professional Judgment. Assume CTE value is one-half of RME value.

(b). Professional Judgment. Fraction ingested is 100% from source.

(c). Professional Judgment. Assumes 1 day per week from May through October.

(d). Professional Judgment. Assumes sediment contact with forearms (1173 cm2) and hands (904 cm2)

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NON-CANCER TOXICITY DATA

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5.2 NON-CANCER TOXICITY DATA -- INHALATION

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD: Target Organ(s)		Dermal Absorption Factor for Soil (1)
		Value	Units		Value	Units			Source(s) (3)	Date(s)	
Total 2,3,7,8-TCDD Equiv.	Chronic	7.00E-10	mg/kg-day	1.00E+00	7.00E-10	mg/kg-day	CNS (Behavioral)		IRIS	08/18/2012	0.03
Aluminum	Chronic	1.00E+00	mg/kg-day	1.00E+00	1.00E+00	mg/kg-day	CNS (Developmental)	100	PPRTV	08/18/2012	0.01
Antimony	Chronic	4.00E-04	mg/kg-day	1.50E-01	6.00E-05	mg/kg-day	Blood/Liver	1000	IRIS	08/18/2012	0.01
Arsenic	Chronic	3.00E-04	mg/kg-day	1.00E+00	3.00E-04	mg/kg-day	Skin/Vascular	3	IRIS	08/18/2012	0.03
Barium	Chronic	2.00E-01	mg/kg-day	7.00E-02	1.40E-02	mg/kg-day	Kidney	3	IRIS	08/18/2012	0.01
Cadmium	Chronic	1.00E-03	mg/kg-day	2.50E-02	2.50E-05	mg/kg-day	Kidney	10	IRIS	08/18/2012	0.001
Chromium	Chronic	3.00E-03	mg/kg-day	2.50E-02	7.50E-05	mg/kg-day		900	IRIS	08/18/2012	0.01
Cobalt	Chronic	3.00E-04	mg/kg-day	1.00E+00	3.00E-04	mg/kg-day	Thyroid	3000	PPRTV	08/18/2012	0.01
Copper	Chronic	4.00E-02	mg/kg-day	1.00E+00	4.00E-02	mg/kg-day	GI Tract	1000	HEAST	1997	0.01
Cyanide	Chronic	6.00E-04	mg/kg-day	1.00E+00	6.00E-04	mg/kg-day	Reproductive	3000	IRIS	08/18/2012	0.01
Iron	Chronic	7.00E-01	mg/kg-day	1.00E+00	7.00E-01	mg/kg-day	Liver/Blood/GI Tract	1.5	PPRTV	08/18/2012	0.01
Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01
Manganese	Chronic	2.40E-02	mg/kg-day	4.00E-02	9.60E-04	mg/kg-day	CNS	1	IRIS	08/18/2012	0.01
Thallium	Chronic	1.00E-05	mg/kg-day	1.00E+00	1.00E-05	mg/kg-day	Skin	3000	PPRTV	08/18/2012	0.01
Vanadium	Chronic	5.00E-03	mg/kg-day	2.60E-02	1.30E-04	mg/kg-day		100	IRIS	08/18/2012	0.01
Zinc	Chronic	3.00E-01	mg/kg-day	1.00E+00	3.00E-01	mg/kg-day	Blood	3	IRIS	08/18/2012	0.01
Aldrin	Chronic	3.00E-05	mg/kg-day	1.00E+00	3.00E-05	mg/kg-day	Liver	1000	IRIS	08/18/2012	0.1
Aroclor-1260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14
Dieldrin	Chronic	5.00E-05	mg/kg-day	1.00E+00	5.00E-05	mg/kg-day	Liver	100	IRIS	08/18/2012	0.1
2-Methylnaphthalene	Chronic	4.00E-03	mg/kg-day	1.00E+00	4.00E-03	mg/kg-day	Lung	1000	IRIS	08/18/2012	0.13
Benz(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Chrysene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.13
Naphthalene	Chronic	2.00E-02	mg/kg-day	1.00E+00	2.00E-02	mg/kg-day	Decr. Wt. Gain	3000	IRIS	08/18/2012	0.13
Carbon Tetrachloride	Chronic	4.00E-03	mg/kg-day	1.00E+00	4.00E-03	mg/kg-day	Liver	1000	IRIS	09/13/2012	0.0005
Chloroform	Chronic	1.00E-02	mg/kg-day	1.00E+00	1.00E-02	mg/kg-day	Liver	1000	IRIS	09/13/2012	0.0005
Trichloroethene (nonmutagenic)	Chronic	5.00E-04	mg/kg-day	1.00E+00	5.00E-04	mg/kg-day	Vascular/Fetotoxicity/Immune	10 to 1000	IRIS	08/08/2012	0.03

1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.

3 - IRIS - Integrated Risk Information System (EPA, 2012)
HEAST - EPA Health Effects Assessment Summary Tables
PPRTV - Provisional Peer Reviewed Toxicity Values

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC: Target Organ(s)	
		Value	Units	Value	Units			Source(s) (2)	Dates
Total 2,3,7,8-TCDD Equiv.	Chronic	4.00E-08	mg/m3	N/A	N/A	Liver/Respiratory/Reproductive		Cal EPA	08/18/2012
Aluminum	Chronic	5.00E-03	mg/m3	N/A	N/A	CNS	300	PPRTV	08/18/2012
Antimony	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	Chronic	1.50E-05	mg/m3	N/A	N/A	Developmental/Vascular/CNS		Cal EPA	08/18/2012
Barium	Chronic	5.00E-04	mg/m3	N/A	N/A	Fetotoxicity	1000	HEAST	1997
Cadmium	Chronic	2.00E-05	mg/m3	N/A	N/A			Cal EPA	08/18/2012
Chromium	Chronic	1.00E-04	mg/m3	N/A	N/A	Lung/Nasal	300	IRIS	08/18/2012
Cobalt	Chronic	6.00E-06	mg/m3	N/A	N/A	Respiratory	300	PPRTV	08/18/2012
Copper	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	Chronic	5.00E-05	mg/m3	N/A	N/A	CNS	1000	IRIS	08/18/2012
Thallium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benz(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	Chronic	0.003	mg/m3	N/A	N/A	Respiratory	3000	IRIS	08/18/2012
Carbon Tetrachloride	Chronic	1.00E-01	mg/m3	N/A	N/A	Liver	100	IRIS	09/13/2012
Chloroform	Chronic	9.80E-02	mg/m3	N/A	N/A	Liver		ATSDR	09/1997
Trichloroethene (nonmutagenic)	Chronic	2.00E-03	mg/m3	N/A	N/A	Vascular/Immune	10 to 100	IRIS	08/08/2012

1 - RAGS Part F (EPA, 2009) requires use of the inhalation RfC, so the extrapolated inhalation RfD is obsolete (RFDi = RfC *20m3/day / 70 kg)

2 - IRIS - Integrated Risk Information System (EPA, 2012)

Cal EPA - California Environmental Protection Agency Toxicity Value

PPRTV - Provisional Peer Reviewed Toxicity Values

ATSDR MRL - Agency for Toxic Substances and Disease Registry Minimal Risk Level

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CANCER TOXICITY DATA

TABLE NO.

6.1 CANCER TOXICITY DATA -- ORAL/DERMAL
6.2 CANCER TOXICITY DATA -- INHALATION

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal(1)	Absorbed Cancer Slope Factor for Dermal(2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s) (3)	Date(s)
Total 2,3,7,8-TCDD Equiv.	1.30E+05	1/(mg/kg-day)	1.00E+00	1.30E+05	1/(mg/kg-day)	B2	Cal EPA	08/18/2012
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	1.50E+00	1/(mg/kg-day)	1.00E+00	1.50E+00	1/(mg/kg-day)	A	IRIS	08/18/2012
Barium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	5.00E-01	1/(mg/kg-day)	2.50E-02	2.00E+01	1/(mg/kg-day)		NJDEP	10/16/2009
Cobalt	3.00E-04	1/(mg/kg-day)	N/A	N/A	1/(mg/kg-day)	N/A	N/A	N/A
Copper	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	1.70E+01	1/(mg/kg-day)	1.00E+00	1.70E+01	1/(mg/kg-day)	B2	IRIS	08/18/2012
Aroclor-1260	2.00E+00	1/(mg/kg-day)	1.00E+00	2.00E+00	1/(mg/kg-day)	B2	IRIS	08/18/2012
Dieldrin	1.60E+01	1/(mg/kg-day)	1.00E+00	1.60E+01	1/(mg/kg-day)	B2	IRIS	08/18/2012
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benz(a)anthracene	7.30E-01	1/(mg/kg-day)	1.00E+00	7.30E-01	1/(mg/kg-day)	B2	EPA-NCEA	08/18/2012
Benzo(a)pyrene	7.30E+00	1/(mg/kg-day)	1.00E+00	7.30E+00	1/(mg/kg-day)	B2	IRIS	08/18/2012
Benzo(b)fluoranthene	7.30E-01	1/(mg/kg-day)	1.00E+00	7.30E-01	1/(mg/kg-day)	B2	EPA-NCEA	08/18/2012
Benzo(k)fluoranthene	7.30E-02	1/(mg/kg-day)	1.00E+00	7.30E-02	1/(mg/kg-day)	B2	EPA-NCEA	08/18/2012
Chrysene	7.30E-03	1/(mg/kg-day)	1.00E+00	7.30E-03	1/(mg/kg-day)	B2	EPA-NCEA	08/18/2012
Dibenz(a,h)anthracene	7.30E+00	1/(mg/kg-day)	1.00E+00	7.30E+00	1/(mg/kg-day)	B2	EPA-NCEA	08/18/2012
Indeno(1,2,3-cd)pyrene	7.30E-01	1/(mg/kg-day)	1.00E+00	7.30E-01	1/(mg/kg-day)	B2	EPA-NCEA	08/18/2012
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	7.00E-02	1/(mg/kg-day)	1.00E+00	7.00E-02	1/(mg/kg-day)	B2	IRIS	09/13/2012
Chloroform	3.10E-02	1/(mg/kg-day)	1.00E+00	3.10E-02	1/(mg/kg-day)	B2	Cal EPA	09/13/2012
Trichloroethene (mutagenic)	9.30E-03	1/(mg/kg-day)	1.00E+00	9.30E-03	1/(mg/kg-day)	B2	IRIS	08/08/2012
Trichloroethene (nonmutagenic)	3.70E-02	1/(mg/kg-day)	1.00E+00	3.70E-02	1/(mg/kg-day)	B2	IRIS	08/08/2012

N/A = Not Applicable

1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral Absorption Efficiency for Dermal.

3 - IRIS - Integrated Risk Information System (EPA, 2012)
EPA - NCEA - EPA National Center for Exposure Assessment
Cal EPA - California Environmental Protection Agency Toxicity Value
NJDEP - New Jersey Department of Environmental Protection

EPA Group:
A - Human carcinogen.
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans .
C - Possible human carcinogen.
D - Not classifiable as a human carcinogen.
E - Evidence of noncarcinogenicity.

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor (1)		Weight of Evidence/ Cancer Guideline Description	Unit Risk: Inhalation CSF	
	Value	Units	Value	Units		Sources(s) (2)	Date(s)
Total 2,3,7,8-TCDD Equiv.	3.80E+01	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	4.30E-03	1/(ug/m3)	N/A	N/A	A	IRIS	08/18/2012
Barium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	1.80E-03	1/(ug/m3)	N/A	N/A	B1	IRIS	08/18/2012
Chromium	8.40E-02	1/(ug/m3)	N/A	N/A	A	IRIS	08/18/2012
Cobalt	9.00E-03	1/(ug/m3)	N/A	N/A		PPRTV	08/18/2012
Copper	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	4.90E-03	1/(ug/m3)	N/A	N/A	B2	IRIS	08/18/2012
Aroclor-1260	5.70E-04	1/(ug/m3)	N/A	N/A	B2	IRIS	08/18/2012
Dieldrin	4.60E-03	1/(ug/m3)	N/A	N/A	B2	IRIS	08/18/2012
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benz(a)anthracene	1.10E-04	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Benzo(a)pyrene	1.10E-03	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Benzo(b)fluoranthene	1.10E-04	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Benzo(k)fluoranthene	1.10E-04	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Chrysene	1.10E-05	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Dibenz(a,h)anthracene	1.20E-03	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Indeno(1,2,3-cd)pyrene	1.10E-04	1/(ug/m3)	N/A	N/A	B2	Cal EPA	08/18/2012
Naphthalene	3.40E-05	1/(ug/m3)	N/A	N/A	A	Cal EPA	08/18/2012
Carbon Tetrachloride	6.00E-06	1/(ug/m3)	N/A	N/A	B2	IRIS	09/13/2012
Chloroform	2.30E-05	1/(ug/m3)	N/A	N/A	B2	IRIS	09/13/2012
Trichloroethene (mutagenic)	1.00E-06	1/(ug/m3)	N/A	N/A	B2	IRIS	08/08/2012
Trichloroethene (nonmutagenic)	3.10E-06	1/(ug/m3)	N/A	N/A	B2	IRIS	08/08/2012

N/A = Not Applicable

1 - RAGS Part F (EPA, 2009) requires use of the inhalation unit risk (IUR), so the extrapolated Inhalation CSF is obsolete (CSFi = IUR * 70 kg / 20m3/day)

2 - IRIS - Integrated Risk Information System (EPA, 2012)
EPA - NCEA - EPA National Center for Exposure Assessment
Cal EPA - California Environmental Protection Agency Toxicity Value
PPRTV - Provisional Peer Reviewed Toxicity Value

EPA Group:
A - Human carcinogen.
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans .
C - Possible human carcinogen.
D - Not classifiable as a human carcinogen.
E - Evidence of noncarcinogenicity.

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CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

TABLE NO.	REASONABLE MAXIMUM EXPOSURES
7.01.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RESIDENT CONTACT WITH SITE 12 GROUNDWATER
7.02.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
7.03.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT CONTACT WITH SITE 12 GROUNDWATER
7.04.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER
7.05.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
7.05a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.06.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
7.06a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.07.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
7.07a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.08.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INDUSTRIAL WORKER CONTACT WITH SITE 12 SURFACE SOIL
7.08a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INDUSTRIAL WORKER CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.09.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE SOIL
7.09a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.10.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE SOIL
7.10a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.11.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE SOIL
7.11a.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
7.12.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RESIDENT CONTACT WITH SITE 12 DISTURBED SOIL
7.13.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RESIDENT CONTACT WITH SITE 12 DISTURBED SOIL
7.14.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT CONTACT WITH SITE 12 DISTURBED SOIL
7.15.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 DISTURBED SOIL
7.16.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER CONTACT WITH SITE 12 DISTURBED SOIL
7.17.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 DISTURBED SOIL
7.18.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 DISTURBED SOIL
7.19.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RECREATIONAL PERSON CONTACT WITH SITE 12 DISTURBED SOIL
7.20.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SURFACE WATER
7.21.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
7.22.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
7.23.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RECREATIONAL PERSON CONTACT WITH SITE 12 SURFACE WATER
7.24.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER CONTACT WITH SITE 12 SEDIMENT
7.25.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT
7.26.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT
7.27.RME	CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RECREATIONAL PERSON CONTACT WITH SITE 12 SEDIMENT

Notes on age groups assumed for child and adult receptors:
***For all COPCs, the labelled "child" receptor exposures assume an age range of 0 to 6 years.**
****For mutagens, the labelled "adult" receptor exposures assume a combined age range of 6 to 16 (10 years) plus ages 16 to 30 (14 years).**
Lifetime receptor exposures represent the sum of ages 0 to 6 (referred to as "child" exposure) plus ages 6 to 30 (referred to as "adult" exposure).

TABLE 7.01.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO GROUNDWATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Tap Water Contact With Groundwater	Ingestion	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	1.04E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.35E-06	1.21E-10	mg/kg-day	7.00E-10	mg/kg-day	1.73E-01
				Aluminum	1.34E+04	ug/l	9.47E-02	mg/kg-day	--	1/(mg/kg-day)	--	1.11E+00	mg/kg-day	1.00E+00	mg/kg-day	1.11E+00
				Arsenic	2.70E+00	ug/l	1.91E-05	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.86E-05	2.23E-04	mg/kg-day	3.00E-04	mg/kg-day	7.42E-01
				Barium	1.89E+02	ug/l	1.34E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.56E-02	mg/kg-day	2.00E-01	mg/kg-day	7.79E-02
				Chromium	1.52E+01	ug/l	1.07E-04	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.87E-04	1.25E-03	mg/kg-day	3.00E-03	mg/kg-day	4.18E-01
				Cobalt	2.61E+00	ug/l	1.84E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.15E-04	mg/kg-day	3.00E-04	mg/kg-day	7.17E-01
				Iron	6.63E+03	ug/l	4.69E-02	mg/kg-day	--	1/(mg/kg-day)	--	5.47E-01	mg/kg-day	7.00E-01	mg/kg-day	7.81E-01
				Manganese	9.12E+02	ug/l	6.45E-03	mg/kg-day	--	1/(mg/kg-day)	--	7.52E-02	mg/kg-day	2.40E-02	mg/kg-day	3.13E+00
				Vanadium	7.89E+00	ug/l	5.58E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.51E-04	mg/kg-day	5.00E-03	mg/kg-day	1.30E-01
				Carbon Tetrachloride	6.10E-01	ug/l	4.31E-06	mg/kg-day	7.00E-02	1/(mg/kg-day)	3.02E-07	5.03E-05	mg/kg-day	4.00E-03	mg/kg-day	1.26E-02
				Chloroform	7.70E-01	ug/l	5.44E-06	mg/kg-day	3.10E-02	1/(mg/kg-day)	1.69E-07	6.35E-05	mg/kg-day	1.00E-02	mg/kg-day	6.35E-03
				Trichloroethene (mutagenic)	4.10E+00	ug/l	2.90E-05	mg/kg-day	9.30E-03	1/(mg/kg-day)	1.44E-06	3.38E-04	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	2.90E-05	mg/kg-day	3.70E-02	1/(mg/kg-day)	1.07E-06	3.38E-04	mg/kg-day	5.00E-04	mg/kg-day	6.76E-01
			Exp. Route Total								3.19E-04					7.97E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	1.55E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	2.02E-05	1.81E-09	mg/kg-day	7.00E-10	mg/kg-day	2.59E+00
				Aluminum	1.34E+04	ug/l	4.85E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.65E-03	mg/kg-day	1.00E+00	mg/kg-day	5.65E-03
				Arsenic	2.70E+00	ug/l	9.76E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.46E-07	1.14E-06	mg/kg-day	3.00E-04	mg/kg-day	3.80E-03
				Barium	1.89E+02	ug/l	6.84E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.97E-05	mg/kg-day	1.40E-02	mg/kg-day	5.70E-03
				Chromium	1.52E+01	ug/l	1.10E-06	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.17E-04	1.28E-05	mg/kg-day	7.50E-05	mg/kg-day	1.71E-01
				Cobalt	2.61E+00	ug/l	3.78E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.40E-07	mg/kg-day	3.00E-04	mg/kg-day	1.47E-03
				Iron	6.63E+03	ug/l	2.40E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.80E-03	mg/kg-day	7.00E-01	mg/kg-day	4.00E-03
				Manganese	9.12E+02	ug/l	3.30E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.85E-04	mg/kg-day	9.60E-04	mg/kg-day	4.01E-01
				Vanadium	7.89E+00	ug/l	2.85E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.33E-06	mg/kg-day	1.30E-04	mg/kg-day	2.56E-02
				Carbon Tetrachloride	6.10E-01	ug/l	8.62E-07	mg/kg-day	7.00E-02	1/(mg/kg-day)	6.03E-08	1.01E-05	mg/kg-day	4.00E-03	mg/kg-day	2.51E-03
				Chloroform	7.70E-01	ug/l	3.70E-07	mg/kg-day	3.10E-02	1/(mg/kg-day)	1.15E-08	4.32E-06	mg/kg-day	1.00E-02	mg/kg-day	4.32E-04
				Trichloroethene (mutagenic)	4.10E+00	ug/l	3.75E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	1.86E-07	4.37E-05	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	3.75E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	1.39E-07	4.37E-05	mg/kg-day	5.00E-04	mg/kg-day	8.74E-02
			Exp. Route Total								1.38E-04					3.30E+00
		Exposure Point Total									4.57E-04					1.13E+01
	Exposure Medium Total										4.57E-04					1.13E+01
Medium Total											4.57E-04					1.13E+01
											Total of Receptor Risks Across All Media	4.57E-04			Total of Receptor Hazards Across All Media	1.13E+01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.02.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO GROUNDWATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Tap Water Contact With Groundwater	Ingestion	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	1.38E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.80E-06	4.03E-11	mg/kg-day	7.00E-10	mg/kg-day	5.75E-02
				Aluminum	1.34E+04	ug/l	1.26E-01	mg/kg-day	--	1/(mg/kg-day)	--	3.67E-01	mg/kg-day	1.00E+00	mg/kg-day	3.67E-01
				Arsenic	2.70E+00	ug/l	2.54E-05	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.80E-05	7.40E-05	mg/kg-day	3.00E-04	mg/kg-day	2.47E-01
				Barium	1.89E+02	ug/l	1.78E-03	mg/kg-day	--	1/(mg/kg-day)	--	5.18E-03	mg/kg-day	2.00E-01	mg/kg-day	2.59E-02
				Chromium	1.52E+01	ug/l	1.43E-04	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.31E-04	4.16E-04	mg/kg-day	3.00E-03	mg/kg-day	1.39E-01
				Cobalt	2.61E+00	ug/l	2.45E-05	mg/kg-day	--	1/(mg/kg-day)	--	7.15E-05	mg/kg-day	3.00E-04	mg/kg-day	2.38E-01
				Iron	6.63E+03	ug/l	6.23E-02	mg/kg-day	--	1/(mg/kg-day)	--	1.82E-01	mg/kg-day	7.00E-01	mg/kg-day	2.59E-01
				Manganese	9.12E+02	ug/l	8.57E-03	mg/kg-day	--	1/(mg/kg-day)	--	2.50E-02	mg/kg-day	2.40E-02	mg/kg-day	1.04E+00
				Vanadium	7.89E+00	ug/l	7.41E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.16E-04	mg/kg-day	5.00E-03	mg/kg-day	4.32E-02
				Carbon Tetrachloride	6.10E-01	ug/l	5.73E-06	mg/kg-day	7.00E-02	1/(mg/kg-day)	4.01E-07	1.67E-05	mg/kg-day	4.00E-03	mg/kg-day	4.18E-03
				Chloroform	7.70E-01	ug/l	7.23E-06	mg/kg-day	3.10E-02	1/(mg/kg-day)	2.24E-07	2.11E-05	mg/kg-day	1.00E-02	mg/kg-day	2.11E-03
				Trichloroethene (mutagenic)	4.10E+00	ug/l	3.85E-05	mg/kg-day	9.30E-03	1/(mg/kg-day)	6.57E-07	1.12E-04	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	3.85E-05	mg/kg-day	3.70E-02	1/(mg/kg-day)	1.42E-06	1.12E-04	mg/kg-day	5.00E-04	mg/kg-day	2.25E-01
			Exp. Route Total								1.73E-04					2.65E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	2.57E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.34E-05	7.49E-10	mg/kg-day	7.00E-10	mg/kg-day	1.07E+00
				Aluminum	1.34E+04	ug/l	5.66E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.65E-03	mg/kg-day	1.00E+00	mg/kg-day	1.65E-03
				Arsenic	2.70E+00	ug/l	1.14E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.71E-07	3.33E-07	mg/kg-day	3.00E-04	mg/kg-day	1.11E-03
				Barium	1.89E+02	ug/l	7.99E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.33E-05	mg/kg-day	1.40E-02	mg/kg-day	1.66E-03
				Chromium	1.52E+01	ug/l	1.29E-06	mg/kg-day	2.00E+01	1/(mg/kg-day)	4.71E-05	3.75E-06	mg/kg-day	7.50E-05	mg/kg-day	5.00E-02
				Cobalt	2.61E+00	ug/l	4.41E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.29E-07	mg/kg-day	3.00E-04	mg/kg-day	4.29E-04
				Iron	6.63E+03	ug/l	2.80E-04	mg/kg-day	--	1/(mg/kg-day)	--	8.17E-04	mg/kg-day	7.00E-01	mg/kg-day	1.17E-03
				Manganese	9.12E+02	ug/l	3.86E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.12E-04	mg/kg-day	9.60E-04	mg/kg-day	1.17E-01
				Vanadium	7.89E+00	ug/l	3.34E-07	mg/kg-day	--	1/(mg/kg-day)	--	9.73E-07	mg/kg-day	1.30E-04	mg/kg-day	7.48E-03
				Carbon Tetrachloride	6.10E-01	ug/l	1.42E-06	mg/kg-day	7.00E-02	1/(mg/kg-day)	9.97E-08	4.15E-06	mg/kg-day	4.00E-03	mg/kg-day	1.04E-03
				Chloroform	7.70E-01	ug/l	6.12E-07	mg/kg-day	3.10E-02	1/(mg/kg-day)	1.90E-08	1.78E-06	mg/kg-day	1.00E-02	mg/kg-day	1.78E-04
				Trichloroethene (mutagenic)	4.10E+00	ug/l	6.19E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	1.06E-07	1.81E-05	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	6.19E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	2.29E-07	1.81E-05	mg/kg-day	5.00E-04	mg/kg-day	3.61E-02
			Exp. Route Total								8.11E-05					1.29E+00
		Exposure Point Total									2.55E-04					3.94E+00
	Exposure Medium Total										2.55E-04					3.94E+00
	Air	Site 12 Groundwater Vapors During Showering	Inhalation	Carbon Tetrachloride	6.10E-01	ug/l	1.23E-05	mg/m3	6.00E-03	1/(mg/m3)	7.41E-08	3.60E-05	mg/m3	1.00E-01	mg/m3	3.60E-04
				Chloroform	7.70E-01	ug/l	1.71E-05	mg/m3	2.30E-02	1/(mg/m3)	3.93E-07	4.99E-05	mg/m3	9.80E-02	mg/m3	5.09E-04
				Trichloroethene (mutagenic)	4.10E+00	ug/l	8.88E-05	mg/m3	1.00E-03	1/(mg/m3)	1.63E-07	2.59E-04	mg/m3	--	mg/m3	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	8.88E-05	mg/m3	3.10E-03	1/(mg/m3)	2.75E-07	2.59E-04	mg/m3	2.00E-03	mg/m3	1.29E-01
			Exp. Route Total								9.05E-07					1.30E-01
		Exposure Point Total									9.05E-07					1.30E-01
	Exposure Medium Total										9.05E-07					1.30E-01
Medium Total											2.55E-04					4.07E+00
										Total of Receptor Risks Across All Media	2.55E-04				Total of Receptor Hazards Across All Media	4.07E+00

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.03.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO GROUNDWATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Tap Water Contact With Groundwater	Ingestion	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	2.42E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.15E-06					N/A
				Aluminum	1.34E+04	ug/l	1.26E-01	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	2.70E+00	ug/l	4.44E-05	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.67E-05					N/A
				Barium	1.89E+02	ug/l	1.78E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	1.52E+01	ug/l	2.50E-04	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.17E-04					N/A
				Cobalt	2.61E+00	ug/l	2.45E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.63E+03	ug/l	6.23E-02	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	9.12E+02	ug/l	8.57E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	7.89E+00	ug/l	7.41E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Carbon Tetrachloride	6.10E-01	ug/l	1.00E-05	mg/kg-day	7.00E-02	1/(mg/kg-day)	7.03E-07					N/A
				Chloroform	7.70E-01	ug/l	1.27E-05	mg/kg-day	3.10E-02	1/(mg/kg-day)	3.93E-07					N/A
				Trichloroethene (mutagenic)	4.10E+00	ug/l	6.75E-05	mg/kg-day	9.30E-03	1/(mg/kg-day)	2.09E-06					N/A
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	6.75E-05	mg/kg-day	3.70E-02	1/(mg/kg-day)	2.50E-06					N/A
			Exp. Route Total								4.93E-04					--
			Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	4.12E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	5.36E-05					N/A
				Aluminum	1.34E+04	ug/l	5.66E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	2.70E+00	ug/l	2.12E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.18E-07					N/A
				Barium	1.89E+02	ug/l	7.99E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	1.52E+01	ug/l	2.38E-06	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.64E-04					N/A
				Cobalt	2.61E+00	ug/l	4.41E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.63E+03	ug/l	2.80E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	9.12E+02	ug/l	3.86E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	7.89E+00	ug/l	3.34E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Carbon Tetrachloride	6.10E-01	ug/l	2.29E-06	mg/kg-day	7.00E-02	1/(mg/kg-day)	1.60E-07					N/A
				Chloroform	7.70E-01	ug/l	9.82E-07	mg/kg-day	3.10E-02	1/(mg/kg-day)	3.04E-08					N/A
				Trichloroethene (mutagenic)	4.10E+00	ug/l	9.94E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	2.91E-07					N/A
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	9.94E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	3.68E-07					N/A
			Exp. Route Total								2.19E-04					--
		Exposure Point Total									7.12E-04					--
	Exposure Medium Total										7.12E-04					--
	Air	Site 12 Groundwater Vapors During Showering	Inhalation	Carbon Tetrachloride	6.10E-01	ug/l	1.23E-05	mg/m3	6.00E-03	1/(mg/m3)	7.41E-08					N/A
				Chloroform	7.70E-01	ug/l	1.71E-05	mg/m3	2.30E-02	1/(mg/m3)	3.93E-07					N/A
				Trichloroethene (mutagenic)	4.10E+00	ug/l	8.88E-05	mg/m3	1.00E-03	1/(mg/m3)	1.63E-07					N/A
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	8.88E-05	mg/m3	3.10E-03	1/(mg/m3)	2.75E-07					N/A
			Exp. Route Total								9.05E-07					--
		Exposure Point Total									9.05E-07					--
	Exposure Medium Total										9.05E-07					--
Medium Total											7.13E-04					--
										Total of Receptor Risks Across All Media	7.13E-04			Total of Receptor Hazards Across All Media		--

TABLE 7.04.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER EXPOSURE TO GROUNDWATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Contact with Groundwater	Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	9.17E-13	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.19E-07	6.42E-11	mg/kg-day	7.00E-10	mg/kg-day	9.17E-02
				Aluminum	1.34E+04	ug/l	4.05E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.83E-04	mg/kg-day	1.00E+00	mg/kg-day	2.83E-04
				Arsenic	2.70E+00	ug/l	8.15E-10	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.22E-09	5.71E-08	mg/kg-day	3.00E-04	mg/kg-day	1.90E-04
				Barium	1.89E+02	ug/l	5.71E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.99E-06	mg/kg-day	1.40E-02	mg/kg-day	2.85E-04
				Chromium	1.52E+01	ug/l	9.18E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.84E-07	6.43E-07	mg/kg-day	7.50E-05	mg/kg-day	8.57E-03
				Cobalt	2.61E+00	ug/l	3.15E-10	mg/kg-day	--	1/(mg/kg-day)	--	2.21E-08	mg/kg-day	3.00E-04	mg/kg-day	7.36E-05
				Iron	6.63E+03	ug/l	2.00E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.40E-04	mg/kg-day	7.00E-01	mg/kg-day	2.00E-04
				Manganese	9.12E+02	ug/l	2.75E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.93E-05	mg/kg-day	9.60E-04	mg/kg-day	2.01E-02
				Vanadium	7.89E+00	ug/l	2.38E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.67E-07	mg/kg-day	1.30E-04	mg/kg-day	1.28E-03
				Carbon Tetrachloride	6.10E-01	ug/l	5.21E-09	mg/kg-day	7.00E-02	1/(mg/kg-day)	3.64E-10	3.64E-07	mg/kg-day	4.00E-03	mg/kg-day	9.11E-05
				Chloroform	7.70E-01	ug/l	2.37E-09	mg/kg-day	3.10E-02	1/(mg/kg-day)	7.35E-11	1.66E-07	mg/kg-day	1.00E-02	mg/kg-day	1.66E-05
				Trichloroethene	4.10E+00	ug/l	2.30E-08	mg/kg-day	4.63E-02	1/(mg/kg-day)	1.06E-09	1.61E-06	mg/kg-day	5.00E-04	mg/kg-day	3.22E-03
			Exp. Route Total								3.06E-07					1.26E-01
		Exposure Point Total									3.06E-07					1.26E-01
	Exposure Medium Total										3.06E-07					1.26E-01
	Air	Site 12 Outdoor Air, Volatilization from Groundwater	Inhalation	Carbon Tetrachloride	6.10E-01	ug/l	1.66E-09	mg/m3	6.00E-03	1/(mg/m3)	9.96E-12	1.16E-07	mg/m3	1.00E-01	mg/m3	1.16E-06
				Chloroform	7.70E-01	ug/l	6.67E-10	mg/m3	2.30E-02	1/(mg/m3)	1.53E-11	4.67E-08	mg/m3	9.80E-02	mg/m3	4.77E-07
				Trichloroethene	4.10E+00	ug/l	5.46E-09	mg/m3	4.10E-03	1/(mg/m3)	2.24E-11	3.82E-07	mg/m3	2.00E-03	mg/m3	1.91E-04
			Exp. Route Total								4.77E-11					1.93E-04
		Exposure Point Total									4.77E-11					1.93E-04
	Exposure Medium Total										4.77E-11					1.93E-04
Medium Total											3.06E-07					1.26E-01
										Total of Receptor Risks Across All Media	3.06E-07			Total of Receptor Hazards Across All Media		1.26E-01

TABLE 7.05.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.34E-02	mg/kg-day	--	1/(mg/kg-day)	--	1.56E-01	mg/kg-day	1.00E+00	mg/kg-day	1.56E-01
				Antimony	2.88E+00	mg/kg	3.16E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.68E-05	mg/kg-day	4.00E-04	mg/kg-day	9.21E-02
				Arsenic	5.60E+00	mg/kg	3.68E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.52E-06	4.30E-05	mg/kg-day	3.00E-04	mg/kg-day	1.43E-01
				Cadmium	1.60E+00	mg/kg	1.75E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.05E-05	mg/kg-day	1.00E-03	mg/kg-day	2.05E-02
				Chromium	2.59E+00	mg/kg	2.84E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	7.57E-06	3.31E-05	mg/kg-day	3.00E-03	mg/kg-day	1.10E-02
				Cobalt	6.35E+00	mg/kg	6.96E-06	mg/kg-day	--	1/(mg/kg-day)	--	8.12E-05	mg/kg-day	3.00E-04	mg/kg-day	2.71E-01
				Copper	4.41E+01	mg/kg	4.83E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.64E-04	mg/kg-day	4.00E-02	mg/kg-day	1.41E-02
				Iron	1.78E+04	mg/kg	1.95E-02	mg/kg-day	--	1/(mg/kg-day)	--	2.28E-01	mg/kg-day	7.00E-01	mg/kg-day	3.25E-01
				Manganese	4.31E+02	mg/kg	4.72E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.51E-03	mg/kg-day	2.40E-02	mg/kg-day	2.30E-01
				Thallium	1.92E+00	mg/kg	2.10E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.45E-05	mg/kg-day	1.00E-05	mg/kg-day	2.45E+00
				Vanadium	2.53E+01	mg/kg	2.77E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.23E-04	mg/kg-day	5.00E-03	mg/kg-day	6.47E-02
				Dieldrin	2.84E+01	ug/kg	3.11E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.98E-07	3.63E-07	mg/kg-day	5.00E-05	mg/kg-day	7.26E-03
				Benz(a)anthracene	2.04E+03	ug/kg	2.24E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.70E-06	2.61E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.13E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.28E-05	2.48E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.18E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.49E-06	2.54E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	2.50E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	9.73E-07	2.92E-05	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	2.41E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.39E-08	2.81E-05	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	8.28E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.23E-05	9.67E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.13E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.28E-06	2.48E-05	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.55E-04					3.79E+00
			Dermal	Aluminum	1.22E+04	mg/kg	3.74E-04	mg/kg-day	--	1/(mg/kg-day)	--	4.37E-03	mg/kg-day	1.00E+00	mg/kg-day	4.37E-03
				Antimony	2.88E+00	mg/kg	8.84E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-06	mg/kg-day	6.00E-05	mg/kg-day	1.72E-02
				Arsenic	5.60E+00	mg/kg	5.16E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	7.73E-07	6.01E-06	mg/kg-day	3.00E-04	mg/kg-day	2.00E-02
				Cadmium	1.60E+00	mg/kg	4.91E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.73E-08	mg/kg-day	2.50E-05	mg/kg-day	2.29E-03
				Chromium	2.59E+00	mg/kg	7.95E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	8.48E-06	9.27E-07	mg/kg-day	7.50E-05	mg/kg-day	1.24E-02
				Cobalt	6.35E+00	mg/kg	1.95E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.27E-06	mg/kg-day	3.00E-04	mg/kg-day	7.58E-03
				Copper	4.41E+01	mg/kg	1.35E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.58E-05	mg/kg-day	4.00E-02	mg/kg-day	3.95E-04
				Iron	1.78E+04	mg/kg	5.46E-04	mg/kg-day	--	1/(mg/kg-day)	--	6.37E-03	mg/kg-day	7.00E-01	mg/kg-day	9.10E-03
				Manganese	4.31E+02	mg/kg	1.32E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.54E-04	mg/kg-day	9.60E-04	mg/kg-day	1.61E-01
				Thallium	1.92E+00	mg/kg	5.89E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.87E-07	mg/kg-day	1.00E-05	mg/kg-day	6.87E-02
				Vanadium	2.53E+01	mg/kg	7.76E-07	mg/kg-day	--	1/(mg/kg-day)	--	9.06E-06	mg/kg-day	1.30E-04	mg/kg-day	6.97E-02
				Dieldrin	2.84E+01	ug/kg	8.71E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.39E-07	1.02E-07	mg/kg-day	5.00E-05	mg/kg-day	2.03E-03
				Benz(a)anthracene	2.04E+03	ug/kg	8.14E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.17E-06	9.49E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	7.74E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.01E-05	9.03E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	7.94E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.09E-06	9.26E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	9.10E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.54E-07	1.06E-05	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	8.78E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.42E-08	1.02E-05	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.02E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.17E-05	3.52E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	7.74E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.01E-06	9.03E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								6.09E-05					3.74E-01
		Exposure Point Total									2.16E-04					4.16E+00
	Exposure Medium Total										2.16E-04					4.16E+00
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	3.16E-11	mg/m3	8.40E+01	1/(mg/m3)	1.41E-08	3.68E-10	mg/m3	1.00E-04	mg/m3	3.68E-06
			Exp. Route Total								1.41E-08					3.68E-06
		Exposure Point Total									1.41E-08					3.68E-06
	Exposure Medium Total										1.41E-08					3.68E-06
Medium Total											2.16E-04					4.16E+00
										Total of Receptor Risks Across All Media	2.16E-04			Total of Receptor Hazards Across All Media		4.16E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.05a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.34E-02	mg/kg-day	--	1/(mg/kg-day)	--	1.56E-01	mg/kg-day	1.00E+00	mg/kg-day	1.56E-01
				Antimony	2.88E+00	mg/kg	3.16E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.68E-05	mg/kg-day	4.00E-04	mg/kg-day	9.21E-02
				Cadmium	1.60E+00	mg/kg	1.75E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.05E-05	mg/kg-day	1.00E-03	mg/kg-day	2.05E-02
				Chromium	2.59E+00	mg/kg	2.84E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	7.57E-06	3.31E-05	mg/kg-day	3.00E-03	mg/kg-day	1.10E-02
				Copper	4.41E+01	mg/kg	4.83E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.64E-04	mg/kg-day	4.00E-02	mg/kg-day	1.41E-02
				Iron	1.78E+04	mg/kg	1.95E-02	mg/kg-day	--	1/(mg/kg-day)	--	2.28E-01	mg/kg-day	7.00E-01	mg/kg-day	3.25E-01
				Thallium	1.92E+00	mg/kg	2.10E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.45E-05	mg/kg-day	1.00E-05	mg/kg-day	2.45E+00
				Vanadium	2.53E+01	mg/kg	2.77E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.23E-04	mg/kg-day	5.00E-03	mg/kg-day	6.47E-02
				Dieldrin	2.84E+01	ug/kg	3.11E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.98E-07	3.63E-07	mg/kg-day	5.00E-05	mg/kg-day	7.26E-03
				Benz(a)anthracene	2.04E+03	ug/kg	2.24E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.70E-06	2.61E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.13E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.28E-05	2.48E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.18E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.49E-06	2.54E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	2.50E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	9.73E-07	2.92E-05	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	2.41E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.39E-08	2.81E-05	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	8.28E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.23E-05	9.67E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.13E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.28E-06	2.48E-05	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.50E-04					3.15E+00
			Dermal	Aluminum	1.22E+04	mg/kg	3.74E-04	mg/kg-day	--	1/(mg/kg-day)	--	4.37E-03	mg/kg-day	1.00E+00	mg/kg-day	4.37E-03
				Antimony	2.88E+00	mg/kg	8.84E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-06	mg/kg-day	6.00E-05	mg/kg-day	1.72E-02
				Cadmium	1.60E+00	mg/kg	4.91E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.73E-08	mg/kg-day	2.50E-05	mg/kg-day	2.29E-03
				Chromium	2.59E+00	mg/kg	7.95E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	8.48E-06	9.27E-07	mg/kg-day	7.50E-05	mg/kg-day	1.24E-02
				Copper	4.41E+01	mg/kg	1.35E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.58E-05	mg/kg-day	4.00E-02	mg/kg-day	3.95E-04
				Iron	1.78E+04	mg/kg	5.46E-04	mg/kg-day	--	1/(mg/kg-day)	--	6.37E-03	mg/kg-day	7.00E-01	mg/kg-day	9.10E-03
				Thallium	1.92E+00	mg/kg	5.89E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.87E-07	mg/kg-day	1.00E-05	mg/kg-day	6.87E-02
				Vanadium	2.53E+01	mg/kg	7.76E-07	mg/kg-day	--	1/(mg/kg-day)	--	9.06E-06	mg/kg-day	1.30E-04	mg/kg-day	6.97E-02
				Dieldrin	2.84E+01	ug/kg	8.71E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.39E-07	1.02E-07	mg/kg-day	5.00E-05	mg/kg-day	2.03E-03
				Benz(a)anthracene	2.04E+03	ug/kg	8.14E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.17E-06	9.49E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	7.74E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.01E-05	9.03E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	7.94E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.09E-06	9.26E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	9.10E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.54E-07	1.06E-05	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	8.78E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.42E-08	1.02E-05	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.02E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.17E-05	3.52E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	7.74E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.01E-06	9.03E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								6.01E-05					1.86E-01
		Exposure Point Total									2.10E-04					3.33E+00
	Exposure Medium Total										2.10E-04					3.33E+00
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	3.16E-11	mg/m3	8.40E+01	1/(mg/m3)	1.41E-08	3.68E-10	mg/m3	1.00E-04	mg/m3	3.68E-06
			Exp. Route Total								1.41E-08					3.68E-06
		Exposure Point Total									1.41E-08					3.68E-06
	Exposure Medium Total										1.41E-08					3.68E-06
Medium Total											2.10E-04					3.33E+00
										Total of Receptor Risks Across All Media	2.10E-04				Total of Receptor Hazards Across All Media	3.33E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.06.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.73E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.67E-02	mg/kg-day	1.00E+00	mg/kg-day	1.67E-02
				Antimony	2.88E+00	mg/kg	1.35E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.95E-06	mg/kg-day	4.00E-04	mg/kg-day	9.86E-03
				Arsenic	5.60E+00	mg/kg	1.58E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.37E-06	4.60E-06	mg/kg-day	3.00E-04	mg/kg-day	1.53E-02
				Cadmium	1.60E+00	mg/kg	7.51E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.19E-06	mg/kg-day	1.00E-03	mg/kg-day	2.19E-03
				Chromium	2.59E+00	mg/kg	1.22E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.12E-06	3.55E-06	mg/kg-day	3.00E-03	mg/kg-day	1.18E-03
				Cobalt	6.35E+00	mg/kg	2.98E-06	mg/kg-day	--	1/(mg/kg-day)	--	8.70E-06	mg/kg-day	3.00E-04	mg/kg-day	2.90E-02
				Copper	4.41E+01	mg/kg	2.07E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.04E-05	mg/kg-day	4.00E-02	mg/kg-day	1.51E-03
				Iron	1.78E+04	mg/kg	8.36E-03	mg/kg-day	--	1/(mg/kg-day)	--	2.44E-02	mg/kg-day	7.00E-01	mg/kg-day	3.48E-02
				Manganese	4.31E+02	mg/kg	2.02E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.90E-04	mg/kg-day	2.40E-02	mg/kg-day	2.46E-02
				Thallium	1.92E+00	mg/kg	9.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.63E-06	mg/kg-day	1.00E-05	mg/kg-day	2.63E-01
				Vanadium	2.53E+01	mg/kg	1.19E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.47E-05	mg/kg-day	5.00E-03	mg/kg-day	6.93E-03
				Dieldrin	2.84E+01	ug/kg	1.33E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.13E-07	3.89E-08	mg/kg-day	5.00E-05	mg/kg-day	7.78E-04
				Benz(a)anthracene	2.04E+03	ug/kg	9.58E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.28E-06	2.79E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	9.11E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.22E-05	2.66E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	9.35E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.25E-06	2.73E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.07E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.43E-07	3.12E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.03E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.38E-08	3.01E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.55E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.75E-06	1.04E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	9.11E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.22E-06	2.66E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								2.46E-05					4.06E-01
			Dermal	Aluminum	1.22E+04	mg/kg	2.29E-04	mg/kg-day	--	1/(mg/kg-day)	--	6.67E-04	mg/kg-day	1.00E+00	mg/kg-day	6.67E-04
				Antimony	2.88E+00	mg/kg	5.40E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.57E-07	mg/kg-day	6.00E-05	mg/kg-day	2.62E-03
				Arsenic	5.60E+00	mg/kg	3.15E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.72E-07	9.18E-07	mg/kg-day	3.00E-04	mg/kg-day	3.06E-03
				Cadmium	1.60E+00	mg/kg	3.00E-09	mg/kg-day	--	1/(mg/kg-day)	--	8.75E-09	mg/kg-day	2.50E-05	mg/kg-day	3.50E-04
				Chromium	2.59E+00	mg/kg	4.85E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.78E-06	1.42E-07	mg/kg-day	7.50E-05	mg/kg-day	1.89E-03
				Cobalt	6.35E+00	mg/kg	1.19E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.47E-07	mg/kg-day	3.00E-04	mg/kg-day	1.16E-03
				Copper	4.41E+01	mg/kg	8.26E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.41E-06	mg/kg-day	4.00E-02	mg/kg-day	6.03E-05
				Iron	1.78E+04	mg/kg	3.34E-04	mg/kg-day	--	1/(mg/kg-day)	--	9.73E-04	mg/kg-day	7.00E-01	mg/kg-day	1.39E-03
				Manganese	4.31E+02	mg/kg	8.08E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.36E-05	mg/kg-day	9.60E-04	mg/kg-day	2.45E-02
				Thallium	1.92E+00	mg/kg	3.60E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.05E-07	mg/kg-day	1.00E-05	mg/kg-day	1.05E-02
				Vanadium	2.53E+01	mg/kg	4.74E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.38E-06	mg/kg-day	1.30E-04	mg/kg-day	1.06E-02
				Dieldrin	2.84E+01	ug/kg	5.32E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.52E-08	1.55E-08	mg/kg-day	5.00E-05	mg/kg-day	3.10E-04
				Benz(a)anthracene	2.04E+03	ug/kg	4.97E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.65E-07	1.45E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	4.73E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.33E-06	1.38E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	4.85E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.49E-07	1.41E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	5.55E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.43E-08	1.62E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	5.36E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	7.17E-09	1.56E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.84E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.46E-06	5.37E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	4.73E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.33E-07	1.38E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.32E-05					5.72E-02
		Exposure Point Total									3.77E-05					4.63E-01
	Exposure Medium Total										3.77E-05					4.63E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.26E-10	mg/m3	8.40E+01	1/(mg/m3)	1.95E-08	3.68E-10	mg/m3	1.00E-04	mg/m3	3.68E-06
			Exp. Route Total								1.95E-08					3.68E-06
		Exposure Point Total									1.95E-08					3.68E-06
	Exposure Medium Total										1.95E-08					3.68E-06
Medium Total											3.77E-05					4.63E-01
										Total of Receptor Risks Across All Media	3.77E-05				Total of Receptor Hazards Across All Media	4.63E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.06a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.73E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.67E-02	mg/kg-day	1.00E+00	mg/kg-day	1.67E-02
				Antimony	2.88E+00	mg/kg	1.35E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.95E-06	mg/kg-day	4.00E-04	mg/kg-day	9.86E-03
				Cadmium	1.60E+00	mg/kg	7.51E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.19E-06	mg/kg-day	1.00E-03	mg/kg-day	2.19E-03
				Chromium	2.59E+00	mg/kg	1.22E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.12E-06	3.55E-06	mg/kg-day	3.00E-03	mg/kg-day	1.18E-03
				Copper	4.41E+01	mg/kg	2.07E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.04E-05	mg/kg-day	4.00E-02	mg/kg-day	1.51E-03
				Iron	1.78E+04	mg/kg	8.36E-03	mg/kg-day	--	1/(mg/kg-day)	--	2.44E-02	mg/kg-day	7.00E-01	mg/kg-day	3.48E-02
				Thallium	1.92E+00	mg/kg	9.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.63E-06	mg/kg-day	1.00E-05	mg/kg-day	2.63E-01
				Vanadium	2.53E+01	mg/kg	1.19E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.47E-05	mg/kg-day	5.00E-03	mg/kg-day	6.93E-03
				Dieldrin	2.84E+01	ug/kg	1.33E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.13E-07	3.89E-08	mg/kg-day	5.00E-05	mg/kg-day	7.78E-04
				Benz(a)anthracene	2.04E+03	ug/kg	9.58E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.28E-06	2.79E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	9.11E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.22E-05	2.66E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	9.35E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.25E-06	2.73E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.07E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.43E-07	3.12E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.03E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.38E-08	3.01E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.55E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.75E-06	1.04E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	9.11E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.22E-06	2.66E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								2.22E-05					3.37E-01
			Dermal	Aluminum	1.22E+04	mg/kg	2.29E-04	mg/kg-day	--	1/(mg/kg-day)	--	6.67E-04	mg/kg-day	1.00E+00	mg/kg-day	6.67E-04
				Antimony	2.88E+00	mg/kg	5.40E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.57E-07	mg/kg-day	6.00E-05	mg/kg-day	2.62E-03
				Cadmium	1.60E+00	mg/kg	3.00E-09	mg/kg-day	--	1/(mg/kg-day)	--	8.75E-09	mg/kg-day	2.50E-05	mg/kg-day	3.50E-04
				Chromium	2.59E+00	mg/kg	4.85E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.78E-06	1.42E-07	mg/kg-day	7.50E-05	mg/kg-day	1.89E-03
				Copper	4.41E+01	mg/kg	8.26E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.41E-06	mg/kg-day	4.00E-02	mg/kg-day	6.03E-05
				Iron	1.78E+04	mg/kg	3.34E-04	mg/kg-day	--	1/(mg/kg-day)	--	9.73E-04	mg/kg-day	7.00E-01	mg/kg-day	1.39E-03
				Thallium	1.92E+00	mg/kg	3.60E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.05E-07	mg/kg-day	1.00E-05	mg/kg-day	1.05E-02
				Vanadium	2.53E+01	mg/kg	4.74E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.38E-06	mg/kg-day	1.30E-04	mg/kg-day	1.06E-02
				Dieldrin	2.84E+01	ug/kg	5.32E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.52E-08	1.55E-08	mg/kg-day	5.00E-05	mg/kg-day	3.10E-04
				Benz(a)anthracene	2.04E+03	ug/kg	4.97E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.65E-07	1.45E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	4.73E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.33E-06	1.38E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	4.85E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.49E-07	1.41E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	5.55E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.43E-08	1.62E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	5.36E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	7.17E-09	1.56E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.84E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.46E-06	5.37E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	4.73E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.33E-07	1.38E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.27E-05					2.84E-02
		Exposure Point Total									3.49E-05					3.65E-01
	Exposure Medium Total										3.49E-05					3.65E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.26E-10	mg/m3	8.40E+01	1/(mg/m3)	1.95E-08	3.68E-10	mg/m3	1.00E-04	mg/m3	3.68E-06
			Exp. Route Total								1.95E-08					3.68E-06
		Exposure Point Total									1.95E-08					3.68E-06
	Exposure Medium Total										1.95E-08					3.68E-06
Medium Total											3.49E-05					3.65E-01
										Total of Receptor Risks Across All Media	3.49E-05				Total of Receptor Hazards Across All Media	3.65E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.07.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.73E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.35E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	5.60E+00	mg/kg	5.26E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	7.89E-06					N/A
				Cadmium	1.60E+00	mg/kg	7.51E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	4.05E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	8.68E-06					N/A
				Cobalt	6.35E+00	mg/kg	2.98E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	4.41E+01	mg/kg	2.07E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	8.36E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	4.31E+02	mg/kg	2.02E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	9.02E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.19E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	4.45E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.11E-07					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	3.19E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.99E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	3.04E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.50E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.12E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.74E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	3.57E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.12E-06					N/A
				Chrysene	2.20E+03	ug/kg	3.44E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.08E-07					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.18E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.70E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.04E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.50E-06					N/A
			Exp. Route Total								1.80E-04					--
			Dermal	Aluminum	1.22E+04	mg/kg	2.29E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	5.40E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	5.60E+00	mg/kg	8.30E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.25E-06					N/A
				Cadmium	1.60E+00	mg/kg	3.00E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	1.28E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.03E-05					N/A
				Cobalt	6.35E+00	mg/kg	1.19E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	4.41E+01	mg/kg	8.26E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	3.34E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	4.31E+02	mg/kg	8.08E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	3.60E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	4.74E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	1.40E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.25E-07					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	1.31E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.83E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	1.25E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.65E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	1.28E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.74E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.46E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.28E-07					N/A
				Chrysene	2.20E+03	ug/kg	1.41E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.13E-08					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	4.86E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.42E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	1.25E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.65E-06					N/A
			Exp. Route Total								7.41E-05					--
		Exposure Point Total									2.54E-04					--
	Exposure Medium Total										2.54E-04					--
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.58E-10	mg/m3	8.40E+01	1/(mg/m3)	3.36E-08					N/A
			Exp. Route Total								3.36E-08					--
		Exposure Point Total									3.36E-08					--
	Exposure Medium Total										3.36E-08					--
Medium Total											2.54E-04					--
										Total of Receptor Risks Across All Media	2.54E-04				Total of Receptor Hazards Across All Media	--

TABLE 7.07a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.73E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.35E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cadmium	1.60E+00	mg/kg	7.51E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	4.05E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	8.68E-06					N/A
				Copper	4.41E+01	mg/kg	2.07E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	8.36E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	9.02E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.19E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	4.45E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.11E-07					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	3.19E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.99E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	3.04E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.50E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.12E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.74E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	3.57E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.12E-06					N/A
				Chrysene	2.20E+03	ug/kg	3.44E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.08E-07					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.18E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.70E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.04E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.50E-06					N/A
			Exp. Route Total								1.72E-04					--
			Dermal	Aluminum	1.22E+04	mg/kg	2.29E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	5.40E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cadmium	1.60E+00	mg/kg	3.00E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	1.28E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.03E-05					N/A
				Copper	4.41E+01	mg/kg	8.26E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	3.34E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	3.60E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	4.74E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	1.40E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.25E-07					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	1.31E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.83E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	1.25E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.65E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	1.28E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.74E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.46E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.28E-07					N/A
				Chrysene	2.20E+03	ug/kg	1.41E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.13E-08					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	4.86E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.42E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	1.25E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.65E-06					N/A
			Exp. Route Total								7.28E-05					--
		Exposure Point Total									2.45E-04					--
	Exposure Medium Total										2.45E-04					--
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.58E-10	mg/m3	8.40E+01	1/(mg/m3)	3.36E-08					N/A
			Exp. Route Total								3.36E-08					--
		Exposure Point Total									3.36E-08					--
	Exposure Medium Total										3.36E-08					--
Medium Total											2.45E-04					--
										Total of Receptor Risks Across All Media	2.45E-04			Total of Receptor Hazards Across All Media		--

TABLE 7.08.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INDUSTRIAL WORKER EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Industrial
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	4.26E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.19E-02	mg/kg-day	1.00E+00	mg/kg-day	1.19E-02
				Antimony	2.88E+00	mg/kg	1.01E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.82E-06	mg/kg-day	4.00E-04	mg/kg-day	7.05E-03
				Arsenic	5.60E+00	mg/kg	1.17E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.76E-06	3.29E-06	mg/kg-day	3.00E-04	mg/kg-day	1.10E-02
				Cadmium	1.60E+00	mg/kg	5.59E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.57E-06	mg/kg-day	1.00E-03	mg/kg-day	1.57E-03
				Chromium	2.59E+00	mg/kg	9.05E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.53E-07	2.53E-06	mg/kg-day	3.00E-03	mg/kg-day	8.45E-04
				Cobalt	6.35E+00	mg/kg	2.22E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.21E-06	mg/kg-day	3.00E-04	mg/kg-day	2.07E-02
				Copper	4.41E+01	mg/kg	1.54E-05	mg/kg-day	--	1/(mg/kg-day)	--	4.32E-05	mg/kg-day	4.00E-02	mg/kg-day	1.08E-03
				Iron	1.78E+04	mg/kg	6.22E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.74E-02	mg/kg-day	7.00E-01	mg/kg-day	2.49E-02
				Manganese	4.31E+02	mg/kg	1.51E-04	mg/kg-day	--	1/(mg/kg-day)	--	4.22E-04	mg/kg-day	2.40E-02	mg/kg-day	1.76E-02
				Thallium	1.92E+00	mg/kg	6.71E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.88E-06	mg/kg-day	1.00E-05	mg/kg-day	1.88E-01
				Vanadium	2.53E+01	mg/kg	8.84E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.48E-05	mg/kg-day	5.00E-03	mg/kg-day	4.95E-03
				Dieldrin	2.84E+01	ug/kg	9.92E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.59E-07	2.78E-08	mg/kg-day	5.00E-05	mg/kg-day	5.56E-04
				Benz(a)anthracene	2.04E+03	ug/kg	7.13E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.20E-07	2.00E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	6.78E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.95E-06	1.90E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	6.95E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.08E-07	1.95E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	7.97E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	5.82E-08	2.23E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	7.69E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.61E-09	2.15E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	2.64E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.93E-06	7.40E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	6.78E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.95E-07	1.90E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.08E-05					2.90E-01
			Dermal	Aluminum	1.22E+04	mg/kg	2.81E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.88E-04	mg/kg-day	1.00E+00	mg/kg-day	7.88E-04
				Antimony	2.88E+00	mg/kg	6.64E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.86E-07	mg/kg-day	6.00E-05	mg/kg-day	3.10E-03
				Arsenic	5.60E+00	mg/kg	3.87E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.81E-07	1.08E-06	mg/kg-day	3.00E-04	mg/kg-day	3.62E-03
				Cadmium	1.60E+00	mg/kg	3.69E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-08	mg/kg-day	2.50E-05	mg/kg-day	4.13E-04
				Chromium	2.59E+00	mg/kg	5.97E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.19E-06	1.67E-07	mg/kg-day	7.50E-05	mg/kg-day	2.23E-03
				Cobalt	6.35E+00	mg/kg	1.46E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.10E-07	mg/kg-day	3.00E-04	mg/kg-day	1.37E-03
				Copper	4.41E+01	mg/kg	1.02E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.85E-06	mg/kg-day	4.00E-02	mg/kg-day	7.12E-05
				Iron	1.78E+04	mg/kg	4.11E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.15E-03	mg/kg-day	7.00E-01	mg/kg-day	1.64E-03
				Manganese	4.31E+02	mg/kg	9.94E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.78E-05	mg/kg-day	9.60E-04	mg/kg-day	2.90E-02
				Thallium	1.92E+00	mg/kg	4.43E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.24E-07	mg/kg-day	1.00E-05	mg/kg-day	1.24E-02
				Vanadium	2.53E+01	mg/kg	5.84E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.63E-06	mg/kg-day	1.30E-04	mg/kg-day	1.26E-02
				Dieldrin	2.84E+01	ug/kg	6.55E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.05E-07	1.83E-08	mg/kg-day	5.00E-05	mg/kg-day	3.67E-04
				Benz(a)anthracene	2.04E+03	ug/kg	6.12E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.47E-07	1.71E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	5.82E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.25E-06	1.63E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	5.97E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.36E-07	1.67E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	6.84E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.99E-08	1.91E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	6.60E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.82E-09	1.85E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	2.27E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.65E-06	6.35E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	5.82E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.25E-07	1.63E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								9.14E-06					6.76E-02
		Exposure Point Total									2.00E-05					3.58E-01
	Exposure Medium Total										2.00E-05					3.58E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	6.26E-11	mg/m3	8.40E+01	1/(mg/m3)	5.26E-09	1.75E-10	mg/m3	1.00E-04	mg/m3	1.75E-06
			Exp. Route Total								5.26E-09					1.75E-06
		Exposure Point Total									5.26E-09					1.75E-06
	Exposure Medium Total										5.26E-09					1.75E-06
Medium Total											2.00E-05					3.58E-01
										Total of Receptor Risks Across All Media	2.00E-05			Total of Receptor Hazards Across All Media		3.58E-01

TABLE 7.08a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INDUSTRIAL WORKER EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Industrial
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	4.26E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.19E-02	mg/kg-day	1.00E+00	mg/kg-day	1.19E-02
				Antimony	2.88E+00	mg/kg	1.01E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.82E-06	mg/kg-day	4.00E-04	mg/kg-day	7.05E-03
				Cadmium	1.60E+00	mg/kg	5.59E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.57E-06	mg/kg-day	1.00E-03	mg/kg-day	1.57E-03
				Chromium	2.59E+00	mg/kg	9.05E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.53E-07	2.53E-06	mg/kg-day	3.00E-03	mg/kg-day	8.45E-04
				Copper	4.41E+01	mg/kg	1.54E-05	mg/kg-day	--	1/(mg/kg-day)	--	4.32E-05	mg/kg-day	4.00E-02	mg/kg-day	1.08E-03
				Iron	1.78E+04	mg/kg	6.22E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.74E-02	mg/kg-day	7.00E-01	mg/kg-day	2.49E-02
				Thallium	1.92E+00	mg/kg	6.71E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.88E-06	mg/kg-day	1.00E-05	mg/kg-day	1.88E-01
				Vanadium	2.53E+01	mg/kg	8.84E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.48E-05	mg/kg-day	5.00E-03	mg/kg-day	4.95E-03
				Dieldrin	2.84E+01	ug/kg	9.92E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.59E-07	2.78E-08	mg/kg-day	5.00E-05	mg/kg-day	5.56E-04
				Benz(a)anthracene	2.04E+03	ug/kg	7.13E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.20E-07	2.00E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	6.78E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.95E-06	1.90E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	6.95E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.08E-07	1.95E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	7.97E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	5.82E-08	2.23E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	7.69E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.61E-09	2.15E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	2.64E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.93E-06	7.40E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	6.78E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.95E-07	1.90E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								9.08E-06					2.41E-01
			Dermal	Aluminum	1.22E+04	mg/kg	2.81E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.88E-04	mg/kg-day	1.00E+00	mg/kg-day	7.88E-04
				Antimony	2.88E+00	mg/kg	6.64E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.86E-07	mg/kg-day	6.00E-05	mg/kg-day	3.10E-03
				Cadmium	1.60E+00	mg/kg	3.69E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-08	mg/kg-day	2.50E-05	mg/kg-day	4.13E-04
				Chromium	2.59E+00	mg/kg	5.97E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.19E-06	1.67E-07	mg/kg-day	7.50E-05	mg/kg-day	2.23E-03
				Copper	4.41E+01	mg/kg	1.02E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.85E-06	mg/kg-day	4.00E-02	mg/kg-day	7.12E-05
				Iron	1.78E+04	mg/kg	4.11E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.15E-03	mg/kg-day	7.00E-01	mg/kg-day	1.64E-03
				Thallium	1.92E+00	mg/kg	4.43E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.24E-07	mg/kg-day	1.00E-05	mg/kg-day	1.24E-02
				Vanadium	2.53E+01	mg/kg	5.84E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.63E-06	mg/kg-day	1.30E-04	mg/kg-day	1.26E-02
				Dieldrin	2.84E+01	ug/kg	6.55E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.05E-07	1.83E-08	mg/kg-day	5.00E-05	mg/kg-day	3.67E-04
				Benz(a)anthracene	2.04E+03	ug/kg	6.12E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.47E-07	1.71E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	5.82E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.25E-06	1.63E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	5.97E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.36E-07	1.67E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	6.84E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.99E-08	1.91E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	6.60E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.82E-09	1.85E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	2.27E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.65E-06	6.35E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	5.82E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.25E-07	1.63E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								8.56E-06					3.36E-02
		Exposure Point Total									1.76E-05					2.74E-01
	Exposure Medium Total										1.76E-05					2.74E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	6.26E-11	mg/m3	8.40E+01	1/(mg/m3)	5.26E-09	1.75E-10	mg/m3	1.00E-04	mg/m3	1.75E-06
			Exp. Route Total								5.26E-09					1.75E-06
		Exposure Point Total									5.26E-09					1.75E-06
	Exposure Medium Total										5.26E-09					1.75E-06
Medium Total											1.76E-05					2.74E-01
										Total of Receptor Risks Across All Media	1.76E-05			Total of Receptor Hazards Across All Media		2.74E-01

TABLE 7.09.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	3.97E-03	mg/kg-day	--	1/(mg/kg-day)	--	4.63E-02	mg/kg-day	1.00E+00	mg/kg-day	4.63E-02
				Antimony	2.88E+00	mg/kg	9.38E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.09E-05	mg/kg-day	4.00E-04	mg/kg-day	2.74E-02
				Arsenic	5.60E+00	mg/kg	1.09E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.64E-06	1.28E-05	mg/kg-day	3.00E-04	mg/kg-day	4.25E-02
				Cadmium	1.60E+00	mg/kg	5.21E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.08E-06	mg/kg-day	1.00E-03	mg/kg-day	6.08E-03
				Chromium	2.59E+00	mg/kg	8.43E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.25E-06	9.84E-06	mg/kg-day	3.00E-03	mg/kg-day	3.28E-03
				Cobalt	6.35E+00	mg/kg	2.07E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.41E-05	mg/kg-day	3.00E-04	mg/kg-day	8.04E-02
				Copper	4.41E+01	mg/kg	1.44E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.68E-04	mg/kg-day	4.00E-02	mg/kg-day	4.19E-03
				Iron	1.78E+04	mg/kg	5.80E-03	mg/kg-day	--	1/(mg/kg-day)	--	6.76E-02	mg/kg-day	7.00E-01	mg/kg-day	9.66E-02
				Manganese	4.31E+02	mg/kg	1.40E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.64E-03	mg/kg-day	2.40E-02	mg/kg-day	6.82E-02
				Thallium	1.92E+00	mg/kg	6.25E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.29E-06	mg/kg-day	1.00E-05	mg/kg-day	7.29E-01
				Vanadium	2.53E+01	mg/kg	8.24E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.61E-05	mg/kg-day	5.00E-03	mg/kg-day	1.92E-02
				Dieldrin	2.84E+01	ug/kg	9.25E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.48E-07	1.08E-07	mg/kg-day	5.00E-05	mg/kg-day	2.16E-03
				Benz(a)anthracene	2.04E+03	ug/kg	6.64E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.59E-06	7.75E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	6.32E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.46E-05	7.37E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	6.48E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.52E-06	7.56E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	7.42E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.89E-07	8.66E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	7.16E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.79E-08	8.36E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	2.46E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.58E-06	2.87E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	6.32E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.46E-06	7.37E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								4.61E-05					1.13E+00
			Dermal	Aluminum	1.22E+04	mg/kg	1.11E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.30E-03	mg/kg-day	1.00E+00	mg/kg-day	1.30E-03
				Antimony	2.88E+00	mg/kg	2.63E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.06E-07	mg/kg-day	6.00E-05	mg/kg-day	5.11E-03
				Arsenic	5.60E+00	mg/kg	1.53E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.30E-07	1.79E-06	mg/kg-day	3.00E-04	mg/kg-day	5.96E-03
				Cadmium	1.60E+00	mg/kg	1.46E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.70E-08	mg/kg-day	2.50E-05	mg/kg-day	6.81E-04
				Chromium	2.59E+00	mg/kg	2.36E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.52E-06	2.76E-07	mg/kg-day	7.50E-05	mg/kg-day	3.67E-03
				Cobalt	6.35E+00	mg/kg	5.79E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.75E-07	mg/kg-day	3.00E-04	mg/kg-day	2.25E-03
				Copper	4.41E+01	mg/kg	4.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.69E-06	mg/kg-day	4.00E-02	mg/kg-day	1.17E-04
				Iron	1.78E+04	mg/kg	1.62E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.89E-03	mg/kg-day	7.00E-01	mg/kg-day	2.70E-03
				Manganese	4.31E+02	mg/kg	3.93E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.58E-05	mg/kg-day	9.60E-04	mg/kg-day	4.78E-02
				Thallium	1.92E+00	mg/kg	1.75E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.04E-07	mg/kg-day	1.00E-05	mg/kg-day	2.04E-02
				Vanadium	2.53E+01	mg/kg	2.31E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.69E-06	mg/kg-day	1.30E-04	mg/kg-day	2.07E-02
				Dieldrin	2.84E+01	ug/kg	2.59E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.14E-08	3.02E-08	mg/kg-day	5.00E-05	mg/kg-day	6.04E-04
				Benz(a)anthracene	2.04E+03	ug/kg	2.42E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.41E-07	2.82E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.30E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.95E-06	2.68E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.36E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.18E-07	2.75E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	2.70E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.05E-07	3.15E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	2.61E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.02E-08	3.04E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	8.96E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.49E-06	1.05E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.30E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.95E-07	2.68E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.81E-05					1.11E-01
		Exposure Point Total									6.42E-05					1.24E+00
	Exposure Medium Total										6.42E-05					1.24E+00
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	2.35E-12	mg/m3	8.40E+01	1/(mg/m3)	1.05E-09	2.74E-11	mg/m3	1.00E-04	mg/m3	2.74E-07
			Exp. Route Total								1.05E-09					2.74E-07
		Exposure Point Total									1.05E-09					2.74E-07
	Exposure Medium Total										1.05E-09					2.74E-07
Medium Total											6.42E-05					1.24E+00
											Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media
											6.42E-05					1.24E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.09a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	3.97E-03	mg/kg-day	--	1/(mg/kg-day)	--	4.63E-02	mg/kg-day	1.00E+00	mg/kg-day	4.63E-02
				Antimony	2.88E+00	mg/kg	9.38E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.09E-05	mg/kg-day	4.00E-04	mg/kg-day	2.74E-02
				Cadmium	1.60E+00	mg/kg	5.21E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.08E-06	mg/kg-day	1.00E-03	mg/kg-day	6.08E-03
				Chromium	2.59E+00	mg/kg	8.43E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.25E-06	9.84E-06	mg/kg-day	3.00E-03	mg/kg-day	3.28E-03
				Copper	4.41E+01	mg/kg	1.44E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.68E-04	mg/kg-day	4.00E-02	mg/kg-day	4.19E-03
				Iron	1.78E+04	mg/kg	5.80E-03	mg/kg-day	--	1/(mg/kg-day)	--	6.76E-02	mg/kg-day	7.00E-01	mg/kg-day	9.66E-02
				Thallium	1.92E+00	mg/kg	6.25E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.29E-06	mg/kg-day	1.00E-05	mg/kg-day	7.29E-01
				Vanadium	2.53E+01	mg/kg	8.24E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.61E-05	mg/kg-day	5.00E-03	mg/kg-day	1.92E-02
				Dieldrin	2.84E+01	ug/kg	9.25E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.48E-07	1.08E-07	mg/kg-day	5.00E-05	mg/kg-day	2.16E-03
				Benz(a)anthracene	2.04E+03	ug/kg	6.64E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.59E-06	7.75E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	6.32E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.46E-05	7.37E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	6.48E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.52E-06	7.56E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	7.42E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.89E-07	8.66E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	7.16E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.79E-08	8.36E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	2.46E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.58E-06	2.87E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	6.32E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.46E-06	7.37E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								4.45E-05					9.35E-01
			Dermal	Aluminum	1.22E+04	mg/kg	1.11E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.30E-03	mg/kg-day	1.00E+00	mg/kg-day	1.30E-03
				Antimony	2.88E+00	mg/kg	2.63E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.06E-07	mg/kg-day	6.00E-05	mg/kg-day	5.11E-03
				Cadmium	1.60E+00	mg/kg	1.46E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.70E-08	mg/kg-day	2.50E-05	mg/kg-day	6.81E-04
				Chromium	2.59E+00	mg/kg	2.36E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.52E-06	2.76E-07	mg/kg-day	7.50E-05	mg/kg-day	3.67E-03
				Copper	4.41E+01	mg/kg	4.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.69E-06	mg/kg-day	4.00E-02	mg/kg-day	1.17E-04
				Iron	1.78E+04	mg/kg	1.62E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.89E-03	mg/kg-day	7.00E-01	mg/kg-day	2.70E-03
				Thallium	1.92E+00	mg/kg	1.75E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.04E-07	mg/kg-day	1.00E-05	mg/kg-day	2.04E-02
				Vanadium	2.53E+01	mg/kg	2.31E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.69E-06	mg/kg-day	1.30E-04	mg/kg-day	2.07E-02
				Dieldrin	2.84E+01	ug/kg	2.59E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.14E-08	3.02E-08	mg/kg-day	5.00E-05	mg/kg-day	6.04E-04
				Benz(a)anthracene	2.04E+03	ug/kg	2.42E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.41E-07	2.82E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.30E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.95E-06	2.68E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.36E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.18E-07	2.75E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	2.70E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.05E-07	3.15E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	2.61E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.02E-08	3.04E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	8.96E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.49E-06	1.05E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.30E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.95E-07	2.68E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.79E-05					5.53E-02
		Exposure Point Total									6.23E-05					9.90E-01
	Exposure Medium Total										6.23E-05					9.90E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	2.35E-12	mg/m3	8.40E+01	1/(mg/m3)	1.05E-09	2.74E-11	mg/m3	1.00E-04	mg/m3	2.74E-07
			Exp. Route Total								1.05E-09					2.74E-07
		Exposure Point Total									1.05E-09					2.74E-07
	Exposure Medium Total										1.05E-09					2.74E-07
Medium Total											6.23E-05					9.90E-01
										Total of Receptor Risks Across All Media	6.23E-05				Total of Receptor Hazards Across All Media	9.90E-01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.10.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.70E-03	mg/kg-day	--	1/(mg/kg-day)	--	4.97E-03	mg/kg-day	1.00E+00	mg/kg-day	4.97E-03
				Antimony	2.88E+00	mg/kg	4.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.17E-06	mg/kg-day	4.00E-04	mg/kg-day	2.93E-03
				Arsenic	5.60E+00	mg/kg	4.69E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	7.03E-07	1.37E-06	mg/kg-day	3.00E-04	mg/kg-day	4.56E-03
				Cadmium	1.60E+00	mg/kg	2.23E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.51E-07	mg/kg-day	1.00E-03	mg/kg-day	6.51E-04
				Chromium	2.59E+00	mg/kg	3.61E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	3.31E-07	1.05E-06	mg/kg-day	3.00E-03	mg/kg-day	3.51E-04
				Cobalt	6.35E+00	mg/kg	8.86E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.58E-06	mg/kg-day	3.00E-04	mg/kg-day	8.62E-03
				Copper	4.41E+01	mg/kg	6.15E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.80E-05	mg/kg-day	4.00E-02	mg/kg-day	4.49E-04
				Iron	1.78E+04	mg/kg	2.48E-03	mg/kg-day	--	1/(mg/kg-day)	--	7.25E-03	mg/kg-day	7.00E-01	mg/kg-day	1.04E-02
				Manganese	4.31E+02	mg/kg	6.01E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.75E-04	mg/kg-day	2.40E-02	mg/kg-day	7.31E-03
				Thallium	1.92E+00	mg/kg	2.68E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.82E-07	mg/kg-day	1.00E-05	mg/kg-day	7.82E-02
				Vanadium	2.53E+01	mg/kg	3.53E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-05	mg/kg-day	5.00E-03	mg/kg-day	2.06E-03
				Dieldrin	2.84E+01	ug/kg	3.96E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	6.34E-08	1.16E-08	mg/kg-day	5.00E-05	mg/kg-day	2.31E-04
				Benz(a)anthracene	2.04E+03	ug/kg	2.85E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.81E-07	8.30E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.71E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.62E-06	7.90E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.78E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.72E-07	8.10E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	3.18E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.26E-08	9.28E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	3.07E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.11E-09	8.95E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.06E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.41E-06	3.08E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.71E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.62E-07	7.90E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								7.30E-06					1.21E-01
			Dermal	Aluminum	1.22E+04	mg/kg	6.79E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.98E-04	mg/kg-day	1.00E+00	mg/kg-day	1.98E-04
				Antimony	2.88E+00	mg/kg	1.60E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.68E-08	mg/kg-day	6.00E-05	mg/kg-day	7.80E-04
				Arsenic	5.60E+00	mg/kg	9.35E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.40E-07	2.73E-07	mg/kg-day	3.00E-04	mg/kg-day	9.10E-04
				Cadmium	1.60E+00	mg/kg	8.91E-10	mg/kg-day	--	1/(mg/kg-day)	--	2.60E-09	mg/kg-day	2.50E-05	mg/kg-day	1.04E-04
				Chromium	2.59E+00	mg/kg	1.44E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	5.29E-07	4.21E-08	mg/kg-day	7.50E-05	mg/kg-day	5.61E-04
				Cobalt	6.35E+00	mg/kg	3.54E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-07	mg/kg-day	3.00E-04	mg/kg-day	3.44E-04
				Copper	4.41E+01	mg/kg	2.46E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.16E-07	mg/kg-day	4.00E-02	mg/kg-day	1.79E-05
				Iron	1.78E+04	mg/kg	9.91E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.89E-04	mg/kg-day	7.00E-01	mg/kg-day	4.13E-04
				Manganese	4.31E+02	mg/kg	2.40E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.00E-06	mg/kg-day	9.60E-04	mg/kg-day	7.29E-03
				Thallium	1.92E+00	mg/kg	1.07E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.12E-08	mg/kg-day	1.00E-05	mg/kg-day	3.12E-03
				Vanadium	2.53E+01	mg/kg	1.41E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.11E-07	mg/kg-day	1.30E-04	mg/kg-day	3.16E-03
				Dieldrin	2.84E+01	ug/kg	1.58E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.53E-08	4.61E-09	mg/kg-day	5.00E-05	mg/kg-day	9.22E-05
				Benz(a)anthracene	2.04E+03	ug/kg	1.48E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.98E-07	4.31E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	1.40E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.88E-06	4.10E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	1.44E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.93E-07	4.20E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.65E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.21E-08	4.81E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.59E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.13E-09	4.64E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	5.47E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.32E-07	1.60E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	1.40E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.88E-07	4.10E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								3.91E-06					1.70E-02
		Exposure Point Total									1.12E-05					1.38E-01
	Exposure Medium Total										1.12E-05					1.38E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	9.38E-12	mg/m3	8.40E+01	1/(mg/m3)	1.44E-09	2.74E-11	mg/m3	1.00E-04	mg/m3	2.74E-07
			Exp. Route Total								1.44E-09					2.74E-07
		Exposure Point Total									1.44E-09					2.74E-07
	Exposure Medium Total										1.44E-09					2.74E-07
Medium Total											1.12E-05					1.38E-01
											Total of Receptor Risks Across All Media					1.38E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.10a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.70E-03	mg/kg-day	--	1/(mg/kg-day)	--	4.97E-03	mg/kg-day	1.00E+00	mg/kg-day	4.97E-03
				Antimony	2.88E+00	mg/kg	4.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.17E-06	mg/kg-day	4.00E-04	mg/kg-day	2.93E-03
				Cadmium	1.60E+00	mg/kg	2.23E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.51E-07	mg/kg-day	1.00E-03	mg/kg-day	6.51E-04
				Chromium	2.59E+00	mg/kg	3.61E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	3.31E-07	1.05E-06	mg/kg-day	3.00E-03	mg/kg-day	3.51E-04
				Copper	4.41E+01	mg/kg	6.15E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.80E-05	mg/kg-day	4.00E-02	mg/kg-day	4.49E-04
				Iron	1.78E+04	mg/kg	2.48E-03	mg/kg-day	--	1/(mg/kg-day)	--	7.25E-03	mg/kg-day	7.00E-01	mg/kg-day	1.04E-02
				Thallium	1.92E+00	mg/kg	2.68E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.82E-07	mg/kg-day	1.00E-05	mg/kg-day	7.82E-02
				Vanadium	2.53E+01	mg/kg	3.53E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.03E-05	mg/kg-day	5.00E-03	mg/kg-day	2.06E-03
				Dieldrin	2.84E+01	ug/kg	3.96E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	6.34E-08	1.16E-08	mg/kg-day	5.00E-05	mg/kg-day	2.31E-04
				Benz(a)anthracene	2.04E+03	ug/kg	2.85E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.81E-07	8.30E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.71E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.62E-06	7.90E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.78E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.72E-07	8.10E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	3.18E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.26E-08	9.28E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	3.07E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.11E-09	8.95E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.06E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.41E-06	3.08E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.71E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.62E-07	7.90E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								6.59E-06					1.00E-01
			Dermal	Aluminum	1.22E+04	mg/kg	6.79E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.98E-04	mg/kg-day	1.00E+00	mg/kg-day	1.98E-04
				Antimony	2.88E+00	mg/kg	1.60E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.68E-08	mg/kg-day	6.00E-05	mg/kg-day	7.80E-04
				Cadmium	1.60E+00	mg/kg	8.91E-10	mg/kg-day	--	1/(mg/kg-day)	--	2.60E-09	mg/kg-day	2.50E-05	mg/kg-day	1.04E-04
				Chromium	2.59E+00	mg/kg	1.44E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	5.29E-07	4.21E-08	mg/kg-day	7.50E-05	mg/kg-day	5.61E-04
				Copper	4.41E+01	mg/kg	2.46E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.16E-07	mg/kg-day	4.00E-02	mg/kg-day	1.79E-05
				Iron	1.78E+04	mg/kg	9.91E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.89E-04	mg/kg-day	7.00E-01	mg/kg-day	4.13E-04
				Thallium	1.92E+00	mg/kg	1.07E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.12E-08	mg/kg-day	1.00E-05	mg/kg-day	3.12E-03
				Vanadium	2.53E+01	mg/kg	1.41E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.11E-07	mg/kg-day	1.30E-04	mg/kg-day	3.16E-03
				Dieldrin	2.84E+01	ug/kg	1.58E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.53E-08	4.61E-09	mg/kg-day	5.00E-05	mg/kg-day	9.22E-05
				Benz(a)anthracene	2.04E+03	ug/kg	1.48E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.98E-07	4.31E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	1.40E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.88E-06	4.10E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	1.44E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.93E-07	4.20E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.65E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.21E-08	4.81E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.59E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.13E-09	4.64E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	5.47E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.32E-07	1.60E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	1.40E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.88E-07	4.10E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								3.77E-06					8.44E-03
		Exposure Point Total									1.04E-05					1.09E-01
	Exposure Medium Total										1.04E-05					1.09E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	9.38E-12	mg/m3	8.40E+01	1/(mg/m3)	1.44E-09	2.74E-11	mg/m3	1.00E-04	mg/m3	2.74E-07
			Exp. Route Total								1.44E-09					2.74E-07
		Exposure Point Total									1.44E-09					2.74E-07
	Exposure Medium Total										1.44E-09					2.74E-07
Medium Total											1.04E-05					1.09E-01
											Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media
											1.04E-05					1.09E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.11.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.70E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	4.02E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	5.60E+00	mg/kg	1.56E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.34E-06					N/A
				Cadmium	1.60E+00	mg/kg	2.23E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	1.20E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.58E-06					N/A
				Cobalt	6.35E+00	mg/kg	8.86E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	4.41E+01	mg/kg	6.15E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	2.48E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	4.31E+02	mg/kg	6.01E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	2.68E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	3.53E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	1.32E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.11E-07					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	9.49E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.97E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	9.02E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.82E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	9.26E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.89E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.06E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.32E-07					N/A
				Chrysene	2.20E+03	ug/kg	1.02E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.20E-08					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.52E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.10E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	9.02E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.82E-06					N/A
			Exp. Route Total								5.34E-05					--
			Dermal	Aluminum	1.22E+04	mg/kg	6.79E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.60E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	5.60E+00	mg/kg	2.47E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.70E-07					N/A
				Cadmium	1.60E+00	mg/kg	8.91E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	3.80E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.05E-06					N/A
				Cobalt	6.35E+00	mg/kg	3.54E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	4.41E+01	mg/kg	2.46E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	9.91E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	4.31E+02	mg/kg	2.40E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	1.07E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.41E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	4.17E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	6.67E-08					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	3.89E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.14E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	3.70E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.08E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.80E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.11E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	4.35E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.27E-07					N/A
				Chrysene	2.20E+03	ug/kg	4.20E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.23E-08					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.44E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.22E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.70E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.08E-06					N/A
			Exp. Route Total								2.20E-05					--
		Exposure Point Total									7.54E-05					--
	Exposure Medium Total										7.54E-05					--
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.17E-11	mg/m3	8.40E+01	1/(mg/m3)	2.50E-09					N/A
			Exp. Route Total								2.50E-09					--
		Exposure Point Total									2.50E-09					--
	Exposure Medium Total										2.50E-09					--
Medium Total											7.54E-05					--
										Total of Receptor Risks Across All Media	7.54E-05			Total of Receptor Hazards Across All Media		--

TABLE 7.11a.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL

REASONABLE MAXIMUM EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.70E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	4.02E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cadmium	1.60E+00	mg/kg	2.23E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	1.20E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.58E-06					N/A
				Copper	4.41E+01	mg/kg	6.15E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	2.48E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	2.68E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	3.53E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	1.32E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.11E-07					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	9.49E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.97E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	9.02E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.82E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	9.26E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.89E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.06E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.32E-07					N/A
				Chrysene	2.20E+03	ug/kg	1.02E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.20E-08					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.52E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.10E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	9.02E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.82E-06					N/A
			Exp. Route Total								5.11E-05					--
			Dermal	Aluminum	1.22E+04	mg/kg	6.79E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.60E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cadmium	1.60E+00	mg/kg	8.91E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	3.80E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.05E-06					N/A
				Copper	4.41E+01	mg/kg	2.46E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	9.91E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	1.07E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.41E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	4.17E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	6.67E-08					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	3.89E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.14E-06					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	3.70E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.08E-05					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.80E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.11E-06					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	4.35E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.27E-07					N/A
				Chrysene	2.20E+03	ug/kg	4.20E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.23E-08					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.44E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.22E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.70E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.08E-06					N/A
			Exp. Route Total								2.16E-05					--
		Exposure Point Total									7.27E-05					--
	Exposure Medium Total										7.27E-05					--
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.17E-11	mg/m3	8.40E+01	1/(mg/m3)	2.50E-09					N/A
			Exp. Route Total								2.50E-09					--
		Exposure Point Total									2.50E-09					--
	Exposure Medium Total										2.50E-09					--
Medium Total											7.27E-05					--
										Total of Receptor Risks Across All Media	7.27E-05				Total of Receptor Hazards Across All Media	--

TABLE 7.12.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	8.50E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.11E-04	9.92E-09	mg/kg-day	7.00E-10	mg/kg-day	1.42E+01
				Aluminum	1.28E+04	mg/kg	1.40E-02	mg/kg-day	--	1/(mg/kg-day)	--	1.64E-01	mg/kg-day	1.00E+00	mg/kg-day	1.64E-01
				Antimony	8.46E+00	mg/kg	9.27E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.08E-04	mg/kg-day	4.00E-04	mg/kg-day	2.70E-01
				Arsenic	9.64E+00	mg/kg	6.34E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	9.51E-06	7.40E-05	mg/kg-day	3.00E-04	mg/kg-day	2.47E-01
				Cadmium	1.06E+01	mg/kg	1.16E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.36E-04	mg/kg-day	1.00E-03	mg/kg-day	1.36E-01
				Chromium	3.35E+00	mg/kg	3.67E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	9.79E-06	4.28E-05	mg/kg-day	3.00E-03	mg/kg-day	1.43E-02
				Cobalt	7.20E+00	mg/kg	7.89E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.21E-05	mg/kg-day	3.00E-04	mg/kg-day	3.07E-01
				Copper	1.19E+02	mg/kg	1.30E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.52E-03	mg/kg-day	4.00E-02	mg/kg-day	3.80E-02
				Iron	2.20E+04	mg/kg	2.41E-02	mg/kg-day	--	1/(mg/kg-day)	--	2.81E-01	mg/kg-day	7.00E-01	mg/kg-day	4.02E-01
				Manganese	5.75E+02	mg/kg	6.30E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.35E-03	mg/kg-day	2.40E-02	mg/kg-day	3.06E-01
				Thallium	3.19E+00	mg/kg	3.50E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.08E-05	mg/kg-day	1.00E-05	mg/kg-day	4.08E+00
				Vanadium	2.58E+01	mg/kg	2.83E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.30E-04	mg/kg-day	5.00E-03	mg/kg-day	6.60E-02
				Zinc	4.25E+02	mg/kg	4.66E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.43E-03	mg/kg-day	3.00E-01	mg/kg-day	1.81E-02
				Aroclor-1260	3.50E+02	ug/kg	3.84E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	7.67E-07	4.47E-06	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	2.10E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	3.37E-07	2.45E-07	mg/kg-day	5.00E-05	mg/kg-day	4.91E-03
				2-Methylnaphthalene	1.26E+03	ug/kg	1.38E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.61E-05	mg/kg-day	4.00E-03	mg/kg-day	4.03E-03
				Benz(a)anthracene	1.85E+03	ug/kg	2.03E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.89E-06	2.37E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.81E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.04E-05	2.11E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.85E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.21E-06	2.16E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	2.07E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	8.06E-07	2.42E-05	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	2.20E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	8.58E-08	2.57E-05	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	6.31E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.46E-05	7.36E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.63E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.36E-06	1.91E-05	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	4.50E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.25E-06	mg/kg-day	2.00E-02	mg/kg-day	2.63E-04
			Exp. Route Total								2.48E-04					2.02E+01
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	7.14E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	9.29E-06	8.33E-10	mg/kg-day	7.00E-10	mg/kg-day	1.19E+00
				Aluminum	1.28E+04	mg/kg	3.93E-04	mg/kg-day	--	1/(mg/kg-day)	--	4.58E-03	mg/kg-day	1.00E+00	mg/kg-day	4.58E-03
				Antimony	8.46E+00	mg/kg	2.60E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.03E-06	mg/kg-day	6.00E-05	mg/kg-day	5.05E-02
				Arsenic	9.64E+00	mg/kg	8.87E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.33E-06	1.04E-05	mg/kg-day	3.00E-04	mg/kg-day	3.45E-02
				Cadmium	1.06E+01	mg/kg	3.25E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.79E-07	mg/kg-day	2.50E-05	mg/kg-day	1.52E-02
				Chromium	3.35E+00	mg/kg	1.03E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.10E-05	1.20E-06	mg/kg-day	7.50E-05	mg/kg-day	1.60E-02
				Cobalt	7.20E+00	mg/kg	2.21E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.58E-06	mg/kg-day	3.00E-04	mg/kg-day	8.59E-03
				Copper	1.19E+02	mg/kg	3.65E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.26E-05	mg/kg-day	4.00E-02	mg/kg-day	1.07E-03
				Iron	2.20E+04	mg/kg	6.75E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.88E-03	mg/kg-day	7.00E-01	mg/kg-day	1.13E-02
				Manganese	5.75E+02	mg/kg	1.76E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.06E-04	mg/kg-day	9.60E-04	mg/kg-day	2.14E-01
				Thallium	3.19E+00	mg/kg	9.79E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.14E-06	mg/kg-day	1.00E-05	mg/kg-day	1.14E-01
				Vanadium	2.58E+01	mg/kg	7.92E-07	mg/kg-day	--	1/(mg/kg-day)	--	9.24E-06	mg/kg-day	1.30E-04	mg/kg-day	7.10E-02
				Zinc	4.25E+02	mg/kg	1.30E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.52E-04	mg/kg-day	3.00E-01	mg/kg-day	5.07E-04
				Aroclor-1260	3.50E+02	ug/kg	1.50E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	3.01E-07	1.75E-06	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	5.89E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	9.43E-08	6.87E-08	mg/kg-day	5.00E-05	mg/kg-day	1.37E-03
				2-Methylnaphthalene	1.26E+03	ug/kg	5.03E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.86E-06	mg/kg-day	4.00E-03	mg/kg-day	1.47E-03
				Benz(a)anthracene	1.85E+03	ug/kg	7.38E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.87E-06	8.61E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	6.58E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.56E-05	7.68E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	6.74E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.62E-06	7.87E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	7.54E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.94E-07	8.80E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	8.02E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.12E-08	9.35E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.30E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.95E-06	2.68E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	5.94E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.31E-06	6.93E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.64E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.91E-06	mg/kg-day	2.00E-02	mg/kg-day	9.56E-05
			Exp. Route Total								6.47E-05					1.74E+00
		Exposure Point Total									3.13E-04					2.20E+01
	Exposure Medium Total										3.13E-04					2.20E+01
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	4.13E-07	mg/m3	3.40E-02	1/(mg/m3)	1.40E-08	4.82E-06	mg/m3	3.00E-03	mg/m3	1.61E-03
			Exp. Route Total								1.40E-08					1.61E-03
		Exposure Point Total									1.40E-08					1.61E-03
	Exposure Medium Total										1.40E-08					1.61E-03
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	9.46E-15	mg/m3	3.80E+04	1/(mg/m3)	3.59E-10	1.10E-13	mg/m3	4.00E-08	mg/m3	2.76E-06
				Chromium	3.35E+00	mg/kg	4.08E-11	mg/m3	8.40E+01	1/(mg/m3)	1.83E-08	4.76E-10	mg/m3	1.00E-04	mg/m3	4.76E-06
			Exp. Route Total								1.87E-08					7.52E-06
		Exposure Point Total									1.87E-08					7.52E-06
	Exposure Medium Total										1.87E-08					7.52E-06
Medium Total											3.13E-04					2.20E+01
										Total of Receptor Risks Across All Media	3.13E-04			Total of Receptor Hazards Across All Media		2.20E+01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.64E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.74E-05	1.06E-09	mg/kg-day	7.00E-10	mg/kg-day	1.52E+00
				Aluminum	1.28E+04	mg/kg	6.01E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.75E-02	mg/kg-day	1.00E+00	mg/kg-day	1.75E-02
				Antimony	8.46E+00	mg/kg	3.97E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.16E-05	mg/kg-day	4.00E-04	mg/kg-day	2.90E-02
				Arsenic	9.64E+00	mg/kg	2.72E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.07E-06	7.92E-06	mg/kg-day	3.00E-04	mg/kg-day	2.64E-02
				Cadmium	1.06E+01	mg/kg	4.98E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.45E-05	mg/kg-day	1.00E-03	mg/kg-day	1.45E-02
				Chromium	3.35E+00	mg/kg	1.57E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.44E-06	4.59E-06	mg/kg-day	3.00E-03	mg/kg-day	1.53E-03
				Cobalt	7.20E+00	mg/kg	3.38E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.86E-06	mg/kg-day	3.00E-04	mg/kg-day	3.29E-02
				Copper	1.19E+02	mg/kg	5.59E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.63E-04	mg/kg-day	4.00E-02	mg/kg-day	4.08E-03
				Iron	2.20E+04	mg/kg	1.03E-02	mg/kg-day	--	1/(mg/kg-day)	--	3.01E-02	mg/kg-day	7.00E-01	mg/kg-day	4.31E-02
				Manganese	5.75E+02	mg/kg	2.70E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.88E-04	mg/kg-day	2.40E-02	mg/kg-day	3.28E-02
				Thallium	3.19E+00	mg/kg	1.50E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.37E-06	mg/kg-day	1.00E-05	mg/kg-day	4.37E-01
				Vanadium	2.58E+01	mg/kg	1.21E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.53E-05	mg/kg-day	5.00E-03	mg/kg-day	7.07E-03
				Zinc	4.25E+02	mg/kg	2.00E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.82E-04	mg/kg-day	3.00E-01	mg/kg-day	1.94E-03
				Aroclor-1260	3.50E+02	ug/kg	1.64E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	3.29E-07	4.79E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	9.02E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.44E-07	2.63E-08	mg/kg-day	5.00E-05	mg/kg-day	5.26E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	5.92E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.73E-06	mg/kg-day	4.00E-03	mg/kg-day	4.32E-04
				Benz(a)anthracene	1.85E+03	ug/kg	8.69E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.16E-06	2.53E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	7.75E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.04E-05	2.26E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	7.94E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.06E-06	2.32E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	8.88E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.19E-07	2.59E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	9.44E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.26E-08	2.75E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.71E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.62E-06	7.89E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	7.00E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.37E-07	2.04E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.93E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.63E-07	mg/kg-day	2.00E-02	mg/kg-day	2.82E-05
			Exp. Route Total								7.07E-05					2.17E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	4.36E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	5.67E-06	1.27E-10	mg/kg-day	7.00E-10	mg/kg-day	1.82E-01
				Aluminum	1.28E+04	mg/kg	2.40E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.00E-04	mg/kg-day	1.00E+00	mg/kg-day	7.00E-04
				Antimony	8.46E+00	mg/kg	1.59E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.62E-07	mg/kg-day	6.00E-05	mg/kg-day	7.71E-03
				Arsenic	9.64E+00	mg/kg	5.42E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	8.13E-07	1.58E-06	mg/kg-day	3.00E-04	mg/kg-day	5.27E-03
				Cadmium	1.06E+01	mg/kg	1.99E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.79E-08	mg/kg-day	2.50E-05	mg/kg-day	2.32E-03
				Chromium	3.35E+00	mg/kg	6.28E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.30E-06	1.83E-07	mg/kg-day	7.50E-05	mg/kg-day	2.44E-03
				Cobalt	7.20E+00	mg/kg	1.35E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.94E-07	mg/kg-day	3.00E-04	mg/kg-day	1.31E-03
				Copper	1.19E+02	mg/kg	2.23E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.50E-06	mg/kg-day	4.00E-02	mg/kg-day	1.63E-04
				Iron	2.20E+04	mg/kg	4.12E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.20E-03	mg/kg-day	7.00E-01	mg/kg-day	1.72E-03
				Manganese	5.75E+02	mg/kg	1.08E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.14E-05	mg/kg-day	9.60E-04	mg/kg-day	3.27E-02
				Thallium	3.19E+00	mg/kg	5.98E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.74E-07	mg/kg-day	1.00E-05	mg/kg-day	1.74E-02
				Vanadium	2.58E+01	mg/kg	4.83E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.41E-06	mg/kg-day	1.30E-04	mg/kg-day	1.08E-02
				Zinc	4.25E+02	mg/kg	7.96E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.32E-05	mg/kg-day	3.00E-01	mg/kg-day	7.74E-05
				Aroclor-1260	3.50E+02	ug/kg	9.18E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.84E-07	2.68E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	3.60E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	5.76E-08	1.05E-08	mg/kg-day	5.00E-05	mg/kg-day	2.10E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	3.07E-07	mg/kg-day	--	1/(mg/kg-day)	--	8.95E-07	mg/kg-day	4.00E-03	mg/kg-day	2.24E-04
				Benz(a)anthracene	1.85E+03	ug/kg	4.51E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.03E-07	1.31E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	4.02E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.38E-06	1.17E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	4.12E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.51E-07	1.20E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	4.60E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.16E-08	1.34E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	4.90E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	6.55E-09	1.43E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.40E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.88E-06	4.09E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	3.63E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.86E-07	1.06E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.00E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.92E-07	mg/kg-day	2.00E-02	mg/kg-day	1.46E-05
			Exp. Route Total								1.80E-05					2.65E-01
		Exposure Point Total									8.86E-05					2.43E+00
	Exposure Medium Total										8.86E-05					2.43E+00
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.65E-06	mg/m3	3.40E-02	1/(mg/m3)	5.61E-08	4.82E-06	mg/m3	3.00E-03	mg/m3	1.61E-03
			Exp. Route Total								5.61E-08					1.61E-03
		Exposure Point Total									5.61E-08					1.61E-03
	Exposure Medium Total										5.61E-08					1.61E-03
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.78E-14	mg/m3	3.80E+04	1/(mg/m3)	1.44E-09	1.10E-13	mg/m3	4.00E-08	mg/m3	2.76E-06
				Chromium	3.35E+00	mg/kg	1.63E-10	mg/m3	8.40E+01	1/(mg/m3)	2.52E-08	4.76E-10	mg/m3	1.00E-04	mg/m3	4.76E-06
			Exp. Route Total								2.66E-08					7.52E-06
		Exposure Point Total									2.66E-08					7.52E-06
	Exposure Medium Total										2.66E-08					7.52E-06
Medium Total											8.87E-05					2.43E+00
										Total of Receptor Risks Across All Media	8.87E-05			Total of Receptor Hazards Across All Media		2.43E+00

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.14.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.21E-09	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.58E-04					N/A
				Aluminum	1.28E+04	mg/kg	6.01E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	3.97E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	9.06E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.36E-05					N/A
				Cadmium	1.06E+01	mg/kg	4.98E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	5.24E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.12E-05					N/A
				Cobalt	7.20E+00	mg/kg	3.38E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	5.59E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	1.03E-02	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	2.70E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	1.50E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	1.21E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	2.00E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	5.48E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.10E-06					N/A
				Dieldrin	1.92E+01	ug/kg	3.01E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.81E-07					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	5.92E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	2.90E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.06E-06					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	2.58E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.08E-05					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	2.65E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.27E-06					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	2.96E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	9.25E-07					N/A
				Chrysene	2.01E+03	ug/kg	3.15E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.84E-08					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	9.02E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.82E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	2.33E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.29E-06					N/A
				Naphthalene	4.11E+02	ug/kg	1.93E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								3.19E-04					--
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.15E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.50E-05					N/A
				Aluminum	1.28E+04	mg/kg	2.40E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	1.59E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	1.43E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.14E-06					N/A
				Cadmium	1.06E+01	mg/kg	1.99E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	1.66E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.33E-05					N/A
				Cobalt	7.20E+00	mg/kg	1.35E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	2.23E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	4.12E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	1.08E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	5.98E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	4.83E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	7.96E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	2.42E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	4.84E-07					N/A
				Dieldrin	1.92E+01	ug/kg	9.49E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.52E-07					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	3.07E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	1.19E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.48E-06					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	1.06E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.10E-05					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.09E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.18E-06					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.21E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.55E-07					N/A
				Chrysene	2.01E+03	ug/kg	1.29E-06	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.78E-08					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	3.70E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.08E-05					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	9.57E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.80E-06					N/A
				Naphthalene	4.11E+02	ug/kg	1.00E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								8.27E-05					--
		Exposure Point Total									4.02E-04					--
	Exposure Medium Total										4.02E-04					--
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	2.06E-06	mg/m3	3.40E-02	1/(mg/m3)	7.02E-08					N/A
			Exp. Route Total								7.02E-08					--
		Exposure Point Total									7.02E-08					--
	Exposure Medium Total										7.02E-08					--
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	4.73E-14	mg/m3	3.80E+04	1/(mg/m3)	1.80E-09					N/A
				Chromium	3.35E+00	mg/kg	2.04E-10	mg/m3	8.40E+01	1/(mg/m3)	4.35E-08					N/A
			Exp. Route Total								4.53E-08					--
		Exposure Point Total									4.53E-08					--
	Exposure Medium Total										4.53E-08					--
Medium Total											4.02E-04					--
										Total of Receptor Risks Across All Media	4.02E-04			Total of Receptor Hazards Across All Media		--

TABLE 7.15.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INDUSTRIAL WORKER EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Industrial
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.71E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.53E-05	7.59E-10	mg/kg-day	7.00E-10	mg/kg-day	1.08E+00
				Aluminum	1.28E+04	mg/kg	4.47E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.25E-02	mg/kg-day	1.00E+00	mg/kg-day	1.25E-02
				Antimony	8.46E+00	mg/kg	2.96E-06	mg/kg-day	--	1/(mg/kg-day)	--	8.28E-06	mg/kg-day	4.00E-04	mg/kg-day	2.07E-02
				Arsenic	9.64E+00	mg/kg	2.02E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.03E-06	5.66E-06	mg/kg-day	3.00E-04	mg/kg-day	1.89E-02
				Cadmium	1.06E+01	mg/kg	3.70E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.04E-05	mg/kg-day	1.00E-03	mg/kg-day	1.04E-02
				Chromium	3.35E+00	mg/kg	1.17E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.85E-07	3.28E-06	mg/kg-day	3.00E-03	mg/kg-day	1.09E-03
				Cobalt	7.20E+00	mg/kg	2.52E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.05E-06	mg/kg-day	3.00E-04	mg/kg-day	2.35E-02
				Copper	1.19E+02	mg/kg	4.16E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.16E-04	mg/kg-day	4.00E-02	mg/kg-day	2.91E-03
				Iron	2.20E+04	mg/kg	7.69E-03	mg/kg-day	--	1/(mg/kg-day)	--	2.15E-02	mg/kg-day	7.00E-01	mg/kg-day	3.08E-02
				Manganese	5.75E+02	mg/kg	2.01E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.63E-04	mg/kg-day	2.40E-02	mg/kg-day	2.34E-02
				Thallium	3.19E+00	mg/kg	1.11E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.12E-06	mg/kg-day	1.00E-05	mg/kg-day	3.12E-01
				Vanadium	2.58E+01	mg/kg	9.02E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.52E-05	mg/kg-day	5.00E-03	mg/kg-day	5.05E-03
				Zinc	4.25E+02	mg/kg	1.49E-04	mg/kg-day	--	1/(mg/kg-day)	--	4.16E-04	mg/kg-day	3.00E-01	mg/kg-day	1.39E-03
				Aroclor-1260	3.50E+02	ug/kg	1.22E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	2.45E-07	3.42E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	6.71E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.07E-07	1.88E-08	mg/kg-day	5.00E-05	mg/kg-day	3.76E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	4.40E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.23E-06	mg/kg-day	4.00E-03	mg/kg-day	3.08E-04
				Benz(a)anthracene	1.85E+03	ug/kg	6.46E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.72E-07	1.81E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	5.77E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.21E-06	1.61E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	5.91E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.31E-07	1.65E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	6.60E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.82E-08	1.85E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	7.02E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.13E-09	1.97E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.01E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.47E-06	5.64E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	5.21E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.80E-07	1.46E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.44E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.02E-07	mg/kg-day	2.00E-02	mg/kg-day	2.01E-05
			Exp. Route Total								4.62E-05					1.55E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	5.37E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	6.98E-06	1.50E-10	mg/kg-day	7.00E-10	mg/kg-day	2.15E-01
				Aluminum	1.28E+04	mg/kg	2.95E-04	mg/kg-day	--	1/(mg/kg-day)	--	8.27E-04	mg/kg-day	1.00E+00	mg/kg-day	8.27E-04
				Antimony	8.46E+00	mg/kg	1.95E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.46E-07	mg/kg-day	6.00E-05	mg/kg-day	9.11E-03
				Arsenic	9.64E+00	mg/kg	6.67E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.00E-06	1.87E-06	mg/kg-day	3.00E-04	mg/kg-day	6.23E-03
				Cadmium	1.06E+01	mg/kg	2.44E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.85E-08	mg/kg-day	2.50E-05	mg/kg-day	2.74E-03
				Chromium	3.35E+00	mg/kg	7.73E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.55E-06	2.16E-07	mg/kg-day	7.50E-05	mg/kg-day	2.88E-03
				Cobalt	7.20E+00	mg/kg	1.66E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.65E-07	mg/kg-day	3.00E-04	mg/kg-day	1.55E-03
				Copper	1.19E+02	mg/kg	2.74E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.68E-06	mg/kg-day	4.00E-02	mg/kg-day	1.92E-04
				Iron	2.20E+04	mg/kg	5.07E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.42E-03	mg/kg-day	7.00E-01	mg/kg-day	2.03E-03
				Manganese	5.75E+02	mg/kg	1.33E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.71E-05	mg/kg-day	9.60E-04	mg/kg-day	3.87E-02
				Thallium	3.19E+00	mg/kg	7.36E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.06E-07	mg/kg-day	1.00E-05	mg/kg-day	2.06E-02
				Vanadium	2.58E+01	mg/kg	5.95E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.67E-06	mg/kg-day	1.30E-04	mg/kg-day	1.28E-02
				Zinc	4.25E+02	mg/kg	9.80E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.74E-05	mg/kg-day	3.00E-01	mg/kg-day	9.15E-05
				Aroclor-1260	3.50E+02	ug/kg	1.13E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	2.26E-07	3.16E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	4.43E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.09E-08	1.24E-08	mg/kg-day	5.00E-05	mg/kg-day	2.48E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	3.78E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.06E-06	mg/kg-day	4.00E-03	mg/kg-day	2.64E-04
				Benz(a)anthracene	1.85E+03	ug/kg	5.55E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.05E-07	1.55E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	4.95E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.61E-06	1.39E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	5.07E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.70E-07	1.42E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	5.67E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.14E-08	1.59E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	6.03E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	4.40E-09	1.69E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.73E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.26E-06	4.84E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	4.47E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.26E-07	1.25E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.23E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.45E-07	mg/kg-day	2.00E-02	mg/kg-day	1.73E-05
			Exp. Route Total								1.58E-05					3.13E-01
		Exposure Point Total									6.21E-05					1.86E+00
	Exposure Medium Total										6.21E-05					1.86E+00
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	8.19E-07	mg/m3	3.40E-02	1/(mg/m3)	2.79E-08	2.29E-06	mg/m3	3.00E-03	mg/m3	7.65E-04
			Exp. Route Total								2.79E-08					7.65E-04
		Exposure Point Total									2.79E-08					7.65E-04
	Exposure Medium Total										2.79E-08					7.65E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.88E-14	mg/m3	3.80E+04	1/(mg/m3)	7.13E-10	5.26E-14	mg/m3	4.00E-08	mg/m3	1.31E-06
				Chromium	3.35E+00	mg/kg	8.10E-11	mg/m3	8.40E+01	1/(mg/m3)	6.81E-09	2.27E-10	mg/m3	1.00E-04	mg/m3	2.27E-06
			Exp. Route Total								7.52E-09					3.58E-06
		Exposure Point Total									7.52E-09					3.58E-06
	Exposure Medium Total										7.52E-09					3.58E-06
Medium Total											6.21E-05					1.86E+00
										Total of Receptor Risks Across All Media	6.21E-05			Total of Receptor Hazards Across All Media		1.86E+00

TABLE 7.16.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURES
NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.86E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	2.42E-06	1.30E-09	mg/kg-day	7.00E-10	mg/kg-day	1.86E+00
				Aluminum	1.28E+04	mg/kg	3.07E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.15E-02	mg/kg-day	1.00E+00	mg/kg-day	2.15E-02
				Antimony	8.46E+00	mg/kg	2.03E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.42E-05	mg/kg-day	4.00E-04	mg/kg-day	3.55E-02
				Arsenic	9.64E+00	mg/kg	1.39E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.08E-07	9.71E-06	mg/kg-day	3.00E-04	mg/kg-day	3.24E-02
				Cadmium	1.06E+01	mg/kg	2.54E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.78E-05	mg/kg-day	1.00E-03	mg/kg-day	1.78E-02
				Chromium	3.35E+00	mg/kg	8.04E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.02E-08	5.62E-06	mg/kg-day	3.00E-03	mg/kg-day	1.87E-03
				Cobalt	7.20E+00	mg/kg	1.73E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.21E-05	mg/kg-day	3.00E-04	mg/kg-day	4.03E-02
				Copper	1.19E+02	mg/kg	2.85E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.00E-04	mg/kg-day	4.00E-02	mg/kg-day	5.00E-03
				Iron	2.20E+04	mg/kg	5.28E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.69E-02	mg/kg-day	7.00E-01	mg/kg-day	5.28E-02
				Manganese	5.75E+02	mg/kg	1.38E-05	mg/kg-day	--	1/(mg/kg-day)	--	9.65E-04	mg/kg-day	2.40E-02	mg/kg-day	4.02E-02
				Thallium	3.19E+00	mg/kg	7.65E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.36E-06	mg/kg-day	1.00E-05	mg/kg-day	5.36E-01
				Vanadium	2.58E+01	mg/kg	6.19E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.33E-05	mg/kg-day	5.00E-03	mg/kg-day	8.66E-03
				Zinc	4.25E+02	mg/kg	1.02E-05	mg/kg-day	--	1/(mg/kg-day)	--	7.14E-04	mg/kg-day	3.00E-01	mg/kg-day	2.38E-03
				Aroclor-1260	3.50E+02	ug/kg	8.40E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.68E-08	5.88E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	4.61E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.37E-09	3.22E-08	mg/kg-day	5.00E-05	mg/kg-day	6.45E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	3.02E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.12E-06	mg/kg-day	4.00E-03	mg/kg-day	5.29E-04
				Benz(a)anthracene	1.85E+03	ug/kg	4.44E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.24E-08	3.11E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	3.96E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.89E-07	2.77E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	4.05E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.96E-08	2.84E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	4.53E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.31E-09	3.17E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	4.82E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.52E-10	3.37E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.38E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.01E-07	9.67E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	3.57E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.61E-08	2.50E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	9.86E-09	mg/kg-day	--	1/(mg/kg-day)	--	6.90E-07	mg/kg-day	2.00E-02	mg/kg-day	3.45E-05
			Exp. Route Total								3.17E-06					2.66E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.12E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.45E-07	7.82E-11	mg/kg-day	7.00E-10	mg/kg-day	1.12E-01
				Aluminum	1.28E+04	mg/kg	6.14E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.30E-04	mg/kg-day	1.00E+00	mg/kg-day	4.30E-04
				Antimony	8.46E+00	mg/kg	4.06E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.84E-07	mg/kg-day	6.00E-05	mg/kg-day	4.73E-03
				Arsenic	9.64E+00	mg/kg	1.39E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.08E-08	9.71E-07	mg/kg-day	3.00E-04	mg/kg-day	3.24E-03
				Cadmium	1.06E+01	mg/kg	5.09E-10	mg/kg-day	--	1/(mg/kg-day)	--	3.56E-08	mg/kg-day	2.50E-05	mg/kg-day	1.42E-03
				Chromium	3.35E+00	mg/kg	1.61E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.21E-08	1.12E-07	mg/kg-day	7.50E-05	mg/kg-day	1.50E-03
				Cobalt	7.20E+00	mg/kg	3.45E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.42E-07	mg/kg-day	3.00E-04	mg/kg-day	8.06E-04
				Copper	1.19E+02	mg/kg	5.71E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.00E-06	mg/kg-day	4.00E-02	mg/kg-day	9.99E-05
				Iron	2.20E+04	mg/kg	1.06E-05	mg/kg-day	--	1/(mg/kg-day)	--	7.39E-04	mg/kg-day	7.00E-01	mg/kg-day	1.06E-03
				Manganese	5.75E+02	mg/kg	2.76E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.93E-05	mg/kg-day	9.60E-04	mg/kg-day	2.01E-02
				Thallium	3.19E+00	mg/kg	1.53E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.07E-07	mg/kg-day	1.00E-05	mg/kg-day	1.07E-02
				Vanadium	2.58E+01	mg/kg	1.24E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.66E-07	mg/kg-day	1.30E-04	mg/kg-day	6.66E-03
				Zinc	4.25E+02	mg/kg	2.04E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.43E-05	mg/kg-day	3.00E-01	mg/kg-day	4.76E-05
				Aroclor-1260	3.50E+02	ug/kg	2.35E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	4.70E-09	1.65E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	9.21E-11	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.47E-09	6.45E-09	mg/kg-day	5.00E-05	mg/kg-day	1.29E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	7.86E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.50E-07	mg/kg-day	4.00E-03	mg/kg-day	1.38E-04
				Benz(a)anthracene	1.85E+03	ug/kg	1.15E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.42E-09	8.08E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.03E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.51E-08	7.20E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.05E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.69E-09	7.38E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.18E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	8.60E-10	8.25E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	1.25E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.15E-11	8.77E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	3.59E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.62E-08	2.51E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	9.29E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.78E-09	6.50E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	2.56E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.79E-07	mg/kg-day	2.00E-02	mg/kg-day	8.97E-06
			Exp. Route Total								3.30E-07					1.63E-01
		Exposure Point Total									3.50E-06					2.82E+00
	Exposure Medium Total										3.50E-06					2.82E+00
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.70E-08	mg/m3	3.40E-02	1/(mg/m3)	5.79E-10	1.19E-06	mg/m3	3.00E-03	mg/m3	3.98E-04
			Exp. Route Total								5.79E-10					3.98E-04
		Exposure Point Total									5.79E-10					3.98E-04
	Exposure Medium Total										5.79E-10					3.98E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.90E-16	mg/m3	3.80E+04	1/(mg/m3)	1.48E-11	2.73E-14	mg/m3	4.00E-08	mg/m3	6.83E-07
				Chromium	3.35E+00	mg/kg	1.69E-12	mg/m3	8.40E+01	1/(mg/m3)	1.42E-10	1.18E-10	mg/m3	1.00E-04	mg/m3	1.18E-06
			Exp. Route Total								1.56E-10					1.86E-06
		Exposure Point Total									1.56E-10					1.86E-06
	Exposure Medium Total										1.56E-10					1.86E-06
Medium Total											3.50E-06					2.82E+00
										Total of Receptor Risks Across All Media	3.50E-06			Total of Receptor Hazards Across All Media		2.82E+00

TABLE 7.17.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.53E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.29E-05	2.95E-09	mg/kg-day	7.00E-10	mg/kg-day	4.21E+00
				Aluminum	1.28E+04	mg/kg	4.17E-03	mg/kg-day	--	1/(mg/kg-day)	--	4.86E-02	mg/kg-day	1.00E+00	mg/kg-day	4.86E-02
				Antimony	8.46E+00	mg/kg	2.75E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.21E-05	mg/kg-day	4.00E-04	mg/kg-day	8.04E-02
				Arsenic	9.64E+00	mg/kg	1.88E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.83E-06	2.20E-05	mg/kg-day	3.00E-04	mg/kg-day	7.32E-02
				Cadmium	1.06E+01	mg/kg	3.45E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.03E-05	mg/kg-day	1.00E-03	mg/kg-day	4.03E-02
				Chromium	3.35E+00	mg/kg	1.09E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.91E-06	1.27E-05	mg/kg-day	3.00E-03	mg/kg-day	4.24E-03
				Cobalt	7.20E+00	mg/kg	2.34E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.74E-05	mg/kg-day	3.00E-04	mg/kg-day	9.12E-02
				Copper	1.19E+02	mg/kg	3.88E-05	mg/kg-day	--	1/(mg/kg-day)	--	4.52E-04	mg/kg-day	4.00E-02	mg/kg-day	1.13E-02
				Iron	2.20E+04	mg/kg	7.16E-03	mg/kg-day	--	1/(mg/kg-day)	--	8.36E-02	mg/kg-day	7.00E-01	mg/kg-day	1.19E-01
				Manganese	5.75E+02	mg/kg	1.87E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.18E-03	mg/kg-day	2.40E-02	mg/kg-day	9.10E-02
				Thallium	3.19E+00	mg/kg	1.04E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.21E-05	mg/kg-day	1.00E-05	mg/kg-day	1.21E+00
				Vanadium	2.58E+01	mg/kg	8.40E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.80E-05	mg/kg-day	5.00E-03	mg/kg-day	1.96E-02
				Zinc	4.25E+02	mg/kg	1.38E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.61E-03	mg/kg-day	3.00E-01	mg/kg-day	5.38E-03
				Aroclor-1260	3.50E+02	ug/kg	1.14E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	2.28E-07	1.33E-06	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	6.25E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.00E-07	7.29E-08	mg/kg-day	5.00E-05	mg/kg-day	1.46E-03
				2-Methylnaphthalene	1.26E+03	ug/kg	4.10E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.79E-06	mg/kg-day	4.00E-03	mg/kg-day	1.20E-03
				Benz(a)anthracene	1.85E+03	ug/kg	6.02E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.35E-06	7.03E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	5.37E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.09E-05	6.27E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	5.50E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.14E-06	6.42E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	6.15E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.40E-07	7.18E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	6.55E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.55E-08	7.64E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.88E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.30E-06	2.19E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	4.85E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.89E-06	5.66E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.34E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.56E-06	mg/kg-day	2.00E-02	mg/kg-day	7.81E-05
			Exp. Route Total								7.38E-05					6.01E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.12E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	2.76E-06	2.48E-10	mg/kg-day	7.00E-10	mg/kg-day	3.54E-01
				Aluminum	1.28E+04	mg/kg	1.17E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.36E-03	mg/kg-day	1.00E+00	mg/kg-day	1.36E-03
				Antimony	8.46E+00	mg/kg	7.71E-08	mg/kg-day	--	1/(mg/kg-day)	--	9.00E-07	mg/kg-day	6.00E-05	mg/kg-day	1.50E-02
				Arsenic	9.64E+00	mg/kg	2.64E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.96E-07	3.08E-06	mg/kg-day	3.00E-04	mg/kg-day	1.03E-02
				Cadmium	1.06E+01	mg/kg	9.66E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.13E-07	mg/kg-day	2.50E-05	mg/kg-day	4.51E-03
				Chromium	3.35E+00	mg/kg	3.05E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.26E-06	3.56E-07	mg/kg-day	7.50E-05	mg/kg-day	4.75E-03
				Cobalt	7.20E+00	mg/kg	6.56E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.66E-07	mg/kg-day	3.00E-04	mg/kg-day	2.55E-03
				Copper	1.19E+02	mg/kg	1.09E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.27E-05	mg/kg-day	4.00E-02	mg/kg-day	3.16E-04
				Iron	2.20E+04	mg/kg	2.01E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.34E-03	mg/kg-day	7.00E-01	mg/kg-day	3.34E-03
				Manganese	5.75E+02	mg/kg	5.24E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.12E-05	mg/kg-day	9.60E-04	mg/kg-day	6.37E-02
				Thallium	3.19E+00	mg/kg	2.91E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.39E-07	mg/kg-day	1.00E-05	mg/kg-day	3.39E-02
				Vanadium	2.58E+01	mg/kg	2.35E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.74E-06	mg/kg-day	1.30E-04	mg/kg-day	2.11E-02
				Zinc	4.25E+02	mg/kg	3.88E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.52E-05	mg/kg-day	3.00E-01	mg/kg-day	1.51E-04
				Aroclor-1260	3.50E+02	ug/kg	4.47E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	8.94E-08	5.21E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	1.75E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.80E-08	2.04E-08	mg/kg-day	5.00E-05	mg/kg-day	4.08E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	1.49E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.74E-06	mg/kg-day	4.00E-03	mg/kg-day	4.36E-04
				Benz(a)anthracene	1.85E+03	ug/kg	2.19E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.54E-07	2.56E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.96E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.61E-06	2.28E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	2.00E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.80E-07	2.34E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	2.24E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	8.72E-08	2.61E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	2.38E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.28E-09	2.78E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	6.83E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.66E-06	7.97E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.77E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.88E-07	2.06E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	4.87E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.68E-07	mg/kg-day	2.00E-02	mg/kg-day	2.84E-05
			Exp. Route Total								1.92E-05					5.16E-01
		Exposure Point Total									9.30E-05					6.53E+00
	Exposure Medium Total										9.30E-05					6.53E+00
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	3.07E-08	mg/m3	3.40E-02	1/(mg/m3)	1.04E-09	3.58E-07	mg/m3	3.00E-03	mg/m3	1.19E-04
			Exp. Route Total								1.04E-09					1.19E-04
		Exposure Point Total									1.04E-09					1.19E-04
	Exposure Medium Total										1.04E-09					1.19E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	7.03E-16	mg/m3	3.80E+04	1/(mg/m3)	2.67E-11	8.20E-15	mg/m3	4.00E-08	mg/m3	2.05E-07
				Chromium	3.35E+00	mg/kg	3.03E-12	mg/m3	8.40E+01	1/(mg/m3)	1.36E-09	3.54E-11	mg/m3	1.00E-04	mg/m3	3.54E-07
			Exp. Route Total								1.39E-09					5.59E-07
		Exposure Point Total									1.39E-09					5.59E-07
	Exposure Medium Total										1.39E-09					5.59E-07
Medium Total											9.30E-05					6.53E+00
										Total of Receptor Risks Across All Media	9.30E-05			Total of Receptor Hazards Across All Media		6.53E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.18.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.08E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.41E-05	3.16E-10	mg/kg-day	7.00E-10	mg/kg-day	4.51E-01
				Aluminum	1.28E+04	mg/kg	1.79E-03	mg/kg-day	--	1/(mg/kg-day)	--	5.21E-03	mg/kg-day	1.00E+00	mg/kg-day	5.21E-03
				Antimony	8.46E+00	mg/kg	1.18E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.44E-06	mg/kg-day	4.00E-04	mg/kg-day	8.61E-03
				Arsenic	9.64E+00	mg/kg	8.07E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.21E-06	2.35E-06	mg/kg-day	3.00E-04	mg/kg-day	7.85E-03
				Cadmium	1.06E+01	mg/kg	1.48E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.31E-06	mg/kg-day	1.00E-03	mg/kg-day	4.31E-03
				Chromium	3.35E+00	mg/kg	4.68E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.29E-07	1.36E-06	mg/kg-day	3.00E-03	mg/kg-day	4.55E-04
				Cobalt	7.20E+00	mg/kg	1.00E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.93E-06	mg/kg-day	3.00E-04	mg/kg-day	9.77E-03
				Copper	1.19E+02	mg/kg	1.66E-05	mg/kg-day	--	1/(mg/kg-day)	--	4.84E-05	mg/kg-day	4.00E-02	mg/kg-day	1.21E-03
				Iron	2.20E+04	mg/kg	3.07E-03	mg/kg-day	--	1/(mg/kg-day)	--	8.95E-03	mg/kg-day	7.00E-01	mg/kg-day	1.28E-02
				Manganese	5.75E+02	mg/kg	8.02E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.34E-04	mg/kg-day	2.40E-02	mg/kg-day	9.75E-03
				Thallium	3.19E+00	mg/kg	4.45E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.30E-06	mg/kg-day	1.00E-05	mg/kg-day	1.30E-01
				Vanadium	2.58E+01	mg/kg	3.60E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.05E-05	mg/kg-day	5.00E-03	mg/kg-day	2.10E-03
				Zinc	4.25E+02	mg/kg	5.93E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.73E-04	mg/kg-day	3.00E-01	mg/kg-day	5.77E-04
				Aroclor-1260	3.50E+02	ug/kg	4.88E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	9.77E-08	1.42E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	2.68E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.29E-08	7.82E-09	mg/kg-day	5.00E-05	mg/kg-day	1.56E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	1.76E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.13E-07	mg/kg-day	4.00E-03	mg/kg-day	1.28E-04
				Benz(a)anthracene	1.85E+03	ug/kg	2.58E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.46E-07	7.53E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	2.30E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.08E-06	6.72E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	2.36E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.16E-07	6.88E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	2.64E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.53E-08	7.69E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	2.81E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.75E-09	8.18E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	8.04E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.08E-06	2.34E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	2.08E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.78E-07	6.06E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	5.74E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.67E-07	mg/kg-day	2.00E-02	mg/kg-day	8.36E-06
			Exp. Route Total								2.10E-05					6.44E-01
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.30E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.69E-06	3.78E-11	mg/kg-day	7.00E-10	mg/kg-day	5.40E-02
				Aluminum	1.28E+04	mg/kg	7.13E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.08E-04	mg/kg-day	1.00E+00	mg/kg-day	2.08E-04
				Antimony	8.46E+00	mg/kg	4.71E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.37E-07	mg/kg-day	6.00E-05	mg/kg-day	2.29E-03
				Arsenic	9.64E+00	mg/kg	1.61E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.42E-07	4.70E-07	mg/kg-day	3.00E-04	mg/kg-day	1.57E-03
				Cadmium	1.06E+01	mg/kg	5.90E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.72E-08	mg/kg-day	2.50E-05	mg/kg-day	6.89E-04
				Chromium	3.35E+00	mg/kg	1.87E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	6.84E-07	5.44E-08	mg/kg-day	7.50E-05	mg/kg-day	7.25E-04
				Cobalt	7.20E+00	mg/kg	4.01E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.17E-07	mg/kg-day	3.00E-04	mg/kg-day	3.90E-04
				Copper	1.19E+02	mg/kg	6.63E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.93E-06	mg/kg-day	4.00E-02	mg/kg-day	4.83E-05
				Iron	2.20E+04	mg/kg	1.23E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.57E-04	mg/kg-day	7.00E-01	mg/kg-day	5.10E-04
				Manganese	5.75E+02	mg/kg	3.20E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.34E-06	mg/kg-day	9.60E-04	mg/kg-day	9.73E-03
				Thallium	3.19E+00	mg/kg	1.78E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.18E-08	mg/kg-day	1.00E-05	mg/kg-day	5.18E-03
				Vanadium	2.58E+01	mg/kg	1.44E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.19E-07	mg/kg-day	1.30E-04	mg/kg-day	3.22E-03
				Zinc	4.25E+02	mg/kg	2.37E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.90E-06	mg/kg-day	3.00E-01	mg/kg-day	2.30E-05
				Aroclor-1260	3.50E+02	ug/kg	2.73E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	5.46E-08	7.96E-08	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	1.07E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.71E-08	3.12E-09	mg/kg-day	5.00E-05	mg/kg-day	6.24E-05
				2-Methylnaphthalene	1.26E+03	ug/kg	9.12E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.66E-07	mg/kg-day	4.00E-03	mg/kg-day	6.65E-05
				Benz(a)anthracene	1.85E+03	ug/kg	1.34E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.79E-07	3.91E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.19E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.60E-06	3.48E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.22E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.64E-07	3.57E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.37E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.83E-08	3.99E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	1.46E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.95E-09	4.24E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	4.17E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.58E-07	1.22E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.08E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.44E-07	3.15E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	2.98E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.68E-08	mg/kg-day	2.00E-02	mg/kg-day	4.34E-06
			Exp. Route Total								5.35E-06					7.87E-02
		Exposure Point Total									2.63E-05					7.23E-01
	Exposure Medium Total										2.63E-05					7.23E-01
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.23E-07	mg/m3	3.40E-02	1/(mg/m3)	4.17E-09	3.58E-07	mg/m3	3.00E-03	mg/m3	1.19E-04
			Exp. Route Total								4.17E-09					1.19E-04
		Exposure Point Total									4.17E-09					1.19E-04
	Exposure Medium Total										4.17E-09					1.19E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.81E-15	mg/m3	3.80E+04	1/(mg/m3)	1.07E-10	8.20E-15	mg/m3	4.00E-08	mg/m3	2.05E-07
				Chromium	3.35E+00	mg/kg	1.21E-11	mg/m3	8.40E+01	1/(mg/m3)	1.87E-09	3.54E-11	mg/m3	1.00E-04	mg/m3	3.54E-07
			Exp. Route Total								1.98E-09					5.59E-07
		Exposure Point Total									1.98E-09					5.59E-07
	Exposure Medium Total										1.98E-09					5.59E-07
Medium Total											2.63E-05					7.23E-01
										Total of Receptor Risks Across All Media	2.63E-05			Total of Receptor Hazards Across All Media		7.23E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.19.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.61E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.69E-05					N/A
				Aluminum	1.28E+04	mg/kg	1.79E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	1.18E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	2.69E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.04E-06					N/A
				Cadmium	1.06E+01	mg/kg	1.48E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	1.56E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	3.34E-06					N/A
				Cobalt	7.20E+00	mg/kg	1.00E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	1.66E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	3.07E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	8.02E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	4.45E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	3.60E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	5.93E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	1.63E-07	mg/kg-day	2.00E+00	1/(mg/kg-day)	3.26E-07					N/A
				Dieldrin	1.92E+01	ug/kg	8.93E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.43E-07					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	1.76E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	8.61E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.69E-06					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	7.68E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.40E-05					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	7.86E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.46E-06					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	8.79E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.75E-07					N/A
				Chrysene	2.01E+03	ug/kg	9.35E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.92E-08					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.68E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.38E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	6.93E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.17E-06					N/A
				Naphthalene	4.11E+02	ug/kg	5.74E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								9.48E-05					--
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.42E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.44E-06					N/A
				Aluminum	1.28E+04	mg/kg	7.13E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	4.71E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	4.25E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.37E-07					N/A
				Cadmium	1.06E+01	mg/kg	5.90E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	4.92E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.94E-06					N/A
				Cobalt	7.20E+00	mg/kg	4.01E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	6.63E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	1.23E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	3.20E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	1.78E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	1.44E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	2.37E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	7.20E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.44E-07					N/A
				Dieldrin	1.92E+01	ug/kg	2.82E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.51E-08					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	9.12E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	3.53E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.03E-06					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	3.15E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.21E-06					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	3.23E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.44E-07					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	3.61E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.06E-07					N/A
				Chrysene	2.01E+03	ug/kg	3.84E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.12E-08					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.10E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.22E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	2.84E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.32E-07					N/A
				Naphthalene	4.11E+02	ug/kg	2.98E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								2.46E-05					--
		Exposure Point Total									1.19E-04					--
	Exposure Medium Total										1.19E-04					--
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.53E-07	mg/m3	3.40E-02	1/(mg/m3)	5.21E-09					N/A
			Exp. Route Total								5.21E-09					--
		Exposure Point Total									5.21E-09					--
	Exposure Medium Total										5.21E-09					--
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.51E-15	mg/m3	3.80E+04	1/(mg/m3)	1.34E-10					N/A
				Chromium	3.35E+00	mg/kg	1.52E-11	mg/m3	8.40E+01	1/(mg/m3)	3.23E-09					N/A
			Exp. Route Total								3.36E-09					--
		Exposure Point Total									3.36E-09					--
	Exposure Medium Total										3.36E-09					--
Medium Total											1.19E-04					--
										Total of Receptor Risks Across All Media	1.19E-04			Total of Receptor Hazards Across All Media		--

TABLE 7.20.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	1.16E-05	mg/kg-day	--	1/(mg/kg-day)	--	8.09E-04	mg/kg-day	1.00E+00	mg/kg-day	8.09E-04
				Arsenic	1.06E+01	ug/l	3.85E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.78E-09	2.70E-07	mg/kg-day	3.00E-04	mg/kg-day	8.99E-04
				Chromium	3.78E+01	ug/l	1.37E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	6.87E-09	9.62E-07	mg/kg-day	3.00E-03	mg/kg-day	3.21E-04
				Cobalt	3.26E+01	ug/l	1.18E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.29E-07	mg/kg-day	3.00E-04	mg/kg-day	2.76E-03
				Cyanide	5.19E+01	ug/l	1.89E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.32E-06	mg/kg-day	6.00E-04	mg/kg-day	2.20E-03
				Iron	6.95E+04	ug/l	2.53E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.77E-03	mg/kg-day	7.00E-01	mg/kg-day	2.53E-03
				Lead	1.50E+01	ug/l	5.45E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.82E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	6.11E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.27E-05	mg/kg-day	2.40E-02	mg/kg-day	1.78E-03
				Vanadium	8.88E+01	ug/l	3.23E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.26E-06	mg/kg-day	5.00E-03	mg/kg-day	4.52E-04
				Dieldrin	2.58E+00	ug/l	9.38E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.50E-08	6.56E-08	mg/kg-day	5.00E-05	mg/kg-day	1.31E-03
				Benz(a)anthracene	1.10E+01	ug/l	4.00E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.92E-09	2.80E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	4.51E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.29E-08	3.15E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	4.11E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.00E-09	2.87E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	3.04E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.22E-10	2.13E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	7.63E-11	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.57E-10	5.34E-09	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	8.54E-10	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.23E-10	5.98E-08	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								6.79E-08					1.31E-02
			Dermal	Aluminum	3.18E+04	ug/l	9.60E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.72E-04	mg/kg-day	1.00E+00	mg/kg-day	6.72E-04
				Arsenic	1.06E+01	ug/l	3.20E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.80E-09	2.24E-07	mg/kg-day	3.00E-04	mg/kg-day	7.47E-04
				Chromium	3.78E+01	ug/l	2.28E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	4.57E-07	1.60E-06	mg/kg-day	7.50E-05	mg/kg-day	2.13E-02
				Cobalt	3.26E+01	ug/l	3.94E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.76E-07	mg/kg-day	3.00E-04	mg/kg-day	9.19E-04
				Cyanide	5.19E+01	ug/l	1.57E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.10E-06	mg/kg-day	6.00E-04	mg/kg-day	1.83E-03
				Iron	6.95E+04	ug/l	2.10E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.47E-03	mg/kg-day	7.00E-01	mg/kg-day	2.10E-03
				Lead	1.50E+01	ug/l	4.53E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.17E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	5.07E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.55E-05	mg/kg-day	9.60E-04	mg/kg-day	3.70E-02
				Vanadium	8.88E+01	ug/l	2.68E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.88E-06	mg/kg-day	1.30E-04	mg/kg-day	1.44E-02
				Dieldrin	2.58E+00	ug/l	5.59E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.94E-07	3.91E-06	mg/kg-day	5.00E-05	mg/kg-day	7.82E-02
				Benz(a)anthracene	1.10E+01	ug/l	4.35E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.17E-06	3.04E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	8.40E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.13E-05	5.88E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	7.77E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.67E-06	5.44E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	5.75E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.20E-07	4.02E-04	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	2.20E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.60E-06	1.54E-05	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	1.62E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.18E-06	1.13E-04	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								7.47E-05					1.57E-01
		Exposure Point Total									7.48E-05					1.70E-01
	Exposure Medium Total										7.48E-05					1.70E-01
Medium Total											7.48E-05					1.70E-01
											Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media
											7.48E-05					1.70E-01

TABLE 7.21.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	1.29E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.51E-03	mg/kg-day	1.00E+00	mg/kg-day	1.51E-03
				Arsenic	1.06E+01	ug/l	4.31E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.47E-08	5.03E-07	mg/kg-day	3.00E-04	mg/kg-day	1.68E-03
				Chromium	3.78E+01	ug/l	1.54E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.10E-07	1.80E-06	mg/kg-day	3.00E-03	mg/kg-day	5.98E-04
				Cobalt	3.26E+01	ug/l	1.33E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.55E-06	mg/kg-day	3.00E-04	mg/kg-day	5.16E-03
				Cyanide	5.19E+01	ug/l	2.11E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.46E-06	mg/kg-day	6.00E-04	mg/kg-day	4.11E-03
				Iron	6.95E+04	ug/l	2.83E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.30E-03	mg/kg-day	7.00E-01	mg/kg-day	4.71E-03
				Lead	1.50E+01	ug/l	6.11E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.12E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	6.84E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.98E-05	mg/kg-day	2.40E-02	mg/kg-day	3.32E-03
				Vanadium	8.88E+01	ug/l	3.61E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.22E-06	mg/kg-day	5.00E-03	mg/kg-day	8.43E-04
				Dieldrin	2.58E+00	ug/l	1.05E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.68E-07	1.23E-07	mg/kg-day	5.00E-05	mg/kg-day	2.45E-03
				Benz(a)anthracene	1.10E+01	ug/l	4.48E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.74E-07	5.22E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	5.05E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.97E-06	5.89E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	4.60E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.79E-07	5.37E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	3.40E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.32E-08	3.97E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	8.55E-10	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.33E-08	9.97E-09	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	9.57E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.72E-08	1.12E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								3.05E-06					2.44E-02
			Dermal	Aluminum	3.18E+04	ug/l	1.15E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.34E-03	mg/kg-day	1.00E+00	mg/kg-day	1.34E-03
				Arsenic	1.06E+01	ug/l	3.83E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.75E-08	4.47E-07	mg/kg-day	3.00E-04	mg/kg-day	1.49E-03
				Chromium	3.78E+01	ug/l	2.74E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.92E-05	3.19E-06	mg/kg-day	7.50E-05	mg/kg-day	4.25E-02
				Cobalt	3.26E+01	ug/l	4.72E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.50E-07	mg/kg-day	3.00E-04	mg/kg-day	1.83E-03
				Cyanide	5.19E+01	ug/l	1.88E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.19E-06	mg/kg-day	6.00E-04	mg/kg-day	3.65E-03
				Iron	6.95E+04	ug/l	2.51E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.93E-03	mg/kg-day	7.00E-01	mg/kg-day	4.19E-03
				Lead	1.50E+01	ug/l	5.43E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.33E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	6.08E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.09E-05	mg/kg-day	9.60E-04	mg/kg-day	7.39E-02
				Vanadium	8.88E+01	ug/l	3.21E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.75E-06	mg/kg-day	1.30E-04	mg/kg-day	2.88E-02
				Dieldrin	2.58E+00	ug/l	6.70E-07	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.07E-05	7.81E-06	mg/kg-day	5.00E-05	mg/kg-day	1.56E-01
				Benz(a)anthracene	1.10E+01	ug/l	5.21E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.03E-04	6.08E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	1.01E-04	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.92E-03	1.17E-03	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	9.31E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.62E-04	1.09E-03	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	6.89E-05	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.68E-05	8.03E-04	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	2.63E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.02E-04	3.07E-05	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	1.94E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.55E-05	2.26E-04	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								4.73E-03					3.14E-01
		Exposure Point Total									4.73E-03					3.38E-01
	Exposure Medium Total										4.73E-03					3.38E-01
Medium Total											4.73E-03					3.38E-01
										Total of Receptor Risks Across All Media	4.73E-03			Total of Receptor Hazards Across All Media		3.38E-01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.22.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	1.11E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.24E-04	mg/kg-day	1.00E+00	mg/kg-day	3.24E-04
				Arsenic	1.06E+01	ug/l	3.70E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.55E-08	1.08E-07	mg/kg-day	3.00E-04	mg/kg-day	3.60E-04
				Chromium	3.78E+01	ug/l	1.32E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.21E-07	3.85E-07	mg/kg-day	3.00E-03	mg/kg-day	1.28E-04
				Cobalt	3.26E+01	ug/l	1.14E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.32E-07	mg/kg-day	3.00E-04	mg/kg-day	1.11E-03
				Cyanide	5.19E+01	ug/l	1.81E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.28E-07	mg/kg-day	6.00E-04	mg/kg-day	8.80E-04
				Iron	6.95E+04	ug/l	2.42E-04	mg/kg-day	--	1/(mg/kg-day)	--	7.07E-04	mg/kg-day	7.00E-01	mg/kg-day	1.01E-03
				Lead	1.50E+01	ug/l	5.23E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.53E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	5.86E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.71E-05	mg/kg-day	2.40E-02	mg/kg-day	7.12E-04
				Vanadium	8.88E+01	ug/l	3.10E-07	mg/kg-day	--	1/(mg/kg-day)	--	9.04E-07	mg/kg-day	5.00E-03	mg/kg-day	1.81E-04
				Dieldrin	2.58E+00	ug/l	9.00E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.44E-07	2.63E-08	mg/kg-day	5.00E-05	mg/kg-day	5.25E-04
				Benz(a)anthracene	1.10E+01	ug/l	3.84E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.14E-08	1.12E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	4.33E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.79E-07	1.26E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	3.94E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.28E-08	1.15E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	2.92E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.90E-09	8.51E-08	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	7.33E-10	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.81E-09	2.14E-09	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	8.20E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.10E-08	2.39E-08	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.03E-06					5.23E-03
			Dermal	Aluminum	3.18E+04	ug/l	9.22E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.69E-04	mg/kg-day	1.00E+00	mg/kg-day	2.69E-04
				Arsenic	1.06E+01	ug/l	3.07E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.61E-08	8.96E-08	mg/kg-day	3.00E-04	mg/kg-day	2.99E-04
				Chromium	3.78E+01	ug/l	2.19E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	8.03E-06	6.39E-07	mg/kg-day	7.50E-05	mg/kg-day	8.52E-03
				Cobalt	3.26E+01	ug/l	3.78E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.10E-07	mg/kg-day	3.00E-04	mg/kg-day	3.67E-04
				Cyanide	5.19E+01	ug/l	1.50E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.39E-07	mg/kg-day	6.00E-04	mg/kg-day	7.31E-04
				Iron	6.95E+04	ug/l	2.01E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.88E-04	mg/kg-day	7.00E-01	mg/kg-day	8.39E-04
				Lead	1.50E+01	ug/l	4.35E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.27E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	4.87E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.42E-05	mg/kg-day	9.60E-04	mg/kg-day	1.48E-02
				Vanadium	8.88E+01	ug/l	2.57E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.51E-07	mg/kg-day	1.30E-04	mg/kg-day	5.77E-03
				Dieldrin	2.58E+00	ug/l	5.37E-07	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.58E-06	1.56E-06	mg/kg-day	5.00E-05	mg/kg-day	3.13E-02
				Benz(a)anthracene	1.10E+01	ug/l	4.17E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.58E-05	1.22E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	8.06E-05	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.08E-03	2.35E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	7.46E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.98E-05	2.18E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	5.52E-05	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.38E-06	1.61E-04	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	2.11E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.82E-05	6.15E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	1.55E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.08E-05	4.53E-05	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.31E-03					6.29E-02
		Exposure Point Total									1.31E-03					6.81E-02
	Exposure Medium Total										1.31E-03					6.81E-02
Medium Total											1.31E-03					6.81E-02
										Total of Receptor Risks Across All Media	1.31E-03			Total of Receptor Hazards Across All Media		6.81E-02

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.23.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	1.11E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	1.06E+01	ug/l	8.01E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.20E-07					N/A
				Chromium	3.78E+01	ug/l	2.86E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.31E-07					N/A
				Cobalt	3.26E+01	ug/l	1.14E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cyanide	5.19E+01	ug/l	1.81E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.95E+04	ug/l	2.42E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Lead	1.50E+01	ug/l	5.23E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.68E+03	ug/l	5.86E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	8.88E+01	ug/l	3.10E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.58E+00	ug/l	1.95E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	3.12E-07					N/A
				Benz(a)anthracene	1.10E+01	ug/l	8.32E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.26E-07					N/A
				Benzo(a)pyrene	1.24E+01	ug/l	9.37E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.54E-06					N/A
				Benzo(b)fluoranthene	1.13E+01	ug/l	8.54E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.32E-07					N/A
				Benzo(k)fluoranthene	8.36E+00	ug/l	6.32E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.72E-08					N/A
				Dibenz(a,h)anthracene	2.10E-01	ug/l	1.59E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.31E-08					N/A
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	1.78E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.82E-08					N/A
			Exp. Route Total								4.07E-06					--
			Dermal	Aluminum	3.18E+04	ug/l	9.22E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	1.06E+01	ug/l	6.91E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.04E-07					N/A
				Chromium	3.78E+01	ug/l	4.93E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.72E-05					N/A
				Cobalt	3.26E+01	ug/l	3.78E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cyanide	5.19E+01	ug/l	1.50E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.95E+04	ug/l	2.01E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Lead	1.50E+01	ug/l	4.35E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.68E+03	ug/l	4.87E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	8.88E+01	ug/l	2.57E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.58E+00	ug/l	1.21E-06	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.93E-05					N/A
				Benz(a)anthracene	1.10E+01	ug/l	9.38E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.59E-04					N/A
				Benzo(a)pyrene	1.24E+01	ug/l	1.81E-04	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.00E-03					N/A
				Benzo(b)fluoranthene	1.13E+01	ug/l	1.68E-04	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.62E-04					N/A
				Benzo(k)fluoranthene	8.36E+00	ug/l	1.24E-04	mg/kg-day	7.30E-02	1/(mg/kg-day)	3.42E-05					N/A
				Dibenz(a,h)anthracene	2.10E-01	ug/l	4.74E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.31E-04					N/A
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	3.49E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.62E-05					N/A
			Exp. Route Total								6.04E-03					--
		Exposure Point Total									6.04E-03					--
	Exposure Medium Total										6.04E-03					--
Medium Total											6.04E-03					--
										Total of Receptor Risks Across All Media	6.04E-03				Total of Receptor Hazards Across All Media	--

TABLE 7.24.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	7.69E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.15E-07	5.38E-06	mg/kg-day	3.00E-04	mg/kg-day	1.79E-02
				Chromium	1.85E+01	mg/kg	4.44E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.22E-07	3.11E-05	mg/kg-day	3.00E-03	mg/kg-day	1.04E-02
				Cobalt	2.09E+01	mg/kg	5.01E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.51E-05	mg/kg-day	3.00E-04	mg/kg-day	1.17E-01
				Manganese	1.55E+04	mg/kg	3.72E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.60E-02	mg/kg-day	2.40E-02	mg/kg-day	1.08E+00
				Thallium	1.33E+01	mg/kg	3.19E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.23E-05	mg/kg-day	1.00E-05	mg/kg-day	2.23E+00
				Benz(a)anthracene	2.09E+03	ug/kg	5.01E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.66E-08	3.51E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	5.37E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.92E-07	3.76E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	6.28E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.59E-08	4.40E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	2.38E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.74E-07	1.67E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	3.00E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.19E-08	2.10E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.01E-06					3.46E+00
			Dermal	Arsenic	5.34E+00	mg/kg	7.69E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.15E-08	5.38E-07	mg/kg-day	3.00E-04	mg/kg-day	1.79E-03
				Chromium	1.85E+01	mg/kg	8.88E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.78E-07	6.21E-07	mg/kg-day	7.50E-05	mg/kg-day	8.28E-03
				Cobalt	2.09E+01	mg/kg	1.00E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.02E-07	mg/kg-day	3.00E-04	mg/kg-day	2.34E-03
				Manganese	1.55E+04	mg/kg	7.44E-06	mg/kg-day	--	1/(mg/kg-day)	--	5.21E-04	mg/kg-day	9.60E-04	mg/kg-day	5.42E-01
				Thallium	1.33E+01	mg/kg	6.38E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.47E-07	mg/kg-day	1.00E-05	mg/kg-day	4.47E-02
				Benz(a)anthracene	2.09E+03	ug/kg	1.30E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.52E-09	9.12E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	1.40E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.02E-07	9.78E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	1.63E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.19E-08	1.14E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	6.20E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.53E-08	4.34E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	7.80E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.69E-09	5.46E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								3.63E-07					5.99E-01
		Exposure Point Total									1.37E-06					4.06E+00
	Exposure Medium Total										1.37E-06					4.06E+00
Medium Total											1.37E-06					4.06E+00
											Total of Receptor Risks Across All Media	1.37E-06				Total of Receptor Hazards Across All Media	4.06E+00

TABLE 7.25.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	2.61E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.91E-07	3.04E-06	mg/kg-day	3.00E-04	mg/kg-day	1.01E-02
				Chromium	1.85E+01	mg/kg	1.51E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.02E-06	1.76E-05	mg/kg-day	3.00E-03	mg/kg-day	5.86E-03
				Cobalt	2.09E+01	mg/kg	1.70E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.99E-05	mg/kg-day	3.00E-04	mg/kg-day	6.62E-02
				Manganese	1.55E+04	mg/kg	1.26E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.47E-02	mg/kg-day	2.40E-02	mg/kg-day	6.13E-01
				Thallium	1.33E+01	mg/kg	1.08E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.26E-05	mg/kg-day	1.00E-05	mg/kg-day	1.26E+00
				Benz(a)anthracene	2.09E+03	ug/kg	1.70E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.62E-07	1.99E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	1.82E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.10E-06	2.13E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	2.13E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.30E-07	2.49E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	8.09E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.15E-06	9.44E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	1.02E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.96E-07	1.19E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.65E-05					1.96E+00
			Dermal	Arsenic	5.34E+00	mg/kg	7.30E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.10E-07	8.52E-07	mg/kg-day	3.00E-04	mg/kg-day	2.84E-03
				Chromium	1.85E+01	mg/kg	8.43E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	9.00E-06	9.84E-07	mg/kg-day	7.50E-05	mg/kg-day	1.31E-02
				Cobalt	2.09E+01	mg/kg	9.53E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.11E-06	mg/kg-day	3.00E-04	mg/kg-day	3.71E-03
				Manganese	1.55E+04	mg/kg	7.07E-05	mg/kg-day	--	1/(mg/kg-day)	--	8.24E-04	mg/kg-day	9.60E-04	mg/kg-day	8.59E-01
				Thallium	1.33E+01	mg/kg	6.06E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.07E-07	mg/kg-day	1.00E-05	mg/kg-day	7.07E-02
				Benz(a)anthracene	2.09E+03	ug/kg	1.24E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.82E-07	1.45E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	1.33E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.17E-06	1.55E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	1.55E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.05E-07	1.81E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	5.89E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.29E-06	6.87E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	7.41E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.88E-07	8.64E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.79E-05					9.49E-01
		Exposure Point Total									3.45E-05					2.91E+00
	Exposure Medium Total										3.45E-05					2.91E+00
Medium Total											3.45E-05					2.91E+00
											Total of Receptor Risks Across All Media					3.45E-05
																Total of Receptor Hazards Across All Media
																2.91E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

TABLE 7.26.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	1.12E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.68E-07	3.26E-07	mg/kg-day	3.00E-04	mg/kg-day	1.09E-03
				Chromium	1.85E+01	mg/kg	6.45E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.92E-07	1.88E-06	mg/kg-day	3.00E-03	mg/kg-day	6.28E-04
				Cobalt	2.09E+01	mg/kg	7.29E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.13E-06	mg/kg-day	3.00E-04	mg/kg-day	7.09E-03
				Manganese	1.55E+04	mg/kg	5.41E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.58E-03	mg/kg-day	2.40E-02	mg/kg-day	6.57E-02
				Thallium	1.33E+01	mg/kg	4.64E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.35E-06	mg/kg-day	1.00E-05	mg/kg-day	1.35E-01
				Benz(a)anthracene	2.09E+03	ug/kg	7.29E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.76E-08	2.13E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	7.82E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.05E-06	2.28E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	9.14E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.22E-07	2.67E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	3.47E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.64E-07	1.01E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	4.36E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.84E-08	1.27E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								2.55E-06					2.10E-01
			Dermal	Arsenic	5.34E+00	mg/kg	1.27E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.91E-07	3.72E-07	mg/kg-day	3.00E-04	mg/kg-day	1.24E-03
				Chromium	1.85E+01	mg/kg	1.47E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	5.40E-06	4.29E-07	mg/kg-day	7.50E-05	mg/kg-day	5.72E-03
				Cobalt	2.09E+01	mg/kg	1.66E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.85E-07	mg/kg-day	3.00E-04	mg/kg-day	1.62E-03
				Manganese	1.55E+04	mg/kg	1.23E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.60E-04	mg/kg-day	9.60E-04	mg/kg-day	3.75E-01
				Thallium	1.33E+01	mg/kg	1.06E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.09E-07	mg/kg-day	1.00E-05	mg/kg-day	3.09E-02
				Benz(a)anthracene	2.09E+03	ug/kg	2.16E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.89E-07	6.30E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	2.32E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.10E-06	6.76E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	2.71E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.63E-07	7.90E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	1.03E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.38E-06	3.00E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	1.29E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.73E-07	3.77E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.09E-05					4.14E-01
		Exposure Point Total									1.34E-05					6.24E-01
	Exposure Medium Total										1.34E-05					6.24E-01
Medium Total											1.34E-05					6.24E-01
											Total of Receptor Risks Across All Media					6.24E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

TABLE 7.27.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT

REASONABLE MAXIMUM EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	3.73E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.59E-07					N/A
				Chromium	1.85E+01	mg/kg	2.15E-06	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.61E-06					N/A
				Cobalt	2.09E+01	mg/kg	7.29E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.55E+04	mg/kg	5.41E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.33E+01	mg/kg	4.64E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	2.09E+03	ug/kg	2.43E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.60E-07					N/A
				Benzo(a)pyrene	2.24E+03	ug/kg	2.61E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.15E-06					N/A
				Benzo(b)fluoranthene	2.62E+03	ug/kg	3.05E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.53E-07					N/A
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	1.16E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.61E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	1.45E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.55E-07					N/A
			Exp. Route Total								1.91E-05					--
			Dermal	Arsenic	5.34E+00	mg/kg	2.00E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.01E-07					N/A
				Chromium	1.85E+01	mg/kg	2.32E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.44E-05					N/A
				Cobalt	2.09E+01	mg/kg	1.66E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.55E+04	mg/kg	1.23E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.33E+01	mg/kg	1.06E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	2.09E+03	ug/kg	3.40E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.72E-07					N/A
				Benzo(a)pyrene	2.24E+03	ug/kg	3.64E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.27E-06					N/A
				Benzo(b)fluoranthene	2.62E+03	ug/kg	4.26E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.67E-07					N/A
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	1.62E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.67E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	2.03E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.61E-07					N/A
			Exp. Route Total								2.88E-05					--
		Exposure Point Total									4.79E-05					--
	Exposure Medium Total										4.79E-05					--
Medium Total											4.79E-05					--
										Total of Receptor Risks Across All Media	4.79E-05			Total of Receptor Hazards Across All Media		--

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Notes on age groups assumed for child and adult receptors:
***For all COPCs, the labelled "child" receptor exposures assume an age range of 4 to 6 years for CTE.**
****For mutagens, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.**
Lifetime receptor exposures represent the sum of ages 4 to 6 (referred to as "child" exposure) plus ages 18 to 25 (referred to as "adult" exposure).

TABLE 7.01.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO GROUNDWATER

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Tap Water Contact With Groundwater	Ingestion	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	1.99E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	2.58E-07	6.95E-11	mg/kg-day	7.00E-10	mg/kg-day	9.93E-02
				Aluminum	1.34E+04	ug/l	1.81E-02	mg/kg-day	--	1/(mg/kg-day)	--	6.34E-01	mg/kg-day	1.00E+00	mg/kg-day	6.34E-01
				Arsenic	2.70E+00	ug/l	3.65E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.47E-06	1.28E-04	mg/kg-day	3.00E-04	mg/kg-day	4.26E-01
				Barium	1.89E+02	ug/l	2.55E-04	mg/kg-day	--	1/(mg/kg-day)	--	8.94E-03	mg/kg-day	2.00E-01	mg/kg-day	4.47E-02
				Chromium	1.52E+01	ug/l	2.05E-05	mg/kg-day	5.00E-01	1/(mg/kg-day)	3.08E-05	7.19E-04	mg/kg-day	3.00E-03	mg/kg-day	2.40E-01
				Cobalt	2.61E+00	ug/l	3.53E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.23E-04	mg/kg-day	3.00E-04	mg/kg-day	4.12E-01
				Iron	6.63E+03	ug/l	8.96E-03	mg/kg-day	--	1/(mg/kg-day)	--	3.14E-01	mg/kg-day	7.00E-01	mg/kg-day	4.48E-01
				Manganese	9.12E+02	ug/l	1.23E-03	mg/kg-day	--	1/(mg/kg-day)	--	4.31E-02	mg/kg-day	2.40E-02	mg/kg-day	1.80E+00
				Vanadium	7.89E+00	ug/l	1.07E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.73E-04	mg/kg-day	5.00E-03	mg/kg-day	7.46E-02
				Carbon Tetrachloride	6.10E-01	ug/l	8.24E-07	mg/kg-day	7.00E-02	1/(mg/kg-day)	5.77E-08	2.89E-05	mg/kg-day	4.00E-03	mg/kg-day	7.21E-03
				Chloroform	7.70E-01	ug/l	1.04E-06	mg/kg-day	3.10E-02	1/(mg/kg-day)	3.23E-08	3.64E-05	mg/kg-day	1.00E-02	mg/kg-day	3.64E-03
				Trichloroethene (mutagenic)	4.10E+00	ug/l	5.54E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	1.55E-07	1.94E-04	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	5.54E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	2.05E-07	1.94E-04	mg/kg-day	5.00E-04	mg/kg-day	3.88E-01
			Exp. Route Total								3.70E-05					4.57E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	2.98E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.87E-06	1.04E-09	mg/kg-day	7.00E-10	mg/kg-day	1.49E+00
				Aluminum	1.34E+04	ug/l	5.33E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.87E-03	mg/kg-day	1.00E+00	mg/kg-day	1.87E-03
				Arsenic	2.70E+00	ug/l	1.07E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.61E-08	3.76E-07	mg/kg-day	3.00E-04	mg/kg-day	1.25E-03
				Barium	1.89E+02	ug/l	7.52E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.63E-05	mg/kg-day	1.40E-02	mg/kg-day	1.88E-03
				Chromium	1.52E+01	ug/l	1.21E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	7.26E-06	4.23E-06	mg/kg-day	7.50E-05	mg/kg-day	5.64E-02
				Cobalt	2.61E+00	ug/l	4.15E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.45E-07	mg/kg-day	3.00E-04	mg/kg-day	4.85E-04
				Iron	6.63E+03	ug/l	2.64E-05	mg/kg-day	--	1/(mg/kg-day)	--	9.23E-04	mg/kg-day	7.00E-01	mg/kg-day	1.32E-03
				Manganese	9.12E+02	ug/l	3.63E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.27E-04	mg/kg-day	9.60E-04	mg/kg-day	1.32E-01
				Vanadium	7.89E+00	ug/l	3.14E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.10E-06	mg/kg-day	1.30E-04	mg/kg-day	8.45E-03
				Carbon Tetrachloride	6.10E-01	ug/l	1.65E-07	mg/kg-day	7.00E-02	1/(mg/kg-day)	1.15E-08	5.77E-06	mg/kg-day	4.00E-03	mg/kg-day	1.44E-03
				Chloroform	7.70E-01	ug/l	7.09E-08	mg/kg-day	3.10E-02	1/(mg/kg-day)	2.20E-09	2.48E-06	mg/kg-day	1.00E-02	mg/kg-day	2.48E-04
				Trichloroethene (mutagenic)	4.10E+00	ug/l	7.17E-07	mg/kg-day	9.30E-03	1/(mg/kg-day)	2.00E-08	2.51E-05	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	7.17E-07	mg/kg-day	3.70E-02	1/(mg/kg-day)	2.65E-08	2.51E-05	mg/kg-day	5.00E-04	mg/kg-day	5.02E-02
			Exp. Route Total								1.12E-05					1.74E+00
		Exposure Point Total									4.82E-05					6.32E+00
	Exposure Medium Total										4.82E-05					6.32E+00
Medium Total											4.82E-05					6.32E+00
										Total of Receptor Risks Across All Media	4.82E-05			Total of Receptor Hazards Across All Media		6.32E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.02.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO GROUNDWATER

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Tap Water Contact With Groundwater	Ingestion	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	2.82E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.66E-07	2.82E-11	mg/kg-day	7.00E-10	mg/kg-day	4.03E-02
				Aluminum	1.34E+04	ug/l	2.57E-02	mg/kg-day	--	1/(mg/kg-day)	--	2.57E-01	mg/kg-day	1.00E+00	mg/kg-day	2.57E-01
				Arsenic	2.70E+00	ug/l	5.18E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	7.77E-06	5.18E-05	mg/kg-day	3.00E-04	mg/kg-day	1.73E-01
				Barium	1.89E+02	ug/l	3.62E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.62E-03	mg/kg-day	2.00E-01	mg/kg-day	1.81E-02
				Chromium	1.52E+01	ug/l	2.92E-05	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.46E-05	2.92E-04	mg/kg-day	3.00E-03	mg/kg-day	9.72E-02
				Cobalt	2.61E+00	ug/l	5.01E-06	mg/kg-day	--	1/(mg/kg-day)	--	5.01E-05	mg/kg-day	3.00E-04	mg/kg-day	1.67E-01
				Iron	6.63E+03	ug/l	1.27E-02	mg/kg-day	--	1/(mg/kg-day)	--	1.27E-01	mg/kg-day	7.00E-01	mg/kg-day	1.82E-01
				Manganese	9.12E+02	ug/l	1.75E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.75E-02	mg/kg-day	2.40E-02	mg/kg-day	7.29E-01
				Vanadium	7.89E+00	ug/l	1.51E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.51E-04	mg/kg-day	5.00E-03	mg/kg-day	3.03E-02
				Carbon Tetrachloride	6.10E-01	ug/l	1.17E-06	mg/kg-day	7.00E-02	1/(mg/kg-day)	8.19E-08	1.17E-05	mg/kg-day	4.00E-03	mg/kg-day	2.92E-03
				Chloroform	7.70E-01	ug/l	1.48E-06	mg/kg-day	3.10E-02	1/(mg/kg-day)	4.58E-08	1.48E-05	mg/kg-day	1.00E-02	mg/kg-day	1.48E-03
				Trichloroethene (mutagenic)	4.10E+00	ug/l	7.86E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	7.31E-08	7.86E-05	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	7.86E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	2.91E-07	7.86E-05	mg/kg-day	5.00E-04	mg/kg-day	1.57E-01
			Exp. Route Total								2.32E-05					1.85E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	4.33E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	5.63E-06	4.33E-10	mg/kg-day	7.00E-10	mg/kg-day	6.19E-01
				Aluminum	1.34E+04	ug/l	5.52E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.52E-04	mg/kg-day	1.00E+00	mg/kg-day	5.52E-04
				Arsenic	2.70E+00	ug/l	1.11E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.67E-08	1.11E-07	mg/kg-day	3.00E-04	mg/kg-day	3.71E-04
				Barium	1.89E+02	ug/l	7.78E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.78E-06	mg/kg-day	1.40E-02	mg/kg-day	5.56E-04
				Chromium	1.52E+01	ug/l	1.25E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.50E-06	1.25E-06	mg/kg-day	7.50E-05	mg/kg-day	1.67E-02
				Cobalt	2.61E+00	ug/l	4.30E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.30E-08	mg/kg-day	3.00E-04	mg/kg-day	1.43E-04
				Iron	6.63E+03	ug/l	2.73E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.73E-04	mg/kg-day	7.00E-01	mg/kg-day	3.90E-04
				Manganese	9.12E+02	ug/l	3.76E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.76E-05	mg/kg-day	9.60E-04	mg/kg-day	3.91E-02
				Vanadium	7.89E+00	ug/l	3.25E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.25E-07	mg/kg-day	1.30E-04	mg/kg-day	2.50E-03
				Carbon Tetrachloride	6.10E-01	ug/l	2.40E-07	mg/kg-day	7.00E-02	1/(mg/kg-day)	1.68E-08	2.40E-06	mg/kg-day	4.00E-03	mg/kg-day	6.00E-04
				Chloroform	7.70E-01	ug/l	1.03E-07	mg/kg-day	3.10E-02	1/(mg/kg-day)	3.20E-09	1.03E-06	mg/kg-day	1.00E-02	mg/kg-day	1.03E-04
				Trichloroethene (mutagenic)	4.10E+00	ug/l	1.04E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	9.71E-09	1.04E-05	mg/kg-day	--	mg/kg-day	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	1.04E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	3.86E-08	1.04E-05	mg/kg-day	5.00E-04	mg/kg-day	2.09E-02
			Exp. Route Total								8.22E-06					7.00E-01
		Exposure Point Total									3.14E-05					2.55E+00
	Exposure Medium Total										3.14E-05					2.55E+00
	Air	Site 12 Groundwater Vapors During Showering	Inhalation	Carbon Tetrachloride	6.10E-01	ug/l	5.06E-07	mg/m3	6.00E-03	1/(mg/m3)	3.03E-09	5.06E-06	mg/m3	1.00E-01	mg/m3	5.06E-05
				Chloroform	7.70E-01	ug/l	7.01E-07	mg/m3	2.30E-02	1/(mg/m3)	1.61E-08	7.01E-06	mg/m3	9.80E-02	mg/m3	7.15E-05
				Trichloroethene (mutagenic)	4.10E+00	ug/l	3.64E-06	mg/m3	1.00E-03	1/(mg/m3)	3.64E-09	3.64E-05	mg/m3	--	mg/m3	--
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	3.64E-06	mg/m3	3.10E-03	1/(mg/m3)	1.13E-08	3.64E-05	mg/m3	2.00E-03	mg/m3	1.82E-02
			Exp. Route Total								3.41E-08					1.83E-02
		Exposure Point Total									3.41E-08					1.83E-02
	Exposure Medium Total										3.41E-08					1.83E-02
Medium Total											3.15E-05					2.57E+00
										Total of Receptor Risks Across All Media	3.15E-05			Total of Receptor Hazards Across All Media		2.57E+00

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.03.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO GROUNDWATER

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Site 12 Tap Water Contact With Groundwater	Ingestion	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	4.81E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	6.25E-07					N/A
				Aluminum	1.34E+04	ug/l	2.57E-02	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	2.70E+00	ug/l	8.83E-06	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.32E-05					N/A
				Barium	1.89E+02	ug/l	3.62E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	1.52E+01	ug/l	4.97E-05	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.54E-05					N/A
				Cobalt	2.61E+00	ug/l	5.01E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.63E+03	ug/l	1.27E-02	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	9.12E+02	ug/l	1.75E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	7.89E+00	ug/l	1.51E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Carbon Tetrachloride	6.10E-01	ug/l	1.99E-06	mg/kg-day	7.00E-02	1/(mg/kg-day)	1.40E-07					N/A
				Chloroform	7.70E-01	ug/l	2.52E-06	mg/kg-day	3.10E-02	1/(mg/kg-day)	7.80E-08					N/A
				Trichloroethene (mutagenic)	4.10E+00	ug/l	1.34E-05	mg/kg-day	9.30E-03	1/(mg/kg-day)	2.28E-07					N/A
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	1.34E-05	mg/kg-day	3.70E-02	1/(mg/kg-day)	4.96E-07					N/A
			Exp. Route Total								6.02E-05					--
			Dermal	Total 2,3,7,8-TCDD Equiv.	1.47E-03	ng/l	7.31E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	9.50E-06					N/A
				Aluminum	1.34E+04	ug/l	5.52E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	2.70E+00	ug/l	2.19E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.28E-08					N/A
				Barium	1.89E+02	ug/l	7.78E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	1.52E+01	ug/l	2.46E-07	mg/kg-day	2.00E+01	1/(mg/kg-day)	9.76E-06					N/A
				Cobalt	2.61E+00	ug/l	4.30E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.63E+03	ug/l	2.73E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	9.12E+02	ug/l	3.76E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	7.89E+00	ug/l	3.25E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Carbon Tetrachloride	6.10E-01	ug/l	4.05E-07	mg/kg-day	7.00E-02	1/(mg/kg-day)	2.84E-08					N/A
				Chloroform	7.70E-01	ug/l	1.74E-07	mg/kg-day	3.10E-02	1/(mg/kg-day)	5.39E-09					N/A
				Trichloroethene (mutagenic)	4.10E+00	ug/l	1.76E-06	mg/kg-day	9.30E-03	1/(mg/kg-day)	2.97E-08					N/A
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	1.76E-06	mg/kg-day	3.70E-02	1/(mg/kg-day)	6.51E-08					N/A
			Exp. Route Total								1.94E-05					--
		Exposure Point Total									7.96E-05					--
	Exposure Medium Total										7.96E-05					--
	Air	Site 12 Groundwater Vapors During Showering	Inhalation	Carbon Tetrachloride	6.10E-01	ug/l	5.06E-07	mg/m3	6.00E-03	1/(mg/m3)	3.03E-09					N/A
				Chloroform	7.70E-01	ug/l	7.01E-07	mg/m3	2.30E-02	1/(mg/m3)	1.61E-08					N/A
				Trichloroethene (mutagenic)	4.10E+00	ug/l	3.64E-06	mg/m3	1.00E-03	1/(mg/m3)	3.64E-09					N/A
				Trichloroethene (nonmutagenic)	4.10E+00	ug/l	3.64E-06	mg/m3	3.10E-03	1/(mg/m3)	1.13E-08					N/A
			Exp. Route Total								3.41E-08					--
		Exposure Point Total									3.41E-08					--
	Exposure Medium Total										3.41E-08					--
Medium Total											7.97E-05					--
										Total of Receptor Risks Across All Media	7.97E-05				Total of Receptor Hazards Across All Media	--

TABLE 7.05.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO SITE 12 SURFACE SOIL

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.49E-03	mg/kg-day	--	1/(mg/kg-day)	--	5.21E-02	mg/kg-day	1.00E+00	mg/kg-day	5.21E-02
				Antimony	2.88E+00	mg/kg	3.52E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.23E-05	mg/kg-day	4.00E-04	mg/kg-day	3.08E-02
				Arsenic	5.60E+00	mg/kg	4.10E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.15E-07	1.44E-05	mg/kg-day	3.00E-04	mg/kg-day	4.79E-02
				Cadmium	1.60E+00	mg/kg	1.95E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.84E-06	mg/kg-day	1.00E-03	mg/kg-day	6.84E-03
				Chromium	2.59E+00	mg/kg	3.16E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.74E-07	1.11E-05	mg/kg-day	3.00E-03	mg/kg-day	3.69E-03
				Cobalt	6.35E+00	mg/kg	7.75E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.71E-05	mg/kg-day	3.00E-04	mg/kg-day	9.05E-02
				Copper	4.41E+01	mg/kg	5.39E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.88E-04	mg/kg-day	4.00E-02	mg/kg-day	4.71E-03
				Iron	1.78E+04	mg/kg	2.17E-03	mg/kg-day	--	1/(mg/kg-day)	--	7.61E-02	mg/kg-day	7.00E-01	mg/kg-day	1.09E-01
				Manganese	4.31E+02	mg/kg	5.26E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.84E-03	mg/kg-day	2.40E-02	mg/kg-day	7.68E-02
				Thallium	1.92E+00	mg/kg	2.34E-07	mg/kg-day	--	1/(mg/kg-day)	--	8.21E-06	mg/kg-day	1.00E-05	mg/kg-day	8.21E-01
				Vanadium	2.53E+01	mg/kg	3.09E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.08E-04	mg/kg-day	5.00E-03	mg/kg-day	2.16E-02
				Dieldrin	2.84E+01	ug/kg	3.47E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	5.55E-08	1.21E-07	mg/kg-day	5.00E-05	mg/kg-day	2.43E-03
				Benz(a)anthracene	2.04E+03	ug/kg	2.49E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.46E-07	8.72E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.37E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.19E-06	8.29E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.43E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.32E-07	8.51E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	2.78E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.10E-08	9.74E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	2.69E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.88E-09	9.40E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	9.23E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.02E-06	3.23E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.37E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.19E-07	8.29E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.00E-05					1.27E+00
			Dermal	Aluminum	1.22E+04	mg/kg	1.67E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.84E-04	mg/kg-day	1.00E+00	mg/kg-day	5.84E-04
				Antimony	2.88E+00	mg/kg	3.94E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.38E-07	mg/kg-day	6.00E-05	mg/kg-day	2.30E-03
				Arsenic	5.60E+00	mg/kg	2.30E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.45E-08	8.04E-07	mg/kg-day	3.00E-04	mg/kg-day	2.68E-03
				Cadmium	1.60E+00	mg/kg	2.19E-10	mg/kg-day	--	1/(mg/kg-day)	--	7.66E-09	mg/kg-day	2.50E-05	mg/kg-day	3.06E-04
				Chromium	2.59E+00	mg/kg	3.54E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.13E-07	1.24E-07	mg/kg-day	7.50E-05	mg/kg-day	1.65E-03
				Cobalt	6.35E+00	mg/kg	8.68E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.04E-07	mg/kg-day	3.00E-04	mg/kg-day	1.01E-03
				Copper	4.41E+01	mg/kg	6.03E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.11E-06	mg/kg-day	4.00E-02	mg/kg-day	5.28E-05
				Iron	1.78E+04	mg/kg	2.43E-05	mg/kg-day	--	1/(mg/kg-day)	--	8.52E-04	mg/kg-day	7.00E-01	mg/kg-day	1.22E-03
				Manganese	4.31E+02	mg/kg	5.89E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.06E-05	mg/kg-day	9.60E-04	mg/kg-day	2.15E-02
				Thallium	1.92E+00	mg/kg	2.63E-09	mg/kg-day	--	1/(mg/kg-day)	--	9.19E-08	mg/kg-day	1.00E-05	mg/kg-day	9.19E-03
				Vanadium	2.53E+01	mg/kg	3.46E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.21E-06	mg/kg-day	1.30E-04	mg/kg-day	9.32E-03
				Dieldrin	2.84E+01	ug/kg	3.88E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	6.21E-09	1.36E-08	mg/kg-day	5.00E-05	mg/kg-day	2.72E-04
				Benz(a)anthracene	2.04E+03	ug/kg	3.63E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.94E-08	1.27E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	3.45E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.55E-07	1.21E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.54E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.75E-08	1.24E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	4.05E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	8.88E-09	1.42E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	3.91E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	8.57E-10	1.37E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.34E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.94E-07	4.70E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.45E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.55E-08	1.21E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.55E-06					5.01E-02
		Exposure Point Total									1.16E-05					1.32E+00
	Exposure Medium Total										1.16E-05					1.32E+00
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	3.52E-12	mg/m3	8.40E+01	1/(mg/m3)	8.87E-10	1.23E-10	mg/m3	1.00E-04	mg/m3	1.23E-06
			Exp. Route Total								8.87E-10					1.23E-06
		Exposure Point Total									8.87E-10					1.23E-06
	Exposure Medium Total										8.87E-10					1.23E-06
Medium Total											1.16E-05					1.32E+00
										Total of Receptor Risks Across All Media	1.16E-05				Total of Receptor Hazards Across All Media	1.32E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.05a.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO SITE 12 SURFACE SOIL

CENTRAL TENDENCY EXPOSURES - BACKGROUND ELIMINATION

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	1.49E-03	mg/kg-day	--	1/(mg/kg-day)	--	5.21E-02	mg/kg-day	1.00E+00	mg/kg-day	5.21E-02
				Antimony	2.88E+00	mg/kg	3.52E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.23E-05	mg/kg-day	4.00E-04	mg/kg-day	3.08E-02
				Cadmium	1.60E+00	mg/kg	1.95E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.84E-06	mg/kg-day	1.00E-03	mg/kg-day	6.84E-03
				Chromium	2.59E+00	mg/kg	3.16E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	4.74E-07	1.11E-05	mg/kg-day	3.00E-03	mg/kg-day	3.69E-03
				Copper	4.41E+01	mg/kg	5.39E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.88E-04	mg/kg-day	4.00E-02	mg/kg-day	4.71E-03
				Iron	1.78E+04	mg/kg	2.17E-03	mg/kg-day	--	1/(mg/kg-day)	--	7.61E-02	mg/kg-day	7.00E-01	mg/kg-day	1.09E-01
				Thallium	1.92E+00	mg/kg	2.34E-07	mg/kg-day	--	1/(mg/kg-day)	--	8.21E-06	mg/kg-day	1.00E-05	mg/kg-day	8.21E-01
				Vanadium	2.53E+01	mg/kg	3.09E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.08E-04	mg/kg-day	5.00E-03	mg/kg-day	2.16E-02
				Dieldrin	2.84E+01	ug/kg	3.47E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	5.55E-08	1.21E-07	mg/kg-day	5.00E-05	mg/kg-day	2.43E-03
				Benz(a)anthracene	2.04E+03	ug/kg	2.49E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.46E-07	8.72E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	2.37E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.19E-06	8.29E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	2.43E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.32E-07	8.51E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	2.78E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.10E-08	9.74E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	2.69E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.88E-09	9.40E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	9.23E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.02E-06	3.23E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	2.37E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.19E-07	8.29E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								9.40E-06					1.05E+00
			Dermal	Aluminum	1.22E+04	mg/kg	1.67E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.84E-04	mg/kg-day	1.00E+00	mg/kg-day	5.84E-04
				Antimony	2.88E+00	mg/kg	3.94E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.38E-07	mg/kg-day	6.00E-05	mg/kg-day	2.30E-03
				Cadmium	1.60E+00	mg/kg	2.19E-10	mg/kg-day	--	1/(mg/kg-day)	--	7.66E-09	mg/kg-day	2.50E-05	mg/kg-day	3.06E-04
				Chromium	2.59E+00	mg/kg	3.54E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.13E-07	1.24E-07	mg/kg-day	7.50E-05	mg/kg-day	1.65E-03
				Copper	4.41E+01	mg/kg	6.03E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.11E-06	mg/kg-day	4.00E-02	mg/kg-day	5.28E-05
				Iron	1.78E+04	mg/kg	2.43E-05	mg/kg-day	--	1/(mg/kg-day)	--	8.52E-04	mg/kg-day	7.00E-01	mg/kg-day	1.22E-03
				Thallium	1.92E+00	mg/kg	2.63E-09	mg/kg-day	--	1/(mg/kg-day)	--	9.19E-08	mg/kg-day	1.00E-05	mg/kg-day	9.19E-03
				Vanadium	2.53E+01	mg/kg	3.46E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.21E-06	mg/kg-day	1.30E-04	mg/kg-day	9.32E-03
				Dieldrin	2.84E+01	ug/kg	3.88E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	6.21E-09	1.36E-08	mg/kg-day	5.00E-05	mg/kg-day	2.72E-04
				Benz(a)anthracene	2.04E+03	ug/kg	3.63E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.94E-08	1.27E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	3.45E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.55E-07	1.21E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.54E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.75E-08	1.24E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	4.05E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	8.88E-09	1.42E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	3.91E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	8.57E-10	1.37E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.34E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.94E-07	4.70E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.45E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.55E-08	1.21E-06	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.51E-06					2.49E-02
		Exposure Point Total									1.09E-05					1.08E+00
	Exposure Medium Total										1.09E-05					1.08E+00
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	3.52E-12	mg/m3	8.40E+01	1/(mg/m3)	8.87E-10	1.23E-10	mg/m3	1.00E-04	mg/m3	1.23E-06
			Exp. Route Total								8.87E-10					1.23E-06
		Exposure Point Total									8.87E-10					1.23E-06
	Exposure Medium Total										8.87E-10					1.23E-06
Medium Total											1.09E-05					1.08E+00
										Total of Receptor Risks Across All Media	1.09E-05			Total of Receptor Hazards Across All Media		1.08E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.06.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO SITE 12 SURFACE SOIL

CENTRAL TENDENCY EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.59E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.59E-03	mg/kg-day	1.00E+00	mg/kg-day	5.59E-03
				Antimony	2.88E+00	mg/kg	1.32E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.32E-06	mg/kg-day	4.00E-04	mg/kg-day	3.30E-03
				Arsenic	5.60E+00	mg/kg	1.54E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.31E-07	1.54E-06	mg/kg-day	3.00E-04	mg/kg-day	5.13E-03
				Cadmium	1.60E+00	mg/kg	7.33E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.33E-07	mg/kg-day	1.00E-03	mg/kg-day	7.33E-04
				Chromium	2.59E+00	mg/kg	1.19E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.93E-08	1.19E-06	mg/kg-day	3.00E-03	mg/kg-day	3.95E-04
				Cobalt	6.35E+00	mg/kg	2.91E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.91E-06	mg/kg-day	3.00E-04	mg/kg-day	9.69E-03
				Copper	4.41E+01	mg/kg	2.02E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.02E-05	mg/kg-day	4.00E-02	mg/kg-day	5.05E-04
				Iron	1.78E+04	mg/kg	8.15E-04	mg/kg-day	--	1/(mg/kg-day)	--	8.15E-03	mg/kg-day	7.00E-01	mg/kg-day	1.16E-02
				Manganese	4.31E+02	mg/kg	1.97E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.97E-04	mg/kg-day	2.40E-02	mg/kg-day	8.22E-03
				Thallium	1.92E+00	mg/kg	8.79E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.79E-07	mg/kg-day	1.00E-05	mg/kg-day	8.79E-02
				Vanadium	2.53E+01	mg/kg	1.16E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.16E-05	mg/kg-day	5.00E-03	mg/kg-day	2.32E-03
				Dieldrin	2.84E+01	ug/kg	1.30E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.08E-08	1.30E-08	mg/kg-day	5.00E-05	mg/kg-day	2.60E-04
				Benz(a)anthracene	2.04E+03	ug/kg	9.34E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.82E-08	9.34E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	8.88E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.49E-07	8.88E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	9.11E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.65E-08	9.11E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.04E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.62E-09	1.04E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.01E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	7.35E-10	1.01E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.46E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.53E-07	3.46E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	8.88E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.49E-08	8.88E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.42E-06					1.36E-01
			Dermal	Aluminum	1.22E+04	mg/kg	6.37E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.37E-05	mg/kg-day	1.00E+00	mg/kg-day	6.37E-05
				Antimony	2.88E+00	mg/kg	1.50E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.50E-08	mg/kg-day	6.00E-05	mg/kg-day	2.51E-04
				Arsenic	5.60E+00	mg/kg	8.77E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.32E-08	8.77E-08	mg/kg-day	3.00E-04	mg/kg-day	2.92E-04
				Cadmium	1.60E+00	mg/kg	8.35E-11	mg/kg-day	--	1/(mg/kg-day)	--	8.35E-10	mg/kg-day	2.50E-05	mg/kg-day	3.34E-05
				Chromium	2.59E+00	mg/kg	1.35E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.70E-08	1.35E-08	mg/kg-day	7.50E-05	mg/kg-day	1.80E-04
				Cobalt	6.35E+00	mg/kg	3.31E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.31E-08	mg/kg-day	3.00E-04	mg/kg-day	1.10E-04
				Copper	4.41E+01	mg/kg	2.30E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.30E-07	mg/kg-day	4.00E-02	mg/kg-day	5.76E-06
				Iron	1.78E+04	mg/kg	9.29E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.29E-05	mg/kg-day	7.00E-01	mg/kg-day	1.33E-04
				Manganese	4.31E+02	mg/kg	2.25E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.25E-06	mg/kg-day	9.60E-04	mg/kg-day	2.34E-03
				Thallium	1.92E+00	mg/kg	1.00E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.00E-08	mg/kg-day	1.00E-05	mg/kg-day	1.00E-03
				Vanadium	2.53E+01	mg/kg	1.32E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.32E-07	mg/kg-day	1.30E-04	mg/kg-day	1.02E-03
				Dieldrin	2.84E+01	ug/kg	1.48E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.37E-09	1.48E-09	mg/kg-day	5.00E-05	mg/kg-day	2.97E-05
				Benz(a)anthracene	2.04E+03	ug/kg	1.38E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.01E-08	1.38E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	1.32E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.61E-08	1.32E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	1.35E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.86E-09	1.35E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.55E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.13E-09	1.55E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.49E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.09E-10	1.49E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	5.13E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.75E-08	5.13E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	1.32E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.61E-09	1.32E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								2.07E-07					5.46E-03
		Exposure Point Total									1.63E-06					1.41E-01
	Exposure Medium Total										1.63E-06					1.41E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.23E-11	mg/m3	8.40E+01	1/(mg/m3)	1.03E-09	1.23E-10	mg/m3	1.00E-04	mg/m3	1.23E-06
			Exp. Route Total								1.03E-09					1.23E-06
		Exposure Point Total									1.03E-09					1.23E-06
	Exposure Medium Total										1.03E-09					1.23E-06
Medium Total											1.63E-06					1.41E-01
										Total of Receptor Risks Across All Media	1.63E-06				Total of Receptor Hazards Across All Media	1.41E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.06a.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO SITE 12 SURFACE SOIL

CENTRAL TENDENCY EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.59E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.59E-03	mg/kg-day	1.00E+00	mg/kg-day	5.59E-03
				Antimony	2.88E+00	mg/kg	1.32E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.32E-06	mg/kg-day	4.00E-04	mg/kg-day	3.30E-03
				Cadmium	1.60E+00	mg/kg	7.33E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.33E-07	mg/kg-day	1.00E-03	mg/kg-day	7.33E-04
				Chromium	2.59E+00	mg/kg	1.19E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.93E-08	1.19E-06	mg/kg-day	3.00E-03	mg/kg-day	3.95E-04
				Copper	4.41E+01	mg/kg	2.02E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.02E-05	mg/kg-day	4.00E-02	mg/kg-day	5.05E-04
				Iron	1.78E+04	mg/kg	8.15E-04	mg/kg-day	--	1/(mg/kg-day)	--	8.15E-03	mg/kg-day	7.00E-01	mg/kg-day	1.16E-02
				Thallium	1.92E+00	mg/kg	8.79E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.79E-07	mg/kg-day	1.00E-05	mg/kg-day	8.79E-02
				Vanadium	2.53E+01	mg/kg	1.16E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.16E-05	mg/kg-day	5.00E-03	mg/kg-day	2.32E-03
				Dieldrin	2.84E+01	ug/kg	1.30E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.08E-08	1.30E-08	mg/kg-day	5.00E-05	mg/kg-day	2.60E-04
				Benz(a)anthracene	2.04E+03	ug/kg	9.34E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.82E-08	9.34E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	8.88E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.49E-07	8.88E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	9.11E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.65E-08	9.11E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.04E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.62E-09	1.04E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.01E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	7.35E-10	1.01E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	3.46E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.53E-07	3.46E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	8.88E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.49E-08	8.88E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.19E-06					1.13E-01
			Dermal	Aluminum	1.22E+04	mg/kg	6.37E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.37E-05	mg/kg-day	1.00E+00	mg/kg-day	6.37E-05
				Antimony	2.88E+00	mg/kg	1.50E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.50E-08	mg/kg-day	6.00E-05	mg/kg-day	2.51E-04
				Cadmium	1.60E+00	mg/kg	8.35E-11	mg/kg-day	--	1/(mg/kg-day)	--	8.35E-10	mg/kg-day	2.50E-05	mg/kg-day	3.34E-05
				Chromium	2.59E+00	mg/kg	1.35E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.70E-08	1.35E-08	mg/kg-day	7.50E-05	mg/kg-day	1.80E-04
				Copper	4.41E+01	mg/kg	2.30E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.30E-07	mg/kg-day	4.00E-02	mg/kg-day	5.76E-06
				Iron	1.78E+04	mg/kg	9.29E-06	mg/kg-day	--	1/(mg/kg-day)	--	9.29E-05	mg/kg-day	7.00E-01	mg/kg-day	1.33E-04
				Thallium	1.92E+00	mg/kg	1.00E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.00E-08	mg/kg-day	1.00E-05	mg/kg-day	1.00E-03
				Vanadium	2.53E+01	mg/kg	1.32E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.32E-07	mg/kg-day	1.30E-04	mg/kg-day	1.02E-03
				Dieldrin	2.84E+01	ug/kg	1.48E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.37E-09	1.48E-09	mg/kg-day	5.00E-05	mg/kg-day	2.97E-05
				Benz(a)anthracene	2.04E+03	ug/kg	1.38E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.01E-08	1.38E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.94E+03	ug/kg	1.32E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.61E-08	1.32E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.99E+03	ug/kg	1.35E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.86E-09	1.35E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	2.28E+03	ug/kg	1.55E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.13E-09	1.55E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.20E+03	ug/kg	1.49E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.09E-10	1.49E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	5.13E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.75E-08	5.13E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	1.32E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.61E-09	1.32E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.94E-07					2.71E-03
		Exposure Point Total									1.38E-06					1.15E-01
	Exposure Medium Total										1.38E-06					1.15E-01
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.23E-11	mg/m3	8.40E+01	1/(mg/m3)	1.03E-09	1.23E-10	mg/m3	1.00E-04	mg/m3	1.23E-06
			Exp. Route Total								1.03E-09					1.23E-06
		Exposure Point Total									1.03E-09					1.23E-06
	Exposure Medium Total										1.03E-09					1.23E-06
Medium Total											1.38E-06					1.15E-01
										Total of Receptor Risks Across All Media	1.38E-06				Total of Receptor Hazards Across All Media	1.15E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.07.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.59E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.32E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	5.60E+00	mg/kg	5.64E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	8.46E-07					N/A
				Cadmium	1.60E+00	mg/kg	7.33E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	4.35E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.34E-07					N/A
				Cobalt	6.35E+00	mg/kg	2.91E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	4.41E+01	mg/kg	2.02E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	8.15E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	4.31E+02	mg/kg	1.97E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	8.79E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.16E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	4.77E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.63E-08					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	3.43E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.14E-07					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	3.26E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.84E-06					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.34E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.99E-07					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	3.83E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.86E-08					N/A
				Chrysene	2.20E+03	ug/kg	3.69E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	6.62E-09					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.27E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.27E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.26E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.84E-07					N/A
			Exp. Route Total								1.14E-05					--
			Dermal	Aluminum	1.22E+04	mg/kg	6.37E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.50E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	5.60E+00	mg/kg	3.17E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.76E-08					N/A
				Cadmium	1.60E+00	mg/kg	8.35E-11	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	4.89E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.40E-07					N/A
				Cobalt	6.35E+00	mg/kg	3.31E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	4.41E+01	mg/kg	2.30E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	9.29E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	4.31E+02	mg/kg	2.25E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	1.00E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.32E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	5.37E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.59E-09					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	5.01E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.95E-08					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	4.77E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.51E-07					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	4.89E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.73E-08					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	5.60E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.00E-08					N/A
				Chrysene	2.20E+03	ug/kg	5.40E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.66E-10					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.86E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.32E-07					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	4.77E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.51E-08					N/A
			Exp. Route Total								1.75E-06					--
		Exposure Point Total									1.32E-05					--
	Exposure Medium Total										1.32E-05					--
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.58E-11	mg/m3	8.40E+01	1/(mg/m3)	1.92E-09					N/A
			Exp. Route Total								1.92E-09					--
		Exposure Point Total									1.92E-09					--
	Exposure Medium Total										1.92E-09					--
Medium Total											1.32E-05					--
										Total of Receptor Risks Across All Media	1.32E-05			Total of Receptor Hazards Across All Media		--

TABLE 7.07a.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL

CENTRAL TENDENCY EXPOSURES - BACKGROUND ELIMINATION

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Site 12 Contact with Surface Soil	Ingestion	Aluminum	1.22E+04	mg/kg	5.59E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.32E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cadmium	1.60E+00	mg/kg	7.33E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	4.35E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	5.34E-07					N/A
				Copper	4.41E+01	mg/kg	2.02E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	8.15E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	8.79E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.16E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	4.77E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.63E-08					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	3.43E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.14E-07					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	3.26E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.84E-06					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	3.34E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.99E-07					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	3.83E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.86E-08					N/A
				Chrysene	2.20E+03	ug/kg	3.69E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	6.62E-09					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.27E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.27E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	3.26E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.84E-07					N/A
			Exp. Route Total								1.06E-05					--
			Dermal	Aluminum	1.22E+04	mg/kg	6.37E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	2.88E+00	mg/kg	1.50E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cadmium	1.60E+00	mg/kg	8.35E-11	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	2.59E+00	mg/kg	4.89E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.40E-07					N/A
				Copper	4.41E+01	mg/kg	2.30E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	1.78E+04	mg/kg	9.29E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.92E+00	mg/kg	1.00E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.53E+01	mg/kg	1.32E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.84E+01	ug/kg	5.37E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.59E-09					N/A
				Benz(a)anthracene	2.04E+03	ug/kg	5.01E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.95E-08					N/A
				Benzo(a)pyrene	1.94E+03	ug/kg	4.77E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.51E-07					N/A
				Benzo(b)fluoranthene	1.99E+03	ug/kg	4.89E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.73E-08					N/A
				Benzo(k)fluoranthene	2.28E+03	ug/kg	5.60E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.00E-08					N/A
				Chrysene	2.20E+03	ug/kg	5.40E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.66E-10					N/A
				Dibenz(a,h)anthracene	7.56E+02	ug/kg	1.86E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.32E-07					N/A
				Indeno(1,2,3-cd)pyrene	1.94E+03	ug/kg	4.77E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.51E-08					N/A
			Exp. Route Total								1.70E-06					--
		Exposure Point Total									1.23E-05					--
	Exposure Medium Total										1.23E-05					--
	Particulates	Site 12 Airborne Particulates, Emitted from Surface Soil	Inhalation	Chromium	2.59E+00	mg/kg	1.58E-11	mg/m3	8.40E+01	1/(mg/m3)	1.92E-09					N/A
			Exp. Route Total								1.92E-09					--
		Exposure Point Total									1.92E-09					--
	Exposure Medium Total										1.92E-09					--
Medium Total											1.23E-05					--
										Total of Receptor Risks Across All Media	1.23E-05			Total of Receptor Hazards Across All Media		--

TABLE 7.12.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL CHILD EXPOSURE TO SITE 12 SOIL

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	9.48E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.23E-05	3.32E-09	mg/kg-day	7.00E-10	mg/kg-day	4.74E+00
				Aluminum	1.28E+04	mg/kg	1.56E-03	mg/kg-day	--	1/(mg/kg-day)	--	5.47E-02	mg/kg-day	1.00E+00	mg/kg-day	5.47E-02
				Antimony	8.46E+00	mg/kg	1.03E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.62E-05	mg/kg-day	4.00E-04	mg/kg-day	9.04E-02
				Arsenic	9.64E+00	mg/kg	7.06E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.06E-06	2.47E-05	mg/kg-day	3.00E-04	mg/kg-day	8.24E-02
				Cadmium	1.06E+01	mg/kg	1.29E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.53E-05	mg/kg-day	1.00E-03	mg/kg-day	4.53E-02
				Chromium	3.35E+00	mg/kg	4.09E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	6.14E-07	1.43E-05	mg/kg-day	3.00E-03	mg/kg-day	4.77E-03
				Cobalt	7.20E+00	mg/kg	8.79E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.08E-05	mg/kg-day	3.00E-04	mg/kg-day	1.03E-01
				Copper	1.19E+02	mg/kg	1.45E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.09E-04	mg/kg-day	4.00E-02	mg/kg-day	1.27E-02
				Iron	2.20E+04	mg/kg	2.69E-03	mg/kg-day	--	1/(mg/kg-day)	--	9.40E-02	mg/kg-day	7.00E-01	mg/kg-day	1.34E-01
				Manganese	5.75E+02	mg/kg	7.02E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.46E-03	mg/kg-day	2.40E-02	mg/kg-day	1.02E-01
				Thallium	3.19E+00	mg/kg	3.90E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.36E-05	mg/kg-day	1.00E-05	mg/kg-day	1.36E+00
				Vanadium	2.58E+01	mg/kg	3.15E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.10E-04	mg/kg-day	5.00E-03	mg/kg-day	2.21E-02
				Zinc	4.25E+02	mg/kg	5.19E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.82E-03	mg/kg-day	3.00E-01	mg/kg-day	6.05E-03
				Aroclor-1260	3.50E+02	ug/kg	4.27E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	8.55E-08	1.50E-06	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	2.34E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	3.75E-08	8.21E-08	mg/kg-day	5.00E-05	mg/kg-day	1.64E-03
				2-Methylnaphthalene	1.26E+03	ug/kg	1.54E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.39E-06	mg/kg-day	4.00E-03	mg/kg-day	1.35E-03
				Benz(a)anthracene	1.85E+03	ug/kg	2.26E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.95E-07	7.91E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	2.01E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.41E-06	7.05E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	2.06E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.52E-07	7.22E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	2.31E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	5.05E-08	8.08E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	2.45E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.38E-09	8.59E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	7.03E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.54E-06	2.46E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.82E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.98E-07	6.37E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	5.02E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.76E-06	mg/kg-day	2.00E-02	mg/kg-day	8.78E-05
			Exp. Route Total								2.15E-05					6.76E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.18E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.14E-07	1.11E-10	mg/kg-day	7.00E-10	mg/kg-day	1.59E-01
				Aluminum	1.28E+04	mg/kg	1.75E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.13E-04	mg/kg-day	1.00E+00	mg/kg-day	6.13E-04
				Antimony	8.46E+00	mg/kg	1.16E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.05E-07	mg/kg-day	6.00E-05	mg/kg-day	6.75E-03
				Arsenic	9.64E+00	mg/kg	3.96E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.93E-08	1.38E-06	mg/kg-day	3.00E-04	mg/kg-day	4.61E-03
				Cadmium	1.06E+01	mg/kg	1.45E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.07E-08	mg/kg-day	2.50E-05	mg/kg-day	2.03E-03
				Chromium	3.35E+00	mg/kg	4.58E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.75E-07	1.60E-07	mg/kg-day	7.50E-05	mg/kg-day	2.14E-03
				Cobalt	7.20E+00	mg/kg	9.85E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.45E-07	mg/kg-day	3.00E-04	mg/kg-day	1.15E-03
				Copper	1.19E+02	mg/kg	1.63E-07	mg/kg-day	--	1/(mg/kg-day)	--	5.70E-06	mg/kg-day	4.00E-02	mg/kg-day	1.42E-04
				Iron	2.20E+04	mg/kg	3.01E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.05E-03	mg/kg-day	7.00E-01	mg/kg-day	1.50E-03
				Manganese	5.75E+02	mg/kg	7.86E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.75E-05	mg/kg-day	9.60E-04	mg/kg-day	2.87E-02
				Thallium	3.19E+00	mg/kg	4.36E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.53E-07	mg/kg-day	1.00E-05	mg/kg-day	1.53E-02
				Vanadium	2.58E+01	mg/kg	3.53E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.24E-06	mg/kg-day	1.30E-04	mg/kg-day	9.50E-03
				Zinc	4.25E+02	mg/kg	5.81E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.03E-05	mg/kg-day	3.00E-01	mg/kg-day	6.78E-05
				Aroclor-1260	3.50E+02	ug/kg	6.70E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.34E-08	2.35E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	2.63E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.20E-09	9.19E-09	mg/kg-day	5.00E-05	mg/kg-day	1.84E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	2.24E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.84E-07	mg/kg-day	4.00E-03	mg/kg-day	1.96E-04
				Benz(a)anthracene	1.85E+03	ug/kg	3.29E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.20E-08	1.15E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	2.93E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.42E-07	1.03E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	3.00E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.58E-08	1.05E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	3.36E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.36E-09	1.18E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	3.57E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	7.83E-10	1.25E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.02E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.24E-07	3.58E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	2.65E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.80E-08	9.27E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	7.31E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.56E-07	mg/kg-day	2.00E-02	mg/kg-day	1.28E-05
			Exp. Route Total								1.84E-06					2.32E-01
		Exposure Point Total									2.33E-05					6.99E+00
	Exposure Medium Total										2.33E-05					6.99E+00
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	4.60E-08	mg/m3	3.40E-02	1/(mg/m3)	1.56E-09	1.61E-06	mg/m3	3.00E-03	mg/m3	5.37E-04
			Exp. Route Total								1.56E-09					5.37E-04
		Exposure Point Total									1.56E-09					5.37E-04
	Exposure Medium Total										1.56E-09					5.37E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.05E-15	mg/m3	3.80E+04	1/(mg/m3)	4.01E-11	3.69E-14	mg/m3	4.00E-08	mg/m3	9.22E-07
				Chromium	3.35E+00	mg/kg	4.55E-12	mg/m3	8.40E+01	1/(mg/m3)	1.15E-09	1.59E-10	mg/m3	1.00E-04	mg/m3	1.59E-06
			Exp. Route Total								1.19E-09					2.52E-06
		Exposure Point Total									1.19E-09					2.52E-06
	Exposure Medium Total										1.19E-09					2.52E-06
Medium Total											2.33E-05					6.99E+00
										Total of Receptor Risks Across All Media	2.33E-05			Total of Receptor Hazards Across All Media		6.99E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.13.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - RESIDENTIAL ADULT EXPOSURE TO SITE 12 SOIL

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.55E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.62E-06	3.55E-10	mg/kg-day	7.00E-10	mg/kg-day	5.08E-01
				Aluminum	1.28E+04	mg/kg	5.86E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.86E-03	mg/kg-day	1.00E+00	mg/kg-day	5.86E-03
				Antimony	8.46E+00	mg/kg	3.87E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.87E-06	mg/kg-day	4.00E-04	mg/kg-day	9.69E-03
				Arsenic	9.64E+00	mg/kg	2.65E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.97E-07	2.65E-06	mg/kg-day	3.00E-04	mg/kg-day	8.83E-03
				Cadmium	1.06E+01	mg/kg	4.85E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.85E-06	mg/kg-day	1.00E-03	mg/kg-day	4.85E-03
				Chromium	3.35E+00	mg/kg	1.53E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	7.67E-08	1.53E-06	mg/kg-day	3.00E-03	mg/kg-day	5.11E-04
				Cobalt	7.20E+00	mg/kg	3.30E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.30E-06	mg/kg-day	3.00E-04	mg/kg-day	1.10E-02
				Copper	1.19E+02	mg/kg	5.45E-06	mg/kg-day	--	1/(mg/kg-day)	--	5.45E-05	mg/kg-day	4.00E-02	mg/kg-day	1.36E-03
				Iron	2.20E+04	mg/kg	1.01E-03	mg/kg-day	--	1/(mg/kg-day)	--	1.01E-02	mg/kg-day	7.00E-01	mg/kg-day	1.44E-02
				Manganese	5.75E+02	mg/kg	2.63E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.63E-04	mg/kg-day	2.40E-02	mg/kg-day	1.10E-02
				Thallium	3.19E+00	mg/kg	1.46E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.46E-06	mg/kg-day	1.00E-05	mg/kg-day	1.46E-01
				Vanadium	2.58E+01	mg/kg	1.18E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.18E-05	mg/kg-day	5.00E-03	mg/kg-day	2.36E-03
				Zinc	4.25E+02	mg/kg	1.95E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.95E-04	mg/kg-day	3.00E-01	mg/kg-day	6.49E-04
				Aroclor-1260	3.50E+02	ug/kg	1.60E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	3.21E-08	1.60E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	8.79E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.41E-08	8.79E-09	mg/kg-day	5.00E-05	mg/kg-day	1.76E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	5.77E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.77E-07	mg/kg-day	4.00E-03	mg/kg-day	1.44E-04
				Benz(a)anthracene	1.85E+03	ug/kg	8.47E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.18E-08	8.47E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	7.56E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.52E-07	7.56E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	7.74E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.65E-08	7.74E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	8.65E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.32E-09	8.65E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	9.20E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	6.72E-10	9.20E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.64E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.93E-07	2.64E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	6.82E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.98E-08	6.82E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.88E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.88E-07	mg/kg-day	2.00E-02	mg/kg-day	9.41E-06
			Exp. Route Total								6.06E-06					7.25E-01
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.22E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.58E-07	1.22E-11	mg/kg-day	7.00E-10	mg/kg-day	1.74E-02
				Aluminum	1.28E+04	mg/kg	6.68E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.68E-05	mg/kg-day	1.00E+00	mg/kg-day	6.68E-05
				Antimony	8.46E+00	mg/kg	4.42E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.42E-08	mg/kg-day	6.00E-05	mg/kg-day	7.36E-04
				Arsenic	9.64E+00	mg/kg	1.51E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.26E-08	1.51E-07	mg/kg-day	3.00E-04	mg/kg-day	5.03E-04
				Cadmium	1.06E+01	mg/kg	5.53E-10	mg/kg-day	--	1/(mg/kg-day)	--	5.53E-09	mg/kg-day	2.50E-05	mg/kg-day	2.21E-04
				Chromium	3.35E+00	mg/kg	1.75E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.50E-08	1.75E-08	mg/kg-day	7.50E-05	mg/kg-day	2.33E-04
				Cobalt	7.20E+00	mg/kg	3.76E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.76E-08	mg/kg-day	3.00E-04	mg/kg-day	1.25E-04
				Copper	1.19E+02	mg/kg	6.21E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.21E-07	mg/kg-day	4.00E-02	mg/kg-day	1.55E-05
				Iron	2.20E+04	mg/kg	1.15E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.15E-04	mg/kg-day	7.00E-01	mg/kg-day	1.64E-04
				Manganese	5.75E+02	mg/kg	3.00E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.00E-06	mg/kg-day	9.60E-04	mg/kg-day	3.13E-03
				Thallium	3.19E+00	mg/kg	1.67E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.67E-08	mg/kg-day	1.00E-05	mg/kg-day	1.67E-03
				Vanadium	2.58E+01	mg/kg	1.35E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.35E-07	mg/kg-day	1.30E-04	mg/kg-day	1.04E-03
				Zinc	4.25E+02	mg/kg	2.22E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.22E-06	mg/kg-day	3.00E-01	mg/kg-day	7.40E-06
				Aroclor-1260	3.50E+02	ug/kg	2.56E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	5.12E-09	2.56E-08	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	1.00E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.60E-09	1.00E-09	mg/kg-day	5.00E-05	mg/kg-day	2.00E-05
				2-Methylnaphthalene	1.26E+03	ug/kg	8.55E-09	mg/kg-day	--	1/(mg/kg-day)	--	8.55E-08	mg/kg-day	4.00E-03	mg/kg-day	2.14E-05
				Benz(a)anthracene	1.85E+03	ug/kg	1.26E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.17E-09	1.26E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.12E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.17E-08	1.12E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.15E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.37E-09	1.15E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.28E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	9.36E-10	1.28E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	1.36E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	9.96E-11	1.36E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	3.91E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.85E-08	3.91E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.01E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.38E-09	1.01E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	2.79E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.79E-08	mg/kg-day	2.00E-02	mg/kg-day	1.39E-06
			Exp. Route Total								3.59E-07					2.53E-02
		Exposure Point Total									6.42E-06					7.50E-01
	Exposure Medium Total										6.42E-06					7.50E-01
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.61E-07	mg/m3	3.40E-02	1/(mg/m3)	5.47E-09	1.61E-06	mg/m3	3.00E-03	mg/m3	5.37E-04
			Exp. Route Total								5.47E-09					5.37E-04
		Exposure Point Total									5.47E-09					5.37E-04
	Exposure Medium Total										5.47E-09					5.37E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.69E-15	mg/m3	3.80E+04	1/(mg/m3)	1.40E-10	3.69E-14	mg/m3	4.00E-08	mg/m3	9.22E-07
				Chromium	3.35E+00	mg/kg	1.59E-11	mg/m3	8.40E+01	1/(mg/m3)	1.34E-09	1.59E-10	mg/m3	1.00E-04	mg/m3	1.59E-06
			Exp. Route Total								1.48E-09					2.52E-06
		Exposure Point Total									1.48E-09					2.52E-06
	Exposure Medium Total										1.48E-09					2.52E-06
Medium Total											6.42E-06					7.50E-01
										Total of Receptor Risks Across All Media	6.42E-06			Total of Receptor Hazards Across All Media		7.50E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.14.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME RESIDENT EXPOSURE TO SITE 12 SOIL

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.30E-10	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.69E-05					N/A
				Aluminum	1.28E+04	mg/kg	5.86E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	3.87E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	9.71E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.46E-06					N/A
				Cadmium	1.06E+01	mg/kg	4.85E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	5.62E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	6.90E-07					N/A
				Cobalt	7.20E+00	mg/kg	3.30E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	5.45E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	1.01E-03	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	2.63E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	1.46E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	1.18E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	1.95E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	5.88E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.18E-07					N/A
				Dieldrin	1.92E+01	ug/kg	3.22E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	5.16E-08					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	5.77E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	3.11E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.57E-07					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	2.77E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.96E-06					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	2.84E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.08E-07					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	3.17E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	5.69E-08					N/A
				Chrysene	2.01E+03	ug/kg	3.37E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	6.05E-09					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	9.67E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.73E-06					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	2.50E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.48E-07					N/A
				Naphthalene	4.11E+02	ug/kg	1.88E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								2.75E-05					--
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	4.40E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	5.72E-07					N/A
				Aluminum	1.28E+04	mg/kg	6.68E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	4.42E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	5.47E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	8.20E-08					N/A
				Cadmium	1.06E+01	mg/kg	5.53E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	6.33E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	3.10E-07					N/A
				Cobalt	7.20E+00	mg/kg	3.76E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	6.21E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	1.15E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	3.00E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	1.67E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	1.35E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	2.22E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	9.26E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.85E-08					N/A
				Dieldrin	1.92E+01	ug/kg	3.63E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	5.81E-09					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	8.55E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	4.54E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.12E-08					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	4.05E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.24E-07					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	4.15E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.42E-08					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	4.64E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	8.30E-09					N/A
				Chrysene	2.01E+03	ug/kg	4.94E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	8.82E-10					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.42E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.53E-07					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	3.66E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.54E-08					N/A
				Naphthalene	4.11E+02	ug/kg	2.79E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								2.20E-06					--
		Exposure Point Total									2.97E-05					--
	Exposure Medium Total										2.97E-05					--
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	2.07E-07	mg/m3	3.40E-02	1/(mg/m3)	7.04E-09					N/A
			Exp. Route Total								7.04E-09					--
		Exposure Point Total									7.04E-09					--
	Exposure Medium Total										7.04E-09					--
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	4.74E-15	mg/m3	3.80E+04	1/(mg/m3)	1.80E-10					N/A
				Chromium	3.35E+00	mg/kg	2.05E-11	mg/m3	8.40E+01	1/(mg/m3)	2.48E-09					N/A
			Exp. Route Total								2.66E-09					--
		Exposure Point Total									2.66E-09					--
	Exposure Medium Total										2.66E-09					--
Medium Total											2.97E-05					--
										Total of Receptor Risks Across All Media	2.97E-05			Total of Receptor Hazards Across All Media		--

TABLE 7.15.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INDUSTRIAL WORKER EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURES
NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Industrial
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	4.28E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	5.56E-06	3.33E-10	mg/kg-day	7.00E-10	mg/kg-day	4.75E-01
				Aluminum	1.28E+04	mg/kg	7.05E-04	mg/kg-day	--	1/(mg/kg-day)	--	5.49E-03	mg/kg-day	1.00E+00	mg/kg-day	5.49E-03
				Antimony	8.46E+00	mg/kg	4.66E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.63E-06	mg/kg-day	4.00E-04	mg/kg-day	9.06E-03
				Arsenic	9.64E+00	mg/kg	3.19E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.78E-07	2.48E-06	mg/kg-day	3.00E-04	mg/kg-day	8.26E-03
				Cadmium	1.06E+01	mg/kg	5.84E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.54E-06	mg/kg-day	1.00E-03	mg/kg-day	4.54E-03
				Chromium	3.35E+00	mg/kg	1.85E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	9.23E-08	1.44E-06	mg/kg-day	3.00E-03	mg/kg-day	4.79E-04
				Cobalt	7.20E+00	mg/kg	3.97E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.09E-06	mg/kg-day	3.00E-04	mg/kg-day	1.03E-02
				Copper	1.19E+02	mg/kg	6.56E-06	mg/kg-day	--	1/(mg/kg-day)	--	5.10E-05	mg/kg-day	4.00E-02	mg/kg-day	1.28E-03
				Iron	2.20E+04	mg/kg	1.21E-03	mg/kg-day	--	1/(mg/kg-day)	--	9.43E-03	mg/kg-day	7.00E-01	mg/kg-day	1.35E-02
				Manganese	5.75E+02	mg/kg	3.17E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.46E-04	mg/kg-day	2.40E-02	mg/kg-day	1.03E-02
				Thallium	3.19E+00	mg/kg	1.76E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.37E-06	mg/kg-day	1.00E-05	mg/kg-day	1.37E-01
				Vanadium	2.58E+01	mg/kg	1.42E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.11E-05	mg/kg-day	5.00E-03	mg/kg-day	2.21E-03
				Zinc	4.25E+02	mg/kg	2.34E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.82E-04	mg/kg-day	3.00E-01	mg/kg-day	6.07E-04
				Aroclor-1260	3.50E+02	ug/kg	1.93E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	3.86E-08	1.50E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	1.06E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.69E-08	8.23E-09	mg/kg-day	5.00E-05	mg/kg-day	1.65E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	6.94E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.40E-07	mg/kg-day	4.00E-03	mg/kg-day	1.35E-04
				Benz(a)anthracene	1.85E+03	ug/kg	1.02E-07	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.44E-08	7.93E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	9.09E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.64E-07	7.07E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	9.31E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.80E-08	7.24E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.04E-07	mg/kg-day	7.30E-02	1/(mg/kg-day)	7.60E-09	8.10E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	1.11E-07	mg/kg-day	7.30E-03	1/(mg/kg-day)	8.09E-10	8.61E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	3.17E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.32E-07	2.47E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	8.21E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.99E-08	6.39E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	2.26E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.76E-07	mg/kg-day	2.00E-02	mg/kg-day	8.81E-06
			Exp. Route Total								7.29E-06					6.78E-01
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.69E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	2.20E-07	1.32E-11	mg/kg-day	7.00E-10	mg/kg-day	1.88E-02
				Aluminum	1.28E+04	mg/kg	9.31E-06	mg/kg-day	--	1/(mg/kg-day)	--	7.24E-05	mg/kg-day	1.00E+00	mg/kg-day	7.24E-05
				Antimony	8.46E+00	mg/kg	6.15E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.79E-08	mg/kg-day	6.00E-05	mg/kg-day	7.98E-04
				Arsenic	9.64E+00	mg/kg	2.10E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.16E-08	1.64E-07	mg/kg-day	3.00E-04	mg/kg-day	5.45E-04
				Cadmium	1.06E+01	mg/kg	7.71E-10	mg/kg-day	--	1/(mg/kg-day)	--	6.00E-09	mg/kg-day	2.50E-05	mg/kg-day	2.40E-04
				Chromium	3.35E+00	mg/kg	2.44E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	4.87E-08	1.90E-08	mg/kg-day	7.50E-05	mg/kg-day	2.53E-04
				Cobalt	7.20E+00	mg/kg	5.24E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.07E-08	mg/kg-day	3.00E-04	mg/kg-day	1.36E-04
				Copper	1.19E+02	mg/kg	8.66E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.73E-07	mg/kg-day	4.00E-02	mg/kg-day	1.68E-05
				Iron	2.20E+04	mg/kg	1.60E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.24E-04	mg/kg-day	7.00E-01	mg/kg-day	1.78E-04
				Manganese	5.75E+02	mg/kg	4.18E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.25E-06	mg/kg-day	9.60E-04	mg/kg-day	3.39E-03
				Thallium	3.19E+00	mg/kg	2.32E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.80E-08	mg/kg-day	1.00E-05	mg/kg-day	1.80E-03
				Vanadium	2.58E+01	mg/kg	1.88E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.46E-07	mg/kg-day	1.30E-04	mg/kg-day	1.12E-03
				Zinc	4.25E+02	mg/kg	3.09E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.40E-06	mg/kg-day	3.00E-01	mg/kg-day	8.01E-06
				Aroclor-1260	3.50E+02	ug/kg	3.56E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	7.13E-09	2.77E-08	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	1.40E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.23E-09	1.09E-09	mg/kg-day	5.00E-05	mg/kg-day	2.17E-05
				2-Methylnaphthalene	1.26E+03	ug/kg	1.19E-08	mg/kg-day	--	1/(mg/kg-day)	--	9.27E-08	mg/kg-day	4.00E-03	mg/kg-day	2.32E-05
				Benz(a)anthracene	1.85E+03	ug/kg	1.75E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.28E-08	1.36E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.56E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.14E-07	1.21E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.60E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.17E-08	1.24E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.79E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.30E-09	1.39E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	1.90E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.39E-10	1.48E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	5.45E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.98E-08	4.24E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.41E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.03E-08	1.10E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	3.89E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.02E-08	mg/kg-day	2.00E-02	mg/kg-day	1.51E-06
			Exp. Route Total								5.00E-07					2.74E-02
		Exposure Point Total									7.79E-06					7.05E-01
	Exposure Medium Total										7.79E-06					7.05E-01
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	2.58E-07	mg/m3	3.40E-02	1/(mg/m3)	8.78E-09	2.01E-06	mg/m3	3.00E-03	mg/m3	6.70E-04
			Exp. Route Total								8.78E-09					6.70E-04
		Exposure Point Total									8.78E-09					6.70E-04
	Exposure Medium Total										8.78E-09					6.70E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	5.92E-15	mg/m3	3.80E+04	1/(mg/m3)	2.25E-10	4.60E-14	mg/m3	4.00E-08	mg/m3	1.15E-06
				Chromium	3.35E+00	mg/kg	2.56E-11	mg/m3	8.40E+01	1/(mg/m3)	2.15E-09	1.99E-10	mg/m3	1.00E-04	mg/m3	1.99E-06
			Exp. Route Total								2.37E-09					3.14E-06
		Exposure Point Total									2.37E-09					3.14E-06
	Exposure Medium Total										2.37E-09					3.14E-06
Medium Total											7.80E-06					7.06E-01
										Total of Receptor Risks Across All Media	7.80E-06			Total of Receptor Hazards Across All Media		7.06E-01

TABLE 7.16.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURES
NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.08E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.00E-07	2.15E-10	mg/kg-day	7.00E-10	mg/kg-day	3.08E-01
				Aluminum	1.28E+04	mg/kg	5.08E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.55E-03	mg/kg-day	1.00E+00	mg/kg-day	3.55E-03
				Antimony	8.46E+00	mg/kg	3.36E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.35E-06	mg/kg-day	4.00E-04	mg/kg-day	5.87E-03
				Arsenic	9.64E+00	mg/kg	2.29E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.44E-08	1.61E-06	mg/kg-day	3.00E-04	mg/kg-day	5.35E-03
				Cadmium	1.06E+01	mg/kg	4.21E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.94E-06	mg/kg-day	1.00E-03	mg/kg-day	2.94E-03
				Chromium	3.35E+00	mg/kg	1.33E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	6.64E-09	9.30E-07	mg/kg-day	3.00E-03	mg/kg-day	3.10E-04
				Cobalt	7.20E+00	mg/kg	2.86E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.00E-06	mg/kg-day	3.00E-04	mg/kg-day	6.66E-03
				Copper	1.19E+02	mg/kg	4.72E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.30E-05	mg/kg-day	4.00E-02	mg/kg-day	8.26E-04
				Iron	2.20E+04	mg/kg	8.73E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.11E-03	mg/kg-day	7.00E-01	mg/kg-day	8.73E-03
				Manganese	5.75E+02	mg/kg	2.28E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.60E-04	mg/kg-day	2.40E-02	mg/kg-day	6.65E-03
				Thallium	3.19E+00	mg/kg	1.27E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.86E-07	mg/kg-day	1.00E-05	mg/kg-day	8.86E-02
				Vanadium	2.58E+01	mg/kg	1.02E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.16E-06	mg/kg-day	5.00E-03	mg/kg-day	1.43E-03
				Zinc	4.25E+02	mg/kg	1.69E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.18E-04	mg/kg-day	3.00E-01	mg/kg-day	3.93E-04
				Aroclor-1260	3.50E+02	ug/kg	1.39E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	2.78E-09	9.72E-08	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	7.62E-11	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.22E-09	5.33E-09	mg/kg-day	5.00E-05	mg/kg-day	1.07E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	5.00E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.50E-07	mg/kg-day	4.00E-03	mg/kg-day	8.75E-05
				Benz(a)anthracene	1.85E+03	ug/kg	7.34E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.36E-09	5.14E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	6.55E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.78E-08	4.58E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	6.70E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.89E-09	4.69E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	7.50E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	5.47E-10	5.25E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	7.97E-09	mg/kg-day	7.30E-03	1/(mg/kg-day)	5.82E-11	5.58E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.28E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.67E-08	1.60E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	5.91E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.31E-09	4.14E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.63E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.14E-07	mg/kg-day	2.00E-02	mg/kg-day	5.71E-06
			Exp. Route Total								5.25E-07					4.39E-01
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.69E-14	mg/kg-day	1.30E+05	1/(mg/kg-day)	4.80E-09	2.59E-12	mg/kg-day	7.00E-10	mg/kg-day	3.69E-03
				Aluminum	1.28E+04	mg/kg	2.03E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.42E-05	mg/kg-day	1.00E+00	mg/kg-day	1.42E-05
				Antimony	8.46E+00	mg/kg	1.34E-10	mg/kg-day	--	1/(mg/kg-day)	--	9.40E-09	mg/kg-day	6.00E-05	mg/kg-day	1.57E-04
				Arsenic	9.64E+00	mg/kg	4.59E-10	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.88E-10	3.21E-08	mg/kg-day	3.00E-04	mg/kg-day	1.07E-04
				Cadmium	1.06E+01	mg/kg	1.68E-11	mg/kg-day	--	1/(mg/kg-day)	--	1.18E-09	mg/kg-day	2.50E-05	mg/kg-day	4.71E-05
				Chromium	3.35E+00	mg/kg	5.32E-11	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.06E-09	3.72E-09	mg/kg-day	7.50E-05	mg/kg-day	4.96E-05
				Cobalt	7.20E+00	mg/kg	1.14E-10	mg/kg-day	--	1/(mg/kg-day)	--	8.00E-09	mg/kg-day	3.00E-04	mg/kg-day	2.67E-05
				Copper	1.19E+02	mg/kg	1.89E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.32E-07	mg/kg-day	4.00E-02	mg/kg-day	3.30E-06
				Iron	2.20E+04	mg/kg	3.49E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.44E-05	mg/kg-day	7.00E-01	mg/kg-day	3.49E-05
				Manganese	5.75E+02	mg/kg	9.12E-09	mg/kg-day	--	1/(mg/kg-day)	--	6.39E-07	mg/kg-day	9.60E-04	mg/kg-day	6.65E-04
				Thallium	3.19E+00	mg/kg	5.06E-11	mg/kg-day	--	1/(mg/kg-day)	--	3.54E-09	mg/kg-day	1.00E-05	mg/kg-day	3.54E-04
				Vanadium	2.58E+01	mg/kg	4.09E-10	mg/kg-day	--	1/(mg/kg-day)	--	2.87E-08	mg/kg-day	1.30E-04	mg/kg-day	2.20E-04
				Zinc	4.25E+02	mg/kg	6.74E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.72E-07	mg/kg-day	3.00E-01	mg/kg-day	1.57E-06
				Aroclor-1260	3.50E+02	ug/kg	7.78E-11	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.56E-10	5.44E-09	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	3.05E-12	mg/kg-day	1.60E+01	1/(mg/kg-day)	4.87E-11	2.13E-10	mg/kg-day	5.00E-05	mg/kg-day	4.27E-06
				2-Methylnaphthalene	1.26E+03	ug/kg	2.60E-10	mg/kg-day	--	1/(mg/kg-day)	--	1.82E-08	mg/kg-day	4.00E-03	mg/kg-day	4.55E-06
				Benz(a)anthracene	1.85E+03	ug/kg	3.82E-10	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.79E-10	2.67E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	3.40E-10	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.48E-09	2.38E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	3.49E-10	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.54E-10	2.44E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	3.90E-10	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.85E-11	2.73E-08	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	4.15E-10	mg/kg-day	7.30E-03	1/(mg/kg-day)	3.03E-12	2.90E-08	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.19E-10	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.67E-10	8.32E-09	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	3.07E-10	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.24E-10	2.15E-08	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	8.48E-11	mg/kg-day	--	1/(mg/kg-day)	--	5.93E-09	mg/kg-day	2.00E-02	mg/kg-day	2.97E-07
			Exp. Route Total								1.09E-08					5.38E-03
		Exposure Point Total									5.36E-07					4.45E-01
	Exposure Medium Total										5.36E-07					4.45E-01
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	5.64E-09	mg/m3	3.40E-02	1/(mg/m3)	1.92E-10	3.94E-07	mg/m3	3.00E-03	mg/m3	1.31E-04
			Exp. Route Total								1.92E-10					1.31E-04
		Exposure Point Total									1.92E-10					1.31E-04
	Exposure Medium Total										1.92E-10					1.31E-04
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	1.29E-16	mg/m3	3.80E+04	1/(mg/m3)	4.91E-12	9.04E-15	mg/m3	4.00E-08	mg/m3	2.26E-07
				Chromium	3.35E+00	mg/kg	5.57E-13	mg/m3	8.40E+01	1/(mg/m3)	4.68E-11	3.90E-11	mg/m3	1.00E-04	mg/m3	3.90E-07
			Exp. Route Total								5.17E-11					6.16E-07
		Exposure Point Total									5.17E-11					6.16E-07
	Exposure Medium Total										5.17E-11					6.16E-07
Medium Total											5.36E-07					4.45E-01
										Total of Receptor Risks Across All Media	5.36E-07			Total of Receptor Hazards Across All Media		4.45E-01

TABLE 7.17.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURES
NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.11E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	2.74E-06	7.37E-10	mg/kg-day	7.00E-10	mg/kg-day	1.05E+00
				Aluminum	1.28E+04	mg/kg	3.47E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.22E-02	mg/kg-day	1.00E+00	mg/kg-day	1.22E-02
				Antimony	8.46E+00	mg/kg	2.30E-07	mg/kg-day	--	1/(mg/kg-day)	--	8.04E-06	mg/kg-day	4.00E-04	mg/kg-day	2.01E-02
				Arsenic	9.64E+00	mg/kg	1.57E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	2.35E-07	5.49E-06	mg/kg-day	3.00E-04	mg/kg-day	1.83E-02
				Cadmium	1.06E+01	mg/kg	2.88E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.01E-05	mg/kg-day	1.00E-03	mg/kg-day	1.01E-02
				Chromium	3.35E+00	mg/kg	9.09E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.36E-07	3.18E-06	mg/kg-day	3.00E-03	mg/kg-day	1.06E-03
				Cobalt	7.20E+00	mg/kg	1.95E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.84E-06	mg/kg-day	3.00E-04	mg/kg-day	2.28E-02
				Copper	1.19E+02	mg/kg	3.23E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.13E-04	mg/kg-day	4.00E-02	mg/kg-day	2.83E-03
				Iron	2.20E+04	mg/kg	5.97E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.09E-02	mg/kg-day	7.00E-01	mg/kg-day	2.98E-02
				Manganese	5.75E+02	mg/kg	1.56E-05	mg/kg-day	--	1/(mg/kg-day)	--	5.46E-04	mg/kg-day	2.40E-02	mg/kg-day	2.28E-02
				Thallium	3.19E+00	mg/kg	8.66E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.03E-06	mg/kg-day	1.00E-05	mg/kg-day	3.03E-01
				Vanadium	2.58E+01	mg/kg	7.00E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.45E-05	mg/kg-day	5.00E-03	mg/kg-day	4.90E-03
				Zinc	4.25E+02	mg/kg	1.15E-05	mg/kg-day	--	1/(mg/kg-day)	--	4.04E-04	mg/kg-day	3.00E-01	mg/kg-day	1.35E-03
				Aroclor-1260	3.50E+02	ug/kg	9.50E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.90E-08	3.32E-07	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	5.21E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.34E-09	1.82E-08	mg/kg-day	5.00E-05	mg/kg-day	3.65E-04
				2-Methylnaphthalene	1.26E+03	ug/kg	3.42E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.20E-06	mg/kg-day	4.00E-03	mg/kg-day	2.99E-04
				Benz(a)anthracene	1.85E+03	ug/kg	5.02E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.10E-07	1.76E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	4.48E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.81E-07	1.57E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	4.59E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.00E-07	1.61E-06	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	5.13E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.12E-08	1.80E-06	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	5.45E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.19E-09	1.91E-06	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	1.56E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.42E-07	5.47E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	4.04E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.85E-08	1.42E-06	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.12E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.90E-07	mg/kg-day	2.00E-02	mg/kg-day	1.95E-05
			Exp. Route Total								4.77E-06					1.50E+00
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	7.08E-13	mg/kg-day	1.30E+05	1/(mg/kg-day)	9.20E-08	2.48E-11	mg/kg-day	7.00E-10	mg/kg-day	3.54E-02
				Aluminum	1.28E+04	mg/kg	3.89E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.36E-04	mg/kg-day	1.00E+00	mg/kg-day	1.36E-04
				Antimony	8.46E+00	mg/kg	2.57E-09	mg/kg-day	--	1/(mg/kg-day)	--	9.00E-08	mg/kg-day	6.00E-05	mg/kg-day	1.50E-03
				Arsenic	9.64E+00	mg/kg	8.79E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.32E-08	3.08E-07	mg/kg-day	3.00E-04	mg/kg-day	1.03E-03
				Cadmium	1.06E+01	mg/kg	3.22E-10	mg/kg-day	--	1/(mg/kg-day)	--	1.13E-08	mg/kg-day	2.50E-05	mg/kg-day	4.51E-04
				Chromium	3.35E+00	mg/kg	1.02E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	6.11E-08	3.56E-08	mg/kg-day	7.50E-05	mg/kg-day	4.75E-04
				Cobalt	7.20E+00	mg/kg	2.19E-09	mg/kg-day	--	1/(mg/kg-day)	--	7.66E-08	mg/kg-day	3.00E-04	mg/kg-day	2.55E-04
				Copper	1.19E+02	mg/kg	3.62E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.27E-06	mg/kg-day	4.00E-02	mg/kg-day	3.16E-05
				Iron	2.20E+04	mg/kg	6.69E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.34E-04	mg/kg-day	7.00E-01	mg/kg-day	3.34E-04
				Manganese	5.75E+02	mg/kg	1.75E-07	mg/kg-day	--	1/(mg/kg-day)	--	6.12E-06	mg/kg-day	9.60E-04	mg/kg-day	6.37E-03
				Thallium	3.19E+00	mg/kg	9.70E-10	mg/kg-day	--	1/(mg/kg-day)	--	3.39E-08	mg/kg-day	1.00E-05	mg/kg-day	3.39E-03
				Vanadium	2.58E+01	mg/kg	7.84E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.74E-07	mg/kg-day	1.30E-04	mg/kg-day	2.11E-03
				Zinc	4.25E+02	mg/kg	1.29E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.52E-06	mg/kg-day	3.00E-01	mg/kg-day	1.51E-05
				Aroclor-1260	3.50E+02	ug/kg	1.49E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	2.98E-09	5.21E-08	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	5.84E-11	mg/kg-day	1.60E+01	1/(mg/kg-day)	9.34E-10	2.04E-09	mg/kg-day	5.00E-05	mg/kg-day	4.08E-05
				2-Methylnaphthalene	1.26E+03	ug/kg	4.98E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.74E-07	mg/kg-day	4.00E-03	mg/kg-day	4.36E-05
				Benz(a)anthracene	1.85E+03	ug/kg	7.31E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.60E-08	2.56E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	6.52E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.43E-07	2.28E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	6.68E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.46E-08	2.34E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	7.47E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.64E-09	2.61E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	7.94E-09	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.74E-10	2.78E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.28E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.98E-08	7.97E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	5.89E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.29E-08	2.06E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	1.62E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.68E-08	mg/kg-day	2.00E-02	mg/kg-day	2.84E-06
			Exp. Route Total								4.08E-07					5.16E-02
		Exposure Point Total									5.18E-06					1.55E+00
	Exposure Medium Total										5.18E-06					1.55E+00
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	3.41E-09	mg/m3	3.40E-02	1/(mg/m3)	1.16E-10	1.19E-07	mg/m3	3.00E-03	mg/m3	3.98E-05
			Exp. Route Total								1.16E-10					3.98E-05
		Exposure Point Total									1.16E-10					3.98E-05
	Exposure Medium Total										1.16E-10					3.98E-05
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	7.81E-17	mg/m3	3.80E+04	1/(mg/m3)	2.97E-12	2.73E-15	mg/m3	4.00E-08	mg/m3	6.83E-08
				Chromium	3.35E+00	mg/kg	3.37E-13	mg/m3	8.40E+01	1/(mg/m3)	8.49E-11	1.18E-11	mg/m3	1.00E-04	mg/m3	1.18E-07
			Exp. Route Total								8.79E-11					1.86E-07
		Exposure Point Total									8.79E-11					1.86E-07
	Exposure Medium Total										8.79E-11					1.86E-07
Medium Total											5.18E-06					1.55E+00
										Total of Receptor Risks Across All Media	5.18E-06			Total of Receptor Hazards Across All Media		1.55E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.18.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL

CENTRAL TENDENCY EXPOSURES

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Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	7.90E-12	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.03E-06	7.90E-11	mg/kg-day	7.00E-10	mg/kg-day	1.13E-01
				Aluminum	1.28E+04	mg/kg	1.30E-04	mg/kg-day	--	1/(mg/kg-day)	--	1.30E-03	mg/kg-day	1.00E+00	mg/kg-day	1.30E-03
				Antimony	8.46E+00	mg/kg	8.61E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.61E-07	mg/kg-day	4.00E-04	mg/kg-day	2.15E-03
				Arsenic	9.64E+00	mg/kg	5.89E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	8.83E-08	5.89E-07	mg/kg-day	3.00E-04	mg/kg-day	1.96E-03
				Cadmium	1.06E+01	mg/kg	1.08E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.08E-06	mg/kg-day	1.00E-03	mg/kg-day	1.08E-03
				Chromium	3.35E+00	mg/kg	3.41E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.70E-08	3.41E-07	mg/kg-day	3.00E-03	mg/kg-day	1.14E-04
				Cobalt	7.20E+00	mg/kg	7.33E-08	mg/kg-day	--	1/(mg/kg-day)	--	7.33E-07	mg/kg-day	3.00E-04	mg/kg-day	2.44E-03
				Copper	1.19E+02	mg/kg	1.21E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.21E-05	mg/kg-day	4.00E-02	mg/kg-day	3.03E-04
				Iron	2.20E+04	mg/kg	2.24E-04	mg/kg-day	--	1/(mg/kg-day)	--	2.24E-03	mg/kg-day	7.00E-01	mg/kg-day	3.20E-03
				Manganese	5.75E+02	mg/kg	5.85E-06	mg/kg-day	--	1/(mg/kg-day)	--	5.85E-05	mg/kg-day	2.40E-02	mg/kg-day	2.44E-03
				Thallium	3.19E+00	mg/kg	3.25E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.25E-07	mg/kg-day	1.00E-05	mg/kg-day	3.25E-02
				Vanadium	2.58E+01	mg/kg	2.63E-07	mg/kg-day	--	1/(mg/kg-day)	--	2.63E-06	mg/kg-day	5.00E-03	mg/kg-day	5.25E-04
				Zinc	4.25E+02	mg/kg	4.32E-06	mg/kg-day	--	1/(mg/kg-day)	--	4.32E-05	mg/kg-day	3.00E-01	mg/kg-day	1.44E-04
				Aroclor-1260	3.50E+02	ug/kg	3.56E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	7.12E-09	3.56E-08	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	1.95E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	3.13E-09	1.95E-09	mg/kg-day	5.00E-05	mg/kg-day	3.91E-05
				2-Methylnaphthalene	1.26E+03	ug/kg	1.28E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.28E-07	mg/kg-day	4.00E-03	mg/kg-day	3.21E-05
				Benz(a)anthracene	1.85E+03	ug/kg	1.88E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.37E-08	1.88E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	1.68E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.23E-07	1.68E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	1.72E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.26E-08	1.72E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.92E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.40E-09	1.92E-07	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	2.05E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.49E-10	2.05E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	5.86E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.28E-08	5.86E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	1.52E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.11E-08	1.52E-07	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	4.18E-09	mg/kg-day	--	1/(mg/kg-day)	--	4.18E-08	mg/kg-day	2.00E-02	mg/kg-day	2.09E-06
			Exp. Route Total								1.35E-06					1.61E-01
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.70E-13	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.51E-08	2.70E-12	mg/kg-day	7.00E-10	mg/kg-day	3.86E-03
				Aluminum	1.28E+04	mg/kg	1.48E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.48E-05	mg/kg-day	1.00E+00	mg/kg-day	1.48E-05
				Antimony	8.46E+00	mg/kg	9.81E-10	mg/kg-day	--	1/(mg/kg-day)	--	9.81E-09	mg/kg-day	6.00E-05	mg/kg-day	1.64E-04
				Arsenic	9.64E+00	mg/kg	3.35E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	5.03E-09	3.35E-08	mg/kg-day	3.00E-04	mg/kg-day	1.12E-04
				Cadmium	1.06E+01	mg/kg	1.23E-10	mg/kg-day	--	1/(mg/kg-day)	--	1.23E-09	mg/kg-day	2.50E-05	mg/kg-day	4.92E-05
				Chromium	3.35E+00	mg/kg	3.89E-10	mg/kg-day	2.00E+01	1/(mg/kg-day)	7.77E-09	3.89E-09	mg/kg-day	7.50E-05	mg/kg-day	5.18E-05
				Cobalt	7.20E+00	mg/kg	8.35E-10	mg/kg-day	--	1/(mg/kg-day)	--	8.35E-09	mg/kg-day	3.00E-04	mg/kg-day	2.78E-05
				Copper	1.19E+02	mg/kg	1.38E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.38E-07	mg/kg-day	4.00E-02	mg/kg-day	3.45E-06
				Iron	2.20E+04	mg/kg	2.55E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.55E-05	mg/kg-day	7.00E-01	mg/kg-day	3.65E-05
				Manganese	5.75E+02	mg/kg	6.67E-08	mg/kg-day	--	1/(mg/kg-day)	--	6.67E-07	mg/kg-day	9.60E-04	mg/kg-day	6.95E-04
				Thallium	3.19E+00	mg/kg	3.70E-10	mg/kg-day	--	1/(mg/kg-day)	--	3.70E-09	mg/kg-day	1.00E-05	mg/kg-day	3.70E-04
				Vanadium	2.58E+01	mg/kg	2.99E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.99E-08	mg/kg-day	1.30E-04	mg/kg-day	2.30E-04
				Zinc	4.25E+02	mg/kg	4.93E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.93E-07	mg/kg-day	3.00E-01	mg/kg-day	1.64E-06
				Aroclor-1260	3.50E+02	ug/kg	5.68E-10	mg/kg-day	2.00E+00	1/(mg/kg-day)	1.14E-09	5.68E-09	mg/kg-day	--	mg/kg-day	--
				Dieldrin	1.92E+01	ug/kg	2.23E-11	mg/kg-day	1.60E+01	1/(mg/kg-day)	3.56E-10	2.23E-10	mg/kg-day	5.00E-05	mg/kg-day	4.45E-06
				2-Methylnaphthalene	1.26E+03	ug/kg	1.90E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.90E-08	mg/kg-day	4.00E-03	mg/kg-day	4.75E-06
				Benz(a)anthracene	1.85E+03	ug/kg	2.79E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.04E-09	2.79E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.65E+03	ug/kg	2.49E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.82E-08	2.49E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.69E+03	ug/kg	2.55E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.86E-09	2.55E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	1.89E+03	ug/kg	2.85E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	2.08E-10	2.85E-08	mg/kg-day	--	mg/kg-day	--
				Chrysene	2.01E+03	ug/kg	3.03E-09	mg/kg-day	7.30E-03	1/(mg/kg-day)	2.21E-11	3.03E-08	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	8.69E-10	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.34E-09	8.69E-09	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	2.25E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.64E-09	2.25E-08	mg/kg-day	--	mg/kg-day	--
				Naphthalene	4.11E+02	ug/kg	6.20E-10	mg/kg-day	--	1/(mg/kg-day)	--	6.20E-09	mg/kg-day	2.00E-02	mg/kg-day	3.10E-07
			Exp. Route Total								7.97E-08					5.62E-03
		Exposure Point Total									1.43E-06					1.67E-01
	Exposure Medium Total										1.43E-06					1.67E-01
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.19E-08	mg/m3	3.40E-02	1/(mg/m3)	4.06E-10	1.19E-07	mg/m3	3.00E-03	mg/m3	3.98E-05
			Exp. Route Total								4.06E-10					3.98E-05
		Exposure Point Total									4.06E-10					3.98E-05
	Exposure Medium Total										4.06E-10					3.98E-05
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.73E-16	mg/m3	3.80E+04	1/(mg/m3)	1.04E-11	2.73E-15	mg/m3	4.00E-08	mg/m3	6.83E-08
				Chromium	3.35E+00	mg/kg	1.18E-12	mg/m3	8.40E+01	1/(mg/m3)	9.91E-11	1.18E-11	mg/m3	1.00E-04	mg/m3	1.18E-07
			Exp. Route Total								1.09E-10					1.86E-07
		Exposure Point Total									1.09E-10					1.86E-07
	Exposure Medium Total										1.09E-10					1.86E-07
Medium Total											1.43E-06					1.67E-01
										Total of Receptor Risks Across All Media	1.43E-06			Total of Receptor Hazards Across All Media		1.67E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.19.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL

CENTRAL TENDENCY EXPOSURES

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Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Site 12 Contact with Soil	Ingestion	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	2.90E-11	mg/kg-day	1.30E+05	1/(mg/kg-day)	3.76E-06					N/A
				Aluminum	1.28E+04	mg/kg	1.30E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	8.61E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	2.16E-07	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.24E-07					N/A
				Cadmium	1.06E+01	mg/kg	1.08E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	1.25E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.53E-07					N/A
				Cobalt	7.20E+00	mg/kg	7.33E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	1.21E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	2.24E-04	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	5.85E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	3.25E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	2.63E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	4.32E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	1.31E-08	mg/kg-day	2.00E+00	1/(mg/kg-day)	2.61E-08					N/A
				Dieldrin	1.92E+01	ug/kg	7.16E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.15E-08					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	1.28E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	6.90E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.24E-07					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	6.16E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.10E-06					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	6.31E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.13E-07					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	7.05E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.26E-08					N/A
				Chrysene	2.01E+03	ug/kg	7.50E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.34E-09					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	2.15E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.85E-07					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	5.56E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.96E-08					N/A
				Naphthalene	4.11E+02	ug/kg	4.18E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								6.12E-06					--
			Dermal	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	9.78E-13	mg/kg-day	1.30E+05	1/(mg/kg-day)	1.27E-07					N/A
				Aluminum	1.28E+04	mg/kg	1.48E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Antimony	8.46E+00	mg/kg	9.81E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	9.64E+00	mg/kg	1.21E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.82E-08					N/A
				Cadmium	1.06E+01	mg/kg	1.23E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Chromium	3.35E+00	mg/kg	1.41E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	6.89E-08					N/A
				Cobalt	7.20E+00	mg/kg	8.35E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Copper	1.19E+02	mg/kg	1.38E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	2.20E+04	mg/kg	2.55E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	5.75E+02	mg/kg	6.67E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	3.19E+00	mg/kg	3.70E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	2.58E+01	mg/kg	2.99E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Zinc	4.25E+02	mg/kg	4.93E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Aroclor-1260	3.50E+02	ug/kg	2.06E-09	mg/kg-day	2.00E+00	1/(mg/kg-day)	4.12E-09					N/A
				Dieldrin	1.92E+01	ug/kg	8.06E-11	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.29E-09					N/A
				2-Methylnaphthalene	1.26E+03	ug/kg	1.90E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	1.85E+03	ug/kg	1.01E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.80E-08					N/A
				Benzo(a)pyrene	1.65E+03	ug/kg	9.01E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.61E-07					N/A
				Benzo(b)fluoranthene	1.69E+03	ug/kg	9.23E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.65E-08					N/A
				Benzo(k)fluoranthene	1.89E+03	ug/kg	1.03E-08	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.84E-09					N/A
				Chrysene	2.01E+03	ug/kg	1.10E-08	mg/kg-day	7.30E-03	1/(mg/kg-day)	1.96E-10					N/A
				Dibenz(a,h)anthracene	5.76E+02	ug/kg	3.14E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	5.62E-08					N/A
				Indeno(1,2,3-cd)pyrene	1.49E+03	ug/kg	8.13E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.45E-08					N/A
				Naphthalene	4.11E+02	ug/kg	6.20E-10	mg/kg-day	--	1/(mg/kg-day)	--					N/A
			Exp. Route Total								4.88E-07					--
		Exposure Point Total									6.61E-06					--
	Exposure Medium Total										6.61E-06					--
	Air	Site 12 Outdoor Air, Volatilization from Soil	Inhalation	Naphthalene	4.11E+02	ug/kg	1.53E-08	mg/m3	3.40E-02	1/(mg/m3)	5.21E-10					N/A
			Exp. Route Total								5.21E-10					--
		Exposure Point Total									5.21E-10					--
	Exposure Medium Total										5.21E-10					--
	Particulates	Site 12 Airborne Particulates, Emitted from Soil	Inhalation	Total 2,3,7,8-TCDD Equiv.	7.76E+02	ng/kg	3.51E-16	mg/m3	3.80E+04	1/(mg/m3)	1.34E-11					N/A
				Chromium	3.35E+00	mg/kg	1.52E-12	mg/m3	8.40E+01	1/(mg/m3)	1.84E-10					N/A
			Exp. Route Total								1.97E-10					--
		Exposure Point Total									1.97E-10					--
	Exposure Medium Total										1.97E-10					--
Medium Total											6.61E-06					--
										Total of Receptor Risks Across All Media	6.61E-06			Total of Receptor Hazards Across All Media		--

TABLE 7.21.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	8.63E-06	mg/kg-day	--	1/(mg/kg-day)	--	3.02E-04	mg/kg-day	1.00E+00	mg/kg-day	3.02E-04
				Arsenic	1.06E+01	ug/l	2.88E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.31E-09	1.01E-07	mg/kg-day	3.00E-04	mg/kg-day	3.36E-04
				Chromium	3.78E+01	ug/l	1.03E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.54E-08	3.59E-07	mg/kg-day	3.00E-03	mg/kg-day	1.20E-04
				Cobalt	3.26E+01	ug/l	8.85E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.10E-07	mg/kg-day	3.00E-04	mg/kg-day	1.03E-03
				Cyanide	5.19E+01	ug/l	1.41E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.93E-07	mg/kg-day	6.00E-04	mg/kg-day	8.22E-04
				Iron	6.95E+04	ug/l	1.89E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.60E-04	mg/kg-day	7.00E-01	mg/kg-day	9.43E-04
				Lead	1.50E+01	ug/l	4.07E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.42E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	4.56E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.60E-05	mg/kg-day	2.40E-02	mg/kg-day	6.65E-04
				Vanadium	8.88E+01	ug/l	2.41E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.43E-07	mg/kg-day	5.00E-03	mg/kg-day	1.69E-04
				Dieldrin	2.58E+00	ug/l	7.00E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.12E-08	2.45E-08	mg/kg-day	5.00E-05	mg/kg-day	4.90E-04
				Benz(a)anthracene	1.10E+01	ug/l	2.98E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.54E-09	1.04E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	3.36E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.37E-08	1.18E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	3.07E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.72E-09	1.07E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	2.27E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	4.97E-10	7.94E-08	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	5.70E-11	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.25E-09	1.99E-09	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	6.38E-10	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.40E-09	2.23E-08	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.21E-07					4.88E-03
			Dermal	Aluminum	3.18E+04	ug/l	8.38E-06	mg/kg-day	--	1/(mg/kg-day)	--	2.93E-04	mg/kg-day	1.00E+00	mg/kg-day	2.93E-04
				Arsenic	1.06E+01	ug/l	2.79E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.19E-09	9.78E-08	mg/kg-day	3.00E-04	mg/kg-day	3.26E-04
				Chromium	3.78E+01	ug/l	1.99E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.20E-06	6.97E-07	mg/kg-day	7.50E-05	mg/kg-day	9.30E-03
				Cobalt	3.26E+01	ug/l	3.44E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.20E-07	mg/kg-day	3.00E-04	mg/kg-day	4.01E-04
				Cyanide	5.19E+01	ug/l	1.37E-08	mg/kg-day	--	1/(mg/kg-day)	--	4.79E-07	mg/kg-day	6.00E-04	mg/kg-day	7.98E-04
				Iron	6.95E+04	ug/l	1.83E-05	mg/kg-day	--	1/(mg/kg-day)	--	6.41E-04	mg/kg-day	7.00E-01	mg/kg-day	9.16E-04
				Lead	1.50E+01	ug/l	3.95E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.38E-07	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	4.43E-07	mg/kg-day	--	1/(mg/kg-day)	--	1.55E-05	mg/kg-day	9.60E-04	mg/kg-day	1.61E-02
				Vanadium	8.88E+01	ug/l	2.34E-08	mg/kg-day	--	1/(mg/kg-day)	--	8.19E-07	mg/kg-day	1.30E-04	mg/kg-day	6.30E-03
				Dieldrin	2.58E+00	ug/l	4.88E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	7.80E-07	1.71E-06	mg/kg-day	5.00E-05	mg/kg-day	3.41E-02
				Benz(a)anthracene	1.10E+01	ug/l	3.79E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.31E-06	1.33E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	7.33E-06	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.61E-04	2.57E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	6.78E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.48E-05	2.37E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	5.02E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.10E-06	1.76E-04	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	1.92E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.20E-06	6.71E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	1.41E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.09E-06	4.94E-05	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.94E-04					6.86E-02
		Exposure Point Total									1.94E-04					7.35E-02
	Exposure Medium Total										1.94E-04					7.35E-02
Medium Total											1.94E-04					7.35E-02
											Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media
											1.94E-04					7.35E-02

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.22.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	6.47E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.47E-05	mg/kg-day	1.00E+00	mg/kg-day	6.47E-05
				Arsenic	1.06E+01	ug/l	2.16E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.24E-09	2.16E-08	mg/kg-day	3.00E-04	mg/kg-day	7.19E-05
				Chromium	3.78E+01	ug/l	7.69E-09	mg/kg-day	5.00E-01	1/(mg/kg-day)	3.85E-09	7.69E-08	mg/kg-day	3.00E-03	mg/kg-day	2.56E-05
				Cobalt	3.26E+01	ug/l	6.63E-09	mg/kg-day	--	1/(mg/kg-day)	--	6.63E-08	mg/kg-day	3.00E-04	mg/kg-day	2.21E-04
				Cyanide	5.19E+01	ug/l	1.06E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.06E-07	mg/kg-day	6.00E-04	mg/kg-day	1.76E-04
				Iron	6.95E+04	ug/l	1.41E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.41E-04	mg/kg-day	7.00E-01	mg/kg-day	2.02E-04
				Lead	1.50E+01	ug/l	3.05E-09	mg/kg-day	--	1/(mg/kg-day)	--	3.05E-08	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	3.42E-07	mg/kg-day	--	1/(mg/kg-day)	--	3.42E-06	mg/kg-day	2.40E-02	mg/kg-day	1.42E-04
				Vanadium	8.88E+01	ug/l	1.81E-08	mg/kg-day	--	1/(mg/kg-day)	--	1.81E-07	mg/kg-day	5.00E-03	mg/kg-day	3.61E-05
				Dieldrin	2.58E+00	ug/l	5.25E-10	mg/kg-day	1.60E+01	1/(mg/kg-day)	8.40E-09	5.25E-09	mg/kg-day	5.00E-05	mg/kg-day	1.05E-04
				Benz(a)anthracene	1.10E+01	ug/l	2.24E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.63E-09	2.24E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	2.52E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.84E-08	2.52E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	2.30E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.68E-09	2.30E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	1.70E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.24E-10	1.70E-08	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	4.27E-11	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.12E-10	4.27E-10	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	4.78E-10	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.49E-10	4.78E-09	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								3.80E-08					1.05E-03
			Dermal	Aluminum	3.18E+04	ug/l	1.34E-05	mg/kg-day	--	1/(mg/kg-day)	--	1.34E-04	mg/kg-day	1.00E+00	mg/kg-day	1.34E-04
				Arsenic	1.06E+01	ug/l	4.48E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.72E-09	4.48E-08	mg/kg-day	3.00E-04	mg/kg-day	1.49E-04
				Chromium	3.78E+01	ug/l	3.20E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	6.39E-07	3.20E-07	mg/kg-day	7.50E-05	mg/kg-day	4.26E-03
				Cobalt	3.26E+01	ug/l	5.51E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.51E-08	mg/kg-day	3.00E-04	mg/kg-day	1.84E-04
				Cyanide	5.19E+01	ug/l	2.19E-08	mg/kg-day	--	1/(mg/kg-day)	--	2.19E-07	mg/kg-day	6.00E-04	mg/kg-day	3.66E-04
				Iron	6.95E+04	ug/l	2.94E-05	mg/kg-day	--	1/(mg/kg-day)	--	2.94E-04	mg/kg-day	7.00E-01	mg/kg-day	4.20E-04
				Lead	1.50E+01	ug/l	6.34E-09	mg/kg-day	--	1/(mg/kg-day)	--	6.34E-08	mg/kg-day	--	mg/kg-day	--
				Manganese	1.68E+03	ug/l	7.10E-07	mg/kg-day	--	1/(mg/kg-day)	--	7.10E-06	mg/kg-day	9.60E-04	mg/kg-day	7.40E-03
				Vanadium	8.88E+01	ug/l	3.75E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.75E-07	mg/kg-day	1.30E-04	mg/kg-day	2.89E-03
				Dieldrin	2.58E+00	ug/l	7.82E-08	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.25E-06	7.82E-07	mg/kg-day	5.00E-05	mg/kg-day	1.56E-02
				Benz(a)anthracene	1.10E+01	ug/l	6.09E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.44E-06	6.09E-05	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	1.24E+01	ug/l	1.18E-05	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.59E-05	1.18E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	1.13E+01	ug/l	1.09E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.94E-06	1.09E-04	mg/kg-day	--	mg/kg-day	--
				Benzo(k)fluoranthene	8.36E+00	ug/l	8.05E-06	mg/kg-day	7.30E-02	1/(mg/kg-day)	5.87E-07	8.05E-05	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	2.10E-01	ug/l	3.08E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.25E-06	3.08E-06	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	2.26E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.65E-06	2.26E-05	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.05E-04					3.14E-02
		Exposure Point Total									1.05E-04					3.25E-02
	Exposure Medium Total										1.05E-04					3.25E-02
Medium Total											1.05E-04					3.25E-02
										Total of Receptor Risks Across All Media	1.05E-04				Total of Receptor Hazards Across All Media	3.25E-02

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.23.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Water	Surface Water	Site 12 Contact with Surface Water	Ingestion	Aluminum	3.18E+04	ug/l	6.47E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	1.06E+01	ug/l	5.03E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	7.55E-09					N/A
				Chromium	3.78E+01	ug/l	1.80E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.92E-08					N/A
				Cobalt	3.26E+01	ug/l	6.63E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cyanide	5.19E+01	ug/l	1.06E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.95E+04	ug/l	1.41E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Lead	1.50E+01	ug/l	3.05E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.68E+03	ug/l	3.42E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	8.88E+01	ug/l	1.81E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.58E+00	ug/l	1.23E-09	mg/kg-day	1.60E+01	1/(mg/kg-day)	1.96E-08					N/A
				Benz(a)anthracene	1.10E+01	ug/l	5.22E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.17E-09					N/A
				Benzo(a)pyrene	1.24E+01	ug/l	5.89E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	9.21E-08					N/A
				Benzo(b)fluoranthene	1.13E+01	ug/l	5.37E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.39E-09					N/A
				Benzo(k)fluoranthene	8.36E+00	ug/l	3.97E-09	mg/kg-day	7.30E-02	1/(mg/kg-day)	6.21E-10					N/A
				Dibenz(a,h)anthracene	2.10E-01	ug/l	9.97E-11	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.56E-09					N/A
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	1.12E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.75E-09					N/A
			Exp. Route Total								1.59E-07					--
			Dermal	Aluminum	3.18E+04	ug/l	1.34E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Arsenic	1.06E+01	ug/l	7.27E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.09E-08					N/A
				Chromium	3.78E+01	ug/l	5.19E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.83E-06					N/A
				Cobalt	3.26E+01	ug/l	5.51E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Cyanide	5.19E+01	ug/l	2.19E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Iron	6.95E+04	ug/l	2.94E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Lead	1.50E+01	ug/l	6.34E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.68E+03	ug/l	7.10E-07	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Vanadium	8.88E+01	ug/l	3.75E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Dieldrin	2.58E+00	ug/l	1.27E-07	mg/kg-day	1.60E+01	1/(mg/kg-day)	2.03E-06					N/A
				Benz(a)anthracene	1.10E+01	ug/l	9.88E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.27E-05					N/A
				Benzo(a)pyrene	1.24E+01	ug/l	1.91E-05	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.46E-04					N/A
				Benzo(b)fluoranthene	1.13E+01	ug/l	1.77E-05	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.28E-05					N/A
				Benzo(k)fluoranthene	8.36E+00	ug/l	1.31E-05	mg/kg-day	7.30E-02	1/(mg/kg-day)	1.69E-06					N/A
				Dibenz(a,h)anthracene	2.10E-01	ug/l	4.99E-07	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.44E-06					N/A
				Indeno(1,2,3-cd)pyrene	2.35E+00	ug/l	3.68E-06	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.74E-06					N/A
			Exp. Route Total								2.99E-04					--
		Exposure Point Total									2.99E-04					--
	Exposure Medium Total										2.99E-04					--
Medium Total											2.99E-04					--
										Total of Receptor Risks Across All Media	2.99E-04				Total of Receptor Hazards Across All Media	--

TABLE 7.24.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	1.27E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.91E-08	8.90E-07	mg/kg-day	3.00E-04	mg/kg-day	2.97E-03
				Chromium	1.85E+01	mg/kg	7.34E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	3.67E-08	5.14E-06	mg/kg-day	3.00E-03	mg/kg-day	1.71E-03
				Cobalt	2.09E+01	mg/kg	8.29E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.80E-06	mg/kg-day	3.00E-04	mg/kg-day	1.93E-02
				Manganese	1.55E+04	mg/kg	6.15E-05	mg/kg-day	--	1/(mg/kg-day)	--	4.30E-03	mg/kg-day	2.40E-02	mg/kg-day	1.79E-01
				Thallium	1.33E+01	mg/kg	5.28E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.69E-06	mg/kg-day	1.00E-05	mg/kg-day	3.69E-01
				Benz(a)anthracene	2.09E+03	ug/kg	8.29E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	6.05E-09	5.80E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	8.89E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	6.49E-08	6.22E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	1.04E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	7.59E-09	7.28E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	3.94E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.88E-08	2.76E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	4.96E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.62E-09	3.47E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.67E-07					5.73E-01
			Dermal	Arsenic	5.34E+00	mg/kg	2.54E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.81E-09	1.78E-07	mg/kg-day	3.00E-04	mg/kg-day	5.93E-04
				Chromium	1.85E+01	mg/kg	2.94E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	5.87E-08	2.05E-07	mg/kg-day	7.50E-05	mg/kg-day	2.74E-03
				Cobalt	2.09E+01	mg/kg	3.32E-09	mg/kg-day	--	1/(mg/kg-day)	--	2.32E-07	mg/kg-day	3.00E-04	mg/kg-day	7.74E-04
				Manganese	1.55E+04	mg/kg	2.46E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.72E-04	mg/kg-day	9.60E-04	mg/kg-day	1.79E-01
				Thallium	1.33E+01	mg/kg	2.11E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.48E-07	mg/kg-day	1.00E-05	mg/kg-day	1.48E-02
				Benz(a)anthracene	2.09E+03	ug/kg	4.31E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.15E-09	3.02E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	4.62E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.37E-08	3.23E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	5.40E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.95E-09	3.78E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	2.05E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.50E-08	1.44E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	2.58E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.88E-09	1.80E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.20E-07					1.98E-01
		Exposure Point Total									2.87E-07					7.71E-01
	Exposure Medium Total										2.87E-07					7.71E-01
Medium Total											2.87E-07					7.71E-01
										Total of Receptor Risks Across All Media	2.87E-07			Total of Receptor Hazards Across All Media		7.71E-01

TABLE 7.25.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	2.17E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	3.26E-08	7.61E-07	mg/kg-day	3.00E-04	mg/kg-day	2.54E-03
				Chromium	1.85E+01	mg/kg	1.26E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	1.88E-07	4.39E-06	mg/kg-day	3.00E-03	mg/kg-day	1.46E-03
				Cobalt	2.09E+01	mg/kg	1.42E-07	mg/kg-day	--	1/(mg/kg-day)	--	4.96E-06	mg/kg-day	3.00E-04	mg/kg-day	1.65E-02
				Manganese	1.55E+04	mg/kg	1.05E-04	mg/kg-day	--	1/(mg/kg-day)	--	3.68E-03	mg/kg-day	2.40E-02	mg/kg-day	1.53E-01
				Thallium	1.33E+01	mg/kg	9.02E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.16E-06	mg/kg-day	1.00E-05	mg/kg-day	3.16E-01
				Benz(a)anthracene	2.09E+03	ug/kg	1.42E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.11E-08	4.96E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	1.52E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.33E-07	5.32E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	1.78E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.89E-08	6.22E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	6.74E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.48E-07	2.36E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	8.48E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.86E-08	2.97E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								7.90E-07					4.90E-01
			Dermal	Arsenic	5.34E+00	mg/kg	4.22E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	6.33E-09	1.48E-07	mg/kg-day	3.00E-04	mg/kg-day	4.92E-04
				Chromium	1.85E+01	mg/kg	4.87E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	2.92E-07	1.71E-07	mg/kg-day	7.50E-05	mg/kg-day	2.27E-03
				Cobalt	2.09E+01	mg/kg	5.51E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.93E-07	mg/kg-day	3.00E-04	mg/kg-day	6.42E-04
				Manganese	1.55E+04	mg/kg	4.08E-06	mg/kg-day	--	1/(mg/kg-day)	--	1.43E-04	mg/kg-day	9.60E-04	mg/kg-day	1.49E-01
				Thallium	1.33E+01	mg/kg	3.50E-09	mg/kg-day	--	1/(mg/kg-day)	--	1.23E-07	mg/kg-day	1.00E-05	mg/kg-day	1.23E-02
				Benz(a)anthracene	2.09E+03	ug/kg	7.16E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.57E-08	2.51E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	7.67E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.68E-07	2.69E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	8.97E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.97E-08	3.14E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	3.40E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	7.46E-08	1.19E-07	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	4.28E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	9.38E-09	1.50E-07	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								5.86E-07					1.65E-01
		Exposure Point Total									1.38E-06					6.54E-01
	Exposure Medium Total										1.38E-06					6.54E-01
Medium Total											1.38E-06					6.54E-01
											Total of Receptor Risks Across All Media	1.38E-06		Total of Receptor Hazards Across All Media		6.54E-01

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

TABLE 7.26.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	8.15E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.22E-08	8.15E-08	mg/kg-day	3.00E-04	mg/kg-day	2.72E-04
				Chromium	1.85E+01	mg/kg	4.71E-08	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.35E-08	4.71E-07	mg/kg-day	3.00E-03	mg/kg-day	1.57E-04
				Cobalt	2.09E+01	mg/kg	5.32E-08	mg/kg-day	--	1/(mg/kg-day)	--	5.32E-07	mg/kg-day	3.00E-04	mg/kg-day	1.77E-03
				Manganese	1.55E+04	mg/kg	3.94E-05	mg/kg-day	--	1/(mg/kg-day)	--	3.94E-04	mg/kg-day	2.40E-02	mg/kg-day	1.64E-02
				Thallium	1.33E+01	mg/kg	3.38E-08	mg/kg-day	--	1/(mg/kg-day)	--	3.38E-07	mg/kg-day	1.00E-05	mg/kg-day	3.38E-02
				Benz(a)anthracene	2.09E+03	ug/kg	5.32E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.88E-09	5.32E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	5.70E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	4.16E-08	5.70E-08	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	6.67E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.87E-09	6.67E-08	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	2.53E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.85E-08	2.53E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	3.18E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.32E-09	3.18E-08	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								1.07E-07					5.25E-02
			Dermal	Arsenic	5.34E+00	mg/kg	6.77E-09	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.02E-08	6.77E-08	mg/kg-day	3.00E-04	mg/kg-day	2.26E-04
				Chromium	1.85E+01	mg/kg	7.82E-09	mg/kg-day	2.00E+01	1/(mg/kg-day)	1.56E-07	7.82E-08	mg/kg-day	7.50E-05	mg/kg-day	1.04E-03
				Cobalt	2.09E+01	mg/kg	8.83E-09	mg/kg-day	--	1/(mg/kg-day)	--	8.83E-08	mg/kg-day	3.00E-04	mg/kg-day	2.94E-04
				Manganese	1.55E+04	mg/kg	6.55E-06	mg/kg-day	--	1/(mg/kg-day)	--	6.55E-05	mg/kg-day	9.60E-04	mg/kg-day	6.83E-02
				Thallium	1.33E+01	mg/kg	5.62E-09	mg/kg-day	--	1/(mg/kg-day)	--	5.62E-08	mg/kg-day	1.00E-05	mg/kg-day	5.62E-03
				Benz(a)anthracene	2.09E+03	ug/kg	1.15E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	8.38E-09	1.15E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(a)pyrene	2.24E+03	ug/kg	1.23E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	8.99E-08	1.23E-07	mg/kg-day	--	mg/kg-day	--
				Benzo(b)fluoranthene	2.62E+03	ug/kg	1.44E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.05E-08	1.44E-07	mg/kg-day	--	mg/kg-day	--
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	5.46E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.99E-08	5.46E-08	mg/kg-day	--	mg/kg-day	--
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	6.87E-09	mg/kg-day	7.30E-01	1/(mg/kg-day)	5.01E-09	6.87E-08	mg/kg-day	--	mg/kg-day	--
			Exp. Route Total								3.20E-07					7.54E-02
		Exposure Point Total									4.27E-07					1.28E-01
	Exposure Medium Total										4.27E-07					1.28E-01
Medium Total											4.27E-07					1.28E-01
											Total of Receptor Risks Across All Media					Total of Receptor Hazards Across All Media
											4.27E-07					1.28E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

TABLE 7.27.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT

CENTRAL TENDENCY EXPOSURES

NAS JRB WILLOW GROVE

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Site 12 Contact with Sediment	Ingestion	Arsenic	5.34E+00	mg/kg	2.99E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	4.48E-08					N/A
				Chromium	1.85E+01	mg/kg	1.73E-07	mg/kg-day	5.00E-01	1/(mg/kg-day)	2.12E-07					N/A
				Cobalt	2.09E+01	mg/kg	5.32E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.55E+04	mg/kg	3.94E-05	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.33E+01	mg/kg	3.38E-08	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	2.09E+03	ug/kg	1.95E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.49E-08					N/A
				Benzo(a)pyrene	2.24E+03	ug/kg	2.09E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	3.74E-07					N/A
				Benzo(b)fluoranthene	2.62E+03	ug/kg	2.44E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	4.38E-08					N/A
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	9.27E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.66E-07					N/A
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	1.17E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.09E-08					N/A
			Exp. Route Total								8.97E-07					--
			Dermal	Arsenic	5.34E+00	mg/kg	1.10E-08	mg/kg-day	1.50E+00	1/(mg/kg-day)	1.65E-08					N/A
				Chromium	1.85E+01	mg/kg	1.27E-08	mg/kg-day	2.00E+01	1/(mg/kg-day)	4.49E-07					N/A
				Cobalt	2.09E+01	mg/kg	8.83E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Manganese	1.55E+04	mg/kg	6.55E-06	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Thallium	1.33E+01	mg/kg	5.62E-09	mg/kg-day	--	1/(mg/kg-day)	--					N/A
				Benz(a)anthracene	2.09E+03	ug/kg	1.86E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	2.41E-08					N/A
				Benzo(a)pyrene	2.24E+03	ug/kg	2.00E-08	mg/kg-day	7.30E+00	1/(mg/kg-day)	2.58E-07					N/A
				Benzo(b)fluoranthene	2.62E+03	ug/kg	2.34E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	3.02E-08					N/A
				Dibenz(a,h)anthracene	9.94E+02	ug/kg	8.87E-09	mg/kg-day	7.30E+00	1/(mg/kg-day)	1.14E-07					N/A
				Indeno(1,2,3-cd)pyrene	1.25E+03	ug/kg	1.12E-08	mg/kg-day	7.30E-01	1/(mg/kg-day)	1.44E-08					N/A
			Exp. Route Total								9.06E-07					--
		Exposure Point Total									1.80E-06					--
	Exposure Medium Total										1.80E-06					--
Medium Total											1.80E-06					--
										Total of Receptor Risks Across All Media	1.80E-06			Total of Receptor Hazards Across All Media		--

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9.02.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
9.03.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT CONTACT WITH SITE 12 GROUNDWATER
9.04.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER CONTACT WITH SITE 12 GROUNDWATER
9.05.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
9.05a.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
9.06.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
9.06a.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
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9.12.RME	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT CONTACT WITH SITE 12 DISTURBED SOIL
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Notes on age groups assumed for child and adult receptors:
***For all COPCs, the labelled "child" receptor exposures assume an age range of 0 to 6 years.**
****For mutagens, the labelled "adult" receptor exposures assume a combined age range of 6 to 16 (10 years) plus ages 16 to 30 (14 years).**
Lifetime receptor exposures represent the sum of ages 0 to 6 (referred to as "child" exposure) plus ages 6 to 30 (referred to as "adult" exposure).

TABLE 9.01.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap Water Contact With Site 12 Groundwater	**Total 2,3,7,8-TCDD Equiv.**	1.35E-06	--	2.02E-05	--	2.16E-05	**CNS (Behavioral)**	**1.73E-01**	**--**	**2.59E+00**	**2.76E+00**
			Aluminum	--	--	--	--	--	**CNS (Developmental)**	**1.11E+00**	**--**	**5.65E-03**	**1.11E+00**
			Arsenic	2.86E-05	--	1.46E-07	--	2.88E-05	Skin/Vascular	7.42E-01	--	3.80E-03	7.46E-01
			Barium	--	--	--	--	--	Kidney	7.79E-02	--	5.70E-03	8.36E-02
			Chromium	2.87E-04	--	1.17E-04	--	4.04E-04		4.18E-01	--	1.71E-01	5.89E-01
			Cobalt	--	--	--	--	--	Thyroid	7.17E-01	--	1.47E-03	7.19E-01
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	7.81E-01	--	4.00E-03	7.85E-01
			Manganese	--	--	--	--	--	**CNS**	**3.13E+00**	**--**	**4.01E-01**	**3.53E+00**
			Vanadium	--	--	--	--	--		1.30E-01	--	2.56E-02	1.56E-01
			Carbon Tetrachloride	3.02E-07	--	6.03E-08	--	3.62E-07	Liver	1.26E-02	--	2.51E-03	1.51E-02
			Chloroform	1.69E-07	--	1.15E-08	--	1.80E-07	Liver	6.35E-03	--	4.32E-04	6.78E-03
			Trichloroethene (mutagenic)	1.44E-06	--	1.86E-07	--	1.62E-06	N/A	--	--	--	--
			Trichloroethene (nonmutage	1.07E-06	--	1.39E-07	--	1.21E-06	Vascular/Fetotoxicity/Immune	6.76E-01	--	8.74E-02	7.64E-01
			(Total)	3.19E-04	--	1.38E-04		4.57E-04		7.97E+00	--	3.30E+00	1.13E+01
			Radionuclide Total										
		Exposure Point Total						4.57E-04					1.13E+01
	Exposure Medium Total							4.57E-04					1.13E+01
Groundwater Total								4.57E-04					1.13E+01
Receptor Total								4.57E-04					1.13E+01

Total Risk Across All Media: 4.57E-04

Total Hazard Index Across All Media: 1.13E+01

For reporting of non-cancer hazards, COPCs that are risk drivers are shown in bold if they contribute at least a HQ of 0.2 towards a target organ HI that exceeds 1.0.
COPCs that are cancer risk drivers of importance to the residential receptor are highlighted on a separate table for the lifetime resident.

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total Blood HI =	7.85E-01
Total CNS HI =	7.41E+00
Total CNS (Behavioral) HI =	2.76E+00
Total CNS (Developmental) HI =	1.11E+00
Total Fetotoxicity HI =	7.64E-01
Total GI Tract HI =	7.85E-01
Total Immune HI =	7.64E-01
Total Kidney HI =	8.36E-02
Total Liver HI =	8.07E-01
Total Skin HI =	7.46E-01
Total Thyroid HI =	7.19E-01
Total Vascular HI =	1.51E+00

TABLE 9.02.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap Water Contact With Site 12 Groundwater											
			Total 2,3,7,8-TCDD Equiv.	1.80E-06	--	3.34E-05	--	3.52E-05	**CNS (Behavioral)**	**5.75E-02**	**--**	**1.07E+00**	**1.13E+00**
			Aluminum	--	--	--	--	--	**CNS (Developmental)**	**3.67E-01**	**--**	**1.65E-03**	**3.69E-01**
			Arsenic	3.80E-05	--	1.71E-07	--	3.82E-05	Skin/Vascular	2.47E-01	--	1.11E-03	2.48E-01
			Barium	--	--	--	--	--	Kidney	2.59E-02	--	1.66E-03	2.76E-02
			Chromium	1.31E-04	--	4.71E-05	--	1.78E-04		1.39E-01	--	5.00E-02	1.89E-01
			Cobalt	--	--	--	--	--	Thyroid	2.38E-01	--	4.29E-04	2.39E-01
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	2.59E-01	--	1.17E-03	2.61E-01
			Manganese	--	--	--	--	--	**CNS**	**1.04E+00**	**--**	**1.17E-01**	**1.16E+00**
			Vanadium	--	--	--	--	--		4.32E-02	--	7.48E-03	5.07E-02
			Carbon Tetrachloride	4.01E-07	--	9.97E-08	--	5.01E-07	Liver	4.18E-03	--	1.04E-03	5.22E-03
			Chloroform	2.24E-07	--	1.90E-08	--	2.43E-07	Liver	2.11E-03	--	1.78E-04	2.29E-03
			Trichloroethene (mutagenic)	6.57E-07	--	1.06E-07	--	7.62E-07	N/A	--	--	--	--
			Trichloroethene (nonmutagenic)	1.42E-06	--	2.29E-07	--	1.65E-06	Vascular/Fetotoxicity/Immune	2.25E-01	--	3.61E-02	2.61E-01
			(Total)	1.73E-04	--	8.11E-05		2.55E-04		2.65E+00	--	1.29E+00	3.94E+00
			Radionuclide Total										
		Exposure Point Total						2.55E-04					3.94E+00
	Exposure Medium Total							2.55E-04					3.94E+00
	Air	Inhalation of Site 12 Groundwater Vapors During Showering											
			Carbon Tetrachloride	--	7.41E-08	--	--	7.41E-08	Liver	--	3.60E-04	--	3.60E-04
			Chloroform	--	3.93E-07	--	--	3.93E-07	Liver	--	5.09E-04	--	5.09E-04
			Trichloroethene (mutagenic)	--	1.63E-07	--	--	1.63E-07	N/A	--	--	--	--
			Trichloroethene (nonmutagenic)	--	2.75E-07	--	--	2.75E-07	Vascular/Immune	--	1.29E-01	--	1.29E-01
			(Total)	--	9.05E-07	--		9.05E-07		--	1.30E-01	--	1.30E-01
			Radionuclide Total										
		Exposure Point Total						9.05E-07					1.30E-01
	Exposure Medium Total							9.05E-07					1.30E-01
Groundwater Total								2.56E-04					4.07E+00
Receptor Total								2.56E-04					4.07E+00

Total Risk Across All Media: 2.56E-04

Total Hazard Index Across All Media: 4.07E+00

COPCs that are cancer risk drivers of importance to the residential receptor are highlighted on a separate table for the lifetime resident.

COPCs that are non-cancer risk drivers of importance to residential receptors are highlighted on a separate table for the child resident.

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total Blood HI =	2.61E-01
Total CNS HI =	2.65E+00
Total CNS (Behavioral) HI =	1.13E+00
Total CNS (Developmental) HI =	3.69E-01
Total Fetotoxicity HI =	2.61E-01
Total GI Tract HI =	2.61E-01
Total Immune HI =	3.90E-01
Total Kidney HI =	2.76E-02
Total Liver HI =	2.69E-01
Total Skin HI =	2.48E-01
Total Thyroid HI =	2.39E-01
Total Vascular HI =	6.38E-01

TABLE 9.03.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap Water Contact With Site 12 Groundwater											
			Total 2,3,7,8-TCDD Equiv.	**3.15E-06**	**--**	**5.36E-05**	**--**	**5.67E-05**	N/A	N/A	--	N/A	--
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	**6.67E-05**	**--**	**3.18E-07**	**--**	**6.70E-05**	N/A	N/A	--	N/A	--
			Barium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	**4.17E-04**	**--**	**1.64E-04**	**--**	**5.82E-04**	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--					
			Carbon Tetrachloride	7.03E-07	--	1.60E-07	--	8.63E-07					
			Chloroform	3.93E-07	--	3.04E-08	--	4.23E-07					
			Trichloroethene (mutagenic)	**2.09E-06**	**--**	**2.91E-07**	**--**	**2.39E-06**					
			Trichloroethene (nonmutagenic)	**2.50E-06**	**--**	**3.68E-07**	**--**	**2.86E-06**	N/A	N/A	--	N/A	--
			(Total)	4.93E-04	--	2.19E-04		7.12E-04		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						7.12E-04					--
	Exposure Medium Total							7.12E-04					--
	Air	Inhalation of Site 12 Groundwater Vapors During Showering											
			Carbon Tetrachloride	--	7.41E-08	--	--	7.41E-08	N/A	--	--	--	--
			Chloroform	--	3.93E-07	--	--	3.93E-07	N/A	--	--	--	--
			Trichloroethene (mutagenic)	**--**	**1.63E-07**	**--**	**--**	**1.63E-07**	N/A	--	--	--	--
			Trichloroethene (nonmutagenic)	**--**	**2.75E-07**	**--**	**--**	**2.75E-07**	N/A	--	--	--	--
			(Total)	--	9.05E-07	--		9.05E-07		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						9.05E-07					--
	Exposure Medium Total							9.05E-07					--
Groundwater Total								7.13E-04					--
Receptor Total								7.13E-04					--

Total Risk Across All Media: 7.13E-04

Total Hazard Index Across All Media: --

For the reporting of cancer risks, COPCs shown in bold contribute at least 1.0E-06 to a cumulative cancer risk that exceeds 1.0E-04
COPCs that are non-cancer risk drivers of importance to residential receptors are highlighted on a separate table for the child resident.

TABLE 9.04.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER EXPOSURE TO SITE 12 GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Contact With Site 12 Groundwater During Excavation											
			Total 2,3,7,8-TCDD Equiv.	--	--	1.19E-07	--	1.19E-07	CNS (Behavioral)	--	--	9.17E-02	9.17E-02
			Aluminum	--	--	--	--	--	CNS (Developmental)	--	--	2.83E-04	2.83E-04
			Arsenic	--	--	1.22E-09	--	1.22E-09	Skin/Vascular	--	--	1.90E-04	1.90E-04
			Barium	--	--	--	--	--	Kidney	--	--	2.85E-04	2.85E-04
			Chromium	--	--	1.84E-07	--	1.84E-07		--	--	8.57E-03	8.57E-03
			Cobalt	--	--	--	--	--	Thyroid	--	--	7.36E-05	7.36E-05
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	--	--	2.00E-04	2.00E-04
			Manganese	--	--	--	--	--	CNS	--	--	2.01E-02	2.01E-02
			Vanadium	--	--	--	--	--		--	--	1.28E-03	1.28E-03
			Carbon Tetrachloride	--	--	3.64E-10	--	3.64E-10	Liver	--	--	9.11E-05	9.11E-05
			Chloroform	--	--	7.35E-11	--	7.35E-11	Liver	--	--	1.66E-05	1.66E-05
			Trichloroethene	--	--	1.06E-09	--	1.06E-09	Vascular/Fetotoxicity/Immune	--	--	3.22E-03	3.22E-03
			(Total)	--	--	3.06E-07		3.06E-07		--	--	1.26E-01	1.26E-01
			Radionuclide Total										
		Exposure Point Total						3.06E-07					1.26E-01
	Exposure Medium Total							3.06E-07					1.26E-01
	Air	Ambient VOC Inhalation from Site 12 Groundwater											
			Carbon Tetrachloride	--	9.96E-12	--	--	9.96E-12	Liver	--	1.16E-06	--	1.16E-06
			Chloroform	--	1.53E-11	--	--	1.53E-11	Liver	--	4.77E-07	--	4.77E-07
			Trichloroethene	--	2.24E-11	--	--	2.24E-11	Vascular/Immune	--	1.91E-04	--	1.91E-04
			(Total)	--	4.77E-11	--		4.77E-11		--	1.93E-04	--	1.93E-04
			Radionuclide Total										
		Exposure Point Total						4.77E-11					1.93E-04
	Exposure Medium Total							4.77E-11					1.93E-04
Groundwater Total								3.06E-07					1.26E-01
Receptor Total								3.06E-07					1.26E-01

Total Risk Across All Media: 3.06E-07

Total Hazard Index Across All Media: 1.26E-01

Total Blood HI =	2.00E-04
Total CNS HI =	1.12E-01
Total CNS (Behavioral) HI =	9.17E-02
Total CNS (Developmental) HI =	2.83E-04
Total Fetotoxicity HI =	3.22E-03
Total GI Tract HI =	2.00E-04
Total Immune HI =	3.41E-03
Total Kidney HI =	2.85E-04
Total Liver HI =	3.10E-04
Total Skin HI =	1.90E-04
Total Thyroid HI =	7.36E-05
Total Vascular HI =	3.60E-03

TABLE 9.05.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.56E-01	--	4.37E-03	1.60E-01
			Antimony	--	--	--	--	--	Blood/Liver	9.21E-02	--	1.72E-02	1.09E-01
			Arsenic	5.52E-06	--	7.73E-07	--	6.30E-06	**Skin/Vascular**	**1.43E-01**	**--**	**2.00E-02**	**1.63E-01**
			Cadmium	--	--	--	--	--	Kidney	2.05E-02	--	2.29E-03	2.27E-02
			Chromium	7.57E-06	--	8.48E-06	--	1.60E-05		1.10E-02	--	1.24E-02	2.34E-02
			Cobalt	--	--	--	--	--	Thyroid	2.71E-01	--	7.58E-03	2.78E-01
			Copper	--	--	--	--	--	GI Tract	1.41E-02	--	3.95E-04	1.45E-02
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	3.25E-01	--	9.10E-03	3.34E-01
			Manganese	--	--	--	--	--	CNS	2.30E-01	--	1.61E-01	3.90E-01
			Thallium	--	--	--	--	--	**Skin**	**2.45E+00**	**--**	**6.87E-02**	**2.52E+00**
			Vanadium	--	--	--	--	--		6.47E-02	--	6.97E-02	1.34E-01
			Dieldrin	4.98E-07	--	1.39E-07	--	6.37E-07	Liver	7.26E-03	--	2.03E-03	9.30E-03
			Benz(a)anthracene	8.70E-06	--	3.17E-06	--	1.19E-05	N/A	--	--	--	--
			Benzo(a)pyrene	8.28E-05	--	3.01E-05	--	1.13E-04	N/A	--	--	--	--
			Benzo(b)fluoranthene	8.49E-06	--	3.09E-06	--	1.16E-05	N/A	--	--	--	--
			Benzo(k)fluoranthene	9.73E-07	--	3.54E-07	--	1.33E-06	N/A	--	--	--	--
			Chrysene	9.39E-08	--	3.42E-08	--	1.28E-07	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.23E-05	--	1.17E-05	--	4.40E-05	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8.28E-06	--	3.01E-06	--	1.13E-05	N/A	--	--	--	--
			(Total)	1.55E-04	--	6.09E-05		2.16E-04		3.79E+00	--	3.74E-01	4.16E+00
			Radionuclide Total										
		Exposure Point Total						2.16E-04					4.16E+00
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.41E-08	--	--	1.41E-08	Lung/Nasal	--	3.68E-06	--	3.68E-06
			(Total)	--	1.41E-08	--		1.41E-08		--	3.68E-06	--	3.68E-06
			Radionuclide Total										
		Exposure Point Total						1.41E-08					3.68E-06
	Exposure Medium Total							2.16E-04					4.16E+00
Surface Soil Total								2.16E-04					4.16E+00
Receptor Total								2.16E-04					4.16E+00

Total Risk Across All Media: 2.16E-04

Total Hazard Index Across All Media: 4.16E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total Blood HI =	4.43E-01
Total CNS HI =	5.51E-01
Total CNS (Developmental) HI =	1.60E-01
Total GI Tract HI =	3.49E-01
Total Kidney HI =	2.27E-02
Total Liver HI =	4.53E-01
Total Lung HI =	3.68E-06
Total Nasal HI =	3.68E-06
Total Skin HI =	2.69E+00
Total Thyroid HI =	2.78E-01
Total Vascular HI =	1.63E-01

TABLE 9.05a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.56E-01	--	4.37E-03	1.60E-01
			Antimony	--	--	--	--	--	Blood/Liver	9.21E-02	--	1.72E-02	1.09E-01
			Cadmium	--	--	--	--	--	Kidney	2.05E-02	--	2.29E-03	2.27E-02
			Chromium	7.57E-06	--	8.48E-06	--	1.60E-05		1.10E-02	--	1.24E-02	2.34E-02
			Copper	--	--	--	--	--	GI Tract	1.41E-02	--	3.95E-04	1.45E-02
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	3.25E-01	--	9.10E-03	3.34E-01
			Thallium	--	--	--	--	--	**Skin**	**2.45E+00**	**--**	**6.87E-02**	**2.52E+00**
			Vanadium	--	--	--	--	--		6.47E-02	--	6.97E-02	1.34E-01
			Dieldrin	4.98E-07	--	1.39E-07	--	6.37E-07	Liver	7.26E-03	--	2.03E-03	9.30E-03
			Benz(a)anthracene	8.70E-06	--	3.17E-06	--	1.19E-05	N/A	--	--	--	--
			Benzo(a)pyrene	8.28E-05	--	3.01E-05	--	1.13E-04	N/A	--	--	--	--
			Benzo(b)fluoranthene	8.49E-06	--	3.09E-06	--	1.16E-05	N/A	--	--	--	--
			Benzo(k)fluoranthene	9.73E-07	--	3.54E-07	--	1.33E-06	N/A	--	--	--	--
			Chrysene	9.39E-08	--	3.42E-08	--	1.28E-07	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.23E-05	--	1.17E-05	--	4.40E-05	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8.28E-06	--	3.01E-06	--	1.13E-05	N/A	--	--	--	--
			(Total)	1.50E-04	--	6.01E-05		2.10E-04		3.15E+00	--	1.86E-01	3.33E+00
			Radionuclide Total										
		Exposure Point Total						2.10E-04					3.33E+00
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.41E-08	--	--	1.41E-08	Lung/Nasal	--	3.68E-06	--	3.68E-06
			(Total)	--	1.41E-08	--		1.41E-08		--	3.68E-06	--	3.68E-06
			Radionuclide Total										
		Exposure Point Total						1.41E-08					3.68E-06
	Exposure Medium Total							2.10E-04					3.33E+00
Surface Soil Total								2.10E-04					3.33E+00
Receptor Total								2.10E-04					3.33E+00

Total Risk Across All Media: 2.10E-04

Total Hazard Index Across All Media: 3.33E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total Blood HI =	4.43E-01
Total CNS (Developmental) HI =	1.60E-01
Total GI Tract HI =	3.49E-01
Total Kidney HI =	2.27E-02
Total Liver HI =	4.53E-01
Total Lung HI =	3.68E-06
Total Nasal HI =	3.68E-06
Total Skin HI =	2.52E+00

TABLE 9.06.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.67E-02	--	6.67E-04	1.74E-02
			Antimony	--	--	--	--	--	Blood/Liver	9.86E-03	--	2.62E-03	1.25E-02
			Arsenic	2.37E-06	--	4.72E-07	--	2.84E-06	Skin/Vascular	1.53E-02	--	3.06E-03	1.84E-02
			Cadmium	--	--	--	--	--	Kidney	2.19E-03	--	3.50E-04	2.54E-03
			Chromium	1.12E-06	--	1.78E-06	--	2.89E-06		1.18E-03	--	1.89E-03	3.07E-03
			Cobalt	--	--	--	--	--	Thyroid	2.90E-02	--	1.16E-03	3.02E-02
			Copper	--	--	--	--	--	GI Tract	1.51E-03	--	6.03E-05	1.57E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	3.48E-02	--	1.39E-03	3.62E-02
			Manganese	--	--	--	--	--	CNS	2.46E-02	--	2.45E-02	4.91E-02
			Thallium	--	--	--	--	--	Skin	2.63E-01	--	1.05E-02	2.74E-01
			Vanadium	--	--	--	--	--		6.93E-03	--	1.06E-02	1.76E-02
			Dieldrin	2.13E-07	--	8.52E-08	--	2.99E-07	Liver	7.78E-04	--	3.10E-04	1.09E-03
			Benz(a)anthracene	1.28E-06	--	6.65E-07	--	1.95E-06	N/A	--	--	--	--
			Benzo(a)pyrene	1.22E-05	--	6.33E-06	--	1.85E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.25E-06	--	6.49E-07	--	1.90E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.43E-07	--	7.43E-08	--	2.18E-07	N/A	--	--	--	--
			Chrysene	1.38E-08	--	7.17E-09	--	2.10E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	4.75E-06	--	2.46E-06	--	7.22E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.22E-06	--	6.33E-07	--	1.85E-06	N/A	--	--	--	--
			(Total)	2.46E-05	--	1.32E-05		3.77E-05		4.06E-01	--	5.72E-02	4.63E-01
			Radionuclide Total										
		Exposure Point Total						3.77E-05					4.63E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.95E-08	--	--	1.95E-08	Lung/Nasal	--	3.68E-06	--	3.68E-06
			(Total)	--	1.95E-08	--		1.95E-08		--	3.68E-06	--	3.68E-06
			Radionuclide Total										
		Exposure Point Total						1.95E-08					3.68E-06
	Exposure Medium Total							3.77E-05					4.63E-01
Surface Soil Total								3.77E-05					4.63E-01
Receptor Total								3.77E-05					4.63E-01

Total Risk Across All Media: 3.77E-05

Total Hazard Index Across All Media: 4.63E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total Blood HI =	4.87E-02
Total CNS HI =	6.65E-02
Total CNS (Developmental) HI =	1.74E-02
Total GI Tract HI =	3.78E-02
Total Kidney HI =	2.54E-03
Total Liver HI =	4.98E-02
Total Lung HI =	3.68E-06
Total Nasal HI =	3.68E-06
Total Skin HI =	2.92E-01
Total Thyroid HI =	3.02E-02
Total Vascular HI =	1.84E-02

TABLE 9.06a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.67E-02	--	6.67E-04	1.74E-02
			Antimony	--	--	--	--	--	Blood/Liver	9.86E-03	--	2.62E-03	1.25E-02
			Cadmium	--	--	--	--	--	Kidney	2.19E-03	--	3.50E-04	2.54E-03
			Chromium	1.12E-06	--	1.78E-06	--	2.89E-06		1.18E-03	--	1.89E-03	3.07E-03
			Copper	--	--	--	--	--	GI Tract	1.51E-03	--	6.03E-05	1.57E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	3.48E-02	--	1.39E-03	3.62E-02
			Thallium	--	--	--	--	--	Skin	2.63E-01	--	1.05E-02	2.74E-01
			Vanadium	--	--	--	--	--		6.93E-03	--	1.06E-02	1.76E-02
			Dieldrin	2.13E-07	--	8.52E-08	--	2.99E-07	Liver	7.78E-04	--	3.10E-04	1.09E-03
			Benz(a)anthracene	1.28E-06	--	6.65E-07	--	1.95E-06	N/A	--	--	--	--
			Benzo(a)pyrene	1.22E-05	--	6.33E-06	--	1.85E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.25E-06	--	6.49E-07	--	1.90E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.43E-07	--	7.43E-08	--	2.18E-07	N/A	--	--	--	--
			Chrysene	1.38E-08	--	7.17E-09	--	2.10E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	4.75E-06	--	2.46E-06	--	7.22E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.22E-06	--	6.33E-07	--	1.85E-06	N/A	--	--	--	--
			(Total)	2.22E-05	--	1.27E-05		3.49E-05		3.37E-01	--	2.84E-02	3.65E-01
			Radionuclide Total										
		Exposure Point Total						3.49E-05					3.65E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.95E-08	--	--	1.95E-08	Lung/Nasal	--	3.68E-06	--	3.68E-06
			(Total)	--	1.95E-08	--		1.95E-08		--	3.68E-06	--	3.68E-06
			Radionuclide Total										
		Exposure Point Total						1.95E-08					3.68E-06
	Exposure Medium Total							3.49E-05					3.65E-01
Surface Soil Total								3.49E-05					3.65E-01
Receptor Total								3.49E-05					3.65E-01

Total Risk Across All Media: 3.49E-05

Total Hazard Index Across All Media: 3.65E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total Blood HI =	4.87E-02
Total CNS (Developmental) HI =	1.74E-02
Total GI Tract HI =	3.78E-02
Total Kidney HI =	2.54E-03
Total Liver HI =	4.98E-02
Total Lung HI =	3.68E-06
Total Nasal HI =	3.68E-06
Total Skin HI =	2.74E-01

TABLE 9.07.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	**7.89E-06**	**--**	**1.25E-06**	**--**	**9.14E-06**	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	**8.68E-06**	**--**	**1.03E-05**	**--**	**1.89E-05**	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	7.11E-07	--	2.25E-07	--	9.36E-07	N/A	N/A	--	N/A	--
			Benz(a)anthracene	**9.99E-06**	**--**	**3.83E-06**	**--**	**1.38E-05**	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	**9.50E-05**	**--**	**3.65E-05**	**--**	**1.31E-04**	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	**9.74E-06**	**--**	**3.74E-06**	**--**	**1.35E-05**	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	**1.12E-06**	**--**	**4.28E-07**	**--**	**1.54E-06**	N/A	N/A	--	N/A	--
			Chrysene	1.08E-07	--	4.13E-08	--	1.49E-07	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	**3.70E-05**	**--**	**1.42E-05**	**--**	**5.12E-05**	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	**9.50E-06**	**--**	**3.65E-06**	**--**	**1.31E-05**	N/A	N/A	--	N/A	--
			(Total)	1.80E-04	--	7.41E-05		2.54E-04		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.54E-04					--
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	3.36E-08	--	--	3.36E-08	N/A	--	N/A	--	--
			(Total)	--	3.36E-08	--		3.36E-08		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						3.36E-08					--
	Exposure Medium Total							2.54E-04					--
Surface Soil Total								2.54E-04					--
Receptor Total								2.54E-04					--

Total Risk Across All Media: 2.54E-04

Total Hazard Index Across All Media: --

TABLE 9.07a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	**8.68E-06**	**--**	**1.03E-05**	**--**	**1.89E-05**	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	7.11E-07	--	2.25E-07	--	9.36E-07	N/A	N/A	--	N/A	--
			Benz(a)anthracene	**9.99E-06**	**--**	**3.83E-06**	**--**	**1.38E-05**	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	**9.50E-05**	**--**	**3.65E-05**	**--**	**1.31E-04**	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	**9.74E-06**	**--**	**3.74E-06**	**--**	**1.35E-05**	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	**1.12E-06**	**--**	**4.28E-07**	**--**	**1.54E-06**	N/A	N/A	--	N/A	--
			Chrysene	1.08E-07	--	4.13E-08	--	1.49E-07	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	**3.70E-05**	**--**	**1.42E-05**	**--**	**5.12E-05**	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	**9.50E-06**	**--**	**3.65E-06**	**--**	**1.31E-05**	N/A	N/A	--	N/A	--
			(Total)	1.72E-04	--	7.28E-05		2.45E-04		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.45E-04					--
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	3.36E-08	--	--	3.36E-08	N/A	--	N/A	--	--
			(Total)	--	3.36E-08	--		3.36E-08		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						3.36E-08					--
	Exposure Medium Total							2.45E-04					--
Surface Soil Total								2.45E-04					--
Receptor Total								2.45E-04					--

Total Risk Across All Media 2.45E-04

Total Hazard Index Across All Media --

TABLE 9.08.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT INDUSTRIAL WORKER EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.19E-02	--	7.88E-04	1.27E-02
			Antimony	--	--	--	--	--	Blood/Liver	7.05E-03	--	3.10E-03	1.01E-02
			Arsenic	1.76E-06	--	5.81E-07	--	2.34E-06	Skin/Vascular	1.10E-02	--	3.62E-03	1.46E-02
			Cadmium	--	--	--	--	--	Kidney	1.57E-03	--	4.13E-04	1.98E-03
			Chromium	4.53E-07	--	1.19E-06	--	1.65E-06		8.45E-04	--	2.23E-03	3.07E-03
			Cobalt	--	--	--	--	--	Thyroid	2.07E-02	--	1.37E-03	2.21E-02
			Copper	--	--	--	--	--	GI Tract	1.08E-03	--	7.12E-05	1.15E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	2.49E-02	--	1.64E-03	2.65E-02
			Manganese	--	--	--	--	--	CNS	1.76E-02	--	2.90E-02	4.66E-02
			Thallium	--	--	--	--	--	Skin	1.88E-01	--	1.24E-02	2.00E-01
			Vanadium	--	--	--	--	--		4.95E-03	--	1.26E-02	1.75E-02
			Dieldrin	1.59E-07	--	1.05E-07	--	2.64E-07	Liver	5.56E-04	--	3.67E-04	9.23E-04
			Benz(a)anthracene	5.20E-07	--	4.47E-07	--	9.67E-07	N/A	--	--	--	--
			Benzo(a)pyrene	4.95E-06	--	4.25E-06	--	9.20E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.08E-07	--	4.36E-07	--	9.43E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	5.82E-08	--	4.99E-08	--	1.08E-07	N/A	--	--	--	--
			Chrysene	5.61E-09	--	4.82E-09	--	1.04E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.93E-06	--	1.65E-06	--	3.58E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4.95E-07	--	4.25E-07	--	9.20E-07	N/A	--	--	--	--
			(Total)	1.08E-05	--	9.14E-06		2.00E-05		2.90E-01	--	6.76E-02	3.58E-01
			Radionuclide Total										
		Exposure Point Total						2.00E-05					3.58E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	5.26E-09	--	--	5.26E-09	Lung/Nasal	--	1.75E-06	--	1.75E-06
			(Total)	--	5.26E-09	--		5.26E-09		--	1.75E-06	--	1.75E-06
			Radionuclide Total										
		Exposure Point Total						5.26E-09					1.75E-06
	Exposure Medium Total							2.00E-05					3.58E-01
Surface Soil Total								2.00E-05					3.58E-01
Receptor Total								2.00E-05					3.58E-01

Total Risk Across All Media: 2.00E-05

Total Hazard Index Across All Media: 3.58E-01

Total Blood HI =	3.67E-02
Total CNS HI =	5.93E-02
Total CNS (Developmental) HI =	1.27E-02
Total GI Tract HI =	2.77E-02
Total Kidney HI =	1.98E-03
Total Liver HI =	3.76E-02
Total Lung HI =	1.75E-06
Total Nasal HI =	1.75E-06
Total Skin HI =	2.15E-01
Total Thyroid HI =	2.21E-02
Total Vascular HI =	1.46E-02

TABLE 9.08a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT INDUSTRIAL WORKER EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.19E-02	--	7.88E-04	1.27E-02
			Antimony	--	--	--	--	--	Blood/Liver	7.05E-03	--	3.10E-03	1.01E-02
			Cadmium	--	--	--	--	--	Kidney	1.57E-03	--	4.13E-04	1.98E-03
			Chromium	4.53E-07	--	1.19E-06	--	1.65E-06		8.45E-04	--	2.23E-03	3.07E-03
			Copper	--	--	--	--	--	GI Tract	1.08E-03	--	7.12E-05	1.15E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	2.49E-02	--	1.64E-03	2.65E-02
			Thallium	--	--	--	--	--	Skin	1.88E-01	--	1.24E-02	2.00E-01
			Vanadium	--	--	--	--	--		4.95E-03	--	1.26E-02	1.75E-02
			Dieldrin	1.59E-07	--	1.05E-07	--	2.64E-07	Liver	5.56E-04	--	3.67E-04	9.23E-04
			Benz(a)anthracene	5.20E-07	--	4.47E-07	--	9.67E-07	N/A	--	--	--	--
			Benzo(a)pyrene	4.95E-06	--	4.25E-06	--	9.20E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.08E-07	--	4.36E-07	--	9.43E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	5.82E-08	--	4.99E-08	--	1.08E-07	N/A	--	--	--	--
			Chrysene	5.61E-09	--	4.82E-09	--	1.04E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.93E-06	--	1.65E-06	--	3.58E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4.95E-07	--	4.25E-07	--	9.20E-07	N/A	--	--	--	--
			(Total)	9.08E-06	--	8.56E-06		1.76E-05		2.41E-01	--	3.36E-02	2.74E-01
			Radionuclide Total										
		Exposure Point Total						1.76E-05					2.74E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	5.26E-09	--	--	5.26E-09	Lung/Nasal	--	1.75E-06	--	1.75E-06
			(Total)	--	5.26E-09	--		5.26E-09		--	1.75E-06	--	1.75E-06
			Radionuclide Total										
		Exposure Point Total						5.26E-09					1.75E-06
	Exposure Medium Total							1.76E-05					2.74E-01
Surface Soil Total								1.76E-05					2.74E-01
Receptor Total								1.76E-05					2.74E-01

Total Risk Across All Media: 1.76E-05

Total Hazard Index Across All Media: 2.74E-01

Total Blood HI =	3.67E-02
Total CNS (Developmental) HI =	1.27E-02
Total GI Tract HI =	2.77E-02
Total Kidney HI =	1.98E-03
Total Liver HI =	3.76E-02
Total Lung HI =	1.75E-06
Total Nasal HI =	1.75E-06
Total Skin HI =	2.00E-01

TABLE 9.09.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	4.63E-02	--	1.30E-03	4.76E-02
			Antimony	--	--	--	--	--	Blood/Liver	2.74E-02	--	5.11E-03	3.25E-02
			Arsenic	1.64E-06	--	2.30E-07	--	1.87E-06	Skin/Vascular	4.25E-02	--	5.96E-03	4.85E-02
			Cadmium	--	--	--	--	--	Kidney	6.08E-03	--	6.81E-04	6.76E-03
			Chromium	2.25E-06	--	2.52E-06	--	4.77E-06		3.28E-03	--	3.67E-03	6.95E-03
			Cobalt	--	--	--	--	--	Thyroid	8.04E-02	--	2.25E-03	8.27E-02
			Copper	--	--	--	--	--	GI Tract	4.19E-03	--	1.17E-04	4.31E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	9.66E-02	--	2.70E-03	9.93E-02
			Manganese	--	--	--	--	--	CNS	6.82E-02	--	4.78E-02	1.16E-01
			Thallium	--	--	--	--	--	Skin	7.29E-01	--	2.04E-02	7.50E-01
			Vanadium	--	--	--	--	--		1.92E-02	--	2.07E-02	3.99E-02
			Dieldrin	1.48E-07	--	4.14E-08	--	1.89E-07	Liver	2.16E-03	--	6.04E-04	2.76E-03
			Benz(a)anthracene	2.59E-06	--	9.41E-07	--	3.53E-06	N/A	--	--	--	--
			Benzo(a)pyrene	2.46E-05	--	8.95E-06	--	3.35E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.52E-06	--	9.18E-07	--	3.44E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	2.89E-07	--	1.05E-07	--	3.94E-07	N/A	--	--	--	--
			Chrysene	2.79E-08	--	1.02E-08	--	3.80E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	9.58E-06	--	3.49E-06	--	1.31E-05	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.46E-06	--	8.95E-07	--	3.35E-06	N/A	--	--	--	--
			(Total)	4.61E-05	--	1.81E-05		6.42E-05		1.13E+00	--	1.11E-01	1.24E+00
			Radionuclide Total										
		Exposure Point Total						6.42E-05					1.24E+00
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.05E-09	--	--	1.05E-09	Lung/Nasal	--	2.74E-07	--	2.74E-07
			(Total)	--	1.05E-09	--		1.05E-09		--	2.74E-07	--	2.74E-07
			Radionuclide Total										
		Exposure Point Total						1.05E-09					2.74E-07
	Exposure Medium Total							6.42E-05					1.24E+00
Surface Soil Total								6.42E-05					1.24E+00
Receptor Total								6.42E-05					1.24E+00

Total Risk Across All Media: 6.42E-05

Total Hazard Index Across All Media: 1.24E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total Blood HI =	1.32E-01
Total CNS HI =	1.64E-01
Total CNS (Developmental) HI =	4.76E-02
Total GI Tract HI =	1.04E-01
Total Kidney HI =	6.76E-03
Total Liver HI =	1.35E-01
Total Lung HI =	2.74E-07
Total Nasal HI =	2.74E-07
Total Skin HI =	7.98E-01
Total Thyroid HI =	8.27E-02
Total Vascular HI =	4.85E-02

TABLE 9.09a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	4.63E-02	--	1.30E-03	4.76E-02
			Antimony	--	--	--	--	--	Blood/Liver	2.74E-02	--	5.11E-03	3.25E-02
			Cadmium	--	--	--	--	--	Kidney	6.08E-03	--	6.81E-04	6.76E-03
			Chromium	2.25E-06	--	2.52E-06	--	4.77E-06		3.28E-03	--	3.67E-03	6.95E-03
			Copper	--	--	--	--	--	GI Tract	4.19E-03	--	1.17E-04	4.31E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	9.66E-02	--	2.70E-03	9.93E-02
			Thallium	--	--	--	--	--	Skin	7.29E-01	--	2.04E-02	7.50E-01
			Vanadium	--	--	--	--	--		1.92E-02	--	2.07E-02	3.99E-02
			Dieldrin	1.48E-07	--	4.14E-08	--	1.89E-07	Liver	2.16E-03	--	6.04E-04	2.76E-03
			Benz(a)anthracene	2.59E-06	--	9.41E-07	--	3.53E-06	N/A	--	--	--	--
			Benzo(a)pyrene	2.46E-05	--	8.95E-06	--	3.35E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.52E-06	--	9.18E-07	--	3.44E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	2.89E-07	--	1.05E-07	--	3.94E-07	N/A	--	--	--	--
			Chrysene	2.79E-08	--	1.02E-08	--	3.80E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	9.58E-06	--	3.49E-06	--	1.31E-05	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.46E-06	--	8.95E-07	--	3.35E-06	N/A	--	--	--	--
			(Total)	4.45E-05	--	1.79E-05		6.23E-05		9.35E-01	--	5.53E-02	9.90E-01
			Radionuclide Total										
		Exposure Point Total						6.23E-05					9.90E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.05E-09	--	--	1.05E-09	Lung/Nasal	--	2.74E-07	--	2.74E-07
			(Total)	--	1.05E-09	--		1.05E-09		--	2.74E-07	--	2.74E-07
			Radionuclide Total										
		Exposure Point Total						1.05E-09					2.74E-07
	Exposure Medium Total							6.23E-05					9.90E-01
Surface Soil Total								6.23E-05					9.90E-01
Receptor Total								6.23E-05					9.90E-01

Total Risk Across All Media: 6.23E-05

Total Hazard Index Across All Media: 9.90E-01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total Blood HI =	1.32E-01
Total CNS (Developmental) HI =	4.76E-02
Total GI Tract HI =	1.04E-01
Total Kidney HI =	6.76E-03
Total Liver HI =	1.35E-01
Total Lung HI =	2.74E-07
Total Nasal HI =	2.74E-07
Total Skin HI =	7.50E-01

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	4.97E-03	--	1.98E-04	5.16E-03
			Antimony	--	--	--	--	--	Blood/Liver	2.93E-03	--	7.80E-04	3.71E-03
			Arsenic	7.03E-07	--	1.40E-07	--	8.44E-07	Skin/Vascular	4.56E-03	--	9.10E-04	5.47E-03
			Cadmium	--	--	--	--	--	Kidney	6.51E-04	--	1.04E-04	7.55E-04
			Chromium	3.31E-07	--	5.29E-07	--	8.60E-07		3.51E-04	--	5.61E-04	9.12E-04
			Cobalt	--	--	--	--	--	Thyroid	8.62E-03	--	3.44E-04	8.96E-03
			Copper	--	--	--	--	--	GI Tract	4.49E-04	--	1.79E-05	4.67E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.04E-02	--	4.13E-04	1.08E-02
			Manganese	--	--	--	--	--	CNS	7.31E-03	--	7.29E-03	1.46E-02
			Thallium	--	--	--	--	--	Skin	7.82E-02	--	3.12E-03	8.13E-02
			Vanadium	--	--	--	--	--		2.06E-03	--	3.16E-03	5.22E-03
			Dieldrin	6.34E-08	--	2.53E-08	--	8.87E-08	Liver	2.31E-04	--	9.22E-05	3.23E-04
			Benz(a)anthracene	3.81E-07	--	1.98E-07	--	5.79E-07	N/A	--	--	--	--
			Benzo(a)pyrene	3.62E-06	--	1.88E-06	--	5.50E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.72E-07	--	1.93E-07	--	5.64E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	4.26E-08	--	2.21E-08	--	6.47E-08	N/A	--	--	--	--
			Chrysene	4.11E-09	--	2.13E-09	--	6.24E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.41E-06	--	7.32E-07	--	2.14E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.62E-07	--	1.88E-07	--	5.50E-07	N/A	--	--	--	--
			(Total)	7.30E-06	--	3.91E-06		1.12E-05		1.21E-01	--	1.70E-02	1.38E-01
			Radionuclide Total										
		Exposure Point Total						1.12E-05					1.38E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.44E-09	--	--	1.44E-09	Lung/Nasal	--	2.74E-07	--	2.74E-07
			(Total)	--	1.44E-09	--		1.44E-09		--	2.74E-07	--	2.74E-07
			Radionuclide Total										
		Exposure Point Total						1.44E-09					2.74E-07
	Exposure Medium Total							1.12E-05					1.38E-01
Surface Soil Total								1.12E-05					1.38E-01
Receptor Total								1.12E-05					1.38E-01

Total Risk Across All Media: 1.12E-05

Total Hazard Index Across All Media: 1.38E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total Blood HI =	1.45E-02
Total CNS HI =	1.98E-02
Total CNS (Developmental) HI =	5.16E-03
Total GI Tract HI =	1.12E-02
Total Kidney HI =	7.55E-04
Total Liver HI =	1.48E-02
Total Lung HI =	2.74E-07
Total Nasal HI =	2.74E-07
Total Skin HI =	8.67E-02
Total Thyroid HI =	8.96E-03
Total Vascular HI =	5.47E-03

TABLE 9.10a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	4.97E-03	--	1.98E-04	5.16E-03
			Antimony	--	--	--	--	--	Blood/Liver	2.93E-03	--	7.80E-04	3.71E-03
			Cadmium	--	--	--	--	--	Kidney	6.51E-04	--	1.04E-04	7.55E-04
			Chromium	3.31E-07	--	5.29E-07	--	8.60E-07		3.51E-04	--	5.61E-04	9.12E-04
			Copper	--	--	--	--	--	GI Tract	4.49E-04	--	1.79E-05	4.67E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.04E-02	--	4.13E-04	1.08E-02
			Thallium	--	--	--	--	--	Skin	7.82E-02	--	3.12E-03	8.13E-02
			Vanadium	--	--	--	--	--		2.06E-03	--	3.16E-03	5.22E-03
			Dieldrin	6.34E-08	--	2.53E-08	--	8.87E-08	Liver	2.31E-04	--	9.22E-05	3.23E-04
			Benz(a)anthracene	3.81E-07	--	1.98E-07	--	5.79E-07	N/A	--	--	--	--
			Benzo(a)pyrene	3.62E-06	--	1.88E-06	--	5.50E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.72E-07	--	1.93E-07	--	5.64E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	4.26E-08	--	2.21E-08	--	6.47E-08	N/A	--	--	--	--
			Chrysene	4.11E-09	--	2.13E-09	--	6.24E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.41E-06	--	7.32E-07	--	2.14E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.62E-07	--	1.88E-07	--	5.50E-07	N/A	--	--	--	--
			(Total)	6.59E-06	--	3.77E-06		1.04E-05		1.00E-01	--	8.44E-03	1.09E-01
			Radionuclide Total										
		Exposure Point Total						1.04E-05					1.09E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.44E-09	--	--	1.44E-09	Lung/Nasal	--	2.74E-07	--	2.74E-07
			(Total)	--	1.44E-09	--		1.44E-09		--	2.74E-07	--	2.74E-07
			Radionuclide Total										
		Exposure Point Total						1.44E-09					2.74E-07
	Exposure Medium Total							1.04E-05					1.09E-01
Surface Soil Total								1.04E-05					1.09E-01
Receptor Total								1.04E-05					1.09E-01

Total Risk Across All Media: 1.04E-05

Total Hazard Index Across All Media: 1.09E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total Blood HI =	1.45E-02
Total CNS (Developmental) HI =	5.16E-03
Total GI Tract HI =	1.12E-02
Total Kidney HI =	7.55E-04
Total Liver HI =	1.48E-02
Total Lung HI =	2.74E-07
Total Nasal HI =	2.74E-07
Total Skin HI =	8.13E-02

TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	2.34E-06	--	3.70E-07	--	2.71E-06	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	2.58E-06	--	3.05E-06	--	5.63E-06	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	2.11E-07	--	6.67E-08	--	2.78E-07	N/A	N/A	--	N/A	--
			Benz(a)anthracene	2.97E-06	--	1.14E-06	--	4.11E-06	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	2.82E-05	--	1.08E-05	--	3.91E-05	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	2.89E-06	--	1.11E-06	--	4.01E-06	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	3.32E-07	--	1.27E-07	--	4.59E-07	N/A	N/A	--	N/A	--
			Chrysene	3.20E-08	--	1.23E-08	--	4.43E-08	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	1.10E-05	--	4.22E-06	--	1.52E-05	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	2.82E-06	--	1.08E-06	--	3.91E-06	N/A	N/A	--	N/A	--
			(Total)	5.34E-05	--	2.20E-05		7.54E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						7.54E-05					--
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	2.50E-09	--	--	2.50E-09	N/A	--	N/A	--	--
			(Total)	--	2.50E-09	--		2.50E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.50E-09					--
	Exposure Medium Total							7.54E-05					--
Surface Soil Total								7.54E-05					--
Receptor Total								7.54E-05					--

Total Risk Across All Media: 7.54E-05

Total Hazard Index Across All Media: --

TABLE 9.11a.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	2.58E-06	--	3.05E-06	--	5.63E-06	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	2.11E-07	--	6.67E-08	--	2.78E-07	N/A	N/A	--	N/A	--
			Benz(a)anthracene	2.97E-06	--	1.14E-06	--	4.11E-06	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	2.82E-05	--	1.08E-05	--	3.91E-05	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	2.89E-06	--	1.11E-06	--	4.01E-06	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	3.32E-07	--	1.27E-07	--	4.59E-07	N/A	N/A	--	N/A	--
			Chrysene	3.20E-08	--	1.23E-08	--	4.43E-08	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	1.10E-05	--	4.22E-06	--	1.52E-05	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	2.82E-06	--	1.08E-06	--	3.91E-06	N/A	N/A	--	N/A	--
			(Total)	5.11E-05	--	2.16E-05		7.27E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						7.27E-05					--
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	2.50E-09	--	--	2.50E-09	N/A	--	N/A	--	--
			(Total)	--	2.50E-09	--		2.50E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.50E-09					--
	Exposure Medium Total							7.27E-05					--
Surface Soil Total								7.27E-05					--
Receptor Total								7.27E-05					--

Total Risk Across All Media 7.27E-05

Total Hazard Index Across All Media --

TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	1.11E-04	--	9.29E-06	--	1.20E-04	**CNS (Behavioral)**	**1.42E+01**	**--**	**1.19E+00**	**1.54E+01**
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.64E-01	--	4.58E-03	1.68E-01
			Antimony	--	--	--	--	--	Blood/Liver	2.70E-01	--	5.05E-02	3.21E-01
			Arsenic**	9.51E-06	--	1.33E-06	--	1.08E-05	**Skin/Vascular**	**2.47E-01**	**--**	**3.45E-02**	**2.81E-01**
			Cadmium	--	--	--	--	--	Kidney	1.36E-01	--	1.52E-02	1.51E-01
			Chromium	9.79E-06	--	1.10E-05	--	2.08E-05		1.43E-02	--	1.60E-02	3.03E-02
			Cobalt	--	--	--	--	--	Thyroid	3.07E-01	--	8.59E-03	3.15E-01
			Copper	--	--	--	--	--	GI Tract	3.80E-02	--	1.07E-03	3.91E-02
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	4.02E-01	--	1.13E-02	4.13E-01
			Manganese**	--	--	--	--	--	**CNS**	**3.06E-01**	**--**	**2.14E-01**	**5.21E-01**
			Thallium	--	--	--	--	--	**Skin**	**4.08E+00**	**--**	**1.14E-01**	**4.19E+00**
			Vanadium	--	--	--	--	--		6.60E-02	--	7.10E-02	1.37E-01
			Zinc	--	--	--	--	--	Blood	1.81E-02	--	5.07E-04	1.86E-02
			Aroclor-1260	7.67E-07	--	3.01E-07	--	1.07E-06	N/A	--	--	--	--
			Dieldrin	3.37E-07	--	9.43E-08	--	4.31E-07	Liver	4.91E-03	--	1.37E-03	6.28E-03
			2-Methylnaphthalene	--	--	--	--	--	Lung	4.03E-03	--	1.47E-03	5.49E-03
			Benz(a)anthracene	7.89E-06	--	2.87E-06	--	1.08E-05	N/A	--	--	--	--
			Benzo(a)pyrene	7.04E-05	--	2.56E-05	--	9.60E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	7.21E-06	--	2.62E-06	--	9.84E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	8.06E-07	--	2.94E-07	--	1.10E-06	N/A	--	--	--	--
			Chrysene	8.58E-08	--	3.12E-08	--	1.17E-07	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.46E-05	--	8.95E-06	--	3.35E-05	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.36E-06	--	2.31E-06	--	8.67E-06	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	2.63E-04	--	9.56E-05	3.58E-04
			(Total)	2.48E-04	--	6.47E-05		3.13E-04		2.02E+01	--	1.74E+00	2.20E+01
			Radionuclide Total										
		Exposure Point Total						3.13E-04					2.20E+01
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	1.40E-08	--	--	1.40E-08	Respiratory	--	1.61E-03	--	1.61E-03
			(Total)	--	1.40E-08	--		1.40E-08		--	1.61E-03	--	1.61E-03
			Radionuclide Total										
		Exposure Point Total						1.40E-08					1.61E-03
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	3.59E-10	--	--	3.59E-10	Liver/Respiratory/Reproductive	--	2.76E-06	--	2.76E-06
			Chromium	--	1.83E-08	--	--	1.83E-08	Lung/Nasal	--	4.76E-06	--	4.76E-06
			(Total)	--	1.87E-08	--		1.87E-08		--	7.52E-06	--	7.52E-06
			Radionuclide Total										
		Exposure Point Total						1.87E-08					7.52E-06
	Exposure Medium Total							3.13E-04					2.20E+01
Soil Total								3.13E-04					2.20E+01
Receptor Total								3.13E-04					2.20E+01

Total Risk Across All Media: 3.13E-04

Total Hazard Index Across All Media: 2.20E+01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population. As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

Total Blood HI =	7.53E-01
Total CNS HI =	1.61E+01
Total CNS (Behavioral) HI =	1.54E+01
Total CNS (Developmental) HI =	1.68E-01
Total Decr. Wt. Gain HI =	3.58E-04
Total GI Tract HI =	4.52E-01
Total Kidney HI =	1.51E-01
Total Liver HI =	7.40E-01
Total Lung HI =	5.50E-03
Total Nasal HI =	4.76E-06
Total Reproductive HI =	2.76E-06
Total Respiratory HI =	1.61E-03
Total Skin HI =	4.47E+00
Total Thyroid HI =	3.15E-01
Total Vascular HI =	2.81E-01

TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	4.74E-05	--	5.67E-06	--	5.31E-05	**CNS (Behavioral)**	**1.52E+00**	--	**1.82E-01**	**1.70E+00**
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.75E-02	--	7.00E-04	1.82E-02
			Antimony	--	--	--	--	--	Blood/Liver	2.90E-02	--	7.71E-03	3.67E-02
			Arsenic**	4.07E-06	--	8.13E-07	--	4.89E-06	Skin/Vascular	2.64E-02	--	5.27E-03	3.17E-02
			Cadmium	--	--	--	--	--	Kidney	1.45E-02	--	2.32E-03	1.68E-02
			Chromium	1.44E-06	--	2.30E-06	--	3.74E-06		1.53E-03	--	2.44E-03	3.97E-03
			Cobalt	--	--	--	--	--	Thyroid	3.29E-02	--	1.31E-03	3.42E-02
			Copper	--	--	--	--	--	GI Tract	4.08E-03	--	1.63E-04	4.24E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	4.31E-02	--	1.72E-03	4.48E-02
			Manganese**	--	--	--	--	--	CNS	3.28E-02	--	3.27E-02	6.56E-02
			Thallium	--	--	--	--	--	Skin	4.37E-01	--	1.74E-02	4.54E-01
			Vanadium	--	--	--	--	--		7.07E-03	--	1.08E-02	1.79E-02
			Zinc	--	--	--	--	--	Blood	1.94E-03	--	7.74E-05	2.02E-03
			Aroclor-1260	3.29E-07	--	1.84E-07	--	5.12E-07	N/A	--	--	--	--
			Dieldrin	1.44E-07	--	5.76E-08	--	2.02E-07	Liver	5.26E-04	--	2.10E-04	7.36E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	4.32E-04	--	2.24E-04	6.55E-04
			Benz(a)anthracene	1.16E-06	--	6.03E-07	--	1.77E-06	N/A	--	--	--	--
			Benzo(a)pyrene	1.04E-05	--	5.38E-06	--	1.58E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.06E-06	--	5.51E-07	--	1.61E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.19E-07	--	6.16E-08	--	1.80E-07	N/A	--	--	--	--
			Chrysene	1.26E-08	--	6.55E-09	--	1.92E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.62E-06	--	1.88E-06	--	5.50E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	9.37E-07	--	4.86E-07	--	1.42E-06	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	2.82E-05	--	1.46E-05	4.28E-05
			(Total)	7.07E-05	--	1.80E-05		8.86E-05		2.17E+00	--	2.65E-01	2.43E+00
			Radionuclide Total										
		Exposure Point Total						8.86E-05					2.43E+00
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	5.61E-08	--	--	5.61E-08	Respiratory	--	1.61E-03	--	1.61E-03
			(Total)	--	5.61E-08	--		5.61E-08		--	1.61E-03	--	1.61E-03
			Radionuclide Total										
		Exposure Point Total						5.61E-08					1.61E-03
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.44E-09	--	--	1.44E-09	Liver/Respiratory/Reproductive	--	2.76E-06	--	2.76E-06
			Chromium	--	2.52E-08	--	--	2.52E-08	Lung/Nasal	--	4.76E-06	--	4.76E-06
			(Total)	--	2.66E-08	--		2.66E-08		--	7.52E-06	--	7.52E-06
			Radionuclide Total										
		Exposure Point Total						2.66E-08					7.52E-06
	Exposure Medium Total							8.87E-05					2.43E+00
Soil Total								8.87E-05					2.43E+00
Receptor Total								8.87E-05					2.43E+00

Total Risk Across All Media: 8.87E-05

Total Hazard Index Across All Media: 2.43E+00

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population. As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

Total Blood HI =	8.35E-02
Total CNS HI =	1.78E+00
Total CNS (Behavioral) HI =	1.70E+00
Total CNS (Developmental) HI =	1.82E-02
Total Decr. Wt. Gain HI =	4.28E-05
Total GI Tract HI =	4.90E-02
Total Kidney HI =	1.68E-02
Total Liver HI =	8.22E-02
Total Lung HI =	6.60E-04
Total Nasal HI =	4.76E-06
Total Reproductive HI =	2.76E-06
Total Respiratory HI =	1.61E-03
Total Skin HI =	4.86E-01
Total Thyroid HI =	3.42E-02
Total Vascular HI =	3.17E-02

TABLE 9.14.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	**1.58E-04**	**--**	**1.50E-05**	**--**	**1.73E-04**	N/A	N/A	--	N/A	--
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic**	**1.36E-05**	**--**	**2.14E-06**	**--**	**1.57E-05**	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	**1.12E-05**	**--**	**1.33E-05**	**--**	**2.45E-05**	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese**	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Zinc	--	--	--	--	--	N/A	N/A	--	N/A	--
			Aroclor-1260	**1.10E-06**	**--**	**4.84E-07**	**--**	**1.58E-06**	N/A	N/A	--	N/A	--
			Dieldrin	4.81E-07	--	1.52E-07	--	6.33E-07	N/A	N/A	--	N/A	--
			2-Methylnaphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			Benz(a)anthracene	**9.06E-06**	**--**	**3.48E-06**	**--**	**1.25E-05**	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	**8.08E-05**	**--**	**3.10E-05**	**--**	**1.12E-04**	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	**8.27E-06**	**--**	**3.18E-06**	**--**	**1.14E-05**	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	**9.25E-07**	**--**	**3.55E-07**	**--**	**1.28E-06**	N/A	N/A	--	N/A	--
			Chrysene	9.84E-08	--	3.78E-08	--	1.36E-07	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	**2.82E-05**	**--**	**1.08E-05**	**--**	**3.90E-05**	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	**7.29E-06**	**--**	**2.80E-06**	**--**	**1.01E-05**	N/A	N/A	--	N/A	--
			Naphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			(Total)	3.19E-04	--	8.27E-05		4.02E-04		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						4.02E-04					--
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	7.02E-08	--	--	7.02E-08	N/A	--	N/A	--	--
			(Total)	--	7.02E-08	--		7.02E-08		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						7.02E-08					--
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.80E-09	--	--	1.80E-09	N/A	--	N/A	--	--
			Chromium	--	4.35E-08	--	--	4.35E-08	N/A	--	N/A	--	--
			(Total)	--	4.53E-08	--		4.53E-08		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						4.53E-08					--
	Exposure Medium Total							4.02E-04					--
Soil Total								4.02E-04					--
Receptor Total								4.02E-04					--

Total Risk Across All Media: 4.02E-04

Total Hazard Index Across All Media: --

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population.
As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT INDUSTRIAL WORKER EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	3.53E-05	--	6.98E-06	--	4.22E-05	**CNS (Behavioral)**	**1.08E+00**	**--**	**2.15E-01**	**1.30E+00**
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.25E-02	--	8.27E-04	1.34E-02
			Antimony	--	--	--	--	--	Blood/Liver	2.07E-02	--	9.11E-03	2.98E-02
			Arsenic**	3.03E-06	--	1.00E-06	--	4.03E-06	Skin/Vascular	1.89E-02	--	6.23E-03	2.51E-02
			Cadmium	--	--	--	--	--	Kidney	1.04E-02	--	2.74E-03	1.31E-02
			Chromium	5.85E-07	--	1.55E-06	--	2.13E-06		1.09E-03	--	2.88E-03	3.98E-03
			Cobalt	--	--	--	--	--	Thyroid	2.35E-02	--	1.55E-03	2.50E-02
			Copper	--	--	--	--	--	GI Tract	2.91E-03	--	1.92E-04	3.10E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	3.08E-02	--	2.03E-03	3.28E-02
			Manganese**	--	--	--	--	--	CNS	2.34E-02	--	3.87E-02	6.21E-02
			Thallium	--	--	--	--	--	Skin	3.12E-01	--	2.06E-02	3.33E-01
			Vanadium	--	--	--	--	--		5.05E-03	--	1.28E-02	1.79E-02
			Zinc	--	--	--	--	--	Blood	1.39E-03	--	9.15E-05	1.48E-03
			Aroclor-1260	2.45E-07	--	2.26E-07	--	4.71E-07	N/A	--	--	--	--
			Dieldrin	1.07E-07	--	7.09E-08	--	1.78E-07	Liver	3.76E-04	--	2.48E-04	6.24E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	3.08E-04	--	2.64E-04	5.73E-04
			Benz(a)anthracene	4.72E-07	--	4.05E-07	--	8.77E-07	N/A	--	--	--	--
			Benzo(a)pyrene	4.21E-06	--	3.61E-06	--	7.82E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	4.31E-07	--	3.70E-07	--	8.01E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	4.82E-08	--	4.14E-08	--	8.96E-08	N/A	--	--	--	--
			Chrysene	5.13E-09	--	4.40E-09	--	9.53E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.47E-06	--	1.26E-06	--	2.73E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.80E-07	--	3.26E-07	--	7.06E-07	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	2.01E-05	--	1.73E-05	3.74E-05
			(Total)	4.62E-05	--	1.58E-05		6.21E-05		1.55E+00	--	3.13E-01	1.86E+00
			Radionuclide Total										
		Exposure Point Total						6.21E-05					1.86E+00
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	2.79E-08	--	--	2.79E-08	Respiratory	--	7.65E-04	--	7.65E-04
			(Total)	--	2.79E-08	--		2.79E-08		--	7.65E-04	--	7.65E-04
			Radionuclide Total										
		Exposure Point Total						2.79E-08					7.65E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	7.13E-10	--	--	7.13E-10	Liver/Respiratory/Reproductive	--	1.31E-06	--	1.31E-06
			Chromium	--	6.81E-09	--	--	6.81E-09	Lung/Nasal	--	2.27E-06	--	2.27E-06
			(Total)	--	7.52E-09	--		7.52E-09		--	3.58E-06	--	3.58E-06
			Radionuclide Total										
		Exposure Point Total						7.52E-09					3.58E-06
	Exposure Medium Total							6.21E-05					1.86E+00
Soil Total								6.21E-05					1.86E+00
Receptor Total								6.21E-05					1.86E+00

Total Risk Across All Media: 6.21E-05

Total Hazard Index Across All Media: 1.86E+00

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population. As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

Total Blood HI =	6.41E-02
Total CNS HI =	1.37E+00
Total CNS (Behavioral) HI =	1.30E+00
Total CNS (Developmental) HI =	1.34E-02
Total Decr. Wt. Gain HI =	3.74E-05
Total GI Tract HI =	3.59E-02
Total Kidney HI =	1.31E-02
Total Liver HI =	6.32E-02
Total Lung HI =	5.75E-04
Total Nasal HI =	2.27E-06
Total Reproductive HI =	1.31E-06
Total Respiratory HI =	7.66E-04
Total Skin HI =	3.58E-01
Total Thyroid HI =	2.50E-02
Total Vascular HI =	2.51E-02

TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT CONSTRUCTION WORKER EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	2.42E-06	--	1.45E-07	--	2.56E-06	**CNS (Behavioral)**	**1.86E+00**	**--**	**1.12E-01**	**1.97E+00**
			Aluminum	--	--	--	--	--	CNS (Developmental)	2.15E-02	--	4.30E-04	2.19E-02
			Antimony	--	--	--	--	--	Blood/Liver	3.55E-02	--	4.73E-03	4.02E-02
			Arsenic**	2.08E-07	--	2.08E-08	--	2.29E-07	Skin/Vascular	3.24E-02	--	3.24E-03	3.56E-02
			Cadmium	--	--	--	--	--	Kidney	1.78E-02	--	1.42E-03	1.92E-02
			Chromium	4.02E-08	--	3.21E-08	--	7.23E-08		1.87E-03	--	1.50E-03	3.37E-03
			Cobalt	--	--	--	--	--	Thyroid	4.03E-02	--	8.06E-04	4.11E-02
			Copper	--	--	--	--	--	GI Tract	5.00E-03	--	9.99E-05	5.10E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	5.28E-02	--	1.06E-03	5.38E-02
			Manganese**	--	--	--	--	--	CNS	4.02E-02	--	2.01E-02	6.03E-02
			Thallium	--	--	--	--	--	Skin	5.36E-01	--	1.07E-02	5.46E-01
			Vanadium	--	--	--	--	--		8.66E-03	--	6.66E-03	1.53E-02
			Zinc	--	--	--	--	--	Blood	2.38E-03	--	4.76E-05	2.43E-03
			Aroclor-1260	1.68E-08	--	4.70E-09	--	2.15E-08	N/A	--	--	--	--
			Dieldrin	7.37E-09	--	1.47E-09	--	8.84E-09	Liver	6.45E-04	--	1.29E-04	7.74E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	5.29E-04	--	1.38E-04	6.66E-04
			Benz(a)anthracene	3.24E-08	--	8.42E-09	--	4.08E-08	N/A	--	--	--	--
			Benzo(a)pyrene	2.89E-07	--	7.51E-08	--	3.64E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.96E-08	--	7.69E-09	--	3.73E-08	N/A	--	--	--	--
			Benzo(k)fluoranthene	3.31E-09	--	8.60E-10	--	4.17E-09	N/A	--	--	--	--
			Chrysene	3.52E-10	--	9.15E-11	--	4.43E-10	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.01E-07	--	2.62E-08	--	1.27E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.61E-08	--	6.78E-09	--	3.29E-08	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	3.45E-05	--	8.97E-06	4.35E-05
			(Total)	3.17E-06	--	3.30E-07		3.50E-06		2.66E+00	--	1.63E-01	2.82E+00
			Radionuclide Total										
		Exposure Point Total						3.50E-06					2.82E+00
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	5.79E-10	--	--	5.79E-10	Respiratory	--	3.98E-04	--	3.98E-04
			(Total)	--	5.79E-10	--		5.79E-10		--	3.98E-04	--	3.98E-04
			Radionuclide Total										
		Exposure Point Total						5.79E-10					3.98E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.48E-11	--	--	1.48E-11	Liver/Respiratory/Reproductive	--	6.83E-07	--	6.83E-07
			Chromium	--	1.42E-10	--	--	1.42E-10	Lung/Nasal	--	1.18E-06	--	1.18E-06
			(Total)	--	1.56E-10	--		1.56E-10		--	1.86E-06	--	1.86E-06
			Radionuclide Total										
		Exposure Point Total						1.56E-10					1.86E-06
	Exposure Medium Total							3.50E-06					2.82E+00
Soil Total								3.50E-06					2.82E+00
Receptor Total								3.50E-06					2.82E+00

Total Risk Across All Media: 3.50E-06

Total Hazard Index Across All Media: 2.82E+00

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population. As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

Total Blood HI =	9.65E-02
Total CNS HI =	2.06E+00
Total CNS (Behavioral) HI =	1.97E+00
Total CNS (Developmental) HI =	2.19E-02
Total Decr. Wt. Gain HI =	4.35E-05
Total GI Tract HI =	5.89E-02
Total Kidney HI =	1.92E-02
Total Liver HI =	9.48E-02
Total Lung HI =	6.68E-04
Total Nasal HI =	1.18E-06
Total Reproductive HI =	6.83E-07
Total Respiratory HI =	3.98E-04
Total Skin HI =	5.82E-01
Total Thyroid HI =	4.11E-02
Total Vascular HI =	3.56E-02

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	3.29E-05	--	2.76E-06	--	3.56E-05	**CNS (Behavioral)**	**4.21E+00**	**--**	**3.54E-01**	**4.57E+00**
			Aluminum	--	--	--	--	--	CNS (Developmental)	4.86E-02	--	1.36E-03	5.00E-02
			Antimony	--	--	--	--	--	Blood/Liver	8.04E-02	--	1.50E-02	9.53E-02
			Arsenic**	2.83E-06	--	3.96E-07	--	3.22E-06	Skin/Vascular	7.32E-02	--	1.03E-02	8.35E-02
			Cadmium	--	--	--	--	--	Kidney	4.03E-02	--	4.51E-03	4.48E-02
			Chromium	2.91E-06	--	3.26E-06	--	6.17E-06		4.24E-03	--	4.75E-03	8.99E-03
			Cobalt	--	--	--	--	--	Thyroid	9.12E-02	--	2.55E-03	9.37E-02
			Copper	--	--	--	--	--	GI Tract	1.13E-02	--	3.16E-04	1.16E-02
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.19E-01	--	3.34E-03	1.23E-01
			Manganese**	--	--	--	--	--	CNS	9.10E-02	--	6.37E-02	1.55E-01
			Thallium	--	--	--	--	--	**Skin**	**1.21E+00**	**--**	**3.39E-02**	**1.25E+00**
			Vanadium	--	--	--	--	--		1.96E-02	--	2.11E-02	4.07E-02
			Zinc	--	--	--	--	--	Blood	5.38E-03	--	1.51E-04	5.53E-03
			Aroclor-1260	2.28E-07	--	8.94E-08	--	3.17E-07	N/A	--	--	--	--
			Dieldrin	1.00E-07	--	2.80E-08	--	1.28E-07	Liver	1.46E-03	--	4.08E-04	1.87E-03
			2-Methylnaphthalene	--	--	--	--	--	Lung	1.20E-03	--	4.36E-04	1.63E-03
			Benz(a)anthracene	2.35E-06	--	8.54E-07	--	3.20E-06	N/A	--	--	--	--
			Benzo(a)pyrene	2.09E-05	--	7.61E-06	--	2.85E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	2.14E-06	--	7.80E-07	--	2.92E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	2.40E-07	--	8.72E-08	--	3.27E-07	N/A	--	--	--	--
			Chrysene	2.55E-08	--	9.28E-09	--	3.48E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	7.30E-06	--	2.66E-06	--	9.96E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.89E-06	--	6.88E-07	--	2.58E-06	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	7.81E-05	--	2.84E-05	1.06E-04
			(Total)	7.38E-05	--	1.92E-05		9.30E-05		6.01E+00	--	5.16E-01	6.53E+00
			Radionuclide Total										
		Exposure Point Total						9.30E-05					6.53E+00
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	1.04E-09	--	--	1.04E-09	Respiratory	--	1.19E-04	--	1.19E-04
			(Total)	--	1.04E-09	--		1.04E-09		--	1.19E-04	--	1.19E-04
			Radionuclide Total										
		Exposure Point Total						1.04E-09					1.19E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	2.67E-11	--	--	2.67E-11	Liver/Respiratory/Reproductive	--	2.05E-07	--	2.05E-07
			Chromium	--	1.36E-09	--	--	1.36E-09	Lung/Nasal	--	3.54E-07	--	3.54E-07
			(Total)	--	1.39E-09	--		1.39E-09		--	5.59E-07	--	5.59E-07
			Radionuclide Total										
		Exposure Point Total						1.39E-09					5.59E-07
	Exposure Medium Total							9.30E-05					6.53E+00
Soil Total								9.30E-05					6.53E+00
Receptor Total								9.30E-05					6.53E+00

Total Risk Across All Media: 9.30E-05

Total Hazard Index Across All Media: 6.53E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population. As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

Total Blood HI =	2.24E-01
Total CNS HI =	4.77E+00
Total CNS (Behavioral) HI =	4.57E+00
Total CNS (Developmental) HI =	5.00E-02
Total Decr. Wt. Gain HI =	1.06E-04
Total GI Tract HI =	1.34E-01
Total Kidney HI =	4.48E-02
Total Liver HI =	2.20E-01
Total Lung HI =	1.63E-03
Total Nasal HI =	3.54E-07
Total Reproductive HI =	2.05E-07
Total Respiratory HI =	1.19E-04
Total Skin HI =	1.33E+00
Total Thyroid HI =	9.37E-02
Total Vascular HI =	8.35E-02

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	1.41E-05	--	1.69E-06	--	1.58E-05	CNS (Behavioral)	4.51E-01	--	5.40E-02	5.05E-01
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.21E-03	--	2.08E-04	5.42E-03
			Antimony	--	--	--	--	--	Blood/Liver	8.61E-03	--	2.29E-03	1.09E-02
			Arsenic**	1.21E-06	--	2.42E-07	--	1.45E-06	Skin/Vascular	7.85E-03	--	1.57E-03	9.41E-03
			Cadmium	--	--	--	--	--	Kidney	4.31E-03	--	6.89E-04	5.00E-03
			Chromium	4.29E-07	--	6.84E-07	--	1.11E-06		4.55E-04	--	7.25E-04	1.18E-03
			Cobalt	--	--	--	--	--	Thyroid	9.77E-03	--	3.90E-04	1.02E-02
			Copper	--	--	--	--	--	GI Tract	1.21E-03	--	4.83E-05	1.26E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.28E-02	--	5.10E-04	1.33E-02
			Manganese**	--	--	--	--	--	CNS	9.75E-03	--	9.73E-03	1.95E-02
			Thallium	--	--	--	--	--	Skin	1.30E-01	--	5.18E-03	1.35E-01
			Vanadium	--	--	--	--	--		2.10E-03	--	3.22E-03	5.32E-03
			Zinc	--	--	--	--	--	Blood	5.77E-04	--	2.30E-05	6.00E-04
			Aroclor-1260	9.77E-08	--	5.46E-08	--	1.52E-07	N/A	--	--	--	--
			Dieldrin	4.29E-08	--	1.71E-08	--	6.00E-08	Liver	1.56E-04	--	6.24E-05	2.19E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	1.28E-04	--	6.65E-05	1.95E-04
			Benz(a)anthracene	3.46E-07	--	1.79E-07	--	5.25E-07	N/A	--	--	--	--
			Benzo(a)pyrene	3.08E-06	--	1.60E-06	--	4.68E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.16E-07	--	1.64E-07	--	4.79E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	3.53E-08	--	1.83E-08	--	5.36E-08	N/A	--	--	--	--
			Chrysene	3.75E-09	--	1.95E-09	--	5.70E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.08E-06	--	5.58E-07	--	1.63E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.78E-07	--	1.44E-07	--	4.23E-07	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	8.36E-06	--	4.34E-06	1.27E-05
			(Total)	2.10E-05	--	5.35E-06		2.63E-05		6.44E-01	--	7.87E-02	7.23E-01
			Radionuclide Total										
		Exposure Point Total						2.63E-05					7.23E-01
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	4.17E-09	--	--	4.17E-09	Respiratory	--	1.19E-04	--	1.19E-04
			(Total)	--	4.17E-09	--		4.17E-09		--	1.19E-04	--	1.19E-04
			Radionuclide Total										
		Exposure Point Total						4.17E-09					1.19E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.07E-10	--	--	1.07E-10	Liver/Respiratory/Reproductive	--	2.05E-07	--	2.05E-07
			Chromium	--	1.87E-09	--	--	1.87E-09	Lung/Nasal	--	3.54E-07	--	3.54E-07
			(Total)	--	1.98E-09	--		1.98E-09		--	5.59E-07	--	5.59E-07
			Radionuclide Total										
		Exposure Point Total						1.98E-09					5.59E-07
	Exposure Medium Total							2.63E-05					7.23E-01
Soil Total								2.63E-05					7.23E-01
Receptor Total								2.63E-05					7.23E-01

Total Risk Across All Media: 2.63E-05

Total Hazard Index Across All Media: 7.23E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population. As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

Total Blood HI =	2.48E-02
Total CNS HI =	5.30E-01
Total CNS (Behavioral) HI =	5.05E-01
Total CNS (Developmental) HI =	5.42E-03
Total Decr. Wt. Gain HI =	1.27E-05
Total GI Tract HI =	1.46E-02
Total Kidney HI =	5.00E-03
Total Liver HI =	2.44E-02
Total Lung HI =	1.95E-04
Total Nasal HI =	3.54E-07
Total Reproductive HI =	2.05E-07
Total Respiratory HI =	1.19E-04
Total Skin HI =	1.44E-01
Total Thyroid HI =	1.02E-02
Total Vascular HI =	9.41E-03

TABLE 9.19.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	4.69E-05	--	4.44E-06	--	5.14E-05	N/A	N/A	--	N/A	--
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic**	4.04E-06	--	6.37E-07	--	4.67E-06	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	3.34E-06	--	3.94E-06	--	7.28E-06	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese**	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Zinc	--	--	--	--	--	N/A	N/A	--	N/A	--
			Aroclor-1260	3.26E-07	--	1.44E-07	--	4.70E-07	N/A	N/A	--	N/A	--
			Dieldrin	1.43E-07	--	4.51E-08	--	1.88E-07	N/A	N/A	--	N/A	--
			2-Methylnaphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			Benz(a)anthracene	2.69E-06	--	1.03E-06	--	3.72E-06	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	2.40E-05	--	9.21E-06	--	3.32E-05	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	2.46E-06	--	9.44E-07	--	3.40E-06	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	2.75E-07	--	1.06E-07	--	3.80E-07	N/A	N/A	--	N/A	--
			Chrysene	2.92E-08	--	1.12E-08	--	4.05E-08	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	8.38E-06	--	3.22E-06	--	1.16E-05	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	2.17E-06	--	8.32E-07	--	3.00E-06	N/A	N/A	--	N/A	--
			Naphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			(Total)	9.48E-05	--	2.46E-05		1.19E-04		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.19E-04					--
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	5.21E-09	--	--	5.21E-09	N/A	--	N/A	--	--
			(Total)	--	5.21E-09	--		5.21E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						5.21E-09					--
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.34E-10	--	--	1.34E-10	N/A	--	N/A	--	--
			Chromium	--	3.23E-09	--	--	3.23E-09	N/A	--	N/A	--	--
			(Total)	--	3.36E-09	--		3.36E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						3.36E-09					--
	Exposure Medium Total							1.19E-04					--
Soil Total								1.19E-04					--
Receptor Total								1.19E-04					--

Total Risk Across All Media: 1.19E-04

Total Hazard Index Across All Media: --

** - Arsenic and manganese data were evaluated using probability plots and box plots to ascertain whether results contain data points that deviate higher than the background population.
As discussed in Appendix K, Part 6, both metals exhibited elevated concentrations in soils from the Waste Disposal area but were not elevated in non-waste areas.

TABLE 9.20.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SURFACE WATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	CNS (Developmental)	8.09E-04	--	6.72E-04	1.48E-03
			Arsenic	5.78E-09	--	4.80E-09	--	1.06E-08	Skin/Vascular	8.99E-04	--	7.47E-04	1.65E-03
			Chromium	6.87E-09	--	4.57E-07	--	4.63E-07		3.21E-04	--	2.13E-02	2.16E-02
			Cobalt	--	--	--	--	--	Thyroid	2.76E-03	--	9.19E-04	3.68E-03
			Cyanide	--	--	--	--	--	Reproductive	2.20E-03	--	1.83E-03	4.03E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	2.53E-03	--	2.10E-03	4.62E-03
			Lead	--	--	--	--	--	N/A	--	--	--	--
			Manganese	--	--	--	--	--	CNS	1.78E-03	--	3.70E-02	3.88E-02
			Vanadium	--	--	--	--	--		4.52E-04	--	1.44E-02	1.49E-02
			Dieldrin	1.50E-08	--	8.94E-07	--	9.09E-07	Liver	1.31E-03	--	7.82E-02	7.96E-02
			Benz(a)anthracene	2.92E-09	--	3.17E-06	--	3.18E-06	N/A	--	--	--	--
			Benzo(a)pyrene	3.29E-08	--	6.13E-05	--	6.14E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.00E-09	--	5.67E-06	--	5.67E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	2.22E-10	--	4.20E-07	--	4.20E-07	N/A	--	--	--	--
			Dibenz(a,h)anthracene	5.57E-10	--	1.60E-06	--	1.60E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.23E-10	--	1.18E-06	--	1.18E-06	N/A	--	--	--	--
			(Total)	6.79E-08	--	7.47E-05		7.48E-05		1.31E-02	--	1.57E-01	1.70E-01
			Radionuclide Total										
		Exposure Point Total						7.48E-05					1.70E-01
	Exposure Medium Total							7.48E-05					1.70E-01
Surface Water Total								7.48E-05					1.70E-01
Receptor Total								7.48E-05					1.70E-01

Total Risk Across All Media: 7.48E-05

Total Hazard Index Across All Media: 1.70E-01

Total Blood HI =	4.62E-03
Total CNS HI =	4.02E-02
Total CNS (Developmental) HI =	1.48E-03
Total GI Tract HI =	4.62E-03
Total Liver HI =	8.42E-02
Total Reproductive HI =	4.03E-03
Total Skin HI =	1.65E-03
Total Thyroid HI =	3.68E-03
Total Vascular HI =	1.65E-03

TABLE 9.21.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.51E-03	--	1.34E-03	2.85E-03
			Arsenic	6.47E-08	--	5.75E-08	--	1.22E-07	Skin/Vascular	1.68E-03	--	1.49E-03	3.17E-03
			Chromium	4.10E-07	--	2.92E-05	--	2.96E-05		5.98E-04	--	4.25E-02	4.31E-02
			Cobalt	--	--	--	--	--	Thyroid	5.16E-03	--	1.83E-03	7.00E-03
			Cyanide	--	--	--	--	--	Reproductive	4.11E-03	--	3.65E-03	7.76E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	4.71E-03	--	4.19E-03	8.91E-03
			Lead	--	--	--	--	--	N/A	--	--	--	--
			Manganese	--	--	--	--	--	CNS	3.32E-03	--	7.39E-02	7.72E-02
			Vanadium	--	--	--	--	--		8.43E-04	--	2.88E-02	2.97E-02
			Dieldrin	1.68E-07	--	1.07E-05	--	1.09E-05	Liver	2.45E-03	--	1.56E-01	1.59E-01
			Benz(a)anthracene	1.74E-07	--	2.03E-04	--	2.03E-04	N/A	--	--	--	--
			Benzo(a)pyrene	1.97E-06	--	3.92E-03	--	3.92E-03	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.79E-07	--	3.62E-04	--	3.63E-04	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.32E-08	--	2.68E-05	--	2.68E-05	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.33E-08	--	1.02E-04	--	1.03E-04	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.72E-08	--	7.55E-05	--	7.55E-05	N/A	--	--	--	--
			(Total)	3.05E-06	--	4.73E-03		4.73E-03		2.44E-02	--	3.14E-01	3.38E-01
			Radionuclide Total										
		Exposure Point Total						4.73E-03					3.38E-01
	Exposure Medium Total							4.73E-03					3.38E-01
Surface Water Total								4.73E-03					3.38E-01
Receptor Total								4.73E-03					3.38E-01

Total Risk Across All Media: 4.73E-03

Total Hazard Index Across All Media: 3.38E-01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total Blood HI =	8.91E-03
Total CNS HI =	8.00E-02
Total CNS (Developmental) HI =	2.85E-03
Total GI Tract HI =	8.91E-03
Total Liver HI =	1.68E-01
Total Reproductive HI =	7.76E-03
Total Skin HI =	3.17E-03
Total Thyroid HI =	7.00E-03
Total Vascular HI =	3.17E-03

TABLE 9.22.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	CNS (Developmental)	3.24E-04	--	2.69E-04	5.92E-04
			Arsenic	5.55E-08	--	4.61E-08	--	1.02E-07	Skin/Vascular	3.60E-04	--	2.99E-04	6.58E-04
			Chromium	1.21E-07	--	8.03E-06	--	8.16E-06		1.28E-04	--	8.52E-03	8.65E-03
			Cobalt	--	--	--	--	--	Thyroid	1.11E-03	--	3.67E-04	1.47E-03
			Cyanide	--	--	--	--	--	Reproductive	8.80E-04	--	7.31E-04	1.61E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.01E-03	--	8.39E-04	1.85E-03
			Lead	--	--	--	--	--	N/A	--	--	--	--
			Manganese	--	--	--	--	--	CNS	7.12E-04	--	1.48E-02	1.55E-02
			Vanadium	--	--	--	--	--		1.81E-04	--	5.77E-03	5.96E-03
			Dieldrin	1.44E-07	--	8.58E-06	--	8.73E-06	Liver	5.25E-04	--	3.13E-02	3.18E-02
			Benz(a)anthracene	5.14E-08	--	5.58E-05	--	5.59E-05	N/A	--	--	--	--
			Benzo(a)pyrene	5.79E-07	--	1.08E-03	--	1.08E-03	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.28E-08	--	9.98E-05	--	9.99E-05	N/A	--	--	--	--
			Benzo(k)fluoranthene	3.90E-09	--	7.38E-06	--	7.39E-06	N/A	--	--	--	--
			Dibenz(a,h)anthracene	9.81E-09	--	2.82E-05	--	2.82E-05	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.10E-08	--	2.08E-05	--	2.08E-05	N/A	--	--	--	--
			(Total)	1.03E-06	--	1.31E-03		1.31E-03		5.23E-03	--	6.29E-02	6.81E-02
			Radionuclide Total										
		Exposure Point Total						1.31E-03					6.81E-02
	Exposure Medium Total							1.31E-03					6.81E-02
Surface Water Total								1.31E-03					6.81E-02
Receptor Total								1.31E-03					6.81E-02

Total Risk Across All Media: 1.31E-03

Total Hazard Index Across All Media: 6.81E-02

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total Blood HI =	1.85E-03
Total CNS HI =	1.61E-02
Total CNS (Developmental) HI =	5.92E-04
Total GI Tract HI =	1.85E-03
Total Liver HI =	3.37E-02
Total Reproductive HI =	1.61E-03
Total Skin HI =	6.58E-04
Total Thyroid HI =	1.47E-03
Total Vascular HI =	6.58E-04

TABLE 9.23.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	1.20E-07	--	1.04E-07	--	2.24E-07	N/A	N/A	--	N/A	--
			Chromium	**5.31E-07**	**--**	**3.72E-05**	**--**	**3.77E-05**	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Cyanide	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Lead	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	**3.12E-07**	**--**	**1.93E-05**	**--**	**1.96E-05**	N/A	N/A	--	N/A	--
			Benz(a)anthracene	**2.26E-07**	**--**	**2.59E-04**	**--**	**2.59E-04**	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	**2.54E-06**	**--**	**5.00E-03**	**--**	**5.00E-03**	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	**2.32E-07**	**--**	**4.62E-04**	**--**	**4.62E-04**	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	**1.72E-08**	**--**	**3.42E-05**	**--**	**3.42E-05**	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	**4.31E-08**	**--**	**1.31E-04**	**--**	**1.31E-04**	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	**4.82E-08**	**--**	**9.62E-05**	**--**	**9.63E-05**	N/A	N/A	--	N/A	--
			(Total)	4.07E-06	--	6.04E-03		6.04E-03		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						6.04E-03					--
	Exposure Medium Total							6.04E-03					--
Surface Water Total								6.04E-03					--
Receptor Total								6.04E-03					--

Total Risk Across All Media: 6.04E-03

Total Hazard Index Across All Media: --

TABLE 9.24.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SEDIMENT
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	1.15E-07	--	1.15E-08	--	1.27E-07	Skin/Vascular	1.79E-02	--	1.79E-03	1.97E-02
			Chromium	2.22E-07	--	1.78E-07	--	3.99E-07		1.04E-02	--	8.28E-03	1.86E-02
			Cobalt	--	--	--	--	--	Thyroid	1.17E-01	--	2.34E-03	1.19E-01
			Manganese	--	--	--	--	--	**CNS**	**1.08E+00**	**--**	**5.42E-01**	**1.63E+00**
			Thallium	--	--	--	--	--	**Skin**	**2.23E+00**	**--**	**4.47E-02**	**2.28E+00**
			Benz(a)anthracene	3.66E-08	--	9.52E-09	--	4.61E-08	N/A	--	--	--	--
			Benzo(a)pyrene	3.92E-07	--	1.02E-07	--	4.94E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	4.59E-08	--	1.19E-08	--	5.78E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.74E-07	--	4.53E-08	--	2.19E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.19E-08	--	5.69E-09	--	2.76E-08	N/A	--	--	--	--
			(Total)	1.01E-06	--	3.63E-07		1.37E-06		3.46E+00	--	5.99E-01	4.06E+00
			Radionuclide Total										
		Exposure Point Total						1.37E-06					4.06E+00
	Exposure Medium Total							1.37E-06					4.06E+00
Sediment Total								1.37E-06					4.06E+00
Receptor Total								1.37E-06					4.06E+00

Total Risk Across All Media: 1.37E-06

Total Hazard Index Across All Media: 4.06E+00

Total CNS HI = 1.63E+00
Total Skin HI = 2.30E+00
Total Thyroid HI = 1.19E-01
Total Vascular HI = 1.97E-02

TABLE 9.25.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	3.91E-07	--	1.10E-07	--	5.01E-07	Skin/Vascular	1.01E-02	--	2.84E-03	1.30E-02
			Chromium	4.02E-06	--	9.00E-06	--	1.30E-05		5.86E-03	--	1.31E-02	1.90E-02
			Cobalt	--	--	--	--	--	Thyroid	6.62E-02	--	3.71E-03	6.99E-02
			Manganese	--	--	--	--	--	**CNS**	**6.13E-01**	**--**	**8.59E-01**	**1.47E+00**
			Thallium	--	--	--	--	--	**Skin**	**1.26E+00**	**--**	**7.07E-02**	**1.33E+00**
			Benz(a)anthracene	6.62E-07	--	4.82E-07	--	1.14E-06	N/A	--	--	--	--
			Benzo(a)pyrene	7.10E-06	--	5.17E-06	--	1.23E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	8.30E-07	--	6.05E-07	--	1.43E-06	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.15E-06	--	2.29E-06	--	5.44E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.96E-07	--	2.88E-07	--	6.85E-07	N/A	--	--	--	--
			(Total)	1.65E-05	--	1.79E-05		3.45E-05		1.96E+00	--	9.49E-01	2.91E+00
			Radionuclide Total										
		Exposure Point Total						3.45E-05					2.91E+00
	Exposure Medium Total							3.45E-05					2.91E+00
Sediment Total								3.45E-05					2.91E+00
Receptor Total								3.45E-05					2.91E+00

Total Risk Across All Media: 3.45E-05

Total Hazard Index Across All Media: 2.91E+00

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

Total CNS HI = 1.47E+00
Total Skin HI = 1.35E+00
Total Thyroid HI = 6.99E-02
Total Vascular HI = 1.30E-02

TABLE 9.26.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	1.68E-07	--	1.91E-07	--	3.59E-07	Skin/Vascular	1.09E-03	--	1.24E-03	2.33E-03
			Chromium	5.92E-07	--	5.40E-06	--	5.99E-06		6.28E-04	--	5.72E-03	6.35E-03
			Cobalt	--	--	--	--	--	Thyroid	7.09E-03	--	1.62E-03	8.71E-03
			Manganese	--	--	--	--	--	CNS	6.57E-02	--	3.75E-01	4.40E-01
			Thallium	--	--	--	--	--	Skin	1.35E-01	--	3.09E-02	1.66E-01
			Benz(a)anthracene	9.76E-08	--	2.89E-07	--	3.87E-07	N/A	--	--	--	--
			Benzo(a)pyrene	1.05E-06	--	3.10E-06	--	4.15E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.22E-07	--	3.63E-07	--	4.85E-07	N/A	--	--	--	--
			Dibenz(a,h)anthracene	4.64E-07	--	1.38E-06	--	1.84E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5.84E-08	--	1.73E-07	--	2.31E-07	N/A	--	--	--	--
			(Total)	2.55E-06	--	1.09E-05		1.34E-05		2.10E-01	--	4.14E-01	6.24E-01
			Radionuclide Total										
		Exposure Point Total						1.34E-05					6.24E-01
	Exposure Medium Total							1.34E-05					6.24E-01
Sediment Total								1.34E-05					6.24E-01
Receptor Total								1.34E-05					6.24E-01

Total Risk Across All Media: 1.34E-05

Total Hazard Index Across All Media: 6.24E-01

In this table, age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate and are labelled as an "adult" receptor.

Total CNS HI = 4.40E-01
Total Skin HI = 1.69E-01
Total Thyroid HI = 8.71E-03
Total Vascular HI = 2.33E-03

TABLE 9.27.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT
REASONABLE MAXIMUM EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	5.59E-07	--	3.01E-07	--	8.60E-07	N/A	N/A	--	N/A	--
			Chromium	4.61E-06	--	1.44E-05	--	1.90E-05	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Benz(a)anthracene	7.60E-07	--	7.72E-07	--	1.53E-06	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	8.15E-06	--	8.27E-06	--	1.64E-05	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	9.53E-07	--	9.67E-07	--	1.92E-06	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	3.61E-06	--	3.67E-06	--	7.28E-06	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	4.55E-07	--	4.61E-07	--	9.16E-07	N/A	N/A	--	N/A	--
			(Total)	1.91E-05	--	2.88E-05		4.79E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						4.79E-05					--
	Exposure Medium Total							4.79E-05					--
Sediment Total								4.79E-05					--
Receptor Total								4.79E-05					--

Total Risk Across All Media: 4.79E-05

Total Hazard Index Across All Media: --

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SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

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9.02.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT CONTACT WITH SITE 12 GROUNDWATER
9.03.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT CONTACT WITH SITE 12 GROUNDWATER
9.05.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
9.05a.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
9.06.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
9.06a.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
9.07.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT CONTACT WITH SITE 12 SURFACE SOIL
9.07a.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT CONTACT WITH SITE 12 SURFACE SOIL - BACKGROUND ELIMINATION
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9.14.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT CONTACT WITH SITE 12 DISTURBED SOIL
9.15.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT INDUSTRIAL WORKER CONTACT WITH SITE 12 DISTURBED SOIL
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9.24.CTE	SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER CONTACT WITH SITE 12 SEDIMENT
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Notes on age groups assumed for child and adult receptors:
***For all COPCs, the labelled "child" receptor exposures assume an age range of 4 to 6 years for CTE.**
****For mutagens, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.**
Lifetime receptor exposures represent the sum of ages 4 to 6 (referred to as "child" exposure) plus ages 18 to 25 (referred to as "adult" exposure).

TABLE 9.01.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 GROUNDWATER
CENTRAL TENDENCY EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap Water Contact With Site 12 Groundwater											
			Total 2,3,7,8-TCDD Equiv.	2.58E-07	--	3.87E-06	--	4.13E-06	**CNS (Behavioral)**	**9.93E-02**	**--**	**1.49E+00**	**1.59E+00**
			Aluminum	--	--	--	--	--	**CNS (Developmental)**	**6.34E-01**	**--**	**1.87E-03**	**6.36E-01**
			Arsenic	5.47E-06	--	1.61E-08	--	5.49E-06	Skin/Vascular	4.26E-01	--	1.25E-03	4.27E-01
			Barium	--	--	--	--	--	Kidney	4.47E-02	--	1.88E-03	4.66E-02
			Chromium	3.08E-05	--	7.26E-06	--	3.81E-05		2.40E-01	--	5.64E-02	2.96E-01
			Cobalt	--	--	--	--	--	Thyroid	4.12E-01	--	4.85E-04	4.12E-01
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	4.48E-01	--	1.32E-03	4.49E-01
			Manganese	--	--	--	--	--	**CNS**	**1.80E+00**	**--**	**1.32E-01**	**1.93E+00**
			Vanadium	--	--	--	--	--		7.46E-02	--	8.45E-03	8.31E-02
			Carbon Tetrachloride	5.77E-08	--	1.15E-08	--	6.93E-08	Liver	7.21E-03	--	1.44E-03	8.66E-03
			Chloroform	3.23E-08	--	2.20E-09	--	3.45E-08	Liver	3.64E-03	--	2.48E-04	3.89E-03
			Trichloroethene (mutagenic)	1.55E-07	--	2.00E-08	--	1.75E-07	N/A	--	--	--	--
			Trichloroethene (nonmutage	2.05E-07	--	2.65E-08	--	2.32E-07	/ascular/Fetotoxicity/Immun	3.88E-01	--	5.02E-02	4.38E-01
			(Total)	3.70E-05	--	1.12E-05		4.82E-05		4.57E+00	--	1.74E+00	6.32E+00
			Radionuclide Total										
		Exposure Point Total						4.82E-05					6.32E+00
	Exposure Medium Total							4.82E-05					6.32E+00
Groundwater Total								4.82E-05					6.32E+00
Receptor Total								4.82E-05					6.32E+00

Total Risk Across All Media: 4.82E-05

Total Hazard Index Across All Media: 6.32E+00

For reporting of non-cancer hazards, COPCs that are risk drivers are shown in bold if they contribute at least a HQ of 0.2 towards a target organ HI that exceeds 1.0.
COPCs that are cancer risk drivers of importance to the residential receptor are highlighted on a separate table for the lifetime resident.

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total Blood HI =	4.49E-01
Total CNS HI =	4.15E+00
Total CNS (Behavioral) HI =	1.59E+00
Total CNS (Developmental) HI =	6.36E-01
Total Fetotoxicity HI =	4.38E-01
Total GI Tract HI =	4.49E-01
Total Immune HI =	4.38E-01
Total Kidney HI =	4.66E-02
Total Liver HI =	4.62E-01
Total Skin HI =	4.27E-01
Total Thyroid HI =	4.12E-01
Total Vascular HI =	8.65E-01

TABLE 9.02.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 GROUNDWATER
CENTRAL TENDENCY EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap Water Contact With Site 12 Groundwater											
			Total 2,3,7,8-TCDD Equiv.	3.66E-07	--	5.63E-06	--	6.00E-06	**CNS (Behavioral)**	**4.03E-02**	**--**	**6.19E-01**	**6.59E-01**
			Aluminum	--	--	--	--	--	**CNS (Developmental)**	**2.57E-01**	**--**	**5.52E-04**	**2.58E-01**
			Arsenic	7.77E-06	--	1.67E-08	--	7.78E-06	Skin/Vascular	1.73E-01	--	3.71E-04	1.73E-01
			Barium	--	--	--	--	--	Kidney	1.81E-02	--	5.56E-04	1.87E-02
			Chromium	1.46E-05	--	2.50E-06	--	1.71E-05		9.72E-02	--	1.67E-02	1.14E-01
			Cobalt	--	--	--	--	--	Thyroid	1.67E-01	--	1.43E-04	1.67E-01
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.82E-01	--	3.90E-04	1.82E-01
			Manganese	--	--	--	--	--	**CNS**	**7.29E-01**	**--**	**3.91E-02**	**7.68E-01**
			Vanadium	--	--	--	--	--		3.03E-02	--	2.50E-03	3.28E-02
			Carbon Tetrachloride	8.19E-08	--	1.68E-08	--	9.87E-08	Liver	2.92E-03	--	6.00E-04	3.52E-03
			Chloroform	4.58E-08	--	3.20E-09	--	4.90E-08	Liver	1.48E-03	--	1.03E-04	1.58E-03
			Trichloroethene (mutagenic)	7.31E-08	--	9.71E-09	--	8.28E-08	N/A	--	--	--	--
			Trichloroethene (nonmutagenic)	2.91E-07	--	3.86E-08	--	3.30E-07	Vascular/Fetotoxicity/Immune	1.57E-01	--	2.09E-02	1.78E-01
			(Total)	2.32E-05	--	8.22E-06		3.14E-05		1.85E+00	--	7.00E-01	2.55E+00
			Radionuclide Total										
		Exposure Point Total						3.14E-05					2.55E+00
	Exposure Medium Total							3.14E-05					2.55E+00
	Air	Inhalation of Site 12 Groundwater Vapors During Showering											
			Carbon Tetrachloride	--	3.03E-09	--	--	3.03E-09	Liver	--	5.06E-05	--	5.06E-05
			Chloroform	--	1.61E-08	--	--	1.61E-08	Liver	--	7.15E-05	--	7.15E-05
			Trichloroethene (mutagenic)	--	3.64E-09	--	--	3.64E-09	N/A	--	--	--	--
			Trichloroethene (nonmutagenic)	--	1.13E-08	--	--	1.13E-08	Vascular/Immune	--	1.82E-02	--	1.82E-02
			(Total)	--	3.41E-08	--		3.41E-08		--	1.83E-02	--	1.83E-02
			Radionuclide Total										
		Exposure Point Total						3.41E-08					1.83E-02
	Exposure Medium Total							3.41E-08					1.83E-02
Groundwater Total								3.14E-05					2.57E+00
Receptor Total								3.14E-05					2.57E+00

Total Risk Across All Media: 3.14E-05

Total Hazard Index Across All Media: 2.57E+00

COPCs that are cancer risk drivers of importance to the residential receptor are highlighted on a separate table for the lifetime resident.

COPCs that are non-cancer risk drivers of importance to residential receptors are highlighted on a separate table for the child resident.

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total Blood HI =	1.82E-01
Total CNS HI =	1.68E+00
Total CNS (Behavioral) HI =	6.59E-01
Total CNS (Developmental) HI =	2.58E-01
Total Fetotoxicity HI =	1.78E-01
Total GI Tract HI =	1.82E-01
Total Immune HI =	1.96E-01
Total Kidney HI =	1.87E-02
Total Liver HI =	1.87E-01
Total Skin HI =	1.73E-01
Total Thyroid HI =	1.67E-01
Total Vascular HI =	3.69E-01

TABLE 9.03.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 GROUNDWATER
CENTRAL TENDENCY EXPOSURE
NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap Water Contact With Site 12 Groundwater											
			Total 2,3,7,8-TCDD Equiv.	**6.25E-07**	**--**	**9.50E-06**	**--**	**1.01E-05**	N/A	N/A	--	N/A	--
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	**1.32E-05**	**--**	**3.28E-08**	**--**	**1.33E-05**	N/A	N/A	--	N/A	--
			Barium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	**4.54E-05**	**--**	**9.76E-06**	**--**	**5.52E-05**	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--					
			Carbon Tetrachloride	1.40E-07	--	2.84E-08	--	1.68E-07					
			Chloroform	7.80E-08	--	5.39E-09	--	8.34E-08					
			Trichloroethene (mutagenic)	2.28E-07	--	2.97E-08	--	2.57E-07					
			Trichloroethene (nonmutagenic)	4.96E-07	--	6.51E-08	--	5.61E-07	N/A	N/A	--	N/A	--
			(Total)	6.02E-05	--	1.94E-05		7.96E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						7.96E-05					--
	Exposure Medium Total							7.96E-05					--
	Air	Inhalation of Site 12 Groundwater Vapors During Showering											
			Carbon Tetrachloride	--	3.03E-09	--	--	3.03E-09	N/A	--	--	--	--
			Chloroform	--	1.61E-08	--	--	1.61E-08	N/A	--	--	--	--
			Trichloroethene (mutagenic)	--	3.64E-09	--	--	3.64E-09	N/A	--	--	--	--
			Trichloroethene (nonmutagenic)	--	1.13E-08	--	--	1.13E-08	N/A	--	--	--	--
			(Total)	--	3.41E-08	--		3.41E-08		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						3.41E-08					--
	Exposure Medium Total							3.41E-08					--
Groundwater Total								7.96E-05					--
Receptor Total								7.96E-05					--

Total Risk Across All Media: 7.96E-05

Total Hazard Index Across All Media: --

For the reporting of cancer risks, COPCs shown in bold contribute at least 1.0E-06 to a cumulative cancer risk that exceeds 1.0E-04
COPCs that are non-cancer risk drivers of importance to residential receptors are highlighted on a separate table for the child resident.

TABLE 9.05.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.21E-02	--	5.84E-04	5.27E-02
			Antimony	--	--	--	--	--	Blood/Liver	3.08E-02	--	2.30E-03	3.31E-02
			Arsenic	6.15E-07	--	3.45E-08	--	6.50E-07	Skin/Vascular	4.79E-02	--	2.68E-03	5.05E-02
			Cadmium	--	--	--	--	--	Kidney	6.84E-03	--	3.06E-04	7.14E-03
			Chromium	4.74E-07	--	2.13E-07	--	6.87E-07		3.69E-03	--	1.65E-03	5.34E-03
			Cobalt	--	--	--	--	--	Thyroid	9.05E-02	--	1.01E-03	9.15E-02
			Copper	--	--	--	--	--	GI Tract	4.71E-03	--	5.28E-05	4.76E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.09E-01	--	1.22E-03	1.10E-01
			Manganese	--	--	--	--	--	CNS	7.68E-02	--	2.15E-02	9.82E-02
			Thallium	--	--	--	--	--	Skin	8.21E-01	--	9.19E-03	8.30E-01
			Vanadium	--	--	--	--	--		2.16E-02	--	9.32E-03	3.09E-02
			Dieldrin	5.55E-08	--	6.21E-09	--	6.17E-08	Liver	2.43E-03	--	2.72E-04	2.70E-03
			Benz(a)anthracene	5.46E-07	--	7.94E-08	--	6.25E-07	N/A	--	--	--	--
			Benzo(a)pyrene	5.19E-06	--	7.55E-07	--	5.94E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.32E-07	--	7.75E-08	--	6.10E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	6.10E-08	--	8.88E-09	--	6.99E-08	N/A	--	--	--	--
			Chrysene	5.88E-09	--	8.57E-10	--	6.74E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.02E-06	--	2.94E-07	--	2.32E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5.19E-07	--	7.55E-08	--	5.94E-07	N/A	--	--	--	--
			(Total)	1.00E-05	--	1.55E-06		1.16E-05		1.27E+00	--	5.01E-02	1.32E+00
			Radionuclide Total										
		Exposure Point Total						1.16E-05					1.32E+00
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	8.87E-10	--	--	8.87E-10	Lung/Nasal	--	1.23E-06	--	1.23E-06
			(Total)	--	8.87E-10	--		8.87E-10		--	1.23E-06	--	1.23E-06
			Radionuclide Total										
		Exposure Point Total						8.87E-10					1.23E-06
	Exposure Medium Total							1.16E-05					1.32E+00
Surface Soil Total								1.16E-05					1.32E+00
Receptor Total								1.16E-05					1.32E+00

Total Risk Across All Media: 1.16E-05

Total Hazard Index Across All Media: 1.32E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total Blood HI =	1.43E-01
Total CNS HI =	1.51E-01
Total CNS (Developmental) HI =	5.27E-02
Total GI Tract HI =	1.15E-01
Total Kidney HI =	7.14E-03
Total Liver HI =	1.46E-01
Total Lung HI =	1.23E-06
Total Nasal HI =	1.23E-06
Total Skin HI =	8.80E-01
Total Thyroid HI =	9.15E-02
Total Vascular HI =	5.05E-02

TABLE 9.05a.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
CENTRAL TENDENCY EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.21E-02	--	5.84E-04	5.27E-02
			Antimony	--	--	--	--	--	Blood/Liver	3.08E-02	--	2.30E-03	3.31E-02
			Cadmium	--	--	--	--	--	Kidney	6.84E-03	--	3.06E-04	7.14E-03
			Chromium	4.74E-07	--	2.13E-07	--	6.87E-07		3.69E-03	--	1.65E-03	5.34E-03
			Copper	--	--	--	--	--	GI Tract	4.71E-03	--	5.28E-05	4.76E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.09E-01	--	1.22E-03	1.10E-01
			Thallium	--	--	--	--	--	Skin	8.21E-01	--	9.19E-03	8.30E-01
			Vanadium	--	--	--	--	--		2.16E-02	--	9.32E-03	3.09E-02
			Dieldrin	5.55E-08	--	6.21E-09	--	6.17E-08	Liver	2.43E-03	--	2.72E-04	2.70E-03
			Benz(a)anthracene	5.46E-07	--	7.94E-08	--	6.25E-07	N/A	--	--	--	--
			Benzo(a)pyrene	5.19E-06	--	7.55E-07	--	5.94E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.32E-07	--	7.75E-08	--	6.10E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	6.10E-08	--	8.88E-09	--	6.99E-08	N/A	--	--	--	--
			Chrysene	5.88E-09	--	8.57E-10	--	6.74E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.02E-06	--	2.94E-07	--	2.32E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5.19E-07	--	7.55E-08	--	5.94E-07	N/A	--	--	--	--
			(Total)	9.40E-06	--	1.51E-06		1.09E-05		1.05E+00	--	2.49E-02	1.08E+00
			Radionuclide Total										
		Exposure Point Total						1.09E-05					1.08E+00
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	8.87E-10	--	--	8.87E-10	Lung/Nasal	--	1.23E-06	--	1.23E-06
			(Total)	--	8.87E-10	--		8.87E-10		--	1.23E-06	--	1.23E-06
			Radionuclide Total										
		Exposure Point Total						8.87E-10					1.23E-06
	Exposure Medium Total							1.09E-05					1.08E+00
Surface Soil Total								1.09E-05					1.08E+00
Receptor Total								1.09E-05					1.08E+00

Total Risk Across All Media: 1.09E-05

Total Hazard Index Across All Media: 1.08E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total Blood HI =	1.43E-01
Total CNS (Developmental) HI =	5.27E-02
Total GI Tract HI =	1.15E-01
Total Kidney HI =	7.14E-03
Total Liver HI =	1.46E-01
Total Lung HI =	1.23E-06
Total Nasal HI =	1.23E-06
Total Skin HI =	8.30E-01

TABLE 9.06.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.59E-03	--	6.37E-05	5.65E-03
			Antimony	--	--	--	--	--	Blood/Liver	3.30E-03	--	2.51E-04	3.55E-03
			Arsenic	2.31E-07	--	1.32E-08	--	2.44E-07	Skin/Vascular	5.13E-03	--	2.92E-04	5.42E-03
			Cadmium	--	--	--	--	--	Kidney	7.33E-04	--	3.34E-05	7.66E-04
			Chromium	5.93E-08	--	2.70E-08	--	8.63E-08		3.95E-04	--	1.80E-04	5.76E-04
			Cobalt	--	--	--	--	--	Thyroid	9.69E-03	--	1.10E-04	9.80E-03
			Copper	--	--	--	--	--	GI Tract	5.05E-04	--	5.76E-06	5.11E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.16E-02	--	1.33E-04	1.18E-02
			Manganese	--	--	--	--	--	CNS	8.22E-03	--	2.34E-03	1.06E-02
			Thallium	--	--	--	--	--	Skin	8.79E-02	--	1.00E-03	8.89E-02
			Vanadium	--	--	--	--	--		2.32E-03	--	1.02E-03	3.33E-03
			Dieldrin	2.08E-08	--	2.37E-09	--	2.32E-08	Liver	2.60E-04	--	2.97E-05	2.90E-04
			Benz(a)anthracene	6.82E-08	--	1.01E-08	--	7.83E-08	N/A	--	--	--	--
			Benzo(a)pyrene	6.49E-07	--	9.61E-08	--	7.45E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	6.65E-08	--	9.86E-09	--	7.64E-08	N/A	--	--	--	--
			Benzo(k)fluoranthene	7.62E-09	--	1.13E-09	--	8.75E-09	N/A	--	--	--	--
			Chrysene	7.35E-10	--	1.09E-10	--	8.44E-10	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.53E-07	--	3.75E-08	--	2.90E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.49E-08	--	9.61E-09	--	7.45E-08	N/A	--	--	--	--
			(Total)	1.42E-06	--	2.07E-07		1.63E-06		1.36E-01	--	5.46E-03	1.41E-01
			Radionuclide Total										
		Exposure Point Total						1.63E-06					1.41E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.03E-09	--	--	1.03E-09	Lung/Nasal	--	1.23E-06	--	1.23E-06
			(Total)	--	1.03E-09	--		1.03E-09		--	1.23E-06	--	1.23E-06
			Radionuclide Total										
		Exposure Point Total						1.03E-09					1.23E-06
	Exposure Medium Total							1.63E-06					1.41E-01
Surface Soil Total								1.63E-06					1.41E-01
Receptor Total								1.63E-06					1.41E-01

Total Risk Across All Media: 1.63E-06

Total Hazard Index Across All Media: 1.41E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total Blood HI =	1.53E-02
Total CNS HI =	1.62E-02
Total CNS (Developmental) HI =	5.65E-03
Total GI Tract HI =	1.23E-02
Total Kidney HI =	7.66E-04
Total Liver HI =	1.56E-02
Total Lung HI =	1.23E-06
Total Nasal HI =	1.23E-06
Total Skin HI =	9.43E-02
Total Thyroid HI =	9.80E-03
Total Vascular HI =	5.42E-03

TABLE 9.06a.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
CENTRAL TENDENCY EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.59E-03	--	6.37E-05	5.65E-03
			Antimony	--	--	--	--	--	Blood/Liver	3.30E-03	--	2.51E-04	3.55E-03
			Cadmium	--	--	--	--	--	Kidney	7.33E-04	--	3.34E-05	7.66E-04
			Chromium	5.93E-08	--	2.70E-08	--	8.63E-08		3.95E-04	--	1.80E-04	5.76E-04
			Copper	--	--	--	--	--	GI Tract	5.05E-04	--	5.76E-06	5.11E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.16E-02	--	1.33E-04	1.18E-02
			Thallium	--	--	--	--	--	Skin	8.79E-02	--	1.00E-03	8.89E-02
			Vanadium	--	--	--	--	--		2.32E-03	--	1.02E-03	3.33E-03
			Dieldrin	2.08E-08	--	2.37E-09	--	2.32E-08	Liver	2.60E-04	--	2.97E-05	2.90E-04
			Benz(a)anthracene	6.82E-08	--	1.01E-08	--	7.83E-08	N/A	--	--	--	--
			Benzo(a)pyrene	6.49E-07	--	9.61E-08	--	7.45E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	6.65E-08	--	9.86E-09	--	7.64E-08	N/A	--	--	--	--
			Benzo(k)fluoranthene	7.62E-09	--	1.13E-09	--	8.75E-09	N/A	--	--	--	--
			Chrysene	7.35E-10	--	1.09E-10	--	8.44E-10	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.53E-07	--	3.75E-08	--	2.90E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6.49E-08	--	9.61E-09	--	7.45E-08	N/A	--	--	--	--
			(Total)	1.19E-06	--	1.94E-07		1.38E-06		1.13E-01	--	2.71E-03	1.15E-01
			Radionuclide Total										
		Exposure Point Total						1.38E-06					1.15E-01
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.03E-09	--	--	1.03E-09	Lung/Nasal	--	1.23E-06	--	1.23E-06
			(Total)	--	1.03E-09	--		1.03E-09		--	1.23E-06	--	1.23E-06
			Radionuclide Total										
		Exposure Point Total						1.03E-09					1.23E-06
	Exposure Medium Total							1.38E-06					1.15E-01
Surface Soil Total								1.38E-06					1.15E-01
Receptor Total								1.38E-06					1.15E-01

Total Risk Across All Media: 1.38E-06

Total Hazard Index Across All Media: 1.15E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total Blood HI =	1.53E-02
Total CNS (Developmental) HI =	5.65E-03
Total GI Tract HI =	1.23E-02
Total Kidney HI =	7.66E-04
Total Liver HI =	1.56E-02
Total Lung HI =	1.23E-06
Total Nasal HI =	1.23E-06
Total Skin HI =	8.89E-02

TABLE 9.07.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	8.46E-07	--	4.76E-08	--	8.94E-07	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	5.34E-07	--	2.40E-07	--	7.73E-07	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	7.63E-08	--	8.59E-09	--	8.49E-08	N/A	N/A	--	N/A	--
			Benz(a)anthracene	6.14E-07	--	8.95E-08	--	7.03E-07	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	5.84E-06	--	8.51E-07	--	6.69E-06	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	5.99E-07	--	8.73E-08	--	6.86E-07	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	6.86E-08	--	1.00E-08	--	7.86E-08	N/A	N/A	--	N/A	--
			Chrysene	6.62E-09	--	9.66E-10	--	7.58E-09	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	2.27E-06	--	3.32E-07	--	2.61E-06	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	5.84E-07	--	8.51E-08	--	6.69E-07	N/A	N/A	--	N/A	--
			(Total)	1.14E-05	--	1.75E-06		1.32E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.32E-05					--
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.92E-09	--	--	1.92E-09	N/A	--	N/A	--	--
			(Total)	--	1.92E-09	--		1.92E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.92E-09					--
	Exposure Medium Total							1.32E-05					--
Surface Soil Total								1.32E-05					--
Receptor Total								1.32E-05					--

Total Risk Across All Media 1.32E-05

Total Hazard Index Across All Media --

TABLE 9.07a.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SURFACE SOIL
CENTRAL TENDENCY EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Contact With Site 12 Surface Soil											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	5.34E-07	--	2.40E-07	--	7.73E-07	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	7.63E-08	--	8.59E-09	--	8.49E-08	N/A	N/A	--	N/A	--
			Benz(a)anthracene	6.14E-07	--	8.95E-08	--	7.03E-07	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	5.84E-06	--	8.51E-07	--	6.69E-06	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	5.99E-07	--	8.73E-08	--	6.86E-07	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	6.86E-08	--	1.00E-08	--	7.86E-08	N/A	N/A	--	N/A	--
			Chrysene	6.62E-09	--	9.66E-10	--	7.58E-09	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	2.27E-06	--	3.32E-07	--	2.61E-06	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	5.84E-07	--	8.51E-08	--	6.69E-07	N/A	N/A	--	N/A	--
			(Total)	1.06E-05	--	1.70E-06		1.23E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.23E-05					--
	Particulates	Particulate Dust Inhalation from Site 12 Surface Soil											
			Chromium	--	1.92E-09	--	--	1.92E-09	N/A	--	N/A	--	--
			(Total)	--	1.92E-09	--		1.92E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.92E-09					--
	Exposure Medium Total							1.23E-05					--
Surface Soil Total								1.23E-05					--
Receptor Total								1.23E-05					--

Total Risk Across All Media 1.23E-05

Total Hazard Index Across All Media --

TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	1.23E-05	--	4.14E-07	--	1.27E-05	**CNS (Behavioral)**	**4.74E+00**	**--**	**1.59E-01**	**4.90E+00**
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.47E-02	--	6.13E-04	5.53E-02
			Antimony	--	--	--	--	--	Blood/Liver	9.04E-02	--	6.75E-03	9.71E-02
			Arsenic	1.06E-06	--	5.93E-08	--	1.12E-06	Skin/Vascular	8.24E-02	--	4.61E-03	8.70E-02
			Cadmium	--	--	--	--	--	Kidney	4.53E-02	--	2.03E-03	4.73E-02
			Chromium	6.14E-07	--	2.75E-07	--	8.89E-07		4.77E-03	--	2.14E-03	6.91E-03
			Cobalt	--	--	--	--	--	Thyroid	1.03E-01	--	1.15E-03	1.04E-01
			Copper	--	--	--	--	--	GI Tract	1.27E-02	--	1.42E-04	1.29E-02
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.34E-01	--	1.50E-03	1.36E-01
			Manganese	--	--	--	--	--	**CNS**	**1.02E-01**	**--**	**2.87E-02**	**1.31E-01**
			Thallium	--	--	--	--	--	**Skin**	**1.36E+00**	**--**	**1.53E-02**	**1.38E+00**
			Vanadium	--	--	--	--	--		2.21E-02	--	9.50E-03	3.16E-02
			Zinc	--	--	--	--	--	Blood	6.05E-03	--	6.78E-05	6.12E-03
			Aroclor-1260	8.55E-08	--	1.34E-08	--	9.89E-08	N/A	--	--	--	--
			Dieldrin	3.75E-08	--	4.20E-09	--	4.17E-08	Liver	1.64E-03	--	1.84E-04	1.83E-03
			2-Methylnaphthalene	--	--	--	--	--	Lung	1.35E-03	--	1.96E-04	1.54E-03
			Benz(a)anthracene	4.95E-07	--	7.20E-08	--	5.67E-07	N/A	--	--	--	--
			Benzo(a)pyrene	4.41E-06	--	6.42E-07	--	5.06E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	4.52E-07	--	6.58E-08	--	5.18E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	5.05E-08	--	7.36E-09	--	5.79E-08	N/A	--	--	--	--
			Chrysene	5.38E-09	--	7.83E-10	--	6.16E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.54E-06	--	2.24E-07	--	1.76E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.98E-07	--	5.80E-08	--	4.56E-07	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	8.78E-05	--	1.28E-05	1.01E-04
			(Total)	2.15E-05	--	1.84E-06		2.33E-05		6.76E+00	--	2.32E-01	6.99E+00
			Radionuclide Total										
		Exposure Point Total						2.33E-05					6.99E+00
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	1.56E-09	--	--	1.56E-09	Respiratory	--	5.37E-04	--	5.37E-04
			(Total)	--	1.56E-09	--		1.56E-09		--	5.37E-04	--	5.37E-04
			Radionuclide Total										
		Exposure Point Total						1.56E-09					5.37E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	4.01E-11	--	--	4.01E-11	Liver/Respiratory/Reproductive	--	9.22E-07	--	9.22E-07
			Chromium	--	1.15E-09	--	--	1.15E-09	Lung/Nasal	--	1.59E-06	--	1.59E-06
			(Total)	--	1.19E-09	--		1.19E-09		--	2.52E-06	--	2.52E-06
			Radionuclide Total										
		Exposure Point Total						1.19E-09					2.52E-06
	Exposure Medium Total							2.33E-05					6.99E+00
Soil Total								2.33E-05					6.99E+00
Receptor Total								2.33E-05					6.99E+00

Total Risk Across All Media: 2.33E-05

Total Hazard Index Across All Media: 6.99E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total Blood HI =	2.39E-01
Total CNS HI =	5.08E+00
Total CNS (Behavioral) HI =	4.90E+00
Total CNS (Developmental) HI =	5.53E-02
Total Decr. Wt. Gain HI =	1.01E-04
Total GI Tract HI =	1.49E-01
Total Kidney HI =	4.73E-02
Total Liver HI =	2.35E-01
Total Lung HI =	1.54E-03
Total Nasal HI =	1.59E-06
Total Reproductive HI =	9.22E-07
Total Respiratory HI =	5.38E-04
Total Skin HI =	1.47E+00
Total Thyroid HI =	1.04E-01
Total Vascular HI =	8.70E-02

TABLE 9.13.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT RESIDENT EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	4.62E-06	--	1.58E-07	--	4.78E-06	CNS (Behavioral)	5.08E-01	--	1.74E-02	5.25E-01
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.86E-03	--	6.68E-05	5.93E-03
			Antimony	--	--	--	--	--	Blood/Liver	9.69E-03	--	7.36E-04	1.04E-02
			Arsenic	3.97E-07	--	2.26E-08	--	4.20E-07	Skin/Vascular	8.83E-03	--	5.03E-04	9.33E-03
			Cadmium	--	--	--	--	--	Kidney	4.85E-03	--	2.21E-04	5.08E-03
			Chromium	7.67E-08	--	3.50E-08	--	1.12E-07		5.11E-04	--	2.33E-04	7.45E-04
			Cobalt	--	--	--	--	--	Thyroid	1.10E-02	--	1.25E-04	1.11E-02
			Copper	--	--	--	--	--	GI Tract	1.36E-03	--	1.55E-05	1.38E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.44E-02	--	1.64E-04	1.46E-02
			Manganese	--	--	--	--	--	CNS	1.10E-02	--	3.13E-03	1.41E-02
			Thallium	--	--	--	--	--	Skin	1.46E-01	--	1.67E-03	1.48E-01
			Vanadium	--	--	--	--	--		2.36E-03	--	1.04E-03	3.40E-03
			Zinc	--	--	--	--	--	Blood	6.49E-04	--	7.40E-06	6.56E-04
			Aroclor-1260	3.21E-08	--	5.12E-09	--	3.72E-08	N/A	--	--	--	--
			Dieldrin	1.41E-08	--	1.60E-09	--	1.57E-08	Liver	1.76E-04	--	2.00E-05	1.96E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	1.44E-04	--	2.14E-05	1.66E-04
			Benz(a)anthracene	6.18E-08	--	9.17E-09	--	7.10E-08	N/A	--	--	--	--
			Benzo(a)pyrene	5.52E-07	--	8.17E-08	--	6.33E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	5.65E-08	--	8.37E-09	--	6.49E-08	N/A	--	--	--	--
			Benzo(k)fluoranthene	6.32E-09	--	9.36E-10	--	7.25E-09	N/A	--	--	--	--
			Chrysene	6.72E-10	--	9.96E-11	--	7.71E-10	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.93E-07	--	2.85E-08	--	2.21E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4.98E-08	--	7.38E-09	--	5.72E-08	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	9.41E-06	--	1.39E-06	1.08E-05
			(Total)	6.06E-06	--	3.59E-07		6.42E-06		7.25E-01	--	2.53E-02	7.50E-01
			Radionuclide Total										
		Exposure Point Total						6.42E-06					7.50E-01
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	5.47E-09	--	--	5.47E-09	Respiratory	--	5.37E-04	--	5.37E-04
			(Total)	--	5.47E-09	--		5.47E-09		--	5.37E-04	--	5.37E-04
			Radionuclide Total										
		Exposure Point Total						5.47E-09					5.37E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.40E-10	--	--	1.40E-10	Liver/Respiratory/Reproductive	--	9.22E-07	--	9.22E-07
			Chromium	--	1.34E-09	--	--	1.34E-09	Lung/Nasal	--	1.59E-06	--	1.59E-06
			(Total)	--	1.48E-09	--		1.48E-09		--	2.52E-06	--	2.52E-06
			Radionuclide Total										
		Exposure Point Total						1.48E-09					2.52E-06
	Exposure Medium Total							6.43E-06					7.51E-01
Soil Total								6.43E-06					7.51E-01
Receptor Total								6.43E-06					7.51E-01

Total Risk Across All Media: 6.43E-06

Total Hazard Index Across All Media: 7.51E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total Blood HI =	2.56E-02
Total CNS HI =	5.45E-01
Total CNS (Behavioral) HI =	5.25E-01
Total CNS (Developmental) HI =	5.93E-03
Total Decr. Wt. Gain HI =	1.08E-05
Total GI Tract HI =	1.59E-02
Total Kidney HI =	5.08E-03
Total Liver HI =	2.52E-02
Total Lung HI =	1.67E-04
Total Nasal HI =	1.59E-06
Total Reproductive HI =	9.22E-07
Total Respiratory HI =	5.38E-04
Total Skin HI =	1.57E-01
Total Thyroid HI =	1.11E-02
Total Vascular HI =	9.33E-03

TABLE 9.14.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	1.69E-05	--	5.72E-07	--	1.75E-05	N/A	N/A	--	N/A	--
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	1.46E-06	--	8.20E-08	--	1.54E-06	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	6.90E-07	--	3.10E-07	--	1.00E-06	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Zinc	--	--	--	--	--	N/A	N/A	--	N/A	--
			Aroclor-1260	1.18E-07	--	1.85E-08	--	1.36E-07	N/A	N/A	--	N/A	--
			Dieldrin	5.16E-08	--	5.81E-09	--	5.74E-08	N/A	N/A	--	N/A	--
			2-Methylnaphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			Benz(a)anthracene	5.57E-07	--	8.12E-08	--	6.38E-07	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	4.96E-06	--	7.24E-07	--	5.69E-06	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	5.08E-07	--	7.42E-08	--	5.83E-07	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	5.69E-08	--	8.30E-09	--	6.52E-08	N/A	N/A	--	N/A	--
			Chrysene	6.05E-09	--	8.82E-10	--	6.93E-09	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	1.73E-06	--	2.53E-07	--	1.99E-06	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	4.48E-07	--	6.54E-08	--	5.14E-07	N/A	N/A	--	N/A	--
			Naphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			(Total)	2.75E-05	--	2.20E-06		2.97E-05		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.97E-05					--
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	7.04E-09	--	--	7.04E-09	N/A	--	N/A	--	--
			(Total)	--	7.04E-09	--		7.04E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						7.04E-09					--
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.80E-10	--	--	1.80E-10	N/A	--	N/A	--	--
			Chromium	--	2.48E-09	--	--	2.48E-09	N/A	--	N/A	--	--
			(Total)	--	2.66E-09	--		2.66E-09		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.66E-09					--
	Exposure Medium Total							2.97E-05					--
Soil Total								2.97E-05					--
Receptor Total								2.97E-05					--

Total Risk Across All Media: 2.97E-05

Total Hazard Index Across All Media: --

TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT INDUSTRIAL WORKER EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	Total 2,3,7,8-TCDD Equiv.	5.56E-06	--	2.20E-07	--	5.78E-06	CNS (Behavioral)	4.75E-01	--	1.88E-02	4.94E-01
			Aluminum	--	--	--	--	--	CNS (Developmental)	5.49E-03	--	7.24E-05	5.56E-03
			Antimony	--	--	--	--	--	Blood/Liver	9.06E-03	--	7.98E-04	9.86E-03
			Arsenic	4.78E-07	--	3.16E-08	--	5.10E-07	Skin/Vascular	8.26E-03	--	5.45E-04	8.81E-03
			Cadmium	--	--	--	--	--	Kidney	4.54E-03	--	2.40E-04	4.78E-03
			Chromium	9.23E-08	--	4.87E-08	--	1.41E-07		4.79E-04	--	2.53E-04	7.31E-04
			Cobalt	--	--	--	--	--	Thyroid	1.03E-02	--	1.36E-04	1.04E-02
			Copper	--	--	--	--	--	GI Tract	1.28E-03	--	1.68E-05	1.29E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	1.35E-02	--	1.78E-04	1.36E-02
			Manganese	--	--	--	--	--	CNS	1.03E-02	--	3.39E-03	1.37E-02
			Thallium	--	--	--	--	--	Skin	1.37E-01	--	1.80E-03	1.39E-01
			Vanadium	--	--	--	--	--		2.21E-03	--	1.12E-03	3.33E-03
			Zinc	--	--	--	--	--	Blood	6.07E-04	--	8.01E-06	6.15E-04
			Aroclor-1260	3.86E-08	--	7.13E-09	--	4.57E-08	N/A	--	--	--	--
			Dieldrin	1.69E-08	--	2.23E-09	--	1.92E-08	Liver	1.65E-04	--	2.17E-05	1.86E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	1.35E-04	--	2.32E-05	1.58E-04
			Benz(a)anthracene	7.44E-08	--	1.28E-08	--	8.72E-08	N/A	--	--	--	--
			Benzo(a)pyrene	6.64E-07	--	1.14E-07	--	7.78E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	6.80E-08	--	1.17E-08	--	7.96E-08	N/A	--	--	--	--
			Benzo(k)fluoranthene	7.60E-09	--	1.30E-09	--	8.91E-09	N/A	--	--	--	--
			Chrysene	8.09E-10	--	1.39E-10	--	9.47E-10	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.32E-07	--	3.98E-08	--	2.71E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5.99E-08	--	1.03E-08	--	7.02E-08	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	8.81E-06	--	1.51E-06	1.03E-05
			(Total)	7.29E-06	--	5.00E-07		7.79E-06		6.78E-01	--	2.74E-02	7.05E-01
			Radionuclide Total										
		Exposure Point Total						7.79E-06					7.05E-01
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	8.78E-09	--	--	8.78E-09	Respiratory	--	6.70E-04	--	6.70E-04
			(Total)	--	8.78E-09	--		8.78E-09		--	6.70E-04	--	6.70E-04
			Radionuclide Total										
		Exposure Point Total						8.78E-09					6.70E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	2.25E-10	--	--	2.25E-10	Liver/Respiratory/Reproductive	--	1.15E-06	--	1.15E-06
			Chromium	--	2.15E-09	--	--	2.15E-09	Lung/Nasal	--	1.99E-06	--	1.99E-06
			(Total)	--	2.37E-09	--		2.37E-09		--	3.14E-06	--	3.14E-06
			Radionuclide Total										
		Exposure Point Total						2.37E-09					3.14E-06
	Exposure Medium Total							7.80E-06					7.06E-01
Soil Total								7.80E-06					7.06E-01
Receptor Total								7.80E-06					7.06E-01

Total Risk Across All Media: 7.80E-06

Total Hazard Index Across All Media: 7.06E-01

Total Blood HI =	2.41E-02
Total CNS HI =	5.13E-01
Total CNS (Behavioral) HI =	4.94E-01
Total CNS (Developmental) HI =	5.56E-03
Total Decr. Wt. Gain HI =	1.03E-05
Total GI Tract HI =	1.49E-02
Total Kidney HI =	4.78E-03
Total Liver HI =	2.37E-02
Total Lung HI =	1.60E-04
Total Nasal HI =	1.99E-06
Total Reproductive HI =	1.15E-06
Total Respiratory HI =	6.71E-04
Total Skin HI =	1.47E-01
Total Thyroid HI =	1.04E-02
Total Vascular HI =	8.81E-03

TABLE 9.16.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT CONSTRUCTION WORKER EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	4.00E-07	--	4.80E-09	--	4.05E-07	CNS (Behavioral)	3.08E-01	--	3.69E-03	3.12E-01
			Aluminum	--	--	--	--	--	CNS (Developmental)	3.55E-03	--	1.42E-05	3.57E-03
			Antimony	--	--	--	--	--	Blood/Liver	5.87E-03	--	1.57E-04	6.03E-03
			Arsenic	3.44E-08	--	6.88E-10	--	3.51E-08	Skin/Vascular	5.35E-03	--	1.07E-04	5.46E-03
			Cadmium	--	--	--	--	--	Kidney	2.94E-03	--	4.71E-05	2.99E-03
			Chromium	6.64E-09	--	1.06E-09	--	7.71E-09		3.10E-04	--	4.96E-05	3.60E-04
			Cobalt	--	--	--	--	--	Thyroid	6.66E-03	--	2.67E-05	6.69E-03
			Copper	--	--	--	--	--	GI Tract	8.26E-04	--	3.30E-06	8.29E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	8.73E-03	--	3.49E-05	8.76E-03
			Manganese	--	--	--	--	--	CNS	6.65E-03	--	6.65E-04	7.32E-03
			Thallium	--	--	--	--	--	Skin	8.86E-02	--	3.54E-04	8.89E-02
			Vanadium	--	--	--	--	--		1.43E-03	--	2.20E-04	1.65E-03
			Zinc	--	--	--	--	--	Blood	3.93E-04	--	1.57E-06	3.95E-04
			Aroclor-1260	2.78E-09	--	1.56E-10	--	2.93E-09	N/A	--	--	--	--
			Dieldrin	1.22E-09	--	4.87E-11	--	1.27E-09	Liver	1.07E-04	--	4.27E-06	1.11E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	8.75E-05	--	4.55E-06	9.20E-05
			Benz(a)anthracene	5.36E-09	--	2.79E-10	--	5.64E-09	N/A	--	--	--	--
			Benzo(a)pyrene	4.78E-08	--	2.48E-09	--	5.03E-08	N/A	--	--	--	--
			Benzo(b)fluoranthene	4.89E-09	--	2.54E-10	--	5.15E-09	N/A	--	--	--	--
			Benzo(k)fluoranthene	5.47E-10	--	2.85E-11	--	5.76E-10	N/A	--	--	--	--
			Chrysene	5.82E-11	--	3.03E-12	--	6.12E-11	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.67E-08	--	8.67E-10	--	1.75E-08	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4.31E-09	--	2.24E-10	--	4.54E-09	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	5.71E-06	--	2.97E-07	6.00E-06
			(Total)	5.25E-07	--	1.09E-08		5.36E-07		4.39E-01	--	5.38E-03	4.45E-01
			Radionuclide Total										
		Exposure Point Total						5.36E-07					4.45E-01
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	1.92E-10	--	--	1.92E-10	Respiratory	--	1.31E-04	--	1.31E-04
			(Total)	--	1.92E-10	--		1.92E-10		--	1.31E-04	--	1.31E-04
			Radionuclide Total										
		Exposure Point Total						1.92E-10					1.31E-04
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	4.91E-12	--	--	4.91E-12	Liver/Respiratory/Reproductive	--	2.26E-07	--	2.26E-07
			Chromium	--	4.68E-11	--	--	4.68E-11	Lung/Nasal	--	3.90E-07	--	3.90E-07
			(Total)	--	5.17E-11	--		5.17E-11		--	6.16E-07	--	6.16E-07
			Radionuclide Total										
		Exposure Point Total						5.17E-11					6.16E-07
	Exposure Medium Total							5.36E-07					4.45E-01
Soil Total								5.36E-07					4.45E-01
Receptor Total								5.36E-07					4.45E-01

Total Risk Across All Media: 5.36E-07

Total Hazard Index Across All Media: 4.45E-01

Total Blood HI =	1.52E-02
Total CNS HI =	3.22E-01
Total CNS (Behavioral) HI =	3.12E-01
Total CNS (Developmental) HI =	3.57E-03
Total Decr. Wt. Gain HI =	6.00E-06
Total GI Tract HI =	9.59E-03
Total Kidney HI =	2.99E-03
Total Liver HI =	1.49E-02
Total Lung HI =	9.24E-05
Total Nasal HI =	3.90E-07
Total Reproductive HI =	2.26E-07
Total Respiratory HI =	1.32E-04
Total Skin HI =	9.44E-02
Total Thyroid HI =	6.69E-03
Total Vascular HI =	5.46E-03

TABLE 9.17.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	2.74E-06	--	9.20E-08	--	2.83E-06	CNS (Behavioral)	1.05E+00	--	3.54E-02	1.09E+00
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.22E-02	--	1.36E-04	1.23E-02
			Antimony	--	--	--	--	--	Blood/Liver	2.01E-02	--	1.50E-03	2.16E-02
			Arsenic	2.35E-07	--	1.32E-08	--	2.49E-07	Skin/Vascular	1.83E-02	--	1.03E-03	1.93E-02
			Cadmium	--	--	--	--	--	Kidney	1.01E-02	--	4.51E-04	1.05E-02
			Chromium	1.36E-07	--	6.11E-08	--	1.97E-07		1.06E-03	--	4.75E-04	1.54E-03
			Cobalt	--	--	--	--	--	Thyroid	2.28E-02	--	2.55E-04	2.30E-02
			Copper	--	--	--	--	--	GI Tract	2.83E-03	--	3.16E-05	2.86E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	2.99E-02	--	3.34E-04	3.02E-02
			Manganese	--	--	--	--	--	CNS	2.28E-02	--	6.37E-03	2.91E-02
			Thallium	--	--	--	--	--	Skin	3.03E-01	--	3.39E-03	3.06E-01
			Vanadium	--	--	--	--	--		4.90E-03	--	2.11E-03	7.01E-03
			Zinc	--	--	--	--	--	Blood	1.35E-03	--	1.51E-05	1.36E-03
			Aroclor-1260	1.90E-08	--	2.98E-09	--	2.20E-08	N/A	--	--	--	--
			Dieldrin	8.34E-09	--	9.34E-10	--	9.27E-09	Liver	3.65E-04	--	4.08E-05	4.06E-04
			2-Methylnaphthalene	--	--	--	--	--	Lung	2.99E-04	--	4.36E-05	3.43E-04
			Benz(a)anthracene	1.10E-07	--	1.60E-08	--	1.26E-07	N/A	--	--	--	--
			Benzo(a)pyrene	9.81E-07	--	1.43E-07	--	1.12E-06	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.00E-07	--	1.46E-08	--	1.15E-07	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.12E-08	--	1.64E-09	--	1.29E-08	N/A	--	--	--	--
			Chrysene	1.19E-09	--	1.74E-10	--	1.37E-09	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.42E-07	--	4.98E-08	--	3.92E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8.85E-08	--	1.29E-08	--	1.01E-07	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	1.95E-05	--	2.84E-06	2.24E-05
			(Total)	4.77E-06	--	4.08E-07		5.18E-06		1.50E+00	--	5.16E-02	1.55E+00
			Radionuclide Total										
		Exposure Point Total						5.18E-06					1.55E+00
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	1.16E-10	--	--	1.16E-10	Respiratory	--	3.98E-05	--	3.98E-05
			(Total)	--	1.16E-10	--		1.16E-10		--	3.98E-05	--	3.98E-05
			Radionuclide Total										
		Exposure Point Total						1.16E-10					3.98E-05
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	2.97E-12	--	--	2.97E-12	Liver/Respiratory/Reproductive	--	6.83E-08	--	6.83E-08
			Chromium	--	8.49E-11	--	--	8.49E-11	Lung/Nasal	--	1.18E-07	--	1.18E-07
			(Total)	--	8.79E-11	--		8.79E-11		--	1.86E-07	--	1.86E-07
			Radionuclide Total										
		Exposure Point Total						8.79E-11					1.86E-07
	Exposure Medium Total							5.18E-06					1.55E+00
Soil Total								5.18E-06					1.55E+00
Receptor Total								5.18E-06					1.55E+00

Total Risk Across All Media: 5.18E-06

Total Hazard Index Across All Media: 1.55E+00

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total Blood HI =	5.31E-02
Total CNS HI =	1.13E+00
Total CNS (Behavioral) HI =	1.09E+00
Total CNS (Developmental) HI =	1.23E-02
Total Decr. Wt. Gain HI =	2.24E-05
Total GI Tract HI =	3.30E-02
Total Kidney HI =	1.05E-02
Total Liver HI =	5.22E-02
Total Lung HI =	3.43E-04
Total Nasal HI =	1.18E-07
Total Reproductive HI =	6.83E-08
Total Respiratory HI =	3.98E-05
Total Skin HI =	3.26E-01
Total Thyroid HI =	2.30E-02
Total Vascular HI =	1.93E-02

TABLE 9.18.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	1.03E-06	--	3.51E-08	--	1.06E-06	CNS (Behavioral)	1.13E-01	--	3.86E-03	1.17E-01
			Aluminum	--	--	--	--	--	CNS (Developmental)	1.30E-03	--	1.48E-05	1.32E-03
			Antimony	--	--	--	--	--	Blood/Liver	2.15E-03	--	1.64E-04	2.32E-03
			Arsenic	8.83E-08	--	5.03E-09	--	9.33E-08	Skin/Vascular	1.96E-03	--	1.12E-04	2.07E-03
			Cadmium	--	--	--	--	--	Kidney	1.08E-03	--	4.92E-05	1.13E-03
			Chromium	1.70E-08	--	7.77E-09	--	2.48E-08		1.14E-04	--	5.18E-05	1.65E-04
			Cobalt	--	--	--	--	--	Thyroid	2.44E-03	--	2.78E-05	2.47E-03
			Copper	--	--	--	--	--	GI Tract	3.03E-04	--	3.45E-06	3.06E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	3.20E-03	--	3.65E-05	3.23E-03
			Manganese	--	--	--	--	--	CNS	2.44E-03	--	6.95E-04	3.13E-03
			Thallium	--	--	--	--	--	Skin	3.25E-02	--	3.70E-04	3.28E-02
			Vanadium	--	--	--	--	--		5.25E-04	--	2.30E-04	7.55E-04
			Zinc	--	--	--	--	--	Blood	1.44E-04	--	1.64E-06	1.46E-04
			Aroclor-1260	7.12E-09	--	1.14E-09	--	8.26E-09	N/A	--	--	--	--
			Dieldrin	3.13E-09	--	3.56E-10	--	3.48E-09	Liver	3.91E-05	--	4.45E-06	4.35E-05
			2-Methylnaphthalene	--	--	--	--	--	Lung	3.21E-05	--	4.75E-06	3.68E-05
			Benz(a)anthracene	1.37E-08	--	2.04E-09	--	1.58E-08	N/A	--	--	--	--
			Benzo(a)pyrene	1.23E-07	--	1.82E-08	--	1.41E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.26E-08	--	1.86E-09	--	1.44E-08	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.40E-09	--	2.08E-10	--	1.61E-09	N/A	--	--	--	--
			Chrysene	1.49E-10	--	2.21E-11	--	1.71E-10	N/A	--	--	--	--
			Dibenz(a,h)anthracene	4.28E-08	--	6.34E-09	--	4.91E-08	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.11E-08	--	1.64E-09	--	1.27E-08	N/A	--	--	--	--
			Naphthalene	--	--	--	--	--	Decr. Wt. Gain	2.09E-06	--	3.10E-07	2.40E-06
			(Total)	1.35E-06	--	7.97E-08		1.43E-06		1.61E-01	--	5.62E-03	1.67E-01
			Radionuclide Total										
		Exposure Point Total						1.43E-06					1.67E-01
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	4.06E-10	--	--	4.06E-10	Respiratory	--	3.98E-05	--	3.98E-05
			(Total)	--	4.06E-10	--		4.06E-10		--	3.98E-05	--	3.98E-05
			Radionuclide Total										
		Exposure Point Total						4.06E-10					3.98E-05
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.04E-11	--	--	1.04E-11	Liver/Respiratory/Reproductive	--	6.83E-08	--	6.83E-08
			Chromium	--	9.91E-11	--	--	9.91E-11	Lung/Nasal	--	1.18E-07	--	1.18E-07
			(Total)	--	1.09E-10	--		1.09E-10		--	1.86E-07	--	1.86E-07
			Radionuclide Total										
		Exposure Point Total						1.09E-10					1.86E-07
	Exposure Medium Total							1.43E-06					1.67E-01
Soil Total								1.43E-06					1.67E-01
Receptor Total								1.43E-06					1.67E-01

Total Risk Across All Media: 1.43E-06

Total Hazard Index Across All Media: 1.67E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total Blood HI =	5.70E-03
Total CNS HI =	1.21E-01
Total CNS (Behavioral) HI =	1.17E-01
Total CNS (Developmental) HI =	1.32E-03
Total Decr. Wt. Gain HI =	2.40E-06
Total GI Tract HI =	3.54E-03
Total Kidney HI =	1.13E-03
Total Liver HI =	5.59E-03
Total Lung HI =	3.69E-05
Total Nasal HI =	1.18E-07
Total Reproductive HI =	6.83E-08
Total Respiratory HI =	3.98E-05
Total Skin HI =	3.49E-02
Total Thyroid HI =	2.47E-03
Total Vascular HI =	2.07E-03

TABLE 9.19.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SOIL
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Trespasser/Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	3.76E-06	--	1.27E-07	--	3.89E-06	N/A	N/A	--	N/A	--
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Antimony	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	3.24E-07	--	1.82E-08	--	3.42E-07	N/A	N/A	--	N/A	--
			Cadmium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Chromium	1.53E-07	--	6.89E-08	--	2.22E-07	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Copper	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Zinc	--	--	--	--	--	N/A	N/A	--	N/A	--
			Aroclor-1260	2.61E-08	--	4.12E-09	--	3.02E-08	N/A	N/A	--	N/A	--
			Dieldrin	1.15E-08	--	1.29E-09	--	1.28E-08	N/A	N/A	--	N/A	--
			2-Methylnaphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			Benz(a)anthracene	1.24E-07	--	1.80E-08	--	1.42E-07	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	1.10E-06	--	1.61E-07	--	1.26E-06	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	1.13E-07	--	1.65E-08	--	1.29E-07	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	1.26E-08	--	1.84E-09	--	1.45E-08	N/A	N/A	--	N/A	--
			Chrysene	1.34E-09	--	1.96E-10	--	1.54E-09	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	3.85E-07	--	5.62E-08	--	4.41E-07	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	9.96E-08	--	1.45E-08	--	1.14E-07	N/A	N/A	--	N/A	--
			Naphthalene	--	--	--	--	--	N/A	N/A	--	N/A	--
			(Total)	6.12E-06	--	4.88E-07		6.61E-06		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						6.61E-06					--
	Air	Ambient VOC Inhalation from Site 12 Soil											
			Naphthalene	--	5.21E-10	--	--	5.21E-10	N/A	--	N/A	--	--
			(Total)	--	5.21E-10	--		5.21E-10		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						5.21E-10					--
	Particulates	Particulate Dust Inhalation from Site 12 Soil											
			Total 2,3,7,8-TCDD Equiv.	--	1.34E-11	--	--	1.34E-11	N/A	--	N/A	--	--
			Chromium	--	1.84E-10	--	--	1.84E-10	N/A	--	N/A	--	--
			(Total)	--	1.97E-10	--		1.97E-10		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.97E-10					--
	Exposure Medium Total							6.61E-06					--
Soil Total								6.61E-06					--
Receptor Total								6.61E-06					--

Total Risk Across All Media: 6.61E-06

Total Hazard Index Across All Media: --

TABLE 9.21.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	CNS (Developmental)	3.02E-04	--	2.93E-04	5.95E-04
			Arsenic	4.31E-09	--	4.19E-09	--	8.50E-09	Skin/Vascular	3.36E-04	--	3.26E-04	6.61E-04
			Chromium	1.54E-08	--	1.20E-06	--	1.21E-06		1.20E-04	--	9.30E-03	9.42E-03
			Cobalt	--	--	--	--	--	Thyroid	1.03E-03	--	4.01E-04	1.43E-03
			Cyanide	--	--	--	--	--	Reproductive	8.22E-04	--	7.98E-04	1.62E-03
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	9.43E-04	--	9.16E-04	1.86E-03
			Lead	--	--	--	--	--	N/A	--	--	--	--
			Manganese	--	--	--	--	--	CNS	6.65E-04	--	1.61E-02	1.68E-02
			Vanadium	--	--	--	--	--		1.69E-04	--	6.30E-03	6.47E-03
			Dieldrin	1.12E-08	--	7.80E-07	--	7.92E-07	Liver	4.90E-04	--	3.41E-02	3.46E-02
			Benz(a)anthracene	6.54E-09	--	8.31E-06	--	8.31E-06	N/A	--	--	--	--
			Benzo(a)pyrene	7.37E-08	--	1.61E-04	--	1.61E-04	N/A	--	--	--	--
			Benzo(b)fluoranthene	6.72E-09	--	1.48E-05	--	1.49E-05	N/A	--	--	--	--
			Benzo(k)fluoranthene	4.97E-10	--	1.10E-06	--	1.10E-06	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.25E-09	--	4.20E-06	--	4.20E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.40E-09	--	3.09E-06	--	3.09E-06	N/A	--	--	--	--
			(Total)	1.21E-07	--	1.94E-04		1.94E-04		4.88E-03	--	6.86E-02	7.35E-02
			Radionuclide Total										
		Exposure Point Total						1.94E-04					7.35E-02
	Exposure Medium Total							1.94E-04					7.35E-02
Surface Water Total								1.94E-04					7.35E-02
Receptor Total								1.94E-04					7.35E-02

Total Risk Across All Media: 1.94E-04

Total Hazard Index Across All Media: 7.35E-02

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total Blood HI =	1.86E-03
Total CNS HI =	1.74E-02
Total CNS (Developmental) HI =	5.95E-04
Total GI Tract HI =	1.86E-03
Total Liver HI =	3.65E-02
Total Reproductive HI =	1.62E-03
Total Skin HI =	6.61E-04
Total Thyroid HI =	1.43E-03
Total Vascular HI =	6.61E-04

TABLE 9.22.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	CNS (Developmental)	6.47E-05	--	1.34E-04	1.99E-04
			Arsenic	3.24E-09	--	6.72E-09	--	9.96E-09	Skin/Vascular	7.19E-05	--	1.49E-04	2.21E-04
			Chromium	3.85E-09	--	6.39E-07	--	6.43E-07		2.56E-05	--	4.26E-03	4.29E-03
			Cobalt	--	--	--	--	--	Thyroid	2.21E-04	--	1.84E-04	4.05E-04
			Cyanide	--	--	--	--	--	Reproductive	1.76E-04	--	3.66E-04	5.42E-04
			Iron	--	--	--	--	--	Liver/Blood/GI Tract	2.02E-04	--	4.20E-04	6.22E-04
			Lead	--	--	--	--	--	N/A	--	--	--	--
			Manganese	--	--	--	--	--	CNS	1.42E-04	--	7.40E-03	7.54E-03
			Vanadium	--	--	--	--	--		3.61E-05	--	2.89E-03	2.92E-03
			Dieldrin	8.40E-09	--	1.25E-06	--	1.26E-06	Liver	1.05E-04	--	1.56E-02	1.58E-02
			Benz(a)anthracene	1.63E-09	--	4.44E-06	--	4.44E-06	N/A	--	--	--	--
			Benzo(a)pyrene	1.84E-08	--	8.59E-05	--	8.59E-05	N/A	--	--	--	--
			Benzo(b)fluoranthene	1.68E-09	--	7.94E-06	--	7.94E-06	N/A	--	--	--	--
			Benzo(k)fluoranthene	1.24E-10	--	5.87E-07	--	5.88E-07	N/A	--	--	--	--
			Dibenz(a,h)anthracene	3.12E-10	--	2.25E-06	--	2.25E-06	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.49E-10	--	1.65E-06	--	1.65E-06	N/A	--	--	--	--
			(Total)	3.80E-08	--	1.05E-04		1.05E-04		1.05E-03	--	3.14E-02	3.25E-02
			Radionuclide Total										
		Exposure Point Total						1.05E-04					3.25E-02
	Exposure Medium Total							1.05E-04					3.25E-02
Surface Water Total								1.05E-04					3.25E-02
Receptor Total								1.05E-04					3.25E-02

Total Risk Across All Media: 1.05E-04

Total Hazard Index Across All Media: 3.25E-02

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total Blood HI =	6.22E-04
Total CNS HI =	7.74E-03
Total CNS (Developmental) HI =	1.99E-04
Total GI Tract HI =	6.22E-04
Total Liver HI =	1.64E-02
Total Reproductive HI =	5.42E-04
Total Skin HI =	2.21E-04
Total Thyroid HI =	4.05E-04
Total Vascular HI =	2.21E-04

TABLE 9.23.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SURFACE WATER
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Contact With Surface Water From Site 12											
			Aluminum	--	--	--	--	--	N/A	N/A	--	N/A	--
			Arsenic	7.55E-09	--	1.09E-08	--	1.85E-08	N/A	N/A	--	N/A	--
			Chromium	**1.92E-08**	**--**	**1.83E-06**	**--**	**1.85E-06**	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Cyanide	--	--	--	--	--	N/A	N/A	--	N/A	--
			Iron	--	--	--	--	--	N/A	N/A	--	N/A	--
			Lead	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Vanadium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Dieldrin	**1.96E-08**	**--**	**2.03E-06**	**--**	**2.05E-06**	N/A	N/A	--	N/A	--
			Benz(a)anthracene	**8.17E-09**	**--**	**1.28E-05**	**--**	**1.28E-05**	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	**9.21E-08**	**--**	**2.46E-04**	**--**	**2.47E-04**	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	**8.39E-09**	**--**	**2.28E-05**	**--**	**2.28E-05**	N/A	N/A	--	N/A	--
			Benzo(k)fluoranthene	**6.21E-10**	**--**	**1.69E-06**	**--**	**1.69E-06**	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	**1.56E-09**	**--**	**6.44E-06**	**--**	**6.45E-06**	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	**1.75E-09**	**--**	**4.74E-06**	**--**	**4.75E-06**	N/A	N/A	--	N/A	--
			(Total)	1.59E-07	--	2.99E-04		2.99E-04		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						2.99E-04					--
	Exposure Medium Total							2.99E-04					--
Surface Water Total								2.99E-04					--
Receptor Total								2.99E-04					--

Total Risk Across All Media: 2.99E-04

Total Hazard Index Across All Media: --

TABLE 9.24.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER EXPOSURE TO SITE 12 SEDIMENT
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	1.91E-08	--	3.81E-09	--	2.29E-08	Skin/Vascular	2.97E-03	--	5.93E-04	3.56E-03
			Chromium	3.67E-08	--	5.87E-08	--	9.54E-08		1.71E-03	--	2.74E-03	4.45E-03
			Cobalt	--	--	--	--	--	Thyroid	1.93E-02	--	7.74E-04	2.01E-02
			Manganese	--	--	--	--	--	CNS	1.79E-01	--	1.79E-01	3.59E-01
			Thallium	--	--	--	--	--	Skin	3.69E-01	--	1.48E-02	3.84E-01
			Benz(a)anthracene	6.05E-09	--	3.15E-09	--	9.20E-09	N/A	--	--	--	--
			Benzo(a)pyrene	6.49E-08	--	3.37E-08	--	9.86E-08	N/A	--	--	--	--
			Benzo(b)fluoranthene	7.59E-09	--	3.95E-09	--	1.15E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	2.88E-08	--	1.50E-08	--	4.38E-08	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3.62E-09	--	1.88E-09	--	5.50E-09	N/A	--	--	--	--
			(Total)	1.67E-07	--	1.20E-07		2.87E-07		5.73E-01	--	1.98E-01	7.71E-01
			Radionuclide Total										
		Exposure Point Total						2.87E-07					7.71E-01
	Exposure Medium Total							2.87E-07					7.71E-01
Sediment Total								2.87E-07					7.71E-01
Receptor Total								2.87E-07					7.71E-01

Total Risk Across All Media: 2.87E-07

Total Hazard Index Across All Media: 7.71E-01

Total CNS HI = 3.59E-01
Total Skin HI = 3.88E-01
Total Thyroid HI = 2.01E-02
Total Vascular HI = 3.56E-03

TABLE 9.25.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CHILD TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	3.26E-08	--	6.33E-09	--	3.89E-08	Skin/Vascular	2.54E-03	--	4.92E-04	3.03E-03
			Chromium	1.88E-07	--	2.92E-07	--	4.81E-07		1.46E-03	--	2.27E-03	3.74E-03
			Cobalt	--	--	--	--	--	Thyroid	1.65E-02	--	6.42E-04	1.72E-02
			Manganese	--	--	--	--	--	CNS	1.53E-01	--	1.49E-01	3.02E-01
			Thallium	--	--	--	--	--	Skin	3.16E-01	--	1.23E-02	3.28E-01
			Benz(a)anthracene	3.11E-08	--	1.57E-08	--	4.67E-08	N/A	--	--	--	--
			Benzo(a)pyrene	3.33E-07	--	1.68E-07	--	5.01E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	3.89E-08	--	1.97E-08	--	5.86E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.48E-07	--	7.46E-08	--	2.22E-07	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1.86E-08	--	9.38E-09	--	2.79E-08	N/A	--	--	--	--
			(Total)	7.90E-07	--	5.86E-07		1.38E-06		4.90E-01	--	1.65E-01	6.54E-01
			Radionuclide Total										
		Exposure Point Total						1.38E-06					6.54E-01
	Exposure Medium Total							1.38E-06					6.54E-01
Sediment Total								1.38E-06					6.54E-01
Receptor Total								1.38E-06					6.54E-01

Total Risk Across All Media: 1.38E-06

Total Hazard Index Across All Media: 6.54E-01

***In this table, the "child" receptor covers only ages 4 to 6 years for CTE.**

Total CNS HI =	3.02E-01
Total Skin HI =	3.31E-01
Total Thyroid HI =	1.72E-02
Total Vascular HI =	3.03E-03

TABLE 9.26.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - ADULT TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	1.22E-08	--	1.02E-08	--	2.24E-08	Skin/Vascular	2.72E-04	--	2.26E-04	4.97E-04
			Chromium	2.35E-08	--	1.56E-07	--	1.80E-07		1.57E-04	--	1.04E-03	1.20E-03
			Cobalt	--	--	--	--	--	Thyroid	1.77E-03	--	2.94E-04	2.07E-03
			Manganese	--	--	--	--	--	CNS	1.64E-02	--	6.83E-02	8.47E-02
			Thallium	--	--	--	--	--	Skin	3.38E-02	--	5.62E-03	3.95E-02
			Benz(a)anthracene	3.88E-09	--	8.38E-09	--	1.23E-08	N/A	--	--	--	--
			Benzo(a)pyrene	4.16E-08	--	8.99E-08	--	1.31E-07	N/A	--	--	--	--
			Benzo(b)fluoranthene	4.87E-09	--	1.05E-08	--	1.54E-08	N/A	--	--	--	--
			Dibenz(a,h)anthracene	1.85E-08	--	3.99E-08	--	5.83E-08	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2.32E-09	--	5.01E-09	--	7.34E-09	N/A	--	--	--	--
			(Total)	1.07E-07	--	3.20E-07		4.27E-07		5.25E-02	--	7.54E-02	1.28E-01
			Radionuclide Total										
		Exposure Point Total						4.27E-07					1.28E-01
	Exposure Medium Total							4.27E-07					1.28E-01
Sediment Total								4.27E-07					1.28E-01
Receptor Total								4.27E-07					1.28E-01

Total Risk Across All Media: 4.27E-07

Total Hazard Index Across All Media: 1.28E-01

In this table, the labelled "adult" receptor exposures assumes an age range of 18 to 25 for CTE.

Total CNS HI = 8.47E-02
Total Skin HI = 4.00E-02
Total Thyroid HI = 2.07E-03
Total Vascular HI = 4.97E-04

TABLE 9.27.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - LIFETIME TRESPASSER/RECREATIONAL PERSON EXPOSURE TO SITE 12 SEDIMENT
CENTRAL TENDENCY EXPOSURE
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Recreational Person
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Contact With Sediment From Site 12											
			Arsenic	4.48E-08	--	1.65E-08	--	6.13E-08	N/A	N/A	--	N/A	--
			Chromium	2.12E-07	--	4.49E-07	--	6.61E-07	N/A	N/A	--	N/A	--
			Cobalt	--	--	--	--	--	N/A	N/A	--	N/A	--
			Manganese	--	--	--	--	--	N/A	N/A	--	N/A	--
			Thallium	--	--	--	--	--	N/A	N/A	--	N/A	--
			Benz(a)anthracene	3.49E-08	--	2.41E-08	--	5.90E-08	N/A	N/A	--	N/A	--
			Benzo(a)pyrene	3.74E-07	--	2.58E-07	--	6.32E-07	N/A	N/A	--	N/A	--
			Benzo(b)fluoranthene	4.38E-08	--	3.02E-08	--	7.40E-08	N/A	N/A	--	N/A	--
			Dibenz(a,h)anthracene	1.66E-07	--	1.14E-07	--	2.81E-07	N/A	N/A	--	N/A	--
			Indeno(1,2,3-cd)pyrene	2.09E-08	--	1.44E-08	--	3.53E-08	N/A	N/A	--	N/A	--
			(Total)	8.97E-07	--	9.06E-07		1.80E-06		--	--	--	--
			Radionuclide Total										
		Exposure Point Total						1.80E-06					--
	Exposure Medium Total							1.80E-06					--
Sediment Total								1.80E-06					--
Receptor Total								1.80E-06					--

Total Risk Across All Media: 1.80E-06

Total Hazard Index Across All Media: --

APPENDIX K

MISCELLANEOUS HUMAN HEALTH RISK SUPPORT DOCUMENTATION

Appendix K, Part 1

UCL Worksheets

NAS JRB Willow Grove, Pennsylvania

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	C:\willow_grove\Site12_HHRA\ProUCL\WG12GWDB_ProUCLinput.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Total 2,3,7,8-TCDD Equiv.

General Statistics

Number of Valid Observations	4	Number of Distinct Observations	4
Number of Missing Values	4		

Warning: This data set only has 4 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable Total 2,3,7,8-TCDD Equiv. was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Aluminum

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	42.6	Minimum of Log Data	3.7518543
Maximum	8570	Maximum of Log Data	9.056023
Mean	1534.3857	Mean of log Data	5.5498381
Median	207	SD of log Data	1.9946253
SD	3152.26		
Std. Error of Mean	1191.4423		
Coefficient of Variation	2.0544118		
Skewness	2.4866094		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.5655751	Shapiro Wilk Test Statistic	0.8650578
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3849.5729	95% H-UCL	451048.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4413.4349
95% Adjusted-CLT UCL (Chen-1995)	4690.6319	97.5% Chebyshev (MVUE) UCL	5849.1211
95% Modified-t UCL (Johnson-1978)	4036.2024	99% Chebyshev (MVUE) UCL	8669.2486
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.3081937	**Data appear Lognormal at 5% Significance Level**	
Theta Star	4978.6403		
MLE of Mean	1534.3857		
MLE of Standard Deviation	2763.9021		
nu star	4.3147122		
Approximate Chi Square Value (.05)	0.8498288	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01584	95% CLT UCL	3494.1339
Adjusted Chi Square Value	0.4831445	95% Jackknife UCL	3849.5729
		95% Standard Bootstrap UCL	3330.4987
Anderson-Darling Test Statistic	0.7826573	95% Bootstrap-t UCL	56105.922
Anderson-Darling 5% Critical Value	0.7722689	95% Hall's Bootstrap UCL	27538.008
Kolmogorov-Smirnov Test Statistic	0.3464467	95% Percentile Bootstrap UCL	3723.2286
Kolmogorov-Smirnov 5% Critical Value	0.3322376	95% BCA Bootstrap UCL	4190
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6727.7623
		97.5% Chebyshev(Mean, Sd) UCL	8974.9405
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	13389.087
95% Approximate Gamma UCL	7790.3136		
95% Adjusted Gamma UCL	13702.8		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	13389.087
Recommended UCL exceeds the maximum observation			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Arsenic			
General Statistics			
Number of Valid Data	8	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	5
		Percent Non-Detects	62.50%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.29	Minimum Detected	-1.237874
Maximum Detected	2.7	Maximum Detected	0.9932518
Mean of Detected	1.2166667	Mean of Detected	-0.220046

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

SD of Detected	1.2978572	SD of Detected	1.1283338
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693147
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693147

Warning: There are only 3 Distinct Detected Values in this data set

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.

However, results obtained using 4 to 9 distinct values may not be reliable.

It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.8620093	Shapiro Wilk Test Statistic	0.9774729
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.6125	Mean	-0.948951
SD	0.8553153	SD	0.8532734
95% DL/2 (t) UCL	1.1854199	95% H-Stat (DL/2) UCL	1.5013806
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.970397
		SD in Log Scale	0.9995779
		Mean in Original Scale	0.633801
		SD in Original Scale	0.8549279
		95% t UCL	1.2064614
		95% Percentile Bootstrap UCL	1.20956
		95% BCA Bootstrap UCL	1.5064112
		95% H-UCL	2.2776562
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.6375
5% K-S Critical Value	N/A	SD	0.7889035
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.3416052
		95% KM (t) UCL	1.284698
Assuming Gamma Distribution		95% KM (z) UCL	1.1993906
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.1766384
Minimum	N/A	95% KM (bootstrap t) UCL	2.6974963
Maximum	N/A	95% KM (BCA) UCL	2.7
Mean	N/A	95% KM (Percentile Bootstrap) UCL	2.7

Median	N/A	95% KM (Chebyshev) UCL	2.1265227
SD	N/A	97.5% KM (Chebyshev) UCL	2.770824
k star	N/A	99% KM (Chebyshev) UCL	4.0364292
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.284698
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	2.7
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Barium

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	29.7	Minimum of Log Data	3.391147
Maximum	310	Maximum of Log Data	5.7365723
Mean	130.5125	Mean of log Data	4.6675044
Median	114	SD of log Data	0.7138136
SD	87.281358		
Std. Error of Mean	30.85862		
Coefficient of Variation	0.6687586		
Skewness	1.2694791		

Warning: There are only 8 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.9099394	Shapiro Wilk Test Statistic	0.981489
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	188.97658	95% H-UCL	289.45278
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	280.27936
95% Adjusted-CLT UCL (Chen-1995)	196.06959	97.5% Chebyshev (MVUE) UCL	344.30385
95% Modified-t UCL (Johnson-1978)	191.28495	99% Chebyshev (MVUE) UCL	470.06757

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.7120944	**Data appear Normal at 5% Significance Level**
Theta Star	76.229733	

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

MLE of Mean	130.5125		
MLE of Standard Deviation	99.744339		
nu star	27.39351		
Approximate Chi Square Value (.05)	16.456624	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	181.27041
Adjusted Chi Square Value	14.35549	95% Jackknife UCL	188.97658
		95% Standard Bootstrap UCL	179.20748
Anderson-Darling Test Statistic	0.1558452	95% Bootstrap-t UCL	217.15938
Anderson-Darling 5% Critical Value	0.722455	95% Hall's Bootstrap UCL	401.58009
Kolmogorov-Smirnov Test Statistic	0.1104436	95% Percentile Bootstrap UCL	181.95
Kolmogorov-Smirnov 5% Critical Value	0.296757	95% BCA Bootstrap UCL	187.9875
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	265.02211
		97.5% Chebyshev(Mean, Sd) UCL	323.22452
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	437.55189
95% Approximate Gamma UCL	217.24963		
95% Adjusted Gamma UCL	249.04726		
Potential UCL to Use		Use 95% Student's-t UCL	188.97658

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.9	Minimum of Log Data	1.0647107
Maximum	24.6	Maximum of Log Data	3.2027464
Mean	8.2625	Mean of log Data	1.8211986
Median	4.7	SD of log Data	0.7624451
SD	7.638986		
Std. Error of Mean	2.7007894		
Coefficient of Variation	0.9245369		
Skewness	1.7800787		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.7411167	Shapiro Wilk Test Statistic	0.875496
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

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UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	13.379358	95% H-UCL	18.888125
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17.380636
95% Adjusted-CLT UCL (Chen-1995)	14.52111	97.5% Chebyshev (MVUE) UCL	21.476451
95% Modified-t UCL (Johnson-1978)	13.662649	99% Chebyshev (MVUE) UCL	29.521886
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.2523593	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	6.5975474		
MLE of Mean	8.2625		
MLE of Standard Deviation	7.3832402		
nu star	20.037749		
Approximate Chi Square Value (.05)	10.878973	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	12.704903
Adjusted Chi Square Value	9.2207993	95% Jackknife UCL	13.379358
		95% Standard Bootstrap UCL	12.399545
Anderson-Darling Test Statistic	0.6729062	95% Bootstrap-t UCL	28.589319
Anderson-Darling 5% Critical Value	0.7251231	95% Hall's Bootstrap UCL	33.259613
Kolmogorov-Smirnov Test Statistic	0.2900026	95% Percentile Bootstrap UCL	12.725
Kolmogorov-Smirnov 5% Critical Value	0.2978331	95% BCA Bootstrap UCL	13.9375
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	20.034968
		97.5% Chebyshev(Mean, Sd) UCL	25.128924
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	35.135015
95% Approximate Gamma UCL	15.218523		
95% Adjusted Gamma UCL	17.955266		
Potential UCL to Use		Use 95% Approximate Gamma UCL	15.218523

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	6
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	0.56	Minimum of Log Data	-0.579818
Maximum	3.6	Maximum of Log Data	1.2809338
Mean	1.7385714	Mean of log Data	0.319435
Median	1.5	SD of log Data	0.7683646
SD	1.1840105		
Std. Error of Mean	0.4475139		
Coefficient of Variation	0.681025		
Skewness	0.4977895		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

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UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8953801	Shapiro Wilk Test Statistic	0.890738
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.6081716	95% H-UCL	4.8487072
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.0016062
95% Adjusted-CLT UCL (Chen-1995)	2.5646334	97.5% Chebyshev (MVUE) UCL	4.9718256
95% Modified-t UCL (Johnson-1978)	2.6222047	99% Chebyshev (MVUE) UCL	6.8776337
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.4055092	**Data appear Normal at 5% Significance Level**	
Theta Star	1.2369691		
MLE of Mean	1.7385714		
MLE of Standard Deviation	1.4664785		
nu star	19.677129		
Approximate Chi Square Value (.05)	10.613473	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01584	95% CLT UCL	2.4746663
Adjusted Chi Square Value	8.6771327	95% Jackknife UCL	2.6081716
		95% Standard Bootstrap UCL	2.4041804
Anderson-Darling Test Statistic	0.3987529	95% Bootstrap-t UCL	2.7919447
Anderson-Darling 5% Critical Value	0.714109	95% Hall's Bootstrap UCL	2.3871393
Kolmogorov-Smirnov Test Statistic	0.2168893	95% Percentile Bootstrap UCL	2.4314286
Kolmogorov-Smirnov 5% Critical Value	0.3147028	95% BCA Bootstrap UCL	2.5571429
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.6892394
		97.5% Chebyshev(Mean, Sd) UCL	4.533295
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.1912787
95% Approximate Gamma UCL	3.2232706		
95% Adjusted Gamma UCL	3.9425575		
Potential UCL to Use		Use 95% Student's-t UCL	2.6081716

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Number of Valid Observations	8	Number of Distinct Observations	8
Raw Statistics		**Log-transformed Statistics**	
Minimum	168	Minimum of Log Data	5.123964
Maximum	12200	Maximum of Log Data	9.4091912
Mean	2122.625	Mean of log Data	6.6234617
Median	457.5	SD of log Data	1.3521939
SD	4113.4735		
Std. Error of Mean	1454.3325		
Coefficient of Variation	1.9379182		
Skewness	2.7206111		
Warning: There are only 8 Values in this data			
Note: It should be noted that even though bootstrap methods may be performed on this data set,			
the resulting calculations may not be reliable enough to draw conclusions			
The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.			
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.5301757	Shapiro Wilk Test Statistic	0.8816204
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4877.9722	95% H-UCL	17247.825
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4910.7572
95% Adjusted-CLT UCL (Chen-1995)	6009.5289	97.5% Chebyshev (MVUE) UCL	6353.1577
95% Modified-t UCL (Johnson-1978)	5111.1214	99% Chebyshev (MVUE) UCL	9186.4741
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.4560782	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	4654.081		
MLE of Mean	2122.625		
MLE of Standard Deviation	3143.0668		
nu star	7.2972516		
Approximate Chi Square Value (.05)	2.3351318	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	4514.7891
Adjusted Chi Square Value	1.6899783	95% Jackknife UCL	4877.9722
		95% Standard Bootstrap UCL	4395.7969
Anderson-Darling Test Statistic	0.9645907	95% Bootstrap-t UCL	27582.017
Anderson-Darling 5% Critical Value	0.7557228	95% Hall's Bootstrap UCL	21591.236
Kolmogorov-Smirnov Test Statistic	0.3035207	95% Percentile Bootstrap UCL	4913.625
Kolmogorov-Smirnov 5% Critical Value	0.3070892	95% BCA Bootstrap UCL	6469.5
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8461.9135
		97.5% Chebyshev(Mean, Sd) UCL	11204.929
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	16593.051
95% Approximate Gamma UCL	6633.1711		
95% Adjusted Gamma UCL	9165.4012		
Potential UCL to Use		Use 95% Approximate Gamma UCL	6633.1711

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Manganese			
General Statistics			
Number of Valid Observations	8	Number of Distinct Observations	8
Raw Statistics		**Log-transformed Statistics**	
Minimum	21.2	Minimum of Log Data	3.0540012
Maximum	1680	Maximum of Log Data	7.4265491
Mean	533.5875	Mean of log Data	5.5796995
Median	397.5	SD of log Data	1.4574791
SD	564.94952		
Std. Error of Mean	199.73982		
Coefficient of Variation	1.0587758		
Skewness	1.2851833		
Warning: There are only 8 Values in this data			
Note: It should be noted that even though bootstrap methods may be performed on this data set,			
the resulting calculations may not be reliable enough to draw conclusions			
The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.			
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8513998	Shapiro Wilk Test Statistic	0.9444645
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	912.01028	95% H-UCL	9791.4052
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2025.7411
95% Adjusted-CLT UCL (Chen-1995)	959.10646	97.5% Chebyshev (MVUE) UCL	2633.913
95% Modified-t UCL (Johnson-1978)	927.13661	99% Chebyshev (MVUE) UCL	3828.5488
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.6097556	**Data appear Normal at 5% Significance Level**	
Theta Star	875.08417		
MLE of Mean	533.5875		
MLE of Standard Deviation	683.32567		
nu star	9.7560901		
Approximate Chi Square Value (.05)	3.7898952	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	862.13027
Adjusted Chi Square Value	2.9099131	95% Jackknife UCL	912.01028
		95% Standard Bootstrap UCL	847.50608
Anderson-Darling Test Statistic	0.2770486	95% Bootstrap-t UCL	1164.3756
Anderson-Darling 5% Critical Value	0.7415755	95% Hall's Bootstrap UCL	1128.7992

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Kolmogorov-Smirnov Test Statistic	0.1985331	95% Percentile Bootstrap UCL	854.2125
Kolmogorov-Smirnov 5% Critical Value	0.3031003	95% BCA Bootstrap UCL	937.75
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1404.2332
		97.5% Chebyshev(Mean, Sd) UCL	1780.9623
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2520.9736
95% Approximate Gamma UCL	1373.5809		
95% Adjusted Gamma UCL	1788.9633		
Potential UCL to Use		Use 95% Student's-t UCL	912.01028

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Data	8	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	4
		Percent Non-Detects	50.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.32	Minimum Detected	-1.139434
Maximum Detected	19.2	Maximum Detected	2.9549103
Mean of Detected	5.7575	Mean of Detected	0.6495017
SD of Detected	9.0202231	SD of Detected	1.7676112
Minimum Non-Detect	2.5	Minimum Non-Detect	0.9162907
Maximum Non-Detect	2.5	Maximum Non-Detect	0.9162907

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.723733	Shapiro Wilk Test Statistic	0.9701422
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.50375	Mean	0.4363226
SD	6.3777334	SD	1.1794012
95% DL/2 (t) UCL	7.7757771	95% H-Stat (DL/2) UCL	17.496676
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.056784

APPENDIX K, TABLE K-1
UCL AND DISTRIBUTION STASTISTICS - SITE 12 GROUNDWATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

		SD in Log Scale	1.5300964
		Mean in Original Scale	3.2048951
		SD in Original Scale	6.5155745
		95% t UCL	7.5692529
		95% Percentile Bootstrap UCL	7.6136014
		95% BCA Bootstrap UCL	10.148601
		95% H-UCL	49.560603
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3081862	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	18.681887		
nu star	2.4654897		
A-D Test Statistic	0.3577358	**Nonparametric Statistics**	
5% A-D Critical Value	0.6781056	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.6781056	Mean	3.16125
5% K-S Critical Value	0.4088671	SD	6.105914
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	2.4957371
		95% KM (t) UCL	7.8896202
Assuming Gamma Distribution		95% KM (z) UCL	7.2663723
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.5529098
Minimum	0.000001	95% KM (bootstrap t) UCL	23.846654
Maximum	19.2	95% KM (BCA) UCL	7.995
Mean	3.1695435	95% KM (Percentile Bootstrap) UCL	7.995
Median	0.565	95% KM (Chebyshev) UCL	14.039916
SD	6.5654108	97.5% KM (Chebyshev) UCL	18.747123
k star	0.166146	99% KM (Chebyshev) UCL	27.993521
Theta star	19.076859		
Nu star	2.6583357	**Potential UCLs to Use**	
AppChi2	0.2788375	95% KM (t) UCL	7.8896202
95% Gamma Approximate UCL	30.217278		
95% Adjusted Gamma UCL	N/A		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

	General UCL Statistics for Data Sets with Non-Detects		
User Selected Options			
From File	C:\willow_grove\Site12_HHRA\ProUCL\WG12SSDB_ProUCLinput.wst		
Full Precision	ON		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
Aluminum			
General Statistics			
Number of Valid Observations	122	Number of Distinct Observations	89
Number of Missing Values	29		
Raw Statistics		**Log-transformed Statistics**	
Minimum	2280	Minimum of Log Data	7.7319307
Maximum	21000	Maximum of Log Data	9.9522777
Mean	11589.426	Mean of log Data	9.268586
Median	12250	SD of log Data	0.4587606
SD	4339.8639		
Std. Error of Mean	392.91282		
Coefficient of Variation	0.3744675		
Skewness	-0.153792		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0745459	Lilliefors Test Statistic	0.1639228
Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12240.697	95% H-UCL	12693.881
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13996.232
95% Adjusted-CLT UCL (Chen-1995)	12229.865	97.5% Chebyshev (MVUE) UCL	14961.783
95% Modified-t UCL (Johnson-1978)	12239.785	99% Chebyshev (MVUE) UCL	16858.42
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.6267283	**Data appear Normal at 5% Significance Level**	
Theta Star	2059.7096		
MLE of Mean	11589.426		
MLE of Standard Deviation	4885.7806		
nu star	1372.9217		
Approximate Chi Square Value (.05)	1287.882	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	12235.71
Adjusted Chi Square Value	1286.9091	95% Jackknife UCL	12240.697
		95% Standard Bootstrap UCL	12224.083
Anderson-Darling Test Statistic	2.4148115	95% Bootstrap-t UCL	12264.309
Anderson-Darling 5% Critical Value	0.7542875	95% Hall's Bootstrap UCL	12233.667
Kolmogorov-Smirnov Test Statistic	0.1362387	95% Percentile Bootstrap UCL	12211.639
Kolmogorov-Smirnov 5% Critical Value	0.0838845	95% BCA Bootstrap UCL	12225.574
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	13302.093
		97.5% Chebyshev(Mean, Sd) UCL	14043.166

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15498.859
95% Approximate Gamma UCL	12354.684		
95% Adjusted Gamma UCL	12364.024		
Potential UCL to Use		Use 95% Student's-t UCL	12240.697

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Antimony

General Statistics

Number of Valid Data	32	Number of Detected Data	31
Number of Distinct Detected Data	26	Number of Non-Detect Data	1
Number of Missing Values	119	Percent Non-Detects	3.13%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.41	Minimum Detected	-0.891598
Maximum Detected	10.1	Maximum Detected	2.3125354
Mean of Detected	1.5574194	Mean of Detected	0.1492999
SD of Detected	1.7757439	SD of Detected	0.6870176
Minimum Non-Detect	0.32	Minimum Non-Detect	-1.139434
Maximum Non-Detect	0.32	Maximum Non-Detect	-1.139434

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.5480036	Shapiro Wilk Test Statistic	0.9336117
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.51375	Mean	0.0873661
SD	1.7642484	SD	0.7612575
95% DL/2 (t) UCL	2.042545	95% H-Stat (DL/2) UCL	1.9612357
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.485483	Mean in Log Scale	0.0963132
SD	1.7721636	SD in Log Scale	0.7393312
95% MLE (t) UCL	2.0166504	Mean in Original Scale	1.5154075
95% MLE (Tiku) UCL	1.9736809	SD in Original Scale	1.76296
		95% t UCL	2.0438163
		95% Percentile Bootstrap UCL	2.08769
		95% BCA Bootstrap UCL	2.3835325

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

		95% H UCL	1.9243657
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.6938224	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	0.9194703		
nu star	105.01699		
A-D Test Statistic	1.3673164	**Nonparametric Statistics**	
5% A-D Critical Value	0.7602104	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.7602104	Mean	1.5215625
5% K-S Critical Value	0.1600656	SD	1.7309086
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.3110422
		95% KM (t) UCL	2.0489404
Assuming Gamma Distribution		95% KM (z) UCL	2.0331814
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.0466717
Minimum	0.000001	95% KM (bootstrap t) UCL	2.6959601
Maximum	10.1	95% KM (BCA) UCL	2.1546875
Mean	1.50875	95% KM (Percentile Bootstrap) UCL	2.089375
Median	0.96	95% KM (Chebyshev) UCL	2.8773641
SD	1.7684306	97.5% KM (Chebyshev) UCL	3.4640206
k star	0.7856387	99% KM (Chebyshev) UCL	4.6163936
Theta star	1.9204122		
Nu star	50.280874	**Potential UCLs to Use**	
AppChi2	34.998834	95% KM (Chebyshev) UCL	2.8773641
95% Gamma Approximate UCL	2.167537		
95% Adjusted Gamma UCL	2.210691		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	122	Number of Distinct Observations	60
Number of Missing Values	29		

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.96	Minimum of Log Data	-0.040822
Maximum	29.8	Maximum of Log Data	3.3945084
Mean	5.1365574	Mean of log Data	1.5145637
Median	5	SD of log Data	0.4936266
SD	3.0901557		
Std. Error of Mean	0.2797696		
Coefficient of Variation	0.6016005		
Skewness	4.5490263		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.1640361	Lilliefors Test Statistic	0.1158447

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.6002878	95% H-UCL	5.5734386
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.1852928
95% Adjusted-CLT UCL (Chen-1995)	5.7198547	97.5% Chebyshev (MVUE) UCL	6.6415313
95% Modified-t UCL (Johnson-1978)	5.6194916	99% Chebyshev (MVUE) UCL	7.5377236
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.1646166	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.2333806		
MLE of Mean	5.1365574		
MLE of Standard Deviation	2.5170082		
nu star	1016.1664		
Approximate Chi Square Value (.05)	943.16845	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	5.5967373
Adjusted Chi Square Value	942.33742	95% Jackknife UCL	5.6002878
		95% Standard Bootstrap UCL	5.5904931
Anderson-Darling Test Statistic	1.4588927	95% Bootstrap-t UCL	5.7682659
Anderson-Darling 5% Critical Value	0.7559403	95% Hall's Bootstrap UCL	6.2426149
Kolmogorov-Smirnov Test Statistic	0.0906733	95% Percentile Bootstrap UCL	5.6336066
Kolmogorov-Smirnov 5% Critical Value	0.08404	95% BCA Bootstrap UCL	5.7537705
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.3560446
		97.5% Chebyshev(Mean, Sd) UCL	6.8837177
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7.9202293
95% Approximate Gamma UCL	5.5341092		
95% Adjusted Gamma UCL	5.5389897		
Potential UCL to Use		Use 95% Student's-t UCL	5.6002878
		or 95% Modified-t UCL	5.6194916

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	86	Number of Detected Data	76
Number of Distinct Detected Data	55	Number of Non-Detect Data	10
Number of Missing Values	65	Percent Non-Detects	11.63%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.04	Minimum Detected	-3.218876
Maximum Detected	9.4	Maximum Detected	2.2407097
Mean of Detected	0.9787632	Mean of Detected	-0.700255
SD of Detected	1.620267	SD of Detected	1.1037635
Minimum Non-Detect	0.06	Minimum Non-Detect	-2.813411
Maximum Non-Detect	0.08	Maximum Non-Detect	-2.525729

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	73
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	15.12%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3318473	Lilliefors Test Statistic	0.1181707
5% Lilliefors Critical Value	0.1016312	5% Lilliefors Critical Value	0.1016312
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.8689651	Mean	-1.010677
SD	1.5521314	SD	1.3478367
95% DL/2 (t) UCL	1.1472989	95% H-Stat (DL/2) UCL	1.3197109
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.6982966	Mean in Log Scale	-0.962797
SD	1.7201377	SD in Log Scale	1.2730335
95% MLE (t) UCL	1.0067579	Mean in Original Scale	0.8713744
95% MLE (Tiku) UCL	0.9928787	SD in Original Scale	1.5508471
		95% t UCL	1.1494778
		95% Percentile Bootstrap UCL	1.1757201
		95% BCA Bootstrap UCL	1.2361912
		95% H UCL	1.2153031
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.8400982	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.165058		
nu star	127.69493		
A-D Test Statistic	3.1263475	**Nonparametric Statistics**	
5% A-D Critical Value	0.7875742	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.7875742	Mean	0.8705767
5% K-S Critical Value	0.1060042	SD	1.5422183
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.1674077
		95% KM (t) UCL	1.1489722
Assuming Gamma Distribution		95% KM (z) UCL	1.145938
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.148759
Minimum	0.000001	95% KM (bootstrap t) UCL	1.3231586
Maximum	9.4	95% KM (BCA) UCL	1.1445349
Mean	0.8649536	95% KM (Percentile Bootstrap) UCL	1.1618837
Median	0.435	95% KM (Chebyshev) UCL	1.6002901
SD	1.5543514	97.5% KM (Chebyshev) UCL	1.9160377
k star	0.3232274	99% KM (Chebyshev) UCL	2.5362627
Theta star	2.6759913		
Nu star	55.595106	**Potential UCLs to Use**	
AppChi2	39.459717	95% KM (Chebyshev) UCL	1.6002901
95% Gamma Approximate UCL	1.2186399		
95% Adjusted Gamma UCL	1.2258241		
Note: DL/2 is not a recommended method.			

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Chromium			
General Statistics			
Number of Valid Observations	122	Number of Distinct Observations	95
Number of Missing Values	29		
Raw Statistics		**Log-transformed Statistics**	
Minimum	4.7	Minimum of Log Data	1.5475625
Maximum	38.5	Maximum of Log Data	3.6506582
Mean	17.12541	Mean of log Data	2.7817498
Median	17	SD of log Data	0.3538636
SD	5.7934355		
Std. Error of Mean	0.524513		
Coefficient of Variation	0.3382947		
Skewness	0.7155485		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0715329	Lilliefors Test Statistic	0.0902602
Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.994813	95% H-UCL	18.18563
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	19.649406
95% Adjusted-CLT UCL (Chen-1995)	18.024464	97.5% Chebyshev (MVUE) UCL	20.717406
95% Modified-t UCL (Johnson-1978)	18.000477	99% Chebyshev (MVUE) UCL	22.815285
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.4571558	**Data appear Normal at 5% Significance Level**	
Theta Star	2.0249609		
MLE of Mean	17.12541		
MLE of Standard Deviation	5.8888272		
nu star	2063.546		
Approximate Chi Square Value (.05)	1959.0258	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	17.988157
Adjusted Chi Square Value	1957.8234	95% Jackknife UCL	17.994813
		95% Standard Bootstrap UCL	17.977008
Anderson-Darling Test Statistic	0.4363713	95% Bootstrap-t UCL	18.007715
Anderson-Darling 5% Critical Value	0.7526866	95% Hall's Bootstrap UCL	18.046697
Kolmogorov-Smirnov Test Statistic	0.0671145	95% Percentile Bootstrap UCL	17.977869
Kolmogorov-Smirnov 5% Critical Value	0.0837724	95% BCA Bootstrap UCL	18.004098
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	19.411709
		97.5% Chebyshev(Mean, Sd) UCL	20.400992
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	22.344248
95% Approximate Gamma UCL	18.039105		
95% Adjusted Gamma UCL	18.050183		

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Potential UCL to Use		Use 95% Student's-t UCL	17.994813

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chromium Hexavalent

General Statistics

Number of Valid Observations	22	Number of Distinct Observations	21
Number of Missing Values	129		

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.26	Minimum of Log Data	-1.347074
Maximum	7.4	Maximum of Log Data	2.00148
Mean	1.7881818	Mean of log Data	0.2538887
Median	1.55	SD of log Data	0.8567851
SD	1.5714314		
Std. Error of Mean	0.3350303		
Coefficient of Variation	0.8787872		
Skewness	2.2624779		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.7825318	Shapiro Wilk Test Statistic	0.970257
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.3646828	95% H-UCL	2.9101228
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.4142543
95% Adjusted-CLT UCL (Chen-1995)	2.5119358	97.5% Chebyshev (MVUE) UCL	4.1038831
95% Modified-t UCL (Johnson-1978)	2.3916171	99% Chebyshev (MVUE) UCL	5.4585252
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.4767984	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.2108503		
MLE of Mean	1.7881818		
MLE of Standard Deviation	1.4714688		
nu star	64.97913		
Approximate Chi Square Value (.05)	47.43176	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	2.3392576
Adjusted Chi Square Value	46.312687	95% Jackknife UCL	2.3646828
		95% Standard Bootstrap UCL	2.3095884
Anderson-Darling Test Statistic	0.2714641	95% Bootstrap-t UCL	2.6781405
Anderson-Darling 5% Critical Value	0.7577916	95% Hall's Bootstrap UCL	4.9279519
Kolmogorov-Smirnov Test Statistic	0.1203325	95% Percentile Bootstrap UCL	2.4063636
Kolmogorov-Smirnov 5% Critical Value	0.1883056	95% BCA Bootstrap UCL	2.5409091
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.248545
		97.5% Chebyshev(Mean, Sd) UCL	3.8804453

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	5.1216911
95% Approximate Gamma UCL	2.4497193		
95% Adjusted Gamma UCL	2.5089129		
Potential UCL to Use		Use 95% Approximate Gamma UCL	2.4497193
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Chromium total pair			
General Statistics			
Number of Valid Observations	22	Number of Distinct Observations	21
Number of Missing Values	129		
Raw Statistics		**Log-transformed Statistics**	
Minimum	4.7	Minimum of Log Data	1.5475625
Maximum	22.2	Maximum of Log Data	3.1000923
Mean	15.009091	Mean of log Data	2.6297906
Median	15.75	SD of log Data	0.4357572
SD	5.3867482		
Std. Error of Mean	1.1484586		
Coefficient of Variation	0.358899		
Skewness	-0.423223		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.9336284	Shapiro Wilk Test Statistic	0.8876786
Shapiro Wilk Critical Value	0.911	Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	16.985293	95% H-UCL	18.343365
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.512512
95% Adjusted-CLT UCL (Chen-1995)	16.78741	97.5% Chebyshev (MVUE) UCL	24.252039
95% Modified-t UCL (Johnson-1978)	16.968022	99% Chebyshev (MVUE) UCL	29.633308
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.6457023	**Data appear Normal at 5% Significance Level**	
Theta Star	2.6584985		
MLE of Mean	15.009091		
MLE of Standard Deviation	6.3167749		
nu star	248.4109		
Approximate Chi Square Value (.05)	212.91966	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0386	95% CLT UCL	16.898137
Adjusted Chi Square Value	210.47028	95% Jackknife UCL	16.985293
		95% Standard Bootstrap UCL	16.857165
Anderson-Darling Test Statistic	0.7627863	95% Bootstrap-t UCL	16.902347
Anderson-Darling 5% Critical Value	0.7455938	95% Hall's Bootstrap UCL	16.75943
Kolmogorov-Smirnov Test Statistic	0.1518078	95% Percentile Bootstrap UCL	16.786364

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Kolmogorov-Smirnov 5% Critical Value	0.1857437	95% BCA Bootstrap UCL	16.640909
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	20.015106
		97.5% Chebyshev(Mean, Sd) UCL	22.181212
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	26.436109
95% Approximate Gamma UCL	17.510932		
95% Adjusted Gamma UCL	17.714719		
Potential UCL to Use		Use 95% Student's-t UCL	16.985293

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Cobalt

General Statistics

Number of Valid Observations	122	Number of Distinct Observations	55
Number of Missing Values	29		

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.1	Minimum of Log Data	0.7419373
Maximum	12	Maximum of Log Data	2.4849066
Mean	6.0877049	Mean of log Data	1.7623519
Median	5.9	SD of log Data	0.3047095
SD	1.7686703		
Std. Error of Mean	0.1601279		
Coefficient of Variation	0.2905315		
Skewness	0.4226637		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0564131	Lilliefors Test Statistic	0.0620039
Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.353124	95% H-UCL	6.4023853
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.8498312
95% Adjusted-CLT UCL (Chen-1995)	6.3576392	97.5% Chebyshev (MVUE) UCL	7.174048
95% Modified-t UCL (Johnson-1978)	6.3541452	99% Chebyshev (MVUE) UCL	7.8109092
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.270179	**Data appear Normal at 5% Significance Level**	
Theta Star	0.5401605		
MLE of Mean	6.0877049		
MLE of Standard Deviation	1.8133774		

nu star	2749.9236		
Approximate Chi Square Value (.05)	2629.0872	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	6.3510919
Adjusted Chi Square Value	2627.6927	95% Jackknife UCL	6.353124
		95% Standard Bootstrap UCL	6.3521329
Anderson-Darling Test Statistic	0.1943547	95% Bootstrap-t UCL	6.3578863
Anderson-Darling 5% Critical Value	0.7516326	95% Hall's Bootstrap UCL	6.3612514
Kolmogorov-Smirnov Test Statistic	0.0510891	95% Percentile Bootstrap UCL	6.3622951
Kolmogorov-Smirnov 5% Critical Value	0.0836986	95% BCA Bootstrap UCL	6.3540984
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.7856862
		97.5% Chebyshev(Mean, Sd) UCL	7.0877032
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7.6809573
95% Approximate Gamma UCL	6.3675039		
95% Adjusted Gamma UCL	6.3708833		
Potential UCL to Use		Use 95% Student's-t UCL	6.353124

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Copper

General Statistics

Number of Valid Observations	125	Number of Distinct Observations	102
Number of Missing Values	26		

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.2	Minimum of Log Data	1.4350845
Maximum	458	Maximum of Log Data	6.1268692
Mean	25.1688	Mean of log Data	2.7534852
Median	14.7	SD of log Data	0.7870617
SD	48.553329		
Std. Error of Mean	4.3427417		
Coefficient of Variation	1.9291078		
Skewness	6.7447561		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.3329174	Lilliefors Test Statistic	0.1074629
Lilliefors Critical Value	0.0792462	Lilliefors Critical Value	0.0792462
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	32.365744	95% H-UCL	24.66609
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.74046
95% Adjusted-CLT UCL (Chen-1995)	35.111315	97.5% Chebyshev (MVUE) UCL	31.948066
95% Modified-t UCL (Johnson-1978)	32.802384	99% Chebyshev (MVUE) UCL	38.248787
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.1748306	**Data do not follow a Discernable Distribution (0.05)**	

Theta Star	21.423344		
MLE of Mean	25.1688		
MLE of Standard Deviation	23.220678		
nu star	293.70765		
Approximate Chi Square Value (.05)	255.01088	**Nonparametric Statistics**	
Adjusted Level of Significance	0.04808	95% CLT UCL	32.311974
Adjusted Chi Square Value	254.59418	95% Jackknife UCL	32.365744
		95% Standard Bootstrap UCL	32.262089
Anderson-Darling Test Statistic	8.8467944	95% Bootstrap-t UCL	40.719518
Anderson-Darling 5% Critical Value	0.7780329	95% Hall's Bootstrap UCL	59.081831
Kolmogorov-Smirnov Test Statistic	0.2121126	95% Percentile Bootstrap UCL	32.4448
Kolmogorov-Smirnov 5% Critical Value	0.0851098	95% BCA Bootstrap UCL	35.9928
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	44.098372
		97.5% Chebyshev(Mean, Sd) UCL	52.289213
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	68.378535
95% Approximate Gamma UCL	28.988053		
95% Adjusted Gamma UCL	29.035499		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	44.098372

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	122	Number of Distinct Observations	90
Number of Missing Values	29		

Raw Statistics		**Log-transformed Statistics**	
Minimum	5810	Minimum of Log Data	8.6673358
Maximum	37100	Maximum of Log Data	10.521372
Mean	16865.656	Mean of log Data	9.6739798
Median	16050	SD of log Data	0.3474761
SD	5926.6807		
Std. Error of Mean	536.57646		
Coefficient of Variation	0.3514053		
Skewness	0.9930319		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0922603	Lilliefors Test Statistic	0.0642775
Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17755.055	95% H-UCL	17845.723
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	19257.706
95% Adjusted-CLT UCL (Chen-1995)	17799.792	97.5% Chebyshev (MVUE) UCL	20286.973
95% Modified-t UCL (Johnson-1978)	17763.095	99% Chebyshev (MVUE) UCL	22308.768

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.4232595	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	2002.2719		
MLE of Mean	16865.656		
MLE of Standard Deviation	5811.1641		
nu star	2055.2753		
Approximate Chi Square Value (.05)	1950.9671	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	17748.245
Adjusted Chi Square Value	1949.7672	95% Jackknife UCL	17755.055
		95% Standard Bootstrap UCL	17714.757
Anderson-Darling Test Statistic	0.3264975	95% Bootstrap-t UCL	17819.251
Anderson-Darling 5% Critical Value	0.7527058	95% Hall's Bootstrap UCL	17792.811
Kolmogorov-Smirnov Test Statistic	0.0571512	95% Percentile Bootstrap UCL	17744.672
Kolmogorov-Smirnov 5% Critical Value	0.0837737	95% BCA Bootstrap UCL	17846.475
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	19204.538
		97.5% Chebyshev(Mean, Sd) UCL	20216.575
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	22204.524
95% Approximate Gamma UCL	17767.376		
95% Adjusted Gamma UCL	17778.31		
Potential UCL to Use		Use 95% Approximate Gamma UCL	17767.376

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	131	Number of Distinct Observations	120
Number of Missing Values	20		

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.4	Minimum of Log Data	1.686399
Maximum	1410	Maximum of Log Data	7.251345
Mean	71.971756	Mean of log Data	3.5551642
Median	33.4	SD of log Data	1.0337494
SD	157.79462		
Std. Error of Mean	13.78658		
Coefficient of Variation	2.192452		
Skewness	6.1391638		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.3365532	Lilliefors Test Statistic	0.0735984
Lilliefors Critical Value	0.0774102	Lilliefors Critical Value	0.0774102
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	94.811421	95% H-UCL	73.040678

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	87.777898
95% Adjusted-CLT UCL (Chen-1995)	102.55018	97.5% Chebyshev (MVUE) UCL	100.08267
95% Modified-t UCL (Johnson-1978)	96.043899	99% Chebyshev (MVUE) UCL	124.253
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.8066296	**Data appear Lognormal at 5% Significance Level**	
Theta Star	89.22529		
MLE of Mean	71.971756		
MLE of Standard Deviation	80.135515		
nu star	211.33694		
Approximate Chi Square Value (.05)	178.69494	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0481679	95% CLT UCL	94.648661
Adjusted Chi Square Value	178.36388	95% Jackknife UCL	94.811421
		95% Standard Bootstrap UCL	95.186387
Anderson-Darling Test Statistic	7.5977829	95% Bootstrap-t UCL	114.69854
Anderson-Darling 5% Critical Value	0.791981	95% Hall's Bootstrap UCL	192.57673
Kolmogorov-Smirnov Test Statistic	0.185763	95% Percentile Bootstrap UCL	96.396183
Kolmogorov-Smirnov 5% Critical Value	0.0844367	95% BCA Bootstrap UCL	104.36031
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	132.06606
		97.5% Chebyshev(Mean, Sd) UCL	158.06892
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	209.14649
95% Approximate Gamma UCL	85.118756		
95% Adjusted Gamma UCL	85.276743		
Potential UCL to Use		Use 95% H-UCL	73.040678

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	122	Number of Distinct Observations	111
Number of Missing Values	29		
Raw Statistics		**Log-transformed Statistics**	
Minimum	106	Minimum of Log Data	4.6634391
Maximum	1020	Maximum of Log Data	6.9275579
Mean	402.18852	Mean of log Data	5.8921843
Median	385.5	SD of log Data	0.4746836
SD	180.81086		
Std. Error of Mean	16.369846		
Coefficient of Variation	0.4495674		
Skewness	0.7730345		

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0855488	Lilliefors Test Statistic	0.0684377
Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	429.32227	95% H-UCL	438.28906
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	484.69869
95% Adjusted-CLT UCL (Chen-1995)	430.3387	97.5% Chebyshev (MVUE) UCL	519.1958
95% Modified-t UCL (Johnson-1978)	429.51322	99% Chebyshev (MVUE) UCL	586.95871
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.8185959	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	83.465917		
MLE of Mean	402.18852		
MLE of Standard Deviation	183.21854		
nu star	1175.7374		
Approximate Chi Square Value (.05)	1097.1283	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	429.11453
Adjusted Chi Square Value	1096.2311	95% Jackknife UCL	429.32227
		95% Standard Bootstrap UCL	429.28774
Anderson-Darling Test Statistic	0.2285359	95% Bootstrap-t UCL	429.80637
Anderson-Darling 5% Critical Value	0.7548181	95% Hall's Bootstrap UCL	430.76648
Kolmogorov-Smirnov Test Statistic	0.0499625	95% Percentile Bootstrap UCL	429.64754
Kolmogorov-Smirnov 5% Critical Value	0.0839252	95% BCA Bootstrap UCL	430.14754
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	473.54303
		97.5% Chebyshev(Mean, Sd) UCL	504.41818
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	565.06644
95% Approximate Gamma UCL	431.0053		
95% Adjusted Gamma UCL	431.35802		
Potential UCL to Use		Use 95% Approximate Gamma UCL	431.0053

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Thallium

General Statistics			
Number of Valid Data	77	Number of Detected Data	49
Number of Distinct Detected Data	35	Number of Non-Detect Data	28
Number of Missing Values	74	Percent Non-Detects	36.36%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.11	Minimum Detected	-2.207275
Maximum Detected	4.2	Maximum Detected	1.4350845
Mean of Detected	1.8695918	Mean of Detected	0.2242574
SD of Detected	1.2925684	SD of Detected	1.0740478
Minimum Non-Detect	0.54	Minimum Non-Detect	-0.616186

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Maximum Non-Detect	0.77	Maximum Non-Detect	-0.261365
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	40
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	37
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	51.95%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.8963445	Shapiro Wilk Test Statistic	0.8537352
5% Shapiro Wilk Critical Value	0.947	5% Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.3057792	Mean	-0.27362
SD	1.2724079	SD	1.0816839
95% DL/2 (t) UCL	1.5472334	95% H-Stat (DL/2) UCL	1.8261918
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.7249962	Mean in Log Scale	-0.323507
SD	1.9393965	SD in Log Scale	1.1439553
95% MLE (t) UCL	1.0930192	Mean in Original Scale	1.2970256
95% MLE (Tiku) UCL	1.1878142	SD in Original Scale	1.2806642
		95% t UCL	1.5400465
		95% Percentile Bootstrap UCL	1.5265172
		95% BCA Bootstrap UCL	1.548679
		95% H UCL	1.909434
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.317105	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.4194706		
nu star	129.07629		
A-D Test Statistic	1.5976927	**Nonparametric Statistics**	
5% A-D Critical Value	0.7700286	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.7700286	Mean	1.2653059
5% K-S Critical Value	0.1291464	SD	1.298601
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.1502516
		95% KM (t) UCL	1.5154975
Assuming Gamma Distribution		95% KM (z) UCL	1.5124477
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.5147872
Minimum	0.000001	95% KM (bootstrap t) UCL	1.5306921
Maximum	4.2	95% KM (BCA) UCL	1.4939286
Mean	1.2372128	95% KM (Percentile Bootstrap) UCL	1.5156756
Median	0.71	95% KM (Chebyshev) UCL	1.9202373
SD	1.3354395	97.5% KM (Chebyshev) UCL	2.2036267
k star	0.2088751	99% KM (Chebyshev) UCL	2.7602902
Theta star	5.9232186		
Nu star	32.166764	**Potential UCLs to Use**	
AppChi2	20.204324	95% KM (Chebyshev) UCL	1.9202373
95% Gamma Approximate UCL	1.9697334		
95% Adjusted Gamma UCL	1.9875392		

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Vanadium			
General Statistics			
Number of Valid Observations	122	Number of Distinct Observations	99
Number of Missing Values	29		
Raw Statistics		**Log-transformed Statistics**	
Minimum	5.7	Minimum of Log Data	1.7404662
Maximum	44.9	Maximum of Log Data	3.8044378
Mean	24.152459	Mean of log Data	3.1275006
Median	24.95	SD of log Data	0.3572322
SD	7.6093159		
Std. Error of Mean	0.6889151		
Coefficient of Variation	0.3150535		
Skewness	0.1235288		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0614687	Lilliefors Test Statistic	0.1206268
Lilliefors Critical Value	0.0802147	Lilliefors Critical Value	0.0802147
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	25.294366	95% H-UCL	25.743021
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	27.833656
95% Adjusted-CLT UCL (Chen-1995)	25.293856	97.5% Chebyshev (MVUE) UCL	29.359768
95% Modified-t UCL (Johnson-1978)	25.29565	99% Chebyshev (MVUE) UCL	32.35752
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.7383026	**Data appear Normal at 5% Significance Level**	
Theta Star	2.7639761		
MLE of Mean	24.152459		
MLE of Standard Deviation	8.1704846		
nu star	2132.1458		
Approximate Chi Square Value (.05)	2025.8833	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0480328	95% CLT UCL	25.285624
Adjusted Chi Square Value	2024.6604	95% Jackknife UCL	25.294366
		95% Standard Bootstrap UCL	25.235234
Anderson-Darling Test Statistic	1.1284637	95% Bootstrap-t UCL	25.341243
Anderson-Darling 5% Critical Value	0.7525276	95% Hall's Bootstrap UCL	25.283915
Kolmogorov-Smirnov Test Statistic	0.103742	95% Percentile Bootstrap UCL	25.283607
Kolmogorov-Smirnov 5% Critical Value	0.0837613	95% BCA Bootstrap UCL	25.297541
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	27.15537
		97.5% Chebyshev(Mean, Sd) UCL	28.454732
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	31.007078

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

95% Approximate Gamma UCL	25.419314		
95% Adjusted Gamma UCL	25.434667		
Potential UCL to Use		Use 95% Student's-t UCL	25.294366

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dieldrin

General Statistics

Number of Valid Data	115	Number of Detected Data	45
Number of Distinct Detected Data	36	Number of Non-Detect Data	70
Number of Missing Values	36	Percent Non-Detects	60.87%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1	Minimum Detected	0
Maximum Detected	500	Maximum Detected	6.2146081
Mean of Detected	38.417778	Mean of Detected	2.3524465
SD of Detected	101.68519	SD of Detected	1.4178561
Minimum Non-Detect	0.95	Minimum Non-Detect	-0.051293
Maximum Non-Detect	83	Maximum Non-Detect	4.4188406
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	111
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.52%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.3716486	Shapiro Wilk Test Statistic	0.9454363
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	16.180652	Mean	0.841041
SD	65.806882	SD	1.6445106
95% DL/2 (t) UCL	26.357033	95% H-Stat (DL/2) UCL	14.012246
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.0245129
		SD in Log Scale	2.2677899
		Mean in Original Scale	15.270316
		SD in Original Scale	65.866315
		95% t UCL	25.455888
		95% Percentile Bootstrap UCL	26.596183
		95% BCA Bootstrap UCL	31.80526
		95% H-UCL	29.184332
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

k star (bias corrected)	0.4734583	**Data appear Lognormal at 5% Significance Level**	
Theta Star	81.142889		
nu star	42.611251		
A-D Test Statistic	3.7317683	**Nonparametric Statistics**	
5% A-D Critical Value	0.8155042	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8155042	Mean	15.745106
5% K-S Critical Value	0.1394785	SD	65.485619
Data not Gamma Distributed at 5% Significance Level		SE of Mean	6.1766661
		95% KM (t) UCL	25.988057
Assuming Gamma Distribution		95% KM (z) UCL	25.904818
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	25.808669
Minimum	0.000001	95% KM (bootstrap t) UCL	52.046165
Maximum	500	95% KM (BCA) UCL	28.384818
Mean	15.033044	95% KM (Percentile Bootstrap) UCL	27.274826
Median	0.000001	95% KM (Chebyshev) UCL	42.66857
SD	65.920087	97.5% KM (Chebyshev) UCL	54.318374
k star	0.0852702	99% KM (Chebyshev) UCL	77.202158
Theta star	176.29896		
Nu star	19.612142	**Potential UCLs to Use**	
AppChi2	10.565721	95% KM (BCA) UCL	28.384818
95% Gamma Approximate UCL	27.904408		
95% Adjusted Gamma UCL	28.12909		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Benz(a)anthracene

General Statistics

Number of Valid Data	144	Number of Detected Data	112
Number of Distinct Detected Data	86	Number of Non-Detect Data	32
Number of Missing Values	7	Percent Non-Detects	22.22%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.3	Minimum Detected	0.2623643
Maximum Detected	21000	Maximum Detected	9.9522777
Mean of Detected	1097.9304	Mean of Detected	5.168073
SD of Detected	2522.7183	SD of Detected	2.1938959
Minimum Non-Detect	1.95	Minimum Non-Detect	0.6678294
Maximum Non-Detect	270	Maximum Non-Detect	5.598422
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	93
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	51
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	64.58%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3318894	Lilliefors Test Statistic	0.0593843

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

5% Lilliefors Critical Value	0.0837191	5% Lilliefors Critical Value	0.0837191
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	864.6	Mean	4.4651744
SD	2265.5182	SD	2.5792409
95% DL/2 (t) UCL	1177.162	95% H-Stat (DL/2) UCL	5743.4096
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.3244964
		SD in Log Scale	2.5962331
		Mean in Original Scale	856.5872
		SD in Original Scale	2268.3346
		95% t UCL	1169.5378
		95% Percentile Bootstrap UCL	1188.3051
		95% BCA Bootstrap UCL	1283.6239
		95% H-UCL	5268.4821
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3606171	**Data appear Lognormal at 5% Significance Level**	
Theta Star	3044.5876		
nu star	80.77823		
A-D Test Statistic	2.434864	**Nonparametric Statistics**	
5% A-D Critical Value	0.8519939	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8519939	Mean	858.02499
5% K-S Critical Value	0.0929559	SD	2259.9792
Data not Gamma Distributed at 5% Significance Level		SE of Mean	189.18452
		95% KM (t) UCL	1171.2349
Assuming Gamma Distribution		95% KM (z) UCL	1169.2058
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1170.7498
Minimum	0.000001	95% KM (bootstrap t) UCL	1334.1085
Maximum	21000	95% KM (BCA) UCL	1202.703
Mean	854.53264	95% KM (Percentile Bootstrap) UCL	1210.7181
Median	75	95% KM (Chebyshev) UCL	1682.6612
SD	2269.1008	97.5% KM (Chebyshev) UCL	2039.4819
k star	0.138965	99% KM (Chebyshev) UCL	2740.3872
Theta star	6149.2649		
Nu star	40.021922	**Potential UCLs to Use**	
AppChi2	26.527248	97.5% KM (Chebyshev) UCL	2039.4819
95% Gamma Approximate UCL	1289.2419		
95% Adjusted Gamma UCL	1294.6523		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

General Statistics			
Number of Valid Data	144	Number of Detected Data	116
Number of Distinct Detected Data	92	Number of Non-Detect Data	28
Number of Missing Values	7	Percent Non-Detects	19.44%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.3	Minimum Detected	0.8329091
Maximum Detected	21000	Maximum Detected	9.9522777
Mean of Detected	1000.4276	Mean of Detected	5.1748358
SD of Detected	2372.8841	SD of Detected	2.087024
Minimum Non-Detect	1.95	Minimum Non-Detect	0.6678294
Maximum Non-Detect	240	Maximum Non-Detect	5.4806389
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	89
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	55
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	61.81%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3370094	Lilliefors Test Statistic	0.0589877
5% Lilliefors Critical Value	0.082263	5% Lilliefors Critical Value	0.082263
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	815.49306	Mean	4.565704
SD	2161.3376	SD	2.4726458
95% DL/2 (t) UCL	1113.6818	95% H-Stat (DL/2) UCL	4552.0895
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.4658671
		SD in Log Scale	2.4594595
		Mean in Original Scale	808.646
		SD in Original Scale	2163.706
		95% t UCL	1107.1615
		95% Percentile Bootstrap UCL	1115.1832
		95% BCA Bootstrap UCL	1234.6824
		95% H-UCL	3957.0963
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3782599	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2644.815		
nu star	87.756308		
A-D Test Statistic	2.708771	**Nonparametric Statistics**	
5% A-D Critical Value	0.8476596	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8476596	Mean	809.71162
5% K-S Critical Value	0.0916338	SD	2155.8357
Data not Gamma Distributed at 5% Significance Level		SE of Mean	180.43717
		95% KM (t) UCL	1108.4396
Assuming Gamma Distribution		95% KM (z) UCL	1106.5044
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1108.1263

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Minimum	0.000001	95% KM (bootstrap t) UCL	1298.3633
Maximum	21000	95% KM (BCA) UCL	1149.8808
Mean	806.84184	95% KM (Percentile Bootstrap) UCL	1156.0438
Median	79	95% KM (Chebyshev) UCL	1596.219
SD	2164.3829	97.5% KM (Chebyshev) UCL	1936.5414
k star	0.1525905	99% KM (Chebyshev) UCL	2605.0388
Theta star	5287.6279		
Nu star	43.946068	**Potential UCLs to Use**	
AppChi2	29.743114	97.5% KM (Chebyshev) UCL	1936.5414
95% Gamma Approximate UCL	1192.1256		
95% Adjusted Gamma UCL	1196.8678		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	144	Number of Detected Data	116
Number of Distinct Detected Data	91	Number of Non-Detect Data	28
Number of Missing Values	7	Percent Non-Detects	19.44%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.3	Minimum Detected	0.2623643
Maximum Detected	19000	Maximum Detected	9.8521943
Mean of Detected	1090.6707	Mean of Detected	5.3128754
SD of Detected	2327.1324	SD of Detected	2.104753
Minimum Non-Detect	1.95	Minimum Non-Detect	0.6678294
Maximum Non-Detect	270	Maximum Non-Detect	5.598422
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	88
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	56
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	61.11%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3198504	Lilliefors Test Statistic	0.0698353
5% Lilliefors Critical Value	0.082263	5% Lilliefors Critical Value	0.082263
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	890.04965	Mean	4.7447858
SD	2126.9066	SD	2.4507911
95% DL/2 (t) UCL	1183.4881	95% H-Stat (DL/2) UCL	5094.1591
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.6460086
		SD in Log Scale	2.417019

		Mean in Original Scale	881.95267
		SD in Original Scale	2130.0236
		95% t UCL	1175.8212
		95% Percentile Bootstrap UCL	1185.9529
		95% BCA Bootstrap UCL	1327.4947
		95% H-UCL	4168.7094
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3880927	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2810.3352		
nu star	90.037514		
A-D Test Statistic	2.2339496	**Nonparametric Statistics**	
5% A-D Critical Value	0.8451842	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8451842	Mean	883.17173
5% K-S Critical Value	0.0915145	SD	2122.1793
Data not Gamma Distributed at 5% Significance Level		SE of Mean	177.62156
		95% KM (t) UCL	1177.2382
Assuming Gamma Distribution		95% KM (z) UCL	1175.3332
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1176.858
Minimum	0.000001	95% KM (bootstrap t) UCL	1335.1843
Maximum	19000	95% KM (BCA) UCL	1190.5715
Mean	878.94101	95% KM (Percentile Bootstrap) UCL	1210.8873
Median	96.5	95% KM (Chebyshev) UCL	1657.4061
SD	2131.2429	97.5% KM (Chebyshev) UCL	1992.418
k star	0.1530659	99% KM (Chebyshev) UCL	2650.4839
Theta star	5742.24		
Nu star	44.082973	**Potential UCLs to Use**	
AppChi2	29.855898	97.5% KM (Chebyshev) UCL	1992.418
95% Gamma Approximate UCL	1297.7782		
95% Adjusted Gamma UCL	1302.9315		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	144	Number of Detected Data	118
Number of Distinct Detected Data	93	Number of Non-Detect Data	26
Number of Missing Values	7	Percent Non-Detects	18.06%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.1	Minimum Detected	0.0953102
Maximum Detected	30000	Maximum Detected	10.308953
Mean of Detected	980.9839	Mean of Detected	4.8999194
SD of Detected	3091.7192	SD of Detected	2.168995
Minimum Non-Detect	1.95	Minimum Non-Detect	0.6678294
Maximum Non-Detect	240	Maximum Non-Detect	5.4806389

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	96
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	48
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	66.67%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3756452	Lilliefors Test Statistic	0.0660781
5% Lilliefors Critical Value	0.0815629	5% Lilliefors Critical Value	0.0815629
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	810.41528	Mean	4.2837121
SD	2820.3281	SD	2.5386686
95% DL/2 (t) UCL	1199.5216	95% H-Stat (DL/2) UCL	4213.1799
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.1973076
		SD in Log Scale	2.5524837
		Mean in Original Scale	805.57218
		SD in Original Scale	2821.6053
		95% t UCL	1194.8547
		95% Percentile Bootstrap UCL	1209.7759
		95% BCA Bootstrap UCL	1462.4616
		95% H-UCL	4036.1741
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3367886	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2912.7589		
nu star	79.482102		
A-D Test Statistic	3.7764551	**Nonparametric Statistics**	
5% A-D Critical Value	0.8581478	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8581478	Mean	806.55744
5% K-S Critical Value	0.0915814	SD	2811.5478
Data not Gamma Distributed at 5% Significance Level		SE of Mean	235.29763
		95% KM (t) UCL	1196.1112
Assuming Gamma Distribution		95% KM (z) UCL	1193.5876
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1195.6407
Minimum	0.000001	95% KM (bootstrap t) UCL	1654.2172
Maximum	30000	95% KM (BCA) UCL	1247.9916
Mean	804.56936	95% KM (Percentile Bootstrap) UCL	1224.9159
Median	65.5	95% KM (Chebyshev) UCL	1832.196
SD	2821.8931	97.5% KM (Chebyshev) UCL	2275.9906
k star	0.1535969	99% KM (Chebyshev) UCL	3147.7393
Theta star	5238.1867		
Nu star	44.235914	**Potential UCLs to Use**	
AppChi2	29.981937	97.5% KM (Chebyshev) UCL	2275.9906
95% Gamma Approximate UCL	1187.0768		
95% Adjusted Gamma UCL	1191.7813		
Note: DL/2 is not a recommended method.			

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.						
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).						
For additional insight, the user may want to consult a statistician.						
Chrysene						
General Statistics						
Number of Valid Data	144			Number of Detected Data	124	
Number of Distinct Detected Data	100			Number of Non-Detect Data	20	
Number of Missing Values	7			Percent Non-Detects	13.89%	
Raw Statistics				**Log-transformed Statistics**		
Minimum Detected	1.4			Minimum Detected	0.3364722	
Maximum Detected	22000			Maximum Detected	9.9987977	
Mean of Detected	1095.8435			Mean of Detected	5.2375708	
SD of Detected	2561.6913			SD of Detected	2.0959093	
Minimum Non-Detect	1.95			Minimum Non-Detect	0.6678294	
Maximum Non-Detect	240			Maximum Non-Detect	5.4806389	
Note: Data have multiple DLs - Use of KM Method is recommended				Number treated as Non-Detect	83	
For all methods (except KM, DL/2, and ROS Methods),				Number treated as Detected	61	
Observations < Largest ND are treated as NDs				Single DL Non-Detect Percentage	57.64%	
UCL Statistics						
Normal Distribution Test with Detected Values Only				**Lognormal Distribution Test with Detected Values Only**		
Lilliefors Test Statistic	0.3346042			Lilliefors Test Statistic	0.0458073	
5% Lilliefors Critical Value	0.0795651			5% Lilliefors Critical Value	0.0795651	
Data not Normal at 5% Significance Level				**Data appear Lognormal at 5% Significance Level**		
Assuming Normal Distribution				**Assuming Lognormal Distribution**		
DL/2 Substitution Method				DL/2 Substitution Method		
Mean	948.53438			Mean	4.7101493	
SD	2404.2311			SD	2.483848	
95% DL/2 (t) UCL	1280.2339			95% H-Stat (DL/2) UCL	5443.3006	
Maximum Likelihood Estimate(MLE) Method	N/A			Log ROS Method		
MLE yields a negative mean				Mean in Log Scale	4.7044792	
				SD in Log Scale	2.4102549	
				Mean in Original Scale	945.13832	
				SD in Original Scale	2405.4735	
				95% t UCL	1277.0092	
				95% Percentile Bootstrap UCL	1308.4513	
				95% BCA Bootstrap UCL	1372.1389	
				95% H-UCL	4331.3357	
Gamma Distribution Test with Detected Values Only				**Data Distribution Test with Detected Values Only**		
k star (bias corrected)	0.3733513			**Data appear Lognormal at 5% Significance Level**		
Theta Star	2935.1537					
nu star	92.591129					

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

A-D Test Statistic	3.237164	**Nonparametric Statistics**	
5% A-D Critical Value	0.8491137	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8491137	Mean	945.80496
5% K-S Critical Value	0.0894809	SD	2396.8759
Data not Gamma Distributed at 5% Significance Level		SE of Mean	200.55206
		95% KM (t) UCL	1277.8347
Assuming Gamma Distribution		95% KM (z) UCL	1275.6837
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1277.5385
Minimum	0.000001	95% KM (bootstrap t) UCL	1463.634
Maximum	22000	95% KM (BCA) UCL	1316.8122
Mean	943.64306	95% KM (Percentile Bootstrap) UCL	1309.354
Median	110	95% KM (Chebyshev) UCL	1819.9911
SD	2406.0529	97.5% KM (Chebyshev) UCL	2198.2522
k star	0.1771737	99% KM (Chebyshev) UCL	2941.2728
Theta star	5326.0892		
Nu star	51.026032	**Potential UCLs to Use**	
AppChi2	35.621684	97.5% KM (Chebyshev) UCL	2198.2522
95% Gamma Approximate UCL	1351.7149		
95% Adjusted Gamma UCL	1356.6551		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	144	Number of Detected Data	91
Number of Distinct Detected Data	76	Number of Non-Detect Data	53
Number of Missing Values	7	Percent Non-Detects	36.81%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.77	Minimum Detected	-0.261365
Maximum Detected	12000	Maximum Detected	9.3926619
Mean of Detected	334.21066	Mean of Detected	3.8024951
SD of Detected	1289.4447	SD of Detected	2.0711264
Minimum Non-Detect	1.9	Minimum Non-Detect	0.6418539
Maximum Non-Detect	270	Maximum Non-Detect	5.598422
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	126
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	18
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	87.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3979749	Lilliefors Test Statistic	0.0877586
5% Lilliefors Critical Value	0.092878	5% Lilliefors Critical Value	0.092878
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

DL/2 Substitution Method		DL/2 Substitution Method	
Mean	226.37809	Mean	3.0504695
SD	1033.2658	SD	2.3464039
95% DL/2 (t) UCL	368.93251	95% H-Stat (DL/2) UCL	686.57765
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.5602676
		SD in Log Scale	2.4915059
		Mean in Original Scale	213.16986
		SD in Original Scale	1035.2822
		95% t UCL	356.00247
		95% Percentile Bootstrap UCL	384.13843
		95% BCA Bootstrap UCL	492.31707
		95% H-UCL	649.26013
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3329978	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1003.6423		
nu star	60.605598		
A-D Test Statistic	3.8008239	**Nonparametric Statistics**	
5% A-D Critical Value	0.8588045	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8588045	Mean	215.81812
5% K-S Critical Value	0.1012671	SD	1031.3678
Data not Gamma Distributed at 5% Significance Level		SE of Mean	86.442138
		95% KM (t) UCL	358.9299
Assuming Gamma Distribution		95% KM (z) UCL	358.00278
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	358.63878
Minimum	0.000001	95% KM (bootstrap t) UCL	687.76479
Maximum	12000	95% KM (BCA) UCL	396.58427
Mean	216.30538	95% KM (Percentile Bootstrap) UCL	380.70888
Median	7.8	95% KM (Chebyshev) UCL	592.61066
SD	1035.2762	97.5% KM (Chebyshev) UCL	755.6491
k star	0.1091758	99% KM (Chebyshev) UCL	1075.9065
Theta star	1981.2575		
Nu star	31.442631	**Potential UCLs to Use**	
AppChi2	19.630554	97.5% KM (Chebyshev) UCL	755.6491
95% Gamma Approximate UCL	346.46043		
95% Adjusted Gamma UCL	348.13256		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Indeno(1,2,3-cd)pyrene			
General Statistics			
Number of Valid Data	144	Number of Detected Data	105
Number of Distinct Detected Data	80	Number of Non-Detect Data	39
Number of Missing Values	7	Percent Non-Detects	27.08%

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.9	Minimum Detected	1.0647107
Maximum Detected	30000	Maximum Detected	10.308953
Mean of Detected	802.92857	Mean of Detected	4.9418926
SD of Detected	3001.0972	SD of Detected	1.9400167
Minimum Non-Detect	1.95	Minimum Non-Detect	0.6678294
Maximum Non-Detect	270	Maximum Non-Detect	5.598422
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	104
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	40
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.22%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3948968	Lilliefors Test Statistic	0.060599
5% Lilliefors Critical Value	0.0864647	5% Lilliefors Critical Value	0.0864647
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	599.92257	Mean	4.2127604
SD	2581.249	SD	2.375254
95% DL/2 (t) UCL	956.04434	95% H-Stat (DL/2) UCL	2388.1779
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.0607175
		SD in Log Scale	2.3260743
		Mean in Original Scale	589.48545
		SD in Original Scale	2583.3874
		95% t UCL	945.90226
		95% Percentile Bootstrap UCL	1016.4522
		95% BCA Bootstrap UCL	1301.4774
		95% H-UCL	1777.9211
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.37544	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2138.6336		
nu star	78.842397		
A-D Test Statistic	3.477586	**Nonparametric Statistics**	
5% A-D Critical Value	0.8480497	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8480497	Mean	592.11119
5% K-S Critical Value	0.0947084	SD	2573.9138
Data not Gamma Distributed at 5% Significance Level		SE of Mean	215.53073
		95% KM (t) UCL	948.93932
Assuming Gamma Distribution		95% KM (z) UCL	946.6277
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	948.40806
Minimum	0.000001	95% KM (bootstrap t) UCL	1697.4496
Maximum	30000	95% KM (BCA) UCL	1013.1311
Mean	588.03053	95% KM (Percentile Bootstrap) UCL	1023.9595
Median	49	95% KM (Chebyshev) UCL	1531.5879

APPENDIX K, TABLE K-2
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

SD	2583.7982	97.5% KM (Chebyshev) UCL	1938.1002
k star	0.1300257	99% KM (Chebyshev) UCL	2736.6149
Theta star	4522.416		
Nu star	37.447416	**Potential UCLs to Use**	
AppChi2	24.436654	97.5% KM (Chebyshev) UCL	1938.1002
95% Gamma Approximate UCL	901.11454		
95% Adjusted Gamma UCL	905.04367		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	C:\willow_grove\Site12_HHRA\ProUCL\WG12SODB_ProUCLinput.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Total 2,3,7,8-TCDD Equiv.

General Statistics

Number of Valid Observations	6	Number of Distinct Observations	6
Number of Missing Values	222		

Raw Statistics		**Log-transformed Statistics**	
Minimum	6.57	Minimum of Log Data	1.8825138
Maximum	603	Maximum of Log Data	6.4019172
Mean	155.205	Mean of log Data	3.7951443
Median	33.7	SD of log Data	1.8404756
SD	237.71558		
Std. Error of Mean	97.046978		
Coefficient of Variation	1.5316232		
Skewness	1.7960973		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.7231133	Shapiro Wilk Test Statistic	0.9125516
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	350.75935	95% H-UCL	84624.665
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	586.33334
95% Adjusted-CLT UCL (Chen-1995)	390.86862	97.5% Chebyshev (MVUE) UCL	775.70932
95% Modified-t UCL (Johnson-1978)	362.61936	99% Chebyshev (MVUE) UCL	1147.7017
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.3647036	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	425.56476		

MLE of Mean	155.205		
MLE of Standard Deviation	257.00151		
nu star	4.3764432		
Approximate Chi Square Value (.05)	0.8758115	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01222	95% CLT UCL	314.83307
Adjusted Chi Square Value	0.4439414	95% Jackknife UCL	350.75935
		95% Standard Bootstrap UCL	302.66913
Anderson-Darling Test Statistic	0.4395566	95% Bootstrap-t UCL	2405.9444
Anderson-Darling 5% Critical Value	0.7354229	95% Hall's Bootstrap UCL	1462.1421
Kolmogorov-Smirnov Test Statistic	0.2799671	95% Percentile Bootstrap UCL	311.595
Kolmogorov-Smirnov 5% Critical Value	0.3484617	95% BCA Bootstrap UCL	384.92833
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	578.22297
		97.5% Chebyshev(Mean, Sd) UCL	761.26319
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1120.8102
95% Approximate Gamma UCL	775.5617		
95% Adjusted Gamma UCL	1530.0351		
Potential UCL to Use		Use 95% Approximate Gamma UCL	775.5617
Recommended UCL exceeds the maximum observation			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Aluminum

General Statistics

Number of Valid Observations	186	Number of Distinct Observations	128
Number of Missing Values	42		

Raw Statistics		**Log-transformed Statistics**	
Minimum	2280	Minimum of Log Data	7.7319307
Maximum	29400	Maximum of Log Data	10.28875
Mean	12205.323	Mean of log Data	9.3077203
Median	12450	SD of log Data	0.4822591
SD	5074.1189		
Std. Error of Mean	372.05245		
Coefficient of Variation	0.41573		
Skewness	0.3483283		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0533508	Lilliefors Test Statistic	0.1367194
Lilliefors Critical Value	0.0649647	Lilliefors Critical Value	0.0649647
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12820.374	95% H-UCL	13200.682
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14383.4
95% Adjusted-CLT UCL (Chen-1995)	12827.448	97.5% Chebyshev (MVUE) UCL	15253.095
95% Modified-t UCL (Johnson-1978)	12821.958	99% Chebyshev (MVUE) UCL	16961.442

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.9890457	**Data appear Normal at 5% Significance Level**	
Theta Star	2446.4243		
MLE of Mean	12205.323		
MLE of Standard Deviation	5464.3753		
nu star	1855.925		
Approximate Chi Square Value (.05)	1756.8622	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487097	95% CLT UCL	12817.294
Adjusted Chi Square Value	1756.1198	95% Jackknife UCL	12820.374
		95% Standard Bootstrap UCL	12820.021
Anderson-Darling Test Statistic	2.2286652	95% Bootstrap-t UCL	12836.419
Anderson-Darling 5% Critical Value	0.7557487	95% Hall's Bootstrap UCL	12850.255
Kolmogorov-Smirnov Test Statistic	0.105746	95% Percentile Bootstrap UCL	12816.129
Kolmogorov-Smirnov 5% Critical Value	0.0673989	95% BCA Bootstrap UCL	12805.699
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	13827.062
		97.5% Chebyshev(Mean, Sd) UCL	14528.789
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15907.198
95% Approximate Gamma UCL	12893.534		
95% Adjusted Gamma UCL	12898.985		
Potential UCL to Use		Use 95% Student's-t UCL	12820.374

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Antimony

General Statistics

Number of Valid Data	50	Number of Detected Data	44
Number of Distinct Detected Data	37	Number of Non-Detect Data	6
Number of Missing Values	178	Percent Non-Detects	12.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.41	Minimum Detected	-0.891598
Maximum Detected	35.4	Maximum Detected	3.5667118
Mean of Detected	4.5788636	Mean of Detected	0.6815016
SD of Detected	7.4363811	SD of Detected	1.1957774
Minimum Non-Detect	0.16	Minimum Non-Detect	-1.832581
Maximum Non-Detect	0.175	Maximum Non-Detect	-1.742969
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	44
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	12.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.5989342	Shapiro Wilk Test Statistic	0.8841417
5% Shapiro Wilk Critical Value	0.944	5% Shapiro Wilk Critical Value	0.944
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.03945	Mean	0.302082
SD	7.1207914	SD	1.5271351
95% DL/2 (t) UCL	5.7277902	95% H-Stat (DL/2) UCL	8.3119276
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.4401784	Mean in Log Scale	0.364124
SD	7.684892	SD in Log Scale	1.4191304
95% MLE (t) UCL	5.2622669	Mean in Original Scale	4.0466154
95% MLE (Tiku) UCL	5.1582572	SD in Original Scale	7.1167628
		95% t UCL	5.7340005
		95% Percentile Bootstrap UCL	5.7836
		95% BCA Bootstrap UCL	6.3853427
		95% H UCL	7.0031899
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.6833526	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	6.7005871		
nu star	60.135029		
A-D Test Statistic	3.5106994	**Nonparametric Statistics**	
5% A-D Critical Value	0.79271	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.79271	Mean	4.0786
5% K-S Critical Value	0.1389211	SD	7.0280199
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.0054028
		95% KM (t) UCL	5.7642089
Assuming Gamma Distribution		95% KM (z) UCL	5.7323405
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.7535384
Minimum	0.000001	95% KM (bootstrap t) UCL	6.5171347
Maximum	35.4	95% KM (BCA) UCL	5.9136
Mean	4.0294001	95% KM (Percentile Bootstrap) UCL	5.8914
Median	1.1	95% KM (Chebyshev) UCL	8.4610492
SD	7.1265388	97.5% KM (Chebyshev) UCL	10.357339
k star	0.2801138	99% KM (Chebyshev) UCL	14.082232
Theta star	14.38487		
Nu star	28.011376	**Potential UCLs to Use**	
AppChi2	16.936892	95% KM (Chebyshev) UCL	8.4610492
95% Gamma Approximate UCL	6.6640939		
95% Adjusted Gamma UCL	6.7665718		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	185	Number of Distinct Observations	84

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Number of Missing Values	43		
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.76	Minimum of Log Data	-0.274437
Maximum	108	Maximum of Log Data	4.6821312
Mean	6.2399459	Mean of log Data	1.4866043
Median	4.7	SD of log Data	0.708537
SD	10.602135		
Std. Error of Mean	0.7794845		
Coefficient of Variation	1.6990749		
Skewness	7.8993057		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.3337785	Lilliefors Test Statistic	0.1105898
Lilliefors Critical Value	0.06514	Lilliefors Critical Value	0.06514
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7.5285717	95% H-UCL	6.2907526
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.1071616
95% Adjusted-CLT UCL (Chen-1995)	8.0058004	97.5% Chebyshev (MVUE) UCL	7.7272144
95% Modified-t UCL (Johnson-1978)	7.6040217	99% Chebyshev (MVUE) UCL	8.945188
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.5759273	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	3.9595392		
MLE of Mean	6.2399459		
MLE of Standard Deviation	4.9706449		
nu star	583.09311		
Approximate Chi Square Value (.05)	528.08203	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487027	95% CLT UCL	7.5220839
Adjusted Chi Square Value	527.67588	95% Jackknife UCL	7.5285717
		95% Standard Bootstrap UCL	7.5360215
Anderson-Darling Test Statistic	8.7126342	95% Bootstrap-t UCL	9.3707078
Anderson-Darling 5% Critical Value	0.7701495	95% Hall's Bootstrap UCL	13.921808
Kolmogorov-Smirnov Test Statistic	0.1916627	95% Percentile Bootstrap UCL	7.7115135
Kolmogorov-Smirnov 5% Critical Value	0.0687065	95% BCA Bootstrap UCL	8.1513514
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	9.6376401
		97.5% Chebyshev(Mean, Sd) UCL	11.107825
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	13.995719
95% Approximate Gamma UCL	6.8899703		
95% Adjusted Gamma UCL	6.8952734		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	9.6376401
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Cadmium			

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

General Statistics			
Number of Valid Data	120	Number of Detected Data	107
Number of Distinct Detected Data	76	Number of Non-Detect Data	13
Number of Missing Values	108	Percent Non-Detects	10.83%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.025	Minimum Detected	-3.688879
Maximum Detected	105	Maximum Detected	4.6539604
Mean of Detected	3.9909533	Mean of Detected	-0.57646
SD of Detected	12.978891	SD of Detected	1.7422032
Minimum Non-Detect	0.03	Minimum Non-Detect	-3.506558
Maximum Non-Detect	0.04	Maximum Non-Detect	-3.218876
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	105
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	12.50%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3965233	Lilliefors Test Statistic	0.1324675
5% Lilliefors Critical Value	0.0856529	5% Lilliefors Critical Value	0.0856529
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.5604125	Mean	-0.957589
SD	12.312102	SD	1.9774263
95% DL/2 (t) UCL	5.4236277	95% H-Stat (DL/2) UCL	4.9405951
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.3363996	Mean in Log Scale	-0.976104
SD	13.29349	SD in Log Scale	2.0163682
95% MLE (t) UCL	4.3481302	Mean in Original Scale	3.5603597
95% MLE (Tiku) UCL	4.2093661	SD in Original Scale	12.312118
		95% t UCL	5.4235772
		95% Percentile Bootstrap UCL	5.7556323
		95% BCA Bootstrap UCL	6.2248347
		95% H UCL	5.3519336
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.340554	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	11.719004		
nu star	72.878548		
A-D Test Statistic	11.021892	**Nonparametric Statistics**	
5% A-D Critical Value	0.8569271	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8569271	Mean	3.5614167
5% K-S Critical Value	0.0945907	SD	12.260404
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.1244836
		95% KM (t) UCL	5.4255396
Assuming Gamma Distribution		95% KM (z) UCL	5.4110276

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.4245878
Minimum	0.000001	95% KM (bootstrap t) UCL	7.0109905
Maximum	105	95% KM (BCA) UCL	5.9497833
Mean	3.5586001	95% KM (Percentile Bootstrap) UCL	5.63575
Median	0.415	95% KM (Chebyshev) UCL	8.4629271
SD	12.312629	97.5% KM (Chebyshev) UCL	10.583815
k star	0.2209162	99% KM (Chebyshev) UCL	14.749887
Theta star	16.108373		
Nu star	53.019881	**Potential UCLs to Use**	
AppChi2	37.292626	97.5% KM (Chebyshev) UCL	10.583815
95% Gamma Approximate UCL	5.0593528		
95% Adjusted Gamma UCL	5.0811376		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	194	Number of Distinct Observations	146
Number of Missing Values	34		

Raw Statistics		**Log-transformed Statistics**	
Minimum	4	Minimum of Log Data	1.3862944
Maximum	192	Maximum of Log Data	5.2574954
Mean	21.041237	Mean of log Data	2.8667905
Median	17.4	SD of log Data	0.5265372
SD	20.306829		
Std. Error of Mean	1.4579454		
Coefficient of Variation	0.9650967		
Skewness	6.093333		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.2735526	Lilliefors Test Statistic	0.1100104
Lilliefors Critical Value	0.0636111	Lilliefors Critical Value	0.0636111
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	23.45091	95% H-UCL	21.645788
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	23.715748
95% Adjusted-CLT UCL (Chen-1995)	24.120859	97.5% Chebyshev (MVUE) UCL	25.246478
95% Modified-t UCL (Johnson-1978)	23.557213	99% Chebyshev (MVUE) UCL	28.253301
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.8965853	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	7.2641525		
MLE of Mean	21.041237		
MLE of Standard Deviation	12.363121		

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

nu star	1123.8751		
Approximate Chi Square Value (.05)	1047.0453	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487629	95% CLT UCL	23.439344
Adjusted Chi Square Value	1046.4976	95% Jackknife UCL	23.45091
		95% Standard Bootstrap UCL	23.334802
Anderson-Darling Test Statistic	8.7719787	95% Bootstrap-t UCL	24.988303
Anderson-Darling 5% Critical Value	0.7606333	95% Hall's Bootstrap UCL	27.615677
Kolmogorov-Smirnov Test Statistic	0.1685887	95% Percentile Bootstrap UCL	23.452062
Kolmogorov-Smirnov 5% Critical Value	0.0656469	95% BCA Bootstrap UCL	24.476804
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	27.396274
		97.5% Chebyshev(Mean, Sd) UCL	30.146103
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	35.54761
95% Approximate Gamma UCL	22.585195		
95% Adjusted Gamma UCL	22.597016		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	27.396274

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chromium Hexavalent

General Statistics

Number of Valid Data	43	Number of Detected Data	42
Number of Distinct Detected Data	32	Number of Non-Detect Data	1
Number of Missing Values	185	Percent Non-Detects	2.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.26	Minimum Detected	-1.347074
Maximum Detected	7.4	Maximum Detected	2.00148
Mean of Detected	1.655	Mean of Detected	0.1783378
SD of Detected	1.5085921	SD of Detected	0.8071482
Minimum Non-Detect	0.12	Minimum Non-Detect	-2.120264
Maximum Non-Detect	0.12	Maximum Non-Detect	-2.120264

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7478791	Shapiro Wilk Test Statistic	0.9264407
5% Shapiro Wilk Critical Value	0.942	5% Shapiro Wilk Critical Value	0.942
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.617907	Mean	0.1087623
SD	1.5102405	SD	0.918765
95% DL/2 (t) UCL	2.0052766	95% H-Stat (DL/2) UCL	2.3473182
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.6005845	Mean in Log Scale	0.1298302

SD	1.5182855	SD in Log Scale	0.8585775
95% MLE (t) UCL	1.9900176	Mean in Original Scale	1.619964
95% MLE (Tiku) UCL	1.9686186	SD in Original Scale	1.5081268
		95% t UCL	2.0067915
		95% Percentile Bootstrap UCL	1.9990338
		95% BCA Bootstrap UCL	2.117907
		95% H UCL	2.2064471
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.579279	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.0479465		
nu star	132.65944		
A-D Test Statistic	0.7011574	**Nonparametric Statistics**	
5% A-D Critical Value	0.7640492	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.7640492	Mean	1.6225581
5% K-S Critical Value	0.1385955	SD	1.488019
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.2296714
		95% KM (t) UCL	2.0088545
Assuming Gamma Distribution		95% KM (z) UCL	2.000334
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.0080389
Minimum	0.000001	95% KM (bootstrap t) UCL	2.1365069
Maximum	7.4	95% KM (BCA) UCL	1.9783721
Mean	1.6165117	95% KM (Percentile Bootstrap) UCL	2.0037209
Median	1.1	95% KM (Chebyshev) UCL	2.6236726
SD	1.5117411	97.5% KM (Chebyshev) UCL	3.0568557
k star	0.8790316	99% KM (Chebyshev) UCL	3.9077599
Theta star	1.8389687		
Nu star	75.596719	**Potential UCLs to Use**	
AppChi2	56.570591	95% KM (Chebyshev) UCL	2.6236726
95% Gamma Approximate UCL	2.1601856		
95% Adjusted Gamma UCL	2.1822444		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium total pair

General Statistics

Number of Valid Observations	43	Number of Distinct Observations	40
Number of Missing Values	185		
Raw Statistics		**Log-transformed Statistics**	
Minimum	4.7	Minimum of Log Data	1.5475625
Maximum	65	Maximum of Log Data	4.1743873
Mean	18.567442	Mean of log Data	2.7805838
Median	17.1	SD of log Data	0.5231737
SD	11.482776		
Std. Error of Mean	1.751107		

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Coefficient of Variation	0.6184361		
Skewness	2.376135		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.7796	Shapiro Wilk Test Statistic	0.9792361
Shapiro Wilk Critical Value	0.943	Shapiro Wilk Critical Value	0.943
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	21.51272	95% H-UCL	21.590257
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	25.176534
95% Adjusted-CLT UCL (Chen-1995)	22.125757	97.5% Chebyshev (MVUE) UCL	28.096772
95% Modified-t UCL (Johnson-1978)	21.618475	99% Chebyshev (MVUE) UCL	33.833013
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.4656523	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	5.3575605		
MLE of Mean	18.567442		
MLE of Standard Deviation	9.9737753		
nu star	298.0461		
Approximate Chi Square Value (.05)	259.05575	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0444186	95% CLT UCL	21.447757
Adjusted Chi Square Value	257.79725	95% Jackknife UCL	21.51272
		95% Standard Bootstrap UCL	21.387773
Anderson-Darling Test Statistic	0.7196934	95% Bootstrap-t UCL	22.730168
Anderson-Darling 5% Critical Value	0.7534453	95% Hall's Bootstrap UCL	23.688185
Kolmogorov-Smirnov Test Statistic	0.1133447	95% Percentile Bootstrap UCL	21.476744
Kolmogorov-Smirnov 5% Critical Value	0.1355224	95% BCA Bootstrap UCL	22.15814
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	26.20034
		97.5% Chebyshev(Mean, Sd) UCL	29.503101
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	35.990736
95% Approximate Gamma UCL	21.362018		
95% Adjusted Gamma UCL	21.466302		
Potential UCL to Use		Use 95% Approximate Gamma UCL	21.362018
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Cobalt			
General Statistics			
Number of Valid Observations	186	Number of Distinct Observations	84
Number of Missing Values	42		
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.9	Minimum of Log Data	0.6418539
Maximum	23.1	Maximum of Log Data	3.1398326
Mean	6.8327957	Mean of log Data	1.8368375

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Median	6.1	SD of log Data	0.4121359
SD	3.0248073		
Std. Error of Mean	0.2217896		
Coefficient of Variation	0.4426896		
Skewness	1.8123535		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.1272643	Lilliefors Test Statistic	0.0659169
Lilliefors Critical Value	0.0649647	Lilliefors Critical Value	0.0649647
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7.1994433	95% H-UCL	7.2095802
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.7649491
95% Adjusted-CLT UCL (Chen-1995)	7.2290997	97.5% Chebyshev (MVUE) UCL	8.1696617
95% Modified-t UCL (Johnson-1978)	7.2043555	99% Chebyshev (MVUE) UCL	8.9646412
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.9572848	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.1469648		
MLE of Mean	6.8327957		
MLE of Standard Deviation	2.7994599		
nu star	2216.1099		
Approximate Chi Square Value (.05)	2107.7527	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487097	95% CLT UCL	7.1976072
Adjusted Chi Square Value	2106.9389	95% Jackknife UCL	7.1994433
		95% Standard Bootstrap UCL	7.2052082
Anderson-Darling Test Statistic	1.2618175	95% Bootstrap-t UCL	7.2398547
Anderson-Darling 5% Critical Value	0.7548632	95% Hall's Bootstrap UCL	7.2267586
Kolmogorov-Smirnov Test Statistic	0.0727541	95% Percentile Bootstrap UCL	7.1930108
Kolmogorov-Smirnov 5% Critical Value	0.0673533	95% BCA Bootstrap UCL	7.2209677
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.7995543
		97.5% Chebyshev(Mean, Sd) UCL	8.2178715
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.0395747
95% Approximate Gamma UCL	7.1840622		
95% Adjusted Gamma UCL	7.1868371		
Potential UCL to Use		Use 95% Student's-t UCL	7.1994433
		or 95% Modified-t UCL	7.2043555
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Copper			
General Statistics			
Number of Valid Observations	189	Number of Distinct Observations	141
Number of Missing Values	39		

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Raw Statistics		Log-transformed Statistics	
Minimum	2.6	Minimum of Log Data	0.9555114
Maximum	1980	Maximum of Log Data	7.5908521
Mean	57.734921	Mean of log Data	2.7992975
Median	13.2	SD of log Data	1.1719668
SD	194.7367		
Std. Error of Mean	14.165011		
Coefficient of Variation	3.3729448		
Skewness	6.8502269		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.4095019	Lilliefors Test Statistic	0.1631262
Lilliefors Critical Value	0.064447	Lilliefors Critical Value	0.064447
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	81.149673	95% H-UCL	39.845969
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	47.874929
95% Adjusted-CLT UCL (Chen-1995)	88.576027	97.5% Chebyshev (MVUE) UCL	54.545327
95% Modified-t UCL (Johnson-1978)	82.326032	99% Chebyshev (MVUE) UCL	67.648033
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.5002658	Data do not follow a Discernable Distribution (0.05)	
Theta Star	115.40849		
MLE of Mean	57.734921		
MLE of Standard Deviation	81.627812		
nu star	189.10048		
Approximate Chi Square Value (.05)	158.28908	Nonparametric Statistics	
Adjusted Level of Significance	0.0487302	95% CLT UCL	81.03429
Adjusted Chi Square Value	158.07444	95% Jackknife UCL	81.149673
		95% Standard Bootstrap UCL	81.532731
Anderson-Darling Test Statistic	27.750912	95% Bootstrap-t UCL	100.98198
Anderson-Darling 5% Critical Value	0.8201782	95% Hall's Bootstrap UCL	113.48275
Kolmogorov-Smirnov Test Statistic	0.3157468	95% Percentile Bootstrap UCL	81.939153
Kolmogorov-Smirnov 5% Critical Value	0.0702996	95% BCA Bootstrap UCL	94.01746
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	119.47877
		97.5% Chebyshev(Mean, Sd) UCL	146.19538
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	198.675
95% Approximate Gamma UCL	68.973181		
95% Adjusted Gamma UCL	69.066833		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	119.47877
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Iron			
General Statistics			

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Number of Valid Observations	186	Number of Distinct Observations	133
Number of Missing Values	42		
Raw Statistics		**Log-transformed Statistics**	
Minimum	4610	Minimum of Log Data	8.4359831
Maximum	166000	Maximum of Log Data	12.019743
Mean	20105.215	Mean of log Data	9.765083
Median	17100	SD of log Data	0.487434
SD	15626.268		
Std. Error of Mean	1145.7735		
Coefficient of Variation	0.7772246		
Skewness	5.5943635		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.2294216	Lilliefors Test Statistic	0.0978159
Lilliefors Critical Value	0.0649647	Lilliefors Critical Value	0.0649647
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	21999.33	95% H-UCL	20924.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22818.662
95% Adjusted-CLT UCL (Chen-1995)	22492.041	97.5% Chebyshev (MVUE) UCL	24212.39
95% Modified-t UCL (Johnson-1978)	22077.663	99% Chebyshev (MVUE) UCL	26950.099
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.5837917	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	5610.0402		
MLE of Mean	20105.215		
MLE of Standard Deviation	10620.314		
nu star	1333.1705		
Approximate Chi Square Value (.05)	1249.3879	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487097	95% CLT UCL	21989.845
Adjusted Chi Square Value	1248.763	95% Jackknife UCL	21999.33
		95% Standard Bootstrap UCL	22043.281
Anderson-Darling Test Statistic	5.2133933	95% Bootstrap-t UCL	22756.74
Anderson-Darling 5% Critical Value	0.7577343	95% Hall's Bootstrap UCL	24106.348
Kolmogorov-Smirnov Test Statistic	0.1454619	95% Percentile Bootstrap UCL	22039.677
Kolmogorov-Smirnov 5% Critical Value	0.0676031	95% BCA Bootstrap UCL	22589.14
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	25099.526
		97.5% Chebyshev(Mean, Sd) UCL	27260.568
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	31505.518
95% Approximate Gamma UCL	21453.448		
95% Adjusted Gamma UCL	21464.185		
Potential UCL to Use		Use 95% Student's-t UCL	21999.33
		or 95% Modified-t UCL	22077.663

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Lead

General Statistics

Number of Valid Observations	195	Number of Distinct Observations	169
Number of Missing Values	33		

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.6	Minimum of Log Data	0.4700036
Maximum	7900	Maximum of Log Data	8.974618
Mean	184.89026	Mean of log Data	3.4395283
Median	27	SD of log Data	1.4558422
SD	772.84595		
Std. Error of Mean	55.344648		
Coefficient of Variation	4.1800253		
Skewness	7.5305068		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.4062653	Lilliefors Test Statistic	0.1004461
Lilliefors Critical Value	0.0634478	Lilliefors Critical Value	0.0634478
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	276.36093	95% H-UCL	118.21678
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	145.55489
95% Adjusted-CLT UCL (Chen-1995)	307.81472	97.5% Chebyshev (MVUE) UCL	170.04151
95% Modified-t UCL (Johnson-1978)	281.33522	99% Chebyshev (MVUE) UCL	218.14073
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.3713885	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	497.8352		
MLE of Mean	184.89026		
MLE of Standard Deviation	303.38899		
nu star	144.84151		
Approximate Chi Square Value (.05)	118.02822	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487692	95% CLT UCL	275.9241
Adjusted Chi Square Value	117.84949	95% Jackknife UCL	276.36093
		95% Standard Bootstrap UCL	275.65669
Anderson-Darling Test Statistic	25.518907	95% Bootstrap-t UCL	365.82939
Anderson-Darling 5% Critical Value	0.8512902	95% Hall's Bootstrap UCL	404.92304
Kolmogorov-Smirnov Test Statistic	0.2829905	95% Percentile Bootstrap UCL	284.13128
Kolmogorov-Smirnov 5% Critical Value	0.0698482	95% BCA Bootstrap UCL	323.18718
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	426.13199
		97.5% Chebyshev(Mean, Sd) UCL	530.51747
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	735.56255
95% Approximate Gamma UCL	226.89305		
95% Adjusted Gamma UCL	227.23716		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	426.13199

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	186	Number of Distinct Observations	165
Number of Missing Values	42		

Raw Statistics		**Log-transformed Statistics**	
Minimum	29.4	Minimum of Log Data	3.3809947
Maximum	3740	Maximum of Log Data	8.2268409
Mean	456.82796	Mean of log Data	5.8979817
Median	395.5	SD of log Data	0.6896488
SD	369.86778		
Std. Error of Mean	27.120021		
Coefficient of Variation	0.8096435		
Skewness	4.4388102		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.1825807	Lilliefors Test Statistic	0.0658587
Lilliefors Critical Value	0.0649647	Lilliefors Critical Value	0.0649647
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	501.66094	95% H-UCL	509.60401
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	573.9215
95% Adjusted-CLT UCL (Chen-1995)	510.86792	97.5% Chebyshev (MVUE) UCL	622.62015
95% Modified-t UCL (Johnson-1978)	503.13206	99% Chebyshev (MVUE) UCL	718.27922
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.327956	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	196.23565		
MLE of Mean	456.82796		
MLE of Standard Deviation	299.4093		
nu star	865.99964		
Approximate Chi Square Value (.05)	798.70103	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487097	95% CLT UCL	501.43642
Adjusted Chi Square Value	798.2027	95% Jackknife UCL	501.66094
		95% Standard Bootstrap UCL	501.07252
Anderson-Darling Test Statistic	0.9613853	95% Bootstrap-t UCL	510.56553
Anderson-Darling 5% Critical Value	0.7640051	95% Hall's Bootstrap UCL	539.03562
Kolmogorov-Smirnov Test Statistic	0.0890318	95% Percentile Bootstrap UCL	503.49731
Kolmogorov-Smirnov 5% Critical Value	0.0679825	95% BCA Bootstrap UCL	515.29086
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	575.04139
		97.5% Chebyshev(Mean, Sd) UCL	626.19244
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	726.66876
95% Approximate Gamma UCL	495.32032		
95% Adjusted Gamma UCL	495.62956		

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	575.04139
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Thallium			
General Statistics			
Number of Valid Data	121	Number of Detected Data	77
Number of Distinct Detected Data	54	Number of Non-Detect Data	44
Number of Missing Values	107	Percent Non-Detects	36.36%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.08	Minimum Detected	-2.525729
Maximum Detected	41.1	Maximum Detected	3.7160081
Mean of Detected	2.4622078	Mean of Detected	0.2548811
SD of Detected	4.7244475	SD of Detected	1.1803951
Minimum Non-Detect	0.27	Minimum Non-Detect	-1.309333
Maximum Non-Detect	0.385	Maximum Non-Detect	-0.954512
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	58
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	63
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	47.93%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3070499	Lilliefors Test Statistic	0.129039
5% Lilliefors Critical Value	0.1009691	5% Lilliefors Critical Value	0.1009691
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.6245661	Mean	-0.508009
SD	3.9210212	SD	1.382423
95% DL/2 (t) UCL	2.2154464	95% H-Stat (DL/2) UCL	2.1598717
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.404936
		SD in Log Scale	1.3173065
		Mean in Original Scale	1.6518799
		SD in Original Scale	3.9113598
		95% t UCL	2.2413043
		95% Percentile Bootstrap UCL	2.3236107
		95% BCA Bootstrap UCL	2.6914684
		95% H-UCL	2.1424866
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.8776274	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	2.8055274		
nu star	135.15463		

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

A-D Test Statistic	1.3787154	**Nonparametric Statistics**	
5% A-D Critical Value	0.7858975	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.7858975	Mean	1.6300402
5% K-S Critical Value	0.1051563	SD	3.9028995
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.3571985
		95% KM (t) UCL	2.2221505
Assuming Gamma Distribution		95% KM (z) UCL	2.2175794
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.2207583
Minimum	0.000001	95% KM (bootstrap t) UCL	2.9772359
Maximum	41.1	95% KM (BCA) UCL	2.4334313
Mean	1.5668599	95% KM (Percentile Bootstrap) UCL	2.2533563
Median	0.63	95% KM (Chebyshev) UCL	3.1870322
SD	3.9434541	97.5% KM (Chebyshev) UCL	3.8607438
k star	0.1472848	99% KM (Chebyshev) UCL	5.1841199
Theta star	10.638301		
Nu star	35.642919	**Potential UCLs to Use**	
AppChi2	22.981437	95% KM (Chebyshev) UCL	3.1870322
95% Gamma Approximate UCL	2.4301117		
95% Adjusted Gamma UCL	2.4431283		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	186	Number of Distinct Observations	144
Number of Missing Values	42		

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.2	Minimum of Log Data	1.6486586
Maximum	58.8	Maximum of Log Data	4.0741419
Mean	24.754839	Mean of log Data	3.1404341
Median	24.95	SD of log Data	0.3896051
SD	8.7239777		
Std. Error of Mean	0.6396731		
Coefficient of Variation	0.352415		
Skewness	0.4590522		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.053926	Lilliefors Test Statistic	0.0957927
Lilliefors Critical Value	0.0649647	Lilliefors Critical Value	0.0649647
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	25.812303	95% H-UCL	26.225747
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.13962

95% Adjusted-CLT UCL (Chen-1995)	25.830013	97.5% Chebyshev (MVUE) UCL	29.530368
95% Modified-t UCL (Johnson-1978)	25.815891	99% Chebyshev (MVUE) UCL	32.262225
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	7.3361443	**Data appear Normal at 5% Significance Level**	
Theta Star	3.3743664		
MLE of Mean	24.754839		
MLE of Standard Deviation	9.1395785		
nu star	2729.0457		
Approximate Chi Square Value (.05)	2608.6733	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487097	95% CLT UCL	25.807007
Adjusted Chi Square Value	2607.7672	95% Jackknife UCL	25.812303
		95% Standard Bootstrap UCL	25.768904
Anderson-Darling Test Statistic	0.7404931	95% Bootstrap-t UCL	25.839509
Anderson-Darling 5% Critical Value	0.7536021	95% Hall's Bootstrap UCL	25.821108
Kolmogorov-Smirnov Test Statistic	0.0742373	95% Percentile Bootstrap UCL	25.799462
Kolmogorov-Smirnov 5% Critical Value	0.0672884	95% BCA Bootstrap UCL	25.812366
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	27.543109
		97.5% Chebyshev(Mean, Sd) UCL	28.749596
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	31.119506
95% Approximate Gamma UCL	25.897105		
95% Adjusted Gamma UCL	25.906103		
Potential UCL to Use		Use 95% Student's-t UCL	25.812303

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics

Number of Valid Observations	186	Number of Distinct Observations	166
Number of Missing Values	42		

Raw Statistics		**Log-transformed Statistics**	
Minimum	8.6	Minimum of Log Data	2.1517622
Maximum	5400	Maximum of Log Data	8.5941542
Mean	202.2586	Mean of log Data	3.9768317
Median	40	SD of log Data	1.1743698
SD	695.46303		
Std. Error of Mean	50.993824		
Coefficient of Variation	3.4384843		
Skewness	5.5451591		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.4043479	Lilliefors Test Statistic	0.1616332
Lilliefors Critical Value	0.0649647	Lilliefors Critical Value	0.0649647
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	286.55813	95% H-UCL	129.98939
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	156.3701
95% Adjusted-CLT UCL (Chen-1995)	308.29015	97.5% Chebyshev (MVUE) UCL	178.31338
95% Modified-t UCL (Johnson-1978)	290.01374	99% Chebyshev (MVUE) UCL	221.4167
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.4755428	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	425.32159		
MLE of Mean	202.2586		
MLE of Standard Deviation	293.3001		
nu star	176.90191		
Approximate Chi Square Value (.05)	147.14077	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0487097	95% CLT UCL	286.13598
Adjusted Chi Square Value	146.9307	95% Jackknife UCL	286.55813
		95% Standard Bootstrap UCL	286.60697
Anderson-Darling Test Statistic	29.112161	95% Bootstrap-t UCL	322.29445
Anderson-Darling 5% Critical Value	0.8254819	95% Hall's Bootstrap UCL	297.88491
Kolmogorov-Smirnov Test Statistic	0.3135397	95% Percentile Bootstrap UCL	292.98978
Kolmogorov-Smirnov 5% Critical Value	0.0713337	95% BCA Bootstrap UCL	318.74624
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	424.53553
		97.5% Chebyshev(Mean, Sd) UCL	520.71493
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	709.64074
95% Approximate Gamma UCL	243.16803		
95% Adjusted Gamma UCL	243.5157		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	424.53553

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Aroclor-1260

General Statistics

Number of Valid Data	186	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	185
Number of Missing Values	42	Percent Non-Detects	99.46%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Aroclor-1260 was not processed!

Dieldrin

General Statistics

Number of Valid Data	173	Number of Detected Data	50
Number of Distinct Detected Data	40	Number of Non-Detect Data	123

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Number of Missing Values	55	Percent Non-Detects	71.10%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1	Minimum Detected	0
Maximum Detected	500	Maximum Detected	6.2146081
Mean of Detected	36.136	Mean of Detected	2.3280823
SD of Detected	96.742272	SD of Detected	1.396254
Minimum Non-Detect	0.475	Minimum Non-Detect	-0.74444
Maximum Non-Detect	41.5	Maximum Non-Detect	3.7256934
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	167
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.53%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.3634008	Shapiro Wilk Test Statistic	0.9484572
5% Shapiro Wilk Critical Value	0.947	5% Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	11.065824	Mean	0.1410966
SD	54.100621	SD	1.7330508
95% DL/2 (t) UCL	17.868065	95% H-Stat (DL/2) UCL	7.5812682
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.803074
		SD in Log Scale	2.4924426
		Mean in Original Scale	10.650054
		SD in Original Scale	54.14701
		95% t UCL	17.458127
		95% Percentile Bootstrap UCL	18.135184
		95% BCA Bootstrap UCL	22.012644
		95% H-UCL	20.549261
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.4869363	**Data appear Lognormal at 5% Significance Level**	
Theta Star	74.210932		
nu star	48.693635		
A-D Test Statistic	3.8746449	**Nonparametric Statistics**	
5% A-D Critical Value	0.8139493	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8139493	Mean	11.190889
5% K-S Critical Value	0.132369	SD	53.891156
Data not Gamma Distributed at 5% Significance Level		SE of Mean	4.1391629
		95% KM (t) UCL	18.036076
Assuming Gamma Distribution		95% KM (z) UCL	17.999206
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	17.855328
Minimum	0.000001	95% KM (bootstrap t) UCL	35.277743
Maximum	500	95% KM (BCA) UCL	19.151079
Mean	10.443931	95% KM (Percentile Bootstrap) UCL	18.610586

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Median	0.000001	95% KM (Chebyshev) UCL	29.233081
SD	54.186088	97.5% KM (Chebyshev) UCL	37.039953
k star	0.0758617	99% KM (Chebyshev) UCL	52.375039
Theta star	137.67071		
Nu star	26.248141	**Potential UCLs to Use**	
AppChi2	15.570557	95% KM (BCA) UCL	19.151079
95% Gamma Approximate UCL	17.605908		
95% Adjusted Gamma UCL	17.68436		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

2-Methylnaphthalene

General Statistics

Number of Valid Data	208	Number of Detected Data	77
Number of Distinct Detected Data	63	Number of Non-Detect Data	131
Number of Missing Values	20	Percent Non-Detects	62.98%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.94	Minimum Detected	-0.061875
Maximum Detected	35000	Maximum Detected	10.463103
Mean of Detected	544.56481	Mean of Detected	2.6185614
SD of Detected	3988.8477	SD of Detected	2.0149457
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	1100	Maximum Non-Detect	7.0030655
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	206
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	99.04%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.4564949	Lilliefors Test Statistic	0.1332241
5% Lilliefors Critical Value	0.1009691	5% Lilliefors Critical Value	0.1009691
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	226.67037	Mean	1.9583315
SD	2430.1461	SD	2.3006781
95% DL/2 (t) UCL	505.07473	95% H-Stat (DL/2) UCL	174.92185
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.2091499
		SD in Log Scale	2.6504125
		Mean in Original Scale	202.6111
		SD in Original Scale	2431.2056
		95% t UCL	481.13684

		95% Percentile Bootstrap UCL	532.5142
		95% BCA Bootstrap UCL	755.66022
		95% H-UCL	85.009658
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.2007834	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	2712.1999		
nu star	30.920649		
A-D Test Statistic	13.451838	**Nonparametric Statistics**	
5% A-D Critical Value	0.910276	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.910276	Mean	204.38173
5% K-S Critical Value	0.1127322	SD	2425.256
Data not Gamma Distributed at 5% Significance Level		SE of Mean	169.26761
		95% KM (t) UCL	484.05386
Assuming Gamma Distribution		95% KM (z) UCL	482.80218
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	482.89827
Minimum	0.000001	95% KM (bootstrap t) UCL	5063.4975
Maximum	35000	95% KM (BCA) UCL	547.12843
Mean	221.77554	95% KM (Percentile Bootstrap) UCL	539.77758
Median	0.000001	95% KM (Chebyshev) UCL	942.20216
SD	2432.6607	97.5% KM (Chebyshev) UCL	1261.4576
k star	0.0703656	99% KM (Chebyshev) UCL	1888.5732
Theta star	3151.7607		
Nu star	29.27209	**Potential UCLs to Use**	
AppChi2	17.921543	97.5% KM (Chebyshev) UCL	1261.4576
95% Gamma Approximate UCL	362.2363		
95% Adjusted Gamma UCL	363.49199		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benz(a)anthracene

General Statistics

Number of Valid Data	208	Number of Detected Data	145
Number of Distinct Detected Data	107	Number of Non-Detect Data	63
Number of Missing Values	20	Percent Non-Detects	30.29%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.77	Minimum Detected	-0.261365
Maximum Detected	22000	Maximum Detected	9.9987977
Mean of Detected	1127.5092	Mean of Detected	4.9155594
SD of Detected	2871.5681	SD of Detected	2.4376425
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	950	Maximum Non-Detect	6.856462
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	172
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	36

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	82.69%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3473896	Lilliefors Test Statistic	0.0727302
5% Lilliefors Critical Value	0.0735783	5% Lilliefors Critical Value	0.0735783
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	793.93648	Mean	3.7787371
SD	2448.4292	SD	2.9336533
95% DL/2 (t) UCL	1074.4354	95% H-Stat (DL/2) UCL	7711.941
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.5523908
		SD in Log Scale	3.0187791
		Mean in Original Scale	787.40072
		SD in Original Scale	2450.2694
		95% t UCL	1068.1105
		95% Percentile Bootstrap UCL	1083.716
		95% BCA Bootstrap UCL	1135.2835
		95% H-UCL	8306.1916
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3205391	**Data appear Lognormal at 5% Significance Level**	
Theta Star	3517.5407		
nu star	92.956332		
A-D Test Statistic	2.8576465	**Nonparametric Statistics**	
5% A-D Critical Value	0.8628023	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8628023	Mean	788.44173
5% K-S Critical Value	0.0842568	SD	2444.1021
Data not Gamma Distributed at 5% Significance Level		SE of Mean	170.05919
		95% KM (t) UCL	1069.4217
Assuming Gamma Distribution		95% KM (z) UCL	1068.1642
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1069.1268
Minimum	0.000001	95% KM (bootstrap t) UCL	1240.5441
Maximum	22000	95% KM (BCA) UCL	1100.9914
Mean	786.00404	95% KM (Percentile Bootstrap) UCL	1078.4976
Median	29.5	95% KM (Chebyshev) UCL	1529.7125
SD	2450.7145	97.5% KM (Chebyshev) UCL	1850.461
k star	0.1099167	99% KM (Chebyshev) UCL	2480.5093
Theta star	7150.9042		
Nu star	45.725362	**Potential UCLs to Use**	
AppChi2	31.211808	97.5% KM (Chebyshev) UCL	1850.461
95% Gamma Approximate UCL	1151.4975		
95% Adjusted Gamma UCL	1154.5824		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

For additional insight, the user may want to consult a statistician.			
Benzo(a)pyrene			
General Statistics			
Number of Valid Data	208	Number of Detected Data	144
Number of Distinct Detected Data	105	Number of Non-Detect Data	64
Number of Missing Values	20	Percent Non-Detects	30.77%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.6	Minimum Detected	0.4700036
Maximum Detected	21000	Maximum Detected	9.9522777
Mean of Detected	1038.084	Mean of Detected	5.1252609
SD of Detected	2506.0587	SD of Detected	2.1798677
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	950	Maximum Non-Detect	6.856462
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	175
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	33
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	84.13%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3395867	Lilliefors Test Statistic	0.0698239
5% Lilliefors Critical Value	0.0738333	5% Lilliefors Critical Value	0.0738333
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	726.7363	Mean	3.9154362
SD	2135.1657	SD	2.8471005
95% DL/2 (t) UCL	971.34688	95% H-Stat (DL/2) UCL	6571.0219
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.8174328
		SD in Log Scale	2.785411
		Mean in Original Scale	720.67117
		SD in Original Scale	2136.9151
		95% t UCL	965.48216
		95% Percentile Bootstrap UCL	977.5501
		95% BCA Bootstrap UCL	1090.1261
		95% H-UCL	4847.9785
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3636954	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2854.268		
nu star	104.74426		
A-D Test Statistic	2.9630128	**Nonparametric Statistics**	
5% A-D Critical Value	0.8520319	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8520319	Mean	721.70254

5% K-S Critical Value	0.084055	SD	2131.5142
Data not Gamma Distributed at 5% Significance Level		SE of Mean	148.31505
		95% KM (t) UCL	966.75584
Assuming Gamma Distribution		95% KM (z) UCL	965.6591
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	966.47015
Minimum	0.000001	95% KM (bootstrap t) UCL	1077.6262
Maximum	21000	95% KM (BCA) UCL	993.28669
Mean	718.67356	95% KM (Percentile Bootstrap) UCL	993.4044
Median	36	95% KM (Chebyshev) UCL	1368.1929
SD	2137.5796	97.5% KM (Chebyshev) UCL	1647.9298
k star	0.1117907	99% KM (Chebyshev) UCL	2197.4187
Theta star	6428.7401		
Nu star	46.504944	**Potential UCLs to Use**	
AppChi2	31.857228	97.5% KM (Chebyshev) UCL	1647.9298
95% Gamma Approximate UCL	1049.1143		
95% Adjusted Gamma UCL	1051.8981		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	208	Number of Detected Data	149
Number of Distinct Detected Data	114	Number of Non-Detect Data	59
Number of Missing Values	20	Percent Non-Detects	28.37%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.75	Minimum Detected	-0.287682
Maximum Detected	19000	Maximum Detected	9.8521943
Mean of Detected	1091.6151	Mean of Detected	5.0921211
SD of Detected	2399.1231	SD of Detected	2.356564
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	950	Maximum Non-Detect	6.856462
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	170
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	38
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	81.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.324665	Lilliefors Test Statistic	0.0796233
5% Lilliefors Critical Value	0.0725839	5% Lilliefors Critical Value	0.0725839
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	790.19325	Mean	4.0344667
SD	2084.9424	SD	2.8716056

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

95% DL/2 (t) UCL	1029.0501	95% H-Stat (DL/2) UCL	8043.1945
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.8683389
		SD in Log Scale	2.8934902
		Mean in Original Scale	783.69759
		SD in Original Scale	2087.0744
		95% t UCL	1022.7987
		95% Percentile Bootstrap UCL	1044.1506
		95% BCA Bootstrap UCL	1101.5716
		95% H-UCL	7341.473
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3502079	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	3117.0488		
nu star	104.36195		
A-D Test Statistic	2.1194001	**Nonparametric Statistics**	
5% A-D Critical Value	0.8555044	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8555044	Mean	784.84494
5% K-S Critical Value	0.0828174	SD	2081.7154
Data not Gamma Distributed at 5% Significance Level		SE of Mean	144.83329
		95% KM (t) UCL	1024.1455
Assuming Gamma Distribution		95% KM (z) UCL	1023.0745
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1023.8116
Minimum	0.000001	95% KM (bootstrap t) UCL	1114.8552
Maximum	19000	95% KM (BCA) UCL	1020.082
Mean	781.97428	95% KM (Percentile Bootstrap) UCL	1040.9429
Median	46.5	95% KM (Chebyshev) UCL	1416.1586
SD	2087.7148	97.5% KM (Chebyshev) UCL	1689.3285
k star	0.1165806	99% KM (Chebyshev) UCL	2225.9179
Theta star	6707.5823		
Nu star	48.497549	**Potential UCLs to Use**	
AppChi2	33.511984	97.5% KM (Chebyshev) UCL	1689.3285
95% Gamma Approximate UCL	1131.65		
95% Adjusted Gamma UCL	1134.5822		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	208	Number of Detected Data	147
Number of Distinct Detected Data	110	Number of Non-Detect Data	61
Number of Missing Values	20	Percent Non-Detects	29.33%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.8	Minimum Detected	-0.223144

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Maximum Detected	30000	Maximum Detected	10.308953
Mean of Detected	1028.7088	Mean of Detected	4.8246408
SD of Detected	3139.4679	SD of Detected	2.3027605
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	950	Maximum Non-Detect	6.856462
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	174
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	34
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	83.65%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.371677	Lilliefors Test Statistic	0.0700443
5% Lilliefors Critical Value	0.073076	5% Lilliefors Critical Value	0.073076
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	733.8024	Mean	3.6759605
SD	2676.4757	SD	2.8753031
95% DL/2 (t) UCL	1040.427	95% H-Stat (DL/2) UCL	5691.2208
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.5168709
		SD in Log Scale	2.9103415
		Mean in Original Scale	728.20049
		SD in Original Scale	2677.7685
		95% t UCL	1034.9732
		95% Percentile Bootstrap UCL	1050.8732
		95% BCA Bootstrap UCL	1189.9297
		95% H-UCL	5474.428
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3206687	**Data appear Lognormal at 5% Significance Level**	
Theta Star	3208.0113		
nu star	94.276601		
A-D Test Statistic	4.2272774	**Nonparametric Statistics**	
5% A-D Critical Value	0.8628102	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8628102	Mean	729.09155
5% K-S Critical Value	0.0836982	SD	2671.1353
Data not Gamma Distributed at 5% Significance Level		SE of Mean	185.84622
		95% KM (t) UCL	1036.1557
Assuming Gamma Distribution		95% KM (z) UCL	1034.7814
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1035.7808
Minimum	0.000001	95% KM (bootstrap t) UCL	1344.0564
Maximum	30000	95% KM (BCA) UCL	1044.6128
Mean	727.02019	95% KM (Percentile Bootstrap) UCL	1065.7229
Median	31.5	95% KM (Chebyshev) UCL	1539.1765
SD	2678.0871	97.5% KM (Chebyshev) UCL	1889.7009
k star	0.1124435	99% KM (Chebyshev) UCL	2578.2381
Theta star	6465.6497		

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Nu star	46.77649	**Potential UCLs to Use**	
AppChi2	32.082309	97.5% KM (Chebyshev) UCL	1889.7009
95% Gamma Approximate UCL	1060.0064		
95% Adjusted Gamma UCL	1062.8098		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Chrysene			
General Statistics			
Number of Valid Data	208	Number of Detected Data	158
Number of Distinct Detected Data	124	Number of Non-Detect Data	50
Number of Missing Values	20	Percent Non-Detects	24.04%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.89	Minimum Detected	-0.116534
Maximum Detected	24000	Maximum Detected	10.085809
Mean of Detected	1143.8222	Mean of Detected	5.0273683
SD of Detected	2960.4158	SD of Detected	2.3385071
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	950	Maximum Non-Detect	6.856462
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	170
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	38
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	81.73%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3497219	Lilliefors Test Statistic	0.0648827
5% Lilliefors Critical Value	0.0704864	5% Lilliefors Critical Value	0.0704864
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	874.53806	Mean	4.0215763
SD	2622.6934	SD	2.9040705
95% DL/2 (t) UCL	1175.0012	95% H-Stat (DL/2) UCL	8874.3376
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.9747465
		SD in Log Scale	2.844199
		Mean in Original Scale	870.00385
		SD in Original Scale	2623.9709
		95% t UCL	1170.6133
		95% Percentile Bootstrap UCL	1196.6328
		95% BCA Bootstrap UCL	1279.7843
		95% H-UCL	6904.5757

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.3338256	Data appear Lognormal at 5% Significance Level	
Theta Star	3426.4062		
nu star	105.48889		
A-D Test Statistic	3.3271898	Nonparametric Statistics	
5% A-D Critical Value	0.8597657	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8597657	Mean	870.97766
5% K-S Critical Value	0.0804935	SD	2617.4011
Data not Gamma Distributed at 5% Significance Level		SE of Mean	182.06481
		95% KM (t) UCL	1171.7939
Assuming Gamma Distribution		95% KM (z) UCL	1170.4476
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1171.564
Minimum	0.000001	95% KM (bootstrap t) UCL	1344.7018
Maximum	24000	95% KM (BCA) UCL	1207.1528
Mean	868.8649	95% KM (Percentile Bootstrap) UCL	1202.3801
Median	60.5	95% KM (Chebyshev) UCL	1664.5798
SD	2624.3463	97.5% KM (Chebyshev) UCL	2007.9721
k star	0.1270879	99% KM (Chebyshev) UCL	2682.4997
Theta star	6836.7235		
Nu star	52.868571	Potential UCLs to Use	
AppChi2	37.165604	97.5% KM (Chebyshev) UCL	2007.9721
95% Gamma Approximate UCL	1235.972		
95% Adjusted Gamma UCL	1239.0223		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	208	Number of Detected Data	110
Number of Distinct Detected Data	88	Number of Non-Detect Data	98
Number of Missing Values	20	Percent Non-Detects	47.12%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.77	Minimum Detected	-0.261365
Maximum Detected	12000	Maximum Detected	9.3926619
Mean of Detected	340.15791	Mean of Detected	3.8372971
SD of Detected	1230.554	SD of Detected	2.1018312
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	950	Maximum Non-Detect	6.856462
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	200
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	96.15%

UCL Statistics

Normal Distribution Test with Detected Values Only	Lognormal Distribution Test with Detected Values Only

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Lilliefors Test Statistic	0.3913505	Lilliefors Test Statistic	0.0829246
5% Lilliefors Critical Value	0.0844768	5% Lilliefors Critical Value	0.0844768
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	189.79839	Mean	2.4870887
SD	907.83031	SD	2.538656
95% DL/2 (t) UCL	293.80198	95% H-Stat (DL/2) UCL	587.99109
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	1.8164807
		SD in Log Scale	2.8385269
		Mean in Original Scale	180.85686
		SD in Original Scale	908.84301
		95% t UCL	284.97646
		95% Percentile Bootstrap UCL	298.45372
		95% BCA Bootstrap UCL	371.36585
		95% H-UCL	782.54718
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3360753	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1012.148		
nu star	73.936562		
A-D Test Statistic	4.0816534	**Nonparametric Statistics**	
5% A-D Critical Value	0.8581339	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8581339	Mean	182.06556
5% K-S Critical Value	0.093813	SD	906.52814
Data not Gamma Distributed at 5% Significance Level		SE of Mean	63.151304
		95% KM (t) UCL	286.40719
Assuming Gamma Distribution		95% KM (z) UCL	285.94021
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	286.06029
Minimum	0.000001	95% KM (bootstrap t) UCL	496.2666
Maximum	12000	95% KM (BCA) UCL	302.33376
Mean	180.79926	95% KM (Percentile Bootstrap) UCL	296.77292
Median	2.65	95% KM (Chebyshev) UCL	457.33571
SD	908.89944	97.5% KM (Chebyshev) UCL	576.44532
k star	0.0895176	99% KM (Chebyshev) UCL	810.4131
Theta star	2019.7073		
Nu star	37.239303	**Potential UCLs to Use**	
AppChi2	24.268383	97.5% KM (Chebyshev) UCL	576.44532
95% Gamma Approximate UCL	277.43251		
95% Adjusted Gamma UCL	278.26843		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Indeno(1,2,3-cd)pyrene			

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

General Statistics			
Number of Valid Data	208	Number of Detected Data	129
Number of Distinct Detected Data	94	Number of Non-Detect Data	79
Number of Missing Values	20	Percent Non-Detects	37.98%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.1823216
Maximum Detected	30000	Maximum Detected	10.308953
Mean of Detected	807.85659	Mean of Detected	4.9171641
SD of Detected	2840.0801	SD of Detected	2.0387795
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	1200	Maximum Non-Detect	7.0900768
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	186
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	22
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	89.42%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.3881952	Lilliefors Test Statistic	0.0716849
5% Lilliefors Critical Value	0.078008	5% Lilliefors Critical Value	0.078008
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	512.13228	Mean	3.58183
SD	2265.6245	SD	2.7260982
95% DL/2 (t) UCL	771.68859	95% H-Stat (DL/2) UCL	3155.2165
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.3736017
		SD in Log Scale	2.6825152
		Mean in Original Scale	503.25234
		SD in Original Scale	2267.1518
		95% t UCL	762.98362
		95% Percentile Bootstrap UCL	811.73159
		95% BCA Bootstrap UCL	953.78439
		95% H-UCL	2227.7898
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3707286	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2179.1054		
nu star	95.647968		
A-D Test Statistic	3.3706269	**Nonparametric Statistics**	
5% A-D Critical Value	0.8499028	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8499028	Mean	504.16976
5% K-S Critical Value	0.0881284	SD	2261.5676
Data not Gamma Distributed at 5% Significance Level		SE of Mean	157.42758
		95% KM (t) UCL	764.27921
Assuming Gamma Distribution		95% KM (z) UCL	763.11508

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	763.89427
Minimum	0.000001	95% KM (bootstrap t) UCL	1230.1356
Maximum	30000	95% KM (BCA) UCL	817.09451
Mean	501.02644	95% KM (Percentile Bootstrap) UCL	789.54558
Median	19.5	95% KM (Chebyshev) UCL	1190.3807
SD	2267.6372	97.5% KM (Chebyshev) UCL	1487.3047
k star	0.0987049	99% KM (Chebyshev) UCL	2070.5544
Theta star	5076.0033		
Nu star	41.061242	**Potential UCLs to Use**	
AppChi2	27.375686	97.5% KM (Chebyshev) UCL	1487.3047
95% Gamma Approximate UCL	751.49781		
95% Adjusted Gamma UCL	753.6385		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Naphthalene

General Statistics

Number of Valid Data	208	Number of Detected Data	60
Number of Distinct Detected Data	53	Number of Non-Detect Data	148
Number of Missing Values	20	Percent Non-Detects	71.15%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.5	Minimum Detected	0.9162907
Maximum Detected	13000	Maximum Detected	9.4727046
Mean of Detected	370.05833	Mean of Detected	3.0505936
SD of Detected	1820.9371	SD of Detected	1.7845068
Minimum Non-Detect	0.925	Minimum Non-Detect	-0.077962
Maximum Non-Detect	1100	Maximum Non-Detect	7.0030655
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	206
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	99.04%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.4393841	Lilliefors Test Statistic	0.1260606
5% Lilliefors Critical Value	0.1143821	5% Lilliefors Critical Value	0.1143821
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	134.03471	Mean	2.1323927
SD	985.73076	SD	2.2580491
95% DL/2 (t) UCL	246.9628	95% H-Stat (DL/2) UCL	185.49765
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.3531399

APPENDIX K, TABLE K-3
UCL AND DISTRIBUTION STASTISTICS - SITE 12 TOTAL SOIL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

		SD in Log Scale	2.480512
		Mean in Original Scale	108.5167
		SD in Original Scale	986.39931
		95% t UCL	221.52138
		95% Percentile Bootstrap UCL	233.94687
		95% BCA Bootstrap UCL	345.79775
		95% H-UCL	58.532818
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.2470452	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1497.9375		
nu star	29.64543		
A-D Test Statistic	10.377799	**Nonparametric Statistics**	
5% A-D Critical Value	0.8873643	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8873643	Mean	111.02643
5% K-S Critical Value	0.1258497	SD	983.83465
Data not Gamma Distributed at 5% Significance Level		SE of Mean	68.800028
		95% KM (t) UCL	224.70116
Assuming Gamma Distribution		95% KM (z) UCL	224.1924
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	223.80075
Minimum	0.000001	95% KM (bootstrap t) UCL	1392.758
Maximum	13000	95% KM (BCA) UCL	238.58923
Mean	127.47508	95% KM (Percentile Bootstrap) UCL	236.08572
Median	0.000001	95% KM (Chebyshev) UCL	410.9188
SD	990.07071	97.5% KM (Chebyshev) UCL	540.68247
k star	0.0688686	99% KM (Chebyshev) UCL	795.57807
Theta star	1850.9903		
Nu star	28.64933	**Potential UCLs to Use**	
AppChi2	17.434381	95% KM (Chebyshev) UCL	410.9188
95% Gamma Approximate UCL	209.47549		
95% Adjusted Gamma UCL	210.21089		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	C:\willow_grove\Site12_HHRA\ProUCL\WG12SWDB_ProUCLinput.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Data	3	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	1
Number of Missing Values	4	Percent Non-Detects	33.33%

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable Aluminum was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Arsenic

General Statistics

Number of Valid Data	7	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	6
		Percent Non-Detects	85.71%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Arsenic was not processed!

Chromium

General Statistics

Number of Valid Data	7	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	5
		Percent Non-Detects	71.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.9	Minimum Detected	0.6418539
Maximum Detected	37.8	Maximum Detected	3.6323091
Mean of Detected	19.85	Mean of Detected	2.1370815
SD of Detected	25.385133	SD of Detected	2.1145712
Minimum Non-Detect	0.95	Minimum Non-Detect	-0.051293
Maximum Non-Detect	0.95	Maximum Non-Detect	-0.051293

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Warning: Data set has only 2 Distinct Detected Values.			
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.			
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).			
Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			
It is necessary to have 4 or more Distinct Values for bootstrap methods.			
However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.0107143	Mean	0.0788515
SD	14.027814	SD	1.6499031
95% DL/2 (t) UCL	16.313486	95% H-Stat (DL/2) UCL	189.36669
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
		95% H-UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	7.0285714
5% K-S Critical Value	N/A	SD	12.562383
Data not Gamma Distributed at 5% Significance Level		SE of Mean	6.7148762
		95% KM (t) UCL	20.076786
Assuming Gamma Distribution		95% KM (z) UCL	18.07356
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	N/A
Minimum	N/A	95% KM (bootstrap t) UCL	N/A

Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	36.298038
SD	N/A	97.5% KM (Chebyshev) UCL	48.96296
k star	N/A	99% KM (Chebyshev) UCL	73.840746
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	73.840746
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Warning: Recommended UCL exceeds the maximum observation

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Data	3	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	2
Number of Missing Values	4	Percent Non-Detects	66.67%

Warning: This data set only has 3 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable Cobalt was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Cyanide

General Statistics

Number of Valid Data	7	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	2
		Percent Non-Detects	28.57%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	3.2	Minimum Detected	1.1631508
Maximum Detected	48.8	Maximum Detected	3.8877303
Mean of Detected	13.68	Mean of Detected	2.0080994
SD of Detected	19.692435	SD of Detected	1.0989582
Minimum Non-Detect	3	Minimum Non-Detect	1.0986123
Maximum Non-Detect	3	Maximum Non-Detect	1.0986123

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

the resulting calculations may not be reliable enough to draw conclusions			
It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.6226515	Shapiro Wilk Test Statistic	0.7986523
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	10.2	Mean	1.5502039
SD	17.142054	SD	1.1902403
95% DL/2 (t) UCL	22.790034	95% H-Stat (DL/2) UCL	75.380685
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.4869939	Mean in Log Scale	1.2271474
SD	19.673711	SD in Log Scale	1.6233631
95% MLE (t) UCL	20.936412	Mean in Original Scale	9.920565
95% MLE (Tiku) UCL	21.378508	SD in Original Scale	17.313663
		95% t UCL	22.636639
		95% Percentile Bootstrap UCL	22.433403
		95% BCA Bootstrap UCL	24
		95% H UCL	509.12998
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.5152747	**Data appear Lognormal at 5% Significance Level**	
Theta Star	26.548945		
nu star	5.1527471		
A-D Test Statistic	0.7942555	**Nonparametric Statistics**	
5% A-D Critical Value	0.6925879	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.6925879	Mean	10.685714
5% K-S Critical Value	0.3648181	SD	15.620813
Data not Gamma Distributed at 5% Significance Level		SE of Mean	6.6009982
		95% KM (t) UCL	23.512644
Assuming Gamma Distribution		95% KM (z) UCL	21.54339
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	23.008774
Minimum	0.000001	95% KM (bootstrap t) UCL	101.83331
Maximum	48.8	95% KM (BCA) UCL	23.771429
Mean	9.7714289	95% KM (Percentile Bootstrap) UCL	23.314286
Median	3.6	95% KM (Chebyshev) UCL	39.458799
SD	17.409357	97.5% KM (Chebyshev) UCL	51.908935
k star	0.1861009	99% KM (Chebyshev) UCL	76.364818
Theta star	52.506068		
Nu star	2.6054132	**Potential UCLs to Use**	
AppChi2	0.2658073	97.5% KM (Chebyshev) UCL	51.908935
95% Gamma Approximate UCL	95.778455		
95% Adjusted Gamma UCL	183.1305		
Warning: Recommended UCL exceeds the maximum observation			

APPENDIX K, TABLE K-4
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Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	120	Minimum of Log Data	4.7874917
Maximum	44700	Maximum of Log Data	10.707729
Mean	7127	Mean of log Data	6.8988487
Median	665	SD of log Data	1.9676434
SD	16591.921		
Std. Error of Mean	6271.1565		
Coefficient of Variation	2.3280371		
Skewness	2.630157		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.4955914	Shapiro Wilk Test Statistic	0.8969638
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	19312.988	95% H-UCL	1428474.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16317.211
95% Adjusted-CLT UCL (Chen-1995)	24103.461	97.5% Chebyshev (MVUE) UCL	21612.21
95% Modified-t UCL (Johnson-1978)	20352.02	99% Chebyshev (MVUE) UCL	32013.209
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.2907361	Data appear Lognormal at 5% Significance Level	
Theta Star	24513.637		
MLE of Mean	7127		
MLE of Standard Deviation	13217.742		

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
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nu star	4.0703058		
Approximate Chi Square Value (.05)	0.7496676	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01584	95% CLT UCL	17442.135
Adjusted Chi Square Value	0.4173129	95% Jackknife UCL	19312.988
		95% Standard Bootstrap UCL	16552.762
Anderson-Darling Test Statistic	0.944278	95% Bootstrap-t UCL	375372.7
Anderson-Darling 5% Critical Value	0.7772426	95% Hall's Bootstrap UCL	172985.67
Kolmogorov-Smirnov Test Statistic	0.3373172	95% Percentile Bootstrap UCL	19472.714
Kolmogorov-Smirnov 5% Critical Value	0.3334367	95% BCA Bootstrap UCL	25760
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	34462.337
		97.5% Chebyshev(Mean, Sd) UCL	46290.36
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	69524.219
95% Approximate Gamma UCL	38695.91		
95% Adjusted Gamma UCL	69513.953		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	69524.219

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Data	7	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	3
		Percent Non-Detects	42.86%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.5	Minimum Detected	0.9162907
Maximum Detected	88	Maximum Detected	4.4773368
Mean of Detected	26.175	Mean of Detected	2.2588538
SD of Detected	41.372485	SD of Detected	1.6011323
Minimum Non-Detect	1.8	Minimum Non-Detect	0.5877867
Maximum Non-Detect	1.8	Maximum Non-Detect	0.5877867

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.6994181	Shapiro Wilk Test Statistic	0.8981705
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
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Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	15.342857	Mean	1.2456191
SD	32.223638	SD	1.6967071
95% DL/2 (t) UCL	39.009608	95% H-Stat (DL/2) UCL	810.5857
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.6091596	Mean in Log Scale	0.2009029
SD	43.668401	SD in Log Scale	2.9034157
95% MLE (t) UCL	32.681552	Mean in Original Scale	15.011058
95% MLE (Tiku) UCL	37.602358	SD in Original Scale	32.3994
		95% t UCL	38.806898
		95% Percentile Bootstrap UCL	38.257177
		95% BCA Bootstrap UCL	42.26003
		95% H UCL	7532628.8
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.3197615	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	81.857892		
nu star	2.5580918		
A-D Test Statistic	0.4890124	**Nonparametric Statistics**	
5% A-D Critical Value	0.6761406	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.6761406	Mean	16.028571
5% K-S Critical Value	0.407891	SD	29.510081
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	12.879255
		95% KM (t) UCL	41.055286
Assuming Gamma Distribution		95% KM (z) UCL	37.213061
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	39.156104
Minimum	0.000001	95% KM (bootstrap t) UCL	153.7136
Maximum	88	95% KM (BCA) UCL	40.3
Mean	14.957143	95% KM (Percentile Bootstrap) UCL	39.771429
Median	2.5	95% KM (Chebyshev) UCL	72.167944
SD	32.428272	97.5% KM (Chebyshev) UCL	96.459495
k star	0.1577753	99% KM (Chebyshev) UCL	144.17554
Theta star	94.800292		
Nu star	2.208854	**Potential UCLs to Use**	
AppChi2	0.1826962	95% KM (BCA) UCL	40.3
95% Gamma Approximate UCL	180.83649		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

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UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Raw Statistics		Log-transformed Statistics	
Minimum	16.4	Minimum of Log Data	2.7972813
Maximum	2100	Maximum of Log Data	7.6496926
Mean	986.72857	Mean of log Data	5.7038214
Median	1010	SD of log Data	2.2171198
SD	943.74352		
Std. Error of Mean	356.70152		
Coefficient of Variation	0.9564368		
Skewness	0.0565564		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!

If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.8358112	Shapiro Wilk Test Statistic	0.7971191
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1679.8639	95% H-UCL	2933303.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7270.3093
95% Adjusted-CLT UCL (Chen-1995)	1581.5977	97.5% Chebyshev (MVUE) UCL	9676.8645
95% Modified-t UCL (Johnson-1978)	1681.1348	99% Chebyshev (MVUE) UCL	14404.076
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.3974715	**Data appear Normal at 5% Significance Level**	
Theta Star	2482.5142		
MLE of Mean	986.72857		
MLE of Standard Deviation	1565.1095		
nu star	5.5646006		
Approximate Chi Square Value (.05)	1.421559	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01584	95% CLT UCL	1573.4504
Adjusted Chi Square Value	0.8848633	95% Jackknife UCL	1679.8639
		95% Standard Bootstrap UCL	1532.5833
Anderson-Darling Test Statistic	0.6578334	95% Bootstrap-t UCL	1640.0332
Anderson-Darling 5% Critical Value	0.7497592	95% Hall's Bootstrap UCL	1415.2995
Kolmogorov-Smirnov Test Statistic	0.2554106	95% Percentile Bootstrap UCL	1533.4286
Kolmogorov-Smirnov 5% Critical Value	0.3267104	95% BCA Bootstrap UCL	1503.4286
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	2541.5545
		97.5% Chebyshev(Mean, Sd) UCL	3214.3289
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	4535.8639

95% Approximate Gamma UCL	3862.485		
95% Adjusted Gamma UCL	6205.1962		
Potential UCL to Use		Use 95% Student's-t UCL	1679.8639

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Data	5	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	3
Number of Missing Values	2	Percent Non-Detects	60.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	6.5	Minimum Detected	1.8718022
Maximum Detected	88.8	Maximum Detected	4.4863866
Mean of Detected	47.65	Mean of Detected	3.1790944
SD of Detected	58.194888	SD of Detected	1.8487904
Minimum Non-Detect	0.68	Minimum Non-Detect	-0.385662
Maximum Non-Detect	0.68	Maximum Non-Detect	-0.385662

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19.264	Mean	0.624352
SD	38.963214	SD	2.5086711
95% DL/2 (t) UCL	56.411173	95% H-Stat (DL/2) UCL	103910000

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Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
		95% H-UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	22.96
5% K-S Critical Value	N/A	SD	32.92
Data not Gamma Distributed at 5% Significance Level		SE of Mean	20.820436
		95% KM (t) UCL	67.34598
Assuming Gamma Distribution		95% KM (z) UCL	57.20657
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	N/A
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	113.71418
SD	N/A	97.5% KM (Chebyshev) UCL	152.98358
k star	N/A	99% KM (Chebyshev) UCL	230.12072
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	97.5% KM (Chebyshev) UCL	152.98358
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		
Warning: Recommended UCL exceeds the maximum observation			
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Aldrin			
General Statistics			
Number of Valid Data	7	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	6
		Percent Non-Detects	85.71%
Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!			
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).			

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
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The data set for variable Aldrin was not processed!			
Dieldrin			
General Statistics			
Number of Valid Data	7	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	2
		Percent Non-Detects	28.57%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.0029	Minimum Detected	-5.843045
Maximum Detected	1.6	Maximum Detected	0.4700036
Mean of Detected	0.32914	Mean of Detected	-3.773572
SD of Detected	0.7105067	SD of Detected	2.512276
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.302585
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.302585
Warning: There are only 5 Detected Values in this data			
Note: It should be noted that even though bootstrap may be performed on this data set			
the resulting calculations may not be reliable enough to draw conclusions			
It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.5636382	Shapiro Wilk Test Statistic	0.8210475
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.2493857	Mean	-3.551332
SD	0.5959016	SD	2.0860831
95% DL/2 (t) UCL	0.6870475	95% H-Stat (DL/2) UCL	99.735518
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.010899
		SD in Log Scale	2.1646755
		Mean in Original Scale	0.2394153
		SD in Original Scale	0.6000582
		95% t UCL	0.6801299
		95% Percentile Bootstrap UCL	0.6887695
		95% BCA Bootstrap UCL	0.9194162
		95% H-UCL	116.2244
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.2390901	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1.376636		

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
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nu star	2.3909007		
A-D Test Statistic	0.8392325	**Nonparametric Statistics**	
5% A-D Critical Value	0.7520395	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.7520395	Mean	0.2383643
5% K-S Critical Value	0.3829616	SD	0.5559669
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.2349561
		95% KM (t) UCL	0.6949264
Assuming Gamma Distribution		95% KM (z) UCL	0.6248327
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.6794679
Minimum	0.000001	95% KM (bootstrap t) UCL	59.342981
Maximum	1.6	95% KM (BCA) UCL	0.6937524
Mean	0.2481433	95% KM (Percentile Bootstrap) UCL	0.6884286
Median	0.0072	95% KM (Chebyshev) UCL	1.2625142
SD	0.5969722	97.5% KM (Chebyshev) UCL	1.7056647
k star	0.2112259	99% KM (Chebyshev) UCL	2.5761481
Theta star	1.1747771		
Nu star	2.9571622	**Potential UCLs to Use**	
AppChi2	0.3598416	99% KM (Chebyshev) UCL	2.5761481
95% Gamma Approximate UCL	2.0392305		
95% Adjusted Gamma UCL	3.9649413		
Warning: Recommended UCL exceeds the maximum observation			
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Benz(a)anthracene			
General Statistics			
Number of Valid Data	7	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	4
		Percent Non-Detects	57.14%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.045	Minimum Detected	-3.101093
Maximum Detected	6.3	Maximum Detected	1.8405496
Mean of Detected	2.1306667	Mean of Detected	-1.439384
SD of Detected	3.6107487	SD of Detected	2.8405887
Minimum Non-Detect	0.21	Minimum Non-Detect	-1.560648
Maximum Non-Detect	0.22	Maximum Non-Detect	-1.514128
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%
Warning: There are only 3 Distinct Detected Values in this data set			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

It is necessary to have 4 or more Distinct Values for bootstrap methods.			
However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7502254	Shapiro Wilk Test Statistic	0.7565848
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.9752857	Mean	-1.884824
SD	2.3481654	SD	1.6921979
95% DL/2 (t) UCL	2.6999031	95% H-Stat (DL/2) UCL	34.442014
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.260491
		SD in Log Scale	2.0065941
		Mean in Original Scale	0.9660924
		SD in Original Scale	2.3532256
		95% t UCL	2.6944262
		95% Percentile Bootstrap UCL	2.7235543
		95% BCA Bootstrap UCL	3.6215395
		95% H-UCL	199.708
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.9394286
5% K-S Critical Value	N/A	SD	2.1884443
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.013053
		95% KM (t) UCL	2.9079733
Assuming Gamma Distribution		95% KM (z) UCL	2.6057526
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.6755226
Minimum	N/A	95% KM (bootstrap t) UCL	1848.0342
Maximum	N/A	95% KM (BCA) UCL	6.3
Mean	N/A	95% KM (Percentile Bootstrap) UCL	6.3
Median	N/A	95% KM (Chebyshev) UCL	5.3552244
SD	N/A	97.5% KM (Chebyshev) UCL	7.2659428
k star	N/A	99% KM (Chebyshev) UCL	11.019179
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	11.019179
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		
Warning: Recommended UCL exceeds the maximum observation			

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Benzo(a)pyrene			
General Statistics			
Number of Valid Data	7	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	4
		Percent Non-Detects	57.14%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.049	Minimum Detected	-3.015935
Maximum Detected	7.1	Maximum Detected	1.9600948
Mean of Detected	2.423	Mean of Detected	-1.058701
SD of Detected	4.0505564	SD of Detected	2.6524336
Minimum Non-Detect	0.21	Minimum Non-Detect	-1.560648
Maximum Non-Detect	0.22	Maximum Non-Detect	-1.514128
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%
Warning: There are only 3 Distinct Detected Values in this data set			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			
It is necessary to have 4 or more Distinct Values for bootstrap methods.			
However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7575368	Shapiro Wilk Test Statistic	0.8798499
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.1005714	Mean	-1.721675
SD	2.645604	SD	1.6522704
95% DL/2 (t) UCL	3.0436435	95% H-Stat (DL/2) UCL	31.737332
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.862473
		SD in Log Scale	1.9042208
		Mean in Original Scale	1.1167896
		SD in Original Scale	2.6405991

		95% t UCL	3.0561858
		95% Percentile Bootstrap UCL	3.0835129
		95% BCA Bootstrap UCL	4.0951045
		95% H-UCL	142.62718
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Lognormal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.0867143
5% K-S Critical Value	N/A	SD	2.4551336
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.1367097
		95% KM (t) UCL	3.2955461
Assuming Gamma Distribution		95% KM (z) UCL	2.9564353
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.0356512
Minimum	N/A	95% KM (bootstrap t) UCL	66.405209
Maximum	N/A	95% KM (BCA) UCL	7.1
Mean	N/A	95% KM (Percentile Bootstrap) UCL	7.1
Median	N/A	95% KM (Chebyshev) UCL	6.0415169
SD	N/A	97.5% KM (Chebyshev) UCL	8.1854639
k star	N/A	99% KM (Chebyshev) UCL	12.396833
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	12.396833
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		
Warning: Recommended UCL exceeds the maximum observation			
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Benzo(b)fluoranthene			
General Statistics			
Number of Valid Data	7	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	4
		Percent Non-Detects	57.14%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.053	Minimum Detected	-2.937463
Maximum Detected	6.5	Maximum Detected	1.8718022
Mean of Detected	2.2243333	Mean of Detected	-1.061975
SD of Detected	3.7029875	SD of Detected	2.5733713
Minimum Non-Detect	0.21	Minimum Non-Detect	-1.560648
Maximum Non-Detect	0.22	Maximum Non-Detect	-1.514128

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%
Warning: There are only 3 Distinct Detected Values in this data set			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			
It is necessary to have 4 or more Distinct Values for bootstrap methods.			
However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7577789	Shapiro Wilk Test Statistic	0.8731408
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.0154286	Mean	-1.723078
SD	2.4185694	SD	1.6093815
95% DL/2 (t) UCL	2.7917544	95% H-Stat (DL/2) UCL	24.523318
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.84012
		SD in Log Scale	1.846066
		Mean in Original Scale	1.0327484
		SD in Original Scale	2.413227
		95% t UCL	2.8051504
		95% Percentile Bootstrap UCL	2.8265487
		95% BCA Bootstrap UCL	3.7521736
		95% H-UCL	97.765284
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Lognormal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.0027143
5% K-S Critical Value	N/A	SD	2.2444718
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.0391869
		95% KM (t) UCL	3.0220418
Assuming Gamma Distribution		95% KM (z) UCL	2.7120247
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.7845
Minimum	N/A	95% KM (bootstrap t) UCL	59.441962
Maximum	N/A	95% KM (BCA) UCL	6.5
Mean	N/A	95% KM (Percentile Bootstrap) UCL	6.5
Median	N/A	95% KM (Chebyshev) UCL	5.5324251

SD	N/A	97.5% KM (Chebyshev) UCL	7.4924345
k star	N/A	99% KM (Chebyshev) UCL	11.342494
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	11.342494
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Warning: Recommended UCL exceeds the maximum observation

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	7	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	4
		Percent Non-Detects	57.14%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.047	Minimum Detected	-3.057608
Maximum Detected	4.8	Maximum Detected	1.5686159
Mean of Detected	1.6556667	Mean of Detected	-1.203085
SD of Detected	2.7233172	SD of Detected	2.4456898
Minimum Non-Detect	0.21	Minimum Non-Detect	-1.560648
Maximum Non-Detect	0.22	Maximum Non-Detect	-1.514128
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%

Warning: There are only 3 Distinct Detected Values in this data set

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.

However, results obtained using 4 to 9 distinct values may not be reliable.

It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7615017	Shapiro Wilk Test Statistic	0.8945038
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.7717143	Mean	-1.783554

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

SD	1.7764728	SD	1.5129097
95% DL/2 (t) UCL	2.0764502	95% H-Stat (DL/2) UCL	13.292928
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.947521
		SD in Log Scale	1.7585748
		Mean in Original Scale	0.7802276
		SD in Original Scale	1.7749645
		95% t UCL	2.0838557
		95% Percentile Bootstrap UCL	2.1055987
		95% BCA Bootstrap UCL	2.7553537
		95% H-UCL	49.250186
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Lognormal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.7572857
5% K-S Critical Value	N/A	SD	1.6507771
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.7644815
		95% KM (t) UCL	2.242811
Assuming Gamma Distribution		95% KM (z) UCL	2.0147458
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.0688578
Minimum	N/A	95% KM (bootstrap t) UCL	29.875869
Maximum	N/A	95% KM (BCA) UCL	4.8
Mean	N/A	95% KM (Percentile Bootstrap) UCL	4.8
Median	N/A	95% KM (Chebyshev) UCL	4.0895832
SD	N/A	97.5% KM (Chebyshev) UCL	5.5314709
k star	N/A	99% KM (Chebyshev) UCL	8.3637803
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	8.3637803
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		
Warning: Recommended UCL exceeds the maximum observation			
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Dibenz(a,h)anthracene			
General Statistics			
Number of Valid Data	7	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	5
		Percent Non-Detects	71.43%

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.816713
Maximum Detected	0.21	Maximum Detected	-1.560648
Mean of Detected	0.116	Mean of Detected	-2.68868
SD of Detected	0.1329361	SD of Detected	1.5952789
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609438
Maximum Non-Detect	0.22	Maximum Non-Detect	-1.514128
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%
Warning: Data set has only 2 Distinct Detected Values.			
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.			
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).			
Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			
It is necessary to have 4 or more Distinct Values for bootstrap methods.			
However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.1095714	Mean	-2.365081
SD	0.0545706	SD	0.6886395
95% DL/2 (t) UCL	0.149651	95% H-Stat (DL/2) UCL	0.2673349
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
		95% H-UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.069
5% K-S Critical Value	N/A	SD	0.0814064
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.057563
		95% KM (t) UCL	0.1808553
Assuming Gamma Distribution		95% KM (z) UCL	0.1636827
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.2181269
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	0.21
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	0.3199113
SD	N/A	97.5% KM (Chebyshev) UCL	0.4284809
k star	N/A	99% KM (Chebyshev) UCL	0.6417447
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	97.5% KM (Chebyshev) UCL	0.4284809
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		
Warning: Recommended UCL exceeds the maximum observation			
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			
Indeno(1,2,3-cd)pyrene			
General Statistics			
Number of Valid Data	7	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	4
		Percent Non-Detects	57.14%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.038	Minimum Detected	-3.270169
Maximum Detected	5	Maximum Detected	1.6094379
Mean of Detected	1.736	Mean of Detected	-1.144229
SD of Detected	2.8274773	SD of Detected	2.4996345
Minimum Non-Detect	0.21	Minimum Non-Detect	-1.560648
Maximum Non-Detect	0.22	Maximum Non-Detect	-1.514128
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%
Warning: There are only 3 Distinct Detected Values in this data set			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			
It is necessary to have 4 or more Distinct Values for bootstrap methods.			

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7699224	Shapiro Wilk Test Statistic	0.9526829
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.8061429	Mean	-1.75833
SD	1.8497119	SD	1.553375
95% DL/2 (t) UCL	2.1646695	95% H-Stat (DL/2) UCL	17.111727
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.915653
		SD in Log Scale	1.8062724
		Mean in Original Scale	0.8175274
		SD in Original Scale	1.8471428
		95% t UCL	2.1741672
		95% Percentile Bootstrap UCL	2.1971168
		95% BCA Bootstrap UCL	2.2619155
		95% H-UCL	69.44448
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.8034286
5% K-S Critical Value	N/A	SD	1.7143324
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.7945893
		95% KM (t) UCL	2.3474587
Assuming Gamma Distribution		95% KM (z) UCL	2.1104116
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.169729
Minimum	N/A	95% KM (bootstrap t) UCL	18.439182
Maximum	N/A	95% KM (BCA) UCL	5
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	4.2669629
SD	N/A	97.5% KM (Chebyshev) UCL	5.7656369
k star	N/A	99% KM (Chebyshev) UCL	8.7094919
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	2.3474587
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	N/A
95% Adjusted Gamma UCL	N/A		
Note: DL/2 is not a recommended method.			

APPENDIX K, TABLE K-4
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SURFACE WATER
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

	General UCL Statistics for Data Sets with Non-Detects			
User Selected Options				
From File	C:\willow_grove\Site12_HHRA\ProUCL\wg12sddb_ProUCLinput.wst			
Full Precision	ON			
Confidence Coefficient	95%			
Number of Bootstrap Operations	2000			
Arsenic				
General Statistics				
Number of Valid Observations	8		Number of Distinct Observations	8
Raw Statistics			**Log-transformed Statistics**	
Minimum	2.8		Minimum of Log Data	1.0296194
Maximum	7.2		Maximum of Log Data	1.974081
Mean	4.25		Mean of log Data	1.3904224
Median	3.45		SD of log Data	0.3480939
SD	1.6248077			
Std. Error of Mean	0.5744563			
Coefficient of Variation	0.3823077			
Skewness	1.164973			
Warning: There are only 8 Values in this data				
Note: It should be noted that even though bootstrap methods may be performed on this data set,				
the resulting calculations may not be reliable enough to draw conclusions				
The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.				
Relevant UCL Statistics				
Normal Distribution Test			**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8262459		Shapiro Wilk Test Statistic	0.8735853
Shapiro Wilk Critical Value	0.818		Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level			**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution			**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.3383525		95% H-UCL	5.6411037
95% UCLs (Adjusted for Skewness)			95% Chebyshev (MVUE) UCL	6.5173699
95% Adjusted-CLT UCL (Chen-1995)	5.4477146		97.5% Chebyshev (MVUE) UCL	7.5054252
95% Modified-t UCL (Johnson-1978)	5.3777871		99% Chebyshev (MVUE) UCL	9.4462685
Gamma Distribution Test			**Data Distribution**	
k star (bias corrected)	5.7167939		**Data appear Normal at 5% Significance Level**	
Theta Star	0.7434237			
MLE of Mean	4.25			
MLE of Standard Deviation	1.7775125			
nu star	91.468702			
Approximate Chi Square Value (.05)	70.414965		**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946		95% CLT UCL	5.1948965
Adjusted Chi Square Value	65.756919		95% Jackknife UCL	5.3383525
			95% Standard Bootstrap UCL	5.1430946

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Anderson-Darling Test Statistic	0.6078099	95% Bootstrap-t UCL	6.7853158
Anderson-Darling 5% Critical Value	0.7157789	95% Hall's Bootstrap UCL	6.0081378
Kolmogorov-Smirnov Test Statistic	0.2992301	95% Percentile Bootstrap UCL	5.175
Kolmogorov-Smirnov 5% Critical Value	0.2944694	95% BCA Bootstrap UCL	5.35
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.7539968
		97.5% Chebyshev(Mean, Sd) UCL	7.8374782
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.9657677
95% Approximate Gamma UCL	5.5207297		
95% Adjusted Gamma UCL	5.9118035		
Potential UCL to Use		Use 95% Student's-t UCL	5.3383525

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	11	Minimum of Log Data	2.3978953
Maximum	22.3	Maximum of Log Data	3.1045867
Mean	15.9875	Mean of log Data	2.7470564
Median	16	SD of log Data	0.2395509
SD	3.7646618		
Std. Error of Mean	1.3310089		
Coefficient of Variation	0.2354753		
Skewness	0.2546997		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.971635	Shapiro Wilk Test Statistic	0.968715
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	18.509201	95% H-UCL	19.21252
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.911656
95% Adjusted-CLT UCL (Chen-1995)	18.304884	97.5% Chebyshev (MVUE) UCL	24.473068
95% Modified-t UCL (Johnson-1978)	18.529177	99% Chebyshev (MVUE) UCL	29.504467
Gamma Distribution Test		**Data Distribution**	

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

k star (bias corrected)	12.812505	**Data appear Normal at 5% Significance Level**	
Theta Star	1.2478044		
MLE of Mean	15.9875		
MLE of Standard Deviation	4.4664609		
nu star	205.00008		
Approximate Chi Square Value (.05)	172.86949	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	18.176815
Adjusted Chi Square Value	165.39187	95% Jackknife UCL	18.509201
		95% Standard Bootstrap UCL	18.049976
Anderson-Darling Test Statistic	0.1839501	95% Bootstrap-t UCL	18.814014
Anderson-Darling 5% Critical Value	0.7162218	95% Hall's Bootstrap UCL	18.442815
Kolmogorov-Smirnov Test Statistic	0.1468171	95% Percentile Bootstrap UCL	18.025
Kolmogorov-Smirnov 5% Critical Value	0.2938545	95% BCA Bootstrap UCL	18.0875
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	21.789234
		97.5% Chebyshev(Mean, Sd) UCL	24.299648
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	29.230872
95% Approximate Gamma UCL	18.959035		
95% Adjusted Gamma UCL	19.816202		
Potential UCL to Use		Use 95% Student's-t UCL	18.509201

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.4	Minimum of Log Data	1.2237754
Maximum	37.1	Maximum of Log Data	3.613617
Mean	10.4125	Mean of log Data	2.0619166
Median	7.45	SD of log Data	0.7041234
SD	10.941459		
Std. Error of Mean	3.8683901		
Coefficient of Variation	1.0508004		
Skewness	2.6649019		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.5854416	Shapiro Wilk Test Statistic	0.83878
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.741469	95% H-UCL	20.904909
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	20.432592
95% Adjusted-CLT UCL (Chen-1995)	20.669892	97.5% Chebyshev (MVUE) UCL	25.06933
95% Modified-t UCL (Johnson-1978)	18.348926	99% Chebyshev (MVUE) UCL	34.177303
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.2888237	**Data appear Lognormal at 5% Significance Level**	
Theta Star	8.0790724		
MLE of Mean	10.4125		
MLE of Standard Deviation	9.1718777		
nu star	20.621179		
Approximate Chi Square Value (.05)	11.310343	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	16.775435
Adjusted Chi Square Value	9.614459	95% Jackknife UCL	17.741469
		95% Standard Bootstrap UCL	16.387118
Anderson-Darling Test Statistic	0.9806752	95% Bootstrap-t UCL	40.216512
Anderson-Darling 5% Critical Value	0.7246038	95% Hall's Bootstrap UCL	49.393076
Kolmogorov-Smirnov Test Statistic	0.3447035	95% Percentile Bootstrap UCL	17.925
Kolmogorov-Smirnov 5% Critical Value	0.2976651	95% BCA Bootstrap UCL	21.7
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	27.274422
		97.5% Chebyshev(Mean, Sd) UCL	34.570588
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	48.902496
95% Approximate Gamma UCL	18.98422		
95% Adjusted Gamma UCL	22.332825		
Potential UCL to Use		Use 95% H-UCL	20.904909

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		Log-transformed Statistics	
Minimum	129	Minimum of Log Data	4.8598124
Maximum	17400	Maximum of Log Data	9.7642255
Mean	2790.25	Mean of log Data	6.4743746
Median	372	SD of log Data	1.6513524
SD	5964.2358		
Std. Error of Mean	2108.6758		

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Coefficient of Variation	2.1375274		
Skewness	2.7206146		
Warning: There are only 8 Values in this data			
Note: It should be noted that even though bootstrap methods may be performed on this data set,			
the resulting calculations may not be reliable enough to draw conclusions			
The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.			
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.5201648	Shapiro Wilk Test Statistic	0.8776444
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6785.302	95% H-UCL	63368.926
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6670.4051
95% Adjusted-CLT UCL (Chen-1995)	8425.9792	97.5% Chebyshev (MVUE) UCL	8739.8372
95% Modified-t UCL (Johnson-1978)	7123.3517	99% Chebyshev (MVUE) UCL	12804.836
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.3605069	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	7739.7958		
MLE of Mean	2790.25		
MLE of Standard Deviation	4647.1459		
nu star	5.7681108		
Approximate Chi Square Value (.05)	1.5225318	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	6258.713
Adjusted Chi Square Value	1.0388707	95% Jackknife UCL	6785.302
		95% Standard Bootstrap UCL	6149.4292
Anderson-Darling Test Statistic	0.9428284	95% Bootstrap-t UCL	56335.222
Anderson-Darling 5% Critical Value	0.7722303	95% Hall's Bootstrap UCL	40749.287
Kolmogorov-Smirnov Test Statistic	0.2840853	95% Percentile Bootstrap UCL	6810.625
Kolmogorov-Smirnov 5% Critical Value	0.3112396	95% BCA Bootstrap UCL	9010.75
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	11981.755
		97.5% Chebyshev(Mean, Sd) UCL	15958.926
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	23771.309
95% Approximate Gamma UCL	10570.86		
95% Adjusted Gamma UCL	15492.275		
Potential UCL to Use		Use 95% Adjusted Gamma UCL	15492.275
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Thallium			
General Statistics			

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Number of Valid Data	8	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	5
		Percent Non-Detects	62.50%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.1823216
Maximum Detected	13.3	Maximum Detected	2.587764
Mean of Detected	5.4	Mean of Detected	1.1002379
SD of Detected	6.8461668	SD of Detected	1.2999538
Minimum Non-Detect	0.66	Minimum Non-Detect	-0.415515
Maximum Non-Detect	1	Maximum Non-Detect	0
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	5
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	62.50%
Warning: There are only 3 Distinct Detected Values in this data set			
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.			
Those methods will return a 'N/A' value on your output display!			
It is necessary to have 4 or more Distinct Values for bootstrap methods.			
However, results obtained using 4 to 9 distinct values may not be reliable.			
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.7809217	Shapiro Wilk Test Statistic	0.8559843
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.281875	Mean	-0.151993
SD	4.47904	SD	1.2563593
95% DL/2 (t) UCL	5.2820914	95% H-Stat (DL/2) UCL	13.156291
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.868829
		SD in Log Scale	2.554925
		Mean in Original Scale	2.0412401
		SD in Original Scale	4.5964285
		95% t UCL	5.1200873
		95% Percentile Bootstrap UCL	5.1504921
		95% BCA Bootstrap UCL	5.506496
		95% H-UCL	6979.4393
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
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A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	2.775
5% K-S Critical Value	N/A	SD	3.9814413
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.7240147
		95% KM (t) UCL	6.0412813
Assuming Gamma Distribution		95% KM (z) UCL	5.6107518
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.4597897
Minimum	N/A	95% KM (bootstrap t) UCL	41.401284
Maximum	N/A	95% KM (BCA) UCL	13.3
Mean	N/A	95% KM (Percentile Bootstrap) UCL	13.3
Median	N/A	95% KM (Chebyshev) UCL	10.289806
SD	N/A	97.5% KM (Chebyshev) UCL	13.541468
k star	N/A	99% KM (Chebyshev) UCL	19.928729
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	6.0412813
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	13.3
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benz(a)anthracene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	10	Minimum of Log Data	2.3025851
Maximum	3500	Maximum of Log Data	8.1605182
Mean	1202.625	Mean of log Data	5.9215616
Median	665	SD of log Data	2.1194694
SD	1331.9924		
Std. Error of Mean	470.93042		
Coefficient of Variation	1.1075708		
Skewness	0.8041106		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8582997	Shapiro Wilk Test Statistic	0.9174926
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2094.8397	95% H-UCL	630006.24
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8076.3447
95% Adjusted-CLT UCL (Chen-1995)	2120.2932	97.5% Chebyshev (MVUE) UCL	10716.531
95% Modified-t UCL (Johnson-1978)	2117.1536	99% Chebyshev (MVUE) UCL	15902.667
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.4187638	**Data appear Normal at 5% Significance Level**	
Theta Star	2871.846		
MLE of Mean	1202.625		
MLE of Standard Deviation	1858.4278		
nu star	6.7002201		
Approximate Chi Square Value (.05)	2.0075589	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	1977.2366
Adjusted Chi Square Value	1.4238821	95% Jackknife UCL	2094.8397
		95% Standard Bootstrap UCL	1924.5354
Anderson-Darling Test Statistic	0.2657131	95% Bootstrap-t UCL	2342.7693
Anderson-Darling 5% Critical Value	0.7598399	95% Hall's Bootstrap UCL	1900.4063
Kolmogorov-Smirnov Test Statistic	0.1886182	95% Percentile Bootstrap UCL	1957.5
Kolmogorov-Smirnov 5% Critical Value	0.3082665	95% BCA Bootstrap UCL	1990.125
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3255.3631
		97.5% Chebyshev(Mean, Sd) UCL	4143.5845
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	5888.3235
95% Approximate Gamma UCL	4013.7563		
95% Adjusted Gamma UCL	5659.0725		
Potential UCL to Use		Use 95% Student's-t UCL	2094.8397

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		Log-transformed Statistics	
Minimum	13	Minimum of Log Data	2.5649494
Maximum	3500	Maximum of Log Data	8.1605182
Mean	1294.75	Mean of log Data	6.0558612
Median	700	SD of log Data	2.0512825
SD	1407.6005		
Std. Error of Mean	497.66192		
Coefficient of Variation	1.08716		
Skewness	0.7058018		

Warning: There are only 8 Values in this data

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Note: It should be noted that even though bootstrap methods may be performed on this data set,			
the resulting calculations may not be reliable enough to draw conclusions			
The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.			
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.846501	Shapiro Wilk Test Statistic	0.9119099
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2237.6096	95% H-UCL	455334.45
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8270.4605
95% Adjusted-CLT UCL (Chen-1995)	2246.0254	97.5% Chebyshev (MVUE) UCL	10958.263
95% Modified-t UCL (Johnson-1978)	2258.3073	99% Chebyshev (MVUE) UCL	16237.93
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.4345794	**Data appear Normal at 5% Significance Level**	
Theta Star	2979.3176		
MLE of Mean	1294.75		
MLE of Standard Deviation	1964.0447		
nu star	6.9532702		
Approximate Chi Square Value (.05)	2.1449324	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	2113.331
Adjusted Chi Square Value	1.5349623	95% Jackknife UCL	2237.6096
		95% Standard Bootstrap UCL	2064.9035
Anderson-Darling Test Statistic	0.2731825	95% Bootstrap-t UCL	2576.156
Anderson-Darling 5% Critical Value	0.7580949	95% Hall's Bootstrap UCL	2024.1894
Kolmogorov-Smirnov Test Statistic	0.1823224	95% Percentile Bootstrap UCL	2062.5
Kolmogorov-Smirnov 5% Critical Value	0.3077675	95% BCA Bootstrap UCL	2179.375
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3464.008
		97.5% Chebyshev(Mean, Sd) UCL	4402.6477
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6246.4236
95% Approximate Gamma UCL	4197.2169		
95% Adjusted Gamma UCL	5865.1256		
Potential UCL to Use		Use 95% Student's-t UCL	2237.6096
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
Benzo(b)fluoranthene			
General Statistics			
Number of Valid Observations	8	Number of Distinct Observations	8
Raw Statistics		**Log-transformed Statistics**	
Minimum	14	Minimum of Log Data	2.6390573
Maximum	4800	Maximum of Log Data	8.4763712

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Mean	1467	Mean of log Data	6.1563315
Median	770	SD of log Data	2.0531042
SD	1719.3308		
Std. Error of Mean	607.87522		
Coefficient of Variation	1.1720046		
Skewness	1.1976105		

Warning: There are only 8 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8493122	Shapiro Wilk Test Statistic	0.9350622
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2618.6674	95% H-UCL	509571.13
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9171.5358
95% Adjusted-CLT UCL (Chen-1995)	2741.8865	97.5% Chebyshev (MVUE) UCL	12152.664
95% Modified-t UCL (Johnson-1978)	2661.5651	99% Chebyshev (MVUE) UCL	18008.512
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.4279986	**Data appear Normal at 5% Significance Level**	
Theta Star	3427.5816		
MLE of Mean	1467		
MLE of Standard Deviation	2242.3787		
nu star	6.8479771		
Approximate Chi Square Value (.05)	2.0875008	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	2466.8658
Adjusted Chi Square Value	1.4884282	95% Jackknife UCL	2618.6674
		95% Standard Bootstrap UCL	2393.5656
Anderson-Darling Test Statistic	0.1803682	95% Bootstrap-t UCL	3394.5123
Anderson-Darling 5% Critical Value	0.758821	95% Hall's Bootstrap UCL	2890.755
Kolmogorov-Smirnov Test Statistic	0.1409495	95% Percentile Bootstrap UCL	2463
Kolmogorov-Smirnov 5% Critical Value	0.3079751	95% BCA Bootstrap UCL	2649
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4116.6667
		97.5% Chebyshev(Mean, Sd) UCL	5263.1795
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7515.2821
95% Approximate Gamma UCL	4812.4448		
95% Adjusted Gamma UCL	6749.3898		
Potential UCL to Use		Use 95% Student's-t UCL	2618.6674

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Dibenz(a,h)anthracene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.4	Minimum of Log Data	0.8754687
Maximum	750	Maximum of Log Data	6.6200732
Mean	291.5375	Mean of log Data	4.4592868
Median	140.5	SD of log Data	2.2144712
SD	318.80891		
Std. Error of Mean	112.71597		
Coefficient of Variation	1.0935434		
Skewness	0.6443372		

Warning: There are only 8 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8174876	Shapiro Wilk Test Statistic	0.8777691
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	505.08677	95% H-UCL	283749.15
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2185.4794
95% Adjusted-CLT UCL (Chen-1995)	504.37562	97.5% Chebyshev (MVUE) UCL	2905.2516
95% Modified-t UCL (Johnson-1978)	509.36636	99% Chebyshev (MVUE) UCL	4319.1048
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.407927	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	714.68052		
MLE of Mean	291.5375		
MLE of Standard Deviation	456.46048		
nu star	6.5268324		
Approximate Chi Square Value (.05)	1.9147521	**Nonparametric Statistics**	
Adjusted Level of Significance	0.01946	95% CLT UCL	476.93878
Adjusted Chi Square Value	1.3492979	95% Jackknife UCL	505.08677
		95% Standard Bootstrap UCL	465.18025
Anderson-Darling Test Statistic	0.3494249	95% Bootstrap-t UCL	562.15379
Anderson-Darling 5% Critical Value	0.7610356	95% Hall's Bootstrap UCL	434.3716
Kolmogorov-Smirnov Test Statistic	0.2016895	95% Percentile Bootstrap UCL	478.125
Kolmogorov-Smirnov 5% Critical Value	0.3086084	95% BCA Bootstrap UCL	486.85
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	782.85503
		97.5% Chebyshev(Mean, Sd) UCL	995.44852
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1413.0473

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

95% Approximate Gamma UCL	993.76645		
95% Adjusted Gamma UCL	1410.2271		
Potential UCL to Use		Use 95% Approximate Gamma UCL	993.76645
Recommended UCL exceeds the maximum observation			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	11	Minimum of Log Data	2.3978953
Maximum	1900	Maximum of Log Data	7.5496092
Mean	723.625	Mean of log Data	5.555215
Median	355	SD of log Data	1.9203837
SD	784.19566		
Std. Error of Mean	277.25504		
Coefficient of Variation	1.0837045		
Skewness	0.6786275		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8284515	Shapiro Wilk Test Statistic	0.9099548
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1248.9065	95% H-UCL	119218.61
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4062.5854
95% Adjusted-CLT UCL (Chen-1995)	1250.7488	97.5% Chebyshev (MVUE) UCL	5366.1748
95% Modified-t UCL (Johnson-1978)	1259.9935	99% Chebyshev (MVUE) UCL	7926.8237
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.4585668	**Data appear Normal at 5% Significance Level**	
Theta Star	1578.0143		
MLE of Mean	723.625		
MLE of Standard Deviation	1068.5928		
nu star	7.3370691		
Approximate Chi Square Value (.05)	2.3573942	**Nonparametric Statistics**	

APPENDIX K, TABLE K-5
UCL AND DISTRIBUTION STASTISTICS - SITE 12 SEDIMENT
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Adjusted Level of Significance	0.01946	95% CLT UCL	1179.669
Adjusted Chi Square Value	1.7082085	95% Jackknife UCL	1248.9065
		95% Standard Bootstrap UCL	1156.9732
Anderson-Darling Test Statistic	0.3058798	95% Bootstrap-t UCL	1366.8782
Anderson-Darling 5% Critical Value	0.7554482	95% Hall's Bootstrap UCL	1089.4059
Kolmogorov-Smirnov Test Statistic	0.1959874	95% Percentile Bootstrap UCL	1166.375
Kolmogorov-Smirnov 5% Critical Value	0.3070106	95% BCA Bootstrap UCL	1177.625
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1932.1517
		97.5% Chebyshev(Mean, Sd) UCL	2455.0821
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3482.2778
95% Approximate Gamma UCL	2252.1845		
95% Adjusted Gamma UCL	3108.1021		
Potential UCL to Use		Use 95% Student's-t UCL	1248.9065

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

1				**General Background Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	C:\willow_grove\WGSite3\Site3_2010\BackgroundComparison\WGBMSODB_ProUCL_input.wst								
4			Full Precision	ON								
5			Confidence Coefficient	95%								
6			Coverage	95%								
7			Different or Future K Values	1								
8			Number of Bootstrap Operations	2000								
9												
10												
11	**Aluminum**											
12												
13						**General Statistics**							
14						Total Number of Observations	12				Number of Distinct Observations	11	
15												
16						**Raw Statistics**					**Log-Transformed Statistics**		
17						Minimum	9090				Minimum	9.1149302	
18						Maximum	15000				Maximum	9.6158055	
19						Second Largest	12800				Second Largest	9.4572004	
20						First Quartile	9726.25				First Quartile	9.1820182	
21						Median	11300				Median	9.3311463	
22						Third Quartile	12225				Third Quartile	9.4111814	
23						Mean	11272.083				Mean	9.3197992	
24						SD	1715.7975				SD	0.1488235	
25						Coefficient of Variation	0.1522165						
26						Skewness	0.6857721						
27													
28						**Background Statistics**							
29						**Normal Distribution Test**					**Lognormal Distribution Test**		
30						Shapiro Wilk Test Statistic	0.9352812				Shapiro Wilk Test Statistic	0.950984	
31						Shapiro Wilk Critical Value	0.859				Shapiro Wilk Critical Value	0.859	
32						**Data appear Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
33													
34						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
35						95% UTL with 95% Coverage	15966.505				95% UTL with 95% Coverage	16763.852	
36						95% UPL (t)	14479.28				95% UPL (t)	14735.023	
37						90% Percentile (z)	13470.966				90% Percentile (z)	13501.069	
38						95% Percentile (z)	14094.319				95% Percentile (z)	14251.138	
39						99% Percentile (z)	15263.625				99% Percentile (z)	15772.36	
40													
41						**Gamma Distribution Test**					**Data Distribution Test**		
42						k star	36.640104				**Data appear Normal at 5% Significance Level**		
43						Theta Star	307.64332						
44						MLE of Mean	11272.083						
45						MLE of Standard Deviation	1862.1979						
46						nu star	879.3625						
47													
48						A-D Test Statistic	0.303405				**Nonparametric Statistics**		
49						5% A-D Critical Value	0.7297207				90% Percentile	14340	
50						K-S Test Statistic	0.1662545				95% Percentile	15000	
51						5% K-S Critical Value	0.2449602				99% Percentile	15000	
52						**Data appear Gamma Distributed at 5% Significance Level**							
53													
54						**Assuming Gamma Distribution**					95% UTL with 95% Coverage	15000	
55						90% Percentile	13714.73				95% Percentile Bootstrap UTL with 95% Coverage	15000	
56						95% Percentile	14499.812				95% BCA Bootstrap UTL with 95% Coverage	15000	

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
57					99% Percentile	16050.372					95% UPL	15000
58											95% Chebyshev UPL	19056.461
59					95% WH Approx. Gamma UPL	14633.657					Upper Threshold Limit Based upon IQR	15973.125
60					95% HW Approx. Gamma UPL	14657.275						
61			95% WH Approx. Gamma UTL with		95% Coverage	16442.454						
62			95% HW Approx. Gamma UTL with		95% Coverage	16516.457						
63												
64	**Note: UPL represents a preferred estimate of BTV**											
65												
66												
67	**Arsenic**											
68												
69	**General Statistics**											
70					Total Number of Observations	12				Number of Distinct Observations		10
71												
72	**Raw Statistics**						**Log-Transformed Statistics**					
73					Minimum	3.7					Minimum	1.3083328
74					Maximum	10.6					Maximum	2.360854
75					Second Largest	8					Second Largest	2.0794415
76					First Quartile	5.6					First Quartile	1.7227666
77					Median	6.425					Median	1.8600073
78					Third Quartile	7.875					Third Quartile	2.0633069
79					Mean	6.6458333					Mean	1.8583245
80					SD	1.8324671					SD	0.282804
81					Coefficient of Variation	0.2757317						
82					Skewness	0.5045596						
83												
84	**Background Statistics**											
85	**Normal Distribution Test**						**Lognormal Distribution Test**					
86					Shapiro Wilk Test Statistic	0.9638704					Shapiro Wilk Test Statistic	0.9706171
87					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
88	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
89												
90	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
91					95% UTL with	95% Coverage	11.659463				95% UTL with	95% Coverage	13.902603
92					95% UPL (t)	10.07111					95% UPL (t)	10.880218
93					90% Percentile (z)	8.9942344					90% Percentile (z)	9.2142607
94					95% Percentile (z)	9.6599735					95% Percentile (z)	10.211307
95					99% Percentile (z)	10.908789					99% Percentile (z)	12.381766
96												
97	**Gamma Distribution Test**						**Data Distribution Test**					
98					k star	10.693382	**Data appear Normal at 5% Significance Level**					
99					Theta Star	0.6214903						
100					MLE of Mean	6.6458333						
101					MLE of Standard Deviation	2.0323192						
102					nu star	256.64116						
103												
104					A-D Test Statistic	0.2175539	**Nonparametric Statistics**					
105					5% A-D Critical Value	0.7309527					90% Percentile	9.82
106					K-S Test Statistic	0.1289335					95% Percentile	10.6
107					5% K-S Critical Value	0.2453047					99% Percentile	10.6
108	**Data appear Gamma Distributed at 5% Significance Level**											
109												
110	**Assuming Gamma Distribution**										95% UTL with	95% Coverage	10.6
111					90% Percentile	9.3469257			95% Percentile Bootstrap UTL with			95% Coverage	10.6
112					95% Percentile	10.303142			95% BCA Bootstrap UTL with			95% Coverage	10.6

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
113					99% Percentile	12.26141					95% UPL	10.6
114											95% Chebyshev UPL	14.959527
115					95% WH Approx. Gamma UPL	10.507517					Upper Threshold Limit Based upon IQR	11.2875
116					95% HW Approx. Gamma UPL	10.587859						
117				95% WH Approx. Gamma UTL with	95% Coverage	12.828225						
118				95% HW Approx. Gamma UTL with	95% Coverage	13.051842						
119												
120	**Note: UPL represents a preferred estimate of BTV**											
121												
122												
123	**Barium**											
124												
125	**General Statistics**											
126	Total Number of Observations					12	Number of Distinct Observations					10
127												
128	**Raw Statistics**						**Log-Transformed Statistics**					
129	Minimum					77.8	Minimum					4.3541414
130	Maximum					111	Maximum					4.7095302
131	Second Largest					111	Second Largest					4.7095302
132	First Quartile					85.2	First Quartile					4.4445469
133	Median					94.6	Median					4.5494764
134	Third Quartile					110.25	Third Quartile					4.7026805
135	Mean					95.733333	Mean					4.5539199
136	SD					12.294221	SD					0.1295717
137	Coefficient of Variation					0.1284215						
138	Skewness					0.0181918						
139												
140	**Background Statistics**											
141	**Normal Distribution Test**						**Lognormal Distribution Test**					
142	Shapiro Wilk Test Statistic					0.9053608	Shapiro Wilk Test Statistic					0.9109708
143	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
144	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
145												
146	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
147	95% UTL with	95% Coverage				129.37032	95% UTL with	95% Coverage				135.42636
148	95% UPL (t)					118.71389	95% UPL (t)					121.03956
149	90% Percentile (z)					111.48901	90% Percentile (z)					112.16519
150	95% Percentile (z)					115.95553	95% Percentile (z)					117.57147
151	99% Percentile (z)					124.33397	99% Percentile (z)					128.42547
152												
153	**Gamma Distribution Test**						**Data Distribution Test**					
154	k star					49.221485	**Data appear Normal at 5% Significance Level**					
155	Theta Star					1.9449501						
156	MLE of Mean					95.733333						
157	MLE of Standard Deviation					13.645386						
158	nu star					1181.3156						
159												
160	A-D Test Statistic					0.4279524	**Nonparametric Statistics**					
161	5% A-D Critical Value					0.7301184	90% Percentile					111
162	K-S Test Statistic					0.1834513	95% Percentile					111
163	5% K-S Critical Value					0.24495	99% Percentile					111
164	**Data appear Gamma Distributed at 5% Significance Level**											
165												
166	**Assuming Gamma Distribution**						95% UTL with	95% Coverage				111
167	90% Percentile					113.58401	95% Percentile Bootstrap UTL with	95% Coverage				111
168	95% Percentile					119.22819	95% BCA Bootstrap UTL with	95% Coverage				111

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
169					99% Percentile	130.30413					95% UPL	111
170											95% Chebyshev UPL	151.51081
171					95% WH Approx. Gamma UPL	120.16051					Upper Threshold Limit Based upon IQR	147.825
172					95% HW Approx. Gamma UPL	120.36917						
173				95% WH Approx. Gamma UTL with	95% Coverage	133.05383						
174				95% HW Approx. Gamma UTL with	95% Coverage	133.60704						
175												
176	**Note: UPL represents a preferred estimate of BTV**											
177												
178												
179	**Beryllium**											
180												
181	**General Statistics**											
182	Total Number of Observations					12	Number of Distinct Observations					9
183												
184	**Raw Statistics**						**Log-Transformed Statistics**					
185	Minimum					0.75	Minimum					-0.287682
186	Maximum					1.3	Maximum					0.2623643
187	Second Largest					1.2	Second Largest					0.1823216
188	First Quartile					0.8025	First Quartile					-0.22038
189	Median					0.95	Median					-0.051792
190	Third Quartile					1.2	Third Quartile					0.1823216
191	Mean					0.9870833	Mean					-0.030106
192	SD					0.1922884	SD					0.1923925
193	Coefficient of Variation					0.1948046						
194	Skewness					0.4000136						
195												
196												
197	**Background Statistics**											
198	**Normal Distribution Test**						**Lognormal Distribution Test**					
199	Shapiro Wilk Test Statistic					0.897309	Shapiro Wilk Test Statistic					0.9110669
200	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
201	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
202												
203	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
204	95% UTL with				95% Coverage	1.5131843	95% UTL with				95% Coverage	1.6426
205	95% UPL (t)					1.3465118	95% UPL (t)					1.3902973
206	90% Percentile (z)					1.2335108	90% Percentile (z)					1.2416677
207	95% Percentile (z)					1.3033695	95% Percentile (z)					1.331561
208	99% Percentile (z)					1.4344129	99% Percentile (z)					1.5181103
209												
210	**Gamma Distribution Test**						**Data Distribution Test**					
211	k star					22.103555	**Data appear Normal at 5% Significance Level**					
212	Theta Star					0.0446572						
213	MLE of Mean					0.9870833						
214	MLE of Standard Deviation					0.2099533						
215	nu star					530.48531						
216												
217	A-D Test Statistic					0.521935	**Nonparametric Statistics**					
218	5% A-D Critical Value					0.7311615	90% Percentile					1.27
219	K-S Test Statistic					0.209318	95% Percentile					1.3
220	5% K-S Critical Value					0.2451217	99% Percentile					1.3
221	**Data appear Gamma Distributed at 5% Significance Level**											
222												
223	**Assuming Gamma Distribution**						95% UTL with				95% Coverage	1.3
224	90% Percentile					1.263891	95% Percentile Bootstrap UTL with				95% Coverage	1.3

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
225					95% Percentile	1.3558932			95% BCA Bootstrap UTL with	95% Coverage		1.3
226					99% Percentile	1.5399613					95% UPL	1.3
227											95% Chebyshev UPL	1.8594736
228				95% WH Approx. Gamma UPL		1.3729947					Upper Threshold Limit Based upon IQR	1.79625
229				95% HW Approx. Gamma UPL		1.3770185						
230			95% WH Approx. Gamma UTL with	95% Coverage		1.588878						
231			95% HW Approx. Gamma UTL with	95% Coverage		1.6010348						
232												
233	**Note: UPL represents a preferred estimate of BTV**											
234												
235												
236	**Calcium**											
237												
238	**General Statistics**											
239	Total Number of Observations					12	Number of Distinct Observations					12
240												
241	**Raw Statistics**						**Log-Transformed Statistics**					
242	Minimum					614	Minimum					6.4199949
243	Maximum					1600	Maximum					7.3777589
244	Second Largest					1530	Second Largest					7.333023
245	First Quartile					736.5	First Quartile					6.6017124
246	Median					926.5	Median					6.831323
247	Third Quartile					1415	Third Quartile					7.2489591
248	Mean					1017.0833	Mean					6.8727874
249	SD					351.52045	SD					0.3322834
250	Coefficient of Variation					0.3456162						
251	Skewness					0.7225774						
252												
253	**Background Statistics**											
254	**Normal Distribution Test**						**Lognormal Distribution Test**					
255	Shapiro Wilk Test Statistic					0.8719154	Shapiro Wilk Test Statistic					0.9156678
256	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
257	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
258												
259	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
260	95% UTL with	95% Coverage				1978.8433	95% UTL with	95% Coverage				2396.8599
261	95% UPL (t)					1674.1511	95% UPL (t)					1797.0414
262	90% Percentile (z)					1467.5749	90% Percentile (z)					1478.267
263	95% Percentile (z)					1595.283	95% Percentile (z)					1667.9406
264	99% Percentile (z)					1834.8422	99% Percentile (z)					2091.8292
265												
266	**Gamma Distribution Test**						**Data Distribution Test**					
267	k star					7.402806	**Data appear Normal at 5% Significance Level**					
268	Theta Star					137.3916						
269	MLE of Mean					1017.0833						
270	MLE of Standard Deviation					373.8164						
271	nu star					177.66734						
272												
273	A-D Test Statistic					0.5214817	**Nonparametric Statistics**					
274	5% A-D Critical Value					0.7303688	90% Percentile					1579
275	K-S Test Statistic					0.189862	95% Percentile					1600
276	5% K-S Critical Value					0.2454024	99% Percentile					1600
277	**Data appear Gamma Distributed at 5% Significance Level**											
278												
279	**Assuming Gamma Distribution**						95% UTL with	95% Coverage				1600
280	90% Percentile					1515.8541	95% Percentile Bootstrap UTL with	95% Coverage				1600

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95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
281					95% Percentile	1699.6583			95% BCA Bootstrap UTL with	95% Coverage		1600
282					99% Percentile	2081.4715					95% UPL	1600
283											95% Chebyshev UPL	2611.8915
284				95% WH Approx. Gamma UPL		1742.5808					Upper Threshold Limit Based upon IQR	2432.75
285				95% HW Approx. Gamma UPL		1754.521						
286			95% WH Approx. Gamma UTL with	95% Coverage		2199.1794						
287			95% HW Approx. Gamma UTL with	95% Coverage		2240.4992						
288												
289	**Note: UPL represents a preferred estimate of BTV**											
290												
291												
292	**Chromium**											
293												
294	**General Statistics**											
295	Total Number of Observations					12	Number of Distinct Observations					12
296												
297	**Raw Statistics**						**Log-Transformed Statistics**					
298	Minimum					12.4	Minimum					2.5176965
299	Maximum					20.8	Maximum					3.034953
300	Second Largest					17.9	Second Largest					2.8848007
301	First Quartile					13.575	First Quartile					2.6081844
302	Median					15.225	Median					2.7229267
303	Third Quartile					15.975	Third Quartile					2.7710213
304	Mean					15.345833	Mean					2.7214663
305	SD					2.2757075	SD					0.1407308
306	Coefficient of Variation					0.1482948						
307	Skewness					1.2344944						
308												
309	**Background Statistics**											
310	**Normal Distribution Test**						**Lognormal Distribution Test**					
311	Shapiro Wilk Test Statistic					0.9091733	Shapiro Wilk Test Statistic					0.9479538
312	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
313	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
314												
315	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
316	95% UTL with	95% Coverage				21.572169	95% UTL with	95% Coverage				22.342838
317	95% UPL (t)					19.599623	95% UPL (t)					19.777059
318	90% Percentile (z)					18.26227	90% Percentile (z)					18.207255
319	95% Percentile (z)					19.089039	95% Percentile (z)					19.162359
320	99% Percentile (z)					20.639921	99% Percentile (z)					21.091184
321												
322	**Gamma Distribution Test**						**Data Distribution Test**					
323	k star					40.168758	**Data appear Normal at 5% Significance Level**					
324	Theta Star					0.382034						
325	MLE of Mean					15.345833						
326	MLE of Standard Deviation					2.421287						
327	nu star					964.0502						
328												
329	A-D Test Statistic					0.3346253	**Nonparametric Statistics**					
330	5% A-D Critical Value					0.7297394	90% Percentile					19.93
331	K-S Test Statistic					0.1954262	95% Percentile					20.8
332	5% K-S Critical Value					0.24495	99% Percentile					20.8
333	**Data appear Gamma Distributed at 5% Significance Level**											
334												
335	**Assuming Gamma Distribution**						95% UTL with	95% Coverage				20.8
336	90% Percentile					18.519102	95% Percentile Bootstrap UTL with	95% Coverage				20.8

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95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
337					95% Percentile	19.533586			95% BCA Bootstrap UTL with	95% Coverage		20.8
338					99% Percentile	21.533045					95% UPL	20.8
339											95% Chebyshev UPL	25.670459
340				95% WH Approx. Gamma UPL		19.702995					Upper Threshold Limit Based upon IQR	19.575
341				95% HW Approx. Gamma UPL		19.719933						
342			95% WH Approx. Gamma UTL with	95% Coverage		22.03327						
343			95% HW Approx. Gamma UTL with	95% Coverage		22.104758						
344												
345	**Note: UPL represents a preferred estimate of BTV**											
346												
347												
348	**Cobalt**											
349												
350	**General Statistics**											
351	Total Number of Observations					12	Number of Distinct Observations					10
352												
353	**Raw Statistics**						**Log-Transformed Statistics**					
354	Minimum					6.8	Minimum					1.9169226
355	Maximum					9.3	Maximum					2.2300144
356	Second Largest					8.5	Second Largest					2.1400662
357	First Quartile					7.025	First Quartile					1.9494563
358	Median					8.175	Median					2.101076
359	Third Quartile					8.45	Third Quartile					2.1341135
360	Mean					7.9041667	Mean					2.0627819
361	SD					0.7875331	SD					0.1006189
362	Coefficient of Variation					0.0996352						
363	Skewness					-0.069607						
364												
365	**Background Statistics**											
366	**Normal Distribution Test**						**Lognormal Distribution Test**					
367	Shapiro Wilk Test Statistic					0.9093368	Shapiro Wilk Test Statistic					0.9023803
368	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
369	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
370												
371	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
372	95% UTL with	95% Coverage				10.058857	95% UTL with	95% Coverage				10.361273
373	95% UPL (t)					9.3762362	95% UPL (t)					9.4959016
374	90% Percentile (z)					8.9134309	90% Percentile (z)					8.9506857
375	95% Percentile (z)					9.1995433	95% Percentile (z)					9.2839322
376	99% Percentile (z)					9.7362425	99% Percentile (z)					9.9428766
377												
378	**Gamma Distribution Test**						**Data Distribution Test**					
379	k star					81.557584	**Data appear Normal at 5% Significance Level**					
380	Theta Star					0.0969152						
381	MLE of Mean					7.9041667						
382	MLE of Standard Deviation					0.8752335						
383	nu star					1957.382						
384												
385	A-D Test Statistic					0.6191875	**Nonparametric Statistics**					
386	5% A-D Critical Value					0.7312	90% Percentile					9.06
387	K-S Test Statistic					0.221221	95% Percentile					9.3
388	5% K-S Critical Value					0.24495	99% Percentile					9.3
389	**Data appear Gamma Distributed at 5% Significance Level**											
390												
391	**Assuming Gamma Distribution**						95% UTL with	95% Coverage				9.3
392	90% Percentile					9.0445234	95% Percentile Bootstrap UTL with	95% Coverage				9.3

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95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
393					95% Percentile	9.3967547			95% BCA Bootstrap UTL with	95% Coverage		9.3
394					99% Percentile	10.081537				95% UPL		9.3
395										95% Chebyshev UPL		11.477114
396				95% WH Approx. Gamma UPL		9.4516779				Upper Threshold Limit Based upon IQR		10.5875
397				95% HW Approx. Gamma UPL		9.4622848						
398			95% WH Approx. Gamma UTL with	95% Coverage		10.246388						
399			95% HW Approx. Gamma UTL with	95% Coverage		10.273581						
400												
401	**Note: UPL represents a preferred estimate of BTV**											
402												
403												
404	**Copper**											
405												
406	**General Statistics**											
407	Total Number of Observations					12	Number of Distinct Observations					10
408												
409	**Raw Statistics**						**Log-Transformed Statistics**					
410	Minimum					8	Minimum					2.0794415
411	Maximum					13.4	Maximum					2.5952547
412	Second Largest					12.7	Second Largest					2.541602
413	First Quartile					9.425	First Quartile					2.2431064
414	Median					10.7	Median					2.3702437
415	Third Quartile					11.85	Third Quartile					2.472301
416	Mean					10.695833	Mean					2.3602304
417	SD					1.5407286	SD					0.1455515
418	Coefficient of Variation					0.1440494						
419	Skewness					0.1378465						
420												
421	**Background Statistics**											
422	**Normal Distribution Test**						**Lognormal Distribution Test**					
423	Shapiro Wilk Test Statistic					0.9799339	Shapiro Wilk Test Statistic					0.9793332
424	Shapiro Wilk Critical Value					0.859	Shapiro Wilk Critical Value					0.859
425	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
426												
427	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
428	95% UTL with	95% Coverage				14.911267	95% UTL with	95% Coverage				15.775519
429	95% UPL (t)					13.575788	95% UPL (t)					13.905683
430	90% Percentile (z)					12.670357	90% Percentile (z)					12.765704
431	95% Percentile (z)					13.230106	95% Percentile (z)					13.45891
432	99% Percentile (z)					14.280104	99% Percentile (z)					14.862389
433												
434	**Gamma Distribution Test**						**Data Distribution Test**					
435	k star					39.145996	**Data appear Normal at 5% Significance Level**					
436	Theta Star					0.2732293						
437	MLE of Mean					10.695833						
438	MLE of Standard Deviation					1.7095073						
439	nu star					939.5039						
440												
441	A-D Test Statistic					0.1790196	**Nonparametric Statistics**					
442	5% A-D Critical Value					0.7296966	90% Percentile					13.19
443	K-S Test Statistic					0.1337224	95% Percentile					13.4
444	5% K-S Critical Value					0.24495	99% Percentile					13.4
445	**Data appear Gamma Distributed at 5% Significance Level**											
446												
447	**Assuming Gamma Distribution**						95% UTL with	95% Coverage				13.4
448	90% Percentile					12.9368	95% Percentile Bootstrap UTL with	95% Coverage				13.4

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95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
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449					95% Percentile	13.654287		95% BCA Bootstrap UTL with		95% Coverage			13.4
450					99% Percentile	15.069208					95% UPL		13.4
451											95% Chebyshev UPL		17.685943
452					95% WH Approx. Gamma UPL	13.776082					Upper Threshold Limit Based upon IQR		15.4875
453					95% HW Approx. Gamma UPL	13.80633							
454				95% WH Approx. Gamma UTL with	95% Coverage	15.425791							
455				95% HW Approx. Gamma UTL with	95% Coverage	15.506071							
456													
457	**Note: UPL represents a preferred estimate of BTV**												
458													
459													
460	**Cyanide**												
461													
462	**General Statistics**												
463					Number of Valid Data	12				Number of Detected Data			2
464					Number of Distinct Detected Data	2				Number of Non-Detect Data			10
465										Percent Non-Detects			83.33%
466													
467	**Raw Statistics**							**Log-transformed Statistics**					
468					Minimum Detected	0.7				Minimum Detected			-0.356675
469					Maximum Detected	3.8				Maximum Detected			1.3350011
470					Mean of Detected	2.25				Mean of Detected			0.4891631
471					SD of Detected	2.192031				SD of Detected			1.1961956
472					Minimum Non-Detect	0.64				Minimum Non-Detect			-0.446287
473					Maximum Non-Detect	0.7				Maximum Non-Detect			-0.356675
474													
475	**Data with Multiple Detection Limits**							**Single Detection Limit Scenario**					
476	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL			10
477	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL			2
478	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage			83.33%
479													
480													
481	**Warning: Data set has only 2 Distinct Detected Values.**												
482	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**												
483	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**												
484													
485	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**												
486													
487	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**												
488	**Those methods will return a 'N/A' value on your output display!**												
489													
490	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**												
491	**However, results obtained using 4 to 9 distinct values may not be reliable.**												
492	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**												
493													
494	**Background Statistics**												
495	**Normal Distribution Test with Detected Values Only**							**Lognormal Distribution Test with Detected Values Only**					
496					Shapiro Wilk Test Statistic	N/A				Shapiro Wilk Test Statistic			N/A
497					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value			N/A
498	**Data not Normal at 5% Significance Level**							**Data not Lognormal at 5% Significance Level**					
499													
500	**Assuming Normal Distribution**							**Assuming Lognormal Distribution**					
501					DL/2 Substitution Method					DL/2 Substitution Method			
502					Mean	0.6491667				Mean (Log Scale)			-0.845206
503					SD	0.998009				SD (Log Scale)			0.7205911
504					95% UTL	95% Coverage	3.3797193			95% UTL	95% Coverage		3.0843202

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95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
505					95% UPL (t)	2.5146612					95% UPL (t)	1.6515836
506					90% Percentile (z)	1.9281667					90% Percentile (z)	1.0814132
507					95% Percentile (z)	2.2907454					95% Percentile (z)	1.4050332
508					99% Percentile (z)	2.9708828					99% Percentile (z)	2.2959337
509												
510				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
511											Mean in Original Scale	N/A
512											SD in Original Scale	N/A
513											Mean in Log Scale	N/A
514											SD in Log Scale	N/A
515										95% UTL	95% Coverage	N/A
516											95% UPL (t)	N/A
517											90% Percentile (z)	N/A
518											95% Percentile (z)	N/A
519											99% Percentile (z)	N/A
520												
521	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
522					k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)					
523					Theta Star	N/A						
524					nu star	N/A						
525												
526					A-D Test Statistic	N/A	**Nonparametric Statistics**					
527					5% A-D Critical Value	N/A				Kaplan-Meier (KM) Method		
528					K-S Test Statistic	N/A					Mean	0.9583333
529					5% K-S Critical Value	N/A					SD	0.8567947
530	**Data not Gamma Distributed at 5% Significance Level**										SE of Mean	0.349785
531										95% KM UTL with	95% Coverage	3.3025237
532	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	4.8455133
533				Gamma ROS Statistics with Extrapolated Data							95% KM UPL (t)	2.5598679
534					Mean	N/A					90% Percentile (z)	2.05636
535					Median	N/A					95% Percentile (z)	2.3676353
536					SD	N/A					99% Percentile (z)	2.951536
537					k star	N/A						
538					Theta star	N/A	**Gamma ROS Limits with Extrapolated Data**					
539					Nu star	N/A				95% Wilson Hilferty (WH) Approx. Gamma UPL		N/A
540				95% Percentile of Chisquare (2k)		N/A				95% Hawkins Wixley (HW) Approx. Gamma UPL		N/A
541										95% WH Approx. Gamma UTL with	95% Coverage	N/A
542					90% Percentile	N/A				95% HW Approx. Gamma UTL with	95% Coverage	N/A
543					95% Percentile	N/A						
544					99% Percentile	N/A						
545												
546	**Note: UPL represents a preferred estimate of BTV**											
547	**For an Example: KM-UPL may be used when multiple detection limits are present**											
548	**Note: DL/2 is not a recommended method.**											
549												
550												
551	**Iron**											
552												
553	**General Statistics**											
554					Total Number of Observations	12				Number of Distinct Observations		11
555												
556	**Raw Statistics**						**Log-Transformed Statistics**					
557					Minimum	12350					Minimum	9.4214113
558					Maximum	17600					Maximum	9.7756542
559					Second Largest	16900					Second Largest	9.7350689
560					First Quartile	13225					First Quartile	9.4898589

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95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
561					Median	14800					Median	9.6012627
562					Third Quartile	16450					Third Quartile	9.707727
563					Mean	14812.5					Mean	9.5967493
564					SD	1760.1814					SD	0.1189206
565					Coefficient of Variation	0.1188308						
566					Skewness	0.1469457						
567												
568	**Background Statistics**											
569	**Normal Distribution Test**						**Lognormal Distribution Test**					
570					Shapiro Wilk Test Statistic	0.9360444					Shapiro Wilk Test Statistic	0.9377696
571					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
572	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
573												
574	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
575				95% UTL with	95% Coverage	19628.356				95% UTL with	95% Coverage	20376.064
576					95% UPL (t)	18102.66					95% UPL (t)	18380.354
577					90% Percentile (z)	17068.263					90% Percentile (z)	17139.692
578					95% Percentile (z)	17707.741					95% Percentile (z)	17896.427
579					99% Percentile (z)	18907.294					99% Percentile (z)	19407.213
580												
581	**Gamma Distribution Test**						**Data Distribution Test**					
582					k star	58.074034	**Data appear Normal at 5% Significance Level**					
583					Theta Star	255.06236						
584					MLE of Mean	14812.5						
585					MLE of Standard Deviation	1943.7364						
586					nu star	1393.7768						
587												
588					A-D Test Statistic	0.382915	**Nonparametric Statistics**					
589					5% A-D Critical Value	0.730489					90% Percentile	17390
590					K-S Test Statistic	0.169973					95% Percentile	17600
591					5% K-S Critical Value	0.24495					99% Percentile	17600
592	**Data appear Gamma Distributed at 5% Significance Level**											
593												
594	**Assuming Gamma Distribution**									95% UTL with	95% Coverage	17600
595					90% Percentile	17351.711			95% Percentile Bootstrap UTL with		95% Coverage	17600
596					95% Percentile	18147.973			95% BCA Bootstrap UTL with		95% Coverage	17600
597					99% Percentile	19705.419					95% UPL	17600
598											95% Chebyshev UPL	22798.242
599					95% WH Approx. Gamma UPL	18276.779					Upper Threshold Limit Based upon IQR	21287.5
600					95% HW Approx. Gamma UPL	18301.515						
601			95% WH Approx. Gamma UTL with		95% Coverage	20087.785						
602			95% HW Approx. Gamma UTL with		95% Coverage	20155.533						
603												
604	**Note: UPL represents a preferred estimate of BTV**											
605												
606												
607	**Lead**											
608												
609	**General Statistics**											
610					Total Number of Observations	12				Number of Distinct Observations		12
611												
612	**Raw Statistics**						**Log-Transformed Statistics**					
613					Minimum	16.3					Minimum	2.7911651
614					Maximum	64.7					Maximum	4.1697612
615					Second Largest	56.7					Second Largest	4.0377742
616					First Quartile	19.75					First Quartile	2.9829171

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NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
617					Median	27.1					Median	3.2970699
618					Third Quartile	32.975					Third Quartile	3.4953611
619					Mean	30.641667					Mean	3.3305784
620					SD	15.167277					SD	0.4277679
621					Coefficient of Variation	0.4949886						
622					Skewness	1.539711						
623												
624	**Background Statistics**											
625	**Normal Distribution Test**						**Lognormal Distribution Test**					
626					Shapiro Wilk Test Statistic	0.8041006					Shapiro Wilk Test Statistic	0.9161001
627					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
628	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
629												
630	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
631					95% UTL with 95% Coverage	72.139336					95% UTL with 95% Coverage	90.102817
632					95% UPL (t)	58.992586					95% UPL (t)	62.188439
633					90% Percentile (z)	50.079314					90% Percentile (z)	48.365417
634					95% Percentile (z)	55.589617					95% Percentile (z)	56.497365
635					99% Percentile (z)	65.926029					99% Percentile (z)	75.619591
636												
637	**Gamma Distribution Test**						**Data Distribution Test**					
638					k star	4.262331	**Data appear Gamma Distributed at 5% Significance Level**					
639					Theta Star	7.1889459						
640					MLE of Mean	30.641667						
641					MLE of Standard Deviation	14.841876						
642					nu star	102.29594						
643												
644					A-D Test Statistic	0.5902053	**Nonparametric Statistics**					
645					5% A-D Critical Value	0.7317841					90% Percentile	62.3
646					K-S Test Statistic	0.1947549					95% Percentile	64.7
647					5% K-S Critical Value	0.245863					99% Percentile	64.7
648	**Data appear Gamma Distributed at 5% Significance Level**											
649												
650	**Assuming Gamma Distribution**										95% UTL with 95% Coverage	64.7
651					90% Percentile	50.53017					95% Percentile Bootstrap UTL with 95% Coverage	64.7
652					95% Percentile	58.414384					95% BCA Bootstrap UTL with 95% Coverage	64.7
653					99% Percentile	75.201369					95% UPL	64.7
654											95% Chebyshev UPL	99.453871
655					95% WH Approx. Gamma UPL	60.43856					Upper Threshold Limit Based upon IQR	52.8125
656					95% HW Approx. Gamma UPL	60.78572						
657				95% WH Approx. Gamma UTL with	95% Coverage	80.801081						
658				95% HW Approx. Gamma UTL with	95% Coverage	82.633437						
659												
660	**Note: UPL represents a preferred estimate of BTV**											
661												
662												
663	**Magnesium**											
664												
665	**General Statistics**											
666					Total Number of Observations	12					Number of Distinct Observations	11
667												
668	**Raw Statistics**						**Log-Transformed Statistics**					
669					Minimum	1300					Minimum	7.1701195
670					Maximum	1940					Maximum	7.5704433
671					Second Largest	1670					Second Largest	7.4205789
672					First Quartile	1380					First Quartile	7.2297608

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
673					Median	1480					Median	7.2997974
674					Third Quartile	1545					Third Quartile	7.3427634
675					Mean	1500					Mean	7.3076339
676					SD	172.3105					SD	0.1083588
677					Coefficient of Variation	0.1148737						
678					Skewness	1.5640601						
679												
680	**Background Statistics**											
681	**Normal Distribution Test**						**Lognormal Distribution Test**					
682					Shapiro Wilk Test Statistic	0.8687381					Shapiro Wilk Test Statistic	0.9078715
683					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
684	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
685												
686	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
687				95% UTL with	95% Coverage	1971.4415				95% UTL with	95% Coverage	2006.4125
688					95% UPL (t)	1822.0856					95% UPL (t)	1826.5422
689					90% Percentile (z)	1720.8248					90% Percentile (z)	1713.8564
690					95% Percentile (z)	1783.4256					95% Percentile (z)	1782.6714
691					99% Percentile (z)	1900.8542					99% Percentile (z)	1919.2969
692												
693	**Gamma Distribution Test**						**Data Distribution Test**					
694					k star	67.306684	**Data appear Normal at 5% Significance Level**					
695					Theta Star	22.286048						
696					MLE of Mean	1500						
697					MLE of Standard Deviation	182.83619						
698					nu star	1615.3604						
699												
700					A-D Test Statistic	0.4718809	**Nonparametric Statistics**					
701					5% A-D Critical Value	0.7308756					90% Percentile	1859
702					K-S Test Statistic	0.1975096					95% Percentile	1940
703					5% K-S Critical Value	0.24495					99% Percentile	1940
704	**Data appear Gamma Distributed at 5% Significance Level**											
705												
706	**Assuming Gamma Distribution**									95% UTL with	95% Coverage	1940
707					90% Percentile	1738.5665			95% Percentile Bootstrap UTL with		95% Coverage	1940
708					95% Percentile	1812.866			95% BCA Bootstrap UTL with		95% Coverage	1940
709					99% Percentile	1957.7943					95% UPL	1940
710											95% Chebyshev UPL	2281.7531
711					95% WH Approx. Gamma UPL	1824.5183			Upper Threshold Limit Based upon IQR			1792.5
712					95% HW Approx. Gamma UPL	1824.969						
713			95% WH Approx. Gamma UTL with		95% Coverage	1992.8387						
714			95% HW Approx. Gamma UTL with		95% Coverage	1996.0268						
715												
716	**Note: UPL represents a preferred estimate of BTV**											
717												
718												
719	**Manganese**											
720												
721	**General Statistics**											
722					Total Number of Observations	12				Number of Distinct Observations		10
723												
724	**Raw Statistics**						**Log-Transformed Statistics**					
725					Minimum	429					Minimum	6.0614569
726					Maximum	1190					Maximum	7.0817086
727					Second Largest	844					Second Largest	6.7381525
728					First Quartile	517.25					First Quartile	6.2484676

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
729					Median	585.25					Median	6.3687694
730					Third Quartile	679.75					Third Quartile	6.5216659
731					Mean	642.29167					Mean	6.4264328
732					SD	206.27568					SD	0.2774892
733					Coefficient of Variation	0.3211558						
734					Skewness	1.8952158						
735												
736	**Background Statistics**											
737	**Normal Distribution Test**						**Lognormal Distribution Test**					
738					Shapiro Wilk Test Statistic	0.8095002					Shapiro Wilk Test Statistic	0.9090341
739					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
740	**Data not Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
741												
742	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
743					95% UTL with 95% Coverage	1206.6619					95% UTL with 95% Coverage	1320.3383
744					95% UPL (t)	1027.8655					95% UPL (t)	1038.0717
745					90% Percentile (z)	906.64459					90% Percentile (z)	881.87431
746					95% Percentile (z)	981.58497					95% Percentile (z)	975.41396
747					99% Percentile (z)	1122.1607					99% Percentile (z)	1178.4665
748												
749	**Gamma Distribution Test**						**Data Distribution Test**					
750					k star	9.8915001	**Data appear Gamma Distributed at 5% Significance Level**					
751					Theta Star	64.933697						
752					MLE of Mean	642.29167						
753					MLE of Standard Deviation	204.22138						
754					nu star	237.396						
755												
756					A-D Test Statistic	0.584845	**Nonparametric Statistics**					
757					5% A-D Critical Value	0.7307859					90% Percentile	1086.2
758					K-S Test Statistic	0.2070671					95% Percentile	1190
759					5% K-S Critical Value	0.2453239					99% Percentile	1190
760	**Data appear Gamma Distributed at 5% Significance Level**											
761												
762	**Assuming Gamma Distribution**										95% UTL with 95% Coverage	1190
763					90% Percentile	913.94894					95% Percentile Bootstrap UTL with 95% Coverage	1190
764					95% Percentile	1010.8913					95% BCA Bootstrap UTL with 95% Coverage	1190
765					99% Percentile	1209.9942					95% UPL	1190
766											95% Chebyshev UPL	1578.1409
767					95% WH Approx. Gamma UPL	1030.8744					Upper Threshold Limit Based upon IQR	923.5
768					95% HW Approx. Gamma UPL	1032.2317						
769			95% WH Approx. Gamma UTL with		95% Coverage	1266.895						
770			95% HW Approx. Gamma UTL with		95% Coverage	1278.2643						
771												
772	**Note: UPL represents a preferred estimate of BTV**											
773												
774												
775	**Nickel**											
776												
777	**General Statistics**											
778					Total Number of Observations	12					Number of Distinct Observations	10
779												
780	**Raw Statistics**						**Log-Transformed Statistics**					
781					Minimum	7.4					Minimum	2.00148
782					Maximum	11.2					Maximum	2.4159138
783					Second Largest	10.4					Second Largest	2.3418058
784					First Quartile	9.35					First Quartile	2.2353337

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
785					Median	9.95					Median	2.2974589
786					Third Quartile	10.4					Third Quartile	2.3418058
787					Mean	9.7916667					Mean	2.2767681
788					SD	0.9538995					SD	0.1044307
789					Coefficient of Variation	0.0974195						
790					Skewness	-1.323802						
791												
792	**Background Statistics**											
793	**Normal Distribution Test**						**Lognormal Distribution Test**					
794					Shapiro Wilk Test Statistic	0.8915729					Shapiro Wilk Test Statistic	0.8498483
795					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
796	**Data appear Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
797												
798	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
799				95% UTL with	95% Coverage	12.401536				95% UTL with	95% Coverage	12.968075
800					95% UPL (t)	11.574711					95% UPL (t)	11.84578
801					90% Percentile (z)	11.014138					90% Percentile (z)	11.140659
802					95% Percentile (z)	11.360692					95% Percentile (z)	11.571455
803					99% Percentile (z)	12.010769					99% Percentile (z)	12.424996
804												
805	**Gamma Distribution Test**						**Data Distribution Test**					
806					k star	78.90179	**Data appear Normal at 5% Significance Level**					
807					Theta Star	0.1240994						
808					MLE of Mean	9.7916667						
809					MLE of Standard Deviation	1.102334						
810					nu star	1893.643						
811												
812					A-D Test Statistic	0.6219576	**Nonparametric Statistics**					
813					5% A-D Critical Value	0.7312					90% Percentile	10.96
814					K-S Test Statistic	0.1723771					95% Percentile	11.2
815					5% K-S Critical Value	0.24495					99% Percentile	11.2
816	**Data appear Gamma Distributed at 5% Significance Level**											
817												
818	**Assuming Gamma Distribution**									95% UTL with	95% Coverage	11.2
819					90% Percentile	11.228266			95% Percentile Bootstrap UTL with		95% Coverage	11.2
820					95% Percentile	11.67261			95% BCA Bootstrap UTL with		95% Coverage	11.2
821					99% Percentile	12.536949					95% UPL	11.2
822											95% Chebyshev UPL	14.1194
823					95% WH Approx. Gamma UPL	11.741988			Upper Threshold Limit Based upon IQR			11.975
824					95% HW Approx. Gamma UPL	11.766486						
825			95% WH Approx. Gamma UTL with		95% Coverage	12.744934						
826			95% HW Approx. Gamma UTL with		95% Coverage	12.796851						
827												
828	**Note: UPL represents a preferred estimate of BTV**											
829												
830												
831	**Potassium**											
832												
833	**General Statistics**											
834					Number of Valid Data	12					Number of Detected Data	7
835					Number of Distinct Detected Data	7					Number of Non-Detect Data	5
836											Percent Non-Detects	41.67%
837												
838	**Raw Statistics**						**Log-transformed Statistics**					
839					Minimum Detected	436					Minimum Detected	6.0776422
840					Maximum Detected	771					Maximum Detected	6.6476884

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
841					Mean of Detected	599					Mean of Detected	6.3741182
842					SD of Detected	131.68397					SD of Detected	0.2233492
843					Minimum Non-Detect	388					Minimum Non-Detect	5.9610053
844					Maximum Non-Detect	433					Maximum Non-Detect	6.0707377
845												
846	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
847	Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect with Single DL					5
848	For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected with Single DL					7
849	Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					41.67%
850												
851												
852	**Warning: There are only 7 Detected Values in this data**											
853	**Note: It should be noted that even though bootstrap may be performed on this data set**											
854	**the resulting calculations may not be reliable enough to draw conclusions**											
855												
856	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
857												
858	**Background Statistics**											
859	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
860	Shapiro Wilk Test Statistic					0.9245662	Shapiro Wilk Test Statistic					0.9270608
861	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
862	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
863												
864	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
865	DL/2 Substitution Method						DL/2 Substitution Method					
866	Mean					433.75	Mean (Log Scale)					5.930549
867	SD					226.25443	SD (Log Scale)					0.573001
868	95% UTL	95% Coverage				1052.7821	95% UTL	95% Coverage				1804.9347
869	95% UPL (t)					856.66845	95% UPL (t)					1098.402
870	90% Percentile (z)					723.70672	90% Percentile (z)					784.36878
871	95% Percentile (z)					805.90542	95% Percentile (z)					965.89172
872	99% Percentile (z)					960.09652	99% Percentile (z)					1427.3125
873												
874	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
875	Mean					472.49414	Mean in Original Scale					484.4784
876	SD					189.37635	SD in Original Scale					171.72369
877	95% UTL with	95% Coverage				990.62783	95% UTL with	95% Coverage				1183.8431
878							95% BCA UTL with	95% Coverage				771
879							95% Bootstrap (%) UTL with	95% Coverage				771
880	95% UPL (t)					826.47947	95% UPL (t)					876.31736
881	90% Percentile (z)					715.18969	90% Percentile (z)					714.65205
882	95% Percentile (z)					783.99051	95% Percentile (z)					810.6769
883	99% Percentile (z)					913.04941	99% Percentile (z)					1026.9649
884												
885	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
886	k star (bias corrected)					13.702959	Data appear Normal at 5% Significance Level					
887	Theta Star					43.713185						
888	nu star					191.84143						
889												
890	A-D Test Statistic					0.3010393	**Nonparametric Statistics**					
891	5% A-D Critical Value					0.7068058	Kaplan-Meier (KM) Method					
892	K-S Test Statistic					0.1719597	Mean					531.08333
893	5% K-S Critical Value					0.3114524	SD					122.99625
894	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					38.350818
895							95% KM UTL with	95% Coverage				867.60106
896	**Assuming Gamma Distribution**						95% KM Chebyshev UPL					1089.1033

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
897					Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)	760.98991
898					Mean	572.20611					90% Percentile (z)	688.70936
899					Median	534.69466					95% Percentile (z)	733.39415
900					SD	102.7375					99% Percentile (z)	817.21539
901					k star	27.17709						
902					Theta star	21.054723	**Gamma ROS Limits with Extrapolated Data**					
903					Nu star	652.25016				95% Wilson Hilferty (WH) Approx. Gamma UPL		772.29531
904					95% Percentile of Chisquare (2k)	72.563623				95% Hawkins Wixley (HW) Approx. Gamma UPL		773.56978
905										95% WH Approx. Gamma UTL with	95% Coverage	882.36684
906					90% Percentile	716.60606				95% HW Approx. Gamma UTL with	95% Coverage	886.98835
907					95% Percentile	763.9035						
908					99% Percentile	858.0041						
909												
910	**Note: UPL represents a preferred estimate of BTV**											
911	**For an Example: KM-UPL may be used when multiple detection limits are present**											
912	**Note: DL/2 is not a recommended method.**											
913												
914												
915	**Sodium**											
916												
917	**General Statistics**											
918					Number of Valid Data	12				Number of Detected Data		2
919					Number of Distinct Detected Data	2				Number of Non-Detect Data		10
920										Percent Non-Detects		83.33%
921												
922	**Raw Statistics**						**Log-transformed Statistics**					
923					Minimum Detected	112				Minimum Detected		4.7184989
924					Maximum Detected	120				Maximum Detected		4.7874917
925					Mean of Detected	116				Mean of Detected		4.7529953
926					SD of Detected	5.6568542				SD of Detected		0.0487853
927					Minimum Non-Detect	103				Minimum Non-Detect		4.634729
928					Maximum Non-Detect	115				Maximum Non-Detect		4.7449321
929												
930	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
931	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		11
932	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		1
933	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		91.67%
934												
935												
936	**Warning: Data set has only 2 Distinct Detected Values.**											
937	**This may not be adequate enough to compute meaningful and reliable test statistics and estimates.**											
938	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
939												
940	**Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.**											
941												
942	**The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.**											
943	**Those methods will return a 'N/A' value on your output display!**											
944												
945	**It is necessary to have 4 or more Distinct Values for bootstrap methods.**											
946	**However, results obtained using 4 to 9 distinct values may not be reliable.**											
947	**It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.**											
948												
949	**Background Statistics**											
950	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
951					Shapiro Wilk Test Statistic	N/A				Shapiro Wilk Test Statistic		N/A
952					5% Shapiro Wilk Critical Value	N/A				5% Shapiro Wilk Critical Value		N/A

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
953	**Data not Normal at 5% Significance Level**						**Data not Lognormal at 5% Significance Level**					
954												
955	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
956	DL/2 Substitution Method						DL/2 Substitution Method					
957	Mean	63.708333					Mean (Log Scale)	4.104232				
958	SD	24.540744					SD (Log Scale)	0.3049247				
959	95% UTL 95% Coverage	130.85181					95% UTL 95% Coverage	139.5616				
960	95% UPL (t)	109.58029					95% UPL (t)	107.14706				
961	90% Percentile (z)	95.158562					90% Percentile (z)	89.568957				
962	95% Percentile (z)	104.07426					95% Percentile (z)	100.06186				
963	99% Percentile (z)	120.79864					99% Percentile (z)	123.17339				
964												
965	Maximum Likelihood Estimate(MLE) Method	N/A					Log ROS Method					
966							Mean in Original Scale	N/A				
967							SD in Original Scale	N/A				
968							Mean in Log Scale	N/A				
969							SD in Log Scale	N/A				
970							95% UTL 95% Coverage	N/A				
971							95% UPL (t)	N/A				
972							90% Percentile (z)	N/A				
973							95% Percentile (z)	N/A				
974							99% Percentile (z)	N/A				
975												
976	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
977	k star (bias corrected)	N/A					Data do not follow a Discernable Distribution (0.05)					
978	Theta Star	N/A										
979	nu star	N/A										
980												
981	A-D Test Statistic	N/A					**Nonparametric Statistics**					
982	5% A-D Critical Value	N/A					Kaplan-Meier (KM) Method					
983	K-S Test Statistic	N/A					Mean	112.66667				
984	5% K-S Critical Value	N/A					SD	2.2110832				
985	**Data not Gamma Distributed at 5% Significance Level**						SE of Mean	0.9026709				
986							95% KM UTL with 95% Coverage	118.71619				
987	**Assuming Gamma Distribution**						95% KM Chebyshev UPL	122.6981				
988	Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)	116.79966				
989	Mean	N/A					90% Percentile (z)	115.50028				
990	Median	N/A					95% Percentile (z)	116.30357				
991	SD	N/A					99% Percentile (z)	117.81042				
992	k star	N/A										
993	Theta star	N/A					**Gamma ROS Limits with Extrapolated Data**					
994	Nu star	N/A					95% Wilson Hilferty (WH) Approx. Gamma UPL	N/A				
995	95% Percentile of Chisquare (2k)	N/A					95% Hawkins Wixley (HW) Approx. Gamma UPL	N/A				
996							95% WH Approx. Gamma UTL with 95% Coverage	N/A				
997	90% Percentile	N/A					95% HW Approx. Gamma UTL with 95% Coverage	N/A				
998	95% Percentile	N/A										
999	99% Percentile	N/A										
1000												
1001	**Note: UPL represents a preferred estimate of BTV**											
1002	**For an Example: KM-UPL may be used when multiple detection limits are present**											
1003	**Note: DL/2 is not a recommended method.**											
1004												
1005												
1006	**Thallium**											
1007												
1008	**General Statistics**											

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
1009					Number of Valid Data	12					Number of Detected Data	7
1010					Number of Distinct Detected Data	5					Number of Non-Detect Data	5
1011											Percent Non-Detects	41.67%
1012												
1013					**Raw Statistics**						**Log-transformed Statistics**	
1014					Minimum Detected	0.25					Minimum Detected	-1.386294
1015					Maximum Detected	0.34					Maximum Detected	-1.07881
1016					Mean of Detected	0.2914286					Mean of Detected	-1.236694
1017					SD of Detected	0.0273426					SD of Detected	0.0931681
1018					Minimum Non-Detect	0.26					Minimum Non-Detect	-1.347074
1019					Maximum Non-Detect	0.27					Maximum Non-Detect	-1.309333
1020												
1021					**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**	
1022	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect with Single DL	6
1023	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected with Single DL	6
1024	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	50.00%
1025												
1026												
1027	**Warning: There are only 7 Detected Values in this data**											
1028	**Note: It should be noted that even though bootstrap may be performed on this data set**											
1029	**the resulting calculations may not be reliable enough to draw conclusions**											
1030												
1031	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
1032												
1033	**Background Statistics**											
1034	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
1035					Shapiro Wilk Test Statistic	0.9407491					Shapiro Wilk Test Statistic	0.9482677
1036					5% Shapiro Wilk Critical Value	0.803					5% Shapiro Wilk Critical Value	0.803
1037	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1038												
1039	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1040					DL/2 Substitution Method						DL/2 Substitution Method	
1041					Mean	0.2258333					Mean (Log Scale)	-1.558917
1042					SD	0.0835527					SD (Log Scale)	0.4042417
1043				95% UTL	95% Coverage	0.4544336				95% UTL	95% Coverage	0.6357746
1044					95% UPL (t)	0.3820115					95% UPL (t)	0.447848
1045					90% Percentile (z)	0.3329105					90% Percentile (z)	0.3531509
1046					95% Percentile (z)	0.3632654					95% Percentile (z)	0.4090172
1047					99% Percentile (z)	0.4202061					99% Percentile (z)	0.5387467
1048												
1049					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
1050					Mean	0.2703827					Mean in Original Scale	0.2727071
1051					SD	0.034725					SD in Original Scale	0.0315958
1052				95% UTL with	95% Coverage	0.3653902				95% UTL with	95% Coverage	0.3696741
1053										95% BCA UTL with	95% Coverage	0.34
1054										95% Bootstrap (%) UTL with	95% Coverage	0.34
1055					95% UPL (t)	0.3352912					95% UPL (t)	0.3350735
1056					90% Percentile (z)	0.3148845					90% Percentile (z)	0.3134762
1057					95% Percentile (z)	0.3275002					95% Percentile (z)	0.3266577
1058					99% Percentile (z)	0.3511651					99% Percentile (z)	0.3528974
1059												
1060	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
1061					k star (bias corrected)	76.722091				Data appear Normal at 5% Significance Level		
1062					Theta Star	0.0037985						
1063					nu star	1074.1093						
1064												

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
1065					A-D Test Statistic	0.3227564	**Nonparametric Statistics**					
1066					5% A-D Critical Value	0.70765					Kaplan-Meier (KM) Method	
1067					K-S Test Statistic	0.2143155					Mean	0.2741667
1068					5% K-S Critical Value	0.31132					SD	0.0281242
1069	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	0.0087693
1070										95% KM UTL with	95% Coverage	0.3511146
1071	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	0.4017631
1072			Gamma ROS Statistics with Extrapolated Data								95% KM UPL (t)	0.3267369
1073					Mean	0.2893677					90% Percentile (z)	0.3102093
1074					Median	0.2895114					95% Percentile (z)	0.3204269
1075					SD	0.0226552					99% Percentile (z)	0.3395934
1076					k star	135.15031						
1077					Theta star	0.0021411	**Gamma ROS Limits with Extrapolated Data**					
1078					Nu star	3243.6075			95% Wilson Hilferty (WH) Approx. Gamma UPL			0.3329447
1079				95% Percentile of Chisquare (2k)		309.64768			95% Hawkins Wixley (HW) Approx. Gamma UPL			0.3331202
1080									95% WH Approx. Gamma UTL with		95% Coverage	0.3548403
1081					90% Percentile	0.32169			95% HW Approx. Gamma UTL with		95% Coverage	0.3553385
1082					95% Percentile	0.3314903						
1083					99% Percentile	0.3504005						
1084												
1085	**Note: UPL represents a preferred estimate of BTV**											
1086	**For an Example: KM-UPL may be used when multiple detection limits are present**											
1087	**Note: DL/2 is not a recommended method.**											
1088												
1089												
1090	**Vanadium**											
1091												
1092	**General Statistics**											
1093				Total Number of Observations		12			Number of Distinct Observations			11
1094												
1095	**Raw Statistics**						**Log-Transformed Statistics**					
1096					Minimum	20.9					Minimum	3.0397492
1097					Maximum	28.2					Maximum	3.339322
1098					Second Largest	28.2					Second Largest	3.339322
1099					First Quartile	23.7125					First Quartile	3.1660019
1100					Median	24.65					Median	3.2047255
1101					Third Quartile	26.425					Third Quartile	3.2742984
1102					Mean	24.904167					Mean	3.2116492
1103					SD	2.1324824					SD	0.0861663
1104					Coefficient of Variation	0.0856275						
1105					Skewness	0.0229697						
1106												
1107	**Background Statistics**											
1108	**Normal Distribution Test**						**Lognormal Distribution Test**					
1109					Shapiro Wilk Test Statistic	0.9586657					Shapiro Wilk Test Statistic	0.9587056
1110					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
1111	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
1112												
1113	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
1114					95% UTL with 95% Coverage	30.738638					95% UTL with 95% Coverage	31.418599
1115					95% UPL (t)	28.890237					95% UPL (t)	29.15751
1116					90% Percentile (z)	27.637053					90% Percentile (z)	27.717824
1117					95% Percentile (z)	28.411788					95% Percentile (z)	28.599237
1118					99% Percentile (z)	29.865063					99% Percentile (z)	30.328924
1119												
1120	**Gamma Distribution Test**						**Data Distribution Test**					

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

1121					k star	110.93181	**Data appear Normal at 5% Significance Level**					
1122					Theta Star	0.2244998						
1123					MLE of Mean	24.904167						
1124					MLE of Standard Deviation	2.3645252						
1125					nu star	2662.3635						
1126												
1127					A-D Test Statistic	0.2509196	**Nonparametric Statistics**					
1128					5% A-D Critical Value	0.7312					90% Percentile	28.2
1129					K-S Test Statistic	0.1176315					95% Percentile	28.2
1130					5% K-S Critical Value	0.24495					99% Percentile	28.2
1131	**Data appear Gamma Distributed at 5% Significance Level**											
1132												
1133				**Assuming Gamma Distribution**						95% UTL with	95% Coverage	28.2
1134					90% Percentile	27.978425			95% Percentile Bootstrap UTL with		95% Coverage	28.2
1135					95% Percentile	28.916854			95% BCA Bootstrap UTL with		95% Coverage	28.2
1136					99% Percentile	30.732583					95% UPL	28.2
1137											95% Chebyshev UPL	34.578996
1138					95% WH Approx. Gamma UPL	29.058764					Upper Threshold Limit Based upon IQR	30.49375
1139					95% HW Approx. Gamma UPL	29.082453						
1140			95% WH Approx. Gamma UTL with		95% Coverage	31.162867						
1141			95% HW Approx. Gamma UTL with		95% Coverage	31.223687						
1142												
1143	**Note: UPL represents a preferred estimate of BTV**											
1144												
1145												
1146	**Zinc**											
1147												
1148					**General Statistics**							
1149					Total Number of Observations	12				Number of Distinct Observations		11
1150												
1151				**Raw Statistics**					**Log-Transformed Statistics**			
1152					Minimum	21.7					Minimum	3.0773123
1153					Maximum	597					Maximum	6.3919171
1154					Second Largest	54.2					Second Largest	3.9926809
1155					First Quartile	40.175					First Quartile	3.6913132
1156					Median	47.6					Median	3.8627975
1157					Third Quartile	52.1					Third Quartile	3.9527065
1158					Mean	90.058333					Mean	3.9743227
1159					SD	159.91544					SD	0.8039267
1160					Coefficient of Variation	1.7756873						
1161					Skewness	3.4427792						
1162												
1163					**Background Statistics**							
1164				**Normal Distribution Test**					**Lognormal Distribution Test**			
1165					Shapiro Wilk Test Statistic	0.3799622					Shapiro Wilk Test Statistic	0.6147671
1166					Shapiro Wilk Critical Value	0.859					Shapiro Wilk Critical Value	0.859
1167				**Data not Normal at 5% Significance Level**					**Data not Lognormal at 5% Significance Level**			
1168												
1169				**Assuming Normal Distribution**					**Assuming Lognormal Distribution**			
1170					95% UTL with	95% Coverage	527.58698			95% UTL with	95% Coverage	480.03846
1171					95% UPL (t)	388.97486					95% UPL (t)	239.13674
1172					90% Percentile (z)	294.99822					90% Percentile (z)	149.09687
1173					95% Percentile (z)	353.09583					95% Percentile (z)	199.6697
1174					99% Percentile (z)	462.07728					99% Percentile (z)	345.34224
1175												
1176				**Gamma Distribution Test**					**Data Distribution Test**			

APPENDIX K, TABLE K-6
95 PERCENT UPPER TOLERANCE LIMITS ON BACKGROUND SOIL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	A	B	C	D	E	F	G	H	I	J	K	L
1177					k star	0.8705734	**Data do not follow a Discernable Distribution (0.05)**					
1178					Theta Star	103.44714						
1179					MLE of Mean	90.058333						
1180					MLE of Standard Deviation	96.520863						
1181					nu star	20.893763						
1182												
1183					A-D Test Statistic	2.7934664	**Nonparametric Statistics**					
1184					5% A-D Critical Value	0.7547929					90% Percentile	434.16
1185					K-S Test Statistic	0.4778891					95% Percentile	597
1186					5% K-S Critical Value	0.2518593					99% Percentile	597
1187	**Data not Gamma Distributed at 5% Significance Level**											
1188												
1189	**Assuming Gamma Distribution**								95% UTL with	95% Coverage		597
1190					90% Percentile	214.53872		95% Percentile Bootstrap UTL with		95% Coverage		597
1191					95% Percentile	283.42243		95% BCA Bootstrap UTL with		95% Coverage		597
1192					99% Percentile	445.0312					95% UPL	597
1193											95% Chebyshev UPL	815.57643
1194					95% WH Approx. Gamma UPL	290.0949			Upper Threshold Limit Based upon IQR			69.9875
1195					95% HW Approx. Gamma UPL	276.60461						
1196			95% WH Approx. Gamma UTL with		95% Coverage	488.0013						
1197			95% HW Approx. Gamma UTL with		95% Coverage	483.57179						
1198												
1199	**Note: UPL represents a preferred estimate of BTV**											

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1				**Goodness-of-Fit Test Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	C:\willow_grove\Site12_HHRA\ProUCL\wg12ss_ProUCL_TTEST_input.wst								
4			Full Precision	ON								
5			Confidence Coefficient	0.95								
6												
7												
8	**Aluminum (back)**											
9												
10					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
11				Raw Statistics	12	0	12	12	0	0.00%		
12												
13					Number	Minimum	Maximum	Mean	Median	SD		
14				Statistics (Full: no NDs)	12	9090	15000	11352.5	11300	1648.267		
15												
16					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
17				Statistics (Full: no NDs)	53.583626	40.243275	211.86509	9.327833	0.14202	0.0152254		
18												
19				**Normal Distribution Test Results**								
20												
21					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
22				Correlation Coefficient R	0.9650347	0.9650347	0.9650347	0.9650347				
23												
24					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
25				Shapiro-Wilks (Full: no NDs)	0.9371712	0.859	Data Appear Normal					
26				Lilliefors (Full: no NDs)	0.1538997	0.2557662	Data Appear Normal					
27												
28				**Gamma Distribution Test Results**								
29												
30					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
31				Correlation Coefficient R	0.9736528	0.9736528	0.9736528	0.9736528				
32												
33					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
34				Anderson-Darling (Full: no NDs)	0.3147782	0.7297425						
35				Kolmogorov-Smirnov (Full: no NDs)	0.1527974	0.24495	Data Appear Gamma Distributed					
36												
37				**Lognormal Distribution Test Results**								
38												
39					No NDs	NDs = DL	NDs = DL/2	Log ROS				
40				Correlation Coefficient R	0.9756865	0.9756865	0.9756865	0.9756865				
41												
42					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
43				Shapiro-Wilks (Full: no NDs)	0.9544724	0.859	Data Appear Lognormal					
44				Lilliefors (Full: no NDs)	0.1545206	0.2557662	Data Appear Lognormal					
45	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
46												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
47	**Aluminum (site)**											
48												
49					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
50				Raw Statistics	153	31	122	122	0	0.00%		
51												
52					Number	Minimum	Maximum	Mean	Median	SD		
53				Statistics (Full: no NDs)	122	2280	21000	11589.426	12250	4339.8639		
54												
55					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
56				Statistics (Full: no NDs)	5.7629764	5.6267283	2011.014	9.268586	0.4587606	0.0494963		
57												
58				**Normal Distribution Test Results**								
59												
60					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
61				Correlation Coefficient R	0.9912052	0.9912052	0.9912052	0.9912052				
62												
63					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
64				Lilliefors (Full: no NDs)	0.0745459	0.0802147	Data Appear Normal					
65												
66				**Gamma Distribution Test Results**								
67												
68					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
69				Correlation Coefficient R	0.9661011	0.9661011	0.9661011	0.9661011				
70												
71					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
72				Anderson-Darling (Full: no NDs)	2.4148115	0.7542875						
73				Kolmogorov-Smirnov (Full: no NDs)	0.1362387	0.0838845	Data Not Gamma Distributed					
74												
75				**Lognormal Distribution Test Results**								
76												
77					No NDs	NDs = DL	NDs = DL/2	Log ROS				
78				Correlation Coefficient R	0.9552254	0.9552254	0.9552254	0.9552254				
79												
80					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
81				Lilliefors (Full: no NDs)	0.1639228	0.0802147	Data Not Lognormal					
82	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
83												
84	**Arsenic (back)**											
85												
86					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
87				Raw Statistics	12	0	12	12	0	0.00%		
88												
89					Number	Minimum	Maximum	Mean	Median	SD		
90				Statistics (Full: no NDs)	12	3.7	10.6	6.6833333	6.65	1.8349304		
91												
92					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
93				Statistics (Full: no NDs)	14.1486	10.667006	0.4723671	1.8638616	0.2839038	0.1523202		
94												
95	**Normal Distribution Test Results**											
96												
97					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
98				Correlation Coefficient R	0.9773109	0.9773109	0.9773109	0.9773109				
99												
100					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
101				Shapiro-Wilks (Full: no NDs)	0.9656825	0.859	Data Appear Normal					
102				Lilliefors (Full: no NDs)	0.153182	0.2557662	Data Appear Normal					
103												
104	**Gamma Distribution Test Results**											
105												
106					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
107				Correlation Coefficient R	0.9812559	0.9812559	0.9812559	0.9812559				
108												
109					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
110				Anderson-Darling (Full: no NDs)	0.2279318	0.7309472						
111				Kolmogorov-Smirnov (Full: no NDs)	0.1329816	0.2453053	Data Appear Gamma Distributed					
112												
113	**Lognormal Distribution Test Results**											
114												
115					No NDs	NDs = DL	NDs = DL/2	Log ROS				
116				Correlation Coefficient R	0.97917	0.97917	0.97917	0.97917				
117												
118					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
119				Shapiro-Wilks (Full: no NDs)	0.9673124	0.859	Data Appear Lognormal					
120				Lilliefors (Full: no NDs)	0.1429343	0.2557662	Data Appear Lognormal					
121	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
122												
123	**Arsenic (site)**											
124												
125					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
126				Raw Statistics	153	31	122	122	0	0.00%		
127												
128					Number	Minimum	Maximum	Mean	Median	SD		
129				Statistics (Full: no NDs)	122	0.96	29.8	5.1365574	5	3.0901557		
130												
131					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
132				Statistics (Full: no NDs)	4.2640046	4.1646166	1.2046322	1.5145637	0.4936266	0.32592		
133												
134	**Normal Distribution Test Results**											
135												
136					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
137				Correlation Coefficient R	0.8088628	0.8088628	0.8088628	0.8088628				
138												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
139					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
140				Lilliefors (Full: no NDs)	0.1640361	0.0802147	Data Not Normal					
141												
142	**Gamma Distribution Test Results**											
143												
144					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
145				Correlation Coefficient R	0.8726736	0.8726736	0.8726736	0.8726736				
146												
147					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
148				Anderson-Darling (Full: no NDs)	1.4588927	0.7559403						
149				Kolmogorov-Smirnov (Full: no NDs)	0.0906733	0.08404	Data Not Gamma Distributed					
150												
151	**Lognormal Distribution Test Results**											
152												
153					No NDs	NDs = DL	NDs = DL/2	Log ROS				
154				Correlation Coefficient R	0.9730391	0.9730391	0.9730391	0.9730391				
155												
156					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
157				Lilliefors (Full: no NDs)	0.1158447	0.0802147	Data Not Lognormal					
158	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
159												
160	**Barium (back)**											
161												
162					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
163				Raw Statistics	12	0	12	12	0	0.00%		
164												
165					Number	Minimum	Maximum	Mean	Median	SD		
166				Statistics (Full: no NDs)	12	77.8	111	95.975	96.05	12.259773		
167												
168					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
169				Statistics (Full: no NDs)	65.925331	49.499554	1.4558137	4.5564842	0.1293692	0.0283923		
170												
171	**Normal Distribution Test Results**											
172												
173					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
174				Correlation Coefficient R	0.9653533	0.9653533	0.9653533	0.9653533				
175												
176					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
177				Shapiro-Wilks (Full: no NDs)	0.9063364	0.859	Data Appear Normal					
178				Lilliefors (Full: no NDs)	0.17	0.2557662	Data Appear Normal					
179												
180	**Gamma Distribution Test Results**											
181												
182					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
183				Correlation Coefficient R	0.9579659	0.9579659	0.9579659	0.9579659				
184												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
185					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
186				Anderson-Darling (Full: no NDs)	0.430063	0.7301301						
187				Kolmogorov-Smirnov (Full: no NDs)	0.1790744	0.24495	Data Appear Gamma Distributed					
188												
189	**Lognormal Distribution Test Results**											
190												
191					No NDs	NDs = DL	NDs = DL/2	Log ROS				
192				Correlation Coefficient R	0.9664264	0.9664264	0.9664264	0.9664264				
193												
194					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
195				Shapiro-Wilks (Full: no NDs)	0.9096743	0.859	Data Appear Lognormal					
196				Lilliefors (Full: no NDs)	0.1676159	0.2557662	Data Appear Lognormal					
197	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
198												
199	**Barium (site)**											
200												
201					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
202				Raw Statistics	153	31	122	122	0	0.00%		
203												
204					Number	Minimum	Maximum	Mean	Median	SD		
205				Statistics (Full: no NDs)	122	28.7	242	87.627869	83.2	34.945484		
206												
207					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
208				Statistics (Full: no NDs)	7.1449926	6.9747606	12.264235	4.4014908	0.380159	0.0863705		
209												
210	**Normal Distribution Test Results**											
211												
212					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
213				Correlation Coefficient R	0.9482388	0.9482388	0.9482388	0.9482388				
214												
215					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
216				Lilliefors (Full: no NDs)	0.1147937	0.0802147	Data Not Normal					
217												
218	**Gamma Distribution Test Results**											
219												
220					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
221				Correlation Coefficient R	0.9824945	0.9824945	0.9824945	0.9824945				
222												
223					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
224				Anderson-Darling (Full: no NDs)	0.6089021	0.7535251						
225				Kolmogorov-Smirnov (Full: no NDs)	0.0711362	0.0838311	Data Appear Gamma Distributed					
226												
227	**Lognormal Distribution Test Results**											
228												
229					No NDs	NDs = DL	NDs = DL/2	Log ROS				
230				Correlation Coefficient R	0.9937029	0.9937029	0.9937029	0.9937029				

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
231												
232					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
233				Lilliefors (Full: no NDs)	0.0565118	0.0802147	Data Appear Lognormal					
234	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
235												
236	**Beryllium (back)**											
237												
238					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
239				Raw Statistics	12	0	12	12	0	0.00%		
240												
241					Number	Minimum	Maximum	Mean	Median	SD		
242				Statistics (Full: no NDs)	12	0.75	1.3	0.9883333	0.95	0.1915408		
243												
244					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
245				Statistics (Full: no NDs)	29.657536	22.298707	0.0333249	-0.028689	0.1916229	-6.679289		
246												
247				**Normal Distribution Test Results**								
248												
249					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
250				Correlation Coefficient R	0.9589215	0.9589215	0.9589215	0.9589215				
251												
252					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
253				Shapiro-Wilks (Full: no NDs)	0.900191	0.859	Data Appear Normal					
254				Lilliefors (Full: no NDs)	0.1987695	0.2557662	Data Appear Normal					
255												
256				**Gamma Distribution Test Results**								
257												
258					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
259				Correlation Coefficient R	0.9620107	0.9620107	0.9620107	0.9620107				
260												
261					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
262				Anderson-Darling (Full: no NDs)	0.506512	0.7311421						
263				Kolmogorov-Smirnov (Full: no NDs)	0.2087464	0.2451195	Data Appear Gamma Distributed					
264												
265				**Lognormal Distribution Test Results**								
266												
267					No NDs	NDs = DL	NDs = DL/2	Log ROS				
268				Correlation Coefficient R	0.9665158	0.9665158	0.9665158	0.9665158				
269												
270					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
271				Shapiro-Wilks (Full: no NDs)	0.91368	0.859	Data Appear Lognormal					
272				Lilliefors (Full: no NDs)	0.1979235	0.2557662	Data Appear Lognormal					
273	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
274												
275	**Beryllium (site)**											
276												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
277					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
278				Raw Statistics	153	31	122	122	0	0.00%		
279												
280					Number	Minimum	Maximum	Mean	Median	SD		
281				Statistics (Full: no NDs)	122	0.23	1.3	0.7137705	0.73	0.2032965		
282												
283					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
284				Statistics (Full: no NDs)	11.2395	10.968584	0.0635055	-0.382339	0.3144652	-0.822478		
285												
286	**Normal Distribution Test Results**											
287												
288					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
289				Correlation Coefficient R	0.9941933	0.9941933	0.9941933	0.9941933				
290												
291					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
292				Lilliefors (Full: no NDs)	0.0635564	0.0802147	Data Appear Normal					
293												
294	**Gamma Distribution Test Results**											
295												
296					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
297				Correlation Coefficient R	0.9871901	0.9871901	0.9871901	0.9871901				
298												
299					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
300				Anderson-Darling (Full: no NDs)	0.9735813	0.751696						
301				Kolmogorov-Smirnov (Full: no NDs)	0.0887149	0.083703	Data Not Gamma Distributed					
302												
303	**Lognormal Distribution Test Results**											
304												
305					No NDs	NDs = DL	NDs = DL/2	Log ROS				
306				Correlation Coefficient R	0.9761789	0.9761789	0.9761789	0.9761789				
307												
308					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
309				Lilliefors (Full: no NDs)	0.1062927	0.0802147	Data Not Lognormal					
310	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
311												
312	**Calcium (back)**											
313												
314					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
315				Raw Statistics	12	0	12	12	0	0.00%		
316												
317					Number	Minimum	Maximum	Mean	Median	SD		
318				Statistics (Full: no NDs)	12	614	1600	1020.25	926.5	348.84045		
319												
320					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
321				Statistics (Full: no NDs)	10.011048	7.5638412	101.91241	6.8770275	0.3286559	0.0477904		
322												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
323	**Normal Distribution Test Results**											
324												
325					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
326				Correlation Coefficient R	0.9433164	0.9433164	0.9433164	0.9433164				
327												
328					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
329				Shapiro-Wilks (Full: no NDs)	0.8717295	0.859	Data Appear Normal					
330				Lilliefors (Full: no NDs)	0.1836179	0.2557662	Data Appear Normal					
331												
332	**Gamma Distribution Test Results**											
333												
334					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
335				Correlation Coefficient R	0.9589212	0.9589212	0.9589212	0.9589212				
336												
337					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
338				Anderson-Darling (Full: no NDs)	0.5330003	0.7303017						
339				Kolmogorov-Smirnov (Full: no NDs)	0.1923232	0.2453798	Data Appear Gamma Distributed					
340												
341	**Lognormal Distribution Test Results**											
342												
343					No NDs	NDs = DL	NDs = DL/2	Log ROS				
344				Correlation Coefficient R	0.9667233	0.9667233	0.9667233	0.9667233				
345												
346					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
347				Shapiro-Wilks (Full: no NDs)	0.9160714	0.859	Data Appear Lognormal					
348				Lilliefors (Full: no NDs)	0.1801664	0.2557662	Data Appear Lognormal					
349	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
350												
351	**Calcium (site)**											
352												
353					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
354				Raw Statistics	153	31	122	122	0	0.00%		
355												
356					Number	Minimum	Maximum	Mean	Median	SD		
357				Statistics (Full: no NDs)	122	314	55800	3104.1803	1185	7145.1962		
358												
359					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
360				Statistics (Full: no NDs)	0.784877	0.7710412	3954.9897	7.2824341	0.9961624	0.1367898		
361												
362	**Normal Distribution Test Results**											
363												
364					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
365				Correlation Coefficient R	0.587732	0.587732	0.587732	0.587732				
366												
367					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
368				Lilliefors (Full: no NDs)	0.3480844	0.0802147	Data Not Normal					

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
369												
370	**Gamma Distribution Test Results**											
371												
372					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
373				Correlation Coefficient R	0.8406275	0.8406275	0.8406275	0.8406275				
374												
375					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
376				Anderson-Darling (Full: no NDs)	10.501688	0.7935985						
377				Kolmogorov-Smirnov (Full: no NDs)	0.231142	0.086951	Data Not Gamma Distributed					
378												
379	**Lognormal Distribution Test Results**											
380												
381					No NDs	NDs = DL	NDs = DL/2	Log ROS				
382				Correlation Coefficient R	0.9513808	0.9513808	0.9513808	0.9513808				
383												
384					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
385				Lilliefors (Full: no NDs)	0.1138708	0.0802147	Data Not Lognormal					
386	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
387												
388	**Chromium (back)**											
389												
390					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
391				Raw Statistics	12	0	12	12	0	0.00%		
392												
393					Number	Minimum	Maximum	Mean	Median	SD		
394				Statistics (Full: no NDs)	12	12.4	20.8	15.441667	15.5	2.2908745		
395												
396					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
397				Statistics (Full: no NDs)	52.763852	39.628445	0.2926562	2.7275634	0.1421448	0.0521142		
398												
399	**Normal Distribution Test Results**											
400												
401					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
402				Correlation Coefficient R	0.9568812	0.9568812	0.9568812	0.9568812				
403												
404					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
405				Shapiro-Wilks (Full: no NDs)	0.9253887	0.859	Data Appear Normal					
406				Lilliefors (Full: no NDs)	0.1872844	0.2557662	Data Appear Normal					
407												
408	**Gamma Distribution Test Results**											
409												
410					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
411				Correlation Coefficient R	0.9699849	0.9699849	0.9699849	0.9699849				
412												
413					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
414				Anderson-Darling (Full: no NDs)	0.2859326	0.7297168						

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
415				Kolmogorov-Smirnov (Full: no NDs)	0.1624983	0.24495	Data Appear Gamma Distributed					
416												
417	**Lognormal Distribution Test Results**											
418												
419					No NDs	NDs = DL	NDs = DL/2	Log ROS				
420				Correlation Coefficient R	0.9754602	0.9754602	0.9754602	0.9754602				
421												
422					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
423				Shapiro-Wilks (Full: no NDs)	0.9580538	0.859	Data Appear Lognormal					
424				Lilliefors (Full: no NDs)	0.1606108	0.2557662	Data Appear Lognormal					
425	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
426												
427	**Chromium (site)**											
428												
429					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
430				Raw Statistics	153	31	122	122	0	0.00%		
431												
432					Number	Minimum	Maximum	Mean	Median	SD		
433				Statistics (Full: no NDs)	122	4.7	38.5	17.12541	17	5.7934355		
434												
435					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
436				Statistics (Full: no NDs)	8.6647592	8.4571558	1.9764438	2.7817498	0.3538636	0.127209		
437												
438	**Normal Distribution Test Results**											
439												
440					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
441				Correlation Coefficient R	0.9834209	0.9834209	0.9834209	0.9834209				
442												
443					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
444				Lilliefors (Full: no NDs)	0.0715329	0.0802147	Data Appear Normal					
445												
446	**Gamma Distribution Test Results**											
447												
448					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
449				Correlation Coefficient R	0.9948075	0.9948075	0.9948075	0.9948075				
450												
451					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
452				Anderson-Darling (Full: no NDs)	0.4363713	0.7526866						
453				Kolmogorov-Smirnov (Full: no NDs)	0.0671145	0.0837724	Data Appear Gamma Distributed					
454												
455	**Lognormal Distribution Test Results**											
456												
457					No NDs	NDs = DL	NDs = DL/2	Log ROS				
458				Correlation Coefficient R	0.9888649	0.9888649	0.9888649	0.9888649				
459												
460					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
461				Lilliefors (Full: no NDs)	0.0902602	0.0802147	Data Not Lognormal					
462	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
463												
464	**Cobalt (back)**											
465												
466					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
467				Raw Statistics	12	0	12	12	0	0.00%		
468												
469					Number	Minimum	Maximum	Mean	Median	SD		
470				Statistics (Full: no NDs)	12	6.8	9.3	7.9083333	8.2	0.7890827		
471												
472					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
473				Statistics (Full: no NDs)	108.263	81.252804	0.0730474	2.0632916	0.1008289	0.048868		
474												
475	**Normal Distribution Test Results**											
476												
477					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
478				Correlation Coefficient R	0.9554591	0.9554591	0.9554591	0.9554591				
479												
480					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
481				Shapiro-Wilks (Full: no NDs)	0.9046672	0.859	Data Appear Normal					
482				Lilliefors (Full: no NDs)	0.2275033	0.2557662	Data Appear Normal					
483												
484	**Gamma Distribution Test Results**											
485												
486					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
487				Correlation Coefficient R	0.9536964	0.9536964	0.9536964	0.9536964				
488												
489					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
490				Anderson-Darling (Full: no NDs)	0.6549004	0.7312						
491				Kolmogorov-Smirnov (Full: no NDs)	0.2428233	0.24495	Data Appear Gamma Distributed					
492												
493	**Lognormal Distribution Test Results**											
494												
495					No NDs	NDs = DL	NDs = DL/2	Log ROS				
496				Correlation Coefficient R	0.9527021	0.9527021	0.9527021	0.9527021				
497												
498					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
499				Shapiro-Wilks (Full: no NDs)	0.8975753	0.859	Data Appear Lognormal					
500				Lilliefors (Full: no NDs)	0.2406197	0.2557662	Data Appear Lognormal					
501	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
502												
503	**Cobalt (site)**											
504												
505					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
506				Raw Statistics	153	31	122	122	0	0.00%		

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

507												
508					Number	Minimum	Maximum	Mean	Median	SD		
509				Statistics (Full: no NDs)	122	2.1	12	6.0877049	5.9	1.7686703		
510												
511					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
512				Statistics (Full: no NDs)	11.548699	11.270179	0.5271334	1.7623519	0.3047095	0.1728993		
513												
514	**Normal Distribution Test Results**											
515												
516					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
517				Correlation Coefficient R	0.9933841	0.9933841	0.9933841	0.9933841				
518												
519					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
520				Lilliefors (Full: no NDs)	0.0564131	0.0802147	Data Appear Normal					
521												
522	**Gamma Distribution Test Results**											
523												
524					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
525				Correlation Coefficient R	0.997657	0.997657	0.997657	0.997657				
526												
527					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
528				Anderson-Darling (Full: no NDs)	0.1943547	0.7516326						
529				Kolmogorov-Smirnov (Full: no NDs)	0.0510891	0.0836986	Data Appear Gamma Distributed					
530												
531	**Lognormal Distribution Test Results**											
532												
533					No NDs	NDs = DL	NDs = DL/2	Log ROS				
534				Correlation Coefficient R	0.991689	0.991689	0.991689	0.991689				
535												
536					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
537				Lilliefors (Full: no NDs)	0.0620039	0.0802147	Data Appear Lognormal					
538	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
539												
540	**Copper (back)**											
541												
542					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
543				Raw Statistics	12	0	12	12	0	0.00%		
544												
545					Number	Minimum	Maximum	Mean	Median	SD		
546				Statistics (Full: no NDs)	12	8	13.4	10.741667	10.7	1.5506353		
547												
548					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
549				Statistics (Full: no NDs)	51.491683	38.674317	0.2086097	2.3643885	0.1467169	0.0620528		
550												
551	**Normal Distribution Test Results**											
552												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
553					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
554				Correlation Coefficient R	0.9943571	0.9943571	0.9943571	0.9943571				
555												
556					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
557				Shapiro-Wilks (Full: no NDs)	0.986947	0.859	Data Appear Normal					
558				Lilliefors (Full: no NDs)	0.0940519	0.2557662	Data Appear Normal					
559												
560	**Gamma Distribution Test Results**											
561												
562					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
563				Correlation Coefficient R	0.9934405	0.9934405	0.9934405	0.9934405				
564												
565					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
566				Anderson-Darling (Full: no NDs)	0.1414305	0.7296768						
567				Kolmogorov-Smirnov (Full: no NDs)	0.0907606	0.24495	Data Appear Gamma Distributed					
568												
569	**Lognormal Distribution Test Results**											
570												
571					No NDs	NDs = DL	NDs = DL/2	Log ROS				
572				Correlation Coefficient R	0.9913179	0.9913179	0.9913179	0.9913179				
573												
574					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
575				Shapiro-Wilks (Full: no NDs)	0.9824897	0.859	Data Appear Lognormal					
576				Lilliefors (Full: no NDs)	0.0992502	0.2557662	Data Appear Lognormal					
577	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
578												
579	**Copper (site)**											
580												
581					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
582				Raw Statistics	153	28	125	125	0	0.00%		
583												
584					Number	Minimum	Maximum	Mean	Median	SD		
585				Statistics (Full: no NDs)	125	4.2	458	25.1688	14.7	48.553329		
586												
587					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
588				Statistics (Full: no NDs)	1.1982554	1.1748306	21.004537	2.7534852	0.7870617	0.285842		
589												
590	**Normal Distribution Test Results**											
591												
592					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
593				Correlation Coefficient R	0.5695012	0.5695012	0.5695012	0.5695012				
594												
595					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
596				Lilliefors (Full: no NDs)	0.3329174	0.0792462	Data Not Normal					
597												
598	**Gamma Distribution Test Results**											

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
599												
600					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
601				Correlation Coefficient R	0.7761929	0.7761929	0.7761929	0.7761929				
602												
603					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
604				Anderson-Darling (Full: no NDs)	8.8467944	0.7780329						
605				Kolmogorov-Smirnov (Full: no NDs)	0.2121126	0.0851098	Data Not Gamma Distributed					
606												
607				**Lognormal Distribution Test Results**								
608												
609					No NDs	NDs = DL	NDs = DL/2	Log ROS				
610				Correlation Coefficient R	0.9529757	0.9529757	0.9529757	0.9529757				
611												
612					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
613				Lilliefors (Full: no NDs)	0.1074629	0.0792462	Data Not Lognormal					
614	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
615												
616	**Iron (back)**											
617												
618					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
619				Raw Statistics	12	0	12	12	0	0.00%		
620												
621					Number	Minimum	Maximum	Mean	Median	SD		
622				Statistics (Full: no NDs)	12	12800	17600	14883.333	14800	1666.697		
623												
624					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
625				Statistics (Full: no NDs)	87.866378	65.955339	169.38599	9.602296	0.1113076	0.0115918		
626												
627				**Normal Distribution Test Results**								
628												
629					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
630				Correlation Coefficient R	0.9633649	0.9633649	0.9633649	0.9633649				
631												
632					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
633				Shapiro-Wilks (Full: no NDs)	0.9084568	0.859	Data Appear Normal					
634				Lilliefors (Full: no NDs)	0.1808194	0.2557662	Data Appear Normal					
635												
636				**Gamma Distribution Test Results**								
637												
638					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
639				Correlation Coefficient R	0.964758	0.964758	0.964758	0.964758				
640												
641					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
642				Anderson-Darling (Full: no NDs)	0.5225798	0.730819						
643				Kolmogorov-Smirnov (Full: no NDs)	0.1795911	0.24495	Data Appear Gamma Distributed					
644												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
645	**Lognormal Distribution Test Results**											
646												
647					No NDs	NDs = DL	NDs = DL/2	Log ROS				
648				Correlation Coefficient R	0.9645038	0.9645038	0.9645038	0.9645038				
649												
650					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
651				Shapiro-Wilks (Full: no NDs)	0.9097837	0.859	Data Appear Lognormal					
652				Lilliefors (Full: no NDs)	0.1680465	0.2557662	Data Appear Lognormal					
653	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
654												
655	**Iron (site)**											
656												
657					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
658				Raw Statistics	153	31	122	122	0	0.00%		
659												
660					Number	Minimum	Maximum	Mean	Median	SD		
661				Statistics (Full: no NDs)	122	5810	37100	16865.656	16050	5926.6807		
662												
663					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
664				Statistics (Full: no NDs)	8.6300084	8.4232595	1954.3035	9.6739798	0.3474761	0.0359186		
665												
666	**Normal Distribution Test Results**											
667												
668					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
669				Correlation Coefficient R	0.971644	0.971644	0.971644	0.971644				
670												
671					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
672				Lilliefors (Full: no NDs)	0.0922603	0.0802147	Data Not Normal					
673												
674	**Gamma Distribution Test Results**											
675												
676					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
677				Correlation Coefficient R	0.9931645	0.9931645	0.9931645	0.9931645				
678												
679					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
680				Anderson-Darling (Full: no NDs)	0.3264975	0.7527058						
681				Kolmogorov-Smirnov (Full: no NDs)	0.0571512	0.0837737	Data Appear Gamma Distributed					
682												
683	**Lognormal Distribution Test Results**											
684												
685					No NDs	NDs = DL	NDs = DL/2	Log ROS				
686				Correlation Coefficient R	0.9964001	0.9964001	0.9964001	0.9964001				
687												
688					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
689				Lilliefors (Full: no NDs)	0.0642775	0.0802147	Data Appear Lognormal					
690	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
691												
692	**Lead (back)**											
693												
694					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
695				Raw Statistics	12	0	12	12	0	0.00%		
696												
697					Number	Minimum	Maximum	Mean	Median	SD		
698				Statistics (Full: no NDs)	12	16.3	64.7	30.95	27.1	15.26794		
699												
700					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
701				Statistics (Full: no NDs)	5.5339147	4.2059916	5.5927859	3.3393086	0.4328361	0.1296185		
702												
703				**Normal Distribution Test Results**								
704												
705					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
706				Correlation Coefficient R	0.9085943	0.9085943	0.9085943	0.9085943				
707												
708					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
709				Shapiro-Wilks (Full: no NDs)	0.8243793	0.859	Data Not Normal					
710				Lilliefors (Full: no NDs)	0.2382435	0.2557662	Data Appear Normal					
711												
712				**Gamma Distribution Test Results**								
713												
714					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
715				Correlation Coefficient R	0.9602188	0.9602188	0.9602188	0.9602188				
716												
717					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
718				Anderson-Darling (Full: no NDs)	0.5133861	0.7318095						
719				Kolmogorov-Smirnov (Full: no NDs)	0.1800954	0.2458713	Data Appear Gamma Distributed					
720												
721				**Lognormal Distribution Test Results**								
722												
723					No NDs	NDs = DL	NDs = DL/2	Log ROS				
724				Correlation Coefficient R	0.9674062	0.9674062	0.9674062	0.9674062				
725												
726					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
727				Shapiro-Wilks (Full: no NDs)	0.9274689	0.859	Data Appear Lognormal					
728				Lilliefors (Full: no NDs)	0.1519279	0.2557662	Data Appear Lognormal					
729	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
730												
731	**Lead (site)**											
732												
733					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
734				Raw Statistics	153	22	131	131	0	0.00%		
735												
736					Number	Minimum	Maximum	Mean	Median	SD		

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
737				Statistics (Full: no NDs)	131	5.4	1410	71.971756	33.4	157.79462		
738												
739					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
740				Statistics (Full: no NDs)	0.8203266	0.8066296	87.735489	3.5551642	1.0337494	0.290774		
741												
742	**Normal Distribution Test Results**											
743												
744					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
745				Correlation Coefficient R	0.5942831	0.5942831	0.5942831	0.5942831				
746												
747					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
748				Lilliefors (Full: no NDs)	0.3365532	0.0774102	Data Not Normal					
749												
750	**Gamma Distribution Test Results**											
751												
752					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
753				Correlation Coefficient R	0.8359378	0.8359378	0.8359378	0.8359378				
754												
755					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
756				Anderson-Darling (Full: no NDs)	7.5977829	0.791981						
757				Kolmogorov-Smirnov (Full: no NDs)	0.185763	0.0844367	Data Not Gamma Distributed					
758												
759	**Lognormal Distribution Test Results**											
760												
761					No NDs	NDs = DL	NDs = DL/2	Log ROS				
762				Correlation Coefficient R	0.9747592	0.9747592	0.9747592	0.9747592				
763												
764					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
765				Lilliefors (Full: no NDs)	0.0735984	0.0774102	Data Appear Lognormal					
766	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
767												
768	**Magnesium (back)**											
769												
770					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
771				Raw Statistics	12	0	12	12	0	0.00%		
772												
773					Number	Minimum	Maximum	Mean	Median	SD		
774				Statistics (Full: no NDs)	12	1300	1940	1509.1667	1480	164.61848		
775												
776					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
777				Statistics (Full: no NDs)	99.991351	75.049069	15.092972	7.3143041	0.1024522	0.0140071		
778												
779	**Normal Distribution Test Results**											
780												
781					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
782				Correlation Coefficient R	0.9097451	0.9097451	0.9097451	0.9097451				

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

783											
784				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
785			Shapiro-Wilks (Full: no NDs)	0.8503763	0.859	Data Not Normal					
786			Lilliefors (Full: no NDs)	0.2353819	0.2557662	Data Appear Normal					
787											
788	**Gamma Distribution Test Results**										
789											
790				No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
791			Correlation Coefficient R	0.9260539	0.9260539	0.9260539	0.9260539				
792											
793				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
794			Anderson-Darling (Full: no NDs)	0.596531	0.7311997						
795			Kolmogorov-Smirnov (Full: no NDs)	0.2148793	0.24495	Data Appear Gamma Distributed					
796											
797	**Lognormal Distribution Test Results**										
798											
799				No NDs	NDs = DL	NDs = DL/2	Log ROS				
800			Correlation Coefficient R	0.933712	0.933712	0.933712	0.933712				
801											
802				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
803			Shapiro-Wilks (Full: no NDs)	0.8928792	0.859	Data Appear Lognormal					
804			Lilliefors (Full: no NDs)	0.2118146	0.2557662	Data Appear Lognormal					
805	**Note: Substitution methods such as DL or DL/2 are not recommended.**										
806											
807	**Magnesium (site)**										
808											
809				Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
810			Raw Statistics	153	31	122	122	0	0.00%		
811											
812				Number	Minimum	Maximum	Mean	Median	SD		
813			Statistics (Full: no NDs)	122	478	20600	2129.5574	1680	2487.3624		
814											
815				K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
816			Statistics (Full: no NDs)	2.4747744	2.4193838	860.50567	7.4482315	0.5383991	0.0722855		
817											
818	**Normal Distribution Test Results**										
819											
820				No NDs	NDs = DL	NDs = DL/2	Normal ROS				
821			Correlation Coefficient R	0.6091174	0.6091174	0.6091174	0.6091174				
822											
823				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
824			Lilliefors (Full: no NDs)	0.3367387	0.0802147	Data Not Normal					
825											
826	**Gamma Distribution Test Results**										
827											
828				No NDs	NDs = DL	NDs = DL/2	Gamma ROS				

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
829				Correlation Coefficient R	0.7512402	0.7512402	0.7512402	0.7512402				
830												
831					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
832				Anderson-Darling (Full: no NDs)	9.1849541	0.762303						
833				Kolmogorov-Smirnov (Full: no NDs)	0.2321223	0.0846298	Data Not Gamma Distributed					
834												
835	**Lognormal Distribution Test Results**											
836												
837					No NDs	NDs = DL	NDs = DL/2	Log ROS				
838				Correlation Coefficient R	0.9232498	0.9232498	0.9232498	0.9232498				
839												
840					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
841				Lilliefors (Full: no NDs)	0.1590818	0.0802147	Data Not Lognormal					
842	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
843												
844	**Manganese (back)**											
845												
846					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
847				Raw Statistics	12	0	12	12	0	0.00%		
848												
849					Number	Minimum	Maximum	Mean	Median	SD		
850				Statistics (Full: no NDs)	12	429	1190	643.25	591	206.25277		
851												
852					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
853				Statistics (Full: no NDs)	13.11815	9.894168	49.035116	6.4279343	0.2776751	0.0431982		
854												
855	**Normal Distribution Test Results**											
856												
857					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
858				Correlation Coefficient R	0.8904209	0.8904209	0.8904209	0.8904209				
859												
860					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
861				Shapiro-Wilks (Full: no NDs)	0.8105971	0.859	Data Not Normal					
862				Lilliefors (Full: no NDs)	0.2550229	0.2557662	Data Appear Normal					
863												
864	**Gamma Distribution Test Results**											
865												
866					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
867				Correlation Coefficient R	0.9324428	0.9324428	0.9324428	0.9324428				
868												
869					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
870				Anderson-Darling (Full: no NDs)	0.5881132	0.7307864						
871				Kolmogorov-Smirnov (Full: no NDs)	0.2091459	0.2453239	Data Appear Gamma Distributed					
872												
873	**Lognormal Distribution Test Results**											
874												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
875					No NDs	NDs = DL	NDs = DL/2	Log ROS				
876				Correlation Coefficient R	0.9475251	0.9475251	0.9475251	0.9475251				
877												
878					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
879				Shapiro-Wilks (Full: no NDs)	0.9089473	0.859	Data Appear Lognormal					
880				Lilliefors (Full: no NDs)	0.1930306	0.2557662	Data Appear Lognormal					
881	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
882												
883	**Manganese (site)**											
884												
885					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
886				Raw Statistics	153	31	122	122	0	0.00%		
887												
888					Number	Minimum	Maximum	Mean	Median	SD		
889				Statistics (Full: no NDs)	122	106	1020	402.18852	385.5	180.81086		
890												
891					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
892				Statistics (Full: no NDs)	4.9344709	4.8185959	81.505907	5.8921843	0.4746836	0.0805616		
893												
894	**Normal Distribution Test Results**											
895												
896					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
897				Correlation Coefficient R	0.9788046	0.9788046	0.9788046	0.9788046				
898												
899					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
900				Lilliefors (Full: no NDs)	0.0855488	0.0802147	Data Not Normal					
901												
902	**Gamma Distribution Test Results**											
903												
904					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
905				Correlation Coefficient R	0.9969624	0.9969624	0.9969624	0.9969624				
906												
907					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
908				Anderson-Darling (Full: no NDs)	0.2285359	0.7548181						
909				Kolmogorov-Smirnov (Full: no NDs)	0.0499625	0.0839252	Data Appear Gamma Distributed					
910												
911	**Lognormal Distribution Test Results**											
912												
913					No NDs	NDs = DL	NDs = DL/2	Log ROS				
914				Correlation Coefficient R	0.9925036	0.9925036	0.9925036	0.9925036				
915												
916					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
917				Lilliefors (Full: no NDs)	0.0684377	0.0802147	Data Appear Lognormal					
918	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
919												
920	**Nickel (back)**											

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

921												
922					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
923				Raw Statistics	12	0	12	12	0	0.00%		
924												
925					Number	Minimum	Maximum	Mean	Median	SD		
926				Statistics (Full: no NDs)	12	7.4	11.2	9.8	9.95	0.9477245		
927												
928					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
929				Statistics (Full: no NDs)	106.46844	79.906886	0.0920461	2.2776788	0.103825	0.0455837		
930												
931	**Normal Distribution Test Results**											
932												
933					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
934				Correlation Coefficient R	0.9267067	0.9267067	0.9267067	0.9267067				
935												
936					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
937				Shapiro-Wilks (Full: no NDs)	0.883234	0.859	Data Appear Normal					
938				Lilliefors (Full: no NDs)	0.1800024	0.2557662	Data Appear Normal					
939												
940	**Gamma Distribution Test Results**											
941												
942					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
943				Correlation Coefficient R	0.9191642	0.9191642	0.9191642	0.9191642				
944												
945					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
946				Anderson-Darling (Full: no NDs)	0.658151	0.7312						
947				Kolmogorov-Smirnov (Full: no NDs)	0.1867273	0.24495	Data Appear Gamma Distributed					
948												
949	**Lognormal Distribution Test Results**											
950												
951					No NDs	NDs = DL	NDs = DL/2	Log ROS				
952				Correlation Coefficient R	0.9023119	0.9023119	0.9023119	0.9023119				
953												
954					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
955				Shapiro-Wilks (Full: no NDs)	0.8403346	0.859	Data Not Lognormal					
956				Lilliefors (Full: no NDs)	0.2033124	0.2557662	Data Appear Lognormal					
957	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
958												
959	**Nickel (site)**											
960												
961					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
962				Raw Statistics	153	31	122	122	0	0.00%		
963												
964					Number	Minimum	Maximum	Mean	Median	SD		
965				Statistics (Full: no NDs)	122	3.5	63.5	10.907377	10.6	6.5033516		
966												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
967					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
968				Statistics (Full: no NDs)	5.1502055	5.0290256	2.1178528	2.2892258	0.4231498	0.1848441		
969												
970				**Normal Distribution Test Results**								
971												
972					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
973				Correlation Coefficient R	0.7569968	0.7569968	0.7569968	0.7569968				
974												
975					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
976				Lilliefors (Full: no NDs)	0.2354507	0.0802147	Data Not Normal					
977												
978				**Gamma Distribution Test Results**								
979												
980					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
981				Correlation Coefficient R	0.8273389	0.8273389	0.8273389	0.8273389				
982												
983					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
984				Anderson-Darling (Full: no NDs)	2.8344704	0.7546255						
985				Kolmogorov-Smirnov (Full: no NDs)	0.1491311	0.0839082	Data Not Gamma Distributed					
986												
987				**Lognormal Distribution Test Results**								
988												
989					No NDs	NDs = DL	NDs = DL/2	Log ROS				
990				Correlation Coefficient R	0.9635991	0.9635991	0.9635991	0.9635991				
991												
992					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
993				Lilliefors (Full: no NDs)	0.1206493	0.0802147	Data Not Lognormal					
994	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
995												
996	**Vanadium (back)**											
997												
998					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
999				Raw Statistics	12	0	12	12	0	0.00%		
1000												
1001					Number	Minimum	Maximum	Mean	Median	SD		
1002				Statistics (Full: no NDs)	12	20.9	28.2	25.041667	25.1	2.1043066		
1003												
1004					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1005				Statistics (Full: no NDs)	151.92444	113.99889	0.1648297	3.2172464	0.0852199	0.0264884		
1006												
1007				**Normal Distribution Test Results**								
1008												
1009					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1010				Correlation Coefficient R	0.9843005	0.9843005	0.9843005	0.9843005				
1011												
1012					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1013				Shapiro-Wilks (Full: no NDs)	0.9683524	0.859	Data Appear Normal					
1014				Lilliefors (Full: no NDs)	0.0999747	0.2557662	Data Appear Normal					
1015												
1016	**Gamma Distribution Test Results**											
1017												
1018					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1019				Correlation Coefficient R	0.9821416	0.9821416	0.9821416	0.9821416				
1020												
1021					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1022				Anderson-Darling (Full: no NDs)	0.1935247	0.7312						
1023				Kolmogorov-Smirnov (Full: no NDs)	0.1024622	0.24495	Data Appear Gamma Distributed					
1024												
1025	**Lognormal Distribution Test Results**											
1026												
1027					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1028				Correlation Coefficient R	0.9807109	0.9807109	0.9807109	0.9807109				
1029												
1030					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1031				Shapiro-Wilks (Full: no NDs)	0.9633966	0.859	Data Appear Lognormal					
1032				Lilliefors (Full: no NDs)	0.1050918	0.2557662	Data Appear Lognormal					
1033	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1034												
1035	**Vanadium (site)**											
1036												
1037					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1038				Raw Statistics	153	31	122	122	0	0.00%		
1039												
1040					Number	Minimum	Maximum	Mean	Median	SD		
1041				Statistics (Full: no NDs)	122	5.7	44.9	24.152459	24.95	7.6093159		
1042												
1043					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1044				Statistics (Full: no NDs)	8.9529937	8.7383026	2.6976964	3.1275006	0.3572322	0.1142229		
1045												
1046	**Normal Distribution Test Results**											
1047												
1048					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1049				Correlation Coefficient R	0.9955559	0.9955559	0.9955559	0.9955559				
1050												
1051					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1052				Lilliefors (Full: no NDs)	0.0614687	0.0802147	Data Appear Normal					
1053												
1054	**Gamma Distribution Test Results**											
1055												
1056					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1057				Correlation Coefficient R	0.9884626	0.9884626	0.9884626	0.9884626				
1058												

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1059					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1060				Anderson-Darling (Full: no NDs)	1.1284637	0.7525276						
1061				Kolmogorov-Smirnov (Full: no NDs)	0.103742	0.0837613	Data Not Gamma Distributed					
1062												
1063	**Lognormal Distribution Test Results**											
1064												
1065					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1066				Correlation Coefficient R	0.970605	0.970605	0.970605	0.970605				
1067												
1068					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1069				Lilliefors (Full: no NDs)	0.1206268	0.0802147	Data Not Lognormal					
1070	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1071												
1072	**Zinc (back)**											
1073												
1074					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1075				Raw Statistics	12	0	12	12	0	0.00%		
1076												
1077					Number	Minimum	Maximum	Mean	Median	SD		
1078				Statistics (Full: no NDs)	12	21.7	597	90.483333	48.3	159.80024		
1079												
1080					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1081				Statistics (Full: no NDs)	1.0936246	0.875774	82.737106	3.9827373	0.8032774	0.2016898		
1082												
1083	**Normal Distribution Test Results**											
1084												
1085					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1086				Correlation Coefficient R	0.5902671	0.5902671	0.5902671	0.5902671				
1087												
1088					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1089				Shapiro-Wilks (Full: no NDs)	0.3819942	0.859	Data Not Normal					
1090				Lilliefors (Full: no NDs)	0.5064759	0.2557662	Data Not Normal					
1091												
1092	**Gamma Distribution Test Results**											
1093												
1094					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1095				Correlation Coefficient R	0.7907984	0.7907984	0.7907984	0.7907984				
1096												
1097					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1098				Anderson-Darling (Full: no NDs)	2.7439704	0.7546372						
1099				Kolmogorov-Smirnov (Full: no NDs)	0.4805334	0.2518201	Data Not Gamma Distributed					
1100												
1101	**Lognormal Distribution Test Results**											
1102												
1103					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1104				Correlation Coefficient R	0.7631433	0.7631433	0.7631433	0.7631433				

Appendix K, Table K-7
Surface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1105												
1106					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1107				Shapiro-Wilks (Full: no NDs)	0.6231289	0.859	Data Not Lognormal					
1108				Lilliefors (Full: no NDs)	0.4117284	0.2557662	Data Not Lognormal					
1109	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1110												
1111	**Zinc (site)**											
1112												
1113					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1114				Raw Statistics	153	31	122	122	0	0.00%		
1115												
1116					Number	Minimum	Maximum	Mean	Median	SD		
1117				Statistics (Full: no NDs)	122	16.9	731	80.04918	47.95	104.62511		
1118												
1119					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1120				Statistics (Full: no NDs)	1.4507262	1.4205171	55.178697	3.9999706	0.7617932	0.1904497		
1121												
1122	**Normal Distribution Test Results**											
1123												
1124					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1125				Correlation Coefficient R	0.7203111	0.7203111	0.7203111	0.7203111				
1126												
1127					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1128				Lilliefors (Full: no NDs)	0.2987012	0.0802147	Data Not Normal					
1129												
1130	**Gamma Distribution Test Results**											
1131												
1132					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1133				Correlation Coefficient R	0.8960612	0.8960612	0.8960612	0.8960612				
1134												
1135					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1136				Anderson-Darling (Full: no NDs)	7.2181695	0.7714107						
1137				Kolmogorov-Smirnov (Full: no NDs)	0.1903252	0.0854244	Data Not Gamma Distributed					
1138												
1139	**Lognormal Distribution Test Results**											
1140												
1141					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1142				Correlation Coefficient R	0.9581099	0.9581099	0.9581099	0.9581099				
1143												
1144					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1145				Lilliefors (Full: no NDs)	0.1102086	0.0802147	Data Not Lognormal					
1146	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1				**Goodness-of-Fit Test Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	C:\willow_grove\Site12_HHRA\ProUCL\wg12sb_ProUCL_TTEST_input.wst								
4			Full Precision	ON								
5			Confidence Coefficient	0.95								
6												
7												
8	**Aluminum (back)**											
9												
10					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
11				Raw Statistics	12	0	12	12	0	0.00%		
12												
13					Number	Minimum	Maximum	Mean	Median	SD		
14				Statistics (Full: no NDs)	12	9090	15000	11352.5	11300	1648.267		
15												
16					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
17				Statistics (Full: no NDs)	53.583626	40.243275	211.86509	9.327833	0.14202	0.0152254		
18												
19				**Normal Distribution Test Results**								
20												
21					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
22				Correlation Coefficient R	0.9650347	0.9650347	0.9650347	0.9650347				
23												
24					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
25				Shapiro-Wilks (Full: no NDs)	0.9371712	0.859	Data Appear Normal					
26				Lilliefors (Full: no NDs)	0.1538997	0.2557662	Data Appear Normal					
27												
28				**Gamma Distribution Test Results**								
29												
30					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
31				Correlation Coefficient R	0.9736528	0.9736528	0.9736528	0.9736528				
32												
33					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
34				Anderson-Darling (Full: no NDs)	0.3147782	0.7297425						
35				Kolmogorov-Smirnov (Full: no NDs)	0.1527974	0.24495	Data Appear Gamma Distributed					
36												
37				**Lognormal Distribution Test Results**								
38												
39					No NDs	NDs = DL	NDs = DL/2	Log ROS				
40				Correlation Coefficient R	0.9756865	0.9756865	0.9756865	0.9756865				
41												
42					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
43				Shapiro-Wilks (Full: no NDs)	0.9544724	0.859	Data Appear Lognormal					
44				Lilliefors (Full: no NDs)	0.1545206	0.2557662	Data Appear Lognormal					
45	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
46												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
47	**Aluminum (site)**											
48												
49					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
50				Raw Statistics	75	11	64	64	0	0.00%		
51												
52					Number	Minimum	Maximum	Mean	Median	SD		
53				Statistics (Full: no NDs)	64	3470	29400	13378.594	13450	6107.5238		
54												
55					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
56				Statistics (Full: no NDs)	4.3554316	4.1616874	3071.7033	9.3822417	0.519754	0.0553976		
57												
58				**Normal Distribution Test Results**								
59												
60					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
61				Correlation Coefficient R	0.9866009	0.9866009	0.9866009	0.9866009				
62												
63					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
64				Lilliefors (Full: no NDs)	0.0672487	0.11075	Data Appear Normal					
65												
66				**Gamma Distribution Test Results**								
67												
68					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
69				Correlation Coefficient R	0.9874952	0.9874952	0.9874952	0.9874952				
70												
71					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
72				Anderson-Darling (Full: no NDs)	0.6727447	0.7541376						
73				Kolmogorov-Smirnov (Full: no NDs)	0.0940107	0.1117613	Data Appear Gamma Distributed					
74												
75				**Lognormal Distribution Test Results**								
76												
77					No NDs	NDs = DL	NDs = DL/2	Log ROS				
78				Correlation Coefficient R	0.977709	0.977709	0.977709	0.977709				
79												
80					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
81				Lilliefors (Full: no NDs)	0.126575	0.11075	Data Not Lognormal					
82	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
83												
84	**Arsenic (back)**											
85												
86					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
87				Raw Statistics	12	0	12	12	0	0.00%		
88												
89					Number	Minimum	Maximum	Mean	Median	SD		
90				Statistics (Full: no NDs)	12	3.7	10.6	6.6833333	6.65	1.8349304		
91												
92					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
93				Statistics (Full: no NDs)	14.1486	10.667006	0.4723671	1.8638616	0.2839038	0.1523202		
94												
95	**Normal Distribution Test Results**											
96												
97					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
98				Correlation Coefficient R	0.9773109	0.9773109	0.9773109	0.9773109				
99												
100					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
101				Shapiro-Wilks (Full: no NDs)	0.9656825	0.859	Data Appear Normal					
102				Lilliefors (Full: no NDs)	0.153182	0.2557662	Data Appear Normal					
103												
104	**Gamma Distribution Test Results**											
105												
106					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
107				Correlation Coefficient R	0.9812559	0.9812559	0.9812559	0.9812559				
108												
109					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
110				Anderson-Darling (Full: no NDs)	0.2279318	0.7309472						
111				Kolmogorov-Smirnov (Full: no NDs)	0.1329816	0.2453053	Data Appear Gamma Distributed					
112												
113	**Lognormal Distribution Test Results**											
114												
115					No NDs	NDs = DL	NDs = DL/2	Log ROS				
116				Correlation Coefficient R	0.97917	0.97917	0.97917	0.97917				
117												
118					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
119				Shapiro-Wilks (Full: no NDs)	0.9673124	0.859	Data Appear Lognormal					
120				Lilliefors (Full: no NDs)	0.1429343	0.2557662	Data Appear Lognormal					
121	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
122												
123	**Arsenic (site)**											
124												
125					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
126				Raw Statistics	75	12	63	63	0	0.00%		
127												
128					Number	Minimum	Maximum	Mean	Median	SD		
129				Statistics (Full: no NDs)	63	0.76	108	8.3766667	3.7	17.547618		
130												
131					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
132				Statistics (Full: no NDs)	0.8497416	0.8198597	9.8578992	1.4324607	1.0048972	0.7015182		
133												
134	**Normal Distribution Test Results**											
135												
136					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
137				Correlation Coefficient R	0.6017831	0.6017831	0.6017831	0.6017831				
138												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
139					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
140				Lilliefors (Full: no NDs)	0.3321235	0.1116255	Data Not Normal					
141												
142	**Gamma Distribution Test Results**											
143												
144					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
145				Correlation Coefficient R	0.8275051	0.8275051	0.8275051	0.8275051				
146												
147					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
148				Anderson-Darling (Full: no NDs)	3.9472367	0.7871613						
149				Kolmogorov-Smirnov (Full: no NDs)	0.2080426	0.1161873	Data Not Gamma Distributed					
150												
151	**Lognormal Distribution Test Results**											
152												
153					No NDs	NDs = DL	NDs = DL/2	Log ROS				
154				Correlation Coefficient R	0.9714698	0.9714698	0.9714698	0.9714698				
155												
156					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
157				Lilliefors (Full: no NDs)	0.095137	0.1116255	Data Appear Lognormal					
158	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
159												
160	**Barium (back)**											
161												
162					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
163				Raw Statistics	12	0	12	12	0	0.00%		
164												
165					Number	Minimum	Maximum	Mean	Median	SD		
166				Statistics (Full: no NDs)	12	77.8	111	95.975	96.05	12.259773		
167												
168					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
169				Statistics (Full: no NDs)	65.925331	49.499554	1.4558137	4.5564842	0.1293692	0.0283923		
170												
171	**Normal Distribution Test Results**											
172												
173					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
174				Correlation Coefficient R	0.9653533	0.9653533	0.9653533	0.9653533				
175												
176					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
177				Shapiro-Wilks (Full: no NDs)	0.9063364	0.859	Data Appear Normal					
178				Lilliefors (Full: no NDs)	0.17	0.2557662	Data Appear Normal					
179												
180	**Gamma Distribution Test Results**											
181												
182					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
183				Correlation Coefficient R	0.9579659	0.9579659	0.9579659	0.9579659				
184												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
185					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
186				Anderson-Darling (Full: no NDs)	0.430063	0.7301301						
187				Kolmogorov-Smirnov (Full: no NDs)	0.1790744	0.24495	Data Appear Gamma Distributed					
188												
189	**Lognormal Distribution Test Results**											
190												
191					No NDs	NDs = DL	NDs = DL/2	Log ROS				
192				Correlation Coefficient R	0.9664264	0.9664264	0.9664264	0.9664264				
193												
194					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
195				Shapiro-Wilks (Full: no NDs)	0.9096743	0.859	Data Appear Lognormal					
196				Lilliefors (Full: no NDs)	0.1676159	0.2557662	Data Appear Lognormal					
197	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
198												
199	**Barium (site)**											
200												
201					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
202				Raw Statistics	75	11	64	64	0	0.00%		
203												
204					Number	Minimum	Maximum	Mean	Median	SD		
205				Statistics (Full: no NDs)	64	15	1110	145.45	71.35	220.78944		
206												
207					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
208				Statistics (Full: no NDs)	1.0531398	1.0141906	138.11082	4.4350124	0.9173694	0.2068471		
209												
210	**Normal Distribution Test Results**											
211												
212					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
213				Correlation Coefficient R	0.7180519	0.7180519	0.7180519	0.7180519				
214												
215					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
216				Lilliefors (Full: no NDs)	0.3409633	0.11075	Data Not Normal					
217												
218	**Gamma Distribution Test Results**											
219												
220					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
221				Correlation Coefficient R	0.9106366	0.9106366	0.9106366	0.9106366				
222												
223					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
224				Anderson-Darling (Full: no NDs)	4.6461455	0.7785299						
225				Kolmogorov-Smirnov (Full: no NDs)	0.2373834	0.1144882	Data Not Gamma Distributed					
226												
227	**Lognormal Distribution Test Results**											
228												
229					No NDs	NDs = DL	NDs = DL/2	Log ROS				
230				Correlation Coefficient R	0.9604398	0.9604398	0.9604398	0.9604398				

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
231												
232					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
233				Lilliefors (Full: no NDs)	0.1439333	0.11075	Data Not Lognormal					
234	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
235												
236	**Beryllium (back)**											
237												
238					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
239				Raw Statistics	12	0	12	12	0	0.00%		
240												
241					Number	Minimum	Maximum	Mean	Median	SD		
242				Statistics (Full: no NDs)	12	0.75	1.3	0.9883333	0.95	0.1915408		
243												
244					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
245				Statistics (Full: no NDs)	29.657536	22.298707	0.0333249	-0.028689	0.1916229	-6.679289		
246												
247				**Normal Distribution Test Results**								
248												
249					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
250				Correlation Coefficient R	0.9589215	0.9589215	0.9589215	0.9589215				
251												
252					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
253				Shapiro-Wilks (Full: no NDs)	0.900191	0.859	Data Appear Normal					
254				Lilliefors (Full: no NDs)	0.1987695	0.2557662	Data Appear Normal					
255												
256				**Gamma Distribution Test Results**								
257												
258					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
259				Correlation Coefficient R	0.9620107	0.9620107	0.9620107	0.9620107				
260												
261					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
262				Anderson-Darling (Full: no NDs)	0.506512	0.7311421						
263				Kolmogorov-Smirnov (Full: no NDs)	0.2087464	0.2451195	Data Appear Gamma Distributed					
264												
265				**Lognormal Distribution Test Results**								
266												
267					No NDs	NDs = DL	NDs = DL/2	Log ROS				
268				Correlation Coefficient R	0.9665158	0.9665158	0.9665158	0.9665158				
269												
270					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
271				Shapiro-Wilks (Full: no NDs)	0.91368	0.859	Data Appear Lognormal					
272				Lilliefors (Full: no NDs)	0.1979235	0.2557662	Data Appear Lognormal					
273	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
274												
275	**Beryllium (site)**											
276												

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
277					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
278				Raw Statistics	75	14	61	61	0	0.00%		
279												
280					Number	Minimum	Maximum	Mean	Median	SD		
281				Statistics (Full: no NDs)	61	0.2	3.1	0.7206557	0.67	0.4510797		
282												
283					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
284				Statistics (Full: no NDs)	4.2963296	4.0959637	0.1677375	-0.448463	0.4637306	-1.034044		
285												
286	**Normal Distribution Test Results**											
287												
288					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
289				Correlation Coefficient R	0.8063192	0.8063192	0.8063192	0.8063192				
290												
291					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
292				Lilliefors (Full: no NDs)	0.2585836	0.1134407	Data Not Normal					
293												
294	**Gamma Distribution Test Results**											
295												
296					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
297				Correlation Coefficient R	0.8905406	0.8905406	0.8905406	0.8905406				
298												
299					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
300				Anderson-Darling (Full: no NDs)	2.1098973	0.7536607						
301				Kolmogorov-Smirnov (Full: no NDs)	0.1814225	0.1142493	Data Not Gamma Distributed					
302												
303	**Lognormal Distribution Test Results**											
304												
305					No NDs	NDs = DL	NDs = DL/2	Log ROS				
306				Correlation Coefficient R	0.9645561	0.9645561	0.9645561	0.9645561				
307												
308					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
309				Lilliefors (Full: no NDs)	0.1428757	0.1134407	Data Not Lognormal					
310	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
311												
312	**Calcium (back)**											
313												
314					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
315				Raw Statistics	12	0	12	12	0	0.00%		
316												
317					Number	Minimum	Maximum	Mean	Median	SD		
318				Statistics (Full: no NDs)	12	614	1600	1020.25	926.5	348.84045		
319												
320					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
321				Statistics (Full: no NDs)	10.011048	7.5638412	101.91241	6.8770275	0.3286559	0.0477904		
322												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
323	**Normal Distribution Test Results**											
324												
325					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
326				Correlation Coefficient R	0.9433164	0.9433164	0.9433164	0.9433164				
327												
328					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
329				Shapiro-Wilks (Full: no NDs)	0.8717295	0.859	Data Appear Normal					
330				Lilliefors (Full: no NDs)	0.1836179	0.2557662	Data Appear Normal					
331												
332	**Gamma Distribution Test Results**											
333												
334					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
335				Correlation Coefficient R	0.9589212	0.9589212	0.9589212	0.9589212				
336												
337					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
338				Anderson-Darling (Full: no NDs)	0.5330003	0.7303017						
339				Kolmogorov-Smirnov (Full: no NDs)	0.1923232	0.2453798	Data Appear Gamma Distributed					
340												
341	**Lognormal Distribution Test Results**											
342												
343					No NDs	NDs = DL	NDs = DL/2	Log ROS				
344				Correlation Coefficient R	0.9667233	0.9667233	0.9667233	0.9667233				
345												
346					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
347				Shapiro-Wilks (Full: no NDs)	0.9160714	0.859	Data Appear Lognormal					
348				Lilliefors (Full: no NDs)	0.1801664	0.2557662	Data Appear Lognormal					
349	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
350												
351	**Calcium (site)**											
352												
353					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
354				Raw Statistics	75	11	64	64	0	0.00%		
355												
356					Number	Minimum	Maximum	Mean	Median	SD		
357				Statistics (Full: no NDs)	64	166	67600	5308.2656	763	12727.443		
358												
359					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
360				Statistics (Full: no NDs)	0.4490944	0.4384597	11819.934	7.1386366	1.4525747	0.2034807		
361												
362	**Normal Distribution Test Results**											
363												
364					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
365				Correlation Coefficient R	0.6553617	0.6553617	0.6553617	0.6553617				
366												
367					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
368				Lilliefors (Full: no NDs)	0.3597965	0.11075	Data Not Normal					

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
369												
370	**Gamma Distribution Test Results**											
371												
372					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
373				Correlation Coefficient R	0.9399248	0.9399248	0.9399248	0.9399248				
374												
375					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
376				Anderson-Darling (Full: no NDs)	8.022066	0.8284891						
377				Kolmogorov-Smirnov (Full: no NDs)	0.3126527	0.1186335	Data Not Gamma Distributed					
378												
379	**Lognormal Distribution Test Results**											
380												
381					No NDs	NDs = DL	NDs = DL/2	Log ROS				
382				Correlation Coefficient R	0.9229381	0.9229381	0.9229381	0.9229381				
383												
384					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
385				Lilliefors (Full: no NDs)	0.2243613	0.11075	Data Not Lognormal					
386	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
387												
388	**Chromium (back)**											
389												
390					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
391				Raw Statistics	12	0	12	12	0	0.00%		
392												
393					Number	Minimum	Maximum	Mean	Median	SD		
394				Statistics (Full: no NDs)	12	12.4	20.8	15.441667	15.5	2.2908745		
395												
396					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
397				Statistics (Full: no NDs)	52.763852	39.628445	0.2926562	2.7275634	0.1421448	0.0521142		
398												
399	**Normal Distribution Test Results**											
400												
401					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
402				Correlation Coefficient R	0.9568812	0.9568812	0.9568812	0.9568812				
403												
404					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
405				Shapiro-Wilks (Full: no NDs)	0.9253887	0.859	Data Appear Normal					
406				Lilliefors (Full: no NDs)	0.1872844	0.2557662	Data Appear Normal					
407												
408	**Gamma Distribution Test Results**											
409												
410					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
411				Correlation Coefficient R	0.9699849	0.9699849	0.9699849	0.9699849				
412												
413					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
414				Anderson-Darling (Full: no NDs)	0.2859326	0.7297168						

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
415				Kolmogorov-Smirnov (Full: no NDs)	0.1624983	0.24495	Data Appear Gamma Distributed					
416												
417				**Lognormal Distribution Test Results**								
418												
419					No NDs	NDs = DL	NDs = DL/2	Log ROS				
420				Correlation Coefficient R	0.9754602	0.9754602	0.9754602	0.9754602				
421												
422					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
423				Shapiro-Wilks (Full: no NDs)	0.9580538	0.859	Data Appear Lognormal					
424				Lilliefors (Full: no NDs)	0.1606108	0.2557662	Data Appear Lognormal					
425	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
426												
427	**Chromium (site)**											
428												
429					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
430				Raw Statistics	75	3	72	72	0	0.00%		
431												
432					Number	Minimum	Maximum	Mean	Median	SD		
433				Statistics (Full: no NDs)	72	4	192	27.676389	18.1	31.507909		
434												
435					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
436				Statistics (Full: no NDs)	1.7628205	1.6986289	15.700061	3.0108873	0.7118587	0.2364282		
437												
438				**Normal Distribution Test Results**								
439												
440					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
441				Correlation Coefficient R	0.7312436	0.7312436	0.7312436	0.7312436				
442												
443					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
444				Lilliefors (Full: no NDs)	0.3077517	0.1044161	Data Not Normal					
445												
446				**Gamma Distribution Test Results**								
447												
448					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
449				Correlation Coefficient R	0.8792521	0.8792521	0.8792521	0.8792521				
450												
451					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
452				Anderson-Darling (Full: no NDs)	3.500787	0.7661054						
453				Kolmogorov-Smirnov (Full: no NDs)	0.2027914	0.1067302	Data Not Gamma Distributed					
454												
455				**Lognormal Distribution Test Results**								
456												
457					No NDs	NDs = DL	NDs = DL/2	Log ROS				
458				Correlation Coefficient R	0.9693539	0.9693539	0.9693539	0.9693539				
459												
460					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
461				Lilliefors (Full: no NDs)	0.1346451	0.1044161	Data Not Lognormal					
462	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
463												
464	**Cobalt (back)**											
465												
466					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
467				Raw Statistics	12	0	12	12	0	0.00%		
468												
469					Number	Minimum	Maximum	Mean	Median	SD		
470				Statistics (Full: no NDs)	12	6.8	9.3	7.9083333	8.2	0.7890827		
471												
472					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
473				Statistics (Full: no NDs)	108.263	81.252804	0.0730474	2.0632916	0.1008289	0.048868		
474												
475	**Normal Distribution Test Results**											
476												
477					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
478				Correlation Coefficient R	0.9554591	0.9554591	0.9554591	0.9554591				
479												
480					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
481				Shapiro-Wilks (Full: no NDs)	0.9046672	0.859	Data Appear Normal					
482				Lilliefors (Full: no NDs)	0.2275033	0.2557662	Data Appear Normal					
483												
484	**Gamma Distribution Test Results**											
485												
486					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
487				Correlation Coefficient R	0.9536964	0.9536964	0.9536964	0.9536964				
488												
489					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
490				Anderson-Darling (Full: no NDs)	0.6549004	0.7312						
491				Kolmogorov-Smirnov (Full: no NDs)	0.2428233	0.24495	Data Appear Gamma Distributed					
492												
493	**Lognormal Distribution Test Results**											
494												
495					No NDs	NDs = DL	NDs = DL/2	Log ROS				
496				Correlation Coefficient R	0.9527021	0.9527021	0.9527021	0.9527021				
497												
498					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
499				Shapiro-Wilks (Full: no NDs)	0.8975753	0.859	Data Appear Lognormal					
500				Lilliefors (Full: no NDs)	0.2406197	0.2557662	Data Appear Lognormal					
501	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
502												
503	**Cobalt (site)**											
504												
505					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
506				Raw Statistics	75	11	64	64	0	0.00%		

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
507												
508					Number	Minimum	Maximum	Mean	Median	SD		
509				Statistics (Full: no NDs)	64	1.9	23.1	8.253125	7.45	4.2112837		
510												
511					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
512				Statistics (Full: no NDs)	3.9535688	3.778662	2.0875127	1.9788256	0.5378029	0.2717788		
513												
514				**Normal Distribution Test Results**								
515												
516					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
517				Correlation Coefficient R	0.9638899	0.9638899	0.9638899	0.9638899				
518												
519					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
520				Lilliefors (Full: no NDs)	0.1089334	0.11075	Data Appear Normal					
521												
522				**Gamma Distribution Test Results**								
523												
524					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
525				Correlation Coefficient R	0.9945708	0.9945708	0.9945708	0.9945708				
526												
527					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
528				Anderson-Darling (Full: no NDs)	0.3783897	0.7545486						
529				Kolmogorov-Smirnov (Full: no NDs)	0.0977049	0.1118223	Data Appear Gamma Distributed					
530												
531				**Lognormal Distribution Test Results**								
532												
533					No NDs	NDs = DL	NDs = DL/2	Log ROS				
534				Correlation Coefficient R	0.9855289	0.9855289	0.9855289	0.9855289				
535												
536					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
537				Lilliefors (Full: no NDs)	0.1172132	0.11075	Data Not Lognormal					
538	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
539												
540	**Copper (back)**											
541												
542					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
543				Raw Statistics	12	0	12	12	0	0.00%		
544												
545					Number	Minimum	Maximum	Mean	Median	SD		
546				Statistics (Full: no NDs)	12	8	13.4	10.741667	10.7	1.5506353		
547												
548					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
549				Statistics (Full: no NDs)	51.491683	38.674317	0.2086097	2.3643885	0.1467169	0.0620528		
550												
551				**Normal Distribution Test Results**								
552												

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
553					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
554				Correlation Coefficient R	0.9943571	0.9943571	0.9943571	0.9943571				
555												
556					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
557				Shapiro-Wilks (Full: no NDs)	0.986947	0.859	Data Appear Normal					
558				Lilliefors (Full: no NDs)	0.0940519	0.2557662	Data Appear Normal					
559												
560	**Gamma Distribution Test Results**											
561												
562					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
563				Correlation Coefficient R	0.9934405	0.9934405	0.9934405	0.9934405				
564												
565					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
566				Anderson-Darling (Full: no NDs)	0.1414305	0.7296768						
567				Kolmogorov-Smirnov (Full: no NDs)	0.0907606	0.24495	Data Appear Gamma Distributed					
568												
569	**Lognormal Distribution Test Results**											
570												
571					No NDs	NDs = DL	NDs = DL/2	Log ROS				
572				Correlation Coefficient R	0.9913179	0.9913179	0.9913179	0.9913179				
573												
574					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
575				Shapiro-Wilks (Full: no NDs)	0.9824897	0.859	Data Appear Lognormal					
576				Lilliefors (Full: no NDs)	0.0992502	0.2557662	Data Appear Lognormal					
577	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
578												
579	**Copper (site)**											
580												
581					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
582				Raw Statistics	75	11	64	64	0	0.00%		
583												
584					Number	Minimum	Maximum	Mean	Median	SD		
585				Statistics (Full: no NDs)	64	2.6	1980	121.34063	8.9	319.86094		
586												
587					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
588				Statistics (Full: no NDs)	0.3517993	0.3457254	344.91436	2.8887746	1.6932669	0.586154		
589												
590	**Normal Distribution Test Results**											
591												
592					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
593				Correlation Coefficient R	0.6363061	0.6363061	0.6363061	0.6363061				
594												
595					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
596				Lilliefors (Full: no NDs)	0.3843913	0.11075	Data Not Normal					
597												
598	**Gamma Distribution Test Results**											

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
599												
600					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
601				Correlation Coefficient R	0.9523235	0.9523235	0.9523235	0.9523235				
602												
603					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
604				Anderson-Darling (Full: no NDs)	9.203088	0.8518166						
605				Kolmogorov-Smirnov (Full: no NDs)	0.347402	0.1201347	Data Not Gamma Distributed					
606												
607				**Lognormal Distribution Test Results**								
608												
609					No NDs	NDs = DL	NDs = DL/2	Log ROS				
610				Correlation Coefficient R	0.9021993	0.9021993	0.9021993	0.9021993				
611												
612					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
613				Lilliefors (Full: no NDs)	0.2307727	0.11075	Data Not Lognormal					
614	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
615												
616	**Iron (back)**											
617												
618					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
619				Raw Statistics	12	0	12	12	0	0.00%		
620												
621					Number	Minimum	Maximum	Mean	Median	SD		
622				Statistics (Full: no NDs)	12	12800	17600	14883.333	14800	1666.697		
623												
624					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
625				Statistics (Full: no NDs)	87.866378	65.955339	169.38599	9.602296	0.1113076	0.0115918		
626												
627				**Normal Distribution Test Results**								
628												
629					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
630				Correlation Coefficient R	0.9633649	0.9633649	0.9633649	0.9633649				
631												
632					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
633				Shapiro-Wilks (Full: no NDs)	0.9084568	0.859	Data Appear Normal					
634				Lilliefors (Full: no NDs)	0.1808194	0.2557662	Data Appear Normal					
635												
636				**Gamma Distribution Test Results**								
637												
638					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
639				Correlation Coefficient R	0.964758	0.964758	0.964758	0.964758				
640												
641					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
642				Anderson-Darling (Full: no NDs)	0.5225798	0.730819						
643				Kolmogorov-Smirnov (Full: no NDs)	0.1795911	0.24495	Data Appear Gamma Distributed					
644												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
645	**Lognormal Distribution Test Results**											
646												
647					No NDs	NDs = DL	NDs = DL/2	Log ROS				
648				Correlation Coefficient R	0.9645038	0.9645038	0.9645038	0.9645038				
649												
650					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
651				Shapiro-Wilks (Full: no NDs)	0.9097837	0.859	Data Appear Lognormal					
652				Lilliefors (Full: no NDs)	0.1680465	0.2557662	Data Appear Lognormal					
653	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
654												
655	**Iron (site)**											
656												
657					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
658				Raw Statistics	75	11	64	64	0	0.00%		
659												
660					Number	Minimum	Maximum	Mean	Median	SD		
661				Statistics (Full: no NDs)	64	4610	166000	26280.469	19600	24300.511		
662												
663					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
664				Statistics (Full: no NDs)	2.2547509	2.1594761	11655.597	9.9387327	0.6473838	0.0651375		
665												
666	**Normal Distribution Test Results**											
667												
668					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
669				Correlation Coefficient R	0.7821723	0.7821723	0.7821723	0.7821723				
670												
671					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
672				Lilliefors (Full: no NDs)	0.2378687	0.11075	Data Not Normal					
673												
674	**Gamma Distribution Test Results**											
675												
676					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
677				Correlation Coefficient R	0.9062206	0.9062206	0.9062206	0.9062206				
678												
679					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
680				Anderson-Darling (Full: no NDs)	1.7732315	0.7617394						
681				Kolmogorov-Smirnov (Full: no NDs)	0.1291164	0.1126347	Data Not Gamma Distributed					
682												
683	**Lognormal Distribution Test Results**											
684												
685					No NDs	NDs = DL	NDs = DL/2	Log ROS				
686				Correlation Coefficient R	0.9835819	0.9835819	0.9835819	0.9835819				
687												
688					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
689				Lilliefors (Full: no NDs)	0.0841712	0.11075	Data Appear Lognormal					
690	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
691												
692	**Lead (back)**											
693												
694					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
695				Raw Statistics	12	0	12	12	0	0.00%		
696												
697					Number	Minimum	Maximum	Mean	Median	SD		
698				Statistics (Full: no NDs)	12	16.3	64.7	30.95	27.1	15.26794		
699												
700					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
701				Statistics (Full: no NDs)	5.5339147	4.2059916	5.5927859	3.3393086	0.4328361	0.1296185		
702												
703				**Normal Distribution Test Results**								
704												
705					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
706				Correlation Coefficient R	0.9085943	0.9085943	0.9085943	0.9085943				
707												
708					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
709				Shapiro-Wilks (Full: no NDs)	0.8243793	0.859	Data Not Normal					
710				Lilliefors (Full: no NDs)	0.2382435	0.2557662	Data Appear Normal					
711												
712				**Gamma Distribution Test Results**								
713												
714					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
715				Correlation Coefficient R	0.9602188	0.9602188	0.9602188	0.9602188				
716												
717					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
718				Anderson-Darling (Full: no NDs)	0.5133861	0.7318095						
719				Kolmogorov-Smirnov (Full: no NDs)	0.1800954	0.2458713	Data Appear Gamma Distributed					
720												
721				**Lognormal Distribution Test Results**								
722												
723					No NDs	NDs = DL	NDs = DL/2	Log ROS				
724				Correlation Coefficient R	0.9674062	0.9674062	0.9674062	0.9674062				
725												
726					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
727				Shapiro-Wilks (Full: no NDs)	0.9274689	0.859	Data Appear Lognormal					
728				Lilliefors (Full: no NDs)	0.1519279	0.2557662	Data Appear Lognormal					
729	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
730												
731	**Lead (site)**											
732												
733					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
734				Raw Statistics	75	11	64	64	0	0.00%		
735												
736					Number	Minimum	Maximum	Mean	Median	SD		

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
737				Statistics (Full: no NDs)	64	1.6	7900	416.01563	10.85	1306.5674		
738												
739					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
740				Statistics (Full: no NDs)	0.2510065	0.2496572	1657.3901	3.202789	2.0583163	0.6426637		
741												
742	**Normal Distribution Test Results**											
743												
744					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
745				Correlation Coefficient R	0.5882992	0.5882992	0.5882992	0.5882992				
746												
747					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
748				Lilliefors (Full: no NDs)	0.3988403	0.11075	Data Not Normal					
749												
750	**Gamma Distribution Test Results**											
751												
752					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
753				Correlation Coefficient R	0.9540022	0.9540022	0.9540022	0.9540022				
754												
755					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
756				Anderson-Darling (Full: no NDs)	11.133712	0.8865663						
757				Kolmogorov-Smirnov (Full: no NDs)	0.3863046	0.1221755	Data Not Gamma Distributed					
758												
759	**Lognormal Distribution Test Results**											
760												
761					No NDs	NDs = DL	NDs = DL/2	Log ROS				
762				Correlation Coefficient R	0.8745181	0.8745181	0.8745181	0.8745181				
763												
764					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
765				Lilliefors (Full: no NDs)	0.292761	0.11075	Data Not Lognormal					
766	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
767												
768	**Magnesium (back)**											
769												
770					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
771				Raw Statistics	12	0	12	12	0	0.00%		
772												
773					Number	Minimum	Maximum	Mean	Median	SD		
774				Statistics (Full: no NDs)	12	1300	1940	1509.1667	1480	164.61848		
775												
776					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
777				Statistics (Full: no NDs)	99.991351	75.049069	15.092972	7.3143041	0.1024522	0.0140071		
778												
779	**Normal Distribution Test Results**											
780												
781					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
782				Correlation Coefficient R	0.9097451	0.9097451	0.9097451	0.9097451				

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
783												
784					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
785				Shapiro-Wilks (Full: no NDs)	0.8503763	0.859	Data Not Normal					
786				Lilliefors (Full: no NDs)	0.2353819	0.2557662	Data Appear Normal					
787												
788	**Gamma Distribution Test Results**											
789												
790					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
791				Correlation Coefficient R	0.9260539	0.9260539	0.9260539	0.9260539				
792												
793					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
794				Anderson-Darling (Full: no NDs)	0.596531	0.7311997						
795				Kolmogorov-Smirnov (Full: no NDs)	0.2148793	0.24495	Data Appear Gamma Distributed					
796												
797	**Lognormal Distribution Test Results**											
798												
799					No NDs	NDs = DL	NDs = DL/2	Log ROS				
800				Correlation Coefficient R	0.933712	0.933712	0.933712	0.933712				
801												
802					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
803				Shapiro-Wilks (Full: no NDs)	0.8928792	0.859	Data Appear Lognormal					
804				Lilliefors (Full: no NDs)	0.2118146	0.2557662	Data Appear Lognormal					
805	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
806												
807	**Magnesium (site)**											
808												
809					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
810				Raw Statistics	75	11	64	64	0	0.00%		
811												
812					Number	Minimum	Maximum	Mean	Median	SD		
813				Statistics (Full: no NDs)	64	357	18200	2322.0781	1710	2554.0527		
814												
815					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
816				Statistics (Full: no NDs)	1.8950551	1.8166411	1225.3354	7.4637465	0.7036629	0.0942774		
817												
818	**Normal Distribution Test Results**											
819												
820					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
821				Correlation Coefficient R	0.7241054	0.7241054	0.7241054	0.7241054				
822												
823					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
824				Lilliefors (Full: no NDs)	0.2615951	0.11075	Data Not Normal					
825												
826	**Gamma Distribution Test Results**											
827												
828					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
829				Correlation Coefficient R	0.8647537	0.8647537	0.8647537	0.8647537				
830												
831					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
832				Anderson-Darling (Full: no NDs)	1.8187597	0.764303						
833				Kolmogorov-Smirnov (Full: no NDs)	0.143488	0.1129267	Data Not Gamma Distributed					
834												
835	**Lognormal Distribution Test Results**											
836												
837					No NDs	NDs = DL	NDs = DL/2	Log ROS				
838				Correlation Coefficient R	0.9810951	0.9810951	0.9810951	0.9810951				
839												
840					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
841				Lilliefors (Full: no NDs)	0.0867847	0.11075	Data Appear Lognormal					
842	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
843												
844	**Manganese (back)**											
845												
846					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
847				Raw Statistics	12	0	12	12	0	0.00%		
848												
849					Number	Minimum	Maximum	Mean	Median	SD		
850				Statistics (Full: no NDs)	12	429	1190	643.25	591	206.25277		
851												
852					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
853				Statistics (Full: no NDs)	13.11815	9.894168	49.035116	6.4279343	0.2776751	0.0431982		
854												
855	**Normal Distribution Test Results**											
856												
857					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
858				Correlation Coefficient R	0.8904209	0.8904209	0.8904209	0.8904209				
859												
860					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
861				Shapiro-Wilks (Full: no NDs)	0.8105971	0.859	Data Not Normal					
862				Lilliefors (Full: no NDs)	0.2550229	0.2557662	Data Appear Normal					
863												
864	**Gamma Distribution Test Results**											
865												
866					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
867				Correlation Coefficient R	0.9324428	0.9324428	0.9324428	0.9324428				
868												
869					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
870				Anderson-Darling (Full: no NDs)	0.5881132	0.7307864						
871				Kolmogorov-Smirnov (Full: no NDs)	0.2091459	0.2453239	Data Appear Gamma Distributed					
872												
873	**Lognormal Distribution Test Results**											
874												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
875					No NDs	NDs = DL	NDs = DL/2	Log ROS				
876				Correlation Coefficient R	0.9475251	0.9475251	0.9475251	0.9475251				
877												
878					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
879				Shapiro-Wilks (Full: no NDs)	0.9089473	0.859	Data Appear Lognormal					
880				Lilliefors (Full: no NDs)	0.1930306	0.2557662	Data Appear Lognormal					
881	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
882												
883	**Manganese (site)**											
884												
885					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
886				Raw Statistics	75	11	64	64	0	0.00%		
887												
888					Number	Minimum	Maximum	Mean	Median	SD		
889				Statistics (Full: no NDs)	64	29.4	3740	560.98438	408.5	567.56325		
890												
891					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
892				Statistics (Full: no NDs)	1.3306074	1.2786518	421.60024	5.909033	0.9816788	0.1661319		
893												
894				**Normal Distribution Test Results**								
895												
896					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
897				Correlation Coefficient R	0.8430571	0.8430571	0.8430571	0.8430571				
898												
899					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
900				Lilliefors (Full: no NDs)	0.1744801	0.11075	Data Not Normal					
901												
902				**Gamma Distribution Test Results**								
903												
904					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
905				Correlation Coefficient R	0.953685	0.953685	0.953685	0.953685				
906												
907					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
908				Anderson-Darling (Full: no NDs)	0.3228811	0.7725455						
909				Kolmogorov-Smirnov (Full: no NDs)	0.066844	0.1138522	Data Appear Gamma Distributed					
910												
911				**Lognormal Distribution Test Results**								
912												
913					No NDs	NDs = DL	NDs = DL/2	Log ROS				
914				Correlation Coefficient R	0.9898177	0.9898177	0.9898177	0.9898177				
915												
916					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
917				Lilliefors (Full: no NDs)	0.0971385	0.11075	Data Appear Lognormal					
918	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
919												
920	**Nickel (back)**											

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
921												
922					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
923				Raw Statistics	12	0	12	12	0	0.00%		
924												
925					Number	Minimum	Maximum	Mean	Median	SD		
926				Statistics (Full: no NDs)	12	7.4	11.2	9.8	9.95	0.9477245		
927												
928					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
929				Statistics (Full: no NDs)	106.46844	79.906886	0.0920461	2.2776788	0.103825	0.0455837		
930												
931	**Normal Distribution Test Results**											
932												
933					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
934				Correlation Coefficient R	0.9267067	0.9267067	0.9267067	0.9267067				
935												
936					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
937				Shapiro-Wilks (Full: no NDs)	0.883234	0.859	Data Appear Normal					
938				Lilliefors (Full: no NDs)	0.1800024	0.2557662	Data Appear Normal					
939												
940	**Gamma Distribution Test Results**											
941												
942					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
943				Correlation Coefficient R	0.9191642	0.9191642	0.9191642	0.9191642				
944												
945					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
946				Anderson-Darling (Full: no NDs)	0.658151	0.7312						
947				Kolmogorov-Smirnov (Full: no NDs)	0.1867273	0.24495	Data Appear Gamma Distributed					
948												
949	**Lognormal Distribution Test Results**											
950												
951					No NDs	NDs = DL	NDs = DL/2	Log ROS				
952				Correlation Coefficient R	0.9023119	0.9023119	0.9023119	0.9023119				
953												
954					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
955				Shapiro-Wilks (Full: no NDs)	0.8403346	0.859	Data Not Lognormal					
956				Lilliefors (Full: no NDs)	0.2033124	0.2557662	Data Appear Lognormal					
957	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
958												
959	**Nickel (site)**											
960												
961					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
962				Raw Statistics	75	11	64	64	0	0.00%		
963												
964					Number	Minimum	Maximum	Mean	Median	SD		
965				Statistics (Full: no NDs)	64	2.4	117	17.035938	10.6	22.445655		
966												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
967					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
968				Statistics (Full: no NDs)	1.3691602	1.3153975	12.442618	2.4276417	0.7957822	0.3278005		
969												
970	**Normal Distribution Test Results**											
971												
972					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
973				Correlation Coefficient R	0.7195352	0.7195352	0.7195352	0.7195352				
974												
975					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
976				Lilliefors (Full: no NDs)	0.36072	0.11075	Data Not Normal					
977												
978	**Gamma Distribution Test Results**											
979												
980					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
981				Correlation Coefficient R	0.889604	0.889604	0.889604	0.889604				
982												
983					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
984				Anderson-Darling (Full: no NDs)	4.9624405	0.771714						
985				Kolmogorov-Smirnov (Full: no NDs)	0.2647622	0.1137639	Data Not Gamma Distributed					
986												
987	**Lognormal Distribution Test Results**											
988												
989					No NDs	NDs = DL	NDs = DL/2	Log ROS				
990				Correlation Coefficient R	0.9510995	0.9510995	0.9510995	0.9510995				
991												
992					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
993				Lilliefors (Full: no NDs)	0.1841842	0.11075	Data Not Lognormal					
994	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
995												
996	**Potassium (back)**											
997												
998					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
999				Raw Statistics	12	0	12	7	5	41.67%		
1000												
1001					Number	Minimum	Maximum	Mean	Median	SD		
1002				Statistics (Non-Detects Only)	5	388	433	402.2	396	17.977764		
1003				Statistics (Detects Only)	7	436	771	599	618	131.68397		
1004				Statistics (All: NDs treated as DL value)	12	388	771	517	448	140.8739		
1005				Statistics (All: NDs treated as DL/2 value)	12	194	771	433.20833	448	226.86534		
1006				Statistics (Normal ROS Estimated Data)	12	246.24223	771	452.01759	448	206.04243		
1007				Statistics (Gamma ROS Estimated Data)	12	20.674226	771	358.03093	448	313.27513		
1008				Statistics (Lognormal ROS Estimated Data)	12	324.14817	771	484.4784	448	171.72369		
1009												
1010					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1011				Statistics (Detects Only)	23.813512	17.91569	25.153787	6.3741182	0.2233492	0.03504		
1012				Statistics (NDs = DL)	16.087787	12.121396	32.136178	6.2166415	0.2564736	0.041256		

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1013				Statistics (NDs = DL/2)	3.6452998	2.7895304	118.84025	5.9278302	0.5762772	0.0972155		
1014				Statistics (Gamma ROS Estimates)	0.6747148	0.5615917	530.64037	--	--	--		
1015				Statistics (Lognormal ROS Estimates)	--	--	--	6.1270692	0.347022	0.0566375		
1016												
1017	**Normal Distribution Test Results**											
1018												
1019					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1020				Correlation Coefficient R	0.9737341	0.9241718	0.9408434	0.936674				
1021												
1022					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1023				Shapiro-Wilks (Detects Only)	0.9245662	0.803	Data Appear Normal					
1024				Lilliefors (Detects Only)	0.1599583	0.3348765	Data Appear Normal					
1025				Shapiro-Wilks (NDs = DL)	0.8350798	0.859	Data Not Normal					
1026				Lilliefors (NDs = DL)	0.2404539	0.2557662	Data Appear Normal					
1027				Shapiro-Wilks (NDs = DL/2)	0.8572582	0.859	Data Not Normal					
1028				Lilliefors (NDs = DL/2)	0.2469357	0.2557662	Data Appear Normal					
1029				Shapiro-Wilks (Normal ROS Estimates)	0.8502133	0.859	Data Not Normal					
1030				Lilliefors (Normal ROS Estimates)	0.2576976	0.2557662	Data Not Normal					
1031												
1032	**Gamma Distribution Test Results**											
1033												
1034					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1035				Correlation Coefficient R	0.9700326	0.9475222	0.9395406	0.8132103				
1036												
1037					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1038				Anderson-Darling (Detects Only)	0.3010393	0.7068058						
1039				Kolmogorov-Smirnov (Detects Only)	0.1719597	0.3114524	Data Appear Gamma Distributed					
1040				Anderson-Darling (NDs = DL)	0.7677357	0.7312497						
1041				Kolmogorov-Smirnov (NDs = DL)	0.2297212	0.2452704	Data appear Approximate Gamma Distribution					
1042				Anderson-Darling (NDs = DL/2)	0.8689958	0.736945						
1043				Kolmogorov-Smirnov (NDs = DL/2)	0.2588432	0.2467582	Data Not Gamma Distributed					
1044				Anderson-Darling (Gamma ROS Estimates)	1.5580919	0.7714241						
1045				Kolmogorov-Smirnov (Gamma ROS Est.)	0.2998007	0.2559754	Data Not Gamma Distributed					
1046												
1047	**Lognormal Distribution Test Results**											
1048												
1049					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1050				Correlation Coefficient R	0.974882	0.9387443	0.9243423	0.9343549				
1051												
1052					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1053				Shapiro-Wilks (Detects Only)	0.9270608	0.803	Data Appear Lognormal					
1054				Lilliefors (Detects Only)	0.1641213	0.3348765	Data Appear Lognormal					
1055				Shapiro-Wilks (NDs = DL)	0.858563	0.859	Data Not Lognormal					
1056				Lilliefors (NDs = DL)	0.2137799	0.2557662	Data Appear Lognormal					
1057				Shapiro-Wilks (NDs = DL/2)	0.823719	0.859	Data Not Lognormal					
1058				Lilliefors (NDs = DL/2)	0.2468317	0.2557662	Data Appear Lognormal					

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Subsurface Soil Distributional Analysis
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	A	B	C	D	E	F	G	H	I	J	K	L
1059	Shapiro-Wilks (Lognormal ROS Estimates)				0.8444439	0.859	Data Not Lognormal					
1060	Lilliefors (Lognormal ROS Estimates)				0.2572058	0.2557662	Data Not Lognormal					
1061	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1062												
1063	**Potassium (site)**											
1064												
1065					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1066	Raw Statistics				75	11	64	64	0	0.00%		
1067												
1068					Number	Minimum	Maximum	Mean	Median	SD		
1069	Statistics (Full: no NDs)				64	103	3500	789.625	643.5	609.96858		
1070												
1071					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1072	Statistics (Full: no NDs)				2.1465697	2.0563659	367.85434	6.4209017	0.7315219	0.1139282		
1073												
1074	**Normal Distribution Test Results**											
1075												
1076					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1077	Correlation Coefficient R				0.8936916	0.8936916	0.8936916	0.8936916				
1078												
1079					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1080	Lilliefors (Full: no NDs)				0.1819311	0.11075	Data Not Normal					
1081												
1082	**Gamma Distribution Test Results**											
1083												
1084					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1085	Correlation Coefficient R				0.9784194	0.9784194	0.9784194	0.9784194				
1086												
1087					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1088	Anderson-Darling (Full: no NDs)				0.4512092	0.7623104						
1089	Kolmogorov-Smirnov (Full: no NDs)				0.0892851	0.1126981	Data Appear Gamma Distributed					
1090												
1091	**Lognormal Distribution Test Results**											
1092												
1093					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1094	Correlation Coefficient R				0.992568	0.992568	0.992568	0.992568				
1095												
1096					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1097	Lilliefors (Full: no NDs)				0.0979131	0.11075	Data Appear Lognormal					
1098	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1099												
1100	**Thallium (back)**											
1101												
1102					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1103	Raw Statistics				12	0	12	7	5	41.67%		
1104												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1105					Number	Minimum	Maximum	Mean	Median	SD		
1106				Statistics (Non-Detects Only)	5	0.26	0.27	0.266	0.27	0.0054772		
1107				Statistics (Detects Only)	7	0.25	0.34	0.2914286	0.29	0.0273426		
1108				Statistics (All: NDs treated as DL value)	12	0.25	0.34	0.2808333	0.275	0.024293		
1109				Statistics (All: NDs treated as DL/2 value)	12	0.13	0.34	0.2254167	0.265	0.0840578		
1110				Statistics (Normal ROS Estimated Data)	12	0.2270915	0.34	0.2716421	0.2693979	0.032723		
1111				Statistics (Gamma ROS Estimated Data)	12	0.2112385	0.34	0.2695538	0.2709505	0.0361242		
1112				Statistics (Lognormal ROS Estimated Data)	12	0.2325476	0.34	0.2727818	0.2697136	0.0313948		
1113												
1114					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1115				Statistics (Detects Only)	134.09699	100.6283	0.0021733	-1.236694	0.0931681	-0.075336		
1116				Statistics (NDs = DL)	153.71448	115.34142	0.001827	-1.27325	0.0832533	-0.065386		
1117				Statistics (NDs = DL/2)	7.0822841	5.3672686	0.0318282	-1.562062	0.4081344	-0.261279		
1118				Statistics (Gamma ROS Estimates)	60.621148	45.521416	0.0044465	--	--	--		
1119				Statistics (Lognormal ROS Estimates)	--	--	--	-1.304958	0.1123669	-0.086108		
1120												
1121	**Normal Distribution Test Results**											
1122												
1123					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1124				Correlation Coefficient R	0.956718	0.9410952	0.9072977	0.9764754				
1125												
1126					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1127				Shapiro-Wilks (Detects Only)	0.9407491	0.803	Data Appear Normal					
1128				Lilliefors (Detects Only)	0.2341	0.3348765	Data Appear Normal					
1129				Shapiro-Wilks (NDs = DL)	0.8982053	0.859	Data Appear Normal					
1130				Lilliefors (NDs = DL)	0.1803491	0.2557662	Data Appear Normal					
1131				Shapiro-Wilks (NDs = DL/2)	0.7982727	0.859	Data Not Normal					
1132				Lilliefors (NDs = DL/2)	0.2756244	0.2557662	Data Not Normal					
1133				Shapiro-Wilks (Normal ROS Estimates)	0.9526773	0.859	Data Appear Normal					
1134				Lilliefors (Normal ROS Estimates)	0.1526856	0.2557662	Data Appear Normal					
1135												
1136	**Gamma Distribution Test Results**											
1137												
1138					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1139				Correlation Coefficient R	0.9623893	0.951778	0.892243	0.9905277				
1140												
1141					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1142				Anderson-Darling (Detects Only)	0.3227564	0.70765						
1143				Kolmogorov-Smirnov (Detects Only)	0.2143155	0.31132	Data Appear Gamma Distributed					
1144				Anderson-Darling (NDs = DL)	0.4204627	0.7312						
1145				Kolmogorov-Smirnov (NDs = DL)	0.1763737	0.24495	Data Appear Gamma Distributed					
1146				Anderson-Darling (NDs = DL/2)	1.3559785	0.7312862						
1147				Kolmogorov-Smirnov (NDs = DL/2)	0.2867355	0.2457009	Data Not Gamma Distributed					
1148				Anderson-Darling (Gamma ROS Estimates)	0.1651489	0.7299635						
1149				Kolmogorov-Smirnov (Gamma ROS Est.)	0.1333038	0.24495	Data Appear Gamma Distributed					
1150												

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1151	**Lognormal Distribution Test Results**											
1152												
1153					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1154				Correlation Coefficient R	0.9606898	0.955332	0.8898662	0.9785552				
1155												
1156					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1157				Shapiro-Wilks (Detects Only)	0.9482677	0.803	Data Appear Lognormal					
1158				Lilliefors (Detects Only)	0.2198613	0.3348765	Data Appear Lognormal					
1159				Shapiro-Wilks (NDs = DL)	0.9231859	0.859	Data Appear Lognormal					
1160				Lilliefors (NDs = DL)	0.1676428	0.2557662	Data Appear Lognormal					
1161				Shapiro-Wilks (NDs = DL/2)	0.7648124	0.859	Data Not Lognormal					
1162				Lilliefors (NDs = DL/2)	0.2763957	0.2557662	Data Not Lognormal					
1163				Shapiro-Wilks (Lognormal ROS Estimates)	0.9538965	0.859	Data Appear Lognormal					
1164				Lilliefors (Lognormal ROS Estimates)	0.1533682	0.2557662	Data Appear Lognormal					
1165	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1166												
1167	**Thallium (site)**											
1168												
1169					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1170				Raw Statistics	75	31	44	28	16	36.36%		
1171												
1172					Number	Minimum	Maximum	Mean	Median	SD		
1173				Statistics (Non-Detects Only)	16	0.58	0.71	0.62875	0.62	0.0361248		
1174				Statistics (Detects Only)	28	0.08	41.1	3.4992857	1.45	7.6226567		
1175				Statistics (All: NDs treated as DL value)	44	0.08	41.1	2.4554545	0.655	6.1996806		
1176				Statistics (All: NDs treated as DL/2 value)	44	0.08	41.1	2.3411364	0.3925	6.2359012		
1177				Statistics (Normal ROS Estimated Data)	44	-4.364778	41.1	1.5396868	0.4323083	6.6328544		
1178				Statistics (Gamma ROS Estimated Data)	44	0.000001	41.1	2.2268185	0.385	6.2756608		
1179				Statistics (Lognormal ROS Estimated Data)	44	0.08	41.1	2.3265708	0.4798755	6.2411026		
1180												
1181					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1182				Statistics (Detects Only)	0.6472782	0.6182971	5.4061543	0.3084725	1.366194	4.428901		
1183				Statistics (NDs = DL)	0.6943928	0.6621993	3.5361175	0.0270128	1.1467168	42.450847		
1184				Statistics (NDs = DL/2)	0.5776519	0.5534181	4.0528496	-0.225041	1.2972274	-5.764412		
1185				Statistics (Gamma ROS Estimates)	0.1381798	0.14391	16.115367	--	--	--		
1186				Statistics (Lognormal ROS Estimates)	--	--	--	-0.302744	1.3793601	-4.556194		
1187												
1188	**Normal Distribution Test Results**											
1189												
1190					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1191				Correlation Coefficient R	0.6072592	0.5460188	0.5512902	0.6790511				
1192												
1193					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1194				Shapiro-Wilks (Detects Only)	0.4024803	0.924	Data Not Normal					
1195				Lilliefors (Detects Only)	0.3268714	0.1674383	Data Not Normal					
1196				Shapiro-Wilks (NDs = DL)	0.3401083	0.944	Data Not Normal					

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Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1197				Lilliefors (NDs = DL)	0.3508015	0.1335695	Data Not Normal					
1198				Shapiro-Wilks (NDs = DL/2)	0.3455769	0.944	Data Not Normal					
1199				Lilliefors (NDs = DL/2)	0.3584519	0.1335695	Data Not Normal					
1200				Shapiro-Wilks (Normal ROS Estimates)	0.5076776	0.944	Data Not Normal					
1201				Lilliefors (Normal ROS Estimates)	0.2532711	0.1335695	Data Not Normal					
1202												
1203	**Gamma Distribution Test Results**											
1204												
1205					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1206				Correlation Coefficient R	0.835055	0.7869158	0.8079784	0.9107695				
1207												
1208					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1209				Anderson-Darling (Detects Only)	0.9238013	0.7951828						
1210				Kolmogorov-Smirnov (Detects Only)	0.1430559	0.1731314	Data appear Approximate Gamma Distribution					
1211				Anderson-Darling (NDs = DL)	3.5165223	0.7948694						
1212				Kolmogorov-Smirnov (NDs = DL)	0.2550048	0.1391343	Data Not Gamma Distributed					
1213				Anderson-Darling (NDs = DL/2)	3.6495626	0.8059737						
1214				Kolmogorov-Smirnov (NDs = DL/2)	0.233705	0.1402307	Data Not Gamma Distributed					
1215				Anderson-Darling (Gamma ROS Estimates)	3.4093726	0.9437177						
1216				Kolmogorov-Smirnov (Gamma ROS Est.)	0.2559045	0.1499624	Data Not Gamma Distributed					
1217												
1218	**Lognormal Distribution Test Results**											
1219												
1220					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1221				Correlation Coefficient R	0.9873733	0.9543842	0.9386997	0.9683975				
1222												
1223					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1224				Shapiro-Wilks (Detects Only)	0.9806688	0.924	Data Appear Lognormal					
1225				Lilliefors (Detects Only)	0.084753	0.1674383	Data Appear Lognormal					
1226				Shapiro-Wilks (NDs = DL)	0.9264305	0.944	Data Not Lognormal					
1227				Lilliefors (NDs = DL)	0.2126401	0.1335695	Data Not Lognormal					
1228				Shapiro-Wilks (NDs = DL/2)	0.8865105	0.944	Data Not Lognormal					
1229				Lilliefors (NDs = DL/2)	0.2339714	0.1335695	Data Not Lognormal					
1230				Shapiro-Wilks (Lognormal ROS Estimates)	0.9356181	0.944	Data Not Lognormal					
1231				Lilliefors (Lognormal ROS Estimates)	0.1497378	0.1335695	Data Not Lognormal					
1232	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1233												
1234	**Vanadium (back)**											
1235												
1236					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1237				Raw Statistics	12	0	12	12	0	0.00%		
1238												
1239					Number	Minimum	Maximum	Mean	Median	SD		
1240				Statistics (Full: no NDs)	12	20.9	28.2	25.041667	25.1	2.1043066		
1241												
1242					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
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	A	B	C	D	E	F	G	H	I	J	K	L
1243				Statistics (Full: no NDs)	151.92444	113.99889	0.1648297	3.2172464	0.0852199	0.0264884		
1244												
1245	**Normal Distribution Test Results**											
1246												
1247					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1248				Correlation Coefficient R	0.9843005	0.9843005	0.9843005	0.9843005				
1249												
1250					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1251				Shapiro-Wilks (Full: no NDs)	0.9683524	0.859	Data Appear Normal					
1252				Lilliefors (Full: no NDs)	0.0999747	0.2557662	Data Appear Normal					
1253												
1254	**Gamma Distribution Test Results**											
1255												
1256					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1257				Correlation Coefficient R	0.9821416	0.9821416	0.9821416	0.9821416				
1258												
1259					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1260				Anderson-Darling (Full: no NDs)	0.1935247	0.7312						
1261				Kolmogorov-Smirnov (Full: no NDs)	0.1024622	0.24495	Data Appear Gamma Distributed					
1262												
1263	**Lognormal Distribution Test Results**											
1264												
1265					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1266				Correlation Coefficient R	0.9807109	0.9807109	0.9807109	0.9807109				
1267												
1268					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1269				Shapiro-Wilks (Full: no NDs)	0.9633966	0.859	Data Appear Lognormal					
1270				Lilliefors (Full: no NDs)	0.1050918	0.2557662	Data Appear Lognormal					
1271	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1272												
1273	**Vanadium (site)**											
1274												
1275					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1276				Raw Statistics	75	11	64	64	0	0.00%		
1277												
1278					Number	Minimum	Maximum	Mean	Median	SD		
1279				Statistics (Full: no NDs)	64	5.2	58.8	25.903125	25.2	10.499569		
1280												
1281					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1282				Statistics (Full: no NDs)	5.7621914	5.5025054	4.49536	3.1650887	0.4468734	0.1411883		
1283												
1284	**Normal Distribution Test Results**											
1285												
1286					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1287				Correlation Coefficient R	0.9877555	0.9877555	0.9877555	0.9877555				
1288												

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	A	B	C	D	E	F	G	H	I	J	K	L
1289					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1290				Lilliefors (Full: no NDs)	0.0749055	0.11075	Data Appear Normal					
1291												
1292	**Gamma Distribution Test Results**											
1293												
1294					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1295				Correlation Coefficient R	0.9941563	0.9941563	0.9941563	0.9941563				
1296												
1297					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1298				Anderson-Darling (Full: no NDs)	0.1659158	0.7532684						
1299				Kolmogorov-Smirnov (Full: no NDs)	0.0459147	0.1116343	Data Appear Gamma Distributed					
1300												
1301	**Lognormal Distribution Test Results**											
1302												
1303					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1304				Correlation Coefficient R	0.9826999	0.9826999	0.9826999	0.9826999				
1305												
1306					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1307				Lilliefors (Full: no NDs)	0.0751125	0.11075	Data Appear Lognormal					
1308	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1309												
1310	**Zinc (back)**											
1311												
1312					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1313				Raw Statistics	12	0	12	12	0	0.00%		
1314												
1315					Number	Minimum	Maximum	Mean	Median	SD		
1316				Statistics (Full: no NDs)	12	21.7	597	90.483333	48.3	159.80024		
1317												
1318					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1319				Statistics (Full: no NDs)	1.0936246	0.875774	82.737106	3.9827373	0.8032774	0.2016898		
1320												
1321	**Normal Distribution Test Results**											
1322												
1323					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1324				Correlation Coefficient R	0.5902671	0.5902671	0.5902671	0.5902671				
1325												
1326					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1327				Shapiro-Wilks (Full: no NDs)	0.3819942	0.859	Data Not Normal					
1328				Lilliefors (Full: no NDs)	0.5064759	0.2557662	Data Not Normal					
1329												
1330	**Gamma Distribution Test Results**											
1331												
1332					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1333				Correlation Coefficient R	0.7907984	0.7907984	0.7907984	0.7907984				
1334												

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1335					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1336				Anderson-Darling (Full: no NDs)	2.7439704	0.7546372						
1337				Kolmogorov-Smirnov (Full: no NDs)	0.4805334	0.2518201	Data Not Gamma Distributed					
1338												
1339	**Lognormal Distribution Test Results**											
1340												
1341					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1342				Correlation Coefficient R	0.7631433	0.7631433	0.7631433	0.7631433				
1343												
1344					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1345				Shapiro-Wilks (Full: no NDs)	0.6231289	0.859	Data Not Lognormal					
1346				Lilliefors (Full: no NDs)	0.4117284	0.2557662	Data Not Lognormal					
1347	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1348												
1349	**Zinc (site)**											
1350												
1351					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1352				Raw Statistics	75	11	64	64	0	0.00%		
1353												
1354					Number	Minimum	Maximum	Mean	Median	SD		
1355				Statistics (Full: no NDs)	64	8.6	5400	435.22031	26.95	1146.8298		
1356												
1357					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1358				Statistics (Full: no NDs)	0.3186105	0.3140923	1365.9947	3.9327232	1.712383	0.4354191		
1359												
1360	**Normal Distribution Test Results**											
1361												
1362					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1363				Correlation Coefficient R	0.6426548	0.6426548	0.6426548	0.6426548				
1364												
1365					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1366				Lilliefors (Full: no NDs)	0.4217935	0.11075	Data Not Normal					
1367												
1368	**Gamma Distribution Test Results**											
1369												
1370					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1371				Correlation Coefficient R	0.9439013	0.9439013	0.9439013	0.9439013				
1372												
1373					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1374				Anderson-Darling (Full: no NDs)	12.018123	0.8597739						
1375				Kolmogorov-Smirnov (Full: no NDs)	0.3995494	0.1206468	Data Not Gamma Distributed					
1376												
1377	**Lognormal Distribution Test Results**											
1378												
1379					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1380				Correlation Coefficient R	0.8521921	0.8521921	0.8521921	0.8521921				

Appendix K, Table K-8
Subsurface Soil Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1381												
1382					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1383	Lilliefors (Full: no NDs)				0.310419	0.11075	Data Not Lognormal					
1384	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

1				**Goodness-of-Fit Test Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	C:\willow_grove\Site12_HHRA\ProUCL\wg12sw_ProUCL_TTEST_input.xls.wst								
4			Full Precision	ON								
5			Confidence Coefficient	0.95								
6												
7												
8	**Barium (1)**											
9												
10					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
11				Raw Statistics	7	0	7	7	0	0.00%		
12												
13					Number	Minimum	Maximum	Mean	Median	SD		
14				Statistics (Full: no NDs)	7	49.9	434	159.82857	116	131.96958		
15												
16					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
17				Statistics (Full: no NDs)	2.2049036	1.355183	72.487782	4.830517	0.7317501	0.1514848		
18												
19				**Normal Distribution Test Results**								
20												
21					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
22				Correlation Coefficient R	0.8883764	0.8883764	0.8883764	0.8883764				
23												
24					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
25				Shapiro-Wilks (Full: no NDs)	0.8028191	0.803	Data Not Normal					
26				Lilliefors (Full: no NDs)	0.2579121	0.3348765	Data Appear Normal					
27												
28				**Gamma Distribution Test Results**								
29												
30					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
31				Correlation Coefficient R	0.9731653	0.9731653	0.9731653	0.9731653				
32												
33					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
34				Anderson-Darling (Full: no NDs)	0.2974776	0.7143468						
35				Kolmogorov-Smirnov (Full: no NDs)	0.1614527	0.3148252	Data Appear Gamma Distributed					
36												
37				**Lognormal Distribution Test Results**								
38												
39					No NDs	NDs = DL	NDs = DL/2	Log ROS				
40				Correlation Coefficient R	0.9844226	0.9844226	0.9844226	0.9844226				
41												
42					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
43				Shapiro-Wilks (Full: no NDs)	0.9686855	0.803	Data Appear Lognormal					
44				Lilliefors (Full: no NDs)	0.1345364	0.3348765	Data Appear Lognormal					
45	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
46												

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
47	**Barium (2)**											
48												
49					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
50				Raw Statistics	8	0	8	8	0	0.00%		
51												
52					Number	Minimum	Maximum	Mean	Median	SD		
53				Statistics (Full: no NDs)	8	87.3	112	100.95	100.45	9.1888131		
54												
55					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
56				Statistics (Full: no NDs)	136.30992	85.277035	0.7405917	4.6109527	0.0919244	0.0199361		
57												
58				**Normal Distribution Test Results**								
59												
60					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
61				Correlation Coefficient R	0.9646289	0.9646289	0.9646289	0.9646289				
62												
63					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
64				Shapiro-Wilks (Full: no NDs)	0.9113122	0.818	Data Appear Normal					
65				Lilliefors (Full: no NDs)	0.2086967	0.3132483	Data Appear Normal					
66												
67				**Gamma Distribution Test Results**								
68												
69					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
70				Correlation Coefficient R	0.9591251	0.9591251	0.9591251	0.9591251				
71												
72					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
73				Anderson-Darling (Full: no NDs)	0.4222349	0.71473						
74				Kolmogorov-Smirnov (Full: no NDs)	0.214101	0.29358	Data Appear Gamma Distributed					
75												
76				**Lognormal Distribution Test Results**								
77												
78					No NDs	NDs = DL	NDs = DL/2	Log ROS				
79				Correlation Coefficient R	0.9641325	0.9641325	0.9641325	0.9641325				
80												
81					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
82				Shapiro-Wilks (Full: no NDs)	0.911647	0.818	Data Appear Lognormal					
83				Lilliefors (Full: no NDs)	0.1978843	0.3132483	Data Appear Lognormal					
84	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
85												
86	**Calcium (1)**											
87												
88					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
89				Raw Statistics	7	0	7	7	0	0.00%		
90												
91					Number	Minimum	Maximum	Mean	Median	SD		
92				Statistics (Full: no NDs)	7	12800	39900	27850	28400	8077.902		

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Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
93												
94					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
95				Statistics (Full: no NDs)	11.033045	6.3998354	2524.2351	10.188586	0.3516057	0.0345098		
96												
97				**Normal Distribution Test Results**								
98												
99					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
100				Correlation Coefficient R	0.9297799	0.9297799	0.9297799	0.9297799				
101												
102					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
103				Shapiro-Wilks (Full: no NDs)	0.898287	0.803	Data Appear Normal					
104				Lilliefors (Full: no NDs)	0.2883458	0.3348765	Data Appear Normal					
105												
106				**Gamma Distribution Test Results**								
107												
108					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
109				Correlation Coefficient R	0.9144288	0.9144288	0.9144288	0.9144288				
110												
111					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
112				Anderson-Darling (Full: no NDs)	0.6565317	0.7082941						
113				Kolmogorov-Smirnov (Full: no NDs)	0.3296884	0.3118814	Data appear Approximate Gamma Distribution					
114												
115				**Lognormal Distribution Test Results**								
116												
117					No NDs	NDs = DL	NDs = DL/2	Log ROS				
118				Correlation Coefficient R	0.8784959	0.8784959	0.8784959	0.8784959				
119												
120					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
121				Shapiro-Wilks (Full: no NDs)	0.8055764	0.803	Data Appear Lognormal					
122				Lilliefors (Full: no NDs)	0.3508183	0.3348765	Data Not Lognormal					
123	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
124												
125	**Calcium (2)**											
126												
127					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
128				Raw Statistics	8	0	8	8	0	0.00%		
129												
130					Number	Minimum	Maximum	Mean	Median	SD		
131				Statistics (Full: no NDs)	8	15800	34900	24631.25	24825	7724.1244		
132												
133					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
134				Statistics (Full: no NDs)	11.353733	7.1794167	2169.4406	10.067087	0.3226936	0.0320543		
135												
136				**Normal Distribution Test Results**								
137												
138					No NDs	NDs = DL	NDs = DL/2	Normal ROS				

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Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
139				Correlation Coefficient R	0.9636108	0.9636108	0.9636108	0.9636108				
140												
141					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
142				Shapiro-Wilks (Full: no NDs)	0.8985983	0.818	Data Appear Normal					
143				Lilliefors (Full: no NDs)	0.161338	0.3132483	Data Appear Normal					
144												
145	**Gamma Distribution Test Results**											
146												
147					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
148				Correlation Coefficient R	0.9603344	0.9603344	0.9603344	0.9603344				
149												
150					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
151				Anderson-Darling (Full: no NDs)	0.3792998	0.7151419						
152				Kolmogorov-Smirnov (Full: no NDs)	0.1716833	0.2942231	Data Appear Gamma Distributed					
153												
154	**Lognormal Distribution Test Results**											
155												
156					No NDs	NDs = DL	NDs = DL/2	Log ROS				
157				Correlation Coefficient R	0.9637449	0.9637449	0.9637449	0.9637449				
158												
159					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
160				Shapiro-Wilks (Full: no NDs)	0.8979068	0.818	Data Appear Lognormal					
161				Lilliefors (Full: no NDs)	0.1742141	0.3132483	Data Appear Lognormal					
162	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
163												
164	**Iron (1)**											
165												
166					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
167				Raw Statistics	7	0	7	7	0	0.00%		
168												
169					Number	Minimum	Maximum	Mean	Median	SD		
170				Statistics (Full: no NDs)	7	120	44700	7126.3571	660.5	16592.213		
171												
172					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
173				Statistics (Full: no NDs)	0.3419904	0.2906612	20837.885	6.8978787	1.9678746	0.2852869		
174												
175	**Normal Distribution Test Results**											
176												
177					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
178				Correlation Coefficient R	0.6836948	0.6836948	0.6836948	0.6836948				
179												
180					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
181				Shapiro-Wilks (Full: no NDs)	0.4955739	0.803	Data Not Normal					
182				Lilliefors (Full: no NDs)	0.4609281	0.3348765	Data Not Normal					
183												
184	**Gamma Distribution Test Results**											

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Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
185												
186					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
187				Correlation Coefficient R	0.9493031	0.9493031	0.9493031	0.9493031				
188												
189					Test value	it. (0.05000(	Conclusion with Alpha(0.0500000)					
190				Anderson-Darling (Full: no NDs)	0.9448877	0.777264						
191				Kolmogorov-Smirnov (Full: no NDs)	0.3372027	0.3334419	Data Not Gamma Distributed					
192												
193				**Lognormal Distribution Test Results**								
194												
195					No NDs	NDs = DL	NDs = DL/2	Log ROS				
196				Correlation Coefficient R	0.9410804	0.9410804	0.9410804	0.9410804				
197												
198					Test value	it. (0.05000(	Conclusion with Alpha(0.0500000)					
199				Shapiro-Wilks (Full: no NDs)	0.8967531	0.803	Data Appear Lognormal					
200				Lilliefors (Full: no NDs)	0.2361251	0.3348765	Data Appear Lognormal					
201	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
202												
203	**Iron (2)**											
204												
205					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
206				Raw Statistics	8	0	8	8	0	0.00%		
207												
208					Number	Minimum	Maximum	Mean	Median	SD		
209				Statistics (Full: no NDs)	8	85.3	635	321.1625	318.5	155.51999		
210												
211					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
212				Statistics (Full: no NDs)	4.2683808	2.7510713	75.242232	5.6502573	0.5723233	0.1012915		
213												
214				**Normal Distribution Test Results**								
215												
216					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
217				Correlation Coefficient R	0.9381186	0.9381186	0.9381186	0.9381186				
218												
219					Test value	it. (0.05000(	Conclusion with Alpha(0.0500000)					
220				Shapiro-Wilks (Full: no NDs)	0.9107523	0.818	Data Appear Normal					
221				Lilliefors (Full: no NDs)	0.2615559	0.3132483	Data Appear Normal					
222												
223				**Gamma Distribution Test Results**								
224												
225					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
226				Correlation Coefficient R	0.9513625	0.9513625	0.9513625	0.9513625				
227												
228					Test value	it. (0.05000(	Conclusion with Alpha(0.0500000)					
229				Anderson-Darling (Full: no NDs)	0.4405621	0.7187042						
230				Kolmogorov-Smirnov (Full: no NDs)	0.2062716	0.2953058	Data Appear Gamma Distributed					

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Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
231												
232	**Lognormal Distribution Test Results**											
233												
234					No NDs	NDs = DL	NDs = DL/2	Log ROS				
235				Correlation Coefficient R	0.9204461	0.9204461	0.9204461	0.9204461				
236												
237					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
238				Shapiro-Wilks (Full: no NDs)	0.8788515	0.818	Data Appear Lognormal					
239				Lilliefors (Full: no NDs)	0.2215942	0.3132483	Data Appear Lognormal					
240	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
241												
242	**Magnesium (1)**											
243												
244					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
245				Raw Statistics	7	0	7	7	0	0.00%		
246												
247					Number	Minimum	Maximum	Mean	Median	SD		
248				Statistics (Full: no NDs)	7	2040	13100	10088.571	11400	3833.1685		
249												
250					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
251				Statistics (Full: no NDs)	4.0396741	2.4036233	2497.3726	9.0903101	0.6620076	0.0728256		
252												
253	**Normal Distribution Test Results**											
254												
255					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
256				Correlation Coefficient R	0.8718401	0.8718401	0.8718401	0.8718401				
257												
258					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
259				Shapiro-Wilks (Full: no NDs)	0.7750899	0.803	Data Not Normal					
260				Lilliefors (Full: no NDs)	0.2879057	0.3348765	Data Appear Normal					
261												
262	**Gamma Distribution Test Results**											
263												
264					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
265				Correlation Coefficient R	0.7630905	0.7630905	0.7630905	0.7630905				
266												
267					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
268				Anderson-Darling (Full: no NDs)	1.1261839	0.7096775						
269				Kolmogorov-Smirnov (Full: no NDs)	0.3338442	0.3128852	Data Not Gamma Distributed					
270												
271	**Lognormal Distribution Test Results**											
272												
273					No NDs	NDs = DL	NDs = DL/2	Log ROS				
274				Correlation Coefficient R	0.7793294	0.7793294	0.7793294	0.7793294				
275												
276					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

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	A	B	C	D	E	F	G	H	I	J	K	L
277				Shapiro-Wilks (Full: no NDs)	0.63096	0.803	Data Not Lognormal					
278				Lilliefors (Full: no NDs)	0.3441687	0.3348765	Data Not Lognormal					
279	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
280												
281	**Magnesium (2)**											
282												
283					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
284				Raw Statistics	8	0	8	8	0	0.00%		
285												
286					Number	Minimum	Maximum	Mean	Median	SD		
287				Statistics (Full: no NDs)	8	6250	12100	8913.75	9005	2345.1222		
288												
289					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
290				Statistics (Full: no NDs)	16.335284	10.292886	545.67462	9.0644295	0.2672457	0.0294829		
291												
292	**Normal Distribution Test Results**											
293												
294					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
295				Correlation Coefficient R	0.9638863	0.9638863	0.9638863	0.9638863				
296												
297					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
298				Shapiro-Wilks (Full: no NDs)	0.9001764	0.818	Data Appear Normal					
299				Lilliefors (Full: no NDs)	0.1750054	0.3132483	Data Appear Normal					
300												
301	**Gamma Distribution Test Results**											
302												
303					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
304				Correlation Coefficient R	0.9628736	0.9628736	0.9628736	0.9628736				
305												
306					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
307				Anderson-Darling (Full: no NDs)	0.3868715	0.7157746						
308				Kolmogorov-Smirnov (Full: no NDs)	0.1874321	0.2940139	Data Appear Gamma Distributed					
309												
310	**Lognormal Distribution Test Results**											
311												
312					No NDs	NDs = DL	NDs = DL/2	Log ROS				
313				Correlation Coefficient R	0.9639684	0.9639684	0.9639684	0.9639684				
314												
315					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
316				Shapiro-Wilks (Full: no NDs)	0.8990888	0.818	Data Appear Lognormal					
317				Lilliefors (Full: no NDs)	0.1740932	0.3132483	Data Appear Lognormal					
318	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
319												
320	**Manganese (1)**											
321												
322					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
323				Raw Statistics	7	0	7	7	0	0.00%		
324												
325					Number	Minimum	Maximum	Mean	Median	SD		
326				Statistics (Full: no NDs)	7	16.4	2100	985.3	1000	943.70999		
327												
328					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
329				Statistics (Full: no NDs)	0.528919	0.3974775	1862.8563	5.7023999	2.2162148	0.388646		
330												
331				**Normal Distribution Test Results**								
332												
333					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
334				Correlation Coefficient R	0.9336816	0.9336816	0.9336816	0.9336816				
335												
336					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
337				Shapiro-Wilks (Full: no NDs)	0.8358706	0.803	Data Appear Normal					
338				Lilliefors (Full: no NDs)	0.2506384	0.3348765	Data Appear Normal					
339												
340				**Gamma Distribution Test Results**								
341												
342					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
343				Correlation Coefficient R	0.8078919	0.8078919	0.8078919	0.8078919				
344												
345					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
346				Anderson-Darling (Full: no NDs)	0.6544891	0.7497586						
347				Kolmogorov-Smirnov (Full: no NDs)	0.2532777	0.3267102	Data Appear Gamma Distributed					
348												
349				**Lognormal Distribution Test Results**								
350												
351					No NDs	NDs = DL	NDs = DL/2	Log ROS				
352				Correlation Coefficient R	0.9108387	0.9108387	0.9108387	0.9108387				
353												
354					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
355				Shapiro-Wilks (Full: no NDs)	0.7977702	0.803	Data Not Lognormal					
356				Lilliefors (Full: no NDs)	0.2781666	0.3348765	Data Appear Lognormal					
357	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
358												
359	**Manganese (2)**											
360												
361					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
362				Raw Statistics	8	0	8	8	0	0.00%		
363												
364					Number	Minimum	Maximum	Mean	Median	SD		
365				Statistics (Full: no NDs)	8	26.7	110.25	67.05625	65	26.159667		
366												
367					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
368				Statistics (Full: no NDs)	6.6876099	4.2630895	10.026938	4.1289075	0.4392688	0.1063886		

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
369												
370	**Normal Distribution Test Results**											
371												
372					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
373				Correlation Coefficient R	0.9920406	0.9920406	0.9920406	0.9920406				
374												
375					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
376				Shapiro-Wilks (Full: no NDs)	0.9882767	0.818	Data Appear Normal					
377				Lilliefors (Full: no NDs)	0.1441508	0.3132483	Data Appear Normal					
378												
379	**Gamma Distribution Test Results**											
380												
381					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
382				Correlation Coefficient R	0.9880933	0.9880933	0.9880933	0.9880933				
383												
384					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
385				Anderson-Darling (Full: no NDs)	0.1803853	0.7176862						
386				Kolmogorov-Smirnov (Full: no NDs)	0.135529	0.294916	Data Appear Gamma Distributed					
387												
388	**Lognormal Distribution Test Results**											
389												
390					No NDs	NDs = DL	NDs = DL/2	Log ROS				
391				Correlation Coefficient R	0.9723041	0.9723041	0.9723041	0.9723041				
392												
393					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
394				Shapiro-Wilks (Full: no NDs)	0.9546613	0.818	Data Appear Lognormal					
395				Lilliefors (Full: no NDs)	0.167823	0.3132483	Data Appear Lognormal					
396	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
397												
398	**Potassium (1)**											
399												
400					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
401				Raw Statistics	7	0	7	7	0	0.00%		
402												
403					Number	Minimum	Maximum	Mean	Median	SD		
404				Statistics (Full: no NDs)	7	905	4460	1883	1450	1245.9861		
405												
406					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
407				Statistics (Full: no NDs)	3.4859335	2.0872001	540.17095	7.3903846	0.5636292	0.0762652		
408												
409	**Normal Distribution Test Results**											
410												
411					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
412				Correlation Coefficient R	0.8869556	0.8869556	0.8869556	0.8869556				
413												
414					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
415				Shapiro-Wilks (Full: no NDs)	0.7972606	0.803	Data Not Normal					
416				Lilliefors (Full: no NDs)	0.232149	0.3348765	Data Appear Normal					
417												
418	**Gamma Distribution Test Results**											
419												
420					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
421				Correlation Coefficient R	0.9639532	0.9639532	0.9639532	0.9639532				
422												
423					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
424				Anderson-Darling (Full: no NDs)	0.3950163	0.7109706						
425				Kolmogorov-Smirnov (Full: no NDs)	0.1833678	0.3133118	Data Appear Gamma Distributed					
426												
427	**Lognormal Distribution Test Results**											
428												
429					No NDs	NDs = DL	NDs = DL/2	Log ROS				
430				Correlation Coefficient R	0.962617	0.962617	0.962617	0.962617				
431												
432					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
433				Shapiro-Wilks (Full: no NDs)	0.922526	0.803	Data Appear Lognormal					
434				Lilliefors (Full: no NDs)	0.1621973	0.3348765	Data Appear Lognormal					
435	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
436												
437	**Potassium (2)**											
438												
439					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
440				Raw Statistics	8	0	8	6	2	25.00%		
441												
442					Number	Minimum	Maximum	Mean	Median	SD		
443				Statistics (Non-Detects Only)	2	1500	1500	1500	1500	0		
444				Statistics (Detects Only)	6	1750	2860	2183.3333	2025	437.70614		
445				Statistics (All: NDs treated as DL value)	8	1500	2860	2012.5	1905	486.73108		
446				Statistics (All: NDs treated as DL/2 value)	8	750	2860	1825	1905	759.66158		
447				Statistics (Normal ROS Estimated Data)	8	915.45974	2860	1903.9306	1905	641.05628		
448				Statistics (Gamma ROS Estimated Data)	8	355.02428	2860	1793.2457	1905	824.06457		
449				Statistics (Lognormal ROS Estimated Data)	8	1223.7586	2860	1965.2787	1905	549.58993		
450												
451					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
452				Statistics (Detects Only)	31.592912	19.828904	69.108327	7.6726982	0.1928861	0.0251393		
453				Statistics (NDs = DL)	20.737837	13.044482	97.044835	7.5828288	0.2329505	0.0307208		
454				Statistics (NDs = DL/2)	5.1712444	3.3153611	352.91312	7.409542	0.5138169	0.0693453		
455				Statistics (Gamma ROS Estimates)	3.4001452	2.2084241	527.4027	--	--	--		
456				Statistics (Lognormal ROS Estimates)	--	--	--	7.5486258	0.283948	0.0376159		
457												
458	**Normal Distribution Test Results**											
459												
460					No NDs	NDs = DL	NDs = DL/2	Normal ROS				

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
461				Correlation Coefficient R	0.9514987	0.9600068	0.9616981	0.9876589				
462												
463					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
464				Shapiro-Wilks (Detects Only)	0.8934616	0.788	Data Appear Normal					
465				Lilliefors (Detects Only)	0.2331941	0.361708	Data Appear Normal					
466				Shapiro-Wilks (NDs = DL)	0.9097649	0.818	Data Appear Normal					
467				Lilliefors (NDs = DL)	0.1842046	0.3132483	Data Appear Normal					
468				Shapiro-Wilks (NDs = DL/2)	0.9120856	0.818	Data Appear Normal					
469				Lilliefors (NDs = DL/2)	0.210677	0.3132483	Data Appear Normal					
470				Shapiro-Wilks (Normal ROS Estimates)	0.97172	0.818	Data Appear Normal					
471				Lilliefors (Normal ROS Estimates)	0.1551185	0.3132483	Data Appear Normal					
472												
473	**Gamma Distribution Test Results**											
474												
475					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
476				Correlation Coefficient R	0.9665561	0.9763896	0.9335515	0.9099674				
477												
478					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
479				Anderson-Darling (Detects Only)	0.3785836	0.6970088						
480				Kolmogorov-Smirnov (Detects Only)	0.2228844	0.3317609	Data Appear Gamma Distributed					
481				Anderson-Darling (NDs = DL)	0.3057776	0.7162034						
482				Kolmogorov-Smirnov (NDs = DL)	0.1618749	0.2938489	Data Appear Gamma Distributed					
483				Anderson-Darling (NDs = DL/2)	0.6083352	0.7189296						
484				Kolmogorov-Smirnov (NDs = DL/2)	0.2711066	0.2952071	Data Appear Gamma Distributed					
485				Anderson-Darling (Gamma ROS Estimates)	0.5974784	0.7203096						
486				Kolmogorov-Smirnov (Gamma ROS Est.)	0.3046375	0.2959119	Data appear Approximate Gamma Distribution					
487												
488	**Lognormal Distribution Test Results**											
489												
490					No NDs	NDs = DL	NDs = DL/2	Log ROS				
491				Correlation Coefficient R	0.9634753	0.9744951	0.915404	0.9896121				
492												
493					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
494				Shapiro-Wilks (Detects Only)	0.9145446	0.788	Data Appear Lognormal					
495				Lilliefors (Detects Only)	0.2043668	0.361708	Data Appear Lognormal					
496				Shapiro-Wilks (NDs = DL)	0.933867	0.818	Data Appear Lognormal					
497				Lilliefors (NDs = DL)	0.146201	0.3132483	Data Appear Lognormal					
498				Shapiro-Wilks (NDs = DL/2)	0.8245192	0.818	Data Appear Lognormal					
499				Lilliefors (NDs = DL/2)	0.2948056	0.3132483	Data Appear Lognormal					
500				Shapiro-Wilks (Lognormal ROS Estimates)	0.9727708	0.818	Data Appear Lognormal					
501				Lilliefors (Lognormal ROS Estimates)	0.1373776	0.3132483	Data Appear Lognormal					
502	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
503												
504	**Sodium (1)**											
505												
506					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
507				Raw Statistics	7	1	6	6	0	0.00%		
508												
509					Number	Minimum	Maximum	Mean	Median	SD		
510				Statistics (Full: no NDs)	6	4200	37600	13668.333	10160	12047.792		
511												
512					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
513				Statistics (Full: no NDs)	2.2169384	1.2195803	6165.4097	9.2806621	0.7197334	0.0775519		
514												
515	**Normal Distribution Test Results**											
516												
517					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
518				Correlation Coefficient R	0.8296426	0.8296426	0.8296426	0.8296426				
519												
520					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
521				Shapiro-Wilks (Full: no NDs)	0.7145605	0.788	Data Not Normal					
522				Lilliefors (Full: no NDs)	0.394953	0.361708	Data Not Normal					
523												
524	**Gamma Distribution Test Results**											
525												
526					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
527				Correlation Coefficient R	0.9315251	0.9315251	0.9315251	0.9315251				
528												
529					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
530				Anderson-Darling (Full: no NDs)	0.5448138	0.7035852						
531				Kolmogorov-Smirnov (Full: no NDs)	0.3274923	0.3355523	Data Appear Gamma Distributed					
532												
533	**Lognormal Distribution Test Results**											
534												
535					No NDs	NDs = DL	NDs = DL/2	Log ROS				
536				Correlation Coefficient R	0.9434513	0.9434513	0.9434513	0.9434513				
537												
538					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
539				Shapiro-Wilks (Full: no NDs)	0.9162573	0.788	Data Appear Lognormal					
540				Lilliefors (Full: no NDs)	0.2807223	0.361708	Data Appear Lognormal					
541	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
542												
543	**Sodium (2)**											
544												
545					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
546				Raw Statistics	8	0	8	8	0	0.00%		
547												
548					Number	Minimum	Maximum	Mean	Median	SD		
549				Statistics (Full: no NDs)	8	10700	36200	20106.25	16575	10281.066		
550												
551					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
552				Statistics (Full: no NDs)	4.7081398	3.0259207	4270.5295	9.7988441	0.4955718	0.0505745		

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
553												
554	**Normal Distribution Test Results**											
555												
556					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
557				Correlation Coefficient R	0.931676	0.931676	0.931676	0.931676				
558												
559					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
560				Shapiro-Wilks (Full: no NDs)	0.8446613	0.818	Data Appear Normal					
561				Lilliefors (Full: no NDs)	0.2491268	0.3132483	Data Appear Normal					
562												
563	**Gamma Distribution Test Results**											
564												
565					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
566				Correlation Coefficient R	0.959969	0.959969	0.959969	0.959969				
567												
568					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
569				Anderson-Darling (Full: no NDs)	0.5037231	0.7189241						
570				Kolmogorov-Smirnov (Full: no NDs)	0.2562128	0.2952663	Data Appear Gamma Distributed					
571												
572	**Lognormal Distribution Test Results**											
573												
574					No NDs	NDs = DL	NDs = DL/2	Log ROS				
575				Correlation Coefficient R	0.9527995	0.9527995	0.9527995	0.9527995				
576												
577					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
578				Shapiro-Wilks (Full: no NDs)	0.8792082	0.818	Data Appear Lognormal					
579				Lilliefors (Full: no NDs)	0.2347686	0.3132483	Data Appear Lognormal					
580	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
581												
582	**Zinc (1)**											
583												
584					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
585				Raw Statistics	7	0	7	7	0	0.00%		
586												
587					Number	Minimum	Maximum	Mean	Median	SD		
588				Statistics (Full: no NDs)	7	1	253	43.321429	2.9	93.417209		
589												
590					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
591				Statistics (Full: no NDs)	0.3506961	0.2956359	123.52982	1.8518326	2.0022733	1.0812388		
592												
593	**Normal Distribution Test Results**											
594												
595					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
596				Correlation Coefficient R	0.7190181	0.7190181	0.7190181	0.7190181				
597												
598					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

Appendix K, Table K-9
Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
599				Shapiro-Wilks (Full: no NDs)	0.5420877	0.803	Data Not Normal					
600				Lilliefors (Full: no NDs)	0.3794296	0.3348765	Data Not Normal					
601												
602	**Gamma Distribution Test Results**											
603												
604					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
605				Correlation Coefficient R	0.9701168	0.9701168	0.9701168	0.9701168				
606												
607					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
608				Anderson-Darling (Full: no NDs)	0.9256588	0.7758467						
609				Kolmogorov-Smirnov (Full: no NDs)	0.3637287	0.3331002	Data Not Gamma Distributed					
610												
611	**Lognormal Distribution Test Results**											
612												
613					No NDs	NDs = DL	NDs = DL/2	Log ROS				
614				Correlation Coefficient R	0.919858	0.919858	0.919858	0.919858				
615												
616					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
617				Shapiro-Wilks (Full: no NDs)	0.846224	0.803	Data Appear Lognormal					
618				Lilliefors (Full: no NDs)	0.2789097	0.3348765	Data Appear Lognormal					
619	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
620												
621	**Zinc (2)**											
622												
623					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
624				Raw Statistics	8	0	8	3	5	62.50%		
625												
626					Number	Minimum	Maximum	Mean	Median	SD		
627				Statistics (Non-Detects Only)	5	5	5	5	5	0		
628				Statistics (Detects Only)	3	7.8	12.85	9.9166667	9.1	2.622181		
629				Statistics (All: NDs treated as DL value)	8	5	12.85	6.84375	5	2.9050987		
630				Statistics (All: NDs treated as DL/2 value)	8	2.5	12.85	5.28125	2.5	4.0863831		
631				Statistics (Normal ROS Estimated Data)	8	-5.287375	12.85	3.5205423	2.9123103	6.1060833		
632				Statistics (Gamma ROS Estimated Data)	8	0.000001	12.85	3.7187506	0.000001	5.3203068		
633				Statistics (Lognormal ROS Estimated Data)	8	2.1754671	12.85	6.0424071	4.8908169	3.6233947		
634												
635					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
636				Statistics (Detects Only)	22.584066	14.198374	0.4391001	2.271914	0.2556221	0.112514		
637				Statistics (NDs = DL)	7.8000766	4.9583812	0.8773952	1.8578664	0.3690867	0.1986616		
638				Statistics (NDs = DL/2)	2.2400401	1.4833584	2.3576587	1.4246495	0.7147827	0.5017253		
639				Statistics (Gamma ROS Estimates)	0.0903993	0.1398329	41.136933	--	--	--		
640				Statistics (Lognormal ROS Estimates)	--	--	--	1.6431273	0.6000098	0.3651633		
641												
642	**Normal Distribution Test Results**											
643												
644					No NDs	NDs = DL	NDs = DL/2	Normal ROS				

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Surface Water Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
645				Correlation Coefficient R	0.9629389	0.8496484	0.8632187	0.9949231				
646												
647					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
648				Shapiro-Wilks (Detects Only)	0.9272335	0.767	Data Appear Normal					
649				Lilliefors (Detects Only)	0.2889357	0.5115323	Data Appear Normal					
650				Shapiro-Wilks (NDs = DL)	0.723132	0.818	Data Not Normal					
651				Lilliefors (NDs = DL)	0.3621749	0.3132483	Data Not Normal					
652				Shapiro-Wilks (NDs = DL/2)	0.7360905	0.818	Data Not Normal					
653				Lilliefors (NDs = DL/2)	0.3769422	0.3132483	Data Not Normal					
654				Shapiro-Wilks (Normal ROS Estimates)	0.9807182	0.818	Data Appear Normal					
655				Lilliefors (Normal ROS Estimates)	0.1333022	0.3132483	Data Appear Normal					
656												
657				**Gamma Distribution Test Results**								
658												
659					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
660				Correlation Coefficient R	N/A	0.9144986	0.9445435	0.8262245				
661												
662					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
663				Anderson-Darling (Detects Only)	N/A	N/A						
664				Kolmogorov-Smirnov (Detects Only)	N/A	N/A						
665				Anderson-Darling (NDs = DL)	1.0931958	0.7167739						
666				Kolmogorov-Smirnov (NDs = DL)	0.3863118	0.2947024	Data Not Gamma Distributed					
667				Anderson-Darling (NDs = DL/2)	1.2018842	0.7233699						
668				Kolmogorov-Smirnov (NDs = DL/2)	0.401378	0.2971816	Data Not Gamma Distributed					
669				Anderson-Darling (Gamma ROS Estimates)	1.5009278	0.8771341						
670				Kolmogorov-Smirnov (Gamma ROS Est.)	0.4104432	0.3300111	Data Not Gamma Distributed					
671												
672				**Lognormal Distribution Test Results**								
673												
674					No NDs	NDs = DL	NDs = DL/2	Log ROS				
675				Correlation Coefficient R	0.9764806	0.8629107	0.8564031	0.9952706				
676												
677					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
678				Shapiro-Wilks (Detects Only)	0.9534961	0.767	Data Appear Lognormal					
679				Lilliefors (Detects Only)	0.2649706	0.5115323	Data Appear Lognormal					
680				Shapiro-Wilks (NDs = DL)	0.7368414	0.818	Data Not Lognormal					
681				Lilliefors (NDs = DL)	0.3745549	0.3132483	Data Not Lognormal					
682				Shapiro-Wilks (NDs = DL/2)	0.7138834	0.818	Data Not Lognormal					
683				Lilliefors (NDs = DL/2)	0.3865221	0.3132483	Data Not Lognormal					
684				Shapiro-Wilks (Lognormal ROS Estimates)	0.9808009	0.818	Data Appear Lognormal					
685				Lilliefors (Lognormal ROS Estimates)	0.1283226	0.3132483	Data Appear Lognormal					
686	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

1				**Goodness-of-Fit Test Statistics for Data Sets with Non-Detects**							
2			**User Selected Options**								
3			From File	C:\willow_grove\Site12_HHRA\ProUCL\wg12sd_ProUCL_TTEST_input.wst							
4			Full Precision	ON							
5			Confidence Coefficient	0.95							
6											
7											
8	**Aluminum (1)**										
9											
10				Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
11			Raw Statistics	8	0	8	8	0	0.00%		
12											
13				Number	Minimum	Maximum	Mean	Median	SD		
14			Statistics (Full: no NDs)	8	5400	16700	9799.375	8295	3777.9345		
15											
16				K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
17			Statistics (Full: no NDs)	8.2396194	5.2330955	1189.2995	9.1281658	0.3728213	0.040843		
18											
19			**Normal Distribution Test Results**								
20											
21				No NDs	NDs = DL	NDs = DL/2	Normal ROS				
22			Correlation Coefficient R	0.9557233	0.9557233	0.9557233	0.9557233				
23											
24				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
25			Shapiro-Wilks (Full: no NDs)	0.9121722	0.818	Data Appear Normal					
26			Lilliefors (Full: no NDs)	0.228294	0.3132483	Data Appear Normal					
27											
28			**Gamma Distribution Test Results**								
29											
30				No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
31			Correlation Coefficient R	0.9797395	0.9797395	0.9797395	0.9797395				
32											
33				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
34			Anderson-Darling (Full: no NDs)	0.3280338	0.7164135						
35			Kolmogorov-Smirnov (Full: no NDs)	0.198233	0.294618	Data Appear Gamma Distributed					
36											
37			**Lognormal Distribution Test Results**								
38											
39				No NDs	NDs = DL	NDs = DL/2	Log ROS				
40			Correlation Coefficient R	0.9794654	0.9794654	0.9794654	0.9794654				
41											
42				Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
43			Shapiro-Wilks (Full: no NDs)	0.9560211	0.818	Data Appear Lognormal					
44			Lilliefors (Full: no NDs)	0.1746929	0.3132483	Data Appear Lognormal					
45	**Note: Substitution methods such as DL or DL/2 are not recommended.**										
46											

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
47	**Aluminum (2)**											
48												
49					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
50				Raw Statistics	8	0	8	8	0	0.00%		
51												
52					Number	Minimum	Maximum	Mean	Median	SD		
53				Statistics (Full: no NDs)	8	3610	8950	6624.375	6665	1951.6649		
54												
55					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
56				Statistics (Full: no NDs)	11.866117	7.4996566	558.25969	8.7557831	0.3225189	0.036835		
57												
58				**Normal Distribution Test Results**								
59												
60					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
61				Correlation Coefficient R	0.9766765	0.9766765	0.9766765	0.9766765				
62												
63					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
64				Shapiro-Wilks (Full: no NDs)	0.9351871	0.818	Data Appear Normal					
65				Lilliefors (Full: no NDs)	0.1832243	0.3132483	Data Appear Normal					
66												
67				**Gamma Distribution Test Results**								
68												
69					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
70				Correlation Coefficient R	0.953424	0.953424	0.953424	0.953424				
71												
72					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
73				Anderson-Darling (Full: no NDs)	0.3164201	0.715207						
74				Kolmogorov-Smirnov (Full: no NDs)	0.1944703	0.2942016	Data Appear Gamma Distributed					
75												
76				**Lognormal Distribution Test Results**								
77												
78					No NDs	NDs = DL	NDs = DL/2	Log ROS				
79				Correlation Coefficient R	0.9662204	0.9662204	0.9662204	0.9662204				
80												
81					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
82				Shapiro-Wilks (Full: no NDs)	0.9211393	0.818	Data Appear Lognormal					
83				Lilliefors (Full: no NDs)	0.1748232	0.3132483	Data Appear Lognormal					
84	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
85												
86	**Arsenic (1)**											
87												
88					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
89				Raw Statistics	8	0	8	8	0	0.00%		
90												
91					Number	Minimum	Maximum	Mean	Median	SD		
92				Statistics (Full: no NDs)	8	2.8	7.2	4.24375	3.425	1.628636		

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Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
93												
94					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
95				Statistics (Full: no NDs)	8.9543528	5.6798039	0.4739315	1.3885705	0.349145	0.251442		
96												
97				**Normal Distribution Test Results**								
98												
99					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
100				Correlation Coefficient R	0.9121193	0.9121193	0.9121193	0.9121193				
101												
102					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
103				Shapiro-Wilks (Full: no NDs)	0.8235472	0.818	Data Appear Normal					
104				Lilliefors (Full: no NDs)	0.301046	0.3132483	Data Appear Normal					
105												
106				**Gamma Distribution Test Results**								
107												
108					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
109				Correlation Coefficient R	0.9517375	0.9517375	0.9517375	0.9517375				
110												
111					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
112				Anderson-Darling (Full: no NDs)	0.6211239	0.7158274						
113				Kolmogorov-Smirnov (Full: no NDs)	0.2969385	0.2944808	Data appear Approximate Gamma Distribution					
114												
115				**Lognormal Distribution Test Results**								
116												
117					No NDs	NDs = DL	NDs = DL/2	Log ROS				
118				Correlation Coefficient R	0.9397303	0.9397303	0.9397303	0.9397303				
119												
120					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
121				Shapiro-Wilks (Full: no NDs)	0.8700112	0.818	Data Appear Lognormal					
122				Lilliefors (Full: no NDs)	0.2763515	0.3132483	Data Appear Lognormal					
123	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
124												
125	**Arsenic (2)**											
126												
127					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
128				Raw Statistics	8	0	8	8	0	0.00%		
129												
130					Number	Minimum	Maximum	Mean	Median	SD		
131				Statistics (Full: no NDs)	8	3.2	7.2	4.55	4.05	1.2569805		
132												
133					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
134				Statistics (Full: no NDs)	17.190962	10.827684	0.264674	1.4857603	0.2516245	0.1693574		
135												
136				**Normal Distribution Test Results**								
137												
138					No NDs	NDs = DL	NDs = DL/2	Normal ROS				

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Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
139				Correlation Coefficient R	0.9211144	0.9211144	0.9211144	0.9211144				
140												
141					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
142				Shapiro-Wilks (Full: no NDs)	0.863032	0.818	Data Appear Normal					
143				Lilliefors (Full: no NDs)	0.2648286	0.3132483	Data Appear Normal					
144												
145	**Gamma Distribution Test Results**											
146												
147					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
148				Correlation Coefficient R	0.9529572	0.9529572	0.9529572	0.9529572				
149												
150					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
151				Anderson-Darling (Full: no NDs)	0.4234047	0.7158833						
152				Kolmogorov-Smirnov (Full: no NDs)	0.2592897	0.293978	Data Appear Gamma Distributed					
153												
154	**Lognormal Distribution Test Results**											
155												
156					No NDs	NDs = DL	NDs = DL/2	Log ROS				
157				Correlation Coefficient R	0.9573774	0.9573774	0.9573774	0.9573774				
158												
159					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
160				Shapiro-Wilks (Full: no NDs)	0.9277602	0.818	Data Appear Lognormal					
161				Lilliefors (Full: no NDs)	0.2418287	0.3132483	Data Appear Lognormal					
162	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
163												
164	**Barium (1)**											
165												
166					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
167				Raw Statistics	8	0	8	8	0	0.00%		
168												
169					Number	Minimum	Maximum	Mean	Median	SD		
170				Statistics (Full: no NDs)	8	58.2	838	193.3875	95.3	263.19049		
171												
172					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
173				Statistics (Full: no NDs)	1.29384	0.8919833	149.46787	4.8308807	0.8360144	0.1730563		
174												
175	**Normal Distribution Test Results**											
176												
177					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
178				Correlation Coefficient R	0.7133887	0.7133887	0.7133887	0.7133887				
179												
180					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
181				Shapiro-Wilks (Full: no NDs)	0.5379263	0.818	Data Not Normal					
182				Lilliefors (Full: no NDs)	0.3861964	0.3132483	Data Not Normal					
183												
184	**Gamma Distribution Test Results**											

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Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
185												
186					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
187				Correlation Coefficient R	0.8900077	0.8900077	0.8900077	0.8900077				
188												
189					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
190				Anderson-Darling (Full: no NDs)	1.2649442	0.7313392						
191				Kolmogorov-Smirnov (Full: no NDs)	0.3568479	0.2999555	Data Not Gamma Distributed					
192												
193				**Lognormal Distribution Test Results**								
194												
195					No NDs	NDs = DL	NDs = DL/2	Log ROS				
196				Correlation Coefficient R	0.8620412	0.8620412	0.8620412	0.8620412				
197												
198					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
199				Shapiro-Wilks (Full: no NDs)	0.7663725	0.818	Data Not Lognormal					
200				Lilliefors (Full: no NDs)	0.3077052	0.3132483	Data Appear Lognormal					
201	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
202												
203	**Barium (2)**											
204												
205					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
206				Raw Statistics	8	0	8	8	0	0.00%		
207												
208					Number	Minimum	Maximum	Mean	Median	SD		
209				Statistics (Full: no NDs)	8	54.6	160.5	98.2375	93.7	32.485598		
210												
211					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
212				Statistics (Full: no NDs)	10.858541	6.8699214	9.0470258	4.5406351	0.3274272	0.0721104		
213												
214				**Normal Distribution Test Results**								
215												
216					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
217				Correlation Coefficient R	0.9659535	0.9659535	0.9659535	0.9659535				
218												
219					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
220				Shapiro-Wilks (Full: no NDs)	0.9447218	0.818	Data Appear Normal					
221				Lilliefors (Full: no NDs)	0.1870564	0.3132483	Data Appear Normal					
222												
223				**Gamma Distribution Test Results**								
224												
225					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
226				Correlation Coefficient R	0.9836878	0.9836878	0.9836878	0.9836878				
227												
228					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
229				Anderson-Darling (Full: no NDs)	0.2272178	0.715079						
230				Kolmogorov-Smirnov (Full: no NDs)	0.1772545	0.2942439	Data Appear Gamma Distributed					

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Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
231												
232	**Lognormal Distribution Test Results**											
233												
234					No NDs	NDs = DL	NDs = DL/2	Log ROS				
235				Correlation Coefficient R	0.983045	0.983045	0.983045	0.983045				
236												
237					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
238				Shapiro-Wilks (Full: no NDs)	0.977072	0.818	Data Appear Lognormal					
239				Lilliefors (Full: no NDs)	0.1532584	0.3132483	Data Appear Lognormal					
240	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
241												
242	**Beryllium (1)**											
243												
244					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
245				Raw Statistics	8	0	8	8	0	0.00%		
246												
247					Number	Minimum	Maximum	Mean	Median	SD		
248				Statistics (Full: no NDs)	8	0.43	1.2	0.750625	0.7725	0.2605549		
249												
250					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
251				Statistics (Full: no NDs)	9.4081034	5.963398	0.0797849	-0.340935	0.3548336	-1.040766		
252												
253	**Normal Distribution Test Results**											
254												
255					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
256				Correlation Coefficient R	0.9695292	0.9695292	0.9695292	0.9695292				
257												
258					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
259				Shapiro-Wilks (Full: no NDs)	0.9342394	0.818	Data Appear Normal					
260				Lilliefors (Full: no NDs)	0.1869568	0.3132483	Data Appear Normal					
261												
262	**Gamma Distribution Test Results**											
263												
264					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
265				Correlation Coefficient R	0.9764486	0.9764486	0.9764486	0.9764486				
266												
267					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
268				Anderson-Darling (Full: no NDs)	0.3307691	0.7154554						
269				Kolmogorov-Smirnov (Full: no NDs)	0.2037072	0.2943936	Data Appear Gamma Distributed					
270												
271	**Lognormal Distribution Test Results**											
272												
273					No NDs	NDs = DL	NDs = DL/2	Log ROS				
274				Correlation Coefficient R	0.9745036	0.9745036	0.9745036	0.9745036				
275												
276					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

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Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
277				Shapiro-Wilks (Full: no NDs)	0.939612	0.818	Data Appear Lognormal					
278				Lilliefors (Full: no NDs)	0.1982402	0.3132483	Data Appear Lognormal					
279	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
280												
281	**Beryllium (2)**											
282												
283					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
284				Raw Statistics	8	0	8	8	0	0.00%		
285												
286					Number	Minimum	Maximum	Mean	Median	SD		
287				Statistics (Full: no NDs)	8	0.52	1.2	0.8775	0.895	0.2800383		
288												
289					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
290				Statistics (Full: no NDs)	10.564559	6.6861828	0.0830607	-0.178752	0.3375648	-1.88845		
291												
292	**Normal Distribution Test Results**											
293												
294					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
295				Correlation Coefficient R	0.9563052	0.9563052	0.9563052	0.9563052				
296												
297					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
298				Shapiro-Wilks (Full: no NDs)	0.8832527	0.818	Data Appear Normal					
299				Lilliefors (Full: no NDs)	0.2052684	0.3132483	Data Appear Normal					
300												
301	**Gamma Distribution Test Results**											
302												
303					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
304				Correlation Coefficient R	0.9400456	0.9400456	0.9400456	0.9400456				
305												
306					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
307				Anderson-Darling (Full: no NDs)	0.4714285	0.7150417						
308				Kolmogorov-Smirnov (Full: no NDs)	0.2184536	0.2942563	Data Appear Gamma Distributed					
309												
310	**Lognormal Distribution Test Results**											
311												
312					No NDs	NDs = DL	NDs = DL/2	Log ROS				
313				Correlation Coefficient R	0.9542086	0.9542086	0.9542086	0.9542086				
314												
315					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
316				Shapiro-Wilks (Full: no NDs)	0.8822107	0.818	Data Appear Lognormal					
317				Lilliefors (Full: no NDs)	0.2000454	0.3132483	Data Appear Lognormal					
318	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
319												
320	**Calcium (1)**											
321												
322					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		

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Sediment Distributional Analysis
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	A	B	C	D	E	F	G	H	I	J	K	L
323				Raw Statistics	8	0	8	8	0	0.00%		
324												
325					Number	Minimum	Maximum	Mean	Median	SD		
326				Statistics (Full: no NDs)	8	717	5360	2762.5	2255	1722.5989		
327												
328					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
329				Statistics (Full: no NDs)	2.5865621	1.6999346	1068.02	7.7183033	0.7279483	0.0943146		
330												
331	**Normal Distribution Test Results**											
332												
333					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
334				Correlation Coefficient R	0.9694293	0.9694293	0.9694293	0.9694293				
335												
336					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
337				Shapiro-Wilks (Full: no NDs)	0.9207963	0.818	Data Appear Normal					
338				Lilliefors (Full: no NDs)	0.190133	0.3132483	Data Appear Normal					
339												
340	**Gamma Distribution Test Results**											
341												
342					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
343				Correlation Coefficient R	0.9668115	0.9668115	0.9668115	0.9668115				
344												
345					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
346				Anderson-Darling (Full: no NDs)	0.2722762	0.7225036						
347				Kolmogorov-Smirnov (Full: no NDs)	0.1456291	0.2967796	Data Appear Gamma Distributed					
348												
349	**Lognormal Distribution Test Results**											
350												
351					No NDs	NDs = DL	NDs = DL/2	Log ROS				
352				Correlation Coefficient R	0.9721887	0.9721887	0.9721887	0.9721887				
353												
354					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
355				Shapiro-Wilks (Full: no NDs)	0.9293699	0.818	Data Appear Lognormal					
356				Lilliefors (Full: no NDs)	0.1913263	0.3132483	Data Appear Lognormal					
357	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
358												
359	**Calcium (2)**											
360												
361					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
362				Raw Statistics	8	0	8	8	0	0.00%		
363												
364					Number	Minimum	Maximum	Mean	Median	SD		
365				Statistics (Full: no NDs)	8	744	18200	4981.5	1105	7176.2523		
366												
367					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
368				Statistics (Full: no NDs)	0.714699	0.5300202	6970.0671	7.6703325	1.2877752	0.1678904		

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
369												
370	**Normal Distribution Test Results**											
371												
372					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
373				Correlation Coefficient R	0.7987717	0.7987717	0.7987717	0.7987717				
374												
375					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
376				Shapiro-Wilks (Full: no NDs)	0.6349289	0.818	Data Not Normal					
377				Lilliefors (Full: no NDs)	0.4131376	0.3132483	Data Not Normal					
378												
379	**Gamma Distribution Test Results**											
380												
381					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
382				Correlation Coefficient R	0.9311241	0.9311241	0.9311241	0.9311241				
383												
384					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
385				Anderson-Darling (Full: no NDs)	1.2779627	0.7475644						
386				Kolmogorov-Smirnov (Full: no NDs)	0.3545642	0.3047561	Data Not Gamma Distributed					
387												
388	**Lognormal Distribution Test Results**											
389												
390					No NDs	NDs = DL	NDs = DL/2	Log ROS				
391				Correlation Coefficient R	0.8692077	0.8692077	0.8692077	0.8692077				
392												
393					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
394				Shapiro-Wilks (Full: no NDs)	0.7437431	0.818	Data Not Lognormal					
395				Lilliefors (Full: no NDs)	0.3154973	0.3132483	Data Not Lognormal					
396	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
397												
398	**Chromium (1)**											
399												
400					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
401				Raw Statistics	8	0	8	8	0	0.00%		
402												
403					Number	Minimum	Maximum	Mean	Median	SD		
404				Statistics (Full: no NDs)	8	11	22.3	15.95	15.85	3.7728352		
405												
406					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
407				Statistics (Full: no NDs)	20.276671	12.756253	0.7866183	2.7445973	0.2398006	0.0873719		
408												
409	**Normal Distribution Test Results**											
410												
411					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
412				Correlation Coefficient R	0.9885751	0.9885751	0.9885751	0.9885751				
413												
414					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
415				Shapiro-Wilks (Full: no NDs)	0.9707492	0.818	Data Appear Normal					
416				Lilliefors (Full: no NDs)	0.1200175	0.3132483	Data Appear Normal					
417												
418	**Gamma Distribution Test Results**											
419												
420					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
421				Correlation Coefficient R	0.9916576	0.9916576	0.9916576	0.9916576				
422												
423					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
424				Anderson-Darling (Full: no NDs)	0.1806011	0.7162263						
425				Kolmogorov-Smirnov (Full: no NDs)	0.1445227	0.2938558	Data Appear Gamma Distributed					
426												
427	**Lognormal Distribution Test Results**											
428												
429					No NDs	NDs = DL	NDs = DL/2	Log ROS				
430				Correlation Coefficient R	0.9896676	0.9896676	0.9896676	0.9896676				
431												
432					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
433				Shapiro-Wilks (Full: no NDs)	0.9701222	0.818	Data Appear Lognormal					
434				Lilliefors (Full: no NDs)	0.1326862	0.3132483	Data Appear Lognormal					
435	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
436												
437	**Chromium (2)**											
438												
439					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
440				Raw Statistics	8	0	8	8	0	0.00%		
441												
442					Number	Minimum	Maximum	Mean	Median	SD		
443				Statistics (Full: no NDs)	8	6.8	34.5	15.675	11.6	10.37645		
444												
445					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
446				Statistics (Full: no NDs)	3.2190838	2.0952607	4.8693979	2.5887759	0.5854348	0.2261435		
447												
448	**Normal Distribution Test Results**											
449												
450					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
451				Correlation Coefficient R	0.887674	0.887674	0.887674	0.887674				
452												
453					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
454				Shapiro-Wilks (Full: no NDs)	0.782133	0.818	Data Not Normal					
455				Lilliefors (Full: no NDs)	0.3254766	0.3132483	Data Not Normal					
456												
457	**Gamma Distribution Test Results**											
458												
459					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
460				Correlation Coefficient R	0.9493551	0.9493551	0.9493551	0.9493551				

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
461												
462					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
463				Anderson-Darling (Full: no NDs)	0.6472018	0.7208347						
464				Kolmogorov-Smirnov (Full: no NDs)	0.2689072	0.2960875	Data Appear Gamma Distributed					
465												
466	**Lognormal Distribution Test Results**											
467												
468					No NDs	NDs = DL	NDs = DL/2	Log ROS				
469				Correlation Coefficient R	0.9448648	0.9448648	0.9448648	0.9448648				
470												
471					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
472				Shapiro-Wilks (Full: no NDs)	0.8824227	0.818	Data Appear Lognormal					
473				Lilliefors (Full: no NDs)	0.2305048	0.3132483	Data Appear Lognormal					
474	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
475												
476	**Cobalt (1)**											
477												
478					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
479				Raw Statistics	8	0	8	8	0	0.00%		
480												
481					Number	Minimum	Maximum	Mean	Median	SD		
482				Statistics (Full: no NDs)	8	3.4	37.1	10.375	7.45	10.946722		
483												
484					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
485				Statistics (Full: no NDs)	1.9253669	1.2866876	5.3885833	2.0577725	0.7031623	0.3417104		
486												
487	**Normal Distribution Test Results**											
488												
489					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
490				Correlation Coefficient R	0.7406478	0.7406478	0.7406478	0.7406478				
491												
492					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
493				Shapiro-Wilks (Full: no NDs)	0.5798768	0.818	Data Not Normal					
494				Lilliefors (Full: no NDs)	0.4285927	0.3132483	Data Not Normal					
495												
496	**Gamma Distribution Test Results**											
497												
498					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
499				Correlation Coefficient R	0.8743551	0.8743551	0.8743551	0.8743551				
500												
501					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
502				Anderson-Darling (Full: no NDs)	1.0144558	0.7246342						
503				Kolmogorov-Smirnov (Full: no NDs)	0.3599493	0.2976749	Data Not Gamma Distributed					
504												
505	**Lognormal Distribution Test Results**											
506												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
507					No NDs	NDs = DL	NDs = DL/2	Log ROS				
508				Correlation Coefficient R	0.8952248	0.8952248	0.8952248	0.8952248				
509												
510					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
511				Shapiro-Wilks (Full: no NDs)	0.8307645	0.818	Data Appear Lognormal					
512				Lilliefors (Full: no NDs)	0.3026222	0.3132483	Data Appear Lognormal					
513	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
514												
515	**Cobalt (2)**											
516												
517					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
518				Raw Statistics	8	0	8	8	0	0.00%		
519												
520					Number	Minimum	Maximum	Mean	Median	SD		
521				Statistics (Full: no NDs)	8	4.5	12.4	7.2125	6.7	2.6443673		
522												
523					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
524				Statistics (Full: no NDs)	9.6928881	6.1413884	0.7441023	1.9233454	0.3377205	0.1755902		
525												
526	**Normal Distribution Test Results**											
527												
528					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
529				Correlation Coefficient R	0.9322885	0.9322885	0.9322885	0.9322885				
530												
531					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
532				Shapiro-Wilks (Full: no NDs)	0.8723053	0.818	Data Appear Normal					
533				Lilliefors (Full: no NDs)	0.2970358	0.3132483	Data Appear Normal					
534												
535	**Gamma Distribution Test Results**											
536												
537					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
538				Correlation Coefficient R	0.9665827	0.9665827	0.9665827	0.9665827				
539												
540					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
541				Anderson-Darling (Full: no NDs)	0.3830451	0.7152218						
542				Kolmogorov-Smirnov (Full: no NDs)	0.2616421	0.294339	Data Appear Gamma Distributed					
543												
544	**Lognormal Distribution Test Results**											
545												
546					No NDs	NDs = DL	NDs = DL/2	Log ROS				
547				Correlation Coefficient R	0.9688747	0.9688747	0.9688747	0.9688747				
548												
549					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
550				Shapiro-Wilks (Full: no NDs)	0.9365182	0.818	Data Appear Lognormal					
551				Lilliefors (Full: no NDs)	0.2403428	0.3132483	Data Appear Lognormal					
552	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
553												
554	**Copper (1)**											
555												
556					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
557				Raw Statistics	8	0	8	8	0	0.00%		
558												
559					Number	Minimum	Maximum	Mean	Median	SD		
560				Statistics (Full: no NDs)	8	7.2	44.7	17.48125	16.1	11.76423		
561												
562					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
563				Statistics (Full: no NDs)	3.4754693	2.2555016	5.0298963	2.7104194	0.5584075	0.2060225		
564												
565				**Normal Distribution Test Results**								
566												
567					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
568				Correlation Coefficient R	0.8514057	0.8514057	0.8514057	0.8514057				
569												
570					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
571				Shapiro-Wilks (Full: no NDs)	0.7491932	0.818	Data Not Normal					
572				Lilliefors (Full: no NDs)	0.3236397	0.3132483	Data Not Normal					
573												
574				**Gamma Distribution Test Results**								
575												
576					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
577				Correlation Coefficient R	0.9261717	0.9261717	0.9261717	0.9261717				
578												
579					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
580				Anderson-Darling (Full: no NDs)	0.4889825	0.7200911						
581				Kolmogorov-Smirnov (Full: no NDs)	0.2433807	0.2958388	Data Appear Gamma Distributed					
582												
583				**Lognormal Distribution Test Results**								
584												
585					No NDs	NDs = DL	NDs = DL/2	Log ROS				
586				Correlation Coefficient R	0.9552202	0.9552202	0.9552202	0.9552202				
587												
588					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
589				Shapiro-Wilks (Full: no NDs)	0.9265339	0.818	Data Appear Lognormal					
590				Lilliefors (Full: no NDs)	0.2125774	0.3132483	Data Appear Lognormal					
591	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
592												
593	**Copper (2)**											
594												
595					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
596				Raw Statistics	8	0	8	8	0	0.00%		
597												
598					Number	Minimum	Maximum	Mean	Median	SD		

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
599				Statistics (Full: no NDs)	8	5.8	27.8	13.3625	11.1	7.6436598		
600												
601					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
602				Statistics (Full: no NDs)	4.0734744	2.6292548	3.2803692	2.4647142	0.527933	0.2141965		
603												
604	**Normal Distribution Test Results**											
605												
606					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
607				Correlation Coefficient R	0.9246552	0.9246552	0.9246552	0.9246552				
608												
609					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
610				Shapiro-Wilks (Full: no NDs)	0.853672	0.818	Data Appear Normal					
611				Lilliefors (Full: no NDs)	0.2793318	0.3132483	Data Appear Normal					
612												
613	**Gamma Distribution Test Results**											
614												
615					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
616				Correlation Coefficient R	0.9725837	0.9725837	0.9725837	0.9725837				
617												
618					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
619				Anderson-Darling (Full: no NDs)	0.3695321	0.7186067						
620				Kolmogorov-Smirnov (Full: no NDs)	0.2179591	0.2953234	Data Appear Gamma Distributed					
621												
622	**Lognormal Distribution Test Results**											
623												
624					No NDs	NDs = DL	NDs = DL/2	Log ROS				
625				Correlation Coefficient R	0.9779806	0.9779806	0.9779806	0.9779806				
626												
627					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
628				Shapiro-Wilks (Full: no NDs)	0.9507639	0.818	Data Appear Lognormal					
629				Lilliefors (Full: no NDs)	0.1862453	0.3132483	Data Appear Lognormal					
630	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
631												
632	**Iron (1)**											
633												
634					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
635				Raw Statistics	8	0	8	8	0	0.00%		
636												
637					Number	Minimum	Maximum	Mean	Median	SD		
638				Statistics (Full: no NDs)	8	10800	24000	16825	15800	3816.0376		
639												
640					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
641				Statistics (Full: no NDs)	22.24865	13.98874	756.22564	9.7079796	0.2291686	0.0236062		
642												
643	**Normal Distribution Test Results**											
644												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
645					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
646				Correlation Coefficient R	0.9505655	0.9505655	0.9505655	0.9505655				
647												
648					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
649				Shapiro-Wilks (Full: no NDs)	0.9283891	0.818	Data Appear Normal					
650				Lilliefors (Full: no NDs)	0.2308825	0.3132483	Data Appear Normal					
651												
652	**Gamma Distribution Test Results**											
653												
654					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
655				Correlation Coefficient R	0.9614263	0.9614263	0.9614263	0.9614263				
656												
657					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
658				Anderson-Darling (Full: no NDs)	0.3960513	0.7161283						
659				Kolmogorov-Smirnov (Full: no NDs)	0.2196554	0.2938263	Data Appear Gamma Distributed					
660												
661	**Lognormal Distribution Test Results**											
662												
663					No NDs	NDs = DL	NDs = DL/2	Log ROS				
664				Correlation Coefficient R	0.9519715	0.9519715	0.9519715	0.9519715				
665												
666					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
667				Shapiro-Wilks (Full: no NDs)	0.9322211	0.818	Data Appear Lognormal					
668				Lilliefors (Full: no NDs)	0.2402675	0.3132483	Data Appear Lognormal					
669	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
670												
671	**Iron (2)**											
672												
673					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
674				Raw Statistics	8	0	8	8	0	0.00%		
675												
676					Number	Minimum	Maximum	Mean	Median	SD		
677				Statistics (Full: no NDs)	8	9540	35400	16462.5	13450	9190.103		
678												
679					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
680				Statistics (Full: no NDs)	4.7344402	3.0423585	3477.1798	9.5995297	0.4728501	0.0492576		
681												
682	**Normal Distribution Test Results**											
683												
684					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
685				Correlation Coefficient R	0.8750293	0.8750293	0.8750293	0.8750293				
686												
687					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
688				Shapiro-Wilks (Full: no NDs)	0.7689113	0.818	Data Not Normal					
689				Lilliefors (Full: no NDs)	0.343015	0.3132483	Data Not Normal					
690												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
691	**Gamma Distribution Test Results**											
692												
693					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
694				Correlation Coefficient R	0.9451372	0.9451372	0.9451372	0.9451372				
695												
696					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
697				Anderson-Darling (Full: no NDs)	0.6917759	0.7189372						
698				Kolmogorov-Smirnov (Full: no NDs)	0.3071697	0.2952639	Data appear Approximate Gamma Distribution					
699												
700	**Lognormal Distribution Test Results**											
701												
702					No NDs	NDs = DL	NDs = DL/2	Log ROS				
703				Correlation Coefficient R	0.9274245	0.9274245	0.9274245	0.9274245				
704												
705					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
706				Shapiro-Wilks (Full: no NDs)	0.8528762	0.818	Data Appear Lognormal					
707				Lilliefors (Full: no NDs)	0.2765694	0.3132483	Data Appear Lognormal					
708	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
709												
710	**Lead (1)**											
711												
712					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
713				Raw Statistics	8	0	8	8	0	0.00%		
714												
715					Number	Minimum	Maximum	Mean	Median	SD		
716				Statistics (Full: no NDs)	8	15.95	90	49.50625	49.3	24.004054		
717												
718					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
719				Statistics (Full: no NDs)	4.2279636	2.7258106	11.709242	3.7792023	0.5627611	0.14891		
720												
721	**Normal Distribution Test Results**											
722												
723					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
724				Correlation Coefficient R	0.9886141	0.9886141	0.9886141	0.9886141				
725												
726					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
727				Shapiro-Wilks (Full: no NDs)	0.9761449	0.818	Data Appear Normal					
728				Lilliefors (Full: no NDs)	0.1643498	0.3132483	Data Appear Normal					
729												
730	**Gamma Distribution Test Results**											
731												
732					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
733				Correlation Coefficient R	0.985303	0.985303	0.985303	0.985303				
734												
735					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
736				Anderson-Darling (Full: no NDs)	0.2090254	0.718684						

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
737				Kolmogorov-Smirnov (Full: no NDs)	0.1538008	0.2953095	Data Appear Gamma Distributed					
738												
739	**Lognormal Distribution Test Results**											
740												
741					No NDs	NDs = DL	NDs = DL/2	Log ROS				
742				Correlation Coefficient R	0.9730482	0.9730482	0.9730482	0.9730482				
743												
744					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
745				Shapiro-Wilks (Full: no NDs)	0.9477619	0.818	Data Appear Lognormal					
746				Lilliefors (Full: no NDs)	0.1914784	0.3132483	Data Appear Lognormal					
747	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
748												
749	**Lead (2)**											
750												
751					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
752				Raw Statistics	8	0	8	8	0	0.00%		
753												
754					Number	Minimum	Maximum	Mean	Median	SD		
755				Statistics (Full: no NDs)	8	6.4	27.6	15.2875	14.65	7.3440817		
756												
757					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
758				Statistics (Full: no NDs)	4.7678108	3.0632151	3.2063982	2.6185155	0.5087802	0.194301		
759												
760	**Normal Distribution Test Results**											
761												
762					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
763				Correlation Coefficient R	0.9626495	0.9626495	0.9626495	0.9626495				
764												
765					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
766				Shapiro-Wilks (Full: no NDs)	0.9184743	0.818	Data Appear Normal					
767				Lilliefors (Full: no NDs)	0.2383507	0.3132483	Data Appear Normal					
768												
769	**Gamma Distribution Test Results**											
770												
771					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
772				Correlation Coefficient R	0.9688368	0.9688368	0.9688368	0.9688368				
773												
774					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
775				Anderson-Darling (Full: no NDs)	0.3859327	0.7189539						
776				Kolmogorov-Smirnov (Full: no NDs)	0.2277392	0.2952609	Data Appear Gamma Distributed					
777												
778	**Lognormal Distribution Test Results**											
779												
780					No NDs	NDs = DL	NDs = DL/2	Log ROS				
781				Correlation Coefficient R	0.9712397	0.9712397	0.9712397	0.9712397				
782												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
783					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
784				Shapiro-Wilks (Full: no NDs)	0.932832	0.818	Data Appear Lognormal					
785				Lilliefors (Full: no NDs)	0.2288426	0.3132483	Data Appear Lognormal					
786	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
787												
788	**Magnesium (1)**											
789												
790					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
791				Raw Statistics	8	0	8	8	0	0.00%		
792												
793					Number	Minimum	Maximum	Mean	Median	SD		
794				Statistics (Full: no NDs)	8	930	2565	1755.625	1815	582.58928		
795												
796					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
797				Statistics (Full: no NDs)	9.5764936	6.0686418	183.32649	7.4174613	0.3579449	0.0482571		
798												
799	**Normal Distribution Test Results**											
800												
801					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
802				Correlation Coefficient R	0.9895898	0.9895898	0.9895898	0.9895898				
803												
804					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
805				Shapiro-Wilks (Full: no NDs)	0.962263	0.818	Data Appear Normal					
806				Lilliefors (Full: no NDs)	0.1306743	0.3132483	Data Appear Normal					
807												
808	**Gamma Distribution Test Results**											
809												
810					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
811				Correlation Coefficient R	0.9769937	0.9769937	0.9769937	0.9769937				
812												
813					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
814				Anderson-Darling (Full: no NDs)	0.2269946	0.7153173						
815				Kolmogorov-Smirnov (Full: no NDs)	0.1692182	0.2943613	Data Appear Gamma Distributed					
816												
817	**Lognormal Distribution Test Results**											
818												
819					No NDs	NDs = DL	NDs = DL/2	Log ROS				
820				Correlation Coefficient R	0.9815304	0.9815304	0.9815304	0.9815304				
821												
822					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
823				Shapiro-Wilks (Full: no NDs)	0.9494075	0.818	Data Appear Lognormal					
824				Lilliefors (Full: no NDs)	0.1706661	0.3132483	Data Appear Lognormal					
825	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
826												
827	**Magnesium (2)**											
828												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
829					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
830				Raw Statistics	8	0	8	8	0	0.00%		
831												
832					Number	Minimum	Maximum	Mean	Median	SD		
833				Statistics (Full: no NDs)	8	999	10600	3437.375	1425	3983.6922		
834												
835					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
836				Statistics (Full: no NDs)	1.182846	0.8226121	2906.0207	7.6635393	0.9593653	0.1251857		
837												
838				**Normal Distribution Test Results**								
839												
840					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
841				Correlation Coefficient R	0.8016325	0.8016325	0.8016325	0.8016325				
842												
843					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
844				Shapiro-Wilks (Full: no NDs)	0.6381581	0.818	Data Not Normal					
845				Lilliefors (Full: no NDs)	0.4276811	0.3132483	Data Not Normal					
846												
847				**Gamma Distribution Test Results**								
848												
849					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
850				Correlation Coefficient R	0.9158886	0.9158886	0.9158886	0.9158886				
851												
852					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
853				Anderson-Darling (Full: no NDs)	1.3366038	0.7329109						
854				Kolmogorov-Smirnov (Full: no NDs)	0.4104261	0.3005238	Data Not Gamma Distributed					
855												
856				**Lognormal Distribution Test Results**								
857												
858					No NDs	NDs = DL	NDs = DL/2	Log ROS				
859				Correlation Coefficient R	0.8570475	0.8570475	0.8570475	0.8570475				
860												
861					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
862				Shapiro-Wilks (Full: no NDs)	0.7239533	0.818	Data Not Lognormal					
863				Lilliefors (Full: no NDs)	0.3671045	0.3132483	Data Not Lognormal					
864	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
865												
866	**Manganese (1)**											
867												
868					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
869				Raw Statistics	8	0	8	8	0	0.00%		
870												
871					Number	Minimum	Maximum	Mean	Median	SD		
872				Statistics (Full: no NDs)	8	129	17400	2789.9375	372	5964.3462		
873												
874					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
875				Statistics (Full: no NDs)	0.4434205	0.3604711	6291.8552	6.4740441	1.651266	0.2550594		
876												
877	**Normal Distribution Test Results**											
878												
879					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
880				Correlation Coefficient R	0.7020213	0.7020213	0.7020213	0.7020213				
881												
882					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
883				Shapiro-Wilks (Full: no NDs)	0.5201057	0.818	Data Not Normal					
884				Lilliefors (Full: no NDs)	0.3816843	0.3132483	Data Not Normal					
885												
886	**Gamma Distribution Test Results**											
887												
888					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
889				Correlation Coefficient R	0.9506623	0.9506623	0.9506623	0.9506623				
890												
891					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
892				Anderson-Darling (Full: no NDs)	0.9434891	0.7722403						
893				Kolmogorov-Smirnov (Full: no NDs)	0.2845279	0.3112419	Data appear Approximate Gamma Distribution					
894												
895	**Lognormal Distribution Test Results**											
896												
897					No NDs	NDs = DL	NDs = DL/2	Log ROS				
898				Correlation Coefficient R	0.9361376	0.9361376	0.9361376	0.9361376				
899												
900					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
901				Shapiro-Wilks (Full: no NDs)	0.8775386	0.818	Data Appear Lognormal					
902				Lilliefors (Full: no NDs)	0.2056952	0.3132483	Data Appear Lognormal					
903	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
904												
905	**Manganese (2)**											
906												
907					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
908				Raw Statistics	8	0	8	8	0	0.00%		
909												
910					Number	Minimum	Maximum	Mean	Median	SD		
911				Statistics (Full: no NDs)	8	376	759	513.8125	506.25	134.85281		
912												
913					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
914				Statistics (Full: no NDs)	17.390479	10.952382	29.545622	6.2128316	0.2555638	0.0411348		
915												
916	**Normal Distribution Test Results**											
917												
918					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
919				Correlation Coefficient R	0.959943	0.959943	0.959943	0.959943				
920												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
921					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
922				Shapiro-Wilks (Full: no NDs)	0.9114665	0.818	Data Appear Normal					
923				Lilliefors (Full: no NDs)	0.1995801	0.3132483	Data Appear Normal					
924												
925	**Gamma Distribution Test Results**											
926												
927					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
928				Correlation Coefficient R	0.9774497	0.9774497	0.9774497	0.9774497				
929												
930					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
931				Anderson-Darling (Full: no NDs)	0.3384953	0.7159086						
932				Kolmogorov-Smirnov (Full: no NDs)	0.2251466	0.2939696	Data Appear Gamma Distributed					
933												
934	**Lognormal Distribution Test Results**											
935												
936					No NDs	NDs = DL	NDs = DL/2	Log ROS				
937				Correlation Coefficient R	0.9678444	0.9678444	0.9678444	0.9678444				
938												
939					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
940				Shapiro-Wilks (Full: no NDs)	0.9203157	0.818	Data Appear Lognormal					
941				Lilliefors (Full: no NDs)	0.2127801	0.3132483	Data Appear Lognormal					
942	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
943												
944	**Nickel (1)**											
945												
946					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
947				Raw Statistics	8	0	8	8	0	0.00%		
948												
949					Number	Minimum	Maximum	Mean	Median	SD		
950				Statistics (Full: no NDs)	8	5.5	28.4	11.85	9.85	7.233059		
951												
952					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
953				Statistics (Full: no NDs)	4.1231694	2.6603142	2.8740027	2.3461882	0.511122	0.2178521		
954												
955	**Normal Distribution Test Results**											
956												
957					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
958				Correlation Coefficient R	0.867243	0.867243	0.867243	0.867243				
959												
960					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
961				Shapiro-Wilks (Full: no NDs)	0.7733785	0.818	Data Not Normal					
962				Lilliefors (Full: no NDs)	0.290159	0.3132483	Data Appear Normal					
963												
964	**Gamma Distribution Test Results**											
965												
966					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
967				Correlation Coefficient R	0.9372696	0.9372696	0.9372696	0.9372696				
968												
969					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
970				Anderson-Darling (Full: no NDs)	0.4357516	0.7186316						
971				Kolmogorov-Smirnov (Full: no NDs)	0.2129148	0.2953189	Data Appear Gamma Distributed					
972												
973	**Lognormal Distribution Test Results**											
974												
975					No NDs	NDs = DL	NDs = DL/2	Log ROS				
976				Correlation Coefficient R	0.9591199	0.9591199	0.9591199	0.9591199				
977												
978					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
979				Shapiro-Wilks (Full: no NDs)	0.9303641	0.818	Data Appear Lognormal					
980				Lilliefors (Full: no NDs)	0.1880251	0.3132483	Data Appear Lognormal					
981	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
982												
983	**Nickel (2)**											
984												
985					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
986				Raw Statistics	8	0	8	8	0	0.00%		
987												
988					Number	Minimum	Maximum	Mean	Median	SD		
989				Statistics (Full: no NDs)	8	6.8	22.7	12.45	9.9	5.739089		
990												
991					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
992				Statistics (Full: no NDs)	6.0661058	3.8746494	2.0523876	2.4370369	0.4300306	0.1764563		
993												
994	**Normal Distribution Test Results**											
995												
996					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
997				Correlation Coefficient R	0.9351173	0.9351173	0.9351173	0.9351173				
998												
999					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1000				Shapiro-Wilks (Full: no NDs)	0.8655729	0.818	Data Appear Normal					
1001				Lilliefors (Full: no NDs)	0.2839036	0.3132483	Data Appear Normal					
1002												
1003	**Gamma Distribution Test Results**											
1004												
1005					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1006				Correlation Coefficient R	0.9720687	0.9720687	0.9720687	0.9720687				
1007												
1008					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1009				Anderson-Darling (Full: no NDs)	0.4300774	0.7181958						
1010				Kolmogorov-Smirnov (Full: no NDs)	0.2655048	0.2950353	Data Appear Gamma Distributed					
1011												
1012	**Lognormal Distribution Test Results**											

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1013												
1014					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1015				Correlation Coefficient R	0.968274	0.968274	0.968274	0.968274				
1016												
1017					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1018				Shapiro-Wilks (Full: no NDs)	0.9244616	0.818	Data Appear Lognormal					
1019				Lilliefors (Full: no NDs)	0.2389073	0.3132483	Data Appear Lognormal					
1020	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1021												
1022	**Potassium (1)**											
1023												
1024					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1025				Raw Statistics	8	0	8	8	0	0.00%		
1026												
1027					Number	Minimum	Maximum	Mean	Median	SD		
1028				Statistics (Full: no NDs)	8	356	1490	843.875	892.5	412.73839		
1029												
1030					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1031				Statistics (Full: no NDs)	4.2944257	2.7673494	196.50474	6.6170796	0.5457746	0.0824797		
1032												
1033	**Normal Distribution Test Results**											
1034												
1035					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1036				Correlation Coefficient R	0.968445	0.968445	0.968445	0.968445				
1037												
1038					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1039				Shapiro-Wilks (Full: no NDs)	0.9214575	0.818	Data Appear Normal					
1040				Lilliefors (Full: no NDs)	0.2104932	0.3132483	Data Appear Normal					
1041												
1042	**Gamma Distribution Test Results**											
1043												
1044					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1045				Correlation Coefficient R	0.9655514	0.9655514	0.9655514	0.9655514				
1046												
1047					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1048				Anderson-Darling (Full: no NDs)	0.4480268	0.7187172						
1049				Kolmogorov-Smirnov (Full: no NDs)	0.2295509	0.2953035	Data Appear Gamma Distributed					
1050												
1051	**Lognormal Distribution Test Results**											
1052												
1053					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1054				Correlation Coefficient R	0.954834	0.954834	0.954834	0.954834				
1055												
1056					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1057				Shapiro-Wilks (Full: no NDs)	0.8911615	0.818	Data Appear Lognormal					
1058				Lilliefors (Full: no NDs)	0.2478165	0.3132483	Data Appear Lognormal					

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Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1059	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1060												
1061	**Potassium (2)**											
1062												
1063					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1064				Raw Statistics	8	0	8	7	1	12.50%		
1065												
1066					Number	Minimum	Maximum	Mean	Median	SD		
1067				Statistics (Detects Only)	7	514	2330	1164.2857	775	807.6979		
1068				Statistics (All: NDs treated as DL value)	8	467	2330	1077.125	748	787.37238		
1069				Statistics (All: NDs treated as DL/2 value)	8	233.5	2330	1047.9375	748	816.99119		
1070				Statistics (Normal ROS Estimated Data)	8	-666.3821	2330	935.45224	748	988.98808		
1071				Statistics (Gamma ROS Estimated Data)	8	0.000001	2330	1018.75	748	853.59504		
1072				Statistics (Lognormal ROS Estimated Data)	8	214.61284	2330	1045.5766	748	819.70371		
1073												
1074					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1075				Statistics (Detects Only)	2.8807296	1.8837894	404.16348	6.8763689	0.6303486	0.0916688		
1076				Statistics (NDs = DL)	2.6939211	1.767034	399.83539	6.7851139	0.6381194	0.094047		
1077				Statistics (NDs = DL/2)	2.1037777	1.3981944	498.12178	6.6984705	0.7705577	0.1150349		
1078				Statistics (Gamma ROS Estimates)	0.2666211	0.2499715	3820.965	--	--	--		
1079				Statistics (Lognormal ROS Estimates)	--	--	--	6.6879272	0.7903535	0.1181762		
1080												
1081	**Normal Distribution Test Results**											
1082												
1083					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1084				Correlation Coefficient R	0.8690234	0.8578229	0.8896542	0.9352809				
1085												
1086					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1087				Shapiro-Wilks (Detects Only)	0.7354831	0.803	Data Not Normal					
1088				Lilliefors (Detects Only)	0.3326581	0.3348765	Data Appear Normal					
1089				Shapiro-Wilks (NDs = DL)	0.7204476	0.818	Data Not Normal					
1090				Lilliefors (NDs = DL)	0.3285894	0.3132483	Data Not Normal					
1091				Shapiro-Wilks (NDs = DL/2)	0.7803891	0.818	Data Not Normal					
1092				Lilliefors (NDs = DL/2)	0.3117359	0.3132483	Data Appear Normal					
1093				Shapiro-Wilks (Normal ROS Estimates)	0.8796523	0.818	Data Appear Normal					
1094				Lilliefors (Normal ROS Estimates)	0.2558296	0.3132483	Data Appear Normal					
1095												
1096	**Gamma Distribution Test Results**											
1097												
1098					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1099				Correlation Coefficient R	0.9123741	0.9151705	0.9289682	0.8511668				
1100												
1101					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1102				Anderson-Darling (Detects Only)	0.7435452	0.712522						
1103				Kolmogorov-Smirnov (Detects Only)	0.2863575	0.3138858	Data appear Approximate Gamma Distribution					
1104				Anderson-Darling (NDs = DL)	0.8109583	0.7222352						

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1105				Kolmogorov-Smirnov (NDs = DL)	0.2673358	0.2966551	Data appear Approximate Gamma Distribution					
1106				Anderson-Darling (NDs = DL/2)	0.5020037	0.7237106						
1107				Kolmogorov-Smirnov (NDs = DL/2)	0.229766	0.2973396	Data Appear Gamma Distributed					
1108				Anderson-Darling (Gamma ROS Estimates)	2.0455093	0.8101509						
1109				Kolmogorov-Smirnov (Gamma ROS Est.)	0.5058881	0.3190729	Data Not Gamma Distributed					
1110												
1111	**Lognormal Distribution Test Results**											
1112												
1113					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1114				Correlation Coefficient R	0.9245818	0.9240442	0.9632922	0.9626632				
1115												
1116					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1117				Shapiro-Wilks (Detects Only)	0.8327662	0.803	Data Appear Lognormal					
1118				Lilliefors (Detects Only)	0.2464705	0.3348765	Data Appear Lognormal					
1119				Shapiro-Wilks (NDs = DL)	0.8342186	0.818	Data Appear Lognormal					
1120				Lilliefors (NDs = DL)	0.224793	0.3132483	Data Appear Lognormal					
1121				Shapiro-Wilks (NDs = DL/2)	0.9257106	0.818	Data Appear Lognormal					
1122				Lilliefors (NDs = DL/2)	0.1845499	0.3132483	Data Appear Lognormal					
1123				Shapiro-Wilks (Lognormal ROS Estimates)	0.9263132	0.818	Data Appear Lognormal					
1124				Lilliefors (Lognormal ROS Estimates)	0.1809271	0.3132483	Data Appear Lognormal					
1125	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1126												
1127	**Vanadium (1)**											
1128												
1129					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1130				Raw Statistics	8	0	8	8	0	0.00%		
1131												
1132					Number	Minimum	Maximum	Mean	Median	SD		
1133				Statistics (Full: no NDs)	8	17	36.5	25.69375	26.35	5.6257341		
1134												
1135					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1136				Statistics (Full: no NDs)	23.952564	15.053686	1.0726931	3.225228	0.2204856	0.0683628		
1137												
1138	**Normal Distribution Test Results**											
1139												
1140					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1141				Correlation Coefficient R	0.949275	0.949275	0.949275	0.949275				
1142												
1143					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1144				Shapiro-Wilks (Full: no NDs)	0.9265696	0.818	Data Appear Normal					
1145				Lilliefors (Full: no NDs)	0.2626235	0.3132483	Data Appear Normal					
1146												
1147	**Gamma Distribution Test Results**											
1148												
1149					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1150				Correlation Coefficient R	0.9555596	0.9555596	0.9555596	0.9555596				

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1151												
1152					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1153				Anderson-Darling (Full: no NDs)	0.3758301	0.7160437						
1154				Kolmogorov-Smirnov (Full: no NDs)	0.2315729	0.2938007	Data Appear Gamma Distributed					
1155												
1156	**Lognormal Distribution Test Results**											
1157												
1158					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1159				Correlation Coefficient R	0.9568416	0.9568416	0.9568416	0.9568416				
1160												
1161					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1162				Shapiro-Wilks (Full: no NDs)	0.9398857	0.818	Data Appear Lognormal					
1163				Lilliefors (Full: no NDs)	0.2305576	0.3132483	Data Appear Lognormal					
1164	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1165												
1166	**Vanadium (2)**											
1167												
1168					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1169				Raw Statistics	8	0	8	8	0	0.00%		
1170												
1171					Number	Minimum	Maximum	Mean	Median	SD		
1172				Statistics (Full: no NDs)	8	7.9	52.6	22.64375	15.5	16.370257		
1173												
1174					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1175				Statistics (Full: no NDs)	2.5832753	1.6978804	8.7655194	2.914019	0.6687614	0.2294979		
1176												
1177	**Normal Distribution Test Results**											
1178												
1179					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1180				Correlation Coefficient R	0.9071569	0.9071569	0.9071569	0.9071569				
1181												
1182					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1183				Shapiro-Wilks (Full: no NDs)	0.8167649	0.818	Data Not Normal					
1184				Lilliefors (Full: no NDs)	0.2401007	0.3132483	Data Appear Normal					
1185												
1186	**Gamma Distribution Test Results**											
1187												
1188					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1189				Correlation Coefficient R	0.9687223	0.9687223	0.9687223	0.9687223				
1190												
1191					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1192				Anderson-Darling (Full: no NDs)	0.5122097	0.7225118						
1193				Kolmogorov-Smirnov (Full: no NDs)	0.2528548	0.2967834	Data Appear Gamma Distributed					
1194												
1195	**Lognormal Distribution Test Results**											
1196												

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1197					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1198				Correlation Coefficient R	0.9615996	0.9615996	0.9615996	0.9615996				
1199												
1200					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1201				Shapiro-Wilks (Full: no NDs)	0.9142947	0.818	Data Appear Lognormal					
1202				Lilliefors (Full: no NDs)	0.2313616	0.3132483	Data Appear Lognormal					
1203	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1204												
1205	**Zinc (1)**											
1206												
1207					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1208				Raw Statistics	8	0	8	8	0	0.00%		
1209												
1210					Number	Minimum	Maximum	Mean	Median	SD		
1211				Statistics (Full: no NDs)	8	25	269	87.36875	66.65	78.308415		
1212												
1213					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1214				Statistics (Full: no NDs)	1.9878643	1.3257485	43.951063	4.1980045	0.7643385	0.1820719		
1215												
1216	**Normal Distribution Test Results**											
1217												
1218					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1219				Correlation Coefficient R	0.8472786	0.8472786	0.8472786	0.8472786				
1220												
1221					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1222				Shapiro-Wilks (Full: no NDs)	0.7393926	0.818	Data Not Normal					
1223				Lilliefors (Full: no NDs)	0.2864703	0.3132483	Data Appear Normal					
1224												
1225	**Gamma Distribution Test Results**											
1226												
1227					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1228				Correlation Coefficient R	0.9482503	0.9482503	0.9482503	0.9482503				
1229												
1230					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1231				Anderson-Darling (Full: no NDs)	0.4227818	0.724078						
1232				Kolmogorov-Smirnov (Full: no NDs)	0.201806	0.297495	Data Appear Gamma Distributed					
1233												
1234	**Lognormal Distribution Test Results**											
1235												
1236					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1237				Correlation Coefficient R	0.9642852	0.9642852	0.9642852	0.9642852				
1238												
1239					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1240				Shapiro-Wilks (Full: no NDs)	0.9341311	0.818	Data Appear Lognormal					
1241				Lilliefors (Full: no NDs)	0.1728062	0.3132483	Data Appear Lognormal					
1242	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Table K-10
Sediment Distributional Analysis
Site 12, NAS JRB, Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
1243												
1244	**Zinc (2)**											
1245												
1246					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1247				Raw Statistics	8	0	8	8	0	0.00%		
1248												
1249					Number	Minimum	Maximum	Mean	Median	SD		
1250				Statistics (Full: no NDs)	8	25.4	97.6	51.16875	45.4	25.635173		
1251												
1252					K Hat	K Star	Theta Hat	Log Mean	Log Stdv	Log CV		
1253				Statistics (Full: no NDs)	5.0420656	3.2346243	10.148371	3.832698	0.4772292	0.1245152		
1254												
1255				**Normal Distribution Test Results**								
1256												
1257					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1258				Correlation Coefficient R	0.9454204	0.9454204	0.9454204	0.9454204				
1259												
1260					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1261				Shapiro-Wilks (Full: no NDs)	0.885626	0.818	Data Appear Normal					
1262				Lilliefors (Full: no NDs)	0.2378438	0.3132483	Data Appear Normal					
1263												
1264				**Gamma Distribution Test Results**								
1265												
1266					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1267				Correlation Coefficient R	0.9806687	0.9806687	0.9806687	0.9806687				
1268												
1269					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1270				Anderson-Darling (Full: no NDs)	0.3054223	0.7190355						
1271				Kolmogorov-Smirnov (Full: no NDs)	0.177393	0.2952319	Data Appear Gamma Distributed					
1272												
1273				**Lognormal Distribution Test Results**								
1274												
1275					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1276				Correlation Coefficient R	0.981306	0.981306	0.981306	0.981306				
1277												
1278					Test value	it. (0.050000	Conclusion with Alpha(0.0500000)					
1279				Shapiro-Wilks (Full: no NDs)	0.9484694	0.818	Data Appear Lognormal					
1280				Lilliefors (Full: no NDs)	0.1526908	0.3132483	Data Appear Lognormal					
1281	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Appendix K, Part 2

Lead Modeling Risks

NAS JRB Willow Grove, Pennsylvania

LEAD MODEL FOR WINDOWS Version 1.1

==========
Model Version: 1.1 Build11
User Name: Tetra Tech
Date: 9/12/2012
Site Name: Site 12, NAS JRB Willow Grove, PA
Operable Unit: Surface Soil Residential Child Exposure
Run Mode: Site Risk Assessment

 # Soil/Dust Data
Surface Soil Exposure to Residential Child
 # Blood lead vs. Media Concentration
Surface Soil Residential Child Exposure
 # GSD, Cutoff and Age Type
Surface Soil Residential Child Exposure
==========

******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 60.400 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	72.000	60.400
1-2	72.000	60.400
2-3	72.000	60.400
3-4	72.000	60.400
4-5	72.000	60.400
5-6	72.000	60.400
6-7	72.000	60.400

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

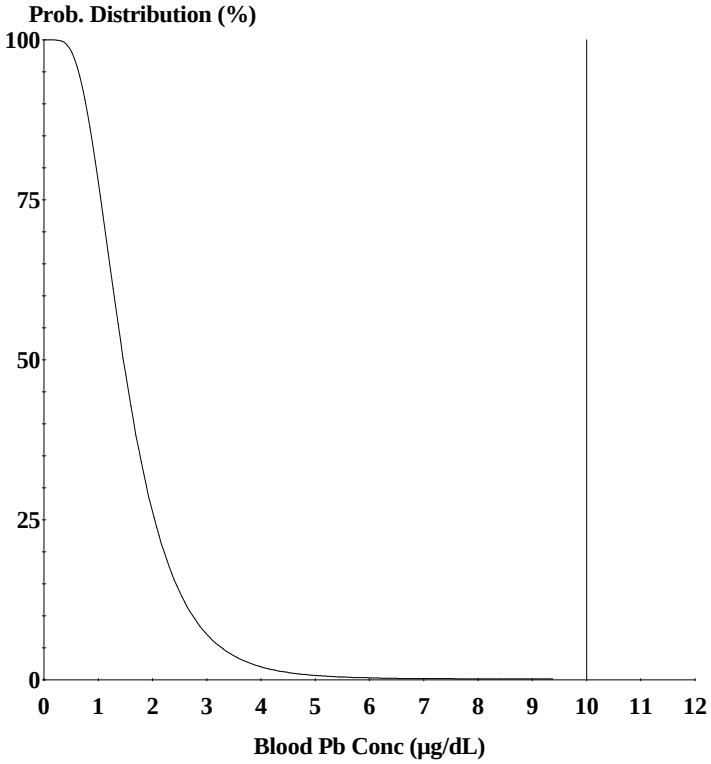
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.091	0.000	0.386
1-2	0.034	0.943	0.000	0.962
2-3	0.062	1.029	0.000	1.005
3-4	0.067	0.991	0.000	1.030
4-5	0.067	0.954	0.000	1.077
5-6	0.093	1.006	0.000	1.138
6-7	0.093	1.091	0.000	1.160

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	1.616	3.114	1.7
1-2	2.556	4.495	1.9
2-3	2.569	4.665	1.7
3-4	2.581	4.669	1.6
4-5	1.927	4.024	1.4
5-6	1.739	3.977	1.3
6-7	1.645	3.989	1.1



Cutoff = 10.000 µg/dl
Geo Mean = 1.535
GSD = 1.600
% Above = 0.003

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment

LEAD MODEL FOR WINDOWS Version 1.1

==========
Model Version: 1.1 Build11
User Name: Tetra Tech
Date: 9/12/2012
Site Name: Site 12, NAS JRB Willow Grove, PA
Operable Unit: Surface Soil, Recreational Child Exposure
Run Mode: Site Risk Assessment

#All default values

==========

******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

******** Soil & Dust ********

Multiple Source Analysis Used
Average multiple source concentration: 111.500 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	145.000	111.500
1-2	145.000	111.500
2-3	145.000	111.500
3-4	145.000	111.500
4-5	145.000	111.500
5-6	145.000	111.500
6-7	145.000	111.500

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

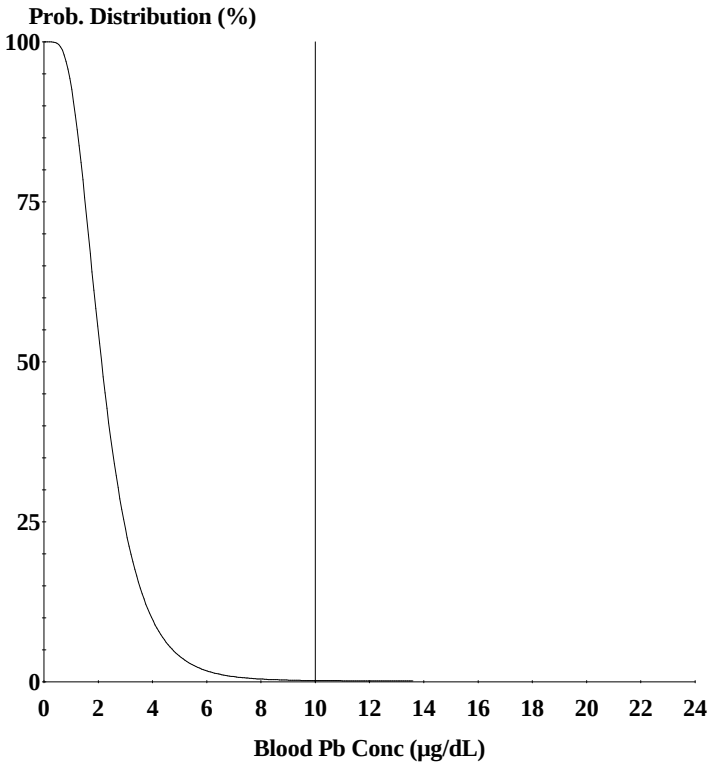
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.073	0.000	0.380
1-2	0.034	0.924	0.000	0.943
2-3	0.062	1.012	0.000	0.988
3-4	0.067	0.976	0.000	1.015
4-5	0.067	0.945	0.000	1.066
5-6	0.093	0.998	0.000	1.130
6-7	0.093	1.084	0.000	1.152

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	3.066	4.541	2.5
1-2	4.834	6.736	2.8
2-3	4.871	6.933	2.6
3-4	4.907	6.965	2.5
4-5	3.681	5.759	2.0
5-6	3.328	5.550	1.8
6-7	3.151	5.481	1.6



Cutoff = 10.000 µg/dl
Geo Mean = 2.225
GSD = 1.600
% Above = 0.069

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment

LEAD MODEL FOR WINDOWS Version 1.1

==========
Model Version: 1.1 Build11
User Name: Tetra Tech
Date: 9/12/2012
Site Name: Site 12, NAS JRB Willow Grove
Operable Unit: Total Soil, Child Resident Exposure
Run Mode: Site Risk Assessment

#All default values

==========

******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

******** Soil & Dust ********

Multiple Source Analysis Used
Average multiple source concentration: 139.500 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	185.000	139.500
1-2	185.000	139.500
2-3	185.000	139.500
3-4	185.000	139.500
4-5	185.000	139.500
5-6	185.000	139.500
6-7	185.000	139.500

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

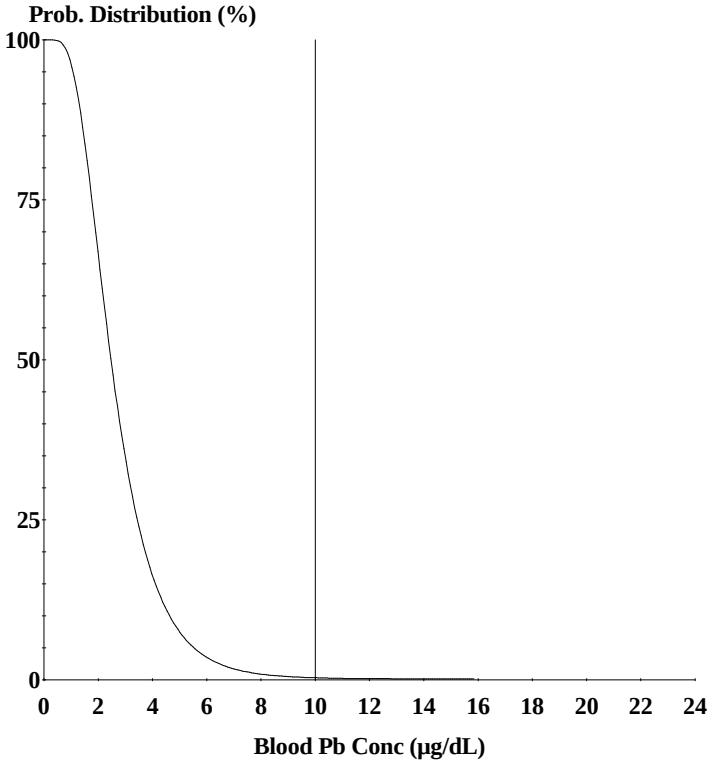
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.064	0.000	0.377
1-2	0.034	0.914	0.000	0.933
2-3	0.062	1.003	0.000	0.979
3-4	0.067	0.969	0.000	1.007
4-5	0.067	0.940	0.000	1.061
5-6	0.093	0.994	0.000	1.125
6-7	0.093	1.080	0.000	1.148

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	3.841	5.303	2.9
1-2	6.045	7.927	3.3
2-3	6.101	8.145	3.0
3-4	6.153	8.195	2.9
4-5	4.628	6.696	2.4
5-6	4.189	6.402	2.0
6-7	3.969	6.290	1.8



Cutoff = 10.000 µg/dl
Geo Mean = 2.593
GSD = 1.600
% Above = 0.204

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment

LEAD MODEL FOR WINDOWS Version 1.1

==========
Model Version: 1.1 Build11
User Name: Tetra Tech
Date: 9/12/2012
Site Name: Site 12, NAS JRB Willow Grove
Operable Unit: Total Soil, Recreational Child
Run Mode: Site Risk Assessment

#All default values

==========

******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

******** Soil & Dust ********

Multiple Source Analysis Used
Average multiple source concentration: 145.800 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	194.000	145.800
1-2	194.000	145.800
2-3	194.000	145.800
3-4	194.000	145.800
4-5	194.000	145.800
5-6	194.000	145.800
6-7	194.000	145.800

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

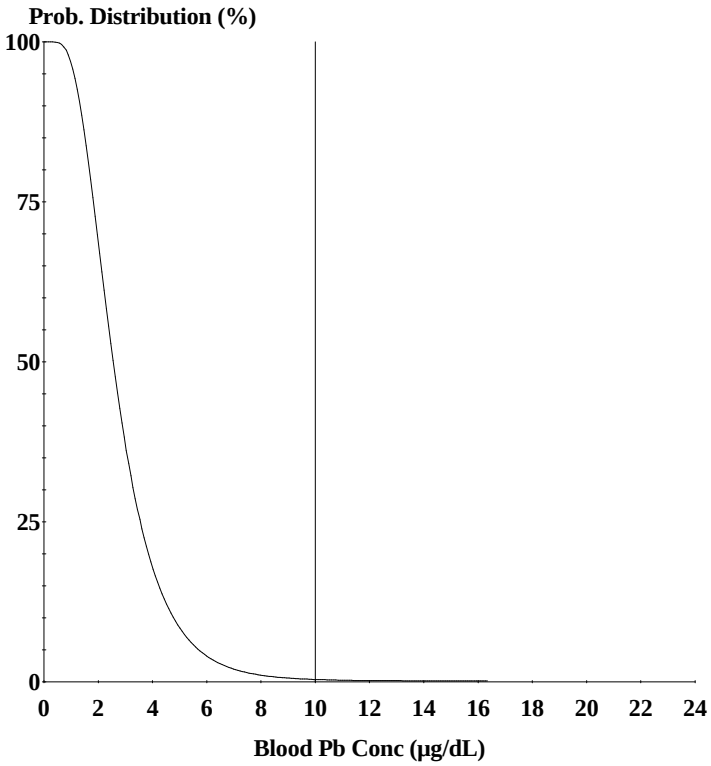
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.062	0.000	0.376
1-2	0.034	0.912	0.000	0.931
2-3	0.062	1.001	0.000	0.977
3-4	0.067	0.967	0.000	1.005
4-5	0.067	0.939	0.000	1.060
5-6	0.093	0.993	0.000	1.124
6-7	0.093	1.079	0.000	1.147

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	4.014	5.473	3.0
1-2	6.314	8.192	3.4
2-3	6.374	8.414	3.1
3-4	6.431	8.469	3.0
4-5	4.840	6.906	2.5
5-6	4.382	6.593	2.1
6-7	4.152	6.471	1.9



Cutoff = 10.000 µg/dl
Geo Mean = 2.675
GSD = 1.600
% Above = 0.251

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment

Appendix K, Table K-11
Calculations of Blood Lead Concentrations, USEPA TRW Adult Lead Model, Version 06/21/09
Current/Future Industrial Worker, Surface Soil at Site 12
Reasonable Maximum Exposure
NAS JRB Willow Grove, Willow Grove, Pennsylvania

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	72
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.100
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	250
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.9
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.009%**

Appendix K, Table K-12
Calculations of Blood Lead Concentrations, USEPA TRW Adult Lead Model, Version 06/21/09
Future Industrial Worker, Total Soil at Site 12
Reasonable Maximum Exposure
NAS JRB Willow Grove, Willow Grove, Pennsylvania

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	185
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.100
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	250
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.6**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	3.8
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.1%**

Appendix K, Table K-13
Calculations of Blood Lead Concentrations, USEPA TRW Adult Lead Model, Version 06/21/09
Future Construction Worker, Total Soil at Site 12
Reasonable Maximum Exposure
NAS JRB Willow Grove, Willow Grove, Pennsylvania

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	185
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.330
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	250 **
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**3.0**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	7.1
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**1.3%**

** 250 days / year is an annualized exposure frequency based on 5 days / week. Quasi-steady state conditions for blood lead levels are assumed to occur within a 6 month period assumed for construction work exposure duration.

Appendix K, Part 3

Groundwater Exposure Support Calculations

NAS JRB Willow Grove, Pennsylvania

APPENDIX K, TABLE K-14
CHEMICAL-SPECIFIC PARAMETERS FOR EXPOSURE TO WATER
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL-SPECIFIC PARAMETERS FOR DERMAL CONTACT WITH WATER						
COPC	**Permeability Coefficient (Kp)**	**Tau (hr)**	**T* (hr)**	**B**	**FA**	**Source of Dermal Parameters**
ORGANIC COMPOUNDS						
2,3,7,8-TCDD TE (as 2,3,7,8-TCDD)	8.10E-01	6.82E+00	3.01E+01	5.60E+00	5.00E-01	EPA, 2004
CARBON TETRACHLORIDE	1.60E-02	7.80E-01	1.86E+00	1.00E-01	1.00E+00	EPA, 2004
CHLOROFORM	6.80E-03	5.00E-01	1.19E+00	0.00E+00	1.00E+00	EPA, 2004
TRICHLOROETHENE	1.20E-02	5.80E-01	1.39E+00	1.00E-01	1.00E+00	EPA, 2004
INORGANIC SUBSTANCES						
ALUMINUM	1.E-03	N/A	N/A	N/A	N/A	EPA, 2004
ARSENIC	1.E-03	N/A	N/A	N/A	N/A	EPA, 2004
BARIUM	1.E-03	N/A	N/A	N/A	N/A	EPA, 2004
CHROMIUM	2.E-03	N/A	N/A	N/A	N/A	EPA, 2004
COBALT	4.E-04	N/A	N/A	N/A	N/A	EPA, 2004
IRON	1.E-03	N/A	N/A	N/A	N/A	EPA, 2004
MANGANESE	1.E-03	N/A	N/A	N/A	N/A	EPA, 2004
VANADIUM	1.E-03	N/A	N/A	N/A	N/A	EPA, 2004

Notes:
Permeability constant and other dermal absorption parameters (Tau, T*, B, and FA) from tables and equations in EPA, 2004.

CHEMICAL-SPECIFIC PARAMETERS FOR SHOWERING INHALATION AND OUTDOOR VOLATILIZATION						
COPC	**Molecular Weight (g/mol)**	**Henry's Law at 25°C (l*atm/mol)**	**Henry's Law at 45°C (l*atm/mol)**	**Source of Shower Parameters**	**Diffusion Constant for Air**	**Diffusion Constant for Water**
CARBON TETRACHLORIDE	153.82	3.131E-02	6.72E-02	EPA, 2001	5.7144E-02	9.7849E-06
CHLOROFORM	119.38	3.66E-03	7.82E-03	EPA, 2001	7.6920E-02	1.0900E-05
TRICHLOROETHENE	131.39	9.822E-03	2.42E-02	EPA, 2001	6.8662E-02	1.0200E-05

Notes:
Henry's Law constants and diffusion constants for air and water obtained from EPA RSL parameters table (November, 2013).
Henry's Law constant at 45 degrees converted using data and formulas presented in the following references:

Sander, Rolf, 1999. Compilation of Henry's Law Constants for Inorganic and Organic Species of Potential Importance in Environmental Chemistry. Internet Website: http://www.mpch-mainz.mpg.de/~sander/res/henry.html. Air Chemistry Department. Max-Planck Institute of Chemistry. PO Box 3060. 55020 Mainz, Germany. Version 3: April 8.

EPA, 2001. Fact Sheet. Correcting the Henry's Law Constant for Soil Temperature. from website: http://www.epa.gov/superfund/programs/risk/airmodel/factsheet.pdf

APPENDIX K, TABLE K-15a

CALCULATION CHECK - ADULT RESIDENT CANCER RISK FROM INHALATION OF SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Inhalation of Vapors During Showering	ICR	Incremental Cancer Risk from cumulative exposure	1.6277E-07	unitless probability	USEPA, 2009	ICR = EC (mg/m3) x (IUR (ug/m3)$^{-1}$) x (1000 ug/mg) x (ADAF)
				ADAF	Age-Dependent Adjustment Factor for mutagenic substances	1.8333	unitless	Calculated	where ADAF = [(3 x 10 yrs) + (1 x 14 yrs)] / (10+14 yrs)
				IUR	Inhalation Unit Risk for cancer toxicity (mutagenic component of risk)	1.00E-06	(ug/m3)$^{-1}$	IRIS, 2012	
				EC	Exposure Concentration	8.87832E-05	mg/m3	USEPA, 2009	EC (mg/m3) = (EC-event x ET x EF x ED) / (AT)
				EF	Exposure Frequency	350	days/year	USEPA, 2004	(Exposure Concentration equivalent to continuous exposure over averaging period)
				ED	Exposure Duration	24	years	USEPA, 2004	where:
				AT-C	Averaging Time (Cancer)	613200	hours	USEPA, 2009	AT-C = 24 hrs/day x 365 days/yr x 70 years
				AT-N	Averaging Time (Non-Cancer)	210240	hours	USEPA, 2009	AT-N = 24 hrs/day x 365 days/yr x ED yrs
				ET	Exposure Time	1	hours/day	USEPA, 2009	ET (hours/day) = (Dt min/shower / (60 min/hr)) x (1 shower / day)
				EC-event	Exposure Concentration equivalent to steady exposure during 1 shower	0.006481176	mg/m3	USEPA, 2009	EC-event (mg/m3) = (S x Q) / (Ra x CF1 x Dt)
				CF1	Conversion Factor	1000	ug/mg		(Exposure Concentration equivalent to steady exposure during one shower event)
				Q	Function of Air Exchange Rate & Time in Shower & Shower Room	15.68301517	min	Calculated	where: Q = Ds + [(exp(-Ra x Dt))/Ra] - [(exp(Ra x (Ds - Dt)))/Ra]
				Ds	Duration of Shower	30	min	USEPA, 2006	
				Dt	Total Time in Shower Room (considered the Micro-Event Time - ET)	60	min	USEPA, 2006	
				Ra	Rate of Air Exchange	0.01667	1/min	Fos&Chr, 1987	
				S	Indoor VOC Generation Rate	0.413343478	ug/m3/min	Fos&Chr, 1987	where: S = CWD x FR/SV
				FR	Shower Flow Rate	10	l/min	USEPA, 2006	
				SV	Shower Room Air Volume	12	m3	USEPA, 2006	
				CWD	Chemical Concentration Leaving Water Droplet after time ts	0.496012174	ug/l	Fos&Chr, 1987	where: CWD = CW x {1-exp[-KaL x ts x (6/d) x CF2 x CF3]}
				CW	Trichloroethene Concentration in Groundwater	4.1	ug/l	RAGS D Table 3	
				CF2	Conversion Factor	1/3600	hr/sec		
				CF3	Conversion Factor	10	mm/cm		
				ts	Shower Droplet Time	0.5	sec	USEPA, 2006	
				d	Shower Droplet Diameter	1	mm	Fos&Chr, 1987	
				KaL	Adjusted overall mass transfer coefficient	15.47352142	cm/hr	Fos&Chr, 1987	where: KaL = KL/SQRT[(T1 x us)/(Ts x u1)]
				T1	Calibration Water Temperature of KL	293	K	Fos&Chr, 1987	
				Ts	Shower Water Temperature	318	K	Fos&Chr, 1987	
				u1	Water Viscosity at T1	1.002	centipose	Fos&Chr, 1987	
				us	Water Viscosity at Ts	0.596	centipose	Fos&Chr, 1987	

APPENDIX K, TABLE K-15a

CALCULATION CHECK - ADULT RESIDENT CANCER RISK FROM INHALATION OF SITE 12 GROUNDWATER

REASONABLE MAXIMUM EXPOSURE

NAS JRB WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Inhalation of Vapors During Showering	KL	Mass Transfer Coefficient	11.45509459	cm/hr	Fos&Chr, 1987	where: KL = 1/[(1/Kl) + ((R x T)/(H x kg))]
				R	Ideal Gas law Constant	8.21E-05	atm m3/mole/K	Fos&Chr, 1987	
				T	Absolute Temperature	293	K	Fos&Chr, 1987	
				H	TCE Henry's law Constant (adjusted to showering temperature)	0.0242	atm m3/mole	USEPA, 2002b	
				kg	Gas-film Mass Transfer Coefficient	1110.392068	cm/hr	Fos&Chr, 1987	where: kg = kH x SQRT[MWH/MW]
				kl	Liquid-film Mass Transfer Coefficient	11.57377879	cm/hr	Fos&Chr, 1987	where: kl = kC x SQRT[MWC/MW]
				kH	Gas-film Mass Transfer Coefficient for Water	3000	cm/hr	Fos&Chr, 1987	
				kC	Liquid-film Mass Transfer Coefficient for Carbon Dioxide	20	cm/hr	Fos&Chr, 1987	
				MWH	Molecular Weight of Water	18	g/mole	Fos&Chr, 1987	
				MWC	Molecular Weight of Carbon Dioxide	44	g/mole	Fos&Chr, 1987	
				MW	Molecular Weight of trichloroethene	131.39	g/mole	Fos&Chr, 1987	

Sources

USEPA, 2001. Fact Sheet. Correcting the Henry's Law Constant for Soil Temperature, from website: http://www.USEPA.gov/superfund/programs/risk/airmodel/factsheet.pdf

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

USEPA, 2006: Recommended by Region 3 EPA.

USEPA, 2009: Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual. (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA 540-R-070-002.

Foster, S. A. and P.C. Chrostowski. 1987. Inhalation Exposures to Volatile Organic Contaminants in the Shower. Presented at the 80th Annual Meeting of the Air Pollution Control Association. New York, NY. June.

Default Henry's Law Constants (HLCs) at 25 degrees C obtained from EPA, 1996. See appendix for conversion of HLCs to showering temperature using EPA, 2001.

APPENDIX K, TABLE K-15b
CHEMICAL SPECIFIC VOLATILIZATION FACTORS FOR OUTDOOR WORKER
NAS JRB WILLOW GROVE, PENNSYLVANIA

CHEMICAL-SPECIFIC PARAMETERS FOR OUTDOOR VOLATILIZATION FROM EXPOSED GROUNDWATER						
COPC	**Henry's Law at 25°C (l*atm/mol)**	**Henry's Law at 25°C (dimensionless)**	**Diffusion Constant for Air**	**Diffusion Constant for Water**	**Effective Diffusion Between GW and Soil (D_{eff-ws})**	**Volatilization Factor (VF)**
CARBON TETRACHLORIDE	3.131E-02	1.283729	5.7144E-02	9.7849E-06	8.78E-06	6.42E-03
CHLOROFORM	3.66E-03	0.1500409	7.6920E-02	1.09E-05	2.39E-05	2.04E-03
TRICHLOROETHENE	9.822E-03	0.4026983	6.8662E-02	1.02E-05	1.37E-05	3.14E-03

Where:

Oa_{cap}	= 0.038 cm3-air/cm3-soil	= volumetric air content in capillary fringe soils (equals Ot minus Oacap)
Ow_{cap}	= 0.342 cm3-H2O/cm3-soil	= volumetric water content in capillary fringe soils
Ot	= 0.38 cm3/cm3-soil	= total soil porosity
W	= 4900 cm	= width of the landfill area parallel to groundwater flow direction
L_{GW}	= 0.1 cm	= depth to groundwater (assumed exposed groundwater)
S_{air}	= 200 cm	= ambient mixing zone
U_{air}	= 430 cm/sec	= annual wind speed above ground surface in the mixing zone

$$D_{EFF-ws} = \left[D^{air} * \frac{Oa_{cap}^{3.33}}{Ot^2} \right] + \left[D^{wat} * \frac{1}{H'} * \left(\frac{Ow_{cap}^{3.33}}{Ot^2} \right) \right]$$

$$VF = \frac{H'}{1 + \left[\frac{U_{air} * S_{air} * L_{GW}}{W * D_{EFF-WS}} \right]} * 10^3 \, L/m^3$$

Exposure Concentration = INTAKE (MG/M3) from RAGS D Table 7.04 for carbon tetrachloride:
1.66E-09 mg/m3

Exposure Concentration = EC (mg/m3) = (CW x VF x CF1) x ET x EF x ED / AT
1.66E-09 mg/m3 = 0.61*(6.42E-3)*0.001*2*130*1/613200

Modeling equations are explained in Section 6.3.2.4 and in RAGS D Table 7.04.

Appendix K, Part 4

Parameters Used to Calculate Soil Volatilization Factors

NAS JRB Willow Grove, Pennsylvania

APPENDIX K, TABLE K-16
PARAMETER INPUTS FOR CALCULATING SOIL VOLATILIZATION FACTORS
NAS JRB WILLOW GROVE, PENNSYLVANIA

Parameter	Definition	Units	Naphthalene
HLC soil	Henry's Law at soil temperature	liters-atm/mole-°K	4.40E-04
H_prime	Unitless Henry's Law	unitless	1.80E-02
Diff_Air	Diffusivity in air	cm2/sec	6.05E-02
Diff_H2O	Diffusivity in water	cm2/sec	8.38E-06
koc	soil organic carbon partition coeff.	cm3/g	1.544E+03
Foc	fraction organic carbon	g carbon/g soil	0.006
rho_B	dry soil bulk density	g/cm3	1.5
rho_S	soil particle density	g/cm3	2.65
theta_W	water filled soil porosity	L H2O/L soil	0.15
theta_A	air filled soil porosity	L air/L soil	0.284
VF_N	total soil porosity	L pore space/L soil	0.434
VF_T	exposure interval	seconds	9.50E+08
QoverC	Inverse ratio of the air conc. to emission flux at the center of Site 12 source area	g/m2-s per kg/m3	56.00
DA	apparent diffusivity	cm2/sec	6.21E-06
VF	volatilization factor	m3/kg	40896
A-site	site source area	acres	7.00E+00
A	modeling constant for Phila		14.01
B	modeling constant for Phila		1.96E+01
C	modeling constant for Phila		2.25E+02

Note: The equation for Q/C was obtained from EPA, 2002b, Appendix D. The equation takes into account a site-specific source area (acres) rather than generic values.

Appendix K, Part 5

Analysis of Hexavalent Chromium/Total Chromium Data

NAS JRB Willow Grove, Pennsylvania

TABLE K-17
ANALYTICAL RESULTS FOR HEXAVALENT CHROMIUM AND RELATED PARAMETERS
SITE 12 SOIL SAMPLING
NASJRB WILLOW GROVE, PENNSYLVANIA

SAMPLE ID	12SB06-0.502-02	12SB06-000.5-01	12SB06-0304-03	12SB09-0.502-02	12SB09-000.5-01	12SB09-0304-03	12SB12-0.502-02	12SB12-000.5-01	12SB12-0304-03
TOP DEPTH	0.5	0	3	0.5	0	3	0.5	0	3
BOTTOM DEPTH	2	0.5	4	2	0.5	4	2	0.5	4
METALS (MG/KG)									
CHROMIUM	19.7 J	14.2 J	15.3 J	8.7	7.7	11.8	16.4 J	20.9 J	12.8 J
HEXAVALENT CHROMIUM	2	3.2	0.4	1.6	2.6	0.62	1.7	3.1 J	0.58
HEXAVALENT/TOTAL CHROMIUM RATIO	0.102	0.225	0.026	0.184	0.338	0.053	0.104	0.148	0.045
MISCELLANEOUS PARAMETERS									
OXIDATION REDUCTION POTENTIAL (mV)	373.2	334.4	381.3	275.8	280.4	356.7	293.1	271.7	281.5
pH (s.u.)	4.86	4.88	4.68	6.52	5.56	5.25	6.35	6.37	6.2

SAMPLE ID	12SB13-0.502-02	12SB13-000.5-01	12SB13-0304-03	12SB18-0.502-02	12SB18-000.5-01	12SB18-0304-03	12SB21-0.502-02	12SB21-000.5-01	12SB21-0304-03
TOP DEPTH	0.5	0	3	0.5	0	3	0.5	0	3
BOTTOM DEPTH	2	0.5	4	2	0.5	4	2	0.5	4
METALS (MG/KG)									
CHROMIUM	4.7 J	8.3 J	6.2 J	10.8 J	15.1 J	12.1 J	19.7 J	18.3 J	17.1 J
HEXAVALENT CHROMIUM	0.44 J	0.45 J	0.54 J	0.69	1.5	0.54	2.6	7.4	4.7
HEXAVALENT/TOTAL CHROMIUM RATIO	0.094	0.054	0.087	0.064	0.099	0.045	0.132	0.404	0.275
MISCELLANEOUS PARAMETERS									
OXIDATION REDUCTION POTENTIAL (mV)	232.4	270.2	101.7	278.7	313.6	323.7	382.4	330.9	381.9
pH (s.u.)	7.01	6.81	6.54	6.63	5.5	5.58	5.1	5.82	5.1

SAMPLE ID	12SB22-0.502-02	12SB22-000.5-01	12SB22-0304-03	12SB26-0.502-02	12SB26-000.5-01	12SB26-0304-03	12SB30-0.502-02	12SB30-000.5-01	12SB30-0304-03
TOP DEPTH	0.5	0	3	0.5	0	3	0.5	0	3
BOTTOM DEPTH	2	0.5	4	2	0.5	4	2	0.5	4
METALS (MG/KG)									
CHROMIUM	11.2 J	12.9 J	12 J	6.8 J	14.7 J	11.1 J	19.4 J	17.4 J	17.5 J
HEXAVALENT CHROMIUM	1.1	2.2	0.63	0.26 J	0.73 J	1.1 J	3	0.76	1.1
HEXAVALENT/TOTAL CHROMIUM RATIO	0.098	0.171	0.053	0.038	0.05	0.099	0.155	0.044	0.063
MISCELLANEOUS PARAMETERS									
OXIDATION REDUCTION POTENTIAL (mV)	329.2	299.4	333.1	252.2	255.6	277.7	289.2	270.9	369.6
pH (s.u.)	4.69	4.83	5.03	6.27	5.78	6.12	6.34	7.15	5.35

SAMPLE ID	12TP02-0405-CS	12TP03-0506-CS	12TP08-0304-CS	12TP09-0304-CS	12TP10-0405-CS	12TP12-0203-CS	12TP14-0405-CS	12TP15-0304-CS	12TP16-0.502-02
TOP DEPTH	4	5	3	3	4	2	4	3	0.5
BOTTOM DEPTH	5	6	4	4	5	3	5	4	2
METALS (MG/KG)									
CHROMIUM	13	19	25	65	54	28	39	12 J	18.5 J
HEXAVALENT CHROMIUM	0.5	0.06 UJ	1.5	2.2	2.2	2.8	1.1	1.1	0.71
HEXAVALENT/TOTAL CHROMIUM RATIO	0.038	0.003	0.06	0.034	0.041	0.1	0.028	0.092	0.038
MISCELLANEOUS PARAMETERS									
OXIDATION REDUCTION POTENTIAL (mV)	226.5	181.3	255.3	162.6	233.8	236	206.8	175.6	328.9
pH (s.u.)	7.1	7.03	7.02	6.93	7.31	6.36	7.15	7.48	4.71

SAMPLE ID	12TP16-000.5-01	12TP16-0608-03	12TP16-0910-04	12TP17-0.5-02-02	12TP17-000.5-01	12TP18-0506-01	12TP18-0607-02
TOP DEPTH	0	6	9	0.5	0	5	6
BOTTOM DEPTH	0.5	8	10	2	0.5	6	7
METALS (MG/KG)							
CHROMIUM	21.8 J	25.2 J	17.5 J	22.2 J	20.8 J	31.3 J	23.3 J
HEXAVALENT CHROMIUM	1.2	5.9 J	0.56	0.3	1.8	1.1	1
HEXAVALENT/TOTAL CHROMIUM RATIO	0.055	0.234	0.032	0.014	0.087	0.035	0.043
MISCELLANEOUS PARAMETERS							
OXIDATION REDUCTION POTENTIAL (mV)	318.5	243.7	352.1	373.9	338.4	188.5	277.7
pH (s.u.)	4.41	7.13	4.45	4.52	4.62	6.47	6.3

Figure K-1
Hexavalent Chromium versus Total Chromium Concentrations
in Site 12 Soil Samples
NASJRB Willow Grove, Pennsylvania

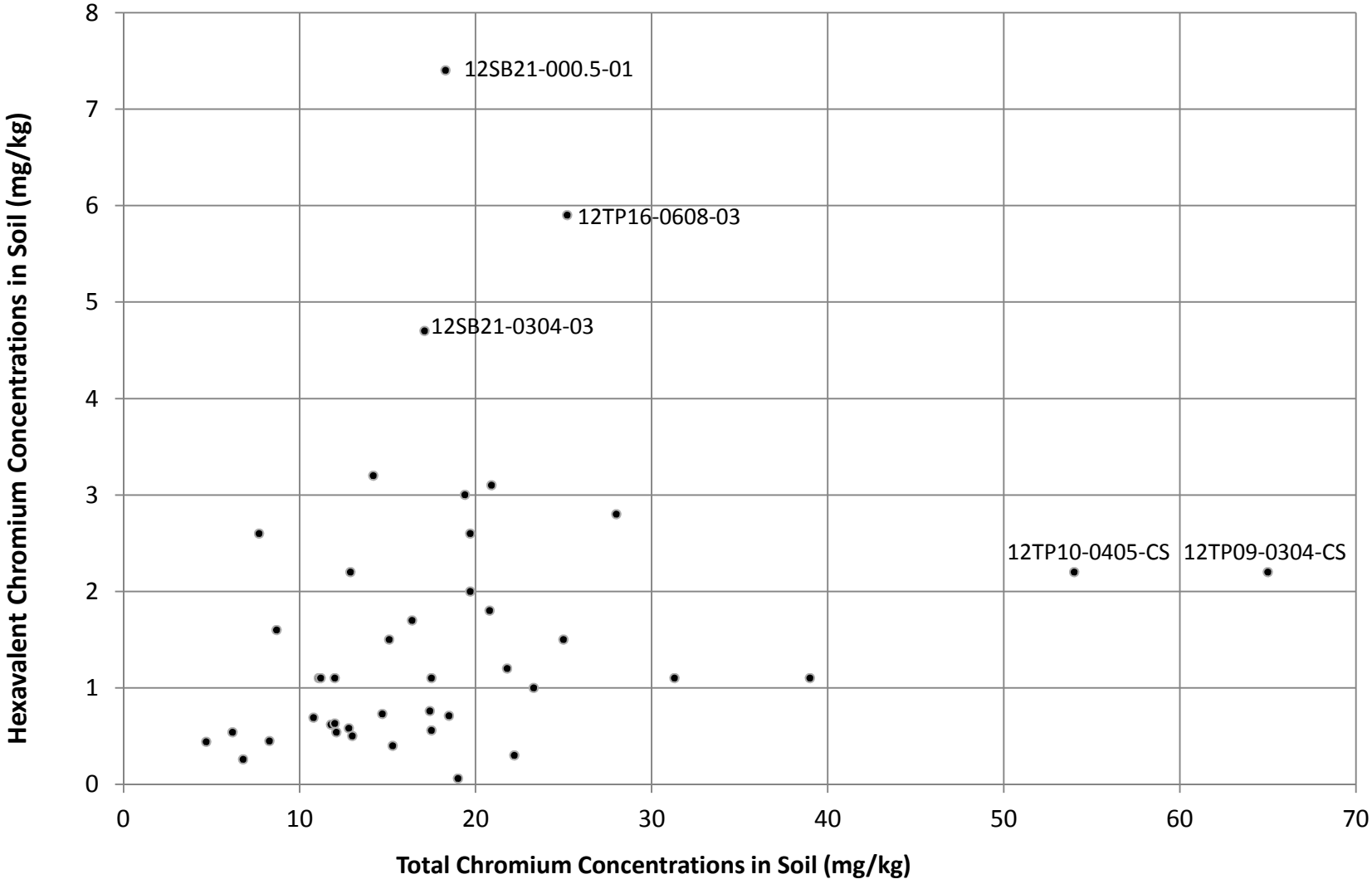


Figure K-2
Oxidation Reduction Potential (ORP) versus Hexavalent Chromium Concentrations in Site 12 Soil Samples
NASJRB Willow Grove, Pennsylvania

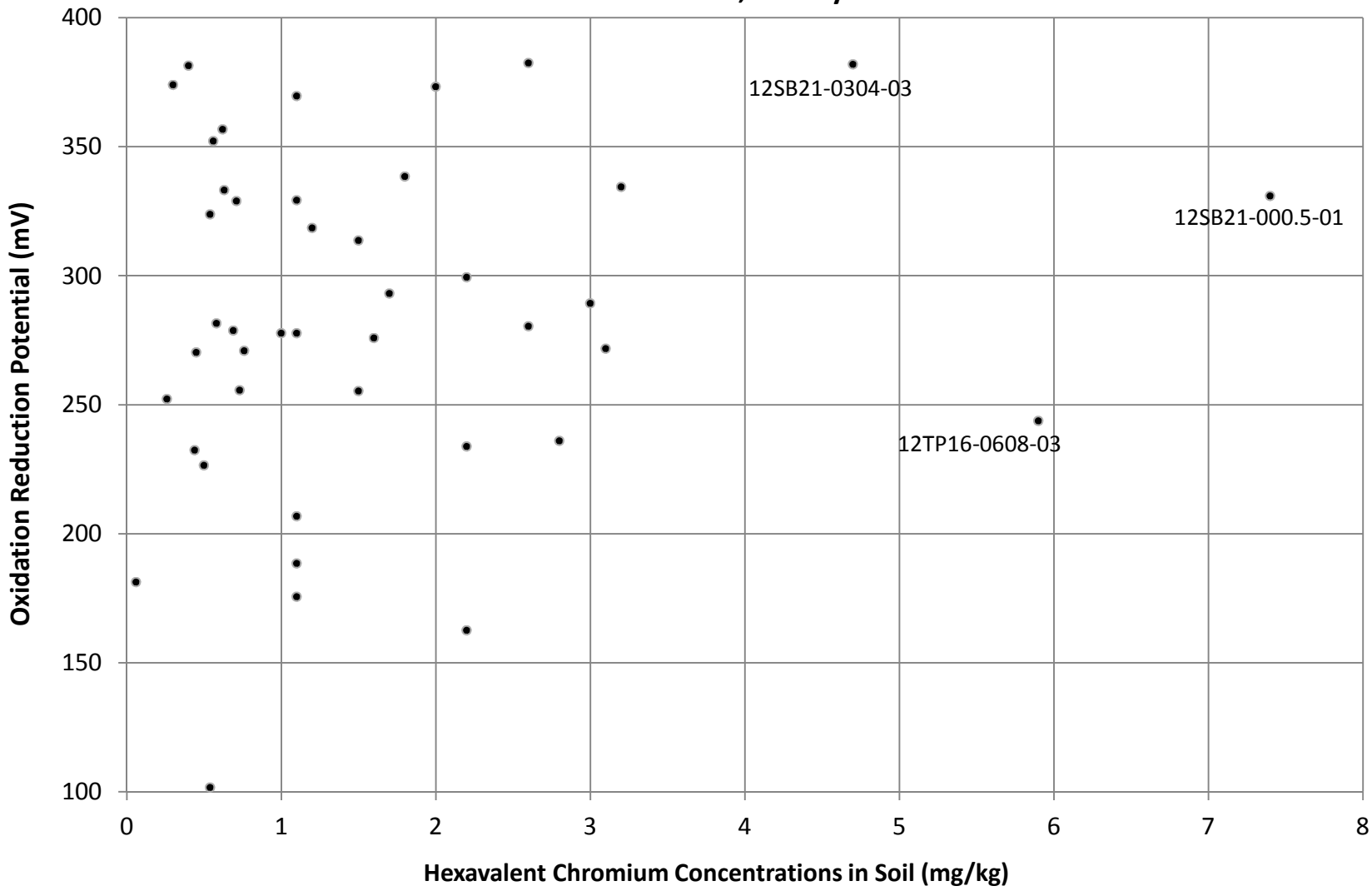


Figure K-3
Oxidation Reduction Potential (ORP) versus Ratio of Hexavalent to Total Chromium in Site 12 Soil Samples
NASJRB Willow Grove, Pennsylvania

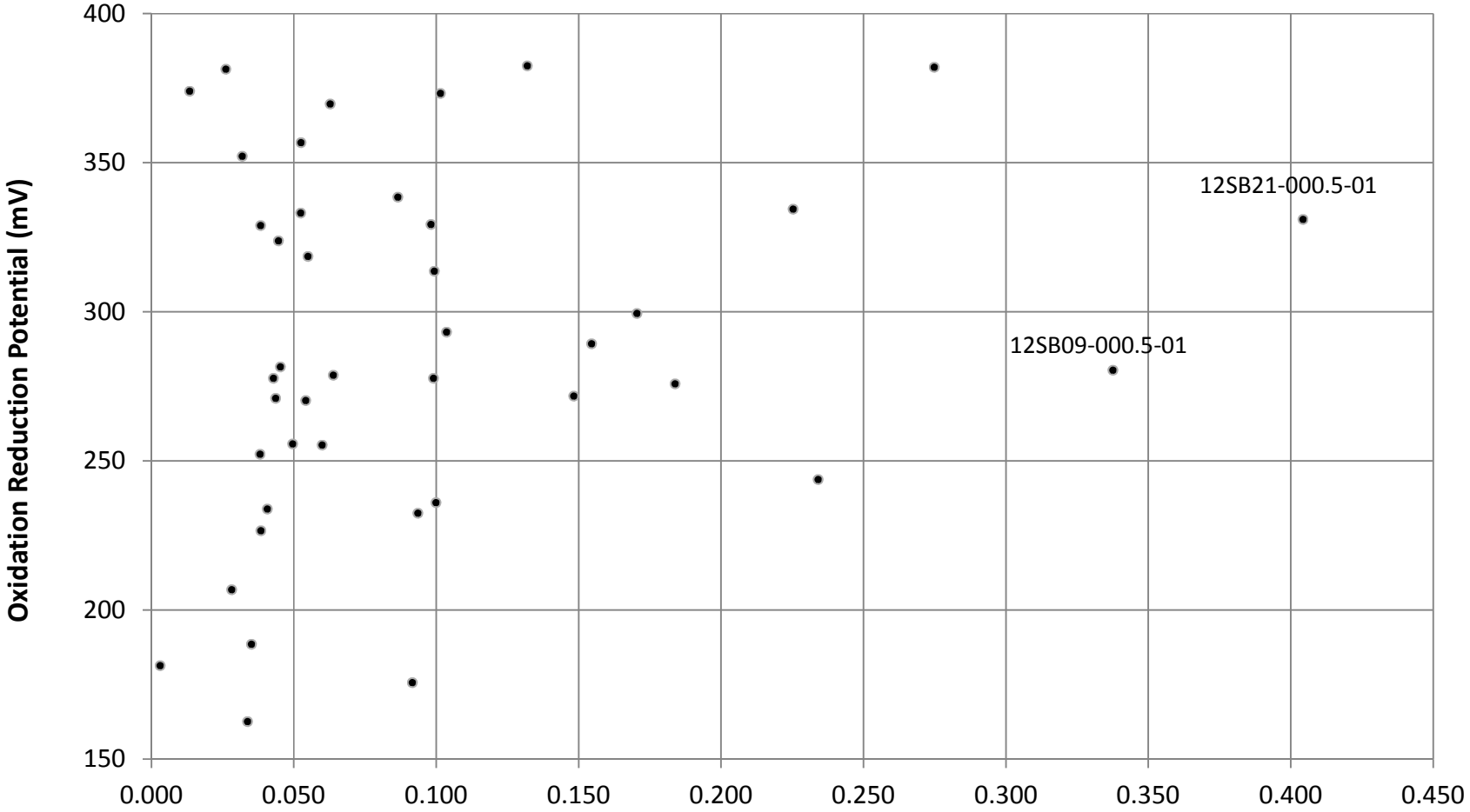


Figure K-4
pH versus Hexavalent Chromium Concentrations
in Site 12 Soil Samples
NASJRB Willow Grove, Pennsylvania

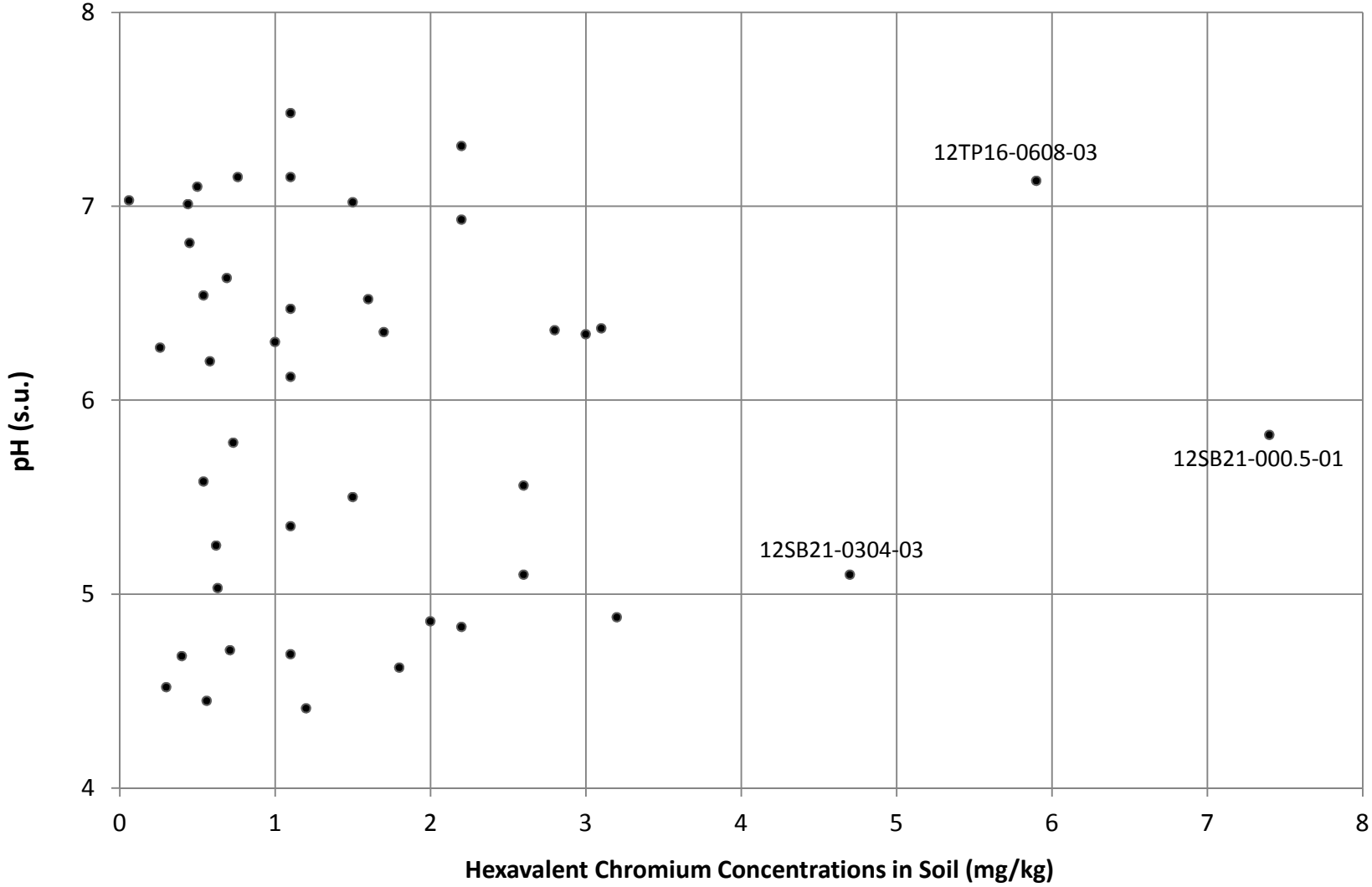


Figure K-5
pH versus Ratio of Hexavalent to Total Chromium
in Site 12 Soil Samples
NASJRB Willow Grove, Pennsylvania

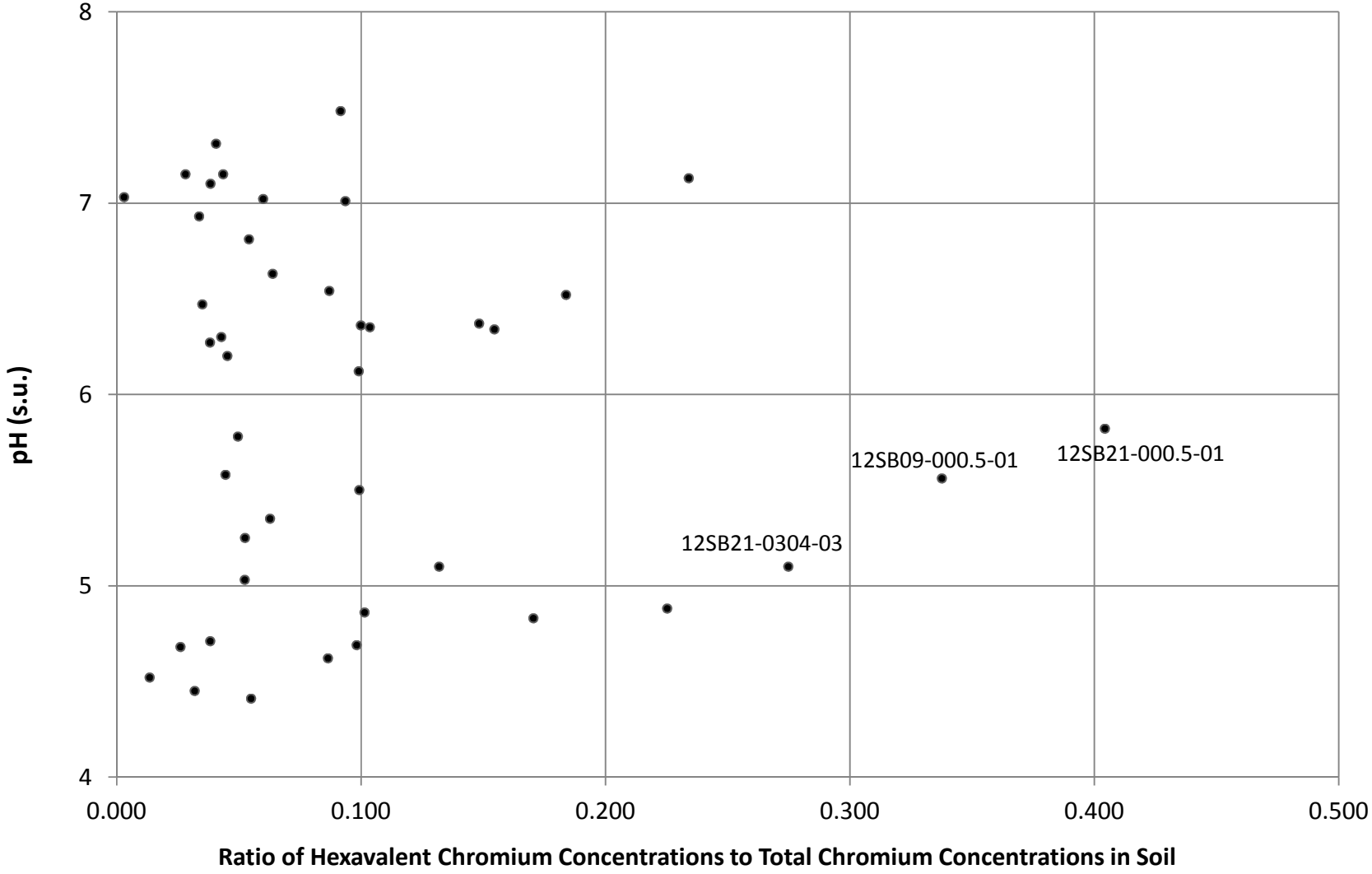
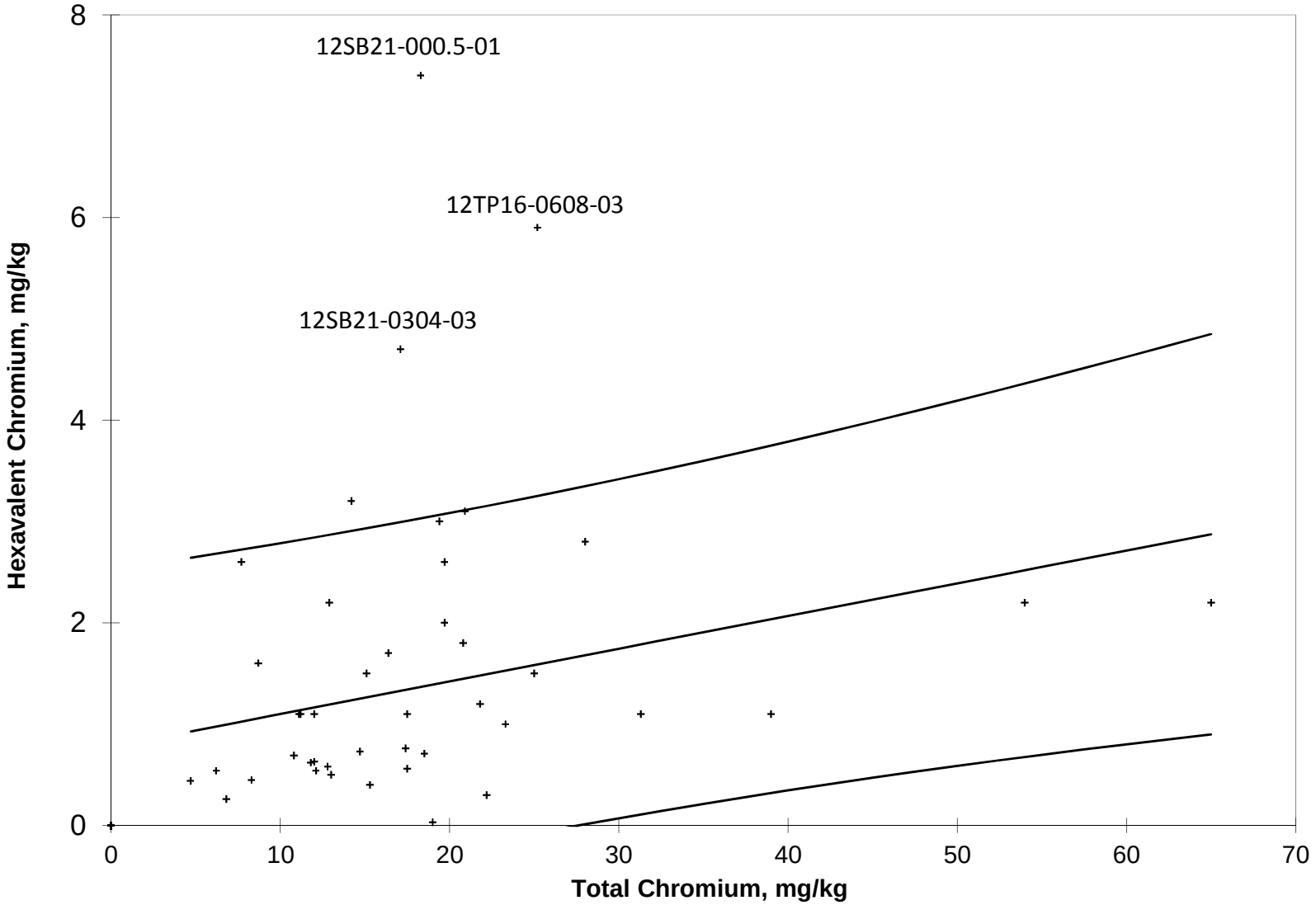


FIGURE K-6
HEXAVALENT CHROMIUM REGRESSED ON TOTAL CHROMIUM
IN SITE 12 SOIL SAMPLES
NASJRB WILLOW GROVE, PENNSYLVANIA

(Hexavalent Chromium) = (3.23E-02)x(Total Chromium) + (7.77E-01) R^2 = 0.02; Std. Error of Y-estimate = 1.51E+00
95% Confidence Limits on a Y-value predicted from one X-value



APPENDIX K, TABLE K-18
SUPPORT DATA FOR HEXAVALENT CHROMIUM REGRESSION
SITE 12 SOIL SAMPLES
NASJRB WILLOW GROVE, PENNSYLVANIA

	Y variable name used on graph: Hexavalent Chromium		**Hexavalent Chromium, m**	********** GRAPH LINES **********			
	X variable name used on graph: Total Chromium		**Total Chromium, mg/kg**	**X-Points**	**Y Predicted**	**Lower 95%**	**Upper 95%**
	N	43.000000		4.70	0.93	-0.79	2.64
2sided ALPHA	**SUM(w^2*(Ypred.- Yobs)^2)**	3.793142E+01		7.21	1.01	-0.69	2.71
0.10	**t-Value: 2-tail, 0.100 alpha**	1.682878		9.73	1.09	-0.60	2.78
degrees freedom	SUM(XY*w^2)	7.494820E+02		12.24	1.17	-0.51	2.85
2	SUM(X^2*w^2)	1.327418E+04		14.75	1.25	-0.42	2.92
	SUM(X*w^2)	4.136000E+02		17.26	1.33	-0.33	3.00
	SUM(Y*w^2)	2.810000E+01		19.78	1.41	-0.25	3.08
	SUM(w^2)	1.900000E+01		22.29	1.50	-0.17	3.16
	SUM(Y)	69.540000		24.80	1.58	-0.09	3.24
	SUM(X)	7.984000E+02		27.31	1.66	-0.01	3.32
	Denominator	8.114446E+04		29.83	1.74	0.07	3.41
	Slope	**3.226342E-02**		32.34	1.82	0.14	3.50
	Intercept	**7.766236E-01**		34.85	1.90	0.21	3.59
	Minimum X value	4.700000E+00		37.36	1.98	0.28	3.69
	Maximum X value	6.500000E+01		39.88	2.06	0.34	3.78
	Minimum Y value	3.000000E-02		42.39	2.14	0.41	3.88
	Maximum Y value	7.400000E+00		44.90	2.23	0.47	3.98
	No. of graph points	25		47.41	2.31	0.53	4.08
	SUM(Ypred.- Yobs)^2	9.396406E+01		49.93	2.39	0.59	4.19
	SUM(Yobs - Yave)^2	9.588907E+01		52.44	2.47	0.64	4.29
	SUM(X - Xave)^2	5.537874E+03		54.95	2.55	0.70	4.40
	Std. Error of Y-estimate	**1.513871E+00**		57.46	2.63	0.75	4.51
	R^2	**2.007534E-02**		59.98	2.71	0.80	4.62
Weight= "1/x", "1/y", "1/SQRT(xy)" or "" =>				62.49	2.79	0.85	4.74
est.M, Std.Err.Y				65.00	2.87	0.90	4.85
Percentiles of Y-Pred.Domain for Estimating % Err in Y-Pred:			**25**	12.00	1.16	-0.51	2.84
Inverse Log Transform (Y/N)?		**No**	**50**	17.10	1.33	-0.34	2.99
Inverse Power Transform (Y/N)?		**No**	**73.152**	20.4962	1.44	-0.22	3.0989
Inverse Power Transform (1/Power):		**1**	**90**	27.44	1.66	0.00	3.33

TEXT BOX ==> **(Hexavalent Chromium) = (3.23E-02)x(Total Chromium) + (7.77E-01)** **R^2 = 0.02; Std. Error of Y-estimate = 1.51E+00**

TEXT BOX ==> **95% Confidence Limits on a Y-value predicted from one X-value** **√ - wt.descrip.**

TEXT BOX==> Residuals Plot: (Observed - Predicted) Versus Y-Pred. **Y-Pred.**

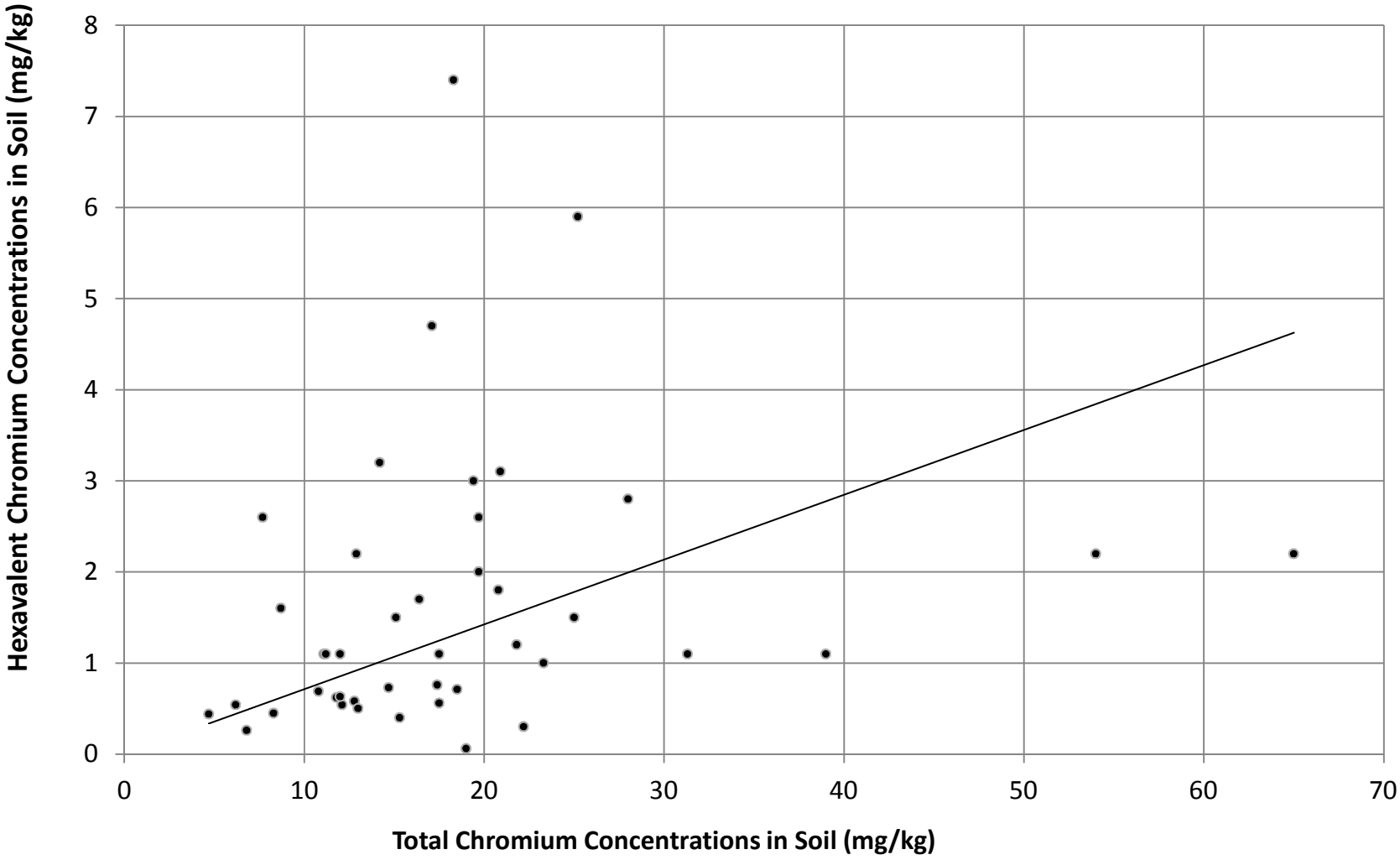
	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!E**	**DA!G**	---- √ ----	---- √ ----	---- √ ----	---- √ ----	---- √ ----	---- √ ----	---- √ ----	---- √ ----
GROUP	**SAMPLE**	**Total Chromium**	**Hexavalent Chromium**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
WG12	12SB06-0304-03	15.3	0.4	1	7.57342E-01	1.48160E+00	1.06762E+01	-8.70254E-01	-8.70254E-01	1.27025E+00	
WG12	12SB09-0304-03	11.8	0.62	1	2.88726E-01	9.94426E-01	4.57983E+01	-5.37332E-01	-5.37332E-01	1.15733E+00	
WG12	12SB12-0304-03	12.8	0.58	1	3.71607E-01	1.07580E+00	3.32634E+01	-6.09595E-01	-6.09595E-01	1.18960E+00	
WG12	12SB13-0304-03	6.2	0.54	1	1.90669E-01	1.16038E+00	1.52954E+02	-4.36657E-01	-4.36657E-01	9.76657E-01	
WG12	12SB18-0304-03	12.1	0.54	1	3.93143E-01	1.16038E+00	4.18278E+01	-6.27011E-01	-6.27011E-01	1.16701E+00	
WG12	12SB21-0304-03	17.1	4.7	1	1.13682E+01	9.50360E+00	2.15339E+00	3.37167E+00	3.37167E+00	1.32833E+00	12SB21-0304-03
WG12	12SB22-0304-03	12	0.63	1	2.84926E-01	9.74582E-01	4.31313E+01	-5.33785E-01	-5.33785E-01	1.16378E+00	
WG12	12SB26-0304-03	11.1	1.1	1	1.20740E-03	2.67505E-01	5.57627E+01	-3.47476E-02	-3.47476E-02	1.13475E+00	
WG12	12SB30-0304-03	17.5	1.1	1	5.81936E-02	2.67505E-01	1.13943E+00	-2.41233E-01	-2.41233E-01	1.34123E+00	
WG12	12TP02-0405-CS	13	0.5	1	4.84483E-01	1.24816E+00	3.09964E+01	-6.96048E-01	-6.96048E-01	1.19605E+00	
WG12	12TP03-0506-CS	19	0.03	1	1.84859E+00	2.51923E+00	1.87107E-01	-1.35963E+00	-1.35963E+00	1.38963E+00	
WG12	12TP08-0304-CS	25	1.5	1	6.92377E-03	1.37380E-02	4.13778E+01	-8.32092E-02	-8.32092E-02	1.58321E+00	
WG12	12TP09-0304-CS	65	2.2	1	4.53934E-01	3.39645E-01	2.15598E+03	-6.73746E-01	-6.73746E-01	2.87375E+00	
WG12	12TP10-0405-CS	54	2.2	1	1.01664E-01	3.39645E-01	1.25547E+03	-3.18848E-01	-3.18848E-01	2.51885E+00	
WG12	12TP12-0203-CS	28	2.8	1	1.25440E+00	1.39899E+00	8.89732E+01	1.12000E+00	1.12000E+00	1.68000E+00	
WG12	12TP14-0405-CS	39	1.1	1	8.74033E-01	2.67505E-01	4.17489E+02	-9.34897E-01	-9.34897E-01	2.03490E+00	
WG12	12TP15-0304-CS	12	1.1	1	4.06848E-03	2.67505E-01	4.31313E+01	-6.37847E-02	-6.37847E-02	1.16378E+00	
WG12	12TP16-0608-03	25.2	5.9	1	1.85790E+01	1.83423E+01	4.39908E+01	4.31034E+00	4.31034E+00	1.58966E+00	12TP16-0608-03
WG12	12TP16-0910-04	17.5	0.56	1	6.10326E-01	1.11769E+00	1.13943E+00	-7.81233E-01	-7.81233E-01	1.34123E+00	

APPENDIX K, TABLE K-18
SUPPORT DATA FOR HEXAVALENT CHROMIUM REGRESSION
SITE 12 SOIL SAMPLES
NASJRB WILLOW GROVE, PENNSYLVANIA

	Indexed value lookups:	X data column ref.	Y data column ref.		(Pred. - Obs.)^2	(Y - Ymean)^2	(X - Xmean)^2	Obs-Pred	served - Predic	Y-Pred.	Spl. IDs>upper 95% C.L.
	Specify X-col., Y-col. as: "DA!" + column	**DA!E**	**DA!G**	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----	---- \/ ----
GROUP	**SAMPLE**	**Total Chromium**	**Hexavalent Chromium**	**Regression Wt.**					**Wt'd.Residuals**		**Candidate High Outliers**
WG12	12TP18-0506-01	31.3	1.1	0	4.71239E-01	2.67505E-01	1.62118E+02	-6.86469E-01	0.00000E+00	1.78647E+00	
WG12	12TP18-0607-02	23.3	1	0	2.79166E-01	3.80947E-01	2.23971E+01	-5.28361E-01	0.00000E+00	1.52836E+00	
WG12	12SB06-0.502-02	19.7	2	0	3.45494E-01	1.46529E-01	1.28269E+00	5.87787E-01	0.00000E+00	1.41221E+00	
WG12	12SB06-000.5-01	14.2	3.2	0	3.86215E+00	2.50523E+00	1.90745E+01	1.96524E+00	0.00000E+00	1.23476E+00	12SB06-000.5-01
WG12	12SB09-0.502-02	8.7	1.6	0	2.94507E-01	2.96160E-04	9.73664E+01	5.42685E-01	0.00000E+00	1.05732E+00	
WG12	12SB09-000.5-01	7.7	2.6	0	2.48046E+00	9.65878E-01	1.18101E+02	1.57495E+00	0.00000E+00	1.02505E+00	
WG12	12SB12-0.502-02	16.4	1.7	0	1.55438E-01	6.85430E-03	4.69780E+00	3.94256E-01	0.00000E+00	1.30574E+00	
WG12	12SB12-000.5-01	20.9	3.1	0	2.71943E+00	2.19867E+00	5.44083E+00	1.64907E+00	0.00000E+00	1.45093E+00	
WG12	12SB13-0.502-02	4.7	0.44	0	2.38399E-01	1.38582E+00	1.92306E+02	-4.88262E-01	0.00000E+00	9.28262E-01	
WG12	12SB13-000.5-01	8.3	0.45	0	3.53323E-01	1.36238E+00	1.05420E+02	-5.94410E-01	0.00000E+00	1.04441E+00	
WG12	12SB18-0.502-02	10.8	0.69	0	1.89285E-01	8.59717E-01	6.03332E+01	-4.35069E-01	0.00000E+00	1.12507E+00	
WG12	12SB18-000.5-01	15.1	1.5	0	5.57898E-02	1.37380E-02	1.20232E+01	2.36199E-01	0.00000E+00	1.26380E+00	
WG12	12SB21-0.502-02	19.7	2.6	0	1.41084E+00	9.65878E-01	1.28269E+00	1.18779E+00	0.00000E+00	1.41221E+00	
WG12	12SB21-000.5-01	18.3	7.4	0	3.63966E+01	3.34407E+01	7.15251E-02	6.03296E+00	0.00000E+00	1.36704E+00	12SB21-000.5-01
WG12	12SB22-0.502-02	11.2	1.1	0	1.44202E-03	2.67505E-01	5.42792E+01	-3.79739E-02	0.00000E+00	1.13797E+00	
WG12	12SB22-000.5-01	12.9	2.2	0	1.01441E+00	3.39645E-01	3.21199E+01	1.00718E+00	0.00000E+00	1.19282E+00	
WG12	12SB26-0.502-02	6.8	0.26	0	5.41718E-01	1.84202E+00	1.38473E+02	-7.36015E-01	0.00000E+00	9.96015E-01	
WG12	12SB26-000.5-01	14.7	0.73	0	2.71333E-01	7.87140E-01	1.49571E+01	-5.20896E-01	0.00000E+00	1.25090E+00	
WG12	12SB30-0.502-02	19.4	3	0	2.55190E+00	1.91211E+00	6.93153E-01	1.59747E+00	0.00000E+00	1.40253E+00	
WG12	12SB30-000.5-01	17.4	0.76	0	3.34092E-01	7.34808E-01	1.36292E+00	-5.78007E-01	0.00000E+00	1.33801E+00	
WG12	12TP16-0.502-02	18.5	0.71	0	4.40228E-01	8.23029E-01	4.54840E-03	-6.63497E-01	0.00000E+00	1.37350E+00	
WG12	12TP16-000.5-01	21.8	1.2	0	7.83811E-02	1.74064E-01	1.04494E+01	-2.79966E-01	0.00000E+00	1.47997E+00	
WG12	12TP17-0.5-02-02	22.2	0.3	0	1.42294E+00	1.73504E+00	1.31955E+01	-1.19287E+00	0.00000E+00	1.49287E+00	
WG12	12TP17-000.5-01	20.8	1.8	0	1.24113E-01	3.34124E-02	4.98432E+00	3.52297E-01	0.00000E+00	1.44770E+00	

Figure K-7
Hexavalent Chromium Regression Through the Origin on Total Chromium in Site 12 Soil Samples
NASJRB Willow Grove, Pennsylvania

(Hexavalent Chromium) = (0.0712) x (Total Chromium)



Appendix K, Part 6

Site 12 Spatial Distribution Evaluation

NAS JRB Willow Grove, Pennsylvania

SPATIAL DATA EVALUATION FOR SOIL

The spatial distribution of soil contaminants was evaluated to distinguish areas where potentially different levels of contaminant exposure might occur and to distinguish concentrations that are elevated above background. At Site 12, a comprehensive EM survey was performed in 2007 to delineate the locations of buried waste, and identified six narrow soil trenches (which are labeled on figures and tables as Anomaly Areas 1 through 6) and five irregularly-shaped burial areas (which are labeled as Areas A through E). Soil sampling data used in the risk assessment include locations within each of the 11 waste areas and also more than 100 locations situated outside of the waste burial areas but within the general boundaries of Site 12.

An analysis of the spatial distribution of soil contaminants was focused on comparing the soil concentrations of risk driver chemicals identified in Section 6.6.2 of the human health risk assessment. The soil medium risk drivers for the most sensitive receptor, the future resident, were identified as carcinogenic polyaromatic hydrocarbons (PAHs), arsenic, chromium, manganese, thallium, Aroclor-1260, and dioxins/furans. Spatial analysis of data was limited for two compounds, since Aroclor-1260 was detected in just one soil sample and dioxins were only analyzed in 6 samples where charred debris suggested potential presence of dioxin-related combustion byproducts. The other risk drivers were detected in a high percentage of soil samples from all areas. The following is a summary of key findings:

Occurrence and Distribution of Risk Drivers in Waste Areas

Table K-19 presents occurrence and distribution statistics for the risk driver compounds benzo(a)pyrene toxicity equivalents (BAP TE), arsenic, chromium, manganese, thallium, Aroclor-1260, and 2,3,7,8-TCCD TE. Concentrations were compared to preliminary risk-based goal concentrations (PRGs), which are based on the risk assessment's evaluation of target acceptable risk levels for residential exposure to soil (as discussed later in this appendix). Note that the mean concentrations of BAP TE did not exceed the PRG in the non-waste area, but exceeded the PRG in all waste burial areas except Anomaly Area 6. The maximum concentrations of chromium exceeded the PRG in Anomaly Areas 3, 4, and 5, Areas A, B, D, and E, and in the non-waste area. However, the mean chromium concentration only exceeded the PRG in Anomaly Areas 3 and 4 and in Area D. The mean thallium concentration exceeded the PRG in Anomaly Areas 3, 4, and 5, Areas A, B, and E, and in the non-waste area. 2,3,7,8-TCDD TE exceeded the PRG in Anomaly Area 3 and in Area D, but not in Anomaly Area 1, Area 4, and Area B. Aroclor-1260 did not exceed the PRG in any soil area.

Appendix K, Table K-22 presents a complete list of sample results for the risk driver substances that exceed preliminary risk-based goal concentrations according to waste area. No exceedances occurred for Aroclor-1260, since the maximum detected site concentration was 350 ug/kg, which is less than the PRG of 2,215 ug/kg. For thallium, the spatial distribution of exceedances did not fit into any particular

pattern, with many exceedances and a higher median concentration occurring in the non-waste area relative to the waste burial areas. For BAP TEs, the exceedances in the non-waste area represented sample results that were all greater than the 75th percentile. Several of the non-waste area BAP TE exceedances were shown to occur within a spatial cluster.

Box Plots for Benzo(a)pyrene Toxicity Equivalents, Chromium, and Thallium

Box plots are shown for soil risk drivers in Figures K-8 through K-15. These plots allow a side-by-side visualization of the range of concentrations found in different waste areas. Waste burial areas are labeled as 01S- through 06S- and AAS- through EES-. The non-waste area samples are labeled as NWS- and background soils are labeled as BGS-. Figures K-8 through K-12 plot analytical results grouped according to waste area, while Figures K-13 through K-15 separate surface soil data (labeled as –SS) from subsurface data (labeled as -SB). Data points are shaded in solid black for detects and with open circles for non-detects. A rectangular box surrounds the interquartile range (IQR) and encompasses the 25th to 75th percentile of concentrations. Median values are represented by squares. The following findings were noted:

As shown in Figure K-8, the 75th percentile of BAP TE concentrations for individual waste burial areas exceeded those for background soil and the non-waste area, which was evident for all waste burial areas except Anomaly Area 3 and Anomaly Area 6. This indicates that waste burial areas exhibited generally elevated BAP TE concentrations compared to the non-waste area. In addition, the median BAP TE concentrations within individual waste burial areas were greater than those for background soil and the non-waste area. As shown in Figure K-13, median surface soil concentrations of BAP TE often exceeded median subsurface soil concentrations, as shown within Anomaly Areas 2, 3, 5, and 6, and Areas A, C, and E. This suggests that a considerable portion of PAH residues are present at very shallow soil depths in waste burial areas. In the non-waste area, the median BAP TE concentrations were quite low and similar to background (see Table K-24 and the discussion in the last section of this appendix). The median of non-waste area surface soil (79.8 ug/kg) was much greater than the median for subsurface soil (2.4 ug/kg), which is consistent with undisturbed soil and corroborates the findings of no buried waste trenches identified by the EM survey of the non-waste area. In Figure K-8, the thirteen highest BAP TE sample results from the non-waste area were labeled with their corresponding sample IDs. Nine of the locations which displayed elevated BAP TE concentrations are clustered within a small area about 300 feet in length, which runs parallel to and within 75 feet of the southwestern border of Site 12.

As shown in Figure K-9, the 75th percentile of chromium concentrations for individual waste burial areas exceeded those for background soil and the non-waste area. This indicates that waste burial areas exhibited generally elevated chromium concentrations compared to the non-waste area. In addition, the median chromium concentrations within individual waste burial areas were greater than those for

background soil and the non-waste area. The highest concentrations of chromium were found in Anomaly Areas 3, 4, and 5, and Areas A, B, D, and E. Overall, mainly subsurface soil samples from waste burial areas exceeded the chromium PRG of 33.6 m/kg, with only two surface soil samples showing a slight exceedance (35 to 38 mg/kg). In the non-waste area, the chromium median concentration was similar for surface soil versus subsurface soil (Figure K-14) and similar to the background median (Figure K-9). Given that waste burial trenches were not found in the Non-waste area, these lines of evidence suggest that chromium concentrations in the non-waste area are not site-related.

As shown in Figure K-10, thallium data for the non-waste area displayed a median soil concentration and a 75th percentile that were notably greater than those for most individual waste burial areas (all except Area A). The preponderance of higher thallium levels in the non-waste area is opposite to what one would expect, since waste burial trenches were not found in the non-waste area. Therefore, thallium data were examined more closely to look for evidence of irregularities, as discussed in the following section.

Thallium Data Irregularities Related to the 2007 Sampling Event

A considerable number of soil samples collected during the 2007 sampling event exhibited elevated thallium concentrations, as shown by the exceedances of PRGs in Table K-22. Data validation resulted in the qualification of several thallium results as estimated (J) or biased high (K). However, deviations in laboratory QA/QC criteria were minor and not severe enough to justify rejection of the 2007 thallium data.

When the pattern of thallium PRG exceedances in soil was examined closely, virtually all of the exceedances were associated with the 2007 soil sample collection event. In contrast, almost no PRG exceedances occurred for thallium in other sampling events associated with the same laboratory or with another laboratory used to analyze Site 12 soils.

A regression analysis of the suspect 2007 thallium data was performed to determine if inductively coupled plasma (ICP) spectral interferences might be responsible for the elevated thallium anomalies. Figures K-26 and K-27 present linear regression plots of thallium versus iron. A high degree of correlation was observed ($r^2 = 0.99$) in the 2007 data set, which indicates that the elevated thallium soil sample results associated with this sampling event represent a laboratory-specific anomaly. This problem is sometimes associated with defective ICP spectral corrections used during the analysis one particular set of samples. In contrast, Figure K-29 plots a regression of the thallium and iron analytical results from a later sampling event in 2010, which displayed very poor correlation with iron. Figure K-28 plots a regression of all Site 12 soil analytical data, combining the 2007 and 2010 sampling events. The latter graph reveals a bimodal scatter plot, confirming that the 2010 sampling event did not show the same correlation pattern of iron versus thallium concentrations. Taken together, these lines of evidence clearly demonstrate that the thallium soil PRG exceedances associated with the 2007 sampling event are indicative of a laboratory artifact and do not reflect site-related contamination.

Preliminary Risk-Based Concentration Goals for Total Soil

To aid in data evaluation, a list of Preliminary Risk-Based Concentration Goals (PRGs) was developed for the total soil risk drivers BAP TE, arsenic, chromium, manganese, thallium, Aroclor-1260, and TCDD TE. PRGs protective against cancer risks were based on an assumption of lifetime exposure, which is assumed to be 30 years maximum time spent living at one residence. Cancer risk-based PRGs were derived starting with a selected total cancer risk goal of 1E-04 for residential exposures to soil, and apportioning a fraction "F_N" of that risk goal into the allowed contribution from each carcinogenic substance. The following equation was used to calculate the cancer risk-based PRG for a substance:

$$\text{Cancer Risk - Based PRG (ug/kg or mg/kg)} = (\text{EPC in HHRA}) \text{ x } \frac{(\text{Target Cancer Risk Goal}) \times F_N}{(\text{Lifetime Cancer Risk in HHRA})}$$

As shown in Table K-20, the soil preliminary risk-based goals for carcinogens were established as a 3E-05 cancer risk for BAP TE (which equates to 422 ug/kg), a 3E-05 cancer risk for total chromium (33.6 mg/kg), a 2E-5 cancer risk for arsenic (12 mg/kg), a 1.1E-05 cancer risk for TCDD (50 ng/kg), and a 1E-05 cancer risk for Aroclor-1260 (2215 ug/kg). The risk-based goal concentration of 33.6 mg/kg for total chromium assumed 12.2% of soil chromium was present as the more toxic hexavalent species (based on analysis of site-specific speciation data presented in Appendix K, Part 5, and using risks calculated from a ratio of UCLs shown in Appendix J, Table 3.04, as discussed in Section 6.2). The TCDD preliminary risk-based goal was derived to be protective against both noncancer hazards and cancer risks. The arsenic risk-based PRG was roughly equal to the upper range of background, as discussed in the next section. Note that arsenic was only elevated in the waste burial areas, as discussed in in the following section.

Soil PRGs protective against noncancer hazards were based on the assumption of exposures to a child resident (the most sensitive receptor). The chemical-specific PRG was derived by apportioning the target HI goal of 1.0 into a fraction "F_N" allowed for each of the "N" risk driver chemicals that contribute to the hazard for the same target organ. The equation used to calculate the non-cancer PRG for a substance is as follows:

$$\text{Non - Cancer Risk - Based PRG (ug/kg or mg/kg)} = (\text{EPC in HHRA}) \text{ x } \frac{(\text{Target HI Goal}) \times F_N}{(\text{Receptor HQ in HHRA})}$$

As shown in Table K-21, the noncancer PRGs for TCDD (50 ng/kg) and thallium (0.76 mg/kg) were calculated to be protective for a noncancer HQ of 1, as these substances affect different target organs. However, thallium was determined not to be a site-related risk-driver based on a line-of-evidence approach. The noncancer PRG for manganese (1104 mg/kg) was also protective for a HQ of 1 and is roughly equal to the upper range of background, as discussed in a following section. Note that manganese was only elevated in the waste burial areas, as discussed in a later section.

Probability Plots Comparing Waste Burial Areas and the Non-Waste Area

For each risk driver, soil analytical data from the non-waste area and waste burial areas were combined and graphed on a quantile-quantile (Q-Q) probability plot to check for evidence of two statistically different sample populations. If a substance found in the waste burial area is site related, then the soil concentrations observed in the waste burial areas should follow a different distributional shape relative to the shape of the data set comprised of non-waste area samples. In Figures K-16 through K-19, K-24, and K-25, non-waste area samples are denoted with a diamond shape and waste area samples are denoted with a circle.

In Figure K-16, the normal probability plot for BAP TE revealed an inflection point in the graph at about 500 ug/kg. For BAP TE, the majority of samples in the higher concentration region above the probability plot's inflection point comprised waste area samples, while lower concentrations comprised mostly non-waste area samples. This provides evidence of a different population distributional shape and suggests that polyaromatic hydrocarbons found in waste areas originated from different sources or disposal patterns. A lognormal plot was constructed in for BAP TE in Figure K-17, which also deviated from a lognormal distributional shape.

In Figure K-18, chromium data exhibit an inflection point at 30 mg/kg, with concentrations above the inflection point comprised of mostly waste area samples. A lognormal probability plot for chromium (Figure K-19) revealed the same inflection point. This provides evidence of a different population distributional shape and suggests that chromium found in waste areas originated from different sources or disposal patterns.

As previously discussed, several non-waste area sample results displayed elevated thallium concentrations. In Figure K-24, a normal probability plot for the non-waste area demonstrated two different populations, with an inflection point of around 0.3 mg/kg, which represents one-half of the detection limit, and an unexpected second inflection point at about 4 mg/kg. In Figure K-25, a normal probability plot of the waste burial area also revealed an inflection point of around 0.3 mg/kg, and a less pronounced second inflection point. As discussed earlier, the root cause of elevated thallium levels was a laboratory-specific bias in the 2007 data set, which led to artifacts and false positives for thallium.

Assessment of Site-Related or Background-Related Concentrations for Arsenic and Manganese

Two sample statistical tests were employed to compare Site 12 surface soil results to background surface soil (see Table 4-2). However, subsurface soil data evaluation was problematic because the background data set did not include any soil samples collected from subsurface depths. In lieu of having background subsurface soil data, background surface soil was statistically compared to Site 12 subsurface soil (see Table 4-6). The results of these tests were considered tentative since the background data may not be representative of all soil depths. Subsurface soil statistical test results were interpreted as follows:

Metals that were suggested by statistical tests to be greater than background in Site 12 subsurface soil were presumed to be elevated as a conservative approach. On the other hand, statistical tests that suggested that arsenic and manganese were similar to background required further verification, so soil data for these metals were analyzed using box plots and probability plots to help judge whether these substances are site-related.

Figure K-11 presents box plots for arsenic that illustrate the median, interquartile range, minimum, and maximum, with individual plots for surface soil and subsurface soil from each Site 12 waste burial area and the non-waste area. Nine samples are labeled that display arsenic concentrations in subsurface soil from waste burial areas that exceed the upper range of subsurface soil in the non-waste area. Figure K-20 presents a probability plot showing all samples from the waste burial areas for arsenic, using diamonds to represent subsurface soil and circles for surface soil. An inflection point is observed at roughly 12.5 mg/kg, indicating that arsenic values greater than this threshold do not follow the probability plot's linear trend that approximately fits a normal distributional shape for the majority of samples. Most waste burial area surface soil arsenic results are below the inflection point and generally follow the trend line, whereas values that exceed the inflection point mostly comprise subsurface soil locations from the waste burial area and represent concentrations above background.

Figure K-21 presents a probability plot for arsenic comprising non-waste area samples, which distinguishes data points for surface soil and subsurface soil. In the boxplot shown in Figure K-11, only two subsurface soil samples and one surface soil sample from the non-waste area exceed the maximum value (10.6 mg/kg) associated with the background surface soil data set. In Figure K-21, the same three non-waste area samples display concentrations slightly above the best fit trend line based on a gamma distributional shape. Overall, only three out of 104 non-waste area samples exhibited concentrations that fell outside the fitted line and above concentrations in background soil. These lines of evidence indicate that the non-waste area represents a homogenous population that falls within the range of background.

In summary, the maximum arsenic concentration of 10.6 mg/kg found in the background soil data set is similar to 12.5 mg/kg inflection point observed in probability plots. Incidentally, these values are also close to the 12 mg/kg criterion that has been adopted by PADEP as a Medium Specific Concentration (MSC) for residential direct contact with soil containing arsenic.

Figure K-12 presents box plots for manganese. Four samples are labeled that display manganese concentrations in waste burial area subsurface soil that exceed the upper range of non-waste area subsurface soil and the range of background soil. Figure K-22 presents a probability plot showing all samples from the waste burial area for manganese, which distinguishes subsurface soil from surface soil. An inflection point is observed at about 1250 mg/kg, indicating that manganese values above this level deviate from the linear trend line. Figure K-23 presents a probability plot for manganese of the non-waste area samples, which closely matches the fitted trend line throughout the upper range of the graph.

Generally, all of the non-waste area manganese results are within the range of background and match the fitted distributional shape, which indicates a homogenous population. Four waste burial area samples exhibit higher than expected manganese concentrations. The 1250 mg/kg inflection point represents a point of departure for these sample results, which is very close to the 1190 mg/kg maximum manganese concentration found in background surface soil. Note that, as a point of reference, the PADEP MSC for manganese is an order of magnitude higher, at 10,000 mg/kg.

Background Comparisons Using Test Form II

For three risk drivers that were prevalent in soil (BAP TE, chromium, and thallium), further statistical background tests were performed using Test Form II. Test Form II reverses the null hypothesis and assumes that site concentrations exceed background by more than two standard deviations, and then attempts to refute this hypothesis by demonstrating that site concentrations are less than or equal to two standard deviations above site concentrations.

Total soil data (comprising surface and subsurface soil) from waste burial areas were compared to the background data set using Test Form II. Separately, the non-waste area data set for total soil was compared to background in the same manner. Within each series of tests, the student's t-test or Satterthwaite's t-test and a test of rank sums (Mann Whitney test or Gehan test) were used, wherever applicable. For this test, the probability of a false positive (alpha error) was set to 0.05, which allows no more than a 5 percent chance that site concentrations could be mistakenly judged to be within two standard deviations of background levels, when in reality the site population is greater than the background population plus two standard deviations. The results of Test Form II comparisons are presented in Tables K-23 (waste burial area) and K-24 (non-waste area). Site 12 soil concentrations of chromium and thallium were not found to be within 2 standard deviations of background; hence, the test accepted the hypothesis that site concentrations exceed background by more than two standard deviations in both the waste burial areas and in the non-waste area.

Test Form II results should be interpreted in conjunction with other lines of evidence. Note that, as previously discussed, the overriding concern with Site 12 thallium results is the evidence for laboratory-specific anomalies, which determined that elevated Site 12 concentrations should not be considered site-related. Elevated chromium concentrations indicated by the waste burial area background test results were consistent with the box plot findings previously discussed. In the evaluation of non-waste area chromium data, contrasting findings exist between the Test Form II results, which suggest the ranks of non-waste area samples exceed background, and the preceding box plot analysis, in which the chromium median concentration was similar for surface soil, subsurface soil, and background. Closer examination reveals that Test Form II results were at the borderline of significance (alpha of 0.06 versus critical value of 0.05) for rejecting the hypothesis that Site 12 concentrations are elevated. Thus, there is a 94 percent chance that Site 12 chromium concentrations in the non-waste area are not two standard deviations

above background. The background test outcome for BAP TE indicated that waste burial area concentrations exceeded background by more than two standard deviations, while non-waste area concentrations did not exceed background by two standard deviations. This finding was based upon a rank sum test and does not rule out the potential existence of small hot spots within the non-waste area (see the preceding section which discusses BAP TE box plots).

Table K-19
Occurrence and Distribution of Risk Driver Compounds in Soil Burial Areas and Non-Waste Areas
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	Site 12 Soil Data					
	Frequency of	Range of Positive Detection		Mean of	Risk-Based	
Substance	Detection	Minimum	Maximum	All Data	PRG*	Location of Maximum
NON-WASTE BURIAL AREAS						
Arsenic	104/104	0.76 J	12.8	4.44	12.0	SSA12-SS07D-000.5-20071205
Chromium	104/104	4	38.5	15.7	33.6	SSA12-SS03E-000.5-20071206
Manganese	104/104	43.7 L	881	348	1104	12SB13-0304-03
Thallium	38/44	0.08 J	7 J	2.02	0.76	SSA12-SB05D-0202.5-20071207
Aroclor-1260	1/104	350 J	350 J	10.8	2215	12SB20-0304-03-D
Benzo(a)pyrene Toxicity Equivalents	72/108	0.11	6710	415	442	12SB01-0.502-02
ANOMALY AREA 1						
Arsenic	4/4	1.4 L	7.2 L	4.65	12.0	12TP06-000.5-01
Chromium	4/4	18.3 L	26.7 L	22.1	33.6	12TP06-0506-03
Manganese	4/4	168	764	491	1104	12TP06-000.5-01
Thallium	1/4	0.93 J	0.93 J	0.468	0.76	12TP06-000.5-01
Total 2,3,7,8-TCDD Equivalents	1/1	5.08 #	7.26 #	6.17	50	12TP06-0506-03
Benzo(a)pyrene Toxicity Equivalents	4/4	0.0779	3080	899	442	12TP06-0506-03
ANOMALY AREA 2						
Arsenic	8/8	2.3 L	16.8 J	5.83	12.0	12TP18-0506-01
Chromium	8/8	14.5	31.3 J	20.9	33.6	12TP18-0506-01
Manganese	8/8	219 J	3740	928	1104	12TP01-0708-04
Thallium	5/8	0.19 K	3.2	0.713	0.76	12TP01-0708-04
Benzo(a)pyrene Toxicity Equivalents	6/8	2.18	1280	502	442	12TP01-0.502-02
ANOMALY AREA 3						
Arsenic	8/8	1.8 L	13.1 L	4.72	12.0	12TP02-0405-03
Chromium	9/9	11.2 L	182 L	37.4	33.6	12TP02-0405-03
Manganese	8/8	254 J	1730 J	877	1104	12TP16-0910-04
Thallium	5/6	0.28	3	0.973	0.76	12TP02-0405-03
Total 2,3,7,8-TCDD Equivalents	2/2	6.57	603	305	50	12TP02-0405-03
Benzo(a)pyrene Toxicity Equivalents	12/12	0.24	1720	509	442	12TP02-000.5-01
ANOMALY AREA 4						
Arsenic	5/5	1.6 L	108 L	23.9	12.0	12TP03-0506-04
Chromium	6/6	13.4 L	192 L	46.4	33.6	12TP03-0506-04
Manganese	5/5	411	1690	720	1104	12TP03-0809-05
Thallium	2/5	1.2 J	2.7	0.963	0.76	12TP03-0506-04
Total 2,3,7,8-TCDD Equivalents	1/1	40.4	40.4	40.4	50	12TP03-0506-04
Benzo(a)pyrene Toxicity Equivalents	7/7	59	3350	1950	442	12TP03-0607-03
ANOMALY AREA 5						
Arsenic	7/7	1.1 L	9	5.9	12.0	SSA12-SS15E-000.5-20071206
Chromium	8/8	9	70.1	25	33.6	12TP14-0405-03
Manganese	7/7	180	921	476	1104	12TP14-0607-04
Thallium	4/7	0.64 K	3.3 J	1.42	0.76	SSA12-SS15E-000.5-20071206
Benzo(a)pyrene Toxicity Equivalents	6/7	110	3540	1320	442	SSA12-SS14E-000.5-20071206
ANOMALY AREA 6						
Arsenic	4/4	2.1 L	8.1 L	4.7	12.0	12TP04-000.5-01
Chromium	4/4	16.2 L	25.7 L	21.1	33.6	12TP04-0405-03
Manganese	4/4	320	958	601	1104	12TP04-0607-04
Thallium	1/4	0.71 J	0.71 J	0.413	0.76	12TP04-000.5-01
Benzo(a)pyrene Toxicity Equivalents	3/4	2.05	346	114	442	12TP04-000.5-01
AREA A						
Arsenic	6/6	5.1 J	24.3 J	10	12.0	12TP15-0304-03
Chromium	7/7	12 J	58.8	28.2	33.6	SSA12-SB08D-0202.5-20071205
Manganese	6/6	488 K	1090 J	796	1104	12TP15-0304-03
Thallium	4/6	1.2 K	41.1 K	8.46	0.76	SSA12-SB08D-0202.5-20071205
Benzo(a)pyrene Toxicity Equivalents	8/9	3.21	9830	2400	442	12SB59-000.5-01
AREA B						
Arsenic	13/13	0.77 J	29.8	9.25	12.0	12TP08-000.5-01
Chromium	15/15	7.1	55	25.4	33.6	12TP08-0304-03
Manganese	13/13	237	1050	488	1104	12TP10-0405-03
Thallium	6/13	0.69	3.8 K	1.16	0.76	SSA12-SS17E-000.5-20071205
Total 2,3,7,8-TCDD Equivalents	1/1	27	27	27	50	12TP08-0304-03
Benzo(a)pyrene Toxicity Equivalents	13/14	0.543	9780	2130	442	12TP08-0.502-02
AREA C						
Arsenic	3/3	3.5 K	6.5 K	5.18	12.0	12TP05-000.5-01
Chromium	4/4	18	27.5	21.7	33.6	12TP05-0.502-02
Manganese	4/4	40.9	469	295	1104	12TP05-000.5-01
Thallium	1/4	0.89	1	0.48	0.76	12TP05-0204-03-D
Benzo(a)pyrene Toxicity Equivalents	3/4	0.284	1840	659	442	12TP05-000.5-01
AREA D						
Arsenic	4/4	1.7 K	16.6 K	5.99	12.0	12TP09-0304-03
Chromium	5/5	16.1	75.5	40.2	33.6	12TP09-0304-03-D
Manganese	4/4	107	910	440	1104	12TP09-0304-03-D
Thallium	1/4	1.3	1.9	0.633	0.76	12TP09-0304-03
Total 2,3,7,8-TCDD Equivalents	1/1	247	247	247	50	12TP09-0506-05
Benzo(a)pyrene Toxicity Equivalents	3/4	496	25000	4930	442	12TP09-0304-03
AREA E						
Arsenic	19/19	1 J	92.2 J	9.66	12.0	12TP12-0203-03
Chromium	20/20	5.8 J	65.4	20.3	33.6	12TP12-0203-03
Manganese	19/19	29.4 J	1020 J	439	1104	12TP11-0.502-02
Thallium	9/16	0.14	2.8 J	0.855	0.76	SSA12-SS09E-000.5-20071206
Benzo(a)pyrene Toxicity Equivalents	23/27	0.161	40300	2720	442	12TP11-0.502-02

Notes:

Units are ng/kg for TCDD, ug/kg for other organic compounds, and mg/kg for inorganics.
* The risk-based Preliminary Remedial Goal (PRG) concentrations ensure cumulative cancer risks <1E-4 and noncancer hazards <1.0.
** The chromium PRG concentration applies to total chromium levels and assumes <12.2% of chromium is the hexavalent species.
# The minimum and maximum TCDD concentrations in Anomaly Area 1 represent one field duplicate pair.
Number of sample results excludes rejected data or blank-qualified data. Duplicates are consolidated into one result.
Mean of all data includes positive detections and non-detected results. Detection limits are divided by two.
Frequency of detection refers to number of times compound was detected in all samples versus total number of samples.
Number of samples may vary based on the number of usable results.

TABLE K-20
SUMMARY OF CARCINOGENIC RISKS AND PRGS FOR COPCs - LIFETIME RESIDENT EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	**1.58E-04**	**--**	**1.50E-05**	**--**	**1.73E-04**
			Aluminum	--	--	--	--	--
			Antimony	--	--	--	--	--
			Arsenic	**1.36E-05**	**--**	**2.14E-06**	**--**	**1.57E-05**
			Cadmium	--	--	--	--	--
			Chromium	**1.12E-05**	**--**	**1.33E-05**	**--**	**2.45E-05**
			Cobalt	--	--	--	--	--
			Copper	--	--	--	--	--
			Iron	--	--	--	--	--
			Thallium	--	--	--	--	--
			Vanadium	--	--	--	--	--
			Zinc	--	--	--	--	--
			Aroclor-1260	**1.10E-06**	**--**	**4.84E-07**	**--**	**1.58E-06**
			Dieldrin	4.81E-07	--	1.52E-07	--	6.33E-07
			2-Methylnaphthalene	--	--	--	--	--
			Benz(a)anthracene	**9.06E-06**	**--**	**3.48E-06**	**--**	**1.25E-05**
			Benzo(a)pyrene	**8.08E-05**	**--**	**3.10E-05**	**--**	**1.12E-04**
			Benzo(b)fluoranthene	**8.27E-06**	**--**	**3.18E-06**	**--**	**1.14E-05**
			Benzo(k)fluoranthene	**9.25E-07**	**--**	**3.55E-07**	**--**	**1.28E-06**
			Chrysene	9.84E-08	--	3.78E-08	--	1.36E-07
			Dibenz(a,h)anthracene	**2.82E-05**	**--**	**1.08E-05**	**--**	**3.90E-05**
			Indeno(1,2,3-cd)pyrene	**7.29E-06**	**--**	**2.80E-06**	**--**	**1.01E-05**
			Naphthalene	--	--	--	--	--
			(Total)	3.05E-04	--	8.05E-05		3.86E-04
			Radionuclide Total					
		Exposure Point Total						3.86E-04
	Air	Ambient VOC Inhalation from Site 12 Soil						
			Naphthalene	--	5.84E-07	--	--	5.84E-07
			(Total)	--	5.84E-07	--		5.84E-07
			Radionuclide Total					
		Exposure Point Total						5.84E-07
	Particulates	Particulate Dust Inhalation from Site 12 Soil						
			Total 2,3,7,8-TCDD Equiv.	--	1.80E-09	--	--	1.80E-09
			Chromium	--	6.21E-09	--	--	6.21E-09
			(Total)	--	8.01E-09	--		8.01E-09
			Radionuclide Total					
		Exposure Point Total						8.01E-09
	Exposure Medium Total							3.87E-04
Soil Total								3.87E-04
Receptor Total								3.87E-04

Total Risk Across All Media: 3.87E-04

POTENTIAL PRGS TO ACHIEVE 1.0E-04 CANCER RISK

Arsenic UCL = 9.64 ug/kg	**Cancer Risk at the UCL**	**PRG Target Risk**	**Conc. at PRG**
Arsenic Cancer Risk	**1.57E-05**	**2.00E-05**	**12****
Total Cr UCL = 27.4 mg/kg			
Chromium Risk	**2.45E-05**	**3.00E-05**	**33.6**
TCDD UCL = 776 ng/kg			
TCDD Risk	**1.73E-04**	**1.11E-05**	**50**
PCB 1260 UCL = 350 ug/kg			
PCB Risk	**1.58E-06**	**1.00E-05**	**2215**
BAP UCL = 1650 ug/kg			
Total PAH Equivalents Risk	**1.12E-04**	**3.00E-05**	**442**

TABLE K-21
SUMMARY OF NONCANCER HAZARDS AND PRGS FOR COPCs - CHILD RESIDENT EXPOSURE TO SITE 12 SOIL
REASONABLE MAXIMUM EXPOSURE - BACKGROUND ELIMINATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Non-Carcinogenic Hazard Quotient				
				Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	Contact With Site 12 Soil	**Total 2,3,7,8-TCDD Equiv.**	**CNS (Behavioral)**	**1.42E+01**	**--**	**1.19E+00**	**1.54E+01**
			Aluminum	CNS (Developmental)	1.64E-01	--	4.58E-03	1.68E-01
			Antimony	Blood/Liver	2.70E-01	--	5.05E-02	3.21E-01
			Arsenic**	Skin/Vascular	2.47E-01	--	3.45E-02	2.81E-01
			Cadmium	Kidney	1.36E-01	--	1.52E-02	1.51E-01
			Chromium		1.43E-02	--	1.60E-02	3.03E-02
			Cobalt	Thyroid	3.07E-01	--	8.59E-03	3.15E-01
			Copper	GI Tract	3.80E-02	--	1.07E-03	3.91E-02
			Iron	Liver/Blood/GI Tract	4.02E-01	--	1.13E-02	4.13E-01
			Manganese	**CNS**	**3.06E-01**	**--**	**2.14E-01**	**5.21E-01**
			Thallium	**Skin**	**4.08E+00**	**--**	**1.14E-01**	**4.19E+00**
			Vanadium		6.60E-02	--	7.10E-02	1.37E-01
			Zinc	Blood	1.81E-02	--	5.07E-04	1.86E-02
			Aroclor-1260	N/A	--	--	--	--
			Dieldrin	Liver	4.91E-03	--	1.37E-03	6.28E-03
			2-Methylnaphthalene	Lung	4.03E-03	--	1.47E-03	5.49E-03
			Benz(a)anthracene	N/A	--	--	--	--
			Benzo(a)pyrene	N/A	--	--	--	--
			Benzo(b)fluoranthene	N/A	--	--	--	--
			Benzo(k)fluoranthene	N/A	--	--	--	--
			Chrysene	N/A	--	--	--	--
			Dibenz(a,h)anthracene	N/A	--	--	--	--
			Indeno(1,2,3-cd)pyrene	N/A	--	--	--	--
			Naphthalene	Decr. Wt. Gain	2.63E-04	--	9.56E-05	3.58E-04
			(Total)		2.02E+01	--	1.74E+00	2.20E+01
			Radionuclide Total					
		Exposure Point Total						2.20E+01
	Air	Ambient VOC Inhalation from Site 12 Soil						
			Naphthalene	Respiratory	--	1.61E-03	--	1.61E-03
			(Total)		--	1.61E-03	--	1.61E-03
			Radionuclide Total					
		Exposure Point Total						1.61E-03
	Particulates	Particulate Dust Inhalation from Site 12 Soil						
			Total 2,3,7,8-TCDD Equiv.	Liver/Respiratory/Reproductive	--	2.76E-06	--	2.76E-06
			Chromium	Lung/Nasal	--	4.76E-06	--	4.76E-06
			(Total)		--	7.52E-06	--	7.52E-06
			Radionuclide Total					
		Exposure Point Total						7.52E-06
	Exposure Medium Total							2.20E+01
Soil Total								2.20E+01
Receptor Total								2.20E+01

Total Hazard Index Across All Media: 2.20E+01

***In this table, the "child" receptor covers only ages 0 to 6 years. The higher age group categories (ages 6 to 16 and ages 16 to 30) are presented as a consolidated cancer risk estimate in a table labelled as an "adult" receptor.**

POTENTIAL PRGS TO ACHIEVE HAZARD INDEX <= 1.0

	Hazard Quotient (HQ) at the UCL	PRG Target HQ	Conc. at PRG
TCDD UCL = 776 ng/kg			
TCDD HQ	**1.54E+01**	**1.0**	**50**
Thallium UCL = 3.19 mg/kg			
Thallium HQ	**4.19E+00**	**1.0**	**0.76**
Manganese UCL = 575 mg/kg			
Manganese HQ (see note)	**5.21E-01**	**1.0**	**1104****

Total Blood HI =	7.53E-01
Total CNS HI =	1.61E+01
Total CNS (Behavioral) HI =	1.54E+01
Total CNS (Developmental) HI =	1.68E-01
Total Decr. Wt. Gain HI =	3.58E-04
Total GI Tract HI =	4.52E-01
Total Kidney HI =	1.51E-01
Total Liver HI =	7.40E-01
Total Lung HI =	5.50E-03
Total Nasal HI =	4.76E-06
Total Reproductive HI =	2.76E-06
Total Respiratory HI =	1.61E-03
Total Skin HI =	4.47E+00
Total Thyroid HI =	3.15E-01
Total Vascular HI =	2.81E-01

**** -- Manganese PRG only applies to NON-WASTE AREAS. PRG is approximately equal to upper range of background.**

Note: Manganese HQ is based on an RfD of 0.024 mg/kg-day, which is 1/6 of the IRIS RfD (0.14 mg/kg-day) that includes manganese from all sources, including diet. Soil RfD assumes uncertainty in non-dietary absorption (factor of 3) and 1/2 of total intake from exposure to soil.

Table K-22
Exceedances of Candidate PRGs by Area Subcategory
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

AREA A EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Area A	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP15-0.502-02	1670		442
Area A	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS08D-000.5-20071205	3800		442
Area A	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP15-000.5-01	5720		442
Area A	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB59-000.5-01	9830		442
Area A	ARSENIC	SSA12-SB08D-0202.5-20071205	13.3		12
Area A	ARSENIC	12TP15-0304-03	24.3	J	12
Area A	CHROMIUM	12TP15-0304-03	56.7		33.6
Area A	CHROMIUM	SSA12-SB08D-0202.5-20071205	58.8		33.6
Area A	THALLIUM	12TP15-0405-04	1.2	K	0.76
Area A	THALLIUM	SSA12-SS08D-000.5-20071205	3.6	K	0.76
Area A	THALLIUM	12TP15-0304-03	4.2		0.76
Area A	THALLIUM	SSA12-SB08D-0202.5-20071205	41.1	K	0.76

AREA B EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Area B	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS18E-000.5-20071205	812		442
Area B	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP08-0304-03	2030		442
Area B	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS17E-000.5-20071205	4130		442
Area B	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP10-0405-03	5420		442
Area B	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP08-000.5-01	7490		442
Area B	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP08-0.502-02	9780		442
Area B	ARSENIC	12TP10-0405-03	12.6	K	12
Area B	ARSENIC	12TP08-0304-03	24	K	12
Area B	ARSENIC	12TP08-000.5-01	29.8		12
Area B	CHROMIUM	12TP10-0405-03	46.6		33.6
Area B	CHROMIUM	12TP10-0405-CS	54		33.6
Area B	CHROMIUM	12TP08-0304-03	55		33.6
Area B	THALLIUM	12TP10-0.502-02	0.78		0.76
Area B	THALLIUM	12TP10-0405-03	1.7		0.76
Area B	THALLIUM	SSA12-SS16E-000.5-20071205-D	2.2	K	0.76
Area B	THALLIUM	SSA12-SS16E-000.5-20071205	3	K	0.76
Area B	THALLIUM	SSA12-SS18E-000.5-20071205	3.3	K	0.76
Area B	THALLIUM	SSA12-SS17E-000.5-20071205	3.8	K	0.76

AREA C EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Area C	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP05-0204-03-D	485		442
Area C	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP05-0.502-02	664		442
Area C	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP05-000.5-01	1840		442
Area C	THALLIUM	12TP05-0204-03	0.89		0.76
Area C	THALLIUM	12TP05-0204-03-D	1		0.76

AREA D EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Area D	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP09-000.5-01	496		442
Area D	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP09-0.502-02	1320		442
Area D	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP09-0304-03-D	10800		442
Area D	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP09-0304-03	25000		442
Area D	ARSENIC	12TP09-0304-03-D	12.9	K	12
Area D	ARSENIC	12TP09-0304-03	16.6	K	12
Area D	CHROMIUM	12TP09-0304-03	58.1		33.6
Area D	CHROMIUM	12TP09-0304-CS	65		33.6
Area D	CHROMIUM	12TP09-0304-03-D	75.5		33.6
Area D	CHROMIUM	12TP09-0.502-02	35.6		33.6
Area D	THALLIUM	12TP09-0304-03-D	1.3		0.76
Area D	THALLIUM	12TP09-0304-03	1.9		0.76
Area D	TOTAL 2,3,7,8-TCDD EQUIVALENTS	12TP09-0506-05	247.0653		50

Table K-22
Exceedances of Candidate PRGs by Area Subcategory
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

AREA E EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP12-000.5-01	712		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP12-0.502-02	940		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP13-000.5-01	948		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS08E-000.5-20071206	994		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP11-0304-03	1180		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP12-0203-03	1280		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS09E-000.5-20071206	2590		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP13-0.502-02	4070		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB54-0.502-02	7470		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP11-000.5-01	11200		442
Area E	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP11-0.502-02	40300		442
Area E	ARSENIC	12SB27-000.5-01	14.4	J	12
Area E	ARSENIC	12TP12-0203-03	92.2	J	12
Area E	CHROMIUM	12TP12-0203-03	65.4		33.6
Area E	THALLIUM	12TP11-0304-03	0.8		0.76
Area E	THALLIUM	12TP12-000.5-01	0.9	K	0.76
Area E	THALLIUM	12TP11-0.502-02	1.1	K	0.76
Area E	THALLIUM	12TP12-0203-03	2.2	K	0.76
Area E	THALLIUM	SSA12-SS08E-000.5-20071206	2.6	J	0.76
Area E	THALLIUM	SSA12-SS09E-000.5-20071206	2.8	J	0.76

ANOMALY 1 EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Anomaly 1	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP06-0506-03	3080		442
Anomaly 1	THALLIUM	12TP06-000.5-01	0.93	J	0.76

ANOMALY 2 EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Anomaly 2	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP01-0.502-02	1280		589
Anomaly 2	ARSENIC	12TP18-0506-01	16.8	J	12
Anomaly 2	THALLIUM	12TP01-0708-04	3.2		0.76

ANOMALY 3 EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB41-000.5-01	485		442
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB44-0.502-02	556		442
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP16-0608-03-D	631		442
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB40-000.5-01	695		442
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP16-0608-03	714		442
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB39-000.5-01	1180		442
Anomaly 3	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP02-000.5-01	1720		442
Anomaly 3	ARSENIC	12TP02-0405-03	13.1	L	12
Anomaly 3	CHROMIUM	12TP02-0405-03	182	L	33.6
Anomaly 3	THALLIUM	12TP16-0.502-02	0.81		0.76
Anomaly 3	THALLIUM	12TP02-000.5-01	0.85	J	0.76
Anomaly 3	THALLIUM	12TP02-0405-03	3		0.76
Anomaly 3	TOTAL 2,3,7,8-TCDD EQUIVALENTS	12TP02-0405-03	603.051		50

ANOMALY 4 EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP03-0809-05	1220		442
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB43-0.502-02	1260		442
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP03-000.5-01	2080		442
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP03-0.502-02	2420		442
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP03-0.502-02-D	2900		442
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP03-0506-04	3050		442
Anomaly 4	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP03-0607-03	3350		442
Anomaly 4	ARSENIC	12TP03-0506-04	108	L	12
Anomaly 4	CHROMIUM	12TP03-0506-04	192	L	33.6
Anomaly 4	THALLIUM	12TP03-0809-05	1.2	J	0.76
Anomaly 4	THALLIUM	12TP03-0506-04	2.7		0.76

Table K-22
Exceedances of Candidate PRGs by Area Subcategory
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

ANOMALY 5 EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Anomaly 5	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP14-0405-03	588		442
Anomaly 5	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12TP14-000.5-01	635		442
Anomaly 5	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS13E-000.5-20071206	939		442
Anomaly 5	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS15E-000.5-20071206	3420		442
Anomaly 5	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS14E-000.5-20071206	3540		442
Anomaly 5	CHROMIUM	12TP14-0405-03	70.1		33.6
Anomaly 5	CHROMIUM	12TP14-0405-CS	39		33.6
Anomaly 5	THALLIUM	SSA12-SS13E-000.5-20071206	2.4	J	0.76
Anomaly 5	THALLIUM	SSA12-SS14E-000.5-20071206	2.7	J	0.76
Anomaly 5	THALLIUM	SSA12-SS15E-000.5-20071206	3.3	J	0.76

NON-BURIED WASTE AREAS EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB02D-0202.5-20071207	462		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB04D-0202.5-20071205	462		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB10D-0202.5-20071205	462		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB03D-1.502-20071205	485		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB02D-0202.5-20071207-D	485		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB06D-0202.5-20071207	485		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB07D-0202.5-20071205	485		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS06E-000.5-20071206	508		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB05D-0202.5-20071207	508		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS05D-000.5-20071207	531		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS03D-000.5-20071205	554		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS04D-000.5-20071205	554		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS06D-000.5-20071207	554		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB10-000.5-01	600		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS01E-000.5-20071206	621		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB26-000.5-01-D	663		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS19E-000.5-20071205	732		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS02D-000.5-20071207	740		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB28-000.5-01	873		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB26-000.5-01	970		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB10-0304-03	1910		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB31-0.502-02-D	1960		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SB01D-0001-20071207	2510		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB31-0.502-02	2720		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	SSA12-SS01D-000.5-20071207	3010		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB01-000.5-01	3140		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB19-0.502-02	3230		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB14-0.502-02	3590		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB10-0.502-02	6250		442
Non-Waste	BENZO(A)PYRENE TOXICITY EQUIVALENTS	12SB01-0.502-02	6710		442
Non-Waste	ARSENIC	SSA12-SS07D-000.5-20071205	12.8		12
Non-Waste	CHROMIUM	SSA12-SS03E-000.5-20071206	38.5		33.6
Non-Waste	THALLIUM	12SB04-0.502-02	0.81	K	0.76
Non-Waste	THALLIUM	12SB02-0.502-02	0.83	K	0.76
Non-Waste	THALLIUM	12SB05-0.502-02	0.94	K	0.76
Non-Waste	THALLIUM	12SB02-0.502-02-D	0.96	K	0.76
Non-Waste	THALLIUM	12SB01-000.5-01	1.2	K	0.76
Non-Waste	THALLIUM	SSA12-SS01E-000.5-20071206	1.3	J	0.76
Non-Waste	THALLIUM	SSA12-SS02E-000.5-20071206	1.8	J	0.76
Non-Waste	THALLIUM	SSA12-SS19E-000.5-20071205	1.8	J	0.76
Non-Waste	THALLIUM	SSA12-SS10E-000.5-20071207	1.9	J	0.76
Non-Waste	THALLIUM	SSA12-SS10D-000.5-20071205	2.1	K	0.76
Non-Waste	THALLIUM	SSA12-SS04E-000.5-20071206	2.4	J	0.76
Non-Waste	THALLIUM	SSA12-SS03E-000.5-20071206	2.5	K	0.76
Non-Waste	THALLIUM	SSA12-SS06D-000.5-20071207	2.7	J	0.76

Table K-22
Exceedances of Candidate PRGs by Area Subcategory
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

NON-BURIED WASTE AREAS EXCEEDANCES

AREA	CHEMICAL OF CONCERN	SAMPLE I.D.	CONCENTRATION	QUALIFIER	PRG
Non-Waste	THALLIUM	SSA12-SB01D-0001-20071207	2.9	J	0.76
Non-Waste	THALLIUM	SSA12-SS01D-000.5-20071207	3	J	0.76
Non-Waste	THALLIUM	SSA12-SS05E-000.5-20071206	3	K	0.76
Non-Waste	THALLIUM	SSA12-SS03D-000.5-20071205	3.1	K	0.76
Non-Waste	THALLIUM	SSA12-SB10D-0202.5-20071205	3.2	K	0.76
Non-Waste	THALLIUM	SSA12-SB03D-1.502-20071205	3.3	K	0.76
Non-Waste	THALLIUM	SSA12-SS05D-000.5-20071207	3.6	J	0.76
Non-Waste	THALLIUM	SSA12-SS06E-000.5-20071206	3.6	K	0.76
Non-Waste	THALLIUM	SSA12-SB02D-0202.5-20071207	3.7	J	0.76
Non-Waste	THALLIUM	SSA12-SS04D-000.5-20071205	3.8	K	0.76
Non-Waste	THALLIUM	SSA12-SS07E-000.5-20071206	3.8	J	0.76
Non-Waste	THALLIUM	SSA12-SB04D-0202.5-20071205	3.8	K	0.76
Non-Waste	THALLIUM	SSA12-SB02D-0202.5-20071207-D	4	J	0.76
Non-Waste	THALLIUM	SSA12-SS02D-000.5-20071207	4.2	J	0.76
Non-Waste	THALLIUM	SSA12-SB06D-0202.5-20071207	5.8	J	0.76
Non-Waste	THALLIUM	SSA12-SB07D-0202.5-20071205	6.1	K	0.76
Non-Waste	THALLIUM	SSA12-SB05D-0202.5-20071207	7	J	0.76

TABLE K-23
TEST FORM II STATISTICAL COMPARISON OF WASTE AREA SOILS TO BACKGROUND
SITE 12 REMEDIAL INVESTIGATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Name of Test:		Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:		Ranks of Site 12 so < bkg.+2σ?				Site 12 so Mean < bkg. Mean + 2σ ?					Site 12 so Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:						#s>2,#b>2,>=85% Pos; both normal					#s>2,#b>2, Site 3 sb & bkg. both normally distributed						
Test Criterion:		P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
		P	Test	Used	YN	Site 12 so	bkg.+ 2σ	t	t	YN	Site 12 so	bkg.	Std.Dev.	Std.Dev.	F	F	YN
Site Conc.< background + 2σ? Y/N		Value				Mean@	Mean@	Value	Table		Distrib.	Distrib.	Site 12 so@	bkg. ss@	Value	Table	
Chromium	N	0.9446			N	27	17.6			NA	nonpar.	normal					NA
Thallium	N	0.9941	Gehan	Test	N	1.48	0.292			NA	nonpar.	nonpar.					NA
Benz(a)anthracene	N	0.3071	Gehan	Test	N	1260	528			NA	nonpar.	lognor.					NA
Benzo(a)pyrene	N	0.3079	Gehan	Test	N	1160	659			NA	nonpar.	lognor.					NA
Benzo(b)fluoranthene	N	0.2536	Gehan	Test	N	1220	869			NA	nonpar.	lognor.					NA
Benzo(k)fluoranthene	N	0.446	Gehan	Test	N	1280	585			NA	nonpar.	nonpar.					NA
Chrysene	N	0.5886	Gehan	Test	N	1370	420			NA	nonpar.	normal					NA
Dibenz(a,h)anthracene	N	0.5021	Gehan	Test	N	342	210			NA	nonpar.	nonpar.					NA
Indeno(1,2,3-cd)pyrene	N	0.3065	Gehan	Test	N	875	389			NA	nonpar.	lognor.					NA

**** Site 12 Waste Area concentrations in soil are compared to background surface soil.**

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the background data plus 2σ has a distribution with more values ranked greater than the ranks of site data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the background data plus 2σ belongs to a population having a greater mean relative to the mean of the site population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 12 so to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 12 so < bkg. + 2σ) for each chemical appears at the left and is based on the criteria:
Overall decision is YES if either one of the Mann-Whitney/Gehan or T-Test is YES.
NOTE: The Test Form 2 results do not utilize the UTL test or quantile test because the minimum detectable difference (MDD) is applied to the entire data set for a comparison of arithmetic mean or rank sum.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 12 so (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 12 so results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 12 so < bkg. + 2σ with 95 % confidence.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.

TABLE K-24
TEST FORM II STATISTICAL COMPARISON OF NON-WASTE AREA SOILS TO BACKGROUND
SITE 12 REMEDIAL INVESTIGATION
NAS JRB, WILLOW GROVE, PENNSYLVANIA

Name of Test:		Mann-Whitney/Gehan				Student's or Satterthwaite T-test					Bartlett's Test for Equal Standard Deviations						
Question Posed:		Ranks of Site 12 so < bkg.+2σ?				Site 12 so Mean < bkg. Mean + 2σ ?					Site 12 so Standard Deviation =bkg. Std.Dev.?						
Assumptions Valid:						#s>2,#b>2,>=85% Pos; both normal					#s>2,#b>2, Site 3 sb & bkg. both normally distributed						
Test Criterion:		P value <=0.05 ?				t-Value > t-Table					F-Value<=F-Table (Students T). If not, Satterthwaite						
Site Conc.< background + 2σ?	Y/N	P Value	Test	Used	YN	Site 12 so Mean[@]	bkg.+ 2σ Mean[@]	t Value	t Table	YN	Site 12 so Distrib.	bkg. Distrib.	Std.Dev. Site 12 so@	Std.Dev. bkg. ss@	F Value	F Table	YN
Chromium	N	0.0611			N	15.7	17.6			NA	nonpar.	normal					NA
Thallium	N	0.9993	Gehan	Test	N	2.02	0.292			NA	nonpar.	nonpar.					NA
Benz(a)anthracene	**Y**	0.0003	Gehan	Test	**Y**	303	528			NA	nonpar.	lognor.					NA
Benzo(a)pyrene	**Y**	0.0009	Gehan	Test	**Y**	291	659			NA	nonpar.	lognor.					NA
Benzo(b)fluoranthene	**Y**	0.0009	Gehan	Test	**Y**	362	869			NA	nonpar.	lognor.					NA
Benzo(k)fluoranthene	**Y**	0.0032	Gehan	Test	**Y**	190	585			NA	nonpar.	nonpar.					NA
Chrysene	**Y**	0.0064	Gehan	Test	**Y**	350	420			NA	nonpar.	normal					NA
Dibenz(a,h)anthracene	**Y**	0.0039	Gehan	Test	**Y**	57.6	210			NA	nonpar.	nonpar.					NA
Indeno(1,2,3-cd)pyrene	**Y**	0.0006	Gehan	Test	**Y**	171	389			NA	nonpar.	lognor.					NA

**** Site 12 Non-Waste Area concentrations in soil are compared to background surface soil.**

Interpretation of Mann Whitney / Gehan Test: If the "P-Value" is less than 0.05, then it can be concluded that the background data plus 2σ has a distribution with more values ranked greater than the ranks of site data, based on combining the data together and comparing the rank sums belonging to each group. This indicates the data belong to two populations having different medians.

Interpretation of Student's t- / Satterthwaite's t-Test: If the "t-Value" exceeds the lookup "t-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the background data plus 2σ belongs to a population having a greater mean relative to the mean of the site population.

Interpretation of Bartlett's Test: If the "F-Value" exceeds the lookup "F-Table" and both soil type distributions match a "normal" shape, then it can be concluded that the site and background data sets belong to two populations having different standard deviations. In this case, the Satterthwaite t-Test must be used rather than the Student's t-Test.

A statistical significance level (P value) of 0.05 is used for all tests that directly compare Site 12 so to bkg. Soil. A two-sided significance level of 0.1 is used for Bartlett's test for equal variance.
For each test, a YES or NO decision is presented only if all assumptions are met. The overall decision (is Site 12 so < bkg. + 2σ) for each chemical appears at the left and is based on the criteria:
Overall decision is YES if either one of the Mann-Whitney/Gehan or T-Test is YES.
NOTE: The Test Form 2 results do not utilize the UTL test or quantile test because the minimum detectable difference (MDD) is applied to the entire data set for a comparison of arithmetic mean or rank sum.

# NDs or # Pos.	Number of non-detected (ND) or positive (Pos.) results in data set, not including rejected data or blank-qualified data.
# s or # b	Number of Site 12 so (s) or bkg. (b) samples, not including rejected data or blank-qualified data.
s = b	Standard deviation of Site 12 so results must not be different from the standard deviation of bkg. results.
P value	Probability or significance level is defined as the chance of a false positive. If P <= 0.05 then test determines Site 12 so < bkg. + 2σ with 95 % confidence.
@	For the t-test, the arithmetic mean and standard deviation of un-transformed data are shown in every case, since the t-test cannot be run if site and background do not both match a normal distribution.

Table K-25
Soil Background Threshold Values Summary
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	Background Threshold Values (BTVs)					
Compound	**Freq. of Detection**	**Arithmetic Mean**	**Standard Deviation**	**Assumed Distribution**	**Type of BTV***	**BTV**
Chromium	12/12	15.44	2.291	Normal	95% UTL with 95% Coverage	21.71
Thallium	7/12	0.274	0.0281	Nonparametric	95% KM UPL (t)	0.327
Benzo(a)anthracene	9/12	296.1	252.7	Nonparametric	95% KM UPL (t)	768.5
Benzo(a)pyrene	8/12	402.1	306.7	Nonparametric	95% KM UPL (t)	975.4
Benzo(b)fluoranthene	8/12	510	417.6	Nonparametric	95% KM UPL (t)	1290
Benzo(k)fluoranthene	7/12	385.3	256.8	Nonparametric	95% KM UPL (t)	865.3
Chrysene	9/12	405.9	353.7	Nonparametric	95% KM UPL (t)	1067
Dibenz(a,h)anthracene	5/12	88.6	39.66	Nonparametric	95% KM UPL (t)	162.7
Indeno(1,2,3-cd)pyrene	8/12	242	174.9	Nonparametric	95% KM UPL (t)	568.9

*Type of BTV - See ProUCL documentation for details.
Units are mg/kg for inorganics; ug/kg for organics.

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

1				**General Background Statistics for Data Sets with Non-Detects**								
2			**User Selected Options**									
3			From File	C:\willow_grove\Site12_HHRA\Back_TestFormII\wg12bgso_ProUCL_BTV_input.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Coverage	95%								
7			Different or Future K Values	1								
8			Number of Bootstrap Operations	2000								
9												
10												
11	**Chromium**											
12												
13						**General Statistics**							
14						Total Number of Observations	12			Number of Distinct Observations	12		
15						Tolerance Factor	2.736						
16													
17						**Raw Statistics**				**Log-Transformed Statistics**			
18						Minimum	12.4			Minimum	2.518		
19						Maximum	20.8			Maximum	3.035		
20						Second Largest	17.9			Second Largest	2.885		
21						First Quartile	13.73			First Quartile	2.619		
22						Median	15.5			Median	2.741		
23						Third Quartile	16.08			Third Quartile	2.777		
24						Mean	15.44			Mean	2.728		
25						SD	2.291			SD	0.142		
26						Coefficient of Variation	0.148						
27						Skewness	1.067						
28													
29						**Background Statistics**							
30						**Normal Distribution Test**				**Lognormal Distribution Test**			
31						Shapiro Wilk Test Statistic	0.925			Shapiro Wilk Test Statistic	0.958		
32						Shapiro Wilk Critical Value	0.859			Shapiro Wilk Critical Value	0.859		
33						**Data appear Normal at 5% Significance Level**				**Data appear Lognormal at 5% Significance Level**			
34													
35						**Assuming Normal Distribution**				**Assuming Lognormal Distribution**			
36						95% UTL with 95% Coverage	21.71			95% UTL with 95% Coverage	22.57		
37						95% UPL (t)	19.72			95% UPL (t)	19.95		
38						90% Percentile (z)	18.38			90% Percentile (z)	18.35		
39						95% Percentile (z)	19.21			95% Percentile (z)	19.32		
40						99% Percentile (z)	20.77			99% Percentile (z)	21.29		
41													
42						**Gamma Distribution Test**				**Data Distribution Test**			
43						k star	39.63			**Data appear Normal at 5% Significance Level**			
44						Theta Star	0.39						
45						MLE of Mean	15.44						

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
46					MLE of Standard Deviation	2.453						
47					nu star	951.1						
48												
49					A-D Test Statistic	0.286	**Nonparametric Statistics**					
50					5% A-D Critical Value	0.73					90% Percentile	17.74
51					K-S Test Statistic	0.162					95% Percentile	19.21
52					5% K-S Critical Value	0.245					99% Percentile	20.48
53	**Data appear Gamma Distributed at 5% Significance Level**											
54												
55	**Assuming Gamma Distribution**									95% UTL with	95% Coverage	20.8
56					90% Percentile	18.66			95% Percentile Bootstrap UTL with		95% Coverage	20.8
57					95% Percentile	19.69			95% BCA Bootstrap UTL with		95% Coverage	20.8
58					99% Percentile	21.71					95% UPL	20.8
59											95% Chebyshev UPL	25.84
60					95% WH Approx. Gamma UPL	19.86					Upper Threshold Limit Based upon IQR	19.6
61					95% HW Approx. Gamma UPL	19.88						
62				95% WH Approx. Gamma UTL with	95% Coverage	22.22						
63				95% HW Approx. Gamma UTL with	95% Coverage	22.3						
64												
65												
66												
67	**Thallium**											
68												
69	**General Statistics**											
70					Number of Valid Data	12				Number of Detected Data		7
71					Number of Distinct Detected Data	5				Number of Non-Detect Data		5
72					Tolerance Factor	2.736				Percent Non-Detects		41.67%
73												
74	**Raw Statistics**						**Log-transformed Statistics**					
75					Minimum Detected	0.25				Minimum Detected		-1.386
76					Maximum Detected	0.34				Maximum Detected		-1.079
77					Mean of Detected	0.291				Mean of Detected		-1.237
78					SD of Detected	0.0273				SD of Detected		0.0932
79					Minimum Non-Detect	0.26				Minimum Non-Detect		-1.347
80					Maximum Non-Detect	0.27				Maximum Non-Detect		-1.309
81												
82	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
83	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		6
84	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		6
85	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		50.00%
86												
87												
88	**Warning: There are only 7 Detected Values in this data**											
89	**Note: It should be noted that even though bootstrap may be performed on this data set**											
90	**the resulting calculations may not be reliable enough to draw conclusions**											

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
91												
92	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
93												
94	**Background Statistics**											
95	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
96	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Test Statistic					0.948
97	5% Shapiro Wilk Critical Value					0.803	5% Shapiro Wilk Critical Value					0.803
98	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
99												
100	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
101	DL/2 Substitution Method						DL/2 Substitution Method					
102	Mean					0.225	Mean (Log Scale)					-1.562
103	SD					0.0841	SD (Log Scale)					0.408
104	95% UTL 95% Coverage					0.455	95% UTL 95% Coverage					0.641
105	95% UPL (t)					0.383	95% UPL (t)					0.45
106	90% Percentile (z)					0.333	90% Percentile (z)					0.354
107	95% Percentile (z)					0.364	95% Percentile (z)					0.41
108	99% Percentile (z)					0.421	99% Percentile (z)					0.542
109												
110	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
111	Mean					0.27	Mean in Original Scale					0.273
112	SD					0.0347	SD in Original Scale					0.0314
113	95% UTL with 95% Coverage					0.365	95% UTL with 95% Coverage					0.369
114							95% BCA UTL with 95% Coverage					0.34
115							95% Bootstrap (%) UTL with 95% Coverage					0.34
116	95% UPL (t)					0.335	95% UPL (t)					0.335
117	90% Percentile (z)					0.315	90% Percentile (z)					0.313
118	95% Percentile (z)					0.328	95% Percentile (z)					0.326
119	99% Percentile (z)					0.351	99% Percentile (z)					0.352
120												
121	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
122	k star (bias corrected)					76.72	Data appear Normal at 5% Significance Level					
123	Theta Star					0.0038						
124	nu star					1074						
125												
126	A-D Test Statistic					0.323	**Nonparametric Statistics**					
127	5% A-D Critical Value					0.708	Kaplan-Meier (KM) Method					
128	K-S Test Statistic					0.214	Mean					0.274
129	5% K-S Critical Value					0.311	SD					0.0281
130	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					0.00877
131							95% KM UTL with 95% Coverage					0.351
132	**Assuming Gamma Distribution**						95% KM Chebyshev UPL					0.402
133	Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)					0.327
134	Mean					0.27	90% Percentile (z)					0.31
135	Median					0.271	95% Percentile (z)					0.32

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
136					SD	0.0361				99% Percentile (z)		0.34
137					k star	45.52						
138					Theta star	0.00592	**Gamma ROS Limits with Extrapolated Data**					
139					Nu star	1093				95% Wilson Hilferty (WH) Approx. Gamma UPL		0.341
140				95% Percentile of Chisquare (2k)		114.3				95% Hawkins Wixley (HW) Approx. Gamma UPL		0.342
141										95% WH Approx. Gamma UTL with	95% Coverage	0.379
142					90% Percentile	0.322				95% HW Approx. Gamma UTL with	95% Coverage	0.381
143					95% Percentile	0.338						
144					99% Percentile	0.371						
145												
146	**Note: DL/2 is not a recommended method.**											
147												
148												
149	**Benz(a)anthracene**											
150												
151	**General Statistics**											
152					Number of Valid Data	12				Number of Detected Data		9
153					Number of Distinct Detected Data	9				Number of Non-Detect Data		3
154					Tolerance Factor	2.736				Percent Non-Detects		25.00%
155												
156	**Raw Statistics**						**Log-transformed Statistics**					
157					Minimum Detected	33				Minimum Detected		3.497
158					Maximum Detected	940				Maximum Detected		6.846
159					Mean of Detected	337.7				Mean of Detected		5.422
160					SD of Detected	290.2				SD of Detected		1.046
161					Minimum Non-Detect	390				Minimum Non-Detect		5.966
162					Maximum Non-Detect	430				Maximum Non-Detect		6.064
163												
164	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
165	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		9
166	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		3
167	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		75.00%
168												
169												
170	**Warning: There are only 9 Detected Values in this data**											
171	**Note: It should be noted that even though bootstrap may be performed on this data set**											
172	**the resulting calculations may not be reliable enough to draw conclusions**											
173												
174	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
175												
176	**Background Statistics**											
177	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
178					Shapiro Wilk Test Statistic	0.898				Shapiro Wilk Test Statistic		0.963
179					5% Shapiro Wilk Critical Value	0.829				5% Shapiro Wilk Critical Value		0.829
180	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					

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ProUCL Background Threshold Values for Soil Risk Drivers
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	A	B	C	D	E	F	G	H	I	J	K	L
181												
182	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
183					DL/2 Substitution Method						DL/2 Substitution Method	
184					Mean	305.3					Mean (Log Scale)	5.401
185					SD	254.3					SD (Log Scale)	0.893
186					95% UTL 95% Coverage	1001					95% UTL 95% Coverage	2551
187					95% UPL (t)	780.7					95% UPL (t)	1176
188					90% Percentile (z)	631.3					90% Percentile (z)	695.9
189					95% Percentile (z)	723.7					95% Percentile (z)	962.7
190					99% Percentile (z)	897					99% Percentile (z)	1769
191												
192					Maximum Likelihood Estimate(MLE) Method						Log ROS Method	
193					Mean	159.7					Mean in Original Scale	288
194					SD	401.2					SD in Original Scale	264.1
195					95% UTL with 95% Coverage	1257					95% UTL with 95% Coverage	2575
196											95% BCA UTL with 95% Coverage	940
197											95% Bootstrap (%) UTL with 95% Coverage	940
198					95% UPL (t)	909.6					95% UPL (t)	1142
199					90% Percentile (z)	673.8					90% Percentile (z)	658.5
200					95% Percentile (z)	819.6					95% Percentile (z)	925.7
201					99% Percentile (z)	1093					99% Percentile (z)	1754
202												
203	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
204					k star (bias corrected)	1.002	Data appear Normal at 5% Significance Level					
205					Theta Star	337						
206					nu star	18.03						
207												
208					A-D Test Statistic	0.161	**Nonparametric Statistics**					
209					5% A-D Critical Value	0.736					Kaplan-Meier (KM) Method	
210					K-S Test Statistic	0.147					Mean	296.1
211					5% K-S Critical Value	0.285					SD	252.7
212	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	79.66
213											95% KM UTL with 95% Coverage	987.6
214	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	1443
215					Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)	768.5
216					Mean	299.8					90% Percentile (z)	620
217					Median	245					95% Percentile (z)	711.8
218					SD	261.1					99% Percentile (z)	884
219					k star	1.187						
220					Theta star	252.6	**Gamma ROS Limits with Extrapolated Data**					
221					Nu star	28.49					95% Wilson Hilferty (WH) Approx. Gamma UPL	918.4
222					95% Percentile of Chisquare (2k)	6.697					95% Hawkins Wixley (HW) Approx. Gamma UPL	964.4
223											95% WH Approx. Gamma UTL with 95% Coverage	1464
224					90% Percentile	661.7					95% HW Approx. Gamma UTL with 95% Coverage	1627
225					95% Percentile	845.8						

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	A	B	C	D	E	F	G	H	I	J	K	L
226					99% Percentile	1268						
227												
228	**Note: DL/2 is not a recommended method.**											
229												
230												
231	**Benzo(a)pyrene**											
232												
233	**General Statistics**											
234					Number of Valid Data	12				Number of Detected Data	8	
235					Number of Distinct Detected Data	7				Number of Non-Detect Data	4	
236					Tolerance Factor	2.736				Percent Non-Detects	33.33%	
237												
238	**Raw Statistics**						**Log-transformed Statistics**					
239					Minimum Detected	110				Minimum Detected	4.7	
240					Maximum Detected	1100				Maximum Detected	7.003	
241					Mean of Detected	486.3				Mean of Detected	5.894	
242					SD of Detected	359.6				SD of Detected	0.873	
243					Minimum Non-Detect	390				Minimum Non-Detect	5.966	
244					Maximum Non-Detect	430				Maximum Non-Detect	6.064	
245												
246	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
247	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL	9	
248	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL	3	
249	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage	75.00%	
250												
251												
252	**Warning: There are only 8 Detected Values in this data**											
253	**Note: It should be noted that even though bootstrap may be performed on this data set**											
254	**the resulting calculations may not be reliable enough to draw conclusions**											
255												
256	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
257												
258	**Background Statistics**											
259	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
260					Shapiro Wilk Test Statistic	0.911				Shapiro Wilk Test Statistic	0.917	
261					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value	0.818	
262	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
263												
264	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
265					DL/2 Substitution Method					DL/2 Substitution Method		
266					Mean	393.8				Mean (Log Scale)	5.709	
267					SD	317.8				SD (Log Scale)	0.748	
268					95% UTL 95% Coverage	1263				95% UTL 95% Coverage	2336	
269					95% UPL (t)	987.8				95% UPL (t)	1221	
270					90% Percentile (z)	801				90% Percentile (z)	786.9	

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ProUCL Background Threshold Values for Soil Risk Drivers
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	A	B	C	D	E	F	G	H	I	J	K	L
271					95% Percentile (z)	916.5					95% Percentile (z)	1033
272					99% Percentile (z)	1133					99% Percentile (z)	1719
273												
274				Maximum Likelihood Estimate(MLE) Method							Log ROS Method	
275					Mean	24.03					Mean in Original Scale	395.4
276					SD	644.2					SD in Original Scale	318.2
277				95% UTL with	95% Coverage	1787				95% UTL with	95% Coverage	2414
278										95% BCA UTL with	95% Coverage	1100
279										95% Bootstrap (%) UTL with	95% Coverage	1100
280					95% UPL (t)	1228					95% UPL (t)	1249
281					90% Percentile (z)	849.7					90% Percentile (z)	798.9
282					95% Percentile (z)	1084					95% Percentile (z)	1053
283					99% Percentile (z)	1523					99% Percentile (z)	1768
284												
285				**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**		
286					k star (bias corrected)	1.244				Data appear Normal at 5% Significance Level		
287					Theta Star	390.7						
288					nu star	19.91						
289												
290					A-D Test Statistic	0.285				**Nonparametric Statistics**		
291					5% A-D Critical Value	0.725					Kaplan-Meier (KM) Method	
292					K-S Test Statistic	0.166					Mean	402.1
293					5% K-S Critical Value	0.298					SD	306.7
294				**Data appear Gamma Distributed at 5% Significance Level**							SE of Mean	98.5
295										95% KM UTL with	95% Coverage	1241
296				**Assuming Gamma Distribution**							95% KM Chebyshev UPL	1794
297				Gamma ROS Statistics with Extrapolated Data							95% KM UPL (t)	975.4
298					Mean	411.7					90% Percentile (z)	795.2
299					Median	316.1					95% Percentile (z)	906.6
300					SD	313.8					99% Percentile (z)	1116
301					k star	1.601						
302					Theta star	257.2				**Gamma ROS Limits with Extrapolated Data**		
303					Nu star	38.42				95% Wilson Hilferty (WH) Approx. Gamma UPL		1124
304				95% Percentile of Chisquare (2k)		8.162				95% Hawkins Wixley (HW) Approx. Gamma UPL		1159
305										95% WH Approx. Gamma UTL with	95% Coverage	1711
306					90% Percentile	844.4				95% HW Approx. Gamma UTL with	95% Coverage	1841
307					95% Percentile	1049						
308					99% Percentile	1510						
309												
310	**Note: DL/2 is not a recommended method.**											
311												
312												
313	**Benzo(b)fluoranthene**											
314												
315						**General Statistics**							

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316					Number of Valid Data	12				Number of Detected Data		8
317					Number of Distinct Detected Data	7				Number of Non-Detect Data		4
318					Tolerance Factor	2.736				Percent Non-Detects		33.33%
319												
320					**Raw Statistics**					**Log-transformed Statistics**		
321					Minimum Detected	160				Minimum Detected		5.075
322					Maximum Detected	1500				Maximum Detected		7.313
323					Mean of Detected	655				Mean of Detected		6.212
324					SD of Detected	471.9				SD of Detected		0.838
325					Minimum Non-Detect	390				Minimum Non-Detect		5.966
326					Maximum Non-Detect	430				Maximum Non-Detect		6.064
327												
328					**Data with Multiple Detection Limits**					**Single Detection Limit Scenario**		
329	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		7
330	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		5
331	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		58.33%
332												
333												
334	**Warning: There are only 8 Detected Values in this data**											
335	**Note: It should be noted that even though bootstrap may be performed on this data set**											
336	**the resulting calculations may not be reliable enough to draw conclusions**											
337												
338	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
339												
340	**Background Statistics**											
341	**Normal Distribution Test with Detected Values Only**									**Lognormal Distribution Test with Detected Values Only**		
342					Shapiro Wilk Test Statistic	0.909				Shapiro Wilk Test Statistic		0.916
343					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
344	**Data appear Normal at 5% Significance Level**									**Data appear Lognormal at 5% Significance Level**		
345												
346	**Assuming Normal Distribution**									**Assuming Lognormal Distribution**		
347					DL/2 Substitution Method					DL/2 Substitution Method		
348					Mean	506.3				Mean (Log Scale)		5.922
349					SD	435.9				SD (Log Scale)		0.795
350					95% UTL 95% Coverage	1699				95% UTL 95% Coverage		3282
351					95% UPL (t)	1321				95% UPL (t)		1648
352					90% Percentile (z)	1065				90% Percentile (z)		1033
353					95% Percentile (z)	1223				95% Percentile (z)		1379
354					99% Percentile (z)	1520				99% Percentile (z)		2370
355												
356					Maximum Likelihood Estimate(MLE) Method					Log ROS Method		
357					Mean	299.6				Mean in Original Scale		509.2
358					SD	652.2				SD in Original Scale		434.4
359					95% UTL with 95% Coverage	2084				95% UTL with 95% Coverage		3330
360										95% BCA UTL with 95% Coverage		1500

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361											95% Bootstrap (%) UTL with	95% Coverage 1500
362					95% UPL (t)	1519					95% UPL (t)	1668
363					90% Percentile (z)	1135					90% Percentile (z)	1044
364					95% Percentile (z)	1372					95% Percentile (z)	1395
365					99% Percentile (z)	1817					99% Percentile (z)	2402
366												
367	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
368					k star (bias corrected)	1.325	Data appear Normal at 5% Significance Level					
369					Theta Star	494.2						
370					nu star	21.21						
371												
372					A-D Test Statistic	0.305	**Nonparametric Statistics**					
373					5% A-D Critical Value	0.724					Kaplan-Meier (KM) Method	
374					K-S Test Statistic	0.179					Mean	510
375					5% K-S Critical Value	0.297					SD	417.6
376	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	130.9
377											95% KM UTL with	95% Coverage 1652
378	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	2404
379	Gamma ROS Statistics with Extrapolated Data										95% KM UPL (t)	1290
380					Mean	502.7					90% Percentile (z)	1045
381					Median	347.1					95% Percentile (z)	1197
382					SD	443.8					99% Percentile (z)	1481
383					k star	1.086						
384					Theta star	462.9	**Gamma ROS Limits with Extrapolated Data**					
385					Nu star	26.06					95% Wilson Hilferty (WH) Approx. Gamma UPL	1596
386					95% Percentile of Chisquare (2k)	6.32					95% Hawkins Wixley (HW) Approx. Gamma UPL	1690
387											95% WH Approx. Gamma UTL with	95% Coverage 2580
388					90% Percentile	1134					95% HW Approx. Gamma UTL with	95% Coverage 2906
389					95% Percentile	1463						
390					99% Percentile	2221						
391												
392	**Note: DL/2 is not a recommended method.**											
393												
394												
395	**Benzo(k)fluoranthene**											
396												
397	**General Statistics**											
398					Number of Valid Data	12					Number of Detected Data	7
399					Number of Distinct Detected Data	6					Number of Non-Detect Data	5
400					Tolerance Factor	2.736					Percent Non-Detects	41.67%
401												
402	**Raw Statistics**						**Log-transformed Statistics**					
403					Minimum Detected	98					Minimum Detected	4.585
404					Maximum Detected	920					Maximum Detected	6.824
405					Mean of Detected	484					Mean of Detected	5.955

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	A	B	C	D	E	F	G	H	I	J	K	L
406					SD of Detected	313.4					SD of Detected	0.787
407					Minimum Non-Detect	390					Minimum Non-Detect	5.966
408					Maximum Non-Detect	430					Maximum Non-Detect	6.064
409												
410	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
411	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		9
412	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		3
413	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		75.00%
414												
415												
416	**Warning: There are only 7 Detected Values in this data**											
417	**Note: It should be noted that even though bootstrap may be performed on this data set**											
418	**the resulting calculations may not be reliable enough to draw conclusions**											
419												
420	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
421												
422	**Background Statistics**											
423	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
424	Shapiro Wilk Test Statistic					0.9				Shapiro Wilk Test Statistic		0.91
425	5% Shapiro Wilk Critical Value					0.803				5% Shapiro Wilk Critical Value		0.803
426	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
427												
428	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
429	DL/2 Substitution Method									DL/2 Substitution Method		
430	Mean					369.4				Mean (Log Scale)		5.699
431	SD					271.4				SD (Log Scale)		0.662
432	95% UTL 95% Coverage					1112				95% UTL 95% Coverage		1825
433	95% UPL (t)					876.7				95% UPL (t)		1029
434	90% Percentile (z)					717.2				90% Percentile (z)		697.3
435	95% Percentile (z)					815.8				95% Percentile (z)		886.7
436	99% Percentile (z)					1001				99% Percentile (z)		1392
437												
438	Maximum Likelihood Estimate(MLE) Method									Log ROS Method		
439	Mean					105.9				Mean in Original Scale		380.8
440	SD					518				SD in Original Scale		267
441	95% UTL with 95% Coverage					1523				95% UTL with 95% Coverage		1892
442										95% BCA UTL with 95% Coverage		920
443										95% Bootstrap (%) UTL with 95% Coverage		920
444	95% UPL (t)					1074				95% UPL (t)		1067
445	90% Percentile (z)					769.7				90% Percentile (z)		724
446	95% Percentile (z)					957.9				95% Percentile (z)		920.4
447	99% Percentile (z)					1311				99% Percentile (z)		1444
448												
449	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
450	k star (bias corrected)					1.439	Data appear Normal at 5% Significance Level					

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451					Theta Star	336.4						
452					nu star	20.15						
453												
454					A-D Test Statistic	0.369	**Nonparametric Statistics**					
455					5% A-D Critical Value	0.714					Kaplan-Meier (KM) Method	
456					K-S Test Statistic	0.231					Mean	385.3
457					5% K-S Critical Value	0.315					SD	256.8
458	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	84.33
459											95% KM UTL with 95% Coverage	1088
460	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	1550
461					Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)	865.3
462					Mean	401.5					90% Percentile (z)	714.4
463					Median	310					95% Percentile (z)	807.7
464					SD	264.8					99% Percentile (z)	982.7
465					k star	2.009						
466					Theta star	199.8	**Gamma ROS Limits with Extrapolated Data**					
467					Nu star	48.23					95% Wilson Hilferty (WH) Approx. Gamma UPL	1010
468					95% Percentile of Chisquare (2k)	9.518					95% Hawkins Wixley (HW) Approx. Gamma UPL	1039
469											95% WH Approx. Gamma UTL with 95% Coverage	1486
470					90% Percentile	780					95% HW Approx. Gamma UTL with 95% Coverage	1587
471					95% Percentile	951						
472					99% Percentile	1330						
473												
474	**Note: DL/2 is not a recommended method.**											
475												
476												
477	**Chrysene**											
478												
479	**General Statistics**											
480					Number of Valid Data	12					Number of Detected Data	9
481					Number of Distinct Detected Data	8					Number of Non-Detect Data	3
482					Tolerance Factor	2.736					Percent Non-Detects	25.00%
483												
484	**Raw Statistics**						**Log-transformed Statistics**					
485					Minimum Detected	43					Minimum Detected	3.761
486					Maximum Detected	1200					Maximum Detected	7.09
487					Mean of Detected	489.2					Mean of Detected	5.785
488					SD of Detected	390.5					SD of Detected	1.088
489					Minimum Non-Detect	390					Minimum Non-Detect	5.966
490					Maximum Non-Detect	430					Maximum Non-Detect	6.064
491												
492	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
493	Note: Data have multiple DLs - Use of KM Method is recommended										Number treated as Non-Detect with Single DL	7
494	For all methods (except KM, DL/2, and ROS Methods),										Number treated as Detected with Single DL	5
495	Observations < Largest ND are treated as NDs										Single DL Non-Detect Percentage	58.33%

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ProUCL Background Threshold Values for Soil Risk Drivers
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	A	B	C	D	E	F	G	H	I	J	K	L
496												
497												
498	**Warning: There are only 9 Detected Values in this data**											
499	**Note: It should be noted that even though bootstrap may be performed on this data set**											
500	**the resulting calculations may not be reliable enough to draw conclusions**											
501												
502	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
503												
504	**Background Statistics**											
505	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
506	Shapiro Wilk Test Statistic					0.925	Shapiro Wilk Test Statistic					0.929
507	5% Shapiro Wilk Critical Value					0.829	5% Shapiro Wilk Critical Value					0.829
508	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
509												
510	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
511	DL/2 Substitution Method						DL/2 Substitution Method					
512	Mean					419	Mean (Log Scale)					5.673
513	SD					356.5	SD (Log Scale)					0.95
514	95% UTL 95% Coverage					1394	95% UTL 95% Coverage					3915
515	95% UPL (t)					1085	95% UPL (t)					1718
516	90% Percentile (z)					875.9	90% Percentile (z)					983.2
517	95% Percentile (z)					1005	95% Percentile (z)					1388
518	99% Percentile (z)					1248	99% Percentile (z)					2653
519												
520	Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
521	Mean					326	Mean in Original Scale					399.8
522	SD					464.6	SD in Original Scale					370.8
523	95% UTL with 95% Coverage					1597	95% UTL with 95% Coverage					4333
524							95% BCA UTL with 95% Coverage					1200
525							95% Bootstrap (%) UTL with 95% Coverage					1200
526	95% UPL (t)					1194	95% UPL (t)					1770
527	90% Percentile (z)					921.4	90% Percentile (z)					965
528	95% Percentile (z)					1090	95% Percentile (z)					1404
529	99% Percentile (z)					1407	99% Percentile (z)					2838
530												
531	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
532	k star (bias corrected)					0.987	Data appear Normal at 5% Significance Level					
533	Theta Star					495.6						
534	nu star					17.77						
535												
536	A-D Test Statistic					0.253	**Nonparametric Statistics**					
537	5% A-D Critical Value					0.737	Kaplan-Meier (KM) Method					
538	K-S Test Statistic					0.166	Mean					405.9
539	5% K-S Critical Value					0.285	SD					353.7
540	**Data appear Gamma Distributed at 5% Significance Level**						SE of Mean					110.2

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
541										95% KM UTL with	95% Coverage	1374
542			**Assuming Gamma Distribution**								95% KM Chebyshev UPL	2011
543				Gamma ROS Statistics with Extrapolated Data							95% KM UPL (t)	1067
544					Mean	401.2					90% Percentile (z)	859.1
545					Median	288.5					95% Percentile (z)	987.6
546					SD	372.6					99% Percentile (z)	1229
547					k star	0.849						
548					Theta star	472.6			**Gamma ROS Limits with Extrapolated Data**			
549					Nu star	20.38				95% Wilson Hilferty (WH) Approx. Gamma UPL		1414
550				95% Percentile of Chisquare (2k)		5.392				95% Hawkins Wixley (HW) Approx. Gamma UPL		1535
551									95% WH Approx. Gamma UTL with		95% Coverage	2383
552					90% Percentile	961.7			95% HW Approx. Gamma UTL with		95% Coverage	2797
553					95% Percentile	1274						
554					99% Percentile	2009						
555												
556	**Note: DL/2 is not a recommended method.**											
557												
558												
559	**Dibenz(a,h)anthracene**											
560												
561					**General Statistics**							
562					Number of Valid Data	12				Number of Detected Data		5
563					Number of Distinct Detected Data	4				Number of Non-Detect Data		7
564					Tolerance Factor	2.736				Percent Non-Detects		58.33%
565												
566				**Raw Statistics**					**Log-transformed Statistics**			
567					Minimum Detected	52				Minimum Detected		3.951
568					Maximum Detected	160				Maximum Detected		5.075
569					Mean of Detected	88.6				Mean of Detected		4.392
570					SD of Detected	44.34				SD of Detected		0.471
571					Minimum Non-Detect	390				Minimum Non-Detect		5.966
572					Maximum Non-Detect	440				Maximum Non-Detect		6.087
573												
574				**Data with Multiple Detection Limits**					**Single Detection Limit Scenario**			
575	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		12
576	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		0
577	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		100.00%
578												
579												
580	**Warning: There are only 4 Distinct Detected Values in this data**											
581	**Note: It should be noted that even though bootstrap may be performed on this data set**											
582	**the resulting calculations may not be reliable enough to draw conclusions**											
583												
584	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
585												

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
586	**Background Statistics**											
587	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
588					Shapiro Wilk Test Statistic	0.863					Shapiro Wilk Test Statistic	0.904
589					5% Shapiro Wilk Critical Value	0.762					5% Shapiro Wilk Critical Value	0.762
590	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
591												
592	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
593					DL/2 Substitution Method						DL/2 Substitution Method	
594					Mean	160.3					Mean (Log Scale)	4.953
595					SD	68.92					SD (Log Scale)	0.571
596				95% UTL	95% Coverage	348.8				95% UTL	95% Coverage	675.6
597					95% UPL (t)	289.1					95% UPL (t)	411.8
598					90% Percentile (z)	248.6					90% Percentile (z)	294.4
599					95% Percentile (z)	273.6					95% Percentile (z)	362.2
600					99% Percentile (z)	320.6					99% Percentile (z)	534.6
601												
602				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
603											Mean in Original Scale	85.64
604											SD in Original Scale	31.87
605											Mean in Log Scale	4.392
606											SD in Log Scale	0.35
607											95% UTL 95% Coverage	210.8
608											95% UPL (t)	155.6
609											90% Percentile (z)	126.6
610											95% Percentile (z)	143.8
611											99% Percentile (z)	182.6
612												
613	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
614					k star (bias corrected)	2.373	Data appear Normal at 5% Significance Level					
615					Theta Star	37.34						
616					nu star	23.73						
617												
618					A-D Test Statistic	0.359	**Nonparametric Statistics**					
619					5% A-D Critical Value	0.68					Kaplan-Meier (KM) Method	
620					K-S Test Statistic	0.244					Mean	88.6
621					5% K-S Critical Value	0.358					SD	39.66
622	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	19.83
623										95% KM UTL with	95% Coverage	197.1
624	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	268.5
625				Gamma ROS Statistics with Extrapolated Data							95% KM UPL (t)	162.7
626					Mean	89.95					90% Percentile (z)	139.4
627					Median	92.64					95% Percentile (z)	153.8
628					SD	32.59					99% Percentile (z)	180.9
629					k star	6.434						
630					Theta star	13.98	**Gamma ROS Limits with Extrapolated Data**					

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
631					Nu star	154.4			95% Wilson Hilferty (WH) Approx. Gamma UPL			159.4
632					95% Percentile of Chisquare (2k)	22.19			95% Hawkins Wixley (HW) Approx. Gamma UPL			161.1
633									95% WH Approx. Gamma UTL with		95% Coverage	203.9
634					90% Percentile	137.3			95% HW Approx. Gamma UTL with		95% Coverage	209
635					95% Percentile	155.1						
636					99% Percentile	192.2						
637												
638	**Note: DL/2 is not a recommended method.**											
639												
640												
641	**Indeno(1,2,3-cd)pyrene**											
642												
643	**General Statistics**											
644					Number of Valid Data	12				Number of Detected Data		8
645					Number of Distinct Detected Data	8				Number of Non-Detect Data		4
646					Tolerance Factor	2.736				Percent Non-Detects		33.33%
647												
648	**Raw Statistics**						**Log-transformed Statistics**					
649					Minimum Detected	49				Minimum Detected		3.892
650					Maximum Detected	640				Maximum Detected		6.461
651					Mean of Detected	271.4				Mean of Detected		5.291
652					SD of Detected	203.1				SD of Detected		0.918
653					Minimum Non-Detect	390				Minimum Non-Detect		5.966
654					Maximum Non-Detect	430				Maximum Non-Detect		6.064
655												
656	**Data with Multiple Detection Limits**						**Single Detection Limit Scenario**					
657	Note: Data have multiple DLs - Use of KM Method is recommended									Number treated as Non-Detect with Single DL		11
658	For all methods (except KM, DL/2, and ROS Methods),									Number treated as Detected with Single DL		1
659	Observations < Largest ND are treated as NDs									Single DL Non-Detect Percentage		91.67%
660												
661												
662	**Warning: There are only 8 Detected Values in this data**											
663	**Note: It should be noted that even though bootstrap may be performed on this data set**											
664	**the resulting calculations may not be reliable enough to draw conclusions**											
665												
666	**It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.**											
667												
668	**Background Statistics**											
669	**Normal Distribution Test with Detected Values Only**						**Lognormal Distribution Test with Detected Values Only**					
670					Shapiro Wilk Test Statistic	0.927				Shapiro Wilk Test Statistic		0.934
671					5% Shapiro Wilk Critical Value	0.818				5% Shapiro Wilk Critical Value		0.818
672	**Data appear Normal at 5% Significance Level**						**Data appear Lognormal at 5% Significance Level**					
673												
674	**Assuming Normal Distribution**						**Assuming Lognormal Distribution**					
675					DL/2 Substitution Method					DL/2 Substitution Method		

Table K-26
ProUCL Background Threshold Values for Soil Risk Drivers
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania

	A	B	C	D	E	F	G	H	I	J	K	L
676					Mean	250.5					Mean (Log Scale)	5.307
677					SD	165					SD (Log Scale)	0.733
678				95% UTL	95% Coverage	701.9				95% UTL	95% Coverage	1501
679					95% UPL (t)	558.9					95% UPL (t)	794.9
680					90% Percentile (z)	461.9					90% Percentile (z)	516.6
681					95% Percentile (z)	521.9					95% Percentile (z)	674.3
682					99% Percentile (z)	634.3					99% Percentile (z)	1112
683												
684				Maximum Likelihood Estimate(MLE) Method		N/A					Log ROS Method	
685											Mean in Original Scale	229.7
686											SD in Original Scale	175.3
687											Mean in Log Scale	5.176
688											SD in Log Scale	0.77
689										95% UTL	95% Coverage	1454
690											95% UPL (t)	746.3
691											90% Percentile (z)	474.7
692											95% Percentile (z)	627.9
693											99% Percentile (z)	1061
694												
695	**Gamma Distribution Test with Detected Values Only**						**Data Distribution Test with Detected Values Only**					
696					k star (bias corrected)	1.176	Data appear Normal at 5% Significance Level					
697					Theta Star	230.8						
698					nu star	18.82						
699												
700					A-D Test Statistic	0.236	**Nonparametric Statistics**					
701					5% A-D Critical Value	0.726					Kaplan-Meier (KM) Method	
702					K-S Test Statistic	0.162					Mean	242
703					5% K-S Critical Value	0.298					SD	174.9
704	**Data appear Gamma Distributed at 5% Significance Level**										SE of Mean	59.59
705											95% KM UTL with 95% Coverage	720.5
706	**Assuming Gamma Distribution**										95% KM Chebyshev UPL	1035
707					Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)	568.9
708					Mean	246.5					90% Percentile (z)	466.1
709					Median	205.3					95% Percentile (z)	529.6
710					SD	172.2					99% Percentile (z)	648.8
711					k star	1.723						
712					Theta star	143.1	**Gamma ROS Limits with Extrapolated Data**					
713					Nu star	41.35					95% Wilson Hilferty (WH) Approx. Gamma UPL	655.6
714					95% Percentile of Chisquare (2k)	8.575					95% Hawkins Wixley (HW) Approx. Gamma UPL	680.9
715											95% WH Approx. Gamma UTL with 95% Coverage	986.4
716					90% Percentile	496.7					95% HW Approx. Gamma UTL with 95% Coverage	1069
717					95% Percentile	613.4						
718					99% Percentile	874.5						
719												
720	**Note: DL/2 is not a recommended method.**											

FIGURE K-8
BENZO(A)PYRENE TE BOX PLOT FOR WASTE BURIAL AREAS AND NON-WASTE AREAS VS. BACKGROUND
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

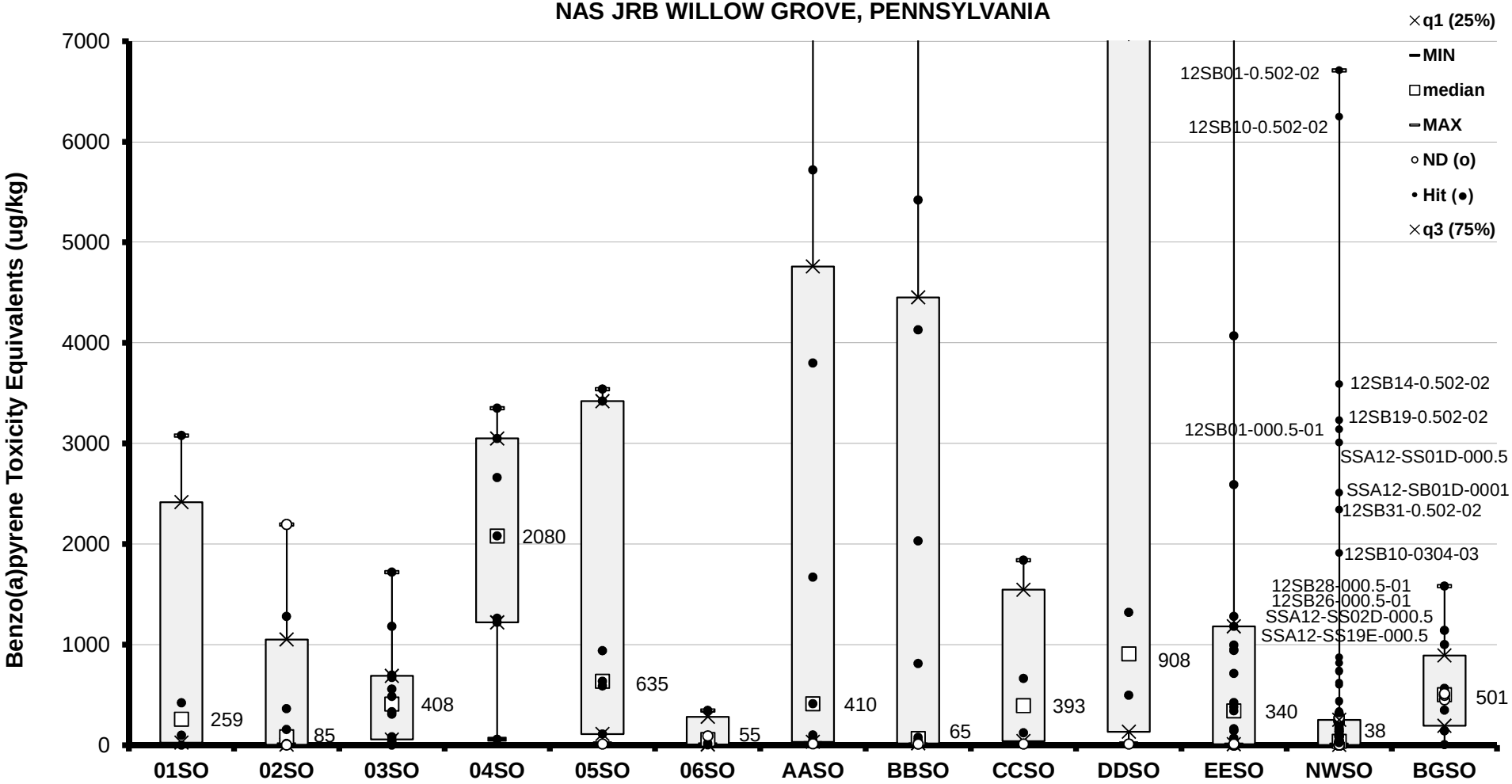


FIGURE K-9
CHROMIUM BOX PLOT FOR WASTE BURIAL AREAS AND NON-WASTE AREAS VS. BACKGROUND
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

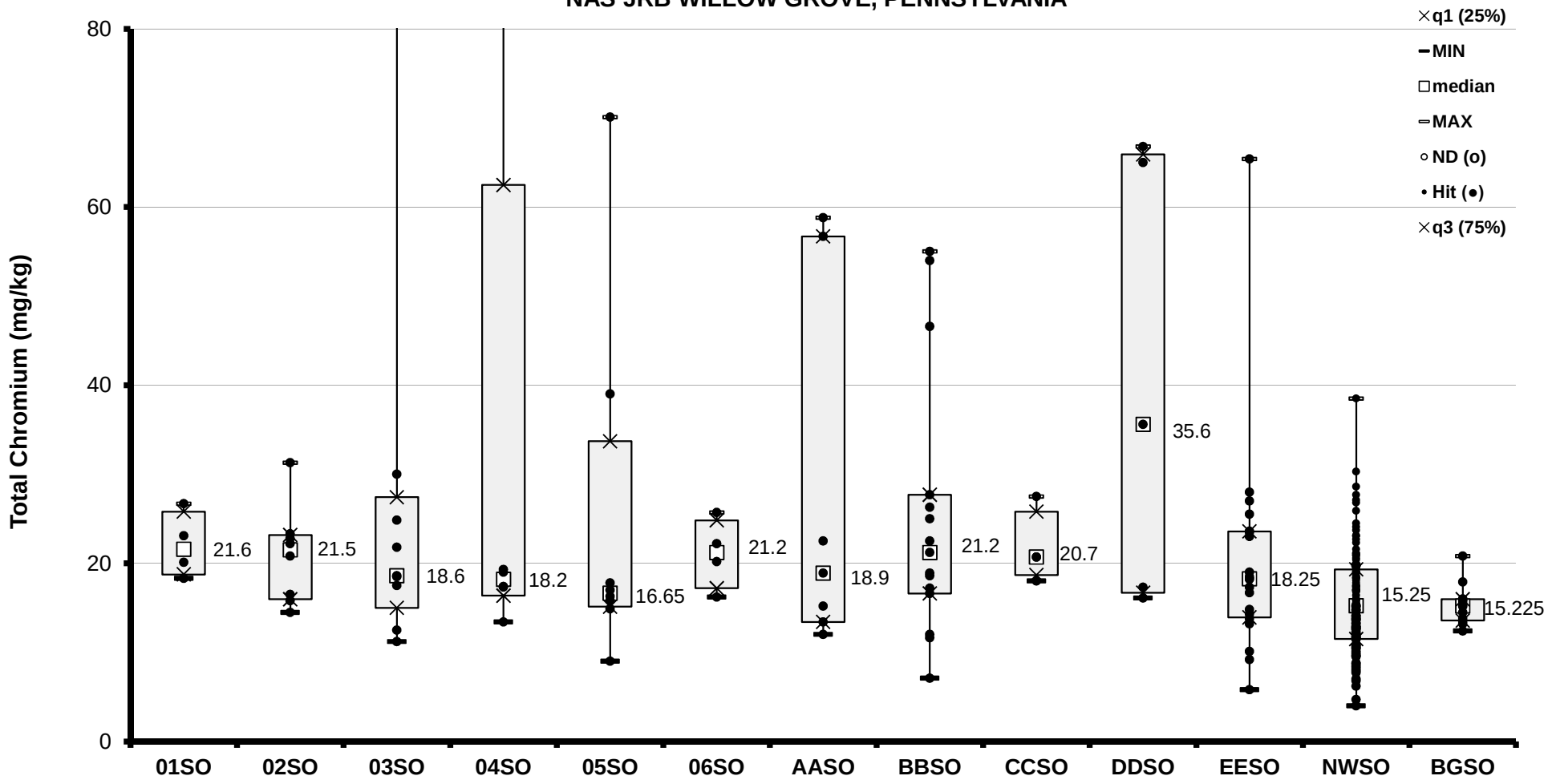


FIGURE K-10
THALLIUM BOX PLOT FOR WASTE BURIAL AREAS AND NON-WASTE AREAS VS. BACKGROUND
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

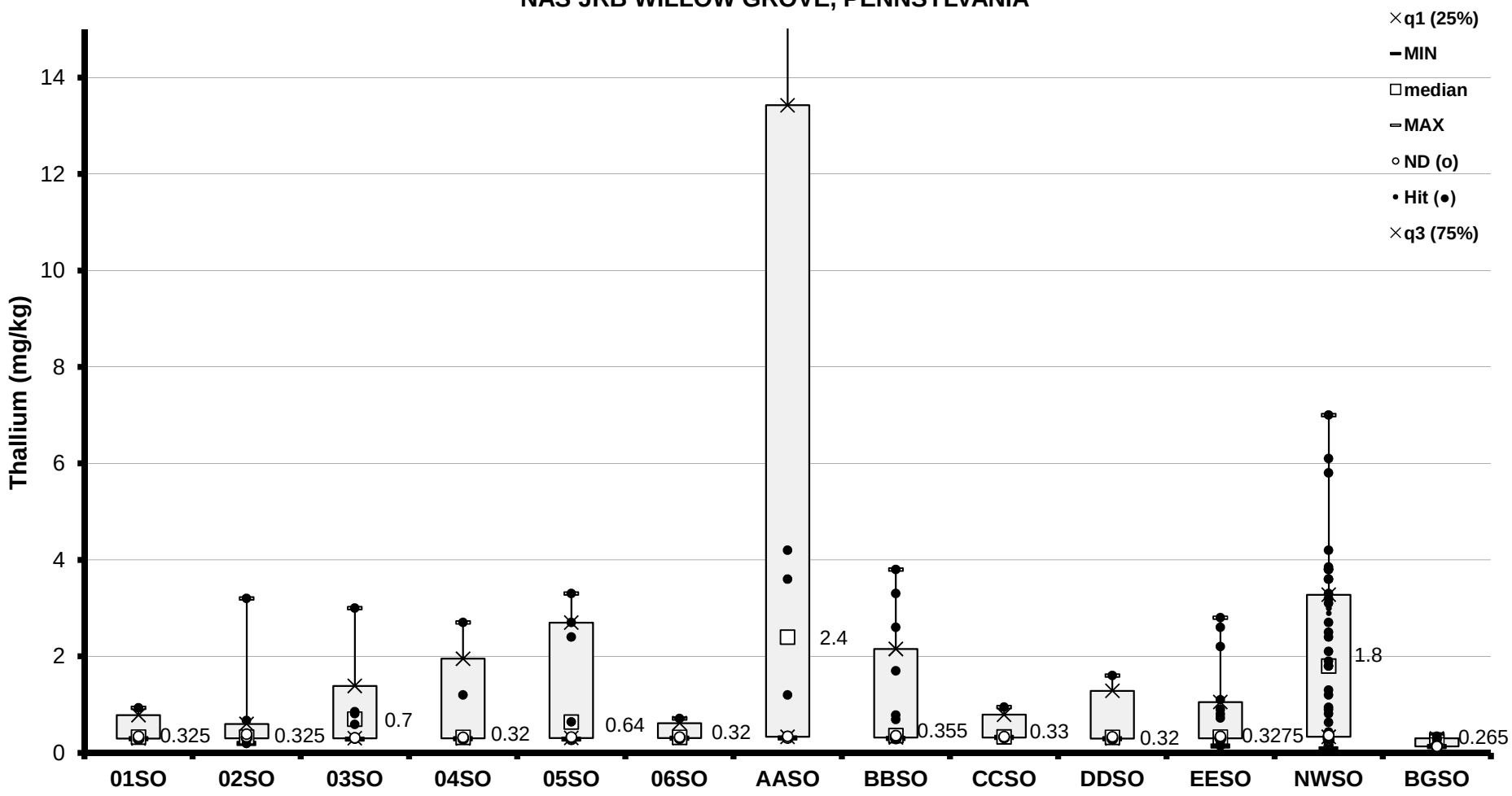


FIGURE K-11
ARSENIC BOX PLOT FOR WASTE BURIAL (WB) AREAS, NON-WASTE (NW) AREAS, AND BACKGROUND (BG) SOILS
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

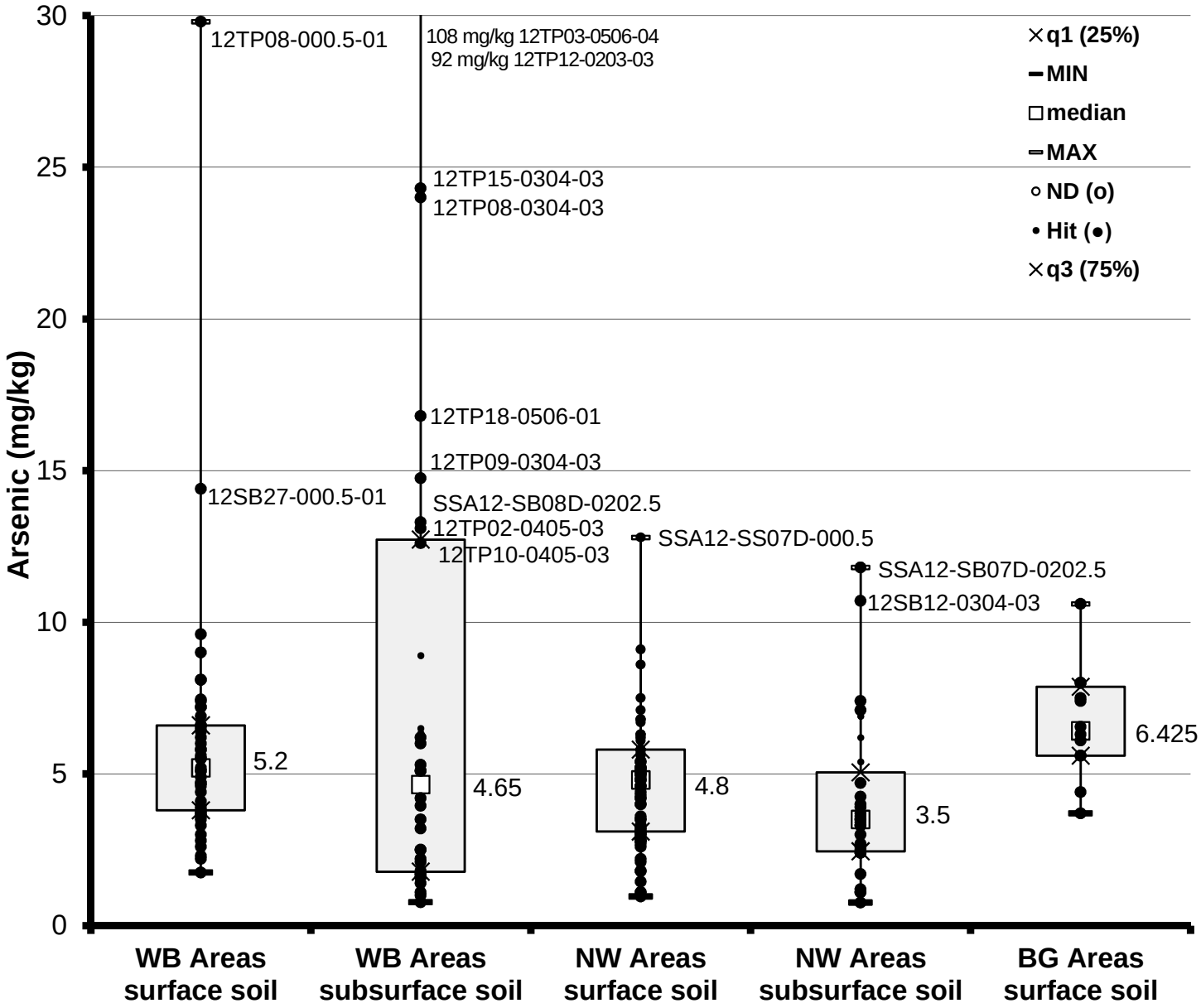


FIGURE K-12
MANGANESE BOX PLOT FOR WASTE BURIAL (WB) AREAS, NON-WASTE (NW) AREAS, AND BACKGROUND (BG) SOILS
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANI

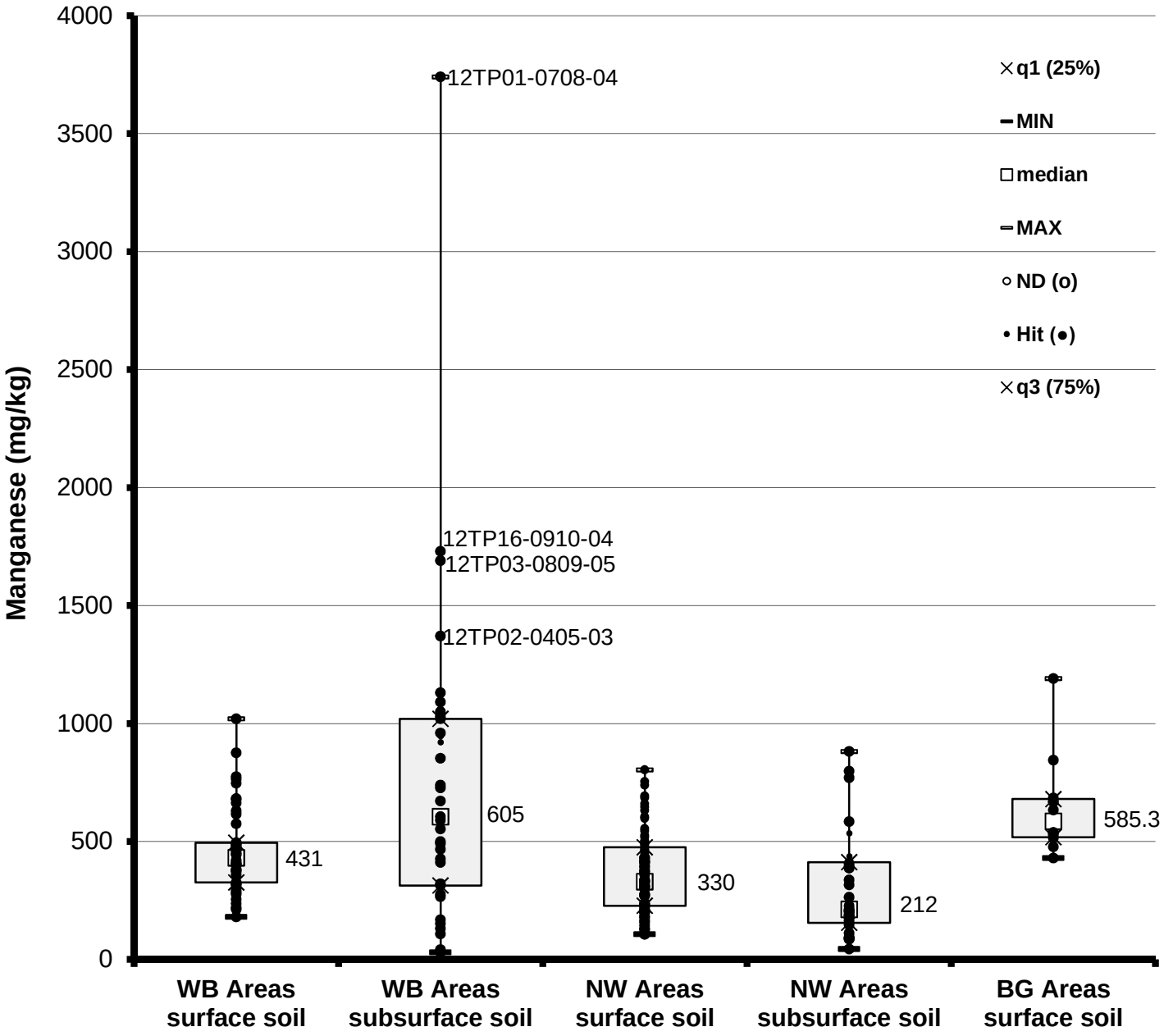


FIGURE K-13
BENZO(A)PYRENE TE BOX PLOT FOR WASTE AREAS AND NON-WASTE AREAS FOR SURFACE SOIL VS. SUBSURFACE SOIL
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

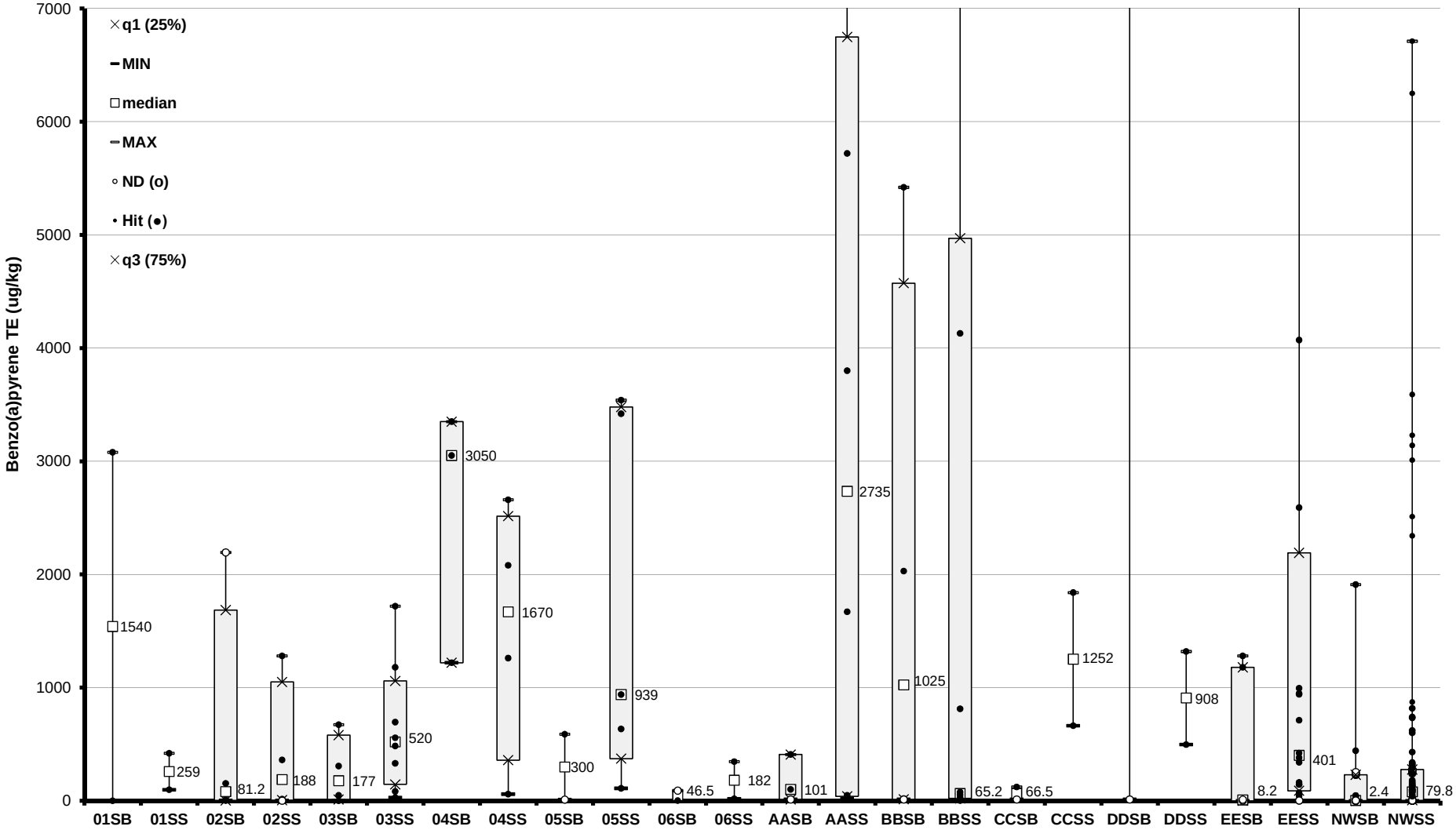


FIGURE K-14
CHROMIUM BOX PLOT FOR WASTE AREAS AND NON-WASTE AREAS FOR SURFACE SOIL VS. SUBSURFACE SOIL
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

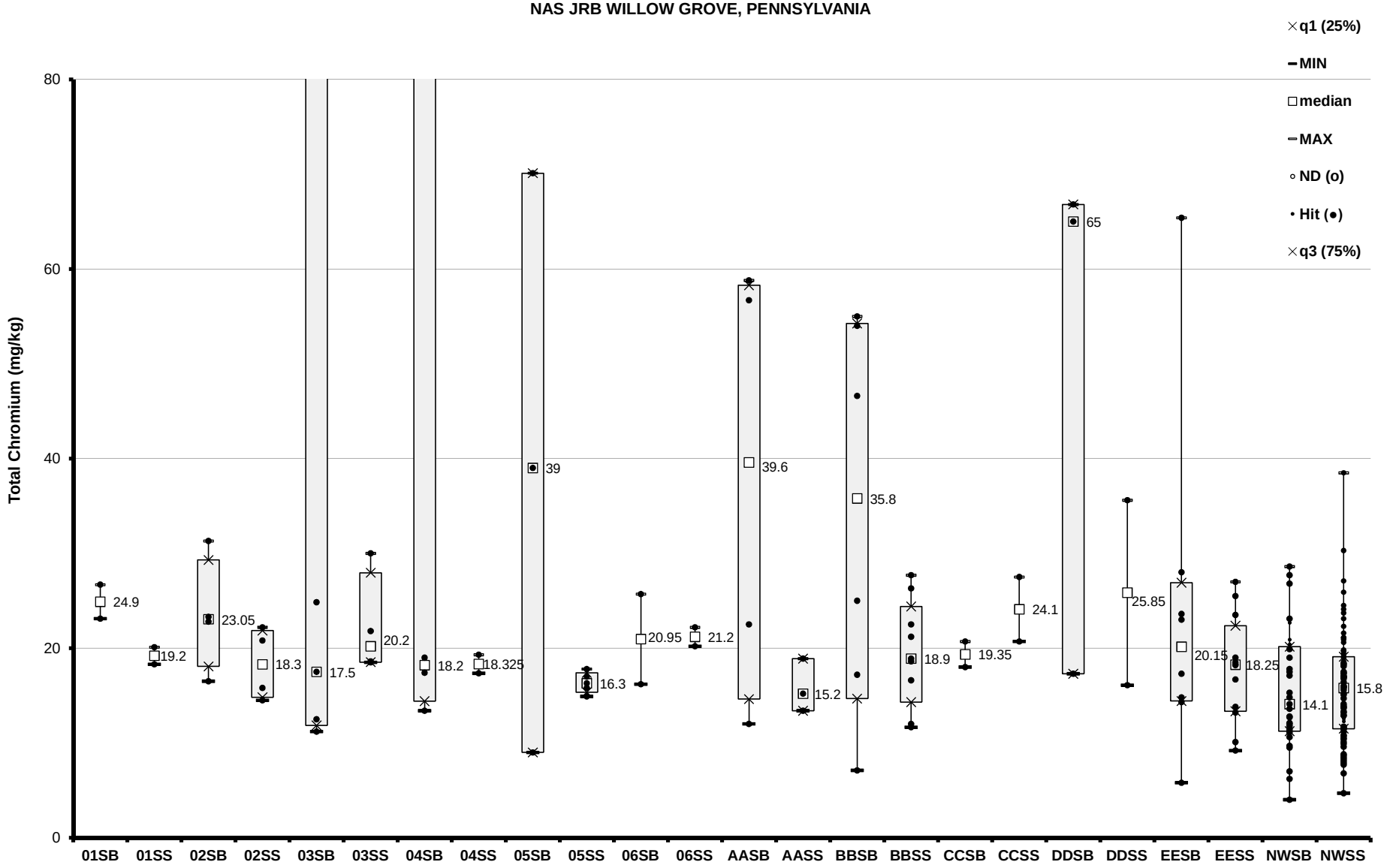


FIGURE K-15
THALLIUM BOX PLOT FOR WASTE AREAS AND NON-WASTE AREAS FOR SURFACE SOIL VS. SUBSURFACE SOIL
SITE 12 REMEDIAL INVESTIGATION
NAS JRB WILLOW GROVE, PENNSYLVANIA

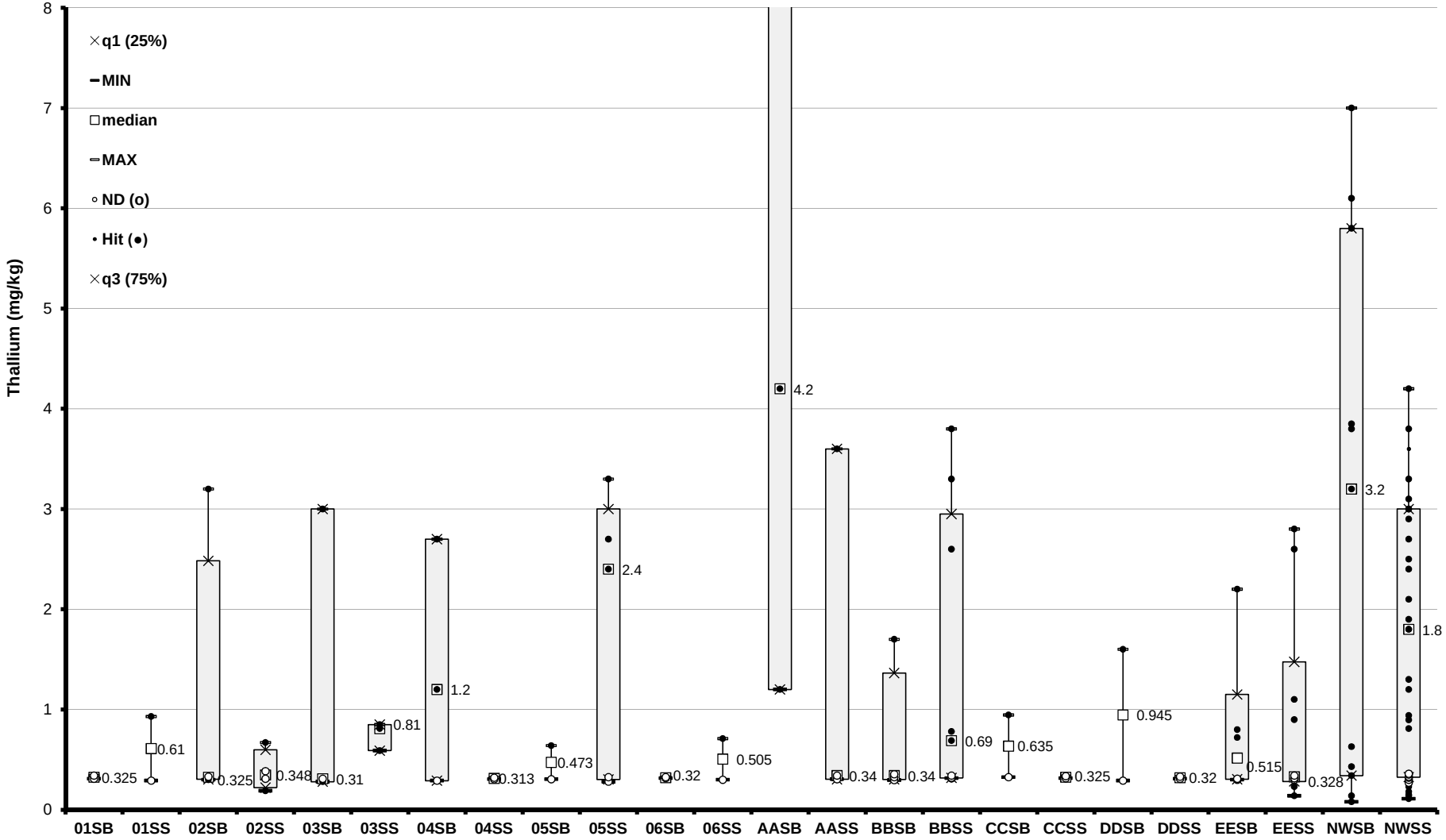
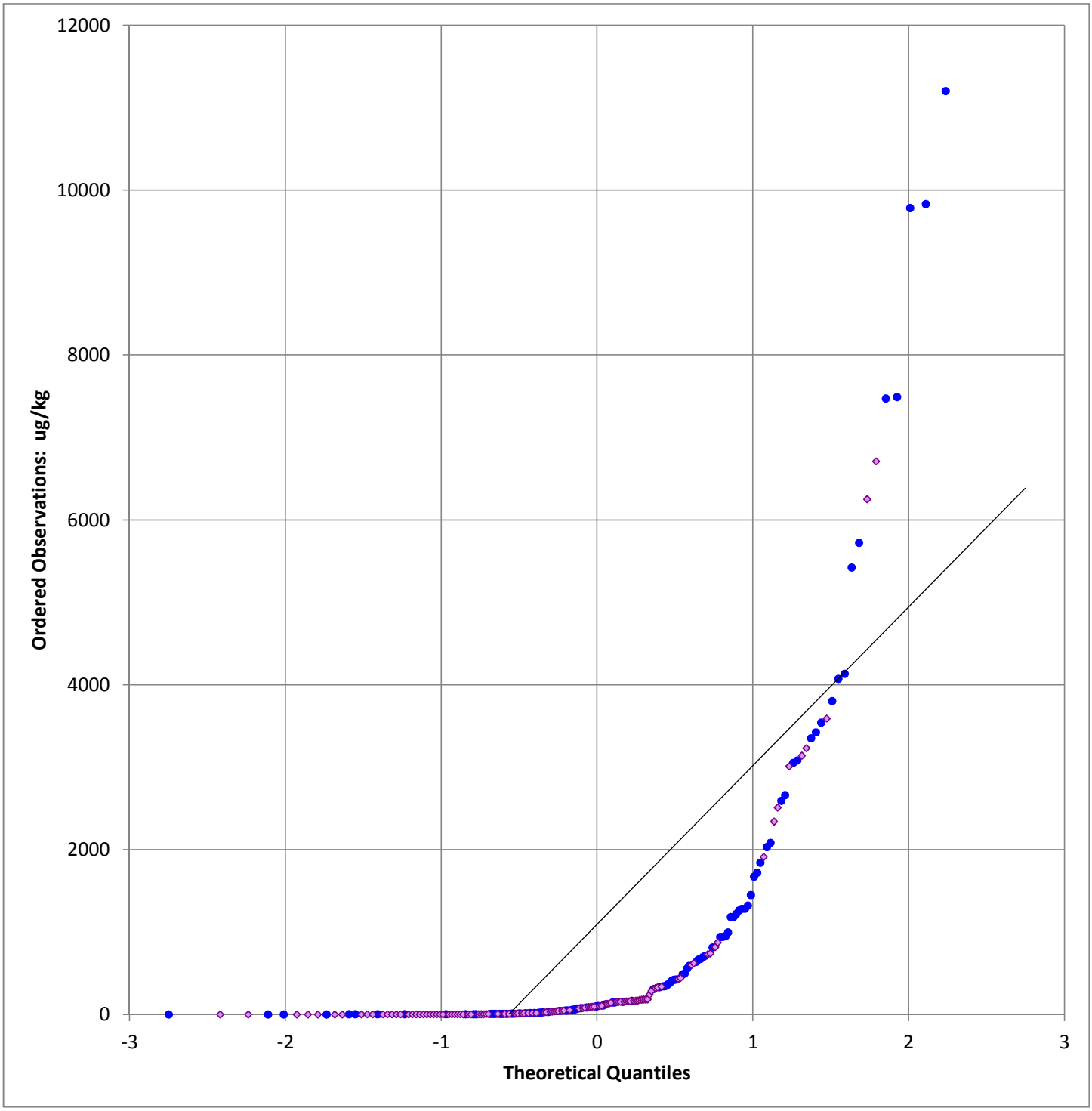
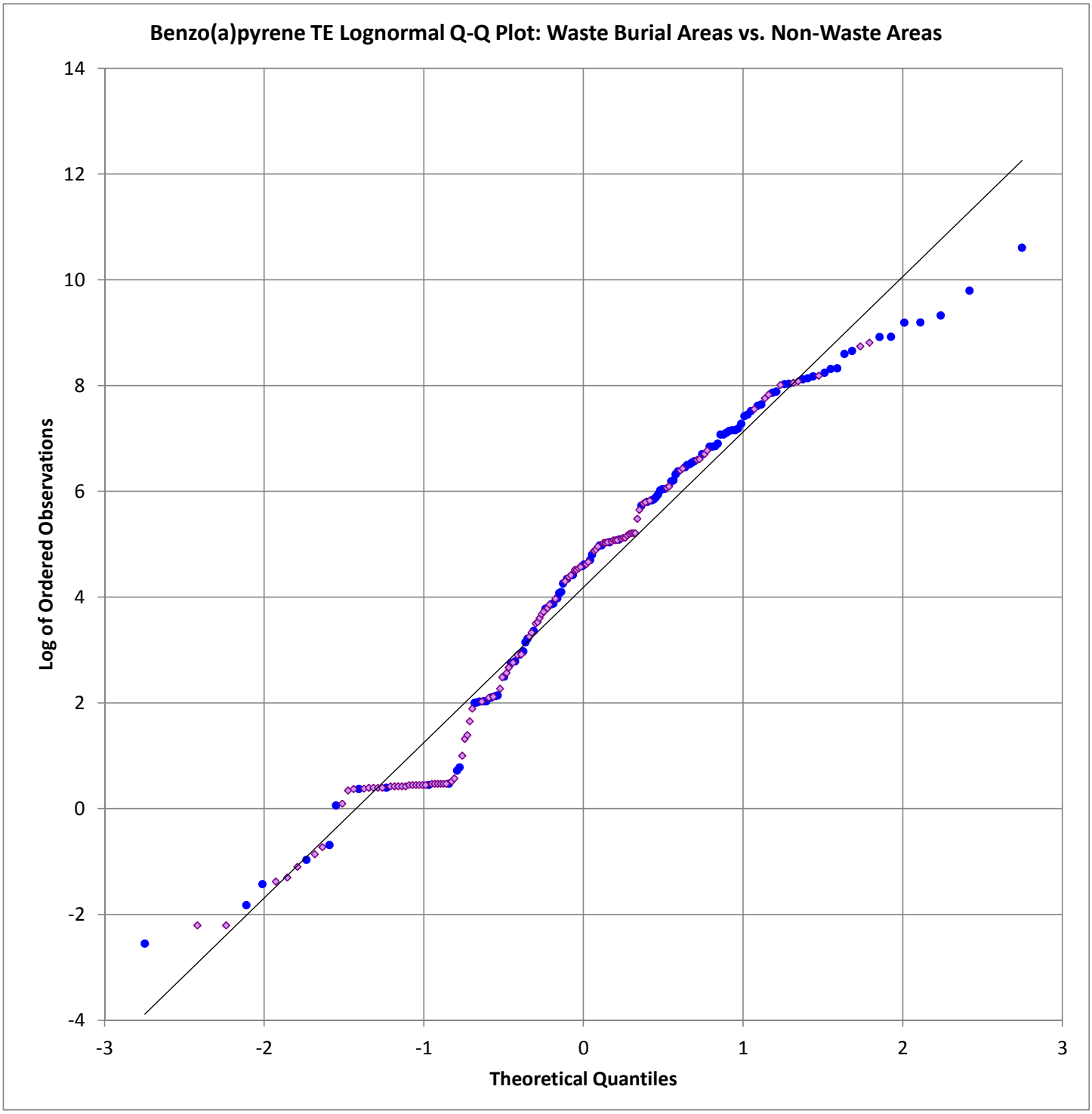


Figure K-16
Normal Probability Plot for Benzo(a)pyrene Toxicity Equivalents
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania



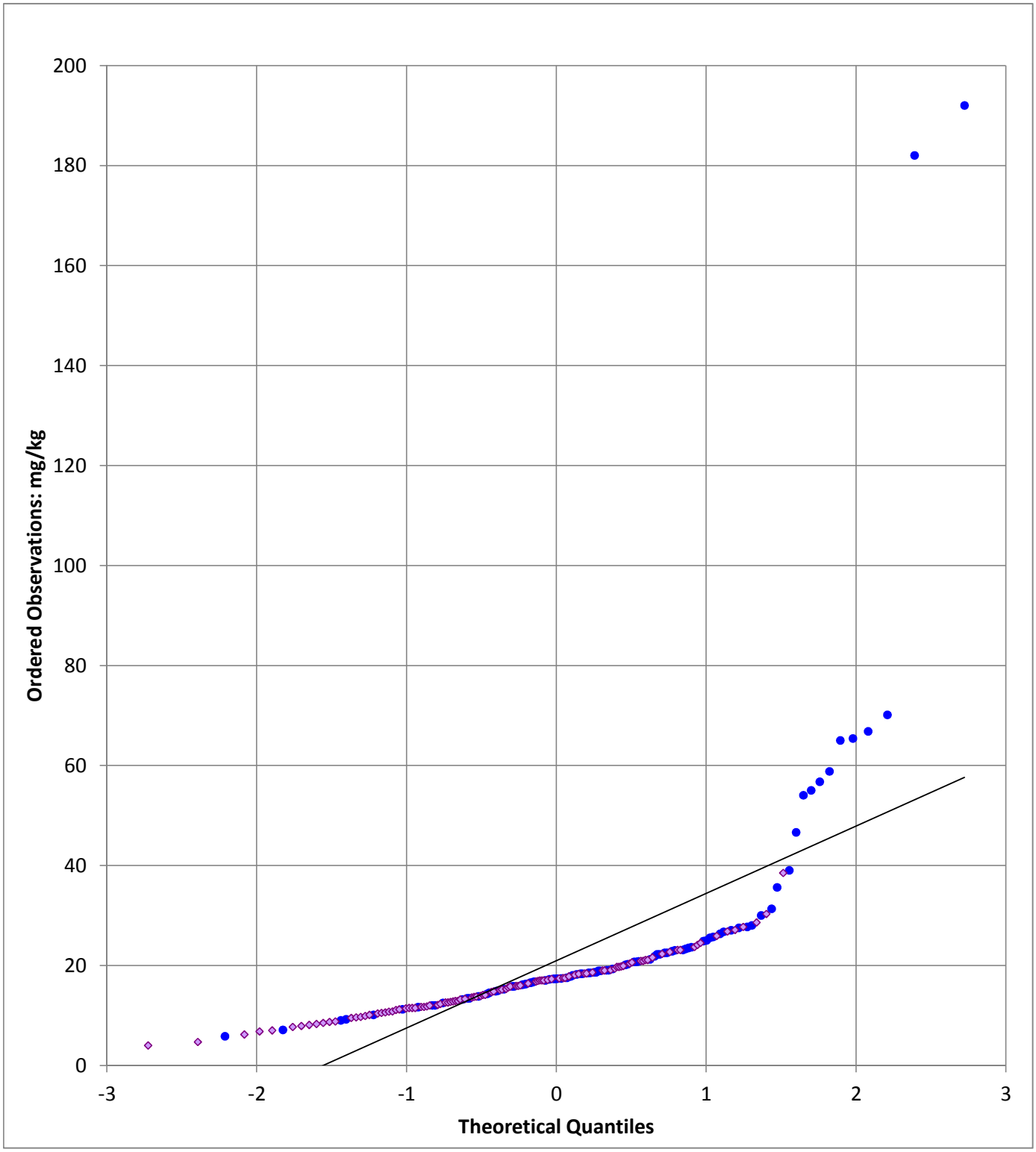
Circles - Waste Burial Areas
Diamonds - Non-Waste Areas

Figure K-17
Lognormal Probability Plot for Benzo(a)pyrene Toxicity Equivalents
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania



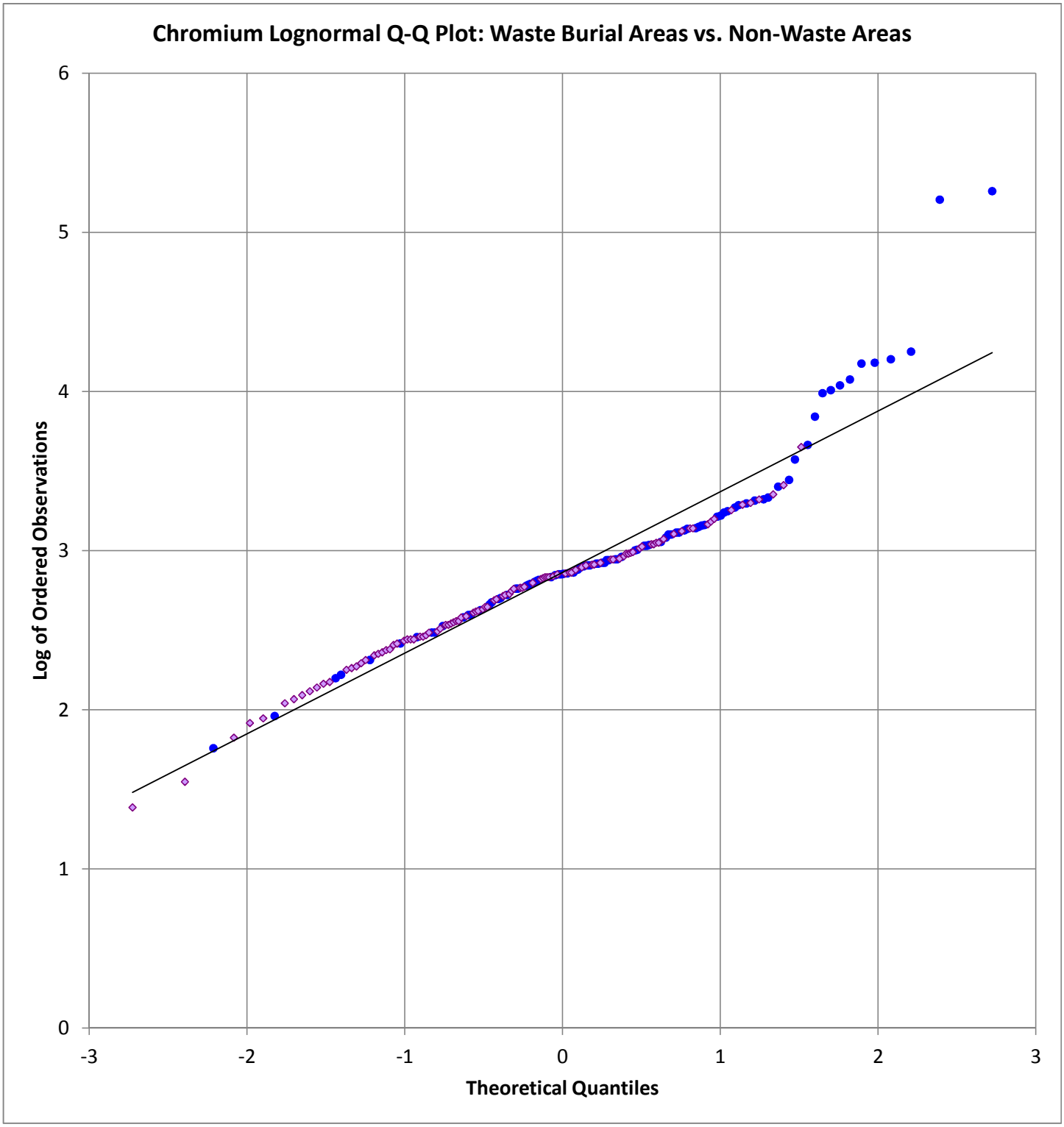
Circles - Waste Burial Areas
Diamonds - Non-Waste Areas

Figure K-18
Normal Probability Plot for Chromium
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania



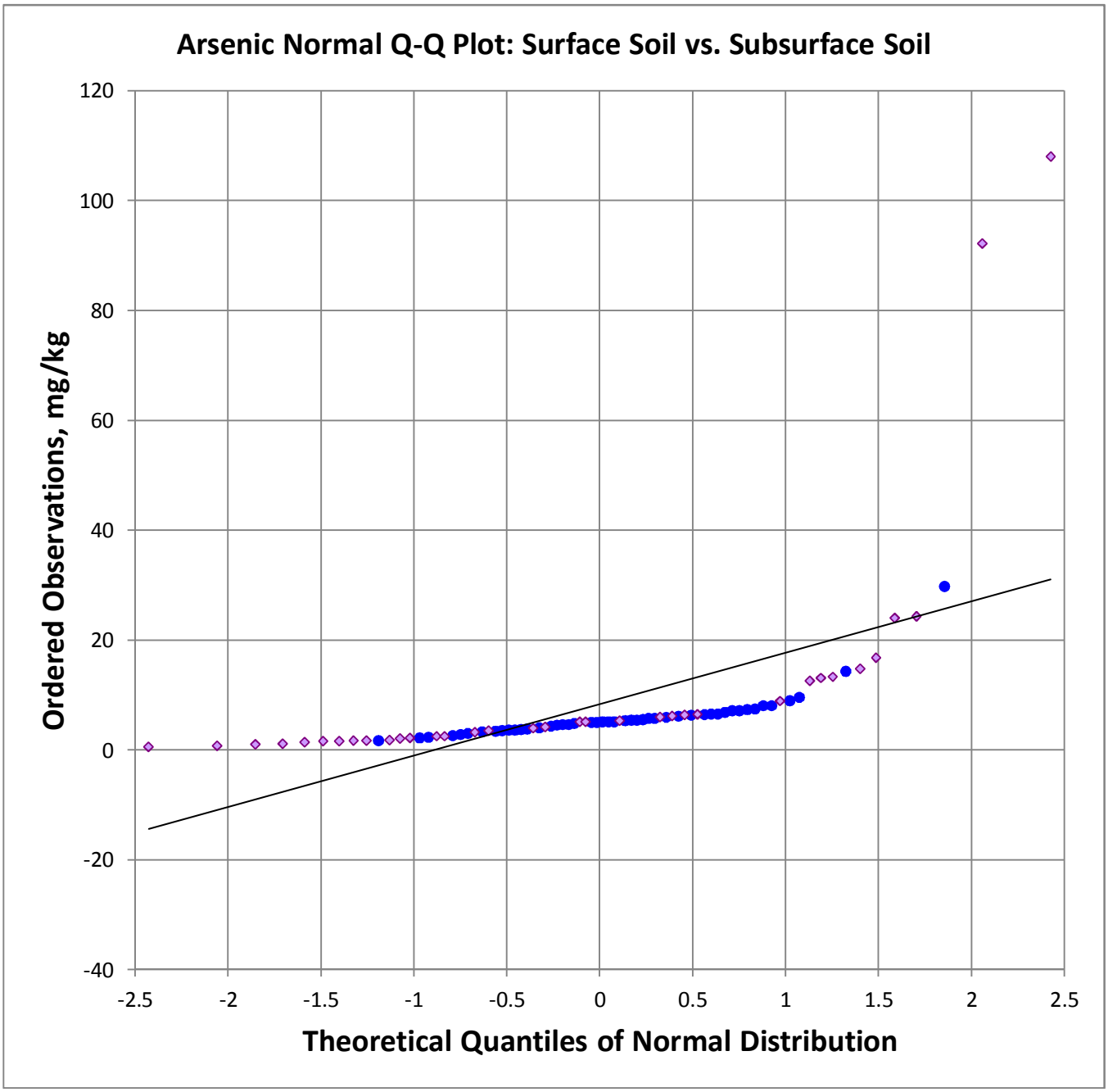
Circles - Waste Burial Areas
Diamonds - Non-Waste Areas

Figure K-19
Lognormal Probability Plot for Chromium
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania



Circles - Waste Burial Areas
Diamonds - Non-Waste Areas

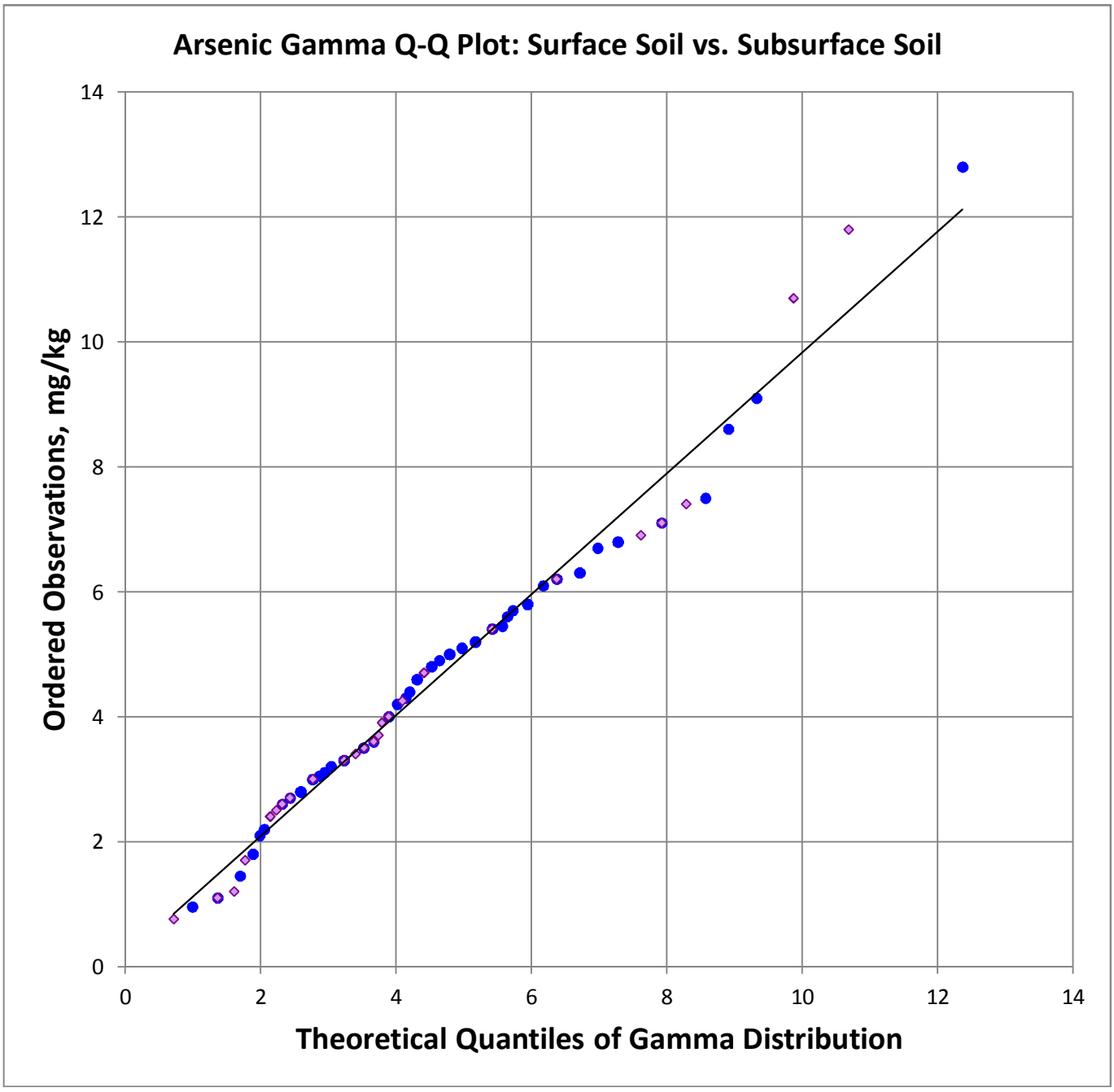
Figure K-20
Arsenic Normal Q-Q Plot: Surface Soil vs. Subsurface Soil in Waste Burial Areas
Site 12 Remedial Investigation
NASJRB Willow Grove, Pennsylvania



Circles - Surface Soil
Diamonds - Subsurface Soil

Lilliefors Statistic = 0.344
Critical Value = 0.971
Data fit a normal distribution

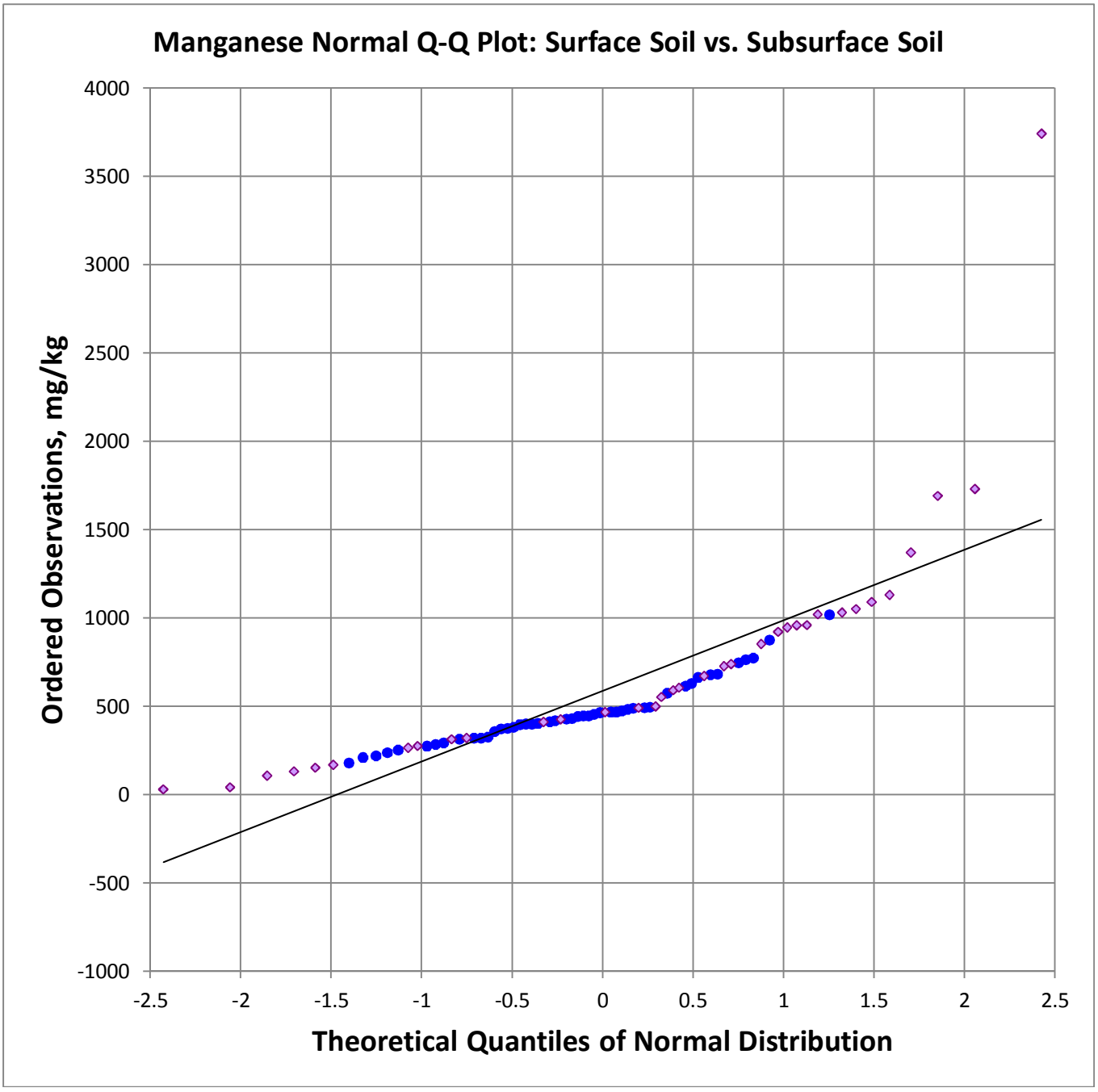
Figure K-21
Arsenic Gamma Q-Q Plot: Surface Soil vs. Subsurface Soil in Non-Waste Areas
Site 12 Remedial Investigation
NASJRB Willow Grove, Pennsylvania



A_D Test Statistic = 0.652
A_D Test Critical Value = 0.756
K_S Test Statistic = 0.065
K_S Test Critical Value = 0.089
Data fit a gamma distribution

Circles - Surface Soil
Diamonds - Subsurface Soil

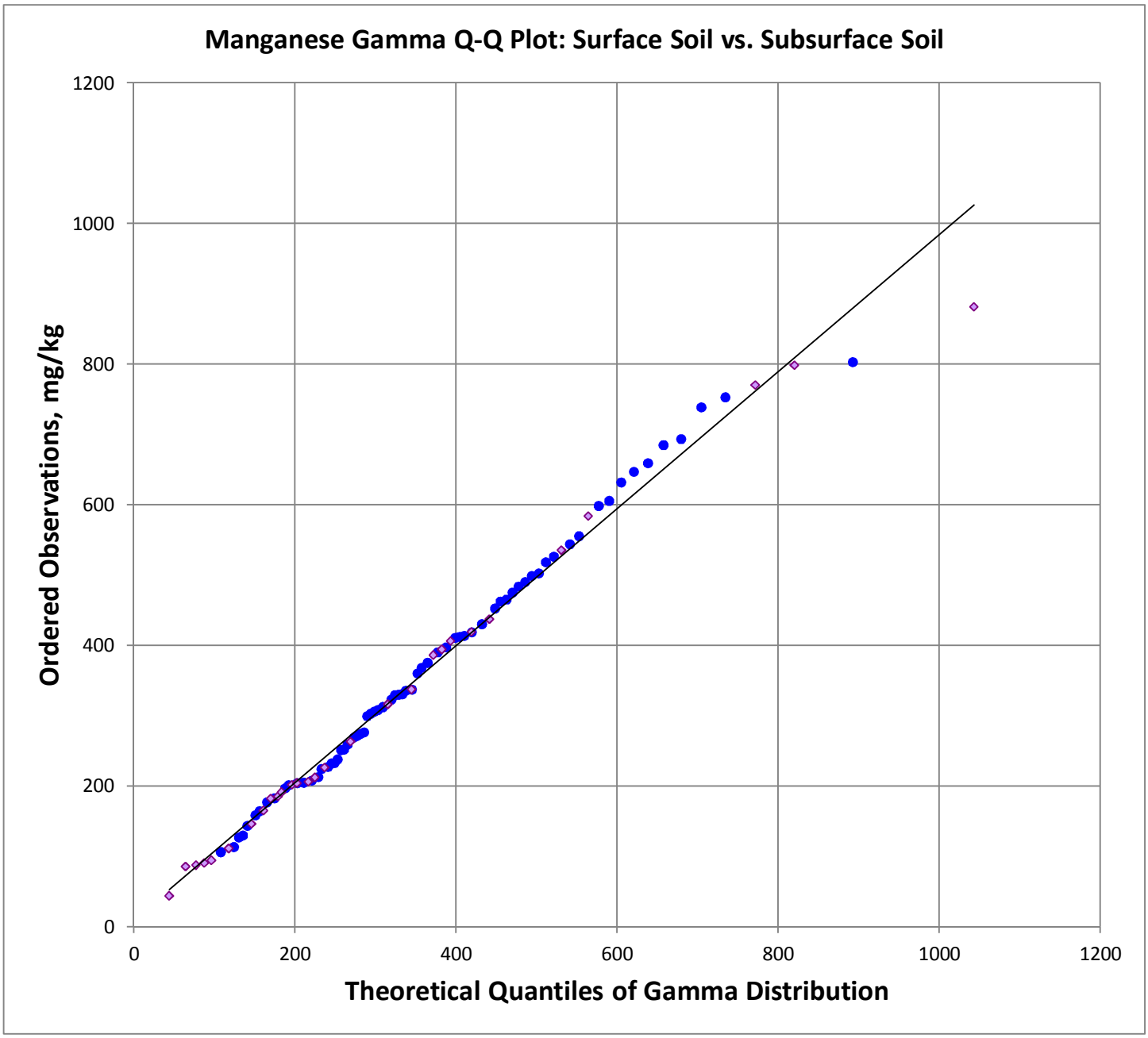
Figure K-22
Manganese Normal Q-Q Plot: Surface Soil vs. Subsurface Soil in Waste Burial Areas
Site 12 Remedial Investigation
NASJRB Willow Grove, Pennsylvania



Circles - Surface Soil
Diamonds - Subsurface Soil

Lilliefors Statistic = 0.654
Critical Value = 0.971
Data fit a normal distribution

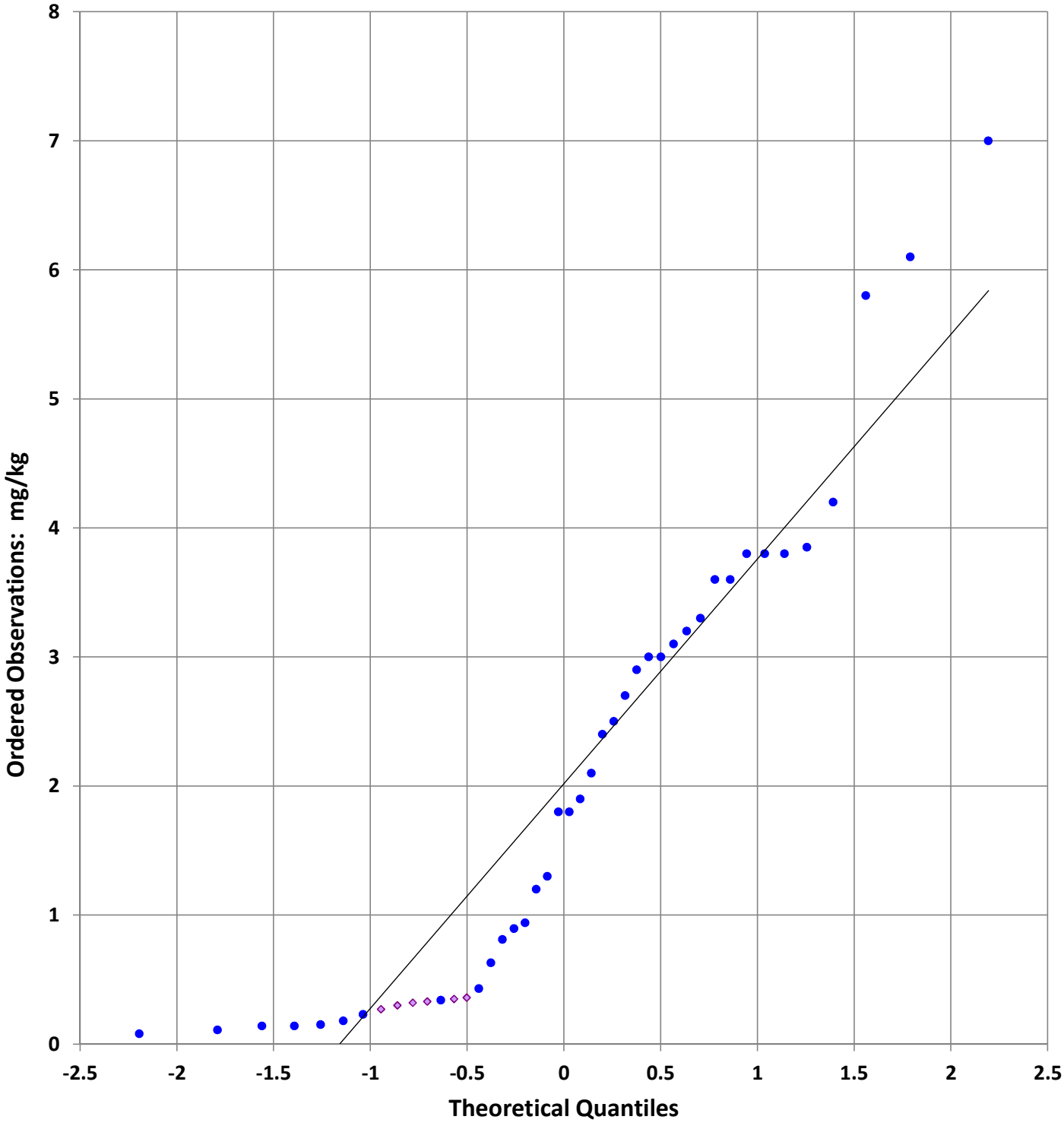
Figure K-23
Manganese Gamma Q-Q Plot: Surface Soil vs. Subsurface Soil in Non-Waste Areas
Site 12 Remedial Investigation
NASJRB Willow Grove, Pennsylvania



A_D Test Statistic = 0.205
A_D Test Critical Value = 0.758
K_S Test Statistic = 0.047
K_S Test Critical Value = 0.089
Data fit a gamma distribution

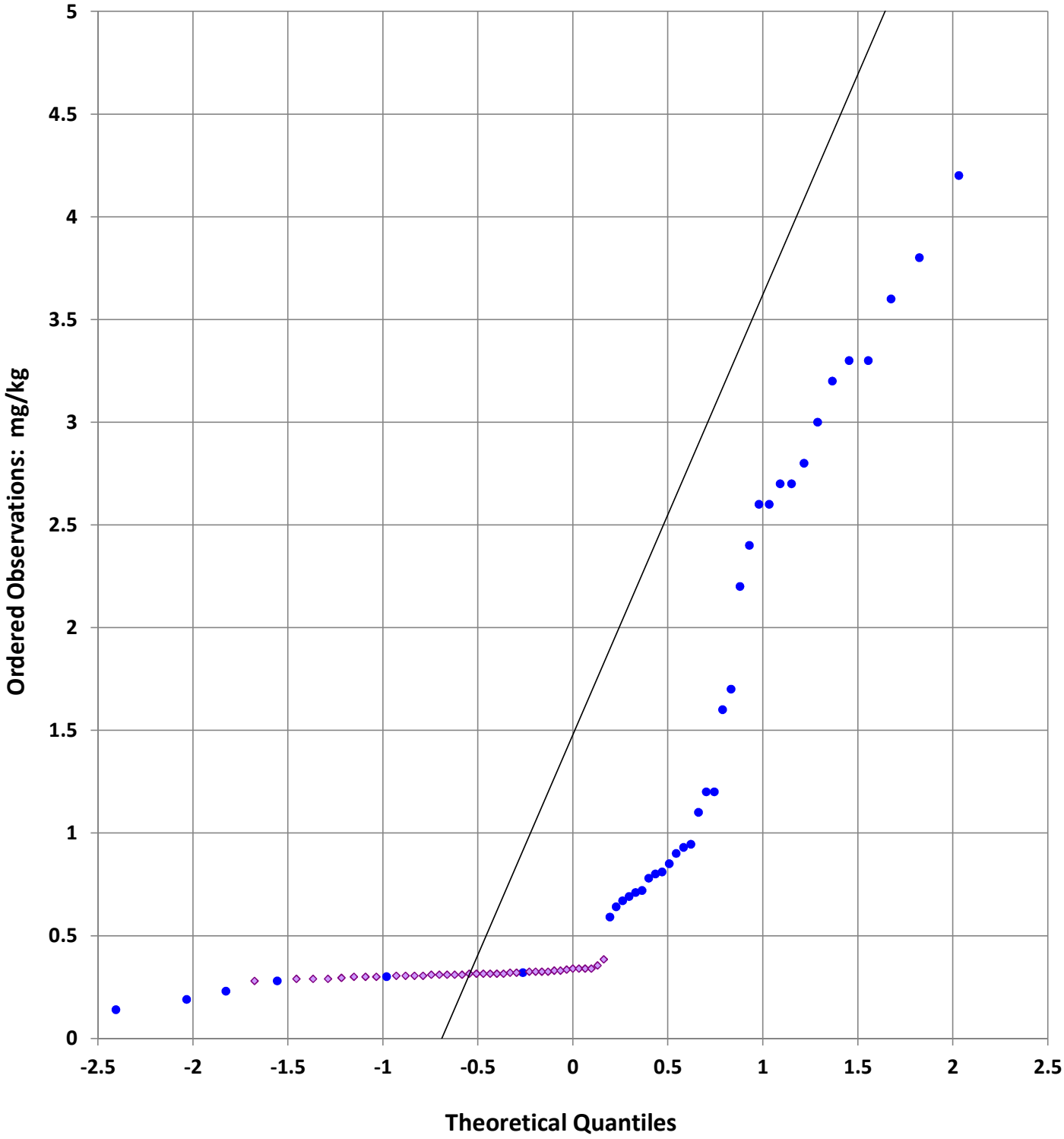
Circles - Surface Soil
Diamonds - Subsurface Soil

Figure K-24
Normal Probability Plot for Thallium in Non-Waste Areas
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania



Solid circles - detects
Open diamonds - nondetects

Figure K-25
Normal Probability Plot for Thallium in Waste Areas
Site 12 Remedial Investigation
NAS JRB Willow Grove, Pennsylvania



Solid circles - detects
Open diamonds - nondetects

Figure K-26
Regression of Thallium on Iron for 2007 Soil Samples, Including Outlier
Site 12 Remedial Investigation
NAS JRB, Willow Grove, Pennsylvania

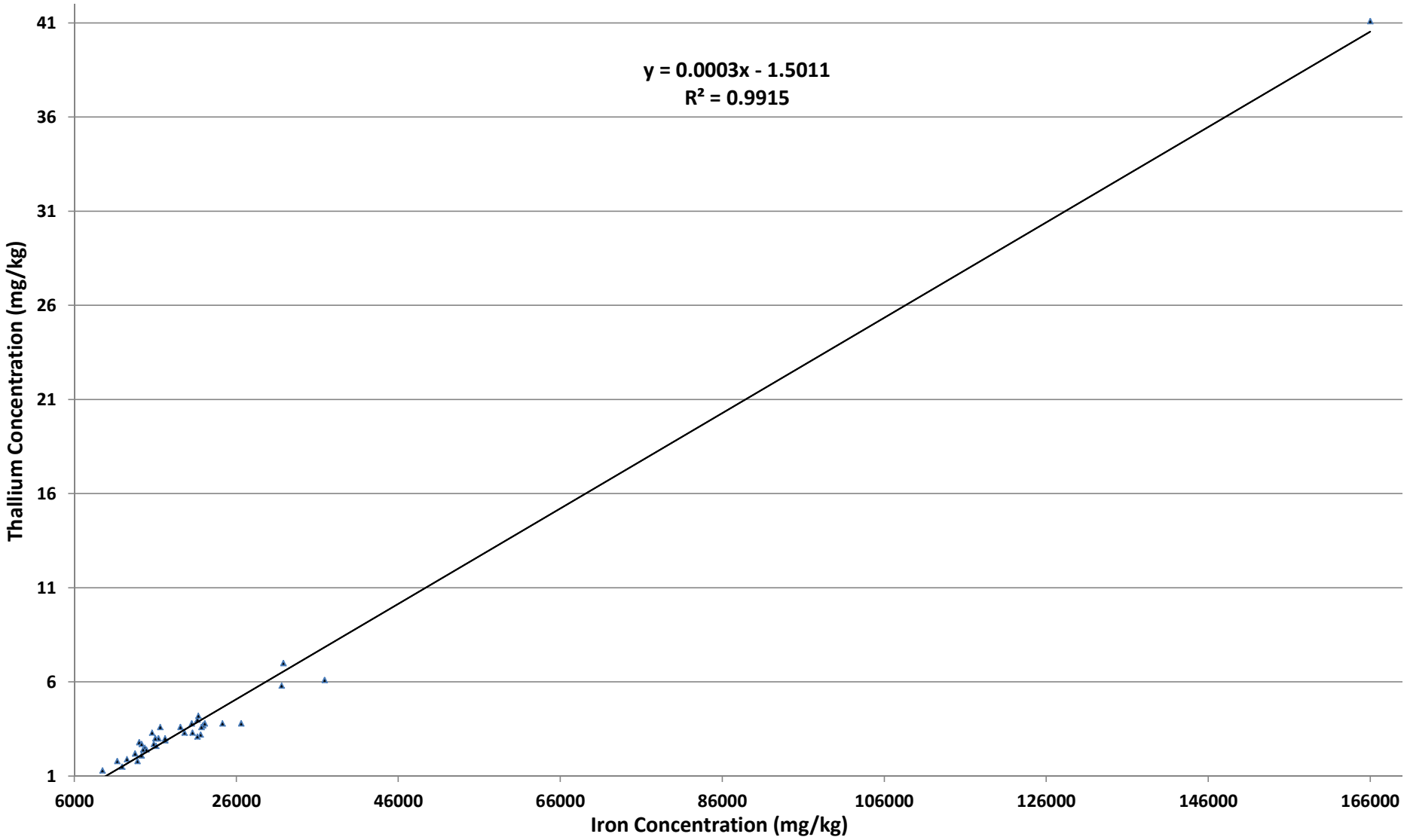


Figure K-27
Regression of Thallium on Iron for 2007 Soil Samples, Excluding Outlier
Site 12 Remedial Investigation
NAS JRB, Willow Grove, Pennsylvania

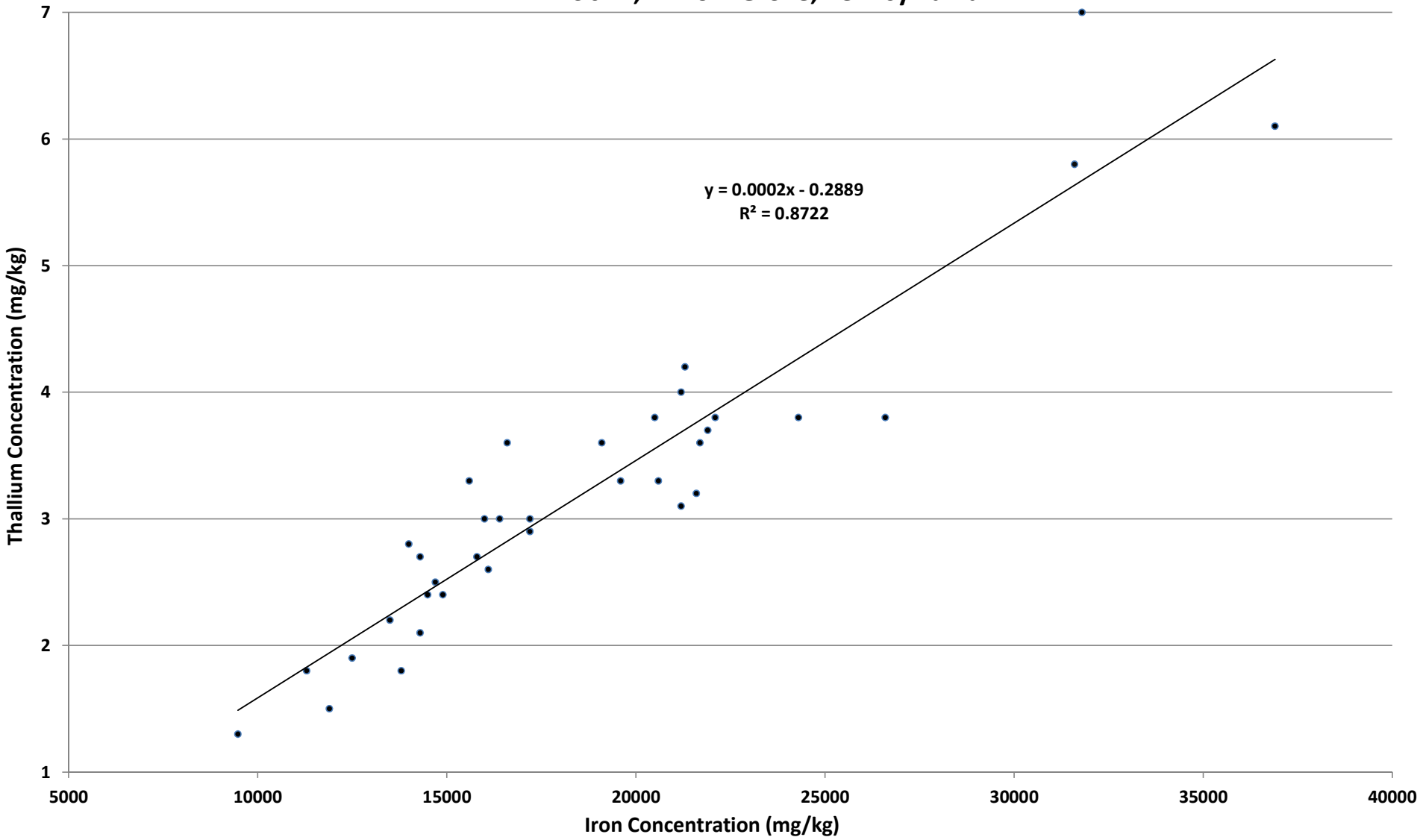


Figure K-28
Regression of Thallium on Iron for One Laboratory, 2007 - 2010 Site 12 Samples
Site 12 Remedial Investigation
NAS JRB, Willow Grove, Pennsylvania

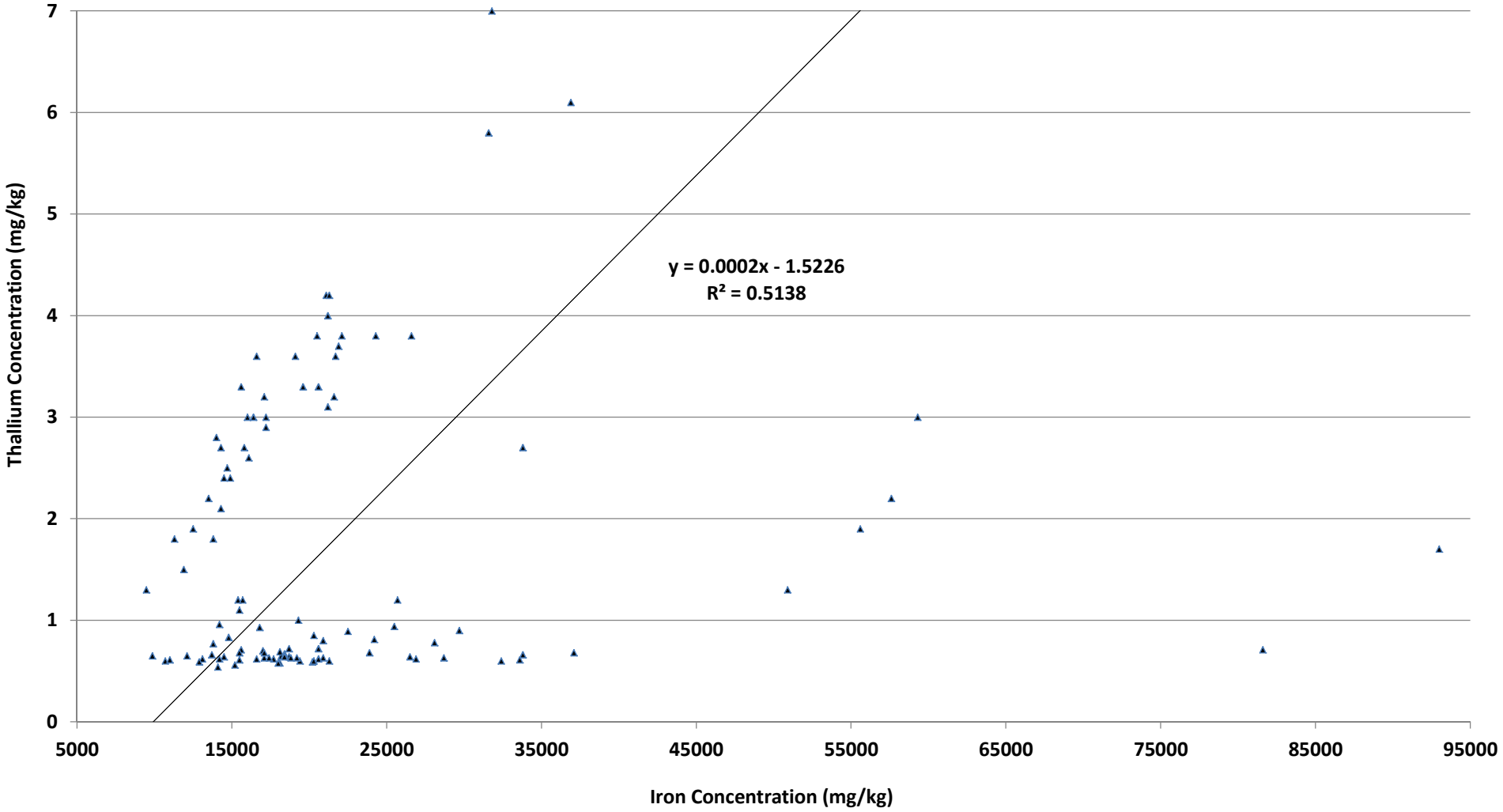
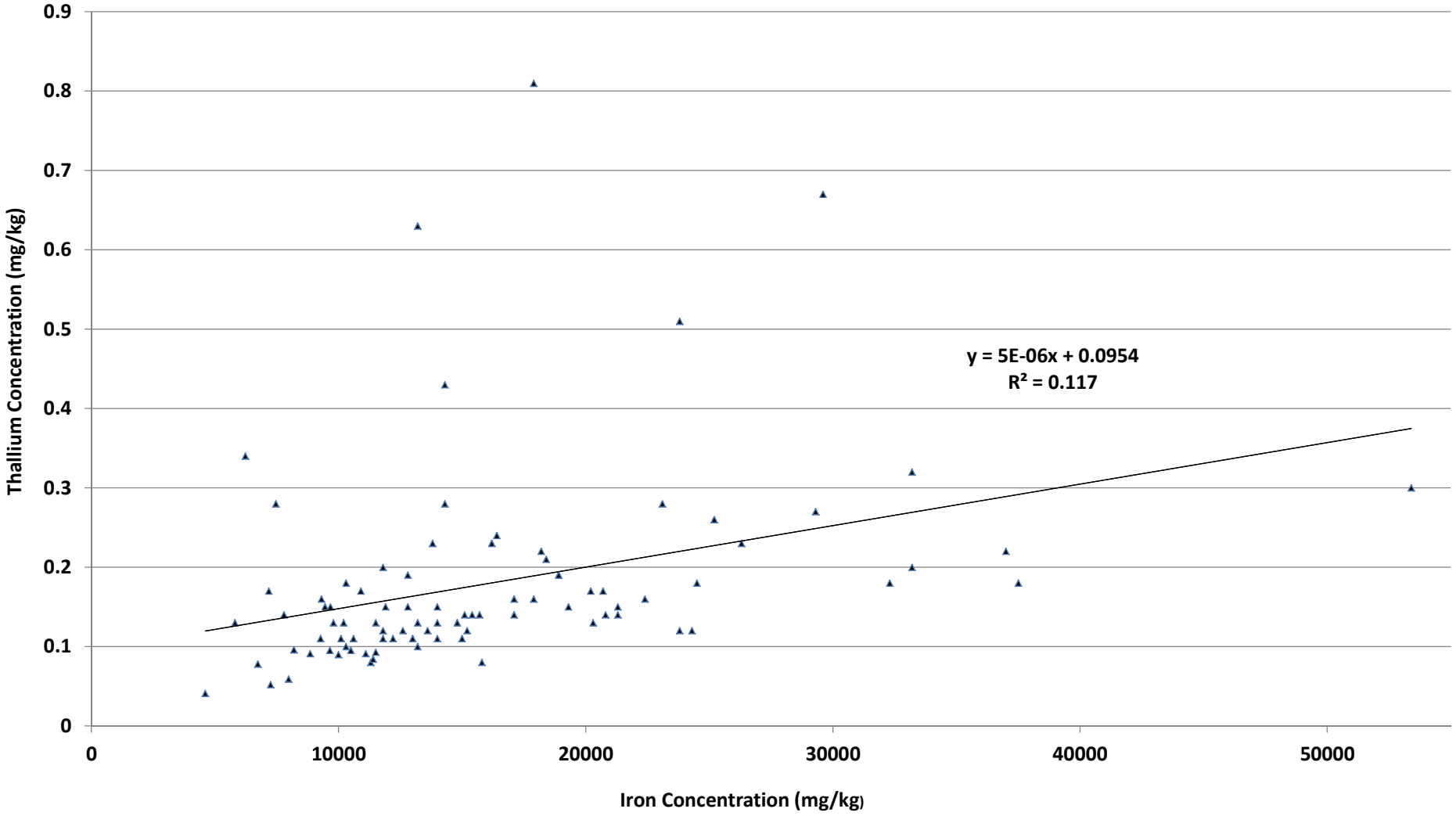


Figure K-29
Regression of Thallium on Iron for Second Laboratory, Site 12 Samples
Site 12 Remedial Investigation
NAS JRB, Willow Grove, Pennsylvania



APPENDIX L

ECOLOGICAL RISK ASSESSMENT DOCUMENTATION

TABLE L-1
SOURCES AND ENDPOINTS FOR TOXICITY REFERENCE VALUES
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Volatile Organics							
Acetone	100	NOEL	systemic	subchronic	rat	USEPA, 1986	Sample et.al., 1996
Acetone	500	LOAEL	systemic	subchronic	rat	USEPA, 1986	Sample et.al., 1996
Semivolatile Organics							
7,12-dimethylbenz(a)anthracene[1]	2	NOAEL	systemic	chronic	European starling	Trust et al (1994)	Trust et al (1994)
7,12-dimethylbenz(a)anthracene[1]	20	LOAEL	systemic	chronic	European starling	Trust et al (1994)	Trust et al (1994)
Bis(2-ethylhexyl)phthalate	18.33	NOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Bis(2-ethylhexyl)phthalate	183.3	LOAEL	reproductive	chronic	mouse	Lamb et al., 1987	Sample et.al., 1996
Low Molecular Weight PAHs	65.6	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Low Molecular Weight PAHs	356	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
High Molecular Weight PAHs	0.615	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
High Molecular Weight PAHs	38.4	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Pesticides & PCBs							
4,4'-DDT[2]	0.147	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
4,4'-DDT[2]	5.56	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
4,4'-DDT[2]	0.227	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
4,4'-DDT[2]	2.7	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Aldrin	0.2	NOAEL	reproductive	chronic	rat	Treon and Cleveland, 1955	Sample et.al., 1996
Aldrin	1	LOAEL	reproductive	chronic	rat	Treon and Cleveland, 1955	Sample et.al., 1996
Aroclor-1254[4]	1.8	LOAEL	reproductive	chronic	phesant	Dahlgren et al., 1972	Sample et.al., 1996
Aroclor-1254[4]	0.68	LOAEL	reproductive	chronic	mouse	McCoy et al., 1995	Sample et.al., 1996
beta-BHC	4	NOAEL	systemic	subchronic	rat	Van Velsen et al., 1986	Sample et.al., 1996
beta-BHC	20	LOAEL	systemic	subchronic	rat	Van Velsen et al., 1986	Sample et.al., 1996
BHC (mixed isomers)[5]	0.137	LOAEL	reproductive	chronic	mink	Bleavins et al., 1984	Sample et.al., 1996
BHC (mixed isomers)[5]	0.563	NOAEL	reproductive	chronic	Japanese quail	Vos et al., 1971	Sample et.al., 1996
BHC (mixed isomers)[5]	2.25	LOAEL	reproductive	chronic	Japanese quail	Vos et al., 1971	Sample et.al., 1996
Chlordane	2.14	NOAEL	mortality	chronic	red-winged blackbird	Stickel et al., 1983	Sample et.al., 1996
Chlordane	10.7	LOAEL	mortality	chronic	red-winged blackbird	Stickel et al., 1983	Sample et.al., 1996
Chlordane	4.58	NOAEL	reproduction	chronic	mouse	WHO, 1984	Sample et.al., 1996
Chlordane	9.16	LOAEL	reproduction	chronic	mouse	WHO, 1984	Sample et.al., 1996
Dieldrin	0.0709	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Dieldrin	0.8	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Dieldrin	0.015	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Dieldrin	1.27	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Endosulfan	1.5	NOAEL	reproduction	subchronic	rat	Dikshith et al., 1984	ATSDR, 1997
Endosulfan	10	NOAEL	reproduction	chronic	gray partridge	Abiola, 1992	Sample et.al., 1996
Endrin Aldehyde	0.92	LOAEL	reproduction	chronic	mouse	Good and Ware, 1969	Sample et.al., 1996
Endrin Aldehyde	0.1035	LOAEL	reproduction	chronic	screech owl	Fleming et al., 1982	Sample et.al., 1996
Endrin Ketone	0.92	LOAEL	reproduction	chronic	mouse	Good and Ware, 1969	Sample et.al., 1996
Endrin Ketone	0.1035	LOAEL	reproduction	chronic	screech owl	Fleming et al., 1982	Sample et.al., 1996
gamma-BHC (lindane)	8	NOAEL	reproductive	chronic	rat	Palmer et al., 1978	Sample et.al., 1996
gamma-BHC (lindane)	20	LOAEL	reproductive	chronic	mallard duck	Chakravarty and Lahiri, 1986	Sample et.al., 1996
Heptachlor	1	LOAEL	reproduction	chronic	mink	Crum et al., 1993	Sample et.al., 1996
Heptachlor Epoxide	1	LOAEL	reproduction	chronic	mink	Crum et al., 1994	Sample et.al., 1996
Methoxychlor	4	NOAEL	reproduction	chronic	rat	Gray et al., 1988	Sample et.al., 1996
Methoxychlor	8	LOAEL	reproduction	chronic	rat	Gray et al., 1989	Sample et.al., 1996

TABLE L-1
SOURCES AND ENDPOINTS FOR TOXICITY REFERENCE VALUES
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Inorganics							
Antimony	0.059	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[5]	
Antimony	2.76	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Arsenic	2.24	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Arsenic	4.51	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Arsenic	1.04	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Arsenic	4.55	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Cadmium	1.47	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Cadmium	6.35	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Cadmium	0.77	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Cadmium	6.9	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Chromium(III)	2.66	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Chromium(III)	15.63	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Chromium(III)	2.4	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Chromium(III)	58.17	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Copper	4.05	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Copper	34.76	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Copper	5.6	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Copper	82.7	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Lead	1.63	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Lead	44.6	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Lead	4.7	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Lead	186.4	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Mercury	0.064	LOAEL	reproductive	chronic	mallard duck	Heinz, 1979	Sample et.al., 1996
Mercury	0.032	NOAEL	reproductive	chronic	rat	Verschuuren et al., 1976	Sample et.al., 1996
Mercury	0.16	LOAEL	reproductive	chronic	rat	Verschuuren et al., 1976	Sample et.al., 1996
Nickel	6.71	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Nickel	18.57	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Nickel	1.7	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Nickel	14.77	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Selenium	0.29	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Selenium	0.819	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents[3]	
Selenium	0.143	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	
Selenium	0.661	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents[3]	

TABLE L-1
SOURCES AND ENDPOINTS FOR TOXICITY REFERENCE VALUES
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Silver	6.02	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents(3)	
Silver	118.62	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents(3)	
Silver	2.02	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents(3)	
Silver	60.47	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents(3)	
Thallium	0.74	LOAEL	reproductive	subchronic	rat	Formigli et al., 1986	Sample et.al., 1996
Vanadium	4.16	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents(3)	
Vanadium	9.436	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents(3)	
Vanadium	0.344	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents(3)	
Vanadium	1.686	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents(3)	
Zinc	75.4	NOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents(3)	
Zinc	297.58	LOAEL	reproduction & growth	chronic	mammals	USEPA Eco-SSL documents(3)	
Zinc	66.1	NOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents(3)	
Zinc	171.44	LOAEL	reproduction & growth	chronic	birds	USEPA Eco-SSL documents(3)	
Dioxins/Furans							
2,3,7,8-TCDD (TEQ)	0.000001	NOAEL	reproduction	chronic	rat	Murray et al., 1979	Sample et.al., 1996
2,3,7,8-TCDD (TEQ)	0.00001	LOAEL	reproduction	chronic	rat	Murray et al., 1979	Sample et.al., 1996
2,3,7,8-TCDD (TEQ)	0.000014	NOAEL	reproduction	chronic	pheasant	Nosek et al., 1992	Sample et.al., 1996
2,3,7,8-TCDD (TEQ)	0.00014	LOAEL	reproduction	chronic	pheasant	Nosek et al., 1992	Sample et.al., 1996

Notes:

(1) 7,12-dimethylbenz(a)anthracene was used as a surrogate for avain NOAELs and LOAELs for PAHs.

(2) Used as a surrogate for 4,4'-DDE, 4,4'-DDD, and total DDT.

(3) NOAELs taken from Eco-SSL documents; LOAELs calculated as the geometric mean of growth aand reproduction data from the Eco-SSL documents.

(4) Used as a surrogate for Aroclor-1260.

(5) Used as a surrogate for alpha-BHC and delta-BHC.

TABLE L-2

MEADOW VOLE - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	4.60E+00	0.00E+00	4.60E+00	3.25E-02	0.00E+00	1.02E+00	1.05E+00	1.00E+01	5.00E+01	1.05E-01	2.10E-02
Semivolatile Organics											
Acenaphthene	3.20E+00	0.00E+00	1.42E-03	2.26E-02	0.00E+00	3.14E-04	2.29E-02	6.56E+01	3.56E+02	3.50E-04	6.44E-05
Acenaphthylene	6.70E-01	1.50E-04	2.32E-01	4.74E-03	6.63E-05	5.13E-02	5.61E-02	6.56E+01	3.56E+02	8.55E-04	1.58E-04
Anthracene	1.60E+01	1.20E-03	3.22E+00	1.13E-01	5.30E-04	7.12E-01	8.25E-01	6.56E+01	3.56E+02	1.26E-02	2.32E-03
Benzo(a)anthracene	2.10E+01	6.30E-03	4.07E-01	1.48E-01	2.78E-03	9.00E-02	2.41E-01	6.15E-01	3.84E+01	3.92E-01	6.28E-03
Benzo(a)pyrene	2.10E+01	7.10E-03	2.48E+00	1.48E-01	3.14E-03	5.47E-01	6.99E-01	6.15E-01	3.84E+01	1.14E+00	1.82E-02
Benzo(b)fluoranthene	1.90E+01	6.50E-03	5.89E+00	1.34E-01	2.87E-03	1.30E+00	1.44E+00	6.15E-01	3.84E+01	2.34E+00	3.75E-02
Benzo(g,h,i)perylene	2.50E+01	4.40E-03	2.18E+01	1.77E-01	1.94E-03	4.83E+00	5.01E+00	6.15E-01	3.84E+01	8.14E+00	1.30E-01
Benzo(k)fluoranthene	3.00E+01	4.80E-03	2.15E+00	2.12E-01	2.12E-03	4.75E-01	6.89E-01	6.15E-01	3.84E+01	1.12E+00	1.80E-02
Bis(2-ethylhexyl) Phthalate	1.50E+00	0.00E+00	8.25E-02	1.06E-02	0.00E+00	1.82E-02	2.88E-02	1.83E+01	1.83E+02	1.57E-03	1.57E-04
Chrysene	2.20E+01	7.60E-03	4.19E-01	1.56E-01	3.36E-03	9.25E-02	2.51E-01	6.15E-01	3.84E+01	4.09E-01	6.55E-03
Dibenzo(a,h)anthracene	1.20E+01	2.10E-04	1.56E+00	8.48E-02	9.28E-05	3.45E-01	4.30E-01	6.15E-01	3.84E+01	6.99E-01	1.12E-02
Fluoranthene	4.40E+01	1.30E-02	2.20E+01	3.11E-01	5.75E-03	4.86E+00	5.18E+00	6.56E+01	3.56E+02	7.89E-02	1.45E-02
Fluorene	6.90E+00	0.00E+00	2.10E-04	4.88E-02	0.00E+00	4.65E-05	4.88E-02	6.56E+01	3.56E+02	7.44E-04	1.37E-04
Indeno(1,2,3-cd)pyrene	3.00E+01	5.00E-03	3.30E+00	2.12E-01	2.21E-03	7.29E-01	9.44E-01	6.15E-01	3.84E+01	1.53E+00	2.46E-02
Phenanthrene	3.90E+01	4.80E-03	8.22E+00	2.76E-01	2.12E-03	1.82E+00	2.09E+00	6.56E+01	3.56E+02	3.19E-02	5.88E-03
Pyrene	3.50E+01	1.20E-02	2.52E+01	2.47E-01	5.30E-03	5.57E+00	5.82E+00	6.15E-01	3.84E+01	9.47E+00	1.52E-01
Pesticides/PCBs											
4,4'-DDD	1.90E-02	1.50E-05	NV	1.34E-04	6.63E-06	NV	1.41E-04	1.47E-01	5.56E+00	9.59E-04	2.54E-05
4,4'-DDE	8.20E-02	2.10E-05	NV	5.80E-04	9.28E-06	NV	5.89E-04	1.47E-01	5.56E+00	4.01E-03	1.06E-04
4,4'-DDT	1.70E-01	1.90E-05	NV	1.20E-03	8.40E-06	NV	1.21E-03	1.47E-01	5.56E+00	8.23E-03	2.18E-04
Total DDT	2.57E-01	5.50E-05	2.92E-02	1.82E-03	2.43E-05	6.45E-03	8.30E-03	1.47E-01	5.56E+00	5.64E-02	1.49E-03
Aldrin	2.40E-03	1.50E-05	1.66E-03	1.70E-05	6.63E-06	3.66E-04	3.90E-04	2.00E-01	1.00E+00	1.95E-03	3.90E-04
Alpha-BHC	3.20E-03	0.00E+00	6.72E-04	2.26E-05	0.00E+00	1.48E-04	1.71E-04	1.40E-02	1.40E-01	1.22E-02	1.22E-03
Beta-BHC	1.30E-02	8.90E-06	2.37E-03	9.19E-05	3.93E-06	5.23E-04	6.19E-04	4.00E-01	2.00E+00	1.55E-03	3.09E-04
Delta-BHC	2.80E-03	0.00E+00	2.52E-03	1.98E-05	0.00E+00	5.57E-04	5.77E-04	1.40E-02	1.40E-01	4.12E-02	4.12E-03
Alpha-Chlordane	1.30E-02	5.80E-05	3.19E-04	9.19E-05	2.56E-05	7.04E-05	1.88E-04	4.58E+00	9.16E+00	4.10E-05	2.05E-05
Dieldrin	5.00E-01	1.60E-03	2.05E-01	3.54E-03	7.07E-04	4.53E-02	4.95E-02	1.50E-02	1.27E+00	3.30E+00	3.90E-02
Endosulfan I	3.90E-03	6.30E-05	1.29E-03	2.76E-05	2.78E-05	2.86E-04	3.42E-04	1.50E-01	1.50E+00	2.28E-03	2.28E-04
Endosulfan II	2.10E-03	0.00E+00	6.97E-04	1.48E-05	0.00E+00	1.54E-04	1.69E-04	1.50E-01	1.50E+00	1.13E-03	1.13E-04
Endosulfan Sulfate	5.40E-02	0.00E+00	1.79E-02	3.82E-04	0.00E+00	3.96E-03	4.34E-03	1.50E-01	1.50E+00	2.90E-02	2.90E-03
Endrin	1.90E-02	0.00E+00	1.55E-03	1.34E-04	0.00E+00	3.43E-04	4.77E-04	9.20E-02	9.20E-01	5.18E-03	5.18E-04
Endrin Aldehyde	2.70E-02	3.70E-05	2.20E-03	1.91E-04	1.64E-05	4.87E-04	6.94E-04	9.20E-02	9.20E-01	7.54E-03	7.54E-04
Endrin Ketone	3.40E-02	0.00E+00	2.77E-03	2.40E-04	0.00E+00	6.13E-04	8.53E-04	9.20E-02	9.20E-01	9.28E-03	9.28E-04
Gamma-BHC (Lindane)	2.30E-03	0.00E+00	6.26E-04	1.63E-05	0.00E+00	1.38E-04	1.54E-04	8.00E+00	8.00E+01	1.93E-05	1.93E-06
Gamma-Chlordane	2.80E-02	0.00E+00	6.86E-04	1.98E-04	0.00E+00	1.52E-04	3.50E-04	4.58E+00	9.16E+00	7.63E-05	3.82E-05
Heptachlor	2.10E-03	0.00E+00	2.56E-04	1.48E-05	0.00E+00	5.66E-05	7.15E-05	1.00E-01	1.00E+00	7.15E-04	7.15E-05
Heptachlor Epoxide	1.20E-02	7.90E-06	3.36E-04	8.48E-05	3.49E-06	7.42E-05	1.63E-04	1.00E-01	1.00E+00	1.63E-03	1.63E-04
Methoxychlor	4.10E-02	2.80E-04	4.39E-03	2.90E-04	1.24E-04	9.69E-04	1.38E-03	4.00E+00	8.00E+00	3.46E-04	1.73E-04
Inorganics											
Antimony	1.01E+01	4.70E-03	3.45E-01	7.14E-02	2.08E-03	7.63E-02	1.50E-01	5.90E-02	2.76E+00	2.54E+00	5.43E-02
Arsenic	2.98E+01	1.06E-02	1.12E+00	2.11E-01	4.68E-03	2.47E-01	4.62E-01	1.04E+00	4.55E+00	4.45E-01	1.02E-01
Cadmium	9.40E+00	1.10E-03	2.11E+00	6.65E-02	4.86E-04	4.67E-01	5.34E-01	7.70E-01	6.90E+00	6.94E-01	7.74E-02
Chromium	3.85E+01	3.78E-02	1.58E+00	2.72E-01	1.67E-02	3.49E-01	6.38E-01	2.40E+00	5.82E+01	2.65E-01	1.10E-02
Hexavalent Chromium	7.40E+00	0.00E+00	3.03E-01	5.23E-02	0.00E+00	6.70E-02	1.19E-01	5.66E+00	3.84E+01	2.11E-02	3.11E-03
Copper	4.58E+02	5.74E-02	2.18E+01	3.24E+00	2.54E-02	4.82E+00	8.08E+00	5.60E+00	8.27E+01	1.44E+00	9.77E-02
Lead	1.41E+03	8.80E-02	1.55E+01	9.97E+00	3.89E-02	3.42E+00	1.34E+01	4.70E+00	1.86E+02	2.86E+00	7.21E-02
Mercury	4.70E-01	2.00E-04	2.35E+00	3.32E-03	8.84E-05	5.19E-01	5.23E-01	3.20E-02	1.60E-01	1.63E+01	3.27E+00
Nickel	6.35E+01	3.18E-02	2.42E+00	4.49E-01	1.41E-02	5.34E-01	9.97E-01	1.70E+00	1.48E+01	5.86E-01	6.75E-02
Selenium	2.60E+00	0.00E+00	1.46E+00	1.84E-02	0.00E+00	3.22E-01	3.41E-01	1.43E-01	6.60E-01	2.38E+00	5.16E-01
Silver	7.70E+00	0.00E+00	1.08E-01	5.44E-02	0.00E+00	2.38E-02	7.83E-02	6.02E+00	1.19E+02	1.30E-02	6.60E-04
Thallium	4.20E+00	0.00E+00	1.68E-02	2.97E-02	0.00E+00	3.71E-03	3.34E-02	7.40E-03	7.40E-02	4.51E+00	4.51E-01
Vanadium	4.49E+01	8.88E-02	2.18E-01	3.17E-01	3.92E-02	4.81E-02	4.05E-01	4.16E+00	9.44E+00	9.73E-02	4.29E-02
Zinc	7.31E+02	2.53E-01	1.86E+02	5.17E+00	1.12E-01	4.12E+01	4.65E+01	7.54E+01	2.98E+02	6.17E-01	1.56E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.70E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	3.76E-03	kg/day	Dose (vegetation) = (Cv * If)(H)/BW
Water Ingestion Rate = (Iw)	7.51E-03	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	1.20E-04	kg/day	Cv = Contaminant concentration in vegetation
Home Range = (HR)	Assume 100% on site		Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water
			Total Dose = Dose (soil) + Dose (vegetation) + Dose (water)
			H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

NV - soil-to-plant BAF not available, total dose is from soil and surface water ingestion only.

TABLE L-3

MEADOW VOLE - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	1.84E-01	0.00E+00	1.84E-01	2.15E-04	0.00E+00	1.79E-02	1.81E-02	1.00E+01	5.00E+01	1.8E-03	3.6E-04
Semivolatile Organics											
Acenaphthene	1.05E-01	0.00E+00	2.64E-02	1.23E-04	0.00E+00	2.57E-03	2.70E-03	6.56E+01	3.56E+02	4.1E-05	7.6E-06
Acenaphthylene	8.17E-02	1.03E-04	4.39E-02	9.55E-05	1.80E-05	4.28E-03	4.39E-03	6.56E+01	3.56E+02	6.7E-05	1.2E-05
Anthracene	3.65E-01	2.54E-04	1.70E-01	4.27E-04	4.44E-05	1.65E-02	1.70E-02	6.56E+01	3.56E+02	2.6E-04	4.8E-05
Benzo(a)anthracene	8.65E-01	9.75E-04	6.12E-02	1.01E-03	1.71E-04	5.96E-03	7.14E-03	6.15E-01	3.84E+01	1.2E-02	1.9E-04
Benzo(a)pyrene	8.15E-01	1.10E-03	1.04E-01	9.53E-04	1.92E-04	1.02E-02	1.13E-02	6.15E-01	3.84E+01	1.8E-02	2.9E-04
Benzo(b)fluoranthene	8.90E-01	1.01E-03	2.76E-01	1.04E-03	1.77E-04	2.69E-02	2.81E-02	6.15E-01	3.84E+01	4.6E-02	7.3E-04
Benzo(g,h,i)perylene	5.18E-01	7.21E-04	2.73E+00	6.06E-04	1.26E-04	2.66E-01	2.67E-01	6.15E-01	3.84E+01	4.3E-01	7.0E-03
Benzo(k)fluoranthene	8.10E-01	7.71E-04	9.64E-02	9.47E-04	1.35E-04	9.39E-03	1.05E-02	6.15E-01	3.84E+01	1.7E-02	2.7E-04
Bis(2-ethylhexyl) Phthalate	1.75E-01	0.00E+00	9.63E-03	2.05E-04	0.00E+00	9.38E-04	1.14E-03	1.83E+01	1.83E+02	6.2E-05	6.2E-06
Chrysene	9.49E-01	1.16E-03	6.46E-02	1.11E-03	2.03E-04	6.30E-03	7.61E-03	6.15E-01	3.84E+01	1.2E-02	2.0E-04
Dibenzo(a,h)anthracene	2.26E-01	9.85E-05	2.94E-02	2.64E-04	1.72E-05	2.86E-03	3.14E-03	6.15E-01	3.84E+01	5.1E-03	8.2E-05
Fluoranthene	2.09E+00	1.95E-03	1.05E+00	2.44E-03	3.41E-04	1.02E-01	1.05E-01	6.56E+01	3.56E+02	1.6E-03	2.9E-04
Fluorene	1.56E-01	0.00E+00	9.47E-04	1.82E-04	0.00E+00	9.22E-05	2.75E-04	6.56E+01	3.56E+02	4.2E-06	7.7E-07
Indeno(1,2,3-cd)pyrene	6.00E-01	8.03E-04	6.60E-02	7.02E-04	1.40E-04	6.43E-03	7.27E-03	6.15E-01	3.84E+01	1.2E-02	1.9E-04
Phenanthrene	1.25E+00	7.69E-04	9.72E-01	1.46E-03	1.34E-04	9.47E-02	9.63E-02	6.56E+01	3.56E+02	1.5E-03	2.7E-04
Pyrene	1.75E+00	1.80E-03	1.26E+00	2.05E-03	3.15E-04	1.23E-01	1.25E-01	6.15E-01	3.84E+01	2.0E-01	3.3E-03
Pesticides/PCBs											
4,4'-DDD	2.74E-03	1.50E-05	NV	3.20E-06	2.62E-06	NV	5.83E-06	1.47E-01	5.56E+00	4.0E-05	1.0E-06
4,4'-DDE	3.85E-03	2.10E-05	NV	4.50E-06	3.67E-06	NV	8.17E-06	1.47E-01	5.56E+00	5.6E-05	1.5E-06
4,4'-DDT	5.06E-03	1.90E-05	NV	5.92E-06	3.32E-06	NV	9.24E-06	1.47E-01	5.56E+00	6.3E-05	1.7E-06
Total DDT	7.17E-03	4.69E-05	1.98E-03	8.38E-06	8.20E-06	1.92E-04	2.09E-04	1.47E-01	5.56E+00	1.4E-03	3.8E-05
Aldrin	1.18E-03	1.50E-05	8.15E-04	1.38E-06	2.62E-06	7.94E-05	8.34E-05	2.00E-01	1.00E+00	4.2E-04	8.3E-05
Alpha-BHC	1.02E-03	0.00E+00	2.14E-04	1.19E-06	0.00E+00	2.09E-05	2.21E-05	1.40E-02	1.40E-01	1.6E-03	1.6E-04
Beta-BHC	1.14E-03	8.90E-06	2.07E-04	1.33E-06	1.56E-06	2.02E-05	2.31E-05	4.00E-01	2.00E+00	5.8E-05	1.2E-05
Delta-BHC	1.03E-03	0.00E+00	9.27E-04	1.20E-06	0.00E+00	9.03E-05	9.15E-05	1.40E-02	1.40E-01	6.5E-03	6.5E-04
Alpha-Chlordane	1.32E-03	3.03E-05	3.23E-05	1.54E-06	5.30E-06	3.15E-06	9.99E-06	4.58E+00	9.16E+00	2.2E-06	1.1E-06
Dieldrin	1.62E-02	2.49E-04	6.64E-03	1.89E-05	4.35E-05	6.47E-04	7.10E-04	1.50E-02	1.27E+00	4.7E-02	5.6E-04
Endosulfan I	1.03E-03	3.10E-05	3.42E-04	1.20E-06	5.42E-06	3.33E-05	3.99E-05	1.50E-01	1.50E+00	2.7E-04	2.7E-05
Endosulfan II	1.65E-03	0.00E+00	5.48E-04	1.93E-06	0.00E+00	5.34E-05	5.53E-05	1.50E-01	1.50E+00	3.7E-04	3.7E-05
Endosulfan Sulfate	2.49E-03	0.00E+00	8.27E-04	2.91E-06	0.00E+00	8.05E-05	8.35E-05	1.50E-01	1.50E+00	5.6E-04	5.6E-05
Endrin	1.97E-03	0.00E+00	1.61E-04	2.30E-06	0.00E+00	1.57E-05	1.80E-05	9.20E-02	9.20E-01	2.0E-04	2.0E-05
Endrin Aldehyde	2.93E-03	3.70E-05	2.39E-04	3.43E-06	6.47E-06	2.33E-05	3.32E-05	9.20E-02	9.20E-01	3.6E-04	3.6E-05
Endrin Ketone	2.86E-03	0.00E+00	2.33E-04	3.34E-06	0.00E+00	2.27E-05	2.61E-05	9.20E-02	9.20E-01	2.8E-04	2.8E-05
Gamma-BHC (Lindane)	1.01E-03	0.00E+00	2.75E-04	1.18E-06	0.00E+00	2.68E-05	2.79E-05	8.00E+00	8.00E+01	3.5E-06	3.5E-07
Gamma-Chlordane	1.82E-03	0.00E+00	4.46E-05	2.13E-06	0.00E+00	4.34E-06	6.47E-06	4.58E+00	9.16E+00	1.4E-06	7.1E-07
Heptachlor	9.62E-04	0.00E+00	1.17E-04	1.12E-06	0.00E+00	1.14E-05	1.26E-05	1.00E-01	1.00E+00	1.3E-04	1.3E-05
Heptachlor Epoxide	1.37E-03	7.90E-06	3.84E-05	1.60E-06	1.38E-06	3.74E-06	6.72E-06	1.00E-01	1.00E+00	6.7E-05	6.7E-06
Methoxychlor	1.23E-02	2.60E-04	1.32E-03	1.44E-05	4.55E-05	1.28E-04	1.88E-04	4.00E+00	8.00E+00	4.7E-05	2.4E-05
Inorganics											
Antimony	1.51E+00	1.91E-03	5.81E-02	1.77E-03	3.34E-04	5.66E-03	7.76E-03	5.90E-02	2.76E+00	1.3E-01	2.8E-03
Arsenic	5.14E+00	2.76E-03	1.93E-01	6.01E-03	4.83E-04	1.88E-02	2.53E-02	1.04E+00	4.55E+00	2.4E-02	5.6E-03
Cadmium	8.69E-01	3.03E-04	5.76E-01	1.02E-03	5.30E-05	5.61E-02	5.72E-02	7.70E-01	6.90E+00	7.4E-02	8.3E-03
Chromium	1.71E+01	6.01E-03	7.01E-01	2.00E-02	1.05E-03	6.83E-02	8.94E-02	2.40E+00	5.82E+01	3.7E-02	1.5E-03
Hexavalent Chromium	1.79E+00	0.00E+00	7.34E-02	2.09E-03	0.00E+00	7.15E-03	9.24E-03	5.66E+00	3.84E+01	1.6E-03	2.4E-04
Copper	2.52E+01	9.68E-03	6.95E+00	2.95E-02	1.69E-03	6.78E-01	7.09E-01	5.60E+00	8.27E+01	1.3E-01	8.6E-03
Lead	7.20E+01	1.53E-02	2.92E+00	8.42E-02	2.68E-03	2.84E-01	3.71E-01	4.70E+00	1.86E+02	7.9E-02	2.0E-03
Mercury	7.66E-02	7.14E-05	4.99E-02	8.96E-05	1.25E-05	4.87E-03	4.97E-03	3.20E-02	1.60E-01	1.6E-01	3.1E-02
Nickel	1.09E+01	5.09E-03	6.46E-01	1.27E-02	8.90E-04	6.30E-02	7.66E-02	1.70E+00	1.48E+01	4.5E-02	5.2E-03
Selenium	3.09E-01	0.00E+00	1.39E-01	3.61E-04	0.00E+00	1.35E-02	1.39E-02	1.43E-01	6.60E-01	9.7E-02	2.1E-02
Silver	6.03E-01	0.00E+00	8.44E-03	7.05E-04	0.00E+00	8.23E-04	1.53E-03	6.02E+00	1.19E+02	2.5E-04	1.3E-05
Thallium	1.31E+00	0.00E+00	5.24E-03	1.53E-03	0.00E+00	5.11E-04	2.04E-03	7.40E-03	7.40E-02	2.8E-01	2.8E-02
Vanadium	2.42E+01	1.93E-02	1.17E-01	2.83E-02	3.38E-03	1.14E-02	4.31E-02	4.16E+00	9.44E+00	1.0E-02	4.6E-03
Zinc	8.00E+01	4.33E-02	5.47E+01	9.35E-02	7.57E-03	5.33E+00	5.43E+00	7.54E+01	2.98E+02	7.2E-02	1.8E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	3.58E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	3.49E-03	kg/day	Dose (vegetation) = (Cv * If)(H)/BW
Water Ingestion Rate = (Iw)	6.26E-03	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	4.19E-05	kg/day	Cv = Contaminant concentration in vegetation
Home Range = (HR)	6.59E-02	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water
			Total Dose = Dose (soil) + Dose (vegetation) + Dose (water)
			H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

NV - soil-to-plant BAF not available, total dose is from soil and surface water ingestion only.

TABLE L-4

BOBWHITE QUAIL - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	4.60E+00	0.00E+00	4.60E+00	6.76E-02	0.00E+00	4.86E-01	5.54E-01	NA	NA	NA	NA
Semivolatile Organics											
Acenaphthene	3.20E+00	0.00E+00	1.42E-03	4.70E-02	0.00E+00	1.50E-04	4.72E-02	2.00E+00	2.00E+01	2.4E-02	2.4E-03
Acenaphthylene	6.70E-01	1.50E-04	2.32E-01	9.85E-03	2.22E-05	2.45E-02	3.44E-02	2.00E+00	2.00E+01	1.7E-02	1.7E-03
Anthracene	1.60E+01	1.20E-03	3.22E+00	2.35E-01	1.77E-04	3.40E-01	5.76E-01	2.00E+00	2.00E+01	2.9E-01	2.9E-02
Benzo(a)anthracene	2.10E+01	6.30E-03	4.07E-01	3.09E-01	9.31E-04	4.31E-02	3.53E-01	2.00E+00	2.00E+01	1.8E-01	1.8E-02
Benzo(a)pyrene	2.10E+01	7.10E-03	2.48E+00	3.09E-01	1.05E-03	2.62E-01	5.71E-01	2.00E+00	2.00E+01	2.9E-01	2.9E-02
Benzo(b)fluoranthene	1.90E+01	6.50E-03	5.89E+00	2.79E-01	9.61E-04	6.23E-01	9.03E-01	2.00E+00	2.00E+01	4.5E-01	4.5E-02
Benzo(g,h,i)perylene	2.50E+01	4.40E-03	2.18E+01	3.67E-01	6.50E-04	2.31E+00	2.68E+00	2.00E+00	2.00E+01	1.3E+00	1.3E-01
Benzo(k)fluoranthene	3.00E+01	4.80E-03	2.15E+00	4.41E-01	7.09E-04	2.27E-01	6.69E-01	2.00E+00	2.00E+01	3.3E-01	3.3E-02
Bis(2-ethylhexyl) Phthalate	1.50E+00	0.00E+00	8.25E-02	2.20E-02	0.00E+00	8.72E-03	3.08E-02	NA	NA	NA	NA
Chrysene	2.20E+01	7.60E-03	4.19E-01	3.23E-01	1.12E-03	4.43E-02	3.69E-01	2.00E+00	2.00E+01	1.8E-01	1.8E-02
Dibenzo(a,h)anthracene	1.20E+01	2.10E-04	1.56E+00	1.76E-01	3.10E-05	1.65E-01	3.41E-01	2.00E+00	2.00E+01	1.7E-01	1.7E-02
Fluoranthene	4.40E+01	1.30E-02	2.20E+01	6.47E-01	1.92E-03	2.33E+00	2.97E+00	2.00E+00	2.00E+01	1.5E+00	1.5E-01
Fluorene	6.90E+00	0.00E+00	2.10E-04	1.01E-01	0.00E+00	2.22E-05	1.01E-01	2.00E+00	2.00E+01	5.1E-02	5.1E-03
Indeno(1,2,3-cd)pyrene	3.00E+01	5.00E-03	3.30E+00	4.41E-01	7.39E-04	3.49E-01	7.90E-01	2.00E+00	2.00E+01	4.0E-01	4.0E-02
Phenanthrene	3.90E+01	4.80E-03	8.22E+00	5.73E-01	7.09E-04	8.68E-01	1.44E+00	2.00E+00	2.00E+01	7.2E-01	7.2E-02
Pyrene	3.50E+01	1.20E-02	2.52E+01	5.14E-01	1.77E-03	2.66E+00	3.18E+00	2.00E+00	2.00E+01	1.6E+00	1.6E-01
Pesticides/PCBs											
4,4'-DDD	1.90E-02	1.50E-05	NV	2.79E-04	2.22E-06	NV	2.81E-04	2.27E-01	2.70E+00	1.2E-03	1.0E-04
4,4'-DDE	8.20E-02	2.10E-05	NV	1.20E-03	3.10E-06	NV	1.21E-03	2.27E-01	2.70E+00	5.3E-03	4.5E-04
4,4'-DDT	1.70E-01	1.90E-05	NV	2.50E-03	2.81E-06	NV	2.50E-03	2.27E-01	2.70E+00	1.1E-02	9.3E-04
Total DDT	2.57E-01	5.50E-05	2.92E-02	3.78E-03	8.13E-06	3.09E-03	6.87E-03	2.27E-01	2.70E+00	3.0E-02	2.5E-03
Aldrin	2.40E-03	1.50E-05	1.66E-03	3.53E-05	2.22E-06	1.75E-04	2.13E-04	NA	NA	NA	NA
Alpha-BHC	3.20E-03	0.00E+00	6.72E-04	4.70E-05	0.00E+00	7.10E-05	1.18E-04	5.60E-01	2.25E+00	2.1E-04	5.2E-05
Beta-BHC	1.30E-02	8.90E-06	2.37E-03	1.91E-04	1.32E-06	2.50E-04	4.42E-04	5.60E-01	2.25E+00	7.9E-04	2.0E-04
Delta-BHC	2.80E-03	0.00E+00	2.52E-03	4.11E-05	0.00E+00	2.66E-04	3.08E-04	5.60E-01	2.25E+00	5.5E-04	1.4E-04
Alpha-Chlordane	1.30E-02	5.80E-05	3.19E-04	1.91E-04	8.57E-06	3.37E-05	2.33E-04	2.14E+00	1.07E+01	1.1E-04	2.2E-05
Dieldrin	5.00E-01	1.60E-03	2.05E-01	7.35E-03	2.36E-04	2.17E-02	2.93E-02	7.09E-02	8.00E-01	4.1E-01	3.7E-02
Endosulfan I	3.90E-03	6.30E-05	1.29E-03	5.73E-05	9.31E-06	1.37E-04	2.03E-04	1.00E+01	1.00E+02	2.0E-05	2.0E-06
Endosulfan II	2.10E-03	0.00E+00	6.97E-04	3.09E-05	0.00E+00	7.37E-05	1.05E-04	1.00E+01	1.00E+02	1.0E-05	1.0E-06
Endosulfan Sulfate	5.40E-02	0.00E+00	1.79E-02	7.93E-04	0.00E+00	1.90E-03	2.69E-03	1.00E+01	1.00E+02	2.7E-04	2.7E-05
Endrin	1.90E-02	0.00E+00	1.55E-03	2.79E-04	0.00E+00	1.64E-04	4.43E-04	1.04E-02	1.04E-01	4.3E-02	4.3E-03
Endrin Aldehyde	2.70E-02	3.70E-05	2.20E-03	3.97E-04	5.47E-06	2.33E-04	6.35E-04	1.00E-02	1.00E-01	6.4E-02	6.4E-03
Endrin Ketone	3.40E-02	0.00E+00	2.77E-03	5.00E-04	0.00E+00	2.93E-04	7.93E-04	1.00E-02	1.00E-01	7.9E-02	7.9E-03
Gamma-BHC (Lindane)	2.30E-03	0.00E+00	6.26E-04	3.38E-05	0.00E+00	6.61E-05	9.99E-05	2.00E+00	2.00E+01	5.0E-05	5.0E-06
Gamma-Chlordane	2.80E-02	0.00E+00	6.86E-04	4.11E-04	0.00E+00	7.25E-05	4.84E-04	2.14E+00	1.07E+01	2.3E-04	4.5E-05
Heptachlor	2.10E-03	0.00E+00	2.56E-04	3.09E-05	0.00E+00	2.71E-05	5.79E-05	NA	NA	NA	NA
Heptachlor Epoxide	1.20E-02	7.90E-06	3.36E-04	1.76E-04	1.17E-06	3.55E-05	2.13E-04	NA	NA	NA	NA
Methoxychlor	4.10E-02	2.80E-04	4.39E-03	6.02E-04	4.14E-05	4.64E-04	1.11E-03	NA	NA	NA	NA
Inorganics											
Antimony	1.01E+01	4.70E-03	3.45E-01	1.48E-01	6.95E-04	3.65E-02	1.86E-01	NV	NV	NV	NV
Arsenic	2.98E+01	1.06E-02	1.12E+00	4.38E-01	1.57E-03	1.18E-01	5.58E-01	2.24E+00	4.51E+00	2.5E-01	1.2E-01
Cadmium	9.40E+00	1.10E-03	2.11E+00	1.38E-01	1.63E-04	2.23E-01	3.62E-01	1.47E+00	6.35E+00	2.5E-01	5.7E-02
Chromium	3.85E+01	3.78E-02	1.58E+00	5.66E-01	5.59E-03	1.67E-01	7.38E-01	2.66E+00	1.56E+01	2.8E-01	4.7E-02
Hexavalent Chromium	7.40E+00	0.00E+00	3.03E-01	1.09E-01	0.00E+00	3.21E-02	1.41E-01	NA	NA	NA	NA
Copper	4.58E+02	5.74E-02	2.18E+01	6.73E+00	8.48E-03	2.30E+00	9.04E+00	4.05E+00	3.48E+01	2.2E+00	2.6E-01
Lead	1.41E+03	8.80E-02	1.55E+01	2.07E+01	1.30E-02	1.64E+00	2.24E+01	1.63E+00	4.46E+01	1.4E+01	5.0E-01
Mercury	4.70E-01	2.00E-04	2.35E+00	6.91E-03	2.96E-05	2.48E-01	2.55E-01	6.40E-03	6.40E-02	4.0E+01	4.0E+00
Nickel	6.35E+01	3.18E-02	2.42E+00	9.33E-01	4.70E-03	2.55E-01	1.19E+00	6.71E+00	1.86E+01	1.8E-01	6.4E-02
Selenium	2.60E+00	0.00E+00	1.46E+00	3.82E-02	0.00E+00	1.54E-01	1.92E-01	2.90E-01	8.20E-01	6.6E-01	2.3E-01
Silver	7.70E+00	0.00E+00	1.08E-01	1.13E-01	0.00E+00	1.14E-02	1.25E-01	2.02E+00	6.05E+01	6.2E-02	2.1E-03
Thallium	4.20E+00	0.00E+00	1.68E-02	6.17E-02	0.00E+00	1.78E-03	6.35E-02	NA	NA	NA	NA
Vanadium	4.49E+01	8.88E-02	2.18E-01	6.60E-01	1.31E-02	2.30E-02	6.96E-01	3.44E-01	1.69E+00	2.0E+00	4.1E-01
Zinc	7.31E+02	2.53E-01	1.86E+02	1.07E+01	3.74E-02	1.97E+01	3.05E+01	6.61E+01	1.71E+02	4.6E-01	1.8E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.54E-01	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.63E-02	kg/day	Dose (vegetation) = (Cv * If)(H)/BW
Water Ingestion Rate = (Iw)	2.28E-02	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	2.26E-03	kg/day	Cv = Contaminant concentration in vegetation
Home Range = (HR)	Assume 100% on site		Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water
			Total Dose = Dose (soil) + Dose (vegetation) + Dose (water)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

NV - soil-to-plant BAF not available, total dose is from soil and surface water ingestion only.
NA - NOAEL and LOAEL not available

TABLE L-5

BOBWHITE QUAIL - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	1.84E-01	0.00E+00	1.84E-01	8.76E-04	0.00E+00	1.44E-02	1.52E-02	NA	NA	NA	NA
Semivolatile Organics											
Acenaphthene	1.05E-01	0.00E+00	2.64E-02	5.00E-04	0.00E+00	2.06E-03	2.56E-03	2.00E+00	2.00E+01	1.3E-03	1.3E-04
Acenaphthylene	8.17E-02	1.03E-04	4.39E-02	3.89E-04	1.13E-05	3.43E-03	3.83E-03	2.00E+00	2.00E+01	1.9E-03	1.9E-04
Anthracene	3.65E-01	2.54E-04	1.70E-01	1.74E-03	2.79E-05	1.32E-02	1.50E-02	2.00E+00	2.00E+01	7.5E-03	7.5E-04
Benzo(a)anthracene	8.65E-01	9.75E-04	6.12E-02	4.12E-03	1.07E-04	4.77E-03	9.00E-03	2.00E+00	2.00E+01	4.5E-03	4.5E-04
Benzo(a)pyrene	8.15E-01	1.10E-03	1.04E-01	3.88E-03	1.21E-04	8.13E-03	1.21E-02	2.00E+00	2.00E+01	6.1E-03	6.1E-04
Benzo(b)fluoranthene	8.90E-01	1.01E-03	2.76E-01	4.24E-03	1.11E-04	2.15E-02	2.59E-02	2.00E+00	2.00E+01	1.3E-02	1.3E-03
Benzo(g,h,i)perylene	5.18E-01	7.21E-04	2.73E+00	2.47E-03	7.93E-05	2.13E-01	2.16E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
Benzo(k)fluoranthene	8.10E-01	7.71E-04	9.64E-02	3.85E-03	8.48E-05	7.52E-03	1.15E-02	2.00E+00	2.00E+01	5.7E-03	5.7E-04
Bis(2-ethylhexyl) Phthalate	1.75E-01	0.00E+00	9.63E-03	8.33E-04	0.00E+00	7.51E-04	1.58E-03	NA	NA	NA	NA
Chrysene	9.49E-01	1.16E-03	6.46E-02	4.52E-03	1.28E-04	5.04E-03	9.69E-03	2.00E+00	2.00E+01	4.8E-03	4.8E-04
Dibenzo(a,h)anthracene	2.26E-01	9.85E-05	2.94E-02	1.08E-03	1.08E-05	2.29E-03	3.38E-03	2.00E+00	2.00E+01	1.7E-03	1.7E-04
Fluoranthene	2.09E+00	1.95E-03	1.05E+00	9.95E-03	2.14E-04	8.15E-02	9.17E-02	2.00E+00	2.00E+01	4.6E-02	4.6E-03
Fluorene	1.56E-01	0.00E+00	9.47E-04	7.42E-04	0.00E+00	7.38E-05	8.16E-04	2.00E+00	2.00E+01	4.1E-04	4.1E-05
Indeno(1,2,3-cd)pyrene	6.00E-01	8.03E-04	6.60E-02	2.86E-03	8.83E-05	5.15E-03	8.09E-03	2.00E+00	2.00E+01	4.0E-03	4.0E-04
Phenanthrene	1.25E+00	7.69E-04	9.72E-01	5.95E-03	8.46E-05	7.59E-02	8.19E-02	2.00E+00	2.00E+01	4.1E-02	4.1E-03
Pyrene	1.75E+00	1.80E-03	1.26E+00	8.33E-03	1.98E-04	9.83E-02	1.07E-01	2.00E+00	2.00E+01	5.3E-02	5.3E-03
Pesticides/PCBs											
4,4'-DDD	2.74E-03	1.50E-05	NV	1.30E-05	1.65E-06	NV	1.47E-05	2.27E-01	2.70E+00	6.5E-05	5.4E-06
4,4'-DDE	3.85E-03	2.10E-05	NV	1.83E-05	2.31E-06	NV	2.06E-05	2.27E-01	2.70E+00	9.1E-05	7.6E-06
4,4'-DDT	5.06E-03	1.90E-05	NV	2.41E-05	2.09E-06	NV	2.62E-05	2.27E-01	2.70E+00	1.2E-04	9.7E-06
Total DDT	7.17E-03	4.69E-05	1.98E-03	3.41E-05	5.16E-06	1.54E-04	1.93E-04	2.27E-01	2.70E+00	8.5E-04	7.2E-05
Aldrin	1.18E-03	1.50E-05	8.15E-04	5.62E-06	1.65E-06	6.36E-05	7.09E-05	NA	NA	NA	NA
Alpha-BHC	1.02E-03	0.00E+00	2.14E-04	4.85E-06	0.00E+00	1.67E-05	2.16E-05	5.60E-01	2.25E+00	3.9E-05	9.6E-06
Beta-BHC	1.14E-03	8.90E-06	2.07E-04	5.42E-06	9.79E-07	1.62E-05	2.26E-05	5.60E-01	2.25E+00	4.0E-05	1.0E-05
Delta-BHC	1.03E-03	0.00E+00	9.27E-04	4.90E-06	0.00E+00	7.23E-05	7.72E-05	5.60E-01	2.25E+00	1.4E-04	3.4E-05
Alpha-Chlordane	1.32E-03	3.03E-05	3.23E-05	6.28E-06	3.33E-06	2.52E-06	1.21E-05	2.14E+00	1.07E+01	5.7E-06	1.1E-06
Dieldrin	1.62E-02	2.49E-04	6.64E-03	7.71E-05	2.74E-05	5.18E-04	6.23E-04	7.09E-02	8.00E-01	8.8E-03	7.8E-04
Endosulfan I	1.03E-03	3.10E-05	3.42E-04	4.90E-06	3.41E-06	2.67E-05	3.50E-05	1.00E+01	1.00E+02	3.5E-06	3.5E-07
Endosulfan II	1.65E-03	0.00E+00	5.48E-04	7.85E-06	0.00E+00	4.27E-05	5.06E-05	1.00E+01	1.00E+02	5.1E-06	5.1E-07
Endosulfan Sulfate	2.49E-03	0.00E+00	8.27E-04	1.18E-05	0.00E+00	6.45E-05	7.63E-05	1.00E+01	1.00E+02	7.6E-06	7.6E-07
Endrin	1.97E-03	0.00E+00	1.61E-04	9.37E-06	0.00E+00	1.25E-05	2.19E-05	1.04E-02	1.04E-01	2.1E-03	2.1E-04
Endrin Aldehyde	2.93E-03	3.70E-05	2.39E-04	1.39E-05	4.07E-06	1.87E-05	3.67E-05	1.00E-02	1.00E-01	3.7E-03	3.7E-04
Endrin Ketone	2.86E-03	0.00E+00	2.33E-04	1.36E-05	0.00E+00	1.82E-05	3.18E-05	1.00E-02	1.00E-01	3.2E-03	3.2E-04
Gamma-BHC (Lindane)	1.01E-03	0.00E+00	2.75E-04	4.81E-06	0.00E+00	2.14E-05	2.62E-05	2.00E+00	2.00E+01	1.3E-05	1.3E-06
Gamma-Chlordane	1.82E-03	0.00E+00	4.46E-05	8.66E-06	0.00E+00	3.48E-06	1.21E-05	2.14E+00	1.07E+01	5.7E-06	1.1E-06
Heptachlor	9.62E-04	0.00E+00	1.17E-04	4.58E-06	0.00E+00	9.16E-06	1.37E-05	NA	NA	NA	NA
Heptachlor Epoxide	1.37E-03	7.90E-06	3.84E-05	6.52E-06	8.69E-07	2.99E-06	1.04E-05	NA	NA	NA	NA
Methoxychlor	1.23E-02	2.60E-04	1.32E-03	5.85E-05	2.86E-05	1.03E-04	1.90E-04	NA	NA	NA	NA
Inorganics											
Antimony	1.51E+00	1.91E-03	5.81E-02	7.19E-03	2.10E-04	4.53E-03	1.19E-02	NA	NA	NA	NA
Arsenic	5.14E+00	2.76E-03	1.93E-01	2.45E-02	3.04E-04	1.50E-02	3.98E-02	2.24E+00	4.51E+00	1.8E-02	8.8E-03
Cadmium	8.69E-01	3.03E-04	5.76E-01	4.14E-03	3.33E-05	4.49E-02	4.91E-02	1.47E+00	6.35E+00	3.3E-02	7.7E-03
Chromium	1.71E+01	6.01E-03	7.01E-01	8.14E-02	6.61E-04	5.47E-02	1.37E-01	2.66E+00	1.56E+01	5.1E-02	8.8E-03
Hexavalent Chromium	1.79E+00	0.00E+00	7.34E-02	8.52E-03	0.00E+00	5.73E-03	1.42E-02	NA	NA	NA	NA
Copper	2.52E+01	9.68E-03	6.95E+00	1.20E-01	1.06E-03	5.43E-01	6.64E-01	4.05E+00	3.48E+01	1.6E-01	1.9E-02
Lead	7.20E+01	1.53E-02	2.92E+00	3.43E-01	1.68E-03	2.28E-01	5.72E-01	1.63E+00	4.46E+01	3.5E-01	1.3E-02
Mercury	7.66E-02	7.14E-05	4.99E-02	3.65E-04	7.85E-06	3.90E-03	4.27E-03	6.40E-03	6.40E-02	6.7E-01	6.7E-02
Nickel	1.09E+01	5.09E-03	6.46E-01	5.19E-02	5.60E-04	5.04E-02	1.03E-01	6.71E+00	1.86E+01	1.5E-02	5.5E-03
Selenium	3.09E-01	0.00E+00	1.39E-01	1.47E-03	0.00E+00	1.08E-02	1.23E-02	2.90E-01	8.20E-01	4.2E-02	1.5E-02
Silver	6.03E-01	0.00E+00	8.44E-03	2.87E-03	0.00E+00	6.59E-04	3.53E-03	2.02E+00	6.05E+01	1.7E-03	5.8E-05
Thallium	1.31E+00	0.00E+00	5.24E-03	6.23E-03	0.00E+00	4.09E-04	6.64E-03	NA	NA	NA	NA
Vanadium	2.42E+01	1.93E-02	1.17E-01	1.15E-01	2.12E-03	9.16E-03	1.26E-01	3.44E-01	1.69E+00	3.7E-01	7.5E-02
Zinc	8.00E+01	4.33E-02	5.47E+01	3.81E-01	4.76E-03	4.27E+00	4.66E+00	6.61E+01	1.71E+02	7.0E-02	2.7E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.75E-01	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.37E-02	kg/day	Dose (vegetation) = (Cv * If)(H)/BW
Water Ingestion Rate = (Iw)	1.93E-02	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	8.33E-04	kg/day	Cv = Contaminant concentration in vegetation
Home Range = (HR)	1.88E+01	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water
			Total Dose = Dose (soil) + Dose (vegetation) + Dose (water)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

NV - soil-to-plant BAF not available, total dose is from soil and surface water ingestion only.
NA - NOAEL and LOAEL not available

TABLE L-6

WOODCHUCK - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Chemical	Max Soil Conc.[a] (mg/kg)	Vegetation Conc.[b] (mg/kg)	Dose (mg/kg/d) from: Soil[a]	Dose (mg/kg/d) from: Veg[b]	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Volatile Organics									
Acetone	2.20E+00	4.60E+00	1.43E-03	1.50E-01	1.51E-01	1.00E+01	5.00E+01	1.5E-02	3.0E-03
Semivolatile Organics									
Acenaphthene	5.10E+00	1.42E-03	3.33E-03	4.63E-05	3.37E-03	6.56E+01	3.56E+02	5.1E-05	9.5E-06
Acenaphthylene	1.70E-01	2.32E-01	1.11E-04	7.57E-03	7.68E-03	6.56E+01	3.56E+02	1.2E-04	2.2E-05
Anthracene	1.30E+01	3.22E+00	8.48E-03	1.05E-01	1.13E-01	6.56E+01	3.56E+02	1.7E-03	3.2E-04
Benzo(a)anthracene	2.20E+01	4.07E-01	1.43E-02	1.33E-02	2.76E-02	6.15E-01	3.84E+01	4.5E-02	7.2E-04
Benzo(a)pyrene	1.60E+01	2.48E+00	1.04E-02	8.08E-02	9.12E-02	6.15E-01	3.84E+01	1.5E-01	2.4E-03
Benzo(b)fluoranthene	1.50E+01	5.89E+00	9.78E-03	1.92E-01	2.02E-01	6.15E-01	3.84E+01	3.3E-01	5.3E-03
Benzo(g,h,i)perylene	8.80E+00	2.18E+01	5.74E-03	7.12E-01	7.18E-01	6.15E-01	3.84E+01	1.2E+00	1.9E-02
Benzo(k)fluoranthene	1.80E+01	2.15E+00	1.17E-02	7.01E-02	8.18E-02	6.15E-01	3.84E+01	1.3E-01	2.1E-03
Bis(2-ethylhexyl) Phthalate	2.30E+01	8.25E-02	1.50E-02	2.69E-03	1.77E-02	1.83E+01	1.83E+02	9.7E-04	9.7E-05
Chrysene	2.40E+01	4.19E-01	1.57E-02	1.37E-02	2.93E-02	6.15E-01	3.84E+01	4.8E-02	7.6E-04
Dibenzo(a,h)anthracene	4.10E+00	1.56E+00	2.67E-03	5.09E-02	5.35E-02	6.15E-01	3.84E+01	8.7E-02	1.4E-03
Fluoranthene	4.80E+01	2.20E+01	3.13E-02	7.17E-01	7.49E-01	6.56E+01	3.56E+02	1.1E-02	2.1E-03
Fluorene	6.90E+00	2.10E-04	4.50E-03	6.86E-06	4.51E-03	6.56E+01	3.56E+02	6.9E-05	1.3E-05
Indeno(1,2,3-cd)pyrene	1.00E+01	3.30E+00	6.52E-03	1.08E-01	1.14E-01	6.15E-01	3.84E+01	1.9E-01	3.0E-03
Phenanthrene	4.80E+01	8.22E+00	3.13E-02	2.68E-01	2.99E-01	6.56E+01	3.56E+02	4.6E-03	8.4E-04
Pyrene	3.60E+01	2.52E+01	2.35E-02	8.22E-01	8.45E-01	6.15E-01	3.84E+01	1.4E+00	2.2E-02
Pesticides/PCBs									
4,4'-DDD	0.00E+00	NV	0.00E+00	NV	0.00E+00	1.47E-01	5.56E+00	0.0E+00	0.0E+00
4,4'-DDE	6.10E-03	NV	3.98E-06	NV	3.98E-06	1.47E-01	5.56E+00	2.7E-05	7.2E-07
4,4'-DDT	1.40E-02	NV	9.13E-06	NV	9.13E-06	1.47E-01	5.56E+00	6.2E-05	1.6E-06
Total DDT	2.01E-02	2.92E-02	1.31E-05	9.52E-04	9.65E-04	1.47E-01	5.56E+00	6.6E-03	1.7E-04
Aldrin	0.00E+00	1.66E-03	0.00E+00	5.41E-05	5.41E-05	2.00E-01	1.00E+00	2.7E-04	5.4E-05
Alpha-BHC	3.00E-03	6.72E-04	1.96E-06	2.19E-05	2.39E-05	1.40E-02	1.40E-01	1.7E-03	1.7E-04
Beta-BHC	0.00E+00	2.37E-03	0.00E+00	7.72E-05	7.72E-05	4.00E-01	2.00E+00	1.9E-04	3.9E-05
Delta-BHC	1.60E-03	2.52E-03	1.04E-06	8.22E-05	8.32E-05	1.40E-02	1.40E-01	5.9E-03	5.9E-04
Alpha-Chlordane	7.10E-03	3.19E-04	4.63E-06	1.04E-05	1.50E-05	4.58E+00	9.16E+00	3.3E-06	1.6E-06
Aroclor-1260	3.50E-01	0.00E+00	2.28E-04	0.00E+00	2.28E-04	6.80E-02	6.80E-01	3.4E-03	3.4E-04
Dieldrin	4.40E-02	2.05E-01	2.87E-05	6.68E-03	6.71E-03	1.50E-02	1.27E+00	4.5E-01	5.3E-03
Endosulfan I	2.00E-03	1.29E-03	1.30E-06	4.22E-05	4.35E-05	1.50E-01	1.50E+00	2.9E-04	2.9E-05
Endosulfan II	1.90E-03	6.97E-04	1.24E-06	2.27E-05	2.40E-05	1.50E-01	1.50E+00	1.6E-04	1.6E-05
Endosulfan Sulfate	1.10E-03	1.79E-02	7.17E-07	5.85E-04	5.85E-04	1.50E-01	1.50E+00	3.9E-03	3.9E-04
Endrin	1.30E-02	1.55E-03	8.48E-06	5.06E-05	5.90E-05	9.20E-02	9.20E-01	6.4E-04	6.4E-05
Endrin Aldehyde	2.70E-03	2.20E-03	1.76E-06	7.18E-05	7.36E-05	9.20E-02	9.20E-01	8.0E-04	8.0E-05
Endrin Ketone	1.50E-02	2.77E-03	9.78E-06	9.05E-05	1.00E-04	9.20E-02	9.20E-01	1.1E-03	1.1E-04
Gamma-BHC (Lindane)	0.00E+00	6.26E-04	0.00E+00	2.04E-05	2.04E-05	8.00E+00	8.00E+01	2.6E-06	2.6E-07
Gamma-Chlordane	8.90E-03	6.86E-04	5.80E-06	2.24E-05	2.82E-05	4.58E+00	9.16E+00	6.2E-06	3.1E-06
Heptachlor	1.30E-03	2.56E-04	8.48E-07	8.35E-06	9.20E-06	1.00E-01	1.00E+00	9.2E-05	9.2E-06
Heptachlor Epoxide	3.60E-03	3.36E-04	2.35E-06	1.10E-05	1.33E-05	1.00E-01	1.00E+00	1.3E-04	1.3E-05
Methoxychlor	1.10E-02	4.39E-03	7.17E-06	1.43E-04	1.50E-04	4.00E+00	8.00E+00	3.8E-05	1.9E-05
Inorganics									
Antimony	2.27E+01	3.45E-01	1.48E-02	1.13E-02	2.61E-02	5.90E-02	2.76E+00	4.4E-01	9.4E-03
Arsenic	9.22E+01	1.12E+00	6.01E-02	3.65E-02	9.66E-02	1.04E+00	4.55E+00	9.3E-02	2.1E-02
Cadmium	1.05E+02	2.11E+00	6.85E-02	6.89E-02	1.37E-01	7.70E-01	6.90E+00	1.8E-01	2.0E-02
Chromium	7.55E+01	1.58E+00	4.92E-02	5.15E-02	1.01E-01	2.40E+00	5.82E+01	4.2E-02	1.7E-03
Hexavalent Chromium	4.70E+00	3.03E-01	3.07E-03	9.89E-03	1.30E-02	5.66E+00	3.84E+01	2.3E-03	3.4E-04
Copper	1.17E+03	2.18E+01	7.63E-01	7.11E-01	1.47E+00	5.60E+00	8.27E+01	2.6E-01	1.8E-02
Lead	7.90E+03	1.55E+01	5.15E+00	5.05E-01	5.66E+00	4.70E+00	1.86E+02	1.2E+00	3.0E-02
Mercury	3.00E-01	2.35E+00	1.96E-04	7.66E-02	7.68E-02	3.20E-02	1.60E-01	2.4E+00	4.8E-01
Nickel	1.17E+02	2.42E+00	7.63E-02	7.88E-02	1.55E-01	1.70E+00	1.48E+01	9.1E-02	1.0E-02
Selenium	1.64E+01	1.46E+00	1.07E-02	4.76E-02	5.83E-02	1.43E-01	6.60E-01	4.1E-01	8.8E-02
Silver	1.95E+01	1.08E-01	1.27E-02	3.52E-03	1.62E-02	6.02E+00	1.19E+02	2.7E-03	1.4E-04
Thallium	4.11E+01	1.68E-02	2.68E-02	5.48E-04	2.74E-02	7.40E-03	7.40E-02	3.7E+00	3.7E-01
Vanadium	4.54E+01	2.18E-01	2.96E-02	7.10E-03	3.67E-02	4.16E+00	9.44E+00	8.8E-03	3.9E-03
Zinc	5.40E+03	1.86E+02	3.52E+00	6.08E+00	9.60E+00	7.54E+01	2.98E+02	1.3E-01	3.2E-02
Dioxins/Furans									
TCDD TEQ	2.70E-05	0.00E+00	1.76E-08	0.00E+00	1.76E-08	1.00E-06	1.00E-05	1.8E-02	1.8E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	4.60E+00	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.50E-01	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	3.00E-03	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	Assume 100% on site		Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=HR/CA (Assume = to 1)	

(a) Subsurface soil 2-4 feet below ground surface (bgs)
(b) Vegetation concentration is based on surface soil (0-2 ft bgs)
NV - soil-to-plant BAF not available, total dose is from soil ingestion only.

TABLE L-7

WOODCHUCK - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

	Avg Soil Conc.[a]	Vegetation Conc.[b]	Dose (mg/kg/d) from:		Total Dose	NOAEL	LOAEL	Hazard Quotients	
Chemical	(mg/kg)	(mg/kg)	Soil[a]	Veg[b]	(mg/kg/d)	(mg/kg/d)	(mg/kg/d)	NOAEL	LOAEL
Volatile Organics									
Acetone	1.44E-01	1.84E-01	8.08E-05	5.16E-03	5.24E-03	1.00E+01	5.00E+01	5.2E-04	1.0E-04
Semivolatile Organics									
Acenaphthene	1.89E-01	2.64E-02	1.06E-04	7.41E-04	8.47E-04	6.56E+01	3.56E+02	1.3E-05	2.4E-06
Acenaphthylene	4.91E-02	4.39E-02	2.75E-05	1.23E-03	1.26E-03	6.56E+01	3.56E+02	1.9E-05	3.5E-06
Anthracene	4.45E-01	1.70E-01	2.50E-04	4.76E-03	5.01E-03	6.56E+01	3.56E+02	7.6E-05	1.4E-05
Benzo(a)anthracene	7.58E-01	6.12E-02	4.25E-04	1.72E-03	2.14E-03	6.15E-01	3.84E+01	3.5E-03	5.6E-05
Benzo(a)pyrene	5.93E-01	1.04E-01	3.33E-04	2.92E-03	3.26E-03	6.15E-01	3.84E+01	5.3E-03	8.5E-05
Benzo(b)fluoranthene	6.03E-01	2.76E-01	3.38E-04	7.74E-03	8.08E-03	6.15E-01	3.84E+01	1.3E-02	2.1E-04
Benzo(g,h,i)perylene	3.23E-01	2.73E+00	1.81E-04	7.66E-02	7.68E-02	6.15E-01	3.84E+01	1.2E-01	2.0E-03
Benzo(k)fluoranthene	6.32E-01	9.64E-02	3.54E-04	2.70E-03	3.06E-03	6.15E-01	3.84E+01	5.0E-03	8.0E-05
Bis(2-ethylhexyl) Phthalate	8.17E-01	9.63E-03	4.58E-04	2.70E-04	7.28E-04	1.83E+01	1.83E+02	4.0E-05	4.0E-06
Chrysene	8.34E-01	6.46E-02	4.68E-04	1.81E-03	2.28E-03	6.15E-01	3.84E+01	3.7E-03	5.9E-05
Dibenzo(a,h)anthracene	1.53E-01	2.94E-02	8.58E-05	8.24E-04	9.10E-04	6.15E-01	3.84E+01	1.5E-03	2.4E-05
Fluoranthene	1.71E+00	1.05E+00	9.59E-04	2.93E-02	3.03E-02	6.56E+01	3.56E+02	4.6E-04	8.5E-05
Fluorene	2.50E-01	9.47E-04	1.40E-04	2.65E-05	1.67E-04	6.56E+01	3.56E+02	2.5E-06	4.7E-07
Indeno(1,2,3-cd)pyrene	3.68E-01	6.60E-02	2.06E-04	1.85E-03	2.06E-03	6.15E-01	3.84E+01	3.3E-03	5.4E-05
Phenanthrene	1.75E+00	9.72E-01	9.82E-04	2.73E-02	2.82E-02	6.56E+01	3.56E+02	4.3E-04	7.9E-05
Pyrene	1.30E+00	1.26E+00	7.29E-04	3.53E-02	3.61E-02	6.15E-01	3.84E+01	5.9E-02	9.4E-04
Pesticides/PCBs									
4,4'-DDD	0.00E+00	NV	0.00E+00	NV	0.00E+00	1.47E-01	5.56E+00	0.0E+00	0.0E+00
4,4'-DDE	1.10E-03	NV	6.17E-07	NV	6.17E-07	1.47E-01	5.56E+00	4.2E-06	1.1E-07
4,4'-DDT	1.75E-03	NV	9.82E-07	NV	9.82E-07	1.47E-01	5.56E+00	6.7E-06	1.8E-07
Total DDT	1.16E-03	1.98E-03	6.51E-07	5.54E-05	5.60E-05	1.47E-01	5.56E+00	3.8E-04	1.0E-05
Aldrin	0.00E+00	8.15E-04	0.00E+00	2.29E-05	2.29E-05	2.00E-01	1.00E+00	1.1E-04	2.3E-05
Alpha-BHC	7.54E-04	2.14E-04	4.23E-07	6.01E-06	6.43E-06	1.40E-02	1.40E-01	4.6E-04	4.6E-05
Beta-BHC	0.00E+00	2.07E-04	0.00E+00	5.82E-06	5.82E-06	4.00E-01	2.00E+00	1.5E-05	2.9E-06
Delta-BHC	7.09E-04	9.27E-04	3.98E-07	2.60E-05	2.64E-05	1.40E-02	1.40E-01	1.9E-03	1.9E-04
Alpha-Chlordane	1.18E-03	3.23E-05	6.62E-07	9.07E-07	1.57E-06	4.58E+00	9.16E+00	3.4E-07	1.7E-07
Aroclor-1260	1.64E-02	0.00E+00	9.20E-06	0.00E+00	9.20E-06	6.80E-02	6.80E-01	1.4E-04	1.4E-05
Dieldrin	2.91E-03	6.64E-03	1.63E-06	1.86E-04	1.88E-04	1.50E-02	1.27E+00	1.3E-02	1.5E-04
Endosulfan I	7.12E-04	3.42E-04	3.99E-07	9.59E-06	9.99E-06	1.50E-01	1.50E+00	6.7E-05	6.7E-06
Endosulfan II	1.00E-03	5.48E-04	5.61E-07	1.54E-05	1.59E-05	1.50E-01	1.50E+00	1.1E-04	1.1E-05
Endosulfan Sulfate	9.76E-04	8.27E-04	5.47E-07	2.32E-05	2.37E-05	1.50E-01	1.50E+00	1.6E-04	1.6E-05
Endrin	1.36E-03	1.61E-04	7.63E-07	4.51E-06	5.27E-06	9.20E-02	9.20E-01	5.7E-05	5.7E-06
Endrin Aldehyde	1.06E-03	2.39E-04	5.95E-07	6.70E-06	7.30E-06	9.20E-02	9.20E-01	7.9E-05	7.9E-06
Endrin Ketone	1.54E-03	2.33E-04	8.64E-07	6.54E-06	7.41E-06	9.20E-02	9.20E-01	8.1E-05	8.1E-06
Gamma-BHC (Lindane)	0.00E+00	2.75E-04	0.00E+00	7.70E-06	7.70E-06	8.00E+00	8.00E+01	9.6E-07	9.6E-08
Gamma-Chlordane	1.21E-03	4.46E-05	6.79E-07	1.25E-06	1.93E-06	4.58E+00	9.16E+00	4.2E-07	2.1E-07
Heptachlor	6.79E-04	1.17E-04	3.81E-07	3.29E-06	3.67E-06	1.00E-01	1.00E+00	3.7E-05	3.7E-06
Heptachlor Epoxide	8.28E-04	3.84E-05	4.64E-07	1.08E-06	1.54E-06	1.00E-01	1.00E+00	1.5E-05	1.5E-06
Methoxychlor	6.91E-03	1.32E-03	3.88E-06	3.69E-05	4.08E-05	4.00E+00	8.00E+00	1.0E-05	5.1E-06
Inorganics									
Antimony	8.80E+00	5.81E-02	4.94E-03	1.63E-03	6.56E-03	5.90E-02	2.76E+00	1.1E-01	2.4E-03
Arsenic	8.24E+00	1.93E-01	4.62E-03	5.41E-03	1.00E-02	1.04E+00	4.55E+00	9.6E-03	2.2E-03
Cadmium	9.82E+00	5.76E-01	5.51E-03	1.62E-02	2.17E-02	7.70E-01	6.90E+00	2.8E-02	3.1E-03
Chromium	2.31E+01	7.01E-01	1.30E-02	1.97E-02	3.26E-02	2.40E+00	5.82E+01	1.4E-02	5.6E-04
Hexavalent Chromium	1.37E+00	7.34E-02	7.68E-04	2.06E-03	2.83E-03	5.66E+00	3.84E+01	5.0E-04	7.4E-05
Copper	1.04E+02	6.95E+00	5.83E-02	1.95E-01	2.53E-01	5.60E+00	8.27E+01	4.5E-02	3.1E-03
Lead	3.42E+02	2.92E+00	1.92E-01	8.19E-02	2.74E-01	4.70E+00	1.86E+02	5.8E-02	1.5E-03
Mercury	4.59E-02	4.99E-02	2.57E-05	1.40E-03	1.43E-03	3.20E-02	1.60E-01	4.5E-02	8.9E-03
Nickel	1.75E+01	6.46E-01	9.82E-03	1.81E-02	2.79E-02	1.70E+00	1.48E+01	1.6E-02	1.9E-03
Selenium	6.61E-01	1.39E-01	3.71E-04	3.90E-03	4.27E-03	1.43E-01	6.60E-01	3.0E-02	6.5E-03
Silver	4.84E+00	8.44E-03	2.71E-03	2.37E-04	2.95E-03	6.02E+00	1.19E+02	4.9E-04	2.5E-05
Thallium	4.62E+00	5.24E-03	2.59E-03	1.47E-04	2.74E-03	7.40E-03	7.40E-02	3.7E-01	3.7E-02
Vanadium	2.45E+01	1.17E-01	1.37E-02	3.29E-03	1.70E-02	4.16E+00	9.44E+00	4.1E-03	1.8E-03
Zinc	5.16E+02	5.47E+01	2.89E-01	1.54E+00	1.82E+00	7.54E+01	2.98E+02	2.4E-02	6.1E-03
Dioxins/Furans									
TCDD TEQ	2.70E-05	0.00E+00	1.52E-08	0.00E+00	1.52E-08	1.00E-06	1.00E-05	1.5E-02	1.5E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	4.60E+00	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.29E-01	kg/day	Dose (vegetation) = (Cv * If)(H)/BW
Soil Ingestion Rate = (Is)	2.58E-03	kg/day	Cv = Contaminant concentration in vegetation
Home Range = (HR)	NV	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water
			Total Dose = Dose (soil) + Dose (vegetation)

(a) Subsurface soil 2-4 feet below ground surface (bgs)
H=HR/CA (Assume = to 1)
(b) Vegetation concentration is based on surface soil (0-2 ft bgs)
NV - soil-to-plant BAF not available, total dose is from soil ingestion only.

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

TABLE L-8

SHORT-TAILED SHREW - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	4.60E+00	0.00E+00	4.60E+00	1.47E-02	0.00E+00	4.91E-01	5.05E-01	1.00E+01	5.00E+01	5.1E-02	1.0E-02
Semivolatile Organics											
Acenaphthene	3.20E+00	0.00E+00	4.70E+00	1.02E-02	0.00E+00	5.02E-01	5.12E-01	6.56E+01	3.56E+02	7.8E-03	1.4E-03
Acenaphthylene	6.70E-01	1.50E-04	1.53E+01	2.14E-03	4.28E-05	1.64E+00	1.64E+00	6.56E+01	3.56E+02	2.5E-02	4.6E-03
Anthracene	1.60E+01	1.20E-03	3.87E+01	5.12E-02	3.42E-04	4.13E+00	4.18E+00	6.56E+01	3.56E+02	6.4E-02	1.2E-02
Benzo(a)anthracene	2.10E+01	6.30E-03	3.34E+01	6.72E-02	1.80E-03	3.56E+00	3.63E+00	6.15E-01	3.84E+01	5.9E+00	9.5E-02
Benzo(a)pyrene	2.10E+01	7.10E-03	2.79E+01	6.72E-02	2.03E-03	2.98E+00	3.05E+00	6.15E-01	3.84E+01	5.0E+00	7.9E-02
Benzo(b)fluoranthene	1.90E+01	6.50E-03	4.94E+01	6.08E-02	1.85E-03	5.27E+00	5.33E+00	6.15E-01	3.84E+01	8.7E+00	1.4E-01
Benzo(g,h,i)perylene	2.50E+01	4.40E-03	7.35E+01	8.00E-02	1.26E-03	7.84E+00	7.92E+00	6.15E-01	3.84E+01	1.3E+01	2.1E-01
Benzo(k)fluoranthene	3.00E+01	4.80E-03	7.80E+01	9.60E-02	1.37E-03	8.32E+00	8.42E+00	6.15E-01	3.84E+01	1.4E+01	2.2E-01
Bis(2-ethylhexyl) Phthalate	1.50E+00	0.00E+00	1.50E+00	4.80E-03	0.00E+00	1.60E-01	1.65E-01	1.83E+01	1.83E+02	9.0E-03	9.0E-04
Chrysene	2.20E+01	7.60E-03	5.04E+01	7.04E-02	2.17E-03	5.38E+00	5.45E+00	6.15E-01	3.84E+01	8.9E+00	1.4E-01
Dibenzo(a,h)anthracene	1.20E+01	2.10E-04	2.77E+01	3.84E-02	5.99E-05	2.96E+00	3.00E+00	6.15E-01	3.84E+01	4.9E+00	7.8E-02
Fluoranthene	4.40E+01	1.30E-02	1.34E+02	1.41E-01	3.71E-03	1.43E+01	1.44E+01	6.56E+01	3.56E+02	2.2E-01	4.0E-02
Fluorene	6.90E+00	0.00E+00	6.60E+01	2.21E-02	0.00E+00	7.05E+00	7.07E+00	6.56E+01	3.56E+02	1.1E-01	2.0E-02
Indeno(1,2,3-cd)pyrene	3.00E+01	5.00E-03	8.58E+01	9.60E-02	1.43E-03	9.15E+00	9.25E+00	6.15E-01	3.84E+01	1.5E+01	2.4E-01
Phenanthrene	3.90E+01	4.80E-03	6.71E+01	1.25E-01	1.37E-03	7.16E+00	7.28E+00	6.56E+01	3.56E+02	1.1E-01	2.0E-02
Pyrene	3.50E+01	1.20E-02	6.13E+01	1.12E-01	3.42E-03	6.53E+00	6.65E+00	6.15E-01	3.84E+01	1.1E+01	1.7E-01
Pesticides/PCBs											
4,4'-DDD	1.90E-02	1.50E-05	2.01E-01	6.08E-05	4.28E-06	2.15E-02	2.15E-02	1.47E-01	5.56E+00	1.5E-01	3.9E-03
4,4'-DDE	8.20E-02	2.10E-05	1.32E+00	2.62E-04	5.99E-06	1.40E-01	1.41E-01	1.47E-01	5.56E+00	9.6E-01	2.5E-02
4,4'-DDT	1.70E-01	1.90E-05	1.80E+00	5.44E-04	5.42E-06	1.92E-01	1.92E-01	1.47E-01	5.56E+00	1.3E+00	3.5E-02
Total DDT	2.57E-01	5.50E-05	5.60E+00	8.23E-04	1.57E-05	5.97E-01	5.98E-01	1.47E-01	5.56E+00	4.1E+00	1.1E-01
Aldrin	2.40E-03	1.50E-05	7.92E-03	7.68E-06	4.28E-06	8.45E-04	8.57E-04	2.00E-01	1.00E+00	4.3E-03	8.6E-04
Alpha-BHC	3.20E-03	0.00E+00	1.60E-02	1.02E-05	0.00E+00	1.71E-03	1.72E-03	1.40E-02	1.40E-01	1.2E-01	1.2E-02
Beta-BHC	1.30E-02	8.90E-06	6.50E-02	4.16E-05	2.54E-06	6.93E-03	6.98E-03	4.00E-01	2.00E+00	1.7E-02	3.5E-03
Delta-BHC	2.80E-03	0.00E+00	1.40E-02	8.96E-06	0.00E+00	1.49E-03	1.50E-03	1.40E-02	1.40E-01	1.1E-01	1.1E-02
Alpha-Chlordane	1.30E-02	5.80E-05	6.50E-02	4.16E-05	1.65E-05	6.93E-03	6.99E-03	4.58E+00	9.16E+00	1.5E-03	7.6E-04
Dieldrin	5.00E-01	1.60E-03	7.35E+00	1.60E-03	4.57E-04	7.84E-01	7.86E-01	1.50E-02	1.27E+00	5.2E+01	6.2E-01
Endosulfan I	3.90E-03	6.30E-05	3.90E-03	1.25E-05	1.80E-05	4.16E-04	4.47E-04	1.50E-01	1.50E+00	3.0E-03	3.0E-04
Endosulfan II	2.10E-03	0.00E+00	2.10E-03	6.72E-06	0.00E+00	2.24E-04	2.31E-04	1.50E-01	1.50E+00	1.5E-03	1.5E-04
Endosulfan Sulfate	5.40E-02	0.00E+00	5.40E-02	1.73E-04	0.00E+00	5.76E-03	5.93E-03	1.50E-01	1.50E+00	4.0E-02	4.0E-03
Endrin	1.90E-02	0.00E+00	6.84E-02	6.08E-05	0.00E+00	7.30E-03	7.36E-03	9.20E-02	9.20E-01	8.0E-02	8.0E-03
Endrin Aldehyde	2.70E-02	3.70E-05	9.72E-02	8.64E-05	1.06E-05	1.04E-02	1.05E-02	9.20E-02	9.20E-01	1.1E-01	1.1E-02
Endrin Ketone	3.40E-02	0.00E+00	1.22E-01	1.09E-04	0.00E+00	1.31E-02	1.32E-02	9.20E-02	9.20E-01	1.4E-01	1.4E-02
Gamma-BHC (Lindane)	2.30E-03	0.00E+00	1.15E-02	7.36E-06	0.00E+00	1.23E-03	1.23E-03	8.00E+00	8.00E+01	1.5E-04	1.5E-05
Gamma-Chlordane	2.80E-02	0.00E+00	1.40E-01	8.96E-05	0.00E+00	1.49E-02	1.50E-02	4.58E+00	9.16E+00	3.3E-03	1.6E-03
Heptachlor	2.10E-03	0.00E+00	2.10E-02	6.72E-06	0.00E+00	2.24E-03	2.25E-03	1.00E-01	1.00E+00	2.2E-02	2.2E-03
Heptachlor Epoxide	1.20E-02	7.90E-06	3.60E-02	3.84E-05	2.25E-06	3.84E-03	3.88E-03	1.00E-01	1.00E+00	3.9E-02	3.9E-03
Methoxychlor	4.10E-02	2.80E-04	4.10E-02	1.31E-04	7.99E-05	4.37E-03	4.59E-03	4.00E+00	8.00E+00	1.1E-03	5.7E-04
Inorganics											
Antimony	1.01E+01	4.70E-03	1.01E+01	3.23E-02	1.34E-03	1.08E+00	1.11E+00	5.90E-02	2.76E+00	1.9E+01	4.0E-01
Arsenic	2.98E+01	1.06E-02	2.65E+00	9.54E-02	3.02E-03	2.83E-01	3.81E-01	1.04E+00	4.55E+00	3.7E-01	8.4E-02
Cadmium	9.40E+00	1.10E-03	4.92E+01	3.01E-02	3.14E-04	5.25E+00	5.28E+00	7.70E-01	6.90E+00	6.9E+00	7.6E-01
Chromium	3.85E+01	3.78E-02	1.18E+01	1.23E-01	1.08E-02	1.26E+00	1.39E+00	2.40E+00	5.82E+01	5.8E-01	2.4E-02
Hexavalent Chromium	7.40E+00	0.00E+00	2.26E+00	2.37E-02	0.00E+00	2.42E-01	2.65E-01	5.66E+00	3.84E+01	4.7E-02	6.9E-03
Copper	4.58E+02	5.74E-02	2.36E+02	1.47E+00	1.64E-02	2.52E+01	2.66E+01	5.60E+00	8.27E+01	4.8E+00	3.2E-01
Lead	1.41E+03	8.80E-02	2.80E+02	4.51E+00	2.51E-02	2.98E+01	3.44E+01	4.70E+00	1.86E+02	7.3E+00	1.8E-01
Mercury	4.70E-01	2.00E-04	8.38E-01	1.50E-03	5.71E-05	8.94E-02	9.10E-02	3.20E-02	1.60E-01	2.8E+00	5.7E-01
Nickel	6.35E+01	3.18E-02	6.72E+01	2.03E-01	9.07E-03	7.17E+00	7.39E+00	1.70E+00	1.48E+01	4.3E+00	5.0E-01
Selenium	2.60E+00	0.00E+00	1.87E+00	8.32E-03	0.00E+00	1.99E-01	2.08E-01	1.43E-01	6.60E-01	1.5E+00	3.1E-01
Silver	7.70E+00	0.00E+00	1.57E+01	2.46E-02	0.00E+00	1.68E+00	1.70E+00	6.02E+00	1.19E+02	2.8E-01	1.4E-02
Thallium	4.20E+00	0.00E+00	4.20E+00	1.34E-02	0.00E+00	4.48E-01	4.62E-01	7.40E-03	7.40E-02	6.2E+01	6.2E+00
Vanadium	4.49E+01	8.88E-02	1.02E+00	1.44E-01	2.53E-02	1.08E-01	2.77E-01	4.16E+00	9.44E+00	6.7E-02	2.9E-02
Zinc	7.31E+02	2.53E-01	7.44E+02	2.34E+00	7.22E-02	7.94E+01	8.18E+01	7.54E+01	2.98E+02	1.1E+00	2.7E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.50E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.60E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW
Water Ingestion Rate = (Iw)	4.28E-03	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	4.80E-05	kg/day	Ci = Contaminant concentration in invertebrate
Home Range = (HR)	Assume 100% on site		Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water

Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

TABLE L-9

SHORT-TAILED SHREW - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	1.84E-01	0.00E+00	1.84E-01	1.47E-04	0.00E+00	1.64E-02	1.65E-02	1.00E+01	5.00E+01	1.7E-03	3.3E-04
Semivolatile Organics											
Acenaphthene	1.05E-01	0.00E+00	1.54E-01	8.41E-05	0.00E+00	1.37E-02	1.38E-02	6.56E+01	3.56E+02	2.1E-04	3.9E-05
Acenaphthylene	8.17E-02	1.03E-04	1.87E+00	6.54E-05	2.30E-05	1.66E-01	1.67E-01	6.56E+01	3.56E+02	2.5E-03	4.7E-04
Anthracene	3.65E-01	2.54E-04	8.83E-01	2.92E-04	5.68E-05	7.86E-02	7.89E-02	6.56E+01	3.56E+02	1.2E-03	2.2E-04
Benzo(a)anthracene	8.65E-01	9.75E-04	1.38E+00	6.93E-04	2.18E-04	1.22E-01	1.23E-01	6.15E-01	3.84E+01	2.0E-01	3.2E-03
Benzo(a)pyrene	8.15E-01	1.10E-03	1.08E+00	6.53E-04	2.46E-04	9.64E-02	9.73E-02	6.15E-01	3.84E+01	1.6E-01	2.5E-03
Benzo(b)fluoranthene	8.90E-01	1.01E-03	2.31E+00	7.13E-04	2.26E-04	2.06E-01	2.07E-01	6.15E-01	3.84E+01	3.4E-01	5.4E-03
Benzo(g,h,i)perylene	5.18E-01	7.21E-04	1.52E+00	4.15E-04	1.61E-04	1.36E-01	1.36E-01	6.15E-01	3.84E+01	2.2E-01	3.5E-03
Benzo(k)fluoranthene	8.10E-01	7.71E-04	2.11E+00	6.49E-04	1.72E-04	1.87E-01	1.88E-01	6.15E-01	3.84E+01	3.1E-01	4.9E-03
Bis(2-ethylhexyl) Phthalate	1.75E-01	0.00E+00	1.75E-01	1.40E-04	0.00E+00	1.56E-02	1.57E-02	1.83E+01	1.83E+02	8.6E-04	8.6E-05
Chrysene	9.49E-01	1.16E-03	2.17E+00	7.60E-04	2.59E-04	1.93E-01	1.94E-01	6.15E-01	3.84E+01	3.2E-01	5.1E-03
Dibenzo(a,h)anthracene	2.26E-01	9.85E-05	5.22E-01	1.81E-04	2.20E-05	4.65E-02	4.67E-02	6.15E-01	3.84E+01	7.6E-02	1.2E-03
Fluoranthene	2.09E+00	1.95E-03	6.35E+00	1.67E-03	4.36E-04	5.65E-01	5.67E-01	6.56E+01	3.56E+02	8.7E-03	1.6E-03
Fluorene	1.56E-01	0.00E+00	1.49E+00	1.25E-04	0.00E+00	1.33E-01	1.33E-01	6.56E+01	3.56E+02	2.0E-03	3.7E-04
Indeno(1,2,3-cd)pyrene	6.00E-01	8.03E-04	1.72E+00	4.80E-04	1.80E-04	1.53E-01	1.53E-01	6.15E-01	3.84E+01	2.5E-01	4.0E-03
Phenanthrene	1.25E+00	7.69E-04	2.15E+00	1.00E-03	1.72E-04	1.91E-01	1.92E-01	6.56E+01	3.56E+02	2.9E-03	5.4E-04
Pyrene	1.75E+00	1.80E-03	3.06E+00	1.40E-03	4.02E-04	2.72E-01	2.74E-01	6.15E-01	3.84E+01	4.5E-01	7.1E-03
Pesticides/PCBs											
4,4'-DDD	2.74E-03	1.50E-05	5.21E-02	2.19E-06	3.35E-06	4.64E-03	4.64E-03	1.47E-01	5.56E+00	3.2E-02	8.4E-04
4,4'-DDE	3.85E-03	2.10E-05	8.91E-02	3.08E-06	4.70E-06	7.93E-03	7.94E-03	1.47E-01	5.56E+00	5.4E-02	1.4E-03
4,4'-DDT	5.06E-03	1.90E-05	8.47E-02	4.05E-06	4.25E-06	7.54E-03	7.54E-03	1.47E-01	5.56E+00	5.1E-02	1.4E-03
Total DDT	7.17E-03	4.69E-05	1.81E-01	5.74E-06	1.05E-05	1.61E-02	1.62E-02	1.47E-01	5.56E+00	1.1E-01	2.9E-03
Aldrin	1.18E-03	1.50E-05	3.89E-03	9.45E-07	3.35E-06	3.46E-04	3.51E-04	2.00E-01	1.00E+00	1.8E-03	3.5E-04
Alpha-BHC	1.02E-03	0.00E+00	5.10E-03	8.17E-07	0.00E+00	4.54E-04	4.55E-04	1.40E-02	1.40E-01	3.2E-02	3.2E-03
Beta-BHC	1.14E-03	8.90E-06	5.70E-03	9.13E-07	1.99E-06	5.07E-04	5.10E-04	4.00E-01	2.00E+00	1.3E-03	2.6E-04
Delta-BHC	1.03E-03	0.00E+00	5.15E-03	8.25E-07	0.00E+00	4.58E-04	4.59E-04	1.40E-02	1.40E-01	3.3E-02	3.3E-03
Alpha-Chlordane	1.32E-03	3.03E-05	6.60E-03	1.06E-06	6.78E-06	5.87E-04	5.95E-04	4.58E+00	9.16E+00	1.3E-04	6.5E-05
Dieldrin	1.62E-02	2.49E-04	2.38E-01	1.30E-05	5.57E-05	2.12E-02	2.13E-02	1.50E-02	1.27E+00	1.4E+00	1.7E-02
Endosulfan I	1.03E-03	3.10E-05	1.03E-03	8.25E-07	6.93E-06	9.16E-05	9.94E-05	1.50E-01	1.50E+00	6.6E-04	6.6E-05
Endosulfan II	1.65E-03	0.00E+00	1.65E-03	1.32E-06	0.00E+00	1.47E-04	1.48E-04	1.50E-01	1.50E+00	9.9E-04	9.9E-05
Endosulfan Sulfate	2.49E-03	0.00E+00	2.49E-03	1.99E-06	0.00E+00	2.22E-04	2.24E-04	1.50E-01	1.50E+00	1.5E-03	1.5E-04
Endrin	1.97E-03	0.00E+00	7.09E-03	1.58E-06	0.00E+00	6.31E-04	6.33E-04	9.20E-02	9.20E-01	6.9E-03	6.9E-04
Endrin Aldehyde	2.93E-03	3.70E-05	1.05E-02	2.35E-06	8.27E-06	9.39E-04	9.49E-04	9.20E-02	9.20E-01	1.0E-02	1.0E-03
Endrin Ketone	2.86E-03	0.00E+00	1.03E-02	2.29E-06	0.00E+00	9.16E-04	9.18E-04	9.20E-02	9.20E-01	1.0E-02	1.0E-03
Gamma-BHC (Lindane)	1.01E-03	0.00E+00	5.05E-03	8.09E-07	0.00E+00	4.49E-04	4.50E-04	8.00E+00	8.00E+01	5.6E-05	5.6E-06
Gamma-Chlordane	1.82E-03	0.00E+00	9.10E-03	1.46E-06	0.00E+00	8.10E-04	8.11E-04	4.58E+00	9.16E+00	1.8E-04	8.9E-05
Heptachlor	9.62E-04	0.00E+00	9.62E-03	7.70E-07	0.00E+00	8.56E-04	8.57E-04	1.00E-01	1.00E+00	8.6E-03	8.6E-04
Heptachlor Epoxide	1.37E-03	7.90E-06	4.11E-03	1.10E-06	1.77E-06	3.66E-04	3.69E-04	1.00E-01	1.00E+00	3.7E-03	3.7E-04
Methoxychlor	1.23E-02	2.60E-04	1.23E-02	9.85E-06	5.81E-05	1.09E-03	1.16E-03	4.00E+00	8.00E+00	2.9E-04	1.5E-04
Inorganics											
Antimony	1.51E+00	1.91E-03	1.51E+00	1.21E-03	4.27E-04	1.34E-01	1.36E-01	5.90E-02	2.76E+00	2.3E+00	4.9E-02
Arsenic	5.14E+00	2.76E-03	7.67E-01	4.12E-03	6.17E-04	6.82E-02	7.30E-02	1.04E+00	4.55E+00	7.0E-02	1.6E-02
Cadmium	8.69E-01	3.03E-04	7.41E+00	6.96E-04	6.78E-05	6.59E-01	6.60E-01	7.70E-01	6.90E+00	8.6E-01	9.6E-02
Chromium	1.71E+01	6.01E-03	5.23E+00	1.37E-02	1.34E-03	4.66E-01	4.81E-01	2.40E+00	5.82E+01	2.0E-01	8.3E-03
Hexavalent Chromium	1.79E+00	0.00E+00	5.48E-01	1.43E-03	0.00E+00	4.87E-02	5.02E-02	5.66E+00	3.84E+01	8.9E-03	1.3E-03
Copper	2.52E+01	9.68E-03	1.30E+01	2.02E-02	2.16E-03	1.15E+00	1.18E+00	5.60E+00	8.27E+01	2.1E-01	1.4E-02
Lead	7.20E+01	1.53E-02	2.54E+01	5.77E-02	3.42E-03	2.26E+00	2.32E+00	4.70E+00	1.86E+02	4.9E-01	1.2E-02
Mercury	7.66E-02	7.14E-05	4.55E-01	6.13E-05	1.60E-05	4.05E-02	4.06E-02	3.20E-02	1.60E-01	1.3E+00	2.5E-01
Nickel	1.09E+01	5.09E-03	1.15E+01	8.73E-03	1.14E-03	1.03E+00	1.04E+00	1.70E+00	1.48E+01	6.1E-01	7.0E-02
Selenium	3.09E-01	0.00E+00	3.92E-01	2.47E-04	0.00E+00	3.49E-02	3.51E-02	1.43E-01	6.60E-01	2.5E-01	5.3E-02
Silver	6.03E-01	0.00E+00	1.23E+00	4.83E-04	0.00E+00	1.10E-01	1.10E-01	6.02E+00	1.19E+02	1.8E-02	9.3E-04
Thallium	1.31E+00	0.00E+00	1.31E+00	1.05E-03	0.00E+00	1.17E-01	1.18E-01	7.40E-03	7.40E-02	1.6E+01	1.6E+00
Vanadium	2.42E+01	1.93E-02	1.02E+00	1.94E-02	4.32E-03	9.04E-02	1.14E-01	4.16E+00	9.44E+00	2.7E-02	1.2E-02
Zinc	8.00E+01	4.33E-02	3.60E+02	6.41E-02	9.68E-03	3.20E+01	3.21E+01	7.54E+01	2.98E+02	4.3E-01	1.1E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.61E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.43E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW
Water Ingestion Rate = (Iw)	3.60E-03	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	1.29E-05	kg/day	Ci = Contaminant concentration in invertebrate
Home Range = (HR)	9.70E-01	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water

Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

TABLE L-10

AMERICAN ROBIN - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Max Soil Conc. (mg/kg)	Max SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	4.60E+00	0.00E+00	4.60E+00	1.22E-01	0.00E+00	7.42E-01	8.64E-01	NA	NA	NA	NA
Semivolatile Organics											
Acenaphthene	3.20E+00	0.00E+00	4.70E+00	8.47E-02	0.00E+00	7.59E-01	8.44E-01	2.00E+00	2.00E+01	4.2E-01	4.2E-02
Acenaphthylene	6.70E-01	1.50E-04	1.53E+01	1.77E-02	0.00E+00	2.48E+00	2.49E+00	2.00E+00	2.00E+01	1.2E+00	1.2E-01
Anthracene	1.60E+01	1.20E-03	3.87E+01	4.23E-01	0.00E+00	6.25E+00	6.67E+00	2.00E+00	2.00E+01	3.3E+00	3.3E-01
Benzo(a)anthracene	2.10E+01	6.30E-03	3.34E+01	5.56E-01	0.00E+00	5.39E+00	5.94E+00	2.00E+00	2.00E+01	3.0E+00	3.0E-01
Benzo(a)pyrene	2.10E+01	7.10E-03	2.79E+01	5.56E-01	0.00E+00	4.51E+00	5.06E+00	2.00E+00	2.00E+01	2.5E+00	2.5E-01
Benzo(b)fluoranthene	1.90E+01	6.50E-03	4.94E+01	5.03E-01	0.00E+00	7.97E+00	8.48E+00	2.00E+00	2.00E+01	4.2E+00	4.2E-01
Benzo(g,h,i)perylene	2.50E+01	4.40E-03	7.35E+01	6.62E-01	0.00E+00	1.19E+01	1.25E+01	2.00E+00	2.00E+01	6.3E+00	6.3E-01
Benzo(k)fluoranthene	3.00E+01	4.80E-03	7.80E+01	7.94E-01	0.00E+00	1.26E+01	1.34E+01	2.00E+00	2.00E+01	6.7E+00	6.7E-01
Bis(2-ethylhexyl) Phthalate	1.50E+00	0.00E+00	1.50E+00	3.97E-02	0.00E+00	2.42E-01	2.82E-01	NA	NA	NA	NA
Chrysene	2.20E+01	7.60E-03	5.04E+01	5.82E-01	0.00E+00	8.13E+00	8.71E+00	2.00E+00	2.00E+01	4.4E+00	4.4E-01
Dibenzo(a,h)anthracene	1.20E+01	2.10E-04	2.77E+01	3.18E-01	0.00E+00	4.47E+00	4.79E+00	2.00E+00	2.00E+01	2.4E+00	2.4E-01
Fluoranthene	4.40E+01	1.30E-02	1.34E+02	1.16E+00	0.00E+00	2.16E+01	2.28E+01	2.00E+00	2.00E+01	1.1E+01	1.1E+00
Fluorene	6.90E+00	0.00E+00	6.60E+01	1.83E-01	0.00E+00	1.07E+01	1.08E+01	2.00E+00	2.00E+01	5.4E+00	5.4E-01
Indeno(1,2,3-cd)pyrene	3.00E+01	5.00E-03	8.58E+01	7.94E-01	0.00E+00	1.38E+01	1.46E+01	2.00E+00	2.00E+01	7.3E+00	7.3E-01
Phenanthrene	3.90E+01	4.80E-03	6.71E+01	1.03E+00	0.00E+00	1.08E+01	1.19E+01	2.00E+00	2.00E+01	5.9E+00	5.9E-01
Pyrene	3.50E+01	1.20E-02	6.13E+01	9.26E-01	0.00E+00	9.88E+00	1.08E+01	2.00E+00	2.00E+01	5.4E+00	5.4E-01
Pesticides/PCBs											
4,4'-DDD	1.90E-02	1.50E-05	2.01E-01	5.03E-04	0.00E+00	3.25E-02	3.30E-02	2.27E-01	2.70E+00	1.5E-01	1.2E-02
4,4'-DDE	8.20E-02	2.10E-05	1.32E+00	2.17E-03	0.00E+00	2.13E-01	2.15E-01	2.27E-01	2.70E+00	9.5E-01	8.0E-02
4,4'-DDT	1.70E-01	1.90E-05	1.80E+00	4.50E-03	0.00E+00	2.90E-01	2.94E-01	2.27E-01	2.70E+00	1.3E+00	1.1E-01
Total DDT	2.57E-01	5.50E-05	5.60E+00	6.81E-03	0.00E+00	9.04E-01	9.11E-01	2.27E-01	2.70E+00	4.0E+00	3.4E-01
Aldrin	2.40E-03	1.50E-05	7.92E-03	6.35E-05	0.00E+00	1.28E-03	1.34E-03	NA	NA	NA	NA
Alpha-BHC	3.20E-03	0.00E+00	1.60E-02	8.47E-05	0.00E+00	2.58E-03	2.67E-03	5.60E-01	2.25E+00	4.8E-03	1.2E-03
Beta-BHC	1.30E-02	8.90E-06	6.50E-02	3.44E-04	0.00E+00	1.05E-02	1.08E-02	5.60E-01	2.25E+00	1.9E-02	4.8E-03
Delta-BHC	2.80E-03	0.00E+00	1.40E-02	7.41E-05	0.00E+00	2.26E-03	2.33E-03	5.60E-01	2.25E+00	4.2E-03	1.0E-03
Alpha-Chlordane	1.30E-02	5.80E-05	6.50E-02	3.44E-04	0.00E+00	1.05E-02	1.08E-02	2.14E+00	1.07E+01	5.1E-03	1.0E-03
Dieldrin	5.00E-01	1.60E-03	7.35E+00	1.32E-02	0.00E+00	1.19E+00	1.20E+00	7.09E-02	8.00E-01	1.7E+01	1.5E+00
Endosulfan I	3.90E-03	6.30E-05	3.90E-03	1.03E-04	0.00E+00	6.29E-04	7.33E-04	1.00E+01	1.00E+02	7.3E-05	7.3E-06
Endosulfan II	2.10E-03	0.00E+00	2.10E-03	5.56E-05	0.00E+00	3.39E-04	3.94E-04	1.00E+01	1.00E+02	3.9E-05	3.9E-06
Endosulfan Sulfate	5.40E-02	0.00E+00	5.40E-02	1.43E-03	0.00E+00	8.71E-03	1.01E-02	1.00E+01	1.00E+02	1.0E-03	1.0E-04
Endrin	1.90E-02	0.00E+00	6.84E-02	5.03E-04	0.00E+00	1.10E-02	1.15E-02	1.04E-02	1.04E-01	1.1E+00	1.1E-01
Endrin Aldehyde	2.70E-02	3.70E-05	9.72E-02	7.15E-04	0.00E+00	1.57E-02	1.64E-02	1.00E-02	1.00E-01	1.6E+00	1.6E-01
Endrin Ketone	3.40E-02	0.00E+00	1.22E-01	9.00E-04	0.00E+00	1.98E-02	2.07E-02	1.00E-02	1.00E-01	2.1E+00	2.1E-01
Gamma-BHC (Lindane)	2.30E-03	0.00E+00	1.15E-02	6.09E-05	0.00E+00	1.86E-03	1.92E-03	2.00E+00	2.00E+01	9.6E-04	9.6E-05
Gamma-Chlordane	2.80E-02	0.00E+00	1.40E-01	7.41E-04	0.00E+00	2.26E-02	2.33E-02	2.14E+00	1.07E+01	1.1E-02	2.2E-03
Heptachlor	2.10E-03	0.00E+00	2.10E-02	5.56E-05	0.00E+00	3.39E-03	3.44E-03	NA	NA	NA	NA
Heptachlor Epoxide	1.20E-02	7.90E-06	3.60E-02	3.18E-04	0.00E+00	5.81E-03	6.13E-03	NA	NA	NA	NA
Methoxychlor	4.10E-02	2.80E-04	4.10E-02	1.09E-03	0.00E+00	6.62E-03	7.70E-03	NA	NA	NA	NA
Inorganics											
Antimony	1.01E+01	4.70E-03	1.01E+01	2.67E-01	0.00E+00	1.63E+00	1.90E+00	NA	NA	NA	NA
Arsenic	2.98E+01	1.06E-02	2.65E+00	7.89E-01	0.00E+00	4.28E-01	1.22E+00	2.24E+00	4.51E+00	5.4E-01	2.7E-01
Cadmium	9.40E+00	1.10E-03	4.92E+01	2.49E-01	0.00E+00	7.94E+00	8.18E+00	1.47E+00	6.35E+00	5.6E+00	1.3E+00
Chromium	3.85E+01	3.78E-02	1.18E+01	1.02E+00	0.00E+00	1.90E+00	2.92E+00	2.66E+00	1.56E+01	1.1E+00	1.9E-01
Hexavalent Chromium	7.40E+00	0.00E+00	2.26E+00	1.96E-01	0.00E+00	3.65E-01	5.61E-01	NA	NA	NA	NA
Copper	4.58E+02	5.74E-02	2.36E+02	1.21E+01	0.00E+00	3.81E+01	5.02E+01	4.05E+00	3.48E+01	1.2E+01	1.4E+00
Lead	1.41E+03	8.80E-02	2.80E+02	3.73E+01	0.00E+00	4.51E+01	8.25E+01	1.63E+00	4.46E+01	5.1E+01	1.8E+00
Mercury	4.70E-01	2.00E-04	8.38E-01	1.24E-02	0.00E+00	1.35E-01	1.48E-01	6.40E-03	6.40E-02	2.3E+01	2.3E+00
Nickel	6.35E+01	3.18E-02	6.72E+01	1.68E+00	0.00E+00	1.09E+01	1.25E+01	6.71E+00	1.86E+01	1.9E+00	6.7E-01
Selenium	2.60E+00	0.00E+00	1.87E+00	6.88E-02	0.00E+00	3.02E-01	3.70E-01	2.90E-01	8.20E-01	1.3E+00	4.5E-01
Silver	7.70E+00	0.00E+00	1.57E+01	2.04E-01	0.00E+00	2.54E+00	2.74E+00	2.02E+00	6.05E+01	1.4E+00	4.5E-02
Thallium	4.20E+00	0.00E+00	4.20E+00	1.11E-01	0.00E+00	6.78E-01	7.89E-01	NA	NA	NA	NA
Vanadium	4.49E+01	8.88E-02	1.02E+00	1.19E+00	0.00E+00	1.64E-01	1.35E+00	3.44E-01	1.69E+00	3.9E+00	8.0E-01
Zinc	7.31E+02	2.53E-01	7.44E+02	1.93E+01	0.00E+00	1.20E+02	1.39E+02	6.61E+01	1.71E+02	2.1E+00	8.2E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	7.73E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.25E-02	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW
Water Ingestion Rate = (Iw)	1.21E-02	L/day	Dose (water) = (Cw * Iw)(H)/BW
Soil Ingestion Rate = (Is)	2.05E-03	kg/day	Ci = Contaminant concentration in invertebrate
Home Range = (HR)	Assume 100% on site		Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water
			Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)
			H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
SW = Surface Water

NA - NOAEL and LOAEL not available

TABLE L-11

AMERICAN ROBIN - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Avg Soil Conc. (mg/kg)	Avg SW Conc. (mg/L)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Surface Water	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Volatile Organics											
Acetone	1.84E-01	0.00E+00	1.84E-01	1.74E-03	0.00E+00	2.72E-02	2.89E-02	NA	NA	NA	NA
Semivolatile Organics											
Acenaphthene	1.05E-01	0.00E+00	1.54E-01	9.93E-04	0.00E+00	2.28E-02	2.38E-02	2.00E+00	2.00E+01	1.2E-02	1.2E-03
Acenaphthylene	8.17E-02	1.03E-04	1.87E+00	7.72E-04	1.45E-05	2.76E-01	2.77E-01	2.00E+00	2.00E+01	1.4E-01	1.4E-02
Anthracene	3.65E-01	2.54E-04	8.83E-01	3.45E-03	3.58E-05	1.30E-01	1.34E-01	2.00E+00	2.00E+01	6.7E-02	6.7E-03
Benzo(a)anthracene	8.65E-01	9.75E-04	1.38E+00	8.18E-03	1.38E-04	2.03E-01	2.11E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
Benzo(a)pyrene	8.15E-01	1.10E-03	1.08E+00	7.71E-03	1.55E-04	1.60E-01	1.68E-01	2.00E+00	2.00E+01	8.4E-02	8.4E-03
Benzo(b)fluoranthene	8.90E-01	1.01E-03	2.31E+00	8.41E-03	1.42E-04	3.42E-01	3.50E-01	2.00E+00	2.00E+01	1.8E-01	1.8E-02
Benzo(g,h,i)perylene	5.18E-01	7.21E-04	1.52E+00	4.90E-03	1.02E-04	2.25E-01	2.30E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
Benzo(k)fluoranthene	8.10E-01	7.71E-04	2.11E+00	7.66E-03	1.09E-04	3.11E-01	3.19E-01	2.00E+00	2.00E+01	1.6E-01	1.6E-02
Bis(2-ethylhexyl) Phthalate	1.75E-01	0.00E+00	1.75E-01	1.65E-03	0.00E+00	2.59E-02	2.75E-02	NA	NA	NA	NA
Chrysene	9.49E-01	1.16E-03	2.17E+00	8.97E-03	1.64E-04	3.21E-01	3.30E-01	2.00E+00	2.00E+01	1.7E-01	1.7E-02
Dibenzo(a,h)anthracene	2.26E-01	9.85E-05	5.22E-01	2.14E-03	1.39E-05	7.71E-02	7.93E-02	2.00E+00	2.00E+01	4.0E-02	4.0E-03
Fluoranthene	2.09E+00	1.95E-03	6.35E+00	1.98E-02	2.75E-04	9.39E-01	9.59E-01	2.00E+00	2.00E+01	4.8E-01	4.8E-02
Fluorene	1.56E-01	0.00E+00	1.49E+00	1.47E-03	0.00E+00	2.21E-01	2.22E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
Indeno(1,2,3-cd)pyrene	6.00E-01	8.03E-04	1.72E+00	5.67E-03	1.13E-04	2.53E-01	2.59E-01	2.00E+00	2.00E+01	1.3E-01	1.3E-02
Phenanthrene	1.25E+00	7.69E-04	2.15E+00	1.18E-02	1.08E-04	3.18E-01	3.30E-01	2.00E+00	2.00E+01	1.6E-01	1.6E-02
Pyrene	1.75E+00	1.80E-03	3.06E+00	1.65E-02	2.54E-04	4.52E-01	4.69E-01	2.00E+00	2.00E+01	2.3E-01	2.3E-02
Pesticides/PCBs											
4,4'-DDD	2.74E-03	1.50E-05	5.21E-02	2.59E-05	2.12E-06	7.70E-03	7.73E-03	2.27E-01	2.70E+00	3.4E-02	2.9E-03
4,4'-DDE	3.85E-03	2.10E-05	8.91E-02	3.64E-05	2.96E-06	1.32E-02	1.32E-02	2.27E-01	2.70E+00	5.8E-02	4.9E-03
4,4'-DDT	5.06E-03	1.90E-05	8.47E-02	4.78E-05	2.68E-06	1.25E-02	1.26E-02	2.27E-01	2.70E+00	5.5E-02	4.7E-03
Total DDT	7.17E-03	4.69E-05	1.81E-01	6.78E-05	6.62E-06	2.68E-02	2.69E-02	2.27E-01	2.70E+00	1.2E-01	1.0E-02
Aldrin	1.18E-03	1.50E-05	3.89E-03	1.12E-05	2.12E-06	5.75E-04	5.89E-04	NA	NA	NA	NA
Alpha-BHC	1.02E-03	0.00E+00	5.10E-03	9.64E-06	0.00E+00	7.53E-04	7.63E-04	5.60E-01	2.25E+00	1.4E-03	3.4E-04
Beta-BHC	1.14E-03	8.90E-06	5.70E-03	1.08E-05	1.26E-06	8.42E-04	8.54E-04	5.60E-01	2.25E+00	1.5E-03	3.8E-04
Delta-BHC	1.03E-03	0.00E+00	5.15E-03	9.74E-06	0.00E+00	7.61E-04	7.71E-04	5.60E-01	2.25E+00	1.4E-03	3.4E-04
Alpha-Chlordane	1.32E-03	3.03E-05	6.60E-03	1.25E-05	4.27E-06	9.75E-04	9.92E-04	2.14E+00	1.07E+01	4.6E-04	9.3E-05
Dieldrin	1.62E-02	2.49E-04	2.38E-01	1.53E-04	3.51E-05	3.52E-02	3.54E-02	7.09E-02	8.00E-01	5.0E-01	4.4E-02
Endosulfan I	1.03E-03	3.10E-05	1.03E-03	9.74E-06	4.37E-06	1.52E-04	1.66E-04	1.00E+01	1.00E+02	1.7E-05	1.7E-06
Endosulfan II	1.65E-03	0.00E+00	1.65E-03	1.56E-05	0.00E+00	2.44E-04	2.59E-04	1.00E+01	1.00E+02	2.6E-05	2.6E-06
Endosulfan Sulfate	2.49E-03	0.00E+00	2.49E-03	2.35E-05	0.00E+00	3.68E-04	3.91E-04	1.00E+01	1.00E+02	3.9E-05	3.9E-06
Endrin	1.97E-03	0.00E+00	7.09E-03	1.86E-05	0.00E+00	1.05E-03	1.07E-03	1.04E-02	1.04E-01	1.0E-01	1.0E-02
Endrin Aldehyde	2.93E-03	3.70E-05	1.05E-02	2.77E-05	5.22E-06	1.56E-03	1.59E-03	1.00E-02	1.00E-01	1.6E-01	1.6E-02
Endrin Ketone	2.86E-03	0.00E+00	1.03E-02	2.70E-05	0.00E+00	1.52E-03	1.55E-03	1.00E-02	1.00E-01	1.5E-01	1.5E-02
Gamma-BHC (Lindane)	1.01E-03	0.00E+00	5.05E-03	9.55E-06	0.00E+00	7.46E-04	7.56E-04	2.00E+00	2.00E+01	3.8E-04	3.8E-05
Gamma-Chlordane	1.82E-03	0.00E+00	9.10E-03	1.72E-05	0.00E+00	1.34E-03	1.36E-03	2.14E+00	1.07E+01	6.4E-04	1.3E-04
Heptachlor	9.62E-04	0.00E+00	9.62E-03	9.10E-06	0.00E+00	1.42E-03	1.43E-03	NA	NA	NA	NA
Heptachlor Epoxide	1.37E-03	7.90E-06	4.11E-03	1.30E-05	1.11E-06	6.07E-04	6.21E-04	NA	NA	NA	NA
Methoxychlor	1.23E-02	2.60E-04	1.23E-02	1.16E-04	3.67E-05	1.82E-03	1.97E-03	NA	NA	NA	NA
Inorganics											
Antimony	1.51E+00	1.91E-03	1.51E+00	1.43E-02	2.69E-04	2.23E-01	2.38E-01	NA	NA	NA	NA
Arsenic	5.14E+00	2.76E-03	7.67E-01	4.86E-02	3.89E-04	1.13E-01	1.62E-01	2.24E+00	4.51E+00	7.2E-02	3.6E-02
Cadmium	8.69E-01	3.03E-04	7.41E+00	8.22E-03	4.27E-05	1.09E+00	1.10E+00	1.47E+00	6.35E+00	7.5E-01	1.7E-01
Chromium	1.71E+01	6.01E-03	5.23E+00	1.62E-01	8.48E-04	7.73E-01	9.35E-01	2.66E+00	1.56E+01	3.5E-01	6.0E-02
Hexavalent Chromium	1.79E+00	0.00E+00	5.48E-01	1.69E-02	0.00E+00	8.09E-02	9.78E-02	NA	NA	NA	NA
Copper	2.52E+01	9.68E-03	1.30E+01	2.38E-01	1.37E-03	1.92E+00	2.16E+00	4.05E+00	3.48E+01	5.3E-01	6.2E-02
Lead	7.20E+01	1.53E-02	2.54E+01	6.81E-01	2.16E-03	3.75E+00	4.43E+00	1.63E+00	4.46E+01	2.7E+00	9.9E-02
Mercury	7.66E-02	7.14E-05	4.55E-01	7.24E-04	1.01E-05	6.72E-02	6.79E-02	6.40E-03	6.40E-02	1.1E+01	1.1E+00
Nickel	1.09E+01	5.09E-03	1.15E+01	1.03E-01	7.18E-04	1.71E+00	1.81E+00	6.71E+00	1.86E+01	2.7E-01	9.7E-02
Selenium	3.09E-01	0.00E+00	3.92E-01	2.92E-03	0.00E+00	5.79E-02	6.09E-02	2.90E-01	8.20E-01	2.1E-01	7.4E-02
Silver	6.03E-01	0.00E+00	1.23E+00	5.70E-03	0.00E+00	1.82E-01	1.88E-01	2.02E+00	6.05E+01	9.3E-02	3.1E-03
Thallium	1.31E+00	0.00E+00	1.31E+00	1.24E-02	0.00E+00	1.94E-01	2.06E-01	NA	NA	NA	NA
Vanadium	2.42E+01	1.93E-02	1.02E+00	2.29E-01	2.72E-03	1.50E-01	3.82E-01	3.44E-01	1.69E+00	1.1E+00	2.3E-01
Zinc	8.00E+01	4.33E-02	3.60E+02	7.56E-01	6.11E-03	5.32E+01	5.40E+01	6.61E+01	1.71E+02	8.2E-01	3.2E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	8.04E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.19E-02	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Water Ingestion Rate = (Iw)	1.13E-02	L/day	Dose (water) = (Cw * Iw)(H)/BW	NOAEL = No Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	7.60E-04	kg/day	Ci = Contaminant concentration in invertebrate	SW = Surface Water
Home Range = (HR)	6.10E-01	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Cw = Contaminant concentration in water	
			Total Dose = Dose (soil) + Dose (invertebrate) + Dose (water)	
			H=HR/CA (Assume = to 1)	

NA - NOAEL and LOAEL not available

TABLE L-12

GREEN HERON - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Max Sed. Conc. (mg/kg)	Max SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from:			Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
				Sediment	Surface Water	Fish				NOAEL	LOAEL
Semivolatile Organics											
Acenaphthene	2.00E-01	0.00E+00	2.86E-01	1.60E-03	0.00E+00	4.43E-02	4.59E-02	2.00E+00	2.00E+01	2.3E-02	2.3E-03
Acenaphthylene	1.50E-01	1.50E-04	2.15E-01	1.20E-03	1.65E-05	3.33E-02	3.45E-02	2.00E+00	2.00E+01	1.7E-02	1.7E-03
Anthracene	9.00E-01	1.20E-03	1.29E+00	7.20E-03	1.32E-04	2.00E-01	2.07E-01	2.00E+00	2.00E+01	1.0E-01	1.0E-02
Benzo(a)anthracene	3.50E+00	6.30E-03	5.01E+00	2.80E-02	6.93E-04	7.76E-01	8.05E-01	2.00E+00	2.00E+01	4.0E-01	4.0E-02
Benzo(a)pyrene	3.50E+00	7.10E-03	5.01E+00	2.80E-02	7.81E-04	7.76E-01	8.05E-01	2.00E+00	2.00E+01	4.0E-01	4.0E-02
Benzo(b)fluoranthene	4.80E+00	6.50E-03	6.86E+00	3.84E-02	7.15E-04	1.06E+00	1.10E+00	2.00E+00	2.00E+01	5.5E-01	5.5E-02
Benzo(g,h,i)perylene	1.40E+00	4.40E-03	2.00E+00	1.12E-02	4.84E-04	3.10E-01	3.22E-01	2.00E+00	2.00E+01	1.6E-01	1.6E-02
Benzo(k)fluoranthene	3.50E+00	4.80E-03	5.01E+00	2.80E-02	5.28E-04	7.76E-01	8.04E-01	2.00E+00	2.00E+01	4.0E-01	4.0E-02
Chrysene	4.20E+00	7.60E-03	6.01E+00	3.36E-02	8.36E-04	9.31E-01	9.65E-01	2.00E+00	2.00E+01	4.8E-01	4.8E-02
Dibenzo(a,h)anthracene	7.50E-01	2.10E-04	1.07E+00	6.00E-03	2.31E-05	1.66E-01	1.72E-01	2.00E+00	2.00E+01	8.6E-02	8.6E-03
Fluoranthene	1.00E+01	1.30E-02	1.43E+01	8.00E-02	1.43E-03	2.22E+00	2.30E+00	2.00E+00	2.00E+01	1.1E+00	1.1E-01
Fluorene	3.40E-01	0.00E+00	4.86E-01	2.72E-03	0.00E+00	7.54E-02	7.81E-02	2.00E+00	2.00E+01	3.9E-02	3.9E-03
Indeno(1,2,3-cd)pyrene	1.90E+00	5.00E-03	2.72E+00	1.52E-02	5.50E-04	4.21E-01	4.37E-01	2.00E+00	2.00E+01	2.2E-01	2.2E-02
Phenanthrene	5.80E+00	4.80E-03	8.29E+00	4.64E-02	5.28E-04	1.29E+00	1.33E+00	2.00E+00	2.00E+01	6.7E-01	6.7E-02
Pyrene	8.60E+00	1.20E-02	1.23E+01	6.88E-02	1.32E-03	1.91E+00	1.98E+00	2.00E+00	2.00E+01	9.9E-01	9.9E-02
Pesticides/PCBs											
4,4'-DDD	4.00E-03	1.50E-05	5.52E-03	3.20E-05	1.65E-06	8.56E-04	8.90E-04	2.27E-01	2.70E+00	3.9E-03	3.3E-04
4,4'-DDE	6.50E-03	2.10E-05	2.47E-01	5.20E-05	2.31E-06	3.83E-02	3.83E-02	2.27E-01	2.70E+00	1.7E-01	1.4E-02
4,4'-DDT	5.20E-03	1.90E-05	4.28E-02	4.16E-05	2.09E-06	6.64E-03	6.68E-03	2.27E-01	2.70E+00	2.9E-02	2.5E-03
Total DDT	1.06E-02	5.50E-05	4.03E-01	8.48E-05	6.05E-06	6.24E-02	6.25E-02	2.27E-01	2.70E+00	2.8E-01	2.3E-02
Aldrin	4.30E-04	1.50E-05	3.82E-03	3.44E-06	1.65E-06	5.92E-04	5.97E-04	NA	NA	NA	NA
Alpha-BHC	6.80E-04	0.00E+00	6.04E-03	5.44E-06	0.00E+00	9.36E-04	9.41E-04	5.60E-01	2.25E+00	1.7E-03	4.2E-04
Alpha-Chlordane	1.20E-02	5.80E-05	2.82E-01	9.60E-05	6.38E-06	4.38E-02	4.39E-02	2.14E+00	1.07E+01	2.0E-02	4.1E-03
Beta-BHC	1.60E-02	8.90E-06	1.42E-01	1.28E-04	9.79E-07	2.20E-02	2.21E-02	5.60E-01	2.25E+00	4.0E-02	9.8E-03
Delta-BHC	4.90E-04	0.00E+00	4.35E-03	3.92E-06	0.00E+00	6.74E-04	6.78E-04	5.60E-01	2.25E+00	1.2E-03	3.0E-04
Dieldrin	5.50E-02	1.60E-03	4.88E-01	4.40E-04	1.76E-04	7.57E-02	7.63E-02	7.09E-02	8.00E-01	1.1E+00	9.5E-02
Endosulfan I	1.70E-03	6.30E-05	1.51E-02	1.36E-05	6.93E-06	2.34E-03	2.36E-03	1.00E+01	1.00E+02	2.4E-04	2.4E-05
Endosulfan Sulfate	1.50E-03	0.00E+00	1.33E-02	1.20E-05	0.00E+00	2.06E-03	2.08E-03	1.00E+01	1.00E+02	2.1E-04	2.1E-05
Endrin Aldehyde	7.50E-03	3.70E-05	6.66E-02	6.00E-05	4.07E-06	1.03E-02	1.04E-02	1.00E-02	1.00E-01	1.0E+00	1.0E-01
Endrin Ketone	1.70E-02	0.00E+00	1.51E-01	1.36E-04	0.00E+00	2.34E-02	2.35E-02	1.00E-02	1.00E-01	2.4E+00	2.4E-01
Gamma-Chlordane	1.60E-02	0.00E+00	1.75E-01	1.28E-04	0.00E+00	2.72E-02	2.73E-02	2.14E+00	1.07E+01	1.3E-02	2.5E-03
Heptachlor	1.00E-03	0.00E+00	8.88E-03	8.00E-06	0.00E+00	1.38E-03	1.38E-03	NA	NA	NA	NA
Heptachlor Epoxide	4.50E-03	7.90E-06	3.99E-02	3.60E-05	8.69E-07	6.19E-03	6.23E-03	NA	NA	NA	NA
Inorganics											
Arsenic	7.20E+00	1.06E-02	4.97E+00	5.76E-02	1.17E-03	7.70E-01	8.29E-01	2.24E+00	4.51E+00	3.7E-01	1.8E-01
Cadmium	2.10E+00	1.10E-03	1.68E+01	1.68E-02	1.21E-04	2.60E+00	2.62E+00	1.47E+00	6.35E+00	1.8E+00	4.1E-01
Chromium	2.23E+01	3.78E-02	1.04E+01	1.78E-01	4.16E-03	1.62E+00	1.80E+00	2.66E+00	1.56E+01	6.8E-01	1.2E-01
Copper	4.47E+01	5.74E-02	2.35E+02	3.58E-01	6.31E-03	3.64E+01	3.67E+01	4.05E+00	3.48E+01	9.1E+00	1.1E+00
Lead	9.00E+01	8.80E-02	5.46E+01	7.20E-01	9.68E-03	8.47E+00	9.20E+00	1.63E+00	4.46E+01	5.6E+00	2.1E-01
Mercury	1.10E-01	2.00E-04	3.15E-01	8.80E-04	2.20E-05	4.89E-02	4.98E-02	6.40E-03	6.40E-02	7.8E+00	7.8E-01
Nickel	2.84E+01	3.18E-02	6.59E+01	2.27E-01	3.50E-03	1.02E+01	1.04E+01	6.71E+00	1.86E+01	1.6E+00	5.6E-01
Silver	4.70E-01	0.00E+00	4.70E-01	3.76E-03	0.00E+00	7.29E-02	7.66E-02	2.02E+00	6.05E+01	3.8E-02	1.3E-03
Zinc	2.69E+02	2.53E-01	2.02E+03	2.15E+00	2.78E-02	3.14E+02	3.16E+02	6.61E+01	1.71E+02	4.8E+00	1.8E+00

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	2.00E-01	kg
Food Ingestion Rate = (If)	3.10E-02	kg/day
Water Ingestion Rate = (Iw)	2.20E-02	L/day
Sediment Ingestion Rate = (Is)	1.60E-03	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water

NA - NOAEL and LOAEL not available

TABLE L-13

GREEN HERON - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Avg Sed. Conc. (mg/kg)	Avg SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Semivolatile Organics											
Acenaphthene	1.74E-01	0.00E+00	2.49E-01	1.23E-03	0.00E+00	3.52E-02	3.64E-02	2.00E+00	2.00E+01	1.8E-02	1.8E-03
Acenaphthylene	1.50E-01	1.03E-04	2.15E-01	1.06E-03	1.02E-05	3.04E-02	3.14E-02	2.00E+00	2.00E+01	1.6E-02	1.6E-03
Anthracene	2.47E-01	2.54E-04	3.53E-01	1.75E-03	2.52E-05	5.00E-02	5.18E-02	2.00E+00	2.00E+01	2.6E-02	2.6E-03
Benzo(a)anthracene	1.09E+00	9.75E-04	1.56E+00	7.71E-03	9.66E-05	2.21E-01	2.28E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
Benzo(a)pyrene	1.19E+00	1.10E-03	1.70E+00	8.42E-03	1.09E-04	2.41E-01	2.49E-01	2.00E+00	2.00E+01	1.2E-01	1.2E-02
Benzo(b)fluoranthene	1.30E+00	1.01E-03	1.86E+00	9.20E-03	1.00E-04	2.63E-01	2.72E-01	2.00E+00	2.00E+01	1.4E-01	1.4E-02
Benzo(g,h,i)perylene	5.21E-01	7.21E-04	7.45E-01	3.69E-03	7.14E-05	1.05E-01	1.09E-01	2.00E+00	2.00E+01	5.5E-02	5.5E-03
Benzo(k)fluoranthene	1.35E+00	7.71E-04	1.93E+00	9.55E-03	7.64E-05	2.73E-01	2.83E-01	2.00E+00	2.00E+01	1.4E-01	1.4E-02
Chrysene	1.41E+00	1.16E-03	2.02E+00	9.98E-03	1.15E-04	2.85E-01	2.95E-01	2.00E+00	2.00E+01	1.5E-01	1.5E-02
Dibenzo(a,h)anthracene	2.73E-01	9.85E-05	3.90E-01	1.93E-03	9.76E-06	5.52E-02	5.72E-02	2.00E+00	2.00E+01	2.9E-02	2.9E-03
Fluoranthene	3.30E+00	1.95E-03	4.72E+00	2.33E-02	1.93E-04	6.68E-01	6.91E-01	2.00E+00	2.00E+01	3.5E-01	3.5E-02
Fluorene	1.36E-01	0.00E+00	1.94E-01	9.62E-04	0.00E+00	2.75E-02	2.85E-02	2.00E+00	2.00E+01	1.4E-02	1.4E-03
Indeno(1,2,3-cd)pyrene	6.80E-01	8.03E-04	9.72E-01	4.81E-03	7.95E-05	1.38E-01	1.43E-01	2.00E+00	2.00E+01	7.1E-02	7.1E-03
Phenanthrene	1.57E+00	7.69E-04	2.25E+00	1.11E-02	7.62E-05	3.18E-01	3.29E-01	2.00E+00	2.00E+01	1.6E-01	1.6E-02
Pyrene	2.61E+00	1.80E-03	3.73E+00	1.85E-02	1.78E-04	5.28E-01	5.47E-01	2.00E+00	2.00E+01	2.7E-01	2.7E-02
Pesticides/PCBs											
4,4'-DDD	2.76E-03	4.64E-05	3.81E-03	1.95E-05	4.60E-06	5.39E-04	5.63E-04	2.27E-01	2.70E+00	2.5E-03	2.1E-04
4,4'-DDE	3.89E-03	4.73E-05	1.48E-01	2.75E-05	4.69E-06	2.09E-02	2.09E-02	2.27E-01	2.70E+00	9.2E-02	7.8E-03
4,4'-DDT	2.83E-03	4.70E-05	2.33E-02	2.00E-05	4.66E-06	3.30E-03	3.32E-03	2.27E-01	2.70E+00	1.5E-02	1.2E-03
Total DDT	5.59E-03	4.69E-05	2.12E-01	3.96E-05	4.65E-06	3.00E-02	3.01E-02	2.27E-01	2.70E+00	1.3E-01	1.1E-02
Aldrin	4.30E-04	2.42E-05	3.82E-03	3.04E-06	2.40E-06	5.40E-04	5.46E-04	NA	NA	NA	NA
Alpha-BHC	6.80E-04	0.00E+00	6.04E-03	4.81E-06	0.00E+00	8.54E-04	8.59E-04	5.60E-01	2.25E+00	1.5E-03	3.8E-04
Alpha-Chlordane	4.49E-03	3.03E-05	1.06E-01	3.18E-05	3.00E-06	1.49E-02	1.50E-02	2.14E+00	1.07E+01	7.0E-03	1.4E-03
Beta-BHC	4.61E-03	2.29E-05	4.09E-02	3.26E-05	2.27E-06	5.79E-03	5.83E-03	5.60E-01	2.25E+00	1.0E-02	2.6E-03
Delta-BHC	4.90E-04	0.00E+00	4.35E-03	3.47E-06	0.00E+00	6.16E-04	6.19E-04	5.60E-01	2.25E+00	1.1E-03	2.8E-04
Dieldrin	2.05E-02	2.49E-04	1.82E-01	1.45E-04	2.47E-05	2.58E-02	2.59E-02	7.09E-02	8.00E-01	3.7E-01	3.2E-02
Endosulfan I	1.48E-03	3.10E-05	1.31E-02	1.05E-05	3.07E-06	1.86E-03	1.87E-03	1.00E+01	1.00E+02	1.9E-04	1.9E-05
Endosulfan Sulfate	1.50E-03	0.00E+00	1.33E-02	1.06E-05	0.00E+00	1.88E-03	1.89E-03	1.00E+01	1.00E+02	1.9E-04	1.9E-05
Endrin Aldehyde	2.88E-03	4.96E-05	2.56E-02	2.04E-05	4.91E-06	3.62E-03	3.64E-03	1.00E-02	1.00E-01	3.6E-01	3.6E-02
Endrin Ketone	6.24E-03	0.00E+00	5.54E-02	4.42E-05	0.00E+00	7.84E-03	7.88E-03	1.00E-02	1.00E-01	7.9E-01	7.9E-02
Gamma-Chlordane	6.15E-03	0.00E+00	6.73E-02	4.35E-05	0.00E+00	9.53E-03	9.57E-03	2.14E+00	1.07E+01	4.5E-03	8.9E-04
Heptachlor	1.00E-03	0.00E+00	8.88E-03	7.08E-06	0.00E+00	1.26E-03	1.26E-03	NA	NA	NA	NA
Heptachlor Epoxide	1.59E-03	2.36E-05	1.41E-02	1.13E-05	2.34E-06	2.00E-03	2.01E-03	NA	NA	NA	NA
Inorganics											
Arsenic	4.24E+00	2.76E-03	6.06E-01	3.00E-02	2.73E-04	8.58E-02	1.16E-01	2.24E+00	4.51E+00	5.2E-02	2.6E-02
Cadmium	6.40E-01	3.03E-04	3.84E-01	4.53E-03	3.00E-05	5.43E-02	5.89E-02	1.47E+00	6.35E+00	4.0E-02	9.3E-03
Chromium	1.60E+01	6.01E-03	1.60E+00	1.13E-01	5.95E-04	2.26E-01	3.40E-01	2.66E+00	1.56E+01	1.3E-01	2.2E-02
Copper	1.75E+01	9.68E-03	2.72E+01	1.24E-01	9.59E-04	3.85E+00	3.98E+00	4.05E+00	3.48E+01	9.8E-01	1.1E-01
Lead	4.95E+01	1.53E-02	3.51E+00	3.50E-01	1.52E-03	4.97E-01	8.49E-01	1.63E+00	4.46E+01	5.2E-01	1.9E-02
Mercury	4.74E-02	7.14E-05	5.38E-02	3.35E-04	7.07E-06	7.62E-03	7.96E-03	6.40E-03	6.40E-02	1.2E+00	1.2E-01
Nickel	1.19E+01	5.09E-03	5.78E+00	8.42E-02	5.04E-04	8.18E-01	9.03E-01	6.71E+00	1.86E+01	1.3E-01	4.9E-02
Silver	1.21E-01	0.00E+00	1.21E-01	8.56E-04	0.00E+00	1.71E-02	1.80E-02	2.02E+00	6.05E+01	8.9E-03	3.0E-04
Zinc	8.74E+01	4.33E-02	1.69E+02	6.18E-01	4.29E-03	2.39E+01	2.46E+01	6.61E+01	1.71E+02	3.7E-01	1.4E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	2.12E-01	kg
Food Ingestion Rate = (If)	3.00E-02	kg/day
Water Ingestion Rate = (Iw)	2.10E-02	L/day
Sediment Ingestion Rate = (Is)	1.50E-03	kg/day
Home Range = (HR)	1.00E+01	km-radius
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water
NV - No Value
VALUE - Value could not be calculated

NA - NOAEL and LOAEL not available

TABLE L-14

MINK - CONSERVATIVE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Max Sed Conc. (mg/kg)	Max SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Semivolatile Organics											
Acenaphthene	2.00E-01	0.00E+00	2.86E-01	2.07E-03	0.00E+00	3.16E-02	3.36E-02	6.56E+01	3.56E+02	5.1E-04	9.4E-05
Acenaphthylene	1.50E-01	1.50E-04	2.15E-01	1.56E-03	3.31E-05	2.37E-02	2.53E-02	6.56E+01	3.56E+02	3.8E-04	7.1E-05
Anthracene	9.00E-01	1.20E-03	1.29E+00	9.33E-03	2.65E-04	1.42E-01	1.52E-01	6.56E+01	3.56E+02	2.3E-03	4.3E-04
Benzo(a)anthracene	3.50E+00	6.30E-03	5.01E+00	3.63E-02	1.39E-03	5.52E-01	5.90E-01	6.15E-01	3.84E+01	9.6E-01	1.5E-02
Benzo(a)pyrene	3.50E+00	7.10E-03	5.01E+00	3.63E-02	1.57E-03	5.52E-01	5.90E-01	6.15E-01	3.84E+01	9.6E-01	1.5E-02
Benzo(b)fluoranthene	4.80E+00	6.50E-03	6.86E+00	4.98E-02	1.43E-03	7.57E-01	8.08E-01	6.15E-01	3.84E+01	1.3E+00	2.1E-02
Benzo(g,h,i)perylene	1.40E+00	4.40E-03	2.00E+00	1.45E-02	9.71E-04	2.21E-01	2.36E-01	6.15E-01	3.84E+01	3.8E-01	6.2E-03
Benzo(k)fluoranthene	3.50E+00	4.80E-03	5.01E+00	3.63E-02	1.06E-03	5.52E-01	5.90E-01	6.15E-01	3.84E+01	9.6E-01	1.5E-02
Chrysene	4.20E+00	7.60E-03	6.01E+00	4.36E-02	1.68E-03	6.63E-01	7.08E-01	6.15E-01	3.84E+01	1.2E+00	1.8E-02
Dibenzo(a,h)anthracene	7.50E-01	2.10E-04	1.07E+00	7.78E-03	4.63E-05	1.18E-01	1.26E-01	6.15E-01	3.84E+01	2.1E-01	3.3E-03
Fluoranthene	1.00E+01	1.30E-02	1.43E+01	1.04E-01	2.87E-03	1.58E+00	1.68E+00	6.56E+01	3.56E+02	2.6E-02	4.7E-03
Fluorene	3.40E-01	0.00E+00	4.86E-01	3.53E-03	0.00E+00	5.36E-02	5.72E-02	6.56E+01	3.56E+02	8.7E-04	1.6E-04
Indeno(1,2,3-cd)pyrene	1.90E+00	5.00E-03	2.72E+00	1.97E-02	1.10E-03	3.00E-01	3.21E-01	6.15E-01	3.84E+01	5.2E-01	8.3E-03
Phenanthrene	5.80E+00	4.80E-03	8.29E+00	6.01E-02	1.06E-03	9.15E-01	9.76E-01	6.56E+01	3.56E+02	1.5E-02	2.7E-03
Pyrene	8.60E+00	1.20E-02	1.23E+01	8.92E-02	2.65E-03	1.36E+00	1.45E+00	6.15E-01	3.84E+01	2.4E+00	3.8E-02
Pesticides/PCBs											
4,4'-DDD	4.00E-03	1.50E-05	5.52E-03	4.15E-05	3.31E-06	6.09E-04	6.54E-04	1.47E-01	5.56E+00	4.4E-03	1.2E-04
4,4'-DDE	6.50E-03	2.10E-05	2.47E-01	6.74E-05	4.63E-06	2.72E-02	2.73E-02	1.47E-01	5.56E+00	1.9E-01	4.9E-03
4,4'-DDT	5.20E-03	1.90E-05	4.28E-02	5.39E-05	4.19E-06	4.72E-03	4.78E-03	1.47E-01	5.56E+00	3.3E-02	8.6E-04
Total DDT	1.06E-02	5.50E-05	4.03E-01	1.10E-04	1.21E-05	4.44E-02	4.45E-02	1.47E-01	5.56E+00	3.0E-01	8.0E-03
Aldrin	4.30E-04	1.50E-05	3.82E-03	4.46E-06	3.31E-06	4.21E-04	4.29E-04	2.00E-01	1.00E+00	2.1E-03	4.3E-04
Alpha-BHC	6.80E-04	0.00E+00	6.04E-03	7.05E-06	0.00E+00	6.66E-04	6.73E-04	1.40E-02	1.40E-01	4.8E-02	4.8E-03
Alpha-Chlordane	1.20E-02	5.80E-05	2.82E-01	1.24E-04	1.28E-05	3.11E-02	3.13E-02	4.58E+00	9.16E+00	6.8E-03	3.4E-03
Beta-BHC	1.60E-02	8.90E-06	1.42E-01	1.66E-04	1.96E-06	1.57E-02	1.58E-02	4.00E-01	2.00E+00	4.0E-02	7.9E-03
Delta-BHC	4.90E-04	0.00E+00	4.35E-03	5.08E-06	0.00E+00	4.80E-04	4.85E-04	1.40E-02	1.40E-01	3.5E-02	3.5E-03
Dieldrin	5.50E-02	1.60E-03	4.88E-01	5.70E-04	3.53E-04	5.39E-02	5.48E-02	1.50E-02	1.27E+00	3.7E+00	4.3E-02
Endosulfan I	1.70E-03	6.30E-05	1.51E-02	1.76E-05	1.39E-05	1.66E-03	1.70E-03	1.50E-01	1.50E+00	1.1E-02	1.1E-03
Endosulfan Sulfate	1.50E-03	0.00E+00	1.33E-02	1.56E-05	0.00E+00	1.47E-03	1.48E-03	1.50E-01	1.50E+00	9.9E-03	9.9E-04
Endrin Aldehyde	7.50E-03	3.70E-05	6.66E-02	7.78E-05	8.16E-06	7.34E-03	7.43E-03	9.20E-02	9.20E-01	8.1E-02	8.1E-03
Endrin Ketone	1.70E-02	0.00E+00	1.51E-01	1.76E-04	0.00E+00	1.66E-02	1.68E-02	9.20E-02	9.20E-01	1.8E-01	1.8E-02
Gamma-Chlordane	1.60E-02	0.00E+00	1.75E-01	1.66E-04	0.00E+00	1.93E-02	1.95E-02	4.58E+00	9.16E+00	4.3E-03	2.1E-03
Heptachlor	1.00E-03	0.00E+00	8.88E-03	1.04E-05	0.00E+00	9.79E-04	9.90E-04	1.00E-01	1.00E+00	9.9E-03	9.9E-04
Heptachlor Epoxide	4.50E-03	7.90E-06	3.99E-02	4.67E-05	1.74E-06	4.41E-03	4.45E-03	1.00E-01	1.00E+00	4.5E-02	4.5E-03
Inorganics											
Arsenic	7.20E+00	1.06E-02	4.97E+00	7.47E-02	2.34E-03	5.48E-01	6.25E-01	1.04E+00	4.55E+00	6.0E-01	1.4E-01
Cadmium	2.10E+00	1.10E-03	1.68E+01	2.18E-02	2.43E-04	1.85E+00	1.87E+00	7.70E-01	6.90E+00	2.4E+00	2.7E-01
Chromium	2.23E+01	3.78E-02	1.04E+01	2.31E-01	8.34E-03	1.15E+00	1.39E+00	2.40E+00	5.82E+01	5.8E-01	2.4E-02
Copper	4.47E+01	5.74E-02	2.35E+02	4.64E-01	1.27E-02	2.59E+01	2.64E+01	5.60E+00	8.27E+01	4.7E+00	3.2E-01
Lead	9.00E+01	8.80E-02	5.46E+01	9.33E-01	1.94E-02	6.03E+00	6.98E+00	4.70E+00	1.86E+02	1.5E+00	3.7E-02
Mercury	1.10E-01	2.00E-04	3.15E-01	1.14E-03	4.41E-05	3.48E-02	3.60E-02	3.20E-02	1.60E-01	1.1E+00	2.2E-01
Nickel	2.84E+01	3.18E-02	6.59E+01	2.94E-01	7.02E-03	7.27E+00	7.57E+00	1.70E+00	1.48E+01	4.5E+00	5.1E-01
Silver	4.70E-01	0.00E+00	4.70E-01	4.87E-03	0.00E+00	5.18E-02	5.67E-02	6.02E+00	1.19E+02	9.4E-03	4.8E-04
Zinc	2.69E+02	2.53E-01	2.02E+03	2.79E+00	5.58E-02	2.23E+02	2.26E+02	7.54E+01	2.98E+02	3.0E+00	7.6E-01

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	5.50E-01	kg
Food Ingestion Rate = (If)	6.07E-02	kg/day
Water Ingestion Rate = (Iw)	1.21E-01	L/day
Sediment Ingestion Rate = (Is)	5.70E-03	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water

TABLE L-15

MINK - AVERAGE SCENARIO
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL HAZARD QUOTIENT CALCULATION
SITE 12 - SOUTH LANDFILL
NAS JRB WILLOW GROVE, PENNSYLVANIA

Chemical	Avg Sed Conc. (mg/kg)	Avg SW Conc. (mg/L)	Fish Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Surface Water	Fish	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Semivolatile Organics											
Acenaphthene	1.74E-01	0.00E+00	2.49E-01	6.68E-04	0.00E+00	1.02E-02	1.08E-02	6.56E+01	3.56E+02	1.7E-04	3.0E-05
Acenaphthylene	1.50E-01	1.03E-04	2.15E-01	5.76E-04	6.82E-06	8.76E-03	9.34E-03	6.56E+01	3.56E+02	1.4E-04	2.6E-05
Anthracene	2.47E-01	2.54E-04	3.53E-01	9.48E-04	1.68E-05	1.44E-02	1.54E-02	6.56E+01	3.56E+02	2.3E-04	4.3E-05
Benzo(a)anthracene	1.09E+00	9.75E-04	1.56E+00	4.18E-03	6.46E-05	6.37E-02	6.79E-02	6.15E-01	3.84E+01	1.1E-01	1.8E-03
Benzo(a)pyrene	1.19E+00	1.10E-03	1.70E+00	4.57E-03	7.29E-05	6.95E-02	7.41E-02	6.15E-01	3.84E+01	1.2E-01	1.9E-03
Benzo(b)fluoranthene	1.30E+00	1.01E-03	1.86E+00	4.99E-03	6.69E-05	7.59E-02	8.10E-02	6.15E-01	3.84E+01	1.3E-01	2.1E-03
Benzo(g,h,i)perylene	5.21E-01	7.21E-04	7.45E-01	2.00E-03	4.78E-05	3.04E-02	3.25E-02	6.15E-01	3.84E+01	5.3E-02	8.5E-04
Benzo(k)fluoranthene	1.35E+00	7.71E-04	1.93E+00	5.18E-03	5.11E-05	7.88E-02	8.41E-02	6.15E-01	3.84E+01	1.4E-01	2.2E-03
Chrysene	1.41E+00	1.16E-03	2.02E+00	5.41E-03	7.69E-05	8.23E-02	8.78E-02	6.15E-01	3.84E+01	1.4E-01	2.3E-03
Dibenzo(a,h)anthracene	2.73E-01	9.85E-05	3.90E-01	1.05E-03	6.53E-06	1.59E-02	1.70E-02	6.15E-01	3.84E+01	2.8E-02	4.4E-04
Fluoranthene	3.30E+00	1.95E-03	4.72E+00	1.27E-02	1.29E-04	1.93E-01	2.06E-01	6.56E+01	3.56E+02	3.1E-03	5.8E-04
Fluorene	1.36E-01	0.00E+00	1.94E-01	5.22E-04	0.00E+00	7.94E-03	8.46E-03	6.56E+01	3.56E+02	1.3E-04	2.4E-05
Indeno(1,2,3-cd)pyrene	6.80E-01	8.03E-04	9.72E-01	2.61E-03	5.32E-05	3.97E-02	4.24E-02	6.15E-01	3.84E+01	6.9E-02	1.1E-03
Phenanthrene	1.57E+00	7.69E-04	2.25E+00	6.03E-03	5.09E-05	9.17E-02	9.78E-02	6.56E+01	3.56E+02	1.5E-03	2.7E-04
Pyrene	2.61E+00	1.80E-03	3.73E+00	1.00E-02	1.19E-04	1.52E-01	1.63E-01	6.15E-01	3.84E+01	2.6E-01	4.2E-03
Pesticides/PCBs											
4,4'-DDD	2.76E-03	4.64E-05	3.81E-03	1.06E-05	3.07E-06	1.56E-04	1.69E-04	1.47E-01	5.56E+00	1.2E-03	3.0E-05
4,4'-DDE	3.89E-03	4.73E-05	1.48E-01	1.49E-05	3.13E-06	6.03E-03	6.05E-03	1.47E-01	5.56E+00	4.1E-02	1.1E-03
4,4'-DDT	2.83E-03	4.70E-05	2.33E-02	1.09E-05	3.11E-06	9.52E-04	9.66E-04	1.47E-01	5.56E+00	6.6E-03	1.7E-04
Total DDT	5.59E-03	4.69E-05	2.12E-01	2.15E-05	3.11E-06	8.67E-03	8.69E-03	1.47E-01	5.56E+00	5.9E-02	1.6E-03
Aldrin	4.30E-04	2.42E-05	3.82E-03	1.65E-06	1.60E-06	1.56E-04	1.59E-04	2.00E-01	1.00E+00	8.0E-04	1.6E-04
Alpha-BHC	6.80E-04	0.00E+00	6.04E-03	2.61E-06	0.00E+00	2.46E-04	2.49E-04	1.40E-02	1.40E-01	1.8E-02	1.8E-03
Alpha-Chlordane	4.49E-03	3.03E-05	1.06E-01	1.72E-05	2.01E-06	4.31E-03	4.33E-03	4.58E+00	9.16E+00	9.5E-04	4.7E-04
Beta-BHC	4.61E-03	2.29E-05	4.09E-02	1.77E-05	1.52E-06	1.67E-03	1.69E-03	4.00E-01	2.00E+00	4.2E-03	8.5E-04
Delta-BHC	4.90E-04	0.00E+00	4.35E-03	1.88E-06	0.00E+00	1.78E-04	1.79E-04	1.40E-02	1.40E-01	1.3E-02	1.3E-03
Dieldrin	2.05E-02	2.49E-04	1.82E-01	7.87E-05	1.65E-05	7.43E-03	7.53E-03	1.50E-02	1.27E+00	5.0E-01	5.9E-03
Endosulfan I	1.48E-03	3.10E-05	1.31E-02	5.68E-06	2.05E-06	5.36E-04	5.44E-04	1.50E-01	1.50E+00	3.6E-03	3.6E-04
Endosulfan Sulfate	1.50E-03	0.00E+00	1.33E-02	5.76E-06	0.00E+00	5.44E-04	5.49E-04	1.50E-01	1.50E+00	3.7E-03	3.7E-04
Endrin Aldehyde	2.88E-03	4.96E-05	2.56E-02	1.11E-05	3.29E-06	1.04E-03	1.06E-03	9.20E-02	9.20E-01	1.2E-02	1.2E-03
Endrin Ketone	6.24E-03	0.00E+00	5.54E-02	2.40E-05	0.00E+00	2.26E-03	2.29E-03	9.20E-02	9.20E-01	2.5E-02	2.5E-03
Gamma-Chlordane	6.15E-03	0.00E+00	6.73E-02	2.36E-05	0.00E+00	2.75E-03	2.77E-03	4.58E+00	9.16E+00	6.1E-04	3.0E-04
Heptachlor	1.00E-03	0.00E+00	8.88E-03	3.84E-06	0.00E+00	3.62E-04	3.66E-04	1.00E-01	1.00E+00	3.7E-03	3.7E-04
Heptachlor Epoxide	1.59E-03	2.36E-05	1.41E-02	6.10E-06	1.56E-06	5.76E-04	5.84E-04	1.00E-01	1.00E+00	5.8E-03	5.8E-04
Inorganics											
Arsenic	4.24E+00	2.76E-03	6.06E-01	1.63E-02	1.83E-04	2.48E-02	4.12E-02	1.04E+00	4.55E+00	4.0E-02	9.1E-03
Cadmium	6.40E-01	3.03E-04	3.84E-01	2.46E-03	2.01E-05	1.57E-02	1.82E-02	7.70E-01	6.90E+00	2.4E-02	2.6E-03
Chromium	1.60E+01	6.01E-03	1.60E+00	6.14E-02	3.98E-04	6.53E-02	1.27E-01	2.40E+00	5.82E+01	5.3E-02	2.2E-03
Copper	1.75E+01	9.68E-03	2.72E+01	6.72E-02	6.41E-04	1.11E+00	1.18E+00	5.60E+00	8.27E+01	2.1E-01	1.4E-02
Lead	4.95E+01	1.53E-02	3.51E+00	1.90E-01	1.01E-03	1.44E-01	3.35E-01	4.70E+00	1.86E+02	7.1E-02	1.8E-03
Mercury	4.74E-02	7.14E-05	5.38E-02	1.82E-04	4.73E-06	2.20E-03	2.39E-03	3.20E-02	1.60E-01	7.5E-02	1.5E-02
Nickel	1.19E+01	5.09E-03	5.78E+00	4.57E-02	3.37E-04	2.36E-01	2.82E-01	1.70E+00	1.48E+01	1.7E-01	1.9E-02
Silver	1.21E-01	0.00E+00	1.21E-01	4.64E-04	0.00E+00	4.94E-03	5.41E-03	6.02E+00	1.19E+02	9.0E-04	4.6E-05
Zinc	8.74E+01	4.33E-02	1.69E+02	3.35E-01	2.87E-03	6.91E+00	7.25E+00	7.54E+01	2.98E+02	9.6E-02	2.4E-02

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.10E+00	kg
Food Ingestion Rate = (If)	4.50E-02	kg/day
Water Ingestion Rate = (Iw)	7.31E-02	L/day
Sediment Ingestion Rate = (Is)	4.23E-03	kg/day
Home Range = (HR)	1.56E+03	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (sediment) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Dose (water) = (Cw * Iw)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in sediment
Cw = Contaminant concentration in water
Total Dose = Dose (sediment) + Dose (invertebrate) + Dose (water)
H=HR/CA (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
Sed = Sediment
SW = Surface Water

TABLE L-16

EARTHWORM BAFS FOR PESTICIDES

Parameter	Study Values: Worm Concentration: Dry Weight	Study Values: Worm Concentration: Wet Weight	Study Values: Soil Conc. (dry weight)	Study Values: Dry Weight BAF	Study Values: Wet Weight BAF	Calculated Values: Final Dry Weight[1] BAF	Calculated Values: Final Wet Weight[2] BAF	Reference	Comments
gamma-BHC	NA	NA	NA	5	1.5-4.2	5	1.5-4.2	1	agricultural soil (0.004 ppm gamma-BHC in soil)
Average dry/wet weight BAF from field studies[3]				***NA***	***NA***	***5***	***2.85***		
Heptachlor	NA	NA	NA	10	NA	10	1.60	1	soil type unknown (11-year field study)
Average dry/wet weight BAF from field studies[3]				***NA***	***NA***	***10***	***1.6***		
Aldrin	NA	NA	NA	3.3	NA	3.3	0.528	2	from data collected in 7 agricultural fields
Chlordane	NA	NA	NA	5	NA	5.0	0.8	2	from data collected in 7 agricultural fields
Endrin	NA	NA	NA	3.6	NA	3.6	0.576	2	from data collected in 26 agricultural fields
Heptachlor epoxide	NA	NA	NA	3	NA	3.0	0.48	2	from data collected in 9 agricultural fields

Notes:

BAF - bioaccumulation factor = worm concentration/soil concentration

NA - Not applicable

The percent solids of earthworms is assumed to be 0.16 (Sample et al., 1997).

(1) The dry weight BAF was either obtained directly from the study or was calculated by dividing the wet weight BAF by 0.16.

(2) The wet weight BAF was either obtained directly from the study or was calculated by multiplying the dry weight BAF by 0.16.

References

1 - Wheatly and Hardman, 1968

2 - Gish, 1970

APPENDIX L-16

SOIL BIOACCUMULATION FACTORS

Chemical concentrations in food items of herbivorous receptors represented by the quail and vole were calculated using soil-to-plant bioaccumulation factors (BAFs) shown in Table 7-2 of the ecological risk assessment. Chemical concentrations in food items of insectivorous receptors represented by the shrew and robin were calculated using soil-to-earthworm BAFs, also shown in Table 7-2 of the ecological risk assessment. The derivation of the BAF values is discussed below. All BAFs used in the Site 12 food chain model were dry weight BAFs.

Plant and earthworm BAFs indicated in Table 7-2 as "Eco-SSL" were taken from Tables 4a and 4b of Attachment 4-1 of the Eco-SSL document (USEPA, 2005). Most BAFs from the Eco-SSL document are regression equations. For these COPCs, estimated chemical concentrations in plants and earthworms were calculated by substituting the Site 12 soil concentration for the C_s term in the equations obtained from USEPA (2005). Only one soil-to-earthworm and soil-to-plant BAF was available for chemicals in the USEPA (2005) document, so a single BAF was used for both the conservative and average food chain model scenarios at Site 12 for those chemicals.

Soil-to-plant BAFs not available in the Eco-SSL document (see Table 7-2 of the ecological risk assessment) were taken from ORNL (2009). Only one soil-to-plant BAF was available for these chemicals, so the same BAF was used for both the conservative and average food chain model scenarios.

The soil to earthworm BAFs for PAHs were taken from Table 4b of the Eco-SSL guidance document (USEPA, 2005), which assumes a total organic carbon content of 1 percent.

The Eco-SSL document did not include soil-to-earthworm BAFs for aldrin, endrin, BHC, chlordane, heptachlor, or their breakdown products, so BAFs for these compounds were calculated from various field studies (Table L-16).

APPENDIX L REFERENCES

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APPENDIX M

LOW-FLOW PURGE AND SAMPLE PROCEDURES

ESD

EPA
REGION III
QA DIRECTIVES

HWMD

Bulletin No. QAD023 August 8, 1994

RECOMMENDED PROCEDURES FOR LOW-FLOW PURGING AND SAMPLING OF GROUND-WATER MONITORING WELLS

1.0 OBJECTIVE

Recommended procedures for collection of ground-water samples in small-diameter wells with short-screened intervals using low-flow purging and sampling are provided. While these procedures pertain to the Superfund program in Region III, the low-flow purging and sampling method is not appropriate for use in all hydrogeologic regimes, and certain ground-water monitoring well installations may make the method unsuitable. Therefore, please confer with a Region III hydrologist or geologist before using these procedures at a site.

2.0 DISCUSSION

Past scientific research (Barcelona et al., 1983; Nielson and Yeates, 1985) and EPA guidance have discussed sampling devices in terms of their compatibility with contaminants being sampled, and well construction, depth, and diameter. Although some sampling devices have been used in order to provide more representative ground-water samples in certain situations, most of these incorporate high-volume withdrawal techniques (i.e., in excess of the "natural" recharge rate of ground-water flow through the well screen) for both purging and sampling.

Recent research conducted by Puls et al. (1992), Puls and Powell (1992), and Powell and Puls (1993) has shown that high-volume purging and sampling cause significant turbidity and suspended particulate artifacts that can result in high-bias metals analyses. Additionally, purging can cause pressure changes and bailing can cause aeration that can strip VOCs from the sample (Pennino, 1988). The use of low-flow pumping devices (preferably dedicated) for purging and sampling minimizes both the disturbance of water in well casing and the potential for mobilization of colloidal material (Barcelona et al., 1994). Low-flow purging with maintenance of water level in the well and stabilization of indicator parameters (especially turbidity) allows collection of ground-water samples that are more representative of truly mobile contaminants in the subsurface under natural flow conditions without filtering (U.S. EPA, 1993; Backhus et al., 1993). In many cases, use of a low-flow pump to purge and sample monitoring wells decreases sampling time, reduces the need to handle large volumes of purge water and lowers the cost associated with its disposal, and allows collection of samples for inorganic analyses without filtering.

3.0 EQUIPMENT

- low-flow adjustable-rate, positive-displacement pump
- generator (if needed), but not one over-sized for the pump
- teflon-lined polyethylene tubing of thickness 3/8 to 1/2 inch
- polyethylene sheeting
- in-line, flow-through cell equipped with ph, Eh, dissolved oxygen (DO), specific conductivity, and temperature electrodes
- turbidity meter
- photoionization detector (PID), or equivalent
- electronic water-level indicator or equivalent (marked in 0.01-foot increments)
- nylon stay-ties
- logbook
- sampling gloves

4.0 PURGING AND SAMPLING PROCEDURES

This section describes the procedures for the low-flow purging and sampling method. Equipment calibration, logbook documentation, sample bottle filling and preservation, and shipping will be conducted in accordance with the procedures specified in the site-specific Quality Assurance Project Plan (QAPjP). Personal protective equipment will be donned in accordance with the requirements of the site-specific Health and Safety Plan. Wells will be sampled in the order of least contaminated to most contaminated.

1. Check the conditions of the well and look for any damage or evidence of tampering and record.

2. Remove the well cap.

3. Measure well headspace with a PID and record the reading in the logbook.

4. Measure the depth to water with an electronic water-level device and record the measurement in the logbook. Do not measure the depth to the bottom of the well at this time (in order to avoid disturbing any accumulated sediment and to prevent mixing of stagnant water with water in the screened interval). Obtain depth to bottom information from well installation log. Calculate standing water volume as: depth of water column times cross-sectional area of the well. [For wells where an LNAPL has been detected, a stilling tube should be inserted into the well prior to purging. Refer to Section 7.2.4 of EPA (1992) for the procedure to follow. If wells are constructed so that DNAPLs could accumulate, their detection and/or sampling should occur on a day prior to that for ground-water sampling.]

5. Lay out the polyethylene sheeting and place all equipment on the sheeting. To avoid cross-contamination, do not let any downhole equipment touch the ground surface.

6. Measure the depth to water in the well again. If the measurement has changed more than 1/100th of a foot, check and record the measurement again.

7. Attach and secure the polyethylene tubing to the low-flow pump. As the pump is slowly lowered into the well, secure the safety drop cable, tubing, and electrical lines to each other using nylon stay-ties.

8. The pump should be set at approximately the middle of the screen. If the static water table is below the top of the screen, the pump should be lowered to the middle of the water column. Place the pump intake a sufficient distance above the bottom of the well to avoid mobilization of any accumulated sediments. Start purging the well at 0.2 to 0.5 liters per minute. Avoid surging. Observe air bubbles displaced from discharge tube to assess progress of steady pumping until water arrives at the surface.

9. A water-level probe should be lowered very slowly into the well behind the pump until it just touches the water. The water level in the well should be monitored during purging and sampling, and ideally, the purge rate should not exceed the well recharge rate so that there is little or no drawdown in the well. (The water level should stabilize for the specific purge rate.) There should be at least one foot of water over the pump intake so there is no risk of the pump suction being broken, or entrainment of air in the sample. Record adjustments in the purge rate and changes in depth to water in the logbook. Purge rates should, if needed, be decreased to the minimum capabilities of the pump (0.1 to 0.2 liters per minute) to avoid affecting well drawdown. The well should not be purged dry. If the recharge rate of the well is so low that the well is purged dry, it is suggested that the contractor wait approximately four hours after water in the screened interval has recharged before collecting the appropriate volume of water for the sample with the pump (Herzog, et al., 1988). For VOC analyses, purge at least the volume of water in the screened interval, then wait for stability.

10. During well purging, use the flow-through cell to monitor the field parameters frequently (every three to five minutes) until all parameters have stabilized to within 10 percent over a minimum of three consecutive readings. Repeatedly collect water samples and assess turbidity. Turbidity is typically the last parameter to stabilize. If any parameter fails to stabilize, collect the sample after purging ~~three well volumes~~ for one hour.

11. Once the field parameters have stabilized, collect the samples directly from the end of the discharge tube. Do not filter any samples, unless a filtered sample is specifically required according to project objectives in addition to the unfiltered sample. All sample bottles should be filled by allowing the water from the discharge tube to flow gently down the inside of the bottle with minimal turbulence. Cap each bottle as it is filled.

12. The pump assembly should be carefully removed from the well. The tubing should be dedicated to each well, and should be placed in a large plastic garbage bag, sealed, and labeled with the appropriate well identification number.

13. Close and lock the well.

5.0 REFERENCES

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APPENDIX N

CHAIN-OF-CUSTODY FORMS

16995

CompuChem
a division of Liberty Analytical Corp.

CHAIN OF CUSTODY

501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Page 1 of 2

Courier FEDEX
Airbill No. 8781 3042 0900
Sampling Complete? (Y) or N

Client/Reporting Information

Company Name: Tetra Tech NUS
Address: 234 Mall Blvd
City: King of Prussia State: PA Zip: 19406
Project Contact: Kelly Turner
Phone #: 610-382-1534
Sampler's Name: Donald Whalen

Project Information

Project Name: SSA 12 Soil Investigation
Sampling Location: SA 12
Turnaround time:
Batch QC or Project Specific? If Specific, which Sample ID?
Are aqueous samples field filtered for metals? Y or N
Are high concentrations expected? Y or N If yes, which ID(s)?

Matrices

GW - Ground water
WW - Waste water
SW - Surface water
SO - Soil/Sediment
TB - Trip Blank
RI - Rinsate
WP - Wipe
O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	Requested Analysis: TCL VOC, SVOC, Pest/PCB, TAL Metals, Cyanide, TCL VOC (Med Vol), TCL SVOC, TCL Pest, TCL PCB, TAL Metals, Filtered Metals	pH / Sample Info (Lab Use)
	TB-120707	12/7/07	0810	TB	2	2						DJ	
	RB-120707		1400	RI	10	3		1				3 2 2 2 1	
	SSA12-SS01E-000.5		0855	SO	5							3 1 1	
	SSA12-SS01D-000.5		0925	SO	5							3 1 1	
	SSA12-SB01D-050.0		1040	SO	5							3 1 1	
	SSA12-SS02D-000.5		1055	SO	5							3 1 1	
	SSA12-SB02D-2.0-2.5		1115	SO	5							3 1 1	
	SSA12-SS05D-000.5		1205	SO	15							9 X3 3 X	
	SSA12-FD-02		[illegible]	SO	5							3 X1 1 X	
	SSA12-SB05D-2.0-2.5	↓	1235	SO	5							3 1 1	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

MS/MSD = SSA12-SS05D-000.5

Sample Custody

Relinquished by:	Date/Time:	Received by:	Date/Time:
Donald Whalen	12/7/07 [illegible]		
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer

CompuChem
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CHAIN OF CUSTODY

501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Courier	Fed Ex
Airbill No.	[illegible]
Sampling Complete? Y or N	

Client/Reporting Information

Company Name	Tetra Tech NUS
Address	234 Mall Blvd.
City / State / Zip	King of Prussia / PA / 19406
Project Contact	Russ Turner
Phone #	610-382-1534
Sampler's Name	Donald Whalen

Project Information

Project Name	SSA-12 Soil Investigation
Sampling Location	SSA 12
Turnaround time	
Batch QC or Project Specific? If Specific, which Sample ID?	
Are aqueous samples field filtered for metals? Y or N	N
Are high concentrations expected? Y or N? If yes, which ID(s)?	N

Requested Analysis (include method and bottle type)

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	MEOH	Other	TCL VOC 5035 (3) En Core	TCL SVOC/Pest/PCB (8 oz) 1 x 2 Jar	TAL metals (SW 846) 2 oz Jar	TCL VOC 40 ml vial	pH / Sample Info (Lab Use)
	SSA12-SS14E-000.5	12/6/07	1505	SO	5							3	1	1		
	SSA12-SS13E-000.5	12/6/07	1535	SO	5							3	1	1		
	TB-120607	12/6/07	0820	TB	2	2									2	

Lab Use Only

Sample Unpacked By:	Cyanide samples checked for sulfide & chlorine? Y or NA
Sample Order Entry By:	625 & Phenol samples checked for chlorine? Y or NA
Samples Received in Good Condition? Y or N	608 samples checked for pH between 5.0-9.0? Y or NA
If no, explain:	

Comments

Sample Custody

Relinquished by: [signature]	Date/Time: 12/6/07 1905	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Subcontact? Y or N If yes, where?	Custody Seal(s) intact? Y or N	On Ice? Y or N	Cooler Temp: °C

16997

CHAIN OF CUSTODY

CompuChem
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501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Page 1 of 2

Courier: FedEx
Airbill No.: 863130120795
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: TetraTech NUS	Project Name: SSA 12 Soil Invest.
Address: 234 Mall Blvd Ste 260	Sampling Location: SSA 12
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1531	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	Requested Analysis: TCL VOC (5035)	TCL SVOC (8270C)	TAL metals (6010B)	pH / Sample Info (Lab Use)
	SSA12-SS02E-000.5	12/6/07	0930	SO	5							3	1	1	
	SSA12-SS01E-000.5	"	0950	SO	5							3	1	1	
	SSA12-SS03E-000.5	"	1005	SO	5							3	1	1	
	SSA12-SS06E-000.5	"	1021	SO	15							9	3	3	
	SSA12-SS05E-000.5	"	1115	SO	5							3	1	1	
	SSA12-SS04E-000.5	"	1140	SO	5							3	1	1	
	SSA12-SS07E-000.5	"	1158	SO	5							3	1	1	
	SSA12-SS08E-000.5	"	1215	SO	5							3	1	1	
	SSA12-SS09E-000.5	"	1240	SO	5							3	1	1	
	SSA12-SS15E-000.5	✓	1450	SO	5							3	1	1	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

SSA12-SS16E-000.5 = MS/MSD

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 12/6/07 1900	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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16998

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Page 2 of 3

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Phone: 919-379-4100 Fax 919-379-4040

Courier FEDEX
Airbill No. 7681 3012 0900
Sampling Complete? (Y) or N

Client/Reporting Information

Company Name: Tetra Tech NUS
Address: 661 Andersen Blvd Ste 200
City: Pittsburgh State: PA Zip: 15220
Project Contact: Lee Tarbert
Phone #: 412-921-7534
Sampler's Name: Ronald Whalen

Project Information

Project Name: SSA 12 Soil Invest.
Sampling Location: SSA 12
Turnaround time:
Batch QC or Project Specific? If Specific, which Sample ID?
Are aqueous samples field filtered for metals? Y or N
Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type)

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	TCL VOCs (SW-846) 5g # receive	TCL SVOCs, Pest/PCB (SW-846) 2oz	TAL metals (SW-846) 2oz	pH / Sample Info (Lab Use)
	SSA12-SEED-100.5	12/7/07	1300	SO	5							3	1	1	
	SSA12-SEED-202.5	12/7/07	1315	SO	5							2	1	1	

Matrices
GW - Ground water
WW - Waste water
SW - Surface water
SO - Soil/Sediment
TB - Trip Blank
RI - Rinsate
WP - Wipe
O - Other

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:
Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by:	Date/Time:	Received by:	Date/Time:
Ronald Whalen	12/7/07 1320		
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

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Courier FEDEX
Airbill No.
Sampling Complete? Y or N

Client/Reporting Information

Company Name
Address
City State Zip
Project Contact
Phone #
Sampler's Name

Project Information

Project Name
Sampling Location
Turnaround time
Batch QC or Project Specific? If Specific, which Sample ID?
Are aqueous samples field filtered for metals? Y or N
Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type)

TCL VOC
TCL SVOC

Matrices

GW - Ground water
WW - Waste water
SW - Surface water
SO - Soil/Sediment
TB - Trip Blank
RI - Rinsate
WP - Wipe
O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	pH / Sample Info (Lab Use)
	SEAL SIZE 0.5	12/6/07	1000	SO	5							
	SEAL SIZE 0.5		1025		1							
	SEAL SIZE 0.5		1040		1							
	SEAL SIZE 0.5		1130		1							
	SEAL SIZE 2.5		1215		5							
	SEAL SIZE 0.5		1230		5							
	SEAL SIZE 2.5		1300		5							
	SEAL SIZE 0.5		1340		5							
	SEAL SIZE 2.5		1405		5							
	SEAL SIZE 0.5	↓	1415	↓	1							

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by:	Date/Time: 12/6/07 1330	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

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Courier	[illegible]
Airbill No.	[illegible]
Sampling Complete? Y or N	

Client/Reporting Information

Company Name	[illegible]
Address	[illegible]
City State Zip	[illegible]
Project Contact	[illegible]
Phone #	[illegible]
Sampler's Name	[illegible]

Project Information

Project Name	[illegible]
Sampling Location	[illegible]
Turnaround time	
Batch QC or Project Specific? If Specific, which Sample ID?	
Are aqueous samples field filtered for metals? Y or N	
Are high concentrations expected? Y or N? If yes, which ID(s)?	

Matrices
GW - Ground water
WW - Waste water
SW - Surface water
SO - Soil/Sediment
TB - Trip Blank
RI - Rinsate
WP - Wipe
O - Other

CompuChem No (Lab Use)	Field ID	Collection: Date	Collection: Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	Requested Analysis (include method and bottle type)	pH / Sample Info (Lab Use)
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]							[illegible]	

Lab Use Only

Sample Unpacked By:	Cyanide samples checked for sulfide & chlorine? Y or NA
Sample Order Entry By:	625 & Phenol samples checked for chlorine? Y or NA
Samples Received in Good Condition? Y or N	608 samples checked for pH between 5.0-9.0? Y or NA
If no, explain:	

Comments

Sample Custody

Relinquished by: [illegible]	Date/Time: [illegible]	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?	Custody Seal(s) intact? Y or N	On Ice? Y or N	Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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GPL LABORATORIES, LLC

7210A Corporate Court
Frederick, MD 21703
(301) 694-5310
Fax (301) 620-0731

Contract #/Billing Reference

1 of Pgs.

Project: Willow Grove Site 2
Client: Tetra Tech
Send Results To: Russ Turner
Address: 234 Mall Blvd Ste 260
King of Prussia, PA 19406
Phone: 610-382-1534

Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	VOC	SVOC	PAH (SIM)	Total Metals							Lab Cooler No. / CLIENT COMMENTS
Turnaround Time					1 wk	1 wk	1 wk	1 wk							
# of Containers															
Container Type					VOA	1L	1L	1L Poly							
Preservative Used					HCl	–	–	HNO3							
Type of Analysis															
02MW04S	5/13/09	1025	GW	DW	3	2	2	1							
02MW04I		1215	GW	DW	3	2	2	1							
02MW01S		1340	GW	DW	3	2	2	1							
02MW01I		1520	GW	DW	3	2	2	1							
02DUP01		0000	GW	DW	3	2	2	1							
RE-051309		1600	AQ	–	3	2	2	1							
TB-051309	↓	33	AQ	–	2										

Relinquished By:	Date/Time	Received By:	Relinquished By:	Received for Laboratory By:	Date/Time
D Nichols	5/13/09 1900				
Relinquished By:	**Date/Time**	**Received By:**	**Date/Time**	**Shipper:**	**Airbill No.:**
				FedEx	8682 8224 0584
Relinquished By:	**Date/Time**	**Received By:**	**Lab Comments:**		**Temp:**

G.P. W.O. _____

GPL LABORATORIES, LLC

7210A Corporate Court
Frederick, MD 21703
(301) 694-5310
Fax (301) 620-0731

Contract #/Billing Reference:

1 of 1 Pgs.

Project: Site 2 GW confirmation Sampling
Client: Tetra Tech
Send Results To: Russ Turner
Address: 234 Mall Blvd. Ste. 260
Phone: (610-372-1534

Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	VOC	SVOC	PAH (SIM)	Total Metals							CLIENT COMMENTS
Turnaround Time					1 week	1 week	1 week	1 week							Lab Cooler No.
# of Containers															
Container Type					40ml	1L	1L	1L poly							
Preservative Used					HCl	–	–	HNO_3							
02MW02S	5/11/09	0955	GW	DW	3	2	2	1							
02MW03SI		1130	GW	DW	9	6	6	3							Do MS/MSD
02MW03I		1325	GW	DW	3	2	2	1							
FB-051409		1400	AQ	DW	2	2	2	1							Field Blank
TB-051409	↓	0700	AQ	–	2										Trip Blank

Relinquished By:	Date/Time	Received By:	Relinquished By:	Received for Laboratory By:	Date/Time
Scott Wahler	5/11/09 1700				

Relinquished By:	Date/Time	Received By:	Date/Time	Shipper:	Airbill No.:
				FedEx	8682 8221 0595

Relinquished By:	Date/Time	Received By:	Lab Comments:	Temp:

G.P. W.O. _____

21424

Page 1 of 2

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501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Courier: Fed Ex
Airbill No.: 8706 9629 1225
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: NAS JRB Willow Grove Site 12
Address: 234 Mall Blvd	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other Na2S2O3	Requested Analysis: VOC (40 ml vial)	SVOC, PAH (SIM), PBs, PCB (8oz Jar)	TAL Metals, CN (4oz Jar)	pH / Sample Info (Lab Use)
	12TP01-0506-03	11/4/10	1250	SO	5					1	2	✓	✓	✓	
	12TP01-0708-04		1330	SO	5					1	2	✓	✓	✓	
	12TP02-0005-01		1510	SO	5					1	2	✓	✓	✓	
	12TP02-0.502-02		1525	SO	5					1	2	✓	✓	✓	
	12TP02-0405-03		1600	SO	5					1	2	✓	✓	✓	
	12TP02-0910-04		1645	SO	5					1	2	✓	✓	✓	
	TB-01041D	↓	1115	TB	2	2						✓			
	12TP03-0005-01	11/5/10	0840	SO	5					1	2	✓	✓	✓	
	12TP03-0.502-02		0850	SO	5					1	2	✓	✓	✓	
	12TP03-0607-03	↓	1000	SO	5					1	2	✓	✓	✓	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 11/5/10 1900	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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Page 2 of 2

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CHAIN OF CUSTODY

501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Courier: Fld Ex
Airbill No.: 8706 9629 1875
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd ste 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other Na #1/94	Requested Analysis: 40 ml vial VOC	8 oz Jar SVOC, PAH (SIM) Pest, PCB	4 oz Jar TAL metals, CN	pH / Sample Info (Lab Use)
	12TP03-0506-04	1/5/10	1030	SO	5					1	2	✓	✓	✓	
	12TP03-0809-05		1100	SO	5					1	2	✓	✓	✓	
	12TP-DUP-01		1130	SO	5					1	2	✓	✓	✓	
	12TP04-0005-01		1445	SO	5					1	2	✓	✓	✓	
	12TP04-0502-02		1455	SO	5					1	2	✓	✓	✓	
	12TP04-0405-03		1335	SO	5					1	2	✓	✓	✓	
	12TP04-0607-04	↓	1520	SO	5					1	2	✓	✓	✓	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

12TP04-0405-03 FID ~ 50 ppm

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/5/10 1900	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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Cary, NC 27513
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Page 1 of 2

Courier FedEx
Airbill No. 8706 9629 1799
Sampling Complete? Y or (N)

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd ste 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other NaHSO4	Requested Analysis: VOC 40 ml vial	SVOC, PAH (SIM) Pest, PCB 8 oz Jar	TAL metals, CN 4 oz Jar	pH / Sample Info (Lab Use)
	12TP05-000.5-01	1/6/10	1000	SO	5					1	2	✓	✓	✓	
	12TP05-0.5-02-02		1010	SO	5					1	2	✓	✓	✓	
	12TP05-0204-03		1100	SO	5					1	2	✓	✓	✓	
	12TP-DUP-02		1200	SO	5					1	2	✓	✓	✓	
	12TP05-0910-04		1120	SO	5					1	2	✓	✓	✓	
	12TP06-0506-03		1415	SO	13					3	6	✓	✓	✓	
	12TP06-000.5-01		1425	SO	5					1	2	✓	✓	✓	
	12TP06-0.5-02-02		1440	SO	5					1	2	✓	✓	✓	
	12TP06-0910-04		1500	SO	5					1	2	✓	✓	✓	
	TB-010610	↓	0900	TB	2	2						✓			

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

12TP06-0506-03 DOMS/MSD

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/7/10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where? | Custody Seal(s) intact? Y or N | On Ice? Y or N | Cooler Temp: °C

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CHAIN OF CUSTODY

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Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Page 2 of 2

Courier: Fed Ex
Airbill No.: 8706 9629 1799
Sampling Complete? Y or (N)

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: Willow Grove Site 12
Address: 2301 Mall Blvd Suite 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other MeOH/Cu	Requested Analysis: 40ml vial VOC	1L amber SVOC/PAH SIM	1L amber Pest/PCB	250ml poly CN	1L poly TAL metals	40ml vial VOC	2oz jar SVOC, PAH SIM, Pest, PCB	4oz jar TAL metals, CN	pH / Sample Info (Lab Use)
	12TP-RB-01	1/6/10	0930	RI	11	3	1	1				✓	✓	✓	✓	✓				
	12TP07-0005-01	1/7/10	1010	SO	5					1	2						✓	✓	✓	
	12TP07-0507-02		1020	SO	5					1	2						✓	✓	✓	
	12TP07-0607-03		1045	SO	5					1	2						✓	✓	✓	
	12TP08-0005-01		1325	SO	5					1	2						✓	✓	✓	
	12TP08-0507-02		1335	SO	5					1	2						✓	✓	✓	
	12TP08-0607-03	↓	1315	SO	5					1	2						✓	✓	✓	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/7/10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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CHAIN OF CUSTODY

501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Page 1 of ____

Courier: Fed Ex
Airbill No.: 8706 9629 1703
Sampling Complete? Y or N

Client/Reporting Information

Company Name: Tetra Tech NUS
Address: 224 Mall Blvd Ste. 260
City: King of Prussia State: PA Zip: 19406
Project Contact: Russ Turner
Phone #: 610-382-1534
Sampler's Name: Donald Whalen

Project Information

Project Name: Willow Grove Site 12
Sampling Location:
Turnaround time:
Batch QC or Project Specific? If Specific, which Sample ID?
Are aqueous samples field filtered for metals? Y or N
Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type)

Matrices
GW - Ground water
WW - Waste water
SW - Surface water
SO - Soil/Sediment
TB - Trip Blank
RI - Rinsate
WP - Wipe
O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other NaHSO4	40 ml Vial VOC	8 oz Jar SVOC, PAH SIM Pest, PCB	4 oz Jar TAL metals, CN	pH / Sample Info (Lab Use)
	12TP09-0005-01	1/8/10	0910	SO	5					1	2	✓	✓	✓	
	12TP09-0502-02		0915	SO	5					1	2	✓	✓	✓	
	12TP09-0304-03		0930	SO	5					1	2	✓	✓	✓	
	12TP09-0506-04		0955	SO	5					1	2	✓	✓	✓	
	12TP-DUP-03		1200	SO	5					1	2	✓	✓	✓	
	12TP10-0005-01		1145	SO	5					1	2	✓	✓	✓	
	12TP10-0502-02		1150	SO	5					1	2	✓	✓	✓	
	12TP10-0405-03		1225	SO	5					1	2	✓	✓	✓	
	12TP10-0809-04		1325	SO	5					1	2	✓	✓	✓	
	TB-010810	↓	0830	TB	2	2						✓			

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:
Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/8/10 1700	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Subcontact? Y or N If yes, where?	Custody Seal(s) intact? Y or N	On Ice? Y or N	Cooler Temp: °C

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

Columbia Analytical Services
19408 Park Row, Ste 320 • Houston, TX 77084 • (713) 266-1599 • FAX (713) 266-0130

DATE 1/11/10 PAGE 1 OF 1

PROJECT NAME Willow Grove Site 12

PROJECT #

COMPANY/ADDRESS Tetra Tech NUS
234 Mall Blvd. Ste 260
King of Prussia, PA 19406 PHONE 610-382-1534

REPORT TO: Russell Turner

ANALYSIS REQUEST

SAMPLE I.D.	DATE	TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	8290	1613B	1613 TCDD only	1668 WHO	1668 Full List	REMARKS
12TP03-0506-04	1-5-10	1030	SOIL	1	✓	X				
12TP08-0304-03	1-7-10	1315	↓	1	✓					
12TP02-0405-03	1-4-10	1600	↓	1	✓					
12TP06-0506-03	1-6-10	1415	↓	1	✓					
12TP09-0506-05	1-8-10	1020	↓	3	✓					Do MS/MSD
12TP-DUP-04	1-6-10	1200	↓	1	✓					

RELINQUISHED BY:
Signature: Donald Whalen (signed)
Printed Name: Donald Whalen
Firm: Tetra Tech NUS
Date/Time: 1/11/10 1800

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS (in working days)
RUSH ....5 Days
RUSH ....10 Days
STD ....15 DAYS

DELIVERABLES
____ I. Analytical Report
____ II. Analytical Report + QC
____ IV. Data Validation Report (includes All Raw Data)

INVOICE INFORMATION:
P.O.#
Bill To

SAMPLE RECEIPT:
Opened by:
Inspected by:
Date:
Time:

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

SAMPLER'S SIGNATURE: Donald Whalen (signed)

DISTRIBUTION: WHITE - return to originator; YELLOW - retained by originator

coc11-09

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Page 1 of 3

Courier FEDEX
Airbill No. 8706 9629 1814
Sampling Complete? Y or (N)

Client/Reporting Information	Project Information
Company Name: TetraTech NUS	Project Name: Willow Grove S.T. 12
Address: 285 Mall Blvd. Ste. 220	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type): 40 ml vial VOC; 4 oz. Jar 8 02. Jar SVOC, PAH SIM, Pest, PCB; 4 oz. Jar TAL metals, CN

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other Na2S2O3	pH / Sample Info (Lab Use)
	TB-11110	11/11/10	0830	TB	3	3						
	12TP11-000.5-01		1040	SO	5					1	2	
	12TP11-0.502-02		1050	SO	5					1	2	
	12TP11-0304-03		1125	SO	13					3	6	
	12TP11-0506-04		1150	SO	5					1	2	
	12TP12-000.5-01		1240	SO	5					1	2	
	12TP12-0.502-02		1250	SO	5					1	2	
	12TP12-0203-03		1300	SO	5					1	2	
	12TP12-0506-04		1320	SO	5					1	2	
	12TP13-0506-03	↓	1440	SO	5					1	2	

All rows: VOC ✓; SVOC, PAH SIM, Pest, PCB ✓; TAL metals, CN ✓

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

12TP11-0304-03 Do MS/MSD

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 11/12/10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

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Courier: FedEx
Airbill No. 8706 9629 1814
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: TetraTech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd. Ste. 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other Methoxy	Requested Analysis: VOC 11 oml Vial	SVOC, PAH SIM, Pest, PCB 8 oz. Jar	TAL metals, CN 4 oz. Jar	pH / Sample Info (Lab Use)
	12TP13-000.5-01	1/11/10	1455	SO	5					1	2	✓	✓	✓	
	12TP13-0.502-02	"	1505	SO	5					1	2	✓	✓	✓	
	12TP13-0809-04	"	1520	SO	5					1	2	✓	✓	✓	
	12SB03-000.5-01	"	1100	SO	5					1	2	✓	✓	✓	
	12SB03-0.502-02	"	1125	SO	5					1	2	✓	✓	✓	
	12SB04-000.5-01	"	1210	SO	5					1	2	✓	✓	✓	
	12SB04-0.502-02	↓	1230	SO	5					1	2	✓	✓	✓	
	12TP14-000.5-01	1/12/10	0910	SO	5					1	2	✓	✓	✓	
	12TP14-0.502-02	"	0920	SO	5					1	2	✓	✓	✓	
	12TP14-0405-03	↓	0940	SO	5					1	2	✓	✓	✓	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: D. Whalen	Date/Time: 1/12/10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

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Page 3 of 3

Courier: Fed Ex
Airbill No.: 8706 9629 1814
Sampling Complete? Y or (N)

Client/Reporting Information	Project Information
Company Name: Tetra Tech	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd. ste. 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type): 40-ml vial VOC; 8 oz Jar SVOC, PAH STM Pest, PCB; 4 oz Jar TAL metals, CN

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other (No. HCl)	pH / Sample Info (Lab Use)
	12TP14-0607-04	1/12/10	0950	SO	5					1	2	
	12TP15-000.5-01	"	1315	SO	5					1	2	
	12TP15-0.502-02	"	1330	SO	5					1	2	
	12TP15-0304-03	"	1415	SO	13					3	6	
	12TP15-0405-04	"	1435	SO	5					1	2	
	12SB02-0.502-02	"	1405	SO	5					1	2	
	12SB02-000.5-01	"	1345	SO	5					1	2	
	12SB-DUP-02-0.502-02	"	1405	SO	5					1	2	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

12TP15-0304-03 Do MS/MSD

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/12/10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Subcontact? Y or N If yes, where?	Custody Seal(s) intact? Y or N	On Ice? Y or N	Cooler Temp: °C

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Courier: Fed Ex
Airbill No.: 8706 9629 1950
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: TetraTech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1536	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other NaHSO4	Requested Analysis: 4 oz 1 vial VOC	8 oz Jar SVOC, PAH SSM, Pest, PCB	4 oz Jar TAL metals, CN	pH / Sample Info (Lab Use)
	12TP01-000.5-01	1/13/10	1300	SO	5					1	2	✓	✓	✓	
	12TP01-0.502-02	"	1330	SO	13					3	6	✓	✓	✓	
	12SB01-000.5-01		1500	SO	5					1	2	✓	✓	✓	
	12SB01-0.502-02		1530	SO	5					1	2	✓	✓	✓	
	TB-011310	↓	1100	TB	3	3						✓			

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

12TP01-0.502-02 DO MS/MSD

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1-13-10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

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Courier: Fed Ex
Airbill No.: 8706 9629 1961
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd Ste. 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other Na HSO4	Requested Analysis: 40 ml vial VOC	SVOC, PAH SIM, Pest, PCB 8 oz jar	TAL metals, CN 4 oz jar	TAL metals, CN, TOC 4 oz jar	SVOC, PAH SIM 1 Liter amb	Pest, PCB 1 L amber	CN 250 ml poly	TAL metals 1 L poly	pH / Sample Info (Lab Use)
	TB-011410	1/14/10	0900	TB	3	3						✓								
	125B05-000.5-01	1	1325	SO	5					1	2	✓	✓	✓						
	125B05-0.5-02-02		1340	SO	5					1	2	✓	✓	✓						
	125D01		1615	SO	5					1	2	✓	✓		✓					
	125W01	↓	1530	SW	33	9	3	3				✓				✓	✓	✓	✓	
	RB-011510	1/15/10	1330	RI	11															
	125D02	1/15/10	1430	SO	5					1	2	✓	✓		✓					

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

125W01 - DO MS/MSD

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/15/10 1830	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

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CHAIN OF CUSTODY

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Page 1 of 1

21461

Courier: Fed Ex
Airbill No.: 7706 9629 2019
Sampling Complete? Y or N

Client/Reporting Information

Company Name: TetraTech NUS
Address: 234 Mall Blvd
City: King of Prussia State: PA Zip: 19406
Project Contact: Russ Turner
Phone #: 610-382-1534
Sampler's Name: Donald Welch

Project Information

Project Name: Willow Grove Site 12
Sampling Location:
Turnaround time:
Batch QC or Project Specific? If Specific, which Sample ID?
Are aqueous samples field filtered for metals? Y or N
Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type)

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	VOC (40 ml vial)	SVOC, PAH SIM (1L amber)	Pest/PCB (1L amber)	TAL metals (1L poly)	CN	pH / Sample Info (Lab Use)
	12SW02	11/18/10	1440	SW	11	3	1	1				✓	✓	✓	✓	✓	
	12SW-DUP-01	"	1530	SW	11	3	1	1				✓	✓	✓	✓	✓	
	TB-011810	↓	1000	TB	3	3						✓					

Matrices

GW - Ground water
WW - Waste water
SW - Surface water
SO - Soil/Sediment
TB - Trip Blank
RI - Rinsate
WP - Wipe
O - Other

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: Donald Welch	Date/Time: 11/19/10 1900	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Subcontact? Y or N If yes, where?	Custody Seal(s) intact? Y or N	On Ice? Y or N	Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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Page 1 of 1

Courier: FedEx
Airbill No.: 8706 9629 2020
Sampling Complete? Y or (N)

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other Na2S2O3	Requested Analysis: 40 ml vial VOC	1L amber SVOC, PAH SIM	1L amber Pest/PCB	1L poly TAL metals	1L poly CN	250ml poly 8oz Jar SVOC, PAH SIM Pest, PCB	1L Jar TAL metals, CN, TOC	pH / Sample Info (Lab Use)
	12SW03	1-20-10	1045	SW	11	3						✓	✓	✓	✓	✓			
	12SW04		1250	SW	11	3						✓	✓	✓	✓	✓			
	12SD03		1140	SO	5					1	2	✓					✓	✓	
	12SD-DUP-01		1200	SO	5					1	2	✓					✓	✓	
	12SD04		1330	SO	5					1	2	✓					✓	✓	
	12SD06		1440	SO	5					1	2	✓					✓	✓	
	TB-012010	↓	1010	TB	3	3						✓							

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/20/10 1800	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

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CHAIN OF CUSTODY

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Phone: 919-379-4100 Fax 919-379-4040

Courier: Fed Ex
Airbill No.: 770C 9629 1972
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: Tetra Tech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd. Ste. 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Donald Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Requested Analysis (include method and bottle type): 40 ml vial VOC

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other	VOC	pH / Sample Info (Lab Use)
	TB-012110	1/21/10	0900	TB	3	3						✓	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

Sample Custody

Relinquished by: Donald Whalen	Date/Time: 1/21/10 1900	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer

21475

CHAIN OF CUSTODY

CompuChem
a division of Liberty Analytical Corp.

501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Page 1 of 2

Courier: FedEx
Airbill No.: 9766 9629 1972
Sampling Complete? Y or N

Client/Reporting Information	Project Information
Company Name: TetraTech NUS	Project Name: Willow Grove Site 12
Address: 234 Mall Blvd. Ste. 260	Sampling Location:
City: King of Prussia State: PA Zip: 19406	Turnaround time:
Project Contact: Russ Turner	Batch QC or Project Specific? If Specific, which Sample ID?
Phone #: 610-382-1534	Are aqueous samples field filtered for metals? Y or N
Sampler's Name: Don Whalen	Are high concentrations expected? Y or N? If yes, which ID(s)?

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	HNO3	H2SO4	MEOH	Other (Na2S2O3)	Requested Analysis: VOC 40 ml vial	SVOC, PAH SIM 1 L amber	Pest/PCB 1 L amber	TAL metals 1 L poly	CN 250 ml poly	SVOC, PAH SIM, Pest, PCB 8 oz jar	TAL metals, CN, TOC 4 oz jar	Dissolved metals 1 L poly	Dissolved metals 500 ml poly	pH / Sample Info (Lab Use)
	12SW05	1/21/10	1020	SW	11	3	1	1				✓	✓	✓	✓	✓					
	12SW08		1145	SW	11	3	1	1				✓	✓	✓	✓	✓			✓		
	12SW07		1335	SW	11	3	1	1				✓	✓	✓	✓	✓			✓		
	12SD05		1040	SO	5					1	2	✓					✓	✓			
	12SD08		1230	SO	5					1	2	✓					✓	✓			
	12SD07		1300	SO	13					3	6	✓					✓	✓			
	12SW-F-DUP-01		1715	SW	1			1											✓	✓	
	12SW08-F		1230	SW	1			1											✓	✓	
	12SW07-F		1335	SW	3			3												✓	
	~~12~~RB-012110-F	✓	1710	RI	1			1												✓	

Lab Use Only

Sample Unpacked By:
Sample Order Entry By:
Samples Received in Good Condition? Y or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or NA
625 & Phenol samples checked for chlorine? Y or NA
608 samples checked for pH between 5.0-9.0? Y or NA

Comments

12SD07 Dc MS/MSD
12SW07-F Dc MS/MSD

Sample Custody

Relinquished by:	Date/Time: 1/21/10 1900	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? Y or N
On Ice? Y or N
Cooler Temp: °C

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021252

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 210WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH	Pest / PCB	Metals/Hg/CN/pH	ORP	Metals/Hg/CN			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								F	E	E	E	E					← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	12SB21-000.5-01	Soil		X	2/4/11	1055	6	X	X	X	X						
2.	12SB21-0.502-02	"		X	"	1020	6	X	X	X	X						
3.	12SB21-0304-03	"		X	"	1025	6	X	X	X	X						
4.	12SB22-000.5-01	"		X	"	1130	7	X	X	X	X	X					
5.	12SB22-0.502-02	"		X	"	1140	7	X	X	X	X	X					
6.	12SB22-0304-03	"		X	"	1150	7	X	X	X	X	X					
7.	12SB20-000.5-01	"		X	"	1310	6	X	X	X	X						
8.	12SB20-0.502-02	"		X	"	1300	6	X	X	X	X						
9.	12SB-DUP-01	"		X	"	1200	6	X	X	X			X				
10.	12SB19-000.5-01	↓		X	↓	1410	6	X	X	X	X						

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	2/4/11 1230	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021253

CLIENT INFORMATION
REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd Ste. 260
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: [illegible] FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: [illegible] LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	TCL Pest/PCB	TAL Metals/Hg/CN/PH	ORP	TCL VOC			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	A				← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	12SB19-0.502-02	soil		X	12/14/11	1120	6	X	X	X	X						
2.	12SB19-0304-03			X		1450	6	X	X	X	X						
3.	12SB18-0005-01			X		1540	7	X	X	X	X	X					
4.	12SB18-0.502-02			X		1550	7	X	X	X	X	X					
5.	12SB18-0304-03	↓		X		1600	7	X	X	X	X	X					
6.	12TB-20111214	DI		X	↓	0800	2						X				Trip Blank
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/14/11 1930	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021254

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fyckowitz
PHONE: 610-382-1170 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 670 WE05 LOCATION:
PROJECT MANAGER: Andy Fyckowitz
e-mail: andy.fyckowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	Pest/PCB	Metals/Hg	CN/pH	ORP			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E					← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	125B16-0005-01	Soil		X	12/15/11	0845	6	X	X	X	X						
2.	125B16-0502-02			X		0850	6	X	X	X	X						
3.	125B16-0304-03			X		0900	6	X	X	X	X						
4.	125B11-0005-01			X		1045	15	X	X	X	X						Do MS/MSD
5.	125B11-0501-02			X		1005	6	X	X	X	X						
6.	125B11-0304-03			X		1015	6	X	X	X	X						
7.	125B-DUP-02			X		1000	6	X	X	X	X						
8.	125B09-0005-01			X		1140	7	X	X	X	X	X					
9.	125B09-0502-02			X		1150	7	X	X	X	X	X					
10.	125B09-0304-03	↓		X	↓	1200	7	X	X	X	X	X					

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/15/11 1900	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☑ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☑ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021255

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: IT/Tetra Tech NUS
ADDRESS: 2351 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Willow Grove
PROJECT NO.: 126WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	TCL PEST/PCB	metals/Hg/CN/pH	ORP	metals/Hg/CN	TCL VOC		

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	E	A			← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	125B10-000.5-01	Soil		X	12/15/11	1325	6	X	X	X	X						
2.	125B10-0.502-02			X		1335	6	X	X	X	X						
3.	125B10-0304-03			X		1345	6	X	X	X	X						
4.	125B15-000.5-01			X		1450	6	X	X	X	X						
5.	125B15-0.502-02			X		1455	6	X	X	X	X						
6.	125B15-0304-03			X		1505	6	X	X	X	X						
7.	125B-DUP-04			X		1530	6	X	X	X	X		X				
8.	125B14-0.502-03			X		1605	6	X	X	X	X						
9.	125B14-0304-03	↓		X		1610	6	X	X	X	X						
10.	TRIP BLANK-20111215	AQ		X	↓	0800	2							X			Trip Blank

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/15/11 1900	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☑ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☑ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021257

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC/PAH SIM	Pest / PCB	metals/Hg/CN/pH	metals/Hg/CN	TCL VOC			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E	E	E	E	E	A				← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other
1.	12SB-DUP-05	Soil		X	12/16/11	1300	6	X	X	X		X					
2.	12SB25-0005-01			X		1400	15	X	X	X	X						DO MS/MSD
3.	12SB25-0.502-02			X		1410	6	X	X	X	X						
4.	12SB25-0304-03			X		1420	6	X	X	X	X						
5.	12SB28-0.502-02			X		1520	6	X	X	X	X						
6.	12SB28-0304-03	↓		X		1530	6	X	X	X	X						
7.	12TB-20111216	AQ		X	↓	0800	2						X				
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. David Whalen	12/16/11 1900	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021256

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION:
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Willow Grove
PROJECT NO.: 210 WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
TCL VOC	TCL SVOC / PAH SIM	Pest / PCB	metals / Hg / CN / pH	ORP	metals / Hg / CN			

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9
1.	125B14-000.5-01	soil		X	12/16/11	0830	6	X	X	X	X					
2.	125B13-000.5-01			X		0900	7	X	X	X	X	X				
3.	125B13-0.502-02			X		0910	7	X	X	X	X	X				
4.	125B13-0304-03			X		0920	7	X	X	X	X	X				
5.	125B29-000.5-01			X		1035	6	X	X	X	X					
6.	125B29-0.502-02			X		1045	6	X	X	X	X					
7.	125B29-0304-03			X		1055	6	X	X	X	X					
8.	125B26-000.5-01			X		1235	7	X	X	X	X	X				
9.	125B26-0.502-02			X		1235	7	X	X	X	X	X				
10.	125B26-0304-03	↓		X	↓	1245	7	X	X	X	X	X				

PRESERVATIVES

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. Gail Lake	12/16/11 1900	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME:	RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☒ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021258

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 20WE05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 8260B
2 TCL SVOC/PAH SIM
3 Pest/PCB
4 Metals, Hg, Cn, pH
5 ORP
6 pH, 012P
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12TP16-0005-01	Soil		✓	12/19/11	0915	7	3	1	1	1	1					
2.	12TP16-0510-02	Soil		✓	12/19/11	0935	7	3	1	1	1	1					
3.	12TP16-0608-03	Soil		✓	12/19/11	1020	7	3	1	1	1	1					
4.	12TP16-0910-04	Soil		✓	12/19/11	1210	7	3	1	1	1	1					
5.	12TP-DUP-01	Soil		✓	12/19/11	1200	7	3	1	1	1	1					
6.	12TP03-0506-CS	Soil		✓	12/19/11	1405	1						1				
7.	12TP02-0405-CS	Soil		✓	12/19/11	1415	1						1				
8.	12TP14-0405-CS	Soil		✓	12/19/11	1515	1						1				
9.	12TP15-0304-CS	Soil		✓	12/19/11	1535	1						1				
10.	12TP09-0304-CS	Soil		✓	12/19/11	1550	1						1				

← Specify Preservatives
A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/19/11 1900	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021260

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Blvd.
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 210 WE 05 LOCATION:
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz@tetratech.com
PHONE: 610-382-1170 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

PH, ORP
TCL VOC 4 drops Vial HCl

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12TP10-0405-CS	SOIL		✓	12/19/11	1610	1	1									
2.	12TP08-0304-CS	SOIL		✓	12/19/11	1635	1	1									
3.	TB-01-121911	AQ		✓	12/19/11	0800	2		2								
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

PRESERVATIVES: ← Specify Preservatives
A – HCl B – HNO_3 C – H_2SO_4 D – NaOH E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/19/11 1900	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Cooler Temp. _____
Ice in Cooler?: _____

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021242

CLIENT INFORMATION
REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 231 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at TetraTech.Com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 Dioxin/Furans 2 3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12FP16-0608-03	Soil		V	12/19/11	1020	1	1									
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/19/11 1900	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021243

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 231 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION
PROJECT NAME: NASJRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at TetraTech.com
PHONE: 610 382 1170 FAX: 6104919645

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS
1 TCL VOC Ealone
2 TCL SVOC / PAH SIM
3 Pest / PCB
4 Metals, Hg, Cn, pH
5 ORP
6 ORP / pH
7 TCL VOC 40 ml VOA Vial HCl
8
9

PRESERVATIVES
COMMENTS
← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	TB-01-122011	AQ		✓	12/20/11	0730	2							2			
2.	12TP17-0.0-0.5-01	Soil		✓	12/20/11	0950	16	9	2	2	2	1					00 MS/MSD
3.	12TP17-0.5-02-02	Soil		✓	12/20/11	1020	7	3	1	1	1	1					
4.	~~12TP17-0506-03~~	Soil		✓	12/20/11	1125	~~7~~	~~3~~	~~1~~	~~1~~	~~1~~	~~1~~		CM 12/20/11			
5.	12TP18-0506-01	Soil		✓	12/20/11	1250	7	3	1	1	1	1					
6.	12TP18-0607-02	Soil		✓	12/20/11	1430	7	3	1	1	1	1					
7.	12TP12-0203-CS	Soil		✓	12/20/11	1600	1						1				
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/20/11 1830	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp. _____
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments: Ice in Cooler?: _____

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

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CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021251

CLIENT INFORMATION	CLIENT PROJECT INFORMATION	CLIENT BILLING INFORMATION
REPORT TO BE SENT TO:		
COMPANY: Tetra Tech NUS	PROJECT NAME: NAS JRB Willow Grove	BILL TO: PO#:
ADDRESS: 234 Mall Boulevard	PROJECT NO. CTO WE08 LOCATION: Sites 3/12	ADDRESS:
CITY: King of Prussia STATE: PA ZIP: 19406	PROJECT MANAGER: Andy Frebowitz	CITY: STATE: ZIP:
ATTENTION: Andy Frebowitz	e-mail: andy.frebowitz at tetratech.com	ATTENTION: PHONE:
PHONE: 610 382 1170 FAX: 610 491 9645	PHONE 610 382 1170 FAX: 610 491 9645	

DATA TURNAROUND INFORMATION

FAX: ______ DAYS *
HARD COPY: ______ DAYS *
EDD: ______ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other ______
☐ EDD FORMAT ______

ANALYSIS

1. TCL VOC Low VOA Vial (6)
2. ORP / pH
3. TCL VOC 5910M Encore
4. SVOC / PAH SIM
5. Pest / PCB
6. Metals, Cr, Hg, pH
7. ORP
8.
9.

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS ← Specify Preservatives A - HCl B - HNO_3 C - H_2SO_4 D - NaOH E - ICE F - Other
1.	TB-01-122211	Aq		✓	12/22/11	0700	2	2									
2.	03TP36-0708-01	Soil		✓	12/22/11	0900	1		1								
3.	03SB28-115215-01	Soil		✓	12/22/11	0925	1		1								
4.	12SB30-000.5-01	Soil		✓	12/22/11	1110	7			3	1	1	1	1			
5.	12SB30-0.502-02	Soil		✓	12/22/11	1130	7			3	1	1	1	1			
6.	12SB30-0304-03	Soil		✓	12/22/11	1150	7			3	1	1	1	1			
7.	12SB23-00015-01	Soil		✓	12/22/11	1315	6			3	1	1	1				
8.	12SB23-0.502-02	Soil		✓	12/22/11	1325	6			3	1	1	1				
9.	12SB23-0304-03	Soil		✓	12/22/11	1335	6			3	1	1	1				
10.	12SB21-00015-01	Soil		✓	12/22/11	1450	7			3	1	1	1	1			

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/22/11 1930	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME:	RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp. ______
MeOH extraction requires an additional 4 oz jar for percent solid. Ice in Cooler?: ______
Comments:

Page 2 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021246

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION
PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 3
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: ______ DAYS *
HARD COPY: ______ DAYS *
EDD: ______ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other ______
☐ EDD FORMAT ______

ANALYSIS: 1 ORP / pH; 2; 3; 4; 5; 6; 7; 8; 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	COMP	GRAB	DATE	TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	03TP40-0304-01	Soil		✓	12/21/11	0855	1	1									
2.	03TP41-0304-01	Soil		✓	12/21/11	0920	1	1									
3.	03SB30-0304-01	Soil		✓	12/21/11	0950	1	1									
4.	03TP34-0405-01	Soil		✓	12/21/11	1015	1	1									
5.	03TP31-0705-01	Soil		✓	12/21/11	1125	1	1									
6.	03TP32-0809-01	Soil		✓	12/21/11	1135	1	1									
7.	03TP33-0607-01	Soil		✓	12/21/11	1155	1	1									
8.	03TP37-0304-01	Soil		✓	12/21/11	1225	1	1									
9.	03TP38-0304-01	Soil		✓	12/21/11	1240	1	1									
10.	03TP39-0607-01	Soil		✓	12/21/11	1325	1	1									

PRESERVATIVES — ← Specify Preservatives: A-HCl, B-HNO_3, C-H_2SO_4, D-NaOH, E-ICE, F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER / BY	DATE/TIME	RECEIVED BY
1. [signature]	12/22/11 1930	1.
2.		2.
3.		RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp. ______
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?: ______

Page 3 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

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CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021247

CLIENT INFORMATION	CLIENT PROJECT INFORMATION	CLIENT BILLING INFORMATION
REPORT TO BE SENT TO:		
COMPANY: Tetra Tech NUS	PROJECT NAME: NASJRB Willow Grove	BILL TO: PO#:
ADDRESS: 234 Mall Boulevard	PROJECT NO. 270 WE05 LOCATION: Site 3	ADDRESS:
CITY: King of Prussia STATE: PA ZIP: 19406	PROJECT MANAGER: Andy Frebowitz	CITY: STATE: ZIP:
ATTENTION: Andy Frebowitz	e-mail: andy.frebowitz@tetratech.com	ATTENTION: PHONE:
PHONE: 610 382 1170 FAX: 610 491 9645	PHONE: 610 382 1170 FAX: 610 491 9645	

DATA TURNAROUND INFORMATION

FAX: ______ DAYS *
HARD COPY: ______ DAYS *
EDD: ______ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other ______
☐ EDD FORMAT ______

ANALYSIS: 1 ORP/pH; 2; 3; 4; 5; 6; 7; 8; 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	03TP42-0506-01	Soil		✓	12/21/11	1400	1	1									
2.	03TP35-0304-01	Soil		✓	12/21/11	1430	1	1									
3.	03SB31-0506-01	Soil		✓	12/21/11	1500	1	1									
4.	03SB29-022.5-01	Soil		✓	12/21/11	1515	1	1									
5.	03SB32-0405-01	Soil		✓	12/21/11	1530	1	1									
6.	03SB33-0304-01	Soil		✓	12/21/11	1550	1	1									
7.	03SB34-0405-01	Soil		✓	12/21/11	1615	1	1									
8.	03SB27-1.52.5-01	Soil		✓	12/21/11	1645	1	1									
9.	03SB-DUP-01	Soil		✓	12/21/11	1200	1	1									
10.	03SB-DUP-02	Soil		✓	12/21/11	1300	1	1									

← Specify Preservatives
A-HCl B-HNO_3
C-H_2SO_4 D-NaOH
E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/22/11 1930	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME:	RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp. ______
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?: ______

Page 4 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021232

CLIENT INFORMATION
REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Brady Frohnwirth
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 112G WG05 LOCATION: Site 3/12
PROJECT MANAGER: Brady Frohnwirth
e-mail: Brady.Frohnwirth@tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 TCL VOC 5 gram Encore
2 TCL SVOC / PAH Sim
3 PEST / PCB
4 Metals Ca, Hg, +214
5 OI2R
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	125B21-0.5-02-02	Soil		✓	12/22/11	1505	7	3	1	1	1	1					
2.	125B21-0304-03	Soil		✓	12/22/11	1520	7	3	1	1	1	1					
3.	125B20-0304-03	Soil		✓	12/22/11	1550	6	3	1	1	1						
4.	12SB-DUP-06	Soil		✓	12/22/11	1200	6	3	1	1	1						
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	12/22/11 1830	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp.
Ice in Cooler?:

Page 2 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

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www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021233

CLIENT INFORMATION
REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fickbowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Fickbowitz
e-mail: andy.fickbowitz@tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 5 Alum Hydroxide
2 TCL SVOC / PAH SIM
3 PEST / PCB
4 Metals, Cn, Hg
5 ORP
6 pH
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB07-000.5-01	Soil		✓	12/28/11	0930	6	3	1	1	1						
2.	12SB07-0.5-02-02	Soil		✓	12/28/11	0950	6	3	1	1	1						
3.	12SB07-0304-03	Soil		✓	12/28/11	1010	6	3	1	1	1						
4.	12SB08-000.5-01	Soil		✓	12/28/11	1035	6	3	1	1	1						
5.	12SB08-0.5-02-02	Soil		✓	12/28/11	1050	6	3	1	1	1						
6.	12SB08-0304-03	Soil		✓	12/28/11	1110	6	3	1	1	1						
7.	12SB12-000.5-01	Soil		✓	12/28/11	1140	16	9	2	2	2	1					DO MS/MSD
8.	12SB12-0.5-02-02	Soil		✓	12/28/11	1215	7	3	1	1	1	1					
9.	12SB12-0304-03	Soil		✓	12/28/11	1235	7	3	1	1	1	1					
10.	12SB00-000.5-01	Soil		✓	12/28/11	1340	7	3	1	1	1	1					

PRESERVATIVES: ← Specify Preservatives
A – HCl B – HNO_3 C – H_2SO_4 D – NaOH E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	12/28/11 2100	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021234

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fabowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION
PROJECT NAME: NASJRB Willow Grove
PROJECT NO.: 112WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Fabowitz
e-mail: andy.fabowitz@tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS
1 TCL VOC 5 grab EnCore
2 TCL SVOC / PAH SIM
3 PCBs / PCB
4 Metals, Ca, Hg, Fe
5 ODP
6 TCL VOC w/ MeOH Vial (4)
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB06-0.5-02-02	Soil		✓	12/28/11	1405	7	3	1	1	1	1					
2.	12SB06-0304-03	Soil		✓	12/28/11	1420	7	3	1	1	1	1					
3.	12SB17-0005-01	Soil		✓	12/28/11	1520	6	3	1	1	1						
4.	12SB17-0.5-02-02	Soil		✓	12/28/11	1540	6	3	1	1	1						
5.	12SB17-0304-03	Soil		✓	12/28/11	1555	6	3	1	1	1						
6.	12SB27-0005-01	Soil		✓	12/28/11	1620	6	3	1	1	1						
7.	12SB27-0.5-02-02	Soil		✓	12/28/11	1635	6	3	1	1	1						
8.	12SB-DUP-08	Soil		✓	12/28/11	1200	6	3	1	1	1	+ CM 12/28/11					
9.	TB-01-122811	AQ		✓	12/28/11	0700	2						2				
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	12/28/11 2100	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME:	RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Cooler Temp.
Ice in Cooler?:

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH

CHAIN OF CUSTODY RECORD

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www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021237

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: 0TG WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: ______ DAYS *
HARD COPY: ______ DAYS *
EDD: ______ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

- ☐ RESULTS ONLY
- ☐ RESULTS + QC
- ☐ New Jersey REDUCED
- ☐ New Jersey CLP
- ☐ EDD FORMAT ______
- ☐ USEPA CLP
- ☐ New York State ASP "B"
- ☐ New York State ASP "A"
- ☐ Other ______

ANALYSIS

1. TCL VOC 40ml VOA vial
2. TCL VOC 5g/EnCore
3. TCL SVOC/PAH SIM 8oz Glass
4. Pest/PCB 8oz Glass
5. Metals Ca, Mg + pH 4oz Glass
6. PAH SIM 8oz Glass
7. Lead only 4oz Glass
8.
9.

PRESERVATIVES / **COMMENTS**

← Specify Preservatives: A – HCl, B – HNO_3, C – H_2SO_4, D – NaOH, E – ICE, F – Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	TB-01-122911	Aq		✓	12/29/11	0700	2	2									
2.	12SB28-000.5-01	Soil		✓	12/29/11	0930	6	3 ← 12/29/11	3	1	1	1					
3.	12SB54-0.502-02	Soil		✓	12/29/11	1030	1						1				
4.	12SB56-0.502-02	Soil		✓	12/29/11	1035	1						1				
5.	12SB55-0.502-02	Soil		✓	12/29/11	1045	1						1				
6.	12SB49-0.502-02	Soil		✓	12/29/11	1120	4						2	2			Do MS/MSD
7.	12SB51-0.502-02	Soil		✓	12/29/11	1130	2						1	1			
8.	12SB52-0.502-02	Soil		✓	12/29/11	1145	2						1	1			
9.	12SB53-0.502-02	Soil		✓	12/29/11	1205	2						1	1			
10.	12SB50-0.502-02	Soil		✓	12/29/11	1255	2						1	1			

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12/29/11 2000	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME:	RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp. ______
MeOH extraction requires an additional 4 oz jar for percent solid. Ice in Cooler?: ______
Comments:

Page 1 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

DESCRIPTION

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fichowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO. CTOWE05 LOCATION: Site 12
PROJECT MANAGER: Andy Fichowitz
e-mail: andy.fichowitz@tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILL

BILL TO:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH SIM SOZ/WSS
2 Pest SOZ/WSS
3 4 cadmium SOZ/WSS
4
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB57-000.5-01	Soil		✓	12/29/11	1330	2	1	1								
2.	12SB58-000.5-01	Soil		✓	12/29/11	1335	2	1	1								
3.	12SB59-000.5-01	Soil		✓	12/29/11	1345	2	1	1								
4.	12SB49-0.502-02	Soil		✓	12/29/11	1400	1	1									
5.	12SB47-0.502-02	Soil		✓	12/29/11	1450	1			1							
6.	12SB45-0.502-02	Soil		✓	12/29/11	1505	1			1							
7.	12SB46-0.502-02	Soil		✓	12/29/11	1520	1			1							
8.	12SB-DUP01-122911	Soil		✓	12/29/11	1200	2	1	1								
9.	12SB-DUP02-122911	Soil		✓	12/29/11	1300	1	1									
10.	12SB-DUP03-122911	Soil		✓	12/29/11	1400	1			1							

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/29/11 2000	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
Cooler Temp. _____
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?: _____

Page 2 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021238

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Fickbowitz
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO. 112G02605 LOCATION: Site 12
PROJECT MANAGER: Andy Fickbowitz
e-mail: andy.fickbowitz at tetratech.com
PHONE: 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 TCL VOC 40 MIVOA
2 TCL SVOC / PAH SIM
3 PEST / PCB
4 Metals + Hg
5 Cyanide
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	RB-01-122911	Aq		V	12/29/11	1755		2	2	2	1	1					
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/29/11 2000	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 3 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021239

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Eichenwitz
PHONE: 610 293 1170 FAX: 610 491 9645

CLIENT PROJECT INFORMATION

PROJECT NAME: NAS JRB Willow Grove
PROJECT NO.: CTO WE05 LOCATION: Site 5
PROJECT MANAGER: Andy Eichenwitz
e-mail: andy.eichenwitz@tetratech.com
PHONE: 610 293 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH SIM 8oz Glass
2 Lead Only 4oz Glass
3
4
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB31-0.5-02-02	Soil		✓	11/4/12	0935		1									
2.	12SB32-0.5-02-02	Soil		✓	11/4/12	0955		1									
3.	12SB33-0.5-02-02	Soil		✓	11/4/12	1010		1									
4.	12SB34-0.5-02-02	Soil		✓	11/4/12	1020		1									
5.	12SB35-0.0-0.5-01	Soil		✓	11/4/12	1100			1								
6.	12SB36-0.0-0.5-01	Soil		✓	11/4/12	1110			1								
7.	12SB37-0.0-0.5-01	Soil		✓	11/4/12	1115			1								
8.	12SB38-0.0-0.5-01	Soil		✓	11/4/12	1120			1								
9.	12SB39-0.0-0.5-01	Soil		✓	11/4/12	1140		1									
10.	12SB40-0.0-0.5-01	Soil		✓	11/4/12	1145		1									

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	11/4/12 1730	1.
RELINQUISHED BY 2.	DATE/TIME	RECEIVED BY 2.
RELINQUISHED BY 3.	DATE/TIME	RECEIVED FOR LAB BY 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO.
COC Number 021241

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech NUS
ADDRESS: 234 Mall Boulevard
CITY: King of Prussia STATE: PA ZIP: 19406
ATTENTION: Andy Frebowitz
PHONE: 610 382 1170 FAX: 6104919645

CLIENT PROJECT INFORMATION

PROJECT NAME: NASJRB Willow Grove
PROJECT NO: CTO WE05 LOCATION: Site 12
PROJECT MANAGER: Andy Frebowitz
e-mail: andy.frebowitz at tetratech.com
PHONE: 1 610 382 1170 FAX: 610 491 9645

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1 PAH Sim 4oz Glass
2 Lead Only 4oz Glass
3 PAH Sim Liter Glass
4 Lead Only 500ml poly HNO3
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	12SB41-000.5-01	Soil		✓	11/4/12	1150		2									Do MS/MSD
2.	12SB42-0.5-02	Soil		✓	11/4/12	1225		1									
3.	12SB43-0.5-02	Soil		✓	11/4/12	1250		1									
4.	12SB44-0.5-02	Soil		✓	11/4/12	1305		1									
5.	12SB-DUP01-010412	Soil		✓	11/4/12	1200		1									
6.	12SB-DUP02-010412	Soil		✓	11/4/12	1300			1								
7.	RB-02-010412	Ag		✓	11/4/12	1600				2	1						
8.																	
9.																	
10.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	11/4/12 1730	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: _____

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other _____

TestAmerica Laboratories, Inc.

Client Contact				
Company Name: Tetra Tech NUS	**Client Project Manager:** Andy Frebowitz	**Site Contact:**	**Lab Contact:**	**COC No:**
Address: 234 Mall Boulevard	**Telephone:** 610 382 1170	**Telephone:**	**Telephone:**	1 of 2 COCs
City/State/Zip: King of Prussia, PA 19406	**Email:** andy.frebowitz at Tetra Tech .com	**Analysis Turnaround Time** CALENDAR DAYS ☐ TAT if different from below _____ ☐ 3 weeks ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day	**Analyses**	**For lab use only** Walk-in client: ☐ Lab sampling: ☐ Job/SDG No:
Phone: 610 491 9688				
Project Name: NASJRB Willow Group	**Method of Shipment/Carrier:** Hand Delivered			
Project Number: CTO WE05	**Shipping/Tracking No:**			
PO #				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservative: H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite (C) / Grab (G)	Chromium	Chromium +6	Sample Specific Notes / Special Instructions:
12TP16-010015-01	12/19/11	0915				✓									N	G		1	
12TP16-0152.0-02	12/19/11	0935				✓									N	G		1	
12TP16-0608-03	12/19/11	1020				✓									N	G		1	
12TP02-0405-CS	12/19/11	1405				✓									N	G	1	1	
12TP03-0506-CS	12/19/11	1415				✓									N	G	1	1	
12TP14-0405-CS	12/19/11	1515				✓									N	G	1	1	
12TP15-0304-CS	12/19/11	1535				✓									N	G	1	1	
12TP09-0304-CS	12/19/11	1550				✓									N	G	1	1	
12TP10-0405-CS	12/19/11	1610				✓									N	G	1	1	
12TP08-0304-CS	12/19/11	1635				✓									N	G	1	1	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company: TT NUS	Date/Time: 12/20/11 0918	Received by:	Company: TA	Date/Time: 12/20/11 0918
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	**Received in Laboratory by:**	Company:	Date/Time:

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TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Donald Whalen	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.1
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610-382-1536	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 11
Company: Tetra Tech NUS Inc				Job #:

Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:
City: Pittsburgh	TAT Requested (days):
State, Zip: PA, 15220-2745	
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir
Email: tobrena.sedlmyer@tetratech.com	WO #:
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830
Site: Site 12	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
12SB22-000.5-01	12/14/11	1130	G	Solid		N	X				1	
12SB22-0.502-02		1140	G	Solid		N	X				1	
12SB22-0304-03		1150	G	Solid		N	X				1	
12SB18-000.5-01		1540	G	Solid		N	X				1	
12SB18-0.502-02		1550	G	Solid		N	X				1	
12SB18-0304-03	↓	1600	G	Solid		N	X				1	
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Donald Whalen	Date/Time: 12/15/11	Company	Received by:	Date/Time: 12/15/11 9:30	Company TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Donald Whalen	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.10
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610-382-1536	E-Mail: veronica.bortot@testamericainc.com		Page: Page 10 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - Di Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
125B09-0005-01	12/15/11	1140	G	Solid			X					
125B09-0502-02	"	1150	G	Solid			X					
125B09-0304	"	1200	G	Solid			X					
125B-DUP-03	"	1230	G	Solid			X					
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								
				Water								

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Donald Whalen	12/16/11 0920		[signature]	12/16/11 920	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Donald Whalen	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.5
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 382 1536	E-Mail: veronica.bortot@testamericainc.com		Page: Page 5 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:	Analysis Requested		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			Other:
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		N	N	D	N			
12SB13-0005-01	12/16/11	0900	G	Solid	N	Y				1	
12SB13-0.502-02		0910	G	Solid	N	X				1	
12SB13-0304-03		0920	G	Solid	N	X				1	
12SB26-0005-01		1225	G	Solid	N	X				1	
12SB26-0.502-02		1235	G	Solid	N	X				1	
12SB26-0304-03		1245	G	Solid	Y	X				2	Dc ms/msd
12SB-DUP-05		1300	G	Solid	N	X				1	
				Solid							
				Solid							
				Solid							
				Solid							

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 12/17 0940	Company: TA	Received by:	Date/Time: 12/17 0940	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.11
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 11 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-6
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)									Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	M										
12TP16-0910-4	12/19/11	1210	G	Solid	N	N	1													
12TP-DUP-01	12/19/11	1200	G	Soil	N	N	1													
12TP-DUP-02	12/19/11	1200	G	Soil	N	N	1	1												

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Charles Meyer	12/20/11	FTNUS			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.11
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 11 of 11
Company: Tetra Tech NUS inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
12TP16-0910-4	12/19/11	1210	G	Solid	N	N	1					
12TP-DUP-01	12/19/11	1200	G	Soil	N	N	1					
12TP-DUP-02	12/19/11	1200	G	Soil	N	N	1	1				

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Charles Meyer	12/20/11 0918	TTNUS		12/21/11 0918	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.2
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 2 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12/3	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
12TP17-0005-01	12/20/11	0950	G	Solid	N	Y	2					DO MS/MSD
12TP17-0520-02	12/20/11	1020	G	Solid	N	N	1					
~~12TP17-0506-03~~	~~12/20/11~~	~~1125~~	~~G~~	~~Solid~~	~~N~~	~~N~~	~~1~~		~~CM~~	~~12/20/11~~		
12TP18-0506-01	12/20/11	1250	G	Solid	N	N	1					
12TP18-0607-02	12/20/11	1430	G	Solid	N	N	1					
12TP12-0203-CS	12/20/11	1600	G	Solid	N	N	1	1				
				Solid								
				Solid								
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	12/21/11 0905		Received by:	12/21/11 0905	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.7
Client Contact: Ms. Tobrena Sedlmyer	Phone: 1610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 7 of 11
Company: Tetra Tech NUS inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	8020 - Chromium	8020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
03TP35-0304-01	12/21/11	1430	G	Solid	N	N	1	1				
035B31-0506-01	12/21/11	1500	G	Solid	N	N	1	1				
035B29-0.5-2.5-01	12/21/11	1515	G	Solid	N	N	1	1				
035B32-0405-01	12/21/11	1530	G	Solid	N	Y	2	2				DO MS/MSD
035B33-0304-01	12/21/11	1550	G	Solid	N	N	1	1				
035B34-0405-01	12/21/11	1615	G	Solid	N	N	1	1				
035B27-1.5-2.5-01	12/21/11	1645	G	Solid	N	N	1	1				
035B-DUP-01	12/21/11	1200	G	Solid	N	N	1	1				
035B-DUP-02	12/21/11	1300	G	Solid	N	N	1	1				
				Solid								
				Solid								

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/22/11 10			12/22/11 10:10	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.3
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2425	E-Mail: veronica.bortot@testamericainc.com		Page: Page 3 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
03TP40-0304-01	12/21/11	0955	G	Solid	N	N	1	1				
03TP41-0304-01	12/21/11	0920	G	Solid	N	N	1	1				
03SB30-0304-01	12/21/11	0950	G	Solid	N	N	1	1				
03TP34-0405-01	12/21/11	1015	G	Solid	N	N	1	1				
03TP31-0705-01	12/21/11	1125	G	Solid	N	N	1	1				
03TP32-0809-01	12/21/11	1135	G	Solid	N	N	1	1				
03TP33-0607-01	12/21/11	1155	G	Solid	N	N	1	1				
03TP37-0304-01	12/21/11	1225	G	Solid	N	N	1	1				
03TP38-0304-01	12/21/11	1240	G	Solid	N	N	1	1				
03TP39-0607-01	12/21/11	1325	G	Solid	N	N	1	1				
03TP42-0506-01	12/21/11	1400	G	Solid	N	N	1	1				

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Charles Meyer	12/22/11 10:10			12/22/11 10:10	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica King of Prussia
1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.9
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2952	E-Mail: veronica.bortot@testamericainc.com		Page: Page 9 of 11
Company: Tetra Tech NUS Inc				Job #:
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	N		
03TP36-0708-01	12/22/11	0900	G	Solid	N	N	1	1				
03SB28-1.5-2.5-01	12/22/11	0925	G	Solid	N	Y	1	1				Do MS/MSD
12SB30-0001.5-01	12/22/11	1110	G	Solid	N	N	1					
12SB30-0.5-02	12/22/11	1130	G	Solid	N	N	1					
12SB30-0304-03	12/22/11	1150	G	Solid	N	N	1					
12SB21-0001.5-01	12/22/11	1450	G	Solid	N	N	1					
12SB21-0.5-02	12/22/11	1505	G	Solid	N	N	1					
12SB21-0304-03	12/22/11	1520	G	Solid	N	N	1					
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12/23/11 0925		[signature]	12/23/11 9:25	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

1008 W Ninth Ave
King of Prussia, PA 19406
Phone (610) 337-9992 Fax (610) 337-9939

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Charles Meyer	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-2853-839.8
Client Contact: Ms. Tobrena Sedlmyer	Phone: 610 909 2925	E-Mail: veronica.bortot@testamericainc.com		Page: Page 8 of 11
Company: Tetra Tech NUS Inc				Job #
Address: Foster Plaza VII 661 Anderson Drive	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15220-2745				
Phone: 906-822-7889(Tel) 906-822-7977(Fax)	PO #: Purchase Order not requir			
Email: tobrena.sedlmyer@tetratech.com	WO #:			
Project Name: Willow Grove - NAS JRB CTO WE05	Project #: 18008830			
Site: Site 12	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=soil/sl, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6800 - Cr (VI)	6020 - Chromium	6020 - Chromium	7196A - Cr (VI)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	N	D	N	X	
12SB12-000.5-01	12/28/11	1140	G	Solid	N	Y	2					Do MS/MSD
12SB12-0.502-02	12/28/11	1215	G	Solid	N	N	1					
12SB12-0304-03	12/28/11	1235	G	Solid	N	N	1					
12SB06-000.5-01	12/28/11	1340	G	Solid	N	N	1					
12SB06-0.502-02	12/28/11	1405	G	Solid	N	N	1					
12SB06-0304-03	12/28/11	1420	G	Solid	N	N	1					
12SB-DUP-08	12/28/11	1200	G	Solid	N	N	1					
				Solid								
				Solid								
				Solid								
				Solid								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		12/29/11 0815	TT		12/29/11 0815	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: